

# The Bulletin

**Mark your Calendar:**

**October 29-31**  
 ASCE 139th Annual Civil Engineering Conference  
 Kansas City, MO

**January 25, 2010**  
 NC Future Cities Competition, NCSU McKimmon Center, Raleigh

**April 30, 2010**  
 NC Section Spring Technical Session, UNCC Cone Center, Charlotte

**Sept. 30– Oct. 1, 2010**  
 NC Section Annual Meeting and Scholarship Fund-Raising Golf Tournament  
 Renaissance Hotel Asheville

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**PRESIDENT'S ADDRESS**

Yolande Stover, PE

**A New Year, Many New Challenges**

I would like to thank the members of the North Carolina Section of ASCE for the opportunity to serve as your president for the next year. I am looking forward to reaching new goals, tackling new challenges, and learning or discovering new strategies as we carry out the work of the Section. Our Section will continue to offer many activities that represent our mission areas of sustained career development, leadership growth, and advocacy. I especially look forward to the knowledge and experience of our Life Members and the innovation and enthusiasm of our younger members as our Section strives to fulfill the goals of our mission areas.



In the area of career development, each Branch does an excellent job of providing opportunities to earn Professional Development Hours (PDHs). In addition, the Section provides PDH opportunities during the Spring Technical Sessions and the Annual Meeting. A strategy the Northern Branch has used is to host a “mini-nar,” a half day of technical presentation, providing its Branch members additional PDH opportunities. This activity also serves as its fundraiser for the scholarship it sponsors for the ASCE Student Chapter at North Carolina A&T State University. Many of our members are speakers at the various presentations that are offered. Public speaking is definitely a skill that will go a long way in one’s career development.

The Branches are always looking for volunteers to chair various committees: scholarship, service projects, Younger Member Group, outreach.

Opportunities for leadership growth abound within the Section. Most of us think that in order to have a position of leadership, one must be a Branch or Section Board officer. This is certainly not the case. The Branches are always looking for volunteers to chair various committees: scholarship, service projects, Younger Member Group, outreach.....(Continued on Page 4)

## Branch News

The **Eastern Branch** will hold a lunch meeting on October 8<sup>th</sup> at the NC State University Club in Raleigh. The speaker will be Philip King with SynchroPile, Inc. The title of his presentation is, "Enhancing the Performance of Deep Foundations Using SynchroPile (Post Grouted) Drilled Shaft Technology." Mr. King will discuss design and construction procedures associated with this innovative technology.

If you are interested in volunteering time to work for the promotion of your profession in civil engineering, please contact one of the Eastern Branch board members. Our contact information is on page 3 of this issue of The Bulletin and on our website.

The **Southern Branch** October meeting will be held Tuesday, October 27<sup>th</sup>. Mr. Jeff Dayton, P.E., will be the speaker, providing an overview of the NC Turnpike Authority projects that are planned for the Charlotte area. The presentation will focus on the Garden Parkway (Gaston County) and the Monroe Connector/Bypass.

The Southern Branch is working with the Engineering Technology students at Gaston Community College to formalize a student branch of ASCE from what is now their Civil Club. GCC Student Dean Llewelyn will be leading the effort with support from the Southern Branch Board.

## SAVE THE DATES!

**April 30, 2010...**NC Section Spring Technical Session, UNCC Cone Center in Charlotte

**Sept. 30-Oct 1, 2010...**NC Section Annual Meeting at the Renaissance Hotel in Asheville. Technical Sessions, Field Trips, Fund-raiser Golf Tournament, and time to catch up with old friends and meet new ones.

**Canstruction...**Each year engineers and architects compete in Canstruction Contests all across the country, building various shapes out of canned food. The food is then donated to local shelters and food banks. The Duke University Student Chapter of ASCE has been competing locally for the past several years. The Bulletin has obtained some photos from the NYCity Canstruction competition, and will be publishing some of them in the coming issues as room permits



# The Bulletin

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## Problem Corner

The answer to last issue's problem: "If you had to choose one firm other than your own, who would it be?" Alex Rutledge, EI; Woody Kloesel, PE; and Todd Sessions, PE all got the right answer.

**This month's question:** There are eleven pennies on a table. How can I remove five coins from the eleven, add four pennies and leave nine.

Please send your answer to [krines@mbpce.com](mailto:krines@mbpce.com) or mail to Keith Rines, MBP, 3101 Poplarwood Ct, Suite 301, Raleigh, NC 27604.



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**President's Message (Continued from Page 1)**

The Section also offers opportunities for serving *on behalf of* the Section, including participation in the Regional Meeting to be held in Asheville in 2010 or volunteering to be a delegate to the Region 4 Governors and Assembly meetings. Another area in which one may assert his/her leadership potential is by becoming familiar with and promoting ASCE's Policy Statement 465, which will affect those who desire to take the Professional Engineer's exam in the future

As members of ASCE, we always want to be advocates of our profession. Believe it or not, there are many out there who have no idea what a civil engineer is or does. Through participation in the Future Cities competition and E-week school visits, our outreach to those in kindergarten through middle school is pretty solid. With the Legislative Reception held in Raleigh and the Legislative Fly-in in Washington, DC, we as a Section are able to advocate for the profession with our legislators. However, we still have a lot of work to do in informing the public of the services our profession provides.

There are many opportunities that are available within the North Carolina Section of ASCE—some currently available, others to be initiated. For some people, it is just a matter of letting someone know of your interest. Others may need encouragement to volunteer. What makes ASCE great is the efforts our members contribute to the Society. One thing we all can do for the Section is to sign up for Section membership as a part of the annual membership registration/renewal process. This one thing will go a long way in helping to provide programs and activities that fulfill our mission areas of sustained career development, leadership growth, and advocacy. What happens next is up to you.

**Past-President's Note** Joe Moore, PE

I want to thank all of our members for the opportunity to serve this past year. I feel we accomplished a great deal and we're very well poised for the future. You have an excellent leader in Yolande. Without question, she is one of the hardest working people I know. In addition to her strong work ethic, she brings a unique perspective and will lead us into new areas of focus. I also would like to thank all of the members of the Board. You made my job fulfilling and I enjoyed your vision, hard work, and humor. Best of luck in the year ahead



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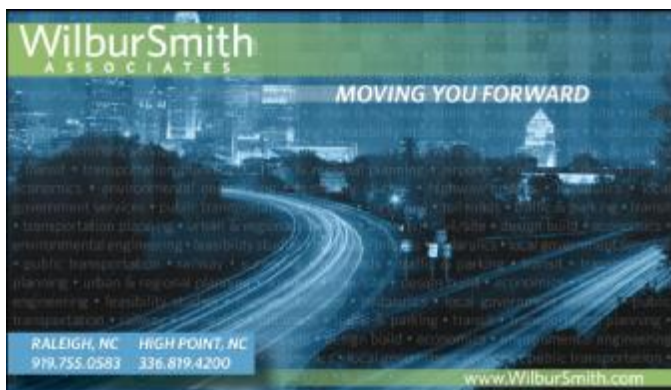


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**Campus Adventures** Trisha Lowe, ASCE Duke Student Chapter

Duke University’s student chapter of ASCE has had a busy year so far! We are very pleased to be hosting the annual Carolinas Conference this spring for the first time in eight years! In addition to preparing for traditional events such as concrete canoe and steel bridge, we’ve been planning the entire weekend event! The theme for Carolinas Conference 2010 is “We Built This City,” and we are looking forward to showing off our city to the rest of the region. We hope you will all attend, April 8-10, 2010. Email [DukeASCE@gmail.com](mailto:DukeASCE@gmail.com) for more information.

Duke ASCE has also been preparing for CANstruction, an annual event in which we build a themed structure out of food cans. The structure goes on display in January 2009 at the Marbles Kids Museum in Raleigh, North Carolina, and the food cans are later donated to the Food Bank of Central and Eastern North Carolina. This year’s theme is “Cartoon Heroes”, and we are hard at work designing our entry. We are the only all-student group to participate in this event.

In other news, this February we hope to send some of our members to the Workshop for Student Leaders Conference hosted by Nationals in Atlanta, Georgia.



Duke ASCE at the banquet of the 2009 Carolinas Conference hosted by UNCC.

**Editor’s Note:** Trisha Lowe, the current Duke Student Chapter President, was one of NC/ASCE’s scholarship winners this past year. She used her award to help defray the cost of a trip to Bolivia to help the people of a village in the Obrajés region begin construction of a 3-span, 30 meter bridge across a riverbed. A team of Duke students and professors travelled to Bolivia for 2-months to design the bridge, obtain the necessary permits, acquire the materials, and develop a team of local laborers and residents to construct the bridge. The only real construction equipment used on the project is shown in the background below right — a cement mixer. We have included a few pictures here and on Page 7.

**Bolivia Trip photos:** Below Left, “The Team” of Duke students and professors. Right, Ms. Lowe performing her daily duty of removing ice from the water barrel before cement mixing begins.....(Continued on Page 7)



**Deep Creek Watershed Dam 5D** Project Highlight by Thomas J. Fitzgerald, PE

The Deep Creek Watershed Dam 5D is a new flood control and future water supply dam currently under construction near Yadkinville, North Carolina. The earthfill embankment and roller compacted concrete (RCC) composite dam will be 74 feet high and roughly 1,500 feet long. It will contain approximately 55,000 cubic yards of RCC, 8,000 cubic yards of conventional concrete and almost 500,000 cubic yards of earthfill. The design and construction have been funded by the NRCS, Yadkin County, and the State of North Carolina Department of Environment and Natural Resources (NCDENR). Schnabel Engineering (Schnabel) of Greensboro, NC, completed the design in 2004, and once funding was available, the project was bid in October 2008

“Notice to Proceed” for the roughly \$17 million dollar construction project was issued to Haymes Brothers, Inc. (Haymes) of Chatham, Virginia on December 1, 2008. Haymes is performing the excavation and earthwork for the project with major sub-contractors including S&M Smith for clearing and grubbing, ASI Constructors for RCC and conventional concrete, and Layne Geoconstruction performing drilling and grouting services. S&ME was selected by Haymes to perform Quality Control (QC) testing. Schnabel has been retained by Yadkin County to perform contract administration, to perform Quality Assurance (QA) testing services, and

to maintain a full time Resident Project Representative (RPR) on site.

A roughly 2,500-foot-long diversion channel was initially constructed to convey Deep Creek around the proposed RCC footprint. The channel included a 40-foot bottom width and 2H:1V side slopes and was lined with geosynthetic fabric and riprap to convey approximately a 10-year storm during construction. The channel was built in approximately two months and excavation for the RCC foundation started in mid February 2009. A borrow area of 60 acres was identified to supply the 500,000 cubic yards of earthfill required for the zoned-earth embankment portion of the dam. The embankment will include a central clay core with upstream and downstream shells constructed of silty sand. Embankment geometry will consist of a 22-foot top width and 3H:1V upstream and downstream slopes. A chimney drain and foundation trench drain will be installed to collect any future seepage.

Grouting for the RCC bedrock foundation and earth embankment foundation began with a single line of angled primary grout holes at 20-foot intervals along the earth embankment centerline and four feet from the upstream face of the RCC structure. The angled grout holes were advanced approximately 70 feet, which corresponded to a vertical depth of 50 feet below the foundation grade. Holes were angled at 30 degrees from the vertical and at a horizontal orientation to encounter the predominant fractures identified. Secondary, tertiary, and occasional quaternary grout holes were added based on conditions encountered.

The RCC portion of the dam will be constructed on the right abutment where bedrock was relatively shallow. RCC is a no slump concrete that is manufactured with an on-site batch plant, placed in 12-inch-thick lifts and compacted using standard earth moving equipment. Some of the benefits of RCC over conventional concrete .....

**(Continued on Page 7)**



Deep Creek Watershed Dam  
Yadkinville, NC  
8-24-09

**Bolivia Trip (Continued from Page 5)...**Clockwise from Top Left: The first pour of one of the interior bents; The excavation has been backfilled; Ms. Lowe and (perhaps future Duke student and engineer) Daniella; The "Local Team" (The bundle on the back of the woman in the foreground contains her child.)



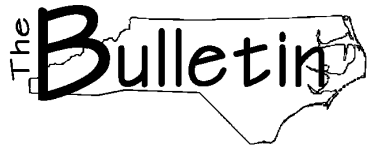
### **Deep Creek (Continued from Page 6)**

include lower costs, less heat generated, and faster installation. The target compressive strength of the RCC is 2,000 psi at 90 days.

**The RCC geometry will consist of a vertical upstream face and a stepped downstream face using three-foot-high steps with an overall slope of 0.8H:1V. The dam will be the first structure in the United States to use Grout Enriched RCC (GERCC) as the sole upstream face barrier.** Approximately 1,850 CY of the estimated 55,000 CY of RCC were placed in May of 2009. RCC placement was halted in early June due to temperature constraints. It is anticipated that RCC operations will resume in late September/early October 2009.

The proposed primary spillway will consist of a standard Natural Resources Conservation Service (NRCS) Dx3D riser with a low stage inlet to control the normal pool elevation. A 300-foot-wide ogee crest auxiliary spillway will also be provided, which will begin flow at approximately the 100-year storm. A roller bucket and stilling basin will be constructed at the base of the RCC spillway to provide energy dissipation.

The current schedule allows for project completion in October of 2010.



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## Section / Branch Calendar

Year	2009			2010								
Month	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Section BOD												29
Coastal												
Eastern	8	19		21	18	18	15	20		15		16
Northern												
Southern	27											
Western												
Bulletin Deadline		20		22		19		21		23		17