# LOUISIANA CIVIL ENGINEER

Journal of the Louisiana Section http://www.lasce.org

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## Dying Infrastructure Poses Public Safety Concerns: Deteriorating Culverts

**FEATURE:**

Experimental Evaluation of Laboratory Controlled Deteriorated Metal Culverts in Different Bedding Condition

**NEWS:**

Instrumentation to Study Pile Setup Phenomenon

Mark Your Calendar: Louisiana Section Awards Banquet and Installation of Officers. September 23, Shreveport, LA

AUGUST 2016
VOLUME 24 • NO 4

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AMERICAN SOCIETY OF CIVIL ENGINEERS

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# President's Message

***By Christopher Humphreys, PE***

***Christopher Humphreys, PE***

I would like to take some space in this my last President's Message to tell you about the experience I had June 9 through 11 in Tyler Texas as judge of the National Concrete Canoe Competition. I have to admit I was a little concerned that I had gotten myself into something I was going to regret. What a major commitment on top of all my work, home and other ASCE responsibilities. With the travel to and from Tyler the competition alone was four straight days. Then a large Fed Ex package arrived with 21 design papers to review and score. In the judge's handbook judging the design papers is described as arduous. Arduous, as in hard, difficult, onerous, taxing, laborious and even back breaking in some definitions. What had I gotten myself into? At that point I was pretty sure I had made a big mistake. I could not have been more wrong. It was a lot of work but it didn't take long to realize the passion and effort the students put into this project. Some of the schools spent as many as 5000 hours over two semesters and the final products were amazing. Concrete unit weights were on the order of 50 to 60 pcf. Canoe wall thickness as little as 3/8 inch was common even with Pre-stress or post tension reinforcing which was utilized on several of the canoes. Using pigments in the concrete, as all paint was banned this year, the students created designs or even murals on the outside of their canoes which were sanded in some cases with up to 6000 grit sand paper until the finish looked more like porcelain or fiber glass than concrete. I had judged a regional concrete canoe competition many years ago but I was blown away by the passion of the students for this work and the level of quality they achieved on the design papers, final product and presentations. With that kind of effort by them I was happy to put in commensurate effort in judging. Then realizing the credentials and level of expertise of my fellow judges and the ASCE Committee on National Concrete Canoe Competition I realized what an honor it was to be a judge. Although it was a lot of work, working alongside some brilliant and dedicated engineers on a project that is clearly beneficial and means so much to the students was quite an honor and actually a wonderful experience. If you get an opportunity to participate in any capacity with the students on this competition I highly recommend you accept. Actually any opportunity to work with students who are truly engaged and passionate about their work I highly recommend. It's a great way to give back and will likely be as rewarding for you as it will be beneficial to the fugitive engineers you will influence.

In section news I am happy to report that our committee to develop the 2017 Report Card for Louisiana's Infrastructure is in place and on track to publish our second report card. The first was published five years ago in 2012. On that committee, over 50 engineers evaluated nine major infrastructure components in Louisiana. We expect the 2017 Report Card to also engage about 50 engineers or more and encourage your participation. We have chair persons and technical committee members for each infrastructure component technical committee but more committee members are always welcome.

The regular session of the 2016 state legislature ended recently with a few bills important to our profession being addressed in some capacity. Of particular interest was Senate Bill 59 which sought to require the LAPELS Board to allow an exception for the requirement to be licensed as an engineer in Louisiana you must pass the Fundamentals of Engineering (FE) Exam. Shortly before this bill was introduced in committee our Government Relations Committee and board members met with our lobbyist, Haynie and Associates and explained our duty as civil engineers to protect the safety health and welfare of the public and our strong desire to defeat this bill. With their support and the work of many dedicated engineers in the state the bill was deferred in committee. I believe this bill stood a good chance of passage had we not been aided in the fight against it with our lobbyist helping to get our message heard. The board is currently considering supporting LES in renewing the Haynie's contract for next year. The board believes that financially assisting the LES to retain a lobbyist was a good decision this year. We would appreciate any input from the membership as we consider pledging future financial support for this purpose.

As I mentioned earlier this is my last President's Message. It has been an honor to serve as your Section President for the 2015 -2016 period. I am grateful for the opportunity. In two months we will meet in Shreveport to install the 2016 – 2017 Section Board and I will begin my last year on the Section Board as Past President. It's hard to believe but that will be my 14th year as a Branch or Section Officer or Director. At times it was pretty busy and a challenge to fit in with all the other demands of life but it's always been with some dedicated engineers to share the load. That's been the biggest benefit as otherwise I would not have been able to meet so many talented civil engineers from across the state who are now friends and colleagues. It's been my pleasure to serve and a truly rewarding experience.

# Experimental Evaluation of Laboratory Controlled Deteriorated Metal Culverts in Different Bedding Condition

*By Shaurav Alam, Research Assistant Professor, Department of CE and CET, TTC, Louisiana Tech University*

*Shaurav Alam*

**ABSTRACT**

Metal culverts in North America are in various states of deterioration resulting in reduced structural and/or hydraulic capacities. Failure of a culvert could result in road subsidence or even collapse, leading to serious consequences for vehicular traffic and public safety, which may cause a city ending with significant financial loss. The goal of this research was to establish distress and failure mechanisms for laboratory produced deteriorated and rehabilitated 24 in. corrugated metal culverts. Series of tests were performed by mechanically removing 25 percent of the metal within a pre-determined arc along the haunch of the culvert. Culvert specimens were carefully bedded, backfilled, and compacted in soil within a test chamber, and then loaded using a pneumatic loading system, which simulated deep burial conditions. Deformation and strains were measured at multiple locations around the circumference of the culvert's structure during application of load, while earth pressure cells recorded stresses in the embedded zone. Deformed culvert was rehabilitated and similar over burden load was re-applied. This article describes the test setup and result for deteriorated corrugated metal culvert buried in two different bedding materials. Results revealed degree of compaction and type of the bedding materials plays a critical role in distribution of stress and deformation resulting from the applied overburden load on the deteriorated culvert.

*Keywords:* Metal culvert, Deteriorated, Rehabilitated, Deflection, Degree of Compaction

**INTRODUCTION**

Study shows thousands of culverts in North America are in various states of deterioration. Aging culverts underlying the road networks, (i.e.; interstate system, state highways, and local roads) have diminishing structural and/or hydraulic capacities and pose an increasing risk to pavement stability, adjacent properties, and public safety.

*Deteriorated culvert*

The research aimed at performing controlled laboratory tests on the deteriorated culvert before and after rehabilitation. This article presents the experimental setup and effect of applied service load on the deteriorated culvert embedded in silty-sand soil and SB2 type bedding material. An array of soil tests performed on the silty-sand in relation to this work is also reported here. The work was performed using the soil chamber testing apparatus (SCTA) in the Trenchless Technology Center (TTC) at Louisiana Tech University. Sensors to monitor change in soil pressure and any deformation on the culvert can be positioned inside the soil box and real time data can be collected.

**SOIL CHAMBER TESTING APPARATUS (SCTA)**

The smaller SCTA available at the TTC was deployed for this research work. The chamber is 12 ft long, 6 ft wide, and 5 ft deep with an option to simulate up to 25 ft of deep burial condition. Two 28 in. diameter circular holes are located on the shorter opposite sides of the chamber through which the pipe or culvert can be positioned inside the soil chamber.

*TTC's Small SCTA with Lid bolted on Top*

All the peripheral walls and the bottom of the soil box are covered with three layers of polyethylene sheets. Oil based lubrication is applied in between the layers to minimize any possible shear and frictional effect generated between the soil and the chamber's inner surfaces.

A rubber bladder is placed on the soil box filled with soil and ½" x ½" rubber strip is glued on the perimeter of the middle lip before the top cover is placed and bolted to the soil box using twenty-two ½" 13 TPI bolts.

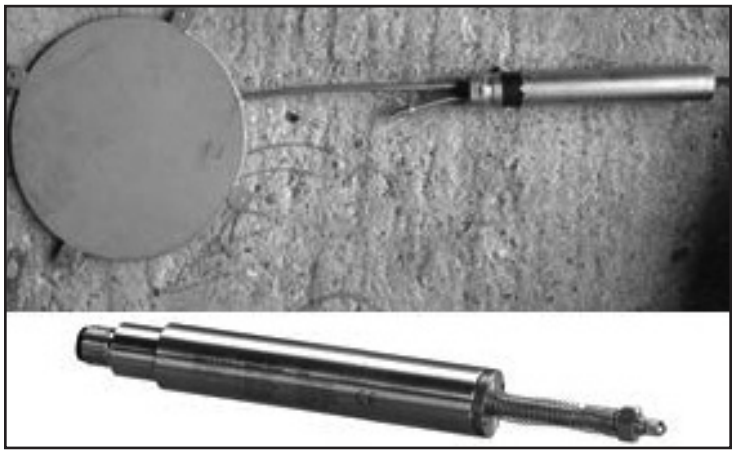
Air pressure is applied simulating the over burden pressure (OBP) on the bladder that compressed the soil inside the SCTA and thus, simulates the deep burial condition.

*TTC's Small SCTA with 3 layers Polyethylene Coats on 2 sides*

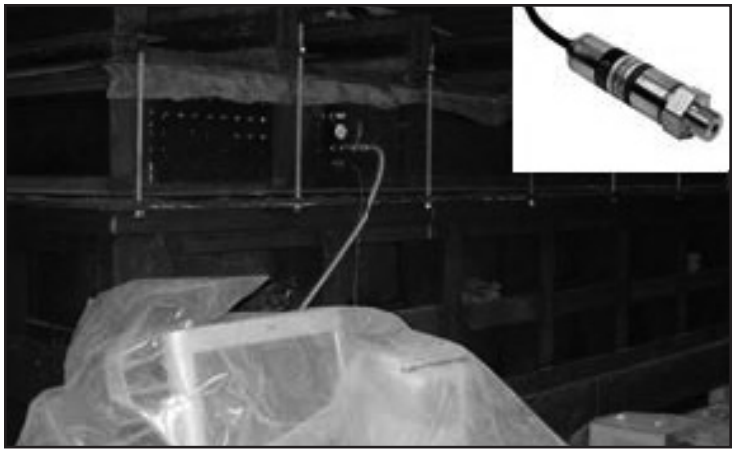
*TTC's Small SCTA – positioning of the seal and bladder*

**SENSORS INSIDE AND OUTSIDE THE SCTA**

Sensors like linear voltage displacement transducer (LVDT) and earth pressure cell (EPC) can be positioned inside the chamber. The LVDTs are positioned inside the circular pipe / culvert; and deformation and rigid body displacement can be measured. EPCs are placed at the vicinity of the pipe/ culvert and any change in earth pressure is recorded due to applied over burden pressure or movement of the pipe/culvert.



*Earth Pressure Cell (top) and LVDT (bottom)*



*PT Located on the SCTA and PT in Inset*

Moreover, strain gauges can also be attached to the pipe / culvert to evaluate any local elongation when subjected to any pull test. Finally, a pressure transducer (PT) for recording the applied over burden pressure is connected to the lid of the chamber.

**PREPARATION OF TEST SPECIMEN - CULVERT**

The structural capacity of a 14 gauges thick 24" diameter corrugated metal culvert was degraded by drilling holes at its invert. A pattern was followed which resulted in controlled removal of 25% metal in the mentioned region. The 25% loss was estimated based on visual study of deteriorated culvert and can be more when determined.

Later, when placed inside the SCTA, the outside invert of culvert was covered with geotextile to ensure no soil entering into the interior cavity of the culvert and as well, assist in developing uniform radial pressure at the invert zone when OBP was applied.

**BEDDING MATERIAL CHARACTERIZATION**

Soil characterization tests were performed on silty-sand, a common bedding material in Louisiana. Tests included determination of absorption, bulk and apparent specific gravity values (ASTM C128), grain size distribution (ASTM C136), cohesion, friction angle (ASTM D3080) and optimum moisture content (ASTM D698) determination.

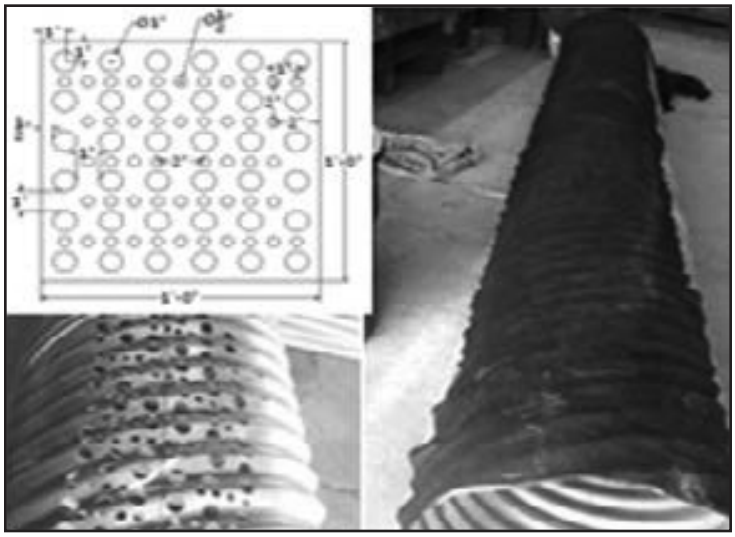
***Characterization of Bedding Materials-Silty Sand***

| PARAMETER | VALUE |
|---|---|
| OD Bulk Specific Gravity | 2.07 |
| SSD Bulk Specific Gravity | 2.27 |
| Absorption, % | 9.71 |
| Optimum Moisture Content, % | 12.5 |
| Cohesion, psi | 0.93 |
| Friction Angle, deg | 31.32 |

**TEST SETUP**

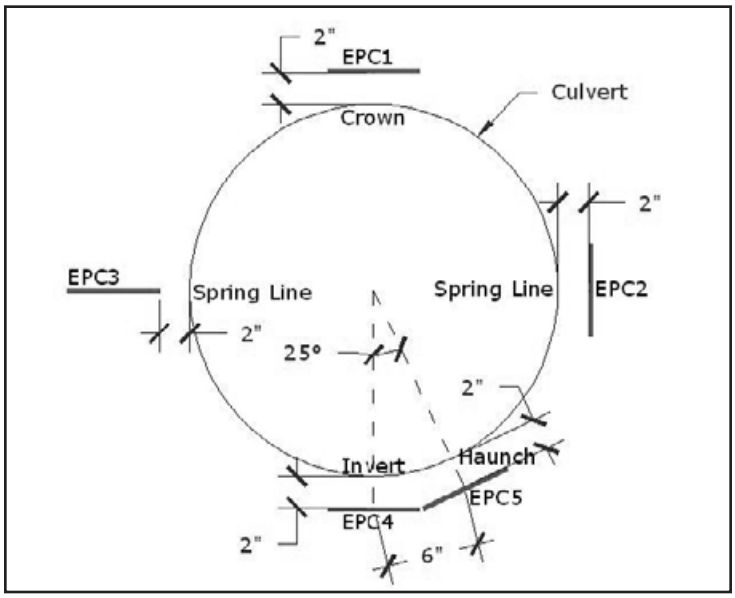
The SCTA was prepared as mentioned earlier. The chamber was filled with silty-sand in 6" lifts. Every lift was compacted using a plate compactor. The process was repeated until the soil level reached one inch below the intended elevation of the invert of the 24 in. diameter culvert. Next, the culvert was placed and the sensors were positioned as the filling procedure continued.

*Culvert Positioned inside the Soil box*

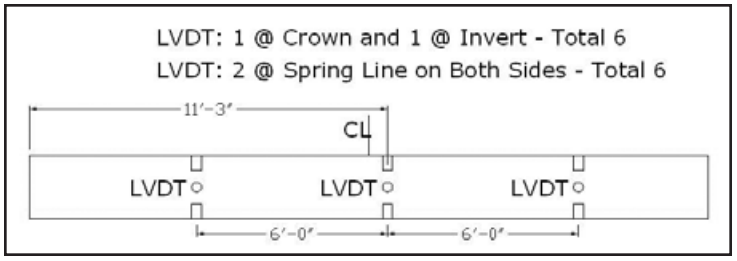


*Drilled culvert, Pattern, and Geotextile Covered Culvert*

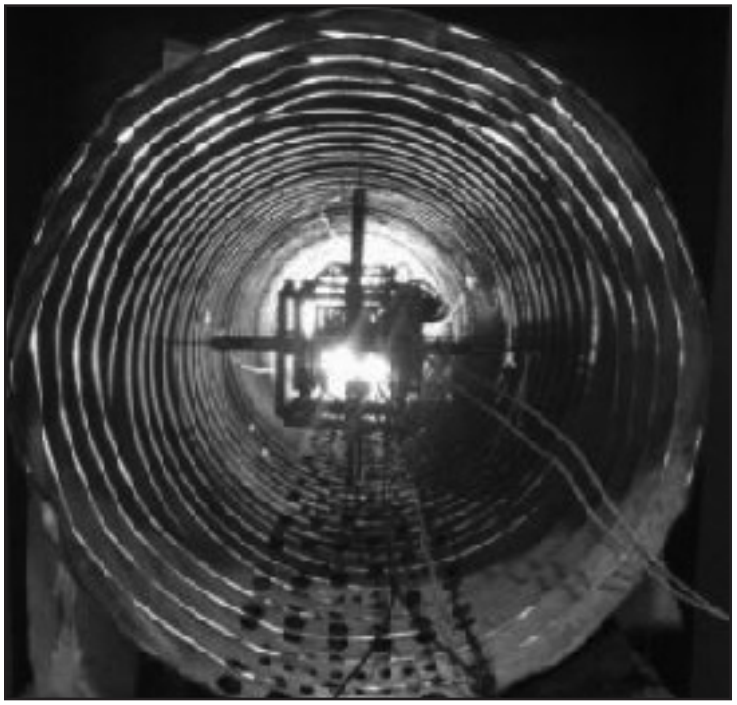
Five earth pressure cells (EPCs) were placed at the vicinity of the culvert structure. After the EPCs were placed, the soil chamber was filled with silty-sand, which was compacted as per to a level equal to 90% Modified Proctor. Finally, the lid was positioned and bolted. Prior to full scale testing low-level air pressure was applied and soap water was sprayed along the seal to check for any leakage.




*Location of Earth Pressure Cells*




*Location of Linear Voltage Displacement Transducers (LVDT)*



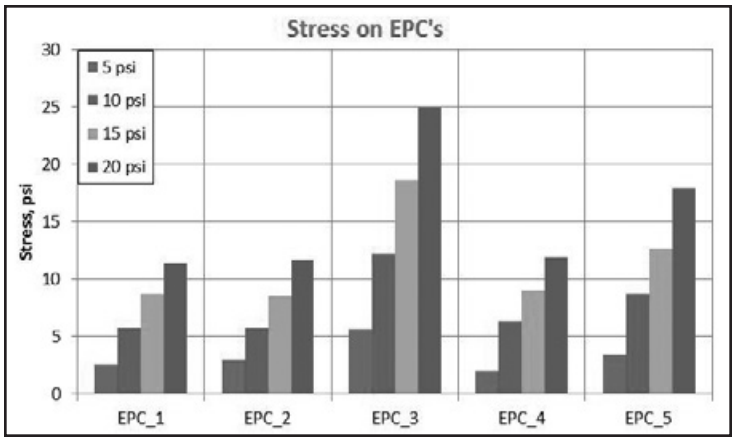
*LVDT positioned inside the specimen*

*Check for any Leakage*

**RESULTS**

The external OBP was applied at discrete increments of 5 psi up to 20 psi that simulates around 20ft deep burial condition. The following figure shows the stresses recorded by the EPCs. EPC1, located 4" above the crown, registered lower stress values

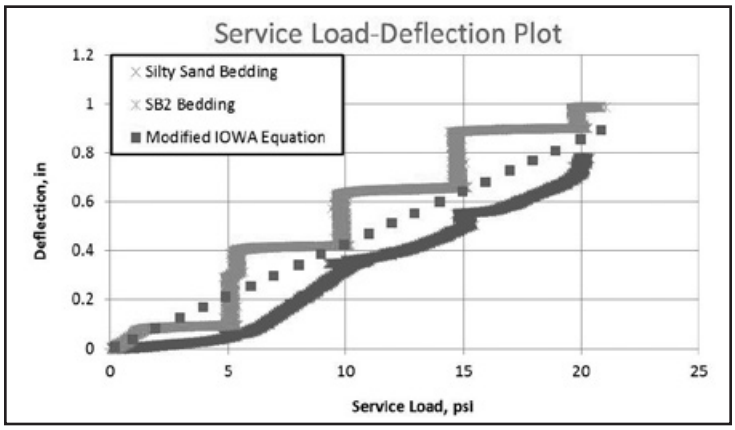
probably due to the arching effect and partial load carried by the stiffer soil columns. EPC2 located at the spring-line on the horizontal plane facing the culvert's outer wall, and 2" away from it; registered increase in stresses with OBP, corresponding to the horizontal reaction forces resulting from the increase ovality of the culvert. EPC3, positioned at the spring-line on the vertical plane, registered the highest geostatic stress, reinforcing the notion of the arching effect. EPC4, placed under the invert, recorded relatively lower stress values, as the vertical reaction took place primarily at the comparatively stronger haunch areas, which was also revealed by EPC5.




*Stresses recorded by the EPCs*

The test was repeated on another specimen buried on the SB2 type bedding material surround by silty sand. The goal was to evaluate the effect of a stronger material on a deteriorated culvert. The overall deformation was also compared to the modified IOWA equation.

The following figure shows deformation of the culvert at the crown when subjected to OBP (service load). LVDT reading at the invert was subtracted from the LVDT reading at the crown and thus, deformation at the crown was calculated. It can be seen that, experimentally measured deformation closely follows the predicted deformation curve developed based on the modified IOWA equation and this provides a high level of confidence in the results. Lack of smoothness on the curve was due to application of the OBP in discrete increment of 5 psi.




*Comparison of Analytic and Experimental Deformation*

On softer soil (silty-sand bedding material), the deformation at the intervals was found stationary relative to the deformation obtained SB2 bedding material.

## CONCLUSION

Corrugated culverts are subjected to various states of loading over the period of their service life. Deterioration at the invert and haunch area results in reduced structural capabilities. The study reveals assumptions made on the modified IOWA equation is conservative for silty-sand bedding material but some modification may be required for hard bedding material, as it does not consider the deteriorated condition. Results showed degree of compaction and type of the bedding materials plays a significant role in distribution of stress and deformation resulting from the applied overburden load on the deteriorated corrugated metal culvert. The study did not include any effect of vibration resulting from the vehicles passing over the culvert, which may cause distortion on the bedding material and early failure of the structure.

## ACKNOWLEDGEMENT

The author would like to acknowledge the financial support provided by the Transportation Research Board (TRB) for this research. The author would also like to acknowledge the continuous support from the TTC Lab Technicians, Dr.Tom Iseley, TTC Director and Dr. Erez Allouche.

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# ASCE Region 5 Director's Letter

***By Melissa Wheeler, M. ASCE***

***Melissa Wheeler, M. ASCE***

Dear Region 5 Members,

At its most recent meeting, the ASCE Board debated a host of key civil engineering and ASCE issues and set direction on how to advance the profession and strengthen the organization in the coming year and beyond. The Board of Directions had deliberations on strategic initiatives, adopting new policies, and passing a budget, among other items on our agenda.

As part of its fiscal year 2017 budget, the Board approved a new print ASCE News newsletter that will be mailed to members 10 times per year in conjunction with Civil Engineering magazine. Beginning in November 2016, this publication will deliver timely highlights of ASCE activities in a vibrant, brief format that provides both at-a-glance updates and guides readers to more content that can be found online.

The Board continues to debate how best to align the Society geographically and to most effectively constitute itself as a Board. After studying options for realignment, the Board elected to retain the Society's existing Region structure, alignment, and representation, for the present. A new task committee will be formed to examine a number of proposals that were raised during the Board's discussion.

The Society's Member Communities Committee (MCC) outlined its strategic planning process and received endorsement of its mission to enable members "to advance the profession and enhance their career growth by integrating member support and promoting member engagement." MCC oversees such successful programs as the Multi-Region Leadership Conferences and younger member and student programs.

The Board heard progress on ASCE's Global Strategy, which aims to enhance ASCE's global image, global voice, and global footprint; reserve a seat at the table for ASCE in global civil engineering forums; and expand products and services for international members. Currently 25,870 of ASCE's more than 150,000 members live outside the U.S.

The ASCE Public Policy Committee (PPC) held its strategic discussion with the Board, highlighting that ASCE successfully advocated for infrastructure issues on Capitol Hill, such as the passage and signing into law of the Fixing America's Surface Transportation (FAST) Act last year, and progress toward passing a new Water Resources Development Act (WRDA). The Senate WRDA bill would authorize $9 billion for new projects and studies at the Army Corps of Engineers, add a dam rehabilitation component to the National Dam Safety Program, establish a new Water Infrastructure Trust Fund, and provide $220 million in aid for Flint, Michigan.

Are there exciting programs and events going on in your local Section, Branch, Student Chapter, YM Group, or Institute Chapter? I would like for everyone to know how much success and fun we have in Region 5! Please consider submitting an item for the Region 5 News. This is the place for photos from tours, shout outs to award winners, news of successful programs and events, and all the great things happening around Region 5. It's easy to submit news items with this link: https://asceforms.wufoo.com/forms/x1ygbyn217de85a/.

The Purpose of Region 5 is Advancing the Profession by: Inspiring Members, Creating Excitement, and Promoting Excellence in Civil Engineering. Your Region 5 Board of Governors is always open to hearing about what's important to you. If you have something you want to share, please feel free to contact me at any time. I will be happy to address any issues or concerns at monthly BOG calls. Your Director and Governors are here to help you and make your group successful. Please let us know how we can help!

Melissa Wheeler, M. ASCE
Director, Region 5
mswheele@southernco.com

*Remember, the R5BoG is made up of seven Governors who are willing and able to help:

Quincy Alexander (MS): Quincy.G.Alexander@erdc.dren.mil
Steven Goldstein (FL): steven-goldstein@att.net
Barbara Lehman (AL): blehman@Geo-Solutions.net
Peter Moore (FL): pmoore@chenmoore.com
Stu Moring (GA): smoring@aol.com
Ali Mustapha (LS): alimm@bellsouth.net
Lawren Pratt (AL): Lawren.Pratt@kbr.com

## LIFE MEMBER AWARD RECIPIENTS

**James Bowie** - ***Acadiana Branch***

**Wynn White** - ***Baton Rouge Branch***
**Jerry Crail** - ***Baton Rouge Branch***

**Lu Mulino** - ***New Orleans Branch***
**Loong-Shen Tsai** - ***New Orleans Branch***
**Rick Savoy** - ***New Orleans Branch***
**Glen Pilie** - ***New Orleans Branch***
**Shung-Kwok Chiu** - ***New Orleans Branch***
**Tung N'Vietson** - ***New Orleans Branch***

# 2016 National Election

The 2016 national election concluded on Wednesday, June 1, and the Tellers Committee convened this morning to validate the election results. Consistent with the Society's Bylaws, I am writing to give you formal notification of the results of this year's election. Publication of the election results will be provided on the Society's web page, ASCE *SmartBrief,* and in *ASCE News.*

**President-elect Elect (2016-2017):**
*Kristina L. Swallow, PE, ENV SP, F.ASCE*

**Region Directors-Elect (2016-2019):**

***Region 2:*** *John G. Casana, PE, D.WRE, LEED AP, M.ASCE*

***Region 6:*** *Nancy S. Cline, PE, M.ASCE*

***Region 7:*** *Marsia Geldert-Murphey, PE, M.ASCE*

***Region 10:*** *Brett C. Phillips, PhD, M.ASCE*

***Technical Region:*** *Carol Ellinger Haddock, PE, M.ASCE*

**Region Governors-Elect (2016-2019):**

***Region 1:*** *John C. Folts, PE, M.ASCE*
*Theodore N. Green, PE, M.ASCE*

***Region 2:*** *William F. Brittle, PE, F.SEI, F.ASCE*
*Jack A. Raudenbush, PE, M.ASCE*

***Region 3:*** *Darren T. Olson, PE, D.WRE, M.ASCE*
*Erin Woodson, PE, M.ASCE*

***Region 4:*** *William D. Dubois, PE, M.ASCE*
*John W. Fleming, PE, M.ASCE*
*Carol A. Stevens, PE, F.ASCE*

***Region 5:*** *Jeffrey J. Earhart, PE, F.ASCE*
*Katherine McLeod Gurd, PE, F.ASCE*

***Region 7:*** *Scott T. Asher, PE, M.ASCE*
*Erin M. Steever, PE, M.ASCE*

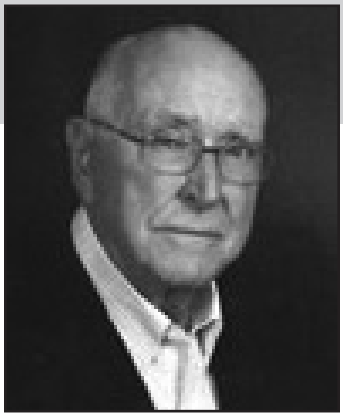
***Region 8:*** *Brent M. Borchers, PE, M.ASCE*
*Lawrence M. Magura, PE, D.WRE, M.ASCE*

***Region 9:*** *Matthew G. Kennedy, PE, T.E., ENV SP, M.ASCE*
*Thor A. Larsen, PE, M.ASCE*

Regarding the Constitutional amendment, the membership approved a change in the term of the At-Large Director from two (2) years to three (3) years to be consistent with the term currently served by the Geographic and Technical Region Directors.

If you have any questions regarding the election results please contact Patty Jones, Managing Director of Executive and Board Operations, at 703/295-6101 orpjones@asce.org.

# IN MEMORY



**Joe Ed Roach**
***March 8, 1933 - May 28, 2016***

SHREVEPORT, LA - Services for Joe Ed Roach, 83, were held on Thursday, June 2, 2016 at Trinity Heights Baptist Church, Shreveport, LA. Officiated by Rev. Kris Chenier. Interment was held at Lane Memorial Cemetery, Sibley, LA.

Joe was born on March 8, 1933 in Sibley, LA to L. T. and Ruby Roper Roach and went to be with his Lord and Savior on May 28, 2016, after a sudden illness.

Joe graduated from Byrd High School and served in the U.S. Navy for four years. Upon his return, he attended LSU where he received his Civil Engineering degree in 1961. He spent most of his career as a partner with Balar Associates Inc. Joe's company was active on many projects developing the Shreveport/Bossier City and surrounding areas. He was a member of the American Society of Civil Engineers where he also served as a past president. He was also a member of many professional organizations, and continued to be a valuable contributor to Balar.

Joe was a humble Christian man and was very active in his church, where he served as a deacon. He had a lifelong love of music and was always involved in his church choir and singing with his family. Joe loved the mountains and was an avid outdoorsman and will be missed by his family and friends in the "boat and blind".

Preceding Joe in death are his parents, and his sister, Nell Roach Keating. Left to cherish his memory is his loving wife of 62 years, Beatrice "Bea" Roach; son, Kirby Roach of Oil City, LA; daughters, Karen Fulco and husband, Jeff of Katy, TX, and Kimmie Johnson and husband, Todd of Keller, TX; six grandchildren, Holden Fulco, Grayson Fulco, Kyle Davis, Gentry Davis, Addison Davis, and Aspen Davis; and several nieces and nephews.

Honoring Joe as pallbearers were Ron Futrell, Kevin Futrell, Layne Schildroth, Kyle Davis, Trey Allen, and Holden Fulco.

Honorary pallbearers were Powell Layton Sunday school class and his "Breakfast Group" - Ralph Brown, Bobby Lance, Moffett "Whip" Wilson, and Bobby Wilson.

Memorials may be made to Trinity Heights Baptist Church, 3820 Old Mooringsport Rd., Shreveport, LA 71107, or the charity of the donor's choice.

"He was a loving grandfather, father, husband, and friend. Those who knew him will carry him in their hearts forever."

*Published in Shreveport Times from June 1 to June 2, 2016*

# Instrumentation to Study Pile Setup Phenomenon

*By Md. Nafiul Haque, PhD[1], Murad Y. Abu-Farsakh, PhD, PE[2]*
*Louisiana Transportation Research Center, Baton Rouge, LA*

*Md. Nafiul Haque, PhD*

**INTRODUCTION**

It is well-known that the axial capacity of piles usually increases with time after end of driving (EOD) in cohesive soils. This increase in capacity, known as "setup" or "freeze" phenomenon, has been studied by many researchers in an attempt to develop models that can predict the actual pile capacity at a specific time after pile driving, and to incorporate the setup effect into pile design. The magnitude of setup is dependent upon the pile size, pile length, pile material, soil type, soil strength and consolidation properties, and stress history of the surrounding soils, among other factors.

The pile capacity increase over time or setup is believed to be mainly attributed to three mechanisms: (i) the increase of effective stress due to dissipation of excess pore water pressure (PWP) that is generated during pile driving (consolidation), (ii) thixotropic effect, and (iii) stress independent increase or "aging" after the completion of excess PWP dissipation. During pile driving, the surrounding soil is displaced predominantly radially along the side and vertically and radially beneath the tip, thus generating a significant amount of excess PWP. In addition, the soil within the vicinity of pile face loses its strength due to an increase in excess PWP and disturbance of the soil structure and the remolding. Thixotropy (i.e., the regain of strength of disturbed and remolded soil) effect also plays a significant role to the setup behavior in this phase. Additional setup can continue even after the dissipation of excess PWP due to aging behavior.

The current engineering practice in the design of piles in Louisiana is based on pile loading test performed 14 days after driving. Although the results of several field studies, along with literature, show that pile setup continues to occur after 14 days, which is ignored in the current design practice beyond that period, resulting in a conservative pile design. Recently, a significant amount of research works were conducted to understand the setup phenomenon for Louisiana soft clayey soils (e.g., Wang et al. 2010, Chen et al. 2014, Ghose-Hajra et al. 2015, Haque et al. 2014, 2016).

**BENEFITS OF PILE SETUP**

The construction of pile foundation usually becomes expensive. Each year, millions of dollars are spent in order to drive prestressed concrete (PSC) piles. Therefore, the incorporation of even a small percentage of pile setup into pile design, can result in significant cost savings. The accurate prediction/estimation of the increase in pile capacity with time can be incorporated into a rational design through

a. Reducing the number of piles,

b. Shortening pile lengths,

c. Reducing pile cross-sectional area (using smaller-diameter piles), and/or

d. By reducing the size of driving equipment (using smaller hammers and/or cranes).

**NECESSITY OF FIELD INSTRUMENTATION**

A review of extant literature reveals that most of the available setup studies were conducted and analyzed, based on the total pile capacity. Piles usually are driven through various soil layers with different soil types/properties, each of which exhibit different setups with time. As a result, it is difficult to accurately predict the amount of setup, unless soil properties are incorporated into the setup prediction model. It is therefore necessary to instrument the test piles with different sensors to understand or characterize the setup behavior.

**INSTRUMENTATIONS**

A pile setup study was conducted on instrumented test piles at Bayou Lacassine bridge site near Lake Charles of Louisiana. The instrumented test piles were fabricated with pressure cells,

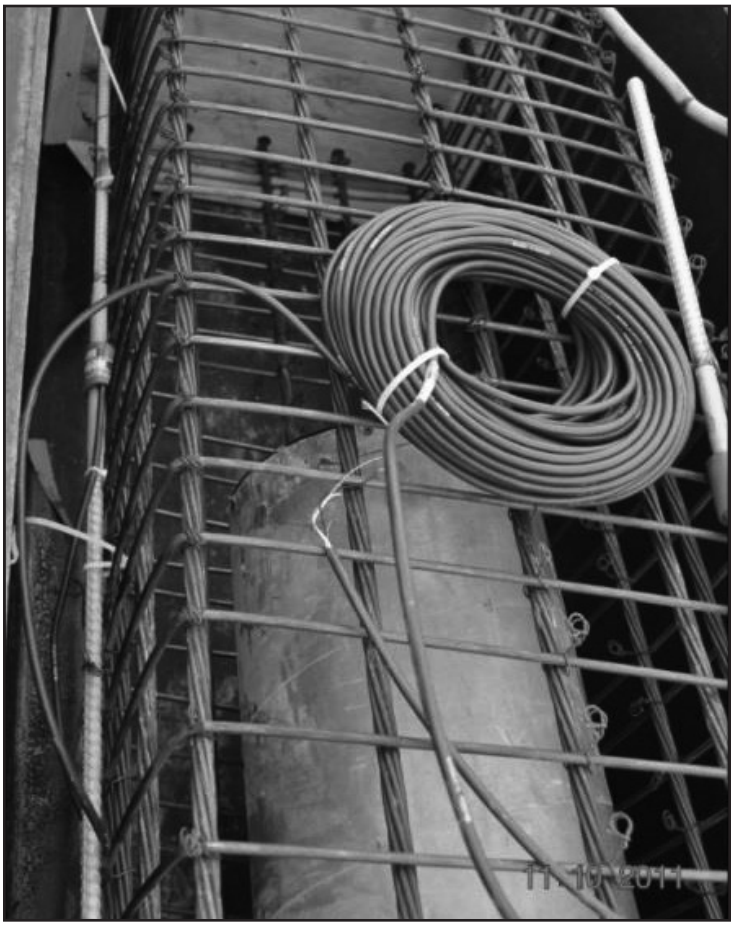


*Figure 1a*

piezometers and sister bar strain gages in order to evaluate the setup of soil layers along the pile length. The results of the instruments are used to determine the soil-pile load transfer mechanisms during load tests and to investigate the factors contributing to setup.

***Strain gages***

Sisterbar strain gages were usually installed in the test piles in order to measure the distribution of side resistance along the length of the test pile during the static load test, and hence separately calculate the side and tip resistance (Figure 1a). Vibrating wire "sister bar" strain gages (Geokon Model 4911) were chosen due to the long time stability and economic cost. Strain gages were installed in pairs on opposite sides of the pile; the gages were simply attached to the side of a section of rebar at each depth; their average readings were adopted for analysis in order to eliminate the possibility of bending stress during driving. Sister bar strain gages were tied into places after the pile strands had been tensioned. Usually, one pair of strain gages was always installed at the ground surface in order to calibrate the elastic modulus of the pile, while one pair was always installed 2 ft. above from the tip of the pile in order to measure the tip resistance.

***Piezometers***

Piezometers were installed in the soil-pile interface to measure the buildup and dissipation of excess PWPs with time. The dissipation of excess PWP was allowed to establish a correlation between increase in pile capacity and consolidation behavior or change in effective stress with time along the pile side. Vibrating wire piezometers (Geokon model 4500S) were used in this study (Figure 1b). Piezometers were installed in pairs with pressure cells at the same location. Simultaneous measurements of total lateral stresses (from pressure cells) and PWP measurements was used to measure the change in effective stresses with time, which in turn, provided valuable information of pile setup characterization. Each pressure cell-piezometer pair was attached to a support plate, and installed flush with the pile surface at the casting yard as shown in Figure 1c.

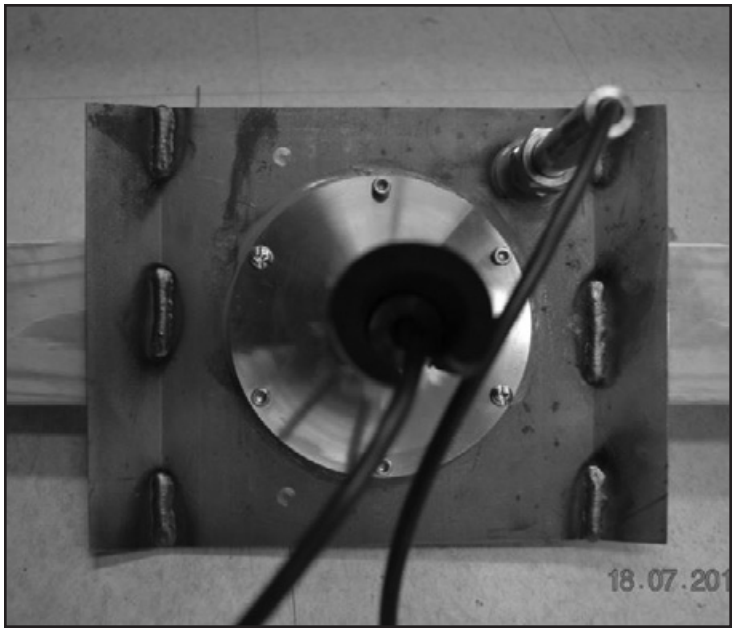



*Figure 1b*

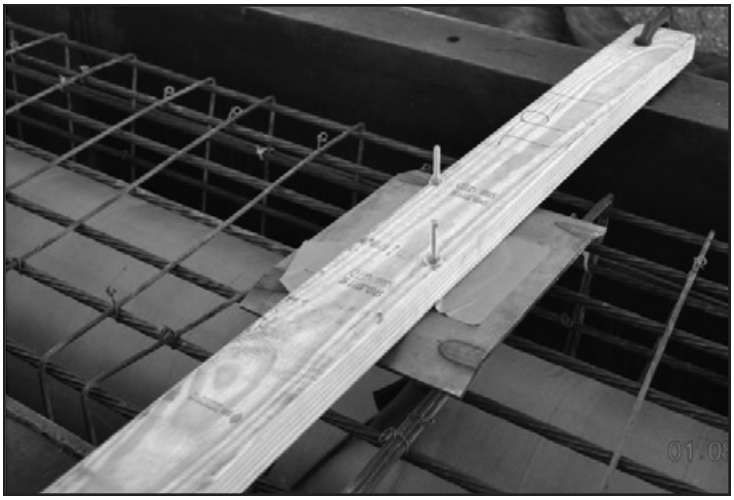


*Figure 1c*

***Pressure cells***

Pressure cells were installed at certain locations (i.e., mainly in a clayey soil layer) along the pile (flush with pile surface) to measure the total lateral stress history during the whole testing period. Vibrating wire pressure cells (Geokon Model 4820 "jack-out" style) were chosen in this study. Figure 1b shows the photo of a pressure cell that was installed in the pile before pouring the concrete on the pile. Both pressure cells and piezometers, were covered with duct tape during the pile casting and then uncovered after delivery to the test site. The piezometers were de-aired and saturated in the field prior to pile driving, using a vacuum pump. To keep the piezometers saturated, the PVC cap, as shown in Figure 1d remained on the pile face until they hit the ground and snapped off during pile driving.

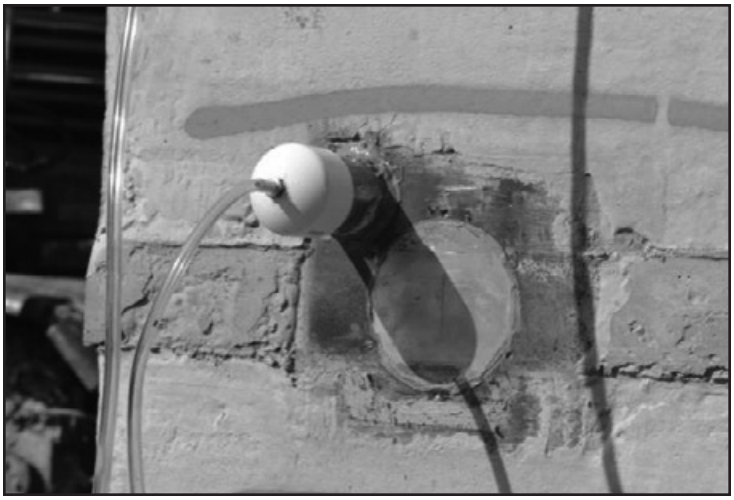


*Figure 1d*

***Multilevel Piezometers***

The soil surrounding the pile was instrumented with piezometers, to be arranged at different distances and different depths from the pile surface. Vibrating wire multilevel piezometers (Geokon Model 4500M) were used in this study. The soil piezometers were used to measure the magnitude and extent of buildup porewater pressure, characterized the excess PWP dissipation curves of the surrounding soil with time, and evaluated the extent of influence zone around the pile. Figure 1e shows a photo of the multilevel piezometer used in this study.

*Figure 1e*

***Data Acquisition System***

In order to fully capture and record the variation of earth pressure, PWPs, and the measured side resistance of individual soil layers along the pile length with time, the instrumentations were setup to continuously collect data, starting immediately before pile driving and continuing until the last restrike. Continuous recordings were performed to fully record the variation of PWP and to collect the strain gage readings during the SLT. The recording system used in this study was a CR-1000 recording system (Figure 1f).

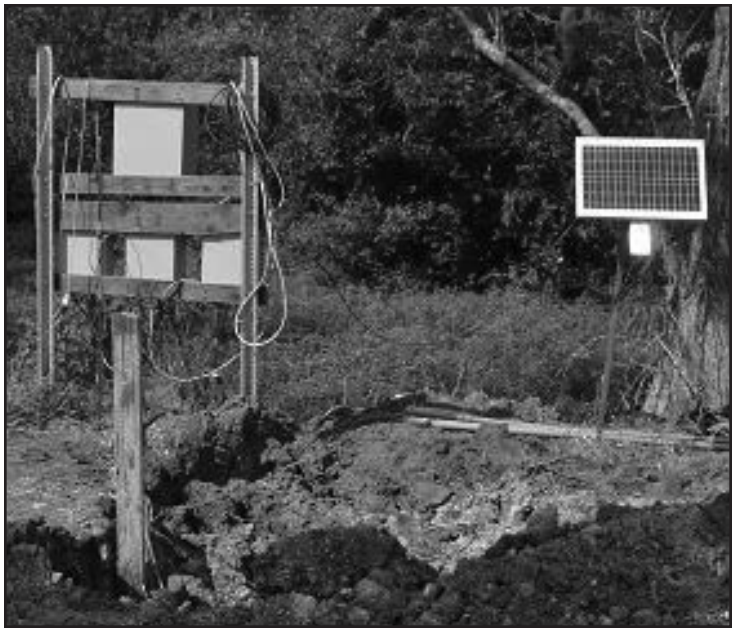


*Figure 1f*

***Accelerometers and Strain Transducers***

Dynamic measurements were obtained by attaching pairs of strain transducers and accelerometers near the top of the pile, prior to pile driving and every restrike event (Figure 1g). One pair of accelerometer and one pair of strain transducer were bolted, usually 4 to 5 ft. below the pile top, to measure the stress wave during pile driving and restrikes for dynamic load analysis. The responses of the accelerometers and strain transducers were monitored thorough a pile driving analyzer (PDA®) as shown in Figure 1h.


*Figure 1g*

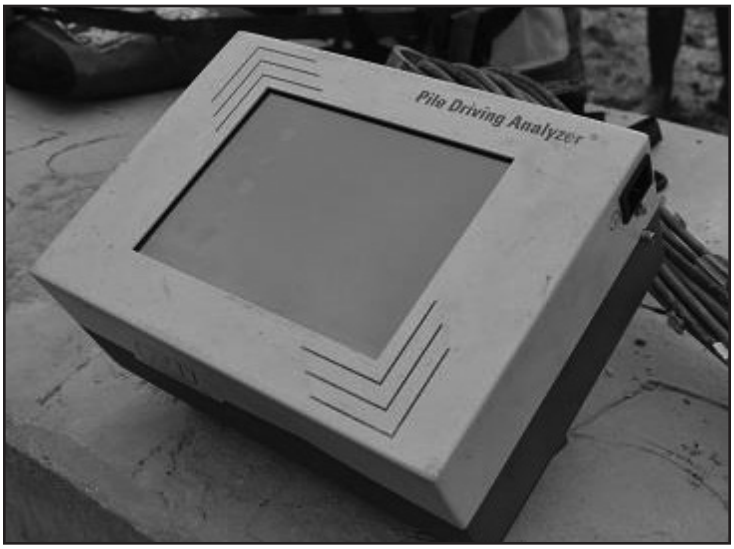


*Figure 1h*

## RESULTS AND DISCUSSIONS

### *Strain Gages*

The strain gage readings obtained during the load tests can be used to estimate the distribution of load transfer along the pile, as presented in Figure 2a. In order to calculate the axial load distribution during static load testing, the modulus of concrete was back-calculated for each load test using the strain data measured by the strain gages, which were installed at ground level. A constant modulus of concrete was used for strain gage data analysis in each load test. This constant modulus was determined using the strain data measured at the first load increment. The strain gage reading at the beginning of each load test was always taken as a reference point for that test, i.e. zero strain. In other words, the effect of residual loads can be eliminated.

### *Piezometers*

In order to evaluate the setup phenomenon of the soil layers, it was necessary to examine the behavior of excess PWP during pile installation and subsequent restrikes. The buildup of excess PWP on the pile-soil interface due to pile driving and subsequent dissipation with time was recorded by piezometers installed on the pile face and are presented in Figure 2b. The dissipation curves of the excess PWPs recorded by each piezometer exhibited a similar trend that match the consolidation process. The maximum excess PWP was observed when the tip of the driven pile was at or near the piezometer elevation, since the majority of shearing and compression occurs near the pile tip, as expected. The excess pore water pressure then started to decrease as the pile tip penetrated deeper.

### *Pressure Cells*

In order to evaluate the setup of the soil layers along the pile length, the horizontal effective stress for each soil layer was calculated from the pressure cells and piezometers measurements. Figures 2c presents the percentage increase of horizontal effective stress with time. The figures show that the horizontal effective stress started to increase immediately after pile driving, mainly due to consolidation, and continued to increase of the monitoring period after EOD. However, the percentage of increase became somehow slower after the consolidation process was completed. The continuing increase of the horizontal effective stress after the end of consolidation process can be attributed to aging (i.e., time-dependent change in soil properties).

### *Multilevel Piezometers*

The distribution of excess PWP was measured at different depths after EOD with the aid of multilevel piezometers. Figure 2d shows the distribution of excess PWP around the test pile. As shown in the figure, the excess pore water pressure sharply decreased from the pile face to a distance of 2B from pile face, after which it decreased at a much lower rate. This suggests that the surrounding soil along the pile (within 2B) is significantly remolded or compressed due to pile driving; the influence of pile driving extends beyond 4B.

## CONCLUSIONS

Significant amount of pile setup was observed for PSC test piles driven in Louisiana soft clayey soils in different projects. Although very rare, the soil layers along the length of the pile exhibit a similar soil behavior; hence, setup should be measured by individual soil layers instead of total pile capacity. As such, the test piles can be instrumented with vibrating wire strain gages with an attempt to measure the side and tip resistances separately, and to measure the load distribution along the length of the pile. In order to measure the time of full dissipation of the excess PWP with a corresponding increase in effective stress, the test piles can be instrumented with piezometers and pressure cells. To measure the extant of disturbed zone, the surrounding soil can be instrumented with multilevel piezometers. The careful interpretation of instrumentation results will aid to understand the pile setup phenomenon for Louisiana clayey soils better.

## REFERENCES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2. *Ghose-Hajra, M., Jensen, R., and Hulliger, L. (2015). "Pile Setup and Axial Capacity Gain for Driven Piles Installed Using Impact Hammer versus Vibratory System." IFCEE 2015: pp. 1064-1074.*

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4. Haque, Md. N., Abu-Farsakh, M., and Tsai, C. (2016). "Field investigation to evaluate the effects of pile installation sequence on pile setup behavior for instrumented test piles." *Geotechnical Testing Journal, Vol. 39, No 5, DOI: 10.1520/GTJ20140259, pp. 1- 17.*

5. *Wang, X., Verma, N., Tsai, C., and Zhang, Z. (2010). "Study of pile setup: Southern Louisiana clayey soils." Journal of the Transportation Research Record 2202, pp.* 37-44.



***Dr. Haque** is currently working as a Postdoctoral researcher at Louisiana Transportation Research Center (LTRC), Louisiana State University (LSU). He pursued his Masters degree on December, 2011, and his PhD degree under the supervision of Dr. Murad Abu-Farsakh on May, 2016 from LSU. Dr. Haque Has been working with Dr. Abu-Farsakh on pile setup study for the last five years in a project funded by Louisiana Department of Transportation and Development (LA DOTD)*

# ASCE-T&DI Louisiana Chapter News

*By Joffrey Easley, PE - Newsletter Editor*

**2015-2016 Scholarship Program**

T&DI will once again be awarding two $500 scholarships to deserving Junior and Senior level university students in Louisiana who anticipate pursuing a career in transportation. Announcements should be going out in early October and must be submitted by the end of October. Eligible students should contact their department heads to request an application.

**LA Civil Engineering Conference and Show**

The Louisiana Civil Engineering Conference and Show that is held each year at the Pontchartrain Center in Kenner is fast approaching! The conference dates are September 28 and 29. This conference is always a great opportunity to network with your fellow engineers and hear of exciting projects and research that is taking place in and around Louisiana.

**Looking Ahead**

The intent of T&DI is to promote transportation and development as a career path, and to provide training and networking opportunities for all professionals involved in transportation projects. If you are interested in co-sponsoring a seminar at your branch, the T&DI Louisiana Chapter has prepared a Seminar Coordinator's Check List to assist you in your preparation. Contact Ronald Schumann, Jr., at RSchumann@aol.com for a copy of the checklist. Our seminars are two hours in length and are typically presented from 5:30-7:30 pm in either the New Orleans or Baton Rouge area. We have also presented out-reach seminars with the ASCE Acadiana Branch and Shreveport Branch. We are open to co-hosting seminars in additional Louisiana cities if requested. In keeping with the intent of the Institute to provide training and networking opportunities for all professionals involved in transportation projects, in addition to the upcoming seminars listed above, the Chapter is also planning the following future seminars:

- Alternative Composite Bridge Systems and UHPC Bridge Deck for Movable Bridges
- Sustainable Rating System for Public Works Projects
- Historic Louisiana Bridges
- Pavement Engineering (Part 3 of 3) Application of Earthwork and Embankment Materials

# CAPITOL VIEW: FROM HAYNIE AND ASSOCIATES

ASCE | GOVERNMENT RELATIONS

On June 23rd, the Louisiana Legislature wrapped up its 3rd Legislative Session of the year, which set a record in Louisiana for nearly 20 straight weeks of legislative action. The Governor and Legislature over the three sessions were able to solve most of the state's fiscal problems for the short term with a combination of taxes, fees and cuts. The upcoming 2017 fiscal session which begins next April is likely to be one of the most difficult in recent memory as full scale tax reform is needed to get the state on solid financial footing going forward. For example the recently passed temporary one penny sales tax sunsets in 2018 and will need to be replaced with new revenue through tax reform or the tax will need to be extended. One idea being discussed and which we will likely see proposed is to extend sales tax to professional services, with the idea that if you expand the base you can lower the sales tax rate. We encourage you to speak to your legislators now regarding your concern with the taxation of engineering and other professional services.

Legislatively the engineering profession had a successful 2016 as we championed the passage of SB 283 by Senator Sharon Hewitt which has been signed into law and closed a longstanding licensure loophole related to military service. We also were successful in stopping SB 59 by Senator Martiny which would force a licensure testing exception based on experience which we do not believe was in the professions best interest.

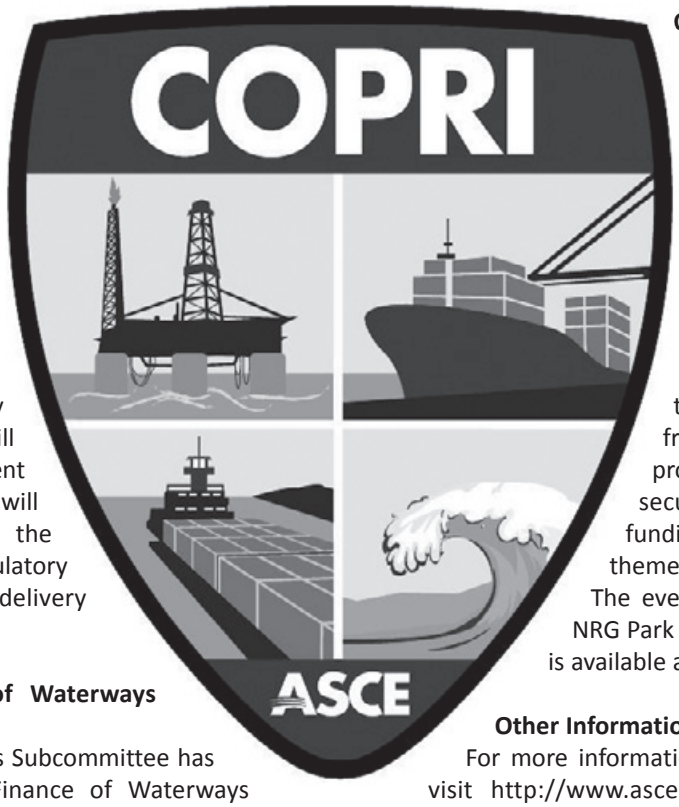
ASCE also hosted a luncheon of the Republican House and Senate delegation where over 45 legislators attended and heard ASCE's

# ASCE-COPRI Louisiana Chapter News

***By Erin Rooney, PE, Director - Communications***

COAST, OCEANS, PORTS AND RIVERS INSTITUTE
Louisiana Chapter

The Louisiana Chapter of the American Society of Civil Engineers (ASCE) Coasts, Oceans, Ports, and Rivers Institute (L.COPRI) is continuing to promote membership and visibility throughout the State of Louisiana by conducting joint seminars with local Branches and State Sections of ASCE.




**L.COPRI Summer Seminar**

L.COPRI will hold their summer seminar on August 10 at the University of New Orleans. The seminar will focus on CPRA's Mid-Basin Sediment Diversion Program. Presentations will include background information on the diversion projects, the required regulatory processes, and the collaborative delivery models that are being studied.

**Update on Alternative Finance of Waterways Infrastructure Subcommittee**

The P3 for Waterways Infrastructures Subcommittee has been retitled to the Alternative Finance of Waterways Infrastructure Subcommittee. The subcommittee will hold a workshop in St. Paul, Minnesota on September 20. The workshop will include topics covering the Fargo Moorhead Diversion Authority project. Of the $2B in flood protection and river diversion infrastructure designated for this project, $1B will be delivered as a Public-Private-Partnership in an Availability Payment model. This is anticipated to be the first P3 project for waterways. The second project is the Illinois Waterway project in which approximately $1B in Operations and Maintenance backlog is accruing on eight locks and dams, including the old and operationally challenged LaGrange Lock and Dam. Other upcoming projects will also be discussed including the Grand Prairie project.

**Offshore Technology Conference Call for Papers**

The Offshore Technology Conference (OTC) has issued a call for papers for the 2017 conference. Abstracts are due September 6, 2016. Proposals for papers should present a significant offshore project and/or technical solution. For 2017, the organizing committee is particularly seeking "grand challenge" themes. Examples include emerging technologies, progressing technology from lab to field, refining organizational processed for technology management, securing intellectual property and/or funding. These are just a few of the themes that are encouraged for OTC 2017. The event will take place May 1-4, 2017 at NRG Park in Houston, Texas. More information is available at 2017.otcnet.org.

**Other Information**

For more information on all COPRI conferences, please visit http://www.asce.org/coasts-oceans-ports-and-rivers-engineering/coastal-engineering-conferences-and-events/.

The activities of L.COPRI will include seminars, workshops and other activities to benefit all ASCE and COPRI members. One does not have to be an engineer to join COPRI. These Institutes are formed for the benefit of ASCE and non-ASCE members to participate and interact with other professionals interested in coastal, oceans, ports, and riverine efforts in Louisiana. If you have any questions or to add your name to our mailing list, please contact Erin Rooney, at LCOPRI@yahoo.com.

presentation on the infrastructure report card as well as State and Federal infrastructure updates from Congressman Garret Graves and DOTD's Secretary Shawn Wilson whom both attended at our invitation. Growing relationships with legislators is a prime focus going forward and we ask you to make special effort to get to know your local delegation.

On the subject of infrastructure, the Governor has just recently signed the 2016 House Bill 2 (the state capital outlay budget) which totaled $4.4 billion, including $1.6 billion in projects with cash earmarks, which includes federal and state highway dollars that pay for road and bridge work. Another $2.8 billion in projects are slated to be financed with state borrowing through bond sales.

Going forward Infrastructure funding will be a priority for the state in the 2017 session and the Task Force on Transportation Infrastructure Investment has been formed by the governor and had its first meeting in July. The Task Force has been asked to make funding recommendations to the legislature and Governor to help address the $12.5 Billion backlog and infrastructure needs.

We are also happy to announce that the Governor has issued a proclamation recognizing August 3rd as Professional Engineers Day in the State of Louisiana.

Ryan Haynie - Ryan@haynie.com

## ACADIANA BRANCH

***By Sarah Richard, EI, Branch President***

The Acadiana Branch hosted a successful half-day seminar at the SEED Center in Lake Charles on May 10th. The seminar was held in order to better serve the area of Lake Charles, which is an underserved region in our Branch. The seminar was very well attended with over 50 registrants. Speakers included Malay Ghose Hajra, PhD, PE, ENV SP who gave a presentation on Geotechnical Design of a Marsh Creation Project, David Minton, PE, CFM who gave a presentation on SPPR Panels, an Alternate Solution to Shoreline Protection, Jonathan Fox, PE, PTOE, PMP, who gave a presentation titled "ITS? What's Intelligent about Transportation?", and Christopher P. Knotts, PE with LAPELS who gave an Engineering Ethics Presentation. A total of 4 PDHs were offered. Students attended for free, and with the help of Jessica Trahan in Lake Charles by booking the SEED Center and helping with arrangements and the ASCE State Section, we were able to keep registration to just $35 per professional.

Elections were held at the May meeting at the SEED Center. The ASCE Acadiana Branch Board for 2016-2017 will be Sasan Daneshvar-President, Jared Veazey-President Elect, Will Cenac-Secretary, and Jeremy Fontenot-Treasurer. Thank you to these engineers for volunteering their time to give back and serve the Acadiana Branch.

In June, the Lafayette Chapter of ACEC Louisiana hosted a joint meeting with the Acadiana Branch at Abacus Event Center. The speaker was Secretary Shawn Wilson of the Louisiana Department of Transportation and Development. The event was very well attended by members of both organizations.

The ASCE Acadiana Branch now has a LinkedIn page and a Facebook page. Please "like" us on Facebook and join us on LinkedIn to stay connected with the branch and receive information on upcoming events and photos from past events.

We are also looking for volunteers from our underserved regions to act as liaisons. This person would assist us in serving those regions by hosting meetings in their area on behalf of the Acadiana Branch. If anyone in the Alexandria area would be willing to serve, please contact me or any of the Acadiana Branch officers.

The Acadiana Branch will be hosting the Spring Conference in 2017, and we are looking for sponsors, speakers, and exhibitors for this event. The tentative dates are April 26-28, 2017. A committee consisting of volunteers and current and future officers have started the early stages of planning.

## SHREVEPORT BRANCH

***By Chris Myers, PE, Branch President***

I would like to thank David Ellett for speaking at the Shreveport Branch monthly meeting on May 17, 2016 with a Topic of Guided Bore & Slurry Methods of Microtunneling. The Shreveport Branch does not have a monthly meeting during the summer months of June, July, & August. Our next monthly meeting will be in September.

I would like to thank those who came to our ASCE Spring Conference. We compared the 2013 conference to this year's 2016 conference and came up with the following statistics:

| Statistics | 2013 | 2016 | Growth (%) |
|---|---|---|---|
| Attendees | 80 | 110 | 137 |
| Students | 8 | 20 | 250 |
| Sponsors | 8 | 18 | 225 |
| Exhibitors | 5 | 14 | 280 |

As you can see we had a much bigger Spring Conference! I have been told that this was the biggest Spring Conference the Shreveport Branch has ever hosted. We could not have done it without the help of our members, sponsors, exhibitors, speakers, and Shreveport Branch Conference Committee. Thank you all!

This will be my last Journal article before the end of the ASCE year. It has been a pleasure of serving the Shreveport Branch over the past years, and I can't wait to see what the next generation goes from here. Jared Boogaerts the President-Elect will be taking over as President in October and has many exciting plans and goals for the New Year!

If you would like more information about our Branch please send us an email us at: ASCE.Shreveport@gmail.com and we will forward you our monthly newsletter that includes the latest events.

## BATON ROUGE BRANCH

***By Danielle Welborn, PE, Branch President***

The summer is coming to an end but the Baton Rouge Branch activities, like the weather, were hot! May and June were particularly special luncheons and August will be as well.

In May, we linked with LES for our annual joint luncheon where the honorable Mayor-President Kip Holden was the M.C. Thank you to LES for hosting a wonderful luncheon at Juban's. That evening, the party continued as the Younger Member groups from both organizations got together for a joint YM social at the Bulldog, which the Mayor attended as well! He is truly young at heart!

The June luncheon was special in two ways. The National ASCE President-Elect, Dr. Norma Jean Mattei, PhD, PE, gave a motivational talk about the future of ASCE and how it impacts us at the Section and Branch levels. She was upbeat and energetic about all that ASCE has to offer its members. We also recognized our Branch's Past-Presidents. We had an impressive turnout of approximately 15 Past Presidents, including Joe Richard, Jr., the 1966-1967 Branch President!

*Left to Right: Bob Jacobsen (2007-08), Tom Willis (1991-92), James Aronstein (1979-80), Brant Richard (2006-07), Joe Richard, Jr. (1966-67), Brin Kern (1993-94), Jerome Klier (1997-98), Pat Broderick (1992-93), Chris Knotts (1999-2000), Norma Jean Mattei (New Orleans Branch Past President)*

June also wrapped up the 5th and final Dig It – Engineer It Workshop at Louisiana Art and Science Museum. Thank you to Mike Juneau for his involvement in developing the curriculum and allowing his engineers to assist at the Saturday workshops. We are in the process of developing a fourth module for LASM so please be on the lookout for more information. If you're interested in getting involved, please contact myself or Joey Coco!

In August, we will host the joint LES-ASCE luncheon at Drusilla Seafood. Johnny Bradberry, with CPRA, is our guest speaker. We look forward to having him and all of the LES members join us. In September, we will have the officer installation, as well as Branch awards. Also in September, the LSU and Southern student chapters of ASCE are hosting a Career Fair at LSU. The event will take place on Thursday, September 29 at Patrick F. Taylor Engineering Commons 3304 from 5:30 – 8:30 pm. Please contact me if you are interested in obtaining a booth.

Remember, the Board is here to serve our members. We are always open to suggestions for topics, speakers, and activities.

*Left to Right: Michael Somme (LES YM Chair), Jacob Loeske (LES President), Mayor-President Kip Holden, Sarah Ollenburger (ASCE Secretary-Treasurer), Thomas Montz (ASCE YM Chair)*

## NEW ORLEANS BRANCH

***By Wesley Eustis, PE, Branch President***

On May 17th, the branch held its monthly luncheon with Jennifer Larmeu from the City of New Orleans presenting on the Green Infrastructure program in New Orleans. We as civil engineers in the New Orleans metro area understand that dealing with water is a daily challenge. The presentation was insightful as it showed how New Orleans plans to attack this challenge from a new perspective. Jennifer's presentation focused on many of the City of New Orleans' planned as well as under construction green infrastructure projects.

On July 29th, the branch hosted it annual awards banquet at the Southern Yacht club. The branch awarded its outstanding members with the yearly awards as well as present our newest life members. The branch also awarded its annual student scholarship. The list of award winners is as follows:

Lifetime Achievement - Ralph W. Junius, Jr., PE
Outstanding Civil Engineer - David Dupre, PE
Outstanding Young Civil Engineer -
Andrew Woodroof, PE
Educator of the Year - Gianna Cothren, PhD, PE
Outreach Award - Benjamin M. Cody, PE
President's Medal - Om P. Dixit, PE
Student Scholarship Winner - Alexa R. Dale
Life Members -
Lu M. Mulino, PE
RJ (Rick) Savoy, PE
Loong-Shen Tsai, PE
Shung-Kwon Chiu
Tung Thanh N'Vietson, PE

# LinkedIn - It's Not Your Kids' Facebook
# Digital Social Networking for Professionals

***By Deborah Ducote Keller, PE***

***Deborah Ducote Keller, PE***

*"Your brand is what people say about you when you aren't in the room."* - Jeff Bezos, founder of Amazon

Seven years ago before Facebook became a household word, I wrote an editorial for this journal as a primer for readers unfamiliar with social media. In 2003, prior to Facebook creating "friends" among students at Harvard University, LinkedIn was launched by Reid Hoffmann who had a vision for his social media to become "the professional profile of record."

By 2008, LinkedIn was global and the rapidly growing company went public in 2011. Currently, it has 400 million users. This business-oriented social network is available in 24 languages and via the Internet, makes connections to form networks of like-minded people for the purpose of doing business. Recently, Microsoft announced a $26 billion deal to acquire LinkedIn, which will be completed this year.

So what does all this have to do with us civil engineers? I admit that I never saw value in joining LinkedIn until I started my own engineering firm. Attending some entrepreneurship classes introduced me to building not only my company's brand, but considering myself as a brand. I also heard a convincing talk about how to effectively use LinkedIn and what not to do.

The most common mistake is to confuse LinkedIn with Facebook, Twitter, and other forms of social media. Perhaps your company has Facebook in its marketing tool kit, but beware that there are fundamental differences between Facebook and LinkedIn.

Think of Facebook as a shotgun approach to a diverse audience and LinkedIn as a high-powered rifle aimed at a precise target. Not all businesses can be effective with Facebook, but LinkedIn was created specifically for all businesses. Facebook creates "friends," whereas LinkedIn creates "connections." While it's common for people to share their most private thoughts and activities on Facebook, LinkedIn has a protocol that each connection is intended to foster a business relationship.

Branding a company or organization is often in the capable hands of marketing professionals, however, building a brand for ourselves is not likely to be our niche.

Here are some tips that should be useful for getting started with your LinkedIn account at www.linkedin.com, or for reviewing your existing account to ensure you convey the level of professionalism you deserve.

### NAME

Your LinkedIn name should be exactly as shown on your business card, which should agree with how you introduce yourself, if you expect people to find you on the Internet. For example, Deborah is my legal name. I don't use Debbie, Debby, Deb, or Debra because my name is my brand and I must be consistent.

### HEADLINE

The LinkedIn headline is a key tool for others to find you because LinkedIn is a search engine, just like Google. You can display your name, job title, location, profession, current employer, etc. in your headline.

### PHOTOS

With millions of users, don't expect your name to be unique. Posting a quality photo with your headline will help others sift through to find you. Resist the temptation to use a more flattering, but outdated headshot. Update your photo regularly.

### URL

As a search engine, LinkedIn will automatically provide your URL, but it will be lengthy. Change that URL into something easy. Just choose the option to customize your URL, such as www.linkedin.com/in/yourname. This will allow others to directly view your page, as well.

### CONNECTIONS

Don't accept every invitation to "accept" a connection. Decide your criteria for accepting or requesting connections. Suggested goals are to digitally connect to past and future clients, as well as professional colleagues. This doesn't mean all your competitors, but those who have or might team with you. Read the profile of the person asking for a connection before deciding. Many employment agencies, financial advisers, etc. actively peruse LinkedIn for finding clients, so reading a profile is prudent before accepting an unfamiliar person as a connection.

### GROUPS

You can choose to join, follow, and comment on group connections. ASCE has a group, so will your alma mater. Feel free to create your own group for the purpose to attract followers and demonstrate your engineering expertise on a specific topic. Note that it takes effort to lead the group content and keep the comments flowing to retain those followers.

### ENDORSEMENT/RECOMMENDATION

With a click of a mouse you can endorse a skill that your connections have and connections can endorse a skill you have. You will select from skills suggested for your page. Do not accept an endorsement if it not a skill you possess. A recommendation is more effort, if you have a few sentences to post about a connection.

### PRIVACY

LinkedIn is powerful. Look through the choices for your privacy settings and choose wisely. If job hunting, you will need to less private with your information.

### SUMMARY

The heart of LinkedIn is the summary of your skills, experience, and achievements. It can be very brief or a full resume, depending on your intended use.

### UPDATES/POSTINGS

You can update your page with pictures, comments, questions, or re-posting articles from other sources when LinkedIn is listed as a forwarding option. New photos of your business activities keep your page fresh and are sent to your connections to demonstrate your expertise.

Social media experts recommend not venturing beyond your professional business activities on LinkedIn. So save the family vacation pictures, your pet's cute video, and your political views for Facebook, Twitter, etc.

# ASCE-SEI New Orleans Chapter News

***By Om Dixit, PE, FASCE, F-SEI***

STRUCTURAL ENGINEERING INSTITUTE
New Orleans Chapter

The ASCE SEI New Orleans Chapter has been busy hosting and planning seminars and workshops and volunteer efforts. All seminars are held from 5:30 PM to 8 PM.

On April 28, 2016, SEI New Orleans Chapter invited **Scott Storm, EIT** (Thornton Tomasetti, Kansas City, MO) to present the seminar ***"DESIGN, CONSTRUCTION AND RENOVATIONS OF SPORTS STADIUMS IN NEW ORLEANS."*** This Presentation addressed about the challenges encountered during the design, construction and renovation of new Tulane Football Stadium, recent renovations for Mercedes Benz Superdome and Smoothie King Center. This seminar was attended by about 35 members.

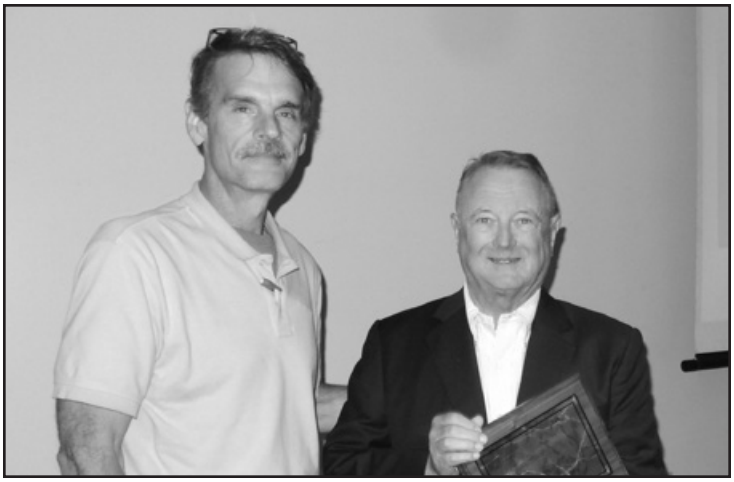
On June 7, 2016, SEI NO hosted its annual event The David Hunter Lecture for 2016. This year the DHL, ***Designing Floor Slabs on Grade***, was presented by **Robert B Anderson, PE**, (Robert B Anderson Engineers, New Orleans LA). Robert Anderson has been locally and nationally known structural engineer who shared his experiences and lessons learned designing slab on grade and post-tensioning during his professional carrier. ACI 360 provides the current guidelines for designing floor slabs on grade. Following the basic outline of the document, Anderson discussed slab types, which are dependent on both use and soil types. Soil support systems consist of geotechnical report needs, subgrade requirements, modulus of subgrade reaction, and an overview of expansive clays. For slab design Anderson addressed loads, joints, crack control and design procedures for point loads, uniform loads, and design on plastic clays. For reinforcement he also addressed conventional re-bar, welded wire reinforcing, and post tensioned design for slabs on ground. The seminar was attended by about 82 professionals.

ASCE SEI New Orleans Chapter arranged a few structural presentations for 2016 Louisiana Civil Engineering Conference and Show (2016 LCECS). **2016 Herbert J. Roussel Jr. Lecture** will be given by Craig E. Barnes, PE of CSI Consulting, Inc., Boston. The title for the lecture will be ***Repairs to Concrete Parking Structures: Past, Present, and Future.*** This lecture is to honor the late Herbert J. Roussel, Jr. who was one of the founding members of ASCE Structural Committee of New Orleans Branch and served on its Executive Committee 1991-2005. Since 2006 each year a distinguished presenter is selected by the Structural Engineering Institute Chapter of New Orleans (SEI NO) to deliver this Lecture.

Besides the **2016 Herbert J. Roussel Jr. Lecture**, SEI NO has provided speakers for 2016 LCECS on structural topics such as Smart Structures, Recent IBC Changes in Structural Design and Inspection, ACI Repair Code 562, and Concrete Design Essentials of ACI 318-14.

The committee is looking for good topics and speakers for future presentations. Members with expertise in the field of structural engineering would be welcome to join the Executive Committee. For any suggestion and information on joining the Executive Committee, contact Chairman L.T. Cooper, PE at ltcooper@edg.net. For adding your name to our mailing list, e-mail Om P. Dixit, PE at omdixit@cox.net.

*On April 28, 2016 – SEI NO Chairman, L.T. Cooper, PE (on left) and seminar presenter Scott Storm in New Orleans*



*On June 7, 2016 – SEI NO Chairman, L.T. Cooper, PE (on left) presenting Robert B. Anderson, PE a plaque for delivering the 2016 David Hunter Lecture in New Orleans*

## LOUISIANA STATE UNIVERSITY

***By Gabrielle Dubroc, Student Chapter Secretary***

Before the semester ended, ASCE at LSU's officers met to discuss both the successes and the areas we'd like to improve on from Spring 2016. As we prepare for the fall, we are looking to set and accomplish new goals. One of our major goals is to remain actively involved in the community which is why the chapter stays committed to volunteering for Geaux BIG each year. For next semester, we are making plans to increase the number and variety of service activities. Among them is outreach at local schools in the area ranging from pre-K to high school in an effort to expose students to STEM ideas through hands on activities. At the most recent outreach event our members built gumdrop bridges and structures and tested their strength using pennies and textbooks respectively. We started our outreach events last year and plan to be further involved in the future.

Another goal is increasing our member retention and also participation on the Concrete Canoe and Steel Bridge teams. We had a lot of involvement this past year, and both teams worked tirelessly to prepare for the 2016 Deep South Conference. We'd like to thank our sponsors again for their support. As senior members graduate, our goal is to recruit and involve more of our freshman and sophomore members to get everyone more engaged in the organization in addition to ensuring that ASCE at LSU is around for many more competitions. With enough preparation, we hope to begin fundraising and planning for both teams earlier and fully intend to improve on our performance from the 2016 competition.

Something many of our members expressed interest in is our department's first fall career fair dedicated to our civil and environmental majors. Our president, Gabrielle Dubroc, has put in a lot of hard work to organize this event for our members and students so we'd like to thank her and our younger member advisor, Tyler Branch, for their efforts as well as all those who are involved and will be participating! We are also looking for speakers for our upcoming meetings. One of the most valuable experiences our young future engineers have in ASCE at LSU is the opportunity to network and hear from professionals in the fields we will work in. If you are interested in speaking at one of our meetings about licensure, professional development, ethics, current civil or environmental projects, etc., please contact: asce@lsu.edu or visit www.lsuasce.weebly.com. We'd love to hear from you!


*ASCE at LSU Participates in STEM Expo 2016. Left to right: Gabrielle Dubroc and Daniel Gutierrez*

*ASCE at LSU Assists with a Math Summer Club*

## UNIVERSITY OF LOUISIANA AT LAFAYETTE

***By Sarah Pippen, Student Chapter President***

ver the past school year, the American Society of Civil Engineers (ASCE) chapter at Louisiana Tech University was challenged by many obstacles. Accepting the challenges at hand, the organization was able to successfully host events, guest speakers, participate in the Texas-Mexico Conference and help start the Transportation Leadership Council (TLC) organization at Louisiana Tech.

Events such as burger burn, winter banquet and general body meetings, brought in many of students within civil engineering and even those who were interest in the ASCE. After successfully inviting guest speakers from Crest Industries, Kiewit, and the Department of Transportation and Development (DOTD). After not being able to make the Deep South Conference due to the historical flooding that took place in the beginning of March, our concrete canoe and steel bridge teams did not give up on their chance of competing with their canoe and bridge. Our chapter was invited to the Texas-Mexico Conference and Steel Bridge took the opportunity to go to Texas Tech and compete. The organization was also given the opportunity to take TLC under its wings over the next year and help them become an independent organization in the college of engineering and science.

Although it is summer and most of the members are home, the chapter is working hard to make sure that we have another successful year!

## NOTICE FOR POTENTIAL CANDIDATES TO APPLY FOR VACANCIES ON THE SOUTHEAST LOUISIANA FLOOD PROTECTION AUTHORITY EAST AND WEST LEVEE BOARDS

**The State contact person is Stephanie Aymond at Stephanie.Aymond@LA.GOV.**
**Applicants need to complete the official application, which can be found at the following link: http://www.coastal.louisiana.gov/wp-content/uploads/2013/09/SLFPAApplication1.pdf.**
**Applicants are needed to fill the following Board vacancies:**

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**SLFPA-WEST BOARD:**

1. **Non-Resident (a person that does not reside in the Parishes of Jefferson or Orleans).**

***Note the Non-Resident applicant can apply for one or both boards. The Non-Resident means that the person can be a resident of Louisiana; but, cannot reside in the aforementioned SLFPA- E&W Board Parishes, or can be a resident of some other state.***

# — CALENDAR OF EVENTS —

| | |
|---|---|
| **SEPTEMBER 2016** | |
| **September 1** | **Section and Branch Leadership Reports Due** |
| **September 18-19** | **Presidents and Governors Forum in Reston** |
| **September 23** | **Louisiana Section Awards Banquet and Installation of Officers at 12:00 noon in Shreveport, LA *(Location TBA)*** |
| **September 29-Oct 1** | **Annual Convention in Portland, OR**<br>*Registration now open. ASCE is invested in your success, and the development and growth of our civil engineering profession and community. Visit the Convention website to view the latest program information. http://asceconvention.org/* |
| **OCTOBER 2016** | |
| **October 30** | **Outstanding Section and Branch Award nominations are due** |
| **NOVEMBER 2016** | |
| **November 30** | **Section and Region Annual Reports are due** |
| **DECEMBER 2016** | |
| **December 15** | **Section Federal Tax Filing due to ASCE's Accounting Dept.** |
| **JANUARY 2017** | |
| **January 13-14** | **Regions 8 & 9 Multi-Region Leadership Conference in Los Angeles, CA** |
| **January 20-21** | **Regions 1, 2, 4, & 5 Multi-Region Leadership Conference in Newark, NJ** |
| **FEBRUARY 2017** | |
| **February 3-4** | **Regions 3, 6, & 7 Multi-Region Leadership Conference in Minneapolis, MN** |
| **MARCH 2017** | |
| **March 14-15** | **ASCE Fly-In in Washington, DC** |

For more events visit the ASCE Events Calendar: **http://www.lasce.org/calendar.html**

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