ASCE Illinois Section

News

Vol. 60, No.1
Spring 2019

INSIDE:

Load Rating Illinois' Major River Bridges

By Parker Thomson, P.E., S.E., Joe Kauzlarich, P.E., S.E., M.ASCE, and Brett Mattas, P.E., S.E.

With an inventory of over 26,000 bridges in the State of Illinois, the Bureau of Bridges and Structures (BBS) within the Illinois Department of Transportation is responsible for the challenging task of load rating these structures and reporting the results to the Federal Highway Administration (FHWA). Fortunately, the vast majority of the bridges in Illinois can be load rated using AASHTOWare Bridge Rating (BrR) which allows for standardization and consistency across the state's bridge inventory; however, this software has its limitations. Most of the long span major river crossing structures in Illinois, including structure types such as tied-arches, segmental concrete bridges, cable-stayed bridges, and suspension bridges, must be load rated using alternative methods due to complexities related to the analysis.

With an inventory of over 26,000 bridges in the State of Illinois, the Bureau of Bridges and Structures (BBS) within the Illinois Department of Transportation is responsible for the challenging task of load rating these structures and reporting the results to the Federal Highway Administration (FHWA)

BBS is also responsible for evaluating structures for heavy permit vehicles. These may include single-hauls carrying transformers, reactors, or other heavy industrial equipment or multiple hauls along the same route such as delivery of wind turbines to a site.

(continued on page 7)

President's Notes

John G. Green, Ph.D., P.E.

On Monday, February 11th, a portion of Lakeshore Drive was shut down due to a failure of two steel beams on the bridge at Randolph Street. We were very lucky that electrical crews working on traffic signals near the bridge found the failed beams on Monday, before a bridge collapse during rush hour, and a catastrophic loss of life occurred.

Bridge failures like this do not happen out of the blue. Stresses cause cracks to form, which take time to propagate from start to failure. Routine and frequent bridge inspections inform decision makers of the current state of damaged bridge members. Problems were not discovered before failure with this bridge, because its inspection cycle was the legally required minimum frequency of two years. If this bridge had been inspected on a once per year basis, the odds are much better that the cracks would have been found before the beam broke.

Unfortunately, Lake Shore Drive is not the only major roadway that has bridges in danger of failing. A Chicago Tribune story on February 16th, pointed out that a review of IDOT records shows that in the six-county area of northeast Illinois, 400 out of 3,460 bridges (12%) were rated as structurally deficient. https://www.chicagotribune.com/news/local/breaking/ct-biz-lake-shore-drive-bridge-reopens-20190212-story.html Interstates I-55, I-80, and I-294, which are major commercial trucking routes, have some particularly terrible bridges.

The I-80 bridges over the DesPlaines River in Joliet are subject to massive numbers of semi-trucks coming and going from warehouses and intermodal freight yards. The westbound section of the DesPlaines River bridge actually has a sufficiency rating of 6 out of 100, which is the worst of IDOT's bridges in the Chicago area. Because of the horrible shape of these bridges, they are actually inspected every three months, but repairs have not begun on these bridges yet.

What needs to be done is for our elected officials to provide for significant and sustained funding for our state's highways. IDOT's current multi-year bridge maintenance plan allocates $2.6 billion dollars, but to actually bring our bridges up to a good state of repair, it has been estimated to require near $10 billion. As engineers we need to communicate the urgency of our infrastructure underfunding problem to our elected officials to encourage them to find the funding, and if they will not act responsibly to safeguard our transportation networks, then we need to vote in future elections to replace them with people who will.

ASCE Illinois Section

News

ILLINOIS SECTION NEWSLETTER
E-Mailed to all ASCE-IS dues-paying members
American Society of Civil Engineers Illinois Section - Region 3

Communications Chair/ Newsletter Editor - Katie Bell
Katiebell529@gmail.com

Director of Advertising - Brian Pawula
847-922-6125
brianp@thomas-engineering.com

Pres. John Green . . . . . .(815) 600-2051
Pres. Elect Megan McDonald . (312) 466-8249
Sec. Andrew Walton. . . . . .(312) 520-9276
Treas. Brian Pawula . . . . . (847) 922-6125

Please update your information at www.asce.org/myprofile or call 1-800-548-2723
Web Site: http://www.isasce.org

ASCE National Information
Phone: 1-800-548-ASCE
Web Site: www.asce.org

Working Platforms for Crawler Rigs

By Paul A. Gildea, P.E.

WHAT IS A WORKING PLATFORM?

A working platform provides a safe foundation for any crawler rig, typically piling rigs or cranes that can weigh anything from 5 tons to more than 200 tons. Although this type of rig is typically stable when tracking over a firm, dry surface, if the underlying subgrade has insufficient bearing capacity, under certain adverse loading conditions, this can cause significant stability issues due to either deformation or even failure of the underlying subgrade material. Even something as relatively small as a 1 square meter soft spot can be sufficient to unbalance a rig/crane and cause it to topple over. Every year piling rigs fall over in the US with serious and occasionally fatal consequences. In addition, 'near misses' due to the inadequately prepared site surface/working platform are even more common. This is neither necessary nor acceptable in today's Health and Safety climate.

Every year piling rigs fall over in the US with serious and occasionally fatal consequences.

Major site issues that contribute to unsafe platforms include:

- Soft ground in upper 3 meters of the site ground profile

- Tracking of rigs on steep slopes (> 1 in 10 gradient)
- Tracking of rigs on uneven, poorly graded platforms.
- Poor site drainage.
- Presence of poorly backfilled utility trenches

BRIEF SUMMARY OF CURRENT BEST PRACTICE IN UK AND IRELAND

Currently in the US there are no specific guidelines for design and construction of safe working platforms, so initially a review was made to best practice elsewhere in the world.

In the UK, back in the mid 1990's after a number of serious and some fatal incidents related to piling rig collapse, a group of specialists were assembled through an initiative by the Building Research Establishment (BRE) to create a unified approach to working platform construction and design that clearly defined health and safety requirements for safe working platforms. From this initial gathering, BRE developed a set of design, construction and maintenance guidelines, with the aim that they be adopted by the wider piling community. This guidance has since been adopted largely voluntarily by the wider piling and construction community in the UK and Ireland and has formed a springboard for a similar review in the US. (continued on page 8)

Bluff Spring Fen Forest Preserve

By Jerome McGovern

At the extreme northwest corner of Cook County is an unusual Forest Preserve that contains four distinct ecosystems: Wetland, Savanna, Hill Prairie and Mesic Prairie. Just outside of Elgin, Illinois is Bluff Spring Fen a 160 acre parcel that is now part of the Forest Preserve District of Cook County (FPDCC). That it even exists is a tribute to a dedicated group of volunteers, Friends of Bluff Spring Fen (Friends), who

Calcareous fen in winter with groundwater percolating up (Source: J. McGovern photo)

have labored to restore the area to its original environment. Over the years, parts of the current preserve have been used as a gravel mine, race track, dairy farm and trash dump. In the 1960s the Metropolitan Water Reclamation District of Greater Chicago (MWRD) purchased the property with the intention of building a wastewater treatment plant that would outfall to Poplar Creek. Fortunately the treatment plant was never built and the Friends began the slow process of removing trash and invasive species and then reintroducing native plants that had been lost to begin restoring the original ecosystems. Under a private-public partnership between the volunteers, the Illinois Nature Preserves

Just outside of Elgin, Illinois is Bluff Spring Fen a 160 acre parcel that is now part of the Forest Preserve District of Cook County (FPDCC). That it even exists is a tribute to a dedicated group of volunteers, Friends of Bluff Spring Fen (Friends), who have labored to restore the area to its original environment.

Commission and the Nature Conservancy of Illinois, various native ecosystems have been restored. In 2006 the MWRD sold the property to the Forest Preserve District of Cook County guaranteeing public ownership of Bluff Spring Fen.

The western portion of the preserve contains rolling hills, kames and bur oak savannas. A kame is a hill or mound of gravel deposited as glaciers melted and receded 13,000 years ago. The eastern portion of the preserve is a large, open area dominated by the fen, which has the richest diversity of plant species and wildlife at the site. Orchids, wildflowers and various species of butterflies can be found here. All told volunteers have counted 450 plant species, 57 butterfly species, more than 20 dragonfly species and almost 100 migratory and nesting bird species in the preserve.

The centerpiece of the preserve is the calcareous fen. A fen is a wetland fed by the continuous supply of groundwater. It can be seen as water seeping up to ground level forming a shallow puddle. There

Bur Oak Savanna with kame in the background (Source: J. McGovern photo)

In the 1960s the Metropolitan Water Reclamation District of Greater Chicago (MWRD) purchased the property with the intention of building a wastewater treatment plant that would outfall to Poplar Creek. Fortunately, the treatment plant was never built, and the Friends began the slow process of removing trash and invasive species and then reintroducing native plants that had been lost to begin restoring the original ecosystems.

are less than 250 acres of fen

(continued on page 11)

Future Cities: The Future Looks Bright

By Lauren Gardner and Tim Scully-Granzeier, P.E.

While much of Illinois was watching the soft and incandescent flurry of snowflakes from the safety of their homes, teams of 6th through 8th graders were busy gluing down any wobbly city infrastructure in the hallways of the Whitney Young Magnet High School in Chicago. The goal of these teams

While much of Illinois was watching the soft and incandescent flurry of snowflakes from the safety of their homes, teams of 6th through 8th graders were busy gluing down any wobbly city infrastructure in the hallways of the Whitney Young Magnet High School in Chicago.

was simple: to prove to the judges and parents alike that they had created power grids and other city infrastructure resilient to tornadoes, hurricanes, and natural disasters that have come to the forefront within the past couple of decades. Months of research, team discussion, and copious amounts of glue resulted in a fount of solutions to one of today's most important questions for city officials. Despite the complexity of infrastructure resiliency, students were able to create both innovative and (mostly) feasible remedies to the issue at hand. Many teams boasted of their use of insulated underground power grids and energy storage, others ascertained that the use of satellite-harnessed solar energy would ensure the resiliency of their island nation, and others still pointed to automated and connected vehicles, kinetic-absorbing sidewalks, and even tree-top restaurants as means of addressing the issues of resiliency and impressing those who braved the winter storm to be at the 2019 Future City Competition.

The St. Paul of the Cross team, winners of the 2019 Future City Illinois (Chicago) Competition, with their model (Photo courtesy of Don Wittmer)

Since 1991, Future Cities has challenged young minds to envision a future and comprehensively evaluate, develop, and construct the concept. This program is student-driven, with support from a mentor and faculty member. Typically, teams of middle school students begin in September, spending months of preparation after school, culminating in: a computer model (SimCity software), a physical table-top model within specifications and budgets, an oral presentation to judges, and an essay: essentially a microcosm of an engineering project. Each year, over 40,000 students invest their efforts imagining how to build, sustain, power, and serve future societies. Similar to this year's infrastructure resiliency, prior themes of aging population, sustainability, and poverty introduce the teams to current and relevant topics. The final

(continued on page 12)

ASCE Membership Update

By Matt Huffman

This past year ASCE National has revamped their membership benefits, so make sure you take advantage of all that is included with your membership. A few of the many benefits include 10 free PDHs (on-demand webinars), SmartBrief daily e-blast, Access Engineering (online technical reference tool),

ASCE National has revamped their membership benefits

and discounts on technical publications/conferences. For younger engineers, there are a few new resources offered by ASCE, one being Career by Design, a new online portal with tools, tips, resources, and opportunities a young engineer may need to advance their career. ASCE has also launched a new mentoring program called Mentor Match, where a younger engineer can find a local mentor. If you are interested in being a mentor, you can sign up on the new Mentor Match portal.

Graduating Students and new PEs, upgrade your membership grade

For the graduating Student Members and Associate Members who recently passed the PE, make sure to advance your membership grade, which can be done online (link):

- Associate Member -- an individual which has a bachelor's degree from an ABET/EAC accredited school in civil engineering or a current member in another engineering society which ASCE has a reciprocal membership agreement.
- Member -- an individual which has a bachelor's degree from an ABET/EAC accredited civil engineering program with a PE or five years experience; master's or doctorate in civil engineering with a PE or four years experience; degree from a non-ABET/EAC accredited school with a PE and five years of experience.

For our experienced and accomplished members, if you have been an ASCE member for over 10 years and have made celebrated contributions and/or developed creative solutions to help change lives, have you considered applying to be an ASCE Fellow??? This prestigious honor is held by fewer than 3.5% of ASCE members and recognizes the important contributions civil engineers make to society. The ASCE Illinois Section encourages our members to consider applying for this honorary membership grade. More information regarding the application process and other exclusive benefits of being an ASCE Fellow can be found on the ASCE website.

Remember to keep your ASCE account up to date with your latest employment and contact information via your online ASCE account (Login). Also, when renewing your 2019 membership, please remember to pay the Section dues ($30), which constitutes a majority of our Section income. Please note that ASCE has a membership renewal grace period which lasts until mid-March, so make sure to renew soon!!

Keep your contact and employment information current by logging into your ASCE account

Please contact Matt Huffman, the Illinois Section Membership Committee Chair, with any membership related questions at mhuffman@cbbel.com.

Matt Huffman *is a Project Manager at Christopher B. Burke Engineering, Ltd. within the Phase I Engineering Department.*

Load Rating Illinois' Major River Bridges

(continued from page 1)

When the route involves crossing a major structure that cannot be rated in BrR, the permit vehicle must be evaluated using a different method. Since heavy permit vehicles come in all shapes and sizes, these trucks must be analyzed on a case-by-case basis to determine accurate member loads. A traditional approach would involve BBS either performing the analysis themselves or contracting a consultant to perform the work. Both approaches can be time consuming and expensive relative to the much simpler approach of adding truck definitions to BrR and performing an analysis and rating.

To reduce the time and cost associated with rating complex structures, Michael Baker International, Inc. (MBI), in conjunction with BBS, developed a stand-alone load rating tool in the form of a Microsoft Excel spreadsheet that allows BBS to determine rating factors for any user specified truck. This rating process is automated inside the spreadsheet so that BBS staff can quickly generate load ratings for any permit load vehicle without performing a new analysis.

For each structure, a 3D Finite Element Model (FEM) is developed capturing all structural behavior. Points of interest are then selected at the controlling locations of pertinent members. Influence lines for each point of interest are then extracted from the 3D model for use in the rating tool spreadsheet. User-input axle weights and configurations can then be run across these influence lines, generating live load demands at each point of interest.

The rating tool provides a user-interface with instructions for how to operate the rating tool. This tool then automates the load rating process so that the owner can quickly generate live load ratings for any permit vehicle in a short amount of time. Additional features include the ability to input member section loss, adjust impact factors, adjust wearing surface loads, run truck trains, and many others.

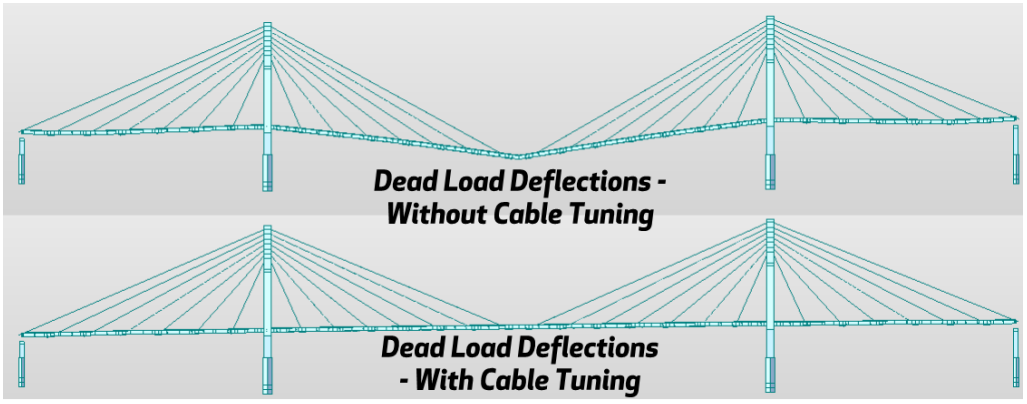
Due to the unique and complex nature of these structures, several special topics were investigated during this project. A brief overview of a few of these topics is described below.

Cable Tuning: To control geometry and ensure final profile grade of a cable-stayed bridge, the cables must be stressed, or "tuned", at each stage of construction. If these tuning forces are not considered in the FEM, dead load deflections will be significant and dead load forces in all bridge components will not be representative of those in the actual, in-place structure.

Sag from the weight of the cable reduces the cable's stiffness and must be "taken out" by stressing the cables. For use in a linear elastic analysis model, the stiffness in each inclined cable can be determined using a numerical approximation developed by Ernst.

Construction Staging: Post-tensioned concrete box girders constructed using the cantilever method are not that dissimilar to cable stayed bridges. Instead of having external cable stays to control geometry and ensure final profile grade, internal post-tensioning tendons are stressed at each stage of construction. Setting up the correct construction sequence, tendon profiles, and applied tendon stresses in the FEM is crucial to capturing the correct behavior and stresses in the final condition of the bridge.

Transverse Deck Analysis: In addition to a longitudinal analysis, post-tensioned concrete box girders that include transverse post tensioning must be evaluated in the transverse direction to ensure adequacy of the girder top slab. The transverse rating was performed on a nominal 1' long transverse strip with transverse post tensioning averaged over the tendon spacing. (continued on page 8)



Load Rating Illinois' Major River Bridges

(continued from page 7)

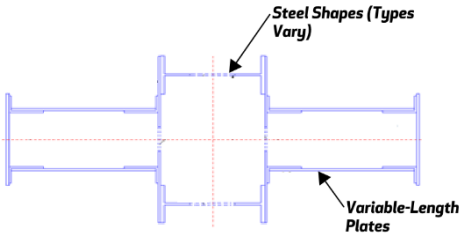
The longitudinal distribution of live loading was determined using a combination of Homberg plots and AASHTO deck strip widths.

Despite the analysis and load rating challenges major river crossings possess, in most cases it is possible to simplify these structures in such a way that linear elastic analysis methods can be used, allowing a Microsoft Excel based load rating tool to use influence lines for live load analysis.

Suspension Bridge Towers: Compression member capacity equations in AASHTO and AISC include several assumptions and are generally intended for prismatic members. The towers on the Clinton Gateway Suspension bridge contained a 3rd order polynomial flare as well as a unique built-up cross section. Local buckling of the individual plates was checked using a generalized plate buckling approach, and the global compression capacity of the towers was determined using a non-linear geometric buckling analysis due to the towers being non-prismatic.

Despite the analysis and load rating challenges major river crossings possess, in most cases it is possible to simplify these structures in such a way that linear elastic analysis methods can be used, allowing a Microsoft Excel based load rating tool to use influence lines for live load analysis. Using

Using this method, BBS has been able to evaluate and perform ratings on permit vehicles in addition to design and legal vehicles for FHWA reporting in just a few minutes and without the need for contracting a consultant for each permit request.



Tower Cross-Section

this method, BBS has been able to evaluate and perform ratings on permit vehicles in addition to design and legal vehicles for FHWA reporting in just a few minutes and without the need for contracting a consultant for each permit request.

Parker Thomson, P.E., S.E. *is the Bridge Department Manager at Michael Baker International in Chicago.* ***Joe Kauzlarich, P.E., S.E., M.ASCE*** *is a Bridge Engineer at Michael Baker International in Chicago and currently serves as Past Chair for the Structural Engineering Institute.* ***Brett Mattas, P.E., S.E.*** *is a Bridge Engineer at Michael Baker International in Columbus, OH. He has previously served on the committee for the Structural Engineering Institute Illinois Chapter.*

Working Platforms for Crawler Rigs

(continued from page 3)

As of 2018, typical practice in the UK is that piling subcontractors will provide the specific loading information for their selected plant (piling rigs and cranes) and in most cases will provide a platform design dependent on subgrade conditions and based on the BRE guidance document. The piling contractor will then request a working

Since adoption of this best practice procedure by the majority of major piling contractors in the UK in 2005, incidents of rig toppling have reduced by 70% year on year.

platform certificate, signed by owner, designer, and general contractor before commencing work. This significantly helps to alleviate issues with responsibility for working platforms with the corollary that it has established a unified approach and agreement that specialist sub-

(continued on page 9)

Working Platforms for Crawler Rigs

(continued from page 8)

contractors would not proceed to work without a stable working platform. Since adoption of this best practice procedure by the majority of major piling contractors in the UK in 2005, incidents of rig toppling have reduced by 70% year on year.

DESIGN APPROACH FOR THE WORKING PLATFORM

Best practice design in the UK and Ireland provided via the guidance information contained in the BRE Document entitled "*BRE Report 470 - Working platforms for Tracked Plant: Good practice Guide to the design, installation, Maintenance and repair of ground-supported Working Platforms*"

Key issues addressed in the design of a safe working platform relate to the following:

- Assessment of the quality of the existing subgrade (soil strength, groundwater depth, other geotechnical parameters) and any necessity for subgrade improvement
- Use of adequately compacted free draining granular material to form the working platform
- Requirement for additional reinforcement of the platform material using strengthening geotextiles
- Rig loadings and critical load distributions defined by BRE 470 (information provided by the specialist contractor)

The BRE470 document provides two methods of design – one for a cohesive subgrade material (clay/silt) and one for a granular subgrade material.

IMPORTANCE OF MAINTENANCE AND REPAIR OF THE WORKING PLATFORM

The working platform can of course deteriorate due to use over time, so it is critical that even though it may be adequately designed and initially constructed, damage through wear and tear, excavations, trenches or other holes dug in the platform surface must be properly backfilled to avoid creating a soft spot that might give way under the tracks of a piling rig or other plant and equipment. In addition, the edge of the platform must always be clearly defined and should be regularly inspected to ensure that there has been no degradation over time.

As the platform will typically continue to exist after the piling contractor leaves site and may be used by following trades, maintenance

The working platform can of course deteriorate due to use over time, so it is critical that even though it may be adequately designed and initially constructed, damage through wear and tear, excavations, trenches or other holes dug in the platform surface must be properly backfilled to avoid creating a soft spot that might give way under the tracks of a piling rig or other plant and equipment.

may need to continue beyond the end of the piling contract. Even during the piling contract it might be used by other trades. As such, it makes sense that the design, in-

(continued on page 10)

Working Platforms for Crawler Rigs

(continued from page 9)

stallation and maintenance of working platforms should be the responsibility of the organization that has that has continuous control of all site activities, which is typically not the piling contractor.

ADVOCACY FOR WORKING PLATFORM GUIDELINES IN THE US

For similar reasons to those behind establishment of guidelines for Working Platforms in the UK, an industry wide Working Platform Working Group (WPWG) was established in 2015 to facilitate industry discussion on improving and standardizing design and construction practices to ensure safe working platforms for all tracked plant and equipment used to install deep foundations across the United States.

As of early 2019, a jointly signed position document has been signed jointly between ADSC-IAFD, PDCA and DFI, a copy of which can be referenced here http://www.dfi.org/commhome.asp?WPWG and which outlines the preferred approach and vision to Working Platforms by key industry organizations in the specialist Foundation Contracting industry.

It is hoped that this is the first major step towards standardizing a safe approach to providing Working Platforms for Tracked plant across the US.

Paul Gildea *is a Senior Director of Langan International, looking after Foundation and Geotechnical Engineering projects in the US, Middle East, Asia and Europe. Over his 30 year career, he has spent almost 20 years as a specialist piling and geotechnical contractor in the UK, Ireland, Middle East and Hong Kong. Paul is co-chair of the Industry Wide (DFI/ADSC/PDCA) Working Platform Working Group and is currently based in Langan's San Francisco office.*

Bluff Spring Fen Forest Preserve

(continued from page 4)

wetlands in Illinois. Even more unusual are calcareous seep fens, where alkaline water bubbles up from the ground. There are only

The centerpiece of the preserve is the calcareous fen. A fen is a wetland fed by the continuous supply of groundwater. There are less than 250 acres of fen wetlands in Illinois.

14.5 acres of calcareous fen remaining in the state. Bluff Spring Fen is a half-acre of that amount. The water maintains a constant temperature of 53 degrees Fahrenheit and because the water courses through subsurface limestone it has an alkaline pH. The environment created by the alkaline water is hostile to most plants, only those that tolerate it can survive. Since calcareous fens are a rare occurrence, the plants found in that ecosystem are extremely rare.

Restoration of the ecosystem that provides for the diversity of plants and wildlife required mitigating stormwater runoff through the preserve that changed the chemistry and temperature of the groundwater that supplied the fen. Building on research done by the Illinois State Water Survey, a detailed study of surface and groundwater flow was made by Mackie Consultants. They recommended building a bypass storm sewer to route stormwater runoff from Gifford Lake upstream of the preserve to an outfall in Poplar Creek in order not to change the alkalinity of the fen's groundwater.

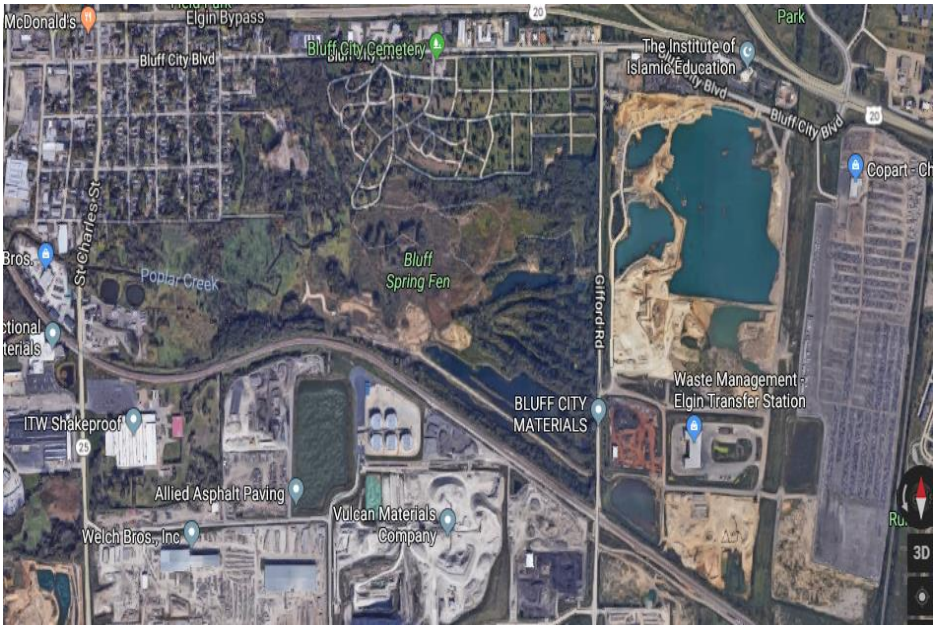
Construction of emergency bypass channel (Source: S. Kaminski photo)

Stormwater runoff also contained chlorides from road de-icing and over time incision and erosion created channels that diverted groundwater away from the fen. 3,000 feet of storm sewer was constructed to divert urbanized stormwater around the fen and included an erosion-proof overflow bypass channel. The diversion storm sewer was paid for by adjacent property owners Bluff City Materials and Vulcan Materials with Cook County contributing a portion of the cost.

Bluff City owns 300 acres upstream of the fen and Vulcan owns an underground limestone mine immediately south of the fen. The storm sewer design included master planning for prevention of fen impacts associated with existing mining and future redevelopment land uses at the adjacent Bluff City and Vulcan properties. Part of the project included filling in a mined out gravel pit adjacent to the fen that filled with stormwater and altered the groundwater chemistry. Porous limestone from a nearby construction site was used to fill the pit and maintain alkalinity and temperature in the groundwater. The total cost of the improvements was approximately $2,000,000.

Bluff Spring Fen is open daily and is accessed through the Bluff City Cemetery which is located at 945 Bluff City Road in Elgin. Follow

(continued on page 12)



Aerial View of Bluff Spring Fen (Source: Google Maps)

Bluff Spring Fen Forest Preserve

(continued from page 11)

the main cemetery road, ignoring all turns, until you come to a parking lot along a split rail fence and the trail head. Restrooms are available at the cemetery office which is only open on weekdays. In the summer wear long pants to ward off ticks and bring mosquito repellant.

Friends of Bluff Spring Fen meet on first and third Saturday of each month from 9:00 AM until noon to maintain and restore the preserve. Tours are given on the third Saturday of each month at 10:00 AM.

For more information see www.friendsofbluffspringfen.com

***Jerome McGovern** is a retired Principal Civil Engineer for the Metropolitan Water Reclamation District of Greater Chicago (MWRD). Steve Kaminski of Mackie Consultants also reviewed and provided feedback on the article.*

Future Cities: The Future Looks Bright

(continued from page 5)

product from these teams reflects an impressive grasp of the issues and solutions, clearly resulting from extensive research. As the students conceive of and build their Future City, they are also laying the foundational structure for their individual future.

The complete Future Cities process requires and hones various technical, professional, and life skills that will benefit the students' future pursuits. In many respects, the competition mimics an engineering evaluation, involving a team made up of and requiring diverse skillsets. Frequently, the teams comprise ten or more students, with three to four presenting, while the others contribute to building the physical city, SimCity modelling, research, and writing; the students frequently reference particular strengths that drew them to a specific role within the team. The objective, to devise a functioning city, also requires recognition of the interconnected variables (i.e. of waste, energy, food, water, pollution, revenue, and quality of life). Future Cities also promotes professional and life skills such as accountability and commitment, written and oral presentation, and construction or implementation of a design. The process involves a significant degree of creativity, giving the students wide latitude to fashion a future from their imagination. Lastly, the preparation and the final delivery instill a confidence stemming from accomplish-

2019 Future City Illinois (Chicago) Competition Special Awards Judges including our ASCE judges (Photo courtesy of Don Wittmer)

Since 1991, Future Cities has challenged young minds to envision a future and comprehensively evaluate, develop, and construct the concept. This program is student-driven, with support from a mentor and faculty member.

(continued on page 16)

Illinois Section News & Secretary Report

Spring 2019

In an effort to inform Illinois Section members of the discussions at the monthly Board meetings, the Section Secretary contributes this article to the newsletter. Any questions or comments on the Board activities are welcome by contacting Andrew Walton at awalton@orionengineersllc.com.

■ *Treasurer's Report*

▲ A treasurer's report was presented at the December, January, and February meetings. All reports were approved.

■ *Highlights from Illinois Section Activities and Group Reports.*

▲ ***2019 President-Elect / Spring Scholarship Dinner*** – Please save the date for the 2019 ASCE IL Section President-Elect / Spring Scholarship Dinner to be held on Wednesday 4/17/2019 at Maggiano's (Chicago) located at 2516 N. Clark St., Chicago, IL 60654. Highlights for this year's event include ASCE National President-Elect "Guna" and The Order of the Engineer Ceremony. More information will be forthcoming, but please contact IL Section President-Elect Megan McDonald with any questions at megan.mcdonald@clarkdietz.com.

▲ ***2019 Annual Awards Dinner*** – The 2019 ASCE IL Section Annual Awards Dinner will be held on Wednesday 10/2/2019 at The Art Institute of Chicago (Modern Wing) located at 159 E. Monroe St., Chicago, IL 60603. Please save the date for this event.

▲ ***Special Events Outside Chicagoland Region*** – The IL Section UP&D and Special Events Committees are interested in planning future event(s) outside of the Chicagoland region where most Section events are held. Locations discussed include Ottawa, Rockford, and East Dubuque, among others. If you are an IL Section member residing near one of these population centers and would be interested in helping to organize an event in your area or would like more information, please contact IL Section President John Green at johnggreen@hotmail.com or UP&D Chair Bill Cussen at wcussen@gsg-consultants.com.

▲ ***Region 3 Update*** – Region 3 Governor Darren Olson has kept active with the Illinois Section and keeps the Section board apprised of regional ASCE activities. Region 3 consists of 14 Sections and 16 Branches within six states (IL, WI, MI, MN, ND, OH). For more information about ASCE Region 3 and current activities, please contact Region 3 Governor Darren Olson at dolson@cbbel.com.

▲ ***2019 IL Legislative Drive-Down*** – ASCE IL Section leadership will be heading down to Springfield on Wednesday 4/3 in participation with ACEC-IL and TFIC to lobby our legislators about the need for sustainable infrastructure funding, among other pertinent industry issues. All ASCE members are encouraged to attend and participate in this event – advocacy starts with us as engineers! For more information about the 2019 Legislative Drive-Down, please contact IL Section Past-President Patrick Lach at plach@heyassoc.com.

▲ ***Mentorship Program*** – The Mentorship Program is currently in full swing with over 20 mentor/protégé pairs made up of over 40 program participants. The Mentorship Program kicked off in November and will conclude in April 2019. Mentor-protégé pairs are encouraged to log a minimum of 3 events together. Please contact the ASCE IL Section Student Outreach Committee for an application or with any questions at stoutcommittee@gmail.com.

▲ ***ASCE Resume Book*** – The IL Section will be publishing a 2019 Student Resume Book available to all Section members. Resumes are due from students by Monday 3/4 for a publication date of Friday 3/8. For more information or for a copy of the Resume Book, please contact the ASCE IL Section Student Outreach Committee at stoutcommittee@gmail.com.

▲ ***ASCE Legends Program*** – A forthcoming ASCE Legends Program is being spearheaded by the Student Outreach Committee with the objective of pairing students and young professionals in the field of civil engineering with retired professionals that have served a career in the profession. For more information on this program, please contact the ASCE IL Section Student Outreach Committee at stoutcommittee@gmail.com.
(continued on page 14)

News & Secretary Report

(continued from page 13)

▲ ***IL Section Website Updates*** – Please check out the IL Section's webpage (www.isasce.org), which has been updated to include the 2019 Scholarship Applications, listing of current board members, fixing broken links, and other miscellaneous updates.

▲ ***ASCE Bylaws Update*** – The ASCE IL Section will be updating its Bylaws this year which will be posted in a forthcoming newsletter and on the website for a 30-day review by Section members. The new Construction Institute (CI) will be added to the Bylaws.

▲ ***USMCA*** – The ASCE IL Section will be participating in the United States Minority Contractors Association (USMCA) Tech Day and providing PDH sponsorship. Please contact admin@usminoritycontractors.org for more information about this event.

▲ ***ASCE Holiday Party*** – The 2018 ASCE IL Section Holiday Party was held Thursday 12/13/2018 at Cochon Volant, located at 100 W. Monroe St., Chicago, IL 60603. The party was a great success with representation from members of all IL Section Technical Institutes. As in previous years, a large haul was brought in by the more than 60 members in attendance for the Toys-for-Tots charity. Please contact Director Matt Kirby for more information at mkirby@hntb.com.

▲ ***Future Cities Competition*** – The 2019 Future Cities IL Regional competition was held in Chicago on Saturday 1/19 at Whitney Young Magnet High School located at 211 S. Laflin St., Chicago, IL 60607. Congratulations to St. Paul of the Cross School for taking 1st place again! The team will be heading to the 2019 Future Cities National competition scheduled for Tuesday 2/19 in Washington D.C. More information about the IL Regional competition can be found at www.futurecity.org/illinois-chicago or by contacting Future Cities IL Regional Coordinator Don Wittmer at dwittmer@hntb.com.

▲ ***Construction Institute (CI)*** – The Illinois Section has officially launched the Construction Institute (CI). The CI will be partnering with the SEI for the upcoming 41st Street Pedestrian Bridge Panel discussion on Thursday 2/21. If you're interested in joining this institute, please contact CI Chair Zach Pucel at zjpucel@transystems.com.

▲ ***Environmental & Water Resources Institute (EWRI)*** – The EWRI will be partnering with the APWA Suburban Branch for an upcoming event in Schaumburg, IL scheduled for Thursday 3/7. Please contact EWRI Chair Megan Elberts with any questions at melberts@geconsultllc.com.

▲ ***Geo-Institute (GI)*** – The next GI dinner meeting is scheduled for Tuesday 3/12 at Pazzo's, located at 311 S. Wacker Dr., Chicago, IL 60606. Please contact GI Chair Brandon Hughes with any questions at bhughes@thatcherfoundations.com.

▲ ***Structural Engineering Institute (SEI)*** – The upcoming SEI Biennial Lecture Series will resume with Session 1 kicking off on Wednesday 3/6. Marco Loureiro (Jacobs) will discuss the Darlington Upgrade in Adelaide, Australia and Kent Zinn (Michael Baker Int'l) will discuss the Historic Winona Bridge over the Mississippi River. For sponsorship opportunities, more information, or if you have any questions, please contact SEI Chair Tom Janicke at tjanicke@benesch.com.

▲ ***Transportation & Development Institute (T&DI)*** – Upcoming February luncheon will feature Paul Kovacs, Chief Engineer of the Illinois Tollway at the Maggiano's in Oak Brook, IL on Thursday 2/14. Please contact T&DI Chair Nihar Shah with any questions at nshah@rme-i.com.

▲ ***Urban Planning & Development Group (UP&D)*** – The UP&D is recruiting for new members. If you're interested in joining this group, please contact UP&D Chair Bill Cussen at wcussen@gsg-consultants.com.

The Illinois Section Board Meetings are held every first Monday of the month, except for holidays. The next board meeting is scheduled for March 4, 2019 at 5:30pm at Clark Dietz's office located at 118 S. Clinton Street, Suite 700, Chicago, IL 60661. If you are interested in attending these meetings, please contact President John Green.

By Andrew Walton, PE
ASCE IL Section Secretary 2018-2020
awalton@orionengineersllc.com

Illinois Section Activities

ASCE IL Section SEI - Biennial Lecture Series
Dates: March 6, Session 1
March 20, Session 2
April 3, Session 3
April 17, Session 4
Time: 5:30pm - 8:00pm
Place: Lloyd's Chicago
One South Wacker Drive
Chicago, IL 60606
Lecture Series Flyer

ASCE IL Section ASCE EWRI, IEWA & APWA MS4 Implementation Seminar
Date: Thursday, March 7th
Time: 8:00am-2:00pm
Place: Chandler's Chop House
401 N. Roselle Road
Chicago, IL 60194
Cost: $50-Municipal Employees
$85-Non-Municipal Employeesl
$200-Seminar Sponsor (includes 1 registration and recognition at event)
More information and to register, visit https://www.123signup.com/register?id=rxhqt

Seminar Flyer

ASCE IL Section Student Outreach – Student Resumes Due
Date: Monday, March 11th
Student Resume Flyer
Questions: Contact Taylor Leahy
leahyt@cdmsmith.com

For all Section, Group and Committee events, check out the Section website at:

www.isasce.org/calendar/

ASCE IL Section EWRI Board Meeting
Date: Tuesday, March 12
Time: 4:30pm
Place: Five Roses Pub
5509 Park Place
Rosemont, IL 60018

ASCE IL Section Student Outreach – Meadow Glens STEM Discovery Night
Date: Thursday, March 14th
Place: Meadow Glens Elementary School
1150 Muirhead Ave.
Naperville, IL 60565
Contact: Lauren Gardner
lgardner1316@gmail.com

ASCE IL Section Institute Scholarship Deadline
Date: Monday, March 25th
Scholarship Application
Questions: Contact Taylor Leahy
mailto:leahyt@cdmsmith.com

ASCE IL Section Illinois Legislative Day – SAVE THE DATE
Date: Wednesday, April 3
More details to come

ASCE IL Section Spring Dinner – SAVE THE DATE
Date: Wednesday, April 17
Place: Maggiano's
111 W. Grand Ave.
Chicago, IL
Highlights for this year's event include ASCE National President-Elect Kancheepuram"Guna" Gunalan, PH.D., P.E., D.GE, F.ASCE and The Order of the Engineer Ceremony.

SEI Structures Congress 2019
Date: April 24-27
Place: Orlando Florida
Click here for more information about this event.

ASCE IL Section Geo-Institute Lecture Series – SAVE THE DATE
Date: Friday, May 10
Time: 8:00am
Place: Oak Brook, IL
Registration opening soon

World Environmental & Water Resources Congress
Date: May 19-23
Place: Pittsburgh, Pennsylvania
Click here for more information about this event.

ASCE IL Section Minority Affairs Golf Outing – SAVE THE DATE
Date: Friday, May 31
Time: 8:00am
Place: Village Links of Glen Ellyn
More details to come

ASCE T&DI International Airfield & Highway Pavements Conference
Date July 21-24
Place Chicago, IL
Sponsorship page
Exhibitor page
Save The Date Postcard

Future Cities: The Future Looks Bright

(continued from page 12)

ing a significant project involving teamwork, technical topics, and interaction with adult mentors and judges. Just as the program fosters individual growth, IL ASCE's support for Future Cities is an investment in our collective future.

In many respects, the competition mimics an engineering evaluation, involving a team made up of and requiring diverse skillsets.

While St. Paul of the Cross of Park Ridge, Illinois walked away with the trophy and a bid to the Future City International Competition in Washington, D.C., all the teams walked away having made their mark on the judges. The students' unfiltered creativity to a problem that has devastated communities across the United States and the world, resulted in unique and innovative solutions for cities susceptible to these threats. While facets of many models were both exciting and outside the box, more impressive was that these young minds understood the synergy between different city systems not so different from the synergy of different team members; the strength of the cities was in different agencies communicating with each other, and the strength of the teams was in their ability to cooperate and coordinate their efforts. It is with this knowledge that we can all be certain the future of our cities is in good hands.

Lauren Gardner *is a transportation engineer at CDM Smith. She is a part of the ASCE Illinois Section Student Outreach Committee.* ***Tim Scully-Granzeier, P.E.*** *is a Principal Engineer at Arcadis. He is a member of the ASCE Illinois Section Student Outreach Committee and chairs the Minority Affairs Committee.*

ASCE Student Outreach Feature

Northwestern Engineering students Sae Anazonwu and Anastasia Nally run a liquefaction experiment with aspiring engineers

ASCE member Joe Wiedemann and Northwestern Engineering student Anastasia Nally demonstrate mini excavators