

Engineers Without Borders – USA Presents the Cantón Santa Clara Case

Greg Hermandorfer and Julio Vargas to Review Seven-Year Effort in El Salvador

In developing countries throughout the world, millions live without access to clean water, functioning sanitation systems, or adequate infrastructure. Engineers Without Borders-USA (EWB-USA) was incorporated in 2002 to support community-driven development



Finishing the water tank.

programs around the world and work with local partners to design and implement sustainable engineering projects to help communities meet their basic human needs.

The Washington DC Professional Chapter (EWB-USA DC) has been working with the community of Cantón Santa Clara, El Salvador, since 2004. Santa Clara is a rural, agricultural community (population 3,165) with approximately 400 households distributed over 4 square kilometers. The population suffers from water-related illness associated with limited access to potable water and poor hygiene practices. EWB-USA DC has made 10 trips to assess community needs/assets, test soils and water, and begin construction on a community-wide system to distribute clean water.

Greg Hermandorfer and **Julio Vargas**, president and vice president, respectively, of EWB-USA DC, will present on the success the chapter has had working with the community, future trips to Santa Clara, and ways you can get involved with EWB.

Mr. Hermandorfer is a civil Engineer-In-Training (EIT) who graduated from Virginia Tech and is currently an assistant project manager with Foulger-Pratt Contracting. Julio Vargas is a mechanical EIT who graduated from University of Maryland-College Park and is currently working for IBM as a hardware safety compliance and regulatory engineer.

Please join us for this special presentation on **Tuesday, February 21, 2012**, at the **Hilton Arlington**, 950 North Stafford Street in Arlington, VA, on the second floor in the Gallery Ballrooms. Parking

is available at the hotel (\$8), at the

Ballston Mall garage (\$1 after 6 p.m.), and on the street (free after 6 p.m.). This location is in the same block as the Ballston Station on Metro's Orange Line. Registration and networking will be from 6:00 to 6:45 p.m., followed by dinner. The program will start around 7:15 and conclude by 8:30 p.m. The cost will be \$10 for students, \$35 for those who preregister, and \$45 for walk-ins. One Professional Development Hour will

be awarded to attendees. Click [HERE](#) to register. For questions, please contact John Casana at john.casana@gmail.com or 703-377-8980. ■



Pipeline trenching the old-fashioned way.



Installing the water pipeline.

President's Corner

Dear Members,

I am pleased to report that our National Capital Section (NCS) recently received two, 2012 State Public Affairs Grants from the ASCE. Our Boundary Stones Restoration Project initiative was awarded \$1,500, and our Infrastructure Report Card initiative was awarded \$4,500. Thanks to Stephen Powers and Fady Afif, respectively, for their leadership



in these two local initiatives. The ASCE State Public Affairs Grants program was created in 1997 to encourage ASCE Sections to undertake community projects at the grassroots level. Watch this newsletter and our website for progress on these and other ASCE-NCS community



**ENGINEERS
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February 19-25

support initiatives. I encourage you to contribute your time, and talent, to our community by getting involved with one of these NCS programs. And what better time to begin than during Engineer's Week!

Sincerely,

John Casana, P.E.

Sustainability Award & Lecture

Peter Binney, P.E., Envision™ Infrastructure Rating System Champion, to Deliver Keynote at March 20 NCS Meeting

Please join us March 20, 2012, as we celebrate sustainability in civil engineering in the region served by the NCS. This year's program will feature the 6th Annual ASCE-NCS Sustainability Awards, aimed at recognizing sustainable development projects, programs, and initiatives in the Washington, DC



metropolitan area. The program will be followed by the 7th Annual ASCE-NCS Sustainability Lecture/Keynote by a distinguished civil engineering champion of sustainability. This year, we are

honored to host Mr. Peter Binney, P.E., and Vice President for Infrastructure Systems at Merrick & Co. in Aurora, CO. For the last two years, Peter has been working with ASCE's Committee for Sustainability on the development of the sustainable infrastructure rating system

that will be used to guide practitioners and owners in achieving higher degrees of sustainable performance for civil infrastructure projects. He has served as the Chair of the Technical Committee and as a past Board member of the Institute for Sustainable Infrastructure. He was awarded the ASCE's President's Medal in 2011 and the American Council of Engineering Companies – Colorado General Palmer Award in 2008.

List of Past Distinguished ASCE-NCS Sustainability Lecture/Keynote Guests

- 2006 – Richard Wright, P.E., PhD, Dist. M. ASCE – Director, PERSI (Professional, Education and Research in Sustainable Infrastructure)
- 2007 – William "Bill" Wallace – Renowned Sustainability Author
- 2008 – Henry "Hank" Hatch, P.E., Dist. M. ASCE – Former Commander, U.S. Army Corps of Engineers

- 2009 – Brendan Owens, P.E. – Vice President, U.S. Green Building Council
- 2010 – Wayne Clough, P.E., PhD. – Secretary, Smithsonian Institute
- 2011 – Craig Farkos, P.E., M.ASCE – Chair, ASCE Committee on Sustainability
- 2012 – Peter Binney, P.E., M.ASCE – Vice President for Infrastructure Systems, Merrick & Co.

List of Previous NCS Sustainability Award Recipients

- 2007 – Anacostia Waterfront Corporation
- 2008 – Metropolitan Washington Council of Governments
- 2009 – U.S. Environmental Protection Agency P3 Competition
- 2010 – Wolf Trap National Park for the Performing Arts
- 2011 – Sidwell Friends Middle School, Washington, DC
- 2012 – (to be announced on March 20) ■

Newsletter

L.J. Sauter, Jr., Editor
Telephone: 202-502-8205

March 2012 Issue Deadline:
February 16, 2012

To Submit Articles:
laurence.sauter@ferc.gov

Address Changes:
Call 1-800-548-ASCE, email member@asce.org, go to <http://www.asce.org>, or write: ASCE – Membership, 1801 Alexander Bell Drive, Reston, VA 20191. Remember to include your membership number.

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Committee Chairs

Please refer to the NCS website at <http://asce-ncs.org> for a current list of NCS committees and chairs.



ASCE Legislative Fly-In

March 20–22, 2012

Make sure your state is represented!

Dear ASCE Leader:

Want to help make a change in Washington, DC?

ASCE's Legislative Fly-In – March 20–22, 2012 in Washington, DC – gives civil engineers the opportunity to educate and influence lawmakers on public policy issues affecting the profession of civil engineering.

[Apply now to attend this informative and interactive two-day program](#)

The program includes:

- Briefing sessions on key legislation active in Congress
- Training on lobbying and influencing your elected leaders
- Lobbying visits with elected leaders on Capitol Hill
- Networking with your ASCE peers from across the country
- Tips on continuing relationships with your elected officials once you return home

The 2011 Legislative Fly-In brought over 200 civil engineers from 46 different states to Washington, DC. **We would like to have every state represented at the 2012 Legislative Fly-In. Please help us reach our goal by encouraging your fellow ASCE members to attend.**

There is no registration fee for ASCE members to attend the Legislative Fly-In. There are a limited number of travel stipends available.

Visit <http://www.asce.org/Government-Relations/Key-Contact-Program/ASCE-s-Annual-Legislative-Fly-In/> for more details and to complete the online application to attend. The application deadline was set as January 24, 2012.

[Save the Date and add to your Outlook calendar!](#)

Questions? Contact ASCE Government Relations at govwash@asce.org or 202-789-7850

Volunteers Host Girl Scout Day at the National Building Museum

On Saturday, January 28, 2012, ASCE-NCS volunteers participated in Girl Scout Day at the National Building Museum (NBM) in Washington, DC. This year, the Section instructed Girl Scouts in the art of suspension bridge building using straws and string. This activity fascinated many of those who participated, and will perhaps lead to a new generation of civil engineering designers. Our thanks to Dean Westman and his volunteers for proctoring the activity:

- Vanessa Aririguzo
- CC Arrington

- Lauren Barnett
- Jacinta Collins
- Sara DeGroot
- Chelsea Green
- Stephanie Mason
- Kristina Swallow (former ASCE Capitol Hill fellow and speaker at the NCS October 2010 meeting) ■



"This design ROCKS!"

Another Volunteer Event Upcoming in February

The NCS also needs volunteers to host the next NBM activity, **Engineering Family Day on Saturday, February 18, 2012.**

The Washington DC Engineering Family Day is an annual event enjoyed



Future civil engineers practice their skills with newspaper and straws at a previous Family Day.

by thousands of children of all ages and their families. Volunteers will hand out materials and help guide children in the construction of straw-and-string suspension bridges. The NCS will provide all materials; volunteers for two shifts are needed. The first shift starts at 9 a.m. and the second shift starts at 1 p.m. Shifts are approximately 4 hours each, but volunteers are welcome to come in at any time and stay for as long as they like.

The NBM serves refreshments to volunteers throughout the day. The NBM is located at 401 F Street NW, on Metro's Red Line at the Judiciary Square Station. Parking is available on streets in the neighborhood and at public parking garages.

Contact Dean Westman at dwestman@wrallp.com to volunteer or for additional information. ■

Additional Volunteer Events in April

The National Mall in Washington, DC, will host two events in April that will draw thousands of attendees. Additionally, the NBM will host Cub Scout Day. The NCS will be an active participant, helping to staff a booth at each event. Stay tuned to the March newsletter for additional details about these exciting and rewarding events.

- the U.S. Environmental Protection Agency's P3 Sustainability Expo, April 21-22;
- the USA Science and Engineering Festival, April 27-29; and
- Cub Scout Day at the NBM, April 28. ■

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www.dcceas.org

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Celebrating 76 Years of Service to the DC Metro Area

Proclamation Luncheon

Wednesday, 22 February 2012, 11:30 am

Pier 7 Restaurant

650 Water St SW, Washington, DC, 202-554-2500

Complimentary 3 hours of parking, or walk from the Waterfront Metro

The event features networking and a buffet lunch, followed by technical talk from an industry leader.

Speaker: Mr. Fernando Pons, PE

Chair- ASCE Infrastructure and Research Policy Committee

Topic: Sustainable Approaches to Managing Underground Risks

TICKETS: \$30.00 PER PERSON, OR TABLES OF 10: \$300.00

Awards Banquet

Saturday, 25 February 2012, 6:00 pm

Crowne Plaza Hotel, Silver Spring

8777 Georgia Avenue, Silver Spring, MD 20910, 301-589-0800

4 Blocks from Silver Spring Metro. Free parking behind hotel.

The program will include DCCEAS awards to local engineering students, the Engineer and Architect of the Year awards, lifetime achievement award, and a keynote address.

Keynote Speaker: Dr. James W. Mitchell

Dean of Engineering, Howard University, Washington, D.C.

TICKETS: \$50.00 PER PERSON, OR TABLES OF 10: \$500.00

DRESS: BLACK TIE OPTIONAL

- Reservations for both luncheon and banquet are due to Khaled Alamdeen by February 18, 2012, at KAlamdeen@alaengr.com
- Checks should be made out to DCCEAS. You may mail checks to P. O. Box 18842, Washington, DC 20036-8842, or pay at door.

Important Notice- Advance payment is required. No shows will be billed.

ASCE's National Historic Civil Engineering Landmarks

The Cabin John Aqueduct Bridge, Cabin John, MD

(Geographic Coordinates: Latitude 38.972779, Longitude -77.148665)

Following the completion of the boundary survey for the District of Columbia in 1792, development of the new city moved at a steady pace. As the city grew, relying on individual wells and springs became a source of concern. By 1850, water shortages for both consumption and fire protection were feared. Therefore, the U.S. Army Corps of Engineers was directed to conduct studies for an adequate water supply for the Nation's Capital. An officer with the Corps, Montgomery C. Meigs, was placed in charge of the studies.

Meigs' plan included a dam above Great Falls on the Potomac, a nine-foot-diameter conduit and tunnel aqueduct 12 miles long, a receiving reservoir at Dalecarlia, a sedimentation reservoir in Georgetown, and a cast-iron pipe distribution system. Work began in 1853, with Meigs overseeing both design and construction. The path of the aqueduct would require it to cross Cabin John Creek where Meigs conceived a multi-arch masonry aqueduct bridge.

In May 1855, Meigs hired a 25-year-old assistant engineer, Alfred L. Rives. Rives studied engineering at Virginia



View of Cabin John Aqueduct looking northeast from Clara Barton Parkway bridge.

Military Academy and in Paris. In 1854, he was the first American to graduate from the prestigious *École des Ponts et Chaussées* (EPC), noted for training the elite French corps of engineers in the mid-nineteenth century. During his studies, Rives became acquainted with the Grosvenor Bridge over the River Dee at Chester, England. Meigs also was familiar with this 200-foot-long span bridge through Institute of Civil Engineering

Transactions. An entry in his journal states, "This is the greatest span now standing, in stone. It is 200 feet. I should very much like to build such a one."

Together, Meigs and Rives evolved the aqueduct design for a single 220-foot span arch with a rise of 57.25 feet. Work began in 1857, but suffered interruptions due to lack of funds in 1859 and was eventually suspended in 1861 at the outbreak of the Civil War when Meigs and other military engineers were put to work on the fortifications of Washington. Rives, along with Secretary of War Jefferson Davis and many southern military officers, joined the ranks of the Confederacy. A revealing article on the roles of Meigs and Rives, entitled "Alfred L. Rives and the Cabin John Bridge: Creating an Unprecedented 67m Masonry Arch at Mid-Nineteenth Century," by Dario A. Gasparini and David A. Simmons, can

continued on page 11



The ASCE NHCEL plaque shares a pedestal with the AWWA Historic Works plaque.



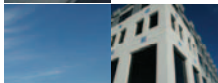
The ASCE NHCEL plaque (1973)

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Engineered Problem Solving

UPDATE: 5th Annual Transportation & Infrastructure Convention



The ASCE-NCS is excited to be a National Co-Host Organization for this 5th annual event, to be held March 7-9 on Capital Hill in Washington, DC. The Convention is a three-day event that has attracted the most prestigious registrants and speakers from 25 states, nine countries, and over 30 national and international trade associations and interest groups.

The purpose of the Convention is to educate policy makers concerning the current transportation issues at the local, state, and national levels. The Convention is unique, in that it brings together the leading transportation and infrastructure officials from the current Administration, Congress, and State legislatures, providing us the opportunity to dialogue personally with those who have a direct influence on future policy decisions of the nation.

Plans have advanced since last month's newsletter. Prominent speakers now confirmed as attending include:

- John Horsley, Executive Director, American Association of State Highway and Transportation Officials
- Maria Jesus Fernandez, Commissioner, Trade Commission of Spain
- R. Richard Geddes, Associate Professor, Cornell University
- Patrick Nowakowski, Executive Director, Dulles Corridor Metro Project
- Mortimer Downey, former Deputy Secretary, U.S. Department of Transportation
- Jim Simpson, Commissioner, NJ DOT and former FTA Administrator
- Steve Anderson, Managing Director, InfrastructureUSA
- Petra Todorovich, Director, America 2050
- Jackie Gillan, President, Advocates for Highway & Auto Safety
- Art Guzzutti, VP, Policy, APTA
- Randy Mullet, VP, Government Relations and Public Affairs, Con-way Inc.
- Karen Phillips, VP North American Government Affairs, CN
- Mike Toohey, President and CEO, Waterways Council
- U.S. Congressman John Mica (R-FL), Chairman, Transportation & Infrastructure Committee
- U.S. Congressman Nick Rahall (D-WV), Ranking Member, Transportation & Infrastructure Committee
- U.S. Congressman Chaka Fattah (D-PA)
- Robert E. Paaswell, Ph.D., P.E., Director, University of Transportation Research Center, and Director, CUNY Institute of Urban Systems
- Polly Trottenberg, Assistant Secretary for Transportation Policy, DOT
- Victor Mendez, Administrator, FHWA
- Joseph Szabo, Administrator, FRA
- R. Richard Geddes, Associate Professor, Cornell University
- And special presentations with the House Transportation & Infrastructure Committee:
 - U.S. Congressman Joe Barton (R-TX)
 - U.S. Congressman Timothy Bishop (D-NY)
 - U.S. Congresswoman Corrine Brown (D-FL)
 - U.S. Congressman Larry Bucshon (R-IN)
 - U.S. Congressman Howard Coble (R-NC)
- U.S. Congressman Rick Crawford (R-AR)
- U.S. Congressman Blake Farenthold (R-TX)
- U.S. Congresswoman Kay Granger (R-TX)
- U.S. Congressman Gene Green (D-TX)
- U.S. Congressman Frank Guinta (R-NH)
- U.S. Congressman Ralph Hall (R-TX)
- U.S. Congressman Richard Hanna (R-NY)
- U.S. Congressman Rubén Hinojosa (D-TX)
- U.S. Congressman Randy Hultgren (R-IL)
- U.S. Congressman Duncan Hunter (R-CA)
- U.S. Congressman Jesse Jackson Jr. (D-IL)
- U.S. Congressman Rick Larsen (D-WA)
- U.S. Congressman Ed Pastor (D-AZ)
- U.S. Congressman Thomas Petri (R-WI)
- U.S. Congressman Ted Poe (R-TX)
- U.S. Congresswoman Jean Schmidt (R-OH)

To view the agenda or to register, go to www.transportationsummit.com. For further information, contact Karen Brown at 214-750-0123 or kbrown@dean.net.

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Professional Development Seminar

When

March 3, 2012, from 7:30 a.m. to 4:30 p.m.

Where

Northrop Grumman Headquarters,
2980 Fairview Park Drive, Falls Church,
VA 22042

Payment

Cost is \$45.00 (Pre-payment is required with registration. No on-site registration will be allowed.) Cost includes continental breakfast, lunch, and snacks.

Who May Attend

All engineers who have or expect to take on management/ leadership duties.

Registration

Follow the link provided, to register.
http://www.asce-ncs.org/index.php?view=details&id=64%3Aasce-engineering-management-professional-development-seminar&option=com_eventlist&Itemid=14

To enter the facility, specific information will need to be furnished at registration. Each attendee must bring a drivers license to the event.

Description

The ASCE-NCS Engineering Management Committee and the Society of Women Engineers (SWE) Baltimore-Washington Section will host a Professional Development Seminar entitled: **Bridging Skills from Engineer to Leader**. The program and topics are:

| Session | Speaker |
|--|--|
| Motivation and Career Development | Kevin Leahy, Northrop Grumman |
| Effective Communications for Engineers | Cindy Simpson and Erin DiMenna, Association for Women in Science |
| Managing Different Generations in the Workplace | Barbara Goretsky, Northrop Grumman |
| Entrepreneurship for Engineers | Fernando Pons, Pons & Associates |
| <i>Keynote Address:</i> Developing Leadership Skills | Dick Blatt, Planar World Consulting |
| Dealing with Increasing Workloads and Life Balance | Pamela Faggert, Dominion |
| <i>Panel Discussion Session:</i> Soft Skills for Managers, Communications, Customer Interface, Allocating Resources, and the Art of Delegation | Panelists include session speakers and outside guests. |

Attendees at this event will be eligible for 6 Professional Development Hours.

Points of Contact for Question or Comments:

ASCE: Mr. Tom Lanyon, tlanyon@myrapidsys.com

SWE: Ms. Marcy Bartlett, mfbartlett@cox.net



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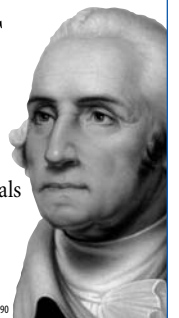
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Microsoft's Disaster Preparedness eGuide

The Computer Corner by
Ranjit S. Sahai, PE, F.ASCE

Disasters happen. When they do, business suffers. When you hear "disaster," you probably think of extreme weather events such as earthquakes or hurricanes. But the term disaster also refers to many common occurrences such as malware attacks, network failures, accidents, and theft.

The benefits of planning for disaster and investing in technologies that support business continuity are numerous:

- they help put a business on a solid operational footing,
- they help build a strong defense against disaster, and
- they help prepare a business to better withstand the impact of disaster.

In this article, I summarize the key issues highlighted in a valuable 22-page eGuide from Microsoft titled, "Disasters Happen. Is Your Business Ready?"

The key benefit of undertaking the effort to think about and plan for disaster is not just to be aware of threats and protection measures but to know with certainty how your business will respond to disaster.

The eGuide organizes its guidance for disaster preparedness into two areas: Technology Strategy and Business Strategy.

Technology Strategy

Explore Cloud-Based Software and Infrastructure Solutions:

These typically deliver large-company technology for a low per-user fee without having to invest in hardware or system maintenance.

Replicate Your Hard Drive: This creates an image of your drive so your computer can be restored to its pre-disaster condition without the tedium of reinstalling the operating system and all applications. If the image is not replicated to an online backup service, you will want to consider taking the replicated drive to an offsite location nightly.

Consider On-line Backup: Maintaining a copy of your data files

and folders to an online backup service ensures availability of data from any computer with an Internet connection.

Encrypt Files and Folders: To prevent sensitive data from falling into the wrong hands should a computer or drive be lost or stolen, consider using encryption on systems containing sensitive data.

Keep Technology Updated: Most reputable software vendors routinely update and patch their software for security vulnerabilities. Keeping your technology updated ensures your software is less vulnerable to malware attacks.

Document Your Environment: Your technology environment evolves over time and without a clear map of what equipment and settings make up your technology environment, it becomes more difficult to restore it to its full working condition after a disaster.

Business Strategy

Understand Your Insurance

Policy: Though it may not be fun reading through the fine print of your insurance policy and documentation requirements, it is important you be aware of what your coverage is and

the steps you need to take to initiate a claim.

Internal

Communication: Decide what needs to be said in case of disaster and who will communicate it

to employees. If your company doesn't have a Human Resources Department, the responsibility lies on the shoulders of the business owner.

External Communication:

Maintain a list of all external stakeholders and their contact information so you can communicate with them on how you are handling interaction with them when facing a disaster.

Communication Methods:

Decide what means of communication you will adopt: phone, e-mail, post on the website, corporate social media outlet, or other.

Managing Financial

Obligations: Even though you may be facing a disaster, neither your financial obligations to employees and



Image Source: Microsoft Corporation

suppliers nor your need for receivables from clients go away. Ensure your financial data is backed-up and accessible in a usable format.

Request Your eBook

Microsoft's eGuide offers much more value than is summarized here. The eGuide contains:

- a 13-question Disaster Readiness Quiz that helps you discover your score on how prepared you are, or aren't, for a possible disaster;
- solutions from Microsoft, such as the Microsoft Safety Scanner, Office 365, Microsoft Security Essentials, Virtualization, Windows 7, and Bitlocker, etc.; and
- a 3-page worksheet to serve as a framework for your disaster preparedness plan that covers both Business Continuity Basics and Technology Protection.

Interested in obtaining your own copy of Microsoft's 22-page eGuide? Simply e-mail info@rcare-solutions.com with the words "Microsoft eGuide" in the Subject line.

About the Author

Ranjit has been writing on computer topics since 1987 and has authored five books on CAD (MicroStation and AutoCAD). His next book is on success in life and business (Be-A-Teacher.com). He is the founder of RAM Corporation and the Chair of the ASCE-NCS Automation Committee. He welcomes comments and feedback via e-mail. To e-mail the author, visit the **Contact Us>Committee Chairs** page at www.asce-ncs.org or the **Contact Us** page at www.rcare-solutions.com.

January Meeting Recap – A Memorial Saved

At the January NCS meeting, attendees were treated to a captivating presentation by Jesús Gómez and Darrell Wilder, Principal and Senior Associate, respectively, of Schnabel Engineering, on the repairs to the Jefferson Memorial that were completed last year.

We learned that the memorial to the third president of the United States was constructed in between 1938 and 1943 on reclaimed land along the Potomac River. During the original construction, the plaza area was constructed by plac-



Original Construction – Note timber piles for the seawall.

ing additional fill. The original designers were cognizant of the soft soils below the site and supported the main memorial structure on Raymond piles and caissons, bearing on underlying bedrock. By the time the construction of the Tidal Basin seawall was started, steel was scarce due to the war efforts. Accordingly, the sea wall was supported on timber piles which did not extend to bedrock. The North Plaza and the ring road were supported on grade. The designers anticipated significant settlements and meticulous records of post-construction settlement were kept by the National Park Service (NPS). By the 1960's, the North Plaza had settled over 3 feet in some places, perimeter walls were sagging, and memorial steps had undergone considerable deformations. However, the main memorial building, supported by deep foundations on rock, was not affected. Measures to repair the damage were undertaken at that time.

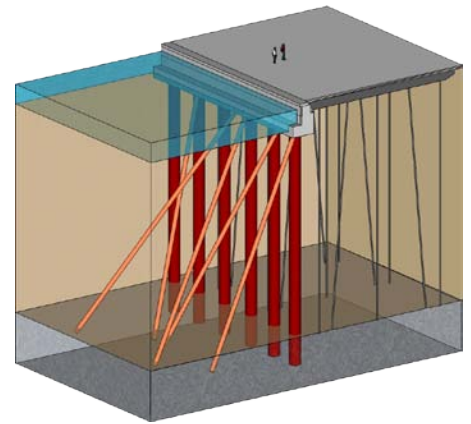
Around 2005–2006, noticeable settlement of the seawall and the North Plaza was noted and the present study was commenced in October 2006. To gain an understanding of the issues, a comprehensive review of the historic information was done. Gomez and Wilder gave a summary of the explorations conducted, instrumentation and surveys

performed to assess the subsurface conditions and understand the mechanism causing damage to the memorial, and complex analyses performed to design the fix.

The instrumentation data collected suggested that the primary cause of vertical movements was compression of the alluvial soils due to a substantial drop in the piezometric head near the rock interface. The surrounding areas on grade located within the area of influence of the piezometric head drop experienced measurable settlement. The Ashlar Seawall underwent settlement primarily because its foundation timber piles do not reach bedrock. The lateral movement of the seawall is due to the distortion of the soil mass undergoing compression below the edge of the embankment.

The design team considered various options for mitigation of the movements and selected a caisson and pipe pile A-Wall option after an extensive Value Analysis. One important factor in the selection of the stabilization solution was the “visitors’ experience.” Some of the options considered would have limited or deteriorated the visitors’ experience more than others and thus were impacted negatively during the Value Analysis.

In the adopted solution, the existing seawall was demolished after carefully removing, cataloguing the exact location, and storing the Ashlar facing blocks. Four-foot-diameter caissons were drilled and socketed into bedrock. Battered, 18-inch-diameter pipe piles were installed toward the Tidal Basin, thus avoiding conflicts with the existing



Artist's rendering of the A-frame foundation system.

North Plaza piles. The settlement of the areas on grade will continue; therefore, a transition zone at each end of the North Plaza was installed. The seawall was rebuilt over the caissons and piles as a structural connection between the foundation elements, and to support the earth pressures behind as well as the lateral force transmitted by the North Plaza. The new seawall maintains the *exact* same exterior geometry as the original wall to support the same original Ashlar facing blocks. The selected alternative made it possible to avoid demolition or substantial damage to the existing North Plaza while maintaining a suitable visitors’ experience throughout construction.

Clark Construction Group, LLC, of Bethesda, MD was selected by the NPS to perform the emergency repairs and the notice to proceed was issued in December 2009. Construction Management was performed by Alpha Corporation. ■



Original Ashlar facing stone re-positioned before pour of bottom section of the new wall stem.

ASCE's National Historic Civil Engineering Landmarks

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be found in the *Proceedings of the Third International Congress on Construction History, May 2009*.

The aqueduct consists of an arch rib of dressed granite. The stones are four feet thick at the crown and six feet thick at the spring points. The spandrel walls are sandstone, backed by brick. The stone was quarried in Maryland at a site upstream on the Potomac. The quarried blocks were transported via the C&O Canal and transferred through a lock into the flooded valley under the

aqueduct. Traveling cranes on timber falsework were used to place finished stone blocks. The MacArthur Boulevard roadway and coping were added 40 years later to accommodate traffic.

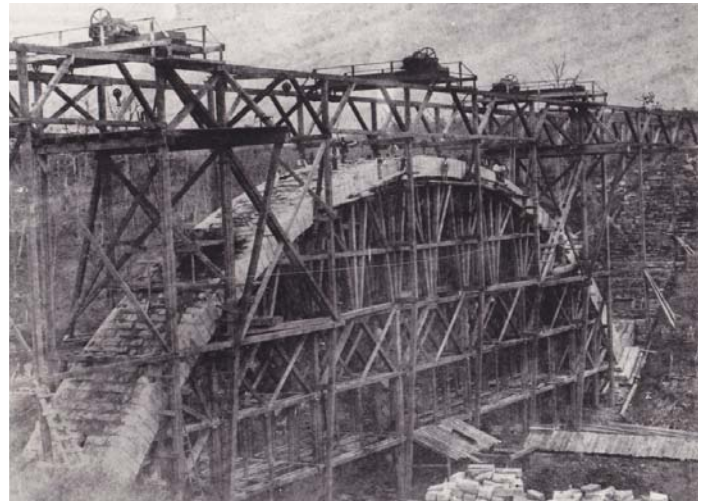
Following the delay due to the war, work on the structure eventually resumed and was completed in 1863. It began to carry water immediately and has been in use continuously since that time. When completed, it was the longest masonry arch span and held the record for 40 years. The ASCE named

it a "National Historic Civil Engineering Landmark" (NHCEL) in 1972. The ASCE plaque shares a pedestal mount with a plaque by the American Water Works Association (AWWA) on the south west end of the MacArthur Boulevard single-lane bridge. ■

Editor's Note: Thanks to by C. Scheffey and Bernie Dennis for submitting this article.



Historic American Engineering Record image – Cabin John Aqueduct Centering Falsework, August 12, 1861



Cabin John Aqueduct – Centering Formwork and Traveling Cranes for Main Arch

Employment Clearinghouse

CIVIL ENGINEER – Looking for 8 years minimum experience in hydrologic principles of Low Impact Development and other innovative and sustainable stormwater management approaches, water infrastructure issues, and stormwater regulations. Requirements: P.E., Master's Degree, and strong technical writing skills. We are a nonprofit in Beltsville, MD.

Send resume/salary requirements to info@lowimpactdevelopment.org.

The ASCE-NCS provides the Employment Clearinghouse as a free service to its membership. The Clearinghouse allows members to post short notices for available positions or candidates seeking employment. All employers listed herein

are equal opportunity employers. If you have questions or would like to post a position, please contact the Employment Conditions Committee, National Capital Section ASCE, 8502 Buckhannon Drive, Rockville, MD 20854-3503; phone: 301-983-9777; fax: 301-983-1953; or e-mail sassi22@verizon.net.

A colorful banner for ASCE Engineers Week. The background is blue with white and yellow bokeh lights. On the left is the ASCE logo, a stylized 'E' inside a circle. In the center is a circular inset photo of a woman and a child looking at a book together. On the right is the ASCE logo. Below the main banner is an orange bar with the text "ENGINEERS WEEK FEBRUARY 19-25, 2012" and "Celebrate! Volunteer! Help kids discover civil engineering! | www.asce.org/eweek2012". In the bottom right corner of the orange bar is a small circular inset photo of two men in hard hats.

February 9

Post-Disaster Safety Evaluations Training Workshop, to be held at ASCE Headquarters, Reston, VA. This one-day workshop returns after a sold-out session in December 2011. \$50 for ASCE members; \$100 for nonmembers. The registration deadline was set as Monday, January 30, 2012. **No onsite registrations will be accepted.** For additional information, contact Catherine Tehan at ctehan@asec.org or 703-295-6026. **An additional session will be conducted on February 10** at the same site.

February 14

The nomination submission deadline for the 2012 ASCE-NCS Automation Award is 6 p.m. This award is a joint effort of the NCS and George Mason University. To submit a nomination or for further information, contact Amanda Tevis on behalf of the Chair, ASCE-NCS Automation Committee, at atevis@ram-corp.com.

February 18

Engineering Family Day at the National Building Museum. Volunteers are needed to staff this exciting event which typically draws thousands of children and adults. Contact Dean Westman to volunteer or for additional information at dwestman@wrallp.com. (See newsletter brief.)

February 21

NCS monthly meeting at the Hilton Arlington. This program will focus on the efforts of the DC Chapter of Engineers Without Borders-USA in El Salvador over the last seven years. (See newsletter lead article.)

February 23

America's Role in the Chilean Rescue will be the topic of the Second Leadership Seminar sponsored by the Wharton Leadership Center. This panel discussion will be held from 7–9 p.m. at

the Smithsonian's National Museum of Natural History, Baird Auditorium, 10th Street and Constitution Avenue NW, Washington, DC. Open to the public.

March 3

Bridging Skills from Engineer to Leader. This is a joint professional development seminar sponsored by the NCS Engineering Management Committee and the Society of Women Engineers Baltimore-Washington Section. (See newsletter flyer for further information and registration details.)

March 7–9

5th Annual Transportation & Infrastructure Convention, Capital Hill in Washington, DC. For further information, contact Karen Brown at 214-750-0123 or kbrown@dean.net. (See newsletter article.)

March 20–22

ASCE's Legislative Fly-In, Washington, DC. This event provides ASCE members with the opportunity to learn about public policy issues affecting the civil engineering profession, and to communicate the civil engineer's perspective on those issues with elected officials on Capitol Hill. (See newsletter flyer.)

March 31–April 1

Washington Academy of Sciences and Affiliates Capital Science 2012, to be held at three university sites in Arlington, VA. More information is available at <http://www.washacadsci.org/capsci12/body.htm>.

April 10

The NCS Annual Awards Banquet will be held at the Arlington Hilton. This much-anticipated event will include a presentation by ASCE National President-Elect Greg DiLoreto. Watch the March newsletter for additional details. Click [HERE](#) for early registration. **SAVE THE DATE.**

April 14

The Association for the Advancement of Cost Engineering International's Leadership Conference in Washington, DC, will present Christopher P. De Santis, Management and Organization Development Design and Delivery Consultant. For more information, contact Garth Leech at gleech@aacei.org or 304-296-8444.

April 21–22

The U.S. Environmental Protection Agency's P3 Sustainability Expo on the National Mall in Washington, DC. Volunteers are needed to help host a booth. Watch the March NCS newsletter for further information.

April 27–29

The USA Science and Engineering Festival on the National Mall in Washington, DC. Volunteers are needed to help host a booth. Watch the March NCS newsletter for further information.

April 28

Cub Scout Day at the National Building Museum in Washington, DC. Volunteers are needed to help staff this event. Help inspire the next generation of civil engineers! Contact Dean Westman to volunteer or for additional information at dwestman@wrallp.com. (See newsletter brief.)

October 18–20

Civil Engineering in the New Global Economy is the theme for ASCE's 142nd Annual Conference in Montreal, Quebec, Canada. Visit the [ASCE Conference website](#) for further information.