THE CHESAPEAKE ENGINEER

SUMMER 2023

DC DRIFT
TIDAL BASIN

AWARD WINNING
COLLABORATION

ENGINEERS SHINE
AT STEM CONFERENCE

INSTRUCTION BUILDING
AT CARLISLE BARRACKS

US Army Corps of Engineers®
Baltimore District

ENGINEERING SOLUTIONS FOR OUR NATION'S TOUGHEST CHALLENGES

THE CHESAPEAKE ENGINEER MAGAZINE

The view from the top floor of the U.S. Army War College's new Root Hall at Carlisle Barracks, Pa. (U.S. Army photo by Christopher Fincham)

The mission of the U.S. Army Corps of Engineers, Baltimore District, is to deliver vital engineering solutions in collaboration with our partners to serve and strengthen the Nation, energize the economy and reduce disaster risks.

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THE DISTRICT ENGINEER

I am pleased to provide our latest edition of the Chesapeake Engineer Magazine showcasing the district's diverse portfolio, industrious workforce, and collaborative partnerships. Together, we continue delivering vital engineering solutions to strengthen the nation, energize the economy, and reduce disaster risks.

We are excited to celebrate completing the Baltimore Harbor Anchorages and Channels feasibility study, culminating with Lt. Gen. Scott A. Spellmon signing the Chief's Report. The study identifies future modifications to deepen Seagirt Loop and we look forward to partnering with the Maryland Port Administration on this important project.

Baltimore District continues prioritizing critical capabilities and initiatives that support regional readiness and resilience. You'll learn about the progress in our environmental justice priorities, significant civil works and military construction projects, coastal engineering initiatives, and the Washington Aqueduct. Our team of teams works diligently to safely deliver quality projects to our stakeholders, highlighted in this edition by the National Security Agency's Morrison Center and the U.S. Army War College's new general instruction building.

Last, and most importantly, we highlight the exceptional people who are part of our Baltimore District family and work so hard to make these incredible projects become a reality. Baltimore District's contributions are invaluable and epitomize the unwavering commitment of the U.S. Army Corps of Engineers to deliver for our nation and for the American people.

Thank you for all you do to build our country! It is an honor to serve alongside such exceptional and dedicated professionals.

BUILDING STRONG!

Col. Estee S. Pinchasin
Commander and District Engineer
USACE, Baltimore District

Col. Estee Pinchasin, the district engineer, stands alongside the Raystown team during the ribbon cutting event for the debut of two disc golf courses at Raystown Lake in Hesston, Pa., April 14, 2023. (Courtesy photo)

COMPLEX COLLABORATION

Baltimore District team behind East Campus' Morrison Center project honored by industry award

By Thomas Deaton

The Morrison Center at the National Security Agency (NSA) Fort Meade East Campus - an 846,114 square-foot, seven-story operations facility - will serve as the hub for the agency's most critical missions.

Following the completion of the project, the East Campus Integrated Program Office (ECIPO) program manager Kevin Schoch of the U.S. Army Corps of Engineers, Baltimore District, reflected on the successful partnership that delivered the project to a timely and successful conclusion.

"The amount of collaboration that occurred within the team was amazing to see."

The substantial and complex project is a multi-use facility, that includes command centers; open operations floors and office areas; analyst collaboration areas; multi-purpose conference facilities and retail spaces; and a significant dining and fitness footprint.

In recognition of these efforts, the team was recently honored by the Associated General Contractors of America (AGC) with the Marvin M. Black Partnering Excellence Award for the $20 million and above category.

"This project was very technically complex, and the team faced many challenges," Schoch said. "By establishing a strong partnership foundation at the beginning of the project, the team was able to overcome all of these challenges together, which helped to build trust."

Such a project requires the very kind of successful partnership recognized by the AGC award. In the earliest days of the project, USACE and the customer (NSA) developed a "One Team" concept with Clark, the construction contract awardee. The project's complexities would mean that over 100 trade contractors would be involved in the project's construction, only furthering the need for successful collaboration.

"The Clark Construction team proved to be exceptional partners during the course of this project, and we would not have been successful without their commitment and mission-first focus," Schoch said.

> "They continuously went above and beyond to help the workers see the importance of their mission and always showed a commitment to finding solutions to the challenges faced on the project."
>
> Kevin Schoch, ECIPO Program Manager

Serving as the hub for NSA's most critical missions well into the future, this innovative, state-of-the-art facility will be home to the National Security Operations Center (NSOC) and many more vital elements.

The "One Team" effort included the project customer, who engaged directly with the on-site workforce to emphasize the importance of the facility they were constructing. The project's leadership team also highlighted the accomplishments of their workforce internally, creating a "STAR Partner Award" to present quarterly to key project workers and teams, including subcontractors, that lived up to the "One Team" mission approach.

"This approach was built on a mission-first focus and a commitment to continuously working toward solutions," Schoch said. "The project leadership team worked to spread this culture throughout the rest of the team, to include the field personnel and subcontractors."

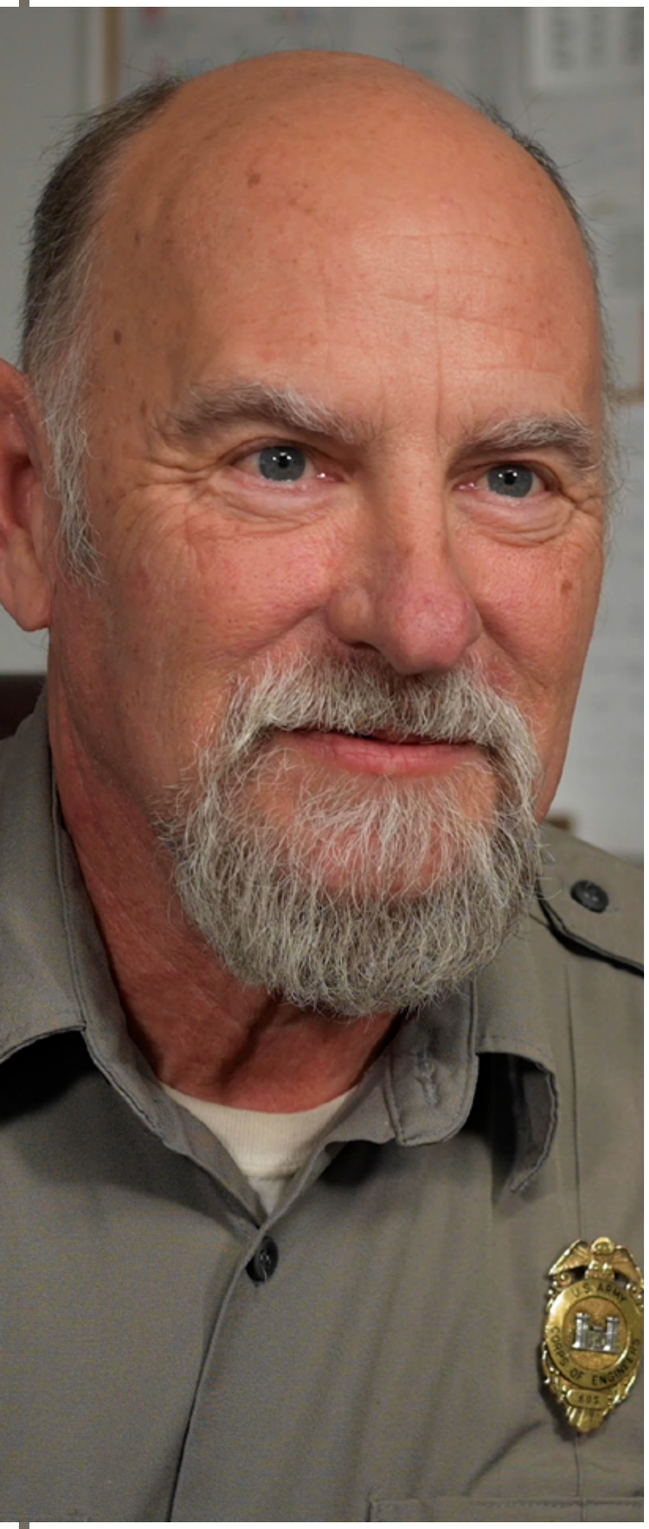
This mission-critical facility was not immune from the effects of the COVID-19 pandemic, but these new factors only emphasized the effectiveness of the team's cohesive path.

"When the pandemic hit, it was unclear how this major event would impact the project and the team," Schoch said. "However, the team was able to adapt quickly, and work was able to continue without any shutdowns due to the COVID-19 pandemic."

USACE, Clark, and the NSA coordinated an aggressive timeline and continued to deliver multiple stages of the project throughout the pandemic, including the 1.1 million square-foot concrete parking structure, roadway improvements that better enabled campus operations, and the completion of the East Campus generator yard, which provided backup power generation to the entire campus.

"The NSA team that we work so closely with here at the ECIPO has always been an exceptional customer," Schoch added. "They continuously went above and beyond to help the workers see the importance of their mission and always showed a commitment to finding solutions to the challenges faced on the project."

Following the completion of an 846,114 square-foot, seven-story National Security Agency operations facility on Fort Meade, Md., the U.S. Army Corps of Engineers, Baltimore District, and its partners were recognized by the Associated General Contractors of America (AGC) with the Marvin M. Black Partnering Excellence Award. (Courtesy photo)



BILL DONNELLAN

A LEGACY OF SERVICE & LEADERSHIP AT JENNINGS RANDOLPH LAKE

By David Adams

Tucked between Garrett County, Maryland, and Mineral County, West Virginia, Jennings Randolph Lake stretches along 5.5 miles of spectacular countryside on the North Branch of the Potomac River. The area is renowned for its unspoiled wilderness and natural beauty. The lake provides a sanctuary for countless birds, animals, and fish where nature comes first and having fun is a close second.

For nearly 40 years, Bill Donnellan has been ever-present, serving the park and community since 1985.

“One of my favorite parts of working is being able to meet and greet the people that come to the project,” Donnellan said. “If you were at a large project, if you get a million visitors a year you may spend a little time with each person to say ‘Okay, this is where you park, here’s the Visitors Center, here’s what you can do.’ What you find at a small project, literally I can interact with people, and I can have a half-hour conversation, an hour conversation with that person.

"I found that working here at Jennings Randolph Lake, I’ve been able to meet people, now 35 years ago, as adults, and now I have seen their children come back. I’ve seen their grandchildren come back. They become part of your family and that’s what I enjoy about the job.”

The Lead Park Ranger recently retired from his position with the U.S. Army Corps of Engineers, and leaves a legacy of service and leadership. He helped establish programs like the Bill Nesbit Memorial Hunt which gives people with disabilities and wounded veterans a chance to hunt, and since 2006, Bill has grown the program from 10 volunteers to well over 80.

“That’s definitely been a really big program for this park, we have done it every year,” said Francesca Gullion, Natural Resources Specialist and Park Ranger at Jennings Randolph Lake. “Bill has been able to give the opportunity to our nation's veterans and physically disabled the chance to hunt when they otherwise couldn’t have done so due to physical limitations, so I think that is his biggest legacy.”

Over the 38 years Donnellan worked at Jennings Randolph Lake, he had a hand in creating all the recreation areas at the park.

“I’ve been able to see this project grow from when I literally first started here. Some people find it amusing that when I first got here, we had no beach area, no swim area, it did not exist. The campground was unpaved roads, it was designed for primitive campgrounds,” he said. “There was no electricity, and it was vault toilets, so I’ve taken some pride in being able to work with staff members, project managers, and district personnel to be able to say, ‘What improvements can we make here within our budget?’

Donnellan worked tirelessly through his career, improving the park making it better for everyone who visits. Across the 952-acre Lake in the middle of the park there was no place to swim when he first arrived. After listening to the guests of the park, he decided to try to put one in the park.

“We didn’t have any beach area. Again, working with district elements they were like pick a location for where you want the beach, and literally, I took a piece of paper and did a pencil drawing of that beach area and was like ‘I think the parking lot should go here, and the beach should go over here,’ and that’s what they used. So, I think I saved the [U.S.] Army Corps of Engineers some money and design features, but I still have that little pencil drawing and that’s pretty much what they used as the design of the beach, so that was kind of a neat project to work on.”

Another thing Donnellan greatly cared about was people. He spent years mentoring his fellow Park Rangers, leaving a lasting impact.

“The thing I am going to miss most about Bill is his mentorship and his leadership,” said Gullion. “Everything I know about being a Park Ranger I learned from Bill. He’s always been one that you can come to with any question that you have. He is always right there to answer, and it’s going to be hard to lose someone with that much knowledge, but hopefully, I can do a good job and fill his shoes here at the project.”

He helped establish programs like the Bill Nesbit Memorial Hunt which gives people with Disabilities and Wounded Veterans a chance to hunt since 2006. (Courtesy photo)

A close up of Bill Donnellan's nametag and Park Ranger uniform. (U.S. Army photo by David Adams)

Over the 38 years Bill worked at Jennings Randolph Lake he had a hand in creating all the recreation areas at the park. (Courtesy Photo)

ENGINEERS SHINE AT BLACK ENGINEER OF THE YEAR AWARD STEM CONFERENCE

By Nicole Strong

Three engineers represented the U.S. Army Corps of Engineers, Baltimore District at the 37th annual Black Engineer of the Year Award (BEYA) STEM Conference, February 11, 2023. The BEYA STEM Conference was held at the Gaylord National Resort & Convention Center and celebrated the accomplishments of individuals in science, technology, engineering and mathematics (STEM). Among the individuals who were recognized, Baltimore Districts' Juan Baret, Kameel Hall and Quatina Austin received various awards.

Juan Baret, civil engineering technician at the Capital Area Office was awarded the Community Service Award. Baret joined USACE in 2008, and throughout his career has worked on numerous challenging projects and deployed to Afghanistan. Some high-level projects include the Base Realignment and Closure (BRAC), the Alternate Care Facility mission in response to COVID-19, and as office engineer, administrative project manager for the $224 million Secure Administrative Operations Facility expansion for the US Intelligence and Security Command at Fort Belvoir, Va.

"Juan is a very skilled communicator which allows him to work through difficult conflict resolution issues on the projects whose changes he manages," said Wesley Wright, acting chief of the district's construction branch. "His ability to communicate technical information and translate complex construction issues to engage senior leaders places him in good stead during his school workshops where he talks to students about entrepreneurship, business ownership and science, technology, engineering and math careers."

Baret dedicates his time outside of the office to helping youths and veterans in his local community of Prince William County, Md. As a disabled Air Force veteran, he turned his love of baseball into a home-based business where he creates hand-turned bats and teaches his community the art and science behind it.

"He is a mentor to many and strives to be an inspiration and role model to all budding entrepreneurs young and old," said Lt. Gen. Scott A. Spellmon, the U.S. Army Corps of Engineers commander. "His mentorship and willingness to give back to the community exemplifies the qualities we expect in our leaders."

Quatina Austin, Juan Baret, and Kameel Hall pose for a photo during the 37th annual BEYA STEM Conference. (Courtesy photo)

Baret expressed that this award shows that hard work pays off and representation in his field and community are important.

"It makes me proud to be in an organization that values me as an employee," said Baret. "I am happy to represent my team and the accomplishments we make together, myself and my culture."

Kameel Hall, senior design manager at the Real Property Services Office (RSFO) was awarded the Career Achievement Award. Hall began her career with USACE in 2019 in the Civil Works branch, but switched over to RSFO shortly after, performing the same role.

Before joining USACE, Hall had twenty years of experience working as a civil engineer in local, state and federal governments. As a senior design manager with Baltimore District, Hall's assignments include working with the U.S. Army Intelligence and Security Command (INSCOM) on multiple Top Secret building renovations, as well as a high-profile display of steel salvaged from the World Trade Center on September 11, to be located at the new INSCOM headquarters building at Fort Belvoir, Virginia.

"My job requires the duality of my brain - the use of technical and translation skills," said Hall. "I take technical concepts and put those in laments terms so we can all get on the same page to be successful."

The high-level customers Hall deals with require discretion and strong technical skills and her colleagues claim that she is generous with her knowledge and expertise, forming strong teams and a collaborative atmosphere.

"Ms. Hall is an infectious spirit, remaining positive and hopeful in the face of challenges," said Vivian Stone, chief of the engineering forward deployed branch. "Her work ethic is exemplary, managing the complexity of several projects with varying schedules at once, while meeting the required milestones and meeting client demands. Anyone following in her footsteps would gain much from modeling her work habits."

Hall was both honored and excited to receive the Career Achievement Award.

"This was an exciting experience and truly and honor to receive this award amongst my peers and to be able to see what others are doing across the STEM field," expressed Hall. "It is motivating to see people of color and women excelling in this field."

Quatina Austin, chief of the infrastructure development section, was awarded the Professional Achievement Award. Austin joined USACE, Jacksonville District in 2008 and came to Baltimore District in 2016 after deploying to both Afghanistan and Korea.

Austin currently oversees $125 million worth of projects involving vertical construction, renovations and leases. She supervises a staff of four senior project managers and is responsible for programs with high profile customers including the Architect of the Capital, the U.S. Army Intelligence and Security Command and other customers in the intelligence community.

"Ms. Austin is a consummate professional and exhibits extraordinary dedication to all that she does," said Stone. "Her attention to detail and commitment to quality set her apart as a leader that can be called on to manage complex tasks."

Throughout her career, Austin has received multiple awards, including two achievement Medals for Civilian Service, a medal for the Global War on Terrorism and a NATO Medal for service in relation to the International Security Assistance Force Operation.

"Despite her numerous accomplishments, Ms. Austin possesses genuine humility and a constant desire to grow as a person as well as a professional," stated Stone. "Her persistence is a shining example to all who follow in her footsteps in the engineering profession."

Austin recalls being impacted by the words spoken by U.S. Secretary of Defense Lloyd Austin at the BEYA Conference. He spoke the importance of advancement and furthering yourself.

"My hard work isn't in vain. I put in effort, and I think my job – and what I produce is important," said Austin. "Being recognized by my peers is inspiration to keep going forward. Being at this conference and seeing the young and motivated engineers makes me optimistic for the future."

HANDING OVER THE KEYS

By COL Estee Pinchasin, Baltimore District Commander

When I reported to Root Hall at Carlisle Barracks in July 2020, I was drawn to the bronze plaques listing the U.S. Army War College graduates dating back over 100 years and found the names of my former commanders and numerous engineer generals. I was excited to see them again, quietly reminiscing with my memories and their words.

In between the recent grads were those whose legacy of service and sacrifice I recognized by the year they graduated. I imagined their dynamic conversations and the powerful learning that shaped generations of officers who shaped us – the new class. But our experience was destined to be different due to COVID-19 health-safety measures, and we never settled into the coveted seminar rooms in Root Hall. Instead, we adapted by necessity to create an atmosphere for those great debates, even when the classroom was online. Was this the future of learning?

Thankfully, the answer was no.

The future was right down the street, next to Collins Hall, where the site was being prepared for construction of a world class, state of the art, innovative educational facility. The anticipation for the new building was in the air, especially when visiting the "petting zoo" of futuristic furniture, collaborative spaces, and new technological systems for students and faculty to explore. We all stopped to admire the beautiful, scaled model through its glass case, oblivious to the enormous challenges and smart solutions being developed and implemented on site.

The building is supported by a foundation of drilled piers bearing into the underlying crystalline carbonate pinnacled limestone that is susceptible to sinkhole formation. Having extensive experience designing foundations in karst geology, Baltimore District's geotechnical team executed a robust subsurface investigation, drilling 148 rock cores and additional caissons varying from 36 to 60 inches in diameter. This enabled the structural team to adjust column locations to avoid troublesome subsurface areas, ensuring construction on sound bedrock. Chuck Frey, geotechnical branch chief, deployed a joint team from Baltimore and Savannah Districts, operating five drill rigs six days a week, nine hours a day, at the peak of the investigation to maintain the aggressive design schedule.

Mary Foutz, chief of engineering, emphasized the importance of this remarkable capability and the flexibility it provides our project delivery teams.

"I'm incredibly proud of our in-house field exploration unit and our ability to surge to provide essential and timely information that enable critical design decisions," Foutz said. "Performing such comprehensive investigations during design, significantly reduces the likelihood of discovering differing site conditions during construction that result in costly contract modifications."

Engineering complexities can be challenging to project execution, but human relationships and team dynamics can be just as impactful. During the project, multiple efforts by different contractors were required to maintain pace. The turbulent industry and economic conditions presented several logistical issues that affected the critical path, however, the transparency and collaborative approach to managing change and risk was critical to finding efficiencies to maximize the schedule. It was not easy and quite stressful, but the relentless focus on safety and commitment to productive and continuous communication kept the momentum going.

The nearly complete new Root Hall on the U.S. Army War College campus of Carlisle Barracks. (U.S. Army photo by Cory Donahue)
Baltimore District's Chuck Stodter, Cory Donahue, Jeff McMaster, Ian Griffith, Col. Estee Pinchasin, and Barry Treece pose for a photo.

The nearly finished building is a spectacular site to see both inside and out, and it means a lot to the team who worked on the project from the start. Col. Bob Halvorson, the USAWC's project lead stated, "This project has easily been the most rewarding team experience in my 28 years of military service." The trust and teamwork that developed over time was key to the successful partnering and collaboration.

Barry Treece, Baltimore District's resident engineer, attributes their success to the teamwork

The view looking down into the open stairs of the building's atrium (U.S. Army photo by Christopher Fincham)

and diligence of his team. Senior Project Engineer Cory Donahue, Project Manager Chuck Stodter, and Construction Representative Dave Potter, consistent engagement and in-person presence were essential to setting the tone for exceptional project delivery.

David Morrow, Baltimore District's deputy for programs and project management, stated he is very proud of the teamwork demonstrated on this project.

"The entire team, to include external stakeholders, was flexible and adaptable solving numerous challenges that are inevitable on complex design and construction efforts." said Morrow. "This flexibility allowed the new academic building to support the incoming war college class this summer, as planned from the inception of the project."

The incoming class of 2024 will begin studies in the new Root Hall boasts over 201,000 square feet, 28 larger technologically advanced seminar rooms, a variety of collaboration spaces, a modern library, a cafeteria, and common areas. It also provides four large convertible lecture halls, a 600-person auditorium with sky-boxes-style seating, and spacious office space for faculty, staff, department chairs, and USAWC leadership.

The partnership with the USAWC benefited tremendously from the assignment of a permanent project lead, Col. Bob Halvorson, who integrated with the resident office on site. From the onset, the team built mutual trust through consistent communication and collaboration to overcome project challenges. Pursing different priorities while working in the same space required careful sequencing, merging or deconflicting schedules.

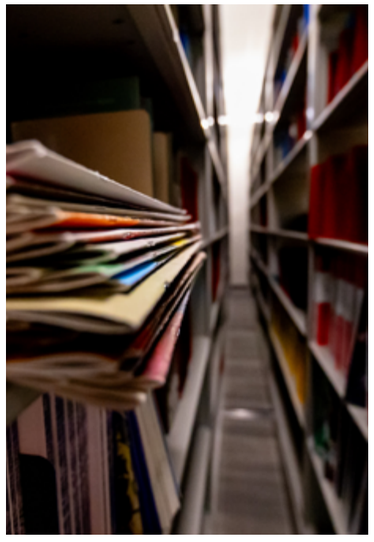
"After the split in the contract requiring joint occupancy, the USACE construction team stepped up and held it all together in one cohesive and understandable plan," said Halvorson. "I could not have asked for a better crew than Cory, Dave, Chuck and Barry. This team works hard and finds solutions to problems that would normally take months to figure out."

The vision to modernize this historic institution began with a collaborative planning effort that included key partners in the Carlisle Barracks Garrison.

"I am so proud to see a charrette and many years of tireless planning come to life in a big way at Carlisle!" said Brig. General Kimberly Peeples, who served as the garrison commander at the time. "It was inspiring to see the close relationship between the U.S. Army War College, U.S. Army Corps of Engineers, and the Garrison, and the world class facility in the making as a result."

From the project's inception, the USACE partnership with the USAWC developed through productive three-tiered governance, chaired at the highest level by the USAWC Commandant, Maj. Gen. David Hill.

"As an engineer, I have always appreciated structures where the form fits their intended function and serves a greater purpose. Walking through the new Root Hall since our new resident class began this year, it is clear to me that the U.S. Army Corps of Engineers did not just create a building but also greatly contributed to an enduring legacy in developing the next generation of strategic leaders. Considering that construction began at the height of COVID in the spring of 2020, I greatly appreciate the expertise of the U.S. Army Corps of Engineer professionals that led a dynamic government and industry team to an on-time, in-budget completion of this important project."



The 600-seat auditorium, a large U.S Army War College logo on the exterior of the building, and a glimpse of the 60,000 books that make up part of the school's library. (U.S. Army photos by Christopher Fincham)

BY THE NUMBERS

GENERAL INSTRUCTION BUILDING

201,000
SQUARE FEET

136
CONCRETE CAISSONS

400,000
MAN HOURS

137
MILES OF REBAR

22,730
SQUARE FEET OF WINDOWS

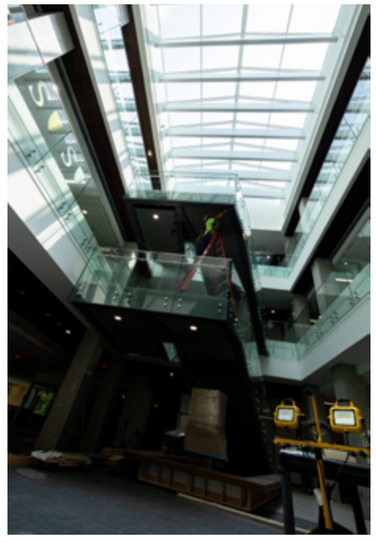
1,426
TONS OF STRUCTURAL STEEL

24
SEMINAR ROOMS

46
CONTRACTORS

$83 M
CONTRACT COST

DATA AS OF JULY 2023



A 2,700 square-foot cafeteria will provide dining services to more than 700 students and staff. Seminar classrooms are located along exterior of building so that they have direct access to daylight. (U.S. Army photos by Christopher Fincham)

ENVIRONMENTAL JUSTICE
INITIATIVES DEVELOP NEW MODEL

The U.S. Army Corps of Engineers, Baltimore District is leading a charge to ensure President Joe Biden's environmental justice executive orders are fully successful.

By Kurt M. Rauschenberg

Environmental justice is the Nation's way to combat such injustices as toxic pollution, water-related risks, threats from climate change, and many other environmental harms with a focus on serving all populations, regardless of race, background, income, ability, tribal affiliation, or zip code.

The U.S. Environmental Protection Agency defines EJ as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies.

So, what does that mean for USACE, Baltimore District?

According to Amy Guise, Baltimore District's planning division chief and coordinator for environmental justice, teammates want to have awareness on the potential benefits and impacts to EJ communities, and desire collaborative outreach and input.

"EJ initiatives resonate with our teams, which leads to a lot of energy and interest and learning new approaches," Guise said.

Geoff Tapalu, a geographer at the Baltimore District, emphasized a need for collaboration and has progressed USACE's effectiveness to support EJ through the co-founding of a formally structured Environmental Justice and Equity Working Group. He leads the working group alongside Chris Johnson and Juliet Healy. He says it strives to reach across the district to get people who want to make a difference and contribute to the effectiveness of EJ.

Since its founding, the working group has grown to about 75 members that stretch from inside the district to even those outside the district who want to be part of this effort.

"Growing to 75 people has been a magnificent feat in breaking down barriers and pushing forward to combat environmental injustices," said Tapalu.

The configuration of the working group was just one way for Baltimore District to make their mark to progress EJ. The district's working group also demonstrated a keen desire to move full speed ahead to support EJ by developing and implementing the district's EJ Strategic Plan, which in turn was marveled by leaders as the future of USACE's EJ program and success. The plan now serves as a model for all USACE districts to mirror their own plans and initiatives.

Presidential EO 14008, Tackling the Climate Crisis at Home and Abroad, signed Jan. 27, 2021, is known as Justice 40 and directed that 40 percent of the overall benefits of certain federal investments go to disadvantaged communities. The investments could involve clean energy and energy efficiency, climate change, and the development of clean water and wastewater infrastructure.

Geoff Tapalu, Juliet Healy, and Chris Johnson help lead the Baltimore District's Environmental Justice and Equity Working Group, which strives to make a difference and contribute to the effectiveness of EJ. (USACE photo by John Sokolowski)

> **"Environmental justice is achieved when everyone enjoys the same degree of protections and equal access to Civil Works programs and services to achieve a healthy environment in which to live, learn, and work."**
>
> **USACE ENVIRONMENTAL JUSTICE WEBSITE**

From it, the USACE Justice 40 initiative sprang into action for civil works programs to focus on improving outreach and access to information and resources, maximize the reach of programs to benefit disadvantaged communities, update policies relevant to remove any disproportionate impacts to disadvantaged communities, and more.

USACE Justice 40 involves priority actions on Tribal Partnership Program, Planning Assistance to the States, floodplain management services, coastal storm risk management, and more.

Baltimore District ecologist, Juliet Healy, detailed some ways the planning division is moving forward with other divisions.

"We're working with program managers on a mapping effort to determine potential outreach strategies to underserved communities as part of the district's EJ strategic plan," said Healy.

The Baltimore District EJ strategic plan touches six states and the District of Columbia, an approximate 64,000 square-mile area.

Army Col. Estee Pinchasin, USACE, Baltimore District commander, calls the strategic plan, formation of the working group, and its continued progress a true measure of commitment.

"For me, every day is a good day knowing I have some of the best and brightest people in this district who want to make a difference in these critical ways," Pinchasin said. "The difference they make today will impact the many future successes in environmental justice that follow."

THE WASHINGTON AQUEDUCT

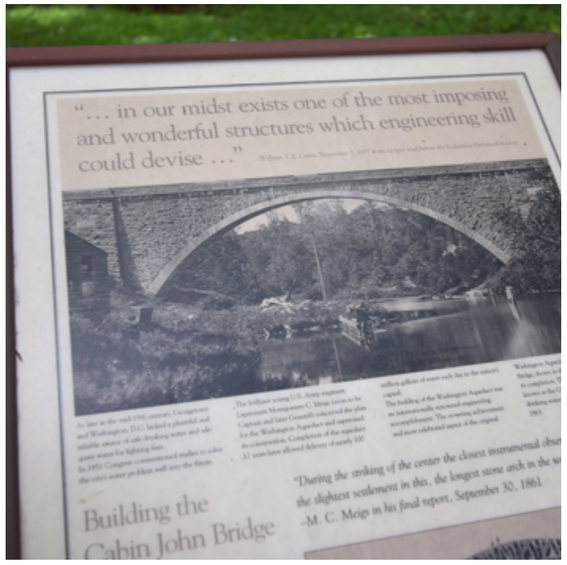
IN 1973, THE AQUEDUCT BECAME A NATIONAL HISTORIC LANDMARK, A DESIGNATION ASSIGNED TO HISTORIC PROPERTIES THAT ILLUSTRATE THE HERITAGE OF THE UNITED STATES.

By Cynthia Mitchell

The Washington Aqueduct was designed and constructed by the U.S. Army Corps of Engineers starting in 1853, and 170 years later, it continues to supply the Nation's capital with public water. The Aqueduct system is recognized as the monumental engineering achievement of designer, lead engineer, and Civil War Quartermaster General Montgomery Meigs, who also went on to supervise construction of the U.S. Capitol dome, development of Arlington National Cemetery, and the expansion of the U.S. Pension Building, now known as the National Building Museum. Here are a few historically noteworthy components of a truly unique water system in the Nation's capital.

Cabin John Bridge

Built by Meigs between 1857 to 1863 for the purpose of conveying the Aqueduct's conduit over the Cabin John Creek, the "Union Arch" Bridge was recognized as the longest masonry arch in the world upon its completion, a record it held until 1903. The arch ring and abutments are constructed of granite and a secondary arch was composed of Seneca sandtone slabs placed in a radial position. The bridge has a span of 220 ft. and a rise of 57.25 ft., with five spandrel arches at the west end and four spandrel arches at the east end, all of which are hidden by vertical side walls. Parapets were added in 1873, once it was determined the bridge would need to be used for highway traffic as well as for conveying water. The bridge is still maintained by USACE and continues to carry water into the city to this day. It is listed in the National Register of Historic Places and designated as a National Historic Civil Engineering Landmark.



The Cabin John Bridge was the longest single-span masonry arch in the world from 1864-1903. (U.S. Army photos by Cynthia Mitchell)

Castle Gatehouse, Meigs Vault at Georgetown Reservoir

The Castle Gatehouse at Georgetown Reservoir was constructed between 1899 and 1902 as part of improvement and modernization efforts for the Washington Aqueduct. The gatehouse was designed to pump water from the Georgetown Reservoir into a four-mile long tunnel toward the McMillan Reservoir - one of several major efforts put in place to address the lack of filtration in the original Aqueduct system.

The gatehouse's design is a nod to the Corps Castle, which was formally adopted by the U.S. Army in 1902 as the insignia of the Corps of Engineers. It is said to represent strength, pride, heraldry, prestige, and honor.

The castle gatehouse was designated as a National Historic Landmark in 1973 and was added to the National Register of Historic Places in 1975.

M.C. Meigs inscribed in the 39 steps descending into the Meigs Vault, adjacent to the Castle Gatehouse as part of the Washington Aqueduct's Georgetown Reservoir. (U.S. Army photos by Thomas Deaton)

The Castle Gatehouse at the Georgetown Reservoir. (U.S. Army photo by Christopher Fincham)

McMillan Sand Filtration Plant

Congress approved the construction of the McMillan Filter Plant in 1901 as an attempt to address the lack of filtration for the District's water supply, resulting in typhoid epidemics throughout the region.

Following a period of research that debated the merits of slow versus rapid sand filters in water purification, the plans for McMillan called for 29 slow-sand filters, each one-acre with a capacity of 3 million gallons per day. This plan allowed for 4 filters to be out of commission for cleaning, leaving 25 filters with a total capacity of 75 million gallons per day, which was the capacity of the conduit at that time. Architects and engineers took inspiration from Roman aqueduct systems with a similar focus on fresh water, incorporating concrete arches throughout the site.

Construction began in May 1903, with pipes and facilities designed for a 25 percent overload, bringing the plant capacity to 100 million gallons per day. Sand was brought in via rail from Laurel, Maryland, and upon arrival, underwent an extensive preparation process that ensured it met operational specifications for cleanliness. Fresh sand was stored above ground in concrete silos, accessible to Aqueduct staff who would then shovel it out of storage and drop it into cells through more than 2,000 manholes throughout the site.

Water would then fill individual cells that contained 2 feet of sand sitting at the bottom. The water would percolate through the sand, which trapped contaminants. Clean water would then reach the floor under the sand and exit the cell for distribution into city pipes.

Sand required routine cleaning; a labor-intensive process that ensured the system functioned as intended. The filtration system led to a significant reduction in typhoid throughout the District and remained in place until 1986, when it was decommissioned and replaced by a modern filtration system.

McMillan Sand Filtration Plant under construction (USACE photo)

Sand Filter #7, located on the grounds of McMillan Water Treatment Plant in Washington, D.C. (U.S. Army photo by Cynthia Mitchell)

Boundary Stones

The 40 milestones, or boundary markers, that line the original 100 square miles of federal territory that became the District of Columbia are recognized as the oldest set of federally placed monuments in the United States and two of them are located on Aqueduct property – Northwest No. 4 & 5.

As a result of the Residency Act of July 16, 1790, President George Washington appointed a team of commissioners to create the federal capital in the shape of a diamond, 10 miles on each side, carved out of land from Maryland and Virginia. Secretary of State Thomas Jefferson selected American land surveyor Andrew Ellicott to oversee the surveying effort, aided by famed astrologer Benjamin Banneker, a largely self-educated, free Black man and native of Baltimore County, Maryland.

Fourteen stones are located in Virginia and 26 are located along the District/Maryland county line. On the sides of the stones facing the District is inscribed, 'Jurisdiction of the United States.' On the opposite side, either Virginia or Maryland, per their location. The third and fourth sides display the year they were placed (1791 for Virginia stones and 1792 for Maryland stones) and the magnetic needle condition at their location. All stones are listed in the National Register of Historic Places and are maintained by the Washington, D.C., chapter of the Daughters of the American Revolution.

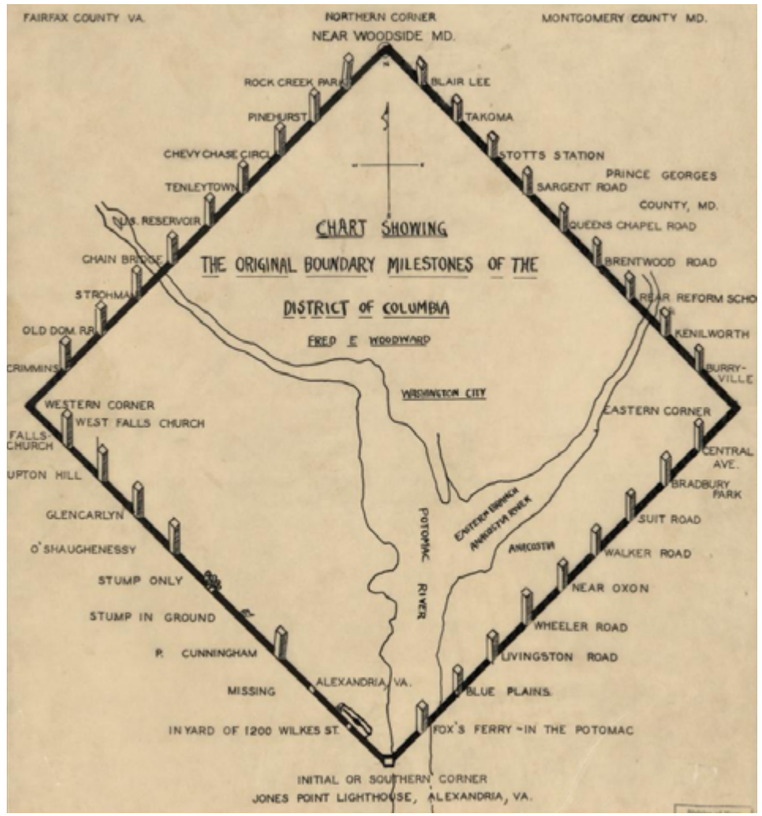


Chart showing the original boundary milestones of the District of Columbia. (Library of Congress) Boundary Stone NW4, the first boundary stone placed in Maryland, sits directly behind the Dalecarlia Water Treatment Plant located on the Maryland and D.C. boundary line. The Daughters of the American Revolution placed a fence and plaque here in 1915. (U.S. Army photos by Thomas Deaton)

DC DRIFT

MAINTAINING WATERWAYS & CENTURY-OLD TIDAL BASIN GATES

The Baltimore District's Potomac and Anacostia Rivers Drift Collection and Removal Unit operates out of dock facilities adjacent to the Washington, DC, Navy Yard and conducts drift removal operations on a year-round basis. Known as "DC Drift," the mission covers 27 miles of waterways. USACE boat operators conduct routine patrols and respond to calls received from the Coast Guard, Navy, boat and marina operators, and private citizens.

Their mission also includes the operation and maintenance of the inlet and outlet gates to the tidal basin, which is designed to prevent water stagnating in the tidal basin by allowing fresh water to flow in and out of the basin.

The basin, contructed between 1882 and 1909, was designed to be a visual centerpiece and a means to flush out the Washington Channel. The reservoir releases 250-million gallons of water captured at high tide twice a day, flushing the channel free of sediments and impurities. The outlet bridge was completed in 1889 and the inlet bridge two decades later in 1909.

(Above) A view of the Washington Monument from below the Tidal Basin Inlet Bridge. (Right) The gates are designed to operate with the rise and fall of the tides. The inlet gates open to allow water from the Potomac River to enter the Tidal Basin during the rising tide. When the tide is falling the water pushes these gates closed and the outlet gates open on the Washington Channel. (U.S. Army photos by Christopher Fincham)

A view of some of the details of the BD-5, a small debris vessel used by the DC Drift team. (U.S. Army photos by Christopher Fincham)

(Clockwise from left) Small Craft Operator Andy Boyle surveys the waters of the Potomac River near Ronald Reagan Washington National Airport, while on the way to the Tidal Basin gates in Washington, D.C. Along with the automatic, inlet and outlet tidal gates, there are also heavier duty curtain gates that could be rolled up and down when needed. These "curtain gates" were designed to be mechanically raised and lowered with the help of heavy iron counter-weights. Though the curtain gates are no longer operational, the DC Drift team regularly inspects and performs mainenance on the inlet and outlet gates. (U.S. Army photos by Christopher Fincham)

AROUND THE DISTRICT

CAPITAL AREA VISIT

The U.S. Army Corps of Engineers North Atlantic Division Commander, Col. John Lloyd (at left), visited Joint Base Myer Henderson Hall and Fort McNair to check out several projects managed by our Baltimore District team. While at Fort McNair, they toured noncommissioned officer and general officer quarters, a general instruction building for the Inter-American Defense College, and the renovation of National Defense University's Eisenhower Hall. On JBM-HH, ongoing Baltimore District projects include the Old Guard Caisson Platoon Stables/Paddocks, barracks, and a new dining facility. (U.S. Army photo by Christopher Fincham)

ADAPT AND OVERCOME

Debris Chief Jeff Peacock and Crane Operator Dave Smith stand in front of the Nacotchtank Floating Crane, which was delivered to the district in January 2021 after the USACE Marine Design Center managed the design and construction. Despite significant and consistent issues related to its operation and capability, Peacock and Smith independently got the crane operational to support the DC Drift mission. (Courtesy photo)

POPLAR ISLAND

The Baltimore District civil works team hosted staff members from the Assistant Secretary of the Army for Civil Works and U.S. Office of Management and Budget for a site visit to Poplar Island and conversations about Mid-Bay and Eastern Shore projects. The Poplar Island project site has become an international model for the beneficial use of dredged material, and the Mid-Bay Ecosystem Restoration Project will soon follow in its footsteps. (U.S. Army photo by Christopher Fincham)

FUTURE ENGINEERS

Baltimore District celebrated Bring Your Kid to Work Day with STEM activities at our district headquarters and a site visit to our teams at Fort McHenry. From building aluminum foil boats to learning about hydrographic surveys, it made for a busy day. (U.S. Army photo by Cynthia Mitchell)

DISTRICT AWARDS

Lloyd Caldwell, the former USACE director of military programs, speaks during the induction of Michael Snyder to the Baltimore District Gallery of Distinguished Civilians. The District hosted the 2023 Awards Ceremony July 11, taking time to celebrate the hard work and accomplishments that represent the very best of Baltimore District. The district's diverse missions means events like the awards ceremony allow colleagues to demonstrate to their peers the wide variety of programs and projects they undertake — and the award-winning ways they meet milestones with dedication and expertise. (U.S. Army photo by John Sakalowski)

DISTRICT ORG DAY

Baltimore District employees and their families gathered at Fort Meade's Burba Park June 23, for the annual organization day. (U.S. Army photo by John Sakalowski)

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RECREATION PHOTO CONTEST WINNER
COWANESQUE LAKE BY: MEGAN EVANS

A view of the Cowanesque Lake and Dam from the shores of the Tompkins Recreation area. Cowanesque Lake is located in Tioga County, Pennsylvania and lies on the Cowanesque River near Lawrenceville, PA. The project supports flood risk management, water supply, low flow augmentation, and recreation. Construction of Cowanesque Dam was completed in 1980. The dam embankment is rolled rock and earthfill, 3100 feet in length and 151 feet above the lake bottom. The Cowanesque Lake has 1,085 surface acres of water. The Baltimore District The Baltimore District regulates 17 reservoirs in Maryland, West Virginia, Commonwealth of Pennsylvania and New York.

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