

Fall 2021

# Army Engineer

Magazine





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P.O. Box 30260  
Alexandria, VA 22310-8260

## EXECUTIVE DIRECTOR

COL DAVE THEISEN, USA (Ret)  
703.428.6049  
703.428.6043 FAX  
xd@armyengineer.com

## PROJECT COORDINATOR

MS. LINDA S. MITCHELL  
703.428.7084  
703.428.6043 FAX  
execasst@armyengineer.com

## REGIMENTAL OPERATIONS

Army Engineer Association  
P.O. Box 634  
Fort Leonard Wood, MO 65473-0634

## AEA REGIMENTAL OPERATIONS DIRECTOR

CSM JOHN H. RATHER, USA (Ret)  
573.329.6678 Voice/FAX  
flw@armyengineer.com

## REGIMENTAL STORE MANAGER

SFC BRIAN LEAHY, USA (Ret)  
573.329.3203 Voice/FAX  
flwadmin@armyengineer.com

## ARMY ENGINEER MAGAZINE EDITOR, DESIGN, AND LAYOUT

MS. LINDA S. MITCHELL  
703-428-7084  
editor@armyengineer.com



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**HELLO!** Engagement will be underscored in the Fall issue of the Army Engineer Magazine especially related to, as always, our Soldier's service to the Nation's mission, our leadership, and generous members. I would like to welcome the new President of AEA, MG (Ret) Bryan Watson. I would like to extend a special thanks to our outgoing President of AEA, MG (Ret) Russ Fuhrman for his kindness and steadiness. In several places this issue features achievements that are acknowledge with awards and generosity that is noted with appreciation. The POW/MIA National Museum & Monument is previewed in this issue and is really incredible! There is a focused message from LTG Scott Spellmon, 55<sup>th</sup> Chief of Engineers, as well. We are lucky to have several articles related to projects in the Pacific region like the Kahuku Trench Project, Microgrid Project in the American Samoa, and the future plans for long forgotten Corps assets in The Republic of Palau. The replacement hospital at Fort Leonard Wood will hold special interest to all those that have matriculated through FLW, which is quite a few of you. Tyndall AFB has two articles that point to the collaboration with the 687<sup>th</sup> Engineer Construction Company's, other Corps of Engineers components, industry partners, and USAF in Hurricane Michael recovery efforts. Airfield Repair Package Project, Engineer Facility Detachments, and Extending Influence Beyond Engineering articles are timely and reminds us of the changing forces on the Army and the mission.

Stay well!

*Linda S. Mitchell*

Best,  
Linda S. Mitchell, Editor  
Army Engineer Magazine



### **COVER PHOTO**

**U.S. Army 1st Multi-Domain Task Force (MDTF) out of I CORPS, Joint Base Lewis-McChord, USARPAC G37 Exercise Planner. Location is the former Coast Guard Station on Angaur Island in Palau. Photo by Mr. Kinsey McFadden.**

**Photo: Open space view of POW/MIA National Museum & Monument Master Planning. Rendering by Prosser, Inc.**

**Photo right: Three years ago, Michael made landfall as a category 5 hurricane. The hurricane – only the fourth Category 5 on record to hit the U.S. – barreled over Tyndall Air Force Base causing devastating damage to the base's infrastructure. Photo by SSG Matthew Lotz, USAF.**

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**MG Bryan G. Watson, USA, Retired  
President, AEA**



**It is a superb honor and privilege to be selected to the position of President of the Army Engineer Association...an organization that I've believed in my whole Army life and beyond because it directly serves the Engineer Regiment I love. As we "pass the colors," I want to pause and thank MG (Ret) Russ Fuhrman for his incredible service as the outgoing President of AEA. The way Russ expertly led our Association through some very difficult times and set the conditions for the future puts him in a class of his own. Thanks, Russ!**

**AEA's purpose is as enduring as it is simple: to answer the call of Army Engineers – across all components – in helping take care of this profession as a family of families. AEA does that in four unique ways.**

**We help Commanders reward excellence among Engineer Soldiers, Civilians, and Families at the unit level where reputations for excellence among our ranks inspires others to follow.**

**We help connect Army Engineers with one another across unit formations, across components, across Services, and across generations so that we can learn from each other and forge bonds that will carry the day in battle. We honor the Service, Sacrifice, and accomplishments of Army Engineers not so that they are simply remembered, but that they are celebrated! Finally, we help this Regiment of Engineers preserve our shared history so that it can serve as a rallying point to those embroiled in tomorrow's fight as Engineers.**

**Reward, connect, honor, and preserve. That is AEA's mission and I'm asking you to be a part of accomplishing it. Some take the view that professional associations like AEA are relics of the past-replaced by the information age. Others claim that blistering pace of deployments, the constant changes in mission sets and force design, personnel turnovers, and a myriad of other reasons leave us no time to involve ourselves with organizations like AEA. I see it exactly the opposite! Those are exactly the reasons we need AEA now more than ever...to serve as an anchor point focused on people, relationships, and the that comes from growing deep roots within our ranks.**

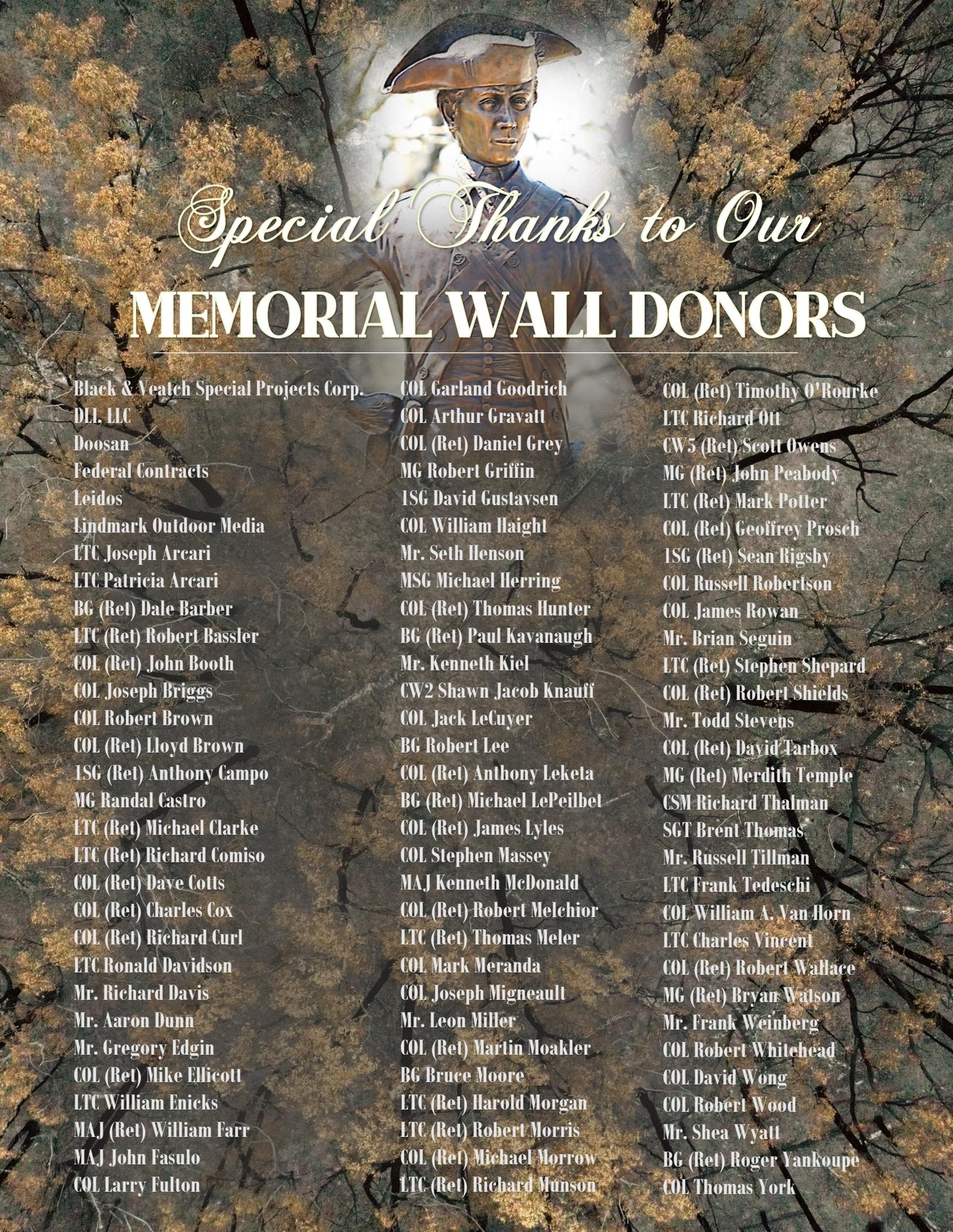
**In the coming months, I ask you to help me achieve AEA's mission in two ways. First, AEA will be holding a series of virtual town hall meetings – open to all Army Engineers regardless of rank or component – to explore how AEA can better serve this Regiment and earn your membership. We need your perspective and feedback if we are going to continue to serve you, the Engineer Soldier. We will publish the dates/times and video conferencing instructions on AEA's website, social media, and through unit Command channels. Second, AEA will be working with alongside units across all components to re-vitalize our network of local Chapters and sustain them for the long haul. I ask you to consider being an active part of that revival. This is a mission essential task that will take all of us to accomplish...now is the time!**

**Thanks again for allowing me to continue serving our Army Engineer profession. Now, help me focus our efforts in ways that best serve this Regiment, its Commanders, and our Soldiers.**

**Essayons,**

A handwritten signature in black ink, appearing to read "Bryan G. Watson". The signature is fluid and cursive.

**MG Bryan G. Watson, USA, Retired  
President, AEA**



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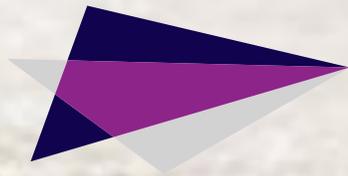
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Thank You

Dear AEA Members,

A few weeks ago, I was honored to pass the leadership of the AEA to MG (Ret) Bryan Watson. I believe Bryan, with the assistance of the AEA Board and AEA staff, will do an outstanding job of leading the Association through the challenges of the next decade.

I've had the honor of being associated with AEA throughout its nearly three decades of existence starting in its formative years when I was Chief of Staff at Fort Leonard Wood. I've had the pleasure of serving on the AEA Board for nearly two decades, the last six years as its President. The World, the Army, the Engineer Regiment and AEA have changed considerably since AEA's inception. AEA's first decade was in a post "Cold War" Army with large engineer formations and large Army sponsored professional service conferences supported by AEA. Multiple Group and Brigade organizations facilitated local AEA chapters and yearly conferences provided the funds to support AEA programs.

9/11 and the internet changed the landscape. Smaller Engineer formations, twenty years of deployment, and the internet have changed how soldiers attain their professional development information. The disappearance of large Army conferences and the internet have changed the way Industry interfaces with the Regiment.

To meet these challenges, AEA had to adjust. We updated our bylaws and right sized and diversified our Board so that it represents all elements of the Regiment. We cut overhead and moved to an electronic format for our magazine. We updated our Regimental Store at FLW, set up a web-based store, and started taking our store (mobile) to graduations at FLW.

Throughout three decades, the constants have been the continued loyalty of our lifetime members, the generosity of our members, and the continued support of industry. This has allowed us to survive the last decade of challenges to include COVID-19 when many other associations really struggled. I'm especially proud of our Memorial Fund program which, in addition to other things, supports families of fallen Engineers coming to FLW to see the name of their Engineer Soldier honored on our Memorial Wall.

The challenge ahead for AEA is to reengage our Regimental family coming off 20 years of deployments. Bryan and our diversified Board are up to this task, and they will succeed with your help and continued support.

Finally, I would like to thank the AEA staff, the AEA Board, and the AEA membership for all the support provided to me during my tenure as President.

Essays,

*Russ*

# FINAL AEA THOUGHTS



MG (RET) RUSS FUHRMAN

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Fort Leonard Wood Replacement Hospital Rendering

# Replacement Hospital for Fort Leonard Wood Utilizes

*Article by Mr. James F. Lowe*



General Leonard Wood Army Hospital 2018 from Air



USACE, Kansas City District staff, and contractors work on constructing multiple sections of the new FLW hospital on-site on Sept. 1, 2021. The Central Utility Plant (CUP) is pictured to the far right with the five-bay ambulance garage stationed on its backside, and the steel erection located in the middle is the main hospital structure with the clinic located behind it.

# Innovative Collaborative Processes to Stay on Schedule

*Photos by Ms. Reagan Zimmerman*



General Leonard Wood Army Hospital 1965 from Air

The replacement hospital being built at Fort Leonard Wood continues steady progress on schedule for completion in 2024. The Kansas City District, U.S. Army Corps of Engineers has oversight on the project with JE Dunn Construction, based in Kansas City, providing the construction and RLF Architects of Orlando, FL, as the architects, teamed up for the design/build project.

Located on 52 acres in the heart of the Army post, the new hospital is near the current General Leonard Wood Army Community Hospital. The new state-of-the-art facility will include a 235,400 square-foot hospital, a clinic with over 193,000 square-feet, a modern central facility plant, emergency back-up generators, a new helipad, a five-bay ambulance garage and supporting facilities. The current value of the contract is just over \$302 million.

The new hospital complex will serve military members, 5,700 active duty and 20,400 trainees, as well as their families. Additionally, over 3,500 retirees in the surrounding area are served. A Department of Defense-Veterans Administration Healthcare Agreement allows veterans assigned to all five Missouri VA hospitals to receive care at the hospital and clinic. "The partnership and collaboration being used by our team is making a positive difference in delivering for these customers a complex infrastructure solution as part of their future health care needs there at the home of Army Engineers," said COL Travis Rayfield, commander, Kansas City District.

As the construction managers, the Kansas City District, has a team on-site and additional personnel working from Kansas City and virtually to support the hospital replacement project, which will replace the oldest hospital in the Army inventory. Some previous Army hospital projects have had challenges meeting timelines for completion and suffered related cost overruns. "Success on the project to date is simply defined by those three buzz words we've been hearing of for years: transparency, collaboration and partnering. USACE, JE Dunn along with the many trade partners have truly embraced these practices on this project. The ability to meet and openly discuss any issue, as one team, brings effective resolution promptly," stated Mark French, Quality Assurance Section Chief, Kansas City District, Replacement Hospital project.

Leaders of the project for USACE chose Collaborative Analytics as a partnering strategy which would enhance team collaboration. Due to the complexity of modern medicine, hospitals are some of the most challenging facility types to design and construct. Leaders must consider the constant evolution of technology that medical professionals use to deliver state-of-the-art care for their patients. "We identified a lack of collaboration amongst the stakeholders as a significant project risk. This is not surprising when you examine the number of team members and stakeholder organizations involved. Given the risks associated with such a large and diverse project team, we sought additional partnering strategies and chose a tool called Collaborative Analytics, expressed Mr. Kelly Miller, Program Manager, Kansas City District, Fort Leonard Wood Replacement Hospital project.

*A USACE, Kansas City District Missouri Resident Office Hospital contractor attaches a crane hook to a piece of steel in preparation of moving it on-site.*



Top: Two USACE, Kansas City District Missouri Resident Office Hospital workers assist each other as low-voltage wire is lowered underground on-site of the new hospital. Middle: Contractors work on constructing the steel structure forming the main portion of the new hospital on the left, while the current General Leonard Wood Army Community Hospital sits farther back to the right. The current hospital will be demolished after construction is finished, and the area will turn into extra parking for patients and staff. Bottom: USACE, Kansas City District Missouri Resident Office Hospital Quality Assurance and Collateral Duty Safety Officer Percy Williams (left) works collaboratively with a contract construction worker on a road realignment project as they place cement to form a new road on-site of the new hospital.



Collaborative Analytics provides a dashboard of early indicators that allow project team leaders to identify stress within the team. The service provider, University Research Institute, worked with the team to establish a set of survey questions focused on communication, engagement, quality of work, innovation, organization, accountability, level of support and team environment. Monthly team surveys are anonymous and take about 10 minutes to complete. URI analyzes the survey data using its proprietary software, summarizes the results, and prepares standardized reports including trend analysis. Mr. Miller explained that these reports are initially provided to a group of team leaders called the Collaborative Analytics Subgroup Leadership Team, or CASL Team. These leaders meet monthly to discuss the survey results and develop corrective actions when necessary. The final step in the monthly cycle is that the survey results and proposed corrective actions are shared with the entire project team. "One of the key benefits of Collaborative Analytics is the ability to identify collaboration issues while there is still time to affect the outcome. Additionally, all the attention being focused on collaboration and improving our partnership has resulted in a better understanding and appreciation of our different perspectives, and how these often lead to better outcomes. Over time our partnering initiatives, including Collaborative Analytics, have helped establish a level of high degree trust between team members," stated Mr. Miller.

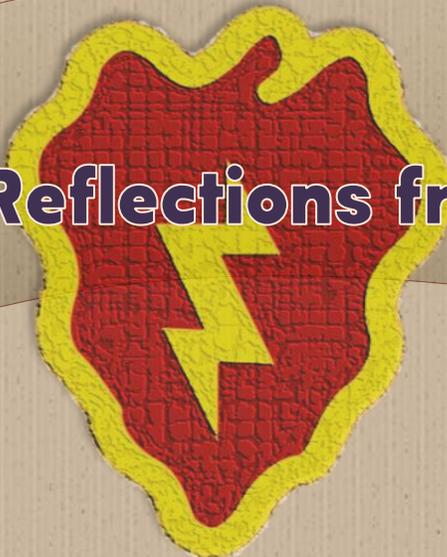
"There has been a clear commitment from day one to truly collaborate on this project," continued Mr. Bob Latas, Vice President of JE Dunn Construction Company. "Together, we developed an approach that keeps collaboration in focus throughout the overall lifecycle of the project. We see Collaborative Analytics as a potential game changer for the project and this team."

"The monthly survey results provide real-time feedback from all the project stake holders. This includes the entire project delivery team, many of our trade partners, and our internal JE Dunn team. This feedback provides an opportunity to see what is working well for the team. The survey results also helps us identify trends where we can focus on better collaboration and teamwork." Mr. Latas indicated this helps us to be better listeners while also driving candid conversations about the challenging issues when needed. Ultimately, he said this has helped to build a higher level of trust which is key to truly collaborating on this project.

The long-term benefits for the Fort Leonard Wood Community will include renovation of the existing optical fabrication lab and parking improvements slated to follow the demolition of the existing hospital, giving the community vastly upgraded facilities to support their health care needs.

Mr. James F. Lowe, retired from the U.S. Army after 25+ years with time spent in Korea, Germany, Iraq, Afghanistan, Kuwait, Qatar as well as almost 10 years with the 101<sup>st</sup> Airborne Division. From a military paralegal soldier to a Logistics officer Mr. Lowe then spent his last 12 years as a Public Affairs Officer. He has worked for the Kansas City District Public Affairs office for the last 4+ years with writing, communications planning, and social media as his primary areas of focus.

Ms. Reagan Zimmerman has spent the last four years in the communications industry while simultaneously earning her degree. Ms. Zimmerman is a recent graduate with a Bachelor Journalism Bachelor of Arts degree from the University of Wisconsin-Madison with an emphasis in reporting and strategic communication. During that time, she also shared her passion for telling the Army story through positions with Army Cadet Command and the UW-Madison Army ROTC Battalion.



# Reflections from the Kahuku Trench Project

BY CPT SPENCER B. BLACK

Trench training sites are becoming more prevalent in planning and training for combat operations. In the U.S. Army Brigade Engineer Battalions (BEB) are aligned to combat brigades and primarily provide combat support to the warfighter, participate in the fight, and as a tertiary task they can provide general engineering (GE) support. GE consists of construction operations and is usually left to the Echelon Above Brigade (EAB) units with minimal BEB support. However, when manpower is low, and the need is dire, BEBs can conduct GE missions as a primary task. Such was the case during the spring of 2019 at Schofield Barracks, HI. Initially the 25<sup>th</sup> Infantry Division (25ID) developed a plan to construct a trench warfare training complex to provide a needed facility. The concept was to design and build a trench warfare training complex for the U.S. Army, similar to what the Marines have at Marine Corps Base Hawaii, at Kaneohe (MCBH). The mission went straight to an EAB from the Division Engineer (DIVENG). The EAB was tapped, and spread thin between deployment operations, and training exercises across the Pacific Theater. They only had a skeleton crew and minimal equipment available to complete the task at home station. DIVENG continued to reach out to all available engineer units on Schofield Barracks (SBHI).

When our team heard in January that our unit was going to participate in building a trench complex on top of a mountain we were in disbelief. Not only did the project seem far-fetched, but also little was known about the concept, scope, schedule, and resources available to do such a thing. BEBs differ greatly from EABs in regards to equipment assigned to them. BEBs are far more tactical in nature and have less/minimal construction equipment and only one vertical construction Non-Commissioned Officer (NCO) on staff. The EAB has a robust set of construction tools, equipment, capabilities, and entire companies worth of personnel who are experts in their craft. In my narrow point of view, the project was grounded.

In February, our Battalion (BN) construction officer brought our platoon (PLT) leadership in for a meeting regarding a project assigned to the unit. After the meeting we were still confused as to what was being asked and how we were expected to go about it. Our Platoon Sergeant (PSG) made clear in my mind that this was not going to disappear, and that this problem required us to solve it. We were informed shortly afterwards that it was not only one trench, but three, and we only had till May 10<sup>th</sup> to get it done. It was a bitter pill to swallow as we were a combat unit and lacked the required personnel, equipment, and training to undertake this endeavor. We had till March 18<sup>th</sup> to get everything in order and start construction. Myself and our PSG played the info game and coordinated directly with DIVENG in order to clear the fog of war and get things moving. The BN construction cell worked on getting the plans, and our BN leadership worked on acquiring support for us from within and outside of our BN. By March we had our team, most of our equipment, and a general idea of what our plan was. The only thing left was to get it done and hope that all of the loose ends would tie themselves. Unfortunately, they did not.

Murphy's Law and other issues were at play that slowed our initial momentum. The logistics of getting last minute construction materials to Hawaii was still ongoing, and a myriad of design issues were still being worked out by the EAB design team. Once materials arrived on island, we had to take them up a mountain, and through the jungle on narrow overgrown roads. We knew logistics were going to make or break the project as we ran the risk of working faster than supplies could arrive. Our team was comprised of horizontal construction engineers, known by their Military Occupations Specialty (MOS) as 12N. Our 12N soldiers knew how to build drainage, install foundations, and level entire areas even on top of a mountain. I knew they were proficient; however, I was concerned with how we would tackle the actual construction of the trench in the following weeks. Once the ground was prepped, and the road repaired enough for logistics, the real trial came.

Our team begged and bartered for equipment in order to get the project off the ground. The foundation and groundwork of the project only took about three days. Once we had our foundation built and our construction site excavated, operations began in earnest. Enough wood and concrete arrived on site to get us about a week's worth of progress. We were uncertain when the next shipment of supplies would arrive. For the work, we were in luck, one of our NCOs happened to be a construction foreman in his previous civilian job. His expertise proved crucial to the project's success, and he immediately began training our crews on vertical construction techniques. Hope was restored, but progress was slow.

Training the crews while they worked was taxing at best and exhausting at worst. The learning curve was steep and there was little room for error. Everything they built was permanent and everything they built was inspected thoroughly. The change from combat operations to construction operations was difficult. The team knew how to work fast under pressure but had to learn to apply finesse to their handiwork. The NCOs had the experience needed to get the job done and to lead and train the soldiers. I could take my mind off that and re-focus on our logistics issues.

As supplies arrived at the warehouse, we needed a liaison to receive them and ensure the correct supplies were sent to the site to keep operations running smoothly. We placed another NCO on the problem. Myself and our liaison spoke daily and worked together to get the material to the job site. Material arrived in no particular order, and only in enough quantity to keep our heads above water, causing minor delays in progress. With the material we did have, our crews went to work and started the first site. The team slowly became much more proficient at their tasks, and we actually started having fun for the first time since we started. Once we were mid-way through, we overcame our lack of expertise, and equipment, and now just needed the supply lines to cooperate.

The trench design required an excessive amount of 8x8x16 boards to meet the specifications. Finding enough of those boards on Oahu was difficult. Many orders were made in hopes that the material would arrive expeditiously. A solution presented itself in the form of a change request for the design to increase the spacing of 8x8x16 boards from



Photo above: Trench Site B Recon. Photo below: Trench Site A during construction.



every 5' to every 8'. The change was reviewed by the design team in the EAB and shown that the new design was still stable for the load on the trench walls. Hope was restored, and we now had a solution for our logistics issues. However, time was still a resource we had little of.

The schedule for the project was ever changing to reflect our logistics and training issues. It was only the last six weeks of the project that we finally got back on track and surpassed where we needed to be. The solution is one that might only work in the military and is best not tried at home. The project leadership knew that time was against us, so we made time. Workdays were already twelve hours, but crews were on a day on/day off cycle. In order to buy time, we combined both crews during the same shift, and we set up camp at the site for weeklong stints working twelve-hour shifts. To my surprise the soldiers and leaders all accepted the new schedule with little to no griping. The team understood the situation and wanted the project to succeed. For most of the team, myself included, it was their first project.

After our much needed adjustments to schedule, logistics, design, and crew training the project came together. We had all of the right materials, leadership, soldiers, equipment, and training to get the job done. We finished on May 9, one day ahead of schedule. The design change saved nearly \$20,000 in lumber costs and about 1,000 hours of labor. Many of the stakeholders were impressed that we actually finished the project as it seemed as daunting. DIVENG was happy to report success to the commanding general. We were fortunate to have the right people for the job, but luck is only a small portion of the skill and hard work that went into the construction of the Kahuku Trench Project.



Photo above: Trench Site C during construction. Soldiers (right) eating their first hot meal on site. Trench Site B after construction, photo taken from the USGS Elevation.



CPT Spencer B. Black is a recent graduate of Engineer Captains' Career Course and is currently participating in the Professional Development Program at Missouri Science and Technology. He is currently working towards a MS in Geologic Engineering and will be stationed at Fort Leonard Wood, MO following completion at MS&T.



The Army Engineer Association appreciates the generosity of industry that supported the 2020 Army Engineer Regimental Awards. These rewards are given by the Engineer School at FLW to the many outstanding members of the Engineer Regiment in the Active, Reserve, and National Guard Components of the Engineers. Essayons!!

**BAE SYSTEMS**

 **BLACK & VEATCH**

**TEXTRON**

**DAWSON**  
**& ASSOCIATES**

 **leidos**

**KIPPERTOOL**



*Lieutenant General Emerson C. Itschner Award*  
**7<sup>th</sup> Engineer Dive Detachment, 84<sup>th</sup> Engineer Battalion**  
Schofield Barracks, HI, Active Army

*Lieutenant General Emerson C. Itschner Award*  
**Headquarters and Headquarters Company**  
Vicksburg, MS, U.S. Army Reserve

*Lieutenant General Emerson C. Itschner Award*  
**Headquarters and Headquarters Company**  
Owensboro, KY, Army National Guard

*1LT William O. Munson Award*  
**1LT Ander J. Thompson**  
7<sup>th</sup> Engineer Dive Detachment 84<sup>th</sup> Engineer Battalion  
Schofield Barracks, HI, Active Army

*1LT William O. Munson Award*  
**1LT Kyle Dougherty**  
327<sup>th</sup> Engineer Vertical Construction Company, 367<sup>th</sup> Engineer Battalion  
Saint Joseph, MN, U.S. Army Reserve

*1LT William O. Munson Award*  
**2LT John P. Cecconi**  
207<sup>th</sup> Engineer Construction Company, 201<sup>st</sup> Engineer Battalion  
Richmond, KY, Army National Guard

*The Outstanding Engineer Warrant Officer Award*  
**CW2 Rene Veliz**  
Maintenance Company, 1<sup>st</sup> Special Forces Group  
Joint Base Lewis-McChord, WA, Active Army

*The Outstanding Engineer Warrant Officer Award*  
**CW2 Cody L. Schmidt**  
945<sup>th</sup> Engineer Detachment, 367<sup>th</sup> Engineer Battalion  
Saint Joseph, MN, U.S. Army Reserve

*The Outstanding Engineer Warrant Officer Award*  
**CW3 Thomas K. Irvin**  
1022<sup>nd</sup> Engineer Vertical Construction, Company, 527<sup>th</sup> Engineer Battalion  
Ruston, LA, Army Nation Guard





*The Sturgis Medal Award*

**SFC Miguel Acuna**

Maintenance Company, 1<sup>st</sup> Special Forces Group  
Joint Base Lewis-McChord, WA, Active Army

*The Sturgis Medal Award*

**SGT Trey B. Webb**

327<sup>th</sup> Engineer Vertical Construction Company, 367<sup>th</sup> Engineer Battalion  
Saint Joseph, MN, U.S. Army Reserve

*The Sturgis Medal Award*

**SSG Shayne D. Lipp**

200<sup>th</sup> Engineer Company, 153<sup>rd</sup> Engineer Battalion  
Pierre, SD, Army National Guard

*The Van Autreve Award*

**SPC Nathan J. Orenstein**

Alpha Company, 39<sup>th</sup> Brigade Engineer Battalion, 2<sup>nd</sup> Brigade Combat Team Joint Base  
Fort Campbell, KY, Active Army

*The Van Autreve Award*

**SPC Anthony S. Hanto**

327<sup>th</sup> Engineer Vertical Construction Company, 367<sup>th</sup> Engineer Battalion  
Saint Joseph, MN, U.S. Army Reserve

*The Van Autreve Award*

**SPC Jacob A. Hernandez**

Headquarters and Headquarters Company, 153<sup>rd</sup> Engineer Battalion  
Pierre, SD, Army National Guard

*The LTG (Ret) John W. Morris Outstanding Civilian of the Year Award*

**Mr. Ronald A. Smith**

1<sup>st</sup> Engineer Brigade  
Fort Leonard Wood, MO, Active Army

*The LTG (Ret) John W. Morris Outstanding Civilian of the Year Award*

**Mr. Michael J. Vosen**

327<sup>th</sup> Engineer Brigade  
Fort Snelling, MN, U.S. Army Reserve



# *Army Airborne Engineer Light Airfield Repair Package*

*By CPT Zachary Bair*



Bravo Company Paratroopers recovering the HMEE after a successful Airborne Operation. Photo by SSG Joshua Mohon. Photo right: Bravo Company Paratroopers recovering the HMEE after a successful Airborne Operation. Photo by 1LT Robert Wiegand.



With the ending of the decades long Afghanistan War, the US Army will begin switching focus from the Counter-Insurgency style warfare seen in the mountains of Afghanistan to a conventional style warfare with a near-peer or peer state. An issue that the Army will face is with their use of the Light Airfield Repair Package (LARP) that is a component of the 82<sup>nd</sup> Airborne Division's Global Response Force (GRF). The 82<sup>nd</sup>'s GRF is emergency response to any global threat in the world. If the President of the United States calls upon the GRF, the 82<sup>nd</sup> can deploy anywhere in the world within 18 hours of notification to apply combat power. The most recent activation of the GRF is when the 82<sup>nd</sup> ABN DIV was called to Kuwait to support Iran's provocation of US forces in Iraq. The GRF responded and acted as a deterrent and Iran backed down any further provocation.

Though the deterrence of Iran was a successful deployment for the GRF, the main mission of the GRF is airfield seizure and repair in a hostile country. The GRF is tasked to conduct an Airborne assault behind enemy lines to open an additional way for U.S. forces to occupy a hostile nation and apply combat power. A major component of the GRF is the LARP. It is a multi-vehicle package that can be deployed out of aircraft during an Airborne operation to supply Engineers on the ground with equipment to repair an airfield that the 82<sup>nd</sup> seizes during an Airborne assault. Engineers are tasked with clearing the airfield and repairing any craters or damages to allow U.S. Air-Force to begin landing planes to bring in additional personnel, equipment, and supplies. The major issue with the LARP is that it has been placed on the backburner of Military equipment for 20 years while the U.S. Army has been fighting the war in Afghanistan and Iraq. With little threat of conventional warfare and activation of the 82<sup>nd</sup> GRF, the LARP has not received any equipment updates that is vital to the Engineer mission during an Airborne assault. The U.S. Military needs to allocate resources into updating the LARP and creating equipment that has redundancy on the ground and useful for Airborne operations.

I am a U.S. Army Engineer Officer and I have served in the 82<sup>nd</sup> Airborne Division for five years. In this time, I have spent over one year on GRF, I have deployed to Afghanistan, and executed countless practice Airborne assaults and seizure of an airfield including one rotation to the U.S. Military's Joint Readiness Training Center in Fort Polk, LA. In my experiences I have recognized the lack of attention planners have placed on the LARP during an Airborne assault, as well as the equipment utilized is not functionally appropriated for an Airborne assault.

I have conducted at least eight full-size practice Airborne assaults onto an Airfield, where over 1500 Paratroopers exit an aircraft and multiple vehicles exit to provide equipment on the ground. Almost all those times the Brigade planners had the Engineers pre-stage the LARP on the drop zone prior to the jump. Meaning we did not practice dropping any Engineer equipment from Aircraft during an Airborne Operation. In 2020 while I was an Executive Officer for a Company in the Engineer Battalion, our Company was the first organization to drop the entire LARP, all the Engineer vehicles of the LARP, in a single Airborne Operation in over 10 years. This shows the lack of emphasis on the Engineers as well as a lack of trust in the LARP to safely reach the ground during an operation.

A major issue during any Airborne operation is safety. There is always risk when exiting Paratroopers from an aircraft approximately 1000 feet above ground level, but there is an even greater risk with vehicles. Due to the heaviness of Military vehicles and off-balance of the vehicle, there is an increased risk of the parachute being able to safely bring the vehicle to the ground. This risk is increased even further with Engineer equipment. This happens for a variety of reasons, the first major reason is Engineer equipment is extremely heavy, I

witnessed a \$250,000 Grader crash into the ground during an Airborne Operation because it was deemed too heavy for the parachutes.

The 82<sup>nd</sup> Airborne Division's Engineers received a new type of Grader approximately 6 years ago, the previous version was designed for Airborne Operations and was an extremely light version. The new Grader was the same type of equipment released to the rest of the Engineer units in the Army and was not specifically designed for Airborne use.

Another reason Engineer equipment crashes into the ground is because of the complexity of the machinery. It takes a typical Army vehicle that is being rigged by the Army's Airborne Riggers for an Airborne Operation approximately four hours to do. This is a pretty easy process that a handful of Paratroopers can get done in a short amount of time, but it is not that way for Engineer equipment that is part of the LARP. The most complex equipment will take approximately 10 hours to rig for an Airborne Operation to include taking vital equipment off the vehicles. For example, to drop a High Mobility Excavation Equipment (HMEE) you need to remove the A/C unit completely from the vehicle and add additional bolts and braces that are easily lost and damaged to the bucket to prevent movement of the bucket.

The D6 Dozer needs to have the entire cab removed with a crane to be able to rig it for an Airborne Operation. This removes important armor needed to protect the operator on the drop zone. These steps are not only dangerous for the riggers but are complex, easy to mess up, and takes several experts to complete. I have seen riggers multiple times messing up steps during the rigging process to be caught hours before the Airborne Operation saving the vehicle from being destroyed. All the equipment in the LARP is equipment that is issued to non-Airborne units, with instructions on altering the equipment to allow it for Airborne Operations. This is not only costly for the taxpayers in the long term, but it is also unsafe for Paratroopers.

With the focus moving towards conventional warfare and the possibility of a war with a peer threat increasing, the 82<sup>nd</sup> Airborne Division's GRF has a high likelihood of being activated to conduct their airfield seizure mission. The Army needs to focus on the Engineer's LARP equipment to ensure the GRF can complete its mission. To do this the Army needs to redesign the equipment in the LARP to provide Engineers with specifically designed equipment for Airborne Operations. The Army needs to look at making Airborne Engineer equipment lighter and smaller. Repair of a runway does not take large equipment that the rest of the Army uses to construct roads, bases, and obstacles. By designing equipment that is smaller and does not need components taken off or added, the Airborne Engineers can be provided a lighter vehicle that can complete the mission without the risk of being destroyed during an Airborne Operation. It can be argued that redesigning and issuing new equipment for the Airborne Engineers will be costly and time-consuming and we may not see the equipment being issued until as late as 2040.

CPT Zachary Bair served in the 307<sup>th</sup> Airborne Engineer Battalion in 3<sup>rd</sup> Brigade Combat Team, 82<sup>nd</sup> Airborne Division. He served as a Battalion plans officer before becoming a Platoon Leader and then as a Company Executive Officer within the Battalion. CPT Bair has conducted several training rotations with the 307<sup>th</sup> AEB, as well as one deployment to Afghanistan. CPT Bair recently graduated from ECCC and is now completing a Master of Science in Geological Engineering at the Missouri University of Science and Technology.

Bravo Company Paratroopers with the help of Riggers, rigging the HMEE to be air dropped. Equipment Rigged for an Airborne Operation. Photos by 1LT Robert Wiegand.



The long acquisition process for designing, testing, and implementing new equipment is a long process that is very costly for taxpayers. Though new equipment will have an expensive price tag, long term cost will be more beneficial. With the increased risk of current equipment being destroyed on the drop zone due to malfunctions, taxpayers will have to replace this equipment which is very expensive. With the Army's focus changing to conventional warfare, they need to revisit Airborne Engineer equipment to ensure its more appropriated for its intended purpose.



At Pele U.S. Army Reserve Center in American Samoa

MICRO



# 9<sup>th</sup> MSC Launches Fully Operational

*By Ms. Ashley Bradford*

# GRID

An aerial photograph of a large industrial or utility facility. The main building has a light-colored roof with several large, dark rectangular solar panels installed. To the right of the building is a paved parking lot containing several cars and a white van. A road with a double yellow line runs along the bottom right of the image, lined with palm trees and a green fence. In the background, there are green fields, a runway, and distant hills under a clear blue sky.

As climate-related weather events increase so does the threat it imposes on military readiness. Energy and water resilience, or the uninterrupted access to these resources, ensures Army Reserve Soldiers have the resources needed to maintain operations while also supporting federal agencies during natural disasters or other times of disruption. In March 2021, the 9<sup>th</sup> Mission Support Command (MSC) put into operation its first fully functioning energy microgrid at Pele U.S. Army Reserve Center in the village of Tafuna on the east coast of Tutuila Island, American Samoa. "This project started eight years ago and was executed through the support of Pacific Northwest National Laboratory, the U.S. Army Corps of Engineers Honolulu District, and Island Energy Ventures (IEV)," shared Mr. Tyler Belko, the energy specialist for the 9<sup>th</sup> MSC, "American Samoa was selected as an Army Net Zero Initiative pilot site in 2013. After a comprehensive energy and water evaluation was conducted in 2014, it was recommended that we pursue onsite energy generation and the microgrid project was initiated."

The \$2.1 million Energy Resilience and Conservation Investment Program project combines 325 kilowatts of new roof-mounted solar photovoltaic (PV), a new 150-kilowatt hour battery, and an existing 300-kilowatt generator. Annually, the system will provide an estimated \$124,000 in energy usage and demand savings in addition to a reduction of 485 megawatt hours of energy usage and 133 tons of carbon dioxide. This uninterrupted access to reliable energy is critical to the 275 Soldiers and Civilians at Pele U.S. Army Reserve Center, as well as any added federal emergency personnel in times of response, as the island has been drastically impacted by tropical cyclones, tsunamis, and staggering electricity costs.

Located in the south-central Pacific Ocean, Tutuila is the main island of five in American Samoa, the southernmost U.S. possession, and a U.S. territory since 1900. It is a small and narrow island that over 50,000 people call home, stretching approximately 25 miles across and nearly 3 miles from north to south at its widest point. Similar to other islands with an Army Reserve presence, Tutuila is no stranger to extreme weather-related events.

Two earthquakes struck within minutes of each other between Samoa and American Samoa on September 29, 2009, and sent devastating tsunami waves over the islands. This lethal combination of natural events resulted in over 30 deaths on Tutuila and devastating destruction and damage to homes, businesses, and the airport. Salt water flooded one of the island's two diesel-burning power plants and barrels of waste oil and sludge were knocked over, causing significant contamination and loss of power generation. In response to the disruption, emergency generators were phased into operation in October 2009 and the construction of the new \$52 million Satala Power Plant was completed in 2017. "Pele plays an important role in posturing the Army in the South Pacific," continued LTC Trujillo McAnderson, Director of Public Works, 9<sup>th</sup> MSC, "As we've seen in other parts of the world like Saipan and Puerto Rico, our dual capabilities as a Federal Response Partner for Defense Support of Civil Authorities

operations requires us to stand ready to support lead agencies and rapidly activate units. Addressing the effects of climate change, prioritizing efficiency and sustainability, and investing in renewables strengthens our facilities and ensures mission readiness."

In addition to weather concerns, electricity prices are some of the highest in the country in American Samoa. "The utility bill at Pele is our largest bill at the 9<sup>th</sup> MSC," added Mr. Belko, "Before the microgrid was installed, the center was using 50-70 megawatts of energy per month. Now the center uses between 15-30 megawatts, at least a two-thirds reduction." The American Samoa Power Authority, which serves as the public utility, and the American Samoa Renewable Energy Committee, has also been at work over recent years with planning and constructing multi-million-dollar renewable energy projects on the islands that will reduce electricity costs into the future. Similar with the Pele microgrid project, the coronavirus pandemic has delayed some of these efforts.

Future microgrid enhancement plans include expanding the battery system to reduce further reliance on an emergency generator and generator fuel, and eventually adding more PV. "We were very lucky with this project because the battery energy storage system (BESS) was written into the contract but expansion for the storage capabilities was not," explained Mr. Belko, "When we worked with IEV, they understood the capacity needed but lucky for us, our BESS came with empty racks that will enable us to store more in the future when needed. We have learned that writing in room for expansion and including it upfront in contracts is huge. Especially since Pele is a promising site with future expansion plans. Years down the road, we hope to add more PV and storage to increase onsite generation and reduce costs."

Mr. Belko attributes the microgrid project's success to partnering with other staff sections, conducting numerous programmed blackouts, and keeping a close eye on the execution of each step throughout the project. "From incorporating Leadership in Energy and Environmental Design in design charrettes, to working with cyber and environmental personnel, we were able to get everyone involved up front to ensure we could meet requirements across the board. Through programmed blackouts, also known as Energy Resilience Readiness Exercises, we conducted full-scale testing of emergency energy generation systems, infrastructure, and equipment. We learned a lot about what worked well and what did not work well with the center's generator set up and utility to inform our decisions. Additionally, the COVID-19 pandemic slowed this project down a bit and required our contractor to remotely work through an American Samoa sub-contractor. This slow down enabled us to look through the magnifying glass, ask bigger questions, and catch things because there are so many design documents and elements to review. The Army Reserve will benefit greatly from this project, and we are ready to take lessons learned and apply them across the 9<sup>th</sup> MSC and other commands to ensure our continued success."

# CONQUERING CATASTROPHE

*KBR's Hurricane Michael Recovery Efforts at Tyndall Wins Federal Planning Division Award*

On Oct. 10, 2018, Tyndall Air Force Base sustained a direct hit from Hurricane Michael, the strongest hurricane to make landfall in the Florida Panhandle and only the fourth Category 5 on record to hit the U.S. Nearly half of the approximately 500 base buildings and operational structures were destroyed or damaged beyond repair.

KBR personnel arrived on site within 48 hours to assess the damage and immediately began working around the clock to restore the base. KBR performed extensive debris removal, repaired hundreds of facilities, trained personnel, ensured the U.S. continued to have premier air dominance force for NORAD, and saved nearly 4,000 assets worth \$6 billion. The company also assisted with airfield management to keep the flight line open for additional supply and relief efforts.

Category 2 – Outstanding Federal Planning Project



## Hurricane Michael Recovery

Jacobs, KBR, Tyndall Air Force Base, 325th Fighter Wing, the US Fish and Wildlife Service, USACE Engineer Research and Development Center, Caldwell Associates



The unprecedented collaboration between KBR, the Air Force, U.S. Army Corp of Engineers, industry partners and local agencies was the linchpin in the recovery efforts. The American Planning Association (APA) Federal Planning Division recently recognized this hard work with a Citation Award for an Outstanding Federal Planning Project. The association – focused on planning and land management for federal

properties – highlighted the government-industry team for its sustainability, quality urban design, innovative problem solving and effective planning processes. “To receive this award from APA is a true honor,” said KBR Senior Vice President Ella Studer. “It speaks to our emergency planning experience and risk management efforts that overwhelmingly met critical needs in a time of uncertainty and are poised to be an example to others in the future.”

Throughout the journey, KBR managed various projects to rebuild the base. The company removed 792,450 cubic yards of debris, enough to fill the U.S. Capitol rotundas almost 17 times over. KBR also worked with the Air Force to replace 816,157 square feet of roofing, which is equivalent to about 14 football fields. Other tasks included developing installation facility standards and working with local entities to implement and adopt a project management information system.

KBR has been proud to work toward the next chapter of Tyndall's transformation since its recovery. The DoD even announced it will bring the F-35 Lightning II aircraft to Tyndall by 2023. To support this strategy, the Air Force will invest \$3 billion to transform Tyndall into the DoD's first Installation of the Future. “Our work at Tyndall is a remarkable story about how the government and industry partners came together to accomplish a unique and urgent mission,” said Studer. “When Hurricane Michael ripped through the base three years ago, it was a chance for teamwork to conquer catastrophe – and we succeeded. “To read more about how the U.S. government and industry saved Tyndall Air Force Base and the lessons they learned, visit [kbr.com/Tyndall](http://kbr.com/Tyndall). KBR has been proud to work toward the next chapter of Tyndall's transformation since the base was hit by Hurricane Michael. The DoD even announced it will bring the F-35 Lightning II aircraft to Tyndall by 2023.

**THE DOD WILL BRING  
THE F-35 LIGHTNING II  
AIRCRAFT TO TYNDALL  
BY 2023.** Photo by 1LT Savannah Bray, USAF.

# Repair and Repurposing

## Bringing New Life to 20<sup>th</sup> Century Facilities in the Pacific

CW2 Andy Chamberlain, PE, PMP



The United States first articulated a “Pivot to the Pacific” policy in the early 2010’s, emphasizing increasing strategic competition with the People’s Republic of China (PRC) as the emerging reality of the twenty-first century. This policy then evolved against the backdrop of expanding Chinese geopolitical influence and infrastructure investments under the “One Belt, One Road” initiative, as well as Beijing’s construction of artificial islands in the South China Sea in defiance of international law. Since 2016, the U.S. has increased its strategic partnerships and defense presence in the Pacific’s Oceania region – broadly defined from a geographic perspective as three major island chains grouped based on proximity to the Asian continent.



Each of the Pacific Island Countries (PICs) in Oceania faces a unique set of domestic challenges, and the region lacks any overarching political mechanisms to guide foreign policy. Individual nations thus are susceptible to “debt diplomacy” and economic coercion by Beijing. In the post-World War II (WWII) era, the United States, Australia, New Zealand, and more recently Japan have constituted the major democratic players in the Oceania region, with the United Kingdom and France also playing key post-colonial roles in Commonwealth states and Overseas Collectivities, respectively. As partners and allies, these nations lead efforts to counter PRC inroads into the PICs.

Securing Oceania is one of the USINDOPACOM priorities in support of a “Free and Open Indo-Pacific” in the face of near-peer strategic competition. This requires leveraging cooperative defense agreements and combined military exercise programs, as well as pursuing new access strategies and infrastructure investments. Given its size, diversity, and limited land resources, the region presents considerable operational and logistical challenges. However, these same challenges were successfully overcome in the past during the famous “island-hopping” campaigns of WWII. The military engineers of that era left much hidden in plain view in the islands that can be repaired and re-purposed by their contemporary counterparts.

### Legacy Infrastructure

The Oceania region retains significant legacy infrastructure from the past century, from defensive installations and logistics nodes constructed by Japanese forces to mobility and maneuver projects built by the US. Roads, airfields, ports, and fortifications from WWII are all abundant throughout the PICs - as is much war detritus, ranging from unexploded ordnance to sunken vessels. Post-war infrastructure persists as well, ranging from former communications sites to disposal areas associated with nuclear testing. Examples include airfields in Kiribati, long range communication stations in Palau, ports and wharves in the Marshall Islands, and road networks in the Solomon Islands. Following the war years, these projects reverted to ownership by local governments, which were able to continue only limited maintenance at best. Most sites were obsolete by the 1970s and have largely been left to the elements since.

With Oceania swiftly becoming a strategic field of geo-political competition, the strategic potential of these WWII-era projects is clear. If refurbished, many could be leveraged as economic drivers for trade, strategic locations for logistics hubs and security forces, and potential maneuver locations for military commanders. If these potential assets are to be repurposed to maximum effect in support of democratic institutions, extensive security cooperation efforts and innovation will be required of the US and its partners. For the US, the Department of Defense, and the Army in particular bring unique capabilities to this process. Conducting assessments and renovation of these airfields, roads, ports,

and structures lies squarely within the capabilities of the Army Engineer Regiment.

In many cases, construction during the WWII years was conducted hastily, with contingency designs based on the airframes, watercraft, and available equipment of that era. While generally robust, projects were rarely intended for permanent use. Subsequent deterioration has been extensive due to corrosion, encroachment of jungle, and rainfall often exceeding 150 inches per year in the tropical island climates. Engineering approaches in the islands - coral aggregate, rainwater catchment systems, and tactical beach landings - present unfamiliar terrain to leaders conditioned to twenty years of military conflict in desert and mountain environments. Finally, the entire region is characterized by fragile ecosystems and susceptibility to climate change, as well as baseline hazards posed by unexploded ordnance. All of these factors present major challenges to the Army engineer seeking to assess and repair the infrastructure for contemporary use in regional posturing.

### Case Study - Recent Successes in Palau

The Republic of Palau, located in the “Second Island Chain” and situated south of Guam and due east of the Philippines, has a unique relationship with the United States dating back to the WWII years and continuing since the country achieved independence in 1987. Currently, a Compact of Free Association (COFA) provides a broad framework for US support to Palau - including the country’s defense. The Palauan Island of Angaur, which is located at the southern end of the country’s primary archipelago, has a particularly distinct history. Angaur saw one of the two major amphibious conflicts in Palau in 1944, and the island’s only airfield was constructed by the Navy Seabees during that battle. Following the war, the island became home to one of a triad of radar communications (LORAN) stations operated by the U.S. Coast Guard for navigational purposes. Although the LORAN site was decommissioned in 1978, the community left the facilities intact, and both the station and the airfield were specified within the COFA as potential future joint-use defense sites.

As part of the Defender Pacific Exercise series in 2020 and 2021, U.S. Army Pacific (USARPAC) worked hand-in-glove with the U.S. Ambassador to Palau and with Palau authorities at federal and state level, as well as with Joint Region Marianas



and the other DoD Services, to successfully rehabilitate the Angaur airfield and a portion of the former Coast Guard station. This accomplishment represents the first major U.S. initiative to repair existing infrastructure in the region and offers key lessons for engineer planners.

### Angaur - Airfield

Starting in 2019, USARPAC coordinated with the Pacific Air Force 36 Contingency Response Survey Squadron (CRSS) in Guam to perform formal airfield surveys in Palau. Planners then developed a proposal for repairing the Angaur airfield to shape the terrain for Army training events. This repair would consist largely of vegetation clearing to remove fifty years of overgrowth and facilitate certification of the former airstrip as a Class B single runway airfield for C-130 aircraft.

Although the scope itself was straightforward, the project faced broader challenges. Clearing swaths of large woody vegetation alongside the existing narrow runway required heavy equipment and carried the potential for environmental impacts as well as risk of encountering UXO. With the country's borders closed to commercial travel upon the outbreak of the COVID-19 pandemic, even simple site visits required military airlift and coordination with the US Embassy starting early in 2020. The planning team chose to locally contract the work, but logistics remained a constraint. With no heavy equipment and no major disposal sites on Angaur, it was critical to account for day-long barge trips from the main urban center with every specified or implied requirement. Finally, the project required collaboration and final approval from 36 CRSS as the certifying authority.

Project execution took place in August 2020, with the successful certification of the airfield followed immediately by a number of C-130 landings in support of Army training activities on Angaur. The airfield has been used for subsequent C-130 landings in 2021 and is contributing greatly to evolving security cooperation between Palau and the U.S.

### Angaur - Former Coast Guard Station

The success of 2020 exercise activities, together with a timely official request from Palau for an increased US defense presence as well as local support from the State of Angaur, provided impetus for continued planning for 2021 exercises incorporating Angaur. The island's remoteness and topography proved advantageous in the restricted travel environment imposed by the COVID-19 pandemic, since the airfield could now be accessed directly by U.S. personnel using C-130 aircraft and could be temporarily partitioned from the local community to alleviate public health concerns.

Building on local feedback and the success of using the former Coast Guard station as a laydown area during 2020, USARPAC planners turned to the consideration of emergency shelter for personnel use during training exercises. Like many Pacific islands, Angaur is susceptible to typhoons which present safety risks and the potential of causing significant damage. The team sought a solution that could provide US military personnel with hardened shelter in the event of a





typhoon occurring during an exercise, but that could also serve a similar purpose for the island community on an enduring basis.

In 2020 and 2021, engineers from the 130 Engineer Brigade and 411 Engineer Battalion spent several days on Angaur evaluating the site. With no as-built drawings available, the team performed topographic surveys, took building measurements, and employed Unified Facility Criteria guidance to quantify the existing condition of the circa-1960 concrete structures. Their assessment resulted in a recommendation to rehabilitate two of the structures on-site, to include removing organic debris and upgrading weatherproofing measures. Once again, the USARPAC planning team opted to use local contracting given the persistent travel restrictions into Palau.

Project execution took place in July 2021. The selected structures were thoroughly cleaned and restored to livable condition, albeit without permanent power or water, and are now configurable either as emergency shelter or as working space. Planning proposals currently envision future maintenance work on the buildings to further improve their capability to support joint U.S. forces as well as the local community.

### Key Takeaways for Engineer Leaders

The ability to leverage USARPAC O&M funding was the key factor in budgeting both projects within months of approving them in concept. This, in turn, demanded project scopes that limited contracted work to maintenance and did not encompass construction. Furthermore, it required that neither project substantially overlap with future proposals in the MILCON programming cycle across all DoD services, nor with any other funding under the COFA. De-conflicting all of these permutations required research effort and continued vigilance from the team.

Development of procurement requirements and government cost estimates for both projects faced challenges

due to information gaps. These included lack of comparable local precedents, no published area cost factors for Palau, and unknown costs of equipment mobilization given the island's remoteness and the limited availability of equipment barges. Initially, USARPAC teams used a Statement of Work format and a generic scope statement for soliciting bids on the airfield project. However, despite the best efforts of all parties, the project ultimately required change orders due to unforeseen mobilization needs and a tight timeline. The team then switched to using a Performance Work Statement format and a firmer scope in a successful effort to better capture anticipated costs for the station site maintenance.

Finally, working relationships with joint engineer counterparts within USINDOPACOM proved indispensable to the Army planners and engineers leading the projects. For example, coordination for airfield damage repair and certification required Air Force oversight, while UXO clearance and disposal fell within the purview of the Marine EOD teams in the Joint Region Marianas operational area. Site assessments and troop labor from multiple services were also leveraged to good effect.

To implement credible posturing efforts in the Oceania region, Army engineers must be technically sound, legally adept, and strategically aware. They must also be prepared to support planners with skillful engineer reconnaissance, to provide both innovative concepts and clearly defined constraints, and to interface with foreign government officials throughout planning and execution phases. Achieving outcomes in island cultures where land is limited and highly prized relies not only on aligning with national goals, but also on ensuring community input and buy-in at the local level and on managing expectations for future presence. Done properly, repairing legacy infrastructure for contemporary defense needs can be implemented such that mutual benefits to all parties are realized while implementing a secure Oceania.

CW2 Andrew Chamberlain is an Engineer Planner in the 9<sup>th</sup> Mission Support Command (US Army Reserve, Fort Shafter, HI). He is currently deployed to Djibouti in support of Special Operations Forces – Africa. He previously served as the staff engineer for US Army Pacific Task Force Oceania and participated in site surveys and project design at locations in Palau, Fiji, Timor Leste, and Micronesia. He is a licensed civil engineer in California and Hawaii and holds B.S. and M.S. degrees in Civil and Environmental Engineering.

687<sup>th</sup> Soldiers load aircraft hangar debris into a 5 Cubic Yard Loader.  
Photo by CPT David S. Blackwell



# Engineer Response to Natural Disasters

*By CPT David S. Blackwell*



Within the Engineer Regiment lies an untapped resource known as the Echelon Above Brigade (EAB) Engineer Battalions (EN BN). These battalions employ specific skill sets that can aid with many operations. A key operation they can support is recovery and response to natural disasters. An example of this is the response from 687<sup>th</sup> Engineer Construction Company's (ECC) recovery efforts at Tyndall Airforce Base, FL. In less than 20 days the 687<sup>th</sup> ECC was able to deploy two and a half platoons of soldiers to start cleaning efforts for the Airforce.

The main effort for recovery was to establish a place to return permanent party Airmen back to resume daily operations. The location selected was the Tyndall AFB FamCamp. Conditions at the camp were rough; of the 150 available campsites, less than five were cleared. After arriving on ground 687<sup>th</sup> ECC utilized their basic construction equipment to start clear site and removing debris from the area. In total, around 5,000 cubic yards of debris was removed from the campground. The unit assigned its 1<sup>st</sup> and 2<sup>nd</sup> platoons to clear the campsite at FamCamp and move all debris offsite to a consolidated debris disposal site manned by the contractor KBR. The platoons used internal assets, as well as assets acquired by the Airforce, to clear pads. Clearing the campsite was significant for the Airforce because it allowed it to purchase RVs for permanent party families to move into upon returning to Tyndall AFB.

Simultaneously, 687<sup>th</sup> ECC's carpenters, electricians, and attached surveyors worked with Airforce Red Horse crews to assess damage to structures around the base. After assessments were made, the carpenters and electricians worked to make hasty repairs to return some buildings a functional state to conduct operations. Their efforts also helped create a scope of work to aid in the development of a recovery plan. This plan helped guide the 687<sup>th</sup> ECC with follow-up efforts after the completion of FamCamp.

After clearing all site at FamCamp, 687<sup>th</sup> ECC turned their attention to clearing debris from the surrounding areas throughout Tyndall AFB. The unit focused on areas that contributed to daily operations around the base. Areas of emphasis were the 1st Airforce Headquarters, a secondary Entry Control Point, and finally debris removal from the airfield. The unit divided its efforts to accomplish clearing more than 1000 cubic yards pf debris from each site.

During operations 687<sup>th</sup> ECC ran into minor shortfalls and roadblocks. The unit struggled to be able to maintain logistical needs to accomplish the mission. That, paired with the lack of specialty equipment needed, required the unit to improvise to achieve results. Starting from the arrival at Tyndall AFB the unit used creative ways to download critical equipment and transport it to the jobsite. Another area 687<sup>th</sup> ECC struggled with was waiting for the acquisition of specialty equipment, like chains and their necessary parts, needed for operations. As work progressed, the unit soon faced the harsh reality of maintaining their organic equipment while in a deployed setting. 687<sup>th</sup> ECC was away from its maintenance supply point which resulted in long lead times on parts and the high cost of bringing in special skilled labor to manufacture parts on site.

Using available engineer resources proved vital in the recovery efforts after Hurricane Michael. 687<sup>th</sup> ECC was able to use internal equipment plus additional specialty equipment to accomplish the mission. Within the Army Engineer Regiment there are useful tool to support any natural disaster within the United States.



*SGT Alig operates a Hydraulic Excavator to remove a fallen tree from a campsite. SPC Hathcock using a chainsaw to trim large limbs to be removed. SSG Welly and SPC Lamp lifted into the air to free tangled trees. Photos by CPT David Blackwell.*



*CPT David S. Blackwell recently finished the Captain's Career Course at Fort Leonard Wood, MO and is currently a student at Missouri S&T working towards a Master's Degree in Geological Engineering. Prior to that he served as a platoon leader, executive officer, and battalion intelligence officer with the 46<sup>th</sup> EN BN at Fort Polk, LA.*



*Soldier operates a 2.5 Cubic Yard loader to move debris to a stockpile. 687th ECC use a JCB High Mobility Excavator to assist in recovering a static display airplane. Photos by CPT David S. Blackwell.*

# EXTENDING INFLUENCE BEYOND ENGINEERING

*CPT Geminette Palencia*

Geospatial Engineers are experts in generation, management, analysis and dissemination of geographic data and information. Geospatial Information and Services enable geospatial engineers to produce products that aid in the military decision-making process. The ability to leverage geospatial support in military operations can be very advantageous. Integrating geospatial capabilities enhances the overall common operating picture for commanders and staff to make rapid and informed decisions. It is no surprise the influence of geospatial engineering extends beyond the regiment.

## Geospatial Support in Emergency Management

Emergency Management revolves around planning and integrating current and historical data in order to develop and produce courses of action when an emergency event strikes. Geospatial Engineers can incorporate different data layers in order to analyze the physical environment and its effects based on various scenarios. For example, planning for primary and alternate routes for emergency responders based on roads and highways prone to flooding can significantly change reaction time. Imagery provides a visual analysis that can assist with developing a staging area plan for first responders in order to prevent crowding at the emergency site. And analyzing urban clusters can help determine areas that could be challenging to evacuate due to the population size and its location.

## Geospatial Support in Public Health

Geospatial products are gaining more exposure this past year through informative visualizations provided to the public and further research and analysis used by medical professionals, universities, healthcare institutions and many other organizations. Most of us are probably familiar with various online databases that provide global statistics and

visualization of COVID-19 cases around the world, including the vaccine dose administered. Many of these databases are also interactive, allowing users to simply filter out layers for a simple visual comparative analysis or pattern analysis. Another example of how GIS enhanced the COVID-19 response was incorporating hospital capacities in the database for planners to determine resource allocation and hot spots based on population density.

## Geospatial Support in Military Operations

Maintaining a common operating picture is one of the many ways geospatial engineers can support military operations. Terrain analysis is a very useful tool to determine the physical environment and its effects on military operations. For example, slope analysis and elevation are essential information for maneuver commanders to know the type of terrain they will be operating in as it affects vehicle's ability to maneuver freely. They can also determine Helicopter Landing Zones through site suitability analysis. Geospatial engineers can assist in determining potential construction sites through construction site analysis, including soil composition, hydrology, vegetation, and areas to avoid, such as flood zones. Keep in mind that there are just a few examples of how geospatial engineers can support military operations. Integrating geospatial engineers early in the planning process will pay dividends. They provide products and services to enhance the common operating picture and other analytical processes that facilitate a greater understanding of the physical environment. This understanding enables commanders to make informed decisions and planners to provide the best suitable recommendations. Whether it is engineering related or in other fields, the use of geospatial can provide foundational understanding of the physical environment and how to employ that knowledge into action.

CPT Geminette Palencia is currently assigned to C Co, 554<sup>th</sup> EN BN in Fort Leonard Wood, MO. CPT Palencia's current duty is a graduate student at Missouri University of Science and Technology through the Professional Development Program.



*LPS Inspection - MAJ Jared "Dusty" Rodes inspects a building lightning protection system as part of 763<sup>rd</sup> EFD annual training in support of Fort Jackson, SC DPW. Photo by MAJ Nate Kunz.*

Engineer Facility Detachments (EFDs) are the Army's solution to infrastructure management at forward bases. The EFD is comprised of technical engineer officers and senior NCOs and is supported by a civilian staff. The EFD combines civilian expertise with military flexibility to replicate the Directorate of Public Works (DPW) role at force projection installations overseas. While a select few members of EFDs work with DPW in their civilian roles, close partnerships between EFDs and DPW during battle assembly weekends and annual training serves a

mutually beneficial role. As demonstrated through the 763<sup>rd</sup> EFD and the Fort Jackson DPW, Army Reserve EFDs and home-station Directorates of Public Works complement each-other through cost-effective training and infrastructure improvement.

Based in Fort Jackson, SC, 763<sup>rd</sup> EFD used a partnership with the Fort Jackson DPW to train for a deployed mission set while offsetting DPW costs and contributing to the safety and efficiency of Fort Jackson operations. While the 763<sup>rd</sup> has supported the Fort Hunter-Liggett Garrison command for the past several years during annual training, LTC Henry "Jack" Carlile decided to take the concept to the next level. Rather than focusing support only once a year, LTC Carlile started working with Fort Jackson DPW in 2019 to establish a habitual training and support relationship focused on effectively using training hours to affect real world DPW requirements. This expands partnership from only annual training to include ongoing missions during the unit's monthly battle assemblies.

While the partnership between 763<sup>rd</sup> and Fort Jackson DPW was interrupted by the COVID-19 pandemic, the mutually beneficial arrangement restarted immediately after restrictions were lifted. The 763<sup>rd</sup> EFD 2021 annual training focused on physical infrastructure inspections that were both time consuming and technical. Teams from 763<sup>rd</sup> supported ongoing DPW lines of effort focused on lightning protection systems, arms room physical condition, and updating of bridge and dam inspections and tracking.

Continuing the work started in 2019, the electrical team conducted technical inspections of over 500 buildings, assessing either the condition of current lightning protection systems or the need to install a new system. Led by the author who serves as a civilian electrical engineer, the team used Army regulations and the National Fire Protection Association regulation 780 to determine risk categories and lightning protection recommendations for critical infrastructure. This work continued the initial assessment of troop lightning protection areas supporting Fort Jackson DPW and Range Control to protect basic training and resident units during the numerous lightning storms while training on Fort Jackson ranges. At the end of

# Engineer Facility Detachments

## the Army's Solution to Infrastructure Management

*By MAJ Nate Kunz*

the two weeks of annual training, the team was able to provide a recommendation for new installations and project packets for several critical facilities that require urgent upgrades to their lightning protection systems.

A second team led by MAJ Jennifer Hernandez focused on the assessment of 41 bridges on Fort Jackson. A professional engineer with the North Carolina DOT, MAJ Hernandez provided a critical service to the Fort Jackson DPW while using her civilian expertise and training her team on what to look for on civilian bridge inspections. "While I'm sure all of our Officers remember their two weeks of technical bridging instruction at Engineer Captains Career Course," said LTC Carlile, "the opportunity to conduct a hands-on technical inspection as part of our METL training was a great opportunity to refresh those skills."

The third effort of the 763<sup>rd</sup> focused on inspections of Fort Jackson arms rooms. Led by MAJ Benjie Banning, this team supported tenant units by providing the required form DA 4606 prior to inspection by the physical security team. Inspection of arms room is a requirement every 3 years and requires DPW personnel to physically visit each arms room to verify no physical changes were made. This requirement alone provides continual opportunities for EFDs and local DPWs to engage and partner in a mutually beneficial relationship.

The Army currently has Reserve EFDs spread between 412<sup>th</sup> and 416<sup>th</sup> Theater Engineer Commands that can support both home-station and

deployed infrastructure requirements. Alignment of the EFDs with major bases supports the current Army philosophy of sustained readiness through mutual support. With an authorized strength of 15 personnel, the coordination and execution of effective training events by an EFD is difficult. Further, with a highly technical mission, the ability to train the unit for the range of anticipated tasks in the deployed DPW role is nearly impossible without support from an outside element. By partnering with the local DPW, the EFD receives the benefit of shared knowledge from the engineering professionals that are already doing the job in addition to gaining exposure to the unexpected and emergency infrastructure issues that are impossible to replicate in a training environment. Even the best training plan would have difficulty replicating the challenge of coordinating with a Network Enterprise Center (NEC) to access the roof of their building to assess lightning protection or managing traffic across an active highway bridge to conduct a technical assessment of the headwalls. Yet these situations are available through the local DPW with many more that are unknown until experienced.

Through the publication of this article, it is the hope of the author and the 763<sup>rd</sup> that fellow EFDs and Forward Engineering Support Teams (FESTs) can create or enhance their partnerships with local garrison DPWs to both support the infrastructure of our bases and prepare these technical engineering elements for the challenges of managing forward bases.



*MAJ Nate Kunz currently serves as the Facilities Electrical Engineer for 763<sup>rd</sup> EFD out of Fort Jackson, SC. In his civilian career he is an electrical engineering consultant in metal recycling.*

*Bridge Inspection - CPT Stewart Milne collects data for a bridge inspection on Fort Jackson. Photo by MAJ Nate Kunz.*





# POW/MIA

## National Museum & Monument Master Planning By Mr. Shawn Bliss, RLA, LEED AP



There is a void that exists in the story of the American experience, a gap wide open in the history of our nation. A calming, a soothing yearned for that can be partially attained through the realization of hallowed ground, a place for the nation to remember, contemplate and pay tribute to our American Prisoners of War (POWs) and those Missing in Action (MIA). A place for these heroes and their families to be honored has not been fully contemplated and has never been planned, until now. The National POW/MIA Memorial and Museum is set to pay tribute to more than 82,000 Missing in Action Service Members and America's Prisoners of War. It is time that those that served, their families and the nation have a place of honor, tribute, and remembrance.

### HISTORY AND LOCATION

Jacksonville's Cecil Field was home to the Cecil Field Master Jet Base, this special place is the wellspring of the story of, and home to, America's Missing in Action. From this place in northeast Florida, the first and only memorial dedicated solely to those Missing in Action where service members are named was constructed. In fact, the location of this memorial honoring those stationed at Cecil Field Master Jet Base is the same location where the National POW/MIA Memorial and Museum will be.

Even more importantly, one of those named at the current MIA Memorial is LCDR Michael Hoff. Shot down over Laos on January 1970, LCDR Hoff remains MIA. His wife Mrs. Mary Hoff, who resided near Cecil Field, was the champion and led the crusade establishing the awareness of those Missing in Action. One of Mary Hoff's greatest contributions was the creation of the POW/MIA flag, which was born at Cecil Field.

### THE POW/MIA MUSEUM AND MEMORIAL

A future that embraces, honors, educates, and celebrates with respect to America's Prisoners of War and Missing in Action Service Members is vital. The creation of a sacred place steeped in history, emotion, patriotism, and pride are prerequisites to honoring the bravest that continue to preserve a nation. The POW/MIA Museum and Memorial promises to uphold the trust shared by all Americans and those that serve that the value of the men and women that fight for freedom and liberty is incalculable.

The POW/MIA Museum and Memorial is designed to connect with all that visit on an emotional, intellectual, and physical level. Linkages to individuals, the immediate context, the country and even the cosmos is the framework that makes up the museum structures, the surrounding gardens and airspace above. The sun and the seasons have driven the buildings' location where elements

are synchronized with National POW/MIA Recognition Day in September. The entrance to the complex is serious and somber with strong references to hope, solitude, captivity, and a yearning for closure. The breadth and enormity of those Missing in Action is evident through monumental spaces which include elements dealing with the intangibility associated with those still missing. A 20' high x 250' long projection screen scrolling with the names of those missing where the specific names of friends, family members, and fellow service men and women are only legible as one approaches the moving projection. This is achieved through the use of remote sensing technology that would be pre-programmed by the visitor allowing the missing to follow patrons throughout the complex.

As missing heroes come home their names are transferred from the intangibility of a projection screen to an engraved limestone wall. Groves of trees and forests of steel are juxtaposed to create spaces that are occupied by visitors where the natural order of life, the human condition and the plight of freedom is examined, questioned, and celebrated. This is exemplified by the centerpiece of the memorial that is an exterior feature where more than 80,000 steel stanchions appear to support an extensive earth mound. These vertical elements appear to carry a heavy load from afar, but upon direct experience of the space it is clear that the vertical supports are actually cradled by the structure. The intent to demonstrate and provide contemplation related to the strength and commitment of those that serve, but above all their ever present humble and selfless nature.

Education, artifact preservation, research, and discovery are an integral part of the complex, the museum promises to be a place that teaches, integrates a state-of-the-art research program, and promotes the endeavor of self-

discovery. Lastly, the use of technology and flexible programming that supports a comprehensive and contemporary experience that will remain relevant for generations is central to the museum and memorial.

The interior and exterior spaces at the complex are symbiotic and should be considered mutually exclusive. The museum building and the adjacent memorial complex are designed as a single feature working together to draw emotional, visceral, and thought-provoking responses from the visitor. The POW/MIA Museum and Memorial is a destination focused on the hope that all will leave enriched, reverent, and called to tell the story of the nation's Prisoners of War and Missing in Action heroes.

## PROSSER'S DEDICATION TO HONORING HEROES

The POW/MIA Museum and Memorial is a paramount to the dedication and reverence Prosser, Inc. commits within our project contribution. The design, planning and project development has demonstrated how Prosser will continue to be a life-long partner in this project and a leader in expertise and support for all life-enhancing opportunities.

Prosser was created to be a haven for creatively driven engineering, land development, architecture, and construction experts. Our goal has always been, and continues to be, to bring brilliant minds together, to achieve one goal: to produce innovation and experiences that thrill, inspire, and exceed both our clients' expectations, and our own. We are here to make the world a better place and enjoy the time we spend together doing just that.

Please visit us at [www.prosserinc.com](http://www.prosserinc.com) or follow us at <https://www.linkedin.com/company/prosser-inc./mycompany>



*Mr. Shawn Bliss is a principal at the firm Prosser, Inc. in charge of leading the firm's environmental design, resource planning and renewable energy studios. He is a registered Landscape Architect and LEED Accredited Professional. Shawn earned his degree at the University of Florida where he studied environmental design and landscape architecture.*

A ENTRY HALL   
 B MIA HALL   
 C GALLERY OF LIGHT   
 D SANCTUARY REMEMBRANCE   
 E EVENT LAWN   
 F POW/MIA MUSEUM   
 G EXIT GARDENS   
 H CECIL FIELD POW/MIA COMPLEX



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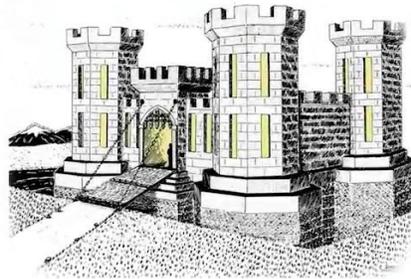


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for our Nation's  
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**LTG Scott A. Spellmon  
55<sup>th</sup> Chief of Engineers**

*Special Thanks to all Contributors 2020-2021*

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LTC Michael Calnan  
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COL Arthur Gravatt  
LTC Gregory Gray  
CW2 William Hodges  
MAJ Keith Hottinger  
MSG (Ret) John Huber  
Mr. Kurt Ingold  
COL Frank Janecek  
COL Gary Johnston  
COL Walter Juzukonis  
COL Kerry Kachejian  
Mr. Douglas Kamien  
MG John Kem  
Mr. Byard Kershaw  
LTC Glenn Kiesewetter  
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SGT Gene Kuentzler

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Mr. Richard Leifield  
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LTC (Ret) Larry Lyle  
COL (Ret) Orrin MacMurray  
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SSG Nicholas Milosevich  
COL (Ret) Philip Morris  
COL (Ret) John Morris  
MG (Ret) Terrence Mulcahy  
1SG Lloyd Mullins  
CPT (Ret) Eugene Newsome  
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COL (Ret) John Spinelli  
COL Charles Stachowski  
LTC Edward Svitil  
COL Brett Sylvia  
COL Peter Tabacchi  
MAJ Antony Thompson  
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Mr. Sid Vogel  
LTC Jason Wallace  
COL (Ret) Keith Walton  
MAJ Daniel Wolgemuth  
Mr. Richard Wright

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MAJ Crystal Batey  
Mr. Troy Bear  
COL Ben Bigelow  
SFC (Ret) Eric Blystone  
COL Victoria Bruzese  
COL Steven Buethe  
LTC David Burk  
MAJ Chad Caldwell  
1SG (Ret) Anthony Campo  
CPT David Carlson  
LTC (Ret) Ronald Cathchings  
COL Richard Chandler  
CW4 (Ret) Juanita Corea  
SFC David Cornejo  
LTC David Cox  
SGT John Crable  
CPT Kevin Daley  
MAJ William Dunlop  
COL (Ret) Mike Ellicott  
PFC Allen Faust  
MAJ Daniel Fox  
1LT Drew Freinberg  
COL Archibald Gallup  
COL Richard Garza  
CSM Scott Genz  
CPT David Gleason  
Mr. Glenn Goddard  
CPT Matthew Golden  
MAJ David Goodwin  
BG (Ret) Gary Harber  
BG William Heffron  
Mr. Charles Hines  
CPT Stephen Holden  
LTC (Ret) R. Scott Jackson  
SSG Travis Jackson  
LTC Todd Jacobus  
CW3 Richard Jakubowicz  
COL Marsha Killam

CW2 Shawn Knauff  
Mr. Richard Leifield  
COL (Ret) Debra Lewis  
COL Gerald Lukowski  
LTC Glen MacDonald  
LTC Douglas MacDonald  
1SG Felix Marinelli  
COL Sean McDonald  
CPT Kevin McMahon  
SFC Stoney Miller  
COL Neal Mitsuyoshi  
LTC (Ret) Robert Mittelstaedt  
SSG Jose Munoz  
LTC Michael Murray  
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MSG Stephen Pauly  
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CPT Chris Perez  
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LTC Thomas Perry  
COL (Ret) Xanthan Polk  
CW2 Xavier Rua  
COL Elliot Schroeder  
SFC (Ret) Paul Schweitzer  
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COL (Ret) Steven Solka  
LTC (Ret) Roger Somerville  
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1LT Victor Swanson  
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CSM Rathe Thompson  
MAJ Antony Thompson  
LTC (Ret) Harvey Walker  
CPT Paul Weber  
MG Barclay Wellman  
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SPC (Ret) Daniel Wilson

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