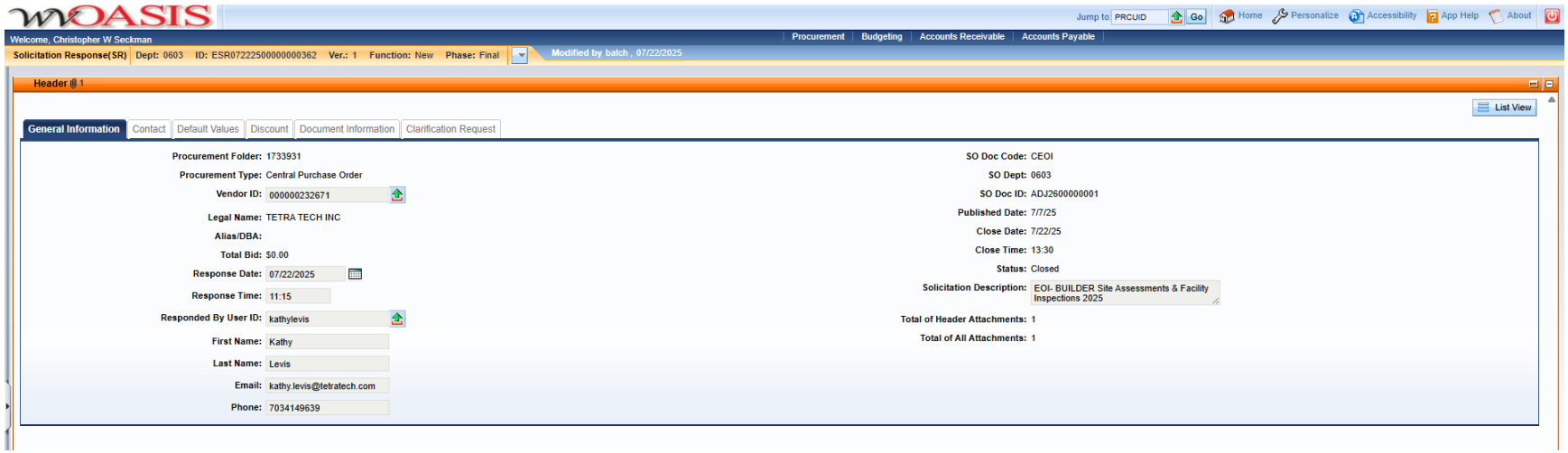
The following documentation is an electronically-submitted vendor response to an advertised solicitation from the *West Virginia Purchasing Bulletin* within the Vendor Self-Service portal at ***wvOASIS.gov***. As part of the State of West Virginia's procurement process, and to maintain the transparency of the bid-opening process, this documentation submitted online is publicly posted by the West Virginia Purchasing Division at ***WVPurchasing.gov*** with any other vendor responses to this solicitation submitted to the Purchasing Division in hard copy format.


wOASIS
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About
Welcome, Christopher W Seckman
Procurement | Budgeting | Accounts Receivable | Accounts Payable
Solicitation Response(SR) Dept: 0603 ID: ESR07222500000000362 Ver.: 1 Function: New Phase: Final
Modified by batch , 07/22/2025
Header [@ 1
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General Information
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Clarification Request
Procurement Folder: 1733931
Procurement Type: Central Purchase Order
Vendor ID: 000000232671
Legal Name: TETRA TECH INC
Alias/DBA:
Total Bid: $0.00
Response Date: 07/22/2025
Response Time: 11:15
Responded By User ID: kathylevis
First Name: Kathy
Last Name: Levis
Email: kathy.levis@tetratech.com
Phone: 7034149639
SO Doc Code: CEOI
SO Dept: 0603
SO Doc ID: ADJ2600000001
Published Date: 7/7/25
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Close Time: 13:30
Status: Closed
Solicitation Description: EOI- BUILDER Site Assessments & Facility Inspections 2025
Total of Header Attachments: 1
Total of All Attachments: 1

Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Solicitation Response

Proc Folder:	1733931
Solicitation Description:	EOI- BUILDER Site Assessments & Facility Inspections 2025
Proc Type:	Central Purchase Order

Solicitation Closes	Solicitation Response	Version
2025-07-22 13:30	SR 0603 ESR07222500000000362	1

VENDOR

000000232671
TETRA TECH INC

Solicitation Number: CEOI 0603 ADJ2600000001

Total Bid: 0 **Response Date:** 2025-07-22 **Response Time:** 11:15:13

Comments:

FOR INFORMATION CONTACT THE BUYER
David H Pauline
304-558-0067
david.h.pauline@wv.gov

Vendor
Signature X **FEIN#** **DATE**

All offers subject to all terms and conditions contained in this solicitation

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
1	EOI- BUILDER Site Assessments & Facility Inspections 2025				0.00

Comm Code	Manufacturer	Specification	Model #
81101508			

Commodity Line Comments: Per the Solicitation - section 4 #2: bids must not contain price information

Extended Description:

Provide professional engineering services for the BUILDER Sustainment Management System Implementation, including Site Assessments & Facility Inspections, for facilities throughout WV, per the attached documentation.

State of West Virginia
Department of Administration, Purchasing Division

BUILDER Sustainment Management System

Site Assessments and Facility Inspections Phase 3

July 22, 2025

Expression of Interest - CEOI ADJ26*01

Submitted by: Tetra Tech, Inc.

TETRA TECH

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July 22, 2025

David H Pauline
Department of Administration
Purchasing Division
2019 Washington Street East
Charleston, WV 25305-0130
david.h.pauline@wv.gov | 304-558-0067

Subject: EOI- BUILDER Site Assessments & Facility Inspections 2025
Solicitation No.: CEOI 0603 ADJ2600000001

Dear Mr. Pauline,

Tetra Tech is pleased to submit our Expression of Interest to support the West Virginia Army National Guard in implementing Phase 3 of the BUILDER™ Sustainment Management System (SMS). With over a decade of experience and more than 130 trained assessors, we offer the technical expertise, regional presence, and proven systems to deliver accurate and efficient asset management support.

Since 2009, we've completed BUILDER assessments on over 40,000 buildings totaling 456 million square feet—including work for 16 ARNG programs and 15 IMCOM installations. Our longstanding relationships with ERDC/CERL and ANG/ARNG clients, combined with proprietary tools like our FAST data collection app and custom Power BI dashboards, enable us to deliver actionable insights to guide planning and sustainment decisions.

The Tetra Tech team is well positioned to meet WVARNG's scheduling and access needs. With prior work at Yeager Airport, Shepherd Field, and other WV sites, we understand the local environment and mission. As a national leader in facility condition assessments and asset analytics, Tetra Tech is ready to help optimize West Virginia's infrastructure investment strategy.

We appreciate the opportunity to partner with WVARNG and are confident in our ability to deliver lasting value. Please contact me at colby.hoefar@tetratech.com or 719.659.7236 with any questions.

Sincerely,

Colby Hoefar
Vice President, Asset Management Program
1538 Kanawha Blvd E, Suite 110
Charleston, WV 25311

*Acknowledgement that no amendments were provided on WVOasis.gov
**Certification and Signature Page can be found at the end of this response

1. QUALIFICATIONS, EXPERIENCE, AND PAST PERFORMANCE

Tetra Tech is a proven leader in the asset management field. Since 2009, our Team has conducted facility condition assessments (FCA) across 260 locations on over 40,000 buildings totaling 456 million square feet (MSF) of facilities. We have provided these services to DoD clients in every state in the US. In West Virginia, we conducted BUILDER assessments and space utilization surveys on more than 1 MSF for the Air National Guard (ANG). **Our Team has continuously supported ARNG BUILDER implementation in sixteen states, Washington D.C., and two territories through multiple phases since 2017.** Tetra Tech has also conducted BUILDER assessments of 6,950 buildings at 15 IMCOM installations totaling 89.1 MSF. We welcome the opportunity to partner with the State of West Virginia ("State") to provide BUILDER implementation support.

Tetra Tech's asset management services extend beyond BUILDER FCAs. We have expanded our offerings to include training and data analysis, utility data collection, PAVER, and energy audits. To enhance data visualization of asset management data, we are working with our ARNG and federal clients to develop and implement business intelligence dashboards. Importantly, we continue to work directly with CERL as ESMS evolves. This experience and technical knowledge positions Tetra Tech as a trusted provider of integrated, scalable, and mission-aligned BUILDER solutions to WVARNG.

TETRA TECH ASSET MANAGEMENT
Smarter Tools. Stronger Teams. Superior Results.

Proven Track Record: *Over 40,000 buildings assessed (456M SF) for DoD clients—including 16 ARNG programs and 15 IMCOM installations.*

Built for Scale and Speed: *135 trained assessors available, backed by national reach and local WV offices (Charleston, Wheeling).*

Innovative Tools: *FAST app streamlines data collection with 99% first-pass data acceptance.*

Repeat Client Trust: *High CPARS ratings and consistent rehire across ARNG and federal agencies.*

Integrated Expertise: *Extensive experience with energy audits, space optimization, utilities, and GIS-integrated asset management.*

Since Tetra Tech's founding in 1966 as a consulting and engineering services firm in Pasadena, California, we have grown from the four founding individuals to a global presence with over 30,000 employees in 550 offices. Despite our overarching corporate structure, Tetra Tech's executive leadership has always maintained that small groups, focused on unique specialties, can respond faster and better to a client's needs and more reliably deliver the highest quality product at a competitive price. A client who contracts with Tetra Tech can count on a dedicated, focused, team, backed by one of the United States' largest and most stable corporations. The proof of the high quality of Tetra Tech's past performance, is the number of clients who return to us year after year. We also consistently receive the highest ratings from client Past Performance Questionnaires (PPQ) and federal Contractor Performance Assessment Reporting System (CPARS) reviews. In the following pages we list just a few of our recent projects and quotes from the letters of reference they have written.

1.1 Tetra Tech Experience and Qualifications

Our team has broad experience implementing BUILDER SMS for DoD clients. Tetra Tech's BUILDER program dates to 2009 when we started a relationship with the Sustainment Management Systems program management office at ERDC/CERL. Our efforts resulted in a cooperative research and development agreement (CRADA) and a patent licensing agreement (PLA) that allow us to distribute SMS licenses to non-federal entities on CERL's behalf. Since that time we have provided BUILDER services to the Air National Guard, Air Force, Army, Army National Guard, and other

DoD and DHS clients. **Tetra Tech conducted BUILDER assessments of 62.8 MSF across more than 9,399 facilities for 16 State Army National Guard programs.**

Tetra Tech led ANG-wide BUILDER implementation, including database hosting, and supported the Defense Logistics Agency with assessments that incorporated ROOFER and PAVER. began conducting BUILDER inventories and assessments in 2017 with our initial work for the ANG. We developed and implemented Sustainable Infrastructure Assessments that integrate BUILDER FCAs with real property inspections, space utilization, and energy audits for the US Air Force. Our experience also includes Navy Command Readiness Fleet (COMFRC) BUILDER reinspections and extensive inventory and assessment work for Army IMCOM and ARNG. We wrote the initial BUILDER Playbook for the Air Force and made updates to support the ANG. We also developed business rules for COMFRC assessments as Navy guidance had not yet been completed. We are currently supporting the U.S. Coast Guard in their BUILDER implementation, BUILDER hosting, real property reconciliation, and site asset inspections which include GIS database deliverables. We tailored BUILDER implementation for Arlington National Cemetery and devised the pilot BUILDER implementation for the Veterans Administration at the Iowa City, IA Campus, which included the creation of business rules, sectioning requirements, determining in-scope/out-of-scope assets, comment requirements, picture requirements, site utility assessments, and pavement inspections including the assessment of a parking garage.

Tetra Tech is helping our clients prepare for the rollout of BUILDER Enterprise SMS (E-SMS) by providing supplemental services with FCAs. We are capturing energy, utility, and pavement assessment data, and providing data analysis and training. We are also developing capital investment strategy tools and PowerBI BUILDER dashboards for our multiple Army Guard and IMCOM clients. E-SMS is the next step up in the BUILDER world, designed to unify multiple real-property domains within a single platform. Expanding beyond buildings to include pavements, roofs, utilities, dams, waterfront structures, etc., E-SMS enables comprehensive, portfolio-level asset management using consistent methodologies. Tetra Tech is uniquely positioned to provide expert BUILDER E-SMS and data analysis services to our ARNG clients. We continue to work directly with CERL as BUILDER SMS and E-SMS evolve. We provided utility data to CERL for E-SMS consumption and testing. The Tetra Tech Team understands the future of E-SMS and how it will impact the BUILDER program.

We have provided BUILDER implementation and follow-on sustainment services for ARNG programs in **California, Delaware, Florida, Illinois, Maryland, Michigan, Minnesota, Mississippi, North Carolina, Ohio, South Carolina, South Dakota, Tennessee, Wisconsin, Vermont, Guam, and Virgin Islands**. Beyond BUILDER, we provide our ARNG clients a full suite of built asset management solutions. Tetra Tech offers WVARNG the versatility and capabilities to conduct additional analyses in concurrence with BUILDER assessments: energy use and conservation; pavements; above ground and underground utilities; space use; master planning; Facility Related Control Systems; environmental remediation; spill, prevention, control, and countermeasure surveys. By combining assessments services and analyses, we can provide both a wide angle and granular insight on enterprise-wide real property metrics, tailored to our client's specific goals. We can provide further insight into asset and site health across the State's real property portfolio via fully customizable business intelligence dashboards. Power BI dashboards improve data visualization and support enterprise-wide decision-making by enabling both high-level analysis and detailed data filtering.

Tetra Tech's goal at the end of every BUILDER project is for the client, from shop level to higher headquarters, to have confidence in the assessment data and for the client to further utilize that data to inform strategic assessment management decisions. We aim to provide clients with the data and tools necessary to advocate for budget and programming changes, and our success in that aim is evidenced by the number of repeat clients we service. Having our clients hire us again is the ultimate compliment and measure of success. Given our capabilities, proven performance, and history of customer satisfaction, Tetra Tech is well equipped to deliver first-class built environment asset management solutions to the State of West Virginia.

1.1.1. Familiarity with West Virginia

Tetra Tech has provided asset management and BUILDER services for every state in the United States. While this will be our first BUILDER engagement for WVARNG, we bring deep familiarity with the built environment in West Virginia through prior federal and ANG assessment projects. Tetra Tech maintains offices in Charleston and Wheeling, WV. We have trained staff based throughout the United States, and we can offer the State a team of BUILDER professionals located throughout the surrounding region, including BUILDER Subject Matter Experts based in Virginia, North Carolina, and Tennessee. Tetra Tech has a proven, nationwide reach, and we provide each individual client a tailored and responsive approach, prioritizing communication and proactive project controls to ensure accurate and functional deliverables. We stand by our data and routinely provide reach-back support.

We have completed the following projects in West Virginia:

Figure 1. Prior Experience in West Virginia

Project Name	Location(s)	SF or #Buildings Assessed
ANG Boundary Installation Survey using BUILDER and GIS at 74 Installations in 45 States, 2013 - 2017	▪ Eastern West Virginia Regional Airport (EWVRA), Shepherd Field ANG Base (ANGB); Martinsburg, WV ▪ Yeager Airport, McLaughlin ANGB; Charleston, WV ▪ 72 other ANGB installations nationwide	▪ 94,254 SF (EWVRA) ▪ 52,647 SF (Yeager)
BUILDER FCA and Space Optimization for ANG at 140 ANGB Nationwide, AK, HI, PR, VI, Guam; 2011 – 2014	▪ EWVRA Shepherd Field; Martinsburg, WV ▪ Yeager Airport, McLaughlin ANGB; Charleston, WV ▪ 138 other ANGB installations nationwide	▪ 271,803 SF (EWVRA) ▪ 119,071 SF (Yeager)
Single and Multi-Family Housing Inspections for USDA Rural Housing Service (RHS) and Multifamily Physical Inspection Pilot Program (MPIPP), 2023 - 2024	▪ Elkins, WV ▪ Fairmont, WV ▪ Weston, WV ▪ Sutton, WV ▪ Parkersburg, WV ▪ Red House, WV ▪ 89 other sites in 5 States	▪ 199 buildings assessed in West Virginia
Army Installation Energy and Water Plan (IWEP) Services for the State of West Virginia, 2020 - 2024	▪ Camp Dawson, Kingwood, WV ▪ Bridgeport Fixed Wing Army Aviation Training Site; Bridgeport, WV ▪ Buckhannon United States Property Fiscal Office; Buckhannon, WV ▪ Charleston Joint Forces Headquarters; Charleston, WV ▪ Eleanor Armed Forces Reserve Center and Combined Support Maintenance Shop; Eleanor, WV ▪ Glen Jean Armed Forces Reserve Center; Glen Jean, WV ▪ Wheeling Aviation Support Facility (AASF) #2; Wheeling, WV ▪ Williamstown AASF #1; Williamstown, WV	▪ 1.3 MSF (total) ▪ 83 buildings

1.2 Staffing Plan

Tetra Tech will support the West Virginia Army National Guard's BUILDER SMS Phase 3 implementation through a robust and responsive staffing strategy. As a decentralized engineering firm with offices and resources distributed across the United States, including a local office in Charleston, WV, Tetra Tech can draw on a wide and diverse talent pool to meet project demands swiftly and efficiently. Our operational model encourages cross-office collaboration, allowing us to deploy experienced personnel from both local and regional offices as needed. Tetra Tech's management culture places each project manager only one level removed from senior management and at the disposal of our Program Manager, Mr. Colby Hoefar. This philosophy of sharing resources allows task sourcing for local and regional support given to projects anywhere in the country. We have an office in Charleston, WV and skilled assessment staff based in surrounding states. **To support BUILDER SMS implementation across West Virginia, Tetra Tech offers a team of 135 trained inventory and assessment professionals.** Our assessors are fully qualified to conduct FCAs in accordance with Army SMS guidance and have substantial experience supporting similar facility assessments for both statewide initiatives and federal agencies. Our coordinated staffing model, which is rooted in regional presence, national reach, and technical depth, ensures that the West Virginia Army National Guard will receive reliable, high-quality BUILDER support services.

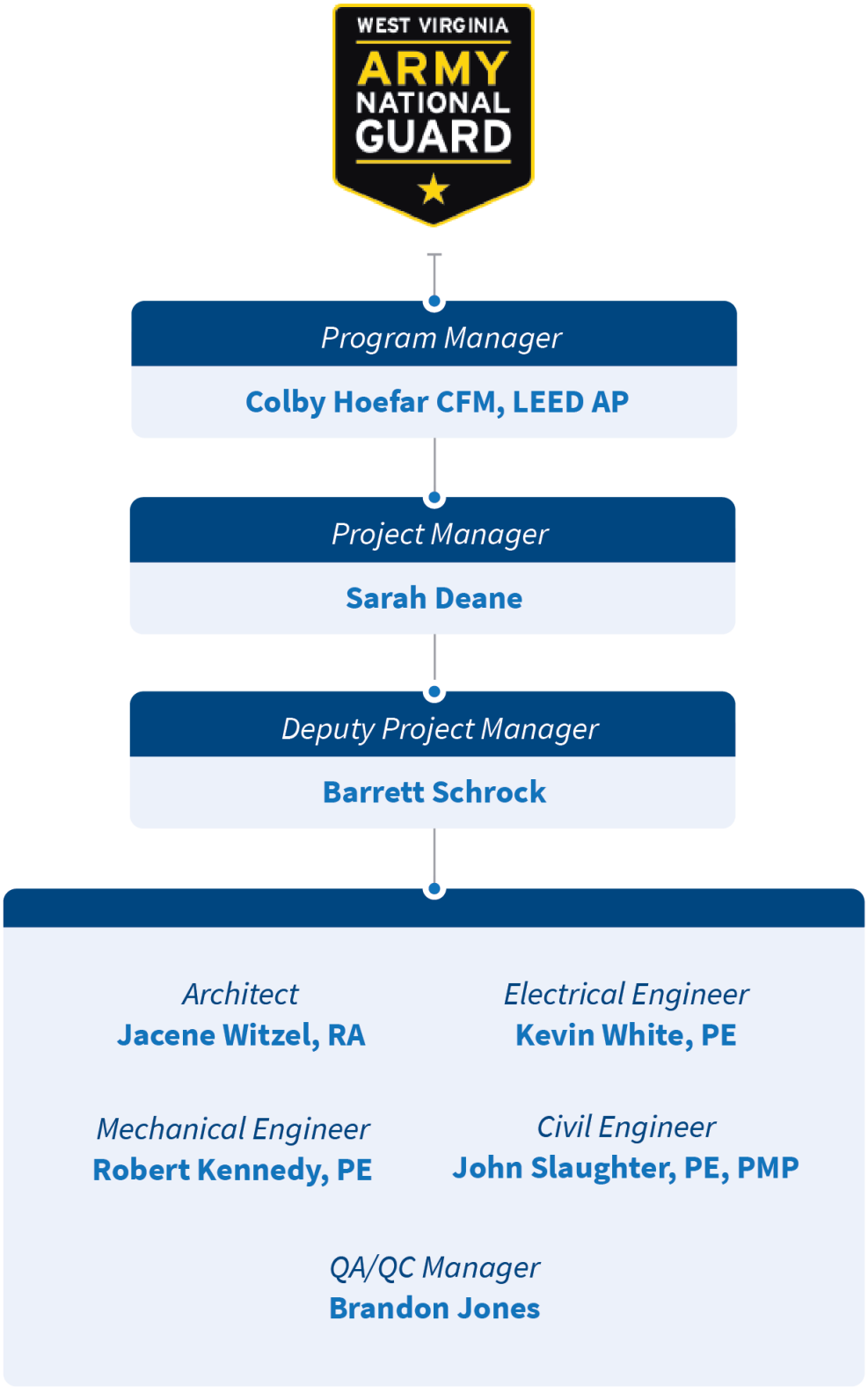
1.2.1. Subcontractors

While we are confident our team has the experience to address all solutions proposed, we recognize that some project agreements have specific small business participation goals. Tetra Tech has established relationships to contract with a large pool of diverse small businesses to provide third-party support. Tetra Tech has a long, successful history of supporting small businesses and has received recognition through several awards for small business partnerships and mentor-protégé programs. Tetra Tech has subcontracted more than $1B to small business concerns, participated in over 200 small business outreach events, received an "Exceptional" rating from DCMA for its Small Business Program (2016), is actively overseeing three SBA Mentor-Protégé Agreements, and has served as a mentor to over 40 small businesses. Should the need arise, Tetra Tech can collaborate with our small business partners in West Virginia and the surrounding region.

1.2.2. Staff Availability

Tetra Tech is committed to providing the necessary staffing resources to meet the State's scheduling and mission requirements. As a decentralized engineering firm, Tetra Tech maintains offices across the U.S., including 3 offices in West Virginia and more in the surrounding region. We are backed by an operating culture that routinely works together to complete client assignments. Tetra Tech is uniquely situated and experienced to provide the State with the attentiveness of a small, dedicated team and the resources of a large business. Our Project Manager will work directly with the West Virginia Army National Guard to develop a tailored execution plan that aligns with project milestones and access constraints. Our assessors are multi-disciplined professionals who operate in teams of two to ensure thorough, efficient evaluations. The number of assessment teams deployed will be scaled based on key factors including the total square footage to in scope, complexity of the scope of work, facility types, time anticipated onsite, and the availability of escorts and key access. This flexible approach allows Tetra Tech to adjust staffing levels as needed, ensuring that all facility assessments are completed on schedule while maintaining quality and consistency.

1.2.3. Organizational Chart



1.3 Resumes

LEAD

Colby Hoefar, CFM, LEED AP

Program Manager

Mr. Hoefar has been growing Tetra Tech's BUILDER program since 2010 and has served as Program Manager since 2015. Mr. Hoefar leads Tetra Tech's Asset Management Program for vertical facilities. He develops strategic, operational, and tactical projects in the Public and Private Facilities Management sector across the spectrum of asset management and corporate real estate portfolios. He is a seasoned consultant with direct knowledge implementing corporate real estate and facilities management, asset management, operations and maintenance, capital investment strategy, real property inventory requirements, activity management plans, space and occupancy management optimization, real property annual inspections, facility condition/asset life cycle assessments, BUILDER/ROOFER/PAVER/UTILITIES sustainment management system implementation, and general budget and life cycle planning and programmatic asset master planning. Mr. Hoefar specializes in strategic facility management planning, facility operations and maintenance resource optimization and program overhaul. He provides in-depth analysis of preventative maintenance programs and capital investment planning.

Education
- MBA, Leeds School of Business, University of Colorado, 2014
- MS, Eng. & Env. Mgt, Air Force Institute of Technology, 2000
- BS, Civil & Env. Eng., United States Air Force Academy 1995

Skills/Area(s) of Expertise
- BUILDER Implementation
- Asset Management
- Strategic Planning
- Benchmarking
- FCA
- Space Optimization
- Energy Audits
- Facility Management
- Operations & Maintenance

Registrations/Affiliations
- Society of American Military Engineers (SAME)
- International Facility Management Association (IFMA)

Trainings/Certifications
- BUILDER SMS (2009);
- ATL1 and OPSEC
- Certified Facility Manager (CFM) #3504, 12/31/22
- LEED AP

Years of Experience
- 29 (17 with Tetra Tech)

Relevant Project Experience

BUILDER SMS Implementation for Minnesota Army National Guard (MNARNG), Statewide Minnesota, 2017 – Present.

Scope: BUILDER SMS, FCA. **Size:** 9.7 MSF. **Role:** Program Manager supervised operation and planning of FCAs for real property buildings using BUILDER SMS application for the MNARNG. Conducted data analysis and capital investment planning to help the client develop long-term investment strategies for real property maintenance and growth. Coordinated BUILDER training for installation personnel, including hands-on field assessment exercises.

BUILDER SMS Implementation for Mississippi ARNG (MSARNG), Statewide Mississippi, 2017 – 2024.

Scope: BUILDER SMS, FCA, Energy Audits **Size**: 15.4 MSF **Cost**: $4.8M **Role**: Program Manager for all BUILDER efforts. Managed effort covering 6 fiscal years and 7 phases at installations throughout Mississippi. Managed 31 field assessors. Mr. Hoefar led the visioning charrette, customized the asset catalog, and delivered field assessments to tailor the inspection process to each installation. Coordinated BUILDER training for installation staff.

BUILDER SMS Implementation for North Carolina ARNG (NCARNG), Statewide North Carolina, 2017 – Present.

Scope: BUILDER SMS, FCA **Size**: 4.5 MSF **Cost**: $1.4M **Role**: Program Manager, coordinated with NCARNG state-level staff and with local facility managers to conduct facility condition assessments using multiple field teams. Worked with installation POC to arrange assessments at 71 sites in 5 phases. Provided additional training and data analysis during a data review charrette to support

the development of a strategic capital improvement plan based on the BUILDER data.

BUILDER SMS Implementation for South Carolina ARNG (SCARNG), Statewide South Carolina, 2023 - Present.
Scope: BUILDER SMS, FCA **Size:** 3.7M SF **Cost:** $1.39M **Role:** Program Manager for this effort that implements BUILDER SMS across the State of South Carolina. Mr. Hoefar led the visioning charrette, tailored the asset catalog, and delivered field assessments to tailor the inspection process. Conducted FCA using the BUILDER SMS Knowledge Based Inspection process.

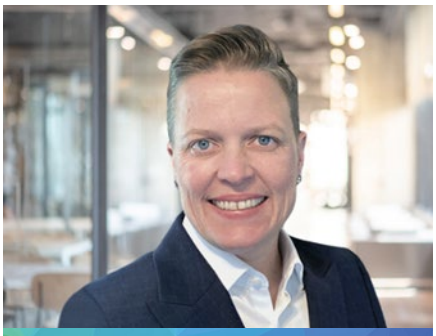
BUILDER SMS Implementation for Army Installation Management Command (IMCOM) at Fort Leonard Wood, MS, 2022 - 2023.
Scope: BUILDER SMS, FCA **Size**: 1,208 buildings; 11.8M SF **Cost**: $2.8M **Role**: Program Manager for this effort that implemented the BUILDER SMS across the Army. Mr. Hoefar led the visioning charrette, tailored the asset catalog, and delivered field assessments to tailor the inspection process to Fort Leonard Wood. This effort was contracted through the Mobile USACE IMCOM FCA contract. Conducted facility condition assessments using the BUILDER SMS Knowledge Based Inspection process.

BUILDER SMS Implementation for Army IMCOM at Fort Jackson, SC; Fort Leavenworth, KS; Rock Island Arsenal, IL; and Yakima Training Center, WA; 2020 – 2021.
Scope: BUILDER SMS, FCA **Size**: 921 buildings; 20.2 MSF **Cost**: $5.4M **Role**: Program Manager for this effort that implements BUILDER SMS across 4 CONUS installations in the USACE-Mobile District. Provided consulting expertise and data analytics to the DPW Engineering Chiefs to leverage data from facility management databases to understand Fort Leavenworth's asset performance across the portfolio and at the building/infrastructure level. Directed facility condition assessments (FCA) using the BUILDER SMS Knowledge-Based Inspection process.

BUILDER SMS Implementation for Tennessee ARNG (TNARNG), Statewide Tennessee, 2021 - Present.
Scope: BUILDER SMS, FCA **Size**: 3 MSF **Cost**: $944K **Role**: Program Manager supervised operation and planning of FCAs for real property buildings using BUILDER SMS application for the TNARNG in four phases. Conducted data analysis and capital investment planning to help the client develop long-term investment strategies for real property maintenance and growth. Coordinated BUILDER training for installation personnel, including hands-on field assessment exercises. Task order 004 will conclude in August 2024.

BUILDER SMS Implementation for Illinois ARNG (ILARNG), Statewide Illinois, 2023 - 2024.
Scope: BUILDER SMS, FCA, Utility assessment **Size**: 824k SF **Cost**: $225K **Role**: Program Manager supervised operation and planning of FCAs for real property buildings using BUILDER SMS application for the ILARNG. Conducted data analysis and capital investment planning to help the client develop long-term investment strategies for real property maintenance and growth. Coordinated BUILDER training for installation personnel, including hands-on field assessment exercises.

FY21 Facility Condition Assessments Execution/Sustainment Headquarters (HQ) Air National Guard (ANG), 2021 – 2023.
Scope: BUILDER SMS, FCA **Size**: 9.6 MSF **Cost**: $1.79M **Role**: Program Manager for this effort that conducted BUILDER SMS assessments and reinspections and space utilization assessments at 90 installations. Managed 130 assessors across various operating units and subcontractors. The effort coordinated facility assessment with the National Guard Bureau Readiness Center, A4, and each installation Base Civil Engineer to complete or update the BUILDER database with FCA information and update the Air National Guard's S-File, space utilization management GIS database. In total, over 9.6 MSF was assessed and loaded into BUILDER and over 2.1 MSF was updated in the S-File.



Sarah Deane

Project Manager

Ms. Deane has served as Project Manager on complex projects for 15 years, with more than a decade of experience implementing BUILDER SMS. She manages multiple inventory and assessment projects (facility, utility, pavement) as well as space utilization, Indoor GIS, and 3D facility scanning efforts.

Education
- MS, Geography, University of Tennessee, 2010
- BA, Geography, University of Tennessee, 2003

Skills/Area(s) of Expertise
- Project Management
- Asset Management
- Facility Condition Assessments
- Capital Improvement Planning
- GIS & CAD
- Space Utilization & Optimization
- Utility & Pavement Condition Assessments
- Data Analytics

Registrations/Affiliations
- Project Management Institute, member
- SAME, member
- International Facility Managers Association, member

Trainings/Certifications
- BUILDER SMS
- ATL 1, OPSEC

Years of Experience
- 17 (15 with Tetra Tech)

Relevant Project Experience

BUILDER SMS Implementation for SCARNG, Statewide South Carolina, 2023 - Present

Scope: BUILDER SMS, FCA. **Size:** 3.7 MSF. **Role:** Project Manager for this effort that implemented the BUILDER SMS across the State of South Carolina. Ms. Deane led the visioning charrette, tailored the asset catalog, and delivered field assessments to tailor the inspection process. Conducted FCA using the BUILDER SMS Knowledge Based Inspection process. Oversaw the development of Power BI dashboards for CFMO.

BUILDER SMS Implementation for TNARNG, Statewide Tennessee, 2021 - Present.

Scope: BUILDER SMS, FCA **Size**: 3 MSF **Cost**: $944K **Role**: Project Manager responsible for executing BUILDER SMS for TNARNG. Oversaw project kickoff and closeout as well pre-site coordination, onsite FCAs and assessment team management. Coordinated scheduling with site leads and installations. Reviewed draft and final deliverables. Assisted in development of BUILDER training tailored specifically for TNARNG.

BUILDER SMS Implementation for NCARNG, Statewide North Carolina, 2017 – Present.

Scope: BUILDER SMS, FCA **Size**: 4.5 MSF **Cost**: $1.4M **Role**: Project Manager responsible for implementing BUILDER SMS state-wide for NCARNG. Coordinated pre-site data gathering activities, onsite facility condition assessments, and ensured teams were consistent in assessing. Responsible for project kickoff and closeout as well pre-site coordination, onsite FCAs and assessment team management. Worked with QC team to ensure data quality and identify potential issues. Developed report deliverables and led data charrettes presenting inventory and assessment findings.

BUILDER SMS Implementation for ILARNG, Statewide Illinois, 2023 - 2024.

Scope: BUILDER SMS, FCA, Utility assessment **Size**: 824k SF **Cost**: $225K **Role**: Project Manager responsible for executing BUILDER SMS for ILARNG. Oversaw project kickoff and closeout as well pre-site coordination, onsite FCAs and assessment team management. Coordinated scheduling with site leads and installations. Reviewed draft and final deliverables. Assisted in development of BUILDER training tailored specifically for ILARNG.

BUILDER SMS Implementation & FCA for MSARNG, Statewide Mississippi, 2017 – 2024.

Scope: BUILDER SMS, FCA, Energy Audits **Size**: 15.4 MSF **Cost**: $4.8M **Role**: Project Manager responsible for executing BUILDER SMS for MSARNG. Directed

project kickoff and closeout as well pre-site coordination, onsite FCAs and assessment team management. Coordinated scheduling with site lead and installations. Oversaw assessment team calibration to ensure data collection quality and consistency. Developed report deliverables for data charrette. Her teams assessed approximately 15. 4 million square feet of BUILDER FCAs across the State in phases 1 – 7.

FY21 Facility Condition Assessments Execution/Sustainment HQ ANG, 2021 - 2023.
Scope: BUILDER SMS, FCA **Size**: 9.6 MSF **Cost**: $1.79M **Role**: Project Manager and GIS/S-File lead for BUILDER implementation & sustainment and space utilization studies. Responsible for coordinating FCA and S-File efforts at 90 installations. Conducted training and directed teams to capture new and additional space utilization square footage. For the FCA effort, the team was responsible for providing data collection and required support tools for the ANG to maintain and support the previously collected FCA data.

BUILDER SMS Implementation for Army IMCOM at Fort Leonard Wood, MS, 2022 - 2023.
Scope: BUILDER SMS, FCA **Size**: 1,208 buildings; 11.8M SF **Cost**: $2.8M **Role**: Project Manager for this effort that implemented the BUILDER SMS across the Army. Ms. Deane led the visioning charrette, tailored the asset catalog, and delivered field assessments to tailor the inspection process to Fort Leonard Wood. This effort was contracted through the Mobile USACE IMCOM FCA contract. Conducted facility condition assessments using the BUILDER SMS Knowledge Based Inspection process.

BUILDER SMS Implementation for Army IMCOM at Fort Rucker, AL; Fort Belvoir, VA; and Detroit Arsenal, MI, 2022 - 2023.
Scope: BUILDER SMS, FCA **Size**: 312 buildings, 4.3 MSF **Cost**: $1.1M **Role**: As Project Manager, coordinated pre-site data gathering activities, onsite facility condition assessments, and ensured teams were consistent assessing. Ms. Deane was responsible for project kickoff and close out as well pre-site coordination, onsite FCAs, and assessment team management. Generated a FCI/BCI for each facility and reports to demonstrate summaries of unit conditions, distresses, needed repairs or replacements, life-cycle content, replacement / renewal recommendations, and estimated costs. Lead a charette for each individual Garrison to provide instruction on how FCA data is sectioned, collected, and compiled into the FCA database.

BUILDER SMS Implementation for Army IMCOM at Fort Jackson, SC; Fort Leavenworth, KS; Rock Island Arsenal, IL; and Yakima Training Center, WA; 2020 – 2021.
Scope: BUILDER SMS, FCA **Size**: 921 buildings; 20.2 MSF **Cost**: $5.4M **Role**: Project Manager coordinating pre-site data gathering activities, onsite facility condition assessments, and ensured teams were consistent assessing. She is responsible for project kickoff and close out as well pre-site coordination, onsite FCAs, and assessment team management.

BUILDER SMS Implementation for Michigan ARNG (MIARNG), Statewide Michigan, 2017 - 2020.
Scope: BUILDER SMS, FCA **Size**: 3.5 MSF **Cost**: $810K **Role**: Project Manager for BUILDER SMS implementation, field assessments and data collection, overseeing a team of 30 assessors across 12 sites statewide. Conducted BUILDER training for MIARNG at Lansing Joint Force Headquarters.

Barrett Schrock

Deputy Project Manager

Mr. Schrock has over 10 years of experience conducting facility condition assessments, with 8 years focused on BUILDER SMS implementation. He serves as Project Manager on facility inventory and assessment projects for Army National Guard, Coast Guard, and other federal clients. His expertise includes BUILDER SMS data integration, Power BI dashboard development, MAXIMO asset management, and lifecycle planning for vertical and horizontal infrastructure.

Education
- BS, Industrial Engineering, Louisiana State University, Baton Rouge, LA, 2012

Skills/Area(s) of Expertise
- Project Management
- Military Facility Experience
- Asset Management
- Facility Condition Assessments
- Capital Improvement Planning
- Utility & Pavement Condition Assessments
- Data Analytics
- Power BI Dashboard Development

Registrations/Affiliations
- Project Management Institute, member
- SAME, member
- International Facility Managers Association, member

Trainings/Certifications
- BUILDER SMS
- ATL 1, OPSEC
- Aerial & Scissor Lift Operator Certification (29 CFR 1910.1926), 2017

Years of Experience
- 10 (6 with Tetra Tech)

Relevant Project Experience

BUILDER SMS Implementation for SCARNG, Statewide South Carolina, 2023 - Present

Scope: BUILDER SMS, FCA. **Size:** 3.7 MSF. **Role:** Deputy Project Manager for implementation and sustainment BUILDER SMS across the State of South Carolina. Supported the PM with project coordination and staff assignments. Oversaw the collection of mechanical systems and components. Assisted with the development of Power BI dashboards for CFMO.

BUILDER SMS Implementation for TNARNG, Statewide Tennessee, 2021 - Present.

Scope: BUILDER SMS, FCA **Size**: 3 MSF **Cost**: $944K **Role**: Deputy Project Manager responsible for executing BUILDER SMS for TNARNG. Provided logistics and administrative support to PM. Assisted in creation of BUILDER training tailored specifically to TNARNG.

BUILDER SMS Implementation; Vermont ARNG (VTARNG); 2018 – 2025.

Scope: BUILDER SMS, FCA **Size**: 2.2 MSF **Cost**: $920K **Role**: Project Manager. Responsible for the management of the project schedule, data collection procedures, and quality control of all data collected in the execution of the project. Provided a yearly BUILDER training to VTARNG staff to ensure the client can understand and utilize the BUILDER SMS program. Also responsible for developing and implementing business intelligence software, Power BI, to provide VTARNG insight into the BUILDER data and other infrastructure-related information. This has helped VTARNG easily determine cost and scope of future capital improvement projects.

BUILDER SMS Implementation for NCARNG, Statewide North Carolina, 2017 – 2025.

Scope: BUILDER SMS, FCA **Size**: 4.5 MSF **Cost**: $1.4M **Role**: Technical Lead responsible for supporting BUILDER SMS implementation state-wide for NCARNG. Supported the PM with project coordination, staff assignments, and QC. Oversaw the collection of mechanical systems and components.

BUILDER SMS Implementation & FCA for MSARNG, Statewide Mississippi, 2017 – 2024.

Scope: BUILDER SMS, FCA, Energy Audits **Size**: 15.4 MSF **Cost**: $4.8M **Role**: Deputy Project Manager responsible for overseeing assessments and coordination of site visits. Conducted FCA of mechanical systems, D10, D20, D30, D40, D50, E10, in accordance with ANG BUILDER guidance. Assisted with

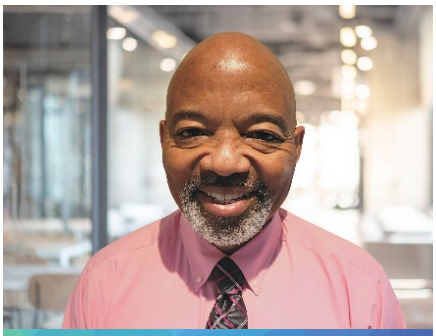
development o report deliverables for data charrette. Tetra Tech assessed approximately 15. 4 million square feet of BUILDER FCAs across the State in phases 1 – 7.

BUILDER SMS Implementation for Army IMCOM at Fort Leonard Wood, MS, 2022 - 2023.
Scope: BUILDER SMS, FCA **Size**: 1,208 buildings; 11.8M SF **Cost**: $2.8M **Role**: Deputy Project Manager and Mechanical Engineer. Responsible for coordinating pre-site activities with PM. Provided field lead support to assessment teams. Conducted facility condition assessments using the BUILDER SMS Knowledge Based Inspection process.

BUILDER SMS Implementation for Army IMCOM at Fort Rucker, AL; Fort Belvoir, VA; and Detroit Arsenal, MI, 2022 - 2023.
Scope: BUILDER SMS, FCA **Size**: 312 buildings, 4.3 MSF **Cost**: $1.1M **Role**: Deputy Project Manager and Mechanical Engineer. Responsible for coordinating pre-site activities with PM. Provided on the ground support to assessment teams. Captured mechanical asset inventory and inspection data in alignment with Army BUILDER SMS guidance.

FY21 Facility Condition Assessments and Multiple Air National Guard Installations, 2021 – 2023.
Scope: BUILDER SMS, FCA, Space Utilization **Size**: 9.6 MSF **Cost**: $1.79M **Role**: Technical Field Lead responsible for overseeing assessments and coordination of site visits. Conducted FCA of mechanical systems, D10, D20, D30, D40, D50, E10, in accordance with ANG BUILDER guidance. For the FCA effort, the team was responsible for providing data collection and required support tools for the ANG to maintain and support the previously collected FCA data.

BUILDER SMS Implementation for Army IMCOM at Fort Jackson, SC; Fort Leavenworth, KS; Rock Island Arsenal, IL; and Yakima Training Center, WA; 2020 – 2021.
Scope: BUILDER SMS, FCA **Size**: 921 buildings; 20.2 MSF **Cost**: $5.4M **Role**: Deputy Project Manager and Mechanical Engineer. Responsible for coordinating pre-site activities with PM. Provided on the ground support to assessment teams. Captured mechanical asset inventory and inspection data in alignment with Army BUILDER SMS guidance. Supported the development of pilot Power BI dashboards.



Kevin White, PE

Electrical Engineer

Mr. White has served as an Electrical Engineer for over 30 years and has 10 years BUILDER experience. He serves as a senior electrical engineer and project manager in the Tetra Tech Asset Management Program. He oversees the Air Force and Air Force National Guard FCA and Space Utilization contracts; provides technical and management support to the Army, Army National Guard, and Navy FCA contracts; and provides Site Safety and Health Officer support as required. Mr. White has approximately 10 years of experience as an FCA assessor and asset management project manager. Mr. White provides technical and field support for FCA and energy projects for clients across the U.S.

Education

- BS, Electrical Engineering, University of Tennessee, 1987

Skills/Area(s) of Expertise

- BUILDER SMS, FCA
- Asset Management
- Energy Assessments
- Field Engineering
- Project Management
- Quality Assurance/ Quality Control

Registrations/Affiliations

- PE: TN #100715
- PE: KY #20445
- PE: NC #36070
- SAME
- IFMA
- National Fire Protection Association, Member, 2016

Trainings/Certifications

- ERDC's BUILDER SMS (2009)
- ATL1 and OPSEC training
- OSHA 30 Hour General Industry Hazard Recognition (2018)
- 24-Hour HAZWOPER (2002)
- Top Secret Clearance

Years of Experience

- 36 (22 with Tetra Tech)

Relevant Project Experience

BUILDER SMS Implementation for MNARNG, Statewide Minnesota, 2017 – Present.

Scope: BUILDER SMS, FCA. **Size:** 9.7 MSF. **Role:** Electrical Engineering Lead/Quality Control. Oversaw electrical and energy FCA data collection and quality control across Minnesota facilities. Provided recommendations for corrections for poor condition, performance, code or regulatory compliance, safety, life cycle replacements or upgrades, and energy conservation of electrical equipment. In addition, data was collected to determine facility space needs, maintenance requirements, and capital improvement budgets over the 20-year planning horizon. Mr. White peer-reviewed MEP assessor's data to ensure data accuracy and quality.

BUILDER SMS Implementation for MSARNG, Statewide Mississippi, 2017 – 2024.

Scope: BUILDER SMS, FCA, Energy Audits **Size**: 15.4 MSF **Cost**: $4.8M **Role**: Electrical Lead Engineer for the team conducting BUILDER assessments, re-inspections, and energy audits. Peer-reviewed electrical and fire protection components. Directed and coordinated electrical engineering activities with the contracting officer, MSARNG PM, and QA and installation POCs.

BUILDER SMS Implementation for SCARNG, Statewide South Carolina, 2023 - Present.

Scope: BUILDER SMS, FCA **Size:** 3.7M SF **Cost:** $1.39M **Role:** Electrical Lead for this effort that implemented the BUILDER SMS across the State of South Carolina. Conducted FCA using the BUILDER SMS Knowledge-Based Inspection process on approximately 3.87M SF. Mr. White ensured quality working with assessors, particularly MEP assessors, to meet data accuracy and quality standards.

BUILDER SMS Implementation for NCARNG, Statewide North Carolina, 2017 – Present.

Scope: BUILDER SMS, FCA **Size**: 4.5 MSF **Cost**: $1.4M **Role**: Electrical Lead Engineer for the team conducting BUILDER inventory, assessments, and re-inspections. Responsible for calibrating electrical, mechanical, and plumbing assessors ensuring consistency and accuracy. Conducted field assessments.

Peer reviewed electrical, mechanical, plumbing, and fire protection components during QC against Army BUILDER Inventory and Assessment Guide.

BUILDER SMS Implementation for ILARNG, Statewide Illinois, 2023 - 2024.
Scope: BUILDER SMS, FCA, Utility assessment **Size**: 824k SF **Cost**: $225K **Role**: Electrical Lead Engineer providing assessment oversight of electrical and fire protection components at 7 different sites. Supported assessor calibration for electrical, mechanical, plumbing systems and conducted peer review during QC against Army BUILDER Inventory and Assessment Guide.

BUILDER SMS Implementation for TNARNG, Statewide Tennessee, 2021 - Present.
Scope: BUILDER SMS, FCA **Size**: 3 MSF **Cost**: $944K **Role**: Electrical Lead Engineer providing assessment oversight of electrical and fire protection components at 65 different sites. Supported assessor calibration for electrical, mechanical, plumbing systems and conducted peer review during QC against Army BUILDER Inventory and Assessment Guide.

BUILDER SMS Implementation for Army IMCOM at Fort Leonard Wood, MS, 2022 - 2023.
Scope: BUILDER SMS, FCA **Size**: 1,208 buildings; 11.8M SF **Cost**: $2.8M **Role**: Electrical Lead for this effort that implemented the BUILDER SMS across the Army. This effort was contracted through the Mobile USACE IMCOM FCA contract. Conducted FCA using the BUILDER SMS Knowledge-Based Inspection process on approximately 11.8M SF across Fort Leonard Wood, MS. Mr. White ensured quality working with assessors, particularly MEP assessors, to meet data accuracy and quality standards.

BUILDER SMS Implementation for Army IMCOM at Fort Jackson, SC; Fort Leavenworth, KS; Rock Island Arsenal, IL; and Yakima Training Center, WA; 2020 – 2021.
Scope: BUILDER SMS, FCA **Size**: 921 buildings; 20.2 MSF **Cost**: $5.4M **Role**: Electrical Lead for this effort that implemented the BUILDER SMS across the Army. This effort was contracted through the Mobile USACE IMCOM FCA contract. Conducted FCA using the BUILDER SMS Knowledge-Based Inspection process on approximately 4.1 MSF. Mr. White ensured quality working with assessors, particularly MEP's, to meet data accuracy and quality standards.

FY21 Facility Condition Assessments and Multiple Air National Guard Installations, 2021 – 2023.
Scope: BUILDER SMS, FCA, Space Utilization **Size**: 9.6 MSF **Cost**: $1.79M **Role**: Senior Electrical Engineer for this effort that conducted BUILDER SMS assessments and reinspection and space utilization assessments at 90 ANG installations. Peer reviewed electrical, mechanical, plumbing, and fire protection components. Directed and coordinated electrical engineering activities with the contracting officer, AFCEC PM, and QA and installation POCs. The effort coordinated facility assessment with the National Guard Bureau Readiness Center, A4, and each installation Base Civil Engineer to complete or update the BUILDER database with facility condition assessment information and update the Air National Guard's S-File, space utilization management GIS database.

Robert Kennedy, PE

Mechanical Engineer

Mr. Kennedy has served for 14 years as Mechanical Lead on BUILDER projects for federal clients across the U.S. Experienced in BUILDER assessment for mechanical assets, renewable energy, network security/threat analysis; architectural design; website design, content management systems; technical databases; desktop publishing; accounting; engineering economics; net present value estimation; and facilities capital budgets. Mr. Kennedy has assessed more than 165 MSF of DoD facilities. He serves as the lead mechanical engineer on projects for design of renewable energy systems, investment-grade energy audits, energy efficiency assessment, engineering economic analysis, FCA, and asset management.

Education

- MA, National Security Studies, California State University, 1988
- BS, Mechanical Engineering, California State Polytechnic University, 1986

Skills/Area(s) of Expertise

- BUILDER SMS, FCA
- Green Energy
- Space Optimization
- MEP assessment

Registrations/Affiliations

- PE: TN #23348
- PE: CA #M27364
- American Society of Mechanical Engineers (ASME)

Trainings/Certifications

- Multiple DoD security training and awareness modules

Years of Experience

- 36 (14 with Tetra Tech)

Relevant Project Experience

BUILDER SMS Implementation for MNARNG, Statewide Minnesota, 2017 – Present.

Scope: BUILDER SMS, FCA. **Size:** 9.7 MSF. **Role:** Lead Mechanical Engineer. Peer-reviewed MEP assessor's data to ensure data accuracy and quality. Identified areas for BUILDER training focus to foster more thorough quality control procedures in the field.

BUILDER SMS Implementation for MSARNG, Statewide Mississippi, 2017 – 2024.

Scope: BUILDER SMS, FCA, Energy Audits **Size**: 15.4 MSF **Cost**: $4.8M **Role**: **Lead** Mechanical Engineer. Peer-reviewed MEP assessor's data to ensure data accuracy and quality. Identified areas for BUILDER training focus to foster more thorough quality control procedures in the field.

BUILDER SMS Implementation for NCARNG, Statewide North Carolina, 2017 – Present.

Scope: BUILDER SMS, FCA **Size**: 4.5 MSF **Cost**: $1.4M **Role**: Lead Mechanical Engineer. Responsible for calibrating MEP assessors, ensuring consistency and accuracy. Conducted field assessments. Peer reviewed MEP and fire protection components during QC against Army FCA Inventory and Assessment Guide.

BUILDER SMS Implementation for SCARNG, Statewide South Carolina, 2023 - Present.

Scope: BUILDER SMS, FCA **Size:** 3.7M SF **Cost:** $1.39M **Role:** Lead Mechanical Engineer. Responsible for calibrating MEP assessors to ensure consistency and accuracy across assessments. Performed field assessments and conducted peer reviews of MEP and fire protection components as part of QC, in alignment with the Army FCA Inventory and Assessment Guide.

FCA for California ARNG (CAARNG), Phase 6, Statewide California, 2024.

Scope: BUILDER SMS, FCA, Energy Audits **Size**: 1.4 MSF **Cost**: $783k **Role**: Lead Mechanical Engineer. Peer-reviewed assessor's data to ensure data accuracy and quality. Identified areas for BUILDER training focus to foster more thorough quality control procedures in the field.

BUILDER SMS Implementation for Army IMCOM at Fort Leonard Wood, MS, 2022 - 2023.
Scope: BUILDER SMS, FCA **Size**: 1,208 buildings; 11.8M SF **Cost**: $2.8M **Role**: Lead Mechanical Engineer. Conducted FCA across Fort Leonard Wood, MS. Provided oversight and peer review of FCAs. Reviewed mechanical data for accuracy and completeness.

BUILDER SMS Implementation for Army IMCOM at Fort Bliss, TX, 2021.

Scope: BUILDER SMS, FCA **Size:** 20 MSF **Cost:** $5.8M **Role:** Lead Mechanical Engineer. Conducted FCA using the BUILDER SMS Knowledge-Based Inspection process. Ensured assessors met data accuracy and quality standards.

BUILDER SMS Implementation for Army IMCOM at Fort Jackson, SC; Fort Leavenworth, KS; Rock Island Arsenal, IL; and Yakima Training Center, WA; 2020 – 2021.
Scope: BUILDER SMS, FCA **Size**: 921 buildings; 20.2 MSF **Cost**: $5.4M **Role**: Lead Mechanical Engineer. Conducted FCA across Fort Jackson, SC, and over 11M SF at other installations. Provided oversight and peer review of FCAs. Reviewed mechanical data for accuracy and completeness.

BUILDER SMS Implementation for TNARNG, Statewide Tennessee, 2021 - Present.
Scope: BUILDER SMS, FCA **Size**: 3 MSF **Cost**: $944K **Role**: Lead Mechanical Engineer. Conducted FCA at installations across Tennessee. Ensured quality working with assessors, to meet data accuracy and standards.

BUILDER SMS Implementation for ILARNG, Statewide Illinois, 2023 - 2024.
Scope: BUILDER SMS, FCA, Utility assessment **Size**: 824k SF **Cost**: $225K **Role**: Lead Mechanical Engineer. Conducted FCA at installations across Illinois. Ensured assessors met data accuracy and quality standards.

FY21 Facility Condition Assessments and Multiple Air National Guard Installations, 2021 – 2023.
Scope: BUILDER SMS, FCA, Space Utilization **Size**: 9.6 MSF **Cost**: $1.79M **Role**: Lead Mechanical Engineer. Conducted over 9 MSF at installations across the U.S. Provided oversight and peer review of FCAs. Reviewed mechanical data for accuracy and completeness.

Data Collection Supporting FCA for U.S. Air Force Civil Engineer Center, 45 locations nationwide including Malmstrom AFB, MT; 2017 – 2021.
Scope: BUILDER SMS, FCA **Size**: 53 MSF **Cost**: $4.8M **Role**: Lead Mechanical Engineer. Conducted MEP assessments using BUILDER SMS FCA process. Deployed on concurrent trips to conduct FCAs on 45 Air Force Installations and globally separated units across the continental United States, Alaska, and Hawaii. TO covered 3 fiscal years. Tetra Tech used multiple teams on concurrent trips to conduct 53 MSF of facility condition assessments on 45 Air Force Installations and globally separated units across the continental United States, Alaska, and Hawaii. Very Good CPARS.

John Slaughter, PE, PMP

Civil Engineer

Mr. Slaughter is a Senior Civil Engineer who joined Tetra Tech after a 24-year career as a U. S. Coast Guard Officer. During his Coast Guard career, he managed numerous engineering design and construction projects at Coast Guard facilities across the United States. Mr. Slaughter has extensive experience in facility management, construction management, engineering design, utility mapping, and environmental compliance. Throughout his career, Mr. Slaughter has led an extensive array of technical personnel, from team leaders to the executive level, to complete a wide variety of engineering work.

Education

- MBA, Business Administration, Regis University, 2001
- ME, Ocean Engineering, Florida Atlantic Univ, 1997
- MA, Strategic Studies, Air War College, 2011
- BS, Civil Engineering, Coast Guard Academy, 1990

Skills/Area(s) of Expertise

- BUILDER SMS, FCA
- Facility management
- Construction management
- Engineering design
- Utility mapping
- Environmental compliance

Registrations/Affiliations

- PE: NC #042518
- PE: FL #52102
- SAME

Trainings/Certifications

- Project Management Professional (PMP), #1915039

Years of Experience

- 29 (5 with Tetra Tech)

Relevant Project Experience

BUILDER SMS Implementation for SCARNG, Statewide South Carolina, 2023 - Present.

Scope: BUILDER SMS, FCA **Size:** 3.7M SF **Cost:** $1.39M **Role:** Lead Civil Engineer. Responsible for calibrating site assessors, ensuring consistency and accuracy. Oversaw field assessments, including SPCC, pavements and utilities. Conducted review of collected data during QC task. Provide support of deliverables development.

BUILDER SMS Implementation for WIARNG, Statewide Wisconsin, Phase 9, 2024 – 2025.

Scope: BUILDER SMS, FCA **Size**: 659 KSF **Cost**: $201k **Role**: Lead Civil Engineer for BUILDER efforts. Collected data across 59 facilities. Contributed to customization of the asset management system for WIARNG based on comprehensive FCA. This customization gave WIARNG the ability to identify where sustainment, restoration and modernization funding should be focused.

FCA for CAARNG, Phase 6, Statewide California, 2024.

Scope: BUILDER SMS, FCA, Energy Audits **Size**: 1.4 MSF **Cost**: $783k **Role**: Lead Civil Engineer. Peer-reviewed assessor's data to ensure data accuracy and quality. Assisted with BUILDER training development to focus on more thorough quality control procedures in the field.

FCA for U.S. Coast Guard, Districts 11 and 13; WA, CA, and OR, 2021 - 2022. FCA for U.S. Coast Guard, Districts 13 and 14; CA, 2023.

Scope: FCA **Size:** 588K SF, 1.4 MSF **Cost:** $310k, $397k **Role:** As Civil Engineer, Mr. Slaughter has deployed on multiple occasions to several sites across CONUS in support of facility infrastructure condition assessment and mapping efforts for the Coast Guard. His background in facility management and utility mapping gave relevant context to associate observations of field conditions with their cause. This facilitated the development of site-specific recommendations not just for the facilities as a whole but at a line segment level.

Underground Utility Inventory, Condition Assessment, and Mapping (ICAM); U. S Coast Guard; 2016 – Present.

Scope: ICAM **Size:** 530 miles **Cost:** $7.6M **Role:** As Project Manager, managed national level contract to complete major underground utility asset management program for the Coast Guard. So far, this project has included over

40 different locations across the country and has included stormwater, electric, sanitary sewer, potable water, firefighting water, natural gas, and communications. Combined Mr. Slaughter's team has assessed over 27,000 pieces of equipment and nearly 530 miles of underground utilities, including 100 miles of stormwater piping. All field data was collected directly into live GIS environment utilizing standard ESRI software. Deliverables included GIS geodatabase, new utility maps (GIS and AutoCAD format), condition assessment reports, recommended maintenance and capital project list, and high resolution photogrammatic aerial images. Work also included developing the project into a permanent program for the Coast Guard with supporting resources to sustain GIS data, develop program IT requirements, and advise Coast Guard program managers on steps and required resources to assume ownership and agency management of this program.

Underground Utility ICAM; U. S. Navy; 2020 – Present.
Scope: ICAM **Size:** 22 sites **Cost:** $8.7M **Role:** As Project Manager, supported program manager by managing the technical and field data collection requirements to complete major underground utility asset management program for 22 different locations for the U.S. Navy. Scope of work includes inventory collection and condition assessment for stormwater, electric, sanitary sewer, potable water, and firefighting water. Collaborated with GIS team to adopt the Navy GIS data model based on federal SDSFIE standards and develop field crews of up to 40 people at one time to meet fast track project schedule. Efforts include linear segmentation in accordance with established Navy standards and compliance with required real property audits. Collaborates with key Navy contacts in the Financial Management and Comptroller Office, NAVFAC (Asset Management and Utilities) and Commander, Naval Installation Command. All field data is collected directly into live GIS environment utilizing standard off the shelf software. Deliverables included GIS geodatabase conforming to Navy standards, condition assessment reports, and recommended projects to improve condition of utility assets.

Facility and Utilities ICAM, Portsmouth Marine Terminal, Virginia Port Authority (VPA); 2018 - 2020.
Scope: FCA, ICAM **Cost:** $1.3M **Size:** 100,000 linear ft. **Role:** As Project Manager, completed engineering studies, underground utility assessments and mapping at the Portsmouth Marine Terminal for the Virginia Port Authority. Assisted with field operations and completion of mapping and assessment of over 100,000 linear feet of utilities, as well as building and pavement assessments.

Utility Condition Assessment and Mapping; VPA; 2018 - 2019.
Scope: ICAM **Cost:** $728k **Role:** As Project Manager, managed Norfolk, VA based team providing utility assessment and GIS mapping services at five different facilities owned by the port authority. Deliverables included condition assessment reports, recommended maintenance items, and comprehensive capital improvement project list. Existing GIS data was received from VPA, equipment inventory and attributes was reconciled with field observations and system routing verified using live GIS environment. Revised geodatabase returned to VPA as authoritative document for inventory and mapping.

Utility Equipment Reconciliation and Mapping Verification; Marine Corps Base Cherry Point, NC; 2019.
Scope: ICAM **Size:** 100,000 linear ft. **Cost:** $175k **Role:** As Project Manager, led 16-person field team validating existing GIS mapping and inventory data for six different underground utility systems. Field effort also included visual condition assessment of utility components, hydrant flow testing, and infrared scanning of thermal and electrical components. This element was part of a larger effort to study the industrial optimization of the Navy's depot level aircraft repair facilities at their Fleet Readiness Centers. Deliverables included updated GIS geodatabase, condition assessment reports, and utility system capital improvement project list.

Brandon Jones

QA/QC Manager

Mr. Jones has more than 15 years' experience conducting facility condition assessments using the BUILDER SMS of technical military training facilities. He provides quality control, data analytics, and business intelligence reports to ensure field data meets SOW and client expectations for accuracy. He created a database to improve data entry compilation, reduce project man hours, and constructed a phased approach and timeline for specific entities to be covered in a timely fashion with appropriate resources. Mr. Jones develops custom business intelligence dashboards to support efficiencies in client business operations and client understanding of complex, disparate datasets.

Education
- BS, Mechanical Engineering, Tennessee Technological University, 2013

Skills/Area(s) of Expertise
- BUILDER SMS, FCA
- Field Oversight
- Facility/Space Assessments
- Space Utilization
- Quality Control
- Microsoft PowerBI

Registrations/Affiliations
- SAME

Trainings/Certifications
- OSHA 40-HAZWOPER Training (29 CFR 1910.120), 2015
- Aerial & Scissor Lift Operator Certification (29 CFR 1910.1926), 2017

Years of Experience
- 15 (15 with Tetra Tech)

Relevant Project Experience

BUILDER SMS Implementation for MNARNG, Statewide Minnesota, 2017 – Present.

Scope: BUILDER SMS, FCA. **Size:** 9.7 MSF. **Role:** QA/QC Manager overseeing portions of this project that provided a unified and consistent reporting of facility condition across the state of Minnesota for the Army National Guard. Performed QA/QC of all datasets and contributed to the development of final reports.

BUILDER SMS Implementation for MSARNG, Statewide Mississippi, 2017 – 2024.

Scope: BUILDER SMS, FCA, Energy Audits **Size**: 15.4 MSF **Cost**: $4.8M **Role**: Quality Control Manager and Mechanical Engineer. Responsible for performing site facility assessments which include evaluating mechanical components, HVAC, electrical and plumbing systems and integrating the data into the BUILDER SMS database for mathematical and statistical analyses resulting in condition indices for each facility, component, or sub-component. Performed visual inspections of all building components included in the inventory utilizing a combination of the direct rating and distress rating inspection methods.

BUILDER SMS Implementation for NCARNG, Statewide North Carolina, 2017 – Present.

Scope: BUILDER SMS, FCA **Size**: 4.5 MSF **Cost**: $1.4M **Role**: QA/QC Manager overseeing portions of this project that provided a unified and consistent reporting of facility condition across the state of North Carolina for the Army National Guard. Performed QA/QC of all datasets and contributed to the development of final reports.

BUILDER SMS Implementation for SCARNG, Statewide South Carolina, 2023 - Present.

Scope: BUILDER SMS, FCA **Size:** 3.7M SF **Cost:** $1.39M **Role:** QA/QC Manager overseeing portions of this project that provided a unified and consistent reporting of facility condition across the state of South Carolina for the Army National Guard. Performed QA/QC of all datasets and contributed to the development of final reports.

BUILDER SMS Implementation for Army IMCOM at Fort Leonard Wood, MS, 2022 - 2023.
Scope: BUILDER SMS, FCA **Size**: 1,208 buildings; 11.8M SF **Cost**: $2.8M **Role**: Data Analyst. Performed analysis on multiple datasets to construct an Annual Work Plan for Fort Leonard Wood Department of Public Works. Developed custom Power BI dashboards for evaluation of facility condition assessment data and other reports.

BUILDER SMS Implementation for Army IMCOM at Fort Jackson, SC; Fort Leavenworth, KS; Rock Island Arsenal, IL; and Yakima Training Center, WA; 2020 – 2021.
Scope: BUILDER SMS, FCA **Size**: 921 buildings; 20.2 MSF **Cost**: $5.4M **Role**: Mechanical Engineer. Responsible for performing site facility assessments which included evaluating mechanical components, HVAC, electrical and plumbing systems and integrating the data into the BUILDER SMS database for mathematical and statistical analyses resulting in condition indices for each facility, component, or sub-component. Performed visual inspections of all building components included in the inventory utilizing a combination of the direct rating and distress rating inspection methods. To build the asset inventory, collected facility data and equipment characteristics using the ASTM E1557-09 UNIFORMAT II standard. Determined the remaining service life of each component and assigned defensible condition indices for each component, facility system, and facility overall. Office responsibilities included the evaluation, manipulation, and review of field collected data into the BUILDER database.

BUILDER SMS Implementation for TNARNG, Statewide Tennessee, 2021 - Present.
Scope: BUILDER SMS, FCA **Size**: 3 MSF **Cost**: $944K **Role**: QA/QC Manager overseeing portions of this project that provided a unified and consistent reporting of facility condition across the state of South Carolina for the Army National Guard. Performed QA/QC of all datasets and contributed to the development of final reports.

BUILDER SMS Implementation for ILARNG, Statewide Illinois, 2023 - 2024.
Scope: BUILDER SMS, FCA, Utility assessment **Size**: 824k SF **Cost**: $225K **Role**: QA/QC Manager overseeing portions of this project that provided a unified and consistent reporting of facility condition across the state of South Carolina for the Army National Guard. Performed QA/QC of all datasets and contributed to the development of final reports.

FY21 Facility Condition Assessments and Multiple Air National Guard Installations, 2021 – 2023.
Scope: BUILDER SMS, FCA, Space Utilization **Size**: 9.6 MSF **Cost**: $1.79M **Role**: Quality Control Manager and Mechanical Engineer. Responsible for performing site facility assessments which included evaluating mechanical components, HVAC, electrical and plumbing systems and integrating the data into the BUILDER SMS database for mathematical and statistical analyses resulting in condition indices for each facility, component, or sub-component. Performed visual inspections of all building components included in the inventory utilizing a combination of the direct rating and distress rating inspection methods. Determined the remaining service life of each component and assigned defensible condition indices for each component, facility system, and facility overall. Led the Quality Control analysis of assessment data prior to upload to BUILDER. Worked with installations to incorporate government comments and finalize BUILDER data.

Facility and Utilities ICAM, Portsmouth Marine Terminal, VPA; 2018 - 2020.
Scope: FCA, ICAM **Cost:** $1.3M **Size:** 100,000 linear ft. **Role:** Quality Control Manager and Mechanical Engineer. Responsible for data analytics, creation of dashboard, and custom reports to analyze data and support development of objective data-based asset management system and capital investment strategy. Performed site facility assessments which included evaluating mechanical components, HVAC, electrical and plumbing systems and integrating the data for mathematical and statistical analyses resulting in condition indices for each facility, component, or sub-component. Performed visual inspections of all building components included in the inventory utilizing a combination of the direct rating and distress rating inspection methods.

Jacene Witzel, RA

Architect

Ms. Witzel is a licensed architect with 28 years of experience across a wide range of project types and complexities in commercial architecture and interior architecture. She is the FCA discipline lead for architecture/structure and a BUILDER subject matter expert for Tetra Tech's Asset Management Program. Ms. Witzel is responsible for architectural project management, the development and maintenance of project scope/programs, the development of team schedules, onsite FCA assessments, and training. She coordinates the quality assurance and quality control processes and ensures that all pertinent feedback is incorporated into work documents and deliverables.

Education
- B. Arch, Architecture, University of Tennessee, 1995

Skills/Area(s) of Expertise
- BUILDER SMS, FCA
- Project Management
- Pre-Design / Programming
- Architectural Design and Documentation
- Master Planning
- Space Planning
- Cost Estimating

Registrations/Affiliations
- Registered Architect (RA): Tennessee #102071
- American Institute of Architects (AIA), 1997-Present

Trainings/Certifications
- Central US Earthquake Consortium (CUSEC) – New Tech for Earthquake Resilience training, 2021; Training Exercise for Post Disaster Building Safety Evaluations, 2021
- FEMA IS-00100.c, 2018
- FEMA IS-00200.b, 2018
- CalOES Safety Assessment Program Evaluator covering ATC 20-1 and ATC 45, 2023
- Clearance: Top Secret

Years of Experience
- 28 (5 with Tetra Tech)

Relevant Project Experience

BUILDER SMS Implementation for MNARNG, Statewide Minnesota, 2017 – Present.

Scope: BUILDER SMS, FCA. **Size:** 9.7 MSF. **Role:** Lead Architect and Structural Field Lead. Conducted BUILDER implementation at multiple sites. Responsible for coordinating site visits and managing assessment teams under direction of project manager. FCA collection effort has been conducted in multiple phases awarded to Tetra Tech, totaling 9.7 MSF across armories, readiness centers, and Camp Riley.

BUILDER SMS Implementation for MSARNG, Statewide Mississippi, 2017 – 2024.

Scope: BUILDER SMS, FCA, Energy Audits **Size**: 15.4 MSF **Cost**: $4.8M **Role**: Lead Architect. Project entails completing EISA 2007 energy audits and facility condition assessments using BUILDER SMS. Ms. Witzel provided guidance on data collection field efforts, performed data quality control spot checks. Data analysis and recommendations for future projects, including projects that would result in an estimated $1.4M in energy savings were included in scope.

FCA for U.S. Coast Guard, Districts 11 and 13; WA, CA, and OR, 2021 - 2022. FCA for U.S. Coast Guard, Districts 13 and 14; CA, 2023.

Scope: FCA **Size:** 588K SF, 1.4 MSF **Cost:** $310k, $397k **Role:** Lead Architect and Field Lead. Ms. Witzel was responsible for technical and field collection aspects of the FCA utilizing BUILDER SMS for U.S. Coast Guard Districts 11 and 13. Ms. Witzel organized field collection trips, in-briefs, out-briefs, created ten facility assessment reports, analyzed building condition data, and provided executive summaries of each site for leadership. Under this scope of work, 158 buildings totaling 1.47M and 538 site/field assets were collected. This is the second FCA contract with Districts 11 and 13 and continues to act as a proof of concept for the overall USCG BUILDER implementation.

BUILDER SMS Implementation for NCARNG, Statewide North Carolina, 2017 – Present.

Scope: BUILDER SMS, FCA **Size**: 4.5 MSF **Cost**: $1.4M **Role**: Lead architect and a field assessor for BUILDER SMS for NCARNG. Tetra Tech teams assessed approximately 4.5 MSF of BUILDER FCAs across the State in Phases 1 – 5.

BUILDER SMS Implementation for SCARNG, Statewide South Carolina, 2023 - Present.
Scope: BUILDER SMS, FCA **Size:** 3.7M SF **Cost:** $1.39M **Role:** Lead Architect. Ms. Witzel provided architectural and space planning recommendations for 3.7 MSF across SCARNG owned facilities. Reviewed corrections for poor condition, code and regulatory compliance, and life safety issues. In addition, analyzed the collected data to determine facility space needs, maintenance requirements and capital improvement budgets over a 20-year planning horizon.

BUILDER SMS Implementation for Army IMCOM at Fort Leonard Wood, MS, 2022 - 2023.
Scope: BUILDER SMS, FCA **Size**: 1,208 buildings; 11.8M SF **Cost**: $2.8M **Role**: Lead Architect and Field Lead. Ms. Witzel was responsible for technical and field collection aspects of the FCA utilizing BUILDER SMS for Fort Leonard Wood, MS. Ms. Witzel organized field collection trips, in-briefs, out-briefs, created facility assessment reports, analyzed building condition data and provided executive summaries of each site for leadership.

BUILDER SMS Implementation for Army IMCOM at Fort Jackson, SC; Fort Leavenworth, KS; Rock Island Arsenal, IL; and Yakima Training Center, WA; 2020 – 2021.
Scope: BUILDER SMS, FCA **Size**: 921 buildings; 20.2 MSF **Cost**: $5.4M **Role**: Lead Architect. Implementation of BUILDER SMS at 4 installations and facilities for over 4 MSF. Provided training for facility condition assessors on site and collected data in the field. Architect for all teams of assessors on multiple site trips. Gave guidance to assessors on architecture/structural scope components. Reviewed assessor data for quality and consistency with SOW. Assisted with briefings and reporting.

BUILDER SMS Implementation for TNARNG, Statewide Tennessee, 2021 - Present.
Scope: BUILDER SMS, FCA **Size**: 3 MSF **Cost**: $944K **Role**: Project Manager. Managed BUILDER re-assessments on 284 facilities totaling 3,006,972 SF across 65 sites and a two-day on site FCA assessment training of TNARNG personnel. Scope included access scheduling of multi-disciplined assessment teams for weeklong trips, quality assurance processes for data, and coordination with the TNARNG BUILDER program analyst throughout the project.

BUILDER SMS Implementation for ILARNG, Statewide Illinois, 2023 - 2024.
Scope: BUILDER SMS, FCA, Utility assessment **Size**: 824k SF **Cost**: $225K **Role**: Lead Architect. Implementation of BUILDER SMS at multiple 4 installations and facilities for over 824k SF. Provided training for facility condition assessors on site and collected data in the field. Architect for all teams of assessors on multiple site trips. Gave guidance to assessors on architecture/structural scope components. Reviewed assessor data for quality and consistency with SOW. Assisted with briefings and reporting.

FY21 Facility Condition Assessments and Multiple Air National Guard Installations, 2021 – 2023.
Scope: BUILDER SMS, FCA **Size**: 9.6 MSF **Cost**: $1.79M **Role**: Lead Architect, structural assessor, and field lead for BUILDER implementation at numerous sites across the in-scope 90 ANG installations. Responsible for coordinating site visits with clients and assessors, managing site assessments, performing in-briefs and out-briefs, and ensuring data was collected and recorded per contract requirements. Reviewed assessor data for quality and consistency with SOW. Coordinated project activities with the contracting officer.

Data Collection Supporting FCA for U.S. Air Force Civil Engineer Center, 45 locations nationwide including Malmstrom AFB, MT; 2017 – 2021.
Scope: BUILDER SMS, FCA **Size**: 53 MSF **Cost**: $4.8M **Role**: Lead Architect, conducted new FCA BUILDER assessments and re-assessments on facilities across 45 installations, totaling over 53 MSF for the Air Force. Architect for all teams of assessors on multiple site trips. Gave guidance to assessors on architecture/structural scope components. Reviewed assessor data for quality and consistency with SOW. Performed field assessments at numerous installations, assisted with logistics, briefings, and reporting.

1.4 Past Performance

1

BUILDER Sustainment Management System (SMS) Implementation and FCA for South Carolina Army National Guard (SCARNG)

Project Highlights

Relevance To Scope

- *356 KSF*
- *14 armories*
- *Visioning charette*
- *BUILDER training*
- *Data analysis using Microsoft PowerBI*
- *Facility Condition Assessments*
- *Inventory, Condition Assessment, and Mapping*
- *Pavement Assessments*
- *Data Integration and Analytics*
- *Onsite Training and Data Review Charrette*
- *Spill Prevention, Control, and Countermeasure (SPCC) Survey*

Customer: State of South Carolina - Office of the Adjutant General

Location: Statewide, SC **Contract Value:** $776,545

Project Dates: October 2023 – September 2024

Project Type: BUILDER SMS, FCA, Data Analytics/Dashboards

Key Personnel: Colby Hoefar, PE, LEED AP; Sarah Deane, Barrett Schrock, Jacene Witzel, RA, Kevin White, PE, Robert Kennedy, PE, John Slaughter, PE, Brandon Jones

Project Manager/Client Reference: Francis (Frank) Sprankle, Project Manager | (803) 315-1688 | francis.sprankle@scmd.sc.gov

Project Summary

Tetra Tech, in partnership with Marstel-Day, was contracted by the South Carolina Army National Guard (SCARNG) to provide multi-phase support for BUILDER Sustainment Management System (SMS) implementation, facility condition assessments (FCA), utility infrastructure assessments, pavement condition assessments, and data integration services. This multi-year effort spanned Phase 1 (2023) and Phase 2 (2024), with a 2025 reassessment project already awarded based on successful performance.

In Phase 1, the team conducted BUILDER SMS assessments at eight installations, performed utility ICAM (Inventory, Condition Assessment, and Mapping) at four sites, completed pavement condition evaluations, and delivered BUILDER SMS training and analytics dashboards. Phase 2 included similar services at an additional six installations and introduced Spill Prevention, Control, and Countermeasure (SPCC) surveys at five SCARNG locations.

The assessments were executed using Army-approved methodologies, including the BUILDER SMS Inventory and Assessment Guide, PAVER SMS standards, and SDSFIE 4.0 Gold Standard GIS protocols. Tetra Tech developed interactive Power BI dashboards to support SCARNG's data visualization, comparative analysis, and strategic decision-making across its facility portfolio. All efforts have also focused on the impact of E-SMS and future planning for E-SMS rollout.

Achievement of Goals and Objectives

Tetra Tech successfully delivered a comprehensive, integrated suite of facility and infrastructure evaluations that enhanced SCARNG's ability to plan, prioritize, and sustain mission-critical assets.

> *"From the beginning of this Solicitation/Contract Tetra Tech has performed above expectations. This firm presented their capabilities with great confidence and executed the contract professionally and skillfully. Tetra Tech's ability to grasp the owner's intent and present innovative processes to meet that intent is far superior to any other firm I have had the privilege to work with."*
>
> ***— Francis Sprankle, Project Manager, South Carolina Army National Guard FCA PPQ, July 2024***

Key Accomplishments

- **Comprehensive Facility Assessments:** Conducted BUILDER SMS facility condition assessments at 14 installations across both phases, using consistent, standardized methodologies to ensure data quality and comparability.
- **Utility System Mapping (ICAM):** Performed ICAM inspections at six total sites (four in Phase 1, two in Phase 2), evaluating critical utilities such as water, wastewater, stormwater, electrical, and natural gas systems. Geo-located utility data was delivered in GIS format in full compliance with SDSFIE 4.0 standards.
- **Pavement Condition Surveys:** Evaluated pavement systems through visual inspections based on PAVER SMS criteria. Rather than inputting data into the PAVER system, assessments were incorporated into GIS databases to streamline asset tracking and reporting. Repair and replacement recommendations were supported by ROM cost estimates using RSMeans.
- **SPCC Compliance Support:** In Phase 2, performed SPCC surveys at five SCARNG facilities and delivered detailed reports with actionable recommendations for environmental compliance and risk mitigation.
- **Advanced Data Analytics & Visualization:** Leveraged business intelligence tools to analyze inventory and condition data. Created Power BI dashboards that visualized condition ratings, facility trends, regional breakdowns, and investment priorities. These dashboards supported data-driven policy development, resource allocation, and long-term asset management strategies.
- **Training and Knowledge Transfer:** Conducted on-site BUILDER SMS training and data review charrettes during each phase to enhance SCARNG staff capability in managing BUILDER data, interpreting reports, and integrating BUILDER outputs into broader facility planning workflows. Provided support for E-SMS preparation.
- **Programmatic Success and Continuity:** Successfully met and exceeded SCARNG's expectations, earning follow-on work in 2025. Tetra Tech's integrated delivery approach positioned SCARNG to maintain readiness, optimize facility performance, and inform strategic capital investment.

This project illustrates Tetra Tech's proven ability to integrate facility assessments, data analytics, and geospatial solutions into scalable sustainment programs that empower National Guard organizations to make informed, mission-aligned infrastructure decisions.

2

Mississippi Amy National Guard BUILDER™ Sustainment Management System Implementation

Project Highlights

Relevance To Scope

- *Assessed 15.4 MSF in seven phases of work.*
- *Facility condition assessment reports*
- *Client training on BUILDER™ SMS software*
- *Energy Audits and Planning*

Customer: State of Mississippi Army National Guard

Location: Jackson, MS **Contract Value:** $4,848,876

Project Dates: October 2017 – August 2024

Project Type: BUILDER, FCA, Energy Audits

Key Personnel: Colby Hoefar, PE, LEED AP; Sarah Deane, Barrett Schrock, Jacene Witzel, RA, Kevin White, PE, Robert Kennedy, PE, Brandon Jones

Project Manager/Client Reference: Mike Myrick, CEM, CEA, QCxP, MSARNG | (601) 313.6275 | james.m.myrick9.nfg@mail.mil

Project Summary

The State of Mississippi Army National Guard awarded seven consecutive task orders to Tetra Tech to implement BUILDER SMS at Armories and Readiness Centers across the State, Camp Shelby, Camp McCain, and State Aviation Classification Repair Activity Depot's (AVCRAD), totaling 15.4 MSF.

Tetra Tech implemented BUILDER SMS using the US Army's BUILDER SMS Inventory and Assessment Guide and established BUILDER assessment protocols. Fourteen major building component systems assessed included foundations, basement structure, superstructure, exterior enclosures, roofing, HVAC, electrical, plumbing, interior construction and finishes, stairs, conveying, fire protection, and other equipment. Tetra Tech is well-experienced in conducting BUILDER SMS facility assessments across multiple geographical locations. The state of Mississippi Army National Guard indicated Tetra Tech was selected for these installations based on our expertise in deploying qualified teams across multiple sites on a weekly basis. Multiple field teams were used to conduct the FCAs and improved efficiency and data accuracy by employing our digital field data collection tool, FAST. FAST integrates with BRED and uses BUILDER's API to upload data to the BUILDER database. This streamlines the process and increases efficiency, both in the field and in the office during data compilation. The usage of FAST software by Tetra Tech not only increased team efficiency, but the built-in data verification tools enabled real-time high-level quality control.

Starting with our third task order, Tetra Tech conducted EISA 2007 energy audits simultaneously with BUILDER assessments. The electrical, water, and mechanical end-use loads were assessed, along with the structure and building envelope. Each facility's heating, ventilation, and air conditioning (HVAC),

lighting, and building control systems were also specifically examined for energy use. Facility managers were interviewed about the building's and its residents' usage and habits in order to find operational improvements that may be implemented.

> *"Tetra Tech provided exceptional services across the board in each phase of the contract. Tetra Tech's team provided excellent management and technical skills in all aspects of facility condition assessments and energy audits. Tetra Tech was key in coordinating facility condition assessment and energy requirements for the state of Mississippi, ensuring that the state had solid data for future planning and was in compliance with federal requirements. I highly recommend Tetra Tech and will hire them for future projects."*
>
> ***— J. Michael Myrick, State Energy Engineering and Utilities Manager, Mississippi Army National Guard FCA CPARS, May 2022***

Achievement of Goals and Objectives

Energy Audits

Tetra Tech provided insight into system deficiencies and provided improvement measures with estimated construction costs, energy and water savings, and utility cost savings as determined for each identified energy improvement measure. A total of 391 individual projects were identified, of those 239 were recommended due their savings to investment ratio or building Operation and Maintenance needs. The recommended projects had an annual cost savings of $187,000 dollars over a 10-year investment payback period. These recommendations amount to approximately 1.5 Gigawatts of power. This project is the first of its type in the ARNG to leverage BUILDER assessments and energy data to fulfill federal energy audit requirements. This has provided budget and time savings for the MS Arny Guard. Tetra Tech continues to provide Energy Audit and planning to the MSARNG to help reduce the operational costs for the client.

BUILDER Assessments

Tetra Tech conducted data review from the field assessments and conducted work planning charrettes to provide BUILDER training and develop capital investment opportunities and facility budget planning for both short- and long-term planning horizons. Additional BUILDER training and on-site instruction was provided showing how to use the database, how to run reports, and sustain the data, via hands-on instruction, both in the field and in the office to conduct field assessments and enter the data. This has allowed the client to better understand and utilize the tools and capabilities of the BUILDER platform.

3

BUILDER ESMS Implementation for IMCOM at Forts Jackson, Leavenworth, Rock Island Arsenal, and Yakima Training Center

Project Highlights

Relevance To Scope

- *Assessed 20.2 MSF*
- *Support prioritized annual work plans*
- *Provide BUILDER data analysis and support*
- *Develop and maintain Power BI dashboard*
- *Estimate cost of work items based on user defined funding scenarios*

Customer: USACE Mobile District

Location: Fort Jackson, Fort Leavenworth, Rock Island Arsenal, and Yakima Training Center

Contract Value: $5.4M

Project Dates: August 2020 – September 2021

Project Type: BUILDER, FCA, Data Analytics/Dashboard, Capital Investment Planning

Key Personnel: Colby Hoefar, PE, LEED AP; Sarah Deane, Barrett Schrock, Jacene Witzel, RA, Kevin White, PE, Robert Kennedy, PE, John Slaughter, PE, Brandon Jones

Project Manager/Client Reference: Rick Darnell, CESAM-PD-M
Program Manager | 251.690.3240 | George.r.darnell@usace.army.mil

Project Summary

Tetra Tech implemented the BUILDER Sustainment Management System **(BUILDER SMS)** at four (4) installations managed by Headquarters Installation Management Command (IMCOM) at Fort Jackson, Fort Leavenworth, Rock Island Arsenal, and Yakima. A total of 921 buildings were assessed, equaling approximately 20,261,935 square feet (sf). The objective of this project was to provide IMCOM technical assistance in physically inventorying and condition assessing real property buildings utilizing the BUILDER SMS application. The BUILDER SMS data collected was utilized in identifying, planning, and prioritizing potential work requirements and developing short and long-term work plans.

Tetra Tech performed a facility condition assessment (FCA) on the following utilities: foundations, basement, superstructure, exterior, roofing, interior construction, stairs, interior finishes, conveying, plumbing, HVAC, fire protection, and electrical. Tetra Tech also conducted a charette for each individual Garrison to provide instruction to personnel who will conduct BUILDER assessments in the future, to show how FCA data is sectioned, collected, and compiled for entry into BRED. Quality control and quality assurance methodologies were discussed as well as standards.

To meet the project requirements and challenging project timelines, Tetra Tech deployed its proprietary Field Assessment Support Tool (FAST) to enhance data collection in the field by increasing accuracy, efficiency, and quality. FAST is a tablet-based field assessment application that was used to streamline the assessor's data entry interface while also providing validation checks that followed Fort Campbell scope, standards, and formatting guidelines. The validation checks helped generate cleaner, more consistent data on the initial entry, eliminating many of the errors that are typically caught later during QA/QC, and greatly improved the overall accuracy of the assessment data.

Achievement of Goals and Objectives

Tetra Tech successfully supported IMCOM BUILDER program by completing detailed facility condition assessments across 921 buildings totaling 20.2 million square feet, including secure and specialized infrastructure. The assessments contributed to a comprehensive facility inventory and condition analysis that directly supports IMCOM and Installation DPW capital planning, budget development, and asset management efforts.

Assessment scope included:

- Rock Island Arsenal, IL: 184 buildings, 6.6 MSF
- Yakima Training Center, WA: 132 buildings, 780 KSF
- Fort Jackson, SC: 335 buildings, 8.3 MSF
- Fort Leavenworth, KS: 188 buildings, 4.2 MSF.

Tetra Tech's integrated technical team ensured accurate data collection in accordance with BUILDER SMS protocols, providing IMCOM and the installations with reliable, up-to-date asset condition data. The resulting insights have directly informed the annual work plan development and sustainment investment strategies.

Tetra Tech also worked with Fort Leavenworth to develop pilot **Power BI dashboards.** In 2023, and as a follow-on to this phase of work, Fort Leavenworth contracted Tetra Tech to provide on-going annual work plan, data analytics and Power BI dashboard support. Our dashboards are designed to integrate data from multiple federal information systems—including **BUILDER SMS**, **General Fund Enterprise Business System (GFEBS), Headquarters Installation Information System (HQIIS), Proactive Real Property Interactive Space Management System (ePRISMS),** and the **Installation Status Report (ISR)**. These Asset Management dashboard enhances decision-making by providing Installations with dynamic, real-time visualization tools to align sustainment decisions with evolving priorities and funding availability.

4

BUILDER SMS Implementation for the North Carolina National Guard, Phases I – V

Project Highlights

Relevance To Scope

- *4.5 MSF assessed*
- *FCA of 205 buildings at 71 sites in 5 phases using BUILDER SMS*
- *Provided client training on BUILDER SMS software*

Customer: Army National Guard

Location: Statewide, NC **Contract Value:** $1,402,131

Project Dates: September 2017 – January 2024

Project Type: BUILDER, FCA, Real Property Validation

Key Personnel: Colby Hoefar, PE, LEED AP; Sarah Deane, Barrett Schrock, Jacene Witzel, RA, Kevin White, PE, Robert Kennedy, PE, John Slaughter, PE, Brandon Jones

Project Manager/Client Reference: Maj. Kevin Sigmon, Director of Plans and Programming | (984) 664-6251 | kevin.d.sigmon.mil@mail.mil

Project Summary

Tetra Tech was contracted by the North Carolina Army National Guard (NCARNG) to implement the BUILDER Sustainment Management System (SMS) across their statewide portfolio in compliance with mandates from the Office of the Secretary of Defense and the Department of the Army. The effort spanned Phases I through V (2017–2021) and included comprehensive facility condition assessments (FCAs) on 205 buildings across 71 installations, totaling over 4.49 million square feet (SF) of assessed real property.

To execute this large-scale effort efficiently, Tetra Tech deployed multiple field teams and utilized its proprietary digital field data collection tool, FAST, integrated with BRED and BUILDER's API. This approach streamlined data capture, ensured data consistency with ASTM UNIFORMAT II standards, and accelerated the upload of assessment data to the BUILDER database.

Tetra Tech collaborated closely with NCARNG state-level and local facility staff throughout the assessment process. Each project phase included quality control reviews and concluded with a Data Review Charrette, during which NCARNG stakeholders validated collected data and received BUILDER SMS training to support ongoing program ownership and data utilization.

Achievement of Goals and Objectives

The primary objective of the project was to enable NCARNG to fully implement BUILDER SMS and achieve 100% inventory coverage within the system. Tetra Tech's work directly contributed to this goal, ensuring that all assessed facilities

are now integrated into the BUILDER platform, providing NCARNG with a centralized, standardized, and analyzable dataset for asset condition management.

> *"Tetra Tech has been one of the most professional businesses I have worked with over the years. They are very prompt with their billing, and it is always very accurate. They can handle changes with our scheduling and gone above and beyond to accommodate us. I would definitely hire them for any of our future needs we have that their firm provides."*
>
> ***— Jimmy Buckner, Real Property Agent, CFMO, North Carolina Army National Guard FCA PPQ, July 2024***

Key Accomplishments:

- **Comprehensive Facility Assessments:** Successfully assessed 4.49 million SF across 205 buildings, including readiness centers, maintenance shops, and mission-critical facilities.
- **Increased Efficiency and Data Accuracy:** Tetra Tech's FAST tool enhanced field team productivity, reduced manual errors, and allowed seamless data transfer into BUILDER using its API.
- **Training and Capacity Building:** Delivered two 40-hour BUILDER SMS training sessions and conducted multiple Data Review Charrettes to empower NCARNG staff with the knowledge to sustain and expand their BUILDER program.
- **Strategic Planning Enablement:** The data collected now allows NCARNG to perform statewide analysis of facility conditions and performance, supporting the development of near-, mid-, and long-term planning, programming, and budgeting strategies.
- **Lifecycle Facility Management Support:** Tetra Tech provided technical guidance on how to leverage BUILDER data for the creation of a strategic capital improvement plan aligned with Army priorities and funding structures.

Through this multi-phase engagement, Tetra Tech demonstrated its capacity as a leading Department of Defense BUILDER SMS implementer and established a sustainable framework for long-term facility asset management for the North Carolina National Guard.

5

BUILDER SMS Sustainment for the Tennessee Army National Guard (TNARNG), Zones 1, 2, 3, and 4

Project Highlights

Relevance To Scope

- *Assessed 384 buildings/facilities at 64 sites using BUILDER SMS*
- *3,628,758 SF assessed*
- *Provided on-site client training for FCA collection and BUILDER SMS*

Customer: TNARNG

Location: Statewide, TN

Contract Value: $944,000

Project Dates: September 2021 – Present

Project Type: BUILDER, FCA

Key Personnel: Colby Hoefar, PE, LEED AP; Sarah Deane, Barrett Schrock, Jacene Witzel, RA, Robert Kennedy, PE, Brandon Jones

Project Manager/Client Reference: Kimberly Isham, CPT, Design and Project Management, State of Tennessee Department of the Military | (615) 313.2624 | kimberly.a.isham2.mil@mail.mil

Project Summary

Tetra Tech was contracted by the State of Tennessee, Department of the Military, to provide BUILDER Sustainment Management System (SMS) support to the Tennessee Army National Guard (TNARNG). The scope of work included comprehensive Facility Condition Assessments (FCAs) and training of TNARNG personnel to ensure long-term program sustainment.

Across all four geographic zones of Tennessee, Tetra Tech performed FCAs on 384 buildings totaling over 3.6 million square feet, broken down as follows:

- Zone 1 (West): 133 buildings on 19 sites
- Zone 2 (Central-West): 30 buildings on 5 sites
- Zone 3 (Central-East): 118 buildings on 21 sites
- Zone 4 (East): 103 buildings on 20 sites

Following the Army BUILDER Inventory and Assessment Guide and using ASTM UNIFORMAT II naming conventions, Tetra Tech collected and standardized asset data in the field. Using our proprietary digital field data collection tool, the assessment data was uploaded directly to the BUILDER database via its API, ensuring data quality and streamlining field-to-database integration.

The effort also included close collaboration with TNARNG program analysts and facility managers to finalize assessment logistics, access coordination, and compilation of reference materials (e.g., as-built drawings). To optimize efficiency, field teams were deployed on carefully coordinated one-week rotations, with site logistics managed to reduce travel costs and maximize time on site.

Achievement of Goals and Objectives

The primary objective of the project was to support TNARNG in maintaining the accuracy, completeness, and sustainability of its BUILDER SMS data to enable data-driven capital planning and long-term facility sustainment. Tetra Tech exceeded contractual requirements by completing the project ahead of schedule and under budget.

Key Accomplishments:

- **Full Assessment Coverage:** Completed condition assessments on 384 buildings (3.6M+ SF), populating the BUILDER SMS with current, standardized, and verifiable data.
- **Efficient, Accurate Data Collection:** Leveraged Tetra Tech's integrated data collection tools and QC workflows to ensure consistency with BUILDER protocols and data integrity across all zones.
- **Strategic Collaboration:** Worked with TNARNG stakeholders to align facility selection, access coordination, and methodology with available resources, schedule constraints, and technical priorities.
- **Capacity Building and Training:** Delivered a two-day onsite training exercise for ~12 TNARNG personnel covering BUILDER database management, field data collection procedures, tool development, and data analysis. The session also included hands-on instruction with the BUILDER Remote Entry Database (BRED) to facilitate future in-house assessments.
- **Strategic Planning Support:** With the completed assessments, TNARNG is now equipped to conduct statewide facility condition analyses and develop effective short-, mid-, and long-term planning, programming, and budgeting strategies.
- **Sustainment Planning:** Supported TNARNG's goal of re-inspecting 20% of its facilities annually, helping them stay on track for a five-year inspection cycle. Continued partnership is anticipated due to resource limitations and the success of this engagement.

Tetra Tech's performance on this project reflects our deep experience with BUILDER SMS implementation and sustainment, as well as our commitment to helping National Guard clients develop resilient, data-driven asset management programs.

6

FY21 Facility Condition Assessments Execution/Sustainment Headquarters (HQ) Air National Guard (ANG)

Project Highlights

Relevance To Scope

- *Facility Condition Assessments, 9.6 MSF*
- *Space Utilization & Optimization, 2.1 MSF*
- *90 installations, including Bangor ANGB*
- *56 KSF/person walk rate*
- *Electrical/Mechanical assessments*
- *Capital Investment Planning*
- *Digital data collection*
- *Customized data analysis with MS Power BI*

Customer: National Guard Bureau

Location: CONUS and OCONUS **Contract Value:** $1,790,029

Project Dates: November 2021 – November 2023

Project Type: BUILDER, FCA

Key Personnel: Colby Hoefar, PE, LEED AP; Sarah Deane; Kevin White, PE

Project Manager/Client Reference: Master Sergeant Michael Bowers, US Air Force Asset Management Manager, Air National Guard Readiness Center | (240) 612.8586 | michael.bowers.8@us.af.mil

Project Summary

Tetra Tech has supported the Air National Guard (ANG) since 2010 in developing and implementing its Asset Management Program. As part of this ongoing partnership, Tetra Tech—working in collaboration with Hanson and Etegra under a task order awarded via the FSB Federal Design Group Joint Venture A/E IDIQ—executed facility condition assessments (FCAs) and space utilization (S-File) updates at 90 ANG installations across all 50 U.S. states, as well as Alaska, Hawaii, Guam, Puerto Rico, and the U.S. Virgin Islands. The scope of work covered approximately 9.6 million square feet of facility space for FCA activities and 2.1 million square feet of new or updated S-File data collection.

This effort included:

- New BUILDER SMS inventory and assessments
- Reassessments of existing facility data
- Collection of space utilization (S-File) data for facilities not captured in prior optimization efforts
- Development of corresponding GIS data for upload to ANG's CIP database

Tetra Tech led the coordination and execution of the national assessment effort, creating a comprehensive project management plan and communication strategy that aligned with ANG and installation timelines. To maintain consistency and efficiency, Tetra Tech developed a national master schedule, initiated early contact with each installation, and built in flexibility to reassign visits when scheduling conflicts arose.

Achievement of Goals and Objectives

Tetra Tech successfully delivered accurate, consistent, and complete data to the ANG, enhancing the sustainment and capital planning capabilities of its asset management program.

> *"Tetra Tech was an exceptional company to work with. The quality of work was timely and high quality of work. Tetra Tech promptly made corrections on all issues presented if they were required. Due to this task order dealing with multiple bases there was difficulty with customer responsiveness, Tetra Tech was able to overcome those obstacles. Tetra Tech managed the schedule flawlessly despite having to extend the contract by three months due to COVID restrictions in a few states."*
>
> **— *Kirk Swiantek, Contracting Officer, National Guard Bureau-AQ-R; Air National Guard FCA CPARS, October 2021***

Key Achievements:

- **Extensive Coverage Across All ANG Installations:** Conducted BUILDER FCAs and S-File updates at 90 ANG installations across all CONUS and OCONUS territories, covering a combined 11.7 million square feet of space.
- **Consistent Assessment Standards:** Utilized the USAF BUILDER Playbook and developed custom business rules to ensure uniformity in reassessments, regardless of location or assessor. Enhanced quality control (QC) protocols were implemented to validate naming consistency, data integrity, and alignment with prior assessments.
- **Robust S-File and GIS Integration:** Collected and updated space utilization data in accordance with SDSFIE 3.1 standards, supporting integration with ANG's CIP database. Close collaboration with the new Geobase GIS support contractor ensured compatibility and continuity with the original ANG S-File database created by Tetra Tech in 2010.
- **Health and Safety Excellence During COVID-19:** Developed and implemented a COVID-19-specific Health and Safety Plan supplement, enabling continuous operation during the pandemic with zero reported COVID-19 cases among field personnel during the project period.
- **Efficient Data Collection and Sustainment Strategy:** Executed the FCA update strategy by reinspecting up to 20% of installation square footage, as required, to sustain the integrity of the ANG's existing BUILDER SMS database.
- **Comprehensive Coordination:** Maintained project momentum through proactive scheduling, early engagement with installations, and real-time adjustments to ensure timely completion across all locations.

This nationwide effort reinforced Tetra Tech's long-standing role as a trusted asset management partner to the ANG, and demonstrated our capability to manage complex, large-scale federal projects with a high level of technical, logistical, and safety performance.

2. GOALS AND OBJECTIVES: CONCEPTS AND METHODS OF APPROACH

Tetra Tech's end goal to supporting DoD BUILDER Implementation is for the installation to have confidence in their data. The real utility of BUILDER is only effective if asset data is correct, and we are committed to data integrity, as shown by the number of repeat clients we service. We have honed our technical approach over the last 16 years of conducting BUILDER assessments into a consistent work breakdown structure consisting of project management, pre-site coordination, data collection, and compilation, and reporting through the data review and work plan charrette process. This straightforward framework, detailed below and in Section 3, simplifies project execution, enables standard operating procedures, and provides a consistent product and service to our client, all of which increase efficiency and reduce costs for the government.

Driving Smart Infrastructure Strategy: From Data to Decisions

Data-Driven Strategy: Customized Power BI dashboards transform data into actionable insights for SRM investment decisions.

Field Efficiency Tech: Proprietary FAST app boosts inspection speed by 25–40% and supports automated validation.

Full Lifecycle View: Capital investment plans include prioritized 10-year preventative maintenance schedules.

Hands-On Training: BUILDER Academy and field charrettes prepare WVARNG staff for independent sustainment.

Sustainment-Ready: Simplifying ESMS migration through unique tools and protocols for reconciling legacy data.

2.1 Methodology for BUILDER™ SMS Data Population

Tetra Tech will populate the building asset life-cycle inventory into the latest version of the BUILDER SMS, fully aligned with the current Amry BUILDER SMS Manual and applicable ERDC guidelines. Our teams are highly experienced in both inventory population and condition assessment workflows required for effective SMS implementation and updates.

Tetra Tech's methodology for BUILDER SMS data population begins with our internal BUILDER training academy, which prepares assessors for every step of a facility condition assessment, from pre-site preparations such as legacy data and floor plan reviews to final BUILDER data upload and delivery. We maintain high quality standards via a feedback loop of supplemental training, BUILDER SMS guidance review and discussion, mentoring, calibration exercises, and lessons learned, including a review of client QA comment themes and the necessary course corrections. As discussed later in section 3.3, we also have a world class QC program and proprietary QC tools that we have built over the past 16 years of continuous BUILDER inventory and assessments.

Tetra Tech's professional assessors have cataloged millions of assets. Our FCA process evolved from paper-based assessments to advanced digital tools that assure comprehensive data capture, incorporate scope-specific quality

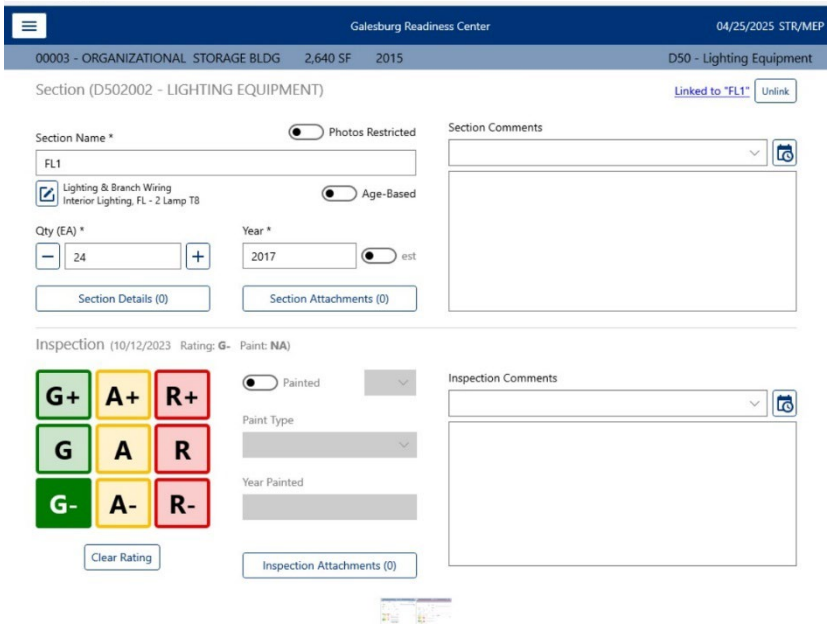
control checks, and enable uploads to BUILDER via API or BRED. While our teams are trained to conduct paper-based assessments in secure areas, we use our digital data collection tool, FAST, in non-secure areas.

Tetra Tech developed the FAST app to further enhance field efficiency and data reliability. FAST is an innovative field tool that significantly outperforms BRED's capabilities. FAST streamlines data entry procedures, automatically synchronizes pictures with sections, and can be customized to specific scopes of work and client requirements. FAST performs automatic validation checks that follow client scope, standards and formatting guidelines. The tool provides a direct interface with BRED and seamlessly integrates with BUILDER. Tetra Tech works with the CERL support team to ensure programmatic alignment between FAST and BUILDER SMS and the soon to be released BUILDER E-SMS. Tetra Tech's FAST application has improved data accuracy, speed, efficiency and enabled additional QC queries to further improve data and ensure high levels of data confidence for the end client. Compared to traditional field tools, FAST accelerates inspections by 25–40%, with real-time validation that ensures 99% data acceptance on first submission—leading to consistent Very Good and Exceptional CPARS scores.

Figure 2. Tetra Tech BUILDER workflow

In addition to supporting BUILDER implementation, FAST includes a specialized BUILDER sustainment workflow for legacy inventory. The greatest challenge in the BUILDER Sustainment phase is finding and reconciling equipment in the legacy BUILDER data (original inventory and assessment data). Without a robust, consistent, and standardized equipment barcoding program, the reinspections can easily turn into "treasure hunts", a potential time sink. The Army BUILDER SMS Inventory and Assessment Guide standardized BUILDER assessments for ARNG; however, guaranteeing the same section from one assessor to the next is still a challenge for the BUILDER SMS. The program's inability to spatially tie assets to the building makes asset reconciliation from replaced assets or prior assessments a challenge. This is further exacerbated by many of the legacy assets having missing or illegible nameplates. Tetra Tech has lessened this impact with FAST, which can consume existing BUILDER data and reconcile assets as the inspector completes the reinspection in the field. FAST links new inspections to existing components and catalogs removed or replaced items, thereby ensuring

Figure 3. FAST App



accurate inventory. Prior to completing an assessment, Tetra Tech's assessors will review the list of assets that were not assessed and the assessor will have to make a conscious decision to close out the inspection with assets that could not be found. We have successfully implemented this process for the ANG, Air Force, Coast Guard, and Army. The evolution and lessons learned from this work give us a clearer picture of what BUILDER Sustainment efforts will look like for WVARNG under this contract.

2.2 Visual Inspection and Site Assessment Strategy

Tetra Tech will perform visual inspections in accordance with the BUILDER SMS methodology, ensuring consistency with Army National Guard and ERDC standards. Our multidisciplinary assessor teams will conduct thorough site assessments at Army National Guard facilities across the State, capturing detailed data on all systems and components outlined in the scope of work. During pre-site planning, Tetra Tech will coordinate with the State to ensure compliance with the scope of work. We will assess current operation and maintenance programs for all in-scope facilities. Tetra Tech ensures our teams are fully prepared for field data collection through a combination of FCA refresher training, detailed SOW reviews, pre-site planning meetings, safety briefings, and trip packets. Each packet includes reminders about system and component inclusions per the SOW, emergency contacts and protocols, assigned facilities, supporting documentation, hotel logistics, and relevant site or project details. Our multidisciplinary assessors work in two-person teams, with the number of teams tailored to project scale, facility complexity, available time on site, access constraints (such as escort or key requirements), and overall scope. Prior to mobilization, data compilation protocols are reviewed. Assessors are briefed on data submission deadlines, building check-in/check-out procedures, known data quality concerns, and expectations from the QC team. They are also reminded to adhere closely to the SOW and State-specific guidance. The project manager or designated field/site lead oversees data completeness, resolves access issues in real-time, and supports State personnel by answering technical questions and facilitating site walkdowns alongside our teams.

For site assessments, Tetra Tech will develop a daily execution schedule that will identify the buildings that will be assessed throughout the duration of the site visits. During each site coordination, Tetra Tech will also work with the State POC to acquire the following data:

- Access to any building data available for the State facilities (address, year constructed, date of last remodel/addition, facility POC, maintenance POC, known building performance issues, planned or programmed major construction, etc.).
- As-built drawings for all facilities included in the statement of work [electronic CAD (preferred), TIF or PDF copy] to be provided by the State no later than four weeks before the scheduled site visit. Design drawings or fire evacuation plans will suffice if as-builts are not available.
- Camera authorization for photo documentation (if required). Tetra Tech will not take digital photos in prohibited areas or of prohibited subjects. Photos are to document asset deficiencies, assets, asset nameplates, representative picture of building.
- Electronic copy of the State map. The map should include, as a minimum, all facilities, facility numbers, street names, and latest aerial imagery.
- POC list to include the building facility managers, and POC's who are responsible for the HVAC, electrical, structural, and Real Estate disciplines.
- Installed Building Equipment (IBE) inventory/spreadsheet that documents specialty facility equipment that that maintenance staff maintains but may not be in BUILDER (vehicle lifts, building generators, etc.).
- Maintenance work orders and/or preventative maintenance program documents.
- Access security or escort requirements
- Tetra Tech will require the following support from the State while onsite:
    - Personnel to function as escorts and/or provide access to secure areas, rooms, roofs, and components necessary for FCA.

- Ladders and safety equipment (meeting current OSHA guidelines) necessary to access roofs and any other facility systems or equipment. Note: Sloped roofs will be assessed by methods other than physical access.

2.3 Power BI Dashboard Integration Approach

WVARNG won't just receive assessment data—Tetra Tech delivers actionable asset intelligence to drive strategic capital planning and Sustainment, Restoration, and Modernization (SRM) investment decisions using our tailored Power BI dashboards.

Data analytics and business intelligence software will be utilized to perform a deep dive into WVARNG inventory and assessment data. These tools will help identify trends and performance needs across the WVARNG asset portfolio, providing insight into asset performance, functionality, cost, and risk. Data analytics will include examining the regional breakdown of sites and associated facilities for future work planning, budgeting and capital investment decisions that include military construction and demolition. Each region and its associated buildings and infrastructure will be incorporated in Power BI dashboard reporting for comparative analysis and summarized condition ratings, so that polices, standards and priorities can be created to construct maintenance and investment strategies to increase operational and mission readiness. We will develop a PowerBI dashboard to enhance visualization of assessment data and support discussions in the data review charrette.

We understand that the long-term value of BUILDER extends beyond the final report. Our approach focuses on transforming complex data into actionable insights that support strategic planning, capital investment decisions, and ongoing facility management.

To enhance data usability, Tetra Tech offers customized, interactive dashboards designed to help WVARNG staff:

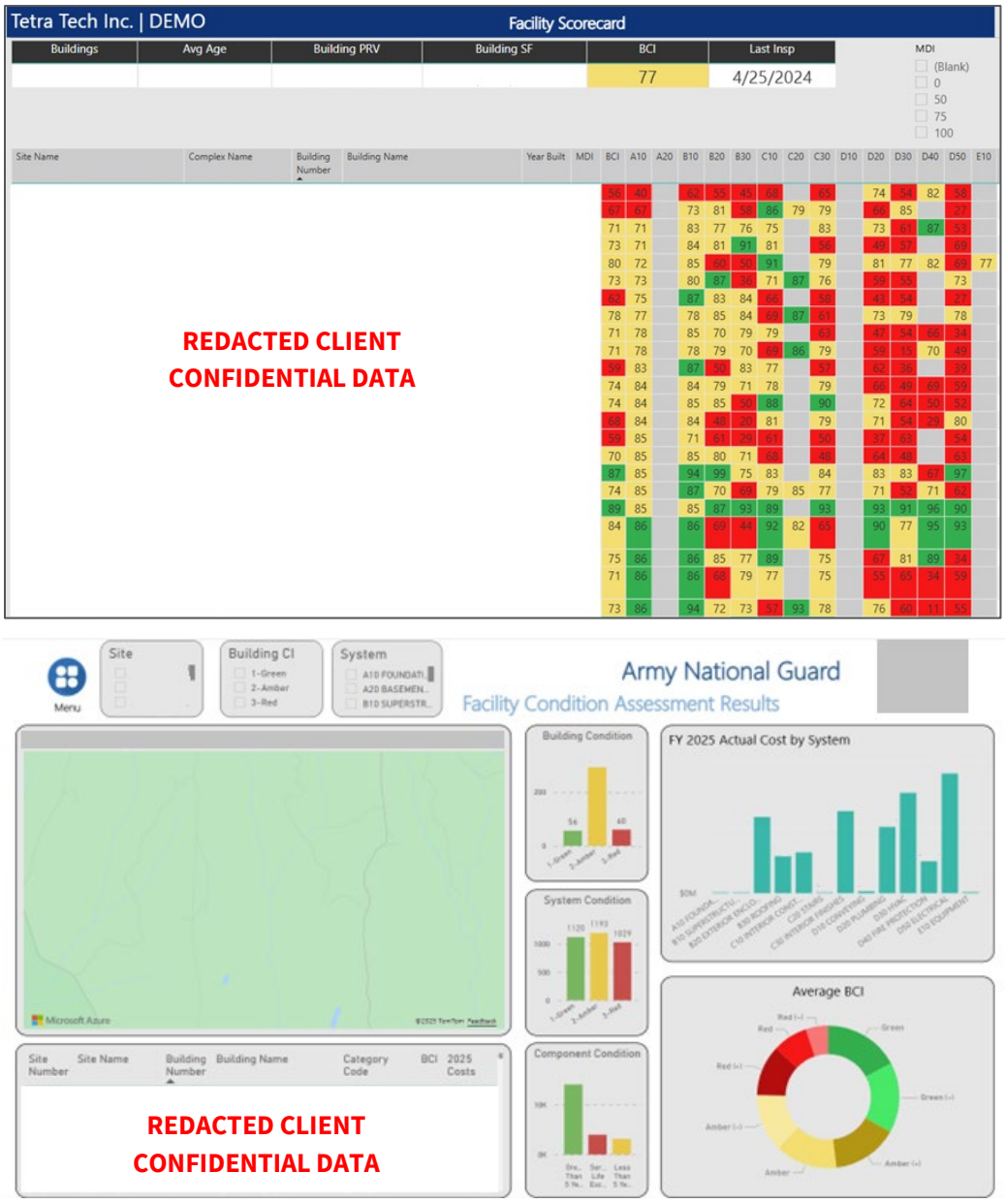
- Visualize the condition of facilities across the entire portfolio
- Identify trends, anomalies, and data outliers
- Filter and analyze data by facility type, condition rating, or system category
- Integrate assessment results with additional datasets such as:
  - Space utilization
  - Energy consumption
  - Operational and maintenance records

These tools are designed to support the State in:

- Prioritizing capital repairs and renewal projects
- Developing funding strategies and advocating for resources
- Supporting maintenance staff through:
  - Preventative maintenance planning
  - Equipment inventory management
  - Lifecycle asset replacement forecasting

Our goal is to deliver an FCA that serves as a living, evolving planning resource—not just a static report. With Tetra Tech's dashboards and data tools, the State has continued access to meaningful insights that drive informed, data-based decisions over time.

Figure 44. Example (Redacted) Customized FCA Dashboards using Microsoft PowerBI



2.4 Deliverables and Task Management

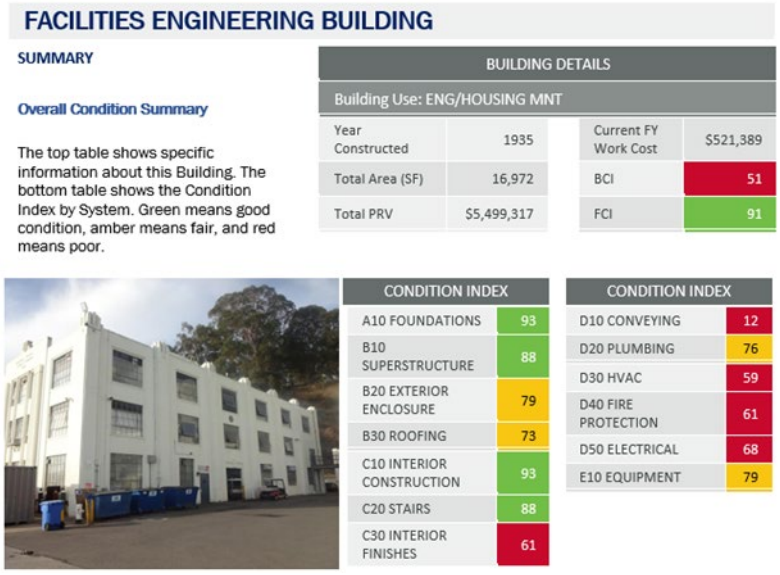
As outlined in the solicitation, Tetra Tech will provide all deliverables in accordance with the submittal schedule. We will provide a Work Action Plan (WAP), monthly execution schedule as well as data analysis and entry of facility and site inspection information into BUILDER SMS database.

Our project management approach ensures that site visits and FCAs will be executed in alignment with the State's direction and goals. Individual FCA reports will be developed for asset condition information, improvement costs, and 10-year capital expenditure schedules with a summary document for State stakeholders. Tetra Tech routinely

identifies and informs clients of safety-related issues as part of our FCA work. During our assessments, the teams will record any potential safety issues related to building performance.

Asset condition and maintenance information collected during FCAs will be used to generate a 10-year capital improvement plan (CIP) to identify and plan required maintenance, rehabilitation, and replacement projects at optimal time periods to bring assets and associated components to their originally intended and designed capacity, efficiency, or capability (**Figure 5**). Tetra Tech's CIP includes system and component maintenance, rehabilitation, and replacement across a 10-year horizon, with each project ranked in order of urgency and asset criticality for any given year. This preventative maintenance schedule allows the State to plan and apply resources, budget, and work hours toward the greatest need and acceptable payback.

Figure 5. Example Overall Condition Summary



The Tetra Tech team will capture detailed assessment data on all systems and components outlined in the scope of work. During pre-site planning, Tetra Tech will work closely with the State to ensure all activities align with the scope of work. We will assess current operation and maintenance programs for all in-scope facilities. Utilizing the inventory and condition assessment data, we will generate a work plan recommending repair and replacement projects for State assets. Maintenance projects can be prioritized in accordance with State needs.

This work plan is a complete, well-developed, preventative maintenance schedule to optimize asset performance while reducing costs, unlike "unplanned" scenarios from asset or component failures. Our work plan includes system and component maintenance, rehabilitation, and replacement across short-, medium-, and long-term periods spanning a 10-year horizon. Each project is ranked in order of urgency and asset criticality for any given year. This preventative maintenance schedule allows the State to plan and apply resources, budget, and work hours toward the greatest need and acceptable payback. Work plan costs are based on RS Means cost tables and are adjusted for inflation throughout the work plan cycle.

2.5 Data Sustainment Plan

As our ARNG clients move further into the sustainment phases of BUILDER, Tetra Tech can offer the training and tools necessary to help maintain BUILDER programs efficiently and effectively. Currently, Tetra Tech has a license-sharing agreement with the Vermont Army National Guard and Minnesota Army National Guard for the use of FAST. Along with the FAST application, Tetra Tech provides administrative assistance, quality control, and helps facilitate any changes to the Army Assessment Manual or new versions of BUILDER. Additionally, VTARNG requested annual BUILDER Training and Sustainment workshops, which consisted of 2-day in-person events led by Tera Tech's Project Manager and Subject Matter Experts. We can provide WVARNG training on BUILDER SMS and FAST to assist BUILDER sustainment as well as provide additional support for data analysis and business intelligence applications. This training and data analysis enhances the understanding of WVARNG built asset performance, integrates various data related to the built infrastructure, and supports the development of strategic WVARNG capital investment opportunities. FAST has transformed FCA data collection and compilation methods and this digital tool is now available to our federal clients. Tetra Tech credits this tool with consistently receiving positive Quality CPARS ratings and repeat work from DoD clients.

Additionally, we can support WVARNG in preparing for the transition to BUILDER Enterprise SMS (E-SMS) by conducting a comprehensive analysis of existing BUILDER data. This deep-dive review will identify data quality issues, guidance noncompliance, anomalies, and asset misclassifications that could hinder performance or compatibility in the E-SMS environment. Our team will examine component-level data for completeness and consistency, verify inventory alignment with Army SMS Guide standards, and flag duplicate or outdated entries. By resolving these issues early, we help ensure a smoother migration to E-SMS and greater confidence in the resulting asset intelligence.

As E-SMS expands beyond vertical facilities to include infrastructure such as pavements, roofs, and utilities, data integrity becomes even more critical. Tetra Tech's familiarity with BUILDER API integrations, enterprise reporting, and sustainment workflows uniquely positions us to support WVARNG in optimizing its BUILDER portfolio ahead of full E-SMS adoption. Our approach will help WVARNG maximize the platform's analytical capabilities and ensure continued alignment with evolving DoD sustainment priorities.

3. PROJECT MANAGEMENT, QUALITY, AND COST CONTROL

Tetra Tech's success in providing wide-ranging solutions to our customers is centered on a technical approach developed over 15 years of conducting assessment, utilization, and planning projects. Our WAP is focused on project management, quality assurance/quality control, and an effective communication plan. Importantly, the WAP process can be tailored to State specifications; Tetra Tech offers a nimble team ready to tackle any task. The WAP process has proven very effective, enabling Tetra Tech project managers to execute and oversee multiple projects and site visits concurrently. This straightforward framework simplifies project execution, enables standard operating procedures, and provides a consistent product and service to our client, all of which increases our efficiency and reduces costs for the State.

From Kickoff to Closeout: Structured for Success.

Battle-Tested WAP: *Work Action Plan tailored for concurrent multi-site projects ensures efficient delivery.*

Robust QC System: *Layered review process using Independent Technical Reviewers (ITRs) and custom tools.*

Strong Financial Controls: *7 Government-audited systems ensure precise budgeting and reporting.*

Strategic Onboarding: *Rapid start-up and alignment with WVARNG goals, based on proven success in SCARNG and others.*

Transparent Delivery: *Centralized tracker for real-time progress monitoring and deliverable quality assurance.*

3.1 Project Management Plan

As a result of our operations tempo and the volume of FCA work, our staff is finely tuned, and we seldom alter our organizational structure after contract award. The State will be working with an experienced, integrated team, in which staff support each other and have extreme pride in their work and their reputation. Our project managers have extensive experience in facilitating clients' needs and vision, delivering asset management, capital improvement planning, and master space planning projects that surpass client expectations.

3.1.1. Work Management

Great project management is the key to a happy client and a successful project. In BUILDER efforts, this consists of project meetings, status updates, site coordination calls, developing and adhering to a project management plan, quality control plan, accident prevention plan, and others as needed. This also includes good cost and schedule

management, accurate and timely invoicing, providing timely monthly status reports, ensuring good quality control, professional appearance of deliverables, accurate data and reports, and timely and professional coordination and communication with the contracting officer, contracting officer's representative, and the end client and their staff. Good project management also brings up bad news right away along with solutions to challenges and works together to solve problems with agreeable solutions to all parties.

3.1.2. Pre-Site Planning & On-boarding Strategy

Tetra Tech has developed a proven onboarding strategy to support new State ARNG clients, focused on understanding each State's existing BUILDER data and aligning them with their unique goals and challenges. For WVARNG, our process begins on day one with a bottom-up review of their BUILDER portfolio. We will present our findings to the client and develop a strategic approach that supports planning, engineering, and operations and maintenance (O&M), helping WVARNG maximize the utility of its BUILDER data across the CFMO and State-level programs.
A recent example of our successful onboarding approach is the 2023 SCARNG BUILDER contract award, which led to follow-on wins in 2024 and 2025. As part of that effort, we conducted an in-depth data review to identify gaps in data quality and portfolio performance. Working directly with CFMO staff, we tailored an assessment strategy that aligned with their objectives and anticipated future program growth.

The **pre-site planning task** plays a critical role in setting up a successful project. During this phase, Tetra Tech will collect and review government-furnished materials (GFM), finalize assessment logistics, and determine the appropriate field team composition and trip durations. Key GFM includes:

- **Floorplans**, which help assess facility complexity, equipment density, and physical access considerations (e.g., roof access, mechanical rooms).
- **Work order histories**, which provide insight into asset performance and support more accurate condition ratings.
- **Facility manager contact lists**, which facilitate site scheduling, provide valuable operational context, and serve as key contacts for reporting life, safety, or health concerns.

Our Project Managers and Field Leads will collaboratively plan trips based on the quality and availability of GFM, scope complexity, facility size, weather conditions, and staff availability. Prior to mobilization, the Tetra Tech Project Manager will host a project kickoff meeting to ensure alignment among all stakeholders. During this session, we will confirm roles, set expectations, and review deliverables to support the development of high-quality condition assessment reports. We will apply best practices and lessons learned from previous engagements to ensure an efficient and well-coordinated start. The Project Manager will also work with the WVARNG point of contact to identify key stakeholders, establish the project schedule, and coordinate operational interviews with leadership and facility staff. Local engineers and assessors will be scheduled for interviews with maintenance personnel and department staff as needed. Throughout the project, the Tetra Tech PM will manage the schedule and proactively communicate any changes to the State POC. During on-site assessments, as discussed in Section 2.2, the PM/site lead ensures data completeness, addresses access issues in real time, and supports State personnel by answering technical questions and coordinating site walkdowns with our teams. This collaborative and proactive approach ensures a smooth project launch, clear communication, and high-quality assessment outcomes that align with WVARNG's goals and expectations.

3.1.3. Communication and Coordination Strategy

Our Team's proactive and effective internal and external communication protocols are based on clearly defined lines of communication. Externally, the Project Manager is the State's primary POC for overall work and contract management. Project-specific communication protocols, such as who to copy on deliverables and how to handle routine communications, are defined during the kickoff meeting. Internally, the Program Manager and Project

Manager use email, telephone, and Microsoft Teams application to store project documents, disseminate work, track work progress, collaborate, resolve issues, and encourage feedback from the project team. By adhering to our Quality Management Workflow, our team will demonstrate proactive communication with the State, regardless of the challenges to meet project timelines. Tetra Tech will coordinate closely with the State on every step of project execution. Following the scheduled site assessments, Tetra Tech's PM will keep WVARNG updated regularly on the status of the BUILDER data upload. A BUILDER data upload memo will be issued for both draft and final upload, along with the required BUILDER reports for WVARNG review and comment. At project completion, our team will remain available to support WVARNG staff with any questions related to their BUILDER portfolio, data interpretation, or reporting tools, ensuring continuity and knowledge transfer.

3.2 Quality Control

Tetra Tech has a vigorous corporate QC Program, which flows down to the project level. We apply project-specific QC processes and procedures tailored to the SOW to ensure the work is performed in a consistent, measurable, and accurate manner. The Pre-Site, Site Survey, and Post-Site processes are designed to guarantee quality is a continuous element throughout the life of the project. The Project Manager will ensure that appropriate levels of review (and cooperativeness in the review process) have occurred for:

- Scope Compliance.
- Project Documentation.
- General review of personnel to ensure an acceptable level of experience is maintained for quality engineering products.
- Level and quality of communications and documentation accomplished during the various processes.

If significant errors are present in the data, the client loses confidence in the system and is unlikely to use the BUILDER platform. Our BUILDER quality control (QC) program and comprehensive QC processes (**Figure 6**) on the next page, are designed to provide an accurate real world look at asset condition and facility health and to establish trust in those findings.

Figure 66. Quality Management Workflow

3.3 Cost Control Measures and Budget Management Tools

Tetra Tech's web-based cost management and reporting systems provide project managers with the ability to execute projects independently within a management approach that delegates decision-making and (through programmatic oversight) ensures safe, consistent quality performance that is on schedule and within budget. Our Financial and Management Information Systems enhance our ability to manage multiple complex projects and control direct and indirect costs. At the core of our overall system are seven Government-audited financial and cost-tracking systems, all of which have been determined to be compliant and suitable:

- Accounting system
- Billing system
- Estimating system
- Purchasing system
- Cost Accounting Standards Disclosure Statement
- Government property management system
- Timekeeping/labor system

3.4 Management of Deliverables and Performance Monitoring

Each submittal is subjected to an independent review process. Prior to submittal, each deliverable is reviewed by one or more Independent Technical Reviewers (ITRs). ITRs are senior SMEs who are independent of the project team, which enables them to review the deliverable with a fresh perspective. The Project Manager assigns ITRs based on their expertise and the deliverable's content; a complex deliverable addressing multiple technical areas might be reviewed by multiple ITRs. ITRs document their comments, which are then reviewed and resolved by the deliverable's authors and Project Manager, as applicable.

Following ITR review, each deliverable is reviewed by an editor to ensure it is well-written and free of grammatical errors. The Project Manager is responsible for scheduling adequate review time, overseeing the review process, and ensuring all comments are resolved prior to submittal.

To manage deliverables effectively across multiple task orders or technical scopes, Tetra Tech uses a centralized project tracker that logs due dates, deliverable owners, status updates, review cycles, and approval milestones. This system ensures visibility across the team, keeps tasks on schedule, and allows for early identification of potential delays or resource needs. Our document control procedures ensure consistency across deliverables, from formatting and file naming conventions to version control.

A recent example of Tetra Tech's independent review submittal process is provided by the BUILDER SMS Implementation for SCARNG (Project 1, Section 2). This $776K project spanned 3 fiscal years and entailed additional detailed deliverable packages, including GIS data set, pavement and utilities condition reporting, SPCC reporting, and multiple-day data review charrettes. By implementing our ITR process, we provided high-quality deliverables from first drafts through final deliverables. This reduced work for the government by alleviating the need for extensive comments and increased SCARNG confidence in our work products. Our proven ITR and submittal process, combined with our organizational systems and communication procedures, directly led to receiving all Exceptional PPQ ratings for this project.

DESIGNATED CONTACT: Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.

(Printed Name and Title) Colby Hoefar, Vice President Asset Management Program

(Address) 1538 Kanawha Blvd E, Suite 110 | Charleston, WV 25311

(Phone Number) / (Fax Number) 719.659.7236

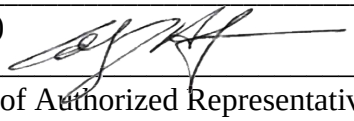
(email address) colby.hoefar@tetratech.com

CERTIFICATION AND SIGNATURE: By signing below, or submitting documentation through *wv*OASIS, I certify that: I have reviewed this Solicitation/Contract in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation/Contract for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that this bid or offer was made without prior understanding, agreement, or connection with any entity submitting a bid or offer for the same material, supplies, equipment or services; that this bid or offer is in all respects fair and without collusion or fraud; that this Contract is accepted or entered into without any prior understanding, agreement, or connection to any other entity that could be considered a violation of law; that I am authorized by the Vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on Vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

By signing below, I further certify that I understand this Contract is subject to the provisions of West Virginia Code § 5A-3-62, which automatically voids certain contract clauses that violate State law; and that pursuant to W. Va. Code 5A-3-63, the entity entering into this contract is prohibited from engaging in a boycott against Israel.

Tetra Tech, Inc.

(Company)



(Signature of Authorized Representative)

Colby Hoefar, Vice President Asset Management Program

(Printed Name and Title of Authorized Representative) (Date)

719.659.7236

(Phone Number) (Fax Number)

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(Email Address)