

Our ref: 12652153

October 18, 2024

Tim Schutzmann, Waterworks Coordinator
Cranberry Township
2525 Rochester Road
Cranberry Township, PA 16066

Solids Handling Upgrades Project – Proposal for Engineering Services During Construction

Dear Tim

As requested, please find our scope of services and proposed fee for engineering services during the construction (a.k.a. construction phase services, or CPS) of the solids handling upgrades to the Brush Creek Water Pollution Control Facility (WPCF).

1. Background/understanding of needs

Cranberry Township has undergone a detailed and systematic approach to the preliminary analysis, alternatives selection and design of the solids handling upgrades to the Brush Creek WPCF. Placing similar attention on the construction phase of this project, the Township is currently soliciting a construction management team (CMT). The CMT will be charged with the complex task of overseeing the day-to-day construction activities as well as providing on-site representation for the Township.

Our services will provide essential consistency between these day-to-day activities and the design intent of the project. This is accomplished first by managing the bid and award period (previously authorized) in a way that provides timely and concise information to bidders, allowing for competitive bids. Following award, this is accomplished by working side-by-side with the CMT in providing input to design related construction issues, reviewing design submittals, participating in construction progress meetings and other coordination as needed, and assisting with start-up and commissioning of key processes. Additionally, much of the same key staff who participated in the design, including the project manager and major process design engineers, will participate in construction and startup activities.

In addition to this proposal, GHD intends to submit a separate proposal to serve in the CMT role. If we are successful in being selected for both roles, significant efficiencies of scale could be realized by the Township.

2. Basic scope of services

The basic scope of services is outlined below. Our scope is based on input from Cranberry Township staff and coordinates with the scope of services of the CMT. Further, the scope is based a two-year construction period. An expected construction schedule is provided in Section 4.

1. Construction phase services
 - a. Project management and coordination
 - i. Plan and manage GHD team
 - ii. Prepare conformed construction documents. Conformed documents are a reconciled set of bid documents that includes changes made by addenda. Additionally, a set of CAD files will be produced for use by the CMT and contractors, as necessary.
 - iii. Provide input to CMT and contractor schedule review. Preliminary construction sequences have been developed during design, in coordination with plant staff. GHD's input to the review of the construction schedule provides consistency with this sequence.
 - b. Meeting attendance. The CMT is responsible for preparation of meeting agendas, scheduling, and recording and distributing meeting minutes. GHD's role in construction meetings is to provide input on construction matters as they relate to the intent of the design or decisions made during the design process. Further, it provides a time where the CMT and GHD can coordinate or review other items as necessary. Based on the proposed schedule, GHD expects to attend the meetings listed below. Meeting attendance may vary, but in most cases, it will consist of the GHD project manager, and, as necessary, process, structural, architectural and/or electrical staff. Allowances are also included for "as needed" on-site support (performed by local GHD staff) and attendance "as needed" at the CMT's weekly progress meetings.
 - i. Pre-construction conference
 - ii. Pre-pour concrete conference
 - iii. Pre-submittal conference
 - iv. Schedule review conference
 - v. Construction progress meetings: We have included costs for both our local project manager's in-person attendance and our design manager's virtual attendance at 24 monthly progress meetings. Other team members will join the monthly meetings on an as-needed basis.
 - vi. Weekly progress meetings: We have included costs for our local project manager's in-person attendance and our design manager's virtual attendance at one weekly progress meeting per month (24 total, in addition to the monthly progress meetings).
 - vii. Local on-call site support: We have included costs for appropriately qualified local personnel to provide eight hours of on-site support per month for 24 months.
 - c. RFI and change order review assistance. It is understood the CMT is responsible for the fielding, tracking and response to contractor RFI's during construction. As many of these RFI's are often related to design topics or involve proposed deviations from the design, it is important that the design engineer provide input to the CMT for their response. Similarly, these RFIs or other design related issues may result in a contractor change order request and should be reviewed by the design engineer for use by the CMT.
 - i. RFI review and response. Based on past experience, we estimate approximately 200 RFIs could be generated for a project of this size.
 - ii. Change order request review and response. Our proposed fee is based on approximately 50 change order requests over the four prime contracts.
 - d. Submittal review. Project equipment submittals are critical in providing assurance that the contractor purchased items meet the requirements of the specification and that installation of the product is coordinated. As the design engineer, GHD understands not only the product specified, but the coordination and decisions that were made to select the equipment, and as such, provide an efficient avenue to accomplish this task. Based on the current design, we expect there will be about 300 project submittals. We understand that the CMT will receive, log, distribute, track and ultimately

respond to the submittals, with submittal review comments provided by GHD. Additionally, we estimate approximately 50 percent of the submittals will require one (or more) resubmittal.

- e. Start-up assistance. Detailed operational sequences and strategies have been developed with staff and incorporated into the specifications. The start-up and commissioning of process equipment requires knowledge of these strategies and how they are intended to be incorporated into the overall project. GHD proposes to provide start-up and commissioning assistance to the Township, contractor and CMT on several critical processes, as noted below. Other equipment and processes will be started up and commissioned by the contractor and CMT. The CMT will coordinate scheduling and verify the contractor is fully prepared for start-up and commissioning prior to GHD arriving on-site.
 - i. Digestion process. GHD and our subconsultant, Olde Forge Environmental (OFE, Nicholas Sahd), will provide up to six full days (two people each, three trips) on site.
 - ii. Dewatering process. GHD and OFE will provide up to six full days (two people each, three trips) on site.
 - iii. System integration/SCADA network. GHD and our subconsultant, Keystone Engineering Group (KEGI) will provide up to two full days (two trips) on site.
 - iv. Power systems integration. GHD and KEGI will provide up to two full days (two trips) on site.
- f. Project completion assistance. The CMT is largely responsible for coordination of project completion and closeout. GHD has included an allowance in our proposed fee to provide input to completion inspections. In addition, over 100 hours are included in the proposed fee to provide assistance and input to the Township on process related issues during the one-year warranty period.

3. Additional services

As directed by the Township, GHD will attend additional meetings or provide additional services related to this assignment for additional negotiated compensation based on our fee schedule at the time.

4. Schedule

We understand the Township intends to conduct bid and award phases during spring of 2025. Construction phase services are expected to commence immediately thereafter. An estimated schedule is provided in Table 1:

Table 1 Project milestones and dates

Milestone	Date
Notice to proceed	April 2025
Pre-construction activities	April 2025 through June 2025
Construction activities	July 2025 through June 2027
Substantial completion	April 2027
Final completion	June 2027
Post-construction activities	July 2027 through September 2027
Warranty period services	July 2027 through June 2028

5. Project team

While the overall experience of the firm is valuable, the team performing the work is most important. GHD uses a project team approach where senior personnel, including principals of the firm, are involved on a day-to-day basis. The control, coordination, and decisions required on the project, however, are the responsibility of the project manager, who has authority to represent the company. This approach provides for using the individual talents of the firm while maintaining project continuity and guidance.

The team assembled for this assignment participated fully in the design phase of the project. In addition, the team has the wide range and depth of experience necessary to effectively address the requirements of the project during the construction phase. Joel Kostelac and Rulison Evans are the designated project director and project manager, respectively. Joel and Rulison managed the design phase services for the project and will continue in those roles during the construction phase. Additionally, Howard Butler (design manager) and David Gryger (lead process engineer) and our electrical/I&C subconsultant, Keystone Engineering Group, will continue in their respective roles during construction. New to our team is our subconsultant, Nicholas Sahd, of Olde Forge Environmental. Nick will assist GHD with startup and training. Nick's resume is attached for reference.

6. Compensation

Our services will be rendered on a time plus expenses basis in accordance with GHD's standard hourly rate schedule at the time (FY 2024-2025, attached). Rates are all inclusive, including overhead and profit, and apply to all hours expended with no premium charged for overtime hours. Rates are subject to an annual increase.

Our fee for the basic scope of services, which will not be exceeded without prior authorization from the Township, is broken down in Table 2. Hours listed in the table are estimated based on assumptions provided in Section 3. Should the actual effort required be less than the hours listed, Cranberry Township will not be billed for the additional time allocated in the estimate.

Table 2 Fee breakdown for basic scope of services

Scope responsibilities	Hours	Labor cost	Direct expenses and subconsultants	Total fee
1.0 Pre-construction activities	237	\$45,356	\$7,658	\$53,014
2.0 Construction phase services	2,434	\$411,234	\$215,110	\$626,344
3.0 Post-construction activities	659	\$116,470	\$65,712	\$182,182
Total construction phase services budget	3,330	\$573,060	\$288,480	\$861,540

7. Agreement for professional engineering services

If our proposal is satisfactory with you, we can provide a mutually agreeable amendment to our existing agreement or provide a new agreement based on an Engineers Joint Contract Document Committee (EJCDC) standard form of agreement between Owner and Engineer.

We appreciate the opportunity to be of service and look forward to working with you on this important assignment. If you have any questions about our proposal, or require additional information, please contact our office.

Regards



Rulison Evans
Senior Project Manager

412-684-9041
rulison.evans@ghd.com



Joel Kostelac
Project Director

717-541-0622
joel.kostelac@ghd.com

Summary of Qualifications and Experience

- Wastewater Process Operations Specialist w/ over 25 years' experience.
- Provide support to municipal, private, and industrial wastewater and water clients with operations, treatment, and regulatory consultation.
- Perform preliminary process designs, develop basis of designs, WQM Part 2 permitting, operability design reviews, and start-up/commissioning services.
- Perform planning studies, including wastewater treatment plant (WWTP) process evaluations (to address overload conditions, peak flow issues, and nutrient reduction alternatives), Act 537 municipal planning (to address service area needs), and biosolids master planning to meet clients' needs for cost-effective operational solutions.
- Provide assistance and oversight to municipal wastewater clients with pretreatment and hauled waste programs, including local limits re-evaluations, high strength wastewater surcharge studies, and hauled waste sampling and monitoring protocols.



Nicholaus J. Sahd

Principal Scientist

Relevant Projects

Process Operations Consulting and Assistance, Various Locations, PA, Various Clients. Senior Environmental Scientist responsible for providing municipal wastewater engineering and operations services as part of annual services agreements. Conducted quarterly, bi-annual, or annual inspections of wastewater treatment plants. Analyzed wastewater treatment plant operating data and offered process and operational recommendations for the facilities. These consult services were routinely provided to the following clients that operate anaerobic digestion processes:

- Borough of Danville, Danville, PA
- Eastern Snyder County Regional Authority, Selinsgrove, PA
- Borough of Lewistown, Lewistown, PA
- Borough of Mechanicsburg, Mechanicsburg, PA
- Borough of Tamaqua, Tamaqua, PA

Construction-Phase Start-up and Training, Mechanicsburg, PA, Borough of Mechanicsburg. Senior Environmental Scientist responsible for coordinating process start-up and operator training during construction phase of the biological nutrient reduction upgrade of the Borough's wastewater treatment plant. The WWTP is permitted for a Design Hydraulic Capacity of 3.328 mgd and includes Modified Luzak Ettinger (MLE) bioreactors with denitrification filters designed to provide biological nutrient reduction along with anaerobic digesters and a compost facility. Project included preparing and conducting lessons and materials for operations training on process controls for additions and alterations. Conducted on-site training with the WWTP staff, including hands-on instruction of plant equipment.

Years of Experience: 25

Years of Experience with Firm: < 1

Professional Registrations:

Pennsylvania Wastewater Treatment Plant Operator Certification (Class A1) 1997 to Present

Virginia Wastewater Treatment Plant Operator Certification (Class 1) 2018 to Present

Education:

BS, Environmental Resource Management, Pennsylvania State University, 1996

Professional Affiliations:

Pennsylvania Water Environment Association (PWEA) member
Central Pennsylvania Water Quality Association (CPWQA) Membership Committee Chairman (2014 to 2020), Section State Representative (2016), and Association President (2022)

Lancaster Area Sewer Authority Board Member and Vice President (2013 to Present)

Relevant Projects (Continued)

WWTP Optimization, Exton, PA, Uwchlan Township. Senior Environmental Scientist responsible for assisting in the optimization of the Eagleview WWTP to achieve NPDES permit compliance for a 0.475 mgd wastewater treatment plant. The WWTP consists of influent pumping, equalization tanks, two (2) bioreactors trains with integrated final clarifiers, tertiary filters, UV disinfection, aerobic digestion, and spray irrigation discharge. Compiled operations data and provided process control recommendations to the contract operators.

Operations and Maintenance (O&M) Manual, Lewistown, PA. Borough of *Lewistown*. Senior Environmental Scientist responsible for preparation of the Operations and Maintenance (O&M) Manual during construction phase of the biological nutrient reduction upgrade of the Borough's wastewater treatment plant. The WWTP is permitted for a Design Hydraulic Capacity of 3.945 mgd and includes a 4-Stage BNR bioreactor with 2-stage anaerobic digestion. Project included compiling contractor shop drawing submittals, design documents and as-build drawings, SCADA screen shots, and WWTP photos and drafting a chapter for each major unit process (preliminary treatment, primary treatment, secondary treatment disinfection, anaerobic digestion, and dewatering).

Operational Support Services, Industrial Pretreatment Plant, Hagerstown, MD, ConAgra Foods. Senior Environmental Scientist responsible for providing operational support to the operators of an industrial wastewater treatment system (WWTS) that includes screening, equalization, pumping, primary clarification, and dissolved air floatation. Provided operational support, review, and recommendations, which included an initial assessment of the WWTS, review of the existing WWTS operations, recommendations for improved operations, preparations of SOPs (including operating protocols), on-site operations support to address system deficiencies, and training for wastewater treatment staff.

Preliminary Design, Final Design, Construction, and Start-Up Phase Engineering Services, Annville, PA, Annville Township Sewer Authority. Project Manager for the study, design, and construction phases of an upgrade to the existing wastewater treatment plant to provide new biosolids dewatering facilities. The study phase included evaluation of four dewatering technologies, establishing capital and operations and maintenance costs of each, and pilot testing coordination. The design phase incorporated design build aspects by pre-purchasing all equipment through the COSTARS program and coordinating with township representatives as they acted as the general contractor for the improvements. The improvements consist of a new dewatering building, with a solids grinder, centrifuge, polymer system, and conveyor system.

WWTP Process Evaluation, Chinchilla, PA, Abington Regional Wastewater Authority. Senior Environmental Scientist responsible for a nutrient-reduction alternatives evaluation to upgrade a 3.5-mgd, activated sludge WWTP as part of a regional Act 537 plan update to achieve compliance with the Pennsylvania Chesapeake Bay Tributary Strategy. The process evaluation included a detailed wastewater characterization, selection of preliminary alternatives for detailed evaluations, and process design of the selected preliminary alternative, including process simulation using modeling software GPS-X, by Hydromantis, to identify process limitations and to predict performance under various loading scenarios. The evaluation included a determination of nutrient-removal process options, including wet-weather peak-flow management and completion of a preliminary basis of design for the selected process (4 stage BNR bioreactors).

WWTP Process Evaluation, Danville, PA, Borough of Danville. Senior Environmental Scientist responsible for the process evaluation to determine the feasibility of implementing BNR at the facilities. The evaluation included a determination of nutrient removal process options, completion of a report recommending the most feasible option, and completion of a preliminary basis of design for the selected process (MLE bioreactors).

WWTP Plant Process Evaluation, Grove City, PA, Borough of Grove City. Senior Environmental Scientist responsible for evaluation of alternatives for upgrading a 3.0-mgd activated sludge WWTP as part of a regional Act 537 plan update. The process evaluation included a detailed wastewater characterization, selection of preliminary alternatives for detailed evaluations, and process design of the selected preliminary alternative, including process simulation using modeling software (GPS-X by Hydromantis) to identify process limitations and to predict performance under various loading scenarios. The evaluation included a determination of process options, completion of a report recommending the most-feasible option, and completion of a preliminary basis of design for the selected process (Two sludge activated sludge system).
