

RESOLUTION 25-237

**A RESOLUTION TO SELECT CAROLLO ENGINEERS, INC. FOR
ENGINEERING SERVICES FOR ADVANCED PURIFICATION PILOT
PROJECT FOR DESIGN, CONSTRUCTION AND OPERATION AND
AUTHORIZE THE MAYOR TO EXECUTE THE PROFESSIONAL SERVICES
AGREEMENT**

WHEREAS, the City of Spring Hill recognizes the need for an Advanced Purification Pilot Project;
and

WHEREAS, the City of Spring Hill has selected Carollo Engineering, Inc. based on a competitive selection process consistent with State and Federal guidelines associated with the American Rescue Plan Program; and

WHEREAS, per staff's request, Carollo Engineering, Inc. has prepared a proposal to provide engineering services to include design, construction and operations for the Advanced Purification Pilot Project, attached hereto in Exhibit A; and

WHEREAS, the proposed project is to be funded by Spring Hill Water, and the necessary funds have already been accounted for in the current fiscal year budget; and

NOW, THEREFORE, BE IT RESOLVED, that the Board of Mayor and Aldermen of the City of Spring Hill, authorizes the Mayor as follows:

1. To approve the Professional Services Agreement with Carollo Engineering, Inc. attached in Exhibit A (engineering services referenced in attached proposal) for a total not to exceed fee as described of \$1,804,895.00.
2. To authorize the Mayor to execute the agreement with Carollo Engineers, Inc.

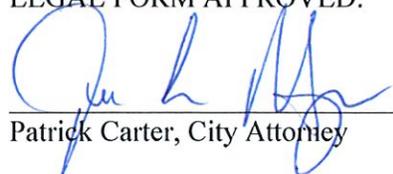
**Passed and adopted by the Board of Mayor and Aldermen of the City of Spring Hill,
Tennessee on this 6th day of October, 2025.**


Matt Fitterer, Mayor

ATTEST:


April Goad, City Recorder

LEGAL FORM APPROVED:


Patrick Carter, City Attorney

STAFF MEMORANDUM

TO: Board of Mayor and Aldermen

FROM: Dan Allen | Assistant City Administrator, General Manager – Spring Hill Water

DATE: 10/06/2025

SUBJECT: Resolution – Task Order for Professional Services Agreement with Carollo Engineers for the design of the Advanced Purification PILOT project

RECOMMENDATION:

Staff recommends approval of Resolution 25-237, authorizing the Mayor to execute the Professional Services Agreement with Carollo Engineering, Inc. for the Advanced Purification Pilot Project, including design, construction, and operational engineering services.

BACKGROUND:

The City of Spring Hill recognizes the need for an Advanced Purification Pilot Project to evaluate water treatment enhancements. Carollo Engineering, Inc. was selected based on a competitive process consistent with State and Federal guidelines associated with the American Rescue Plan Program.

Carollo Engineering, Inc. has submitted a proposal to provide professional engineering services for design, construction, and operational support for the project, attached as Exhibit A. These services will allow the City to plan, implement, and assess advanced purification technologies efficiently and effectively.

FINANCIAL IMPACT:

The total not-to-exceed fee for this Professional Services Agreement is **\$1,804,895.00**, funded through Spring Hill Water. Funds have already been allocated in the current fiscal year budget.

SUPPORTING DOCUMENTS:

- Resolution 25-237
- Professional Services Agreement (Carollo Engineering, Inc., Exhibit A)



City of Spring Hill | Spring Hill Water

199 Town Center Parkway
Spring Hill, Tennessee 37174
Dan.allen@springhilltn.org
931-451-0246

Exhibit A

TASK ORDER NO. 1
CITY OF SPRING HILL
AND
CAROLLO ENGINEERS, INC.

This Task Order is issued by the OWNER and accepted by ENGINEER pursuant to the mutual promises, covenants and conditions contained in the Agreement between the above-named parties dated the 25th day of September, 2025, in connection with the Engineering Services for the Advanced Purification Pilot Project (Project).

PURPOSE

The purpose of this Task Order is to provide professional engineering and technical consulting services related to the preliminary design, final design, construction phase services, and operational assistance for the Advanced Purification Pilot Project (Project) at the City of Spring Hill's wastewater treatment plant (WWTP). These technical services also include preliminary and final design of a new advanced purification pilot building, a Reservoir operations report based on a to-be-determined reservoir configuration, and operational assistance with the pilot.

ENGINEER'S SERVICES

- See Exhibit A

TIME OF PERFORMANCE

The final schedule will be developed prior to the project kickoff meeting after initial review with the Spring Hill and Stakeholder such as TDEC. At that time, a Gantt chart will be presented and will updated the high-level schedule included as Attachment 2 of Task Order No. 1. Based on the estimated fee and scope of work, it has been assumed that the PROJECT will span over a period of forty one (41) months which includes 9 months for design, 18 months for construction, 12 months for pilot commissioning and operation, plus 1 month for salinity verification, and a final 1 month for final reporting. Additional float should be considered to include client reviews, TDEC reviews, advertisement for bid, etc.

- See Exhibit B

PAYMENT

The terms of fee and payment are set forth in Section 2 of the Agreement

- See Exhibits C and D

EFFECTIVE DATE

This Task Order No. 1 is effective as of the 25th day of September, 2025.

IN WITNESS WHEREOF, duly authorized representatives of the OWNER and of the ENGINEER have executed this Task Order No. 1, evidencing its issuance by OWNER and acceptance by ENGINEER.

CAROLLO ENGINEERS, INC.

CITY OF SPRING HILL

Accepted this 25th day of September, 2025



By: _____
Vice President



By: _____
Officer



By: _____
Senior Vice President

CITY OF SPRING HILL
ENGINEERING SERVICES FOR ADVANCED PURIFICATION PILOT PROJECT
PILOT DESIGN, CONSTRUCTION, AND OPERATION

SCOPE OF SERVICES & BASIS OF ESTIMATE

September 25, 2025

Exhibit A

SPRING HILL ADVANCED PURIFICATION PILOT

BACKGROUND

The State of Tennessee has acknowledged the critical need for sustainable water management in communities such as the City of Spring Hill, which relies on the biodiverse Duck River as its primary drinking water source. This priority has been reinforced by recent executive orders and conservation initiatives led by the Tennessee Department of Environment and Conservation (TDEC) aimed at protecting the Duck River Watershed. In partnership with the Carollo team and with oversight from TDEC, Spring Hill (OWNER) developed a Pilot Test Plan for the Advanced Purification PILOT Project, which received TDEC approval in August 2024.

This project will focus on design of an Advanced Purification Pilot (PILOT) and water quality/operations of a water supply reservoir. Spring Hill has elected to use the Construction Manager at Risk (CMAR) delivery method to deliver this PROJECT. The elements of the PROJECT will include:

- 1) Project management for the PILOT design and reservoir planning,
- 2) Design services for the PILOT facilities,
- 3) Reservoir operations report based on a to-be-determined reservoir configuration,
- 4) CMAR selection and procurement,
- 5) Construction phase services,
- 6) Operational assistance for the PILOT , and
- 7) Operator training, final reports, and project closeout.

This scope of work for Carollo Engineers, Inc., (CONSULTANT) defines the efforts required to execute and operate the Advanced Purification Pilot Project (PROJECT). The study will be located at the Spring Hill Wastewater Treatment Plant (WWTP).

I. SERVICES TO BE PERFORMED

Task 1 – Project Management During Design and Preconstruction Services

CONSULTANT will provide project management throughout the course of the PROJECT. This will include managing and directing project resources, developing and submitting monthly status reports along with project invoices, scheduling and attending project meetings, and maintaining project Action and Decision/Risk logs. Progress reports submitted with the monthly invoices will include:

- Any changes in scope, schedule, or budget since the last update,
- Any open or unresolved issues since the last update, and
- Status of project.

For the purposes of budgeting, it has been assumed that the PROJECT will span over a period of forty one (41) months which includes 9 months for design, 18 months for construction, 12 months for pilot commissioning and operation, plus 1 month for salinity verification, and a final 1 month for final reporting. This task is for project management during the 9-month design phase of the project, and PM services of the other phases are covered under those phases.

CONSULTANT will schedule and attend monthly progress meetings throughout the course of the PROJECT. These meetings will be scheduled as needed to keep Spring Hill staff informed of progress and interim findings, or as required to coordinate the PROJECT. These meetings may include key project stakeholders as determined to be appropriate by Spring Hill and the project team. CONSULTANT will provide all meeting materials including meeting agenda, PowerPoint slides, relevant handouts, etc. CONSULTANT will summarize these meetings in meeting minutes and distribute them to the participants within five (5) business days of the meeting. The bulk of the project meetings will be conducted virtually, and in-person meetings will be determined on a case-by-case basis.

Project Meetings:

- Monthly Progress Meetings

Deliverables:

- Project Meeting Materials (Slides/Minutes/Highlights)
- Monthly Status Report and Invoices
- Decision/Risk Log
- Action Items log

Task 2 – Design Services

The PILOT will be constructed using a Construction Management at Risk (CMAR) delivery method with pre-purchase of some pilot equipment to utilize American Rescue Plan (ARP) funding and have the equipment on-site within 2026. Task 4 is the CMAR selection and procurement, but is mentioned here to fully describe the project. The proposed location of the PILOT is as shown in **Figure 1** and has been updated from the Pilot Test Plan to accommodate the future treatment

plant expansion to 10 million gallons per day (MGD). PILOT will consist of individual skid-mounted treatment processes that will be provided by specialized equipment manufacturers (SEM). CONSULTANT will use past experience in soliciting proposals from SEMs on each unit process to aid in design activities. SEMs will be selected based on price and performance metrics as defined in performance and technical specifications. Based on information provided by SEMs and work completed in the development of the test plan, CONSULTANT will develop design in preliminary design/30%/60%/90%/100% phases. Pre-purchase documents will also be developed for up to two SEM process units. CONSULTANT will utilize AutoCAD and REVIT for design drawings and adhere to Spring Hills's design standards to the extent possible.

CONSULTANT will also produce an early procurement package for selected individual skid-mounted treatment processes to advance procurement so the equipment can have a paid invoice and be onsite, including a proof of delivery, by the American Rescue Plan (ARP) deadline. This work is included in Task 4.

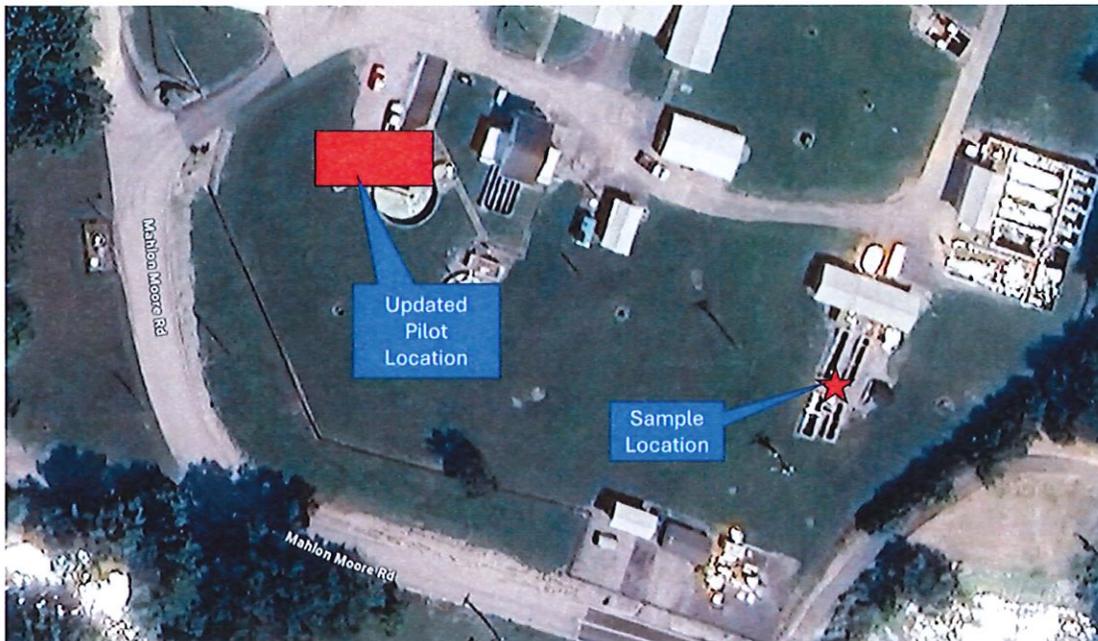


Figure 1 WRF and Proposed Location of Pilot System

During design, the treatment scheme in the TDEC-approved test plan will be developed in detail to establish the validity and constructability of the schematic design. This consists of preparing final construction documents, including supporting calculations and design documents, drawings, specifications, project manuals, and coordinating the direct purchase of major equipment and materials identified in the solicitation documents. For regulatory approval and public bidding, all documents must be completely coordinated, checked and cross-checked. CONSULTANT will assist the CMAR in developing a detailed cost estimate for each of the milestone deliverables.

Comprehensiveness and constructability are key to CONSULTANT'S completion of the final design and subsequent acceptance by Spring Hill for construction. CONSULTANT shall assist the Owner in procuring the CMAR, including preparing and issuing RFQ/RFP documents, coordinating advertisement and notifications, scheduling and attending a pre-proposal meeting, assisting with evaluation of proposals and interviews, supporting contract negotiation, scheduling and attending a preconstruction kickoff meeting, and issuing conformed contract documents for construction under Task 4.

General Design. General design includes index of drawings, general notes, process flow diagram of the PILOT and the PILOT hydraulic profile. General drawings and specifications will be prepared as a part of final design.

Civil Design. Civil design includes the layout of the proposed facilities, yard piping, paving, grading drainage, and erosion prevention and sediment control (EPSE). Yard piping sections will be provided for connections to and crossings of existing yard piping, if any. Civil drawings and specifications for civil work will be prepared as a part of final design. It is assumed that demolition of existing structures will be covered under previous contracts.

Structural Design. Structural design includes the structure foundation and geotechnical investigations for the pre-engineered building (PEB) that will house the PILOT and ancillary equipment. Structural drawings and specifications for the structural work will be prepared as part of the final design.

Architectural Design. Architectural design includes placement of doors, windows, interior walls, exterior façade as approved by the City, interior lighting, compliance with appropriate regulations such as OSHA, ADA, etc. as required for building use.

Process Mechanical Design. Mechanical design includes unit processes in the PILOT, interconnection of unit processes including strategic placement of sample ports, chemical systems, waste stream management system, and required mechanical piping. Mechanical drawings and specifications for the mechanical work will be prepared as a part of final design.

Electrical Design. Electrical design includes the analysis of power service to the PILOT, analysis of the existing MCCs and onsite facilities at PILOT location, determination of power requirements, preparation of lighting and circuit diagrams, and design of electrical motors, conduit runs, transformer, MCC, lighting panel, distribution panel, etc., as needed. Electrical drawings and specifications for the electrical work will be prepared as a part of final design. All electrical design will conform to existing codes.

Instrumentation and Control Design. Instrumentation and control design includes development of control systems for all processes in the PILOT, development of process and instrumentation diagrams (P&IDs) for specialized equipment providers (skid-mounted unit process providers). It is assumed that the PILOT will not be integrated into existing wastewater facility SCADA system but will instead house its own SCADA system for process control and remote monitoring. The PLCs on

each unit process will be "SCADA-ready". Instrumentation and control drawings and specifications will be prepared as a part of final design.

Task 2.1 - Survey

It is assumed that the existing site survey, Provided by Thomas and Hutton, can be used for the purposes of siting of the pilot building and underground structures. The survey work included in this scope involves adding boring locations (2) needed for the building to be located, after the building is sited, and making minor updates to existing survey.

- ~~Subsurface Utility Engineering (SUE) as needed:~~
 - ~~Verified Vertical and Horizontal Location (VVH), locations and quantity determined by the Engineer of Record (EOR).~~
- Flagged boring location (if not present at the time of survey field work, include going back to pick-up and adding),
- ~~Structures on the property with finished floor elevations,~~
- ~~Underground utilities,~~
- ~~Inclusion of at least two (2) temporary benchmarks for use during construction located outside of, but adjacent to the proposed improvements,~~
- ~~Horizontal shall use the North American Datum of 1983 (NAD 83), Tennessee State Plane Coordination System, U.S. Survey Feet,~~
- ~~Elevations shall use the North American Vertical Datum of 1988 (NAVD 88),~~
- ~~The survey will be performed in accordance with the State of Tennessee Standards of Practice, as set forth by the Board of Professional Surveyors and Mappers, and Chapter 0820-03 Tennessee Administrative Code (T.A.C.).~~
- ~~Follow the National CAD Standards, layer naming standards (e.g., CU-WATR-DOMC-PIPE-XXX-XXXX-XXXX-XXXX-XX-ST), line types, blocks, dimension styles, datums, text, text styles, and for the drafting and file standards contained in the As-built Specifications Standard Manual Part III.~~
- ~~Deliverables will include electronic forms in both PDF and AutoCAD .dwg formats.~~
- ~~Final survey will include four (4) signed and sealed hard copies for filing and a digitally signed and sealed /pdf version, as set forth in Rule 0820-03.02 T.A.C.~~

Task 2.2: Preliminary Design

Preliminary design activities completed by CONSULTANT will include the following items.

- 2.2.1 - Geotechnical Investigations
 - Geotechnical investigations will include up to two (2) 25-ft borings, groundwater level encountered in borings, soil stratigraphy, and foundation bearing capacity.
 - Borings and test pit locations will be flagged for inclusion into site survey.
 - Geotechnical engineering report and recommendations to include the following:
 - Laboratory testing results,
 - Site earthwork recommendations and site preparation,
 - Seasonal high groundwater table,

- Encountered groundwater table,
 - Evaluation of the subsurface conditions,
 - Settlement potential analysis,
 - Bearing capacity and allowable bearing pressure of the native soils,
 - Evaluation of on-site soil for use as structural fill/backfill material,
 - Unsuitable soil expectations (silts, clays, or other deleterious materials),
 - Boring and test pit logs,
 - Boring and test pit map.
- 2.2.2 – Environmental: Environmental is not included in this scope as the facility is within the existing WWTP footprint.
 - ~~Site visits, evaluations, field surveys, and investigations.~~
 - ~~Evaluation, avoidance, and mitigation of wetland impacts.~~
 - ~~Calculation of mitigation requirements for the Project in accordance with the Uniform Mitigation Assessment Method (UMAM).~~
 - ~~Identification of the final amount and coordination for the purchase of mitigation of credits with mitigation banks.~~
 - ~~Evaluation, avoidance, and mitigation of endangered species impacts.~~
 - ~~On-site meetings with the applicable jurisdictional permitting agencies as the Environmental Scientist determines in the best interest for the Project or permitting needs.~~
- 2.2.3 – General
 - The general drawings will provide an overall project layout and establish the scope, design intent, and applicable codes and standards. These drawings will serve as a reference for all disciplines and facilitate coordination across the full drawing set.
- 2.2.4 - Site/Civil
 - Paving and grading, drainage plans for the PILOT facility including stormwater considerations, if any, yard piping and EPSC plans.
 - Evaluate the stormwater impacts and modify NPDES permit as required.
 - Coordination of proposed demolition work and Headworks Expansion and Equalization Basin project.
- 2.2.5 / 2.2.6 - Structural/Architectural
 - New prefabricated building with concrete slab on grade sized for the pilot and public outreach.
 - Proposed building materials and methods for the structure that will house the PILOT.
 - Footprint and orientation of building that will house the PILOT treatment process on the site shown in Figure 1.
 - Architectural considerations for a facility expected to be open for public tours like accessibility, ADA compliance, restrooms, etc.
- 2.2.7 - Process Mechanical

- New potable reuse pilot facility based on the selected treatment method. Individual systems or components within the pilot may have distinct flow capacities designed to collectively support an optimal overall hydraulic flow pattern.
- Evaluation of effluent flow and piping to proposed discharge location.
- Process flow diagram (including source waters) of the proposed PILOT.
- Layout and connectivity of process skids, including interim storage, pumping, and sampling locations between skids.
- Table of proposed capacities for all process skids, interim storage and pumping equipment.
- Estimated layout and diameter(s) of piping required to bring sources water to the PILOT and piping between the process skids.
- Proposed method(s) of reusing and/or disposing of treated water.
- 2.2.8 – Mechanical (MEP)
 - HVAC system design to maintain appropriate temperature and ventilation for equipment operation, staff comfort, and public occupancy/ tours in the pilot building.
 - Selection and layout of heating and cooling equipment, including air handling units, ductwork, and controls.
 - Ventilation strategies for mechanical spaces and potential odor control requirements related to pilot process emissions.
 - Plumbing system design including domestic cold and hot water distribution, sanitary waste, and venting.
 - Design of restroom plumbing fixtures and piping to support public access and ADA compliance.
 - Drainage considerations, including floor drains and sump systems as required for mechanical rooms and wet process areas.
 - Coordination with process mechanical needs for water supply and waste drainage connections.
 - Specification of backflow prevention, pipe insulation, and freeze protection where applicable.
- 2.2.9 / 2.2.10 - Electrical and Instrumentation & Control (I&C)
 - Evaluate the existing power service and power distribution equipment to ensure they can accommodate the needed improvements.
 - The electrical service shall be 480Y/277 Volt, 3 Phase, 4 wire from local electrical utility service transformer. Coordinate the new electrical load calculations with electrical company to determine if upgrades are required to the existing CEC service transformer or a new service is required.
 - New separately enclosed service entrance main breaker with LSI trip unit,
 - If required, CONSULTANT shall obtain a fault current letter from electrical utility to use in the development of the required fault current ratings for the new electrical equipment.

- Provide a new power system study, including arc flash study with new arc flash labels for all new and existing electrical equipment.
- New motor control centers (MCC), soft starts, variable frequency drives, electrical equipment, panels, instrumentation, controls, alarms, and spare conduits to accommodate the pilot plant with NEMA 4X Safe Off control stations with stainless steel locking attachment shall be provided at high voltage locations not within site of the associated motor control center to match equipment according to Owner's specifications. The safe off control stations shall prevent operation of the high voltage when engaged and shall permit operation of the high voltage or equipment when released.
- If required, new site grounding system bonded to all power distribution equipment, surge protection equipment and the site lightning protection system.
 - The site grounding system shall establish a maximum resistance to ground of 5 ohms throughout the grounding system.
 - Includes: pumps, tanks, MCC, transfer switch, electrical equipment, high service pump room, above ground pipes, wells, etc.
 - A site lightning protection system shall be provided for the water plant. The lightning protection system shall use Early Streamer Emission (ESE) air terminals as manufactured by Lightning Preventor of America. Lightning protection system installations shall be in accordance with the Manufacturer's Installation Standard for Lightning Protection Systems Using Early Streamer Emission Air Terminals.
- Proposed instrumentation and control of the pilot system including any remote monitoring of the process. This scope of work does not envision connection of the pilot system instrumentation and control system to the wastewater treatment plants SCADA system.
- Data from each unit process will be collected in a local data-logger which will be the primary source of all data generated by the PILOT.
- 2.2.11 - Basis of Design Report and Cost Estimate
 - Preliminary cost estimate for construction of the PILOT.
 - Proposed project schedule.

CONSULTANT will submit work above in a Basis of Design Report (BODR) to Spring Hill for their review. CONSULTANT will schedule and attend a workshop to review the design and finalize decisions. On receipt of comments CONSULTANT will finalize the BODR.

Project Meetings:

- Workshop to review Basis of Design Report

Deliverables:

- One (1) signed and sealed hard copies of final survey and one (1) electronic .pdf file
- Draft and Final Basis of Design Report (electronic version)

- Appendix with relevant design calculations
- Class 5 Engineer's Opinion of Probable Construction Cost (EOPCC)

Task 2.3: 30-Percent Design

30-Percent review materials will include processes, flows, major equipment and materials information, plans, layout, stormwater management concepts, specifications table of contents, equipment data sheets, design parameters, preliminary sizing, and agenda for the review meeting. Drawings and specifications will be developed to 30-percent completion for the 30-Percent Design submittal. 30-Percent EOPCC will be included in the submittal if the CMAR is not onboard at the 30%.

After submittal of the 30-Percent Design Documents, CONSULTANT will attend one review workshop. Any comments on the 30-Percent Design by Spring Hill will be incorporated into the 60-Percent Design. CONSULTANT will submit design documents to Spring Hill fifteen (15) business days prior to the review meeting, but no later than seven (7) business days prior to the review meeting.

Project Meetings:

- Review meeting on 30-Percent Design Submittal

Deliverables:

- Agenda for 30-Percent Review Meeting
 - Project Monitoring and Control update,
 - Project schedule update,
 - Project update,
 - Design-related issues,
 - Open items and questions,
 - Unresolved items,
 - Action items,
 - Potential risks to project
- 30-Percent Design Documents (drawings and specifications) submittals
 - Electronically in .pdf format
- Updated basis of design submitted in .pdf format
- Class 4 30-Percent EOPCC submitted in .pdf format.
- Updated Critical Path Method (CPM) project schedule with 30-Percent Design Documents
- If applicable, summary of CONSULTANT's QA/QC review

Task 2.4: 60-Percent Design

60-Percent design will include updated 30-Percent information and incorporated review comments, cross discipline coordination, completed processes, flows for all equipment, complete set of Spring Hill's standardized Division 0 and 1 specifications and updated list of technical

specifications, construction phasing plan, fencing, erosion control plans, SWPPP, details, design calculations, memo response to 30-Percent review comments.

60-Percent EOPCC will be developed. Spring Hill review at this stage will be facilitated through progress meetings and electronic updates, unless otherwise deemed necessary by Spring Hill and CONSULTANT. An informal set of 60% drawings and specifications will be submitted to Spring Hill electronically in .pdf format. If needed, a separate review meeting will be scheduled by CONSULTANT.

Project Meetings:

- Review of 60-Percent progress during regular bi-weekly progress meeting

Deliverables:

- Memo response to 30-Percent review comments.
- 60-Percent Design Documents (drawings and specifications) submitted electronically in .pdf format.
- Assist CMAR with 60-Percent EOPCC submitted in .pdf format.
- Assist CMAR with updated CPM project schedule with 60-Percent progress in .pdf format.

Task 2.5: 75-Percent Design

75-Percent design will include printing all documents at a midpoint between the 60 and 90 percent milestones and submitting drawings for the City of Spring Hill's building and codes review. Documents will have included Spring Hill's 60% design review comments but will otherwise be "in-progress" drawing and will not have completed CONSULTANT's full QC process for this deliverable.

Project Meetings:

- One review meeting with the City of Spring Hill's Building and Codes review.

Deliverables:

- 75% in "in-progress" drawings.
- Building and Codes review meeting minutes

Task 2.6: 90-Percent Design

90-Percent design work will include incorporating 60-Percent review comments, cross discipline coordination's, constructability review, completed detailing, complete Spring Hills's standardized Division 0 and 1 specifications and updated list of technical specifications, EOR memo outlining any outstanding design-related issues and potential risks to PROJECT identified, memo response addressing 60-Percent review comments. 90-Percent OPCC (by CMAR) will be included in the submittal. If applicable, a summary of CONSULTANT's QA/QC review will be included with submittal.

After submitting the 90-Percent Design Documents, CONSULTANT will schedule and attend one review workshop. The intent of the workshop is to present the final design to Spring Hill before finalizing 100-Percent submittal documents. Substantial changes to design that may have an impact on project budget and schedule are not expected at this design stage. Any comments on the 90-Percent Design by Spring Hill will be incorporated into the 100-Percent Design. CONSULTANT will submit design documents to Spring Hill fifteen (15) business days prior to the review meeting, but no later than seven (7) business days prior to the review meeting.

Project Meetings:

- Review workshop on 90-Percent Design Submittal

Deliverables:

- Memo response to 60-Percent design review comments.
- Agenda for 90-Percent Review Meeting
 - Project Monitoring and Control update,
 - Assist CMAR with project schedule update,
 - Project update,
 - Design-related issues,
 - Open items and questions,
 - Unresolved items,
 - Action items,
 - Potential risks to project
- 90-Percent Design Documents (drawings and specifications) submittals
 - Electronically in .pdf format
- Assist CMAR with Class 2 90-Percent OPCC submitted in .pdf format.
- EOR memo outlining outstanding design-related issues and potential risks to project.
- Assist CMAR with updated CPM project schedule with 90-Percent Design Documents
- Summary of CONSULTANT's QA/QC review

Task 2.7: 100-Percent Design

100-Percent work will include incorporated 90-Percent comments, final cross discipline coordination, design calculations, drawings, details, specifications, bid documents, contract documents, basis of design update, project manuals or reports, copies of obtained permits, equipment data sheets for asset management, etc.

It is assumed that no review workshop will be held for the 100-Percent Design submittal.

Deliverables:

- 100-Percent Design Documents (drawings and specifications)
 - Electronically in .pdf format
 - Four (2) full-size (22"x34") hard copies of all drawings and documents.
- Updated basis of design submitted in .pdf format
- Three (3) hard copies of half-size (11"x19") drawings (not signed and sealed).

Task 2.8: Permitting

Historically, TDEC has allowed construction of pilots for investigating potable reuse under Rule 0400-40-06, which authorizes construction of non-discharging wastewater systems, which have been used to permit advanced pilot studies, even for potable reuse evaluation. It is expected that TDEC will allow construction of the PILOT under these existing provisions, as long as TDEC is kept abreast of project development. To that end, CONSULTANT will set up a meeting with TDEC at the preliminary design stage, where PROJECT details such as goals, influent and effluent water handling, waste stream management, treatment process overview, prospective sampling and monitoring plan for PILOT, and other pertinent details will be discussed. Following this meeting, CONSULTANT will conduct a meeting with TDEC at each design milestone to keep the regulators current on design decisions. A preliminary list of permitting items needed for construction is provided below. CONSULTANT will respond to a maximum of one (1) request for additional information (RAI) for each permit.

- Meeting with TDEC at each design milestone
- Applicable TDEC pilot permits,
- Stormwater management upgrades as required,
- Spring Hill Site and Building Permit (document covered under 2.5),
- Applicable facility permitting, operating permits, and/or permit modifications needed for the plant improvements

CONSULTANT will determine the application fees needed for each permit application and submit a check request to Spring Hill a minimum of four (4) weeks prior to Carollo submitting each permit submission for Spring Hill to pay the permit application fees. CONSULTANT will submit pdf versions of either a letter or memo requesting each check. Each check request will be on a separate letter/memo and indicate:

- Project name
- Spring Hill project number
- Spring Hill PO number
- Brief explanation/reason for the check
- Who to make the check out to and contact information (name, address, phone number)
- Amount of the check
- Any check delivery instructions (e.g., mail, direct payment, provide to CONSULTANT, etc)

CONSULTANT will attend preapplication meetings or meeting with applicable jurisdictional permitting agencies as the EOR determines in the best interest of the PROJECT permitting needs. CONSULTANT will provide meeting minutes for all meetings attended.

Project Meetings:

- Review workshop on TDEC potable reuse permitting of PILOT
- Meeting with TDEC and meeting minutes for each milestone
- Preapplication meetings for permitting

Deliverables:

- Agenda, PowerPoint presentation, and minutes for TDEC review meeting
- Meeting minutes for preapplication meetings attended
- Permit packages as applicable

Task 3 – Reservoir Operations Framework Development

In close coordination with CLIENT and TDEC, CONSULTANT will develop a framework that defines the **goals** of the reservoir in the PROJECT and the **operational requirements** that result from these goals. Once these are established, the number, configuration, and volume(s) of the reservoir storage will be determined. This study will occur during the pilot testing.

Task 3.1: Reservoir Goals Workshop

CONSULTANT will prepare for, schedule, and conduct one workshop with CLIENT and TDEC to define the goals of the reservoir in the PROJECT (Reservoir Goals Workshop). It is anticipated that the reservoir will need to meet multiple goals, which may include but are not necessarily limited to providing (1) **response retention time (RRT)** as part of the critical control point monitoring approach for the PROJECT, (2) **blending capacity** with surface water to meet current or future water quality goals, including for salinity, (3) **drinking water supply resilience** through minimum combined storage of advanced treated and surface waters, and/or (4) **recreational or aesthetic benefits**. CONSULTANT will provide meeting materials and issue meeting minutes that document the goals of the reservoir component of the PROJECT.

Task 3.2: Reservoir Operations Framework Development

CONSULTANT will then develop and propose a set of design and operational requirements (Reservoir Operations Framework) designed to meet the goals established in Task 3.1. These requirements may include but are not limited to (1) definition of permissible water sources (anticipated to comprise advanced treated water and surface water from the Duck River), (2) blend ratio limits between sources, if any, (3) total and individual reservoir capacity, (3) seasonal storage approaches, (4) drawdown limits for supply resilience during dry periods, (5) public access requirements and limits, if any, and (6) aesthetic requirements.

Task 3.3: Reservoir Operations Framework Workshop and TM

CONSULTANT will then prepare a draft Reservoir Operations Framework technical memorandum (TM), which summarize the work from Tasks 3.1 through 3.3 and submit to for CLIENT review and comment prior to informal submittal to TDEC.

CONSULTANT will prepare for, schedule, and conduct a second workshop with CLIENT and TDEC to present the proposed Reservoir Operations Framework (Reservoir Operations Framework Workshop). Feedback gathered from TDEC during this workshop will be incorporated into a Final Reservoir Operations Framework TM and submitted to CLIENT. If required for PROJECT regulatory approval, the Final Reservoir Operations Framework TM will also be submitted to TDEC.

Task 4 – CMAR Selection and Procurement

Spring Hill has elected to use the Construction Manager at Risk (CMAR) delivery method to deliver this PROJECT. The CMAR will be initially contracted to provide Pre-Construction Phase services, beginning during the 30% to 60% Design Phase. As part of this task, CONSULTANT will assist Spring Hill during the design phase with developing and issuing a solicitation to the public. CONSULTANT will prepare procurement documents and provide bidding services to include the following:

- Spring Hill uses standardized Division 0 and Division 1 specifications that includes the Engineers Joint Contract Documents Committee (EJCDC) front end specifications. Note that the EJCDC language does allow for awarding projects by parts. At Spring Hill's discretion, CONSULTANT may prepare separate bid packages of drawings and specifications, a single package of drawings and specifications, or a single package of drawings and specifications awarded by parts. CONSULTANT shall comply with all obligations of the Engineer of Record (EOR) obligations within the EJCDC documents. All technical specifications, drawings, contract documents, and project manuals shall not conflict with any existing Spring Hill's policies, specifications, standards, approved materials, and details.
- Preparation of procurement documents (bid documents, advertisement(s), addenda, drawings, details, contracts, specifications and requirements, etc.),
- CONSULTANT shall interpret plans and specifications, prepare and issue amendments and related drawings, coordinate and attend a pre-bid meeting(s), answer questions and requests for information, develop necessary addenda drawings and specifications, include at least three (3) addenda packages, attend the bid opening, review all received Bids (responsive, responsibility, verify references, material deficiency, conformance with solicitation requirements, etc.), provide a certified bid tabulation, provide recommendations for award with basis, attend Board meeting recommending award, and conform the contract documents as required by CONSULTANT during the period that Spring Hill issues a solicitation(s) to the public,
- Preparation of four (4) sets of conformed contract documents for each bid or part (conformed drawings, details, contracts, solicitation, addenda, specifications, geotechnical reports, and requirements, etc.),

Preparation of four (4) Issued for Construction (IFC) Documents per contract (drawings, details, contracts, addenda, specifications and requirements, etc.)

Task 4.1: CMAR Procurement

CONSULTANT will coordinate with Spring Hill to identify potential CMAR candidates and assist in generating interest and competition for the project. CONSULTANT will also support Spring Hill throughout the CMAR procurement process, including the following activities:

- Assisting with the development of the RFP for CMAR selection.

- Assist with the evaluation of the CMAR proposals and participation in the interview process.

Task 4.2: CMAR Pre-construction Services Contract

CONSULTANT will coordinate with Spring Hill to provide input and review of the CMAR Pre-Construction Phase contract. This subtask assumes an industry-standard CMAR contract with minor modifications.

CONSULTANT will coordinate with Spring Hill regarding development of the CMAR Construction Phase contract.

Deliverables:

- Draft CMAR Pre-Construction Phase Contract (Electronic format only).
- Final CMAR Pre-Construction Phase Contract (Electronic format – with comments)

Task 4.3: Cost Model and GMP Review

CONSULTANT will coordinate with the CMAR and Spring Hill to provide input and information on equipment and other major capital cost items throughout the design phase. Review and validate the initial cost model (post-30% design submittal), if available, and subsequent cost model updates (based on 60% and 90% design submittals) developed by the CMAR. Cost validation activities to be completed by the CONSULTANT will include:

- A review and verification of direct and indirect costs.
- Review CMAR fee and CMAR contingency.
- Review/audit supplier and subcontractor quotes and request supplemental quotes, as necessary.
- Compare costs with other applicable projects.
- Perform review of risk analysis model and/or cost contingencies developed by the CMAR.
- Provide a Cost Model Specification to include as part of CMAR contract for preparation of the CMAR's GMP.
- Assist CMAR in developing and progressively updating a detailed "open book" cost model based on current market conditions to confirm budgets and help guide design decisions.
- Review CMAR's guaranteed maximum price (GMP) for construction for Spring Hill's consideration.
- Develop Total Project Cost Estimate using GMP and including Spring Hill's, engineering, and construction administration and inspection costs.

Indirect costs included in the CMAR cost model will include applicable general conditions and general requirements, bonds, insurance, and sales tax.

Using the cost models and GMP(s) as the basis for the total construction costs, CONSULTAT will coordinate with Spring Hill regarding additional Spring Hill administrative costs, engineering fees, construction administration and inspection fees, and (if applicable) Spring Hill contingency to develop the Total Project Cost Estimate.

Assuming Spring Hill's acceptance of the GMP, the CMAR will then provide services required of a general contractor, including self-performance and subcontractor procurement and management, during subsequent construction, start up, testing and all other post-construction activities for the Project.

The relationship between the CMAR and CONSULTANT is intended to be collaborative, with both participating as advisors to Spring Hill during the Pre-Construction Phase [Design Phase]. It is Spring Hill's desire to incorporate a contractor's perspective and input to the project design decisions and, if desired and feasible, to leverage the ability for early procurement and phased construction prior to full completion of design.

Deliverables:

- Cost Model Specification for CMAR's GMP development
- Written recommendation(s) to Spring Hill regarding opinion of GMP(s) acceptance (Electronic format only)
- Total Project Cost Estimate based on CMAR GMP

Task 4.4: CMAR and Early Procurement Activities

If necessary, CONSULTANT will coordinate with the CMAR and Spring Hill to develop an early-release equipment and materials procurement plan, including identification of items to be selected and/or procured early based on "best value" or low-bid strategies, and define the parameters associated with "best value" selection as applicable. Those items selected for early procurement will also identify the acceptable manufacturers and associated Bid Documents requirements.

During the early procurement process, CONSULTANT will:

- review and provide recommendations for applicable Spring Hill front-end documents and Carollo's Division 1 specifications.
- Coordinate with CMAR and Spring Hill to develop packages with the applicable front-end documents (Division 0 and 1), technical specifications (Divisions 2 through 17, inclusive), and supporting design drawings for early procurement of any long-lead equipment items with specific acceptable manufacturers.
- Coordinate with CMAR as part of the bidding process and prepare necessary addenda.
- Assist Spring Hill and CMAR with the review of the supplier proposals and bid packages and the subsequent selection process.

It is assumed that the CMAR shall be responsible for the following:

- Packaging of front-end documents, technical specifications and applicable design drawings developed by Carollo.
- Submittal of packages to applicable manufacturers and/or vendors.
- Coordination of vendor proposals.
- Pre-selection of equipment and appurtenances (with Spring Hill and Carollo input)
- Delivery of detailed design criteria and documents of selected equipment to Carollo for further use and incorporation into detailed design documents.
- Coordination of delivery, storage, and payment of procured items accordingly.

Deliverables:

- Early-release equipment and materials procurement plan(Electronic format only).
- Review Spring Hill's front end documents for CMAR delivery. (Assumes Spring Hill has standard Div 0 and Div 1 specifications) .

Task 4.5: General CMAR Coordination

In addition to the tasks above, general coordination with CMAR to be conducted by the CONSULTANT during the pre-construction phase [Design Phase] will include, but not necessarily be limited to:

- Soliciting input from CMAR during design development as appropriate.
- Up to 2 additional special topics meetings

NOTE: Should the Spring Hill be unable or unwilling to accept the CMAR's GMP and instead decide to procure and deliver the Project using a traditional "design-bid-build" delivery method, subsequent modifications to the front-end documents, technical specifications, and associated design drawings specifically applicable to the CMAR delivery method will be provided under Supplemental Services, if desired by Spring Hill.

In addition, additional services for bidding, including preparation of Bid Document sets, participation in a pre-bid conference, responding to Bidder questions, preparing applicable addenda, attendance at the Bid opening, assistance in evaluation of Bids, and participation in a pre-construction conference with the selected General Contractor will also be provided under Supplemental Services, if desired by Spring Hill.

Task 5 – Construction Phase Services

This phase consists of services performed by CONSULTANT during the construction phase of the project.

Task 5.1: Project Management, Construction Meetings, Site Visits

CONSULTANT shall manage all aspects of the construction phase services, including coordination with the Owner, and CMAR/contractor, internal team oversight, schedule tracking, quality

control, and documentation to ensure that services are delivered efficiently and in alignment with project goals over the 18-month construction phase of the project.

The CONSULTANT will also attend and actively participate in key project meetings throughout the construction duration. These include the pre-construction meeting and monthly construction progress meetings that are coordinated to align with key construction milestones, including the substantial completion meeting. A final site meeting will be conducted to verify final completion.

As part of its responsibilities, the CONSULTANT will prepare and distribute detailed meeting minutes for the monthly construction progress meetings. These updates will reflect current construction status, resolution of outstanding issues, coordination items, and other relevant developments.

The CONSULTANT will also conduct site visits monthly as part of the monthly construction progress meeting to observe the progress and quality of work, verify that the CMAR/contractor's activities align with the technical requirements of the contract documents, and witness key construction operations. During these visits, the CONSULTANT will document any observed deviations from the design or non-conforming work and report such findings to the Spring Hill project manager. These visits will also support tracking of stored materials and equipment, contractor and subcontractor activities, and the general rate of construction progress.

Observations during the site visits will focus on quality assurance, including material certifications, workmanship, compliance with erosion and sedimentation control plans, and adherence to applicable federal, state, and local regulations. The CONSULTANT will also verify that the project remains in conformance with the approved construction schedule and report any apparent delays or concerns to Spring Hill. The CONSULTANT will witness required testing and log all results as part of ongoing quality control documentation. Final inspections will be conducted to develop punch lists and confirm readiness for project close-out.

Project Meetings:

- Monthly site visits (to coincide with Construction Progress Meetings and Substantial Completion Meeting)
- Final Completion Inspection Site Visit

Deliverables:

- Meeting Minutes

Task 5.2: Subconsultant Coordination and Management

CONSULTANT shall coordinate with all engaged subconsultants to support construction phase services, including review of submittals, RFIs, and field issues. The CONSULTANT will track deliverables, manage subconsultant scope and budget, and integrate their input into project documentation.

Task 5.3: Shop Drawing Review and RFIs

During the construction phase, the CONSULTANT will review all CMAR contractor-submitted shop drawings, product samples, operation and maintenance manuals, test results, and submittals for conformance with the design intent and the requirements outlined in the contract documents. This includes maintaining and updating a comprehensive submittal log. Each submittal will be reviewed for consistency with the design concept and compliance with project specifications.

The CONSULTANT will also be responsible for responding to CMAR contractor Requests for Information (RFIs)—typically between 15 to 20 over the course of the project but assumed to be approximately 1/3 of this for a CMAR,—by providing timely and accurate technical interpretations of the contract documents. In addition to standard RFIs, the CONSULTANT will review and respond to requests for deviations from the approved design or specifications, which are anticipated to occur 5 to 10 times throughout the project. All RFIs, shop drawings, and submittals—as well as field orders, change orders, and related responses—will be tracked and logged systematically to ensure efficient coordination and documentation.

Deliverables:

- Complete shop drawing submittal log
- Complete RFI log.

Task 5.4: Field Change Directive and Change Order Reviews

The CONSULTANT will review and verify CMAR contractor-submitted change orders and prepare design-related change orders as needed. CMAR will be responsible for developing detailed cost estimates to support the evaluation of proposed changes and determining entitlement based on contract terms. The CONSULTANT will also issue field orders and provide design clarifications in response to conditions encountered during construction or CMAR/contractor inquiries.

Technical interpretation of the drawings, specifications, and contract documents will be provided when a Change Order Request (COR) is submitted, with an anticipated volume of 1 to 2 CORs throughout the project. The CONSULTANT will work to resolve any design errors that emerge during construction and assist with coordinating owner direct purchases when appropriate to achieve tax savings. These efforts will help ensure that any changes are appropriately documented, justified, and incorporated into the project without compromising schedule or quality.

Task 5.5: Pilot Startup Services

CONSULTANT will be responsible for PILOT start-up services which are assumed to occur over a period of four (4) weeks. During this time, CONSULTANT (2 persons, full time, with additional staff part time for assistance with sampling and collection) will be on-site every day for a minimum of 8 hours to work with SEM representatives, CMAR/contractor, and selected CMAR contractor subconsultants to bring each process online, check for interconnecting piping issues, troubleshoot operational issues, setup ancillary areas (e.g.: wet lab), stress-test each process for reliable operation, finish out any pending items with SEM representatives, and update Spring Hill with any unforeseen circumstances.

During startup, once major components are functional, water quality samples will be collected on the PILOT influent and effluent for regulated drinking water contaminants and pathogens to determine expected treatment is achieved. It is assumed that all sampling and lab fee costs will be paid by Spring Hill. Results of this sampling effort may be received after completion of the startup services. Any unexpected results are expected to be resolved during the next phase of the PILOT (operations). CONSULTANT will also meet with Spring Hill operations staff on a weekly basis (or as needed) to provide updates on the new facility. CONSULTANT will maintain an updated log of issues that arise, and resolutions provided, and this log will be submitted in a report to Spring Hill at the end of this task. Water quality results will be summarized in an appendix to the Startup Report. CONSULTANT will begin developing written operating protocols and standard operating procedures for PILOT.

Project Meetings:

- Weekly web/phone-based meeting with Spring Hill (up to 4)
- Weekly on-site meetings with Spring Hill operations staff (up to 4 if needed)

Deliverables:

- Startup Report
 - Appendix with water quality tables

Task 5.6: Review Monthly Progress Payments

CONSULTANT shall review CMAR's monthly pay applications for accuracy and compliance with work completed. Recommendations for payment will be provided to the Owner, supported by review of quantities, stored materials, and general progress.

Task 5.7: O&M Manual (Manufacturers)

CONSULTANT shall review draft electronic Operation and Maintenance (O&M) manuals submitted by manufacturers for completeness and compliance with contract requirements. Comments will be provided to ensure documents are suitable for long-term use by facility staff.

Task 5.8: Record Drawings / Documents Review

At project completion, the CONSULTANT will review the CMAR's As-Built drawings and final operation and maintenance manuals, provide any necessary close-out certifications, and deliver one signed and sealed copy of the Record Drawings, along with an electronic version. Additionally, the CONSULTANT will furnish Spring Hill with organized documentation of all construction-phase services, including meeting notes, site visit reports, logs, photos, test results, and technical recommendations. These files area intended to be stored during the project on a Sharepoint or MS Teams site for all project members to have access and will be transferred via File Transfer Protocol (FTP) at the conclusion of the project.

Project Meetings:

- Final Completion Inspection Site Visit

Deliverables:

- One (1) signed and sealed copy of Record Drawings and one copy submitted electronically.
- Project Documentation

Task 5.9: Post-Construction Permitting Documents

As part of post-construction services, the CONSULTANT will assist CMAR in preparing and submitting all required post-construction permitting documents to ensure proper project closeout and regulatory compliance. This includes addressing any outstanding permit conditions, submitting final documentation to the appropriate regulatory agencies, and facilitating the closure of any open permits associated with the project. The CONSULTANT will coordinate with Spring Hill and the CMAR to collect necessary information, such as final inspection reports, test results, and as-built drawings, and will verify that all permit requirements have been fulfilled. This effort ensures that the project is officially closed out in accordance with federal, state, and local regulations, and that all permitting obligations are satisfied in a timely and accurate manner.

Project Meetings:

- Punch List review and site walk
- Final documents review meeting

Deliverables:

- Compiled Electronic O&M manuals

Task 5.10: RPR / Inspection Services – Not included

~~CONSULTANT shall provide Resident Project Representative (RPR) or part-time inspection services to observe construction activities for general compliance with the contract documents. Observations, daily reports, and coordination with the Owner and contractor will be documented and shared as appropriate.~~

Task 6 – Pilot System Operation and Testing

Task 6.1: Project Management

CONSULTANT shall provide overall project management services, including scheduling, internal coordination, quality control, budget tracking, and communication with the Owner during the 13-month pilot phase. This task ensures the timely delivery of quality work products in accordance with the scope, schedule, and fee.

Task 6.2: Pilot Operation and Operations Assistance

Over the course of pilot operation and testing, the CONSULTANT will operate the pilot system and provide Spring Hill's staff and/or operators with continuous technical support and assistance

to ensure that all pilot testing objectives outlined in the Test Plan are achieved. The CONSULTANT will conduct site visits to the pilot system according to the following schedule:

- Quarter 1, Carollo staff will operate the pilot full-time (assume 1 person, full-time supplemented with additional staff at 1 to 2 days per week for sampling);
- Quarter 2, Carollo staff will operate the pilot 75% of the time, with Spring Hill operators performing visits on days when Carollo staff is not on site—Carollo is expected to be on-site 3 to 4 days per week during this phase;
- Quarter 3, Carollo will operate the pilot 50% of the time (approximately 2 to 3 days per week), while Spring Hill operators will cover the remaining time;
- Quarter 4, Carollo staff will reduce their presence to 25% (about 1 day per week), with Spring Hill operators managing day-to-day operations for the remainder of the time.

The CONSULTANT will also respond to pilot system failures or shutdowns and assist Spring Hill staff with troubleshooting efforts to maintain continuous pilot operation. In support of daily monitoring, the CONSULTANT will develop daily data log sheets to be used by both Carollo and Spring Hill operators during daily pilot checks. Additionally, the CONSULTANT will create a data tracking and manipulation tool utilizing Microsoft Azure resources and will report daily performance trends via a Power BI dashboard.

Task 6.3: Water Quality Sampling for Regulatory Compliance

The CONSULTANT will perform water quality sampling at the pilot facility in accordance with the sampling matrix outlined in the Test Plan, which includes a detailed list of contaminants, sampling locations, and sampling frequency. This sampling is intended to assess PILOT performance and demonstrate compliance with applicable regulatory requirements. The CONSULTANT will coordinate with an external analytical laboratory service to obtain necessary sampling supplies and ensure that collected samples are returned to the laboratory each month for analysis. Upon receiving the analytical results, the CONSULTANT will consolidate the data into a spreadsheet that summarizes the water quality sampling outcomes. It is assumed that all sampling and lab fee costs will be paid by Spring Hill.

Task 6.4: Routine Reporting

CONSULTANT will develop three quarterly progress meeting slide decks using Microsoft PowerPoint, each summarizing the pilot testing progress and key findings for the respective quarters. These presentations will include simple graphs and tables to clearly communicate trends, results, and observations. In addition to the slide decks, the CONSULTANT will host a review meeting with Spring Hill to discuss key findings for each quarter. All PowerPoint files will be submitted to Spring Hill for review and record-keeping purposes.

Task 6.5: Salinity Pilot and Report

CONSULTANT shall develop a detailed salinity pilot test plan scope for testing the treatment process after the conclusion of the year-long pilot. This scope will be submitted to TDEC for approval before testing begins. The pilot will then operate for the TDEC-specified time period (assume 1 month) to validate that increased salinity levels do not impact the treatment process.

This item includes the development of the salinity pilot test plan and assistance with establishing the operation of the salinity pilot (assume 1 week, full-time). It is assumed that all sampling and lab fee costs will be paid by Spring Hill.

CONSULTANT shall develop a salinity pilot report and slide decks using Microsoft Word / PowerPoint, summarizing the salinity pilot testing progress and key findings. These presentations will include simple graphs and tables to clearly communicate results and observations for the purpose of demonstrating salinity's negligible impact on treatment. In addition to the slide deck, the CONSULTANT will host a review meeting with TDEC to discuss key findings

Project Meetings:

- Quarterly progress meeting x 3
- Salinity meeting

Deliverables:

- Review meeting agenda, slides, and meeting minutes.
- Salinity report
-

Task 7 – Operator Training, Final Report, and Closing

Task 7.1: Operator SOPs and Training

CONSULTANT will develop concise written standard operating protocols (SOPs) specifically tailored for the pilot system to support Spring Hill staff during day-to-day operation. These SOPs will serve as a practical reference for operators, covering key procedures such as system startup and shutdown, routine maintenance, safety precautions, troubleshooting, and data recording.

In addition to providing these written materials, the CONSULTANT will conduct up to two hands-on training sessions for Spring Hill staff and operators. These sessions will focus on the operation of advanced treatment processes. The training will be designed to build operator confidence and technical competence during on-site demonstrations. Time will also be allotted for interactive Q&A and guided walkthroughs to ensure operators are well-prepared to manage the pilot system independently over time. It is intended that these training sessions will occur at the conclusion of Phase 1, when plant staff become more involved in the operation of the pilot, and at the conclusion of Phase 3, when the Pilot will be mostly operated by Spring Hill staff.

Project Meetings:

- Training meeting at the conclusion of Phase 1
- Training meeting at the conclusion of Phase 3

Deliverables:

- Training PowerPoint and SOPs x2

Task 7.2: Final Reporting

The CONSULTANT will develop a comprehensive pilot test report that documents the pilot testing activities, testing results, conclusions, and recommendations. A draft version of the report will be submitted to Spring Hill for review and comment within four weeks of receiving all water quality sampling data from the external laboratories. Following submission, the CONSULTANT will schedule and attend a workshop with Spring Hill staff to review the contents of the draft report and discuss key findings. The final version of the pilot test report will be completed within two weeks of receiving review comments from Spring Hill.

Project Meetings:

- Final reporting documents review meeting

Deliverables:

- Final Report with all data.

II. PAYMENT FOR SERVICES

The total estimated time and materials (T&M) not to exceed fee for the PROJECT is \$1,804,895 as summarized in Section III below. A detailed fee breakdown is included in Exhibit C. Services will be billed monthly by CONSULTANT on a T&M basis with a total contract not to exceed amount.

TASK ORDER NO. 1
CITY OF SPRING HILL
AND CAROLLO ENGINEERS, INC

EXHIBIT B
SCHEDULE

TASK ORDER NO. 1
CITY OF SPRING HILL
AND CAROLLO ENGINEERS, INC

EXHIBIT C
FEE AND STANDARD HOURLY RATES



CLIENT: Spring Hill
PROJECT NAME: Advanced Purification Pilot WBS

DATE: 9/9/2025

Version: V4

PREPARED BY: Carollo Engineers, Inc.

Task No.	Description of Task	Task Summary	
		Task Hours	Task Fee
1.0	Project Management (Design)		
1.1	Project Management & Communication	44	\$ 11,744
1.2	Subconsultant Coordination and Management	18	\$ 4,410
1.3	Project Kickoff Meeting	78	\$ 20,190
1.4	Monthly Progress Reports (Assumes 9 month design)	18	\$ 4,860
1.5	Monthly Progress Meetings (Assumes 9 month design)	81	\$ 19,665
1.6	Quality Control and Quality Assurance	22	\$ 5,436
	TASK SUBTOTAL	261	\$ 66,305
2.0	Design Services		
2.1	Survey	2	\$ 440
2.2	Preliminary Design	0	\$ -
2.2.1	Geotechnical Investigations	0	\$ -
2.2.2	Environmental Investigations	0	\$ -
2.2.3	Prelim - General	17	\$ 3,932
2.2.4	Prelim - Civil	0	\$ -
2.2.5	Prelim - Architectural	1	\$ -
2.2.6	Prelim - Structural	0	\$ -
2.2.7	Prelim - Process	78	\$ 17,970
2.2.8	Prelim - Mechanical	14	\$ 2,960
2.2.9	Prelim - Electrical	1	\$ 290
2.2.10	Prelim - Instrumentation & Control	14	\$ 3,860
2.2.11	Basis of Design Report and Cost Estimate	54	\$ 11,370
2.3	30% Design	0	\$ -
2.3.1	30% - General + Cost Estimate updates	48	\$ 9,580
2.3.2	30% - Civil	4	\$ 1,080
2.3.3	30% - Architectural	4	\$ -
2.3.4	30% - Structural	4	\$ 1,080
2.3.5	30% - Process	144	\$ 29,260
2.3.6	30% - Mechanical	57	\$ 10,750
2.3.7	30% - Electrical	4	\$ 1,160
2.3.8	30% - Instrumentation & Control	72	\$ 14,480
2.4	60% Design	0	\$ -
2.4.1	60% - General + Cost Estimate updates	62	\$ 12,040
2.4.2	60% - Civil	2	\$ 540
2.4.3	60% - Architectural	2	\$ -
2.4.4	60% - Structural	2	\$ 540
2.4.5	60% - Process	149	\$ 31,610
2.4.6	60% - Mechanical	56	\$ 10,880
2.4.7	60% - Electrical	2	\$ 580
2.4.8	60% - Instrumentation & Control	72	\$ 14,480
2.5	75% Design Submittal for Building Permit Review	0	\$ -
2.5.1	75% - General + Review meeting	12	\$ 2,505
2.5.2	75% - Civil	0	\$ -
2.5.3	75% - Architectural	0	\$ -
2.5.4	75% - Structural	0	\$ -
2.5.5	75% - Process	6	\$ 900
2.5.6	75% - Mechanical	3	\$ 600
2.5.7	75% - Electrical	0	\$ -
2.5.8	75% - Instrumentation & Control	2	\$ 380
2.6	90% Design	0	\$ -
2.6.1	90% - General + Cost Estimate updates	48	\$ 9,920
2.6.2	90% - Civil	2	\$ 540
2.6.3	90% - Architectural	2	\$ -
2.6.4	90% - Structural	2	\$ 540
2.6.5	90% - Process	90	\$ 17,320
2.6.6	90% - Mechanical	40	\$ 8,050
2.6.7	90% - Electrical	2	\$ 580
2.6.8	90% - Instrumentation & Control	64	\$ 12,320
2.7	100% Design	0	\$ -
2.7.1	100% - General + Cost Estimate updates	16	\$ 3,280
2.7.2	100% - Civil	1	\$ 270

2.7.3	100% - Architectural	1	\$	-
2.7.4	100% - Structural	1	\$	270
2.7.5	100% - Process	89	\$	19,130
2.7.6	100% - Mechanical	18	\$	3,600
2.7.7	100% - Electrical	1	\$	290
2.7.8	100% - Instrumentation & Control	54	\$	10,900
2.8	Permitting (Assumes meeting at each milestone with TDEC (4))	95	\$	23,630
TASK SUBTOTAL		1414	\$	293,907
3.0	Reservoir Planning and Operations (Concurrent with design)			
3.1	Reservoir Configuration Initial Evaluations (Reservoir Workshop)	73	\$	19,918
3.2	Reservoir Operations Framework Development	68	\$	19,780
3.3	Reservoir Operations TM	180	\$	42,196
TASK SUBTOTAL		321	\$	81,894
4.0	CMAR Selection & Procurement			
4.1	CMAR Procurement	150	\$	38,980
4.2	CMAR Pre-construction Services Contract	24	\$	5,860
4.3	Cost Model and GMP Review	36	\$	9,380
4.4	CMAR and Early Procurement Activities	122	\$	32,024
4.5	General CMAR Coordination	32	\$	9,120
TASK SUBTOTAL		364	\$	95,364
5.0	Construction Phase Services + Startup Month			
5.1	Project Management, Meetings, Site Visits (18 months)	214	\$	54,280
5.2	Subconsultant Coordination and Management	18	\$	4,860
5.3	Shop Drawing Review and RFIs	42	\$	9,580
5.4	Field Change Directive and Change Order Reviews	52	\$	11,880
5.5	Startup (assume 1 month)	758	\$	156,920
5.6	Review Monthly Progress Payments	45	\$	8,190
5.7	O&M Manual (Manufacturers)	68	\$	13,320
5.8	Records Drawing/Documents Review	44	\$	9,120
5.9	Post-Construction Permitting Documents	32	\$	6,712
5.10	RPR / Inspection Services	0	\$	-
TASK SUBTOTAL		1273	\$	274,862
6.0	Operations Assistance			
6.1	Project Management and Reporting (assume 13 months)	54	\$	14,660
6.2	Operations Assistance and Sampling	0	\$	-
6.2.1	Phase 1 (100% Carollo) - Assume 3 months	802	\$	157,700
6.2.2	Phase 2 (75% Carollo) - Assume 3 months	552	\$	102,720
6.2.3	Phase 3 (50% Carollo) - Assume 3 months	348	\$	60,240
6.2.4	Phase 4 (20% Carollo) - Assume 3 months	144	\$	26,280
6.3	Routine Reporting	48	\$	10,935
6.4	Salinity Pilot	281	\$	62,260
6.5	Salinity Reporting	42	\$	8,910
TASK SUBTOTAL		2271	\$	443,705
7.0	Operator Training, Final Reports, Closeout			
7.1	Project Management (assume 1 months)	9	\$	2,155
7.2	Operator Training	128	\$	24,690
7.3	Final Reporting	104	\$	22,040
TASK SUBTOTAL		241	\$	48,885

Engineering Services			
Engineering Services Labor Hours Subtotal		4,508	
Engineering Services Estimated Fee			\$934,696

Bidding Services			
Bidding Services Subtotal		364	
Estimated Bidding Services Fee			\$95,364

Construction Phase Services			
Construction Phase Services Subtotal		1,273	
Estimated Construction Phase Services Fee			\$274,862

TOTAL PROJECT LABOR & FEE			
Total Project Labor Hours		6,145	
Total Project Fee			\$1,304,922

SUBCONSULTANTS	Average Hourly Rate	Estimated Hours	Estimated Fee
Civil - Thomas & Hutton			\$93,500
General Consulting (meetings, design review)			\$8,000
Civil Site Design			\$45,000
Bidding Assistance			\$6,000
Construction Admin Assistance (18 months)			\$18,500
Closeout			\$2,000
Pilot Study General Consulting (12 months)			\$14,000
Geotech/Structural/Architectural - Cornerstone Engineering, Inc			\$168,475
Design - Geotechnical			\$13,500
Design - Architectural			\$54,414
Design - Structural			\$25,401
Design - Project Management			\$24,337
Bid Phase Services (Arch, Structural, Geo)			\$5,707
Construction Phase Services			\$30,531
Closeout			\$5,000
Special Inspection and Materials Testing			\$9,585
Survey - T&H or Southern Precision			\$2,400
Survey	\$150	16	\$2,400
			\$0
			\$0
Electrical - IC Thomasson			\$90,000
Electrical			\$90,000
Subconsultant Cost Before Markup			\$354,375
Subconsultant Markup		10%	\$35,438
Subconsultants Total Fee			\$389,813

Total Engineering Fee	\$	1,304,922	
Total Subconsultant Fee	\$	389,813	
Travel Expenses and ODCs	\$	69,660	
Software and Testing - Water ARC	\$	40,000	
Printing	\$	500	
Total Estimated "Not to Exceed" Project Fee:		\$1,804,894.90	

TOTAL PROJECT FEE	\$	1,804,895
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Carollo Engineers, Inc.
RATE SCHEDULE

CLASSIFICATION	HOURLY RATE
Assistant Professional/Engineer I	\$160.00
Assistant Professional/Engineer II	\$185.00
Professional/Engineer I	\$208.00
Professional/Engineer II	\$235.00
Project Professional/Engineer I	\$255.00
Project Professional/Engineer II	\$270.00
Lead Project Professional/Engineer	\$290.00
Senior Professional/Engineer	\$310.00
Principal Professional/Engineer	\$340.00
Technician I	\$105.00
Technician II	\$115.00
Technician III	\$120.00
Technician IV	\$130.00
Senior Technician I	\$145.00
Senior Technician II	\$165.00
Senior Technician III	\$190.00
Senior Technician IV	\$220.00
Document Processing/Clerical	\$140.00

NOTES:

1. Sub-consultants will be billed at 1.10 of cost. Reimbursables will be billed at cost.
2. The above rates are valid through **December 31, 2026** and subject to annual review based on regional CPI-U.

TASK ORDER NO. 1
CITY OF SPRING HILL
AND CAROLLO ENGINEERS, INC

EXHIBIT D
AGREEMENT

AGREEMENT FOR PROFESSIONAL SERVICES

Project No. TBD

This AGREEMENT made and entered into this 25th day of September, 2025 by and between the City of Spring Hill, (hereinafter "OWNER"), and Carollo Engineers, Inc., (hereinafter "ENGINEER").

WITNESSETH:

WHEREAS, the OWNER and the ENGINEER wish to enter into an Agreement (hereinafter "Agreement") for the furnishing of Engineering Services in connection with the Replacement of Aging Belt Presses with Centrifuge Dewater System Project (hereinafter "Project"), and

WHEREAS, ENGINEER is qualified and prepared to perform the necessary professional services in connection with the Project.

NOW THEREFORE, in consideration of the mutual promises and covenants of the parties hereto, it is agreed as follows:

SECTION 1 - PROFESSIONAL SERVICES

- 1.1 ENGINEER shall provide professional engineering services in all phases of the Project to which this Agreement applies. The services furnished by the ENGINEER will be defined by Task Orders which will set forth the Engineer's Services, Time of Performance, and Payment.
- 1.2 It is intended that each Task Order, after execution by both parties shall become a supplement to and a part of this Agreement.

SECTION 2 - PAYMENT TO ENGINEER

- 2.1 As consideration for providing the services referred to in Section 1, the OWNER shall pay ENGINEER on the basis to be established in the Task Order for Services.
- 2.2 The ENGINEER is not responsible for damage or delay in performance caused by events beyond the reasonable control of ENGINEER. In the event ENGINEER's services are suspended, delayed or interrupted for the convenience of the OWNER or delays occur beyond the reasonable control of ENGINEER, an

equitable adjustment in ENGINEER's time of performance and cost of ENGINEER's personnel and subcontractors shall be made.

- 2.3 OWNER reserves the right to direct revision of ENGINEER's services as may be necessary. When ENGINEER is directed to make revisions under this section of the Agreement, ENGINEER shall advise OWNER of the probable costs involved in completing engineering services and the time of performance for such completion. Extra services also include those that are required for defense of claims, in which event ENGINEER shall bill OWNER on an hourly basis together with cost of material.
- 2.4 In the event OWNER and ENGINEER cannot agree on equitable compensation for services rendered in making revisions, then, at OWNER's option, ENGINEER shall either continue performance under the revised Agreement and an equitable adjustment in ENGINEER's time of performance and cost of ENGINEER's personnel shall be made at completion of the revised work or ENGINEER shall not be obligated to continue performance under this Agreement.

- 2.5 If ENGINEER's work products require revisions prior to construction bidding due to ENGINEER's errors or omissions, the exclusive remedy will be limited to revisions made by ENGINEER without compensation.
- 2.6 The ENGINEER shall bill the OWNER monthly indicating the services performed and the cost of such services.

OWNER agrees to pay invoices within 45 days of their date. Payments not received by ENGINEER within 45 days shall be considered delinquent and subject to a finance charge of 1 percent per month for each month unpaid after the date of invoice. ENGINEER may suspend services should an invoice remain delinquent for 75 days from date of invoice.

- 2.7 All notices shall be made in writing and may be given by personal delivery or by mail. Notices sent by mail shall be addressed to the designated responsible person or office:

TO OWNER:

City of Spring Hill
 199 Town Center Parkway
 Spring Hill, TN 37174

TO ENGINEER:

Carollo Engineers, Inc.
 3100 West End Avenue, Suite 850
 Nashville, TN 37203

and when so addressed, shall be deemed given upon deposit in the United States Mail, postage prepaid. In all other instances, notices and invoices shall be deemed given at the time of actual delivery.

All payments are to be mailed to:

Carollo Engineers, Inc.
 P.O. Box 30835
 Salt Lake City, UT 84130-0835

unless otherwise informed on the face of the invoice.

SECTION 3 - MISCELLANEOUS

- 3.1 The OWNER shall furnish the ENGINEER available studies, reports and other data pertinent to ENGINEER's services; obtain or authorize ENGINEER to obtain or provide additional reports and data as required; furnish to ENGINEER services of others required for the performance of ENGINEER's services hereunder, and ENGINEER shall be entitled to use and reasonably rely upon all such information and services provided by OWNER or others in performing ENGINEER's services under this Agreement.
- 3.2 The OWNER shall arrange for access to and make all provisions for ENGINEER to enter upon public and private property as required for ENGINEER to perform services hereunder.
- 3.3 Documents, including drawings and specifications, prepared by ENGINEER pursuant to this Agreement are not intended or represented to be suitable for reuse by OWNER or others for this Project or on any other project. Any reuse of completed documents or use of partially completed documents without written verification or concurrence by ENGINEER for the specific purpose intended will be at OWNER's sole risk and without liability or legal exposure to ENGINEER; and OWNER shall indemnify and hold harmless ENGINEER from all claims, damages, losses and expenses, including attorney's fees arising out of or resulting therefrom.
- 3.4 The ENGINEER maintains, at its own expense, Workers' Compensation and Employer's Liability, Comprehensive General Liability, Automobile Liability and Professional Liability policies with limits at or above that which is reasonably required of other engineering firms and will, upon

request, furnish insurance certificates to OWNER.

SECTION 4 - LEGAL RELATIONS

- 4.1 The ENGINEER shall be responsible for professional negligence, which is failure to exercise skill and ability as ordinarily required of engineers under the same or similar circumstances. The ENGINEER shall not be responsible for warranties, guarantees, fitness for a particular purpose, breach of fiduciary duty, loss of anticipated profits or for economic, incidental, liquidated, or consequential damages to the OWNER or any third party and shall only indemnify for failure to perform in accordance with the generally accepted engineering and consulting standards. Additionally, ENGINEER shall not be responsible for acts and decisions of third parties, including governmental agencies, other than ENGINEER's subconsultants, that impact project completion and/or success.
- 4.2 ENGINEER agrees to indemnify and hold harmless the OWNER and its directors, officers and employees from and against claims, loss, liability and damages, to which they or any of them may be put or subjected to, to the extent caused by the ENGINEER's negligent acts, errors, or omissions in the performance of this Agreement. Notwithstanding the foregoing, for any claim alleging ENGINEER's negligent performance of professional services, ENGINEER's obligations regarding OWNER's defense under this paragraph include only the reimbursement of OWNER's reasonable defense costs incurred to the extent of ENGINEER's judicially determined negligence.
- 4.3 Hazardous materials or asbestos may exist at a site where there is no reason to believe they could or should be present. The ENGINEER and OWNER agree that the discovery of unanticipated hazardous

materials or asbestos constitutes a changed condition mandating a renegotiation of ENGINEER's services.

- 4.4 In providing opinions of cost, financial analyses, economic feasibility projections, schedules, and quantity and/or quality estimates for potential projects, ENGINEER has no control over cost or price of labor and material; unknown or latent conditions of existing equipment or structures that may affect operation and maintenance costs; competitive bidding procedures and market conditions; time or quality of performance of third parties; quality, type, management, or direction of operating personnel; the incoming water quality and/or quantity; the way OWNER's plant(s) and/or associated processes are operated and/or maintained; and other economic and operational factors that may materially affect the ultimate project elements, including, but not limited to, cost or schedule. Therefore, ENGINEER makes no warranty that OWNER's actual project costs, financial aspects, economic feasibility, schedules, and/or quantities or quality realized will not vary from ENGINEER's opinions, analyses, projections, or estimates.
- 4.5 If the project involves construction of any kind, the parties agree that OWNER and ENGINEER shall be indemnified to the fullest extent permitted by law for all claims, damages, losses and expense including attorney's fees arising out of or resulting from Contractor's performance of work including injury to any worker on the job site except for the sole negligence of OWNER or ENGINEER. Both OWNER and ENGINEER shall be named as additional primary insured(s) by Contractor's General Liability and Builders All Risk insurance policies without offset and all Construction Documents and insurance certificates shall include wording acceptable to the parties herein with reference to such provisions.

4.6 ENGINEER shall not be responsible for the means, methods, techniques, sequences, or procedures of construction selected by contractors or the safety precautions and programs incident to the work of contractors and will not be responsible for Contractor's failure to carry out work in accordance with the Contract Documents.

4.7 The services to be performed by ENGINEER are intended solely for the benefit of the OWNER. No person or entity not a signatory to this Agreement shall be entitled to rely on the ENGINEER's performance of its services hereunder, and no right to assert a claim against the ENGINEER by assignment of indemnity rights or otherwise shall accrue to a third party as a result of this Agreement or the performance of the ENGINEER's services hereunder.

4.8 The ENGINEER's instruments of service hereunder are the printed hard copy drawings and specifications issued for the Project, whereas electronic media, including CADD files, are tools for their preparation. As a convenience to the OWNER, the ENGINEER shall furnish to the OWNER both printed hard copies and electronic media. In the event of a conflict in their content, the printed hard copies shall take precedence over the electronic media.

Because data stored in electronic media form can be altered, inadvertently, it is agreed that the OWNER shall hold ENGINEER harmless from liability arising out of changes or modifications to ENGINEER's data in electronic media form in the OWNER's possession or released to others by the OWNER.

SECTION 5 - TERMINATION OF AGREEMENT

5.1 If this Agreement is terminated with or without cause, in either event, OWNER shall provide:

- a. not less than five (5) working days' written notice of intent to terminate, and
- b. an opportunity for good faith consultation prior to termination.

SECTION 6 - DISPUTE RESOLUTION

6.1 Disputes arising during the course of this Agreement shall be promptly addressed at completion of construction when professional services, together with construction evaluation, can be reasonably and fully assessed. The parties shall use best efforts to reach final resolution of disputes through meetings and negotiations required to resolve the dispute before any other forms of dispute resolution.

6.2 All claims, disputes, and other matters in controversy between OWNER and ENGINEER arising out of or in any way related to this Agreement will be submitted to **Non-Binding Mediation** before, and as a condition precedent to other remedies provided by law. The method for resolving disputes will be agreed to between the parties and each party shall use its best efforts to reach a resolution.

SECTION 7 - ENTIRE AGREEMENT

7.1 This Agreement, including attachments incorporated herein by reference, represents the entire Agreement and understanding between the parties and any negotiations, proposals or oral agreements are intended to be integrated herein and to be superseded by this written Agreement. Any supplement or amendment to this Agreement to be effective shall be in writing and signed by the OWNER and ENGINEER.

SECTION 8 - GOVERNING LAW

8.1 This Agreement is to be governed by and construed in accordance with the laws of the State of Tennessee.

IN WITNESS WHEREOF, duly authorized representatives of the parties have signed in confirmation of this Agreement, with effective date the day and year first above written.

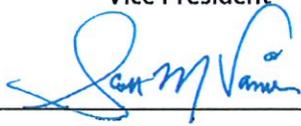
CAROLLO ENGINEERS, INC.

CITY OF SPRING HILL

By: 

Vice President

By: 
_____, Purchasing Agent

By: 

Senior Vice President