

THIRD AMENDMENT TO AGREEMENT

THIS THIRD AMENDMENT TO AGREEMENT (Amendment) made and entered into as of this ____ day of _____, 2017, amends the Agreement entered into between the CITY OF FRESNO, a California municipal corporation (CITY), and Blair, Church and Flynn Consulting Engineers, a California Corporation (CONSULTANT).

RECITALS

WHEREAS, CITY and CONSULTANT entered into an agreement, dated July 2, 2013, in the amount of \$3,324,000 for professional engineering services for the design of the Recycled Water Distribution System Design, Southwest Quadrant (Agreement); and

WHEREAS, the First Amendment to the Agreement was executed on June 30, 2016, in the amount of \$674,240 and

WHEREAS, the Second Amendment to the Agreement was executed on January 12, 2017, in the amount of \$141,540 and

WHEREAS, CITY desires to realign projects SW1C3 & SW4 to use a different pipeline route for the conveyance of recycled water to the downtown area and the southeast than what is included in the recycled water master plan; and

WHEREAS, City desires to design a chlorination facility at the Regional Wastewater Reclamation Facility; and

WHEREAS, CITY desires to add Environmental work addressing several revisions to the Recycled Water Transmission Main alignments and pump station location on the Addendum to the Adopted Tiered Mitigation Negative Declaration; and

WHEREAS, CITY desires to design a potable water main along Franklin Avenue and conform contract document preparation for SW1C2 and SW4 projects; and

WHEREAS, due to the need for additional services, the parties desire to increase the total compensation by an additional \$940,280.00 to complete the expanded Scope of Work; and

WHEREAS, with entry into this Amendment, CONSULTANT agrees that CONSULTANT has no claim, demands, or disputes against CITY.

AGREEMENT

NOW, THEREFORE, in consideration of the foregoing and of the covenants, conditions, and premises hereinafter contained, to be kept and performed by the respective parties, the parties agree that the aforesaid Agreement be amended as follows:

1. CONSULTANT shall provide additional services as described in **Exhibit 1**, attached hereto and incorporated herein by reference.

2. Exhibit A of the Agreement is amended to add the additional professional scope of services in **Exhibit 1**, attached hereto and incorporated herein by reference.

3. Section 3(a) of the Agreement dated July 2, 2013, is amended in its entirety to read as follows:

“(a) CONSULTANT’S sole compensation for satisfactory performance of all services required or rendered pursuant to this Agreement shall be a total fee not to exceed \$5,080,060 and a contingency amount not to exceed \$100,000 for any additional work rendered pursuant to Subsection (d) below and authorized in writing by the Director.”

4. In the event of any conflict between the body of this Amendment and any Exhibit or Attachment hereto, the terms and conditions of the body of this Amendment shall control and take precedence over the terms and conditions expressed within the Exhibit or Attachment. Furthermore, any terms or conditions contained within any Exhibit or Attachment hereto which purport to modify or restate any terms or conditions, or modify the allocation of risk between the parties, provided for within the body of this Amendment or the body of the Agreement, shall be null and void.

5. Except as otherwise provided herein, the Agreement remains in full force and effect.

[SIGNATURES FOLLOW ON THE NEXT PAGE.]

IN WITNESS WHEREOF, the parties have executed this Amendment at Fresno, California, the day and year first above written.

CITY OF FRESNO,
a California municipal corporation

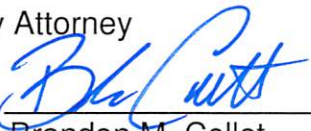
Blair, Church & Flynn Consulting Engineers,
a California corporation

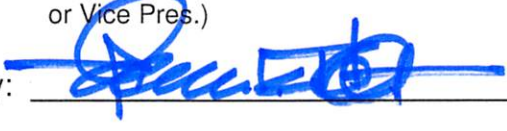
By: _____
Thomas C. Esqueda, Director
Department of Public Utilities

By:  _____
Name: Karl E. Kienow

APPROVED AS TO FORM:
DOUGLAS T. SLOAN
City Attorney

Title: Vice President
(If corporation or LLC., Board Chair, Pres.
or Vice Pres.)

By:  8/8/17
Brandon M. Collet Date
Deputy City Attorney

By:  _____
Name: Adam K. Holt

ATTEST:
YVONNE SPENCE, CMC
City Clerk

Title: CFO / Secretary
(If corporation or LLC., CFO, Treasurer,
Secretary or Assistant Secretary)

By: _____
Deputy

Attachment: Exhibit 1

EXHIBIT 1

ADDITIONAL PROFESSIONAL SERVICES

Blair, Church & Flynn Consulting Engineers prepared and submitted a proposal for additional professional services for Projects SW1A, 1B, 1C, 1D & 4, and PS1 to the City of Fresno on 18 September 2014. Among other items, the proposal included extra costs for rerouting the Project SW1C pipeline down Hughes Avenue instead of Nielsen Avenue, and rerouting the Project SW1B pipeline down Blythe Avenue instead of Whitesbridge Avenue. The proposal was accepted by the City with payment through the contingency item on the purchase order. Some of the work remains underway, and some has been completed.

We also prepared and submitted a proposal for additional professional services for Projects SW1A, 1C, 1D & 4, and PS1 to the City of Fresno on 17 May 2016. This proposal included work related to the new pump station site; pipelines to the new pump station site; Hughes Avenue pipeline revisions; the preparation of temporary traffic control plans; Roeding Park, Dennett Avenue, and Palm Avenue pipeline revisions; additional potholing; and the Broadway Plaza pipe realignment. The proposal also defined Project SW1C as the pipeline in Belmont Avenue from Marks Avenue into Roeding Park; Project SW1C2 as the pipeline in Hughes Avenue from Belmont Avenue to Whitesbridge Avenue, and in Whitesbridge Avenue from Hughes Avenue to Trinity Street; and Project SW1C3 as the pipeline that leaves Roeding Park along Dennett Avenue to Palm Avenue, and in Palm Avenue to H Street. The proposal was accepted by the City, and was processed as an amendment to the original agreement on 30 June 2016 (Amendment No. 1).

We also prepared and submitted a proposal for additional professional services for Projects SW1C2, SW1C3, SW1D, and SW4 to the City of Fresno on 31 October 2016. This proposal included work related to splitting the construction documents that contained SW1C2, SW1C3, SW1D, and SW4 into two separate sets of construction documents; additional pipeline in Fresno Street for the hospital; additional pipeline in Franklin Avenue to serve additional cemeteries; and to address late comments on the addendum to the adopted tiered mitigated negative declaration from the State Water Resources Control Board. The proposal was accepted by the City, and was processed as an amendment to the original agreement on 12 January 2017 (Amendment No. 2).

The City also directed that Project SW1C2 and SW1D be split into two separate sets of construction documents, and directed that the construction budget for Projects SW1D and SW4 be used for the design. This work has been completed.

Other City direction required that the 12-inch recycled water main in Whitesbridge Avenue east of Fruit Avenue and in Trinity Street be upsized to 24-inch. The fees for this work are estimated to be \$6,500, and this work has been invoiced against the construction services fees for Project SW1D that were included in the amendment dated 12 January 2017. This work has also been completed.

Additional work beyond that discussed above and that is not included in our scope or any of the amendments is now required for the project, and this letter presents our proposal for those additional professional services for various parts of the Southwest Quadrant of the recycled water system.

A. Work Required to Realign Projects SW1C3 & SW4

The City wishes to use a different pipeline route for the conveyance of recycled water to the downtown area and the southeast than what is included in the master plan. The proposed alignment continues Project SW1C2 south along Trinity Street to Kearney Boulevard, east along Kearney Boulevard to A Street, southeast along A Street to Inyo Street, and northeast along Inyo Street to H Street with a 24-inch recycled water transmission main (RWTM). Additionally, a 4-inch recycled water main (RWM) will be included in Fresno Street from A Street to the State Route 99 right-of-way, and an 8-inch RWM in Divisadero Street from Fresno Street to the State Route 41 right-of-way. The recycled water main in Broadway Street from Fresno Street to Mariposa Street, and in Mariposa Street from Broadway Street to H Street will remain in the project, except that the 24-inch RWTM will be changed to a 12-inch RWM. The 12-inch RWM along Fresno Street from Broadway Street to Illinois Avenue will remain in the project, and related design work is included under the original agreement and Amendment No. 2.

The 24-inch RWTM from Roeding Park to the intersection of Merced and Broadway Streets will be removed from the project, as well as the 24-inch RWTM from the intersection of H and Inyo Streets to the southeast. This work is part of Projects SW1C3 and SW4 which, as of the date of this proposal, have been designed to 90% completion.

In total, the project consists of the following:

Pipeline Reach	Current Size	Proposed Size	Length
New pipeline along Trinity, Kearney, A, and Inyo	N/A	24-inch	1.51 miles
New pipeline along Fresno Street southwest of SR99	N/A	4-inch	0.2 miles
New pipeline along Divisadero Street	N/A	8-inch	0.23 miles
Pipeline along Fresno Street that is part of original agreement	12-inch	12-inch	0.96 miles
Pipeline along Broadway, Mariposa, and H that is part of original agreement that is to be revised	24-inch	12-inch	0.43 miles

Schematic Design Phase

Topographic surveys shall be accomplished using a combination of conventional ground surveys and aerial photogrammetric methods. Aerial photogrammetric methods shall be

used to provide general topographic and photographic coverage along the pipeline alignments. Where aerial photogrammetric methods cannot provide the coverage or level of detail necessary to fully support pipeline design efforts, conventional ground survey methods shall be utilized for infill topographic surveys. Similarly, conventional ground survey methods shall be used to measure flowline elevations in manholes, to locate underground utility facilities exposed as part of pothole utility location operations, and to locate utility markings placed in connection with Underground Service Alert (USA) or "811" notifications.

A geotechnical investigation shall be conducted along the pipeline alignments. Borings for pipeline alignments shall be done at intervals of 1/4 mile or less, and at each end of each bore-and-jack location, and shall extend to a depth of five feet below the proposed bottom of pipe. Laboratory testing shall include gradation, moisture-density, shear, corrosivity, and resistivity analyses. A geotechnical report shall be prepared to document the investigation, and shall include pipe bedding and foundation recommendations.

During the Schematic Design Phase and throughout the entire design, bi-weekly meetings shall be held with City personnel to present in-progress efforts and to solicit input as to City preferences for the various elements of the project.

Addendum No. 2 for the existing Adopted Tiered Mitigated Negative Declaration is currently being prepared to address project changes that were made through earlier project amendments. The in-process addendum will be revised to include the new project alignments. The cultural resources figures will be updated to depict the new alignments in relation to identified historic places.

The existing 24-inch RWTM in Broadway Street from Fresno Street to Mariposa Street and in Mariposa Street from Broadway Street will be changed to a 12-inch RWM, and the existing 90% plans will be updated accordingly.

The Schematic Design Phase shall culminate in the submittal of a Schematic Design Report addressing the various issues expected to influence project design, including utility research findings, pipeline alignments, results of geotechnical investigations, potential conflicts with existing facilities, and additional environmental review. The report shall include recommendations for features to be implemented in subsequent design development and construction document phases, including pipeline alignment, pipe material, and construction method recommendations. The geotechnical investigation report and the addendum to the Adopted Tiered Mitigated Negative Declaration shall be appended to the Schematic Design Report.

The Schematic Design Report shall include schematic plans (approximately 30% design completion) at reduced scale, together with construction cost estimates. Schematic plans shall include topographic survey results, aerial photography, utility research results, and existing rights-of-way and easements. For all of the pipelines, schematic plans shall also include sufficient design information to clearly establish proposed

pipeline sizes and alignments. Pipeline profiles will not be included in the schematic plans.

Existing utilities along the project alignments shall be designated during the Schematic Design Phase as discussed below. The designated utilities will be incorporated into the schematic plans.

Design Development Phase

The Design Development Phase shall include the preparation and submittal of preliminary plans, specifications, and estimates (approximately 60% design completion), incorporating the recommendations of the Schematic Design Phase as approved by the City. The Design Development Phase shall also include the preparation of legal descriptions and acquisition diagrams in support of the City's efforts for the acquisition of necessary easements and rights-of-way.

A corrosion monitoring system will be designed and appropriate details included in the plans. The corrosion monitoring system will only be designed for the 24-inch pipeline.

After review and approval of the schematic plans, the locations of required pothole excavations for utility locating shall be determined and performed. See the discussion below.

Construction Document Phase

The Construction Document Phase shall include the preparation and submittal of plans, specifications and estimates at the draft final (approximately 90% design completion) and final (100% complete) stages of completion. At each submittal stage, review comments resulting from the prior submittal shall be thoroughly addressed.

Utility Designating and Locating

Utility depiction on the plans will conform to ASCE Standard 38-02, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data. During the schematic design, utility companies and agencies expected to have utilities on the project area will be contacted, and a base map will be prepared using the topographic mapping and the utility search results. Utilities obtained from records are considered Quality Level D (QL-D), and utilities obtained from field surveys and measurements at manholes are considered QL-C. After base map preparation, designation of existing utilities along the project alignments shall consist of the following:

- Designate conductive utilities with direct connection or passive induction locating equipment.
- Sonde storm drains and sewers as needed (if permitted) when alignment is questionable.
- Sweep the area for unknown utilities using:

- Tandem passive induction
- Radio and power signature scanning
- Ground Penetrating Radar (GPR)
- Unknown utilities will be traced to source, if possible
- Designated utilities will be marked in the field with pink paint
- These designated utilities are considered QL-B, and consist of horizontal location only, and may have rough depths (with an unknown and varying accuracy).

Based on an analysis of other pipelines project recently done for the City, it is estimated that 85 potholes will be required for these pipelines. These potholes will serve to locate the utilities (provide both horizontal and vertical locations) and after potholing, they will be considered QL-A.

Both the designating and the potholing will require traffic control plans and related traffic control, and these will be provided as required.

High Speed Rail and Union Pacific Railroad Crossing

The proposed alignment crosses both the High Speed Rail (HSR) and the Union Pacific Railroad (UPRR) between G and H Streets. Both of these railroads require that the new recycled water main be installed in a steel casing across the railroad rights-of-way. A meeting was held with a representative of HSR and the City on 6 April 2017, and it was decided that the steel casing across both HSR and UPRR will be constructed by HSR, and the construction plans for the casing should be done on a City titleblock, and not an HSR titleblock. Accordingly, the casing will be designed on a City titleblock for TPZP use, and shown in the RWTM plans as “by others.” No HSR permit will be required, but it is expected that the City will need to sign some type of agreement with HSR. The new steel casing will be jacked and bored under UPRR, and placed via open cut across HSR. An agreement with UPRR will be obtained to allow the installation of the new pipeline in the casing to be installed by TPZP.

Scope of Services

The following Scope of Services outline describes the services we propose to provide to the City of Fresno for the project.

I. SCHEMATIC DESIGN PHASE

A. PROGRAMMING AND PROJECT MANAGEMENT

1. Prepare and maintain design schedule
2. Prepare and submit monthly progress and budget reports
3. Attend biweekly design meetings throughout duration of design

- a) Sixteen meetings of four hours each attended by the project manager and the engineer are included.

B. SURVEYING, AERIAL PHOTOGRAPHY AND MAPPING

- 1. Provide traffic control for surveys
- 2. Conduct horizontal and vertical ground control surveys
- 3. Obtain and incorporate aerial photography
- 4. Obtain and incorporate photogrammetric topographic mapping
- 5. Conduct infill topographic ground surveys
 - a) Use conventional ground survey methods

C. ENVIRONMENTAL SERVICES

- 1. Perform cultural resource studies
- 2. Update the already-existing cultural resource figures in Addendum No. 2
- 3. Assist the City with updates to the Financial Assistance Program application documents as required
- 4. Submit to City for review and comment
- 5. Prepare final addendum to the adopted Tiered Mitigated Negative Declaration (MND) and obtain approval

D. GEOTECHNICAL SERVICES

- 1. Conduct geotechnical investigation
 - a) Borings at intervals of 1/4 mile or less for pipeline alignments
 - b) One boring at each end of each bore-and-jack location
 - c) A total of 11 borings will be performed
- 2. Prepare geotechnical report
 - a) Include pipe bedding and foundation recommendations
 - b) Include trench configuration and trench safety recommendations

E. SCHEMATIC DESIGN REPORT

- 1. Conduct site investigations
- 2. Conduct public street, property line & OPL research
- 3. Coordinate with Caltrans staff for crossings of State right-of-way
- 4. Coordinate with railroad companies for rail crossings
- 5. Conduct utility search
- 6. Prepare utility basemap for use during designating
- 7. Designate utilities along project alignments

8. Survey designated utilities
9. Update utility basemap
10. Prepare schematic (30%) plans
11. Revise Broadway, Mariposa, and H Street for smaller pipe size
12. Prepare itemized estimates of quantities and cost
13. Prepare outline technical specifications
14. Prepare schematic design report, incorporating:
 - a) Topographic surveys
 - b) Geotechnical investigation
 - c) Addendum to the Tiered MND
 - d) Utility investigation findings
 - e) Material and equipment recommendations
 - f) Construction method recommendations
 - g) Schematic plans
15. Submit schematic design report

II. DESIGN DEVELOPMENT PHASE

A. PRELIMINARY PLANS, SPECIFICATIONS AND ESTIMATES

1. Prepare preliminary cover and index sheets
2. Prepare preliminary plan and profile drawings
3. Prepare preliminary construction detail drawings
4. Prepare preliminary pipeline corrosion monitoring detail drawings
5. Prepare preliminary temporary traffic control plans
6. Prepare preliminary traffic signal loop detector reconstruction plans
7. Prepare and submit underground classification applications
8. Prepare legal descriptions and diagrams for acquisition of easements and rights-of-way
 - a) Up to five different acquisitions
9. Prepare preliminary technical specifications
10. Prepare itemized estimate of quantities and cost
11. Address schematic design review comments
12. Submit preliminary (60%) plans, specifications and estimate

B. UTILITY AND RAILROAD COORDINATION

1. Prepare and submit railroad permit applications

- a) Coordinate with City and railroads through permit obtainment
- 2. Submit preliminary plans to affected companies, agencies & districts
- 3. Locate critical utility facilities by pothole excavation methods
 - a) Up to 85 locations
- 4. Coordinate relocation efforts with project design

C. AGENCY PERMIT COORDINATION

- 1. Prepare and submit Caltrans encroachment permit application
 - a) Obtain Caltrans encroachment permit
- 2. Prepare and submit San Joaquin Valley Air Pollution Control District (SJVAPCD) indirect source review (ISR) application
 - a) Obtain ISR approval and verify SJVAPCD air model calculations

III. CONSTRUCTION DOCUMENT PHASE

A. DRAFT FINAL DESIGN

- 1. Prepare draft final cover and index sheets
- 2. Prepare draft final plan and profile drawings
- 3. Prepare draft final construction detail drawings
- 4. Prepare draft final pipeline corrosion monitoring detail drawings
- 5. Prepare draft final temporary traffic control plans
- 6. Prepare draft final traffic signal loop detector reconstruction plans
- 7. Prepare draft final technical specifications
- 8. Incorporate city "boilerplate" documents
- 9. Prepare itemized estimates of quantities and cost
- 10. Address preliminary review comments
- 11. Submit draft final (90%) plans, specifications and estimates

B. FINAL PLANS, SPECIFICATIONS AND ESTIMATES

- 1. Prepare final plans
- 2. Prepare final specifications
- 3. Prepare final itemized estimates of quantities and cost
- 4. Address draft final review comments
- 5. Submit final (100%) plans, specifications and estimates

IV. BIDDING PHASE

A. BID SERVICES

1. Attend pre-bid conferences
2. Prepare addenda and clarifications
3. Attend bid opening and evaluate bid proposals
4. Prepare conform plans and specifications, and provide the following:
 - a) 10 full-size bound sets of conform plans
 - b) 5 half-size bound sets of conform plans
 - c) 10 bound sets of conform specifications
 - d) PDFs of the conform plans and specifications

V. CONSTRUCTION PHASE AND GENERAL CONSTRUCTION CONTRACT ADMINISTRATION

A. CONSTRUCTION SERVICES

1. Attend pre-construction conference
2. Review shop drawings and other contractor submittals
 - a) Assume 40 submittals at 4 hours each and 25 resubmittals at 2 hours each
3. Review and provide technical information to City for contractor change orders
 - a) Assume 40 hours total
4. Respond to requests for information (RFIs)
 - a) Assume 15 RFIs at 8 hours each
5. Provide periodic worksite observation
 - a) Assume 4 site visits at 3 hours each
6. Prepare record drawings
 - a) Assume 15 sheets at two hours of CAD time per sheet and one hour of engineering time per drawing

Assumptions

1. Preparation of construction documents will result in one set of construction contract documents for the project pipelines.
2. R-value testing of soils for pavement replacement design is not included as part of the Geotechnical Investigation.
3. The actual extent of utility location efforts by pothole excavation methods is as yet unknown. This Scope assumes that there will be utility pothole excavation at 85 locations. This assumption is based on our recent experience with current City of Fresno pipeline projects where the frequency of pothole excavation has been significantly greater than for older projects.
4. The City will obtain all preliminary title reports required in connection with the acquisition of easements and rights-of-way.

5. All City permits that will be required for design and construction activities will be issued by the City as no-fee permits.
6. City will pay all permit fees for permits that cover construction activities but must be obtained during the design process.
7. Construction contractor will pay all permit fees for permits that cover construction activities and are obtained by the contractor under the provisions of the construction contract.
8. For tasks that extend beyond the time limits of a particular Part of the agreement, the task is listed under the Part in which task activities will begin. For example, note that activities for Programming and Project Management, which is listed under Part 1, Schematic Design Phase, will extend throughout the duration all five parts of the agreement, until all work under the agreement is completed.
9. For all recent and current potable water and recycled water transmission main design and construction projects in and near the City of Fresno, it has been determined that no cathodic corrosion protection, whether sacrificial anode or impressed current in nature, was required at the time of installation. However, corrosion monitoring stations have been incorporated to allow for ongoing monitoring of corrosion potential. This Scope is based on the assumption that the same will hold true for these pipelines, such that corrosion monitoring stations will be included but cathodic protection systems will not.
10. This Scope does not include the preparation of Stormwater Pollution Prevention Plans (SWPPPs). The project specifications will require that the construction contractor prepare SWPPP documents.

B. Recycled Water Chlorination Facility at the Regional Wastewater Reclamation Facility

The City of Fresno plans to construct a chlorination facility that will store and inject chlorine (sodium hypochlorite) into the recycled water transmission main at a point just downstream of the recycled water pump station at the RWRF. Recycled water is produced by the newly constructed and commissioned Tertiary Treatment and Disinfection Facility (TTDF), which includes ultraviolet (UV) disinfection. The purpose of the chlorination facility is to allow the City to also provide disinfection by chlorination and maintain a chlorine residual in the recycled water if necessary. The design dosage is 1 mg/l.

It is anticipated that sodium hypochlorite storage will consist of two 4,000 gallon translucent poly tanks. The tanks will either be double-wall chemical containment tanks, or will be situated in a suitable basin for safe spill containment, or both, as determined through schematic design efforts. The storage facilities will include provisions for tank level indicators. The City will provide control system design for the chlorination facility, which may be incorporated in the project plans and specifications to be constructed as part of overall project construction, or may be constructed under separate arrangements made by the City.

A CMU building is planned for the storage and metering facilities. The building will have parapet walls, similar to the configuration of the TTDF electrical and blower building. The building is expected to be approximately 1,000 square feet in size, and will be provided with electrical power and interior and exterior lighting. Potable water will be provided, and an eye-

wash station with provisions for an alarm is to be included. One or two 12-foot wide roll-up doors will be provided, together with a single man entry door. No windows or skylights are planned. No heating or air conditioning facilities are planned, but the building will include either evaporative cooling or forced air ventilation. The building roof will be either lumber or steel framed, with roofing materials as determined through schematic design efforts. The exterior of the building will match the finish and color of the TTDF electrical and blower building.

It is anticipated that the chlorination facility will be sited near the recycled water pump station, and will be situated so as to remain clear of the area reserved for future pump station expansion. All weather access will be provided to the building for routine operation and maintenance, and for chemical deliveries.

The chlorination facility is planned to be designed to accommodate current (5 MGD) and buildout (30 MGD) configurations. The City of Fresno will make arrangements for the provision of electrical power, control circuits, and potable water to the building. The City will also make arrangements for the provision of the Parsons AutoCAD files for the recycled water pump station plans.

The City has indicated that it may be desired to include a chlorine measurement station at some point downstream of the chlorination facility injection point. Siting and configuration of a chlorine measurement station will be evaluated during the schematic design phase for the chlorination facility. However, subsequent design of a chlorine measurement station is not included beyond the level of schematic design evaluation. If the City wishes to include a chlorine measurement station in subsequent design phases for this project, the work could be done under an amendment for additional services, once the scope has been refined during schematic design phase efforts.

It is anticipated that there will be few or no existing utility facilities to contend with, other than City-owned RWRF utility facilities. Nevertheless, it is prudent to conduct customary utility investigations and notify those utility companies and agencies that may have facilities in the area, for verification efforts if nothing else. Project design efforts should include such utility investigations. However, it is not expected that it will be necessary to determine the locations of existing utility facilities by pothole excavation methods.

Scope of Services

The following Scope of Services outline describes the services we propose to provide to the City of Fresno for the project.

I. Schematic Design Phase

- A. Prepare and maintain design and construction schedule
- B. Participate in coordination meetings with City staff
 - 1. Throughout all project phases
- C. Conduct site investigations
- D. Conduct utility investigations

1. Prepare utility notification letters and send to affected utility companies and agencies
2. Prepare and submit utility search documentation
3. Submit schematic design drawings to affected utility companies and agencies for review
- E. Conduct chlorine measurement station evaluation
 1. Evaluate chlorine measurement options for a site located along the transmission main downstream of the chlorination facility and prepare related recommendations
- F. Obtain and incorporate available and applicable geotechnical investigation reports
 1. Provided by City
- G. Develop access plan for maintenance and chemical deliveries
 1. Use AutoTURN software for vehicle path analyses
- H. Prepare schematic design plans, specifications and estimates (30% PS&E)
 1. Sufficiently detailed to define scope and extent of proposed improvements
- I. Prepare Schematic Design Report, incorporating:
 1. Results of all schematic design phase efforts
 2. Chlorine measurement station evaluation
 3. Schematic design (30%) PS&E
- J. Submit Schematic Design Report to City for review
- K. Optional Supplemental Services
 1. Provide as needed services throughout project, upon approval or direction by the City
 2. Provide services on a time-and-materials basis, as approved by the City
 3. Deliverables as determined through City authorization

II. Design Development Phase

- A. Obtain and incorporate City's schematic design review comments
- B. Prepare preliminary cover and index sheets
- C. Prepare preliminary chlorination facility plans, to include:
 1. Site paving, grading and drainage plans
 2. Site utility plans
 3. Floor plan
 4. Roof plan
 5. Foundation plan

6. Exterior elevations

7. Building sections

8. Structural sections

9. Mechanical plans

10. Electrical plans

a) Incorporate control system design information provided by City

11. Plumbing plans

12. Door and louver schedule

D. Prepare preliminary construction details

E. Prepare preliminary technical specifications

F. Prepare preliminary construction cost estimate

G. Coordinate with City Planning and Development

1. Obtain review and necessary permits

2. Application and permit fees paid by City

H. Identify potential utility conflicts and relocation needs

1. Meet with City staff to review

2. Coordinate with utilities to facilitate relocations

3. Submit necessary supporting documentation to utilities

I. Submit design development (60%) PS&E to City for review

III. Construction Document Phase

A. Obtain and incorporate City's design development review comments

B. Prepare draft final cover and index sheets

C. Prepare draft final chlorination facility plans, to include:

1. All elements identified under Design Development Phase

D. Prepare draft final construction details

E. Prepare draft final technical specifications

F. Prepare draft final construction cost estimate

G. Submit draft final (100%) PS&E to City for review

H. Obtain and incorporate City's final review comments

I. Submit final (100%) PS&E to City for approval signatures

IV. Bidding Phase

- A. Attend pre-bid conference
- B. Respond to bid questions and prepare addenda if necessary
 - 1. Assume 12 bid question responses
 - 2. Assume two addenda
- C. Attend bid opening

V. Construction Phase and General Construction Contract Administration

- A. Attend pre-construction conference
- B. Review shop drawings and other contractor submittals
 - 1. Assume 30 shop drawing and submittal reviews
- C. Provide clarification of design documents during construction
 - 1. Assume 25 clarifications of design documents
- D. Review and provide technical information for construction contract change order requests
 - 1. Assume four change order requests.
- E. Provide periodic worksite observation
 - 1. Assume four site visits
- F. Prepare and submit record drawings

Services Outside of Scope

Services not included under our scope of work, but that may be provided upon request, include the following:

- 1. Environmental studies and investigations
- 2. Preparation of a Stormwater Pollution Prevention Plan
- 3. Topographic surveys
- 4. Boundary or property corner field surveys or preparation of records of survey
- 5. Preparation of bid documents other than the technical specifications and those sections of the special provisions that relate to this project
- 6. Design services related to the relocation of franchise utilities
- 7. Preparation of legal descriptions and diagrams for acquisition of easements and rights-of-way
- 8. Geotechnical investigations
- 9. Determination of utility facility locations by pothole excavation methods
- 10. Design of chlorination facility control systems, which will be provided by City

Anticipated Plan Sheets

It is expected that the project plans will consist of approximately 25 plan sheets. The following table provides a listing of anticipated plan sheets for design of the proposed chlorination facility.

Proposed Plan Sheets	
Description	Number
Cover Sheet	1
Index Sheet and General Notes	1
Site Paving, Grading and Drainage Plans	2
Site Utility Plans	1
Floor Plan	1
Roof Plan	1
Foundation Plan	1
Exterior Elevations	1
Building Sections	1
Structural Sections	2
Mechanical Plans	3
Electrical Plans	3
Plumbing Plans	2
Construction Details	5
Total Estimated Plan Sheets:	25

C. CEQA addendum revisions

Addendum No. 2 to the adopted Tiered Mitigated Negative Declaration (MND) for the Fresno Recycled Water Distribution system has been prepared that included several revisions to the RWTM alignments and pump station location. Addendum No. 2 has not been finalized yet due to the pending changes included in this proposal.

Biological and cultural resource surveys will be conducted and air quality emission estimates will be updated for the new recycled water route discussed under Item A of this proposal. The already-prepared Addendum No. 2 will be updated as required for the new recycled water route.

The recycled water system is intended to provide service to Belmont Memorial Park cemetery, which is along the north side of Nielsen Avenue, east of Hughes Avenue. The

service for the park is along the north side of Nielsen Avenue, just east of FID's Houghton Canal. Due to the road geometry where Nielsen Avenue crosses the canal, and the presence of several large-diameter gas and water mains in Nielsen Avenue, the pipeline to serve the cemetery will be routed through a utility easement on the north side of Nielsen Avenue. Biological and cultural resource surveys will be conducted, air quality emission estimates will be updated, and Addendum No. 2 will be updated for Nielsen Avenue and the utility easement.

D. Project SW1C2 Additional Services

Recycled water Project SW1C2 is currently bidding. The City has requested that a water main be designed in Franklin Avenue, and conform contract documents be prepared. Additionally, the construction support services that were included for Project SW1C2 in Amendment No. 2 are being removed, and replacement construction support services are being added.

Franklin Avenue Water Main

A recycled water main was originally designed for Franklin Avenue east of Hughes within the cemeteries and included in Project SW1C2; however, the City was unable to obtain the required easement in time due to the required CEQA so the RWM was removed from the project. The required CEQA work is underway and will be included in the forthcoming Addendum No. 2 for the MND. The City has subsequently determined that a potable water main should also be designed and constructed in Franklin Avenue along with the RWM. The potable water main should be designed in Franklin Avenue from Hughes Avenue to Parkway Drive, and in Parkway Drive from Franklin Avenue to Belmont Avenue. The potable water main will be connected to the existing water mains in Hughes and Belmont Avenues. It is understood that the City hopes to have both the already-designed RWM and the potable water main constructed by the Project SW1C2 contractor.

The following services will be provided:

1. Potable water main size and water service locations shall be determined through coordination with the cemeteries and the City. The water main and services are expected to serve bathrooms and drinking fountains in the cemeteries.
2. Topographic surveying will be performed from the eastern limits of the proposed RWM to the intersection of Franklin Avenue and Parkway Drive, and along Parkway Drive between Franklin Avenue and Belmont Avenue.
3. The already-prepared legal description will be revised to incorporate the additional required easement in Franklin Avenue and Parkway Drive.
4. The potable water main will be added to the already-prepared plan and profile sheet that includes the RWM, and an additional plan and profile sheet will be prepared that includes the new topographic surveying and the proposed

potable water main continuing easterly in Franklin Avenue to Parkway Drive, and then northerly in Parkway Drive to Belmont Avenue. The revised plans will be submitted for City review.

5. Comments will be addressed, and the plan and profile sheets will be provided to the City to use as a contract change order for the SW1C2 project.

Conform Contract Documents

There have been several addenda issued that have modified both the plans and the specifications. Conform plans and specifications shall be prepared that modify the as-bid plans and specifications to incorporate all applicable addenda content.

The following will be provided:

1. 10 full-size bound sets of conform plans
2. 5 half-size bound sets of conform plans
3. 10 bound sets of conform specifications
4. PDFs of the conform plans and specifications

Additional Construction Support Services

When the scope and fees for the recycled water projects were initially determined, the City's Construction Management Division was expected to perform the construction management services. Accordingly, the original scope and fees were determined based on our experience with other City of Fresno pipeline projects, and an estimate of our expected involvement. The City subsequently switched to using a third-party construction manager, and our experiences during the construction of previous recycled water projects has shown that the level of effort required for construction support services under the third-party construction manager is considerably greater than under the City's Construction Management Division.

Amendment No. 2 included construction support services for this project as estimated for supporting the City's construction management efforts. Additional effort, above and beyond the effort included in Amendment No. 2, will be required. The scope listed in Part A.6 of Amendment No. 2 for the construction support services are removed from the project, and are replaced by the following:

1. Attend pre-construction conference
2. Review shop drawings and other contractor submittals
 - a) Assume 40 submittals at 4 hours each and 25 resubmittals at 2 hours each
3. Review and provide technical information to City for contractor change orders
 - a) Assume 40 hours total
4. Respond to requests for information (RFIs)

- a) Assume 15 RFIs at 8 hours each
- 5. Provide periodic worksite observation
 - a) Assume 4 site visits at 3 hours each
- 6. Prepare record drawings
 - a) Assume 15 sheets at two hours of CAD time per sheet and one hour of engineering time per drawing