

## EXHIBIT "A"

### GENERAL OVERVIEW & SCOPE OF SERVICES

#### General Overview

This proposal consists of providing engineering design and construction phase services associated with the rehabilitation of approximately 6,825 L.F. of 18" thru 30" sanitary sewers along Hobbs Rd., Butler Rd., and a sanitary sewer segment along FM 646; cleaning of approximately 2,400 L.F. of 10" thru 21" sanitary sewers that aligns along FM 646 (TxDOT R.O.W.) and a Drainage Ditch easement; and rehabilitation of 25 manholes identified by City staff that are in need of rehabilitation.

#### Project Summary

As part of City of League City's annual assessment of major wastewater trunk mains, the City of League City staff identifies wastewater trunk mains to assess their condition and identify any needed rehabilitation and repairs. As part of this annual assessment, City authorized ARKK to perform television inspection, review, evaluation, and provide rehabilitation recommendations of approximately 15,215 L.F. of 10" thru 30" diameter wastewater trunk mains located along Hobbs Road, Butler Road, and FM 646 (aligned along TxDOT R.O.W. and the Drainage Ditch easement). The condition of the evaluated wastewater trunk mains ranged from satisfactory to lines needing immediate rehabilitation. From this study, approximately 6,825 L.F. of existing 18" thru 30" wastewater lines were recommended for rehabilitation and approximately 2,400 L.F. of wastewater lines were recommended for cleaning due to heavy debris levels, and an additional twenty five (25) manholes identified by City staff were budgeted for rehabilitation. The results of this assessment were summarized in the **"2016 Television Inspection Video Data Review Letter Report" submitted to the City in November 2016**. The estimated construction for performing the rehabilitation work is \$1.43 million (includes a 10% construction contingency).

ARKK Engineers will prepare schematic drawings and project specifications for the rehabilitation based on information gathered from field investigation efforts. The field investigation efforts include performing project site visits, identifying visible surface features, general inspection of sanitary sewer manholes (for general deterioration purposes and to aid with the design) within the alignment, and review of television inspection video data. Topographic survey of the wastewater trunk mains designated for rehabilitation will not be obtained for this project. As discussed with the City, ARKK Engineers will prepare schematic layout maps (utilizing City provided layout drawings) in lieu of obtaining topographic survey information for the plan drawing portions of the construction documents.

The City of League City will provide a project site representative to observe the progress of the rehabilitation work. Therefore, full time construction inspection services by ARKK Engineers personnel is not part of the scope of this project. However, a budget for increased project

support to assist and aid the City's project site representative during construction is included in this proposal. This proposal does not include performing any Environmental Studies in the two project areas. Construction material testing is also not included and the City will contract directly with a material testing firm during construction.

This proposal addresses the engineering services ARKK Engineers will provide the City during the Design and Construction Phases, as well as Geotechnical, and Reproduction services required for the rehabilitation of the sanitary sewer lines.

This proposal is separated into Basic Services (expected normal engineering services) and Special Services.

## **SCOPE OF SERVICES**

### **I. DESIGN PHASE**

#### **A. Design Services**

- Obtain utility information (gas, electric, cable, pipelines, etc.) for the sanitary sewer lines designated for rehabilitation.
- Obtain available record drawings and any data on sanitary sewer lines designated for rehabilitation from the City.
- Meet with City Staff to discuss and finalize sanitary sewer line segments and obtain additional information.
- Perform field site visits to the sanitary sewer locations to obtain information on visible surface features and information that would aid with the design. Topographic survey of the sanitary sewer lines designated for rehabilitation is not part of this scope and will not be performed for this project.
- Review available maintenance data provided by the City on sanitary sewer lines designated for rehabilitation.
- Perform general manhole inspections on the sanitary sewer lines designated for rehabilitation.
- Review and evaluate manhole inspection data and recommend suitable rehabilitation methods. Manholes that cannot be accessed during the design phase will either be uncovered by City personnel during the design phase or the construction contractor during the construction phase.

- Perform general manhole inspections on the twenty five (25) sanitary sewer manholes identified by City staff as needing rehabilitation. Review and evaluate manhole inspection data and recommend suitable rehabilitation methods.
- Prepare a bid document package comprising of plan drawings and specifications for the rehabilitation of the sanitary sewer lines and manholes located within the project areas.
- Coordinate with the City during the design phase.
- Provide two (2) draft sets of 60% plan drawings and specifications for the 2017 Sanitary Sewer Rehabilitation Project for review and comments.
- Coordinate and submit plan drawings to the utility companies for review and comments.
- Incorporate comments from the City and utility companies into the bid documents.
- Coordinate with Texas Commission on Environmental Quality (TCEQ) during the design phase. Furnish necessary documentation to TCEQ for their review and approval.
- Meet with construction contractors to obtain input on prevailing rehabilitation costs and constructability options for the designated wastewater lines.
- Provide two (2) draft sets of 90% plan drawings and specifications for the 2017 Sanitary Sewer Rehabilitation Project for review and comments.
- Incorporate comments from various entities into the final bid documents.
- Prepare final cost estimate for the project.
- Furnish two (2) sets of plans and specifications to the City.

## **B. Special Services**

### **1. Geotechnical Services**

- Obtain soil borings and geotechnical information and recommendations on the sanitary sewer line sections in the design package.
- Utilize a subcontract geotechnical firm mutually agreeable to the City and ARKK.

- Due to the trenchless nature (limited excavation) of the sanitary sewer rehabilitation efforts, individual borings at each improvement location will not be obtained. The A budget for obtaining soil information is included in this proposal.

## **2. Reproduction**

- Costs for reproduction i.e., reproduction of plans, specifications will be invoiced under this item.
- Reproduction for review sets, submittals to the City, governmental agencies, and utility companies will be included in the cost for reproduction.

## **3. Permitting**

- Coordinate with Texas Department of Transportation for improvements performed in their right-of-way (FM 646) and to obtain a construction permit.
- Furnish drawings to TxDOT for review. Please note that this is a preliminary permit. The construction contractor will submit additional documentation during the construction phase and obtain approval to proceed with construction.

# **II. CONSTRUCTION PHASE SERVICES**

## **A. Basic Services**

### **1. Bid Phase Services**

- Assist the City in obtaining bids for the 2017 Sanitary Sewer Rehabilitation Project. The City will advertise the projects and will absorb all related advertising costs. ARKK will assist the City in developing the wording of the advertisements.
- Prepare and Dispense construction documents to the potential bidders for the project through CIVCAST.
- Notify local contractors specializing in trenchless sanitary sewer rehabilitation of the project.
- Conduct a pre-bid conference for potential bidders. Prepare meeting agenda and minutes summary.

- During the bidding phase for the project, provide information to and answer questions from prospective bidders regarding the Project's construction documents.
- Prepare project addendums as necessary for the project.
- Attend bid opening for this project.
- Evaluate the bids and the qualifications of the apparent low bidder and advise the City as to the acceptability of the apparent low bidder for the project.
- Prepare bid tabulation for this project. Check the bids for mathematical errors and/or bid irregularities.
- Prepare of letter of recommendation for award of construction contract.

## **2. Construction Administration Services:**

- Conduct a pre-construction conference for the project.
- Act as the City's Project representative during the construction phase for the project.
- Review and respond accordingly to all submittals as required by the contract specifications.
- Prepare change orders as necessitated by field conditions.
- Review the contractor's pay estimates, evaluate the completion of work and make payment recommendations to the City.
- Visit the site at intervals appropriate to the various stages of construction to observe the progress and quality of executed work and to determine in general if such work is proceeding in accordance with the Contract Documents. Part time site representation is not included in this scope.
- ARKK will not be responsible for the means, methods, techniques, sequences or procedures of construction selected by the Contractor(s) or the safety precautions and programs incident to the work of the Contractor(s). ARKK's effort will be directed toward providing a greater degree of confidence for the City that the completed work of Contractor(s) will conform to the Contract Documents, but ARKK will not be responsible for the failure of Contractor(s) to

perform the work in accordance with the Contract Documents. During site visits and on the basis of on-site observations ARKK shall keep the City informed of the progress of the work, shall endeavor to guard the City against defects and deficiencies in such work and may disapprove or reject work failing to conform to the Contract Documents.

- Conduct a final inspection of the Project and make a recommendation for Final Payment on the project.
- Engineer shall provide one set of reproducible record plans from the drawings provided by the Contractor.

## **B. Special Services**

### **1. Construction Evaluation Services:**

- Review and evaluate pre-rehabilitation video data associated with the television inspection of approximately 6,825 L.F. of 18" thru 30" sanitary sewer submitted by the Contractor to verify the method of rehabilitation. Identify any additional repairs that may be required to be performed by the construction contractor prior to performing full length rehabilitation.
- Review and evaluate clean and TV inspection video data associated with the television inspection of approximately 2,400 L.F. of 10" thru 21" sanitary sewer submitted by the Contractor to verify condition of existing lines. Identify any additional repairs that may be required to be performed by the construction contractor.
- Provide documentation of the review and coordinate with the City during construction. Evaluation of the pre-construction video provides the City access to the Contractor's normal pre-construction video efforts and provides the ability to verify, enhance, augment, or change the rehabilitation prior to construction.
- Review the condition of the line and determine whether additional cleaning and/or additional repairs may be necessary on the sanitary sewer trunk main prior to performing rehabilitation. This may include point repairs to repair broken pipe, or additional cleaning to remove mineral deposits or tuberculation or hanging gaskets, and roots in the sanitary sewer main prior to performing rehabilitation.
- Review post cleaning video data on approximately 6,825 L.F. of 18" thru 30" Cast Iron/Ductile iron sanitary sewer pipe that could potentially need additional cleaning due to tuberculation/heavy deposits in the line.

- Coordinate with the Contractor on the findings of the pre-rehabilitation television inspection review.
- Review the post television inspection data on the lines requiring additional cleaning or repairs to facilitate rehabilitation.
- Review post rehabilitation television inspection data of approximately 6,825 L.F. of sanitary sewer pipe. Evaluation of post construction inspection videos will verify the rehabilitation and provide a good measure of quality control.
- Coordinate with the Contractor on items that need to be addressed during the construction phase based on the results of the post television inspection review.
- Prepare a letter outlining the line segments needing further repair based on the post television inspection video data review.
- Coordinate with the Contractor on the findings of the post-rehabilitation television inspection review.
- Review post construction video data of the line segments where repair work was performed.
- Provide the pre and post television inspection video data received from the Contractor to the City.

## **2. Construction Phase Support:**

- Provide support to the City's project site representative during the construction phase. Conduct periodic progress meetings as necessary.
- Provide engineering and technical office personnel support during construction. These office personnel, consisting of Professional Engineers and design staff, provide support to address contractor's questions, resident's concerns and any conflicts uncovered in the field.

## EXHIBIT 'B' - FEE

### Basic Services:

Design Services: Lump Sum amount of:	\$ 89,950.00
Bid Phase Services: Lump Sum amount of:	\$ 3,500.00
Construction Administration Services: Lump Sum amount of:	<u>\$ 18,925.00</u>
<b>Sub-Total (Basic Services)</b>	<b>\$112,375.00</b>

### Additional Services:

*Geotechnical Services: Cost plus 10%	\$ 2,750.00
* Permitting: Lump sum amount of:	\$ 1,500.00
*Reproduction: Cost plus 10%	\$ 1,500.00
*Construction Phase Support: Hourly:	\$ 9,750.00
Pre and Post Construction TV Video Evaluation: Lump Sum amount of:	\$ 9,500.00
Miscellaneous Services as approved by City: Hourly:	<u>\$ 5,000.00</u>
<b>Sub-Total (Additional Services)</b>	<b>\$ 30,500.00</b>

<b>TOTAL FEE</b>	<b>\$142,375.00</b>
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\*At this time the magnitude of these tasks are not known. Therefore budgetary amounts are provided. These figures may increase or decrease depending upon actual work required. If an increase becomes necessary it can be accomplished by utilizing available funds from other line items that have an under run or by contract amendment.

### Fee Calculation

The estimated construction cost is \$1,430,000.

Fee percentage for Sewer from Harris County Engineering Fee Curves = 9.33%

Basic Services Fee should be =  $9.48\% \times \$1,300,000 = \mathbf{\$133,419}$

Basic Services Fee for this Project is:  $\$89,950 + \$3,500 + \$18,925 = \mathbf{\$112,375}$



**EXHIBIT 'C'**

**RATE SCHEDULE**

<b><u>Employee Classification</u></b>	<b><u>Billing Rate per hr.</u></b>
Principal	\$175.00
Project Manager	\$125.00 – \$160.00
Project Engineer	\$100.00 – \$125.00
CADD Operator	\$ 75.00 – \$100.00
Site Representative/Construction Administrator	\$ 75.00 – \$95.00
Clerical	\$ 45.00 – \$75.00

Hourly billed services will be invoiced based on direct labor cost times a multiplier of 2.99. Reimbursable Expenses will be charged at cost plus 10%. Mileage will be charged at the prevailing federal rate.

## **EXHIBIT 'D'**

### **SUBMITTAL SCHEDULE**

The following is a submittal schedule estimate for each design milestone:

#### **60% Design Milestone**

- 120 Days to complete from approval of 30% submittal and receipt of comments from City

#### **90% Design Milestone**

- 60 Days to complete from the approval of 60% submittal and receipt of comments from City

#### **100% Design Milestone**

- 30 Days to complete from the approval of 90% submittal and receipt of comments from City