



PROFESSIONAL SERVICES AGREEMENT

(version 1-14-2020)

This AGREEMENT (“Agreement”) is entered by and between **ARKK Engineers, LLC** (“Professional”), located at **7322 Southwest Freeway Suite 1040, Houston, TX 77074** and the **City of League City** (“City”), a home-rule municipality, located at 300 W. Walker St., League City, Texas 77573 on the date set forth below.

Terms:

1. **Scope of Services:** Professional will perform the services as set forth in **Exhibit A**, which is attached and incorporated herein, and which can be generally described as **Phase 2 of the Sanitary Sewer Collection System Evaluation Study**. Services related to design, bid, or construction of a public work shall conform to the requirements set forth in **Exhibit B**. If there is a conflict between the terms of this Agreement and Exhibits A or B, the terms of this Agreement will prevail.
2. **Term and Termination:** This Agreement shall commence on **January 30, 2020** and shall expire on **January 30, 2021**. City reserves the right to terminate this Agreement for convenience upon seven (7) days written notice to Professional. Upon such termination, City shall pay Professional, at the rate set out in **Exhibit A**, for services satisfactorily performed up through the date of termination. Notwithstanding any provision in this Agreement to the contrary, City will not be required to pay or reimburse Professional for any services performed or for expenses incurred by Professional after the date of the termination notice that could have been avoided or mitigated by Professional.
3. **Compensation:** Professional shall be paid for the services as set forth in **Exhibit A**. In no event shall the total compensation exceed **\$569,656.00** during the term of this Agreement. City shall tender payment (including progress/partial payments) for services only after such services are completed and are deemed to be acceptable under this Agreement, in the sole reasonable discretion of City. Professional must submit to City invoices for all services provided, which invoices must include details and dates of service. Payment by City shall be made within thirty (30) days of receipt of an invoice, except for any portion of the invoiced amount that City disapproves as not compliant under this Agreement, in the sole reasonable discretion of City. If City disapproves any amount submitted for payment by Professional, City shall give Professional specific reasons for disapproval in writing.
4. **Insurance:** Professional **is** required during the Contract Term to maintain insurance as set forth below:
 - (a) Comprehensive General Commercial Liability insurance covering bodily injury and property damage, with minimum coverage limits—exclusive of defense costs—of \$1,000,000 per occurrence and \$2,000,000 aggregate;
 - (b) Professional Liability (errors and omissions/malpractice) insurance with minimum coverage limits—exclusive of defense costs—of \$2,000,000 per occurrence; and
 - (c) If at any point during the Contract Term it is foreseeable that Professional will enter upon City premises:
 - (i) Worker’s Compensation coverage with statutory limits for the State of Texas, and
 - (ii) Commercial Automobile Liability coverage with minimum coverage limits—exclusive of defense costs—of \$1,000,000 per occurrence and \$2,000,000 aggregate.All policies must contain a waiver of subrogation against City. Comprehensive General Liability and Commercial Automobile Liability policies must name the City as Additional Insured. Professional shall pay all insurance deductibles and deductibles must not exceed \$10,000 unless approved in advance by City.

Professional shall provide City Certificates of Insurance evidencing these insurance requirements prior to the start of work.

5. **Liquidated Damages:** Professional acknowledges that time is of the essence in performing this Agreement. City and Professional (collectively, the “Parties”) agree that if Professional is late in performing any service designated as Time Critical on the Scope of Services attached to this Agreement, City will suffer loss, damages, or other harm from Professional’s delay. The Parties agree that the amount of loss, damages, or harm likely to be incurred as a result of Professional’s delay is incapable or difficult to precisely estimate, and therefore the Parties desire to stipulate the amount of such loss, damages, or harm. Accordingly, Professional shall have deducted from any amounts owed under this Agreement liquidated damages equal to the number of calendar days of the delay(s) times the daily rate, which rate shall be one-tenth of one percent (0.1%) times the compensation shown in the Scope of Services for such Time Critical service. The Parties further agree that: (i) the liquidated damages specified herein are not a penalty but rather bear a reasonable relationship to, and is not plainly or grossly disproportionate to, the probable loss likely to be incurred by City as a result of Professional’s delay; (ii) one of the reasons for City and Professional to agree to such amounts is the uncertainty and cost of litigation regarding the question of actual damages; and (iii) City and Professional are sophisticated business parties and negotiated this Agreement at arm’s length.
6. **Independent Professional:** Professional is an independent Professional and is not an employee, partner, joint venture, or agent of City. Professional understands and agrees that he/she will not be entitled to any benefits generally available to City employees. Professional shall be responsible for all expenses necessary to carry out the services under this Agreement and shall not be reimbursed by City for such expenses except as otherwise provided in this Agreement.
7. **Intellectual Property:** This Agreement shall be an Agreement for services and the parties intend and consider any work created as a result of this Agreement, including any and all documentation, images, products or results, to be a work (the “Work”) for hire under federal copyright law. Ownership of the Work shall belong to and remain the exclusive property of City. The Work may be edited at any time within City’s discretion. If the Work would not be considered a work-for-hire under applicable law, Professional hereby assigns, transfers, and conveys any and all rights, title and interest to City, including without limitation all copyrights, patents, rights of reproduction, rights to ownership, and right to secure registrations, renewals, reissues and extensions thereof. As the sole copyright holder of the Work, City maintains and asserts the rights to use, reproduce, make derivative works from, and/or edit the Work in any form of medium, expression or technology now known or hereafter developed, at any time within City’s discretion. Professional shall not sell, disclose or obtain any other compensation for the services provided herein or the Work. If the Work is one to which the provisions of 17 U.S.C. § 106A apply, Professional hereby waives and appoints City to assert on Professional's behalf Professional's moral rights or any equivalent rights regarding the form or extent of any alteration to the Work (including, without limitation, removal or destruction) or the making of any derivative works based on the Work, including, without limitation, photographs, drawings or other visual reproductions of the work, in any medium, for City’s purposes.
8. **Confidentiality:** During the course of the services to be provided under this Agreement, Professional may become privy to confidential information of City. Professional agrees to treat as confidential the information or knowledge that becomes known to Professional during performance of this Agreement and to not use, copy, or disclose such information to any third party unless authorized in writing by City. This provision does not restrict the disclosure of any information that is required to be disclosed under applicable law. Professional shall promptly notify City of any misuse or unauthorized disclosure of City’s confidential information and upon expiration of this Agreement shall return to City all confidential information in Professional’s possession or control. Professional shall further comply with all information security policies of City that may apply and shall not make any press releases, public statements or advertisement referring to the services provided under this Agreement or the engagement of Professional without the prior written approval of City.

9. **Warranties and Representations:** Professional warrants and agrees that Professional shall perform its services and conduct all operations in conformity with all applicable federal, state, and local laws, rules, regulations, and ordinances. For any service performed on premises owned or controlled by City, Professional warrants and agrees that Professional will perform said services in compliance with all City rules, including but not limited to, prohibitions related to tobacco use, alcohol, and other drugs.
10. **Licenses/Certifications:** Professional represents and warrants that it will obtain and maintain in effect, and pay the cost of, all licenses, permits or certifications that may be necessary for Professional's performance of this Agreement. If Professional is a business entity, Professional warrants, represents, covenants, and agrees that it is duly organized, validly existing and in good standing under the laws of the state of its formation; and is duly authorized and in good standing to conduct business in the State of Texas, that it has all necessary power and has received all necessary approvals to execute and deliver the Agreement and is authorized to execute this Agreement according to its terms on behalf of Professional.
11. **Performance/Qualifications:** Professional agrees and represents that Professional has the personnel, experience, and knowledge necessary to qualify Professional for the particular duties to be performed under this Agreement. Professional warrants that all services performed under this Agreement shall be performed consistent with generally prevailing professional or industry standards.
12. **Conflict of Interest:** Professional warrants, represents, and agrees that Professional presently has no interest and shall not acquire any interest, direct or indirect, that would conflict in any manner or degree with Professional's performance of the services hereunder. Professional further warrants and affirms that no relationship or affiliation exists between Professional and City that could be construed as a conflict of interest with regard to this Agreement.
13. **INDEMNIFICATION: PROFESSIONAL SHALL DEFEND, INDEMNIFY AND HOLD HARMLESS CITY , AND EACH OF ITS OFFICIALS, OFFICERS, AGENTS AND EMPLOYEES FROM AND AGAINST ALL CLAIMS, ACTIONS, SUITS, DEMANDS, PROCEEDINGS, COSTS, DAMAGES AND LIABILITIES, INCLUDING WITHOUT LIMITATION ATTORNEYS' FEES AND REASONABLE LITIGATION COSTS, ARISING OUT OF, CONNECTED WITH, OR RESULTING FROM ANY ACTS OR OMISSIONS OF PROFESSIONAL OR ANY AGENT, EMPLOYEE, SUBPROFESSIONAL, OR SUPPLIER OF PROFESSIONAL IN THE EXECUTION OR PERFORMANCE OF THIS CONTRACT, TO THE EXTENT THE CLAIM ARISES FROM NEGLIGENCE, WILLFUL ACT, BREACH OF CONTRACT OR VIOLATION OF LAW.**
14. **Force Majeure:** Neither party shall be liable to the other for (i) any delay in performance; (ii) any other breach; (iii) any loss or damage; or (iv) any contribution to or aggravation of any of the foregoing; arising solely from uncontrollable forces such as fire, theft, storm, war, or any other cause that could not have been reasonably avoided by the party's exercise of due diligence.
15. **Notices:** Any notice given under this Agreement by either party to the other may be effected either by personal delivery in writing or by mail, registered or certified postage prepaid with return receipt requested. Mailed notices shall be addressed to the addresses of the Parties as they appear in the contract. Notices delivered personally shall be deemed communicated at the time of actual receipt. Mailed notices shall be deemed communicated three (3) days after mailing.

16. **Texas Family Code Child Support Certification:** Pursuant to Section 231.006 of the Texas Family Code, Professional certifies that it is not ineligible to receive the award of or payments under the Agreement and acknowledges that the Agreement may be terminated, and payment may be withheld if this certification is inaccurate.
17. **State Auditor:** Professional understands that acceptance of funds under the Agreement constitutes acceptance of the authority of the Texas State Auditor's Office, or any successor agency (collectively, the "Auditor"), to conduct an audit or investigation in connection with those funds. Professional agrees to cooperate with the Auditor in the conduct of the audit or investigation, including without limitation providing all records requested. Professional will include this provision in all contracts with permitted subprofessionals.
18. **Jurisdiction:** Any disputes under this Agreement shall be brought in a court of competent jurisdiction in Galveston, Texas and governed by Texas law.
19. **Alternative Dispute Resolution:** To the extent that Chapter 2260, Texas Government Code, is applicable to this Contract and is not preempted by other applicable law, the dispute resolution process provided for in Chapter 2260 and the related rules adopted by the Texas Attorney General Pursuant to Chapter 2260, shall be used by City and Professional to attempt to resolve any claim for breach of contract made by Professional that cannot be resolved in the ordinary course of business. The Director of Finance of City shall examine Professional's claim and any counterclaim and negotiate with Professional in an effort to resolve such claims. This provision shall not be construed as a waiver by City of its right to seek redress in the courts.
20. **Entire Agreement:** This Agreement contains the entire understanding between the Parties and supersedes all prior agreements, arrangements, and understanding, oral or written between the Parties relating to this Agreement. This Agreement may not be modified except by mutual written agreement of the Parties executed subsequent to this Agreement.
21. **Eligibility to Receive Payment:** Professional certifies that, as a matter of state law, it is not ineligible to receive the Agreement and payments pursuant to the Agreement and acknowledges that the Agreement may be terminated, and payment withheld if this representation is inaccurate.
22. **Payment of Debt/Delinquency to State:** Professional certifies that it is not indebted to the City of League City and is current on all taxes owed to the City of League City. Professional agrees that any payments owing to Professional under the Agreement may be applied directly toward any debt or delinquency that Professional owes the City of League City regardless of when it arises, until such debt or delinquency is paid in full.
23. **Products and Materials Produced in Texas:** If Professional will provide services under the Agreement, Professional covenants and agrees that in performing its duties and obligations under the Agreement, it will purchase products and materials produced in Texas when such products and materials are available at a price and delivery time comparable to products and materials produced outside of Texas.
24. **Risk of Loss:** If applicable, all work performed by Professional pursuant to the Agreement will be at Professional's exclusive risk until final and complete acceptance of the work by City. In the case of any loss or damage to the work prior to City's acceptance, bearing such loss or damage will be Professional's responsibility.
25. **Publicity:** Professional shall not use City's name, logo or likeness in any press release, marketing materials or other public announcement without receiving City's prior written approval.
26. **Legal Construction/Severability:** In the event that any one or more of the provisions contained in this Agreement shall for any reason be held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provision, and this Agreement shall be construed as

if such invalid, illegal or unenforceable provisions had never been contained in it. To this end, the provisions of this Agreement are declared to be severable. The Parties may mutually agree to renegotiate the Agreement to cure such illegality/invalidity or unconstitutionality if such may be reasonably accomplished.

27. **Limitations:** The Parties are aware that there are constitutional and statutory limitations on the authority of City to enter into certain terms and conditions of the Agreement, including, but not limited to, those terms and conditions relating to liens on City's property; disclaimers and limitations of warranties; disclaimers and limitations of liability for damages; waivers, disclaimers and limitations of legal rights, remedies, requirements and processes; limitations of periods to bring legal action; granting control of litigation or settlement to another party; liability for acts or omissions of third parties; payment of attorneys' fees; dispute resolution; indemnities; and confidentiality (collectively, the "Limitations"). Any terms and conditions related to the Limitations will not be binding on City except to the extent authorized by the laws and Constitution of the State of Texas.
28. **Sovereign Immunity:** The Parties agree that neither the execution of the Agreement by City nor any other conduct, action or inaction of any City representative relating to the Agreement constitutes a waiver of sovereign immunity by City.
29. **Authority:** Professional warrants and represents that Professional has full power and authority to enter into and perform this Agreement and to make the grant of rights contained herein. The person signing on behalf of City represents that he/she has authority to sign this Agreement on behalf of City.
30. **Non-Waiver:** The Parties specifically agree that neither the occurrence of an event giving rise to a breach of contract claim nor the pendency of a claim constitute grounds for the suspension of performance by Professional. No covenant or condition of this Agreement may be waived except by written consent of the waiving party. Forbearance or indulgence by one party in any regard whatsoever shall not constitute a waiver of the covenant or condition to be performed by the other party.
31. **Prohibition on Boycotting Israel:** Pursuant to Section 2270.002 of the Texas Government Code, by executing this Agreement Professional verifies that Professional: (1) does not boycott Israel; and (2) will not boycott Israel during the term of this Agreement.
32. **Prohibition Against Business with Iran, Sudan or Foreign Terrorists Organizations:** Professional warrants, covenants, and represents that Professional is not engaged in business with Iran, Sudan, or any company identified on the list referenced in Section 2252.152 of the Texas Government Code.

(signature block on next page)

Executed on this _____ day of _____, _____. *(date to be filled in by City Secretary)*

ARKK ENGINEERS, LLS - "Professional"



Madhu Kilambi, PE

CITY OF LEAGUE CITY – "City"

John Baumgartner, City Manager

Attest:

Diana Stapp, City Secretary

Approved as to Form:

Office of the City Attorney

Exhibit A

Scope of Services/Description of Products/Payment Schedule
(9 number of pages, including this page)

See Next 8 Pages...



January 21, 2020

Mr. Anthony Talluto
Senior Project Manager
City of League City
1505 Dickinson Ave.
League City, Texas 77573

Re: Proposal for Sanitary Sewer Collection System Evaluation Services – Phase 2 (2019-2020)
City of League City

Dear Mr. Talluto:

As requested, ARKK Engineers, LLC (ARKK) is pleased to submit this proposal for performing Phase 2 services of an ongoing sanitary sewer system evaluation services of the sanitary sewer collection system in the City of League City. Phase 1 of this evaluation program was completed recently and resulted in recommendations for follow-up field investigations. This proposal is based on our understanding of the project as discussed in our previous meetings and conversations.

General Overview

In 2017, the City of League City embarked on a sanitary sewer infiltration and inflow reduction survey by performing a City-Wide evaluation of the sanitary sewer collection system by means of flow and rainfall monitoring and subsequent field investigations in selected basins that exhibited the highest amounts of inflow and infiltration. The purpose of the flow and rainfall monitoring was to prioritize the basins with excessive amounts of inflow and infiltration. The City-Wide flow and rainfall monitoring study identified basins LC-09, LC-19, and LC-22 to be exhibiting highest excessive amounts of inflow and infiltration and follow-up field investigations of these basins by smoke testing, dye testing, TV inspection, and manhole inspections were performed. The study recommendations from the field investigations were summarized in the **"2017 Wastewater System Evaluation Report (2017 Study) submitted to the City in 2019.** The rehabilitation of the highest priority lines identified from the 2017 Study is scheduled to occur in 2020-2021.

This Phase 2 proposal incorporates the field investigations of the next highest inflow and infiltration priority basins (LC15, LC06, LC24, and LC09 (portion only – this basin was selected by the City due to on-going maintenance issues)) recommended from the City wide flow and rainfall monitoring study (2017 Study) and recommended for further field investigation. The field investigation will include smoke testing, dye testing, TV inspection, manhole analysis, and field investigation recommendations.

As utilized previously, ARKK will utilize the services of a subcontractor, RJN Group, to perform services associated with the following project elements:

- Smoke testing of approximately 269,100 linear feet in basins LC15, LC06, LC24, and LC09.
- 20 dye tests in basins LC15, LC06, LC24, and LC09. Dyed water testing will be utilized to confirm suspected cross-connections with storm sewers and other waterways.
- Closed-Caption Television (CCTV) Inspections of approximately 22,000 linear feet of small diameter pipes (less than 18-inch diameter) for basins LC15, LC06, LC24, and LC09. Additionally, the project includes 2,500 linear feet of CCTV for representative larger diameter mains in basin LC15. The areas designated for television inspection will be identified from the smoke testing results.
- Manhole inspection data review and analysis for approximately 1,450 structures from basins LC15, LC06, LC24, and LC09. Manhole inspections will be performed by City staff.
- Data Analysis and Reporting – The results of the field work and study will be compiled into a report and submitted to the City.
- Basins LC19 & LC22 Manhole Defect Analysis and amendment to 2017 Study Report. Manhole inspections for Basins LC19 & LC22 were performed by City staff.

A detailed summary of the scope of work and fee for various tasks is presented in RJN Group's attached Scope of Services, which is included as an attachment to this letter. At this time the footages of sanitary sewer to be field investigated is based on GIS data. It is recommended that the City allocate a budget for additional television inspection work and additional smoke testing work that may be deemed to be necessary based on the field investigative efforts.

Fee:

Phase 2 - Sanitary Sewer Evaluation Study (SSES) (RJN Group – cost plus 6%):	\$501,592.00
Project Oversight & Follow-up Meetings (ARKK, lump Sum):	\$ 53,064.00
*Miscellaneous Services as approved by City (budget):	<u>\$ 15,000.00</u>
Total Not to Exceed Fee	\$569,656.00

ARKK will submit monthly progress invoices for all work completed to invoice date. The invoice will be based on the percent of the work completed for lump sum items; and based on units completed for unit price items. ARKK Engineers, LLC sincerely appreciates this opportunity to submit this proposal and we look forward to continuing our work with the City of League City.

Sincerely,

ARKK ENGINEERS, LLC



Madhu Kilambi, P.E.

Senior Project Manager / Principal

cc: Mr. Jody Hooks – City of League City

January 13, 2020

Mr. Madhu Kilambi, P.E.
Senior Project Manager/Principal
ARKK Engineers
7322 Southwest Fwy, Ste 1040
Houston, TX 77074

**RE: Sanitary Sewer Evaluation Study – Phase 2 (2019-2020) Proposal
League City, TX**

Dear Mr. Kilambi:

We appreciate the opportunity to submit this proposal to perform consulting engineering services for a Sanitary Sewer Evaluation Study (SSES) in League City, TX as part of the second year of the SSES Potential Plan provided in the 2017 Sanitary Sewer Rehabilitation Project – Wastewater System Evaluation (WW1201B) final report. RJN Group, Inc. performed a city-wide flow monitoring study in 2017 that identified 22 basins out of the 28 basins with excessive inflow (greater than 10,000 gpd/ 1,000 linear feet) or approximately 70% of the monitored system. Based on the flow monitoring analysis, basins LC19 and LC22 were selected for evaluation by intensive field investigations in 2018. The field investigations consisted of smoke testing, dyed water flooding, and television inspection of the sanitary sewer system. These basins were studied to identify I/I sources and recommend a plan to reduce the overall wet-weather flow and improve the efficiency of the wastewater collection system. During the data review process of the smoke testing findings, a significant number of manholes were found to have defective frame seals that allow approximately 188,220 gpd of inflow into the sanitary sewer system. Due to the significant amount of inflow, complete manhole inspections were recommended to identify further I/I in basins LC19 and LC22.

This proposal includes the second and third year of the SSES Potential Plan, which consists of performing intensive field investigations in basins LC15, LC06, and LC24. Manhole inspections will be performed by the City. An initial manhole inspection training with RJN will be conducted with City staff. Manhole inspection analysis for basins LC19 and LC22 will be performed by RJN. In addition, field investigations will be performed in a portion of basin LC09. Field investigations include:

- Smoke testing of approximately 269,100 linear feet in basins LC15, LC06, LC24, and LC09.
- 20 dye tests in basins LC15, LC06, LC24, and LC09.
- Closed-Caption Television (CCTV) Inspections of approximately 22,000 linear feet of small diameter pipes (less than 18-inch diameter) for basins LC15, LC06, LC24, and LC09. Additionally, the project includes 2,500 linear feet of CCTV for representative larger diameter mains in basin LC15.
- Manhole inspection data review for approximately 1,450 structures from basins LC15, LC06, LC24, and LC09.

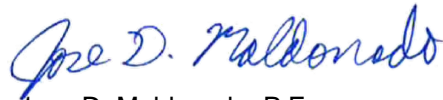
Upon completion of these field investigation activities, source defect analysis will be performed, and a sewer rehabilitation plan will be provided. Please note, in order to expedite the field inspection work, a separate proposal was provided for manhole inspection training and data review of the 535 structures from LC19 and LC22. The tasks for the source defect analysis for those structures and updating the current draft report with the results are also included in this proposal.

We can offer the proposed SSES as outlined above for **\$473,200.00**. The Scope of Services is further detailed in Attachment A and the Compensation is further broken down in Attachment B.

We thank you for the opportunity and look forward to working with you on this project. Should you have any questions, please do not hesitate to contact me.

Respectfully Submitted,

RJN GROUP, INC.



Jose D. Maldonado, P.E.
Senior Project Manager

DTS

Enclosures: Attachment A – Scope of Services
Attachment B – Compensation Schedule

ATTACHMENT A SCOPE OF SERVICES

The scope for this project was developed based on the Sanitary Sewer Evaluation Study (SSES) developed from the flow monitoring study performed in 2017, our understanding of the project needs, our familiarity with the City's Wastewater Collection System, and our experience with many similar projects. The project will include field investigations and development of recommended sewer improvements located in League City, TX. The Sanitary Sewer Evaluation Study (SSES) consists of smoke testing 269,100 linear feet, 20 dye tests, and CCTV of 22,000 linear feet of small diameter pipes (less than 18-inch diameter) for basins LC15, LC06, LC24, and LC09. Additionally, the project includes CCTV of 2,500 linear feet of larger diameter mains in basin LC15.

RJN performed an initial manhole inspection training with the City staff, under a separate contract, so that the City would perform the manhole inspections for 535 structures in LC19 and LC22. Those inspections are anticipated to be completed by January 2020. The manhole inspections will continue to be performed by League City staff. The manhole data review will be performed by RJN for approximately 1,450 structures from basins LC15, LC06, LC24, and LC09. The services are further described in the following sections:

I. Project Administration and Management

- A. Meet with City staff to develop project strategy, coordinate upcoming work, and receive City input. It is anticipated that four meetings will be held, a project start-up meeting, two progress update meetings, and a report deliverable workshop.
- B. Prepare a schedule of work activities and maintain throughout the project.
- C. Perform internal project control procedures on a monthly basis including schedule and budget control, quality control review, and monthly invoices.
- D. Perform administration and coordination of CCTV subconsultants including contract finalization, performance, coordination, and payment requests.

II. Manhole Inspection Data Review

- A. Manhole inspections will be performed by League City staff. City staff will inspect manholes in basins LC15, LC06, LC24 and LC09 and will input inspection data in RJN's manhole inspection form via iPad. The City will submit all manhole inspections performed to RJN. RJN will conduct the manhole inspection data review for approximately 1450 structures (530 structures from basin LC15, 760 structures from basins LC06, and 160 structures from basin LC09). Manhole data will be checked for completeness and defects will be identified for each structure.
- B. RJN shall notify the City of manholes with incomplete manhole inspection data or structures that were not inspected for each basin.

III. Smoke Testing

A. Public Notifications

- 1. RJN will prepare and deliver door hanger notices to residents in the study area necessary for the performance of smoke testing. Every reasonable effort will be made to distribute notices two (2) days prior to smoke testing; however, the City of League City will allow RJN to distribute notices up to a minimum of one day in advance of smoke testing. RJN will have one crew member knock on doors during smoke testing for additional noticing.
- 2. RJN may distribute notices up to a maximum of fourteen (14) days prior to smoke testing. If conditions do not allow smoke testing to be performed during this period, RJN will redistribute notices. If redistribution of smoke notices is required, testing may be performed within one (1) day of the notice.

ATTACHMENT A SCOPE OF SERVICES

3. City staff, Fire Department, and Police Department will be notified daily of smoke testing locations via email. City staff will assist in obtaining contact emails for the City of League City staff, fire, and police department.

B. *Smoke Testing*

1. Smoke testing will be conducted using dual axial blowers for pipe segments 15-inch and smaller. Each 12-inch diameter and larger segment shall be isolated by sandbagging. Smoke testing lengths shall be limited to two line segments between the upstream and downstream blower locations. Smoke testing will be performed only during dry ground periods.
2. Flags shall be placed at observed smoke locations and digital images shall be captured. All defects identified by smoke testing shall be flagged and photographed. Smoke defect locations shall be recorded on sketches or by obtaining GPS coordinates. All private sector smoke defect images shall be entered into the field inspection database.
3. Main line defects and service lateral defects shall be scrutinized to ensure that a conservative determination of public vs. private side defects is made. If necessary, the line shall be earmarked for television inspection.

IV. Public Sector Dyed Water Flooding

- A. Dyed water flooding shall be conducted to verify the existence of inflow and infiltration sources. Dyed water flooding shall be performed at suspected storm sewer cross-connections, streams, creeks, ditches, and other ponding areas that may be contributing to inflow. Estimated leakage rates shall be provided for each positive dye test. Water for the dyed water flooding will be provided by City of League City at no charge to RJN.

V. Closed-Caption Television (CCTV) Inspection

A. *CCTV Inspection*

1. Sanitary sewer lines will be cleaned in order to facilitate the televised inspection activities. Standard cleaning rates are based on three passes with a jet cleaner. Heavy cleaning is not considered part of the CCTV inspection task and is paid separately if required. Lines identified for heavy cleaning will be recommended to the City.
2. During cleaning operations, the subcontractor shall remove and dispose of all sludge, debris, etc. from the sewer at a location designated by the City. The City shall provide water for the cleaning operation at no charge to RJN. All data shall be provided in digital format in a USB drive.
3. Television inspections shall be performed simultaneously with dyed water flooding to observe the leakage of water and the location of the defect. This inspection will allow the proper identification of each defect and selection of the appropriate rehabilitation method.
4. Approximately 2,500 linear of 24-inch and 30-inch large diameter mains will be selected for CCTV. The representative sample of mains will be based on those large diameter mains that have not been CCTV'd or rehabilitated in the past 15 years for basin LC15. Based on available information provided to RJN of mains, there are approximately 4,850 linear feet of pipe. Additional mains may be included for CCTV based on project underruns.

ATTACHMENT A SCOPE OF SERVICES

5. Television inspection will be performed using high-quality color equipment and coded using NASSCO's PACP standards.

B. *TV Inspection Review:* RJN shall review all videos and perform quality control of the data.

VI. Source Defect Analysis and Reporting

- A. Update the maps as differences are found during the field investigations and provide them to the City. Updates shall include new lines and new manholes provided electronically in the form of shapefiles to be compatible with GIS.
- B. The manhole inspection and smoke testing data collected during the project will be accessible through RJN's Clarity™ website (clarity.rjn.com)
- C. *Source Defect Analysis:* At the end of the field investigations, an engineering analysis of field survey data shall be performed to develop recommendations for prioritizing I/I and maintenance source repairs. The analysis includes the 535 structures from LC19 and LC22 and the 1,450 structures from LC15, LC06, LC24, and LC09 for a total of 1,985 structures. The engineering analysis will include:
 1. Compare monitored and source flows using flow monitoring results from the previous flow monitoring study and computerized listing of quantified defect flows.
 2. Balance monitored flows and source flows based on the evaluation of identified source flow rates and unaccounted remaining flow per monitoring location if possible.
 3. Development of recommendations for rehabilitation of both public and private I/I sources in priority order, cost estimates by individual rehabilitation type, and estimated I/I reduction as a result of the recommendations.
- D. *Reports:* Prepare and submit two (2) copies of the draft report for LC15, LC06, LC24, and 09 which includes results of the I/I investigations, findings, cost estimates, and recommended plan to reduce I/I. The draft report will be presented and discussed with City staff. After comments are received, a final report will be prepared and submitted to the City. RJN will provide two (2) hard copies of the final report and one (1) electronic copy. All field inspection photos will be provided in digital format.

The results for LC19 and LC22 will be included as an update to the original report for those basins.

**ATTACHMENT B
COMPENSATION SCHEDULE**

Basins LC15, LC06, & LC24

Activity	Quantity	Unit	Unit Cost (\$)	Total Cost (\$)
<i>Project Management and Administration</i>	1	LS	\$51,930.00	\$51,930.00
<i>Manhole Inspection Data Review</i>				
Basin LC15 MH Inspection Data Review	1	LS	\$25,020.00	\$25,020.00
Basin LC06 & LC24 MH Inspection Data Review	1	LS	\$35,960.00	\$35,960.00
<i>Smoke Testing</i>				
Public Notifications	239,100	LF	\$0.23	\$54,993.00
Smoke Testing	239,100	LF	\$0.47	\$112,377.00
<i>Public Sector Dyed Water Flooding</i>	17	EA	\$675.00	\$11,475.00
<i>Closed-Caption Television (CCTV) Inspection</i>				
CCTV Inspection (subcontractor cost plus 10%)	1	TM	\$52,800.00	\$52,800.00
TV Tape Review	21,500	LF	\$0.36	\$7,740.00
<i>Source Defect Analysis and Reporting</i>				
Basin LC15 Defect Analysis	1	LS	\$13,330.00	\$13,330.00
Basin LC06 & LC24 Defect Analysis	1	LS	\$13,640.00	\$13,640.00
Source Defect Report (LC09, LC15, LC06, & LC24)	1	LS	\$32,680.00	\$32,680.00
			Subtotal	\$411,945.00

Basin LC09

Activity	Quantity	Unit	Unit Cost (\$)	Total Cost (\$)
<i>Manhole Inspection Data Review and Analysis</i>				
Basin LC09 MH Inspection Data Review/Analysis	1	LS	\$11,625.00	\$11,625.00
<i>Smoke Testing</i>				
Public Notifications	30,000	LF	\$0.23	\$6,900.00
Smoke Testing	30,000	LF	\$0.47	\$14,100.00
<i>Public Sector Dyed Water Flooding</i>	3	EA	\$675.00	\$2,025.00
<i>Closed-Caption Television (CCTV) Inspection</i>				
CCTV Inspection	1	TM	\$7,700.00	\$7,700.00
TV Tape Review	3,000	LF	\$0.36	\$1,080.00
<i>Source Defect Analysis</i>				
Source Defect Analysis	1	LS	\$5,435.00	\$5,435.00
			Subtotal	\$48,865.00

Basin LC19 & LC22

Activity	Quantity	Unit	Unit Cost (\$)	Total Cost (\$)
<i>Source Defect Analysis and Reporting</i>				
Basin LC19 & LC22 Manhole Defect Analysis	1	LS	\$6,750.00	\$6,750.00
Basin LC19 & LC22 Update to Final Report	1	LS	\$5,640.00	\$5,640.00
			Subtotal	\$12,390.00

Total Cost = \$473,200.00