# ATTACHMENT A

Scope for Engineering Services Agreement for the Coppell Starleaf Pump Station Study

# STARLEAF PUMP STATION STUDY

The scope set forth herein defines the work to be performed by the ENGINEER in completing the project. Both the CITY and ENGINEER have attempted to clearly define the work to be performed and address the needs of the Project.

WORK TO BE PERFORMED

BASIC SERVICES
Task 1. Site Study
Task 2. Hydraulic Study
Task 3. Pump Type Selection
Task 4. SCADA and Communications Study
Task 5. Preliminary Site Layout

SPECIAL SERVICES
Task 6. Wholesale Water Contracts

## BASIC SERVICES

### Task 1. SITE STUDY — Lump Sum

ENGINEER will perform the following:

1. Site visit and investigation. This will include verification of existing infrastructure and utilities, a visit to surrounding area for architectural considerations, and a visit to both the existing pump station and control room and the Starleaf site as it relates to SCADA communications.

2. Topographical and boundary survey to confirm site property line, easements, and rights-of-way, as well as contours, elevation, existing infrastructure such as manholes, valves signage, etc. This will include both sides of Starleaf Drive and limits of roadway and sidewalk pavement

3. Review of US Army Corps of Engineers inundation map, and asses potential flooding impact to site

4. Geotechnical site assessment based on existing soil borings in area performed by Reed Engineering Group

5. Property ownership verification of adjacent properties

6. Research and review of development standards and their impact on architectural design

ASSUMPTIONS

The proposed site on Starleaf Drive is not to change, but may require expansion

DELIVERABLES

A. Technical memo with recommendations

B. Site exhibits

**Task 2. HYDRAULIC STUDY** **Lump Sum**

ENGINEER will perform the following:

1. Review of distribution system map, existing water system model, and City water usage
2. Determine Average Day, Peak Day and Peak Hour demand
3. Determine proposed take volumes for DWU and IWU wholesale agreements
4. Determine ultimate pump station and tank sizing
5. Determine feasibility of pump station to direct flow toward west Coppell
    a. Import and review existing water model
    b. Update and load any new or revised data
    c. Develop, run and verify alternative scenarios
6. Determine and analyze take point pressure ranges

ASSUMPTIONS

The CITY is to provide ENGINEER with existing water model data.

DELIVERABLES

A. Technical Memo with exhibits of options and related costs

B. Workshop to view model runs (One workshop with additional to be hourly)

**Task 3. PUMP TYPE SELECTION.** **Lump Sum**

ENGINEER will perform the following:

1. Based on the tasks above, explore the following pump types for the proposed pump station and make recommendations to City staff
    a. Vertical Turbine
    b. Horizontal Split Case

Analysis to include building size, site layout requirements, depth of structure, energy usage, maintenance and other factors

2. Analysis of life cycle cost of constant speed pumps versus variable speed pumps

DELIVERABLES

A. Workshop to explore alternatives (One workshop with additional to be hourly)

**Task 4. SCADA AND COMMUNICATIONS** **Lump Sum**

ENGINEER will perform the following:

1. Preliminary investigation of using City owned fiber optic cabling for communications with the new pump station.
2. Preliminary radio path studies, if necessary, to determine initial antenna tower height requirements
3. Development of two different options for each of the following: PLC hardware, graphical user interface (GUI), and remote communications
4. City staff interviews. This will identify levels of experience and capability for maintaining the SCADA system hardware and software

ASSUMPTIONS

The Starleaf Drive Pump Station will communicate with the existing pump station. This may be done with the existing City owned fiber optic cable network, a new radio link, or possibly some combination of both for redundancy purposes.

DELIVERABLES

A. Technical Memo with recommendations that outlines the results of the various design options. (See Task 5)

**Task 5. PRELIMINARY SITE LAYOUT.** **Lump Sum**

1. Generate up to 3 site layout options,
    a. Develop program of spaces to be used in design development (Phase 2) and to aid in site layout options. Develop building size and interior requirements from architectural space programming that includes pump type, electrical equipment, motor control room, office spaces, SCADA control room, and other desired uses
    b. Radio tower height and location, if necessary
    c. Emergency generator, if necessary
    d. Vehicle refueling station
    e. Existing geotechnical borings from surrounding area

f. Tank diameter per height determined in Task 2

g. Vehicle access, construction and future maintenance access

h. Phasing of facility to accommodate City budgeting if necessary

2. Opinion of Probable Construction Cost

3. Draft Study Report

4. Present options to City Staff in workshop

DELIVERABLES

A. Site layout exhibits with accompanying technical memos as appropriate

B. Layout and design workshop

C. Development Advisory Committee meeting, and incorporation of comments

D. Final Study Report that will include technical memos, site plan exhibits, decisions made and general approach to design of facility

**SPECIAL SERVICES**

**Task 6. WHOLESALE WATER CONTRACTS** **Hourly Not-to-Exceed**

ENGINEER will perform the following:

1. Review of Dallas Water Utilities (DWU) and City of Irving (IWU) wholesale treated water contracts

2. Contact DWU and IWU to open discussion and determine status of Dallas and Irving transmission main interconnect

3. Make recommendations and assist in setting parameters for revision to DWU contract, and for new IWU contract

4. Facilitate and moderate meetings between

   a. DWU and City staff

   b. City of Irving and City staff

FEE SCHEDULE

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|---|---|
| BASIC SERVICES | |
| Task 1. Site Study | $ 21,800 |
| Task 2. Hydraulic Study | $ 55,000 |
| Task 3. Pump Type Selection | $ 31,700 |
| Task 4: SCADA and Communications Study | $ 18,000 |
| Task 5. Preliminary Site Layout | $ 81,200 |
| TOTAL BASIC SERVICES | $ 207,700 |
| SPECIAL SERVICES | |
| Task 6. Wholesale Water Contracts | $ 25,000 |
| TOTAL | $ 232,700 |

Upcoming Phases:

Phase 2: Facility Design
- Geotechnical Investigation
- Preliminary Engineering Report (Phase 1 study as draft)
- Pump Station, Tank & System Valves
- Electrical Distribution and Control Design
- SCADA Design
- Platting
- Planning & Zoning and City Council Approval

Phase 3: Construction Phase
- Advertisement & Bidding
- Construction Administration
- Construction Inspections

Phase 4: Commissioning
- Startup & Training
- O&M Manuals
- Record Drawings