
The City of Shreveport

Survey Requirements

**City of Shreveport, Parish of Caddo, Louisiana
Department of Engineering and
Environmental Services**



Burns & McDonnell / Bonton Associates

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Contents

Section	Page
1. Introduction.....	1
2. General	2
3. Control Points	3
4. Survey Limits and Cross Sections	4
5. Sub-Surface Utility Investigations.....	6
6. Survey Feature Codes and Linestyles.....	7
7. Deliverables.....	8

Attachments: Survey Monument Detail, Sample Servitude Plat and Legal Description

1. Introduction

This document provides requirements for surveying performed for projects associated with the City of Shreveport, Parish of Caddo, Louisiana. The term Engineer is defined as an engineering design firm under contract with the City and producing engineering design work that requires a survey for completion of the design. These requirements are provided to encourage consistency in the design approach used by various Engineers.

While the purpose of these requirements is to provide uniformity, it is not intended to stifle Engineer's creativity, design innovation, and ingenuity. Engineers shall review these requirements and adopt them for design of the Scope for which they are responsible.

Engineers are ultimately responsible for their design, and this responsibility is in no way diluted or absolved by these requirements.

It may be necessary for the Engineer to deviate from these requirements. In such cases, the Engineer shall immediately bring this matter to the attention of the City or the City's designee. The City reserves the right to allow or disallow the deviation from the requirements. A variance can only be granted by the City Engineer or Assistant City Engineer in writing.

It may be necessary for the Engineer to subcontract a licensed professional land surveyor in the State of Louisiana to meet the intent of this document.

2. General

Current standards of practice as outlined in the Laws and Rules of the Louisiana Professional Engineering and Land Survey Board in conducting surveys shall be followed. As such, all work shall adhere to modern surveying theory, practice, and procedures. Surveys shall be performed in English units and all data collected shall be reduced to state plane coordinates. The accuracy of the surveys shall conform to survey class A,B,C or D Survey as outlined in the Rules of the Louisiana Professional Engineering and Land Survey Board. The class of survey required will be specified for each design project by the City.

If right-of-way or servitude maps are required for the project, permanent servitude plat and legal descriptions shall be prepared in accordance with the attached documents.

Legal descriptions are required for permanent servitude acquisition plats. Legal descriptions are required for temporary servitudes when expropriation is required.

Temporary and permanent servitude exhibits shall be prepared as required to allow for design and construction of the project.

3. Control Points

Horizontal and vertical control points for design, topographic, boundary, and construction surveys shall meet the accuracy of surveys for the survey class A,B,C or D as identified in the scope of work for the project assigned by the City or its designated project representative. Surveys shall be as outlined in the Rules of the Louisiana Professional Engineering and Land Survey Board. Horizontal control shall be NAD 83 (92) and vertical control shall be NAVD 88 or latest practical established datum. Survey shall be performed using United States Geological Survey monuments, a Continuously Operating Reference Station system (CORS) acceptable to the City and/or approved City of Shreveport Control Network Monuments as provided for the project by the Department of Engineering and Environmental Services.

Project specific City benchmarks shall be submitted for approval by the City Engineer or Assistant City Engineer prior to execution of work.

City may request the establishment of new survey monuments as part of the scope of services. New monuments must be tied into existing USGS monuments or City of Shreveport Control Network monuments provided by the City Engineer or Assistant City Engineer. Existing monuments to be used for establishment of new monuments shall be identified in the scope of work for each specific project. A detail for a new survey monument is attached at the end of this document.

4. Survey Limits and Cross Sections

Survey work shall be performed to determine all surface features and at or below ground elevations at the project site and/or located within the right-of-way along the entire alignment and other areas as may be necessary to develop plan and profiles and site plans for the project as specified in the project scope of work. The Engineer may choose to utilize Global Positioning System (GPS) data for mapping of x-y coordinates. The scope of the surveying work shall include, but not be limited to:

- Determining existing boundary conditions (site property boundary, property lines, servitude widths, and rights-of-way-widths). Solely utilizing GIS right-of-way boundaries and property boundaries is not acceptable. Specific project requirements will be included in the scope of work for the project.
- Servitude survey width limits may vary on a project to project basis and shall include all areas required to develop plan and profiles and site plans as deemed necessary by the Engineer. The survey limits shall be recommended by the Engineer and approved by the City or the City's designee prior to commencement of said survey.
- Confirming existing controls and elevations with current survey and establishing additional survey control points including permanent monuments and temporary benchmarks where required.
- Identifying mapping options and developing preliminary and/or final design mapping.
- Performing field survey in State Plane Coordinate control. All existing surface features within the project limits shall be shown. Surface features include, but are not limited to, edge of pavement, pavement type, curb, gutter, sidewalks, retaining walls, driveways, parking lots, utility poles, utility towers, overhead electric lines, pavement markings (including type of pavement marking), traffic lights, traffic signs, pavement traffic sensors, all other signs, tree type and trunk diameter, drainage channels (including invert and water surface elevations at sewer line crossing), water bodies (ditches, streams, creeks, rivers, ponds, etc.) including invert and water surface elevations at sewer line crossing, railroads and top of rail elevations, structures, bridges, columns, telephone boxes, fences, gates, and all other surface features. The size and type of all surface features shall be shown.
- Performing phased or final design level mapping.
- Coordinating legal issues and constraints (ownership's, zoning, servitudes, etc.) with appropriate parties such as attorneys, title companies and others as required.
- Obtaining parcel maps and ownership information within the project limits as required for execution of the project. Property corner surveys shall be conducted within the project limits for any projects requiring excavation, permanent or temporary servitudes, or right of access. All existing lot numbers and plat information shall be shown as required to establish right-of-way.
- Field surveying pavement match points (curbs, gutter, sidewalk, pavements, etc.).

- Researching and showing records of existing adjacent public utility systems.
- Plotting existing utilities (see Louisiana R.S. 38:2223). At a minimum, Engineer or Engineer's Surveyor shall contact LA One Call to obtain information regarding what private and public utility companies have utilities in the project area. Once the information from LA One Call has been obtained, Engineer shall contact those companies with utilities in the project area by letter to obtain record information. Utilities shall be plotted on the drawings based on information obtained from the utility companies based on records and industry standards, markings from field locations and surface information acquired during survey. Other utilities shall be located to the extent required for design and construction of the project.
- Field surveying and showing on drawings known underground features and utilities within the project limits. These utilities include, but are not limited to, sanitary and storm sewers, drainage structures, water, gas, electric, telephone, cable, fiber optic, traffic loops, services (water, sewer, gas, and all other services), manholes (including top and invert elevations, manhole materials, pipe sizes, and pipe directions), utility vaults, valve boxes (water valves, sewer valves, gas valves, and all other valves), storm inlets (including top and invert elevation), junction boxes (including top and invert elevation), utility appurtenances, cleanouts, water meters, lift stations (wet wells, dry wells, and above-ground piping and valves, including top and invert elevations for wet wells and dry wells and surface drains and centerline elevations for above-ground piping and valves), septic systems, storage tanks, and all other underground features. The type, size, alignment, depth, and top and invert elevations of the underground features shall be noted. Slopes and flow lines shall be noted for existing sewer lines. Materials of construction of underground utilities shall be provided where available.
- If applicable and identified in the scope of work, special areas or elements to be mapped (using GPS data) include:
 - Hazardous materials
 - Archaeologically important areas
 - Wetlands/endangered species
 - Geotechnical exploration drill holes, potholing, test pits and ground penetrating radar
- FEMA Special Flood Hazard Area (SFHA) locations and elevations shall be included and shown on all surveys, permanent servitudes, temporary servitudes and plan drawings when they are present in the project area.

5. Sub-Surface Utility Investigations

The Engineer shall collect record and as-built utility drawings and any other data with regard to location, type and size of underground utility from the public and other / private utility companies identified in the project area. The Engineer shall provide proof of records and/or documented results regarding contacting utilities to the City or Assistant City Engineer. The Engineer shall collect all visible utilities and utility markers and show them on the survey and design drawings/plans. If additional utility location activities are included in the project scope, such as potholing, the Engineer will also include the locations of all utilities located by these additional activities on the survey documents and design plans and profiles, as applicable.

6. Survey Feature Codes and Line styles

The survey shall follow the City of Shreveport Standard Drawing templates for feature legend codes and line style requirements. Standard Drawing templates for sewer rehabilitation and sewer replacement can be found on the City of Shreveport webpage, under engineering services or requested from City engineering department.

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7. Deliverables

The survey shall include the following deliverables, to be submitted with other design deliverables, as appropriate.

- Copy of all survey notes and field roll
- Proof of record and/or documented results of record and as-built utility drawings and utility inventory requests from all utility entities
- Water main, sanitary sewer, storm sewer, drainage channels, ditches and other underground utility information including, but not limited to:
 - Rim Elevations
 - Top of Pipe Elevations for Water Main and Pressure Pipe
 - Invert Elevations for Gravity Pipe
 - Top of Bank and Flow Line Elevations for Open Channels and Ditches
 - Elevation of Bottom of Structure
 - Top of Valve Nut Elevations for Valves
 - Flow Direction
 - Pipe Size and Pipe Materials
 - Structure Size, Depth and Material of Construction
 - Structure Photographs taken during survey
- AutoCAD drawings, in accordance with the City of Shreveport Standard Drawing templates, showing all collected data in three dimensional coordinates.
- AutoCAD drawings to include:
 - Surface Tins
 - Topography
 - Right of Way and Property Lines, as required
 - Servitude Plats
- Servitude Plats (permanent and temporary) signed and sealed by a Louisiana Professional Land Surveyor (see attachments)
- Legal Descriptions for all permanent Servitude Plats
- Legal Descriptions for all temporary Servitude Plats acquired by expropriation
- 2 sets of full-size plans and electronic files in both AutoCAD drawings (.dwg) and pdf shall be required to furnish City

PROJECT: SCOTCH PINE SANITARY SEWER REPLACEMENT
ASSESSORS GEO#: #171435-042-0094-00
PARCEL NO: P1
OWNERSHIP: SMITH, JANE A.

REQUIRED UTILITY ACCESS SERVITUDE P-1

AREA = 509.02 SQUARE FEET

LEGAL DESCRIPTION

A Utility Access Servitude being located in a parcel of land belonging to Jane A. Smith being located in Section 35, Township 17 North, Range 14 West, City of Shreveport, Caddo Parish, Louisiana per Book 6167, Page 83, of the Caddo Parish Conveyance Records, identified by the Caddo Parish Assessor as Parcel Number 171435-042-0094-00, and more particularly described as follows:

BEGINNING at a found iron rod in center of section 35 thence proceed North 0 degrees 35 minutes 14.32 seconds East a distance of 40.389 feet;

Thence proceed North 10 degrees 42 minutes 16.55 seconds East a distance of 58.209 feet;

Thence proceed on a curve Northwest having a radius of 20.00 feet, an arc length of 9.973 feet and a chord bearing of North 75 degrees 36 minutes 52.81 seconds East;

Thence proceed North 89 degrees 53 minutes 58.88 seconds East a distance of 1.081 feet;

Thence proceed South 10 degrees 42 minutes 16.55 seconds West a distance of 101.803 feet;

Thence proceed South 89 degrees 53 minutes 58.62 seconds West a distance of 2.958 feet to the BEGINNING of Servitude herein described, containing 509.02 Square Feet of 0.01 Acre, more or less:

Description based on a survey and plat prepared by John Doe, PLS 0101, dated June 1, 2020.