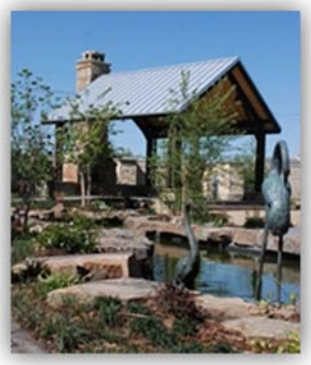
Civil Engineering

Ruthe Jackson Center (RJC) Gardens
Grand Prairie, TX



The City of Grand Prairie Department of Parks retained JEA HydroTech to plan and design new facilities to enhance the amenities of the City's Ruthe Jackson Center. The planning and design centers around a cascading meandering water feature (reinforced concrete).

In addition to designing the Center's water feature, JEA HydroTech's complete scope of professional services included the design and layout of a concrete patio, structural design of foundation support systems for a new Pavilion/Chapel Building, elevated pedestrian walkway/bridge structure, retaining wall design and the structural design of a new fireplace/chimney.

Other elements of the project's design included storm drain system design, public utility design and sub-grade stabilization.

JEA HydroTech's overall responsibilities consisted of coordination with the Texas Department of Licensing and Regulation and franchise utilities.

Design work for the Ruthe Jackson Center Gardens earned a nomination for the 2009 Golden Trowel Award in the Hardscape/Landscape Category through the Masonry Contractors Association.

Montgomery Plaza Pool - Fort Worth, TX

The Montgomery Plaza Pool structural project is the showcase feature of the Condominium complex ideally located between downtown Fort Worth and the Cultural District. Our main engineering focus was directed toward providing the structural design plans for the new pool and spa to be incorporated into the existing building structure. We also provided the plumbing schematic for the pool and spa and specified the main operating equipment.

The design parameters and creative architectural features of the pool and spa made for an unique structural design. The main pool and spa structure was built on the upper level of the existing former Montgomery Ward parking garage. The milsap stone exterior and cantilever cascading water features lead to the project's structural creativity.

Upon its completion, the new pool and spa structure exerts total applied loads of 400 pounds per square foot. Other essential components incorporated into the project included: insulation materials; a perimeter circulation trench system and a thirty-foot negative edge feature with a tolerance not to exceed 1/8 inches from a level plane.

Water Impact Fee Update - Carrollton, TX

Water use-data and the water network analysis computer model for the population served by the City of Carrollton Water Department reviewed and updated. Recommendations made for separating the four pressure planes within the service area, and the mode of providing water supply to each.

Elevated Water Storage Tank and System Improvements, Rollins Hills Estates - Parker County, TX

This project consisted of evaluating the water storage, supply, pumping and distribution system for the residents of Rollins Hills Estates. JEA HydroTech, Inc. performed an analysis of the existing system. The findings were that the water distribution system should be comprised of two (2) pressure planes. Water was originally supplied from two wells. The total storage for the community was insufficient to supply the demands of the residents. The in line booster pumps had no redundancy in the system. The 6" water lines serving the residents were found to meet the minimum fire flow requirements. It was recommended that a 150,000 gal. elevated storage tank be constructed. The design was performed to construct the recommended elevated storage tank, eliminate the two existing booster pump stations, and add two additional 10 HP pumps to the existing two pumps now serving the existing system.

Wastewater System Study - Corinth, TX

A numerical spreadsheet model of the City's wastewater collection system was developed to evaluate the system's performance under current and future population loads. Engineering reports were prepared outlining recommendations for improving the collection system to adequately serve present and future population.

Impact Fee and Capital Improvements Study - Corinth, TX

Evaluated the current impact fees and determined maximum future fees based on a detailed technical study including projected growth and needed facilities. Interacted with the Citizens Advisory Committee, Planning and Zoning Commission in workshops and public hearings leading to the City Council adopting the impact fees at a Public Hearing.

Water Treatment Plant Expansion - Newport, TN

A Water Treatment Plant Expansion project in Newport, Tennessee, required designing specific components. The new plant components included a backwash basin, flocculation basin, and settling basin. The engineering scope of services included sizing plant components, providing the structural details for each of the components foundation supports, piping system design, and overall utility layout and distribution.

Wagon Wheel Park Irrigation Paluxy Well - Coppell, TX

JEA HydroTech worked closely with the City of Coppell and other consultants on this project to identify site constraints, regulatory requirements, and design alternatives for the development of a site plan. Based on criteria established and data gathered, construction plans and specifications were prepared.

Two Irrigation Paluxy Wells - Argyle, TX

Scope of work for Professional Engineering Services included the planning, design and development of two Paluxy wells to provide irrigation water to two (2) sites. JEA HydroTech worked closely with G&A Consultants, the Argyle Independent School District and other consultants on this project to identify site constraints, regulatory requirements, and design alternatives for the development of a site plan.

Water System Analysis - Flower Mound, TX

Assembled data used for a computer model to evaluate the City's water supply, ground storage, pumping, distribution, and elevated storage. Availability and cost of water supply sources for the projected needs of the fast growing town evaluated. Report of recommended and needed improvements for use in adopting impact fees prepared.

Corinth Trinity Well - Corinth, TX

Analyzed water well yield data for the proposed Trinity Well. Bid documents prepared for the 1,600-foot deep, 10" casing gravel wall well. Assisted the City staff with the bidding process, evaluation of bids, award of contract, construction administration, pump selection, and final inspection.

SRF Preliminary Feasibility Report - Corinth, TX

Studied historical populations and projected trends; wastewater flows; existing and needed system capacity; alternative plans for improvements; permitting social and environmental issues. Prepared recommendations for action with cost projections and projected schedule for upgrading the City's wastewater collection system.

Crossroads Christian Church
Grand Prairie, TX

Prepared civil engineering planning and design documents for development of a 116-acre tract. Scope of work included preparing site development plans, utilities, and designing roadway/parking facilities. Professional services also included the design and layout of new storm drain systems that encompassed hydrological and hydraulic considerations and, earthen detention/retention facilities.

Extensive coordination with regulatory agencies was also a primary concern. Regulations and code requirements mandated from the city of Grand Prairie, the Trinity River Authority, and the U.S. Army Corps of Engineers were incorporated into the final construction documents. Design of acceleration and deceleration lanes, traffic control plans for State Highway 360 and impact analysis were also included in the complete scope of professional engineering services.

The scope of this project increased to include a $140 million expansion package to include softball/soccer fields, recreation center, auditorium, etc. This new phase and scope included preparing complete civil engineering plans that involved hydrologic/hydraulic analyses and surveying services.

Crossroads Christian Church is continuously upgrading and adding on to their facilities. JEA HydroTech continues to work closely with CCC on design and construction of new paving design, renovation to the sanctuary choir loft and is currently working on new youth centers.

Texas Catholic Community Credit Union – Fort Worth, TX

Professional Engineering services were performed for completing plans and specifications in developing and constructing a new banking facility (Credit Union Building) in the city limits of Fort Worth.

The complete scope of professional services included: the building design layout for the new facility; Geotechnical and Phase I environmental studies; preparing structural steel framing plans; designing the building's foundation support system and preparing Civil Engineering plans and specifications for the site.

Civil Engineering design considerations included preparing: public utility plans; paving plans and details; landscape/irrigation plans; and Storm Water Pollution Prevention Plans (SWPPP) under TCEQ regulations. Other professional activities included the coordination with franchise utilities to re-locate service equipment and lines along defined service locations. Meeting Planning and Zoning requirements and permitting were part of our overall professional scope of services.

Cooper Square Addition Land Planning and Development – Mansfield, TX

Complete scope of professional services included preparing a Master Development Plan for a 16.8-acre tract of land that included the design layout of storm drain facilities, water distribution system, sanitary sewer services, franchise utility layout, and overall mass grading design. The complete Master Plan provides for subdividing the tract into specifically zoned parcels of land (lots) conducive toward retail/office, retail and medical offices. Other civil engineering tasks involved in the Cooper Square Addition development project included hydrological/hydraulic studies, permitting access driveway & Traffic control plan for State Highway 157, geotechnical studies and pavement design.

The development of Cooper Square Addition is ongoing. Construction plans for the future construction of a banking facility have been prepared. Other facilities within the development include retail centers, and a pharmacy. As development continues, JEA HydroTech will be at the forefront as the lead consulting firm engaged in design, as well as, project and construction management.

Cavender's Boot City – Hurst, TX

Development documents were prepared for grading and drainage, storm drain system's utilities, landscape and irrigation, paving design and traffic control concerns during construction. Other related documents included geotechnical studies and erosion control plans under TCEQ regulations. Public works improvements included preparing construction documents for the design and construction of a 24" RCP Main Storm Drain (SD). The construction of the new SD system was made a part of the overall project development.

Big Green Car Wash Machine – North Richland Hills, TX

The complete scope of professional services involved converting an existing automotive repair shop into a modern automated car wash facility incorporating detail bays and vacuum areas.

The modifications to the existing building consisted of demolishing portions of the interior reinforced concrete floor system and constructing a new reinforced concrete support system to accommodate the latest service equipment. Existing steel structure components were removed and replaced with new steel members in order to meet new span and load requirements.

Civil Engineering services for the project encompassed preparing site development plans involving storm water system design, public work utilities, providing franchise utility layouts, meet State and Federal erosion control regulations, designing reinforced concrete pavement plans for parking area and ADA accessible concrete sidewalks and coordinate permit requirements with the City of NRH and TxDOT. The project traffic control needs mandated extensive coordination with both the Cities of NRH and Hurst incorporating their complete specifications into the project. In addition, rules and regulations governing traffic concerns along Texas' rights-of-way were also considered in the plan layout.

To enhance the development's design, a "green" theme was realized through a most creative landscape feature surrounding the facility.

BEFORE

AFTER

Bowles Park – Grand Prairie, TX

Project consisted of the preparation of Plans, Specifications, and Cost Estimate (PSE) documents for the layout and construction of an approximate one (1) mile meandering 8' wide concrete park trail, and concrete vehicle parking area under Community Development Block Grant (CDBG) funding. The complete project requirements consisted of meeting ADA requirements; creating access to an existing Pavilion and Life Center facilities and adjacent buildings. Additionally, we performed geotechnical investigations; topographic surveys; the design and layout of reinforced concrete pavement; drainage and grading analysis (i.e.: storm drain design; channel modifications, etc.) and administered the bidding and construction process.

Overall construction administration responsibilities involved construction observations; review the contractors' submission of documents (i.e.: verification of project material specifications; change orders; contractor payment applications; etc.). Special requirements further included reviewing the Contractor's compliance with Federal regulations (i.e.: Compliance with the Davis-Bacon Act by conducting employee/labor interviews; etc.). The complete contract administration was required under the CDBG mandates promulgated under the Housing and Urban Development (HUD) program.

Kmart Plaza – Hurst, TX

Design Plan documents were prepared for the extension of 500 L.F. of a Storm Drain System within the Right-of-Way. Related project activities included sizing of storm inlets, route surveying, hydrological analysis and associated geotechnical studies. The complete system was installed primarily to serve the Kmart Plaza.

Bardin Professional Center - Grand Prairie, TX

The scope of professional engineering services included preparing complete site development plans consisting of site utilities, paving, storm drain design, and parking area lighting layout and design. As part of the complete scope of engineering services, geotechnical studies performed for the building foundation design. Additional plan documents were prepared for the structural steel framework construction of the new facility. Also included were complete mechanical, electrical, and plumbing plan documents and specifications.

Greenville Industrial Air Park, Phase II - Greenville, TX

Project included preparation of plans and specifications for constructing 3,000 LF of gravity sewer line. Project also included designing a new Lift Station, based on future sewer flows, population served and land use assumptions. Wet well size selected; the pump and pump settings were designed to satisfy system demands and TCEQ rules and regulations.

Fourth Avenue Church of Christ - Dallas, TX

New 8" AWWA 900 water line designed. The new line design considered reconnection of existing service lines and installation of new services. Specifications for valves, ductile iron fittings, trenching, and traffic control devices were made a part of the complete project.

The project also included the preparation of civil engineering plan documents and construction documents for a new gymnasium facility. Engineering services included a site development plan; grading/drainage plan; erosion control plan; preparation and submittal of a Storm Water Pollution Prevention Plan; geotechnical investigation; and a Boundary Survey.
RE: City Plan #S034-288

I-30 North Frontage RD (Sayle - Terrell RD) - Greenville, TX

Project included designing a new Lift Station of (518,400 GPD pumping rate), 850 LF of 6" force main and 3,500 LF of 8" gravity sewer. The design of the Lift Station was based on projected sewer flows, population served and land use assumptions. Hydraulic modeling of the proposed system, in connection with other pumps on the same force main, was performed. Wet well size was selected; the pump and pump settings were designed to satisfy system demands along with TNRCC (TCEQ) rules and regulations. The complete project included preparing plan/profile documents and construction specifications.

Ore City Elementary School Lift Station, Ore City, TX

Designed a Lift Station for a sanitary sewer system serving an elementary school. Determine pump sizes, flow, elevations, size of force main and required volume of wet well. Investigated soil types, water table, and calculated uplift forces on the lift station.

Pinnel Pointe Lift Station, Corinth, TX

Projected served population and hydraulic loading based on estimated gallons per capita per day (GPCD) and infiltration & inflow (I&I). Computed system curve for various operating conditions and selected duplex pumps. Evaluated buoyancy for this 30-ft deep lift station near Lake Lewisville. Prepared construction documents and reviewed shop drawings.

Coram Deo Academy Lift Station, Flower Mound, TX

Estimated present and future flows based on levels of development and designed lift station based on projected hydraulic loads. Performed value analyses of total project cost (Construction plus present worth of operations and maintenance) for the selection of optimum pumps and force main combinations. Prepared plans and specifications and reviewed contractors and suppliers submittals.

Kwik Industries - Dallas, TX

Prepared civil engineering design plan documents for the construction of Car Lube & oil maintenance facilities, Dry Cleaning/Laundry buildings and Car Wash facilities. Engineering documents were prepared for numerous sites in 100 cities and 39 counties within the State of Texas.

The scope of professional engineering services included preparing complete site development plans consisting of: demolition plans, grading & drainage, detention ponds, storm drain systems, site utilities (water and sanitary sewer systems), lift stations, paving design, erosion control plans, SWPPP, landscape and irrigation plans, traffic control plans, channel design, culvert design and flood studies.

As part of the complete scope of engineering services, foundation support system design, structural steel framework, construction documents, masonry wall plans and geotechnical studies were prepared.