SCOPE OF ENGINEERING SERVICES
COLLIN COUNTY BOND PROJECT
CR 419 BRIDGE

Anything not expressly mentioned in this scope of services will be considered extra services to be negotiated separately with a Supplemental Agreement. In this scope of services, the term Engineer will represent Dannenbaum Engineering and the County will represent Collin County.

I. Preliminary Alignment and Design

A. Survey Services

1. Topographical survey should include all information necessary to establish the road alignment, bridge location, drainage needs and existing right-of-way limits.
2. Cross-section the creek channel at a minimum of 500 feet up stream and 500 feet downstream of bridge crossing for hydraulic studies. Locate and identify existing utilities (both overhead and underground). A plan sheet locating these utilities in relationship to the proposed right-of-way shall be provided to the County for review. When necessary for design, the depth of major utilities such as gas or water lines will be determined by the Engineer. The County's intent is to avoid or minimize the relocation of major utilities. Existing easements, driveways, culverts, gates, fences, significant trees (8 inches in diameter or larger) or other improvements within the project limits will also be located.
3. Locate property lines and provide a right-or-way strip map (11x 17 sheet size) with tracts identified by parcel number. A metes and bounds description with exhibit (8 ½ x 11 sheet size) will be prepared for each parcel. Exhibits will show the existing roadway and location of fences in relationship to the new right-of-way line along with indicating the gross acreage to be acquired, less the approximate acreage in prescriptive right-of-way, and reflect the net acreage to be acquired.
4. Provide a minimum of two (2) permanent benchmarks (vertical). Benchmarks will not be set in telephone poles or trees located within the project limits.
5. Monument the new right-of-way line with iron rods and metal t-posts. Establish at minimum two (2) permanent control points (horizontal) for construction staking. A coordinate list describing monuments set for control or along the new right-of-way line will be incorporated into the plan set.
6. Prior to construction, verify and/or re-establish right-of-way monuments, control points and benchmarks.

B. Geotechnical Services

1. Obtain necessary information to identify geological features that will affect the engineering design for this project. This will include 2 sample borings extending to a depth of 50 feet below existing grades. The soils will be tested for moisture content, liquid and plastic limits, unconfined compression tests and unit weight determinations.

C. Hydraulic Analysis

1. Provide hydrologic study and analysis of through bridge discharges based upon HEC-1 or HEC-HMS, Texas Department of Transportation (TxDOT) Regression Equations Hydraulics Manual and TxDOT Regression Equations from the U.S. Geological Survey Report 96-4307.
2. Provide hydraulic analysis to model both existing and proposed conditions utilizing the Corp of Engineers HEC-RAS River Analysis computer model or HEC II, which performs one-dimensional hydraulic calculations to compute water surface profiles for a river or stream.
3. A formal hydraulic report will not be required. The hydraulic study will be represented by the water surface elevation on the bridge layout sheet.

D. Permits

1. Special Permits are not anticipated for this project and, therefore are not included in this scope

E. Preliminary Design Submittal (30%)

1. Preliminary Plans

    a. Prepare schematic bridge layout plan, roadway plan and profile drawings for review by the County. Drawings should include stationing, horizontal and vertical geometric alignment data, the location of existing easements, proposed improvements and the proposed right-of-way limits. This will be presented as a 30% PS&E submittal.
    b. The 2004 Texas Department of Transportation Specifications book will be utilized and referenced for the plans.
    c. This bridge will be prepared as specified by the set of plans provided by Collin County.
    d. Submit two (2) sets of preliminary plans (11 x 17) – one submittal only.

2. Cost Estimate

    a. Provide preliminary cost estimate.

3. Specifications

    a. Submit outline of specifications – one submittal only.

II. Final Plans, Specifications and Estimate

A. Final Submittal (100%)

1. Final Plans - Submit three (3) sets of Final Plans (11”x17”) and Specifications for review (Only 1 Submittal). Plans will include:

    a. Title Sheet / Index of Sheet
    b. Typical Section
    c. Roadway Plan Profile Drawing
    d. Quantities Summary Sheet

e. Standard Sheets
f. Right-of-Way Exhibit
g. Boring Log
h. Sign Layout
i. Detour Layout
j. Storm Water Pollution Prevention Plan
k. Bridge Layout Plan and Detail Drawings – using TxDOT standard 26 foot width bridge
l. General Notes

2. Specifications.
3. Estimated Cost of Construction.

III. Bid Phase

A. Bidding

1. Provide bid documents, specifications and plans to the contractors for bidding.
2. Attend pre-bid conference.

Evaluate bids, prepare bid tabulation summary, and recommendation letter.

IV. Construction Phase

A. Construction

1. Respond to Requests for Information (RFIs).
2. Review material test reports.
3. Review shop drawings.
4. Perform specific inspections at major stages of construction and periodic inspections for general observations to help ensure that construction conforms to the project specifications and plans.
5. Provide status reports as necessary.
6. Prepare change orders.
7. Conduct final walk-thru with County representative.
8. Submit to County one set of 11”x17” signed paper copies and a CD with the CAD files of the design files. Electronic files in MS Word format will also be included on the CD submitted to TxDOT.