

ENGINEERING SERVICES AGREEMENT

THIS AGREEMENT is made and entered by and between COLLIN COUNTY, TEXAS, a political subdivision of the State of Texas, hereinafter referred to as "County", and JACOBS ENGINEERING GROUP, INC., a DELAWARE Corporation, hereinafter referred to as "Engineer", to be effective from and after the date as provided herein.

WITNESSETH:

WHEREAS, the County desires to engage the services of the Engineer for COLLIN COUNTY OUTER LOOP SEGMENT 3A WIDENING ACCESS ROAD PLAN, SPECIFICATION AND ESTIMATE PREPARATION FROM LEGACY DRIVE TO CHOATE PARKWAY "Project"; and

WHEREAS, the Engineer desires to render such engineering services for the County upon the terms and conditions provided herein.

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS:

That for and in consideration of the covenants contained herein, and for the mutual benefits to be obtained hereby, the parties hereto agree as follows:

I. Retention of the Engineer

The County hereby agrees to retain the Engineer to perform professional engineering services in connection with the Project; Engineer agrees to perform such services in accordance with the terms and conditions of this Agreement, exercising the same degree of care, skill, and diligence as is ordinarily possessed and exercised by a member of the same profession, currently practicing, under similar circumstances.

II. Scope of Services

2.1 The parties agree that Engineer shall perform such services as are set forth herein and described in Exhibit "A", which is attached hereto and thereby made a part of this Agreement. Work for each phase shall be preceded by a Notice to Proceed issued by County. The parties understand and agree that deviations or modifications in the form of written change orders may be authorized from time to time by the County.

2.2 The Engineer will serve as County's professional engineering representative under this Agreement, providing professional engineering, consultation, advice and furnishing customary services incidental thereto. The Engineer agrees to cooperate and coordinate with other design professionals, the County and its contractors to help facilitate efficient construction of the Project and maintain the Project schedule.

2.3 The Engineer shall advise the County with regard to the necessity for subcontract work such as special surveys, tests, test borings, or other subsurface investigations in connection with design and engineering work to be performed hereunder. The Engineer shall also advise the County concerning the results of same. Such survey, test, and investigations shall be furnished to the County.

2.4 The presence or duties of the Engineer's personnel at a construction site, whether as on-site representatives or otherwise, do not make the Engineer or its personnel in any way responsible for those duties that belong to County's construction contractors or other entities, and do not relieve the construction contractors or any other entity of their obligations, duties, and responsibilities, including but not limited to, all construction methods, means, techniques, sequences and procedures necessary for completing all portions of the construction work in accordance with the Contract Documents and any health or safety precautions required by such construction work. The Engineer and its personnel have no authority to exercise any control over any construction contractor or other entity or their employees in connection with their work or any health or safety precautions.

2.5 The Engineer will make periodic recommendations for periodic construction progress payments to the construction contractor. Recommendations by the Engineer to the County for periodic construction progress payments to the construction contractor will be based on the Engineer's knowledge, information, and belief from sampling and observation that the work has progressed to the point indicated. Such recommendations do not represent that there are not other matters at issue between the County and the construction contractor that affect the amount that should be paid.

2.6 The Engineer agrees to provide a complete and coordinated set of drawings and specifications for the construction of the Project, exercising the same degree of care, skill, and diligence as is ordinarily possessed and exercised by a member of the same profession, currently practicing, under similar circumstances. Construction drawings, specifications, and other construction documents prepared by the Engineer or its consultants and submitted to the County for approval or contractors for bidding or negotiation purposes shall be complete and capable of construction "as is". While the utility of communications between design professionals and construction contractors for the purpose of clarifying design intent is recognized, the Project should be capable of construction without the necessity of formal revisions or contract modifications to provide missing design information after construction contracts are awarded. Said documents shall comply with all applicable codes, ordinances, statutes, and regulations governing the design of the Project.

2.7 The Engineer shall assist the County in the preparation and filing of documents required for the approval of governmental authorities having jurisdiction over the Project.

III. Schedule of Services

3.1 The Engineer agrees to commence its services immediately upon execution of this Agreement, or as otherwise directed in writing by the County, and to proceed diligently with said services to completion as described in the Completion Schedule attached hereto as Exhibit "B" and thereby made a part of this Agreement. Engineer shall not be considered in default of this Agreement for delays in performance caused by circumstances beyond its reasonable control. Should such circumstances occur, the Engineer shall, within a reasonable time of being prevented from performing, give written notice to the County describing the circumstances preventing continued performance and the efforts being made to resume performance of this Agreement.

3.2 In the event that the Engineer is delayed in the progress of the work on the Project by an act or neglect of the County, County's employees, or separate contractors employed by the County, or by changes ordered in the Project, fire, adverse weather conditions not reasonably anticipated, unavoidable casualties or other causes beyond the Engineer's control, or delay authorized by the County pending arbitration, or by other causes which the County and Engineer agree may justify delay, then the Contract Time shall be reasonably extended by Contract Amendment. The County shall have the right at any time to delay or

suspend the work or any part thereof for any reasonable time and if this happens, the Engineer's sole remedy for any delays or suspension shall be any extension of time. However, should the delay continue for more than one year past the original completion date in the completion schedule, the Engineer may request to renegotiate their professional fee provided that the fee is reasonable and substantiated by documents showing the need for the requested increase. Any request for a fee increase shall be submitted to County for final approval. The County shall not be independently liable to the Engineer for any delay or interference caused by circumstances beyond the County's control or any delay caused by any other person or entity.

IV. Compensation and Method of Payment

The parties agree that Engineer shall be compensated for all services provided pursuant to this Agreement in the amount and manner described and set forth in the Payment Schedule attached hereto as Exhibit "C" and thereby made a part of this Agreement. Engineer further agrees that it will prepare and present such monthly progress reports and itemized statements as are described in said Exhibit "C". Payment will be made in accordance with The Texas Government Code, Title 10, Subtitle F, Chapter 2251. Engineer further agrees to the following terms prior to payment being due by County:

4.1 Invoice and Payment

- 4.1.1 The Engineer shall provide the County sufficient documentation to reasonably substantiate the invoices.
- 4.1.2 The Engineer will issue monthly invoices for all work performed under the Agreement.
- 4.1.3 In the event of disputed or contested billing, only that portion so contested will be withheld from payment, and the undisputed portion will be paid. The County will exercise reasonableness in contesting any portion thereof. NO interest will accrue on any contested portion of the billing until mutually resolved.
- 4.1.4 In the event of any conflict between Paragraph IV and Chapter 2251 of the Texas Government Code, The Texas Government Code shall prevail.

V. Information to be provided by the County

5.1 The County agrees to furnish to Engineer, prior to the Engineer's commencement of its services, all that information set forth and described on Exhibit "D", which is attached hereto and thereby made a part of this Agreement.

5.2 The County will make its facilities accessible to the Engineer as required for the Engineer's performance of its services. The Engineer represents that it understands the scope of this Agreement and has reviewed and inspected the Project sites, and can fully perform its obligations pursuant to this Agreement. Any failure of the Engineer to acquaint itself with the available information will not relieve the Engineer from its responsibilities pursuant to this Agreement.

5.3 The County shall disclose, to the extent known to the County, the results of prior tests, inspections or investigations conducted for the Project upon request by the Engineer.

VI. Progress Meetings

In addition to providing the monthly progress reports as required under Paragraph IV herein above, Engineer agrees to attend all monthly progress meetings scheduled by County,

and at such meetings to outline work accomplished and special problem or delays encountered in connection with the Project during the previous report period, as well as planned work activities and special problems and delays anticipated for the next report period. The Engineer agrees to cooperate and coordinate with other design professionals, the County and its contractors to help facilitate efficient construction of the Project and maintain the Project schedule.

VII. Insurance

Engineer agrees to meet all insurance requirements as set forth on Exhibit "E" which is attached hereto and thereby made a part of this Agreement.

VIII. Indemnity

5.1 Engineer agrees to indemnify the County to the fullest extent allowed by section 271.904 of the Texas Local Government Code, including payment of the County's reasonable attorneys' fees to the extent such is allowed under 271.904(b).

5.2 The Engineer must be in compliance with the provisions of Section 2254.0031 of the Texas Government Code, which incorporates by reference Section 271.904(d) of the Texas Local Government Code. The Engineer shall perform services (1) with professional skill and care ordinarily provided by competent Engineers practicing under the same or similar circumstances and professional license, and (2) as expeditiously as is prudent considering the ordinary professional skill and care of a competent Engineer.

IX. Independent Contractor

In the performance of services hereunder, the Engineer shall be deemed an independent contractor and shall not, with respect to its acts or omissions, be deemed an agent, subcontractor or employee of the County.

X. Assignment and Subletting

The Engineer agrees that neither this Agreement nor the services to be performed hereunder will be assigned or sublet without the prior written consent of the County. The Engineer further agrees that the assignment or subletting or any portion or feature of the services required in the performance of this Agreement shall not relieve the Engineer from its full obligations to the County as provided by this Agreement.

XI. Audits and Records/Prohibited Interest

11.1 The Engineer agrees that at any time during normal business hours, and as often as County may deem necessary, Engineer shall make available to representatives of the County for examination all of its records with respect to all matters covered by this Agreement, and will permit such representatives of the County to audit, examine, copy and make excerpts or transcripts from such records, and to make audits of all contracts, invoices, materials, payrolls, records of personnel, conditions of employment and other data relating to all matters covered by this Agreement, all for a period of three (3) years from the date of final settlement of this Agreement or of such other or longer period, if any, as may be required by applicable statute or other lawful requirements.

11.2 The Engineer agrees that it is aware of the conflict of interest requirements of the state law which are applicable to persons entering into contracts with the County and will abide by the same. Further, a lawful representative of Engineer shall execute the Affidavit shown in Exhibit

“F”. Engineer understands and agrees that the existence of a conflict of interest during the term of this Agreement will render the agreement voidable.

11.3 The Engineer acknowledges to the County that it has made full disclosure in writing of any existing conflicts of interest or potential conflicts of interest, including personal

financial interest, direct or indirect, in property abutting the proposed Project and business relationships with persons or entities with interest in abutting properties.

XII. Contract Termination

The parties agree that County shall have the right to terminate this Agreement without cause upon thirty (30) days written notice to Engineer. In the event of such termination without cause, Engineer shall deliver to County all finished or unfinished documents, data, studies, surveys, drawings, maps, models, reports, photographs or other items prepared by Engineer in connection with this Agreement. Engineer shall have the right to terminate this Agreement upon thirty (30) days written notice to County in the event of the County’s breach of any material term of this Agreement, including but not limited to compensation and method of payment. Regardless of which party initiates termination, Engineer shall be entitled to compensation for any and all services completed to the satisfaction of County in accordance with the provisions of this Agreement prior to termination.

XIII. Cost Estimates

The parties recognize and agree that any and all Engineer’s estimates of probable construction costs (estimates) prepared by Engineer in connection with the Project represent the best judgment of Engineer as a design professional familiar with the construction industry, but that the Engineer has no control over costs or the price of labor, equipment or materials or over the Contractor’s methods of pricing and does not guarantee that any bids solicited or received in connection with the Project will not vary from estimates prepared by Engineer.

XIV. Ownership of Documents

Original drawings and specifications (Instruments of Service) created by Engineer are the property of the Engineer; however, the Project is the property of the County, and Engineer may not use the drawings and specifications for any purpose not relating to the Project without County’s consent. County shall be furnished with such reproductions of drawings and specifications as County may reasonably require. Upon completion of the services or any earlier termination of this Agreement under Article XII, and payment in full of all monies due Engineer, Engineer will revise drawings to reflect significant changes made during construction as per the marked-up prints, drawings, and other data furnished to the Engineer by or through the County or Contractor. Engineer will promptly furnish the County with one (1) complete set of reproducible record prints. All such reproductions shall be the property of the County who may use them without the Engineer’s permission for any proper purpose relating to the Project, including but not limited to, maintenance of the Project, additions to the Project, or completion of the Project. The aforementioned revisions will be based upon information supplied by the County’s construction contractor and will be assumed by Engineer to be complete and accurate. As such, Engineer shall not be responsible for errors or omissions resulting therefrom. Prints shall be furnished, as an additional service, at any other time requested by County. The County may use such drawings in any manner it desires; provided, however, that the Engineer shall not be liable for the use of such drawings for any project other than the Project described herein.

XV. Complete Contract

15.1 This Agreement, including the exhibits hereto numbered “A” through “F”, constitute the entire agreement by and between the parties regarding the subject matter hereof and supersedes all prior written or oral understandings. This Agreement may only be amended, supplemented, modified or canceled by a duly executed written instrument, signed by the County and the Engineer.

15.2 Warranties contained in this Agreement are in addition to and not in lieu of, any and all other liability imposed upon the Engineer by law with respect to the Engineer’s duties, obligations, and performance hereunder. The Engineer’s liability hereunder shall survive the County’s final acceptance and payment for the Project. All representations and warranties set forth in this Agreement, including without limitation, this paragraph, shall survive the final completion of the Work or earlier termination of this Agreement. The Engineer acknowledges that the County is relying upon the Engineer’s skill and experience in performing the services pursuant to this Agreement.

XVI. Mailing of Notices

Unless instructed otherwise in writing, Engineer agrees that all notices or communications to the County permitted or required under this Agreement shall be addressed to the County at the following address:

Mr. Jesus Gonzalez, P.E.
Jacobs Engineering Group, Inc.
1999 Bryan Street, Ste. 100
Dallas, TX 75201

County agrees that all notices or communications to Engineer permitted or required under this Agreement shall be addressed to Engineer at the following address:

Clarence Daugherty, P.E.
Collin County Engineering
4690 Community Ave.
Ste. 200
McKinney, TX 75071

Bill Bilyeu
Collin County Administration
2300 Bloomdale Rd.
Ste. 4192
McKinney, TX 75071

All notices or communications required to be given in writing by one party or the other shall be considered as having been given to the date such notice or communication is posted by the sending party.

XVII. Miscellaneous

A. Paragraph Headings

The paragraph headings contained herein are for convenience only and are not intended to define or limit the scope of any provision in this Agreement.

B. Interpret Contract Fairly

Although this Agreement is drafted by County, should any part be in dispute, the parties agree that the Agreement shall not be construed more favorable for either party.

C. Venue/Governing Law

The parties agree that the laws of the State of Texas shall govern this Agreement, and that it is performable in Collin County, Texas. The venue for any litigation related to this Agreement shall be in Collin County, Texas.

D. Parties Bound

County and Engineer, and their partners, successors, subcontractors, executors, legal representatives, and administrators are hereby bound to the terms and conditions of this Agreement.

E. Severability

If any term or provision of this Agreement is invalid, illegal, or unenforceable in any jurisdiction, such invalidity, illegality, or unenforceability shall not affect any other term or provision of this Agreement or invalidate or render unenforceable such term or provision in any other jurisdiction. Upon such determination that any term or other provision is invalid, illegal, or unenforceable, the parties hereto shall negotiate in good faith to modify this Agreement so as to effect the original intent of the parties as closely as possible in a mutually acceptable manner in order that the transactions contemplated hereby be consummated as originally contemplated to the greatest extent possible.

F. Effective Date

This Agreement shall be effective from and after execution by both parties hereto.

G. Term of Agreement

The term of Agreement shall conform to the schedule as stipulated in Exhibit "B" attached herein. No other extension shall be authorized unless granted by written agreement between the County and Engineer.

H. Observe and Comply

Engineer shall at all times observe and comply with all federal and State laws and regulations and with all City ordinances and regulations which in any way affect this Agreement and the work hereunder, and shall observe and comply with all orders, laws, ordinances and regulations which may exist or may be enacted later by governing bodies having jurisdiction or authority for such enactment. No plea of misunderstanding or ignorance thereof shall be considered. Engineer agrees to defend, indemnify and hold harmless County and all of its officers, agents, and employees from and against all claims or liability arising out of the violation or any such order, law, ordinance, or regulation, whether it be by itself or its employees.

I. Expenses for Enforcement

In the event either Party hereto is required to employ an attorney to enforce the provisions of this Agreement or is required to commence legal proceedings to enforce the provisions hereof, the prevailing Party shall be entitled to recover from the other, reasonable attorney's fees and court costs incurred in connection with such enforcement, including collection.

J. Force Majeure

No party shall be liable or responsible to the other party, nor be deemed to have defaulted under or breached this Agreement, for any failure or delay in fulfilling or performing any term of this

Agreement, when and to the extent such failure or delay is caused by or results from acts beyond the affected party's reasonable control, including, without limitation: acts of God; flood, fire or explosion; war, invasion, riot or other civil unrest; actions, embargoes or blockades in effect on or after the date of this Agreement; or national or regional emergency (each of the foregoing, a "Force Majeure Event"). A party whose performance is affected by a Force Majeure Event shall give notice to the other party, stating the period of time the occurrence is expected to continue and shall use diligent efforts to end the failure or delay and minimize the effects of such Force Majeure Event.

WITNESS OUR HANDS AND SEALS on the date indicated below.

COLLIN COUNTY, TEXAS

Date: _____

By: _____
Michelle Charnoski, NIGP-CPP, CPPB
Purchasing Agent

Court Order No.: _____

JACOBS ENGINEERING GROUP, INC.

Date: 12-2-2022

By: 
JESUS GONZALEZ
Print Name

Title: MANAGER OF PROJECTS

EXHIBIT “A”

SCOPE OF SERVICES

Collin County Outer Loop Segment 3A Widening Access Road Plan, Specification and Estimate Preparation from Legacy Drive to Choate Parkway

Purpose

The Scope of Work to be performed by the ENGINEER under this contract will consist of the preparation of final plans, specifications, and estimates (PS&E) for adding a 2-lane access road to the Collin County Outer Loop along Segment 3A from Legacy Drive to East of Choate Parkway (ultimate westbound 2 lane urban frontage road) and from Legacy Drive to Huddleston Drive (ultimate eastbound 2 lane urban frontage road).

Details

- The Engineer will prepare plans, details and compute quantities to include grading, paving, drainage, removals, bridges, traffic control/construction sequencing, storm water pollution prevention plans, signals and miscellaneous details.
- Design Criteria for the project shall comply with TxDOT 4R guidelines for Freeways and urban arterials.
- This Project will be developed utilizing English units of measure and all final plan sheets will be half size (11”x17”).
- The work described in this scope of services will include the following major work tasks: Assembly and Review of Data; Supplemental SUE and Utility Coordination; Roadway Design; Drainage Design; Traffic Design; Miscellaneous Roadway Design; Geotechnical Design; Bridge Design and Project Management.
- All work will be done in:
 - Bentley OpenRoads Designer
 - Bentley SUDA

BASIC SERVICES

1. ASSEMBLY AND REVIEW OF DATA

Collection of Data, Reports, and Maps

The determination of data requirements, availability, and sources will be coordinated with the COUNTY. Once the data needs and sources are identified, the ENGINEER will contact the appropriate agencies and organizations to obtain the data. Data to be collected will include, but not be limited to:

- Utility plans and documents from appropriate municipalities and utility companies.
- Readily available plan sets for crossing or abutting sections within the Project Limits.
- Readily available flood plain information and studies from the Federal Emergency Management Agency, FEMA, the Corps of Engineers and/or other governmental agencies. The ENGINEER will obtain electronic and/or hard copies from the COUNTY: GIS Data, drainage reports, mapping, survey, and improvement plans within the scoped area. The ENGINEER will acquire from the COUNTY any aerial mapping and soil data for the designated area.

- Existing Railroad Agreement

Review of Data

The ENGINEER will review the data collected and from this information will:

- Integrate additional data into the study file and evaluate tasks for supporting documentation.
- Develop additional field data, as needed, following review and discussion with the COUNTY.

Roadway Design Criteria

The ENGINEER shall apply appropriate Roadway Design Criteria based on TxDOT 4R guidelines for freeway and urban arterials and prepare a Design Criteria Tabulation for the project and will submit to the COUNTY for approval. The ENGINEER will use the design criteria to identify the maximum and minimum values for all design elements including drainage criteria and will identify the project preferred values.

2. ROADWAY DESIGN

GENERAL

Typical Sections

The ENGINEER shall prepare the existing and proposed typical sections of the roadway, to include Collin County Outer Loop Access Road, Legacy Drive, Huddleston Drive, Dallas Parkway, County Roads 52, Light Farms Way, and SH 289. The proposed pavement structure shall be based upon the geotech report results and as as-built plan sets provided by the COUNTY. (Assumed 18 plan sheets)

Miscellaneous Sheets

1. Title sheet (Assumed 1 plan sheet)
2. Index of sheets (Assumed 2 plan sheet)
3. Project layout sheets at 1" = 200' scale (Assumed 4 plan sheets)
4. Survey control data sheet (Assumed 4 plan sheet)

TRAFFIC CONTROL

Traffic Control Plan

The ENGINEER shall prepare traffic control and sequence of construction plans at a scale of 1" = 100'. The TCP plan will show staged construction of the cross streets improvements to maintain local access. The plans shall identify work areas, temporary paving, temporary shoring, signing, detour alignments, barricades, temporary drainage and other traffic control related items as required. A narrative will be prepared and submitted to the COUNTY for review and incorporation into the plans. Traffic control will utilize TxDOT standard details and meet the requirements of the Texas Manual on Uniform Traffic Control Devices (TMUTCD).

- a. Develop Sequence of Construction, Narrative, and General Notes (Assumed 1 plan sheet)
The Engineer shall develop a sequence of construction for the proposed improvements including a written narrative and any applicable general notes.
- b. Develop Traffic Control Advance Warning Layout (Assumed 2 plan sheet)

In conjunction with the Traffic Control Layouts, the Engineer shall develop an overall advance warning layout in conformance with TxDOT standard requirements.

- c. Develop Traffic Control Typical Sections (Included in plan sheets)
In conjunction with the Traffic Control Layouts, the Engineer shall develop typical sections showing lane widths, edge conditions, channelization and proposed construction area.
- d. Develop Sequence of Construction, Narrative, and General Notes (Assumed 1 plan sheet)
The Engineer shall develop a sequence of construction for the proposed improvements including a written narrative and any applicable general notes.
- e. Traffic Control Layouts (Assumed 3 phases, 36 plan sheets)
Prepare layouts (1" = 100') showing the travel lanes and construction area for each phase of construction. Included in the layouts will be temporary signing and striping, channelization devices, barricades and a narrative of the sequence of work.
- f. Intersection Staging Plans (Assumed 1 plan sheet)
Develop typical intersection staging plans for similar intersections. Develop custom intersection staging layouts only for special conditions.
- g. Driveway Staging Plans (Assumed 1 plan sheet)
Develop a typical driveway staging plan for similar driveways. Develop custom driveway staging layouts only for special conditions.
- h. TCP Quantities Summary Sheet
The Engineer shall develop TCP Quantity Summary Sheets
- i. Detour Plans (Assumed 2 plan sheet)
For detour routings on existing streets, roads, or highways, provide layouts of proposed routing, showing "trail blazing" signs at intersections.
- j. Traffic Control Standard Details
Identify and include applicable TxDOT traffic control standard details for inclusion in the plans
- k. Crush Cushion Summary Sheet

ROADWAY DESIGN

Horizontal Alignment Data Sheet (Assumed 4 plan sheet)

The ENGINEER shall provide a plan sheet with all applicable horizontal alignment data (ORD output) along the project.

Removal Sheets (Assumed 12 plan sheets)

The ENGINEER shall provide removal layouts showing items to be removed at a 1" = 100' scale on dual plan layout sheets.

Surface improvements to be removed including driveways, streets, storm sewer piping, and storm sewer inlets will be identified on the Removal Plan sheets. It is assumed the franchised utilities will either remove their own equipment or will abandon it in place. Information on abandoned water mains and sanitary sewer will be provided by others.

Roadway Plan and Profiles (Assumed 20 plan sheets)

The ENGINEER shall develop the plan sheets and profile sheets at a Scale of 1" = 100' (on 11"

x 17" sheets) for the Collin County Outer Loop Access Road and cross streets for this project. The ENGINEER shall refine the vertical alignment for the roadway based upon the approved design criteria and design ultimate schematic. The horizontal curve data and vertical curve data shall be shown including "K" values. The vertical profiles shall use the approved design ultimate schematic as the starting profile, with minor adjustments as necessary.

The plan and profile sheets will include the following:

- a) Collin County Outer Loop Access Roads
- b) Collin County Outer Loop Main Lane section
- c) Cambridge Crossing
- d) Huddleston Road
- e) Dallas Parkway
- f) CR 52
- g) Light Farm Way
- h) SH 289
- i) Choate Parkway

Intersection Layout Sheets (Assumed 8 plan sheets)

The ENGINEER shall develop contour plans and intersection details for Legacy Drive, Cambridge Crossing, Huddleston Drive, Dallas Parkway, CR 52, Preston Road and Choate Parkway. Layouts will be at a scale of 1" = 20'.

Driveway Profiles / Details Summary (Assumed 4 plan sheets)

The ENGINEER shall analyze number of driveways within the project and develop driveway profiles as needed to ensure that driveways function as intended. (For example, residential driveways will be designed to accommodate passenger cars; commercial driveways will be designed to accommodate trucks). Delineate the limits of construction outside of the right of way needed to secure an adequate driveway profile. Calculate and summarize driveway quantities.

Driveway details will be prepared in a tabular format.

Miscellaneous Roadway Details (Assumed 2 plan sheet)

Prepare any and all necessary plan details necessary to clarify the construction requirements of the paving facilities.

Roadway Cross Sections

The ENGINEER shall prepare proposed cross sections at a scale of 1" = 10' horizontal and 1" = 20' vertical (on 11"X17" format). Cross sections shall be created at all critical locations and on 100-foot increments for Collin County Outer Loop Access Road and cross streets with construction beyond the radius return.

The ENGINEER shall determine the quantities of cut and fill for each cross section and provide the earthwork quantities in a tabular format in the plans for the 60%, 95% and final submittals

Retaining Wall Layouts

The ENGINEER shall develop each retaining wall design and determine the location of each soil boring needed for the foundation design of each retaining wall in accordance with the *Geotechnical Manual*. Prior to preparation of the retaining wall layouts, the ENGINEER shall

prepare a comparative cost analysis of different type of retaining walls versus roadway embankment, pavement, soil stabilization, retaining walls type and available ROW to determine the optimum selection based on economics, construction time duration, ROW encroachments (need for construction easements) and construction feasibility.

The approximate limits of the retaining walls shall be based on Station or length. The ENGINEER shall notify the COUNTY, for their review and approval of retaining walls that will be proposed to be used for each Cut and Fill location. Retaining wall type shall be:

- Mechanically Stabilized Earth (MSE) Walls. The ENGINEER shall prepare the retaining wall layouts showing plan and profile. The ENGINEER shall incorporate a slope of 4:1 or flatter (6:1 preferred) from the existing and finished ground line elevation to the face of the retaining wall.

The ENGINEER shall provide layouts (assume scale 1"=100'), elevations, quantity estimate, summary of quantities, typical cross sections and miscellaneous details of all retaining walls within the project.

If applicable, architectural standard drawings are not included as part of this scope of services and will be provided by the COUNTY and shall be incorporated into design details. The specific requirements for each item are as follows:

1. Layout Plan
2. Profile View
3. Sectional View:
 - a. Reinforced volume
 - b. Underdrain location
 - c. Soil improvements, if applicable.
4. General Guidelines for Retaining Walls
 - a. The ENGINEER shall perform design calculations to check the external stability of the walls including slope stability, bearing, sliding and overturning and detail drawings in accordance with the standard requirements of the State.
 - b. For retaining wall submittals, the ENGINEER shall look at State's Bridge Division website and Dallas District's website for current requirements.

Assembly of Roadway Standards

The ENGINEER will select standard details applicable to the roadway design as needed for construction and include in the plans for the 60%, 95%, and final submittals.

BID PREPARATION (ROADWAY)

The ENGINEER shall provide the following related to bid preparation of roadway elements including:

1. Estimate of quantities, summary table sheets, and an estimate of probable cost using TxDOT bid items to be provided at the 60%, 95% and final submittal.
2. Construction timeline will be prepared using Microsoft Project or similar scheduling software.
3. Applicable general notes and specifications from lists provided by the COUNTY at 95% and final submittal.
4. Roadway Standard and Special Specifications for the Project at the 95% and final submittal.

5. Specifications, Bid Forms and Contract Documents for the Project at the 95% and final submittal. Sections to be included are: Advertisement for Bids, Instructions to Bidders, Governing Specifications and Special Provisions, General Notes, Bid Form, Base Bid Schedule, Construction Agreement, Texas Statutory Payment and Performance Bond, Performance Bond and Maintenance Bond.

QUALITY CONTROL (ROADWAY)

The ENGINEER will perform a Quality Control / Quality Assurance review based on the requirements in the *Project Quality Management Plan* (PQMP) including the following:

1. QAQC will be performed prior to each submittal and the ENGINEER's QAQC review set will be provided with each submittal.

3. DRAINAGE DESIGN

DATA COLLECTION

The ENGINEER shall provide the following data collection services:

- Conduct field inspections to observe current conditions and the outfall channels, the cross drainage structures, drainage easements, the tributary channel, and land development projects that contribute flow to the tributary. The Engineer shall document field inspections with digital photos.
- Collect available applicable data including GIS data and maps, site survey data, construction plans, previous reports and studies, and readily available rainfall history for the area.
- Collect available Flood Insurance Rate Maps (FIRMs), Flood Insurance Study (FIS) study data, and models.
- Review survey data and coordinate any additional surveying needs with client.

DRAINAGE DESIGN CRITERIA

The ENGINEER shall design cross culvert / bridge crossings and storm sewer improvements for the Collin County Outer Loop Access Road. The runoff to each cross culvert, bridge, inlet and pipes will be calculated in accordance with TxDOT criteria using the appropriate design frequency, Chapter 4 / Section 6, Table 4-2as defined in the 2019 TxDOT Hydraulic Design Manual and as shown on standard TxDOT drainage computation plan sheets.

The ENGINEER shall analyze and check scour impacts using the HEC-18 methods and criteria listed in the TxDOT Geotechnical Manual, dated July 2020 for the design event and the check overtopping event or 500-year, whichever less for scour potential and channel stability and will incorporate scour protection into the crossing structure design if determined to be necessary.

HYDROLOGY

The ENGINEER shall provide the following services:

1. Review the hydrologic studies prepared during schematic phase.
2. Calculate discharges using appropriate hydrologic methods and as listed in the 2019 TxDOT

Hydraulic Design Manual. The analysis must include the full range of frequencies (50%, 20%, 10%, 4%, 2%, and 1% AEP).

HYDRAULIC DESIGN

Hydraulic Design for Cross Culverts & Storm Sewer Improvements

The ENGINEER will perform necessary hydraulic computations for the design of this project utilizing either GEOPAK Drainage or ORD SUDA for storm sewers, HY-8 or Bentley Culvert Master for minor (non Bridge-Class) culverts, and HEC-RAS for FEMA bridge crossings (including Non-FEMA bridge-class culverts). Calculations will include culverts, bridge waterways, channels, storm sewers and inlets. Bentley Flow Master or FHWA Hydraulic Toolbox can be used for analyzing roadside ditches.

The ENGINEER will provide all hydraulic calculations to the COUNTY by showing the necessary information in the final plan set.

The ENGINEER shall provide the following services for designing **storm sewer** improvements:

1. Size inlets, laterals, trunk line and outfall.
2. Determine hydraulic grade line starting at the outfall channel for each storm drain design.
3. Calculate manhole headlosses.
4. Limit discharge into existing storm drains and existing outfalls to the capacity of the existing system, which will be determined by the Engineer.
5. Identify areas requiring trench protection, excavation, shoring, and de-watering.
6. Resolve and coordinate utility conflicts, as applicable.
7. Determine the need for drainage easements, if needed.

The ENGINEER shall provide the following services for designing **cross culvert** improvements

1. Determine the sizing of the drainage crossings. The Engineer shall perform cross drainage design using HY-8 or Culvert Master or HEC-RAS.
2. Determine outfall erosion riprap requirements and any drainage easements associated with culvert inflow / outflow locations.
3. Submit technical memorandum summarizing methodology, hydrologic and hydraulic design results for the minor (non bridge-class) cross culverts.

Major FEMA Creek Bridge Crossings Hydraulic Studies

The ENGINEER shall amend the hydraulic report for the Doe Branch Creek prepared during the previous schematic and PS&E phases by submitting an updated hydraulic report to document any changes and design refinements during the current PS&E phase. The ENGINEER shall prepare two (2) standalone hydraulic reports addressing our proposed roadway and bridge improvements at the following FEMA regulated floodplain locations:

- Doe Branch Tributary D
- Doe Branch Creek

The ENGINEER shall provide the following services:

1. Provide existing and proposed 1% AEP floodway analysis.
2. Perform hydraulic design and analysis using appropriate hydraulic methods, which may include computer models such as HEC-RAS.
3. Use the current effective FEMA models, where appropriate, as a base model for the analysis. If a "best available data" model is provided by the local floodplain administrator, it will be utilized for this analysis, if approved by the county. The Engineer shall review the provided

base model for correctness and update as needed.

4. Consider pre-construction, present and post-construction conditions, as well as future widening, as determined for the project.
5. The Engineer shall determine impacts both upstream and downstream of the bridge crossings.

The ENGINEER shall provide scour assessments for the Doe Branch Creek and Doe Branch Tributary D bridge crossings using the HEC-18 method and guidelines listed in the 2020 TxDOT Geotechnical Manual. Our scope excludes providing scour assessments for non-FEMA bridge-class culverts. Scour assessments shall include the following services:

1. Perform a scour analysis for each proposed bridge structure using the HEC-18 method.
2. Prepare each scour analysis using a TxDOT-approved methodology as outlined in the State Geotechnical Manual, dated July 2020.
3. Provide the County the potential scour depths, envelope and any recommended countermeasures including bridge design modifications and/or revetment.

Our scope **excludes** the following services:

1. It is assumed that no channel realignment design will be required for Doe Branch Creek and Doe Branch Tributary D unless mitigation is required to achieve no adverse hydraulic impacts to the creek water surface elevations, then stream realignment and/or grading will be evaluated.
2. Creek Migration Study.
3. CLOMR and/or LOMR FEMA submittals and approvals for both Doe Branch Creek and Doe Branch Tributary D are excluded from this scope. Future LOMR submittals are considered out of scope item and will be considered additional services.
4. 2D SWMM modeling and onsite stormwater detention mitigation.

PLAN, SPECIFICATIONS, AND ESTIMATES (PS&E) DEVELOPMENT FOR DRAINAGE DESIGN

The ENGINEER shall include the following sheets and documents, as appropriate:

- Drainage Area Sheets
- Culvert Layout Sheets
- Storm Sewer Plan/Profile Sheets
- Roadside Ditch Plans
- Hydrologic Data Sheets
- Hydraulic Data Sheets (including Bridge Hydraulic Data Sheets)
- Bridge Scour Envelop Data Sheets (if applicable)
- All other relevant miscellaneous sheets including drainage standards
- Drainage Specifications

Drainage Areas (Assumed 30 sheets)

The ENGINEER shall provide the following:

- a) Offsite drainage area map for the site (Scale of 1" = 2000') (Assumed 3 plan sheets)
- b) Onsite drainage (Storm sewer inlets) area maps. (Scale of 1" = 100') (Assumed 24 plan sheets)

Cross Culvert Layouts (Assumed 13 plan sheet)

Prepare ten (10) non-bridge class culvert crossing layout sheets and three (3) bridge-class culvert crossing layout sheets for each cross-drainage structure in accordance with State standard details,

the Hydraulic Manual and the hydraulic computations developed utilizing HY-8 or other approved method. Prepare layouts at 1"=20'(H) / 1"=5'(V) on 11"x17" plan sheets unless otherwise directed. Prepare separate hydraulic data sheets in junction with culvert crossing layout sheets.

Storm Sewer Plan & Profile Sheets (Assumed 50 plan sheets)

Prepare layouts at 1" = 100' on 11"x17" plan sheets unless otherwise directed. Prepare computation table sheets for rainfall runoff, inlet computations, and pipe computations. Separate drainage profile sheets be included in the plans for the 60%, 95%, and final submittals. The 30% submittal will not include drainage profiles for storm sewers

Roadside Ditch/Channel Layout Sheets (Assumed 15 plan sheets)

The ENGINEER shall prepare ditch and/or channel layout sheets at 1"=100' scale showing proposed ditch elevations, typical channel sections, and limits of grading. Earthwork associated with proposed ditch and/or channel excavations will be tabulated and included in earthwork summary.

Drainage Computations and Bridge Hydraulic Data Sheets (Assumed 30 plan sheets)

Prepare Hydraulic Data Sheets for ALL bridge structures at the outfall channel and indicate site location (e.g., station and name of creek or bayou), if applicable. Prepare scour envelop sheets for major FEMA bridge crossings. Prepare Hydrologic and Hydraulic Computations Summary sheets for all proposed storm sewer sub drainage areas, inlets, pipes, minor cross culverts, and minor driveway culverts.

Miscellaneous Drainage Details (Assumed 8 plan sheets)

Prepare any and all necessary plan details necessary to clarify the construction requirements of the drainage facilities. Prepare details for non-standard inlets, manholes and junction boxes. Details for minor driveway culvert crossings to be provided only in table format. Profiles for minor driveway culverts will not be provided.

Assembly of Drainage Standards

The ENGINEER will select standard details applicable to the drainage design as needed for construction and include in the plans for the 60%, 95%, and final submittals.

Assembly of Drainage Specification List

The ENGINEER will provide the necessary drainage specifications applicable to the drainage design as needed for construction and include in the plans for the 60%, 95%, and final submittals. NCTCOG and/or TxDOT specifications will be used for drainage design.

TEMPORARY DRAINAGE

The ENGINEER shall review the temporary drainage during phased construction by running cross sections at major phases of the TCP. The ENGINEER shall review drainage for positive flow and perform a low point review. Temporary drainage will not include hydrologic study but may include temporary pipes and ditch flow lines included in the phases of construction.

BID PREPARATION (DRAINAGE)

The ENGINEER shall provide the following related to bid preparation of drainage elements including:

1. Estimate of quantities, summary table sheets, and an estimate of probable cost using TxDOT bid items to be provided at the 60%, 95% and final submittal and at major project milestones.
2. Applicable general notes and specifications from lists provided by the COUNTY.
3. Drainage Standard and Special Specifications for the Project at the 95% and final submittal.

QUALITY CONTROL (DRAINAGE)

The ENGINEER will perform a Quality Control / Quality Assurance review based on the requirements in the *Project Quality Management Plan* (PQMP) including the following:

1. QAQC will be performed prior to each submittal and the ENGINEER's QAQC review set will be provided with each submittal.

STORM WATER POLLUTION PREVENTION PLAN (SW3P)

SW3P Data and EPIC Sheet (Assumed 2 plan sheets)

The ENGINEER shall prepare SW3P and EPIC on standard TxDOT SW3P Standard sheet.

SW3P Layouts (Assumed 36 plan sheets)

The ENGINEER shall design a SW3P erosion control plan consistent with the project construction phases that will minimize sediment discharge from the project site through runoff. The ENGINEER shall prepare an erosion control plan at a 1" = 100' scale for each phase of construction.

Post-Construction Plans (BMP Control for TNRCC Section 401)

The ENGINEER will analyze/design the use of vegetative filter strips, grassy swales, special ditch grading, and other non-structural BMP controls within the proposed corridor. Any other BMP control designs, such as permanent detention and/or sedimentation ponds will be considered as additional services.

4. TRAFFIC DESIGN

SIGNING AND PAVEMENT MARKINGS

Signing and Pavement Marking Layout (Assumed 18 plan sheets)

The ENGINEER shall prepare a traffic signing and pavement marking layouts at a scale of 1" = 100' feet on a standard 11" x 17" plan sheets. The layouts will identify the locations of proposed signing and permanent pavement markings in accordance with applicable TxDOT standards and the latest edition of the Texas Manual on Uniform Traffic Control Devices (TMUTCD).

Summary Tables (Assumed 1 plan sheet)

The ENGINEER shall prepare a small sign summary table utilizing TxDOT standard sheets.

Assembly of Sign and Marking Standards

The ENGINEER will select standard details applicable to the signing and marking design as needed for construction and include in the plans for the 60%, 95%, and final submittals.

ILLUMINATION

The ENGINEER will refer to TxDOT's *Highway Illumination Manual* and other deemed necessary State approved manuals for design of continuous lighting. The ENGINEER will prepare circuit wiring diagrams showing the number of luminaires on each circuit, electrical conductors, length of runs, and service pole assemblies. (Assumed 18 plan sheets)

TRAFFIC SIGNALS

The ENGINEER shall prepare traffic signal design for eight proposed signalized intersection in accordance with applicable TxDOT standards and the latest edition of the TMUTCD. The eight intersections for proposed traffic signals are the following:

- EB Outer Loop at NB DNT
- EB Outer Loop at SB DNT
- WB Outer Loop at NB DNT
- WB Outer Loop at SB DNT
- EB outer Loop at Preston Road
- WB outer Loop at Preston Road

The ENGINEER shall prepare traffic signal layouts at a scale of 1" = 40' feet on a standard 11" x 17" plan sheets to include poles, signal heads, luminaires, vehicle detectors, street name signs, regulatory signs, ground boxes, conductors, cables, conduits, pedestrian elements, pavement markings, phasing diagrams, power sources, electrical services and various charts and tables.

The ENGINEER shall develop all quantities, general notes, non-standard specifications and incorporate the appropriate agency standards to allow for a complete signal design. Traffic signal poles, luminaire fixtures, pedestrian elements, signs, vehicle detection and new services must be designed per TxDOT recommendations and standards.

For new services, contact the local utility company to confirm electrical power for signal equipment and include power pole number, power company name, and phone number on plans.

BID PREPARATION (TRAFFIC)

The ENGINEER shall provide the following related to bid preparation of traffic elements including:

1. Estimate of quantities, summary table sheets, and an estimate of probable cost using TxDOT bid items to be provided at the 60%, 95% and final submittal and at major project milestones.
2. Applicable general notes and specifications from lists provided by the COUNTY.
3. Traffic Standard and Special Specifications for the Project at the 95% and final submittal.

QUALITY CONTROL (TRAFFIC)

The ENGINEER will perform a Quality Control / Quality Assurance review based on the requirements in the *Project Quality Management Plan* (PQMP) including the following:

1. QAQC will be performed prior to each submittal and the ENGINEER's QAQC review set will be provided with each submittal.

5. BRIDGE DESIGN

WBFR AT BNSF RAILROAD

The ENGINEER shall produce complete Bridge Layouts, Structural Details, and an Exhibit A for the proposed westbound frontage road (WBFR) bridge over the BNSF railroad. It also spans over CR1117 and WB Connector Rd. The structure is approximately 600' long and is on a skew. Special considerations must also be made for the future main lane widening of the bridge. It is assumed the structure will consist of an I-Girder superstructure supported by cast-in-place concrete bents on drilled shaft foundations.

WBFR AT DOE BRANCH CREEK

The ENGINEER shall produce complete Bridge Layouts and Structural Details for the proposed westbound frontage road (WBFR) bridge over Doe Branch Creek. The structure is approximately 830' long with a superelevation transition and is also on a skew. Special considerations must also be made for the future main lane widening of the bridge. It is assumed the structure will consist of an I-Girder superstructure supported by cast-in-place concrete bents on drilled shaft foundations.

WBFR AT DOE BRANCH TRIBUTARY

The ENGINEER shall produce complete Bridge Layouts and Structural Details for the proposed westbound frontage road (WBFR) bridge over Doe Branch Tributary. The structure is approximately 600' long and 53' wide with a superelevation transition and is also on a skew. It is assumed the structure will consist of an I-Girder superstructure supported by cast-in-place concrete bents on drilled shaft foundations.

EBFR AT DOE BRANCH TRIBUTARY

The ENGINEER shall produce complete Bridge Layouts and Structural Details for the proposed eastbound frontage road (EBFR) bridge over Doe Branch Tributary. The structure is approximately 600' long and 53' wide and is on a skew. It is assumed the structure will consist of an I-Girder superstructure supported by cast-in-place concrete bents on drilled shaft foundations.

STRUCTURE

The ENGINEER shall prepare structural details for the bridges listed above. The details shall include abutment details, interior bent details, span/unit details, I-girder details, and details for illumination on the bridge where applicable. TxDOT standards shall be used if possible. Prestressed concrete I-Girder units shall be designed to be continuous slab, with no integral concrete end diaphragms. Bents shall be standard TxDOT multi-column bents with standard circular columns and rectangular bent caps and shall only include minimal aesthetic details such as staining. The ENGINEER should size the bridge to meet drainage requirements.

EXHIBIT A

The ENGINEER shall produce an Exhibit A and Design Conformance to Railroad Guidelines (DCRG) Report for the BNSF Railroad crossing in accordance with TxDOT's Rail-Highway Operations Manual. The DCRG report shall detail how the proposed overpass design meets or does not meet BNSF company design guidelines. The Exhibit A shall include a 30% plan set detailing the work to be performed within railroad right-of-way. This plan set shall include separate sheets, if applicable, for:

1. Title sheet with Index of Sheets (not required on replanking projects)
2. Project layout sheet (on large construction projects)
3. Active warning devices (if installing or modifying)
4. Signing and Striping (if not shown with active warning devices)
5. Traffic signal layouts and phasing (if preemption is involved)
6. Plan view of conduits, pipes, and culverts under track
7. Planking layout (if installing or modifying)
8. Bridge or roadway plan and profile
9. Rail survey (bridge projects; out to 1000 feet on both sides of bridge on overpass projects and out to 1500 feet on both sides of bridge on underpass projects)
10. Roadway typical sections (planning and construction projects)
11. Rail typical sections (planking and underpass projects)
12. Ditch cross sections on 100 foot centers (joint drainage projects)
13. Railroad requirements sheets (construction projects)

BRIDGE LAYOUTS

The ENGINEER shall prepare bridge layouts in accordance with TxDOT's Bridge Division Manuals. The ENGINEER shall coordinate with the Geotechnical Engineer to determine the location of each soil boring needed for foundation design in accordance with the TxDOT Geotechnical Manual.

FOUNDATION DESIGN

The ENGINEER shall develop the foundation design in accordance with TxDOT's Bridge Division Geotechnical Manual and the Geotechnical Engineer's recommendations.

BRIDGE TOTAL QUANTITIES AND COST ESTIMATES

The ENGINEER shall provide all of the bridge quantities by construction phase and the estimate of probable cost for the bridge using TxDOT bid items.

BEARING SEAT AND CONTROL ELEVATIONS

The ENGINEER shall provide bearing seat elevations for each beam and control elevations for each abutment and bent.

GENERAL GUIDELINES FOR BRIDGE DESIGN

The ENGINEER shall make final design calculations and provide information to the COUNTY. The bridge designs shall be in accordance with TxDOT's Bridge Division manuals. TxDOT standard details will be used to the extent possible.

BRIDGE CLASSIFICATION CULVERT LAYOUTS

The ENGINEER shall prepare culvert layouts for submission to the Bridge Division for culverts that meet criteria for bridge classification culverts.

BID PREPARATION (BRIDGE)

The ENGINEER shall provide the following related to bid preparation of bridge/structural elements including:

1. Estimate of quantities, summary table sheets, and an estimate of probable cost using TxDOT bid items to be provided at the 30%, 60%, 95% and final submittal and at major project milestones.
2. Applicable general notes and specifications from lists provided by the COUNTY.
3. Bridge Standard and Special Specifications for the Project at the 95% and final submittal.

QUALITY CONTROL (BRIDGE)

The ENGINEER will perform a Quality Control / Quality Assurance review based on the requirements in the *Project Quality Management Plan* (PQMP) including the following:

1. QAQC will be performed prior to each submittal and the ENGINEER's QAQC review set will be provided with each submittal.

6. PROJECT MANAGEMENT

Project Coordination and Resolution Meetings

The ENGINEER shall attend the below listed meetings with the COUNTY with up to two (2) team members. Meetings will include the following:

1. Design Kickoff Meeting
2. 30% Design Status and Coordination Meeting
3. 60% Comment Review Resolution Meeting
4. 95% Comment Review Resolution

Meeting Stakeholder Coordination

The ENGINEER shall attend the below listed meetings with the City of Celina, North Texas Tollway Authority (NTTA), Denton County and Burlington Northern and Santa Fe Railway (BNSF) with up to two (2) team member. Meeting with include the following:

City of Celina

1. Design Kickoff Meeting
2. 30% Design Status and Coordination Meeting
3. 60% Comment Review Resolution Meeting
4. 95% Comment Review Resolution Meeting

NTTA

1. Two Coordination meetings with North Dallas Tollway Mainlane Project

BNSF

2. One Coordination meeting with BNSF Railway

DENTON COUNTY

1. Three Coordination Meetings with Denton County Outer Loop Team

Project Administration

Prepare project correspondence and monthly progress reports, coordinate with sub

consultants, and maintain routine project record keeping.

Invoicing

The ENGINEER shall prepare monthly invoices for the project including a progress report for the work completed the previous period.

SPECIAL SERVICES

SS1. SURVEY

General Standards

All surveys shall meet or exceed the standards set in the Professional Land Surveying Practices Act, the General Rules of Procedures and Practices promulgated by the Texas Board of Professional Land Surveying (TBPLS), and TxDOT's Survey Manual, latest edition, and shall be accomplished in an organized and workman-like manner, subject to the approval of the County.

The North American Datum of 1983 (NAD83), Texas Coordinate System of 1983 (State Plane Coordinates), applicable to the zone or zones in which the work is performed, with values in U.S. Survey Feet, will be used as the basis for all horizontal coordinates derived, unless otherwise directed by the County. Elevations will be based on the North American Vertical Datum 88 (NAVD88), unless otherwise directed by the County.

All GPS work, whether primary control surveys or other, shall meet or exceed the current TxDOT's GPS Manual of Practice, latest edition, to the order of accuracy specified in the categories listed below or in a work authorization. If the order of accuracy is not specified in this contract or in a work authorization, the work shall meet or exceed the order of accuracy specified in the publications listed in this paragraph.

All conventional horizontal and vertical control surveys shall meet or exceed the current, TxDOT's Survey Manual, latest edition, and the Texas Society of Professional Surveyors (TSPS) Manual of Practice for Land Surveying in the State of Texas, latest edition, to the order of accuracy specified, and in the categories listed below or in a work authorization. If the order of accuracy is not specified in this contract or in a work authorization, the work shall meet or exceed the order of accuracy specified in the publications listed in this paragraph.

In order to ensure accuracy and accountability of the services provided under this contract, the Surveyor may be required to certify work performed under this contract as true and correct according to, TxDOT's Survey Manual, latest edition, TxDOT's GPS Manual of Practice, latest edition, or the TSPS Manual of Practice for Land Surveying in the State of Texas, as may be applicable.

The Surveyor shall provide temporary signing and traffic control in and around survey operations. All signs, flags and safety equipment shall be provided by the Surveyor. Collin County shall be notified at least 48 hours in advance of any lane closures.

The Surveyor shall provide all personnel, equipment, and survey supplies necessary for the performance of the activities required by this agreement or by any work authorization.

Data (original and processed) shall be provided to the County on a compact disk or other approved medium and shall be in the following formats: Microsoft Word for word processing, MicroStation, Geopak V8i for graphics applications.

Variations from these software applications or other requirements listed above shall only be allowed if requested in writing by the Surveyor and approved by the County.

The Surveyor shall perform Quality Control/Quality Assurance on all procedures, field surveys, data, and products prior to delivery to the County. If, at any time, during the course of reviewing a submittal of any item it becomes apparent to the County that the submittal contains errors, omissions, and inconsistencies, the County may cease its review and return the submittal to the

Surveyor immediately for appropriate action by the Surveyor. A submittal returned to the Surveyor for this reason is not a submittal for purposes of the submission schedule.

The Standards for services that are not boundary-related but that relate to surveying for engineering projects may be determined by the project Engineer, construction specifications, or design specifications.

Specific Work to Be Performed for approximately 4.5 miles from Legacy Drive (CR 6) to Hackberry Circle:

1. Obtain or collect data on existing roadway constructed and where grading has occurred by creating cross-sections and digital terrain models through aerial mapping services.

Aerial Imagery

New color aerial imagery will be taken with a digital aerial camera. DAS will develop a flight plan that shows the number, spacing and length of flight lines over the project area as well as the spacing of the exposures along each flight line. The flight will be at an altitude sufficient to acquire imagery at 5cm GSD to support ASPRS Class 1 Standards for 1"=40' planimetric mapping and one (1)-foot contours.

LiDAR Data Collection

LiDAR will be flown with the Riegl VUX-1 LR sensor or equivalent. In areas covered by trees, DAS will collect points that get through the tree canopy. However, areas of heavy vegetation and particularly dense underbrush may cause the accuracy of these obscured areas to diminish, and in some instances may leave void areas. It is recommended in these areas that field survey crews provide supplemental survey shots along with a report of the conditions. The LiDAR will support the generation of one (1)-foot contours. DAS will collect approximately thirty (30) points per square meter.

Airborne GPS/IMU

Airborne GPS (ABGPS) will be collected during the flight. This reduces the number of GPS points required in the field. Camera drift inputs to the mount are sent via the Flight Management System in conjunction with accurate measurements provided by the ABGPS AV along with IMU. The ABGPS/IMU components are used to record accurate rotations and accelerations which are applied to the imagery during post processing.

Aerial Target and Ground Control Survey

Jacobs Engineering Group, Inc. (Jacobs) will provide all ground control surveys that are necessary to determine the elevation and horizontal position of all control points required. Horizontal and vertical control shall be established by either conventional or GPS. Control shall comply with National Map Accuracy Standards. Upon completion of ground control responsibilities, please furnish DAS with a diagram of control locations, along with a list of coordinates in ASCII format, as follows: Pt# X Y Z. If the project is to be delivered in surface coordinates, DAS will require delivery of the ground control data in both surface and grid coordinates. DAS will require a total of sixteen (16) control points.

Ground Truthing Point

Jacobs will provide ground truthing points throughout the project limits. DAS will require one (1) cross-section every half-mile.

Map Compilation

Planimetric features to be shown will include all visible features such as roads, bridges, houses, buildings, creeks, rivers, lakes, ponds, railroads, transmission lines, power poles and fences. Trees and group tree outlines will not be shown. DAS will outline obscured areas.

Contours

A digital terrain model (DTM) will be provided in 3D, consisting of LiDAR bare earth ground points and breaklines. Contours will be generated from the resulting surface and intervals will be shown as solid lines with index contours indicated by a heavier line weight

and labeled. In obscured areas contours shall be shown as dashed lines. Contours will be provided at one (1)-foot intervals.

Digital Orthophotography

The aerial imagery will be ortho-rectified using the generated DTM to produce geographically corrected digital imagery. Each image will then be mosaicked into one overall, seamless image, and then exported at **three (3)-inch (0.25')** ground resolution.

2. Locate existing utilities, signs, and improvements
3. Provide details of existing drainage features, (e.g., culverts, manholes, etc.).
4. Provide details of existing bridge structures, including bridge limits, bents, columns, retaining walls, and natural ground elevations
5. Establish additional (up to 3) control points as needed and verify existing control points. Horizontal and Vertical control ties must be made and tabulated to other control points in the vicinity, which were established by other sources such as, the National Geodetic Survey (NGS), and the Federal Emergency Management Agency (FEMA), and any other local entities as directed by the State.
The Engineer's Surveyors shall also prepare a Survey Control index Sheet and a Horizontal and Vertical Control Sheet(s), signed, sealed and dated by the professional engineer in direct responsible charge of the surveying and the responsible RPLS for insertion into the plan set if additional control points are set.
6. Perform hydrographic surveys / creek cross sections at the following locations and specific data collection methods and intervals:
Dow Branch Creek Sta: 5040+00 (schematic)
Dow Branch Tributary – Future Cambridge Crossing Development: 4935+00

Provide 4 cross sections upstream and 4 cross sections downstream of each of the existing bridge and/or culvert FEMA crossings (Total Cross Sections upstream and downstream the WBFR / EBFR = 8). Two cross sections north and south of the ML bridges. Within each cross section, take ground shot every 50 feet intervals. Need channel flow line elevation shot and channel overbanks shots. The cross sections will go up to 400 ft from the upstream and downstream face of the existing bridge and / or culvert along the creek alignment. The first two sections bounding the existing bridges / culvert need to be at least 5' from the face of the bridge / culvert. The total length of each surveyed cross section shall be at least 400 ft.
7. All Surveying shall be performed under the direct supervision of a Professional Land Surveyor licensed and in good standing with the State of Texas.

Deliverables for Survey and Task

1. 2D planimetric topographic map and data in Microstation v8i format.
2. 3D Digital Terrain Model (DTM) in Microstation v8i format.
3. Horizontal and Vertical Control Sheet. (Index Sheet and FM 2462 datasheet)
4. 1" = 40' Planimetric mapping in 2D and 3D MicroStation V8I format
5. Statement of Map Accuracy

6. Ground Truthing QC Report
7. Aerial Imagery and/or LiDAR flight Certification(s)
8. 3D 1-Ft contour data in MicroStation V8I format
9. 3D DTM (includes 3D planimetric features) in MicroStation V8I format
10. TIN data in GeoPak format file
11. 0.25-Ft ground resolution digital orthophotography in enhanced compression wavelet (ECW) format
12. Bare Earth LiDAR point file in LAS format
13. LiDAR Calibration Report

SS2. GEOTECHNICAL SERVICES

The geotechnical investigation performed for the referenced project will consist of field and laboratory investigations, engineering analysis, and a report prepared by a Licensed Professional Engineer.

Field Investigation

The field investigation will consist of drilling a total of sixty six (66) borings including eleven (11) bridge borings to depths of 80 feet each (or 40 feet into rock), eight (8) retaining wall borings to depths of 30 feet each, five (5) embankment borings to depths of 30 feet each and forty two (42) pavement borings to depths of 15 feet below the existing ground surface. The borings are spaced based on guidelines provided in the TxDOT's Geotechnical Manual.

The bridge borings will be drilled until 30 to 40 feet of unweathered rock (shale) is penetrated. Unweathered rock (shale) is anticipated to be encountered at average depths of 30 to 40 feet below the existing ground surface. Therefore, it is anticipated that the test borings will be drilled to depths of 60 feet to 80 feet below the existing ground surface.

Subsurface soil samples will be secured with thin walled tube and/or split spoon samples depending on soil type and consistency. Rock encountered within the bridge borings will be continuously rock cored and will also be evaluated using the Texas Department of Transportation Penetrometer (TxDOT Cone). In addition, TxDOT cone testing will be performed on 5-foot intervals for the overburden soils for the bridge borings. All samples will be properly logged, packaged, sealed, and placed in a core box for transportation to the laboratory. The test borings will be backfilled with soil cuttings and/or bentonite chips.

The ENGINEER assumes that the boring locations will be accessible to our conventional truck mounted drilling equipment during normal working hours. Should unusual soil conditions be encountered, we will provide the COUNTY with a recommendation and cost estimate to explore these conditions.

The ENGINEER will contact Dig Tess to have them locate underground utilities. However, the ENGINEER is not responsible for damage to underground utilities that are not identified prior to drilling.

Laboratory Investigation

Laboratory tests will be conducted to classify the soil and to evaluate the volume change potential (PVR) and strength of the soil and rock present at the site. Per TxDOT standards, Atterberg limits, sieve analysis and moisture contents will be performed on every stratum within each of the pavement borings. The volume change potential of the soils will also be evaluated by Atterberg's limits and/or swell tests. The strength of the soil will be estimated using hand penetrometer tests and unconfined compressive strength tests. Unconfined compressive strength testing will also be performed on the rock cores. Sulfate testing will be performed within the top 10 feet per TxDOT standards. Lime / PI series tests will also be performed on selected clay samples, if requested. CU triaxial testing and one-dimensional consolidation testing may be performed for the slope stability and settlement analyses of the proposed retaining walls and embankments.

Engineering Analyses

Results of field and laboratory work will be presented in an engineering report. The report will include our recommendations to guide design and construction of the new roadway and will include the following:

1. Generalized soils stratigraphy and groundwater levels. Results of classification and TCP testing with WinCore format boring logs.
2. Site Condition.
3. Site Geology.
4. Visually classify the soil samples by an engineer in the laboratory.
5. Straight shaft pier recommendations for the design of the bridge foundations.
6. Gradation test results for scour analyses for bridge across creeks.
7. MSE wall external stability analyses for retaining walls
7. Pavement subgrade preparation recommendations.
9. Concrete pavement section recommendations based upon design traffic data provided by others using AASHTO methodology.
10. Comments on the presence and effect of expansive soils on pavement construction will be provided. Alternative methods of reducing any anticipated shrink/swell movements associated with expansive clays will be included for pavement construction, if required.
11. Slope stability analyses for proposed embankments.
12. Embankment fill and compaction recommendations.

INCREMENTAL SERVICES

The following incremental services are considered supplemental to basic or special services as described above and are to be billed by the ENGINEER on a time and materials basis as outlined below not to exceed an overall amount. Prior to any incremental services being performed, the ENGINEER shall prepare for the COUNTY a fee proposal based on pre-negotiated rates. The ENGINEER shall not begin any work until written authorization has been provided by the COUNTY.

IS1. ROADWAY DESIGN (CROSSOVER DESIGN)

During the project it is anticipated that the COUNTY may wish to shift the roadway from the ultimate EBFR to the ultimate WBFR as a crossover design for the interim condition until the next segment of westbound service roads are ready to be designed. The Engineer will perform the engineering design and plan preparation for this Crossover in accordance with the scope items described above under BASIC SERVICES, including roadway, drainage and traffic engineering.

IS2. SUBSURFACE UTILITY ENGINEERING (SUE)

Introduction

Lamb-Star Engineering (LSE) will perform the SUE Investigation required for this project in general accordance with the recommended practices and procedures described in ASCE Publication CI/ASCE 38-02 (Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data). As described in the mentioned ASCE publication, four levels have been established to describe the quality of utility location and attribute information used on plans. The four quality levels are as follows:

- Quality Level D (QL-D) – Information derived from existing records.
- Quality Level C (QL-C) – QL D information supplemented with information obtained by surveying visible above-ground utility features (i.e. valves, hydrants, meters, manhole covers, etc.)
- Quality Level B (QL-B) – Two-dimensional (x, y) information obtained through the application and interpretation of non-destructive surface geophysical methods. Also known as “designating” this quality level provides the approximate horizontal position of subsurface utilities.
- Quality Level A (QL-A) – Also known as “locating”, this quality level provides precise three-dimensional (x, y, z) information at critical locations by exposing specific utilities. Non-destructive vacuum excavation equipment is used to expose the utilities at specific points which are then tied down by survey.

Scope of Work

Based on information provided by Jacobs Engineering, LSE has developed a preliminary scope and exhibit showing the proposed limits for the utility investigation required for this project. The SUE project limits shall be starting 1500 feet to the East of the intersection of Pebble Dr. and FM 428, limits will continue East in a 600 foot swath just south of Cambridge Crossing subdivision, across Huddleston Dr to Dallas Parkway. At Dallas Parkway the limits expand to the north 1500 feet ROW to ROW only. Continuing the 600 foot swath to the East from CR 52 to SH 289 just North of W Outer Loop. At SH 289 the limits expand North 1200 feet ROW to ROW only, then continuing the 600 foot swath East about 5000 feet to the end of the limits. An exhibit of the SUE investigation limits is attached to the end of this proposal. The scope of work may be modified, with concurrence, during the performance of the fieldwork if warranted by actual field findings. For this project, LSE will attempt to achieve QL-B for all subsurface utilities except gravity fed systems which will be attempted to achieve QL-C within the red polygon shown below. Utilities will be depicted at their achieved quality levels. Overhead utilities will be surveyed and depicted. LSE will provide all surveying that is required for the collection of field data. Prior to beginning the SUE investigation, Jacobs will provide LSE with project survey control and any additional information necessary for use in preparing the deliverables.

Designating Procedures

Prior to beginning field designating activities, LSE’s field manager will review the project scope of work and available utility records. Once these initial reviews are complete, the field manager and technicians will begin designating the approximate horizontal position of known subsurface utilities within the specified project limits. A suite of geophysical equipment will be used to designate metallic/conductive utilities (e.g. steel pipe, electrical cable, telephone cable). Non-metallic/non-conductive utilities will be designated using a rodder and/or a sonde where access is available (e.g., empty PE conduit) to provide a medium for signal transmission, which can then be designated using geophysical equipment. In instances where access is not available, (e.g., pressurized PVC water

line), LSE personnel will attempt to designate the utility by use of ground penetrating radar.

Assumptions

The following assumptions were made for the preparation of this Scope of Services. If these assumptions do not prove correct, a modification to the scope and budget for this project may be required.

- The budget estimate is to provide all services on a one-time basis. Subsurface Utility Engineering services provided in connection with re-routes or requested revisions will be additional services billed under a separate negotiated fee.
- This proposal assumes that all work areas are sufficiently cleared of vegetation (to a maximum height of 6") such that all areas are traversable on foot for the purpose of performing designating. Additionally, this proposal assumes clear traversable access will be provided for vacuum excavation equipment to perform any test holes. LSE reserves the right to seek additional compensation for work interruptions due to property access and clearing issues.
- The accuracy and ability to find existing utilities by using a suite of geophysical methods can be influenced by factors beyond LSE's control, such as conductivity of the materials and their surroundings, soil moisture content, proximity of other underground utilities or structures, depth of utility, etc.
- Non-metallic piping, inactive electric, and/or communication lines may or may not be found by electromagnetic designating practices. LSE does not warrant and/or guarantee that all existing utilities will be found.
- Suitability maps show GPR effectiveness is low to moderate in the project area. LSE will utilize GPR during the utility investigation and will note on the deliverables whether the radar had success detecting known utilities or not.
- Normal traffic control, for Subsurface Utility Engineering services, is considered standard placement of traffic cones, freestanding warning signage and vehicle-mounted traffic directional sign. Traffic control requiring lane closures, shoulder closures, traffic detouring, flagpersons, police, etc., is considered special traffic control. If special traffic control is needed, this service will be subcontracted to an approved subcontractor and invoiced to the Client at \$1,650 per day.
- All work will be performed during daytime hours. The project may require weekend work.
- LSE will be notified, prior to mobilizing to the Project, of any special requirements for access and the performance of the work.
- The Client will ensure that LSE crews have access and right of entry to all areas that must be accessed during the project including utility easements through private property.
- Utility coordination, test holes, and any services other than a utility investigation attempting to achieve up to Quality Level B are excluded from this scope of work.
- Recurring meetings and/or conference calls will not be needed
- LSE personnel will have unrestricted access to the work areas on a ten (10) hour per day basis for each day approved to perform work.

- Client will provide CAD reference files prior to beginning the SUE investigation.
- Permitting, licensing, bonds, etc., will not be required by the client and/or agencies in order to complete the SUE investigation. Fees and labor associated with such items are not included in this scope and fee, however, they will be invoiced to the client if later determined necessary.
- A copy of the completed package will be sent to the Client for their review prior to final submittal.
- LSE estimates a maximum of 64,050 linear feet of utilities within the limits of investigation.

SUE DELIVERABLES AND SCHEDULE

A digital .dgn CAD file depicting the utilities within the area of investigation at their achieved quality levels will be provided. The file will clearly identify all utilities discovered from QL-D and QL- C investigation that could not be designated in the field as QL-B. These utility lines will have a unique line style and symbology in the deliverables. The utilities will be referenced by the type of utility, color coded to American Public Works Association standards. A signed and sealed .pdf plan view drawing set with sheet sizes 11"x17" will also be provided based upon the utility results outlined. All deliverables will be based on Texas State Plane coordinates. All electronic project files used, and/or modified by LSE, scanned utility records collected, and utility contact information will be provided for this project.

LSE will commence work on the project within 3 weeks of notice to proceed (NTP). LSE anticipates a minimum of 2 weeks to collect records and 3 weeks of initial field utility investigation. Based on these parameters LSE will submit a preliminary deliverable within 80 days of NTP. This preliminary schedule is contingent on no weather delays, COVID-19 restrictions, or other events beyond LSE's control.

ESTIMATED FEES

The total estimated fee to complete the work described herein is \$85,865.00 based upon the breakdown below:

Item	Rate	Unit	Quantity	Fee
Project Management/Coordination/QL-D	\$5,875.00	Lump Sum	1	\$5,875.00
QL-B Designating/ Surveying	\$3,875.00	Crew Day	19	\$82,565.00
QA/QC	\$3,065.00	Lump Sum	1	\$3,875.00
Traffic Control (If Needed)	\$1,650.00	Day	2	\$3,300.00
Total				\$85,865.00

IS3. UTILITY COORDINATION

Utility Coordination

The ENGINEER shall assist the COUNTY in planning, coordinating, and attend up to three (3) utility coordination meetings with the identified affected utility companies within the limits of the project. These meetings will establish the preliminary schedule for the respective utility adjustments performed by others. Jacobs will provide up to two (2) team members at each meeting. Provide status updates on design progress, schedule, and relocation needs. Provide 60%, 90% and 100% design plans to the franchise utilities for review.

Design Exhibits – Prepare any necessary design exhibits in CAD or PDF which may provide clarification and/or assist franchise utilities with understanding project impacts or relocation needs.

Utility Agreements

The COUNTY shall prepare and obtain up to two (2) Utility Agreements for the project. The ENGINEER shall aid the COUNTY in production of exhibits and estimates for the utility agreements.

ADDITIONAL SERVICES

The following additional services are beyond the scope of services described above. However, the ENGINEER can provide the additional services, if required, upon the County's written request. Any additional amounts paid to the ENGINEER as a result of any material change to the scope of the project shall be agreed upon under a separate contract.

The additional services include, but are not limited to, the following:

Additional Construction Services

- Bid Phase Services
- Shop Drawing Review
- Construction Phase Services

EXHIBIT "B"

FINAL DESIGN COMPLETION SCHEDULE

Refer to the attached schedule for deliverable/milestone dates

30% Design submittal

3 sets of 11" x 17" plan sheets including:

- Title Sheet with Index of Sheets
- Final Existing and Proposed Typical Sections
- Control Data Sheets & Right Of Way Marker
- Sheets Plan and Profile Sheets for all Alignments
- Preliminary Drainage Area Maps
- Preliminary Hydraulic Computations
- Preliminary Culvert Layout
- Preliminary Bridge Layouts
- Draft Hydraulic Report for Doe Branch
- Preliminary Bridge Details
- 1 set of 11" x 17" 1" = 10'(H), 1" = 20'(V) cross sections
- ENGINEER's internal QAQC marked-up set
- Attend design coordination / review meeting with the County.

60% Design Submittal

3 sets of 11" x 17" plan sheets including:

- Address 30% Design Comments
- Update Title Sheet with Index of Sheets including
- Standards Final Existing and Proposed Typical Sections
- Preliminary Summary Sheets
- Preliminary Traffic Control Plans
- Control Data Sheets & Right Of Way Marker
- Sheets Plan and Profile Sheets for all Alignments
- Preliminary Intersection Layouts
- Miscellaneous Roadway
- Details Preliminary Storm
- Sewer Plans Final Drainage
- Area Maps
- Final Hydraulic Computations
- Final Culvert Layouts
- Existing Utility Plans
- Final Bridge Layouts
- Draft BNSF Exhibit A
- Draft Hydraulic Report for Doe Branch and Doe Branch Trib Creek
- Preliminary Bridge Details
- Preliminary Signing Layouts
- Preliminary Pavement Marking
- Layouts Preliminary SW3P Layouts
- 1 set of 11" x 17" 1" = 10'(H), 1" = 20'(V) cross sections
- Estimate of construction cost
- ENGINEER's internal QAQC marked-up set

95% Design Submittal

3 sets of 11" x 17" complete plan set with 60% Comments addressed
1 set of 11" x 17" 1" = 50'(H), 1" = 20'(V) cross sections
Estimate of construction cost
Preliminary Specification, Bid Form, General Notes and Contract Document
Construction Schedule
ENGINEER's internal QAQC marked-up set

Final Submittal

Six (6) Paper sets of 11" x 17" plan sheets with 95% Comments addressed
PDF Portfolio of 11" x 17" signed and sealed
Final BNSF Exhibit A
Final Estimate of construction cost
Final Construction Schedule
Final Hydraulic Report for Doe Branch and Doe Branch Trib Creek
HEC-HMS/RAS Models on CD
Final Specification, Bid Form, General Notes and Contract Document
ENGINEER'S internal QAQC mark-up set
CD of Final drawings including GPK files for the COUNTY
1 sets of 11" X 17" 1" = 50'(H), 1" = 20'(V) final cross sections (Paper)
PDF of Final Cross Sections

Calculations

The ENGINEER shall provide a 3 ring binder with all quantity and design calculations.

EXHIBIT "C"

PAYMENT SCHEDULE

Invoices will be transmitted to the County on a monthly basis based on a percentage of completion up to that time, and payments to the Engineer will be made as follows:

A derivation of the total contract fee amount is attached.

FIRM	ROLE	TOTAL
Jacobs Engineering Group, Inc.	Engineering/Survey/Utility	\$ 1,780,608.19
DAS	Aerial Mapping	\$ 72,501.75
PSI	Geotech	\$ 264,781.00
Lamb-Star	SUE	\$ 85,865.00
		\$ 2,203,755.94

	JACOBS	PSI	SAM	
TOTAL BS TASK 1	\$ 7,304.36	\$ -	\$ -	
TOTAL BS TASK 2	\$ 397,656.68	\$ -	\$ -	
TOTAL BS TASK 3	\$ 472,392.08	\$ -	\$ -	
TOTAL BS TASK 4	\$ 199,242.36	\$ -	\$ -	
TOTAL BS TASK 5	\$ 478,366.86	\$ -	\$ -	
TOTAL BS TASK 6	\$ 26,532.30	\$ -	\$ -	
TOTAL BASIC SERVICES	\$ 1,581,494.64	\$ -	\$ -	\$ 1,581,494.64 TOTAL BASIC SERVICES
TOTAL SS TASK 1	\$ 79,412.25	\$ -	\$ -	
TOTAL SS TASK 2	\$ 72,501.75			
TOTAL SS TASK 3	\$ 264,781.00			
TOTAL SPECIAL SERVICES	\$ 416,695.00	\$ -	\$ -	\$ 416,695.00 TOTAL SPECIAL SERVICES
TOTAL IS TASK 1	\$ 50,000.00			
TOTAL IS TASK 2	\$ 85,865.00	\$ -	\$ -	
TOTAL IS TASK 3	\$ 23,359.02	\$ -		
TOTAL INCREMENTAL SERVICES	\$ 159,224.02	\$ -	\$ -	\$ 159,224.02 TOTAL INCREMENTAL SERVICES
MARKUP ON SUBS	\$ 42,314.78			\$ 42,314.78 MARKUP
ODES	\$ 4,027.50			\$ 4,027.50 ODES
				\$ 2,203,755.94

SUMMARY
 JACOBS ENGINEERING GROUP, INC.
 Collin County Outer Loop Segment 3B: East of SH 289 to Custer Road

<i>Collin County Outer Loop Segment 3A Legacy Drive to East of Preston Road (SH 289)</i>	
BASIC SERVICES	
Jacobs Engineering Group (Engineering Design)	\$ 1,581,494.64
Total Basic Services	\$ 1,581,494.64
SPECIAL SERVICES	
Jacobs Engineering Group (Field Survey and Geotech)	\$ 79,412.25
Dallas Aerial Survey	\$ 72,501.75
Professional Services Industries, Inc. (Geotechnical Testing and Engineering)	\$ 264,781.00
Total Special Services	\$ 416,695.00
INCREMENTAL SERVICES	
Jacobs Engineering Group (Crossover Design and Utility Coordination)	\$ 73,359.02
Lamb-Star. (Subsurface Utility Engineering)	\$ 85,865.00
Total Incremental Services *	\$ 159,224.02
MISCELLANEOUS	
Jacobs Engineering Group (Markup on Subconsultants)	\$ 42,314.78
Jacobs Engineering Group (Reimbursable Direct Expenses)	\$ 4,027.50
Total Miscellaneous **	\$ 46,342.28

\$ 2,203,755.94

* Incremental Services are Time and Materials Basis, Not to Exceed

\$ 1,780,608.19

** Miscellaneous are Lump Sum Basis

FEE PROPOSAL
 JACOBS ENGINEERING GROUP, INC.
 Collin County Outer Loop Segment 3B: East of SH 289 to Custer Road

Collin County Outer Loop Segment 3A Legacy Drive to East of Preston Road (SH 289)	Project Manager	Senior Engineer	Project Engineer	EIT	CAD Technician	Clerical	Totals
Rate	\$ 253.30	\$ 221.06	\$ 156.59	\$ 108.23	\$ 119.74	\$ 85.20	
BASIC SERVICES							
Task 1 - Assembly and Review of Data							
Collection of Data, Reports and Maps	2		4	8		8	22
Review of Data	2		4	8			14
Project Design Criteria Tabulation	2		8	8			18
Task 1 Total Hours	6	0	16	24	0	8	54
Task 1 Total Labor Costs	\$ 1,519.80	\$ -	\$ 2,505.44	\$ 2,597.52	\$ -	\$ 681.60	\$ 7,304.36
Task 2 - Roadway Design							
A. GENERAL							
Title Sheet			8		24		32
Index of Sheets			8		24		32
Project Layout Sheets			8	8	40		56
Typical Sections (Existing & Proposed)	4		16	24	64		108
Quantity Summary Sheets	8		24	32	16		80
B. TRAFFIC CONTROL							
Traffic Control General Notes and Narrative	4		12		8		24
Traffic Control Advance Warning Layout	4		16	20	20		60
Traffic Control Typical Sections	8		32	32	40		112
Traffic Control Plan Sheets	12		88	160	120		380
Assembly of Traffic Control Standards			4		12		16
C. ROADWAY DESIGN							
Horizontal Alignment Data Sheet			8	8	16		32
Removal Plan Sheets	4		16	16	60		96
Roadway Plan & Profile Sheets	20		80	180	160		440
Cross Street Plan & Profile Sheets	4		56	100	80		240
Intersection Layout Sheets	4		72	44	72		192
Driveway Profiles / Details / Summary	4		24	40	32		100
Miscellaneous Roadway Details	4		16	24	20		64
Roadway Cross Sections	10		100	160	40		310
Retaining Wall Layouts	10		80	80	120		290
Assembly of Roadway Standards			8		8		16
D. BID PREPARATION (ROADWAY)							
Determination of Roadway Quantities	8		16	8	16	12	60
Roadway General Notes (60%, 95%, Final)	4		16	8	8	12	48
Roadway Cost Estimates (60%, 95%, Final)	4		24	16		12	56
Roadway Specs, Bid Form and Contract Docs (95% and Final)	24					12	36
E. QUALITY CONTROL (ROADWAY)							
Roadway QA/QC Plan Review	16	40	40			8	104
Task 2 Total Hours	156	40	772	960	1000	56	2984
Task 2 Total Labor Costs	\$ 39,514.80	\$ 8,842.40	\$ 120,887.48	\$ 103,900.80	\$ 119,740.00	\$ 4,771.20	\$ 397,656.68
Task 3 - Drainage Design							

FEE PROPOSAL
 JACOBS ENGINEERING GROUP, INC.
 Collin County Outer Loop Segment 3B: East of SH 289 to Custer Road

Collin County Outer Loop Segment 3A Legacy Drive to East of Preston Road (SH 289)	Project Manager	Senior Engineer	Project Engineer	EIT	CAD Technician	Clerical	Totals
Rate	\$ 253.30	\$ 221.06	\$ 156.59	\$ 108.23	\$ 119.74	\$ 85.20	
A. DATA COLLECTION							
Site Visit/Field Inspection			4	4			8
Obtain Reports, Maps, FEMA studies/models		2	2	2			6
Review Data & Coordinate with Surveyor		2	1	1			4
Coordination with government and private entities	4	6	2				12
B. HYDROLOGY							
Review hydrologic studies		2	6	22			30
Calculate discharges (incl. Drainage areas & parameters)		10	20	35			65
C. HYDRAULIC DESIGN							
Storm Sewer Improvements							
Size inlets, laterals, trunk lines, and outfalls		3	6	31			40
Calculate headlosses and Hydraulic gradeline		2	8	10			20
Trench Protection		1	1	4			6
Utility Coordination		1	1	2			4
Cross Culvert Improvements							
Hydraulic Analysis and Sizing		8	15	47			70
Design Riprap and Determine Drainage Easements		2	3	5			10
Prepare/Submit Technical Memo - Minor Culverts	2	2	12	10	13	1	40
FEMA Creek Bridge Crossings							
Doe Branch Tributary D							
Corrected Effective/Existing Conditions Hydraulic Analysis		8	32	40			80
Proposed Conditions Analysis (current & full buildout)		8	32	40			80
Scour Analysis		4	16	10			30
Hydraulic Report	5	6	38	18	16	2	85
Doe Branch (Update Previous Study)							
Corrected Effective/Existing Conditions Hydraulic Analysis		2	8	12			22
Proposed Conditions Analysis (current & full buildout)		2	8	16			26
Analysis (EXIST/PROP/FUTURE)		2	16	4			22
Scour Analysis		4	8	4			16
Hydraulic Report	5	4	20	8	6	2	45
D. PS&E DRAINAGE DESIGN							
Drainage Area Sheets		24	43	305	105		477
Culvert Layout Sheets		18	68	185	18		289
Storm Sewer Plan Sheets		35	139	365	70		609
Storm Sewer Profile Sheets		24	114	280	70		488
Roadside Ditch/Channel Layout Sheets		8	45	151	17		221
Drainage Computation Sheets		8	46	146	35		235
Bridge Hydraulic Data Sheets		4	14	90	39		147
Assembly of Misc. Sheets & Drainage Standards			2	2	1		5

FEE PROPOSAL
 JACOBS ENGINEERING GROUP, INC.
 Collin County Outer Loop Segment 3B: East of SH 289 to Custer Road

Collin County Outer Loop Segment 3A Legacy Drive to East of Preston Road (SH 289)	Project Manager	Senior Engineer	Project Engineer	EIT	CAD Technician	Clerical	Totals
Rate	\$ 253.30	\$ 221.06	\$ 156.59	\$ 108.23	\$ 119.74	\$ 85.20	
Assembly of Drainage Specification List		2	4	8		2	16
E. TEMPORARY DRAINAGE							
Review Temporary Drainage during phased construction	2	1	1	2			6
F. BID PREPARATION (DRAINAGE)							
Estimate of quantities, summary table sheets, estimate of probable cost (60%, 95%, final)		2	1	4	1		8
G. QUALITY CONTROL (DRAINAGE)							0
Perform QA/QC prior to each submittal	9	30	11				50
H. SW3P							
SW3P Data Sheet	4		20	24	32		80
SW3P Layouts	4		80	80	120		284
Task 3 Total Hours	35	237	847	1967	543	7	3636
Task 3 Total Labor Costs	\$ 8,865.50	\$ 52,391.22	\$ 132,631.73	\$ 212,888.41	\$ 65,018.82	\$ 596.40	\$ 472,392.08
Task 4 - Traffic Design							
A. SIGNING & PAVEMENT MARKING							
Signing & Pavement Marking Layout	10	10	60	80	80		240
Summary of Small Signs	1	2	20	20	20		63
Assembly of Sign and Marking Standards	1	4	8		16		29
B. ILLUMINATION							
Continuous Lighting	8	40	80	80	152		360
C. I TRAFFIC SIGNALS							
Prepare traffic signal design at the following locations:							
EB & WB Outer Loop at NB DNT	4	12	32	80	80		208
EB & WB Outer Loop at SB DNT	4	12	32	80	80		208
EB & WB Outer Loop at Preston Road	4	12	32	80	80		208
D. BID PREPARATION (TRAFFIC)							
Estimate of quantities, summary table sheets, estimate of probable cost (30%, 60%, 95%, final)	4	8	32	32			76
E. QUALITY CONTROL (TRAFFIC)							
Traffic QA/QC Plan Review	8	16	24	24			72
Task 4 Total Hours	44	116	320	476	508	0	1464
Task 4 Total Labor Costs	\$ 11,145.20	\$ 25,642.96	\$ 50,108.80	\$ 51,517.48	\$ 60,827.92	\$ -	\$ 199,242.36
Task 5 - Bridge Design							
A. WBFR AT BNSF RAILROAD							
Bridge Layouts	4	32	32	64	64		196
Exhibit A	4	12	16	20	24		76
Summary of Quantities	2	4	4	8	8		26
Control Elevations		4	4	12	8		28
Foundation Design		2	4	12			18
Abutment Design		4	8	24			36

FEE PROPOSAL
 JACOBS ENGINEERING GROUP, INC.
 Collin County Outer Loop Segment 3B: East of SH 289 to Custer Road

Collin County Outer Loop Segment 3A Legacy Drive to East of Preston Road (SH 289)	Project Manager	Senior Engineer	Project Engineer	EIT	CAD Technician	Clerical	Totals
Rate	\$ 253.30	\$ 221.06	\$ 156.59	\$ 108.23	\$ 119.74	\$ 85.20	
Bent Design		6	16	32			54
Beam Design		12	32	64			108
Boring Details			2	4	4		10
Foundation Details			2	4	4		10
Abutment Details			2	6	24		32
Bent Details			4	8	32		44
Framing Plans			4	16	32		52
Slab Plans			4	16	32		52
Beam Design Tables			2	8	4		14
Prepare Bridge Calculations		2	6	8			16
Bridge Cost Estimates	2	4	2				8
Bridge Specs, Bid Form, and Contract Docs	6	12					18
B. WBFR AT DOE BRANCH CREEK							
Bridge Layouts	4	32	48	96	80		260
Summary of Quantities	2	4	4	8	8		26
Control Elevations		6	6	18	12		42
Foundation Design		2	4	12			18
Abutment Design		4	8	24			36
Bent Design		8	24	40			72
Beam Design		16	48	80			144
Boring Details			2	4	4		10
Foundation Details			2	4	4		10
Abutment Details			2	6	24		32
Bent Details			4	12	40		56
Framing Plans			6	24	40		70
Slab Plans			6	24	40		70
Beam Design Tables			2	8	4		14
Prepare Bridge Calculations		2	6	8			16
Bridge Cost Estimates	2	4	2				8
Bridge Specs, Bid Form, and Contract Docs	8	16					24
C. WBFR AT DOE BRANCH TRIBUTARY							
Bridge Layouts	4	32	64	32	64		196
Summary of Quantities	2	4	4	8	8		26
Control Elevations		4	4	12	8		28
Foundation Design		2	4	12			18
Abutment Design		4	8	24			36
Bent Design		6	16	32			54
Beam Design		12	32	64			108
Boring Details			2	4	4		10
Foundation Details			2	4	4		10
Abutment Details			2	6	24		32
Bent Details			4	8	32		44

FEE PROPOSAL
 JACOBS ENGINEERING GROUP, INC.
 Collin County Outer Loop Segment 3B: East of SH 289 to Custer Road

Collin County Outer Loop Segment 3A Legacy Drive to East of Preston Road (SH 289)	Project Manager	Senior Engineer	Project Engineer	EIT	CAD Technician	Clerical	Totals
Rate	\$ 253.30	\$ 221.06	\$ 156.59	\$ 108.23	\$ 119.74	\$ 85.20	
Framing Plans			4	16	32		52
Slab Plans			4	16	32		52
Beam Design Tables			2	8	4		14
Prepare Bridge Calculations		2	6	8			16
Bridge Cost Estimates	2	4	2				8
Bridge Specs, Bid Form, and Contract Docs	6	12					18
D. EBFR AT DOE BRANCH TRIBUTARY							0
Bridge Layouts	4	32	64	32	64		196
Summary of Quantities	2	4	4	8	8		26
Control Elevations		4	4	12	8		28
Foundation Design		2	4	12			18
Abutment Design		4	8	24			36
Bent Design		6	16	32			54
Beam Design		12	32	64			108
Boring Details			2	4	4		10
Foundation Details			2	4	4		10
Abutment Details			2	6	24		32
Bent Details			4	8	32		44
Framing Plans			4	16	32		52
Slab Plans			4	16	32		52
Beam Design Tables			2	8	4		14
Prepare Bridge Calculations		2	6	8			16
Bridge Cost Estimates	2	4	2				8
Bridge Specs, Bid Form, and Contract Docs	6	12					18
E. BID PREPARATION (BRIDGE)							
Bridge Cost Estimates (30%, 60%, 95%, Final)	2	4	2				8
Bridge Specifications (95% and Final)	4	8					12
F. QUALITY CONTROL (BRIDGE)							
Bridge QA/QC Plan Review	16	116	84				216
Task 5 Total Hours	84	480	724	1182	916	0	3386
Task 5 Total Labor Costs	\$ 21,277.20	\$ 106,108.80	\$ 113,371.16	\$ 127,927.86	\$ 109,681.84	\$ -	\$ 478,366.86
Task 6 - Project Management							
A. PROJECT MANAGEMENT							
Project Coordination and Resolution Meeting	8		8			4	
Stakeholder Coordination							
Celina	8		8			4	
NTTA	2		2			2	
BNSF	4		4			4	12
Project Administration	16		32			16	64
Invoicing	8		16			16	40
Task 6 Total Hours	46	0	70	0	0	46	116

FEE PROPOSAL
 JACOBS ENGINEERING GROUP, INC.
 Collin County Outer Loop Segment 3B: East of SH 289 to Custer Road

Collin County Outer Loop Segment 3A Legacy Drive to East of Preston Road (SH 289)	Project Manager	Senior Engineer	Project Engineer	EIT	CAD Technician	Clerical	Totals
Rate	\$ 253.30	\$ 221.06	\$ 156.59	\$ 108.23	\$ 119.74	\$ 85.20	
Task 6 Total Labor Costs	\$ 11,651.80	\$ -	\$ 10,961.30	\$ -	\$ -	\$ 3,919.20	\$ 26,532.30
Total Hours (Basic Services)	371	873	2749	4609	2967	117	11686
Total Labor Costs (Basic Services)	\$ 93,974.30	\$ 192,985.38	\$ 430,465.91	\$ 498,832.07	\$ 355,268.58	\$ 9,968.40	\$ 1,581,494.64
	6%	12%	27%	32%	22%	1%	100%

SPECIAL SERVICES							
Task SS1 - Survey							
A. TOPOGRAPHIC SURVEY							
Topographic Survey							
REFER TO SURVEY SHEET							
Task SS1 Totals							
							\$ 79,412.25
Task SS2 - Aerial Mapping							
A. Aerial Mapping							
REFER TO AERIAL MAPPING SHEET							
Task SS2 Totals							
							\$ 72,501.75
Task SS3 - Geotechnical							
A. GEOTECHNICAL INVESTIGATION							
Geotechnical Investigation							
REFER TO GEOTECH SHEET							
Task SS3 Totals							
							\$ 264,781.00
Total Labor Costs (Special Services)							
							\$ 416,695.00

INCREMENTAL SERVICES							
Task IS1 - Roadway Design (Crossover Design)							
Crossover Design							
REFER TO IS1 SHEET							
Task IS1 Total Cost (Not to Exceed)							
							\$ 50,000.00
Task IS1 - Subsurface Utility Engineering							
Subsurface Utility Engineering							
REFER TO SUE SHEET							
Task IS1 Total Cost (Not to Exceed)							
							\$ 85,865.00
Task IS2 - Utility Coordination							
Utility Coordination							
	18		18	20	20	40	116
Utility Agreements							
	4		20	20		20	64
Task IS2 Total Cost (Not to Exceed)							
	22		38	40	20	60	\$ 23,359.02
Total Costs (Incremental Services)							
							\$ 159,224.02
Reimbursable Direct Expenses							
				Unit	Quantity	Rate	Total
8.5" x 11" Copies				Each	5000	\$ 0.10	\$ 500.00
11" x 17" Copies				Each	15000	\$ 0.15	\$ 2,250.00
Mileage				Mile	1500	\$ 0.585	\$ 877.50
FEMA Model				Each	1	\$ 400.00	\$ 400.00
Total Reimbursable Direct Expenses							
							\$ 4,027.50
Total Markup on Subconsultants (10%)							
							\$ 42,314.78

FEE PROPOSAL
 JACOBS ENGINEERING GROUP, INC.
 Collin County Outer Loop Segment 3B: East of SH 289 to Custer Road

Collin County Outer Loop Segment 3A Legacy Drive to East of Preston Road (SH 289)	Project Manager	Senior Engineer	Project Engineer	EIT	CAD Technician	Clerical	Totals
Rate	\$ 253.30	\$ 221.06	\$ 156.59	\$ 108.23	\$ 119.74	\$ 85.20	
Total Jacobs Fee							\$ 2,203,755.94

Collin County Outer Loop Segment 3A Legacy Drive to East of Preston Road (SH 289)	Project Manager	Senior Engineer	Project Engineer	EIT	CAD Technician	Clerical	Totals
Rate	\$ 253.30	\$ 221.06	\$ 156.59	\$ 108.23	\$ 119.74	\$ 85.20	
BASIC SERVICES							
Task 1 - Assembly and Review of Data							
Collection of Data, Reports and Maps	2		4	8		8	22
Review of Data	2		4	8			14
Project Design Criteria Tabulation	2		8	8			18
Task 1 Total Hours	6	0	16	24	0	8	54
Task 1 Total Labor Costs	\$ 1,519.80	\$ -	\$ 2,505.44	\$ 2,597.52	\$ -	\$ 681.60	\$ 7,304.36
	20.81%	0.00%	34.30%	35.56%	0.00%	9.33%	

Collin County Outer Loop Segment 3A Legacy Drive to East of Preston Road (SH 289)	Project Manager	Senior Engineer	Project Engineer	EIT	CAD Technician	Clerical	Totals
Rate	\$ 253.30	\$ 221.06	\$ 156.59	\$ 108.23	\$ 119.74	\$ 85.20	
BASIC SERVICES							
Task 2 - Roadway Design							
A. GENERAL							
Title Sheet			8		24		32
Index of Sheets			8		24		32
Project Layout Sheets			8	8	40		56
Typical Sections (Existing & Proposed)	4		16	24	64		108
Quantity Summary Sheets	8		24	32	16		80
B. TRAFFIC CONTROL							
Traffic Control General Notes and Narrative	4		12		8		24
Traffic Control Advance Warning Layout	4		16	20	20		60
Traffic Control Typical Sections	8		32	32	40		112
Traffic Control Plan Sheets	12		88	160	120		380
Assembly of Traffic Control Standards			4		12		16
C. ROADWAY DESIGN							
Horizontal Alignment Data Sheet			8	8	16		32
Removal Plan Sheets	4		16	16	60		96
Roadway Plan & Profile Sheets	20		80	180	160		440
Cross Street Plan & Profile Sheets	4		56	100	80		240
Intersection Layout Sheets	4		72	44	72		192
Driveway Profiles / Details / Summary	4		24	40	32		100
Miscellaneous Roadway Details	4		16	24	20		64
Roadway Cross Sections	10		100	160	40		310
Retaining Wall Layouts	10		80	80	120		290
Assembly of Roadway Standards			8		8		16
D. BID PREPARATION (ROADWAY)							
Determination of Roadway Quantities	8		16	8	16	12	60
Roadway General Notes (60%, 95%, Final)	4		16	8	8	12	48
Roadway Cost Estimates (60%, 95%, Final)	4		24	16		12	56
Roadway Specs, Bid Form and Contract Docs (95% and Final)	24					12	36
E. QUALITY CONTROL (ROADWAY)							
Roadway QA/QC Plan Review	16	40	40			8	104
Task 2 Total Hours	156	40	772	960	1000	56	2984
Task 2 Total Labor Costs	\$ 39,514.80	\$ 8,842.40	\$ 120,887.48	\$ 103,900.80	\$ 119,740.00	\$ 4,771.20	\$ 397,656.68

18.65

9.94% 2.22% 30.40% 26.13% 30.11% 1.20%

Collin County Outer Loop Segment 3A Legacy Drive to East of Preston Road (SH 289)	Project Manager	Senior Engineer	Project Engineer	EIT	CAD Technician	Clerical	Totals
Rate	\$ 253.30	\$ 221.06	\$ 156.59	\$ 108.23	\$ 119.74	\$ 85.20	
BASIC SERVICES							
Task 3 - Drainage Design							
A. DATA COLLECTION							
Site Visit/Field Inspection			4	4			8
Obtain Reports, Maps, FEMA studies/models		2	2	2			6
Review Data & Coordinate with Surveyor		2	1	1			4
Coordination with government and private entities	4	6	2				12
B. HYDROLOGY							
Review hydrologic studies		2	6	22			30
Calculate discharges (incl. Drainage areas & parameters)		10	20	35			65
C. HYDRAULIC DESIGN							
Storm Sewer Improvements							
Size inlets, laterals, trunk lines, and outfalls		3	6	31			40
Calculate headlosses and Hydraulic gradeline		2	8	10			20
Trench Protection		1	1	4			6
Utility Coordination		1	1	2			4
Cross Culvert Improvements							
Hydraulic Analysis and Sizing		8	15	47			70
Design Riprap and Determine Drainage Easements		2	3	5			10
Prepare/Submit Technical Memo - Minor Culverts	2	2	12	10	13	1	40
FEMA Creek Bridge Crossings							
Doe Branch Tributary D							
Corrected Effective/Existing Conditions Hydraulic Analysis		8	32	40			80
Proposed Conditions Analysis (current & full buildout)		8	32	40			80
Scour Analysis		4	16	10			30
Hydraulic Report	5	6	38	18	16	2	85
Doe Branch (Update Previous Study)							
Corrected Effective/Existing Conditions Hydraulic Analysis		2	8	12			22
Proposed Conditions Analysis (current & full buildout)		2	8	16			26
Analysis (EXIST/PROP/FUTURE)		2	16	4			22
Scour Analysis		4	8	4			16
Hydraulic Report	5	4	20	8	6	2	45
D. PS&E DRAINAGE DESIGN							
Drainage Area Sheets		24	43	305	105		477
Culvert Layout Sheets		18	68	185	18		289
Storm Sewer Plan Sheets		35	139	365	70		609
Storm Sewer Profile Sheets		24	114	280	70		488

Roadside Ditch/Channel Layout Sheets		8	45	151	17		221
Drainage Computation Sheets		8	46	146	35		235
Bridge Hydraulic Data Sheets		4	14	90	39		147
Assembly of Misc. Sheets & Drainage Standards			2	2	1		5
Assembly of Drainage Specification List		2	4	8		2	16
E. TEMPORARY DRAINAGE							
Review Temporary Drainage during phased construction	2	1	1	2			6
F. BID PREPARATION (DRAINAGE)							
Estimate of quantities, summary table sheets, estimate of probable cost (60%, 95%, final)		2	1	4	1		8
G. QUALITY CONTROL (DRAINAGE)							
Perform QA/QC prior to each submittal	9	30	11				50
H. SW3P							
SW3P Data Sheet	4		20	24	32		80
SW3P Layouts	4		80	80	120		284
Task 3 Total Hours	35	237	847	1967	543	7	3636
Task 3 Total Labor Costs	\$ 8,865.50	\$ 52,391.22	\$ 132,631.73	\$ 212,888.41	\$ 65,018.82	\$ 596.40	\$ 472,392.08

22.725

1.9% 11.1% 28.1% 45.1% 13.8% 0.1%

Collin County Outer Loop Segment 3A Legacy Drive to East of Preston Road (SH 289)	Project Manager	Senior Engineer	Project Engineer	EIT	CAD Technician	Clerical	Totals
Rate	\$ 253.30	\$ 221.06	\$ 156.59	\$ 108.23	\$ 119.74	\$ 85.20	
Task 4 - Traffic Design							
A. SIGNING & PAVEMENT MARKING							
Signing & Pavement Marking Layout	10	10	60	80	80		240
Summary of Small Signs	1	2	20	20	20		63
Assembly of Sign and Marking Standards	1	4	8		16		29
B. ILLUMINATION							
Continuous Lighting	8	40	80	80	152		360
C. TRAFFIC SIGNALS							
Prepare traffic signal design at the following locations:							
EB & WB Outer Loop at NB DNT	4	12	32	80	80		208
EB & WB Outer Loop at SB DNT	4	12	32	80	80		208
EB & WB Outer Loop at Preston Road	4	12	32	80	80		208
D. BID PREPARATION (TRAFFIC)							
Estimate of quantities, summary table sheets, estimate of probable cost (30%, 60%, 95%, final)	4	8	32	32			76
E. QUALITY CONTROL (TRAFFIC)							
Traffic QA/QC Plan Review	8	16	24	24			72
Task 4 Total Hours	44	116	320	476	508	0	1464
Task 4 Total Labor Costs	\$ 11,145.20	\$ 25,642.96	\$ 50,108.80	\$ 51,517.48	\$ 60,827.92	\$ -	\$ 199,242.36

5.6% 12.9% 25.1% 25.9% 30.5% 0.0% 100.0%

9.15

Collin County Outer Loop Segment 3A Legacy Drive to East of Preston Road (SH 289)	Project Manager	Senior Engineer	Project Engineer	EIT	CAD Technician	Clerical	Totals
Rate	\$ 253.30	\$ 221.06	\$ 156.59	\$ 108.23	\$ 119.74	\$ 85.20	
Task 5 - Bridge Design							
A. WBFR AT BNSF RAILROAD							
Bridge Layouts	4	32	32	64	64		196
Exhibit A	4	12	16	20	24		76
Summary of Quantities	2	4	4	8	8		26
Control Elevations		4	4	12	8		28
Foundation Design		2	4	12			18
Abutment Design		4	8	24			36
Bent Design		6	16	32			54
Beam Design		12	32	64			108
Boring Details			2	4	4		10
Foundation Details			2	4	4		10
Abutment Details			2	6	24		32
Bent Details			4	8	32		44
Framing Plans			4	16	32		52
Slab Plans			4	16	32		52
Beam Design Tables			2	8	4		14
Prepare Bridge Calculations		2	6	8			16
Bridge Cost Estimates	2	4	2				8
Bridge Specs, Bid Form, and Contract Docs	6	12					18
B. WBFR AT DOE BRANCH CREEK							
Bridge Layouts	4	32	48	96	80		260
Summary of Quantities	2	4	4	8	8		26
Control Elevations		6	6	18	12		42
Foundation Design		2	4	12			18
Abutment Design		4	8	24			36
Bent Design		8	24	40			72
Beam Design		16	48	80			144
Boring Details			2	4	4		10
Foundation Details			2	4	4		10
Abutment Details			2	6	24		32
Bent Details			4	12	40		56
Framing Plans			6	24	40		70
Slab Plans			6	24	40		70
Beam Design Tables			2	8	4		14
Prepare Bridge Calculations		2	6	8			16
Bridge Cost Estimates	2	4	2				8
Bridge Specs, Bid Form, and Contract Docs	8	16					24

C. WBFR AT DOE BRANCH TRIBUTARY							
Bridge Layouts	4	32	64	32	64		196
Summary of Quantities	2	4	4	8	8		26
Control Elevations		4	4	12	8		28
Foundation Design		2	4	12			18
Abutment Design		4	8	24			36
Bent Design		6	16	32			54
Beam Design		12	32	64			108
Boring Details			2	4	4		10
Foundation Details			2	4	4		10
Abutment Details			2	6	24		32
Bent Details			4	8	32		44
Framing Plans			4	16	32		52
Slab Plans			4	16	32		52
Beam Design Tables			2	8	4		14
Prepare Bridge Calculations		2	6	8			16
Bridge Cost Estimates	2	4	2				8
Bridge Specs, Bid Form, and Contract Docs	6	12					18
D. EBFR AT DOE BRANCH TRIBUTARY							
Bridge Layouts	4	32	64	32	64		196
Summary of Quantities	2	4	4	8	8		26
Control Elevations		4	4	12	8		28
Foundation Design		2	4	12			18
Abutment Design		4	8	24			36
Bent Design		6	16	32			54
Beam Design		12	32	64			108
Boring Details			2	4	4		10
Foundation Details			2	4	4		10
Abutment Details			2	6	24		32
Bent Details			4	8	32		44
Framing Plans			4	16	32		52
Slab Plans			4	16	32		52
Beam Design Tables			2	8	4		14
Prepare Bridge Calculations		2	6	8			16
Bridge Cost Estimates	2	4	2				8
Bridge Specs, Bid Form, and Contract Docs	6	12					18
E. BID PREPARATION (BRIDGE)							
Bridge Cost Estimates (30%, 60%, 95%, Final)	2	4	2				8
Bridge Specifications (95% and Final)	4	8					12
F. QUALITY CONTROL (BRIDGE)							
Bridge QA/QC Plan Review	16	116	84				216

Task 5 Total Hours	84	480	724	1182	916	0	3386	21.1625
Task 5 Total Labor Costs	\$ 21,277.20	\$ 106,108.80	\$ 113,371.16	\$ 127,927.86	\$ 109,681.84	\$ -	\$ 478,366.86	
	4.45%	22.18%	23.70%	26.74%	22.93%	0.00%	100.00%	

Collin County Outer Loop Segment 3A Legacy Drive to East of Preston Road (SH 289)	Project Manager	Senior Engineer	Project Engineer	EIT	CAD Technician	Clerical	Totals
Rate	\$ 253.30	\$ 221.06	\$ 156.59	\$ 108.23	\$ 119.74	\$ 85.20	
Task 6 - Project Management							
A. PROJECT MANAGEMENT							
Project Coordination and Resolution Meeting	8		8			4	20
Stakeholder Coordination							0
Celina	8		8			4	20
NTTA	2		2			2	6
BNSF	4		4			4	12
Project Administration	16		32			16	64
Invoicing	8		16			16	40
Task 6 Total Hours	46	0	70	0	0	46	162
Task 6 Total Labor Costs	\$ 11,651.80	\$ -	\$ 10,961.30	\$ -	\$ -	\$ 3,919.20	\$ 26,532.30
	43.9%	0.0%	41.3%	0.0%	0.0%	14.8%	100.0%

TASK/LABOR	SENIOR SURVEY STAFF	SENIOR SURVEY PROJECT MANAGER	SURVEY PROJECT MANAGER	SURVEY PRODUCTION MANAGER	SENIOR SURVEY/LASER SCANNING TECHNICIAN	SURVEY TECHNICIAN	FIELD COORDINATOR	CLERICAL / ADMIN	ABTRACTOR (IN-HOUSE)	ONE-MAN FIELD CREW	TWO-MAN FIELD CREW	TOTAL PER TASK
SET ADDITIONAL PRIMARY CONTROL (UP TO 3)			10		27	4	6	2			33	\$ 10,655.00
SET AERIAL PANEL POINTS (UP TO 20) FOR AERIAL MAPPING			6			4	9	4			55	\$ 11,480.00
LOCATE NEW BRIDGE ELEMENTS AT DOE BRANCH CREEK ONLY			10		27		6	2			33	\$ 10,315.00
LOCATE CROSS SECTIONS FOR DOE BRANCH & DOE BRANCH TRIB D PART OF GROUND TRUTHING			6			10	9	4			55	\$ 11,990.00
LOCATE EXISTING SURFACE UTILITIES			6			10	6	2			33	\$ 7,960.00
LOCATE EXISTING DRAINAGE / DRIVEWAY STRUCTURES & FEATURES!			6			10	6	2			33	\$ 7,960.00
												\$ -
												\$ -
												\$ -
TOTAL HOURS	0	0	44	0	54	38	42	16	0	0	242	436
HOURLY RATE			\$ 160.00	\$ 120.00	\$ 95.00	\$ 85.00	\$ 120.00	\$ 75.00	\$ 60.00	\$ 85.00	\$ 160.00	\$ 60,360.00

DIRECT EXPENSES	RATE	QUANTITY	ESTIMATE
Mileage	\$ 0.585	3850	\$ 2,252.25
Survey Equipment Fees - RTK & GPS Useable Rate Combined (\$30 x 2)	\$ 60.00	220	\$ 13,200.00
Terrestrial Scanner	\$ 120.00	30	\$ 3,600.00
			\$ -
			\$ -
			\$ -
			\$ -
TOTAL DIRECT EXPENSES			\$ 19,052.25

TOTAL ESTIMATE	\$ 79,412.25
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Field
Office
PM
ODE

Collin County Outer Loop Segment 3A Legacy Drive to East of Preston Road (SH 289)	5.46 MI, 486-Acres, 734-FT-Wide	Additional 150-Ft Coverage North			Totals
Rate	\$ 68,261.75	\$ 4,240.00			
Task SS2 - Aerial Mapping					
	Based on Rates Above				
Task IS1 Total Cost (Not to Exceed)					\$ 72,501.75

COLLING COUNTY OUTER LOOP: C/L ML CCOL Sta. 4920+50 to Sta. 5135+00

PROVIDER NAME: INTERTEK-PSI

	PRINCIPAL	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER-IN-TRAINING	ENGINEER TECH	ADMIN / CLERICAL	TOTAL HRS. & COSTS	COST PER TASK
CONTRACT RATE PER HOUR	\$ 215.00	\$ 155.00	\$ 165.00	\$ 145.00	\$ 135.00	\$ 115.00	\$ 75.00	\$ 60.00		
GEOTECHNICAL BORINGS AND INVESTIGATIONS										
PROJECT PLANNING										
1		8	2	4		2	2		18	\$ 2,530.00
2		2	1	8		2		1	14	\$ 1,925.00
FIELD INVESTIGATION COORDINATION										
3		2		4					6	\$ 890.00
4						4	8		12	\$ 1,060.00
5						2	16		18	\$ 1,430.00
FIELD INVESTIGATION										
6		2		8			4		14	\$ 1,770.00
7				4		8	200		212	\$ 16,500.00
GEOTECHNICAL LABORATORY DATA EVALUATION										
8				4		20			24	\$ 2,880.00
9				4		2			6	\$ 810.00
10			2	8					10	\$ 1,490.00
GEOTECHNICAL ENGINEERING & ANALYSES										
11				4		24			32	\$ 3,580.00
12			2	4		16		4	22	\$ 2,750.00
13	1		4	12		4			21	\$ 3,075.00
14	2		8	48		8			66	\$ 9,630.00
15	1		2	16		4			23	\$ 3,325.00
16	2		8	64		16			90	\$ 12,870.00
17	2		12	48		24			86	\$ 12,130.00
18	1		4	24		16			45	\$ 6,195.00
GEOTECHNICAL REPORT										
19	2	2	8	56		16		2	86	\$ 12,140.00
20	1	1	4	24		8		2	40	\$ 5,560.00
HOURS SUB-TOTALS										
21	12	17	57	344	0	176	230	9	845	\$ 102,530.00
22	\$ 215.00	\$ 155.00	\$ 165.00	\$ 145.00	\$ 135.00	\$ 115.00	\$ 75.00	\$ 60.00		
22	\$ 2,580.00	\$ 2,635.00	\$ 9,405.00	\$ 49,880.00	\$ -	\$ 20,240.00	\$ 17,250.00	\$ 540.00	\$ 102,530.00	
SUBTOTAL FOR LABOR										
										\$ 102,530.00

OTHER DIRECT EXPENSES										
	UNIT	QUANTITY	RATE							TOTAL
GEOTECHNICAL FIELD EXPLORATION										
23	Mobilization/Demobilization of Drilling Rig	LUMP SUM	1	\$ 2,000.000						\$ 2,000.00
24	Site clearing for drill rig access	DAY	2	\$ 4,000.000						\$ 8,000.00
25	Soil Boring/Rock Coring without TCP<60 ft	PER FOOT	630	\$ 37.00						\$ 23,310.00
26	Soil Boring/Rock Coring with TCP<60 ft	PER FOOT	830	\$ 42.00						\$ 34,860.00
27	Soil Boring/Rock Coring with TCP>60 ft	PER FOOT	440	\$ 47.00						\$ 20,680.00
28	Borehole Grouting - Bentonite Chips	PER FOOT	1,270	\$ 8.00						\$ 10,160.00
29	Daily Trips - Sample Transportation	DAY	25	\$ 150.00						\$ 3,750.00
GEOTECHNICAL LABORATORY TESTING										
30	Determination of Moisture Content in Soils	EACH	534	\$ 9.00						\$ 4,806.00
31	Liquid Limit (LL), Plastic Limit (PL) and Plasticity Index (PI) of Soils	EACH	180	\$ 50.00						\$ 9,000.00
32	Amount of Minus No. 200 Sieve Material of Soils	EACH	180	\$ 40.00						\$ 7,200.00
33	Determination of Particle Size Analysis of Soils Test (Part I) - Retained +40	EACH	8	\$ 50.00						\$ 400.00
34	Determination of Particle Size Analysis of Soils Test (Part II) - Hydrometer Analysis	EACH	8	\$ 145.00						\$ 1,160.00
35	Unconfined Compressive Strength (Soil)	EACH	170	\$ 45.00						\$ 7,650.00
36	Unconfined Compressive Strength (Rock)	EACH	44	\$ 60.00						\$ 2,640.00
37	Triaxial Compression Test for Undisturbed Soils (UU) or ASTM D2850	EACH	16	\$ 75.00						\$ 1,200.00
38	One Dimensional Consolidation Properties of Soil	EACH	4	\$ 550.00						\$ 2,200.00
39	Consolidated Undrained Triaxial Test or ASTM D4767 (includes moisture, PI, -200 and unit weight/each)	EACH	4	\$ 1,200.00						\$ 4,800.00
40	Soil pH	EACH	20	\$ 45.00						\$ 900.00
41	soil resistivity	EACH	10	\$ 125.00						\$ 1,250.00
42	soil conductivity	EACH	10	\$ 45.00						\$ 450.00
43	Lime/pH	EACH	4	\$ 135.00						\$ 540.00
44	Sulphate Determination in Soils	EACH	109	\$ 55.00						\$ 5,995.00
45	One Dimensional Free Swell	EACH	60	\$ 75.00						\$ 4,500.00
46	CBR Testing	EACH	4	\$ 550.00						\$ 2,200.00
47	Organic Content of Soils	HOURLY	40	\$ 65.00						\$ 2,600.00
SUBTOTAL OTHER DIRECT EXPENSES										
										\$ 162,251.00

TOTAL FOR LABOR PLUS EXPENSES										\$ 264,781.00
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Collin County Outer Loop Segment 3A Legacy Drive to East of Preston Road (SH 289)	Project Manager	Senior Engineer	Project Engineer	EIT	CAD Technician	Clerical	Totals
Rate	\$ 253.30	\$ 221.06	\$ 156.59	\$ 108.23	\$ 119.74	\$ 85.20	
<i>Task IS1 - Roadway Design (Crossover Design)</i>							
	Based on Rates Above						
Task IS1 Total Cost (Not to Exceed)							\$ 50,000.00

Collin County Outer Loop Segment 3A Legacy Drive to East of Preston Road (SH 289)	Project Management/Coordination/ QL-D	QL-B Designating/Surveying (Crew Day)	QA/QC	Traffic Control (Day)	Totals
Rate	\$ 5,875.00	\$ 3,875.00	\$ 3,065.00	\$ 1,650.00	
<i>Task IS2 - Subsurface Utility Engineering</i>					
	Based on Rates Above				
Task IS2 Total Cost (Not to Exceed)					\$ 85,865.00

Collin County Outer Loop Segment 3A Legacy Drive to East of Preston Road (SH 289)	Project Manager	Senior Engineer	Project Engineer	EIT	CAD Technician	Clerical	Totals
Rate	\$ 253.30	\$ 221.06	\$ 156.59	\$ 108.23	\$ 119.74	\$ 85.20	
<i>Task IS3 - Utility Coordination</i>							
Utility Coordination	18		18	20	20	40	116
Utility Agreements	4		20	20		20	64
Task 3 Total Hours	22	0	38	40	20	60	180
Task 3 Total Labor Costs	\$ 5,572.60	\$ -	\$ 5,950.42	\$ 4,329.20	\$ 2,394.80	\$ 5,112.00	\$ 23,359.02

EXHIBIT "D"

INFORMATION TO BE PROVIDED BY THE COUNTY

The COUNTY will furnish the Engineer the following items upon request, if available no later than 30 days from Notice to Proceed (NTP):

- Assist the Engineer, as necessary, in order to obtain the required data and information from other local, regional, State and Federal agencies.
- Assist in Coordinating Right of Entry for all properties within or adjacent to project limits.
- Available existing and future right-of-way plans for entire project.
- Perform all requirements of ROW acquisition including appraisals, negotiations, eminent domain, relocation and property management.
- Assist the Engineer in negotiations with all local, state and federal agencies, utility companies and railroads for agreements and/or relocations required.
- Assist the Engineer, as necessary, in order to obtain the following data:
 - Utility plans and documents from appropriate municipalities and utility companies.
 - Readily available plan sets for crossing sections and improvement plans within the Project Limits.
 - Readily available flood plain information, studies and models from the Federal Emergency Management Agency, FEMA, the Corps of Engineers and/or other governmental agencies.
 - Readily available GIS Data
 - Readily available drainage reports
 - Readily available aerial mapping and soil data for the designated area.
 - Prior environmental studies and reports

EXHIBIT "E"

INSURANCE REQUIREMENTS

1.1 Before commencing work, the vendor shall be required, at its own expense, to furnish the Collin County Purchasing Agent with certified copies of all insurance certificate(s) indicating the coverage to remain in force throughout the term of this contract.

1.1.1 Commercial General Liability insurance at minimum combined single limits of (\$1,000,000 per-occurrence and \$2,000,000 general aggregate) for bodily injury and property damage, which coverage shall include products/completed operations at \$2,000,000 per occurrence. Coverage must be written on an occurrence form.

1.1.2 Workers Compensation insurance at statutory limits, including employers liability coverage at \$500,000. In addition to these, the contractor must meet each stipulation below as required by the Texas Department of Insurance, Division of Workers' Compensation. (Note: If you have questions concerning these requirements, you are instructed to contact the DWC at (512)440-3789).

1.1.2.1 Definitions: Certificate of coverage ("certificate"); A copy of a certificate of authority of self-insure issued by the commission, or a coverage agreement (DWC-81, DWC-82, DWC-83, OR DWC-84), showing statutory workers compensation insurance coverage for the person's or entity's employees providing services on a project, for the duration of the project.

Duration of the project includes the time from the beginning of the work on the project until the contractor's/person's work on the project has been completed and accepted by the governmental entity.

Persons providing services on the project ("subcontractor" in 406.096) includes all persons or entities performing all or part of the services the contractor has undertaken to perform on the project, regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractors, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the project. "Services" include, without limitation, providing, hauling, or delivering equipment or materials, or providing labor, transportation, or other service related to a project. "Services" does not include activities unrelated to the project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

1.1.2.2 The contractor shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all employees of the contractor providing services on the project, for the duration of the project.

1.1.2.3 The Contractor must provide a certificate of coverage to the governmental entity prior to being awarded the contract.

1.1.2.4 If the coverage period shown on the contractor's current certificate of coverage ends during the duration of the project, the contractor must,

prior to the end of the coverage period, file a new certificate of coverage with the governmental entity showing that coverage has been extended.

1.1.2.5 The contractor shall obtain from each person providing services on a project, and provide to the governmental entity:

1.1.2.5.1 A certificate of coverage, prior to that person beginning work on the project, so the governmental entity will have on file certificates of coverage showing coverage for all persons providing services on the project; and

1.1.2.5.2 no later than seven (7) days after receipt by the contractor, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project.

1.1.2.6 The contractor shall retain all required certificates of coverage for the duration of the project and for one year thereafter.

1.1.2.7 The contractor shall notify the governmental entity in writing by certified mail or personal delivery, within ten (10) days after the contractor knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project.

1.1.2.8 The contractor shall post on each project site a notice, in the text, form and manner prescribed by the Texas Workers Compensation Commission, informing all persons providing services on the project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.

1.1.2.9 The contractor shall contractually require each person with whom it contracts to provide services on a project, to:

1.1.2.9.1 provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all of its employees providing services on the project, for the duration of the project;

1.1.2.9.2 provide to the contractor, prior to that person beginning work on the project, a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the project, for the duration of the project;

1.1.2.9.3 provide the contractor, prior to the end of the coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project;

1.1.2.9.4 obtain from each other person with whom it contracts, and provide to the contractor:

1.1.2.9.4.1 a certificate of coverage, prior to the other person beginning work on the project; and

1.1.2.9.4.2 a new certificate of coverage showing extension of coverage, prior to the end of the coverage

period, if the coverage period shown on the current certificate of coverage ends during the duration of the project;

1.1.2.9.5 retain all required certificates of coverage on file for the duration of the project and for one year thereafter;

1.1.2.9.6 notify the governmental entity in writing by certified mail or personal delivery, within ten (10) days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project; and

1.1.2.9.7 contractually require each person with whom it contracts, to perform as required by paragraphs 1.1.2.1 through 1.1.2.7, with the certificates of coverage to be provided to the person for whom they are providing services.

1.1.2.10 By signing this contract or providing or causing to be provided a certificate of coverage, the contractor is representing to the governmental entity that all employees of the contractor who will provide services on the project will be covered by workers compensation coverage for the duration of the project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the contractor to administrative penalties, criminal penalties, civil penalties, or other civil actions.

1.1.2.11 The contractor's failure to comply with any of these provisions is a breach of contract by the contractor which entitles the governmental entity to declare the contract void if the contractor does not remedy the breach within ten (10) days after receipt of notice of breach from the governmental entity.

1.1.3 Commercial Automobile Liability insurance shall be no less than \$1,000,000 combined single limits per accident for bodily injury and property damage, including owned, non-owned, and hired vehicle coverage.

1.1.4 Professional Liability Insurance at minimum limits of \$1,000,000. This policy must have a two (2) year extended period of coverage, (i.e. tail coverage). If you choose to have project coverage endorsed onto your base policy, this would be acceptable.

1.2 The required limits may be satisfied by any combination of primary, excess or umbrella liability insurances, provided the primary policy complies with the above requirements and the excess umbrella is following form. The vendor may maintain reasonable and customary deductibles, subject to approval by County.

1.3 With reference to the foregoing insurance requirement, the vendor shall endorse applicable insurance policies as follows:

1.3.1 A waiver of subrogation in favor of County, its officials, employees, volunteers and officers shall be contained in all policies.

1.3.2 The vendor's insurance coverage shall name County as additional insured under the General Liability policy.

1.3.3 All insurance policies shall be endorsed to the effect that County will receive at least thirty (30) days' notice prior to cancellation, non-renewal or termination of the policy.

1.3.4 All copies of Certificates of Insurance shall reference the project/contract number.

1.4 All insurance shall be purchased from an insurance company that meets the following requirements:

1.4.1 A financial rating of A-VII or higher as assigned by the BEST Rating Company or equivalent.

1.5 Certificates of Insurance shall be prepared and executed by the insurance company or its authorized agent, and shall contain provisions representing and warranting the following:

1.5.1 Sets forth all endorsements and insurance coverages according to requirements and instructions contained herein.

1.5.2 Sets forth the notice of cancellation or termination to County.

