STATE OF TEXAS §
§
COUNTY OF FORT BEND §

AGREEMENT BETWEEN FORT BEND COUNTY AND TEAGUE, NALL & PERKINS, INC.
FOR PROFESSIONAL ENGINEERING SERVICES
(Grand Parkway NB – Bay Hill, Project No. 20127X)

This Agreement ("Agreement") is made and entered into by and between Fort Bend County, Texas ("County"), a political subdivision of the state of Texas, and Teague, Nall & Perkins, Inc. ("Engineer"), a corporation duly authorized to conduct business in the state of Texas. County and Engineer may be referred to individually as a "Party" or collectively as the "Parties."

WHEREAS, Engineer is a professional engineering and land surveying firm which provides engineering and surveying services in the state of Texas; and

WHEREAS, County desires for Engineer to provide engineering services in connection with the reconstruction of Grand Parkway NB – Bay Hill, Project No. 20127X; and

WHEREAS, Engineer represents that it is qualified and desires to perform such services for County; and

WHEREAS, pursuant to the requirements of Chapter 2254 of the Texas Government Code, County has determined that Engineer is the most highly qualified provider of such professional services and the Parties have negotiated a fair and reasonable price for the same; and

WHEREAS, this Agreement is not subject to competitive bidding requirements under Section 262.023 of the Texas Local Government Code because this Agreement is for professional engineering services and may not be competitively bid pursuant to Chapter 2254 of the Texas Government Code.

NOW, THEREFORE, in consideration of the mutual covenants and agreements contained herein, the Parties do mutually agree as follows:

1. **Recitals.** The recitals set forth above are incorporated herein by reference and made a part of this Agreement.

2. **Scope of Services.** Engineer shall render services to County as defined in Engineer's Proposal (hereinafter, the "Services") attached hereto as "Exhibit A" and incorporated by reference for all intents and purposes.

3. **Time of Performance.** Time for performance of the Scope of Services under this Agreement shall begin with Engineer's receipt of Notice to Proceed and shall end no later

than December 31, 2028. Engineer shall complete such tasks described in the Scope of Services, within this time or within such additional time as may be extended by County.

4. **Compensation and Payment Terms.**

(a) Engineer's fees for the Services shall be calculated at the rate(s) set forth in Engineer's Fee Summary in Exhibit "A" attached hereto. The Maximum Compensation to Engineer for the Services performed under this Agreement is Eight Hundred Sixteen Thousand Nine Hundred Sixty Five and 00/100 Dollars ($816,965.00). In no event shall the amount paid by County to Engineer under this Agreement exceed said Maximum Compensation without an approved change order.

(b) Engineer understands and agrees that the Maximum Compensation stated is an all-inclusive amount and no additional fee, cost or reimbursed expense shall be added whatsoever to the fees stated in the attached Attachment "B."

(c) County will pay Engineer based on the following procedures: Upon completion of the tasks identified in the Scope of Services, Engineer shall submit to County staff person designated by the County Engineer, one (1) electronic (pdf) copy of the invoice showing the amounts due for services performed in a form acceptable to County. County shall review such invoices and approve them within 30 calendar days with such modifications as are consistent with this Agreement and forward same to the Auditor for processing. County shall pay each such approved invoice within thirty (30) calendar days. County reserves the right to withhold payment pending verification of satisfactory work performed.

5. **Limit of Appropriation.** Engineer understands and agrees that the Maximum Compensation for the performance of the Services within the Scope of Services described in Section 2 above is Eight Hundred Sixteen Thousand Nine Hundred Sixty Five and 00/100 Dollars ($816,965.00). In no event shall the amount paid by County under this Agreement exceed the Maximum Compensation without a County approved change order. Engineer clearly understands and agrees, such understanding and agreement being of the absolute essence of this Agreement, that County shall have available the total maximum sum of Eight Hundred Sixteen Thousand Nine Hundred Sixty Five and 00/100 Dollars ($816,965.00) specifically allocated to fully discharge any and all liabilities County may incur under this Agreement. Engineer does further understand and agree, said understanding and agreement also being of the absolute essence of this Agreement, that the total Maximum Compensation that Engineer may become entitled to and the total maximum sum that County may become liable to pay to Engineer under this Agreement shall not under any conditions, circumstances, or interpretations thereof exceed Eight Hundred Sixteen Thousand Nine Hundred Sixty Five and 00/100 Dollars ($816,965.00).

6. **Non-appropriation.** Engineer understands and agrees that in the event no funds or insufficient funds are appropriated by the County under this Agreement, County shall immediately notify Engineer in writing of such occurrence and the Agreement shall thereafter terminate and be null and void on the last day of the fiscal period for which appropriations were received or made without penalty, liability or expense to the County. In no event shall said termination of this Agreement or County's failure to appropriate said funds be deemed a breach or default of this Agreement or create a debt by County in any amount(s) in excess of those previously funded.

7. **Taxes.** County is a body corporate and politic under the laws of the state of Texas and as such, is exempt from sales and use taxes. County shall furnish evidence of its tax-exempt status upon written request by Engineer.

8. **Insurance.** Prior to commencement of the Services, Engineer shall furnish County with properly executed certificates of insurance which shall evidence all insurance required and provide that such insurance shall not be canceled, except on 30 days' prior written notice to County. Engineer shall provide certified copies of insurance endorsements and/or policies if requested by County. Engineer shall maintain such insurance coverage from the time Services commence until Services are completed and provide replacement certificates, policies and/or endorsements for any such insurance expiring prior to completion of Services. Engineer shall obtain such insurance written on an Occurrence form from such companies having Best's rating of A/VII or better, licensed or approved to transact business in the State of Texas, and shall obtain such insurance of the following types and minimum limits:

   (a) Workers Compensation in accordance with the laws of the State of Texas. Substitutes to genuine Workers' Compensation Insurance will not be allowed.

   (b) Employers' Liability insurance with limits of not less than $1,000,000 per injury by accident, $1,000,000 per injury by disease, and $1,000,000 per bodily injury by disease.

   (c) Commercial general liability insurance with a limit of not less than $1,000,000 each occurrence and $2,000,000 in the annual aggregate. Policy shall cover liability for bodily injury, personal injury, and property damage and products/completed operations arising out of the business operations of the policyholder.

   (d) Business Automobile Liability coverage applying to owned, non-owned and hired automobiles with limits not less than $1,000,000 each occurrence combined single limit for Bodily Injury and Property Damage combined.

   (e) Professional Liability insurance with limits not less than $1,000,000.

   County shall be named as additional insured to all required coverage except for Workers' Compensation and Professional Liability (if required). All Liability policies written on behalf of Engineer shall contain a waiver of subrogation in favor of County.

If required coverage is written on a claims-made basis, Engineer warrants that any retroactive date applicable to coverage under the policy precedes the effective date of the Contract and that continuous coverage will be maintained or an extended discovery period will be exercised for a period of 2 years beginning from the time the work under this Contract is completed.

Engineer shall not commence any portion of the work under this Contract until it has obtained the insurance required herein and certificates of such insurance have been filed with and approved by County.

No cancellation of or changes to the certificates, or the policies, may be made without thirty (30) days prior, written notification to County.

Approval of the insurance by County shall not relieve or decrease the liability of the Engineer.

9. **Indemnity. TO THE FULLEST EXTENT PROVIDED BY APPLICABLE LAW, ENGINEER SHALL INDEMNIFY AND HOLD HARMLESS COUNTY, ITS OFFICIALS, OFFICERS, AND EMPLOYEES FROM AND AGAINST ALL CLAIMS, LOSSES, DAMAGES, CAUSES OF ACTION, SUITS, LIABILITY, AND COSTS, INCLUDING THE REIMBURSEMENT OF REASONABLE ATTORNEY FEES, ARISING OUT OF OR RESULTING FROM AN ACT OF NEGLIGENCE, INTENTIONAL TORT, INTELLECTUAL PROPERTY INFRINGEMENT, OR FAILURE TO PAY A SUBENGINEER OR SUPPLIER COMMITTED BY ENGINEER OR ENGINEER'S AGENTS, EMPLOYEES, OR ANOTHER ENTITY OVER WHICH ENGINEER EXCERCISES CONTROL. ENGINEER SHALL FURTHER PROCURE AND MAINTAIN GENERAL LIABILITY INSURANCE WITH COVERAGE AS PROVIDED IN SECTION 8 OF THIS AGREEMENT AND SHALL FURNISH A CERTIFICATE OF INSURANCE FOR THE SAME SHOWING FORT BEND COUNTY, TEXAS AS AN ADDITIONAL INSURED.**

10. **Public Information Act.** Engineer expressly acknowledges and agrees that County is a public entity and as such, is subject to the provisions of the Texas Public Information Act under Chapter 552 of the Texas Government Code. In no event shall County be liable to Engineer for release of information pursuant to Chapter 552 of the Texas Government Code or any other provision of law. Except to the extent required by law or as directed by the Texas Attorney General, County agrees to maintain the confidentiality of information provided by Engineer expressly marked as proprietary or confidential. County shall not be liable to Engineer for any disclosure of any proprietary or confidential information if such information is disclosed under Texas law or at the direction of the Texas Attorney General. Engineer further acknowledges and agrees that the terms and conditions of this Agreement are not proprietary or confidential information.

11. **Compliance with Laws.** Engineer shall comply with all federal, state, and local laws, statutes, ordinances, rules, regulations, and the decrees of any courts or administrative bodies or tribunals in any matter affecting the performance of this Agreement, including,

without limitation, Worker's Compensation laws, minimum and maximum salary and wage statutes and regulations, licensing laws and regulations. Engineer in providing all services hereunder, further agrees to abide by the provisions of any applicable Federal or State Data Privacy Act.

12. **Independent Engineer.** In the performance of work or services hereunder, Engineer shall be deemed an independent Engineer, and any of its agents, employees, officers, or volunteers performing work required hereunder shall be deemed solely as employees of Engineer. Engineer and its agents, employees, officers, or volunteers shall not, by performing work pursuant to this Agreement, be deemed to be employees, agents, or servants of County and shall not be entitled to any of the privileges or benefits of County employment.

13. **Use of Customer Name.** Engineer may use County's name without County's prior written consent only in Engineer's customer lists. Any other use of County's name by Engineer must have the prior written consent of County.

14. **County/County Data**. Nothing in this Agreement shall be construed to waive the requirements of Section 205.009 of the Texas Local Government Code.

15. **Personnel.** Engineer represents that it presently has, or is able to obtain adequate qualified personnel in its employment for the timely performance of the Services required under this Agreement and that Engineer shall furnish and maintain, at its own expense, adequate and sufficient personnel, in the opinion of County, to perform the Services when and as required and without delays.

    All employees of Engineer shall have such knowledge and experience as will enable them to perform the duties assigned to them. Any employee of Engineer or agent of Engineer who, in County's opinion, is incompetent or by his conduct become detrimental to providing Services pursuant to this Agreement, shall, upon request of County, immediately be removed from association with the Services required under this Agreement.

    When performing Services on–site at County's facilities, Engineer shall comply with, and will require that all Engineer's Personnel comply with, all applicable rules, regulations and known policies of County that are communicated to Engineer in writing, including security procedures concerning systems and data and remote access thereto, building security procedures, including the restriction of access by County to certain areas of its premises or systems for security reasons, and general health and safety practices and procedures.

16. **Confidential and Proprietary Information.** Engineer acknowledges that it and its employees or agents may, in the course of performing their responsibilities under this Agreement, be exposed to or acquire information that is confidential to County. Any and all information of any form obtained by Engineer or its employees or agents from County

in the performance of this Agreement shall be deemed to be confidential information of County ("Confidential Information"). Any reports or other documents or items (including software) that result from the use of the Confidential Information by Engineer shall be treated with respect to confidentiality in the same manner as the Confidential Information. Confidential Information shall be deemed not to include information that (a) is or becomes (other than by disclosure by Engineer) publicly known or is contained in a publicly available document; (b) is rightfully in Engineer's possession without the obligation of nondisclosure prior to the time of its disclosure under this Agreement; or (c) is independently developed by employees or agents of Engineer who can be shown to have had no access to the Confidential Information.

Engineer agrees to hold Confidential Information in strict confidence, using at least the same degree of care that Engineer uses in maintaining the confidentiality of its own confidential information, and not to copy, reproduce, sell, assign, license, market, transfer or otherwise dispose of, give, or disclose Confidential Information to third parties or use Confidential Information for any purposes whatsoever other than the provision of Services to County hereunder, and to advise each of its employees and agents of their obligations to keep Confidential Information confidential. Engineer shall use its best efforts to assist County in identifying and preventing any unauthorized use or disclosure of any Confidential Information. Without limitation of the foregoing, Engineer shall advise County immediately in the event Engineer learns or has reason to believe that any person who has had access to Confidential Information has violated or intends to violate the terms of this Agreement and Engineer will at its expense cooperate with County in seeking injunctive or other equitable relief in the name of County or Engineer against any such person. Engineer agrees that, except as directed by County, Engineer will not at any time during or after the term of this Agreement disclose, directly or indirectly, any Confidential Information to any person, and that upon termination of this Agreement or at County's request, Engineer will promptly turn over to County all documents, papers, and other matter in Engineer’s possession which embody Confidential Information.

Engineer acknowledges that a breach of this Section, including disclosure of any Confidential Information, or disclosure of other information that, at law or in equity, ought to remain confidential, will give rise to irreparable injury to County that is inadequately compensable in damages. Accordingly, County may seek and obtain injunctive relief against the breach or threatened breach of the foregoing undertakings, in addition to any other legal remedies that may be available. Engineer acknowledges and agrees that the covenants contained herein are necessary for the protection of the legitimate business interest of County and are reasonable in scope and content.

Engineer in providing all services hereunder agrees to abide by the provisions of any applicable Federal or State Data Privacy Act.

17. **Ownership and Reuse of Documents.** All documents, data, reports, research, graphic presentation materials, etc., developed by Engineer as a part of its work under this

Agreement, shall become the property of County upon completion or termination of this Agreement. Engineer shall promptly furnish all such data and material to County on request.

18. **Inspection of Books and Records.** Engineer shall permit County, or any duly authorized agent of County, to inspect and examine the books and records of Engineer for the purpose of verifying the amount of work performed under the Scope of Services. County's right to inspect such books and records shall survive the termination of this Agreement for a period of four years. Notwithstanding the foregoing, Engineer shall bear no liability or responsibility for deliverables that have been modified post-delivery or used for a purpose other than that for which they were prepared under this Agreement.

19. **Termination.** County may terminate this Agreement at any time, with or without cause, upon thirty (30) days written notice to Engineer. Upon termination of this Agreement by County, Engineer shall be paid in accordance with Section 4, above, for those services which were provided under this Agreement prior to its termination and which have not been previously invoiced to County. Engineer's final invoice for said services will be presented to and paid by County in the same manner set forth in Section 4 above. No fees of any type, other than fees due and payable at the Termination Date, shall thereafter be paid to Engineer by County.

20. **Force Majeure.** Notwithstanding anything to the contrary contained herein, neither Party shall liable to the other for any delay or inability to carry out its obligations under this Agreement if such delay or inability is the result of a Force Majeure Event. Within a reasonable time after the occurrence of such event, but no later than ten (10) calendar days after, the Party whose obligations are affected (the "Affected Party") thereby shall notify the other in writing stating the nature of the event and the anticipated duration. The Affected Party's obligations under this Agreement shall be suspended during the continuance of any delay or inability caused by the event, but for no longer period. The Affected Party shall further endeavor to remove or overcome such delay or inability as soon as is reasonably possible.

    For purposes of this Agreement, a Force Majeure Event includes, but is not limited to: strikes or other labor disputes, severe weather disruptions, natural disasters, fire or other acts of God; riots, war, or other emergencies; failure of any governmental agency to act in a timely manner; the discovery of any hazardous substance or differing and unforeseeable site conditions; and any other inabilities of any Party, similar to those enumerated, which are not within the control of the Party claiming such inability, which such Party could not have avoided by the reasonable exercise of due diligence and care.

21. **Assignment.** Engineer may not assign this Agreement to another party without the prior written consent of County.

22. **Successors and Assigns Bound.** County and Engineer each bind themselves and their successors and assigns to the other Party and to the successors and assigns of such other Party, with respect to all covenants of this Agreement.

23. **Publicity.** Contact with citizens of Fort Bend County, media outlets, or other governmental agencies shall be the sole responsibility of County. Under no circumstances, whatsoever, shall Engineer release any material or information developed or received during the performance of Services hereunder unless Engineer obtains the express written approval of County or is required to do so by law.

24. **Notice.** Any and all notices required or permitted under this Agreement shall be in writing and shall be mailed by certified mail, return receipt requested, or personally delivered to the following addresses:

If to County:
Fort Bend County Engineering
Attn: County Engineer
301 Jackson Street, 4th Floor
Richmond, Texas 77469

And

Fort Bend County, Texas
Attention: County Judge
401 Jackson Street, 1st Floor
Richmond, Texas 77469

If to Engineer:
Teague, Nall & Perkins, Inc.
5237 N. Riverside Dr.
Suite 100
Fort Worth, Texas 76137

25. **Performance Representation**. Engineer represents to County that Engineer has the skill and knowledge ordinarily possessed by well-informed members of its trade or profession ("Professionals") practicing in the greater Houston metropolitan area. Engineer shall provide the Services to County with the same professional skill and care ordinarily provided by such Professionals under the same or similar circumstances and professional license and as expeditiously as is prudent considering the ordinary professional skill and care of a competent Professional.

26. **Entire Agreement and Modification.** This Agreement constitutes the entire Agreement between the Parties and supersedes all previous agreements, written or oral, pertaining to the subject matter of this Agreement. Any amendment to this Agreement must be in writing and signed by each Party to come into full force and effect.

27. **Understanding Fair Construction.** By execution of this Agreement, the Parties acknowledge that they have read and understood each provision, term, and obligation contained herein. This Agreement, although drawn by one party, shall be construed fairly and reasonably and not more strictly against the drafting Party than the non-drafting Party.

28. **Severability.** In case any one or more of the provisions contained in this Agreement shall for any reason be held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provision hereof and this Agreement shall be construed as if such invalid, illegal or unenforceable provision had never been contained herein.

29. **No Waiver of Immunity.** Neither the execution of this Agreement nor any other conduct of either party relating to this Agreement shall be considered a waiver or surrender by County of its governmental powers or immunity under the Texas Constitution or the laws of the state of Texas.

30. **Applicable Law and Venue.** This Agreement shall be construed according to the laws of the state of Texas. Venue for any claim arising out of or relating to the subject matter of this Agreement shall lie in a court of competent jurisdiction of Fort Bend County, Texas.

31. **Certain State Law Requirements for Contracts** The contents of this Section are required by Texas law and are included by County regardless of content For purposes of Sections 2252.152, 2271.002, and 2274.002, Texas Government Code, as amended, Engineer hereby verifies that Engineer and any parent company, wholly owned subsidiary, majority-owned subsidiary, and affiliate:

    (a) Unless affirmatively declared by the United States government to be excluded from its federal sanctions regime relating to Sudan or Iran or any federal sanctions regime relating to a foreign terrorist organization, is not identified on a list prepared and maintained by the Texas Comptroller of Public Accounts under Section 806.051, 807.051, or 2252.153 of the Texas Government Code.

    (b) If employing ten (10) or more full-time employees and this Agreement has a value of $100,000.00 or more, Engineer does not boycott Israel and is authorized to agree in such contracts not to boycott Israel during the term of such contracts. “Boycott Israel” has the meaning provided in § 808.001 of the Texas Government Code.

    (c) If employing ten (10) or more full-time employees and this Agreement has a value of $100,000.00 or more, Engineer does not boycott energy companies and is authorized to agree in such contracts not to boycott energy companies during the term of such contracts. “Boycott energy company” has the meaning provided in § 809.001 of the Texas Government Code.

(d) If employing ten (10) or more full-time employees and this Agreement has a value of $100,000.00 or more, Engineer does not have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association and is authorized to agree in such contracts not to discriminate against a firearm entity or firearm trade association during the term of such contracts. "Discriminate against a firearm entity or firearm trade association" has the meaning provided in § 2274.001(3) of the Texas Government Code. "Firearm entity" and "firearm trade association" have the meanings provided in § 2274.001(6) and (7) of the Texas Government Code.

32. **Human Trafficking.** BY ACCEPTANCE OF THIS AGREEMENT, ENGINEER ACKNOWLEDGES THAT FORT BEND COUNTY IS OPPOSED TO HUMAN TRAFFICKING AND THAT NO COUNTY FUNDS WILL BE USED IN SUPPORT OF SERVICES OR ACTIVITIES THAT VIOLATE HUMAN TRAFFICKING LAWS.

33. **Captions.** The section captions used in this Agreement are for convenience of reference only and do not affect the interpretation or construction of the Agreement.

34. **Electronic and Digital Signatures.** The Parties to this Agreement agree that any electronic and/or digital signatures of the Parties included in this Agreement are intended to authenticate this writing and shall have the same force and effect as the use of manual signatures.

35. **Certification.** By his or her signature below, each signatory individual certifies that he or she is the properly authorized person or officer of the applicable Party hereto and has the requisite authority necessary to execute this Agreement on behalf of such Party, and each Party hereby certifies to the other that it has obtained the appropriate approvals or authorizations from its governing body as required by law.

{Execution Page Follows}

IN WITNESS WHEREOF, and intending to be legally bound, County and Engineer hereto have executed this Agreement to be effective on the date signed by the last Party hereto.

FORT BEND COUNTY, TEXAS

_____
KP George, County Judge

_____
Date

ATTEST:

_____
Laura Richard, County Clerk

TEAGUE, NALL & PERKINS, INC.

Daniel P. McCullough, P.E.
_____
Authorized Agent – Signature

Daniel P. McCullough, P.E.
Authorized Agent- Printed Name

Director of Transportation Services, Principal
Title

3/28/2024
Date

APPROVED:

_____
J. Stacy Slawinski, County Engineer

AUDITOR'S CERTIFICATE

I hereby certify that funds in the amount of **$**_____ are available to pay the obligation of Fort Bend County, Texas within the foregoing Agreement.

_____
Robert Ed Sturdivant, County Auditor

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EXHIBIT A

(Follows Behind)

EXHIBIT A

BASIC SERVICES TO BE PROVIDED BY THE ENGINEER TO THE COUNTY

State Highway 99 (SH 99)

from **Highland Knolls / Bay Hill Boulevard** to **South Fry Road**
Frontage Roads
CSJ: 3510-04-066, ect.

Project Segment:
North Bound Mainlanes Bridge Widening
and Retaining Walls at Highland Knolls

Fort Bend, Texas

Teague Nall and Perkins, Inc., (TNP or ENGINEER) will render the following professional services necessary for the development of the project:

BASIC SERVICES

PROJECT DESCRIPTION

The ENGINEER will provide engineering services required for the preparation of plans, specifications and estimates (PS&E) and related documents, for State Highway 99 (SH 99) from Highland Knolls / Bay Hill Boulevard to South Fry Road Frontage Roads Project Segment for North Bound Mainlanes Bridge Widening and Retaining Walls at Highland Knolls in Fort Bend County. These services may include, but are not limited to, preparing roadway and bridge design, hydrologic and hydraulic design, traffic signal design, and utility engineering, coordination with adjacent project segment teams, and if requested, provide design support, and construction phase services necessary to support the design process. The project within the limits described is referred to as:

SH 99 Frontage Roads
North Bound Mainlanes Bridge Widening
and Retaining Walls at Highland Knolls

PROJECT MANAGEMENT AND ADMINISTRATION

The Engineer, in association with the COUNTY's Project Manager will be responsible for directing and coordinating all activities associated with the project to comply with State policies and procedures, and to deliver that work on time.

145.1. Project Management and Coordination.
The ENGINEER will coordinate subconsultant activity relevant to the project segment to include quality of and consistency of plans. The ENGINEER will coordinate and depend on the COUNTY's PM as a liaison to facilitate necessary coordination with the State and local entities.

The ENGINEER will:

1. Prepare monthly written progress reports and invoicing for the project.
2. Develop and maintain a detailed project schedule to track project conformance to Exhibit D, Project Delivery Schedule, for each work authorization. The schedule submittals will be hard copy and electronic format.
3. Meet on a scheduled basis with the COUNTY to review project progress.
4. Document phone calls and conference calls as required during the project to coordinate the work for various team members.

GEOTECHNICAL ENGINEERING SERVICES

110.1 Geotechnical Borings and Investigations:
The ENGINEER will determine the location of proposed soil borings for bridge design, embankment settlement analysis, retaining walls, and slope stability in accordance with the latest edition of the State's Geotechnical Manual and coordinate soil boring locations with the Geotechnical Engineer.

1. All geotechnical work should be performed in accordance with the latest version of the State's Geotechnical Manual. All testing will be performed in accordance with the latest version of the State's Manual of Test Procedures. American Society for Testing Materials (ASTM) test procedures can be used only in the absence of the State's procedures. All soil classification should be done in accordance with the Unified Soil Classification System.
2. If applicable, the ENGINEER will perform any retaining wall analyses to include the settlement analysis. This analysis will include the computation of the factor of safety for bearing capacity, global stability, overturning and sliding. In addition, the ENGINEER will include allowable bearing pressure, passive earth pressure, friction factor, settlement analysis (consolidation report) and lateral earth pressure for the retaining walls.
3. If applicable, the ENGINEER will perform soil borings, coring for pavement removal items, piezometric readings, testing and analysis to include slope stability analysis, settlement analysis, and foundation design recommendations along retaining walls, overhead sign structures, bridges, embankments and any temporary soil retaining systems.
4. The ENGINEER will provide a signed, sealed and dated geotechnical report which contains, but is not limited to, soil boring locations, boring logs, laboratory test results, generalized subsurface conditions, ground water conditions, piezometer data, analyses and recommendations for settlement and slope stability of the earthen embankments, skin friction tables and design capacity curves including skin friction and point bearing. The skin friction tables and design capacity curves will be present for piling and drilled shaft foundation.
5. The ENGINEER will sign, seal and date soil boring sheets to be used in the PS&E package. The preparation of soil boring sheets will be in accordance with a State's District standards.
6. The ENGINEER will coordinate with the COUNTY's PM, for State concurrence, to determine the location of soil borings to be drilled along the retaining wall alignments. The soil borings will extend a minimum of 35 feet below the footing elevation or deeper as soil

conditions warrant. Spacing of soil borings will not exceed 500 feet. The ENGINEER will provide a boring layout for the State's review and comment.

7. The ENGINEER will incorporate soil boring data sheets prepared, signed, sealed, and dated by the Geotechnical Engineer. The soil boring sheets will be in accordance with the State's WINCORE software as can be found on the Texas Department of Transportation (TxDOT) website.

SOCIAL, ECONOMIC AND ENVIRONMENTAL STUDIES

120.1 Environmental Permits Issues and Commitments (EPIC) Sheets.

The COUNTY's PM will provide the draft and final version of the EPIC sheets to the ENGINEER for review and implementation into the PS&E package.

UTILITY ENGINEERING INVESTIGATION

135.1. Utility Adjustment Coordination

1. Utility Coordination
   The Engineer will obtain existing utility layouts (SUE) and information from the Client. The Client shall be responsible for the accuracy and completeness of the existing utility layouts (SUE) that is provided to the Engineer. The Engineer shall identify potential conflicts and attempt to minimize the potential adverse utility impacts in the preparation of the PS&E design. The Engineer shall create and maintain a utility conflict matrix through the duration of the contract identifying potential known conflicts.

2. Utility Coordination Meetings
   a. The Engineer will attend online corridor wide utility coordination meetings at the client's request. The Engineer will attend up to nine (9) coordination meetings.
   b. The Engineer will attend online coordination meetings with the four adjacent project design teams. The Engineer will attend up to eight (8) project meetings.

3. Deliverables
   Utility Conflict Matrix at each PS&E submittal (30%, 60%, 95%, 100%)

ROADWAY DESIGN

The ENGINEER will inform the COUNTY of changes made from previous initial meetings regarding each exception, waiver, and variance that may affect the design. The ENGINEER will cease all work under this task until the exceptions, waivers, and variances have been resolved between the ENGINEER and the COUNTY unless otherwise directed by the COUNTY to proceed.

160.1 Roadway Design.

The ENGINEER will use Bentley's MicroStation / Geopak Design technology in the design and preparation of the roadway plan sheets.

The ENGINEER will provide roadway plan and profile drawings using CADD standards as required by the COUNTY. The drawings will consist of a planimetric file of existing features and

files of the proposed improvements. The roadway base map will contain line work that depicts existing surface features obtained from the schematic drawing. Existing and proposed right-of-way lines will be shown. Plan and Profile will be shown on separate or same sheets (this depends upon width of pavement) for main lanes, frontage roads, and direct connectors.

The plan view will contain the following design elements:

1. Calculated roadway centerlines for mainlanes, ramps, cross streets and frontage roads, as applicable. Horizontal control points will be shown. The alignments will be calculated using GeoPak horizontal geometry tools.
1. Pavement edges for all improvements (mainlanes, direct connectors, ramps, cross streets, driveways and frontage roads, if applicable).
2. Lane and pavement width dimensions.
3. The geometrics of ramps, auxiliary and managed lanes.
4. Proposed structure locations, lengths, and widths.
5. Direction of traffic flow on all roadways. Lane lines and arrows indicating the number of lanes will also be shown.
6. Drawing scale will be 1”=100’
7. Control of access line, ROW lines and easements.
8. Begin and end superelevation transitions and cross slope changes.
9. Limits of riprap, block sod, and seeding.
10. Existing utilities and structures.
11. Benchmark information.
12. Radii call outs, curb location, Concrete Traffic Barrier (CTB), guard fence, crash safety items and American with Disabilities Act Accessibility Guidelines (ADAAG) compliance items.

The profile view will contain the following design elements:

1. Calculated profile grade for proposed mainlanes (cite direction), direct connectors, ramps, cross streets and frontage roads, if applicable. Vertical curve data, including “K” values will be shown. The profiles will be calculated using GeoPak vertical geometry tools.
2. Existing and proposed profiles along the proposed centerline of the mainlanes, the outside shoulder line of ramps, and the outside gutter line of the designated (north, south, east or west) bound frontage roads.
3. Calculated vertical clearances at grade separations and overpasses, taking into account the appropriate superelevation rate, superstructure depth and required clearance.
4. The location of interchanges, mainlanes, grade separations and ramps (will include cross sections of any proposed or existing roadway, structure, or utility crossing).
5. Drawing vertical scale to be 1”=10’.

The ENGINEER will incorporate NB SH 99 horizontal and vertical geometry and preliminary roadway edge of pavement linework provided by the COUNTY from the approved SH 99 Schematic.

160.2 Typical Sections.

The ENGINEER will prepare typical sections for all proposed and existing roadways and structures. Typical sections will include width of travel lanes, shoulders, outer separations, border widths, curb offsets, managed lanes, and ROW. The typical section will also include Proposed Profile Gradeline (PGL), centerline, pavement design, longitudinal joints, side slopes, sodding or

seeding limits, concrete traffic barriers and sidewalks, if required, station limits, common proposed and existing structures including retaining walls, existing pavement removal, riprap, limits of embankment and excavation, etc.

160.3 Cross Sections.

The ENGINEER will develop an earthwork analysis to determine cut and fill quantities and provide final design cross sections at 100 feet intervals. Cross sections will be delivered in the standard TxDOT format on 11"x17" sheets or roll plots and electronic files. Cross sections and quantities will include existing pavement removals. Annotation will include at a minimum existing and proposed ROW, side slopes (front & back), profiles, etc.

The ENGINEER will submit drawings at the 30%, 60%, and 95%, and final submittals, respectively.

160.4 Plan Preparation.

The ENGINEER will prepare roadway plans, profiles and typical sections for the proposed improvements. This scope of services and the corresponding cost proposal are based on the ENGINEER preparing plans to construct freeway main lanes. The roadway plans will consist of the types and be organized in the sequence as described in the *PS&E Preparation manual*.

160.10. Pavement Design.

The ENGINEER will incorporate a pavement design provided by the COUNTY's PM.

DRAINAGE DESIGN

161.1. Data Collection.

The ENGINEER will provide the following data collection services:

1. The ENGINEER will coordinate drainage design with adjacent Project Segment. 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. Document field inspections with digital photos.
2. 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

161.1 Storm Drains.

The ENGINEER will provide the following services:

1. Design and analyze storm drains using GeoPak Drainage.
2. Size inlets, laterals, trunk line and outfall. Develop designs that minimize the interference with the passage of traffic or incur damage to the highway and local property in accordance with the State's Hydraulic Design Manual, District criteria and any specific guidance provided by the COUNTY. Storm drain design software will be selected as directed by the COUNTY's PM.
3. Determine hydraulic grade line starting at the outfall channel for each storm drain design. Use the design water surface elevation of the outfall as the starting basis (tailwater) for the design of the proposed storm sewer system.
4. Calculate manhole headlosses. Compute manhole head losses as per FHWA's HEC-22.
5. Identify areas requiring trench protection, excavation, shoring, and de-watering.

Storm drain detention and routing design is not included.

The ENGINEER will coordinate the design of main lane surface drainage storm drain system connections with adjacent project segment team members.

1. Prepare the PS&E package in accordance with the applicable requirements of the State's specifications, standards, and manuals, including the PS&E Preparation Manual. Include the following sheets and documents, as appropriate:

   a. Hydrologic Data Sheets
   b. Hydraulic Data Sheets
   c. Storm Drain Plan/Profile Sheets

2. Identify areas requiring trench protection, excavation, shoring and de-watering.

3. Prepare plan and profile sheets for storm drain systems.

4. Select necessary standard details from State or District's list of standards for items such as inlets, manholes, junction boxes and end treatments.

5. Prepare details for non-standard inlets, manholes and junction boxes.

6. Prepare drainage details for outlet protection, outlet structures and utility accommodation structures.

7. Identify pipe strength requirements.

8. Prepare drainage facility quantity summaries.

9. Identify potential utility conflicts and, if feasible, design to mitigate or avoid those identified conflicts.

10. Consider retaining wall and concrete traffic barrier drainage impacts.

11. Coordinate with roadway engineers.

SIGNING AND PAVEMENT MARKINGS

162.1. Signing.

The ENGINEER will prepare drawings, specifications, and details for all signs. The ENGINEER will coordinate with the COUNTY's PM (and other Engineers as required) for overall temporary, interim and final signing strategies and placement of signs outside contract limits. The ENGINEER will:

1. Prepare sign detail sheets and provide a summary of small signs to be removed, relocated, or replaced.
2. Designate the shields to be attached to guide signs.
3. Illustrate and number the proposed signs on plan sheets.
4. Select each sign foundation from State Standards.

162.2. Pavement Marking.
The ENGINEER will detail both permanent and temporary pavement markings and channelization devices on plan sheets. The ENGINEER will coordinate with the COUNTY (and other Engineers as required) for overall temporary, interim, and final pavement marking strategies. The ENGINEER will select Pavement markings from the latest State standards.

The ENGINEER will provide the following information on sign and pavement marking layouts:

1. Roadway layout.
2. Center line with station numbering.
3. Designation of arrow used on exit direction signs
4. Culverts and other structures that present a hazard to traffic.
5. Location of utilities.
6. Existing signs to remain, to be removed, to be relocated or replaced.
7. Proposed signs (illustrated, numbered and size).
8. Proposed overhead sign bridges to remain, to be revised, removed, relocated, or replaced.
9. Proposed overhead sign bridges, indicating location by plan.
10. Proposed markings (illustrated and quantified) which include pavement markings, object markings and delineation.
11. Quantities of existing pavement markings to be removed.
12. Proposed delineators, object markers.
13. The location of interchanges, mainlanes, grade separations, frontage roads and ramps.
14. The number of lanes in each section of proposed highway and the location of changes in numbers of lanes.
15. Right-of-way limits.
16. Direction of traffic flow on all roadways.

Includes replacing / mitigating widening conflict with large guide sign at STA 1525+36.61.

MISCELLANEOUS (ROADWAY DESIGN)
The ENGINEER will provide the following services:

163.1. Retaining Walls and Miscellaneous Structures.
The ENGINEER will prepare plan and profile layout drawings and structural details for four (4) NB ML Mechanically Stabilized Earth (MSE) retaining wall widenings extensions in GeoPak MicroStation format. Retaining wall plan layouts, elevation, profile drawings, typical wall sections, construction detail drawings and structural general notes and specifications will be in accordance with TxDOT and Green Ribbon Aesthetic design criteria documents. Each Retaining Wall will be analyzed by the Geotechnical ENGINEER for localized “Internal and External Stability” and Global Stability for dry long-term conditions with AASHTO Factors of Safety for sliding and overturning, analyze base bearing pressure resultant bearing pressure to be within mid 1/3 base width and maximum bearing pressure design check. Geotechnical ENGINEER will evaluate global stability

for walls with heights greater than 5 feet. ENGINEER will prepare a QA/QC "Retaining Wall Design Criteria and Layout Checklist". ENGINEER will coordinate closely with Geotechnical Engineers, Surveyors and SUE to develop final retaining wall plans and grading contour plans. Retaining wall details, total quantities and estimate of probable construction cost will be provided by the ENGINEER for the 30%, 60%, 90% and 100% submittals.

163.2. Traffic Control Plan, Detours, Sequence of Construction.

The ENGINEER will prepare Traffic Control Plans (TCP) including TCP typical sections, for the project. The ENGINEER will complete Page 4 of Form 1002. A detailed TCP will be developed in accordance with the latest edition of the TMUTCD. The ENGINEER will implement the current Barricade and Construction (BC) standards and TCP standards as applicable. The ENGINEER will interface and coordinate phases of work, including the TCP, with adjacent Engineers. The ENGINEER will:

1. Provide a written narrative of the construction sequencing and work activities per phase and determine the existing and proposed traffic control devices (regulatory signs, warning signs, guide signs, route markers, construction pavement markings, barricades, flag personnel, temporary traffic signals, etc.) to be used to handle traffic during each construction sequence. The ENGINEER will show proposed traffic control devices at grade intersections during each construction phase (stop signs, flagperson, signals, etc.). The ENGINEER will show temporary roadways, ramps, structures, and detours required to maintain lane continuity throughout the construction phasing. If temporary shoring is required, prepare layouts and show the limits on the applicable TCP.
2. Develop each TCP to provide continuous, safe access to each adjacent property during all phases of construction and to preserve existing access. The ENGINEER will notify the COUNTY in the event existing access will be eliminated, and will receive approval from the COUNTY prior to any elimination of existing access.
3. Design temporary drainage to replace existing drainage disturbed by construction activities or to drain detour pavement. The ENGINEER will show horizontal and vertical location of culverts and required cross sectional area of culverts.
4. Prepare each TCP in coordination with the COUNTY. The TCP will include interim signing for every phase of construction. Interim signing will include regulatory, warning, construction, route, and guide signs. The ENGINEER will interface and coordinate phases of work, including the TCP, with adjacent Engineers, which are responsible for the preparation of the PS&E for adjacent projects.
5. Make every effort to prevent detours and utility relocations from extending beyond the proposed Right-of-way lines. If it is necessary to obtain additional permanent or temporary easements and Right-of-Entry. The ENGINEER will identify and coordinate with all utility companies for relocations required.
6. Describe the type of work to be performed for each phase of sequence of construction and any special instructions (e.g. storm drain, culverts, bridges, railing, illumination, signals, retaining walls, signing, paving surface sequencing or concrete placement, ROW restrictions, utilities, etc.) that the contractor should be made aware to include limits of construction, obliteration, and shifting or detouring of traffic prior to the proceeding phase.
7. Include the work limits, the location of channelizing devices, positive barrier, location and direction of traffic, work area, stations, pavement markings, and other information deemed necessary for each phase of construction.
8. Identify and delineate any outstanding ROW parcels.
9. Delineate areas of wetlands on traffic control plans.

163.3. Illumination.
The ENGINEER will refer to TxDOT's Highway Illumination Manual and other deemed necessary State approved manuals for design of safety lighting for all conventional lighting. The ENGINEER will prepare circuit wiring diagrams showing the number of luminaries on each circuit, electrical conductors, length of runs, service pole assemblies. The ENGINEER will integrate existing illumination within the project limits into the proposed design. The ENGINEER will coordinate with the COUNTY to determine the location of proposed conventional lighting.

Adjustment and or relocations of existing Circuit H illumination is anticipated.
Underpass lighting is not included. High mast illumination is not included.

163.4. StormWater Pollution Prevention Plans (SWP3).
The ENGINEER will develop SWP3, on separate sheets from (but in conformance with) the TCP, to minimize potential impact to receiving waterways. The SWP3 will include text describing the plan, quantities, type, phase and locations of erosion control devices and any required permanent erosion control.

163.5. Compute and Tabulate Quantities.
The ENGINEER will provide the summaries and quantities within all formal submittals.

163.6. Miscellaneous Structural Details.
The ENGINEER will provide necessary details required to supplement standard details.

163.7. Estimate.
The ENGINEER will independently develop and report quantities necessary to construct the contract in standard State bid format at the specified milestones and Final PS&E submittals. The ENGINEER will prepare each construction cost estimates using Estimator or any approved method. The estimate will be provided at each milestone submittal or in DCIS format at the 95% and Final PS&E submittals per State's District requirement.

163.8. Contract time determination.
The ENGINEER will prepare a detailed contract time estimate to determine the approximate time required for construction of the project in calendar and working days (based on the State standard definitions of calendar and working days) at the 95% and Final PS&E milestone. The schedule will include tasks, subtasks, critical dates, milestones, deliverables, and review requirements in a format which depicts the interdependence of the various items and adjacent construction packages. The ENGINEER will provide assistance to the COUNTY in interpreting the schedule.

163.9. Specifications and General Notes.
The ENGINEER will identify necessary standard specifications, special specifications, special provisions and the appropriate reference items. The ENGINEER will prepare General Notes from the District's *Master List of General Notes*, Special Specifications and Special Provisions for inclusion in the plans and bidding documents. The ENGINEER will provide General Notes, Special Specifications and Special Provisions in the required format. The ENGINEER will provide the following PS&E Forms: FORM 1002, and FORM 1814 (if applicable).

163.10. Constructability Review.
The ENGINEER will provide Independent Quality Review of the constructability PS&E sets.

The ENGINEER will perform one (1) constructability review at the (60%) project design milestone to identify potential constructability issues and options that would provide substantial time savings during construction.

TRAFFIC MANAGEMENT SYSTEMS (PERMANENT)

165.1 Intelligent Transportation System.

The ENGINEER will design and provide details as a part of the State's Intelligent Transportation System to be managed from the Combined Transportation, Emergency and Communications Center (CTECC). The design will include elements such as lane-use control signals, variable message signs, closed-circuit Television (TV) cameras, and loop or other vehicle detection devices. The ENGINEER will prepare the design and details including conduit and cable, support structures, control equipment, etc. necessary to implement the system. The ENGINEER will also coordinate with the State Computerized Transportation Management Systems (CTMS) Section should the State have a computerized traffic management system under construction or in place and operating within the project limits.
Resolve conflicts with existing ITS circuits, conduit, and ground boxes.

BRIDGE DESIGN

170.1. Bridge Design.

The ENGINEER will prepare a bridge layout and structural details for a three span, four (4) lane divided Bridge 12 ft. widening. The ENGINEER will prepare a 30% submittal to TxDOT consisting of bridge plan, elevations and sections for review and approval before detailing is started. The ENGINEER will perform final design of preferred foundation type for bridge structure in accordance with the TxDOT's Bridge Division Geotechnical Manual and Geotechnical design report recommendations.

The ENGINEER will perform interim review and final, detailed designs in accordance with the current TxDOT Bridge Design Manual and 2020 AASHTO LRFD 9th Edition design requirements utilizing a conventional precast, prestressed concrete U-Beam superstructure and conventional reinforced concrete bents with conventional substructures. The ENGINEER will perform final, detailed bridge design utilizing cast-in-place concrete deck and prestressed concrete U-Beam superstructure and multicolumn reinforced concrete bents and abutments. The ENGINEER will produce summary tables of all bridge structure quantities, provide beam end bearing seat elevations tables and provide bent and abutment control elevations. The ENGINEER will prepare the bridge construction General Notes and Specifications and transmit these documents to the COUNTY. The bridge layouts will include:

Plan View

a. Bearing of roadway center-line
b. Bridge bent and abutment skew angles
c. Control stations at the beginning and ending of structures
d. Dimensioned widths of bridge, roadway, shoulders, and sidewalks
e. Limits of riprap
f. North arrow
g. Cross-slope and super-elevation data
h. Traffic flow directional arrows
i. Railing type

j. Bent stations and bearings
k. Approach pavement crown width
l. Typical Bridge sections showing construction stages, beam types and spacing
m. Expansion Joint and seal type

Elevation View
a. Profile grade
b. Vertical curve data
c. Finished roadway elevation at beginning and end of the bridge
d. Overall length of the structure
e. Existing and proposed ground lines clearly marked
f. Profile view grid elevations and stations
g. Type of foundation, number; size; and length of drill shaft foundation elements
h. Bent numbers
i. Soil core data
j. Fixed or expansion condition at each beam end
k. Column heights
l. Any other information required in the State's Bridges and Structures Operation and Planning Manual, Bridge Design Manual, and Bridge Detailing Manual.

The ENGINEER will prepare all bridge designs, plan sheets, and details in conformance with the TxDOT Bridge and Structures Operation and Planning Manual, TxDOT Bridge Design Manual, and Bridge Detailing Manual. No detailed design work is to be performed until the TxDOT has given the ENGINEER approval of the preliminary 30% Bridge Layout.

The ENGINEER will determine the location of proposed soil borings for bridge design in accordance with the latest edition of the TxDOT Geotechnical Manual.
Bridge details, total quantities and estimate of probable construction cost will be provided by the ENGINEER for the 30%, 60%, 90% and 100% submittals.

CONSTRUCTION PHASE SERVICES

351.1 CONSTRUCTION PHASE SERVICES

The ENGINEER will provide Construction Phase Services at the written request of the COUNTY's Project Manager. The written request will include a description of the work requested, a mutually agreed upon time limit, and any special instructions for coordination and submittal. These services will include, but are not limited to the following:

1. Attend preconstruction meeting
2. Attend up to one (1) field meeting and up to one (1) visit to site
3. Review and approval of shop drawings
4. Responding to requests for information (RFIs)
5. Providing clarification

DELIVERABLES

The ENGINEER will provide a single stand-alone PS&E delivery package for SH 99 delivered in conjunction and coordination with the State Highway 99 (SH 99) from Highland Knolls / Bay Hill Boulevard to South Fry Road Frontage Roads Project.

Plans

The ENGINEER will provide the following information at each submittal:

1. 30% Plans Submittal

    1.1. PDF set of 11" x 17" plan sheets for the State District Review.
    1.2. Estimate of construction cost.
    1.3. Engineer's internal QA and QC markup set.
    1.4. Form 1002.

2. 60% Plans Submittal:

    2.1. PDF set of 11" x 17" plan sets for the State District review.
    2.2. Estimate of construction cost.
    2.3. Engineer's internal QA and QC marked up set.

3. State Bridge Review
    3.1. PDF set of Bridge Layouts
    3.2. PDF set of 11" x 17" retaining wall layouts for the State District review.
    3.3. External stability analysis for retaining walls.
    3.4. Engineer's internal QA and QC marked up set.

4. District Review Submittal (95%):

    4.1. PDF set of 11" x 17" plan sheets for the State district review
    4.2. List of governing Specifications and Special Provisions in addition to those required.
    4.3. Marked up general notes.
    4.4. Plans estimate.
    4.5. New Special Specifications and Special Provisions with Form 1814, if applicable.
    4.6. Contract time determination for the project segment
    4.7. Engineer's internal QA and QC marked-up set.

5. Final submittal (100%).

    5.1. PDF set of 11" x 17"
    5.2. Revised supporting documents from 95% review comments.

Electronic Copies

The ENGINEER will furnish the COUNTY with a CD or DVD of the final plans in the format of current CADD system used by the State and .pdf format.

The ENGINEER will also provide separate CD or DVD containing cross section information (in dgn, XLR, & ASCII formats) for the State contractor to use.

Calculations

The ENGINEER will provide the following:

A 3-ring binder with all quantity and non-structural design calculations.

A bound copy of all engineering calculations, analysis, input calculations, quantities, geometric designs (GEOPAK GPK files), etc. relating to the project's structural elements. Project structural elements include, but are not limited to: bridges, retaining walls, overhead sign foundations, high-mast illumination foundations, non-standard culverts, custom headwalls and drainage appurtenances.

Working copies of all spreadsheets and output from any programs utilized on a CD or DVD in a universally reliable format.

The ENGINEER may provide the calculations in .pdf format in lieu of the bound hard copies. The .pdf file should be submitted on a CD, DVD, or in ProjectWise (if applicable).

ADDITIONAL OPTIONAL SERVICES

Additional services not included in the scope of services include but are not limited to the following:

Drill Shaft Retaining Walls
The ENGINEER will prepare plan and profile layout drawings and structural details for four (4) NB ML Drill Shaft retaining wall widenings extensions in Gopak MicroStation Format. Scope of work includes additional effort and coordination with Geotechnical ENGINEER required to update MSE retaining wall design to a drill shaft retaining wall design.

Attachment B

Compensation Estimate Summary

State Highway 99 (SH 99)

Project Segment:
North Bound Mainlanes Bridge Widening
and Retaining Walls at Highland Knolls

BASIC SERVICES	TNP	SUBCONSULTANT	Subtotal
PROJECT MANAGEMENT	$ 76,980.00		$ 76,980.00
GEOTECHINICAL SERVICES	$ 2,320.00	$ 97,140.00	$ 99,460.00
ENVIROMENTAL	$ 1,560.00		$ 1,560.00
UTILITY ENGINEERING	$ 23,620.00		$ 23,620.00
ROADWAY DESIGN	$ 78,590.00		$ 78,590.00
DRAINAGE DESIGN	$ 50,940.00		$ 50,940.00
SIGNING PAVEMENT MARKINGS	$ 14,000.00		$ 14,000.00
MISCELLENEOUS	$ 54,500.00		$ 54,500.00
MSE RETAINING WALLS AND MISCELLANEOUS STRUCTURES	$ 76,405.00		$ 76,405.00
INTELLIGENT TRANSPORTATION SYSTEMS	$ 10,960.00		$ 10,960.00
BRIDGE LAYOUTS (Bridge Widening NB SH 99 @ Highland Knolls Dr.)	$ 156,935.00		$ 156,935.00
OVERHEAD SIGN BRIDGE	$ 22,590.00		$ 22,590.00
CONSTRUCTION PHASE SERVICES	$ 49,160.00		$ 49,160.00

TOTAL BASIC SERVICES **$ 715,700.00**

ADDITIONAL OPTIONAL SERVICES	TNP	SUBCONSULTANT	Subtotal
ADD. EFFORT - DRILL SHAFT RETAINING WALLS AND MISCELLANEOUS STRUCTURES	$ 101,265.00		$ 101,265.00

TOTAL BASIC AND ADDITIONAL SERVICES **$ 816,965.00**

	SH 99 NB. Bridge Widening and Retaining Walls at Highland Knolls BASIC SERVICES	Director	Senior Project Manager	Project Manager	Senior Structural Engineer	Structural Project Engineer	Senior Engineer	Project Engineer	EIT III/IV	EIT I/II	Senior CAD Tech	Sr. ROW Agent	LS	Total Labor Hours	Total Labor
	Labor Rates	$290.00	$270.00	$230.00	$285.00	$230.00	$280.00	$180.00	$160.00	$135.00	$150.00	$185.00	1		
FC 145	**PROJECT MANAGEMENT**														
	Monthly Status Reports (24 mo.)	12		48										60	$ 14,520.00
	Monthly Invoicing (24 mo.)	12		48										60	$ 14,520.00
	Prepare and Maintain Schedule (24 mo.)	2		8										10	$ 2,420.00
	Coordination with County PM (24 mo.)	72		48										120	$ 31,920.00
	Coordination with Project Team Members (24 mo.)														
	Frontage Road Team	8						8						16	$ 3,760.00
	Mainlanes Team	8						8						16	$ 3,760.00
	Survey Provider	4						4						8	$ 1,880.00
	Adjacent Bridge Team	12						4						16	$ 4,200.00
	SUBTOTAL	**130**	**0**	**152**			**0**	**24**	**0**	**0**	**0**	**0**	**0**	**306**	**$ 76,980.00**
FC 110	**Geotechinical Services**														
	Coordinate with Geotech Engineer	8												8	$ 2,320.00
	SUBTOTAL	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**$ 2,320.00**

	SH 99 NB. Bridge Widening and Retaining Walls at Highland Knolls BASIC SERVICES		Senior Engineer	Project Engineer	Project Manager	Admin							LS	Total Labor Hours	Total Labor
	Labor Rates		$265.00	$200.00	$135.00	$85.00							1		
FC 110	**Geotechinical Services (Subconsultant)**														
	Labortorary Testing												40000		$ 40,000.00
	Geotechinical Services		30	60	30	24								144	$ 26,040.00
	SUBTOTAL	**0**	**30**	**60**	**30**	**24**	**0**	**0**	**0**	**0**	**0**	**0**		**144**	**$ 66,040.00**
FC 110	**DIRECT COST (Subconsultant)**			**QUAN**	**UNIT**				**RATE**						
	Drilling (0' to 50')			520	FT Depth				$ 20.00						$ 10,400.00
	Drilling (50' to 100')			100	FT Depth				$ 24.00						$ 2,400.00
	Mobilization / Demobilization			5	Day				$ 500.00						$ 2,500.00
	Piezometer			140	FT Depth				$ 24.00						$ 3,360.00
	Grouting			620	FT Depth				$ 12.00						$ 7,440.00
	Plugging Piezometer			140	FT Depth				$ 20.00						$ 2,800.00
	Geotechinical Logger			40	HR				$ 55.00						$ 2,200.00
	SUBTOTAL														**$ 31,100.00**

	SH 99 NB. Bridge Widening and Retaining Walls at Highland Knolls BASIC SERVICES	Director	Senior Project Manager	Project Manager	Senior Structural Engineer	Structural Project Engineer	Senior Engineer	Project Engineer	EIT III/IV	EIT I/II	Senior CAD Tech	Sr. ROW Agent	LS	Total Labor Hours	Total Labor
	Labor Rates	$290.00	$270.00	$230.00	$285.00	$230.00	$280.00	$180.00	$160.00	$135.00	$150.00	$185.00	1		
FC 120	**ENVIROMENTAL**														
	Incorporate EPIC Sheets			4					4						$ 1,560.00
	SUBTOTAL	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**		**0**	**$ 1,560.00**

	SH 99 NB. Bridge Widening and Retaining Walls at Highland Knolls BASIC SERVICES	Team Leader	Senior Engineer	Project Engineer	EIT	SR Utility Coordinator	UTILITY Coordinator	Survey Technician	Surveyor Senior (RPLS)	Admin Clerical				Total Labor Hours	Total Labor
	Labor Rates	$275.00	$280.00	$180.00	$160.00	$180.00	$160.00	$130.00	$2,560.00	$85.00					
FC 135	**UTILITY ENGINEERING INVESTIGATION**														
	Review assignment/SUE Internal Kickoff Meeting	2		2	2									6	$ 1,230.00
	Determine Utility Conflicts (30%, 60%, 95%, 100% plans)	2		24	32									58	$ 9,990.00
	Prepare Initial Utility Conflict Matrix	1		2	8									11	$ 1,915.00
	Update Utility Conflict Matrix (60%, 95%, 100%)	3		9	12									24	$ 4,365.00
	Attend Corridor Wide Utility Coordination Meetings (assume one (1) kickoff meeting, one (1) meeting a month for six months, and two(2) end of project meetings for a total of nine(9) meetings, two (2 hours each)			18										18	$ 3,240.00
	Attend coordination meetings with the four (4) adjacent consultants (assume two (2) meetings with each consultant, two (2) for each meeting)			16										16	$ 2,880.00
	SUBTOTAL	**8**	**0**	**71**	**54**	**0**	**0**	**0**	**0**	**0**	**0**	**0**		**133**	**$ 23,620.00**

	SH 99 NB. Bridge Widening and Retaining Walls at Highland Knolls BASIC SERVICES	Director	Senior Project Manager	Project Manager	Senior Structural Engineer	Structural Project Engineer	Senior Engineer	Project Engineer	EIT III/IV	EIT I/II	Senior CAD Tech	Sr. ROW Agent	LS	Total Labor Hours	Total Labor
	Labor Rates	$290.00	$270.00	$230.00	$285.00	$230.00	$280.00	$180.00	$160.00	$135.00	$150.00	$185.00	1		
FC 160	**ROADWAY DESIGN**														
	ROADWAY DESIGN														
	Plan Design	2					2	8						12	$ 2,580.00
	Profile Design	2					2	8						12	$ 2,580.00
	TYPICAL SECTIONS	2					2	8		24				36	$ 5,820.00
	CROSS SECTIONS														
	3D Modeling						8	24		16				48	$ 8,720.00
	Cut Sheets						2	8		24				34	$ 5,240.00
	PLAN PREPERATION														
	Title Sheet							4		12				16	$ 2,340.00
	Index of Sheets							8		12				20	$ 3,060.00
	Required Standards							4		8				12	$ 1,800.00
	Project Layout	2		4				4		8				18	$ 3,300.00
	Removal Plans						2	8		12				22	$ 3,620.00
	Horizontal Alignment Data							2		6				8	$ 1,170.00
	Roadway Plan & Profile Sheets	2		2			4	8		24				40	$ 6,840.00
	Miscellaneous Paving Details						2	8		12				22	$ 3,620.00
	Roadway Quantities			2			2	8		16				28	$ 4,620.00
	QA/QC PERFORMANCE (30%, 60%, 90%, and Final)	16					16							32	$ 9,120.00
	ADDRESS COMMENTS (60%, 90%, and Final)			12				24	24	24				84	$ 14,160.00
	SUBTOTAL	**26**	**0**	**20**			**42**	**134**	**24**	**198**	**0**	**0**		**444**	**$ 78,590.00**

FC 161	**DRAINAGE DESIGN**															
	DATA COLLECTION															
	Field Investigations / Site Vists							8						8	$	1,440.00
	Collect Applicable Data: As-Built Plans	2		2										4	$	1,040.00
	STORM DRAINS															
	SD HYDROLOGIC DATA SHEETS															
	Incorporate interior drainage area maps (Scale: 1"=100') (3 Sheets)			2				4	16					22	$	3,740.00
	Storm Drain DAM / Inlet CALCs (1 sheet)			2			2	16	4					24	$	4,540.00
	SD DRAIN PLAN AND PROFILE SHEETS															
	Develop Storm Drain Layout P&P (3 sheets)	2		8			2	16	16					44	$	8,420.00
	Develop Storm Drain Profiles (1 sheet)						2	16	12					30	$	5,360.00
	Prepare Storm Drain Calculations (1 sheet)			2			2	12	4					20	$	3,820.00
	Prepare Storm Drain Quantities (1 sheet)						2	4	6					12	$	2,240.00
	Prepare Storm Drain Details (1 sheet)			2		8	2	8	4					24	$	4,940.00
	Prepare Storm Drain Standards							4	4					8	$	1,360.00
	SD DESIGN SUPPORT															
	Mitigate Storm Drain Design for Utility Conflicts	2		2			4	4						12	$	2,880.00
	Design Storm Drain System Connections			2		8	2	8						20	$	4,300.00
	Identify Trench Protection, Excavation, Shoring, Dewatering at Storm Sewer					2	2	4	4					12	$	2,380.00
	QA/QC Plan Sheets (2 submittals)						16							16	$	4,480.00
	SUBTOTAL	**6**	**0**	**22**			**36**	**104**	**70**	**0**	**0**	**0**	**0**	**256**	**$**	**50,940.00**
FC 162	**SIGNING PAVEMENT MARKINGS**															
	Signing Pavement Marking Layout (2)			2				12	12					26	$	4,540.00
	Small Sign Summary							2	4					6	$	1,000.00
	Sign Details							2	8					10	$	1,640.00
	Summary of Parkment Markings			2				4	8					14	$	2,460.00
	Adjust Sign Bridge at STA. 1525+36.61 N.B.															
	Large Guide Sign Details & Standards			4				12	8					24	$	4,360.00
	SUBTOTAL	**0**	**0**	**4**	**0**	**0**	**0**	**20**	**32**	**0**	**0**	**0**	**0**	**0**	**$**	**14,000.00**
FC 163	**MISCELLANEOUS**															
	Traffic Control Plans															
	TCP Narrative	2		2			2	12						18	$	3,760.00
	Advanced Warning Sign Layout							4	8					12	$	2,000.00
	Detour Plan			2				4	8					14	$	2,460.00
	Phasing Layouts	2					2	8	12					24	$	4,500.00
	Illumination: Adjust / Relocate Circuit H			2			2	12	20					36	$	6,380.00
	StormWater Pollution Prevention Plans (SWP3)			2				2	12					16	$	2,740.00
	Compute and Tabulate Quantities							12	12					24	$	4,080.00
	Estimate			2			2	12						16	$	3,180.00
	Contract Time Determination			2		8		4						14	$	3,020.00
	Specifications and General Notes													0	$	-
	SPECs / General Notes			8			2	8						18	$	3,840.00
	Forms			8			2	8						18	$	3,840.00
	Constructability Review	2					8							10	$	2,820.00
	Incorporate Addenda	2		8		8	2	8						28	$	6,260.00
	SUBTOTAL	**8**	**0**	**36**	**0**	**16**	**22**	**94**	**72**	**0**	**0**	**0**		**248**	**$**	**48,880.00**
FC 163	**MISCELLANEOUS - DIRECT COST**		**QUAN**	**UNIT**				**RATE**								
	Mileage		2500	MI				Current IRS Rate							$	1,400.00
	Overnight Mail - letter size		4	EA				20.00							$	80.00
	Overnight Mail - Oversize Box		4	EA				30.00							$	120.00
	Courier		4	EA				25.00							$	100.00
	Certified Mail			EA				7.50							$	-
	Photocopies B/W (8.5x11)		2000	EA				0.10							$	200.00
	Photocopies B/W (11x17)		2000	EA				0.20							$	400.00
	Photocopies color (8.5x11)		2000	EA				0.50							$	1,000.00
	Photocopies color (11x17)		2000	EA				1.00							$	2,000.00
	Plots B/W on Bond		200	SF				0.50							$	100.00
	Plots Color on Bond		200	SF				1.00							$	200.00
	Color Graphics on Foam Board			SF				10.00							$	-
	Outside Printing - Reports			EA				50.00							$	-
	Report Binding		4	EA				5.00							$	20.00
	Notebooks			EA				5.00							$	-
	SUBTOTAL														**$**	**5,620.00**

FC 163	**MSE RETAINING WALLS AND MISCELLANEOUS STRUCTURES**														
	MSE RETAINING WALL DESIGN (NB WALLS - 4 TOTAL)														
	Coordinate with Geotech, Civil Grading & Drainage Design Engineers				3	4								7	$ 1,775.00
	Develop Final Wall Type MSE Based on X-Sections & Geotech Recommendations				5	12								17	$ 4,185.00
	Establish Wall Alignments, Roadway Offset Staioning, X-Section Grading				4	8								12	$ 2,980.00
	2 Wall Plans, Elevations & Typical Sections & Flume Drainage Patterns (2 Sheets Total)				20	50								70	$ 17,200.00
	Miscellaneous Wall Detail Sheets (1 Sheets)				8	14								22	$ 5,500.00
	Retaining Wall Boring Log Sheets (4 Sheets)				4	12								16	$ 3,900.00
	Prepare GPK Open Roads 3-D Retaining Wall Corridor Models (Coord. Retwall Template)					8								8	$ 1,840.00
	Abutment and Wingwall Temporary Special Shoring Plan & Details				8	32								40	$ 9,640.00
	Incorporate/ Assemble TxDOT Retaining Wall Standards & Details				2	6								8	$ 1,950.00
	Quantity Summary Tables				8	10								18	$ 4,580.00
	QA/QC PERFORMANCE													0	$ -
	Cost Estimates at 30%, 60%, 95%, 100%				8	16								24	$ 5,960.00
	TNP Internal QC Review 30%, 60%, 95%, 100%				9	8								17	$ 4,405.00
	ADDRESS TxDOT REVIEW COMMENTS 30%, 60%, 95%, 100% Submittals				18	32								50	$ 12,490.00
	SUBTOTAL	**0**	**0**	**0**	**97**	**212**	**0**	**0**	**0**	**0**	**0**	**0**		**309**	**$ 76,405.00**
FC 165	**INTELLIGENT TRANSPORTATIN SYSTEMS**														
	Conflict Mitigation Design	2				4		12						18	$ 3,660.00
	ITS Plan and Details					2		16						18	$ 3,340.00
	Coordination	8				4		4						16	$ 3,960.00
	SUBTOTAL	**10**	**0**	**0**	**0**	**10**	**0**	**32**	**0**	**0**	**0**	**0**		**52**	**$ 10,960.00**
FC 170	**BRIDGE LAYOUTS (Bridge Widening NB SH 99 @ Highland Knolls Dr.)**													0	$ -
	Bridge Layout Sheet (1 Sheet)				16	32			8					56	$ 13,200.00
	Bridge 2- Phased Sections and Final Typical Section (2 Sheets)				8	20			12					40	$ 8,800.00
	Estimated Quantities & Bearing Seat Elevations (1 Sheet)				10	14			22					46	$ 9,590.00
	Foundation Layout (2 Sheets)				10	22			12					44	$ 9,830.00
	Abutment 1 Widening Plan and Elevation (1 Sheet)				8	28			4					40	$ 9,360.00
	Abutment 4 Widening Plan and Elevation (1 Sheet)				6	18			2					26	$ 6,170.00
	Abutment Details (1 Sheet)				6	12			2					20	$ 4,790.00
	Abutment 1 and 4 Removal Details (1 Sheet)				4	9			2					15	$ 3,530.00
	Bent 2 Widening Plan and Elevation (1 Sheet)				8	16			2					26	$ 6,280.00
	Bent 3 Widening Plan and Elevation (1 Sheet)				8	16			2					26	$ 6,280.00
	Bent Details (1 Sheet)				6	18			2					26	$ 6,170.00
	Bent Removal Details (1 Sheet)				3	12			2					17	$ 3,935.00
	Column Details (5 Sheets Custom Non-Standard) (Assume Custom Column CAD details are provided by SB Structrual Team)				8	12								20	$ 5,040.00
	Footing Details (1 Sheet)(Assume Custom Column CAD details are provided by SB Structrual Team)				4	8			2					14	$ 3,300.00
	Girder Framing Plan (2 Sheets)				12	24			12					48	$ 10,860.00
	Slab Plan (1 Sheet)				8	16			4					28	$ 6,600.00
	Slab Details (1 Sheet)				8	16			4					28	$ 6,600.00
	TxDOT Standards UBNB (1 Sheet)				6	12			2					20	$ 4,790.00
	Assemble TxDOT Standard Detail Sheets (16 Sheets)				8	6			6					20	$ 4,620.00
	Prepare GPK Cross Section Models (Coord. Bridge Widening Deck Template)					16								16	$ 3,680.00
	QA/QC PERFORMANCE														
	Cost Estimates at 30%, 60%, 95%, 100%				8	12								20	$ 5,040.00
	TNP Internal QC Review 30%, 60%, 95%, 100%				18	12								30	$ 7,890.00
	ADDRESS TxDOT REVIEW COMMENTS 30%, 60%, 95%, 100% Submittals				12	20			16					48	$ 10,580.00
	SUBTOTAL	**0**	**0**	**0**	**185**	**371**	**0**	**0**	**118**	**0**	**0**	**0**		**674**	**$ 156,935.00**
FC 170	**Adjust Sign Bridge at STA. 1525+36.61 N.B.**														
	Elevation Sheet				8	32								40	$ 9,640.00
	Foundation Design				6	10								16	$ 4,010.00
	Column Design (Verify Standard Column Reinforcement)				4	8								12	$ 2,980.00
	Standard Detail Modifications (OSB-HS)				8	16								24	$ 5,960.00
	SUBTOTAL	**0**	**0**	**0**	**26**	**66**	**0**	**0**	**0**	**0**	**0**	**0**		**92**	**$ 22,590.00**
FC 351	**CONSTRUCTION PHASE SERVICES**														
	Attend preconstruction meeting			8	8									16	$ 4,120.00
	Attend up to one (1) field meeting and up to one (1) visit to site				8	8								16	$ 4,120.00
	Review and approval of shop drawings				16	16								32	$ 8,240.00
	Responding to requests for information (RFIs)	2		12	16	24		16						70	$ 16,300.00
	Providing clarification	2		24	8	16		24						74	$ 16,380.00
	SUBTOTAL	**4**	**0**	**44**	**56**	**64**	**0**	**40**	**0**	**0**	**0**	**0**		**208**	**$49,160.00**

TOTAL BASIC SERVICES **$ 715,700.00**

	SH 99 NB. Bridge Widening and Retaining Walls at Highland Knolls ADDITIONAL OPTIONAL SERVICES	Director	Senior Project Manager	Project Manager	Senior Structural Engineer	Structural Project Engineer	Senior Engineer	Project Engineer	EIT III/IV	EIT I/II	Senior CAD Tech	Sr. ROW Agent	LS	Total Labor Hours	Total Labor
	Labor Rates	$290.00	$270.00	$230.00	$285.00	$230.00	$280.00	$180.00	$160.00	$135.00	$150.00	$185.00	1		
FC 163	**ADD. EFFORT - DRILL SHAFT RETAINING WALLS AND MISCELLANEOUS STRUCTURES**														$ -
	DRILL SHAFT RETAINING WALL DESIGN (NB WALLS - 2 TOTAL)														$ -
	Coordinate with Geotech, Civil Grading & Drainage Design Engineers				9	8									$ 4,405.00
	Develop Final Wall Type Drill Shaft Based on X-Sections & Geotech Recommendations				13	36									$ 11,985.00
	Establish Wall Alignments, Roadway Offset Staioning, X-Section Grading				7	32									$ 9,355.00
	4 Wall Plans, Elevations & Typical Sections & Flume Drainage Patterns (8 Sheets)				48	168									$ 52,320.00
	Miscellaneous Wall Detail Sheets (4 Sheets)				18	64									$ 19,850.00
	Retaining Wall Boring Log Sheets (4 Sheets)				4	22									$ 6,200.00
	Prepare GPK Open Roads 3-D Retaining Wall Corridor Models				8	36									$ 10,560.00
	Abutment and Wingwall Temporary Special Shoring Plan & Details				14	64									$ 18,710.00
	Incorporate/ Assemble TxDOT Retaining Wall Standards & Details				8	14									$ 5,500.00
	Quantity Summary Tables				16	28									$ 11,000.00
	Cost Estimates at 30%, 60%, 95%, 100%				10	20									$ 7,450.00
	TNP Internal QC Review 30%, 60%, 95%, 100%				9	8									$ 4,405.00
	ADDRESS TxDOT REVIEW COMMENTS 30%, 60%, 95%, 100% Submittals				22	42									$ 15,930.00
	SUBTOTAL	**0**	**0**	**0**	**109**	**298**	**0**	**0**	**0**	**0**	**0**	**0**		**0**	**$177,670.00**
	Credit MSE Wall Design Subtotal														**-$76,405.00**
	Additional Design Effort for Alternate Drill Shaft Retainingwall														**$101,265.00**

TOTAL BASIC and ADDITIONAL SERVICES **$ 816,965.00**