

STATE OF TEXAS §
 §
COUNTY OF FORT BEND §

AGREEMENT FOR PROFESSIONAL ENGINEERING SERVICES

THIS AGREEMENT is made and entered into by and between Fort Bend County, (hereinafter “County”), a body corporate and politic under the laws of the State of Texas, and McDonough Engineering Corporation, (hereinafter “Contractor”), a company authorized to conduct business in the State of Texas.

WITNESSETH

WHEREAS, County desires that Contractor provide professional engineering services for improvements to Stella Road between Cottonwood School Road to Band Road under 2020 Mobility Bond Project No. 20116 (hereinafter “Services”) pursuant to SOQ 14-025; and

WHEREAS, County has determined Contractor is the most highly qualified provider of the desired Services on the basis of demonstrated competence and qualifications, and County and Contractor have negotiated to reach a fair and reasonable amount of compensation for the provision of such Services, as required under Chapter 2254 of the Texas Government Code; and

WHEREAS, Contractor represents that it is qualified and desires to perform such services.

NOW, THEREFORE, in consideration of the mutual covenants and conditions set forth below, the parties agree as follows:

AGREEMENT

Section 1. Scope of Services

Contractor shall render the professional engineering services as described in Contractor’s proposal dated April 6, 2021, attached hereto as Exhibit A, and incorporated herein for all purposes.

Section 2. Personnel

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

2.2 All employees of Contractor shall have such knowledge and experience as will enable them to perform the duties assigned to them. Any employee of Contractor who, in the opinion of County, is incompetent or by his conduct becomes detrimental to the project shall, upon request of County, immediately be removed from association with the project.

Section 3. Compensation and Payment

3.1 Contractor's fees shall be calculated at the rates set forth in the attached Exhibit A. The Maximum Compensation for the performance of Services within the Scope of Services described in Exhibit A is five hundred seventy-nine thousand four hundred forty-five dollars and no/100 (\$579,445.00) as set forth in Exhibit A. In no case shall the amount paid by County under this Agreement exceed the Maximum Compensation without a written agreement executed by the parties.

3.2 All performance of the Scope of Services by Contractor including any changes in the Scope of Services and revision of work satisfactorily performed will be performed only when approved in advance and authorized by County.

3.3 County will pay Contractor based on the following procedures: Upon completion of the tasks identified in the Scope of Services, Contractor 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.

Section 4. Limit of Appropriation

4.1 Contractor 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 five hundred seventy-nine thousand four hundred forty-five dollars and no/100 (\$579,445.00) specifically allocated to fully discharge any and all liabilities County may incur.

4.2 Contractor does further understand and agree, said understanding and agreement also being of the absolute essence of this Agreement, that the total maximum compensation that Contractor may become entitled to and the total maximum sum that County may become liable to pay to Contractor shall not under any conditions, circumstances, or interpretations thereof exceed five hundred seventy-nine thousand four hundred forty-five dollars and no/100 (\$579,445.00).

Section 5. Time of Performance

Time for performance of the Scope of Services under this Agreement shall begin with receipt of the Notice to Proceed and end no later than December 31, 2026. Contractor shall complete the tasks described in the Scope of Services, within this time or within such additional time as may be extended by the County.

Section 6. Modifications and Waivers

6.1 The parties may not amend or waive this Agreement, except by a written agreement executed by both parties.

6.2 No failure or delay in exercising any right or remedy or requiring the satisfaction of any condition under this Agreement, and no course of dealing between the parties, operates as a waiver or estoppel of any right, remedy, or condition.

6.3 The rights and remedies of the parties set forth in this Agreement are not exclusive of, but are cumulative to, any rights or remedies now or subsequently existing at law, in equity, or by statute.

Section 7. Termination

7.1 Termination for Convenience – County may terminate this Agreement at any time upon forty-eight (48) hours written notice.

7.2 Termination for Default

7.2.1 County may terminate the whole or any part of this Agreement for cause in the following circumstances:

7.2.1.1 If Contractor fails to perform services within the time specified in the Scope of Services or any extension thereof granted by the County in writing;

7.2.1.2 If Contractor materially breaches any of the covenants or terms and conditions set forth in this Agreement or fails to perform any of the other provisions of this Agreement or so fails to make progress as to endanger performance of this Agreement in accordance with its terms, and in any of these circumstances does not cure such breach or failure to County's reasonable satisfaction within a period of ten (10) calendar days after receipt of notice from County specifying such breach or failure.

7.2.2 If, after termination, it is determined for any reason whatsoever that Contractor was not in default, or that the default was excusable, the rights and obligations of the parties shall be the same as if the termination had been issued for the convenience of the County in accordance with Section 7.1 above.

7.3 Upon termination of this Agreement, County shall compensate Contractor in accordance with Section 3, above, for those services which were provided under this Agreement prior to its termination and which have not been previously invoiced to County. Contractor's final invoice for said services will be presented to and paid by County in the same manner set forth in Section 3 above.

7.4 If County terminates this Agreement as provided in this Section, no fees of any type, other than fees due and payable at the Termination Date, shall thereafter be paid to Contractor.

Section 8. Ownership and Reuse of Documents

All documents, data, reports, research, graphic presentation materials, etc., developed by Contractor as a part of its work under this Agreement, shall become the property of County upon completion of this Agreement, or in the event of termination or cancellation thereof, at the time of payment under Section 3 for work performed. Contractor shall promptly furnish all such data and material to County on request.

Section 9. Inspection of Books and Records

Contractor will permit County, or any duly authorized agent of County, to inspect and examine the books and records of Contractor for the purpose of verifying the amount of work performed under the Scope of Services. County's right to inspect survives the termination of this Agreement for a period of four years.

Section 10. Insurance

10.1 Prior to commencement of the Services, Contractor 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. Contractor shall provide certified copies of insurance endorsements and/or policies if requested by County. Contractor 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. Contractor shall obtain such insurance written on an Occurrence form (or a Claims Made form for Professional Liability insurance) 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:

10.1.1 Workers' Compensation insurance. Substitutes to genuine Workers' Compensation Insurance will not be allowed.

10.1.2 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.

10.1.3 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.

10.1.4 Business Automobile Liability insurance with a combined Bodily Injury/Property Damage limit of not less than \$1,000,000 each accident. The policy shall cover liability arising from the operation of licensed vehicles by policyholder.

10.1.5 Professional Liability insurance may be made on a Claims Made form with limits not less than \$1,000,000.

10.2 County and the members of Commissioners Court shall be named as additional insured to all required coverage except for Workers' Compensation and Professional Liability. All Liability policies including Workers' Compensation written on behalf of Contractor shall contain a waiver of subrogation in favor of County and members of Commissioners Court.

10.3 If required coverage is written on a claims-made basis, Contractor 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 that work under the Agreement is completed.

Section 11. Indemnity

CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS COUNTY AGAINST LOSSES, LIABILITIES, CLAIMS, AND CAUSES OF ACTION, INCLUDING THE REIMBURSEMENT OF COUNTY'S REASONABLE ATTORNEYS FEES IN PROPORTION TO CONTRACTOR'S LIABILITY, ARISING FROM ACTIVITIES OF CONTRACTOR, ITS AGENTS, SERVANTS OR EMPLOYEES, PERFORMED UNDER THIS AGREEMENT THAT RESULT FROM THE NEGLIGENT ACT, INTENTIONAL TORT, ERROR, OR OMISSION OF CONTRACTOR OR ANY OF CONTRACTOR'S AGENTS, SERVANTS OR EMPLOYEES.

Section 12. Confidential and Proprietary Information

12.1 Contractor 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 Contractor 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 Contractor 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 Contractor) publicly known or is contained in a publicly available document; (b) is rightfully in Contractor'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 Contractor who can be shown to have had no access to the Confidential Information.

12.2 Contractor agrees to hold Confidential Information in strict confidence, using at least the same degree of care that Contractor 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. Contractor 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, Contractor shall advise County

immediately in the event Contractor 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 Contractor will at its expense cooperate with County in seeking injunctive or other equitable relief in the name of County or Contractor against any such person. Contractor agrees that, except as directed by County, Contractor 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, Contractor will promptly turn over to County all documents, papers, and other matter in Contractor's possession which embody Confidential Information.

12.3 Contractor 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. Contractor 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.

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

12.5 Contractor expressly acknowledges that County is subject to the Texas Public Information Act, TEX. GOV'T CODE ANN. §§ 552.001 *et seq.*, as amended, and notwithstanding any provision in the Agreement to the contrary, County will make any information related to the Agreement, or otherwise, available to third parties in accordance with the Texas Public Information Act. Any proprietary or confidential information marked as such provided to County by Consultant shall not be disclosed to any third party, except as directed by the Texas Attorney General in response to a request for such under the Texas Public Information Act, which provides for notice to the owner of such marked information and the opportunity for the owner of such information to notify the Attorney General of the reasons why such information should not be disclosed.

Section 13. Independent Contractor

13.1 In the performance of work or services hereunder, Contractor shall be deemed an independent contractor, and any of its agents, employees, officers, or volunteers performing work required hereunder shall be deemed solely as employees of contractor or, where permitted, of its subcontractors.

13.2 Contractor 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.

Section 14. Notices

14.1 Each party giving any notice or making any request, demand, or other communication (each, a "Notice") pursuant to this Agreement shall do so in writing and shall use one of the following methods of delivery, each of which, for purposes of this Agreement, is a writing: personal delivery, registered or certified mail (in each case, return receipt requested and postage prepaid), or nationally recognized overnight courier (with all fees prepaid).

14.2 Each party giving a Notice shall address the Notice to the receiving party at the address listed below or to another address designated by a party in a Notice pursuant to this Section:

County: Fort Bend County Engineering Department
Attn: County Engineer
301 Jackson Street
Richmond, Texas 77469

With a copy to: Fort Bend County
Attn: County Judge
401 Jackson Street, 1st Floor
Richmond, Texas 77469

Contractor: McDonough Engineering Corporation
5625 Schumacher Lane
Houston, Texas 77057

14.3 A Notice is effective only if the party giving or making the Notice has complied with subsections 14.1 and 14.2 and if the addressee has received the Notice. A Notice is deemed received as follows:

14.3.1 If the Notice is delivered in person, or sent by registered or certified mail or a nationally recognized overnight courier, upon receipt as indicated by the date on the signed receipt.

14.3.2 If the addressee rejects or otherwise refuses to accept the Notice, or if the Notice cannot be delivered because of a change in address for which no Notice was given, then upon the rejection, refusal, or inability to deliver.

Section 15. Compliance with Laws

Contractor shall comply with all federal, state, and local laws, statutes, ordinances, rules and regulations, and the orders and 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. When required by County, Contractor shall furnish County with certification of compliance with said laws, statutes, ordinances, rules, regulations, orders, and decrees above specified.

Section 16. Standard of Care

Contractor represents shall perform the Services to be provided under this Agreement with the professional skill and care ordinarily provided by competent engineers practicing under the same or similar circumstances and professional license. Further, Contractor shall perform the Services as expeditiously as is prudent considering the ordinary professional skill and care of a competent engineer.

Section 17. Assignment

17.1 Neither party may assign any of its rights under this Agreement, except with the prior written consent of the other party. That party shall not unreasonably withhold its consent. All assignments of rights are prohibited under this subsection, whether they are voluntarily or involuntarily, by merger, consolidation, dissolution, operation of law, or any other manner.

17.2 Neither party may delegate any performance under this Agreement.

17.3 Any purported assignment of rights or delegation of performance in violation of this Section is void.

Section 18. Applicable Law

The laws of the State of Texas govern all disputes arising out of or relating to this Agreement. The parties hereto acknowledge that venue is proper in Fort Bend County, Texas, for all legal actions or proceedings arising out of or relating to this Agreement and waive the right to sue or be sued elsewhere. Nothing in the Agreement shall be construed to waive the County's sovereign immunity.

Section 19. Successors and Assigns

County and Contractor bind themselves and their successors, executors, administrators and assigns to the other party of this Agreement and to the successors, executors, administrators and assigns of the other party, in respect to all covenants of this Agreement.

Section 20. Third Party Beneficiaries

This Agreement does not confer any enforceable rights or remedies upon any person other than the parties.

Section 21. Severability

If any provision of this Agreement is determined to be invalid, illegal, or unenforceable, the remaining provisions remain in full force, if the essential terms and conditions of this Agreement for each party remain valid, binding, and enforceable.

Section 22. Publicity

Contact with citizens of Fort Bend County, media outlets, or governmental agencies shall be the sole responsibility of County. Under no circumstances whatsoever, shall Contractor release any material or information developed or received in the performance of the Services hereunder without the express written permission of County, except where required to do so by law.

Section 23. Captions

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

Section 24. Conflict

In the event there is a conflict between this Agreement and the attached exhibits, this Agreement controls.

Section 25. Certain State Law Requirements for Contracts

25.1 Agreement to Not Boycott Israel Chapter 2271 Texas Government Code: By signature below, Contractor verifies that if Contractor employs ten (10) or more full-time employees and this Agreement has a value of \$100,000 or more, Contractor does not boycott Israel and will not boycott Israel during the term of this Agreement.

25.2 Texas Government Code Section 2251.152 Acknowledgment: By signature below, Contractor represents pursuant to Section 2252.152 of the Texas Government Code, that Contractor is not listed on the website of the Comptroller of the State of Texas concerning the listing of companies that are identified under Section 806.051, Section 807.051 or Section 2253.153.

Section 26. Human Trafficking

BY ACCEPTANCE OF AGREEMENT, CONTRACTOR ACKNOWLEDGES THAT THE 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.

[THE REMAINDER OF THIS PAGE INTENTIONALLY LEFT BLANK.]

IN WITNESS WHEREOF, the parties hereto have signed or have caused their respective names to be signed to multiple counterparts to be effective on the date signed by the last party hereto.

FORT BEND COUNTY

MCDONOUGH ENGINEERING CORPORATION

KP George, County Judge

Ranney McDonough
Authorized Agent – Signature

Date

RANNEY MCDONOUGH
Authorized Agent – Printed Name

ATTEST:

PRES.
Title

Laura Richard, County Clerk

4-22-21
Date

APPROVED:

J. Stacy Slawinski
J. Stacy Slawinski, P.E., County Engineer

APPROVED AS TO LEGAL FORM:

Marcus D. Spencer, First Assistant County Attorney

AUDITOR'S CERTIFICATE

I hereby certify that funds are available in the amount of \$ _____ to accomplish and pay the obligation of Fort Bend County under this contract.

Robert Ed Sturdivant, County Auditor

EXHIBIT A



McDONOUGH ENGINEERING CORPORATION
Civil Engineers

EXHIBIT "A" SCOPE OF SERVICES

April 6, 2021

Binkley & Barfield, Inc.
Kevin Mineo, P.E.
1710 Seamist Dr.
Houston, TX 77008

RE: Proposal for Professional Engineering Services
Stella Road: From Cottonwood School Road to Band Road
Precinct 1
Fort Bend County
FBC Project No. 20116
MEC Project No. 21060

EXISTING CONDITIONS

The existing 7,800 LF road consists of two lane asphalt pavement with roadside ditches. The project right-of-way is currently 60 +/- feet or 115 +/- feet wide for about one-third of the roadway starting at Cottonwood School Road and the remaining two-thirds of the roadway passes through large parcels owned by Fort Bend County. Land acquisition will be required west of the Stella Road and Band Road intersection to widen the ROW an additional 20 +/- feet for 265 +/- LF. The project does not appear to be located in the 100-year or 500-year floodplains based on the current published FEMA maps: 48157C0240L and 48157C0245L revised 04/02/2014. The existing roadway appears to cross over an existing Phillips 66 pipeline, based on preliminary review of RRC GIS information.

PROPOSED SCOPE

McDonough Engineering Corporation's (MEC) scope for the 7,800 LF road includes the preliminary phase and final design phase engineering services to develop the project PS&E package for the construction of a 2-lane asphalt road with shoulders, road side ditches and detention basin.

Based on our scoping discussions with Binkley & Barfield, Inc (BBI), MEC was advised that a drainage study for the proposed road is not available. MEC will incorporate the Fort Bend County Drainage District requirements into preparation of the PS&E package. A Drainage Impact Analysis Letter Report and a Drainage Detention Mitigation design will be prepared and included with the Preliminary Engineering Report; see attached proposal by R.G. Miller Engineers, Inc.

As requested, the geotechnical report will be prepared in accordance with the current Fort Bend County Engineering Department Engineering Design Manual Aug 2020 Draft.

It is our understanding that any required environmental services will be provided by an independent consultant, not included in this proposal. A stormwater pollution prevention report is not included in this proposal.

No traffic signal design services are included as part of this proposal.

A project design schedule has been prepared and is included as Attachment B.

BASIC SERVICES

Basic services will generally follow the design process outlined in the Fort Bend County Engineering Department Engineering Design Manual Aug 2020 Draft.

Preliminary Design Phase

MEC will prepare a study report documenting the project scope, findings and recommendations for the final design phase that will include a roadway schematic, drainage impact analysis, detention basin location recommendation, ROW acquisition needs, potential utility conflicts, preliminary construction cost estimate, and geotechnical report. MEC will attend progress meetings with BBI and prepare a roll plot plan view of the proposed road.

Utilities

Research and obtain record documents for all known existing utilities within the road ROW. MEC will prepare a utility conflict table and update it during the final design phase as needed. MEC will submit milestone-level drawings to the applicable utility companies for their review. It is understood that the county and/or the project management consultant will contact and coordinate all utility adjustments.

Surveying

The following surveying services are included in this proposal and further described in the attached proposal from Landtech:

- Topographic Survey
- Right of Way Maps Survey
- Parcel Plat and Metes and Bounds for Acquisitions
- Parcel Plats and Metes and Bounds for Unrestricted Visibility Easement (UVE)

Geotechnical

Provide a geotechnical report in accordance with the Fort Bend County Engineering Department Engineering Design Manual Aug 2020 Draft. A total of seventeen (17) soil borings at 25' will be drilled for the proposed road. A total of three (3) borings at 25' depth will be drilled for the proposed detention pond, after the final location is determined. The geotechnical report will include a description of subsurface conditions, groundwater information, boring logs and pavement recommendations in typical FBCED format. See attached proposal by Aviles Engineering Corporation for additional details.

Final Design Phase

MEC will proceed with completion of the PS&E for 70%, 95%, and 100% submittals to BBI. MEC will address comments presented in the Preliminary Design Phase review meeting, and address and/or provide responses to 70% and 95% comments.

Per the Fort Bend County Engineering Department Engineering Design Manual Aug 2020 Draft, 70% and 95% submittals shall include cover sheet, typical and non-standard cross-sections, overall project layout, survey control map, drainage area map with hydraulic calculations, plan and profile sheets, traffic control plan, storm water pollution prevention plan, cross sections at 100' intervals, specification table of contents, and bid form with estimated unit and total costs. Three (3) copies of the 70% submittal will be

submitted for County review in 11"x17" sheets along with a PDF of the drawings, cross sections at 100' intervals, specifications and estimate.

Additionally, the 95% submittal shall also include general notes sheet, signage and pavement marking plans, standard construction details, project manual, and responses to 70% comments. The 95% physical submittal will be the same as for the 70% submittal.

The 100% submittal shall consist of one sealed and signed set of drawings delivered to the County, along with a PDF submittal of the drawings, specifications, and estimate sent to BBI.

MEC will provide monthly progress reports.

Utilities

MEC will identify all known existing utilities on the plan and profiles. MEC will coordinate with BBI's utility coordinator for the project and identify conflicts between the proposed improvements and the existing utilities. MEC to submit each milestone submittal to utility companies that are identified to be in conflict.

No water or sewer relocation or adjustment plans are included as part of this proposal.

Drainage

Based on our scoping discussions with Binkley & Barfield, Inc. (BBI), MEC was advised that a corridor drainage study for the proposed road is not available and is not part of this proposal. MEC will meet with and incorporate the Fort Bend County Drainage District requirements into preparation of the PS&E package. The drainage analysis will follow the effective Fort Bend County Interim Atlas 14 Design Criteria Manual per Fort Bend County Drainage District. Based on scoping discussions with the drainage district, it is understood that a simplified method will be conducted for the drainage model and Atlas 14 rain data will be compared to the model to acquire the necessary detention for the proposed roadway.

The project does not appear to be located in the 100-year or 500-year floodplains based on the current published FEMA maps: 48157C0240L and 48157C0245L revised 04/02/2014. A FEMA submittal for the project is not included in this proposal. Providing or obtaining a "no impact letter" is not part of this proposal.

Traffic

Prepare construction phase traffic control sheets for lane closures in accordance with the current published criteria for Fort Bend County. MEC will prepare the construction phase traffic control plans to accommodate the existing traffic during the construction of the proposed road improvements.

Please note that based on scoping discussions with BBI, no traffic signal design services are included as part of this proposal

Based on scoping information received, no proposed sidewalk is anticipated to be included in the project.

As requested during scoping discussions, no bid or construction phase services have been included in this proposal.

Proposal for Professional Engineering Services
Stella Road: From Cottonwood School Road to Band Road
Precinct 1
Fort Bend County
MEC Project No. 21060
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Billing

The preliminary and final design efforts will be a lump sum fee to be billed monthly on a percent complete basis by tasks. Invoicing will be per direction provided the Fort Bend County Engineering Department Engineering Design Manual Aug 2020 Draft.

Cost Summary

A level of effort estimate is enclosed based on the scope of work described herein. The Lump Sum Fee amount is \$579,445.00.

Stella Road - Cottonwood School Road to Band Road - Precinct 1
Level of Effort Estimate

McDonough Engineering Corporation

4/1/2021

										Total	
										Hours per	Number of
										Task	sheets
											Hour per Sheet
Phase I - Preliminary Design Phase											
Phase I - Preliminary Design Phase	Coordination and review deliverables by subconsultants (Drainage, Geotech, Surveyor)	32	24	8	4	24	24	\$	17,900.00	116	N/A
	Coordination with Environmental consultant (Independent of project team)	2	8	0	0	0	0	\$	1,920.00	10	N/A
	Coordination with Agencies and Entities (City of Rosenberg, MUD 148)	6	6	4	0	0	0	\$	3,120.00	16	N/A
	Attend Progress Meetings (Bi-weekly for 3 months)	12	12	6	0	0	0	\$	5,940.00	30	N/A
	Topo Site Walk Review	4	4	0	0	0	0	\$	1,680.00	8	N/A
	Research Documentation for Existing Utilities within ROW	4	4	16	4	16	0	\$	6,180.00	44	N/A
	Attend Utility Coordination Meetings (3 meetings budgeted)	8	8	4	0	0	0	\$	3,960.00	20	N/A
	Prepare 30% plans (Typical sections, plan and profile- proposed plan view only)	18	32	58	68	148	0	\$	42,080.00	324	20
	Prepare Executive Summary Letter	4	12	18	4	4	8	\$	7,320.00	50	N/A
	QA/QC	3	5	10	2	3	0	\$	3,670.00	23	N/A
	Attend a Preliminary Design Phase Meeting to Review PER	3	3	0	0	0	0	\$	1,260.00	6	N/A
	Address Comments	2	6	10	8	16	6	\$	6,110.00	48	N/A
	Final Submittal of Letter Report	2	2	6	1	4	2	\$	2,415.00	17	N/A
	Construction Cost Estimate	2	8	20	0	6	0	\$	5,520.00	36	N/A
Phase II - Final Design Phase											
Phase II - Final Design Phase	Project Administration	75	12	4	0	0	15	\$	21,885.00	106	N/A
	Attend Progress Meetings (Bi-weekly for 6 months)	24	24	12	0	0	0	\$	11,880.00	60	N/A
QA/QC											
	Internal QA/QC (3 submittals)	12	24	24	9	12	0	\$	13,125.00	81	N/A
Construction Documents											
Plans											
	Cover sheet	0.5	1	1	0	2	0	\$	650.00	4.5	1
	Index of Sheets	1	1	1	2	2	0	\$	1,020.00	7	1
	General Notes	1	1	1	2	2	0	\$	1,020.00	7	2
	Legend	1	1	1	2	2	0	\$	1,020.00	7	1
	Survey Control Sheets	1	0	1	0	2	0	\$	590.00	4	4
	Existing Typical Section	1	4	1	4	8	0	\$	2,410.00	18	1
	Proposed Typical Sections	3	8	1	8	14	0	\$	4,710.00	34	1
	Demolition Plans	2	4	8	8	12	0	\$	4,600.00	34	6
	Plan and Profile (1"=40' scale 11x17)	18	42	64	84	200	0	\$	51,980.00	408	18
	Details										
	Typical Pavement Details	1	1	1	0	2	0	\$	770.00	5	2
	Concrete Driveway Details	1	1	1	0	1	0	\$	670.00	4	1
	ADA Ramp Details	1	1	1	0	1	0	\$	670.00	4	1
	Storm Sewer Construction Details	1	1	1	0	1	0	\$	670.00	4	1
Traffic Control Plans	Precast Concrete Storm Sewer Manhole Details	1	1	1	0	1	0	\$	670.00	4	1
	Junction Box Manhole Detail	1	1	1	0	1	0	\$	670.00	4	1
	Safety End Treatment for 12"-72" Dia. Pipe Culverts	1	1	1	0	1	0	\$	670.00	4	1
Typical Construction Cross-sections	Phasing Layout with General Notes	2	4	0	4	10	0	\$	2,700.00	20	1
	Typical Construction Cross-sections	4	6	0	4	10	0	\$	3,540.00	24	1
	Advanced Warning Signs Layouts	4	6	0	4	10	0	\$	3,540.00	24	1
Phase One Layouts (1"=50' scale)											
		6	14	20	12	30	0	\$	11,460.00	82	7

Stella Road - Cottonwood School Road to Band Road - Precinct 1
Level of Effort Estimate

McDonough Engineering Corporation

4/1/2021

							<u>Total</u>			
	<u>Proj. Man.</u>	<u>Engineer</u>	<u>Senior Designer</u>	<u>Sr. CADD</u>	<u>CADD</u>	<u>Clerical</u>	<u>Fee</u>	<u>Hours per Task</u>	<u>Number of sheets</u>	<u>Hour per Sheet</u>
Phase Two Layouts (1"=50' scale)	6	14	20	12	30	0	\$ 11,460.00	82	7	11.7
Storm Water Pollution Prevention Plans (1"=100' scale)	2	4	8	5	16	0	\$ 4,625.00	35	4	8.8
Storm Water Pollution Prevention Plan Details	1	1	1	0	1	0	\$ 670.00	4	1	4.0
Signing and Paving Marking Plans (1"=50' scale)	4	8	16	14	28	0	\$ 9,350.00	70	7	10.0
Pavement Marking Details	1	1	1	0	1	0	\$ 670.00	4	2	2.0
Earthwork Table	2	4	10	6	16	0	\$ 5,050.00	38	2	19.0
Cross Sections	4	12	18	18	38	0	\$ 11,870.00	90	20	4.5
Construction Cost Estimate	4	8	20	2	12	0	\$ 6,850.00	46	N/A	N/A
Project Manual (Bid form, specification TOC, special specs)	2	20	0	0	0	12	\$ 4,980.00	34	N/A	N/A

Total Hours Phase I - Preliminary Design Phase	102	134	160	91	221	40	Total Hours	748
Rate (\$/HR)	240	180	150	125	100	75	Total Sheets	20

Phase I - Pre-Design Phase Subtotal (Lump Sum)	\$ 24,480.00	\$ 24,120.00	\$ 24,000.00	\$ 11,375.00	\$ 22,100.00	\$ 3,000.00	\$ 109,075.00
	22%	22%	22%	10%	20%	2.8%	

Total Hours Phase II - Final Design Phase	188.5	231	240	200	466	27	Total Hours	1352.5
Rate (\$/HR)	240	180	150	125	100	75	Total Sheets	96

Phase II - Design Phase Subtotal (Lump Sum)	\$ 45,240.00	\$ 41,580.00	\$ 36,000.00	\$ 25,000.00	\$ 46,600.00	\$ 2,025.00	\$ 196,445.00
	23%	21%	18%	13%	24%	1.0%	

Subsurface Utility Engineering (SUE)- MEC
Level A SUE (\$3,600 per Test Hole- 2 Test Holes Budgeted, incl. traffic control as needed up to 2 days)
\$ 7,200.00

SUE Subtotal (Lump Sum)	\$ 7,200.00
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Survey - LandTech, Inc.
Topographic Survey
Right of Way Survey
Staking ROW during Design Phase
Parcel Plat and Metes & Bounds for Acquisitions (\$3,500.00 each - 1 Anticipated)
Parcel Plat and Metes & Bounds for Unrestricted Visibility Easement (UVE) (\$2,850.00 each - 1 Anticipated)
\$ 44,936.00
\$ 39,794.00
\$ 2,440.00
\$ 3,500.00
\$ 2,850.00

Survey Subtotal (Lump Sum)	\$ 93,520.00
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Geotechnical Report - Aviles Engineering Corporation
Roadway
Detention Pond
\$ 48,866.00
\$ 21,814.00

Geotechnical Report Subtotal (Lump Sum)	\$ 70,680.00
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Civil Design Services - R. G. Miller Engineers, Inc.
Drainage Analysis and Preliminary Detention Design
Detention Basin Detailed Design
\$ 60,465.00
\$ 42,060.00

Civil Design Subtotal (Lump Sum)	\$ 102,525.00
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Total Professional Services Budget	\$ 579,445.00
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Exhibit B
Anticipated Design Schedule
FBC Stella Road

ID	Task Name	Duration	Start	Finish	<div>Qtr 2, 2021AprMayJunJulAugSepOctNovDecQtr 1, 2022JanFebMarAprMayJunJulAugSepOctNovDecQtr 2, 2022JanFebQtr 3, 2022JulAugSepOctNovDecQtr 4, 2022JanFeb</div>															
1	Stella Road	467 days	Mon 5/3/21	Fri 8/12/22	<div>◆ Start Date, Date of Execution</div>															
2	Start Date, Date of Execution	1 day	Mon 5/3/21	Mon 5/3/21	<div>Survey (Existing ROW Map)</div>															
3	Survey (Existing ROW Map)	30 days?	Tue 5/4/21	Wed 6/2/21	<div>Survey (Topo Survey)</div>															
4	Survey (Topo Survey)	45 days?	Tue 5/4/21	Thu 6/17/21	<div>Geotechnical Investigation</div>															
5	Geotechnical Investigation	67 days	Tue 5/4/21	Fri 7/9/21	<div>Review Geotechnical Report</div>															
6	Review Geotechnical Report	7 days?	Mon 7/12/21	Sun 7/18/21	<div>Final Geotechnical Report</div>															
7	Final Geotechnical Report	14 days?	Mon 7/19/21	Sun 8/1/21	<div>Drainage Study</div>															
8	PER	93 days	Tue 5/4/21	Wed 8/4/21	<div>Drainage Detention Pond Location Selection and Design</div>															
9	Drainage Study	60 days	Tue 5/18/21	Fri 7/16/21	<div>Review of PER</div>															
10	Drainage Detention Pond Location Selection and Design	60 days	Tue 5/18/21	Fri 7/16/21	<div>PER Review Meeting with County</div>															
11	Review of PER	21 days?	Thu 8/5/21	Wed 8/25/21	<div>Final ROW and Survey Control Map</div>															
12	PER Review Meeting with County	1 day	Thu 8/26/21	Thu 8/26/21	<div>Utility Relocations</div>															
13	Final PER	14 days?	Fri 8/27/21	Thu 9/9/21	<div>Clearing - Detention Pond Site</div>															
14	Survey - Final ROW and Survey Control Map	30 days?	Fri 9/10/21	Sat 10/9/21	<div>Utility Relocations</div>															
15	ROW Acquisitions (By Others)	305 days?	Sun 10/10/21	Wed 8/10/22	<div>Clearing - Detention Pond Site</div>															
16	Utility Relocations	180 days?	Mon 2/14/22	Fri 8/12/22	<div>70% Plan Development</div>															
17	Clearing - Detention Pond Site	60 days	Tue 6/14/22	Fri 8/12/22	<div>QA/QC</div>															
18	70% Plan Development	150 days	Fri 9/10/21	Sun 2/6/22	<div>70% Submittal</div>															
19	QA/QC	7 days	Mon 2/7/22	Sun 2/13/22	<div>County/BBI Review Period - 70%</div>															
20	70% Submittal	1 day?	Mon 2/14/22	Mon 2/14/22	<div>City of Rosenberg Review Period - 70%</div>															
21	Utility Coordination	150 days	Tue 2/15/22	Thu 7/14/22	<div>100% Plan Development</div>															
22	County/BBI Review Period - 70%	21 days?	Tue 2/1/22	Mon 2/21/22	<div>QA/QC</div>															
23	City of Rosenberg Review Period - 70%	30 days?	Tue 2/1/22	Wed 3/2/22	<div>County/BBI Review Period - 95%</div>															
24	95% Plan Development	30 days?	Thu 3/3/22	Fri 4/1/22	<div>City of Rosenberg Review Period - 95%</div>															
25	QA/QC	7 days?	Mon 4/4/22	Sun 4/10/22	<div>100% Submittal (Drawings, Specifications & Estimate)</div>															
26	95% Submittal	1 day?	Mon 4/11/22	Mon 4/11/22	<div>County/BBI Review Period - 100%</div>															
27	County/BBI Review Period - 95%	21 days?	Tue 4/12/22	Mon 5/2/22	<div>City of Rosenberg Review Period - 100%</div>															
28	City of Rosenberg Review Period - 95%	30 days?	Tue 4/12/22	Wed 5/11/22	<div>City of Rosenberg Review Period - 100%</div>															
29	100% Plan Development	14 days?	Thu 5/12/22	Wed 5/25/22	<div>City of Rosenberg Review Period - 100%</div>															
30	QA/QC	7 days?	Thu 5/26/22	Wed 6/1/22	<div>City of Rosenberg Review Period - 100%</div>															
31	100% Submittal (Drawings, Specifications & Estimate)	1 day?	Thu 6/2/22	Thu 6/23/22	<div>City of Rosenberg Review Period - 100%</div>															
32	County/BBI Review Period - 100%	21 days?	Fri 6/3/22	Thu 6/23/22	<div>City of Rosenberg Review Period - 100%</div>															
33	City of Rosenberg Review Period - 100%	30 days?	Fri 6/3/22	Sat 7/2/22	<div>City of Rosenberg Review Period - 100%</div>															

Task

Split

Milestone

Summary

Project Summary

External Tasks

External Milestone

Inactive Milestone

Inactive Summary

Manual Task

Duration-only

Manual Summary Rollup

Manual Summary

Start-only

External Tasks

External Milestone

Progress

Deadline



April 5, 2021

Conner McBride, P.E.
McDonough Engineering Corporation
5625 Schumacher Lane
Houston, TX 77057

RE: Stella Road Improvements; Project Number: 20116
Drainage Studies Proposal

Dear Mr. McBride,

R. G. Miller Engineers, Inc. (RGME) is respectfully submitting this proposal for drainage studies to support the roadway improvements for the above Fort Bend County project. The following scope of work (SOW) items have been identified to support the project. For a detailed description of scope for each task, refer to the attached Exhibit A1.

- **Task 1: Stella Road Drainage Analysis and Preliminary Detention Design** is part of the basic SOW to identify and document if the existing detention facilities in the area accounted for the proposed improvements. This task will delineate the drainage areas, provide hydrologic computations, and prepare a letter report of the results of the analysis.
- **Task 2: Detention Basin Detailed Design** is part of the basic SOW to design and prepare engineering drawings for the Detention Basin design as required.

Please find the following attached:

- Exhibit A1: Scope of Services
- Attachment A: Detailed Level of Effort

The proposed fees and schedule are summarized below:

Task	Proposed Fixed Fee	Predecessor(s)	Required Calendar Days to Complete
Task 1: Stella Road Drainage Analysis and Preliminary Detention Design	\$ 60,465	Notice to Proceed	<ul style="list-style-type: none">• 45 days – Draft submittal• 21 days address comments once received.
Task 2: Detention Basin Detailed Design	\$ 42,060	Notice to Proceed from Client, Survey, and Stella Road Outfall Design	<ul style="list-style-type: none">• 45 days – 70% Submittal• 28 days – 90% once 70% comments are received.• 28 days – 100% Submittal once 90% comments are received.
Total Proposed Fixed Fees	\$ 102,525		

r. g. miller
engineers, inc.

If you have any questions or require further information regarding the above, please do not hesitate to contact me.

Sincerely,
R. G. Miller Engineers, Inc.

A handwritten signature in blue ink, appearing to read "Mark Rotz", with a stylized flourish at the end.

Mark Rotz, P.E.
Project Manager

EXHIBIT A1

SCOPE OF SERVICES

Fort Bend County Engineering Department – 20116 – Stella Road

R. G. Miller Engineers, Inc. (RGME or Design Consultant (DC) as Drainage Studies Sub-Consultant to McDonough Engineering Corporation (McDonough or Client) will provide the following professional services to McDonough for Fort Bend County Engineering Department (FBCED) for Project Number 20116, Stella Road from Cottonwood School Road to Band Road. McDonough is the prime consultant for FBCED in this project. The Stella Road improvement project involves approximately 1.5 miles of roadway reconstruction. The project will reconstruct the existing asphalt road to a 2-lane with 6-foot shoulders. The proposed storm sewer will be open ditch.

The Stella Road improvement project involves approximately 1.5 miles of roadway. The existing 2-lane, crowned asphalt roadway with roadside ditches will add approximately 6 feet shoulder to each lane. Storm runoffs from the Stella Road improvement section mainly drains to Seabourne Creek through the existing tributary channel and roadside ditches of Cottonwood School Road, W. Fairground Road, and Band Road. The proposed detention plan for the project is to increase the roadside ditch to meet the detention requirements for the proposed expansion project. A detention pond will be assessed if the detention requirement cannot be achieved within the anticipated future road ROW.

New developments in Fort Bend County are required to satisfy three (3) major requirements. These requirements are summarized below.

- Storm water detention is required for new developments in sufficient quantity to offset potential increases in downstream peak runoff rates. For the proposed development, the minimal detention rate is expected to be between 0.85 and 1.00 acre-feet of storage per acre of development. For this project, only the increased impervious cover for the proposed project should require storm water detention.
- Excavation is required to completely offset the volume of any fill placed within the 100-year floodplain. Since the subject tract is located completely outside of the 100-year and 500-year floodplain, the floodplain mitigation is not required for this project.
- Offsetting conveyance must be provided to compensate for the potential effects of on-site flood levels. Since the subject tract is located completely outside of the 100-year and 500-year floodplain, the conveyance analysis is not required for this project.

The drainage analysis will follow the effective Fort Bend County Interim Atlas 14 Design Criteria Manual per Fort Bend County Drainage District. It is understood that a simplified method will be conducted for the drainage model and Atlas 14 rain data will be compared to the model to acquire the necessary detention for the proposed roadway expansion.

To address the above requirements and document that adequate drainage and detention (if required) are provided for proposed roadway improvements, the ensuing sections define required scope of work items per task.

Task 1: Stella Road Drainage Analysis and Preliminary Detention Design

1. Attend meetings as requested from the Client.
2. Gather and review available information on the Stella Road and surrounding areas, including information from the Fort Bend County.
3. Visit the project area to observe and document existing drainage patterns and facilities.
4. Calculate the 10-year, and 100-year flow rates from the proposed expanded portion of the roadway development and determine the size of the detention storage volume required using the simplified methods as shown in Fort Bend County drainage criteria manuals.

5. Develop a base conditions hydrologic model of the study area using the HEC-HMS software package.
6. Revise the hydrologic parameters for the sub-watershed(s) in which the subject development is located to reflect the proposed roadway improvement project. If necessary, create a new sub-watershed and develop hydrologic parameters for that sub-watershed.
7. Compute proposed conditions 10-year and 100-year flow rates that reflect the presence of the proposed development. Compare existing, proposed, and detention conditions flow rates from both models.
8. Revise the routing data for the detention/mitigation basin, the configuration of that basin, or other design parameters as needed in order to eliminate any residual impacts on downstream flow rates.
9. Provide preliminary sizing of the roadside ditch and preliminary size and location of the detention basin(s), if applicable.
10. Prepare a letter report with sufficient text, exhibits, and technical appendices to completely illustrate the results of the investigation.

Task 2: Detention Basin Detailed Design

1. To be authorized in design phase of the project.
2. Attend meetings as requested from the Client.
3. To prepare engineering drawings in accordance with the latest FBCED design manual and standards. Construction drawings shall be prepared so they are legible and to scale when printed to the standard 11"x17" size paper. Provide quantities associated with the detention basin construction to Client. Conduct Quality Assurance/Quality Control (QA/QC) procedure for each submittal.
4. Client shall provide the geotechnical investigations findings for the proposed detention basin(s).
5. Each submittal shall include the following drawings:
 - a) Existing Conditions
 - b) Demolition Plan
 - c) Drainage Area and Hydraulic Calculations Sheets
 - d) Proposed Layout and Grading
 - e) Geometric Layout and Point Table
 - f) Typical Sections
 - g) Outfall Plan and Profile
 - h) Storm Water Pollution Prevention Plan
 - i) Detention basin quantities
 - j) Response to comments (as applicable)

Time of completion

Task 1: Sella Road Drainage Analysis

1. Draft report to be completed within 45 days upon the provided Notice to Proceed.
2. Final report to be provided within 21 days upon receiving comments.

Task 2: Detention Basin Detailed Design

1. 70% Submittal to be provided within 45 days upon receiving Notice to Proceed, survey, and Stella Road outfall.
2. 90% submittal to be provided within 28 days upon receiving comments.
3. 100% submittal to be provided within 28 days upon receiving comments.

Attachment A: LEVEL OF EFFORT (LOE) FEE ESTIMATE										
PROJECT TITLE: Stella Road										
PROJECT NUMBER: 20116										
CLIENT: FORT BEND COUNTY									Total Fees:	\$ 102,525
	Senior Project Manager	Project Manager	Senior Hydrologist	Project Engineer	Associate Engineer	GIS Specialist	CADD Operator	Admin / Clerical	Total Hours	Total Cost
DIRECT LABOR COST	\$ 75	\$ 65	\$ 60	\$ 50	\$ 40	\$ 35	\$ 30	\$ 25		
HOURLY RATE INCLUDING MULTIPLIER (3X)	\$ 225	\$ 195	\$ 180	\$ 150	\$ 120	\$ 105	\$ 90	\$ 75		
A. BASIC SERVICES										
A.1 Stella Road Drainage Analyses and Preliminary Detention Design										\$ 60,465
Project Administration	1	4	0	0	0	0	0	4	9	\$ 1,305
Meetings & Coordination	6	15	12	0	15	0	0	4	52	\$ 8,535
Gather & Review Existing Information	0	1	4	0	6	0	0	0	11	\$ 1,635
Site Visit	0	2	4	0	6	0	0	0	12	\$ 1,830
Review Roadside Ditch Design for Detention	2	4	9	9	21	0	12	0	57	\$ 7,800
Calculate Minimum Detention Volume	0	0	4	0	9	0	0	0	13	\$ 1,800
Develop Base Conditions Hydrologic Model	0	0	4	0	18	4	0	0	26	\$ 3,300
Revise Hydrolic Model	0	0	4	0	18	0	0	0	22	\$ 2,880
Compute HEC-HMS Model	0	0	4	0	18	0	0	0	22	\$ 2,880
Preliminary Location, Design, and Modeling of Detention Basin	1	3	4	9	24	4	12	0	57	\$ 7,260
Prepare Report	1	4	8	0	40	8	12	2	75	\$ 9,315
QA/QC 1st Submittal	3	6	4	0	6	0	2	0	21	\$ 3,465
Address 1st Round of Comments	1	2	8	0	15	6	6	2	40	\$ 5,175
QA/QC Final Submittal	3	6	4	0	6	0	0	0	19	\$ 3,285
A.1 Subtotal	18	47	73	18	202	22	44	12	377	
A.2 Detention Basin Detailed Design										\$ 42,060
A.2.A 70% Submittal										
Project Administration	1	3	0	0	0	0	0	3	7	\$ 1,035
Meetings & Coordination	3	9	0	9	0	0	0	3	24	\$ 4,005
Site Visit and Data Collection	0	3	0	6	0	0	6	0	15	\$ 2,025
Existing Conditions	0	1	0	2	0	0	3	0	6	\$ 765
Demolition Plan	0	1	0	3	0	0	6	0	10	\$ 1,185
Proposed Layout and Grading	0	2	0	9	0	0	18	0	29	\$ 3,360
Geometric Layout and Point Table	0	1	0	6	0	0	9	0	16	\$ 1,905
Typical Sections	0	2	0	6	0	0	9	0	17	\$ 2,100
Outfall Plan and Profile	0	3	0	9	0	0	12	0	24	\$ 3,015
Drainage Area and Hydraulic Calculations Sheets	0	2	0	6	0	0	9	0	17	\$ 2,100
SWPPP	0	1	0	1	0	0	3	0	5	\$ 615
Calculate Quantities	0	1	0	6	0	0	0	0	7	\$ 1,095
QA/QC	1	4	0	2	0	0	3	0	10	\$ 1,575
A.2.A. Subtotal	1	18	0	50	0	0	72	0	141	\$ 24,780
A.2.B. 90% Submittal										
Meetings & Coordination	0	5	0	3	0	0	0	1	9	\$ 1,500
Address 1st Submittal Comments	1	4	0	18	0	0	25	2	50	\$ 6,105
QA/QC	1	4	0	2	0	0	3	0	10	\$ 1,575
A.2.B. Subtotal	2	8	0	20	0	0	28	2	60	\$ 9,180
A.2.C. 100% Submittal										
Meetings & Coordination	0	5	0	3	0	0	0	1	9	\$ 1,500
Address 2nd Submittal Comments	1	4	0	15	0	0	18	2	40	\$ 5,025
QA/QC	1	4	0	2	0	0	3	0	10	\$ 1,575
A.2.C. Subtotal	2	8	0	17	0	0	21	2	50	\$ 8,100
Total Hours for Basic Services :	23	81	73	105	202	22	165	16	628	

March 31, 2021

Mr. Connor McBride, P.E.
Project Manager
McDonough Engineering
5625 Schumacher Lane
Houston, Texas 77057

Re: Stella Road from Cottonwood School Road to Band Road

Dear Mr. McBride:

It is my pleasure to submit the following proposal for providing professional surveying services for the above referenced project. The scope of work and associated fee are as follows:

Topographic survey of Stella Road from Cottonwood School Road to Band Road. Cross section at 100 feet interval extending 20 feet past the proposed right of way and the existing right of way. Provide Level B SUE and notify 811. Survey intersecting side street 100 feet past the existing or proposed right of way. Locate soil boring and SUE marking by others. Provide data in AutoCAD Autodesk, DTM, TIN file and point file. Prepare survey control sheet with recovery sheet for control points. Location of pipeline and local utilities uncovered by others. Tie to NGS monument or the Cottonwood School Road project for horizontal and vertical control.

2 Man Field Party.....	116 hours x \$165.00=	\$19,140.00
Survey Technician.....	60 hours x \$115.00=	6,900.00
CADD.....	88 hours x \$102.00=	8,976.00
Project Surveyor.....	40 hours x \$170.00=	6,800.00
Project Manager.....	16 hours x \$195.00=	<u>3,120.00</u>
		\$44,936.00

Right of Way Survey- Prepare right of way map to determine the existing ownership and existing right of way. Prepare a KMZ file with ownership information, proposed takings and a preliminary roadway layout. Stake right of way line in the field.

2 Man Field Party.....	68 hours x \$165.00=	\$11,220.00
Survey Technician.....	60 hours x \$115.00=	6,900.00
Abstractor.....	28 hours x \$95.00=	2,660.00
CADD.....	72 hours x \$102.00=	7,344.00
Project Surveyor.....	48 hours x \$170.00=	8,160.00
Project Manager.....	18 hours x \$195.00=	<u>3,510.00</u>
		\$39,794.00

Staking right of way during design phase.

2 Man Field Party.....	12 hours x \$165.00=	\$1,980.00
Survey Technician.....	4 hours x \$115.00=	<u>460.00</u>
		\$2,440.00

Prepare parcel plat and metes and bounds for one acquisition. Stake take line with iron pins.

\$3,500.00 Each

Prepare parcel plat and metes and bounds for one Unrestricted Visibility Easement (UVE).

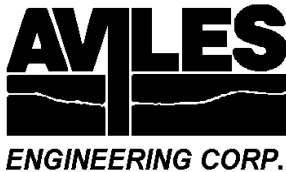
\$2,850.00 Each

Thank you for the opportunity to submit this proposal.



Paul Kwan, RPLS
President

S:\USERS\RECEPTIONIST\PROPOSAL\Stella Road from Cottonwood School Road to Band Road 03/31/2021



March 31, 2021

Connor McBride, P.E., Project Manager
McDonough Engineering Corporation
5625 Schumacher Lane
Houston, TX 77057

Re: Revised Geotechnical Investigation Proposal
Improvements of Stella Road from Cottonwood School Road to Band Road
Fort Bend County Precinct 1
Fort Bend County, Texas
AEC Proposal No. G2021-03-02R2

Dear Mr. McBride,

Aviles Engineering Corporation (AEC) is pleased to present this revised geotechnical investigation proposal for the proposed improvements of Stella Road from Cottonwood School Road to Band Road, Fort Bend County Precinct 1 in Fort Bend County, Texas. According to the project layout provided and Google Earth, the existing roadway within the project limits are two lanes (one lane in each direction) asphalt roadway, and the existing pavement has experienced distresses such as cracks and patching. AEC understands that the proposed improvements include: (i) Basic Services replacing/construct approximately 7,790 feet of storm sewer and/or roadside ditch, and pavement along Stella Road, and the estimated maximum invert depth of the storm sewer is approximately 8 (or up to 10) feet; the existing 2 lanes asphalt roadway (no shoulders) will be widened to 12-foot wide lane with 6-foot wide shoulder in each direction; and (ii) Detention Pond to construct an approximately 3 acre detention pond with maximum invert depth of 8 (or up to 10) feet, the detention pond location will be determined after the preliminary design.

According to the geotechnical guidelines of Fort Bend County's Engineering Design Manual (Draft), AEC proposes to drill (i) Basic Services seventeen (17) soil borings at 20 feet deep for the storm sewer and new roadway pavement; and (ii) Detention Pond three borings at 20-foot deep for the detention pond. The roadway borings are shown on the attached boring location plan. The total drilling footages are (a) 340 feet for basic services; and (b) 60 feet for the detention pond. We will perform a site reconnaissance prior to drilling and mark the boring locations. We will contact the Texas 811 System to confirm utility locations; however, Texas 811 does not locate water, sanitary, or storm sewer lines. We also request the entry permits for the detention pond area be provided to us at no cost to AEC.

Based on our site visit, AEC anticipates that (a) all the roadway borings can be accessed by a truck-mounted drill rig, and traffic control and pavement coring will be required; and (b) all the detention pond borings can be accessed by ATV drill rig, while assuming one day of tree clearing will be required. AEC will use two flaggers to provide traffic control for the roadway borings during our field exploration. Four asphalt pavement cores will be cut, while the asphalt at the 13 remaining boring locations will be drill through. We will collect samples continuously in the top 20 feet. Undisturbed samples will be obtained of cohesive soils by pushing a Shelby tube (ASTM D-1587). Standard Penetration Test samples will be obtained of granular soils (ASTM D-1586). Representative portions of all soil samples will be sealed, packaged, and transported to our laboratory. We will note any visual evidence or odor indicating hazardous materials if encountered in the samples. Water level readings will be noted during drilling and obtained upon completion of drilling; boreholes located on pavement will be grouted with cement-bentonite upon completion of drilling and the pavement patched with non-shrink grout or asphalt depending on the existing pavement type; while detention pond borings will be backfilled with bentonite chips.



Laboratory testing may consist of moisture contents, Atterberg limits, percentage passing No. 200 sieve, sieve analysis, and unconfined compression and unconsolidated-undrained triaxial tests depending on the soil types encountered. Two (2) consolidated-undrained (CU) triaxial tests, two (2) double hydrometer analysis, and 4 crumb tests will be performed depending on the soil types encountered. As part of our services, we will perform a preliminary fault study, which includes reviewing in-house published fault maps to identify if any documented faults crossing the subdivision.

We will analyze the field and laboratory data to develop geotechnical engineering recommendations for (i) boring logs shown existing pavement and base thicknesses, subsurface soils and ground water depth encountered in the borings; (ii) evaluation whether the soils at detention pond area are dispersive; (iii) geotechnical guidelines for the storm sewer installation including open cut and/or auger methods; (iv) slope stability analyses on one or two selected cross-sections for each of the proposed detention pond under short-term, long-term, and rapid drawdown conditions; and recommendations for the stable slope inclination; geotechnical recommendations for the outfall pipes installation as necessary; (v) recommendations for replacement asphalt thickness and subgrade preparation; and (vi) geotechnical recommendations and dewatering guidelines for the facility construction.

The lump sum fee for our services is (a) **\$48,866.00** for Basic Services; and (b) **\$21,814.00** for Optional Service for the detention pond. The total fee for basic services and Optional I services is **\$70,680.00**, as presented on the Itemized Fee Estimates in the Attachments. The fees are based on the following assumptions: The fee assumes (i) the site will be open and accessible to a truck-mounted drilling rig for pavement area, the detention borings can be accessed by a ATV drill rig, and the field personnel will use Level D during the field exploration; (ii) any right-of-way for private property access permits if required, except for FBC ROW, for drilling will be provided to AEC at no charge; (iii) standby time, Phase I fault study, safety training, surveying, tree clearing, fence removal/restoration, working with hazardous materials, environmental sampling/testing/evaluation, and plan/specification review are not included in the above fee.

We propose to perform a site reconnaissance 2 weeks after we receive notice to proceed. Weather permitting, and assuming no field delays, we plan to start the field exploration about 1.5 to 2 weeks after all necessary permits are obtained (note that the permitting for private properties entry may take up to 3 to 4 weeks). The field exploration will take about 2.5 to 4 weeks. Laboratory soil testing will require 4 to 6 weeks (due to CU triaxial tests) to complete after completion of the drilling, and the draft report will take 3 to 4 weeks after laboratory testing is completed. We will submit final report and trench safety letter two weeks after we receive review comments on the draft report.

To reduce delays in the schedule and avoid additional fees, we request that we be provided with any proposed or preferred geotechnical-related design details including existing utility drawings, and design 100-year flood elevation at the onset. Also, you will notify AEC whether the additional services will be performed prior to AEC marking the borings in the field.

If any of the project details described in this proposal are incorrect or the scope described or the assumptions listed need to be revised, please inform us immediately so we can revise the proposal as necessary. To authorize us to proceed with the proposed geotechnical services, you may sign and return a copy of this proposal to authorize AEC to proceed with the services, or issue us a Professional Services Contract to proceed with the services clearly reflecting the scope of services to be performed and referencing this proposal.



We appreciate the opportunity to present this proposal, and look forward to working with you.

Respectfully Submitted,
AVILES ENGINEERING CORPORATION
(TBPE FIRM REGISTRATION NO. 42)

A handwritten signature in blue ink, appearing to read "Shou Ting Hu", is written over a light blue rectangular background.

Shou Ting Hu, M.S.C.E., P.E.
President

Attachments: Terms and Conditions, Itemized Fee Estimate, Boring Location Plan, Boring Summary Table

AGREED TO THIS _____ DAY OF _____, _____

PRINTED NAME: _____

SIGNATURE: _____

TITLE: _____

FIRM: _____



GEOTECHNICAL INVESTIGATION TERMS AND CONDITIONS

STANDARD OF CARE

The CLIENT recognizes that actual subsurface conditions can vary from those observed and/or encountered at locations where borings, surveys, or explorations are made, and that site conditions may change with time. Data interpretations and recommendations by AVILES ENGINEERING will be based solely on information available to the AVILES ENGINEERING during the investigation. AVILES ENGINEERING is responsible for those data, interpretations, and recommendations, but will not be responsible for other parties' interpretations or use of the information developed.

The CLIENT should expect AVILES ENGINEERING to perform Services under this PROPOSAL/AGREEMENT in a manner consistent with the level of care and skill ordinarily exercised by members of the engineering profession practicing contemporaneously under similar conditions in the locality of the project. No other warranty, expressed or implied, is made.

SCOPE OF SERVICES

AVILES ENGINEERING will develop a scope of services based on the project information provided by the CLIENT. AVILES ENGINEERING shall not be responsible for problems arising due to inadequate number of borings and/or depths dictated or required by others or inadequate engineering analyses, if the CLIENT reduces the scope of services and/or provides insufficient or invalid project or other relevant information to AVILES ENGINEERING. In the event the CLIENT or his representative orders work described in this PROPOSAL/AGREEMENT, that action shall constitute the CLIENT's acceptance of this PROPOSAL/AGREEMENT and its terms and conditions.

SITE ACCESS AND SITE CONDITIONS

The CLIENT will grant or obtain free access to the site for all equipment and personnel necessary for AVILES ENGINEERING to perform the services described in this PROPOSAL/AGREEMENT, as well as provide location data for all below and above ground structures, pipelines and utilities. For such items encountered, not called to the attention of AVILES ENGINEERING, the CLIENT shall assume responsibility for any resultant damages. AVILES ENGINEERING will take reasonable precautions to minimize damage to the site, but it is understood by the CLIENT that, in the normal course of work, some damage may occur and the correction of such damage is not part of this AGREEMENT. The CLIENT will notify AVILES ENGINEERING of any known toxic and/or hazardous materials on site and shall assume responsibility for the cost of occurrences due to unknown toxic and/or hazardous materials on site.

BILLING AND PAYMENT

The CLIENT will pay AVILES ENGINEERING the lump sum amount(s) shown in the PROPOSAL/AGREEMENT. Invoices will be submitted to the CLIENT by AVILES ENGINEERING, and will be due and payable within thirty (30) days of the invoice date. CLIENT will pay an additional charge of 1.5 percent per month on any delinquent amount, and agrees to pay attorney's fees and/or other costs involved in any required collection activity.

LIMITATION OF LIABILITY / INDEMNIFICATION

If at any time, there shall be or arise any liability on the part of AVILES ENGINEERING by virtue of this Agreement or because of the relation hereby established, whether due to the negligence of AVILES ENGINEERING (including gross negligence) or otherwise, such liability is and shall be limited to a sum equal in amount to the fee charged by AVILES ENGINEERING. AVILES ENGINEERING and CLIENT agree to indemnify each other from any claims, etc., including attorney's fees and litigation costs, to the proportionate extent caused by each party's own negligence. If AVILES ENGINEERING is found to be prevalent in any third party lawsuits relating to this AGREEMENT, the CLIENT shall pay all AVILES ENGINEERING costs, including legal fees, that were incurred as a result thereof.

BASIC SERVICES ITEMIZED FEE ESTIMATE

Seventeen (17) borings @20'

A. FIELD EXPLORATION	QTY	UNIT		RATE	AMOUNT
Mobilization/Demobilization (Truck-Mounted Rig)	1	LS	@	\$700.00	\$700.00
Drill Crew Travel	4	hrs.	@	\$500.00	\$2,000.00
Coordination & Utility Checking (Sr. Technician)	8	hrs.	@	\$90.00	\$720.00
Boring Layout & Site Reconnaissance (Graduate Engineer)	10	hrs.	@	\$115.00	\$1,150.00
Boring Logging and Field Supervising (Technician)	60	hrs.	@	\$65.00	\$3,900.00
Concrete Pavement Coring and Patching (6" dia, 0"-6" thick)	0	ea.	@	\$170.00	\$0.00
Concrete Pavement Coring (6" dia, 6" to 12" thick)	0	in.	@	\$16.00	\$0.00
Asphalt Coring and Patching (6" dia, 0"-6" thick)	4	ea.	@	\$159.00	\$636.00
Asphalt Patching (6" diameter)	13	ea.	@	\$50.00	\$650.00
Soil Drilling w/truck-mounted rig (0'-20' continuous)	340	ft.	@	\$25.00	\$8,500.00
Soil Drilling w/truck-mounted rig (20'-50' continuous)	0	ft.	@	\$30.00	\$0.00
Soil Drilling w/truck-mounted rig (20 to 50 ft intermittent)	0	ft.	@	\$23.00	\$0.00
Grouting Holes	340	ft.	@	\$12.00	\$4,080.00
Surcharge for Drilling with Buggy Rig	0	ft.	@	\$10.00	\$0.00
Metal Cover for Piezometers	0	ea.	@	\$100.00	\$0.00
Installing Piezometers	0	ft.	@	\$24.00	\$0.00
Piezometer Monitoring (Technician, 2 Trips)	0	hrs.	@	\$65.00	\$0.00
Plug and Abandon Piezometers	0	ea.	@	\$20.00	\$0.00
Standby Time (Drill Crew)	0	hrs.	@	\$300.00	\$0.00
Vehicle Charge	70	hrs.	@	12.00	\$840.00
	SUBTOTAL				\$23,176.00
B. ALLOWANCE					
Permits for Detention Pond (Sr. Technician)	0	hrs.	@	\$85.00	\$0.00
Tree Clearing (for Borings at Detention Pond)	0	day	@	\$1,950.00	\$0.00
Traffic Control along County Road (Two Flaggers)	7	day	@	\$900.00	\$6,300.00
	SUBTOTAL				\$6,300.00
C. GEOTECHNICAL LABORATORY TESTING					
Atterberg Limits (ASTM D-4318)	48	ea.	@	\$71.00	\$3,408.00
Passing No. 200 Sieve (ASTM D-1140)	18	ea.	@	\$55.00	\$990.00
Sieve Analysis w/o Hydrometer (ASTM D-422)	4	ea.	@	\$65.00	\$260.00
Double Hydrometer (ASTM D-4221)	0	ea.	@	\$250.00	\$0.00
Crumb Test (ASTM D-6572)	0	ea.	@	\$43.00	\$0.00
Moisture Content (ASTM D-2216)	170	ea.	@	\$11.00	\$1,870.00
Unconfined Compression (ASTM D-2166)	24	ea.	@	\$51.00	\$1,224.00
Unconsolidated-Undrained Triaxial Test (ASTM D-2850)	24	ea.	@	\$72.00	\$1,728.00
Consolidated-Undrained Triaxial Test (ASTM D-4767)	0	ea.	@	\$1,800.00	\$0.00
	SUBTOTAL				\$9,480.00
C. SLOPE STABILITY ANALYSIS FOR DETENTION POND					
Senior Engineer, P.E.	0	hrs.	@	\$205.00	\$0.00
Graduate Engineer, EIT	0	hrs.	@	\$115.00	\$0.00
	SUBTOTAL				\$0.00
E. ENGINEERING ANALYSIS & REPORT PREPARATION					
Principal Engineer, P.E.	0	hrs.	@	\$250.00	\$0.00
Senior Engineer, P.E.	8	hrs.	@	\$205.00	\$1,640.00
Project Engineer, P.E.	22	hrs.	@	\$165.00	\$3,630.00
Graduate Engineer, EIT	36	hrs.	@	\$115.00	\$4,140.00
Senior Technician	4	hrs.	@	\$90.00	\$360.00
Engineering Assistant	2	hrs.	@	\$70.00	\$140.00
Reproduction (3 Copies of Final Report)	0	copies	@	\$40.00	\$0.00
	SUBTOTAL				\$9,910.00
	TOTAL ESTIMATED FEE				\$48,866.00

DETENTION POND ITEMIZED FEE ESTIMATE

Detention Pond, 3@20'

A. FIELD EXPLORATION	QTY	UNIT		RATE	AMOUNT
Mobilization/Demobilization (ATV Rig)	1	LS	@	\$950.00	\$950.00
Drill Crew Travel	0	hrs.	@	\$500.00	\$0.00
Coordination & Utility Checking (Sr. Technician)	6	hrs.	@	\$90.00	\$540.00
Boring Layout & Site Reconnaissance (Graduate Engineer)	8	hrs.	@	\$115.00	\$920.00
Boring Logging and Field Supervising (Technician)	10	hrs.	@	\$65.00	\$650.00
Concrete Pavement Coring and Patching (6" dia, 0"-6" thick)	0	ea.	@	\$170.00	\$0.00
Concrete Pavement Coring (6" dia, 6" to 12" thick)	0	in.	@	\$16.00	\$0.00
Asphalt Coring and Patching (6" dia, 0"-6" thick)	0	ea.	@	\$159.00	\$0.00
Asphalt Patching (6" diameter)	0	ea.	@	\$50.00	\$0.00
Soil Drilling w/truck-mounted rig (0'-20' continuous)	60	ft.	@	\$25.00	\$1,500.00
Soil Drilling w/truck-mounted rig (20'-50' continuous)	0	ft.	@	\$30.00	\$0.00
Soil Drilling w/truck-mounted rig (20 to 50 ft intermittent)	0	ft.	@	\$23.00	\$0.00
Grouting Holes	60	ft.	@	\$12.00	\$720.00
Surcharge for Drilling with Buggy Rig	60	ft.	@	\$10.00	\$600.00
Metal Cover for Piezometers	0	ea.	@	\$100.00	\$0.00
Installing Piezometers	0	ft.	@	\$24.00	\$0.00
Piezometer Monitoring (Technician, 2 Trips)	0	hrs.	@	\$65.00	\$0.00
Plug and Abandon Piezometers	0	ea.	@	\$20.00	\$0.00
Standby Time (Drill Crew)	0	hrs.	@	\$300.00	\$0.00
Vehicle Charge	18	hrs.	@	12.00	\$216.00
	SUBTOTAL				\$6,096.00
B. ALLOWANCE					
Permits for Detention Pond (Sr. Technician)	6	hrs.	@	\$85.00	\$510.00
Tree Clearing (for Borings at Detention Pond)	1	day	@	\$1,950.00	\$1,950.00
Traffic Control along County Road (Two Flaggers)	0	day	@	\$900.00	\$0.00
	SUBTOTAL				\$2,460.00
C. GEOTECHNICAL LABORATORY TESTING					
Atterberg Limits (ASTM D-4318)	9	ea.	@	\$71.00	\$639.00
Passing No. 200 Sieve (ASTM D-1140)	4	ea.	@	\$55.00	\$220.00
Sieve Analysis w/o Hydrometer (ASTM D-422)	1	ea.	@	\$65.00	\$65.00
Double Hydrometer (ASTM D-4221)	2	ea.	@	\$250.00	\$500.00
Crumb Test (ASTM D-6572)	4	ea.	@	\$43.00	\$172.00
Moisture Content (ASTM D-2216)	30	ea.	@	\$11.00	\$330.00
Unconfined Compression (ASTM D-2166)	4	ea.	@	\$51.00	\$204.00
Unconsolidated-Undrained Triaxial Test (ASTM D-2850)	4	ea.	@	\$72.00	\$288.00
Consolidated-Undrained Triaxial Test (ASTM D-4767)	2	ea.	@	\$1,800.00	\$3,600.00
	SUBTOTAL				\$6,018.00
C. SLOPE STABILITY ANALYSIS FOR DETENTION POND					
Senior Engineer, P.E.	6	hrs.	@	\$205.00	\$1,230.00
Graduate Engineer, EIT	24	hrs.	@	\$115.00	\$2,760.00
	SUBTOTAL				\$3,990.00
E. ENGINEERING ANALYSIS & REPORT PREPARATION					
Principal Engineer, P.E.	0	hrs.	@	\$250.00	\$0.00
Senior Engineer, P.E.	2	hrs.	@	\$205.00	\$410.00
Project Engineer, P.E.	8	hrs.	@	\$165.00	\$1,320.00
Graduate Engineer, EIT	10	hrs.	@	\$115.00	\$1,150.00
Senior Technician	2	hrs.	@	\$90.00	\$180.00
Engineering Assistant	1	hrs.	@	\$70.00	\$70.00
Reproduction (3 Copies of Final Report)	3	copies	@	\$40.00	\$120.00
	SUBTOTAL				\$3,250.00
	TOTAL ESTIMATED FEE				\$21,814.00



LEGEND

- APPROXIMATE BORING LOCATION
- B-#** - BORING NO.

ALL BORINGS PROPOSED TO BE 25-FT DEEP.

NOTE: DETENTION POND LOCATION NOT FINAL; THREE (3) ADDITIONAL BORINGS AT 25-FT DEEP NOT SHOWN.

AVILES ENGINEERING CORPORATION

PROPOSED BORING LOCATION PLAN

RECONSTRUCTION OF STELLA ROAD
FROM COTTONWOOD SCHOOL ROAD TO BAND ROAD
FORT BEND COUNTY, TEXAS

AEC PROPOSAL NO.:	DATE:	SOURCE DRAWING PROVIDED BY:
G2021-03-02R2	03-31-21	GOOGLE EARTH
APPROX. SCALE:	DRAFTED BY:	PLATE NO.:
1" = 600'	Bpj	PLATE 1

G2021-03-02R2 Summary of Proposed Borings, Improvements of Stella Road from Cottonwood School Road to Band Road, FB CP1
AVILES ENGINEERING CORPORATION

3/31/2021

Cont Sampling													Intermit Sampling		50'-100'		Sample #	Tree Clearing	NFCWA ROE	Note
Boring No.	Depth (ft)	Road Side	AC Coring	AC Patching	PZ (ft)	Buggy Rig	Buggy Footage	Traffic Control	T.C. Footage	0' - 20'	20' - 40'	20'-50'								
Roadway																				
B-1	20 Y		1	0		N	0 Y		20	20	0	0	0		0		10			Open cut, 2 lane asphalt pavement (one at each direction)
B-2	20 Y		0	1		N	0 Y		20	20	0	0	0		0		10		Y	Open cut, 2 lane asphalt pavement (one at each direction)
B-3	20 Y		0	1		N	0 Y		20	20	0	0	0		0		10		Y	Open cut, 2 lane asphalt pavement (one at each direction)
B-4	20 Y		0	1		N	0 Y		20	20	0	0	0		0		10		Y	Open cut, 2 lane asphalt pavement (one at each direction)
B-5	20 Y		1	0		N	0 Y		20	20	0	0	0		0		10		Y	Open cut, 2 lane asphalt pavement (one at each direction)
B-6	20 Y		0	1		N	0 Y		20	20	0	0	0		0		10		Y	Open cut, 2 lane asphalt pavement (one at each direction)
B-7	20 Y		0	1		N	0 Y		20	20	0	0	0		0		10		Y	Open cut, 2 lane asphalt pavement (one at each direction)
B-8	20 Y		0	1		N	0 Y		20	20	0	0	0		0		10		Y	Open cut, 2 lane asphalt pavement (one at each direction)
B-9	20 Y		0	1		N	0 Y		20	20	0	0	0		0		10		Y	Open cut, 2 lane asphalt pavement (one at each direction)
B-10	20 Y		1	0		N	0 Y		20	20	0	0	0		0		10		Y	Open cut, 2 lane asphalt pavement (one at each direction)
B-11	20 Y		0	1		N	0 Y		20	20	0	0	0		0		10		Y	Open cut, 2 lane asphalt pavement (one at each direction)
B-12	20 Y		0	1		N	0 Y		20	20	0	0	0		0		10		Y	Open cut, 2 lane asphalt pavement (one at each direction)
B-13	20 Y		0	1		N	0 Y		20	20	0	0	0		0		10		Y	Open cut, 2 lane asphalt pavement (one at each direction)
B-14	20 Y		0	1		N	0 Y		20	20	0	0	0		0		10		Y	Open cut, 2 lane asphalt pavement (one at each direction)
B-15	20 Y		1	0		N	0 Y		20	20	0	0	0		0		10		Y	Open cut, 2 lane asphalt pavement (one at each direction)
B-16	20 Y		0	1		N	0 Y		20	20	0	0	0		0		10		Y	Open cut, 2 lane asphalt pavement (one at each direction)
B-17	20 Y		0	1		N	0 Y		20	20	0	0	0		0		10		Y	Open cut, 2 lane asphalt pavement (one at each direction)
Subtotal	340		4	13	0		0		340	340	0	0	0		0		170			
Detention Pond (3 acres)																				
B-18	20 N		0	0		Y	20 Y		20	20	0	0	0		0		10	Y	Y	
B-19	20 N		0	0		Y	20 Y		20	20	0	0	0		0		10	Y	Y	
B-20	20 N		0	0		Y	20 Y		20	20	0	0	0		0		10	Y	Y	
Subtotal	60		0	0	0		60		60	60	0	0	0		0		30			
SUM	400		4	13	0	0	60		400	400	0	0	0		0		200			