

# CITY OF BETHLEHEM

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## DEPARTMENT OF PUBLIC WORKS INTEROFFICE MEMORANDUM

**SUBJECT:** Request for Approval by City Council of Contract Award or Contract Price Increase Pursuant to City Ordinance, Article 121.05 (a)

Project or Contract Reference: S. New Street Streetscape Enhancement Project  
MS-17-W08

**TO:** City Council, all members, and Council Solicitor

**FROM:** Michael Alkhal, P.E., Director of Public Works / City Engineer)

**DATE:** September 2, 2020

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On behalf of the Administration, pursuant to City Ordinances, Article 121.05, I request City Council's approval of the following recommendation of the referenced contract award or price increase.

- Check Type of Contract or Change:

\_\_\_\_\_ The contract is for over \$50,000 and required to be bid under the Third Class City Code. We have advertised the above referenced project and received qualified bids. We recommend award of the contract to the bidder identified and for the reasons stated below.

\_\_\_\_\_ The recommendation is for a price increase of 10% or more for an existing contract over \$50,000 that was previously bid and awarded under the Third Class City Code.

\_\_\_x\_\_\_ The contract is for the engagement of professional services. We have received and reviewed a proposal or proposals for professional services in connection with above referenced project or requirement for professional services. We recommend award of the contract.

- Is the contract appropriation or price increase included in this year's budget? \_\_\_x\_\_\_yes \_\_\_no
- Identify contract funding sources (general fund, grants, loans, etc.....):

Account #66080-69999

- The name and address of the recommended Contractor/Vendor/Professional Service Provider/Lowest Responsible Bidder are:

Keiko Tsuruta Cramer, ASLA, Principal  
WRT Design  
1700 Market Street, Suite 2800  
Philadelphia, PA 19103

- Term of contract or estimated completion date, subject to standard extensions:

December 31, 2020

- Description of project or scope of services to be provided:

In 2018, the City sought and received \$1,000,000 from the Multimodal Transportation Fund to design and implement streetscape improvements on S. New Street from 3<sup>rd</sup> Street to Morton Street. These anticipated improvements include, but are not limited to: a gateway to the southside, traffic calming, transit connection, and multiuse trail connection (South Bethlehem Greenway). The designs will incorporate the Greenway crossing across New Street, as well as a concept for Farrington Square to further connect Lehigh University to the south side. The City entered into an agreement with a design consultant (WRT Design) for the amount of \$248,186 in 2018 to complete the concept design and preliminary design for the S. New Street corridor.

Currently, the project is in final design and WRT is preparing the bid documents. This request is for additional services specific to a geotechnical review by a sub – consultant in relation to the proposed bus shelter and decorative lighting. The sub-consultant will conduct borings and prepare a geotechnical report for WRT and the City to review. In total, the City is requesting an increase to the current professional services agreement with the consultant of \$10,500.

- State the actual or estimated price to the City or the proposed Department budget allowance for the initial term; and state payment rate per unit of service if applicable:

\$10,500

- Number of renewal term options and duration of each renewal, if any:

Not anticipated

- Maximum dollar value of all renewals provided for beyond the original term as if all renewals were exercised:

N/A

- Reasons for recommendation of Administration and Council approval of contract:

WRT is in final design and preparing bid specs for the project and will offer recommendations for construction and installation of the catenary lights and bus shelter.

Please approve this recommendation by passing the accompanying resolution. A vote of final approval is requested at the first City Council agenda listing of this matter.

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MA/mob  
Attachment

Copies To: Mayor  
Director of Administration  
Director of Budget and Finance  
Law Bureau  
Controller  
Purchasing Bureau  
File/xc

By:   
Title: Public Works Director/City Engineer

**RESOLUTION NO. 2020-**

**Authorization for Contract or Amendment under Article 121.05(a)**

BE IT RESOLVED by the Council of the City of Bethlehem that the Mayor and the Controller and/or such other City officials as deemed appropriate by the City Solicitor, are hereby authorized to execute a Contract or Amendment and such other agreements and documents as are deemed by the City Solicitor to be necessary and/or related thereto, with the following named contractor, for the uses and purposes indicated in the supporting Recommendation of Award of Bid or Contract:

1. Name of Contractor: Keiko Tsuruta Cramer, ASLA, Principal WRT Design
2. Project or Contract Reference: S. New Street Streetscape Enhancement Project MS-17-W08-Increase Request

Sponsored by /s/ \_\_\_\_\_

/s/ \_\_\_\_\_

ADOPTED by Council this \_\_\_\_\_ day of \_\_\_\_\_, 2020.

/s/ \_\_\_\_\_  
President of Council

ATTEST:

/s/ \_\_\_\_\_  
City Clerk





South New Street Streetscape Enhancement Project  
- Add Services for Geotechnical Services | 1  
September 1<sup>st</sup>, 2020

September 1<sup>st</sup>, 2020

Ms. Tiffany Wells  
Traffic Superintendent  
10 East Church Street  
Bethlehem, PA 18018

Re: **South New Street Streetscape Enhancement**  
**Additional Services: Geotechnical Services**  
WRT # 8174.01

Dear Tiffany,

We are pleased to submit the additional services fee proposal, in the lump sum fee amount of \$10,500, to provide the geotechnical services associate with the engineering of the catenary/bollard lights and bus shelter footings, in comprehending the South New Street Streetscape Enhancement project.

**SCOPE OF SERVICES**

See attached proposal from Geo-Technology Associates, Inc. (GTA).

**FEE PROPOSAL**

For the above additional services, we propose a lump sum fee of \$10,500.  
See attached proposal from Geo-Technology Associates, Inc. (GTA).

Sincerely,

Keiko Tsuruta Cramer, ASLA  
Principal-In-Charge

Misa Hsinyi Chen, ASLA  
Senior Associate, Project Manager

cc: Darlene Heller, City of Bethlehem

**Attachments:**

1. Proposal from Geo-Technology Associates, Inc. (GTA)
2. Geotechnical Services RFP

# GEO-TECHNOLOGY ASSOCIATES, INC.

GEOTECHNICAL AND  
ENVIRONMENTAL CONSULTANTS

*A Practicing Geoprofessional Business Association Member Firm*



July 24, 2020  
Revised August 6, 2020

WRT Design  
1700 Market Street, Suite 2800  
Philadelphia, Pennsylvania 19103

Attn: Misa Chen

Re: Proposal for Geotechnical Services  
*South New Street Streetscape*  
City of Bethlehem, Northampton County, Pennsylvania

Dear Ms. Chen:

Geo-Technology Associates, Inc. (GTA) is pleased to submit this Proposal to WRT Design ("Client") for the services described in detail in the following section. Geotechnical services will be performed at the referenced site in the City of Bethlehem, Northampton County, Pennsylvania. This proposal is based upon the plans *South New Street Streetscape Layout Plan* and *General Notes and Light Pole Foundations*, prepared by Wallace Roberts & Todd, LLC, and dated April 24, 2020. Based on the plans, the proposed construction consists of 4 catenary light poles that will span South New Street, lighted bollards, and a bus shelter.

It is GTA's opinion based on the geology and proposed construction that we propose to perform up to 5 borings at/in close proximity to the proposed catenary light poles and bus shelter locations. Laboratory testing and engineering analysis will be provided, and a geotechnical report summarizing the results and recommendations for building construction and the relevant site development will be prepared for this project. The following Scope of Services will be separated into 3 Tasks:

- Task 200 will be a site visit to layout boring locations and coordinate PA One Call utility clearance of the proposed boring locations.
- Task 201 will be a geotechnical study consisting of borings at/in close proximity to the proposed catenary light poles and bus shelter.
- Task 202 will be for additional consulting services that may arise during the process of plan or design development.

## SCOPE OF SERVICES

This Proposal is limited exclusively to the work described in this *Scope of Services* section, and items not expressly described shall be considered excluded from the work. GTA proposes to perform the work, which is described as follows:

2405 John Fries Highway, Quakertown, PA 18951

(215) 536-8363

Fax: (215) 529-9303

✦ Abingdon, MD ✦ Laurel, MD ✦ Frederick, MD ✦ Waldorf, MD ✦ Sterling, VA ✦ Somerset, NJ  
✦ New Castle, DE ✦ Georgetown, DE ✦ York, PA ✦ Quakertown, PA ✦ Charlotte, NC

**Task 200 – Utility Clearance & Coordination**

- Perform a site visit and GTA will field stake the approximate exploration locations using a hand-held Global Positioning System (GPS) unit and by measuring from existing site features. GTA will notify PA One-Call in an attempt to locate and mark underground public utilities in the area of explorations.
- It should be noted that the public utility notification system will not locate and mark private utilities on-site. GTA will arrange for a subcontractor to perform the private utility location. The private utility locator will scan a 25-foot radius around each boring location using Quality Level B (per ASCE 38-02), and mark any identified or suspected underground utilities.

**Task 201 – Geotechnical Services**

- Mobilize a Truck or ATV-mounted drill rig to the site. Unless otherwise advised, it is assumed that GTA has permission to enter the site at the most convenient location.
- Drill Standard Penetration Test (SPT) borings at up to 5 accessible locations at/in close proximity to the proposed catenary light poles (4) and bus shelter (1). Borings for the light poles will be completed to a depth of 20 feet or prior refusal and the bus shelter boring will be completed to a depth of 10 to 15 feet or prior refusal. Borings will be drilled at the locations field staked by GTA personnel by measuring from on-site features.
- GTA will collect soil samples for laboratory classification purposes, maintain logs of the explorations, and observe the subsurface conditions for the presence of undocumented fill, soil mottling, and groundwater.
- GTA will perform laboratory analysis of selected samples obtained from the explorations to evaluate engineering characteristics of the soils. The testing will likely include natural moisture contents, Atterberg limits, and grain-size analyses.
- Prepare a geotechnical report that addresses the geotechnical components of the building and relevant sitework, including the following:
  - Assessment of the encountered soils and groundwater and the impact of the subsurface conditions on proposed excavation, grading, utility installation, and reuse of soils as structural fill.
  - Earthwork criteria, including compaction, backfill, and subgrade preparation recommendations.



- Recommended shallow foundation systems or alternatives with design criteria; including allowable soil bearing values, settlement estimates, and frost depths.
  - Recommended Seismic Site Classification per IBC 2009.
  - Recommendations for slab-on-grade construction.
  - Lateral earth pressures and coefficients for below-grade construction.
  - Recommendations for sinkhole mitigation measures.
- GTA will review and edit earthwork and/or deep foundation specifications.

#### **Task 202 – Additional Consulting Services**

- The successful planning, design, and construction of the project will require coordination between the owner, design team, and reviewing agencies. Following submission of the geotechnical reports, GTA can attend meetings to assist in developing the project towards completion of the design and construction plans. This work item will be performed upon your request, and billed on an hourly basis.

#### **FIELD WORK CONSIDERATIONS**

During the course of work, the ground surface will be disturbed at and between the exploration locations, and clearing of some landscaping may be required to access the exploration locations. It must be understood that some disturbance and depressions and/or irregularities in the ground surface will occur upon backfill and completion of the explorations. Borings will be backfilled with the drilling spoils. Some mounding or settlement of spoils will occur. All extra spoils will remain onsite, adjacent to the explorations. Restoration is not included in GTA's *Scope of Services*.

#### **TO BE PROVIDED BY THE CLIENT**

Certain information or services must be provided by the Client or site owner in order for GTA to properly perform its services. These include, but are not limited to:

- Provide GTA with site plans depicting all buried and overhead utilities, and the existing and proposed topography and structures.
- Provide clear site access for the exploration equipment, and clear all vehicles and materials from the work area.
- Provide structural information, including the type of structures to be installed, structural loads, anticipated depth below grade, and settlement tolerances.

- Provide any information regarding the potential to encounter below ground hazardous material that will require environmental safety protocol greater than OSHA Level D personal protection.

### **PROJECT FEES**

Based on the currently available information, the lump sum fees for the listed *Scope of Services* at the location described will be as summarized in the following list for each task described in the *Scope of Services* section.

<b>COST SUMMARY</b>		
<b>Task 200</b>	<b>Utility Clearance &amp; Coordination Private Utility Subcontractor</b>	<b>\$3,000</b>
<b>Task 201</b>	<b>Geotechnical Services</b>	<b>\$7,500</b>
<b>Task 202</b>	<b>Additional Consulting Services</b>	<b>Hourly</b>

The fees listed in this *Project Fees* section do not cover any *Additional Services* (defined below), or any other services, which are not specifically described as part of the work listed in the *Scope of Services* herein.

### **ADDITIONAL SERVICES**

Experience indicates that certain additional services may be requested or necessary which GTA cannot presently determine or estimate. For this reason the fee for these items is not included in our fee estimate. Some of the services that may be required to complete the work, but that are expressly excluded from the *Scope of Services* are:

- Delay time after notice to proceed and mobilization, if unable to access exploration locations for reasons beyond the control of GTA.
- Exploration stakeout by a Licensed Surveyor.
- Chemical characterization and/or disposal of the drill cuttings.
- Construction monitoring.
- Correction work due to inaccurate information supplied by Client or his agents.
- Attendance at any meetings other than described in the *Scope of Services*.
- Environmental Site Assessments.
- Infiltration Testing.
- Retaining wall design.
- Slope stability analyses.
- Permits for sidewalk or street closures.

WRT Design

**Re: Proposal for Geotechnical Services – South New Street Streetscape**

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- Damage to subsurface utilities if PA One Call and Private Utility Clearance is used prior to drilling.

*Additional Services* will be performed upon written authorization of the Client. Fees for additional services shall be in addition to any fees for the work described in the *Scope of Services* section. GTA's fees for additional services will be billed in accordance with our current fee schedule or mutually agreed upon work orders.

### **GENERAL PROVISIONS**

The attachments listed below are a part of this proposal, and should be reviewed and understood. Your verbal authorization to proceed, or issuance of a purchase order to GTA acknowledges your acceptance of the terms of this Agreement, including the *January 2017 General Provisions*, attached hereto. Please fully execute this proposal by signing the *Acceptance* below, (either by signing a printed copy of the Agreement or by signing an electronic copy of the Agreement using a digital signature) and returning one complete copy to our office.

Geo-Technology Associates, Inc. looks forward to working with you on this project. If you have any questions, please call the undersigned at (215) 536-8363.

Sincerely,

**GEO-TECHNOLOGY ASSOCIATES, INC.**



Michael W. Derr, P.E.  
Vice President

TJF/MWD/mwd

#### **Attachments:**

- January 2019 Fee Schedule (1 page)
- General Provisions January 2017 (2 pages)
- GBA Publication "Important Information About This Geotechnical Engineering Proposal" (3 pages)

WRT Design

*Re: Proposal for Geotechnical Services – South New Street Streetscape*

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**ACCEPTANCE**

**The undersigned represents that he/she accepts this Proposal and is authorized to sign and bind WRT Design.**

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Name (please print)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Title

**Please indicate any preference of correspondence contacts below.**

**INVOICING: Mail    Email    Both**

\_\_\_\_\_  
Accounts Payable Contact Name

\_\_\_\_\_  
Direct Phone Number

\_\_\_\_\_  
Billing Address

\_\_\_\_\_  
Email Address

**REPORTS cc'd:**

\_\_\_\_\_  
Attention Name

\_\_\_\_\_  
Email Address

\_\_\_\_\_  
Attention Name

\_\_\_\_\_  
Email Address

\_\_\_\_\_  
Attention Name

\_\_\_\_\_  
Email Address

**GEO-TECHNOLOGY ASSOCIATES, INC.**  
**FEE SCHEDULE**

Technical Fees	Rate
Admin Staff	\$45.00 /Hour
Technician	\$57.00 /Hour
Structural Technician, MARTCP/DOT Technician	\$75.00 /Hour
Senior Technician	\$90.00 /Hour
CADD Drafter	\$90.00 /Hour
Field Professional/Scientist, Assistant Project Manager	\$125.00 /Hour
Staff Engineer, Staff Professional/Scientist, Project Manager	\$140.00 /Hour
Project Engineer, Project Professional/Scientist	\$175.00 /Hour
Senior Engineer, Senior Professional/Scientist, Senior Project Manager	\$225.00 /Hour
Associate	\$250.00 /Hour
Principal/Vice President	\$325.00 /Hour
Travel Mileage	\$0.88 /Mile
Admin Fee for Processing/Distributing Daily Reports for Construction Observation	\$225.00 /Month
Photo ionization detector (PID) / Multi-gas Meter Equipment Fee	\$240.00 /Day
XRF Meter Equipment Fee	\$550.00 /Day
Pachometer Equipment Fee	\$280.00 /Day
Windsor Probe Strength Test Rental (set of 3 Shots)	\$125.00 / Set
Core Drill Rig with Bit and Generator Equipment Fee	\$525.00 /Day
Trimble GPS Equipment Fee	\$470.00 /Day
Hand-Held GPS Equipment Fee	\$100.00 /Week
Floor Flatness Equipment Fee	\$550.00 /Day
Moisture Vapor Emission Rate (MVER) Test Kits	\$15.00 /Kit
Relative Humidity and Temperature Smart Sensors	\$80.00 /Sensor

Laboratory Fees	ASTM Designation	Unit Price
<b>Soil</b>		
Moisture Content	D-2218	\$11.00 /Each
Atterberg Limits	D-4318	\$165.00 /Each
Wash #200	D-1140	\$80.00 /Each
Grain Size Analysis	D-8913	\$130.00 /Each
Grain Size with Hydrometer	D-422	\$200.00 /Each
Proctor - Standard	D-698	\$190.00 /Each
Proctor - Modified	D-1557	\$225.00 /Each
California Bearing Ratio (CBR)	D-1883	\$825.00 /Each
One Dimensional Consolidation	D-2435	\$900.00 /Each
Direct Shear Test (3 points)	D-3080	\$650.00 /Each
Unconfined Compression Test (Soil)	D-2188	\$200.00 /Each
Triaxial Compression UU (1 point)	D-2850	\$255.00 /Each
Triaxial Compression CU w/PP (3 points)	D-4767	\$1,275.00 /Each
Unit Weight	C-29	\$90.00 /Each
Specific Gravity of Soils	D-854	\$255.00 /Each
Permeability of Granular Soils (constant head)	D-2434	\$825.00 /Each
Permeability of Soils (flexible wall)	D-5084	\$675.00 /Each
Loss on Ignition (Organic Content)	D-2974	\$120.00 /Each
PH	D4972 or G-51	\$70.00 /Each
Resistivity	G-57	\$170.00 /Each
Corrosion Series		\$330.00 /Each
Soil Admixture Design including Compression Testing	various	\$1,375.00 /Each
Compression Testing of Soil Cement Specimens	D-1633	\$42.00 /Each
Soil Admixture Design - Preparation of Specimen	D-1632	\$145.00 /Each
Soil Cement Proctor w/ 7-day Breaks	D-558	\$700.00 /Each
Freeze/Thaw Testing of Soil Cement	D-560	\$1,300.00 /Each
Wet/Dry Testing of Soil Cement	D-559	\$1,300.00 /Each
GSA, Atterberg, Proctor	-	\$485.00 /Each
Specific Gravity of Coarse Aggregate	C-127	\$285.00 /Each
LA Abrasion	C-535	\$450.00 /Each
Sodium Sulfate Soundness	C-88	\$325.00 /Each
Organic Impurities	C-40	\$165.00 /Each
Shrinkage Testing - ASTM C157	C-157	\$1,200.00 /Each
Specific Gravity Asphalt Cores	D2728 or D-1188	\$58.00 /Each
Rock Unconfined Compression Test	D-7012	\$175.00 /Each
<b>Concrete</b>		
Cylinders 4 x 8	C-39	\$16.00 /Each
Cylinders 6 x 12	C-39	\$21.00 /Each
Mortar/Grout Cube 2 x 2	C-780	\$15.00 /Each
Concrete Cylinders Prep	-	\$57.00 /Hour
Grout Prism	C-1019	\$45.00 /Each
Concrete Flexural Beam	C-293	\$80.00 /Each
Sprayed Fire Resistive Materials - Density Test	E-605	\$10.00 /Each
Sprayed Fire Resistive Materials - Cohesion/Adhesion	E-738	\$10.00 /Each

## Important Information about This

# Geotechnical Engineering Proposal

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

### Participate in Development of the Subsurface Exploration Plan

Geotechnical engineering begins with the creation of an effective subsurface exploration plan. This proposal starts the process by presenting an initial plan. While that plan may consider the unique physical attributes of the site and the improvements you have in mind, it probably does not consider your unique goals, objectives, and risk management preferences. Subsurface exploration plans that are finalized without considering such factors presuppose that clients' needs are unimportant, or that all clients have the same needs. *Avoid the problems that can stem from such assumptions* by finalizing the plan and other scope elements directly with the geotechnical engineer you feel is best qualified for the project, along with the other project professionals whose plans are affected by the geotechnical engineer's findings and recommendations. If you have been told that this step is unnecessary; that client preferences do not influence the scope of geotechnical engineering service or that someone else can articulate your needs as well as you, you have been told wrong. No one else can discuss your geotechnical options better than an experienced geotechnical engineer, and no one else can provide the input you can. Thus, while you certainly are at liberty to accept a proposed scope "as is," recognize that it could be a unilateral scope developed without direct client/engineer discussion; that authorizing a unilateral scope will force the geotechnical engineer to accept all assumptions it contains; that assumptions create risk. *Manage your risk. Get involved.*

### Expect the Unexpected

The nature of geotechnical engineering is such that planning needs to *anticipate the unexpected*. During the design phase of a project, more or deeper borings may be required, additional tests may become necessary, or someone associated with your organization may request a service that was not included in the final scope. During the construction phase, additional services may be needed to respond quickly to unanticipated conditions. In the past, geotechnical engineers commonly did whatever was required to oblige their clients' representatives and safeguard their clients' interests, taking it on faith that their clients wanted them to do so. But some, evidently, did not, and refused to pay for legitimate extras on the ground that the engineer proceeded without proper authorization, or failed to submit notice in a timely manner, or failed to provide proper documentation. *What are your preferences? Who is permitted to authorize additional geotechnical services on your project? What type of documentation do you require? To whom should it be sent? When? How?* By addressing these and similar issues sooner rather than later, you and your geotechnical engineer will be prepared for the unexpected, to help prevent molehills from growing into mountains.

### Have Realistic Expectations; Apply Appropriate Preventives

The recommendations included in a geotechnical engineering report are *not final*, because they are based on opinions that can be verified only during construction. For that reason, most geotechnical engineering proposals offer the construction observation services that permit the geotechnical engineer of record to confirm that subsurface conditions are what they were expected to be, or to modify recommendations when actual conditions were not anticipated. *An offer to provide construction observation*

is an offer to better manage your risk. Clients who do not take advantage of such an offer; clients who retain a second firm to observe construction, can create a high-risk "Catch-22" situation for themselves. *The geotechnical engineer of record cannot assume responsibility or liability for a report's recommendations when another firm performs the services needed to evaluate the recommendations' adequacy.* The second firm is also likely to disavow liability for the recommendations, because of the substantial and possibly uninsurable risk of assuming responsibility for services it did not perform. Recognize, too, that no firm other than the geotechnical engineer of record can possibly have as intimate an understanding of your project's geotechnical issues. As such, reliance on a second firm to perform construction observation can elevate risk still more, because its personnel may not have the wherewithal to recognize subtle, but sometimes critically important unanticipated conditions, or to respond to them in a manner consistent with your goals, objectives, and risk management preferences.

### **Realize That Geoenvironmental Issues Have Not Been Covered**

The equipment, techniques, and personnel used to perform a geoenvironmental study differ significantly from those used to perform a geotechnical study. *Geoenvironmental services are not being offered in this proposal. The report that results will not relate any geoenvironmental findings, conclusions, or recommendations.* Unanticipated environmental problems have led to numerous project failures. If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

### **Obtain Professional Assistance To Deal with Mold**

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the express purpose of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may be addressed as part of the geotechnical engineering study described in this proposal, the geotechnical engineer who would lead this project *is not* a mold prevention consultant; *none of the services being offered have been designed or proposed for the purpose of mold prevention.*

### **Have the Geotechnical Engineer Work with Other Design Professionals and Constructors**

Other design team members' misinterpretation of a geotechnical engineering report has resulted in costly problems. Manage that risk by having your geotechnical engineer confer with appropriate members of the design team before finalizing the scope of geotechnical service (as suggested above), and, again, after submitting the report. *Also retain your geotechnical engineer to review pertinent elements of the design team members' plans and specifications.*

Reduce the risk of unanticipated conditions claims that can occur when constructors misinterpret or misunderstand the purposes of a geotechnical engineering report. Use appropriate language in your contract documents. Retain your geotechnical engineer to participate in prebid and preconstruction conferences, and to perform construction observation.

### **Read Responsibility Provisions Closely**

Clients, design professionals, and constructors who do not recognize that geotechnical engineering is far less exact than other engineering disciplines can develop unrealistic expectations. Unrealistic expectations can lead to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their proposals. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks, thus to encourage more effective scopes of service. *Read this proposal's provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

### **Rely on Your Geotechnical Engineer for Additional Assistance**

Membership in the Geoprofessional Business Association (GBA) exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit to everyone involved with a construction project. Confer with a GBA-member geotechnical engineer for more information. Confirm a firm's membership in GBA by contacting GBA directly or at its website.



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Telephone: 301/565-2733 Facsimile: 301/589-2017  
e-mail: [info@geoprofessional.org](mailto:info@geoprofessional.org) [www.geoprofessional.org](http://www.geoprofessional.org)

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# GEO-TECHNOLOGY ASSOCIATES, INC.

## Geotechnical and Environmental Consultants

### GENERAL PROVISIONS

#### 1. SCOPE OF SERVICES

Geo-Technology Associates, Inc. (GTA) shall perform the services defined in the Proposal, Work Authorization Form, Extra Work Authorization Form, or other document setting forth the agreement between the parties (the "Agreement") attached hereto and shall invoice Client at those rates shown in the Agreement. Any estimate of cost in the Agreement shall not be considered as a fixed price, but only an estimate unless otherwise specifically stated in the Agreement. Any service not included in the Agreement is an Additional Service. GTA will provide Additional Services under this Agreement as requested by Client and will invoice Client for those Additional Services at GTA's then prevailing fee schedule. The technical and pricing information contained in any document submitted by GTA to Client is confidential and proprietary, and shall not be released or otherwise made available to any third party without GTA's express written consent.

#### 2. STANDARD OF CARE

GTA will strive to perform services under this Agreement in accordance with generally accepted principles of engineering practices and in a manner consistent with that level of care and skill ordinarily exercised by members of their profession, practicing under similar circumstances in the same or similar locality, in the same period of time. This warranty is in lieu of all other warranties, either express or implied.

#### 3. OWNERSHIP OF DOCUMENTS

The documents prepared by GTA for this Project are instruments of service for use solely with respect to this Project and GTA is deemed the author of these documents and shall retain all common law, statutory and other reserved rights, including copyright. Client will be permitted to retain copies, including reproducible copies, of the documents solely for Client's information, reference and use in connection with the Project as long as Client is not in default under this Agreement. Any termination of this Agreement prior to completion of the Project shall terminate this license. Use and reproduction of any instrument of service without the express written consent of GTA is unauthorized and such use is at the sole risk of the user, and Client agrees to indemnify, defend, and hold GTA harmless from all claims, damages and expenses, including attorney's fees, arising out of such unauthorized use. Client agrees that all reports and other work furnished to Client or its agents, which are not paid for, will be returned upon demand and will not be used by Client for any purpose whatsoever.

#### 4. PAYMENTS

Invoices will be submitted by GTA on a monthly basis as work proceeds. Invoices will be due and payable in full upon receipt of an invoice by Client without retainer, and will not be contingent upon receipt of funds from third parties. In the event that Client objects to all or any portion of any invoice, Client shall notify GTA of the reasons for the objection within fifteen (15) days from date of the invoice, and pay that portion of the invoice not in dispute. Payments made by Client shall constitute acceptance of GTA's Proposal and General Provisions. If fees are not paid in full within thirty (30) days of the date of the invoice, GTA may pursue all appropriate remedies, including but not limited to, suspend or terminate services under this Agreement, withdrawing certifications, stopping work, and retaining all documents. In the event of such suspension or termination of services, GTA shall have no liability to Client for delay or damages caused by such suspension or termination. If at any time, an invoice remains unpaid for a period in excess of thirty (30) days, a service charge of one and one-half percent (1.5%) per month from the date of the invoice will be charged. Claims and/or causes of action against Client arising out of or relating to this Agreement shall be brought by GTA within three (3) years of the date of the last invoice issued by GTA for services rendered pursuant to this Agreement or termination of this Agreement whichever is sooner. Application of the percentage rate indicated above as a consequence of Client's late payments does not constitute any willingness on GTA's part to finance Client's operation, and no such willingness should be inferred. In the event GTA employs the services of any attorney or agency to collect any sums due hereunder or to enforce any terms contained herein Client agrees to pay all litigation costs, including but not limited to reasonable attorney's fees and court costs incurred by GTA, as well as the time spent by GTA personnel based on their current hourly billing rates.

#### 5. CLIENT RESPONSIBILITIES

Client, for its own benefit, may, from time to time, on its own or retain others to perform certain tests, inspections and analyses or other information and materials for use by GTA ("client data"). GTA may rely and is expected to rely on such client data without the need for independent evaluation and/or verification. Client agrees to indemnify, defend, and hold GTA harmless from any and all losses, damages and claims of any nature which may in any way arise out of or in connection with the use by GTA of the client data and other information issued and/or prepared by Client or others and furnished to GTA in connection with this project. In the event Client or Client's personnel, contractors, or subcontractors become aware that a suspected error or omission by GTA has been discovered, or that a change in the conditions reported by GTA is suspected, GTA shall receive prompt written notice of such suspected error, omission, or change in order that GTA may have the opportunity to take prompt, effective measures which in GTA's opinion will minimize the consequences of a defect in service. Failure to provide prompt notice or to provide GTA the opportunity to remedy the situation shall relieve GTA of any further liability.

#### 6. HIDDEN CONDITIONS

The Instruments of Service are based on observable conditions. A condition is hidden if it is concealed by existing finishes or cannot be investigated by reasonable visual observation. In the event GTA, in the performance of the services, uncovers a hidden condition, GTA shall not be responsible for costs associated with repairing, restoring, removing, redesigning or otherwise correcting said condition. GTA shall have no responsibility for hidden conditions or any subsequent damage to persons or property related to any hidden conditions.

#### 7. HAZARDOUS SUBSTANCES

GTA shall have no responsibility, unless contracted to do so, for the discovery, presence, handling, removal or disposal of or exposure of persons to hazardous substances in any form at the Project site, including but not limited to asbestos, asbestos products, petroleum, petroleum derivatives, polychlorinated biphenyl (PCB) or other hazardous substances, as defined by any applicable environmental law. Client agrees to advise GTA prior to beginning work of any hazardous substances on or near the site. In the event that test samples obtained during GTA's work contain substances hazardous to health, safety or the environment, these samples remain the property of Client. Likewise, any equipment contaminated during GTA's services which cannot be reasonably decontaminated shall become the property and responsibility of Client. Such samples and/or equipment will be delivered to Client. Client agrees to pay transportation costs for samples and equipment and the fair market value of contaminated equipment.

#### 8. CONSTRUCTION OBSERVATIONS AND TESTING SERVICES

GTA will provide personnel to observe and report on specific aspects or phases of construction in accordance with the agreed Scope of Services. Unless GTA's Scope of Services provides otherwise, GTA does not provide continuous observation of the work performed by the contractor or subcontractors. GTA's visits to the construction site shall be for the purpose of becoming generally familiar with the progress of the construction work and performing observations and testing within GTA's scope. Should Client not retain GTA to observe construction, or should Client unduly restrict GTA's assignment to observe construction, Client waives any claim against GTA, and agrees to indemnify, defend, and hold GTA harmless from any claim, liability, or loss arising from problems during construction that allegedly result from findings, conclusions, recommendations, plans, or specifications developed by GTA. GTA's services do not include supervision or direction of the actual work of the contractor, his employees, agents or subcontractors or job site safety. Client agrees to notify the contractor accordingly. The contractor shall also be informed by Client that neither the presence of GTA's field representative nor the observation and testing by GTA shall excuse the contractor from defects in its work or from potentially unsafe working conditions.

#### 9. RIGHT OF ENTRY

Client will provide rights of entry and access for GTA and necessary permissions in order for GTA to perform its services. While GTA will take reasonable precautions to minimize damage to the property, it is understood that in the normal course of work, some damage may occur to surface features, the correction of which is not part of GTA's Scope of Services.

#### 10. DISCLOSURE

If during the course of this engagement, GTA develops data or information that requires disclosure to an administrative agency or other authority with proper jurisdiction, Client agrees to such disclosure and agrees to defend, indemnify, and hold GTA harmless from any claim or liability arising from such disclosure.

#### 11. FAILURE TO FOLLOW RECOMMENDATIONS

Client recognizes and assumes the inherent risks connected with subsurface and earthwork construction, and agrees that it would be unfair to hold GTA liable for problems that may occur if GTA's recommendations are not followed. Accordingly, Client waives any claims against GTA, and agrees to defend, indemnify, and hold GTA harmless from any claim or liability for injury or loss that results from Client's failure to strictly implement GTA's recommendations. Client also agrees to compensate GTA for any time spent and expenses incurred by GTA, including attorney's fees, in defense of any such claim, with such compensation to be based upon GTA's then prevailing fee schedule and expense reimbursement policy.

#### 12. SAMPLING AND TEST LOCATION

Unless otherwise stated, the fees in the Agreement do not include costs associated with surveying of the site for the accurate horizontal and vertical locations of tests. Field tests or exploration locations described in GTA's report or shown on sketches are based upon information furnished by others or estimates made in the field by GTA's representatives. Such dimensions, depths, or elevations should be considered as approximations unless otherwise stated. GTA will not provide or check field survey work. If Client specifies the test location, GTA reserves the right to deviate a reasonable distance from the location specified. GTA will retain all soil and rock samples for sixty (60) days after GTA's report is issued. Further storage or transfer of samples can be made at Client's expense, upon written request.

### 13. SUBSURFACE EXPLORATION

If subsurface exploration is required to complete the Scope of Services, then any such work by GTA is subject to the following qualifications.

- a. GTA will take reasonable precautions to avoid damages to subterranean structures or utilities in the prosecution of the work. The Client agrees to advise GTA of known or suspected underground features which could affect the services to be provided. The Client agrees to hold GTA harmless for any damages to subterranean utility lines and for structures which are not called to GTA's attention.
- b. If the Client specifies the subsurface exploration locations, GTA reserves the right to deviate a reasonable distance from the location specified. GTA reserves the right to terminate this contract if site conditions prevent subsurface exploration at or near the designated locations, and these conditions were not revealed to GTA prior to submitting this Agreement. If deeper or additional subsurface explorations are necessary to evaluate unusual or anomalous conditions, the additional work, will be charged in accordance with the fee schedule.

### 14. REJECTION OF WORK

GTA may recommend to Client rejection of contractor's work which, in GTA's professional opinion, does not conform to design, specifications, or GTA's recommendations. Client agrees to indemnify, defend and hold GTA harmless from any and all losses, damages and claims of any nature, which may in any way arise out of GTA's rendering of good faith advice to Client on this topic.

### 15. DELAYS

In the event that GTA's field or technical work is interrupted due to causes beyond GTA's control, GTA shall be compensated for the labor, equipment, and other costs GTA incurs in order to maintain its workforce for Client's benefit during the interruption, or at Client's option, the various costs GTA incurs for demobilization and subsequent remobilization. Compensation to GTA shall be based upon GTA's then prevailing fee schedule and expense reimbursement policy. Client shall not hold GTA responsible for damages or delays in performance caused by acts of God or other circumstances beyond the control of GTA.

### 16. DISPUTE RESOLUTION

In addition to and as a condition precedent to litigation, the parties shall endeavor to settle disputes, other than payment disputes, by non-binding mediation in accordance with the Construction Industry Mediation Rules of the American Arbitration Association then in effect unless the parties mutually agree otherwise. In no event shall the demand for mediation be made after the date when such claim, dispute or other matter in question would be barred by the applicable statute of limitations. If mediation fails to resolve the claims or disputes, then all claims, disputes or other matters in question arising out of this Agreement shall be determined by a state or federal court located in Maryland. Both parties consent to personal jurisdiction and venue in the courts referenced above.

### 17. CERTIFICATE OF MERIT

Client shall make no claim, either directly or in a third party claim, against GTA unless Client has first provided GTA with a written certification executed by an independent professional currently practicing in the discipline of the alleged defect or error and licensed in the state where the Project is located. This certification shall: a) contain the name and license number of the certifier; b) specify each and every act or omission that the certifier contends is a violation of the standard of care in this Agreement; and c) state in complete detail the basis for the certifier's opinion that each such act or omission constitutes such a violation.

### 18. GOVERNING LAW

This Agreement shall be governed by and construed in accordance with the laws of the state of Maryland. Should any provision of this Agreement be or become legally invalid, the validity of the remainder of this Agreement shall not be affected.

### 19. LIMITATION OF LIABILITY

GTA's liability for damages arising out of any theory of liability, including torts, such as negligence, strict or statutory liability, and breach of contract, shall be limited to an amount not to exceed the lesser of GTA's fee or \$50,000. To the extent damages are covered by property insurance, Client and GTA waive all rights against each other, notwithstanding that such loss, damage or liability may arise out of the act or omission of GTA, and the nature of the conduct that causes the damage shall not vitiate this waiver. GTA will not be liable for consequential damages, including, without limitation, loss of use or loss of profits, regardless of whether such damages are caused by breach of contract, willful misconduct, negligent act or omission, or other wrongful act by GTA. No director, officer, employee or agent of GTA shall have any individual liability to Client. Nothing contained in this Agreement shall create a contractual relationship with, or a cause of action in favor of, any other person. Any and all claims and/or causes of action against GTA arising out of or relating to this Agreement shall be brought by Client within two (2) years of the date of the last invoice issued for services rendered pursuant to this Agreement or termination of this Agreement whichever is sooner.

### 20. COVENANT NOT TO SUE

Client shall assure that the following covenant not to sue is contained in all other contractor agreements, and shall assure its enforcement: "Contractor, or any successor, assignee or subrogee of Contractor, agrees not to bring any civil suit, action or other proceeding in law, equity or arbitration against GTA, or the officers, employees, agents or consultants, of GTA, for the enforcement of any action which Contractor may have arising out of or in any manner connected with the Project. GTA, its officers, employees, agents, and consultants are intended third-party beneficiaries of this covenant not to sue, who are entitled to enforce this covenant in law or equity."

### 21. BETTERMENT

If due to GTA's breach of the standard of care, any required item or component of the Project is omitted from GTA's Instruments of Service, GTA shall not be responsible for paying the cost to add such item or component to the extent that such item or component would have been otherwise necessary to the Project or otherwise adds value or betterment to the Project. In no event will GTA be responsible for any cost or expense that provides betterment, upgrade or enhancement of the Project.

### 22. ASSIGNMENT

Client shall not assign or transfer its interest or claim arising under or related to this Agreement without the written consent of GTA.

### 23. SUSPENSION OR TERMINATION FOR CLIENT'S BREACH

GTA may suspend or terminate services without breach of contract immediately upon giving Client written notice that Client is in default. In the event services are suspended or terminated, GTA has no obligation to deliver documents and any consequences (including delay) resulting from such suspension or termination are the sole responsibility of Client. GTA shall be compensated for all services performed up to the date of termination together with all reimbursable expenses then due and any termination expenses. Client has the obligation to return all documents if Client is in default under this Agreement. Client shall be considered in default in the event GTA does not receive payment when due, Client unreasonably delays in responding to GTA, Client fails to reasonably act in good faith, or Client otherwise breaches this Agreement.

### 24. ENTIRE AGREEMENT

These General Provisions along with the Agreement represent the entire and integrated agreement between the parties and supersede all prior negotiations, representations or agreements, either written or oral and may be amended only by written instrument signed by all of the parties.

### 25. PREVAILING WAGE PROJECTS

This Agreement is based on GTA's services for this Project being considered professional services and not subject to the provisions of any prevailing wage act. If it is later determined that any prevailing wage act applies to GTA's services on this Project, this Agreement will be amended to reflect GTA's hourly billing rate which will be based on applicable Prevailing Wages, plus overhead and profit as determined by GTA. The change in hourly billing rates will be retroactive to the start of work on this project. Client agrees to protect and reimburse GTA for any and all costs incurred arising out of or resulting from the requirements of the Prevailing Wage Act being applied to our services on this Project. Client further agrees to immediately notify GTA if the Client learns that the Prevailing Wage Act may apply to GTA's services on this Project.



cvm

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## **REQUEST FOR PROPOSAL FOR SUBSURFACE INVESTIGATION AND REPORT**

**project** South New Street Streetscape

**date** May 27, 2020

**owner** City of Bethlehem

**architect** WRT

**geotechnical engineer** To Be Determined

**structural engineer** CVM Engineers

1002 West 9<sup>th</sup> Avenue

King of Prussia, PA 19406

### **General**

WRT, under contract with The City of Bethlehem, requests a proposal to provide Geotechnical Engineering consultation, subsurface explorations, laboratory testing and analysis, and field direction and inspection in connection with a subsurface engineering study for the referenced project.

### **Project Description**

The project consists of several site features to enhance the streetscape of South New Street in Bethlehem, PA. These features include catenary light poles spanning South New Street, lighted bollards and a bus shelter.

The catenary light poles (with two light pendants) are approximately 24 feet tall and span South New Street, refer to Appendix A for layout. The foundation loads/reactions will be provided by the light pole manufacturer (TBD) to the design team for the final design of the foundations. CVM

has assumed based on our experience for light poles of this magnitude that drilled piers will be the appropriate foundation solution, however this assumption should be confirmed in the Geotechnical Report. Please refer to the preliminary light pole foundation design in Appendix B. The preliminary design is based on the following service level assumed reactions at each catenary light pole:

- Vertical Axial Load = +/- 500 #
- Horizontal Shear Load = +/- 800 #
- Overturning Moment = +/- 15,000 #-ft

The lighted bollards are approximately 40-inches tall and line South New Street, as seen in Appendix A. The lighted bollards are only visual and are not K-rated/vehicular bollards. It's assumed the foundation for the lighted bollards will be sonotubes/small drilled piers approximately 10" in diameter.

The bus shelter is currently under development; however, the current concept includes a translucent roof cantilevering from a main horizontal member. The roof system is supported by two main cantilevering column elements with an integrated concrete bench. The two main column elements will also support a solid vertical surface for signage and weather protection. The foundation loads will be provided once the framing system is determined and a preliminary analysis has been performed. Please refer to Appendix C for the current bus shelter concept.

The Owner will provide the Geotechnical Engineer with a general site plan and/or survey (if available), which may or may not include locations of underground utilities, lines or obstructions. Neither the Owner, the Landscape Architect, the Architect or the Structural Engineer warrants the accuracy or the completeness of such data. The Geotechnical Engineer shall consult with local utilities and authorities to determine exact locations of any underground utilities, lines or other obstructions and shall endeavor to confirm exact locations in the field before beginning subsurface activities. Such clearance prior to invasive testing/exploration shall include the use of a private utility locating firm for each testing/exploration location. The Geotechnical Engineer shall develop and submit a proposed subsurface investigation plan (test borings, test pits, penetrometer locations, etc.) attached to his proposal. The Geotechnical Engineer will be solely responsible for the number of test borings, probes, etc., their locations and extent, required to generate reliable foundation design criteria. The Owner reserves the right to request additional work based on the proposed unit prices.

Information on accessibility of probe locations, nature of terrain, availability and terms for obtaining water, necessary permits, and all other conditions affecting the work must be obtained by the Geotechnical Engineer. Right of entry to each required probing location shall be obtained from the Owner by the Geotechnical Engineer.



## **Scope of Work**

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The Geotechnical Engineer shall furnish the following services:

- Provide technical assistance in programming the subsurface investigation. The Structural Engineer shall review the final subsurface investigation plan and program prepared by the Geotechnical Engineer, which shall include a test boring plan.
- Make an engineering reconnaissance of the site and review available data.
- Lay out the probe locations on the site.
- Establish ground surface elevations at each test probe location from bench mark(s).
- Verify the location of existing subsurface utilities from available utility drawings and field location/clearance.
- Perform all drilling and sampling as indicated on the final subsurface investigation plan.
- Install water observation pipes to locate the groundwater table.
- Provide visual field inspection and classification of samples, by qualified Inspectors, as required for establishing soil properties and recommendations.
- Provide ground water level observation at suitable intervals during the entire design stage.
- Perform laboratory testing such as sieve analysis, hydrometer analysis, atterberg limits, moisture-density, compaction/compression tests, etc., as required for establishing soil properties and recommendations.
- Prepare a written report, signed and sealed by a professional engineer registered in the state where project is located.
- Author the Earthwork specification section, and author/edit any deep foundation specification sections if applicable.
- Submit two (2) copies of the report to the Landscape Architect/Architect and one (1) copy to the Structural Engineer.
- Investigation Schedule: Complete investigation and submit report within 14 calendar days from Notice to Proceed.

The written report will include at a minimum the following:

1. Description of subsurface conditions.
2. Results of laboratory testing of soils and rock core specimens.
3. Verified boring logs from drilling contractor, profiles, rock surface contours and boring location plan.
4. Recommended foundation systems.



5. Allowable bearing stress values and foundation bearing elevations.
6. Settlement estimates.
7. Description of groundwater conditions and whether these conditions will promote frost heave of exterior slabs and exterior structures.
8. Recommendations for pavement construction.
9. Earthwork criteria for excavation, backfill and compaction.
10. Recommendations for soil erosion and sediment pollution control measures, including slope stability during and after construction.
11. Lateral earth pressures and coefficients for cantilevered retaining walls
12. Identification of soils potentially susceptible to seismic liquefaction.
13. Frost penetration depth.
14. Minimum footing bearing elevations.
15. Seismic Site Class Identification, in accordance with the governing Building Code.
16. Subgrade Modulus.
17. The following is the minimum required to aid in the design of the foundations for the light poles and bollards:
  - a) Define if soils are predominantly *cohesive* or *cohesionless*.
  - b) Shear strength of cohesive soil (if applicable) cohesion =  $c$  (k/ft<sup>2</sup>)
  - c) Passive earth pressure coefficient =  $K_p$
  - d) Active earth pressure coefficient =  $K_a$
  - e) Angle of internal friction = *degrees*
  - f) Effective moist/saturated unit weight of soil = *density* (pcf)
  - g) Vertical foundation pressure = (psf)
  - h) Lateral Bearing Pressure = (psf/ft)
  - i) Coefficient of friction

## Compensation

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The Geotechnical Engineer shall provide a lump sum fee for engineering consultation, analysis and report preparation, as well as a schedule of estimated costs for earth and rock drilling (including unit costs), test pits, other probes, and costs for laboratory and field testing in accordance with firm's established unit pricing for the various necessary tests (provide unit costs and estimated number of each).



### **Insurance**

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The Geotechnical Engineer shall effect and maintain insurance for protection from claims under workmen's compensation acts; claims for damages because of bodily injury including personal injury, sickness or disease, or death of any of Geotechnical Engineer's employees; and from claims for damages because of injury to or destruction of tangible property including loss of use resulting there from; and from claims arising out of the performance of professional services caused by any errors, omissions or negligent acts for which he is legally liable. The minimum amounts shall be suitable to the Owner.

### **Protection of Property**

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The Geotechnical Engineer shall take all reasonable precautions to prevent damage to property and underground lines. Any damage to existing utilities and/or structures shall be immediately repaired at no additional cost to the Owner

### **Indemnification**

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The Geotechnical Engineer shall indemnify and hold the Owner, the Landscape Architect/Architect, and the Structural Engineer and their agents and employees harmless from and against all claims, damages, losses and expenses, including reasonable attorneys' fees, arising out of or relating directly or indirectly from the work performed by the Geotechnical Engineer herein.

### **Construction Services**

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Provide and attach a separate proposal for construction phase subsurface/earthwork testing and inspection services.

The proposal for Geotechnical Engineering Services shall be submitted to the Landscape Architect/Architect, with a copy submitted to the Structural Engineer, by June 12, 2020.



## GENERAL NOTES

### 1.0 GENERAL

1. All work shall conform to the IBC 2015 Building Code and to all other applicable Federal, State, and local regulations.
2. Work not indicated on a part of the drawings but reasonably implied to be similar to that shown at corresponding places shall be repeated.
3. Contractor shall verify and/or establish all existing conditions and dimensions at the site.
4. If the existing field conditions do not permit the installation of the work in accordance with the details shown, the Contractor shall notify the Engineer immediately and provide a sketch of the condition with his proposed modification of the details given on the contract documents.
5. Contractor shall provide for dewatering as required during excavation and construction.
6. In no case shall heavy equipment be permitted closer than 8'-0" from any foundation wall. If it is necessary to operate such equipment closer than 8'-0" to the wall, the Contractor shall be the sole responsible party and, at his own expense, shall provide adequate supports or brace the wall to withstand the additional loads superimposed from such equipment.
7. Special inspection is required of all construction delineated on the Structural drawings. The Owner shall employ a testing/inspection agency which shall provide personnel with the following minimum qualifications:
  - Certified by National Institute for Certification in Engineering Technologies (NICET), or other recognized comparable organization.
  - For inspection, sampling, testing concrete: ACI Certified Concrete Field-Testing Technician, Grade I; and Construction Inspector, Level II.
  - For inspection of steel, AISC-SSI Certified Structural Steel Inspector. Per AWS D1.1, the steel inspector shall have the following qualifications for non-destructive testing of welds, NDT Level II or NDT Level 1 working under the NDT Level II.
  - Submit periodic reports to Engineer during construction. Submit final inspection report summary for each division of work, certified by a licensed professional engineer, that special inspections were performed, and that work was performed in accordance with Contract Documents.
8. If initial inspections made by the Owner's testing and inspection agency reveal that any portion of the work does not comply with the Contract Documents, additional tests, inspections, and necessary repairs will be made at the Contractor's expense.
9. If differences occur within or between drawings and specifications regarding materials, strength, or quantities, the better material, higher strength, and greater quantity indicated, specified, or noted shall be provided.

### 2.0 FOUNDATIONS



# BUS SHELTER DESIGN CONCEPT

## CONCEPTUAL ELEVATIONS:

