AMENDMENT NO. 2

TO THE PROFESSIONAL SERVICES AGREEMENT SITE ENVIRONMENTAL/ENGINEERING SERVICES FOR CAPITOL COMPLEX AND NORTH AUSTIN COMPLEX PROJECTS BETWEEN THE TEXAS FACILITIES COMMISSION AND COBB FENDLEY & ASSOCIATES, INC.

This Amendment No. 2 to the Professional Services Agreement for Site Environmental/Engineering Services (hereinafter referred to as "Amendment No. 2") is entered into by and between the Texas Facilities Commission (hereinafter referred to as "TFC"), a state agency located at 1711 San Jacinto Boulevard, Austin, Texas 78701, as Owner (as defined in UGC, Section 1.28), and Cobb Fendley & Associates Inc. (hereinafter referred to as "SSE"), with its principal place of business located at 505 East Huntland Drive, Suite 100, Austin, Texas 78752 (hereinafter referred to collectively as the "parties"), to amend the original Professional Services Agreement between the Parties.

RECITALS

WHEREAS, on June 1, 2016, the parties entered into that one certain *Professional Services Agreement for Site Environmental/Engineering Services for Capitol Complex and North Austin Complex Projects Between the Texas Facilities Commission and Cobb Fendley & Associates, Inc.* (hereinafter referred to as the "Agreement"); and

WHEREAS, the parties desire to amend the Agreement to provide for Additional Services and Fees as more particularly described below;

NOW THEREFORE, the Parties hereby agree as follows:

1. Unless clearly provided otherwise herein, all terms and phrases in initial caps herein shall have the same meaning as the terms and phrases with initial caps in the Agreement.

2. The parties agree to modify ARTICLE II – DESCRIPTION OF PROJECTS AND SCOPE OF SERVICES by adding Section 2.2.9, which shall read in its entirety as follows:

"2.2.9. Part Three Services for Capitol Complex and North Austin Complex. SSE agrees to provide the Professional Services described below and more particularly set forth in "Exhibit A-2," SSE's Proposal dated October 28, 2016, attached hereto an incorporated herein for all purposes.

2.2.9.1. SSE shall provide the following project management, environmental/cultural, geotechnical engineering and street vacation and permit support services for the Capitol Complex Sites set forth in Section 2.1.2.1 of the Agreement.

2.2.9.1.1. Provide the project management services as set forth in Exhibit A-2.

2.2.9.1.2. Provide surveying services for the Capitol Complex Sites.

2.2.9.1.3. Provide an American Land Title Associates ("ALTA") survey of the Capitol Complex Sites.

2.2.9.1.4. Provide mapping services for permits and street vacation.

2.2.9.1.5. Provide subsurface utility engineering locations, in coordination with TFC's Master A/E.

2.2.9.1.6. Provide surveying for physical plant and thermal utilities.

2.2.9.1.7. Provide field work necessary to complete Phase 1 Environmental Site Assessment in accordance with ASTM Standard E1527.

2.2.9.1.8. Provide intensive archival research if required by Texas Historical Commission.

2.2.9.1.9 Provide additional Texas Historical Commission letter if required by Texas Historical Commission.

2.2.9.1.10. Provide geotechnical engineering including test borings and reports, and monitor wells to monitor subsurface water.

2.2.9.1.11. Provide on-site inspection of pier drilling during construction.

2.2.9.1.12. Provide street vacation and permit support.

2.2.9.1.13. Provide permit consulting for street vacation and encroachments.

2.2.9.1.14. Obtain an encroachment agreement with the City of Austin.

2.2.9.1.15. Obtain street vacation for Congress Avenue, from Martin Luther King Boulevard south to 16th Street.

2.2.9.2. SSE shall provide the following project management, environmental/cultural, and geotechnical engineering services for the North Austin Complex Site set forth in Section 2.1.2.2 of the Agreement.

2.2.9.2.1. Provide the project management services as set forth in Exhibit A-2.

2.2.9.2.2. Provide surveying services for the North Austin Complex Site.

2.2.9.2.3. Provide an American Land Title Associates ("ALTA") survey of the North Austin Complex Site.

2.2.9.2.4. Provide surveying for retention pond and elevated walkway.

2.2.9.2.5. Provide subsurface utility engineering locations.

2.2.9.2.6. Provide surveying for physical plant and thermal utilities.

2.2.9.2.7. Provide field work to complete Phase 1 Environmental Site Assessment in accordance with ASTM Standard E1527.

2.2.9.2.8. Provide Geotechnical engineering including test borings and reports, and monitor wells to monitor subsurface water.

2.2.9.2.9. Provide on-site inspection of pier drilling during construction.

2.2.9.2.10. Provide subsurface utility fieldwork and utilities coordination.

2.2.9.2.11. Provide a traffic impact analysis.

3. The parties agree to modify ARTICLE III – TERM AND TERMINATION, to add Section 3.3. Duration, Amendment No. 3, as follows:

"3.3 Duration. This Amendment No. 2 shall be effective as of the date of the last party to sign and shall terminate on December 31, 2017, unless extended by the parties by amendment to this Agreement or terminated, earlier, as provided in Section 3.2."

4. The parties agree to modify ARTICLE IV – CONSIDERATION; PAYMENT CONDITIONS, SECTION 4.1 – CONTRACT LIMIT – FEES AND EXPENSES, SUBSECTION 4.1.1 – FIXED FEE, by reflecting additional compensation to the SSE for services provided under this Amendment No. 2 in the amount of Two Million Nine Hundred Twenty Four Thousand Five Hundred Six and No/100 Dollars ($2,924,506.00), thus increasing the total amount from Six Hundred Forty Five Thousand Two Hundred Fifty Two and No/100 Dollars ($645,252.00), to a total not to exceed amount of Three Million Five Hundred Sixty Nine Thousand Seven Hundred Fifty Eight and No/100 Dollars ($3,569,758.00).

5. All other terms and conditions of the Agreement not expressly amended herein shall remain in full force and effect.

TEXAS FACILITIES COMMISSION

By: _____

Harvey Hilderbran

Executive Director

Date of execution: 11-17-16

G.C. _____

Dir. MH

D.E.D. _____

COBB FENDLEY & ASSOCIATES, INC.

By: _____

Dan Warth, P.E.

Regional Manager, Central Texas

Date of execution: 11.16.16

TFC CONTRACT NO. 16-101-000

AMENDMENT NO. 2

SSE'S PROPOSAL DATE OCTOBER 28, 2016

CobbFendley

October 28, 2016

Janie Gribble, AIA, LEED AP, Sr. Project Manager
Mark Diaz, Project Manager
Texas Facilities Commission - Facilities Design & Construction
1711 San Jacinto
Austin, Texas 78711

RE: **TFC Project 16-015-8000 – Capitol and North Austin Complexes – Part 3 Services**
Proposal for Site Environmental/Engineering Professional Services

Dear Ms. Gribble and Mr. Diaz:

Cobb, Fendley & Associates, Inc. ("CobbFendley"), as the prime consultant of the Site Services Engineer Contract (SSE) Team, is pleased to submit this proposal for the Part 3 Site Environmental/Engineering Professional Services for the Capitol Complex and the North Austin Complex.

The estimated fee for Part 3 is included in Attachment 1.

Supporting scope and assumption details for the professional services at the Capitol Complex and North Austin Complex are described in Attachment 2.

Attachment 3 contains the rate sheets for those services that are proposed as "allowance" tasks.

The HUB participation for Part 3 services is approximately 30% (32% for the Capitol Complex and 23% for the North Austin Complex).

We anticipate beginning work 10 days after notice to proceed (NTP). We will develop an integrated schedule for SSE services in conjunction with the other teams (i.e., Master Architect, Construction Manager Agent, A/E Design teams, Construction Manager at Risk, etc.) involved on the projects.

We look forward to implementing these important support activities on these very significant projects for TFC. These projects will transform the Capitol Complex and North Austin sites and we are pleased to be working with you as the SSE team.

Sincerely,
COBB, FENDLEY & ASSOCIATES, INC.

DWARTH

Dan Warth, P.E.
Principal | Project Manager

CobbFendley

ATTACHMENT 1 – Proposed Fee

TABLE 1.A – Part 3 Summary Estimated Fee
TABLE 1.B – Part 3 Estimated Fee for Capitol Complex (CapCom)
TABLE 1.C – Part 3 Estimated Fee for North Austin Complex (NAC)

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Table 1.A – Part 3 Summary Estimated Fee

Firm	Complex		Total
	CapCom	NAC	
CobbFendley	$1,256,134.00	$600,620.00	$1,856,754.00
CoxMcLain	$20,236.00	$6,308.00	$26,544.00
Holt	$605,573.00	$183,296.00	$788,869.00
Balcones	$160,880.00	$35,320.00	$196,200.00
MWM	$56,139.00	$0.00	$56,139.00
Totals	$2,098,962.00	$825,544.00	$2,924,506.00

HUB %	32%	23%	30%
Non HUB %	68%	77%	70%

Table 1.B – Part 3 Estimated Fee for Capitol Complex

Project Management	**$132,880.00**
Survey	**$316,830.00**
ALTA Survey	$68,555.00
Mapping for permits/Street Vacation (less 12K Part 1 Amendment)	$37,595.00
Subsurface Utility Engineering Locations (allowance)	$177,670.00
Survey for Physical Plant/Thermal Utilities	$33,010.00
Utilities (allowance)	**$773,706.00**
Environmental and Cultural Resources	**$20,236.00**
Complete Phase 1 ESA - Master Plan Phase 1	$7,012.00
Intensive Archival Research (2 Areas Identified by THC)	$6,006.00
Additional THC Coordination Letter with findings of Intensive Archival Research	$7,218.00
Geotechnical Engineering (Holt and Balcones)	**$610,017.00**
Pier Inspections	**$131,769.00**
Street Vacation and Permit Support	**$56,139.00**
Permit Consulting (allowance)	$10,000.00
Encroachment Agreement (Utility Tunnel at 15th Street) (less 12K Part 1 Amendment)	$10,631.00
Street Vacation (less 12K Part 1 Amendment)	$35,508.00
Reimbursable Expenses	**$7,000.00**
Total	**$2,048,577.00**
Insurance Costs (Estimate for 2017 only - actual costs will be billed)	**$50,385.00**
CobbFendley - Incurred	**$25,718.00**
CobbFendley (no additional coverage beyond standard company coverage required)	
CoxMcLain (no additional coverage beyond standard company coverage required)	
Holt (Minimum of $4MM Excess Liability and $2MM Professional Liability)	**$16,667.00**
Balcones (Minimum of $4MM Excess Liability and $2MM Professional Liability)	**$8,000.00**
MWM Design Group (no additional coverage beyond standard company coverage required)	
Total	**$2,098,962.00**

Note 1: Insurance costs are estimated and assigned as a 70/30 ratio to the CapCom and NAC respectively. Actual costs will be billed. Estimated amount is for 2017 only.

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Table 1.C – Part 3 Estimated Fee for North Austin Complex

Project Management	**$132,880.00**
Survey	**$124,720.00**
ALTA Survey	$71,612.00
Topographic survey (Retention Pond and Elevated Walkway)	$15,532.00
Subsurface Utility Engineering Locations	$37,577.00
Utilities	**$208,267.00**
Subsurface Utility Engineering Fieldwork (allowance)	$141,949.00
Utilities Coordination (allowance)	$66,318.00
Traffic Impact Analysis	**$118,894.00**
Preliminary Meeting (COA)	$5,644.00
Data Collection	$24,080.00
Trip Generation & Trip Distribution	$12,920.00
Traffic Engineering Analysis	$16,897.00
Traffic Impact Analysis Report	$29,107.00
Due Diligence	$30,247.00
Environmental and Cultural Resources	**$6,308.00**
Fieldwork to Complete Phase 1 ESA (all phases at NAC)	$6,308.00
Geotechnical Engineering (Holt and Balcones)	**$149,756.00**
Pier Inspections	**$56,527.00**
Reimbursable Expenses	**$3,000.00**
Insurance Costs (Estimate for 2017 only - actual costs will be billed)	**$25,192.00**
CobbFendley - Incurred	**$12,859.00**
CobbFendley (no additional coverage beyond standard company coverage required)	
CoxMcLain (no additional coverage beyond standard company coverage required)	
Holt (Minimum of $4MM Excess Liability and $2MM Professional Liability)	**$8,333.00**
Balcones (Minimum of $4MM Excess Liability and $2MM Professional Liability)	**$4,000.00**
MWM Design Group (no additional coverage beyond standard company coverage required)	
Total	**$825,544.00**

Note 1: Insurance costs are estimated and assigned as a 70/30 ratio to the CapCom and NAC respectively. Actual costs will be billed. Estimated amount is for 2017 only.

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ATTACHEMENT 2 – Site Services Engineer (SSE) Scope of Services

ATTACHEMENT 2.A – Scope of Services for Capitol Complex (CapCom)

ATTACHEMENT 2.B – Scope of Services for North Austin Complex (NAC)

ATTACHEMENT 2.A – Scope of Services for the Capitol Complex (CapCom)

Management
Cobb Fendley & Associates, Inc.

CobbFendley will provide the project management for the Site Services Engineer (SSE) team providing survey, utilities, environmental, geotech investigation and City of Austin permit support to include street and alley vacation. The specific scope for each services at the Capitol Complex (CapCom) is included in the following pages.

ASSUMPTIONS

A. SSE Project Management support will be for a 12 month duration.

B. Management and Administration of SSE team (208 hrs between PM and admin support).

C. Meetings in Part 3 include the following for the Capitol Complex:

1. Phase 3 internal project setup and kick off meetings (26 hours total for the team).
2. Monthly Status meetings with the team – up to 12 two hour meetings (includes preparations, agenda, attendance and minute development and posting – 300 hours between the PM, supporting engineer and secretarial admin).
3. Technical meetings with Master Architect, CM Agent, sub consultant, etc. Includes one technical expert per meeting (12 meetings that have 120 hours between the PM and technical support, with prep and minutes).

Survey
Cobb Fendley & Associates, Inc.

A. Provide mapping for soil investigations and geotechnical assessments to facilitate the submission of preliminary and final reports and recommendations from Geotechnical Engineer.

B. Provide an ALTA survey including metes and bounds, all existing utilities, existing structures and easements.

C. Provide mapping for permits customarily required for site and utility work.

D. For the North Congress Avenue Right of Way site in the Capitol Complex provide mapping and exhibits to facilitate the appropriate and necessary documentation for the vacation of the avenue, in conformance with the City of Austin Policies and Procedures for Requesting Street or Alley Vacations.

E. Provide mapping for Level B SUE efforts.

F. Provide mapping for Level A SUE efforts.

G. Provide mapping for Energy efforts.

ASSUMPTIONS

1. CobbFendley will complete the fieldwork and final mapping for the Boundary Survey in accordance with the 2016 Minimum Standard Detail Requirements for an ALTA/NSPS Land Title Survey, and includes Items 1, 2, 3, 4, 5, 7a, 8, 9, 11, 13, 14, 16, and 19 of Table A. During Part 1, only the research portion of the boundary survey was performed. Part 3 entails the field recovery of property monuments, performing boundary analysis, reconciling the record boundary with field evidence to identify boundary line discrepancies, determining boundary line locations, preparing final boundary survey mapping in accordance with the Texas Board of Professional Land Surveying (TBPLS) and ALTA/NSPS Standards, and checking final survey closures and the accuracy of final drawings. Appendix 2-1 contains the 2016 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys.

2. It is assumed that CobbFendley will use the information collected during the Topographic Survey produced in Part 1 to satisfy the requirements for Items 5, 7a, 8, and 9 of Table A.

3. It is assumed that CobbFendley will use the information collected during the Level B SUE efforts in Part 3 to satisfy the requirements of Item 11 of Table A.

4. Due to a historical lack of physical property monumentation throughout the downtown area we anticipate surveying a several block area to recover enough monumentation to reconstruct the boundary for the Capitol Complex Site Area.

5. Metes and bounds associated with the Boundary Survey will be written for the subject sites. The metes and bounds descriptions will contain one (1) part or parcel, will be accompanied by one (1) sketch, and will have one (1) seal and signature. There will be the following three (3) boundary descriptions:
    a. MLK Parking Lot at the southeast corner MLK Blvd and Congress Ave.
    b. Congress Parking Lot on the east side of Congress Ave, between 16th Street and 17th Street.
    c. Congress Avenue from MLK Blvd to 15th Street.

6. Write a Tech Memo for the Boundary Survey. This Tech Memo will include a written Surveyor's Report along with a Boundary Survey Map of the subject areas.

7. CobbFendley will provide mapping for permits customarily required for site and utility work in the form of exhibits. Each exhibit will include a metes and bounds description which will contain one (1) part or parcel, will be accompanied by one (1) sketch, and will have one (1) seal and signature. We assume the following exhibits will be needed for the Capitol Complex:

a. Two (2) License Agreement exhibit (tower crane)
b. Four (4) Encroachment Agreement exhibits
c. Eleven (11) Easement Vacation exhibits
d. Four (4) Tie-Back Easement exhibits
e. Two (2) Utility Tunnel Encroachment exhibits
f. Six (6) Utility Easement exhibits (water, electric, telecom, etc.)

8. CobbFendley will locate visible surface evidence of underground utilities, including, but not limited to SUE Level B paint markings, which includes depths of sanitary and storm manholes and pipe line sizes and directions. Overhead utilities will be located but not inventoried. Clearances and Sag of overhead lines will not be measured. The areas to be mapped are:
   a. MLK Blvd from Lavaca Street to Trinity Street
   b. 18th Street from Lavaca Street to Trinity Street
   c. 17th Street from Lavaca Street to Trinity Street
   d. 16th Street from Lavaca Street to Trinity Street
   e. 15th Street from Lavaca Street to Trinity Street
   f. 14th Street from Brazos Street to Trinity Street
   g. 13th Street from Brazos Street to Trinity Street
   h. Lavaca Street from MLK Blvd to 15th Street
   i. Colorado Street from MLK Blvd to 15th Street
   j. Congress Avenue from MLK Blvd to 15th Street
   k. Brazos Street from MLK Blvd to 14th Street
   l. San Jacinto Street from MLK Blvd to 13th Street
   m. Trinity Street from MLK Blvd to 13th Street
   n. MLK Parking Lot at the southeast corner MLK Blvd and Congress Ave
   o. Congress Parking Lot on the east side of Congress Ave, between 16th Street and 17th Street.
   p. Physical Plant Parking Lot at the southeast corner of 14th Street and San Jacinto
   q. Physical Plant courtyard (walled off area) at the southwest corner of 14th Street and San Jacinto

9. Underground tunnels will not be surveyed as a part of this task

10. CobbFendley will locate reference markers set for SUE Level A Test Holes. This includes forty-eight (48) test holes on the Capitol Complex.

11. CobbFendley will not locate Archeological sites as part of this task.

12. CobbFendley will provide mapping services for the Central Plant and Thermal Utilities efforts:
    a. Laser Scanning for the location of aboveground piping within the Capitol Complex Physical Plant area.
    b. Topographic survey for the TES site located at the southeast corner of 14th Street and San Jacinto. In general, elevations will be take on a 25 foot grid pattern and will include grade breaks, ditches and flowlines. The finished Floor elevations of existing buildings will be measured. The TES site extends from the centerline of the streets to 175 feet south and 175 feet east of both streets, respectively.

1. In general, elevations will be take on a 30 foot grid pattern and will include grade breaks, ditches and flowlines. The finished Floor elevations of existing buildings will be measured. The topographic survey will extend to the centerline of the bounded streets.
2. CobbFendley will be locate trees in accordance with the City of Austin, Land Development Code, Environmental Criteria Manual, Section 3 - Tree and Natural Area Preservation, Subsection 3.3.2.
3. CobbFendley will locate existing onsite improvements, including, but not limited to buildings, fences, drives, sidewalks, etc.
4. A DTM/TIN network will be prepared and provided based on the existing ground elevations.
5. Contours will be shown at one (1) foot intervals.
6. A plat of survey (Topographic Survey Map) will be prepared reflecting the results of the Topographic and Tree Survey and will be available in hard copy and electronic form.
7. The following flood certificate will be use on the survey:

   BY GRAPHIC PLOTTING ONLY, THIS PROPERTY IS IN ZONE AS DEFINED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY, FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. [ENTER PANEL NO.], THAT BEARS AN EFFECTIVE/REVISED DATE OF [ENTER DATE]. THE SURVEYOR MAKES NO ASSURANCE AS TO THE ACCURACY OF THE DELINEATIONS SHOWN ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP. THIS STATEMENT IS FOR INSURANCE PURPOSES ONLY AND IS NOT AN OPINION THAT THE PROPERTY WILL OR WILL NOT FLOOD. A FLOOD STUDY WAS NOT CONDUCTED ON THE PROPERTY.

8. The following surveyor's certificate will be used on the survey drawing:

   THIS IS TO CERTIFY THAT THIS SURVEY WAS MADE ON THE GROUND [FILL IN DATES OF ALL FIELD WORK], BY ME OR UNDER MY SUPERVISION, THAT THIS SURVEY PLAT REPRESENTS THE FACTS FOUND AT THE TIME OF THE SURVEY, AND THAT THIS SURVEY SUBSTANTIALLY COMPLIES WITH THE CURRENT TEXAS SOCIETY OF PROFESSIONAL LAND SURVEYORS STANDARDS AND SPECIFICATIONS FOR A CATEGORY 6, CONDITION II, TOPOGRAPHIC SURVEY.

Utilities
Cobb Fendley & Associates, Inc.

Utility coordination will be performed by the Master Architect team.

SUE Quality Levels A & B, will be provided in areas/locations as directed by the Master Architect.

Subsurface Utility Engineering (SUE) Services in accordance with ASCE 38-02 Standards includes:

A. Perform Quality Level B SUE for 16 city blocks, including preparation of Traffic Control Plans (TCPs) for required lane closures, ROWMAN permit submittals, coordination with the Utility Owner personnel for MH access, schedule coordination with TFC personnel for Capitol Complex building access, designating field work and CAD deliverables.

B. Perform up to forty-eight (48) Quality Level A Test Holes, including preparation of Traffic Control Plans (TCPs) for required lane closures, ROWMAN permit submittals, coordination with the Utility Owner personnel and City of Austin Inspectors, schedule coordination with TFC personnel, vacuum excavation field work and CAD deliverables.

C. Use electromagnetic locating equipment and ground penetrating radar to investigate the presence of subsurface utilities and anomalies in parking lot area on MLK Blvd. between Congress Ave. and Brazos St.

D. Prepare Final Existing Utility Layout for Capitol Complex.

ASSUMPTIONS

1. CobbFendley will provide SUE to generally accepted ASCE Quality Levels. For this part of the work, we will perform Quality Level B and Quality Level A services.
2. Scope area is that area approximately described as Phase 1 in the Master Plan. It is assumed this is sufficient to encompass the needs of Phase 1 and TFC buildings adjacent to Phase 1 work that may be effected.
3. TFC will provide permission and access to buildings and property within the scope area.
4. CobbFendley crews can typically investigate utility vaults from above ground. However crews have appropriate equipment to fulfil OSHA requirement 1910.268(o)(2) when entering manholes or unvented vaults. CobbFendley crews do not however enter buried power facilities.
5. "Designating" can be described as to mark and record the horizontal location of the existing tone-able utility facilities using non-destructive surface geophysical techniques. Tone-able utilities are typically utilities that are conductive or internally accessible with a traceable fish tape or sonde. Under ideal circumstances nonconductive buried lines can also be investigated successfully with Ground Penetrating Radar (GPR). Soil conditions in Texas are however generally not suitable for GPR. CobbFendley has had success using GPR for SUE work but non-conductive features can remain undetected.
6. We assume utility information is not confidential. Utility field markings and SUE drawings may show security information considered by the State government as confidential. It is the responsibility of the State to determine confidentiality of information.
7. Drafting work will be performed in AutoCAD.
8. CobbFendley will comply with regulations, and/or policies for the prevention of underground utility damage (i.e., one-call system). CobbFendley accepts no responsibility for damage to unmarked utilities.
9. CobbFendley accepts no responsibility for contaminated soils should they be encountered during excavation. CobbFendley does not take ownership of any excavated material.
10. Utility Design (dry and wet) is not included, but can be provided as an additional service.
11. CobbFendley will have access to proposed building site plans and building service tie-in points for coordination with Utility Providers for new service connections.

12. TFC will provide building/service requirement information requested by Utility Providers for new service connections.
13. Utility Coordination with AE and CMAR on new utility services is not included in this scope, but can be provided as an additional service.

Environmental and Cultural Resources
Cox|McLain Environmental Consulting, Inc. (CMEC)

A. CMEC will continue to review existing documents as needed.

B. Complete a Phase 1 Environmental Site Assessment per ASTM E1527:

In Part 1 Pre-Design Services, CMEC conducted the database search component of a Phase I ESA per ASTM E1527 requirements. A database search analysis was be conducted on a study area delineated as including Phase 1, Phase 2, and Phase 3 components of the Master Plan. Data collected for these areas was submitted in the Environmental Technical Memorandum for Part 1 scope. In Part 1, some components of the ASTM technical report were completed.

In Part 3, the full Phase I ASTM ESA will be completed for Phase 1 of the Master Plan. Moving forward specifically for Phase 1 of the Master Plan, interviews with property owners will be completed. CMEC assumes that deed research conducted by the survey team members would be provided to CMEC for incorporation into the Phase 1 ESA. Assuming no challenges with right of entry to outside areas, CMEC on-site investigations will be completed in this Part 3 phase and a complete Phase I ESA in the required ASTM format will be provided.

C. Follow Texas Historical Commission guidelines to conduct archival research to determine potential for existing archeology and/or historic buildings/structures impacts. Dependent on outcome of archival research, TFC may authorize SSE to perform additional investigations.

In Part 1, CMEC integrated data collected during the Phase I ESA background research (Sanborn fire insurance maps, historic aerial photographs, etc.) with additional archival information such as historic maps, previous cultural resources reports, Texas Historical Commission (THC) records, Texas Archeological Research Laboratory (TARL) records, National Register of Historic Places (NRHP) records, historical marker files, and historical background information presented in the TFC Master Plan. Per previous TFC-THC coordination in November 2015, these data were used to perform a preliminary evaluation of archeological/historic potential and make recommendations for further work, as appropriate (e.g., limited survey, geotech and/or construction monitoring, historic resources reconnaissance or intensive studies, etc.). Part 1 of the project included coordination letters to the THC (one to the Archeology Division, one to History Programs) but no formal reporting, Antiquities Permit coordination, or other detailed documentation.

In Part 3, based on findings from Part 1 and a meeting with Texas Historical Commission and Texas Facilities Commission, additional Intensive Archival Research is proposed for the parking lot opposite the Bob Bullock Museum and the lot to the west of the LBJ building. Additional research will be conducted to determine whether or not there is a high likelihood of occupation approximately within the time period of 1840 – 1890. The findings of this research will be included in an additional coordination letter to Texas Historical Commission to receive further direction. Based on meetings with THC, it is possible that construction phase monitoring or intensive archeological testing could be warranted at certain locations and for certain durations, but those tasks are not currently included in this Part 3 scope and fee (although placeholders are shown in the budget).

D. CMEC prepared a technical memo of the Part 1 Activities. Deliverables for Part 3 services will be a new THC letter with results of Intensive Archival research, and the Phase I ASTM Environmental Site Assessment.

ASSUMPTIONS

1. Meetings in Part 3 include the following for the Capitol Complex:
   - 2 internal team calls with the assumption that this phase will be no longer than a month
   - 1 additional meeting to discuss environmental deliverables, issues and concerns

2. Phase 1 Environmental Site Assessment services are not included for Master Plan Phase 2 or Phase 3 at this time.

3. CMEC assumes that deed research conducted by the survey team members would be provided to CMEC for incorporation into the Phase 1 ESA.

4. Cultural resources services proposed for Part 3 do not include any investigations for which a Texas Antiquities Permit would be required (survey, testing, monitoring of construction or geotechnical drilling, data recovery, etc.) – line items are included in the budget for construction phase monitoring and intensive survey should they be needed in the future; no hours are included for those tasks at this time

Geotechnical Engineering
Holt Engineering and Balcones Geotechnical

The purpose of the geotechnical investigation is to determine subsurface soil/rock and groundwater conditions at the sites and obtain samples for laboratory testing in order to provide recommendations for support of structural foundations, temporary and permanent excavation retention systems and shoring of the underground structures.

SCOPE OF SERVICES

The scope of our services will include:

1. A site reconnaissance of the project to assess rig accessibility. Holt will coordinate all boring locations and underground utilities (electrical, water, wastewater, sewer, telephone, and gas) with line locators.

2. Provide all necessary manpower, equipment and materials for drilling, logging and sampling 19 geotechnical borings. Per our meeting on 10/4/16 with TFC and the structural engineer, 9 borings will be drilled to 150 to 170 ft, 6 borings to 120 ft; 2 borings to 150 ft, and 4 borings 60 ft. At the request of TFC, we have also included 3 contingency borings to 170 ft. All bore holes will be auger drilled to rock and sampled using either Shelby tubes or split-spoon samplers in the overburden soils. We expect to encountered limestone rock within the top 10 feet of drilling. Once rock is encountered, a Christianson NXB wireline core barrel (with 1-7/8 inch diameter core) will be used to continuous core to termination of the borings.

3. The bore holes will be logged in the field by an experienced water well driller and/or senior technician to include visual classifications, percent core recovery, rock quality designation (RQD), depth to groundwater, features and discontinuities of rock cores, lithologic description, weathered and or decomposed zones, rock hardness, location of and amount of water loss during drilling and any unusual conditions. Cores will be placed in order of recovery in cardboard core boxes, properly marked and wrapped and transported to our in-house laboratory. The logging will be performed by Holt and Balcones, with standardized methods including preparation of final logs after laboratory testing is complete.

4. Depending on groundwater conditions, up to four temporary piezometers (monitor wells) will be installed after the boreholes are completed. The wells will consist of slotted PVC pipe sand packed to within 5 feet of the surface, a concrete/bentonite seal above the sand pack and a locking steel manhole cover at the surface. Future plugging of boreholes is not included in the scope. A fee proposal will be developed for monitor well abandonment if this service is required.

5. Groundwater monitoring will be conducted for 4 months after installation of the piezometers or until groundwater levels have stabilized.

6. Bore holes will be backfilled with bentonite grout or pellets from the bottom of the holes to the surface immediately after completion of the drilling.

7. In-house laboratory testing will be performed consisting of conventional geotechnical testing such as soil classifications, moisture contents, Atterberg limits, dry unit weights, grain size analyses, minus 200 sieves and unconfined compression tests. Holt will perform all laboratory testing with input as to types, number, and locations of testing by Balcones. Balcones will also review certain laboratory test results and procedures as part of the ongoing QA/QC program.

8. Preliminary recommendations will be developed and presented in summary reports for each of the four structures identified below in Table 1. These preliminary, or draft, reports will be issued sequentially for each of the four structures, as soon as enough information has been gathered on each of the structures of interest, but will likely be available about 3 to 4 weeks after the site investigation campaign begins for each structure.

9. Final Bridging Document Foundation Recommendations will be submitted in either a single report or four separate reports issued at the end of our investigation. The Final Report will include a generalized boring location plan, logs of borings with geologic formations, laboratory test results, description of drilling operations, well logs and groundwater levels. Balcones will take the lead on report preparation with significant input from Holt in preparation of the final record documents. The final Bridging Document Geotechnical Report(s) will include foundation recommendations (allowable bearing values, skin friction values, pier seating depths, minimum penetrations and pier construction considerations including casing and dewatering) for drilled shafts. The report will also include recommended equivalent fluid earth pressures for below grade wall design. In addition, we will provide recommended seismic site classification and OSHA soil classifications for use by contractor in design of contractor-provided retention systems. Further, we will provide a discussion of excavation potential. Finally, we will provide pavement thickness designs for pavement structures supported at grade.

Special Drilling Considerations

The project alignment is located in a highly trafficked downtown area. For these reasons, special drilling procedures listed below will be followed.

- We anticipate each deep boring (greater than 80 feet) to take between 2 to 5 days to complete. All borings in the parking lots will be cordoned off with barricades, signs, cones and caution tape. To provide for the drilling rig, support truck and working space, we anticipate the need for a 50 foot radius work space around the rig.
- Street cuts permits and traffic control will be used in COA streets. Traffic control will include signs, barricades, cones, caution tape and flaggers as necessary.
- Completed bore holes will be plugged immediately after drilling.
- All incomplete bore holes will be temporarily plugged and covered with a steel plate that will allow for vehicle travel at the end of each day's work (bore holes are approximately 4 inches in diameter).
- All boring sites will be swept clean and cuttings removed at the end of each day.

Site Geology and Anticipated Subsurface Conditions

Based on the pre-design desktop study of Austin area geological maps and several previous geotechnical investigations in the vicinity, we anticipate Austin limestone formation to be encountered during drilling at approximately 5 feet to 10 feet below grade and expect the formation to be roughly 72 feet thick. The Austin limestone is underlain by the Eagle Ford shale formation (roughly 43 feet thick) and the Buda limestone (roughly 42 feet thick). The Del Rio clay formation is found below the Buda at approximately 157 ft below grade.

Both the Eagle Ford and Del Rio formations are unfavorable for support of the foundations due to swell potentials and low bearing values. The Austin limestone and the Buda limestone have higher bearing values and are the most suitable for support of the structures. The Austin is ideal for foundation systems because it is reasonably shallow, it can support high column loads and is relatively easy to excavate. Of concern is the actual thickness of the Austin limestone. It would be favorable to have a pier supported foundation system seated into the Austin with the lowest pier seating depth well above the Eagle Ford contact (approximately 20 feet to 25 feet above the Austin limestone/Eagle Ford contact). If the lowest finished floor elevation of the structure is approximately 50 feet below existing grade, it may be necessary to extend piers through the Eagle Ford and into the Buda limestone. In order to evaluate the Buda limestone, borings will need to be extended through the formation in order to obtain samples for laboratory testing and to determine the thickness of the formation. For these reasons, we estimate drilling depths to range from approximately 120 feet to 170 feet deep depending on drilled shaft loading provided by the structural engineer prior to beginning of drilling.

Groundwater can be found at the interface of the overburden soils and limestone rock and migrating through the fractures and seams within the limestone stratum. The amount of groundwater encountered will be highly dependent on rainfall amounts in the weeks and months prior to drilling. We have proposed to install four temporary piezometers in order to better define static groundwater levels for both temporary and permanent dewatering systems.

Below is a Table of Borings and depths presented in Table 1 below as requested by the Owner. A Generalized Boring Location Plan is also attached.

Table 1 - Proposed Boring Locations and Depths

Location	Boring No.'s	Proposed Depths
Building 1	B-2, B-3, B-05, B- 7, B-8	5 Holes at 150 Ft. to 170 Ft. each
Building 2	B-11, B-12, B-14, B- 15	4 Holes at 150 Ft. to 170 Ft. each
Mall Connector Tunnel	B-01, B-9, B-04, B-06, B-10, B- 13,	2 Holes 150 Ft. each 4 Holes to 120 Ft. each
CCPPA	B-16, B-17, B-18, B- 19	4 Holes 60 Ft. each
Contingency Borings	B-20, B-21 and B- 22	3 Holes 150 ft. to 170 ft.

In house QA/QC reviews will be conducted by both Holt and Balcones during all phases of the work and on all our deliverables provided. A senior geotechnical engineer or principal engineer will conduct the review and recommend each submittal to the design team.

Based on the above scope of work outlined for the Part 3 Site Investigation, our services will be billed monthly, based on the percentage of work completed. It should be noted, this scope and fee is based on our current understanding of the project; a re-evaluation of the cost estimate will be necessary to adjust for scope changes or if conditions differ from those anticipated. Actual boring locations have not been field located and it should be noted that some adjustment to locations will be necessary.

For budget estimating purposes the estimated unit cost per boring and associated depth is listed below:

Boring Depth	Cost/Boring
170 Ft.	$33,453.60
150 Ft.	$29,517.00
120 Ft.	$23,614.00
60 Ft.	$11,807.00

For budget purposes the estimated unit cost for installing a monitor well 60 feet deep is $7,155.00.

ASSUMPTIONS

The attached cost estimate is based on the following:

1. Drilling to be performed Monday through Friday from approximately 7 am to 4 pm. Costs for nights or week-end drilling are not included.
2. All work necessary to provide the preliminary and final reports for bridging documents only.
3. Right of entry if necessary, will be provided by others.
4. Boring location coordinates and elevations will be obtained using hand held GPS equipment.
5. Field operations will be performed sequentially, not concurrently.
6. The attached cost estimate will change based on changes or alterations to the scope of service.

   We will execute the site investigation and report within a period of 6 months from the time we are authorized to proceed without having to wait for input from any other members of the design and construction team.
7. Budgets provided herein may be moved between the various work elements to accommodate the overall project budget. In addition, engineering hours may shift between the various tasks as needed to complete the scope of work as project demands dictate.
8. Costs for any environmental investigations for contaminated soils such as hydrocarbons TPH, BTEX, MTBE, heavy metals, pesticides or other hazardous wastes are not included. Environmental drilling requires a more stringent protocol to include steam cleaning of augers, drumming of cuttings and disposal of cuttings. Costs for environmental drilling are not included in our estimate.

FURTHER CLARIFICATIONS

The engineering scope provided by Balcones and Holt will be limited as indicated in the items that follow, and assuming that our efforts will be completed within a time frame of 6 months after notice to proceed, generally between January and June of 2017. These efforts will be directed at providing adequate recommendations to allow the Master A/E and their structural engineer (Haynes Whaley) to advance their design through the conceptual or bridging phase. Additional geotechnical consulting services that may occur after that time would be considered additional services.

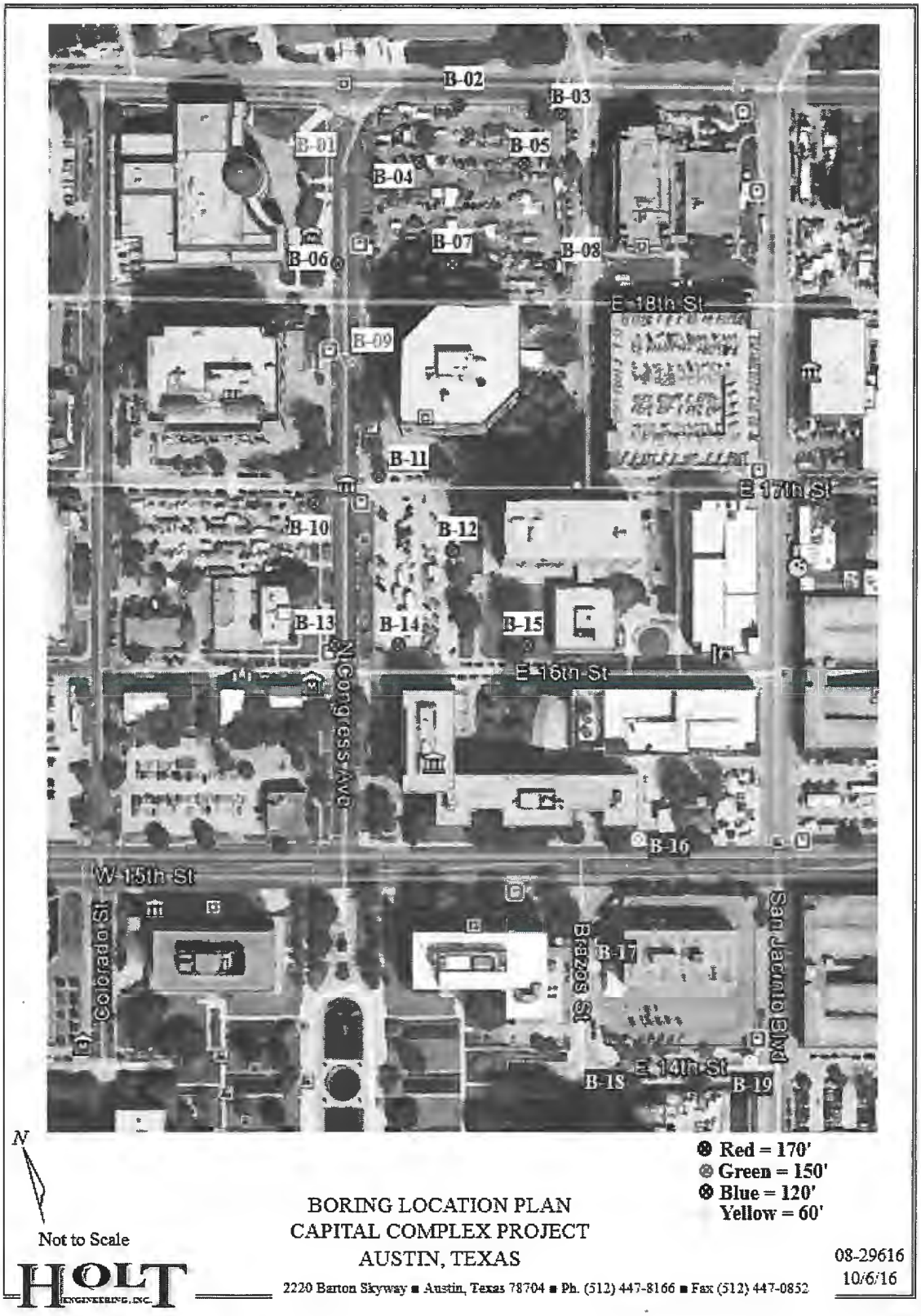
1. Balcones to make one site visit during drilling activities to review drilling and sampling protocol.
2. Balcones will review lab testing assignments and test results as produced.
3. Balcones will review draft boring logs and assist with editing of boring logs.

4. Balcones and Holt engineers will meet at least twice to discuss progress and preliminary recommendations.
5. Holt and Balcones will meet twice with CFA to discuss preliminary recommendations.
6. Holt and Balcones will prepare status reports of drilling and laboratory testing progress at reasonable intervals of about one or two per month.
7. Holt and Balcones will alternate at monthly meetings with TFC (3 max by each firm).
8. Develop subsurface geology for site.
9. Recommendation for Seismic Site Classification.
10. Prediction of occurrence of groundwater and its impact on design/construction.
11. Preliminary drilled shaft recommendations including allowable end bearing, allowable skin friction and settlement estimates.
12. Preliminary recommendations for spread and strip footing bearing pressures for consideration by structural team.
13. Preliminary recommendations for equivalent fluid pressures for wall design for at rest and active conditions, and discussion of groundwater impact on wall and ground floor design and requirements of perimeter and subfloor drainage.
14. Recommended OSHA Soil (Rock) classifications for excavation stability.
15. General discussion of excavation potential (rippability) of subsurface materials.
16. Pavement thickness design for parking and drive areas supported at grade.
17. Q/A of all preliminary and final recommendations by principal level individuals at Holt and Balcones.
18. We understand that the Master A/E Design Team requires us to release a preliminary report early in our work effort so a preliminary design may be advanced by their structural engineer. At this time, we envision a preliminary report for each building/structure identified in Table 1 above. We will release these as soon as borings are completed for each respective structure and we have enough information to make early findings available. We also will issue a final Bridging Geotechnical Report for each structure, unless we decide to consolidate all structures into a single report due to uniformity. These Final Bridging Geotechnical Reports will be issued after additional input from the Master A/E Structural Engineer is factored into our efforts. This will occur 6 months after we begin our site investigation efforts.

PIER INSPECTION

As requested by the owner we are providing a cost estimate, for budget purposes, only for pier observation oversite by Holt Engineering over a construction period of 6 months. The estimated total cost of the inspection will be on the order of $131,769.00. This cost does not include concrete testing such as compression test cylinders, slump tests, air content, etc. This cost is based on a full time engineering technician with supervision by the project geotechnical engineer and limited oversite by the principal geotechnical engineer. The unit costs for the engineering and technician time is listed below:

Principal Engineer	$215.00/Hr.
Senior Project Engineer	$189.00/Hr.
Senior Engineering Tech	$85.00/Hr.
Senior Engineering Tech Overtime Rate	$127.50/Hr.



BORING LOCATION PLAN
CAPITAL COMPLEX PROJECT
AUSTIN, TEXAS

08-29616
10/6/16

HOLT ENGINEERING, INC.
2220 Barton Skyway ■ Austin, Texas 78704 ■ Ph. (512) 447-8166 ■ Fax (512) 447-0852

City of Austin Permitting and Street Vacation Support
MWM Design Group

A. Work with TFC to negotiate a Memorandum of Understanding with the City of Austin to process the proposed street vacation.
B. Work with TFC to acquire the necessary documentation and agreements from the private property owner on Congress Avenue that are impacted by the street vacation.
C. Provide consulting services for the application process for the proposed street vacation.
    1. AULCC processing
    2. Application packet preparation and submittal
    3. Attendance at boards and commissions
D. Begin applications for the tower crane and tie back retention system license agreements.
E. Attend meetings and provide consultation regarding permitting needs and strategies.

ASSUMPTIONS

1. Appraisals, exhibits and surveys for all agreements and permitting are completed by others.
2. The only encroachment agreement for the Capitol Complex is for the Utility Tunnel that crosses 15th street. If the location changes, there may be additional encroachment agreements required.
3. The Capitol Complex garage will not encroach under any other right of way other than what is being vacated on Congress. If the Garage does extend under other streets (i.e., 16th Street, or even out into 18th Street) then the city will require additional encroachment agreements that will require additional effort.

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ATTACHMENT 2.B – Scope of Services for North Austin Complex (NAC)

Management
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CobbFendley will provide the project management for the Site Services Engineer (SSE) team providing survey, utilities, traffic impact analysis, environmental, and geotech support. The specific scope for each services at the North Austin Complex (NAC) is included in the following pages.

ASSUMPTIONS

A. SSE Project Management support will be for a 12 month duration.

B. Management and Administration of SSE team (208 hrs between PM and admin support).

C. Meetings in Part 3 include the following for the Capitol Complex:

1. Phase 3 internal project setup and kick off meetings (26 hours total for the team).
2. Monthly Status meetings with the team – up to 12 two hour meetings (includes preparations, agenda, attendance and minute development and posting – 300 hours between the PM, supporting engineer and secretarial admin).
3. Technical meetings with the A/E Design Lead, CMAR, sub consultant, etc. Includes one technical expert per meeting (12 meetings that have 120 hours between the PM and technical support, with prep and minutes).

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Survey
Cobb Fendley & Associates, Inc.

A. Provide mapping for soil investigations and geotechnical assessments to facilitate the submission of preliminary and final reports and recommendations from Geotechnical Engineer.
B. Provide an ALTA survey including metes and bounds, all existing utilities, existing structures and easements.
C. Provide mapping for Level B SUE efforts.
D. Provide mapping for Level A SUE efforts.

ASSUMPTIONS

1. CobbFendley will complete the fieldwork and final mapping for the Boundary Survey in accordance with the 2016 Minimum Standard Detail Requirements for an ALTA/NSPS Land Title Survey, and includes Items 1, 2, 3, 4, 5, 7a, 8, 9, 11, 13, 14, 16, and 19 of Table A. During Part 1, only the research portion of the boundary survey was performed. Part 3 entails the field recovery of property monuments, performing boundary analysis, reconciling the record boundary with field evidence to identify boundary line discrepancies, determining boundary line locations, preparing final boundary survey mapping in accordance with the Texas Board of Professional Land Surveying (TBPLS) and ALTA/NSPS Standards, and checking final survey closures and the accuracy of final drawings. Appendix 2-1 contains the 2016 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys.

2. It is assumed that CobbFendley will use the information collected during the Topographic Survey produced in Part 1 to satisfy the requirements for Items 5, 7a, 8, and 9 of Table A.

3. It is assumed that CobbFendley will use the information collected during the Level B SUE efforts in Part 3 to satisfy the requirements of Item 11 of Table A.

4. Metes and bounds associated with the Boundary Survey will be written for the subject site. Each metes and bounds description will contain one (1) part or parcel, will be accompanied by one (1) sketch, and will have one (1) seal and signature.

5. One (1) overall boundary description will be written.

6. Write a Tech Memo for the Boundary Survey. This Tech Memo will include a written Surveyor's Report along with a Boundary Survey Map of the subject areas.

7. CobbFendley will perform a topographic field survey in areas not originally included in Part 1 survey to determine the existing elevations in the area along and across North Lamar Blvd where a pedestrian sky-walkway will be constructed, and the area between Guadalupe Street, West Guadalupe Street, and East 46th

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Street where the detention pond will be modified and improved. In general, elevations will be take on a 50 foot grid pattern and will include grade breaks, ditches and flowlines. The topographic survey will extend to the centerline of the bounded streets.

8. CobbFendley will be locate trees in accordance with the City of Austin, Land Development Code, Environmental Criteria Manual, Section 3 - Tree and Natural Area Preservation, Subsection 3.3.2.

9. A DTM/TIN network will be prepared and provided based on the existing ground elevations.

10. Contours will be shown at one (1) foot intervals.

11. A plat of survey (Topographic Survey Map) will be prepared reflecting the results of the Topographic and Tree Survey and will be available in hard copy and electronic form.

12. The following flood certificate will be use on the survey:

    BY GRAPHIC PLOTTING ONLY, THIS PROPERTY IS IN ZONE AS DEFINED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY, FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. [ENTER PANEL NO.], THAT BEARS AN EFFECTIVE/REVISED DATE OF [ENTER DATE]. THE SURVEYOR MAKES NO ASSURANCE AS TO THE ACCURACY OF THE DELINEATIONS SHOWN ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP. THIS STATEMENT IS FOR INSURANCE PURPOSES ONLY AND IS NOT AN OPINION THAT THE PROPERTY WILL OR WILL NOT FLOOD. A FLOOD STUDY WAS NOT CONDUCTED ON THE PROPERTY:

13. The following surveyor's certificate will be used on the survey drawing:

    THIS IS TO CERTIFY THAT THIS SURVEY WAS MADE ON THE GROUND [FILL IN DATES OF ALL FIELD WORK], BY ME OR UNDER MY SUPERVISION, THAT THIS SURVEY PLAT REPRESENTS THE FACTS FOUND AT THE TIME OF THE SURVEY, AND THAT THIS SURVEY SUBSTANTIALLY COMPLIES WITH THE CURRENT TEXAS SOCIETY OF PROFESSIONAL LAND SURVEYORS STANDARDS AND SPECIFICATIONS FOR A CATEGORY 6, CONDITION II, TOPOGRAPHIC SURVEY.

14. The Topographic Survey Map, Project Control Index Sheets, and Primary Control Sheets will serve as the Tech Memo for the Topographic Survey.

15. CobbFendley will locate visible surface evidence of underground utilities, including, but not limited to SUE Level B paint markings, which includes depths of sanitary and storm manholes and pipe line sizes and directions. Overhead utilities will be located but not inventoried. Clearances and Sag of overhead lines will not be measured. The areas to be mapped for utilities are the areas bounded by 51st Street, W. Guadalupe Street, Guadalupe Street, and N. Lamar Blvd.

16. CobbFendley will locate reference markers set for SUE Level A Test Holes. This includes ten (10) test holes on the North Austin Complex.

17. CobbFendley will not locate Archeological sites as part of this task.

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Utilities
Cobb Fendley & Associates, Inc.

Utility Site Visits and a detailed field investigation, including SUE Quality Levels A & B, are recommended to enhance the accuracy of the utility as-built data gathered to date. The recommended Level B Field Locates would fall within the Complex. This area would encompass existing utilities that may be impacted by the upcoming Phase 1 projects. Gathering this level of detailed utility investigation early in the design phase will allow more opportunity to avoid utility conflicts, where possible, better coordination for utility service connection points, better identification of potential utility challenges, and streamlined design by utility providers for new utility services. Level A Test Holes would be reserved for critical utility crossings where exact depth and location are needed to confirm conflict status.

Continued coordination with individual Utility Owners throughout each phase of the North Austin Complex Master Plan Development will also instrumental in successful project implementation. Having a dedicated point of contact working with the TFC, A/E Design Team, the CMAR and Utility Owners will eliminate confusion on overall project schedule and needs, maintain a consistent line of communication, and keep the focus on utility solutions and service delivery needs. This will require direct coordination throughout the phased construction and can include identifying and coordinating conflict areas, preparing conceptual relocation routes, assisting with new service requirements and coordinating connection to each building's point of service.

Participation in the City of Austin's Utility Location and Coordination Committee during the preliminary planning phase is highly encouraged to present the overall North Austin Complex Master Plan to all Utility Owners in the immediate area and ensure they are aware of the proposed improvements planned for the downtown area. This will create a "placeholder" with the City of Austin so as new utility infrastructure projects are permitted, it will minimize additional utility installations in areas where the TFC is proposing new facilities. This will also allow utilities time to plan for any relocations or new utility service requests.

Identification of all required permits for new utility service work is also key for successful project planning. Having a thorough understanding of what is required by each respective utility type for new service, what type of design permits are required, what type of right-of-way permits are required for utility construction, and what types of building or tap permits are required for new utility service will allow the project team to better plan and schedule permit requests to keep the building construction on schedule.

Utility Coordination Services:

A. Utilize Existing Utility Layout and identify conflicts with existing utility facilities that will be impacted with the Phased Construction.
B. Facilitate and participate in AULCC Meeting for North Austin Complex.
C. Coordinate with existing Utility Owners on conflict locations for Phased Construction; identify and assist with relocation alignments.
D. Identify all permits customarily required for site and utility work.

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Subsurface Utility Engineering (SUE) Services in accordance with ASCE 38-02 Standards:

A. Perform Quality Level B SUE for North Austin Complex TFC property and bordering streets, including preparation of Traffic Control Plans (TCPs) for required lane closures, ROWMAN permit submittals, coordination with the Utility Owner personnel for MH access, schedule coordination with TFC personnel for North Austin Complex building access, designating field work and CAD deliverables.

B. Perform up to ten (10) Quality Level A Test Holes, including preparation of Traffic Control Plans (TCPs) for required lane closures, ROWMAN permit submittals, coordination with the Utility Owner personnel and City of Austin Inspectors, schedule coordination with TFC personnel, vacuum excavation field work and CAD deliverables.

C. Prepare final Existing Utility Layout for North Austin Complex.

ASSUMPTIONS

1. CobbFendley will provide SUE to generally accepted ASCE Quality Levels. For this part of the work, we will perform Quality Level B and Quality Level A services.
2. Scope area is approximately described as that encompassed by: Guadalupe St., West Guadalupe St., North Lamar and West 51st Street. It is assumed this is sufficient to encompass the needs of Phase 1 and TFC buildings adjacent to Phase 1 work that may be effected.
3. TFC will provide permission and access to buildings and property within the scope area.
4. CobbFendley crews can typically investigate utility vaults from above ground. However crews have appropriate equipment to fulfil OSHA requirement 1910.268(o)(2) when entering manholes or unvented vaults. CobbFendley crews do not however enter buried power facilities.
5. "Designating" can be described as to mark and record the horizontal location of the existing tone-able utility facilities using non-destructive surface geophysical techniques. Tone-able utilities are typically utilities that are conductive or internally accessible with a traceable fish tape or sonde. Under ideal circumstances nonconductive buried lines can also be investigated successfully with Ground Penetrating Radar (GPR). Soil conditions in Texas are however generally not suitable for GPR. CobbFendley has had success using GPR for SUE work but non-conductive features can remain undetected.
6. We assume utility information is not confidential. Utility field markings and SUE drawings may show security information considered by the State government as confidential. It is the responsibility of the State to determine confidentiality of information. Drafting work will be performed in AutoCAD.
7. CobbFendley will comply with regulations, and/or policies for the prevention of underground utility damage (i.e., one-call system). CobbFendley accepts no responsibility for damage to unmarked utilities.
8. CobbFendley accepts no responsibility for contaminated soils should they be encountered during excavation. CobbFendley does not take ownership of any excavated material.
9. Utility Design (dry and wet) is not included, but can be provided as an additional service.
10. CobbFendley will have access to proposed building site plans and building service tie-in points for coordination with Utility Providers for new service connections.
11. TFC will provide building/service requirement information requested by Utility Providers for new service connections.
12. Utility Coordination with AE and CMAR on new utility services is not included in this scope, but can be provided as an additional service.

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Traffic Impact Analysis (TIA)
Cobb Fendley & Associates, Inc.

Task 1- Preliminary Meeting (City of Austin)

Hold a preliminary meeting with the city of Austin is to discuss the scope of the TIA and the requirements for TIA content and format. Note that this outlined scope of work (below) is preliminary and subject to change based on input from the city of Austin.

The scoping meeting with the city of Austin will include a completed copy of the TIA determination worksheet and an outline (shown below) of items to be evaluated.

1. **Intersections.** Level of Service calculations for a.m. and p.m. peak hours must be performed for the following intersections, showing (a) existing traffic conditions and (b) projected traffic conditions, identifying site, non-site, and total traffic:

    a. Two driveway access points along West 51st Street
    b. Four driveway access points along Guadalupe Street
    c. One driveway access point along East 46th Street
    d. North Lamar Blvd at West Guadalupe Street
    e. North Lamar Blvd at West 45th Street
    f. Guadalupe Street at West 45th Street
    g. Guadalupe Street at West 51st Street
    h. North Lamar Blvd at West 51st Street
    i. Guadalupe Street at East 46th Street
    j. North Lamar Blvd at West Koenig Lane (RM 2222)
    k. North Lamar Blvd at North Loop Blvd
    l. Guadalupe Street at North loop Blvd
    m. North Lamar Blvd at West 38th Street
    n. Guadalupe Street at West 38th Street

    Note: Existing signal timings shall be used for the intersection analyses in order to maintain adequate traffic progression, unless alternative timing proposals are approved by the Department of Public Works and Transportation. Data collection will be performed when school is in session.

2. **Roadways.** A capacity analysis must be performed for the following roadway segments.
    a. An evaluation of the existing arterial level of service will be performed for the existing, year 2020 build (phase 1), year 2020 no-build (base condition).
    b. 24 hour counts will be obtained along the following corridors in the vicinity of the proposed site development.
        - West 45th Street
        - West Guadalupe Street
        - North Lamar Blvd
        - West 51st Street
        - Guadalupe Street

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3. **Neighborhood Impacts.** Neighborhood impacts must be evaluated for the following street segments, based upon the desirable operation levels described in Sec. 25-6-114 of the Land Development Code. No appreciable Neighborhood Impacts are anticipated.
4. **Data Assumptions.** The following assumptions must be included in the analysis. Any change in these assumptions must be approved by the transportation planner prior to submittal of the TIA.

    a. Background Traffic – Traffic growth for projected year conditions will be based on the growth rates determined in the travel demand model maintained by CAMPO, and from area TxDOT planning maps (projected volumes).
    b. Analysis periods – The AM and PM peak of the adjacent street will be performed for the average weekday and average Saturday condition.
        - Average weekday period – AM Peak is from 7am to 9am.
        - Average weekday period – PM Peak is from 4pm to 6pm.
    c. Other Projects - To be determined. Limited to information from three additional studies to be incorporated into our report.
    d. Internal trips ~ To be determined based on ITE Trip Generation Report, 9th Edition. If applicable.
    e. Pass-by trips ~ To be based upon data provided in ITE Trip Generation, 9th Edition. If applicable.
    f. Transit Trips ~ To be determined. Any transit trips to be included in this analysis will be based on existing bus routes and available ridership estimates. If applicable.
    g. Trip Generation will be based on Single Tenant Office Building (ITE Code 715).

5. **Other Considerations:**

    Phasing – The proposed development will consist of two phases:
    - Phase one with a 2020 build year for analysis.
    - Phase two FUTURE CONDITION. This will be addressed in an addendum to the traffic impact study pending approval for funding and a definitive construction schedule.

    Phase three would be to include the long range plan. Given that the schedule for Phase 3 buildings is not known at this time, this phase is not included in this effort. Phase three will not be addressed in this TIA. Phase three will be evaluated as a separate TIA once the estimated build year becomes defined.

Task 2 - Data Collection

Approach counts will be performed for 24 hours (12:00am to 12:00am on a Tuesday, Wednesday or Thursday) for the following locations:

- West 45th Street
- West Guadalupe Street
- North Lamar Blvd
- West 51st Street
- Guadalupe Street

AM and PM Peak Period Turning movement Counts:

- Two driveway access points along West 51st Street
- Four driveway access points along Guadalupe Street
- One driveway access point along East 46th Street

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- North Lamar Blvd at West Guadalupe Street
- North Lamar Blvd at West 45th Street
- Guadalupe Street at West 45th Street
- Guadalupe Street at West 51st Street
- North Lamar Blvd at West 51st Street
- Guadalupe Street at East 46th Street
- North Lamar Blvd at West Koenig Lane (RM 2222)
- North Lamar Blvd at North Loop Blvd
- Guadalupe Street at North loop Blvd
- North Lamar Blvd at West 38th Street
- Guadalupe Street at West 38th Street

Task 3 - Trip Generation and Trip Distribution

A trip generation analysis will be performed for the proposed site. The trips will be distributed based upon existing development and existing operational conditions. This analysis will be based on development of the project as defined by the owner. Assumptions are as follows:

a. The vehicle trip estimates will be developed for the peak hour of the adjacent street traffic and based on the latest edition of the ITE Trip Generation Manual.

b. A site distribution map will be generated and included in the report to show the estimated percent distribution of the vehicular traffic for ingress and egress at site points of access. Trip Distribution assumptions will be referenced in the report. It will be based on available information such as a market study, subarea transportation study or a travel demand estimation. Since this is a proposed expansion of an existing site, existing trip distribution may be obtained and applied for the proposed site expansion. Proposed methods of trip distribution will be discussed with the city of Austin staff at the preliminary scoping meeting (Task 1).

Task 4 - Traffic Engineering Analysis

Level of service for roadways and intersections will be calculated for the before and after operations conditions. This will include:

a. Existing condition
b. Year 2020 (Phase 1) base condition without development traffic
c. Year 2020 (Phase 1) with traffic from the proposed development

The traffic analysis will be performed using the Highway Capacity Software and Synchro which use the Highway Capacity Manual (2010 edition) mythology for the determination of Level of Service (LOS) and delay.

Task 5 - Traffic Impact Analysis Report

A traffic impact analysis report will be developed to document the findings of the capacity and level of service analysis. The report will include all assumptions, trip generation, trip distribution and existing and projected condition operations as well as. If it is determined that future condition operations are unacceptable as a result of the proposed development, then the report will also include recommendations for mitigation.

All analysis will be performed in accordance with the Texas Manual on Uniform Traffic Control Devices, the Highway Capacity Manual, Institute of Transportation Engineers (ITE) Trip Generation Manual, City of Austin Guidelines and Standards.

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The report will include the following:

a. Executive Summary
b. Table of Contents
c. Introduction
d. Study Area
e. Analysis
f. Conclusions / Recommendations
    - Lane additions (right turn or left turn lanes)
    - Sight Distance Improvements
    - Geometric Improvements
    - Traffic signal installation
    - Traffic signal upgrades
    - Restricted turns
    - Channelized islands
    - Alternative Modes and Demand Management Options
g. References

Report will include maps and diagrams for site location, proposed site plan, traffic counts, estimated trips for each driveway, existing volumes, roadway/intersection volumes with proposed site traffic added, and future volumes (no build) and future volumes with proposed site traffic (Phase 1 Only).

Deliverable:
The deliverable shall consist of the twenty copies of the report. This will be 5 copies of the TIA report at the time that the development application is submitted. Fifteen additional copies will be provided for planning commission and other review boards with the City.

Task 6 – Overall Site Traffic Engineering Due Diligence
An evaluation of site impacts will be performed for all three phases with basic assumptions on the build year based on input from the owner. This will include findings from the TIA for phase one and traffic generated projections for phase two and three. The goal of the due diligence phase is to establish an overall estimate of traffic that will be generated by the site, potential impacts to area corridors and potential mitigation required to maintain safety and mobility in and around the proposed site.

An evaluation of proposed improvements in the area will be included. This will outline scheduled and potential corridor improvements (including estimated build year). An evaluation of impacts of each improvement on the proposed development will be outlined. Improvements associated with the City of Austin street bond program and future TxDOT improvements outlined in the CAMPO Transportation Improvement Program and Regional Transportation Plan will be outlined and considered in the evaluation.

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Environmental and Cultural Resources
Cox|McLain Environmental Consulting, Inc. (CMEC)

A. CMEC will continue to review existing documents as needed.

B. Complete a Phase 1 Environmental Site Assessment per ASTM E1527:

In Part 1 Pre-Design Services, CMEC conducted the database search component of a Phase I ESA per ASTM E1527 requirements. A database search analysis was be conducted on a study area delineated as including all Phases of the Master Plan at the North Austin complex. Data collected for these areas was submitted in the Environmental Technical Memorandum for Part 1 scope. In Part 1, some components of the ASTM technical report were completed.

In Part 3, the full Phase I ASTM ESA will be completed for the North Austin complex for Master Plan phases shown on project maps (within the triangular boundary of the Winters complex). Interviews with property owners will be completed. CMEC assumes that deed research conducted by the survey team members would be provided to CMEC for incorporation into the Phase 1 ESA. Assuming no challenges with right of entry to outside areas, CMEC on-site investigations will be completed in this Part 3 phase and a complete Phase I ESA in the required ASTM format will be provided.

C. Follow Texas Historical Commission guidelines to conduct archival research to determine potential for existing archeology and/or historic buildings/structures impacts. Dependent on outcome of archival research, TFC may authorize SSE to perform additional investigations.

In Part 1, CMEC integrated data collected during the Phase I ESA background research (Sanborn fire insurance maps, historic aerial photographs, etc.) with additional archival information such as historic maps, previous cultural resources reports, Texas Historical Commission (THC) records, Texas Archeological Research Laboratory (TARL) records, National Register of Historic Places (NRHP) records, historical marker files, and historical background information presented in the TFC Master Plan. Per previous TFC-THC coordination in November 2015, these data were used to perform a preliminary evaluation of archeological/historic potential and make recommendations for further work, as appropriate (e.g., limited survey, geotech and/or construction monitoring, historic resources reconnaissance or intensive studies, etc.). This stage of the project included coordination letters to the THC (one to the Archeology Division, one to History Programs) but no formal reporting, Antiquities Permit coordination, or other detailed documentation.

Based on a meeting with Texas Historical Commission and Texas Facilities Commission, it was determined that TFC does not wish to add additional services for compliance with federal regulations applicable to historic properties (Section 106-compliant Historic Resources Survey Report for an Area of Potential Effect that would include indirect impacts). Based on the findings of the archeological investigation, pre-construction survey was not recommended due to the level of past disturbance and also due to the network of existing utility lines.

Therefore, no additional cultural resources services are proposed for Part 3 other than continuing communications to ensure that cultural resources staff are informed about any changes in design that could require an updated letter to Texas Historical Commission.

D. CMEC prepared a technical memo of the Part 1 Activities. Deliverables for the North Complex for Part 3 include the Phase I Environmental Site Assessment and meeting notes for any questions that arise about cultural resources concerns.

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ASSUMPTIONS

1. Meetings in Part 3 include the following for both the North Austin Complexes:
    1. 2 internal team calls with the assumption that this phase will be no longer than a month
    2. 1 additional meeting to discuss environmental deliverables, issues and concerns

2. CMEC assumes that deed research conducted by the survey team members would be provided to CMEC for incorporation into the Phase 1 ESA.

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Geotechnical Engineering
Holt Engineering and Balcones Geotechnical

The purpose of the geotechnical investigation is to determine subsurface soil/rock and groundwater conditions at the sites and obtain samples for laboratory testing in order to provide recommendations for support of structural foundations.

SCOPE OF SERVICES

The scope of our services will include:

1. A site reconnaissance of the project to assess rig accessibility. Holt will coordinate all boring locations and underground utilities (electrical, water, wastewater, sewer, telephone, and gas) with line locators.
2. Provide all necessary manpower, equipment and materials for drilling, logging and sampling 7 geotechnical borings to depths of 100 feet to 115 each and one pavement boring to 10 feet (see attached Generalized Boring Location Plan). It should be noted if unusual soil/rock conditions are found additional borings may be needed or boring depths may need to be extended. We have not included a cost for these contingency borings. All bore holes will be auger drilled to rock and sampled using either Shelby tubes or split-spoon samplers in the overburden soils. We expect to encounter limestone rock at approximately 40 feet below existing grade. Once rock is encountered, a Christianson NXB wireline core barrel (with 1-7/8 inch diameter core) will be used to continuous core to termination of the borings.
3. The bore holes will be logged in the field by an experienced water well driller and/or senior engineering technician to include visual classifications, percent core recovery, rock quality designation (RQD), depth to groundwater, features and discontinuities of rock cores, lithologic description, weathered and/or decomposed zones, rock hardness, location and amount of water loss during drilling and any unusual conditions. Cores will be placed in order of recovery in cardboard core boxes, properly marked and wrapped and transported to our in-house laboratory.
4. Depending on groundwater conditions, one temporary piezometer (monitor wells) may be installed to a depth of 60 to 65 feet after the bore holes are completed. The well will consist of slotted PVC pipe with sand pack to within 5 feet of the surface, a concrete/bentonite seal above the sand pack and a locking steel manhole cover at the surface. A fee proposal will be developed for monitor well abandonment if this service is required.
5. Groundwater monitoring will be conducted for 4 months after installation of the piezometers or until groundwater levels have stabilized.
6. Bore holes without piezometers will be backfilled with bentonite grout or pellets from the bottom of the holes to the surface immediately after completion of the drilling.
7. In-house laboratory testing will be performed consisting of conventional geotechnical testing such as soil classifications, moisture contents, Atterberg limits, dry unit weights, grain size analyses, minus 200 sieves, unconfined compression tests, and consolidation tests, if deemed necessary.
8. A single Final Geotechnical Investigation Report will be submitted containing Final Foundation Recommendations. The Final Report will include a generalized boring location plan, logs of borings with geologic formations, laboratory test results, description of drilling operations, well logs and groundwater levels. Foundation recommendations will be provided to include allowable bearing values, skin friction values, pier seating depths, minimum penetrations and pier construction considerations.

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Special Drilling Considerations

The project is located in a highly visible area. For these reasons, special drilling procedures listed below will be followed.

1. All borings in the parking lots will be cordoned off with barricades, signs, cones and caution tape. To provide for the drilling rig, support truck and working space, we anticipate the need for a 50 foot radius work space around the rig. Parking Garage borings will be drilled on week-ends or after hours.
2. Completed bore holes will be plugged immediately after drilling if not converted to a piezometer.
3. All incomplete bore holes will be temporarily plugged and covered with a steel plate.
4. All boring sites will be swept clean and cuttings removed at the end of each day.

Proposed borings and depths for this geotechnical investigation are presented in Table 1 below. A Generalized Boring Location Plan is also attached.

Table 1 - Proposed Boring Locations and Depths

Location	Boring No.'s	Proposed Depths
Building A	B-1, B-2, B-3, B-4,	100 feet
Parking Garage	B-5, B-6, B-7	115 - 120 feet
Pavement Design	B-8	10 Feet (Location to be determined)
Elevated Walkway Over Lamar Blvd.	---	No borings Included

Note: We anticipate borings to take approximately 17 days to complete.

In house QA/QC reviews will be conducted by both Holt and Balcones during all phases of the work and on all our deliverables provided. A senior geotechnical engineer or principal engineer will conduct the review and recommend each submittal to the design team.

Based on the above scope of work outlined for the Part 3 Site Investigation, our services will be billed monthly, based on the percentage of work completed. It should be noted, this proposal is based on our current understanding of the project; a re-evaluation of the cost estimate will be necessary to adjust for scope changes or if conditions differ from those anticipated.

For budget estimating purposes the estimated unit cost per boring and associated depth is listed below:

Boring Depth	Cost/Boring
100 Ft.	$19,215.00
115 Ft	$22,097.00
10 Ft	$2,128.00

The unit cost for a 65 foot piezometer is approximately $9,645.00.

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ASSUMPTIONS

The cost estimate is based on the following:

1. Drilling for the New Office Building to be performed Monday through Friday from approximately 7 am to 4 pm. The drilling for the Parking Garage will be done after hours or on Weekends.
2. All work necessary to provide final report only. Column loads have been provided. The approximate maximum load for the Office Building is 1,800 kips and for the Parking Garage is approximately 2,700 kips.
3. Right of entry if necessary, will be provided by others.
4. Boring location coordinates and elevations will be obtained using hand held GPS equipment.
5. Field operations will be performed sequentially, not concurrently.
6. The attached cost estimate will change based on changes or alterations to the scope of service. The cost estimates included in this proposal are based upon the presumption that we will start and complete our efforts within a 4 month period, unobstructed by delayed interaction with other members of the extended design and construction team.
7. Budgets provided herein may be moved between the various work elements to accommodate the overall project budget. In addition, engineering hours may shift between the various tasks as needed to complete the scope of the project as demands dictate.
8. Costs for any environmental investigations for contaminated soils such as hydrocarbons TPH, BTEX, MTBE, heavy metals, pesticides or other hazardous wastes are not included. Environmental drilling requires a more stringent protocol to include steam cleaning of augers, drumming of cuttings and disposal of cuttings. Costs for environmental drilling are not included in our estimate.

FURTHER CLARIFICATIONS

The engineering scope provided by Balcones and Holt will be limited as indicated in the items that follow, and assuming that our efforts will be completed within a timeframe of 6 months following notice to proceed. Additional geotechnical consulting services that may occur after that time would be considered additional services.

1. Balcones to make one site visit during drilling activities to review drilling and sampling protocol.
2. Balcones will review lab testing assignments and test results as produced.
3. Balcones will review draft boring logs and assist with editing of logs.
4. Balcones and Holt engineers will meet at least once to discuss progress and preliminary recommendations.
5. Holt and Balcones will meet once with CFA to discuss preliminary recommendations.
6. Holt and Balcones will prepare status reports of drilling and laboratory testing progress at a reasonable interval.
7. Holt and Balcones will alternate at monthly meetings with TFC (3 max by each firm).
8. Develop subsurface geology for the site.
9. Recommendations for Seismic Site Classification, based on borings but not on any seismic testing.

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10. Prediction of occurrence of groundwater and its impact on design/construction.

11. Drilled shaft recommendations including allowable end bearing and allowable skin friction with settlement prediction.
12. Recommendations for equivalent fluid pressure for any on site retaining walls.
13. General discussion of excavation potential (rippability) of subsurface materials.
14. Pavement thickness design for parking and drive areas supported at grade.
15. QA of all final recommendations by principal level individuals at Holt and Balcones.
16. Fee does not include items II-C (seismic), F, G, & H or Item IV included in TFC Draft "Requirements for Geotechnical Consulting Services" received October 13, 2016. All other items are included in scope described above.

Pier Inspection

As requested by the owner we are providing a cost estimate for pier observation oversite over a construction period of about 2 months. The total cost of the inspection will be on the order of $56,527.00. This cost does not include concrete testing such as compression test cylinders, slump tests, air content, etc. This cost is based on a full time engineering technician with supervision by the project geotechnical engineer and limited oversite by the principal geotechnical engineer. The unit costs for the engineering and technician time is listed below:

Principal Engineer	$215.00/Hr.
Senior Project Engineer	$18900/Hr.
Senior Engineering Tech	$85.00/Hr.
Senior Engineering Tech Overtime Rate	$127.50/Hr.

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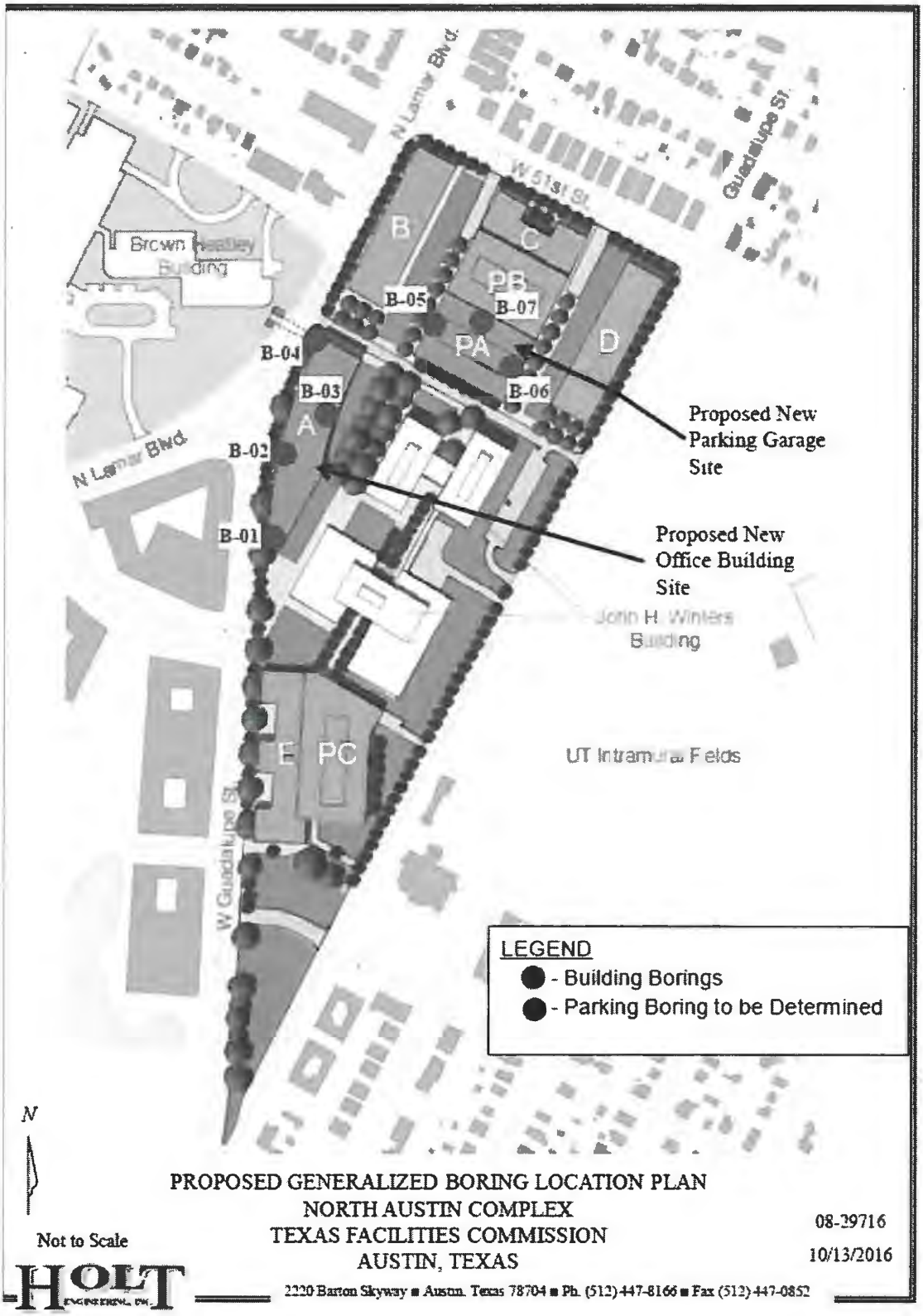

ATTACHMENT 3 - Rate Sheets

CobbFendley 2017 Rate Sheet

Principal / Chief Engineer	(Professional VIII)	$280.00/HR
Senior Engineer	(Professional VII)	$265.00/HR
Senior Project Manager	(Professional VI)	$230.00/HR
Project Manager	(Professional V)	$210.00/HR
Senior Hydrologist	(Professional V)	$210.00/HR
Project Engineer III	(Professional III)	$165.00/HR
Project Engineer II	(Professional II)	$150.00/HR
Project Engineer I	(Professional I)	$125.00/HR
Senior Technician	(Technician IV)	$135.00/HR
Technician III(Technician III)	$120.00/HR	
Technician II (Technician II)	$110.00/HR	
Technician I (Technician I)	$90.00/HR	
Licensed State Land Surveyor	(Professional VI)	$230.00/HR
Registered Professional Land Surveyor	(Professional III)	$165.00/HR
4-Man Survey Crew		$185.00/HR
3-Man Survey Crew		$165.00/HR
2-Man Survey Crew		$140.00/HR
1-Man Survey Crew		$120.00/HR
Construction Manager	(Professional IV)	$195.00/HR
Senior Field Construction Observer	(Professional I)	$125.00/HR
Field Construction Observer	(Technician II)	$110.00/HR
Utility Specialist	(Professional II)	$150.00/HR
Telecommunications Designer	(Technician II)	$110.00/HR
Telecommunications Fieldman	(Technician I)	$90.00/HR
GIS Manager(Professional III)	$165.00/HR	
GIS Analyst (Technician II)	$110.00/HR	
Post Processing GPS Data	(Technician II)	$110.00/HR
Right-of-Way Agent		$125.00/HR
Administrative		$100.00/HR
Clerical $75.00/HR		
GPS		$37.00/HR/Receiver

(Continued)

SUBSURFACE UTILITY ENGINEERING

One-Man Designating Crew (4-Hour Minimum) $99.00/HR

Two-Man Designating Crew (4-Hour Minimum) $164.00/HR

Vacuum Excavation Truck with 2 Technicians (Vac 3000 & 4000) (4-Hour Min) $285.00/HR

Vacuum Excavation Truck with 2 Technicians (Vac 6000) (4-Hour Minimum) $310.00/HR

Ground Penetrating Radar with 1 Technician (4-Hour Minimum) $263.00/HR

Traffic Control Officer ..... @ Cost

Traffic Control (Lane Closures, etc.) ..... To Be Negotiated

Permits (Local, State, etc.) ..... @ Cost

Designation & Traffic Control Vehicles $3.40/Mile

Location Vehicles $6.80/Mile

REIMBURSABLE EXPENSES

Technology Fee (*) $3.75/HR

Consultant or Specialty Contractor (Outside Firm) ..... @ Cost

Courier, Special Equipment Rental ..... @ Cost

Reasonable Out of Town Travel Expenses (Air, Hotel, Rental, etc.) ..... @ Cost

Mileage (Standard Car or Truck) ..... IRS Approved Rate

Per Diem for Out of Town Travel (Per Day/Person) $36/Day

Title Plant Charges ..... @ Cost

Other Misc. Expenses Related to the Project ..... @ Cost

In-House Reproduction:

- Copies (Up to 11" x 17") $0.15/Each
- Color Prints (Up to 11" x 17") $1.50/Each
- Color Prints (Larger than 11" x 17") ..... $3.00/Sq. Ft.
- Bluelines (All Sizes) $1.00/Each
- Bond Prints (All Sizes) $2.00/Each
- Mylar Prints $12.00/Each
- Vellum Prints $9.00/Each

(*) Technology charges added to each billable man-hour.

2016

MWM DesignGroup Rates

Labor Categories	Total Billable Rate
Principal	$ 197.00
Licensed Professional IV	$ 197.00
Licensed Professional III / Sr Project Manager	$ 179.00
Licensed Professional II / Sr Project Manager	$ 151.00
Licensed Professional I / Project Manager	$ 124.00
Engineering/Arch Support Staff II	$ 113.00
Engineering/Arch Support Staff I	$ 85.00
Sr Technician/ CAD Manager	$ 103.00
Technician	$ 94.00
Clerical	$ 60.00
2 Person Field Crew	$ 150.00
3 Person Field Crew	$ 190.00

2017

MWM DesignGroup Rates

Labor Categories	Total Billable Rate
Principal	$ 205.00
Licensed Professional IV	$ 205.00
Licensed Professional III / Sr Project Manager	$ 186.00
Licensed Professional II / Sr Project Manager	$ 157.00
Licensed Professional I / Project Manager	$ 129.00
Engineering/Arch Support Staff II	$ 118.00
Engineering/Arch Support Staff I	$ 89.00
Sr Technician/ CAD Manager	$ 107.00
Technician	$ 98.00
Clerical	$ 62.00
2 Person Field Crew	$ 156.00
3 Person Field Crew	$ 198.00

ATTACHMENT 4

2016 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys

MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS

(Effective February 23, 2016)

***NOTE** - Attention is directed to the fact that the National Society of Professional Surveyors, Inc. (NSPS) is the legal successor organization to the American Congress on Surveying and Mapping (ACSM) and that these 2016 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys are the next version of the former Minimum Standard Detail Requirements for ALTA/ACSM Land Title Surveys.*

1. **Purpose** - Members of the American Land Title Association® (ALTA®) have specific needs, unique to title insurance matters, when asked to insure title to land without exception as to the many matters which might be discoverable from survey and inspection, and which are not evidenced by the public records.

For a survey of real property, and the plat, map or record of such survey, to be acceptable to a title insurance company for the purpose of insuring title to said real property free and clear of survey matters (except those matters disclosed by the survey and indicated on the plat or map), certain specific and pertinent information must be presented for the distinct and clear understanding between the insured, the client (if different from the insured), the title insurance company (insurer), the lender, and the surveyor professionally responsible for the survey.

In order to meet such needs, clients, insurers, insureds, and lenders are entitled to rely on surveyors to conduct surveys and prepare associated plats or maps that are of a professional quality and appropriately uniform, complete, and accurate. To that end, and in the interests of the general public, the surveying profession, title insurers, and abstracters, the ALTA and the NSPS jointly promulgate the within details and criteria setting forth a minimum standard of performance for ALTA/NSPS Land Title Surveys. A complete 2016 ALTA/NSPS Land Title Survey includes:

(i) the on-site fieldwork required pursuant to Section 5,
(ii) the preparation of a plat or map pursuant to Section 6 showing the results of the fieldwork and its relationship to documents provided to or obtained by the surveyor pursuant to Section 4,
(iii) any information from Table A items requested by the client, and
(iv) the certification outlined in Section 7.

2. **Request for Survey** - The client shall request the survey, or arrange for the survey to be requested, and shall provide a written authorization to proceed from the person or entity responsible for paying for the survey. Unless specifically authorized in writing by the insurer, the insurer shall not be responsible for any costs associated with the preparation of the survey. The request shall specify that an **"ALTA/NSPS LAND TITLE SURVEY"** is required and which of the optional items listed in Table A, if any, are to be incorporated. Certain properties or interests in real properties may present issues outside those normally encountered on an ALTA/NSPS Land Title Survey (*e.g.*, marinas, campgrounds, trailer parks; easements, leases, other non-fee simple interests). The scope of work related to surveys of such properties or interests in real properties should be discussed with the client, lender, and insurer; and agreed upon in writing prior to commencing work on the survey. The client may need to secure permission for the surveyor to enter upon the property to be surveyed, adjoining properties, or offsite easements.

3. **Surveying Standards and Standards of Care**
   - **A. Effective Date** - The 2016 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys are effective February 23, 2016. As of that date, all previous versions of the Minimum Standard Detail Requirements for ALTA/ACSM Land Title Surveys are superseded by these standards.
   - **B. Other Requirements and Standards of Practice** - Many states and some local jurisdictions have adopted statutes, administrative rules, and/or ordinances that set out standards regulating the practice of surveying within their jurisdictions. In addition to the standards set forth herein, surveyors shall also conduct their surveys in accordance with applicable jurisdictional survey requirements and standards of practice. Where conflicts between the standards set forth herein and any such jurisdictional requirements and standards of practice occur, the more stringent shall apply.
   - **C. The Normal Standard of Care** - Surveyors should recognize that there may be unwritten local, state, and/or regional standards of care defined by the practice of the "prudent surveyor" in those locales.
   - **D. Boundary Resolution** - The boundary lines and corners of any property being surveyed as part of an ALTA/NSPS Land Title Survey shall be established and/or retraced in accordance with appropriate boundary law principles governed by the set of facts and evidence found in the course of performing the research and fieldwork.
   - **E. Measurement Standards** - The following measurement standards address Relative Positional Precision for the monuments or witnesses marking the corners of the surveyed property.
     - **i.** "Relative Positional Precision" means the length of the semi-major axis, expressed in feet or meters, of the error ellipse representing the uncertainty due to random errors in measurements in the location of the monument, or witness, marking any corner of the surveyed property relative to the monument, or witness, marking any other corner of the surveyed property at the 95 percent confidence level. Relative Positional Precision is estimated by the results of a correctly weighted least squares adjustment of the survey.
     - **ii.** Any boundary lines and corners established or retraced may have uncertainties in location resulting from (1) the availability, condition, history and integrity of reference or controlling monuments, (2) ambiguities in the record descriptions or plats of the surveyed property or its adjoiners, (3) occupation or possession lines as they may differ from the written title lines, or (4) Relative Positional Precision. Of these four sources of uncertainty, only Relative Positional Precision is controllable, although, due to the inherent errors in any measurement, it cannot be eliminated. The magnitude of the first three uncertainties can be projected based on evidence; Relative Positional Precision is estimated using statistical means (see Section 3.E.i. above and Section 3.E.v. below).
     - **iii.** The first three of these sources of uncertainty must be weighed as part of the evidence in the determination of where, in the surveyor's opinion, the boundary lines and corners of the surveyed property should be located (see Section 3.D. above). Relative Positional Precision is a measure of how precisely the surveyor is able to monument and report those positions; it is not a substitute for the application of proper boundary law principles. A boundary corner or line may have a small Relative Positional Precision because the survey measurements were precise, yet still be in the wrong position (*i.e.*, inaccurate) if it was established or retraced using faulty or improper application of boundary law principles.
     - **iv.** For any measurement technology or procedure used on an ALTA/NSPS Land Title Survey, the surveyor shall (1) use appropriately trained personnel, (2) compensate for systematic errors, including those associated with instrument calibration, and (3) use appropriate error propagation and measurement design theory (selecting the proper instruments, geometric layouts, and field and computational procedures) to control random errors such that the

maximum allowable Relative Positional Precision outlined in Section 3.E.v. below is not exceeded.

v. The maximum allowable Relative Positional Precision for an ALTA/NSPS Land Title Survey is 2 cm (0.07 feet) plus 50 parts per million (based on the direct distance between the two corners being tested). It is recognized that in certain circumstances, the size or configuration of the surveyed property, or the relief, vegetation, or improvements on the surveyed property, will result in survey measurements for which the maximum allowable Relative Positional Precision may be exceeded. If the maximum allowable Relative Positional Precision is exceeded, the surveyor shall note the reason as explained in Section 6.B.x. below.

4. **Records Research** - It is recognized that for the performance of an ALTA/NSPS Land Title Survey, the surveyor will be provided with appropriate and, when possible, legible data which can be relied upon in the preparation of the survey. The request for an ALTA/NSPS Land Title Survey shall set forth the current record description of the property to be surveyed or, in the case of an original survey prepared for purposes of locating and describing real property that has not been previously separately described in documents conveying an interest in the real property, the current record description of the parent parcel that contains the property to be surveyed.

In order to complete an ALTA/NSPS Land Title Survey, the surveyor must be provided with complete copies of the most recent title commitment or, if a title commitment is not available, other title evidence satisfactory to the title insurer. In addition, the surveyor must be provided with the following:

(i) The following records established under state statutes for the purpose of imparting constructive notice of matters relating to real property (public records):
  (a) The current record descriptions of any adjoiners to the property to be surveyed, except where such adjoiners are lots in platted, recorded subdivisions;
  (b) Any recorded easements benefitting the property;
  (c) Any recorded easements, servitudes, or covenants burdening the property;

(ii) Any unrecorded documents affecting the property being surveyed and containing information to which the survey shall make reference, if desired by the client.

Except, however, if the documents outlined above in (i) and (ii) of this section are not provided to the surveyor or if non-public or quasi-public documents are required to complete the survey, the surveyor shall be required to conduct only that research which is required pursuant to the statutory or administrative requirements of the jurisdiction where the property being surveyed is located and that research (if any) which is negotiated and outlined in the terms of the contract between the surveyor and the client.

5. **Fieldwork** - The survey shall be performed on the ground (except as otherwise negotiated pursuant to Table A, Item 15 below, if selected by the client). The fieldwork shall include the following, located to what is, in the surveyor's professional opinion, the appropriate degree of precision based on (a) the planned use of the property, if reported in writing to the surveyor by the client, lender, or insurer, or (b) the existing use, if the planned use is not so reported:

A. Monuments

i. The location, size, character, and type of any monuments found during the fieldwork.

ii. The location, size, character, and type of any monuments set during the fieldwork, if item 1 of Table A was selected or if otherwise required by applicable jurisdictional requirements and/or standards of practice.

iii. The location, description, and character of any lines that control the boundaries of the

surveyed property.

B. Rights of Way and Access

- **i.** The distance from the appropriate corner or corners of the surveyed property to the nearest right of way line, if the surveyed property does not abut a right of way.
- **ii.** The name of any street, highway, or other public or private way abutting the surveyed property, together with the width of the travelled way and the location of each edge of the travelled way including on divided streets and highways. If the documents provided to or obtained by the surveyor pursuant to Section 4 indicate no access from the surveyed property to the abutting street or highway, the width and location of the travelled way need not be located.
- **iii.** Visible evidence of physical access (*e.g.*, curb cuts, driveways) to any abutting streets, highways, or other public or private ways.
- **iv.** The location and character of vehicular, pedestrian, or other forms of access by other than the apparent occupants of the surveyed property to or across the surveyed property observed in the process of conducting the fieldwork (*e.g.*, driveways, alleys, private roads, railroads, railroad sidings and spurs, sidewalks, footpaths).
- **v.** Without expressing a legal opinion as to ownership or nature, the location and extent of any potentially encroaching driveways, alleys, and other ways of access from adjoining properties onto the surveyed property observed in the process of conducting the fieldwork.
- **vi.** Where documentation of the location of any street, road, or highway right of way abutting, on, or crossing the surveyed property was not disclosed in documents provided to or obtained by the surveyor, or was not otherwise available from the controlling jurisdiction (see Section 6.C.iv. below), the evidence and location of parcel corners on the same side of the street as the surveyed property recovered in the process of conducting the fieldwork which may indicate the location of such right of way lines (*e.g.*, lines of occupation, survey monuments).
- **vii.** Evidence of access to and from waters adjoining the surveyed property observed in the process of conducting the fieldwork (*e.g.*, paths, boat slips, launches, piers, docks).

C. Lines of Possession and Improvements along the Boundaries

- **i.** The character and location of evidence of possession or occupation along the perimeter of the surveyed property, both by the occupants of the surveyed property and by adjoiners, observed in the process of conducting the fieldwork.
- **ii.** Unless physical access is restricted, the character and location of all walls, buildings, fences, and other improvements within five feet of each side of the boundary lines, observed in the process of conducting the fieldwork. Trees, bushes, shrubs, and other natural vegetation need not be located other than as specified in the contract, unless they are deemed by the surveyor to be evidence of possession pursuant to Section 5.C.i.
- **iii.** Without expressing a legal opinion as to the ownership or nature of the potential encroachment, the evidence, location and extent of potentially encroaching structural appurtenances and projections observed in the process of conducting the fieldwork (*e.g.*, fire escapes, bay windows, windows and doors that open out, flue pipes, stoops, eaves, cornices, areaways, steps, trim) by or onto adjoining property, or onto rights of way, easements, or setback lines disclosed in documents provided to or obtained by the surveyor.

D. Buildings

The location of buildings on the surveyed property observed in the process of conducting the fieldwork.

E. Easements and Servitudes

- **i.** Evidence of any easements or servitudes burdening the surveyed property as disclosed in the documents provided to or obtained by the surveyor pursuant to Section 4 and observed in the process of conducting the fieldwork.

ii. Evidence of easements, servitudes, or other uses by other than the apparent occupants of the surveyed property not disclosed in the documents provided to or obtained by the surveyor pursuant to Section 4, but observed in the process of conducting the fieldwork if they appear to affect the surveyed property (*e.g.*, roads; drives, sidewalks, paths and other ways of access; utility service lines; water courses; ditches; drains; telephone, fiber optic lines, or electric lines; or water, sewer, oil or gas pipelines on or across the surveyed property and on adjoining properties).

iii. Surface indications of underground easements or servitudes on or across the surveyed property observed in the process of conducting the fieldwork (*e.g.*, utility cuts, vent pipes, filler pipes).

iv. Evidence on or above the surface of the surveyed property observed in the process of conducting the fieldwork, which evidence may indicate utilities located on, over or beneath the surveyed property. Examples of such evidence include pipeline markers, manholes, valves, meters, transformers, pedestals, clean-outs, utility poles, overhead lines and guy wires.

F. Cemeteries

As accurately as the evidence permits, the perimeter of cemeteries and burial grounds, and the location of isolated gravesites not within a cemetery or burial ground, (i) disclosed in the documents provided to or obtained by the surveyor, or (ii) observed in the process of conducting the fieldwork.

G. Water Features

i. The location of springs, ponds, lakes, streams, rivers, canals, ditches, marshes, and swamps on, running through, or outside, but within five feet of the perimeter boundary of, the surveyed property, observed during the process of conducting the fieldwork.

ii. The location of any water feature forming a boundary of the surveyed property. The attribute(s) of the water feature located (*e.g.*, top of bank, edge of water, high water mark) should be congruent with the boundary as described in the record description or, in the case of an original survey, in the new description (see Section 6.B.vi. below).

6. **Plat or Map** - A plat or map of an ALTA/NSPS Land Title Survey shall show the following information. Where dimensioning is appropriate, dimensions shall be annotated to what is, in the surveyor's professional opinion, the appropriate degree of precision based on (a) the planned use of the property, if reported in writing to the surveyor by the client, lender, or insurer, or (b) existing use, if the planned use is not so reported.

A. The evidence and locations gathered, and the monuments and lines located during the fieldwork pursuant to Section 5 above, with accompanying notes if deemed necessary by the surveyor or as otherwise required as specified below.

B. Boundary, Descriptions, Dimensions, and Closures

i. (a) The current record description of the surveyed property, or
(b) In the case of an original survey, the current record description of the parent tract that contains the surveyed property.

ii. Any new description of the surveyed property that was prepared in conjunction with the survey, including a statement explaining why the new description was prepared. Except in the case of an original survey, preparation of a new description should be avoided unless deemed necessary or appropriate by the surveyor and insurer. Preparation of a new description should also generally be avoided when the record description is a lot or block in a platted, recorded subdivision. Except in the case of an original survey, if a new description is prepared, a note shall be provided stating (a) that the new description describes the same real estate as the record description or, if it does not, (b) how the new description differs from

the record description.

iii. The point of beginning, the remote point of beginning or point of commencement (if applicable) and all distances and directions identified in the record description of the surveyed property (and in the new description, if one was prepared). Where a measured or calculated dimension differs from the record by an amount deemed significant by the surveyor, such dimension shall be shown in addition to, and differentiated from, the corresponding record dimension. All dimensions shown on the survey and contained in any new description shall be ground dimensions unless otherwise noted.

iv. The directional, distance and curve data necessary to compute a mathematical closure of the surveyed boundary. A note if the record description does not mathematically close. The basis of bearings and, where it differs from the record basis, the difference.

v. The remainder of any recorded lot or existing parcel, when the surveyed property is composed of only a portion of such lot or parcel, shall be graphically depicted. Such remainder need not be included as part of the actual survey, except to the extent necessary to locate the lines and corners of the surveyed property, and it need not be fully dimensioned or drawn at the same scale as the surveyed property.

vi. When the surveyed property includes a title line defined by a water boundary, a note on the face of the plat or map noting the date the boundary was measured, which attribute(s) of the water feature was/were located, and the caveat that the boundary is subject to change due to natural causes and that it may or may not represent the actual location of the limit of title. When the surveyor is aware of natural or artificial realignments or changes in such boundaries, the extent of those changes and facts shall be shown or explained.

vii. The relationship of the boundaries of the surveyed property with its adjoiners (*e.g.*, contiguity, gaps, overlaps), where ascertainable from documents provided to or obtained by the surveyor pursuant to Section 4 and/or from field evidence gathered during the process of conducting the fieldwork. If the surveyed property is composed of multiple parcels, the extent of any gaps or overlaps between those parcels shall be identified. Where gaps or overlaps are identified, the surveyor shall, prior to or upon delivery of the final plat or map, disclose this to the insurer and client.

viii. When, in the opinion of the surveyor, the results of the survey differ significantly from the record, or if a fundamental decision related to the boundary resolution is not clearly reflected on the plat or map, the surveyor shall explain this information with notes on the face of the plat or map.

ix. The location of all buildings on the surveyed property, located pursuant to Section 5.D., dimensioned perpendicular to those perimeter boundary lines that the surveyor deems appropriate (*i.e.*, where potentially impacted by a setback line) and/or as requested by the client, lender or insurer.

x. A note on the face of the plat or map explaining the site conditions that resulted in a Relative Positional Precision that exceeds the maximum allowed pursuant to Section 3.E.v.

xi. A note on the face of the plat or map identifying areas, if any, on the boundaries of the surveyed property, to which physical access within five feet was restricted (see Section 5.C.ii.).

xii. A note on the face of the plat or map identifying the source of the title commitment or other title evidence provided pursuant to Section 4, and the effective date and the name of the insurer of same.

C. Easements, Servitudes, Rights of Way, Access, and Documents

i. The location, width, and recording information of all plottable rights of way, easements, and servitudes burdening and benefitting the property surveyed, as evidenced by documents provided to or obtained by the surveyor pursuant to Section 4.

ii. A summary of all rights of way, easements and servitudes burdening the property surveyed and identified in the title evidence provided to or obtained by the surveyor pursuant to Section 4. Such summary shall include the record information of each such right of way, easement or servitude, a statement indicating whether or not it is shown on the plat or map, and a related note if:
   (a) the location cannot be determined from the record document;
   (b) there was no observed evidence at the time of the fieldwork;
   (c) it is a blanket easement;
   (d) it is not on, or does not touch, the surveyed property;
   (e) it limits access to an otherwise abutting right of way;
   (f) the documents are illegible; or
   (g) the surveyor has information indicating that it may have been released or otherwise terminated.

   In cases where the surveyed property is composed of multiple parcels, indicate which of such parcels the various rights of way, easements, and servitudes cross or touch.

iii. A note if no physical access to a public way was observed in the process of conducting the fieldwork.

iv. The locations and widths of rights of way abutting or crossing the surveyed property, and the source of such information, (a) where available from the controlling jurisdiction, or (b) where disclosed in documents provided to or obtained by the surveyor pursuant to Section 4.

v. The identifying titles of all recorded plats, filed maps, right of way maps, or similar documents which the survey represents, wholly or in part, with their recording or filing data.

vi. For non-platted adjoining land, recording data identifying adjoining tracts according to current public records. For platted adjoining land, the recording data of the subdivision plat.

vii. Platted setback or building restriction lines which appear on recorded subdivision plats or which were disclosed in documents provided or obtained by the surveyor.

D. Presentation

i. The plat or map shall be drawn on a sheet of not less than 8 ½ by 11 inches in size at a legible, standard engineering scale, with that scale clearly indicated in words or numbers and with a graphic scale.

ii. The plat or map shall include:
   (a) The boundary of the surveyed property drawn in a manner that distinguishes it from other lines on the plat or map.
   (b) If no buildings were observed on the surveyed property in the process of conducting the fieldwork, a note stating *"No buildings observed."*
   (c) A north arrow (with north to the top of the drawing when practicable).
   (d) A legend of symbols and abbreviations.
   (e) A vicinity map showing the property in reference to nearby highway(s) or major street intersection(s).
   (f) Supplementary or detail diagrams when necessary.
   (g) Notes explaining any modifications to Table A items and the nature of any additional Table A items (*e.g.*, 21(a), 21(b), 21(c)) that were negotiated between the surveyor and client.
   (h) The surveyor's project number (if any), and the name, registration or license number, signature, seal, street address, telephone number, company website, and email address (if any) of the surveyor who performed the survey.
   (i) The date(s) of any revisions made by the surveyor who performed the survey.
   (j) Sheet numbers where the plat or map is composed of more than one sheet.
   (k) The caption "ALTA/NSPS Land Title Survey."

iii. When recordation or filing of a plat or map is required by law, such plat or map shall be produced in recordable form.

7. **Certification** - The plat or map of an ALTA/NSPS Land Title Survey shall bear only the following certification, unaltered, except as may be required pursuant to Section 3.B. above:

To (name of insured, if known), (name of lender, if known), (name of insurer, if known), (names of others as negotiated with the client):

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2016 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items _____ of Table A thereof. The fieldwork was completed on_____*[date]*.

*Date of Plat or Map:*_____*(Surveyor's signature, printed name and seal with Registration/License Number)*

8. **Deliverables** - The surveyor shall furnish copies of the plat or map of survey to the insurer and client and as otherwise negotiated with the client. Hard copies shall be on durable and dimensionally stable material of a quality standard acceptable to the insurer. A digital image of the plat or map may be provided in addition to, or in lieu of, hard copies pursuant to the terms of the contract. When required by law or requested by the client, the plat or map shall be produced in recordable form and recorded or filed in the appropriate office or with the appropriate agency.

TABLE A

OPTIONAL SURVEY RESPONSIBILITIES AND SPECIFICATIONS

NOTE: The twenty (20) items of Table A may be negotiated between the surveyor and client. Any additional items negotiated between the surveyor and client shall be identified as 21(a), 21(b), etc. and explained pursuant to Section 6.D.ii.(g). Notwithstanding Table A Items 5 and 11, if an engineering design survey is desired as part of an ALTA/NSPS Land Title Survey, such services should be negotiated under Table A, Item 21.

If checked, the following optional items are to be included in the ALTA/NSPS LAND TITLE SURVEY, except as otherwise qualified (see note above):

1. _____ *Monuments placed (or a reference monument or witness to the corner) at all major corners of the boundary of the property, unless already marked or referenced by existing monuments or witnesses in close proximity to the corner.*

2. _____ *Address(es) of the surveyed property if disclosed in documents provided to or obtained by the surveyor, or observed while conducting the fieldwork.*

3. _____ *Flood zone classification (with proper annotation based on federal Flood Insurance Rate Maps or the state or local equivalent) depicted by scaled map location and graphic plotting only.*

4. _____ *Gross land area (and other areas if specified by the client).*

5. _____ *Vertical relief with the source of information (e.g., ground survey, aerial map), contour interval, datum, and originating benchmark identified.*

6. _____ *(a) If set forth in a zoning report or letter provided to the surveyor by the client, list the current zoning classification, setback requirements, the height and floor space area restrictions, and parking requirements. Identify the date and source of the report or letter.*

   _____*(b) If the zoning setback requirements are set forth in a zoning report or letter provided to the surveyor by the client, and if those requirements do not require an interpretation by the surveyor, graphically depict the building setback requirements. Identify the date and source of the report or letter.*

7. _____ *(a) Exterior dimensions of all buildings at ground level.*

   (b) Square footage of:

   _____*(1) exterior footprint of all buildings at ground level.*

   _____*(2) other areas as specified by the client.*

   _____*(c) Measured height of all buildings above grade at a location specified by the client. If no location is specified, the point of measurement shall be identified.*

8. _____ *Substantial features observed in the process of conducting the fieldwork (in addition to the improvements and features required pursuant to Section 5 above) (e.g., parking lots, billboards, signs, swimming pools, landscaped areas, substantial areas of refuse).*

9. _____ *Number and type (e.g., disabled, motorcycle, regular and other marked specialized types) of clearly identifiable parking spaces on surface parking areas, lots and in parking structures. Striping of clearly identifiable parking spaces on surface parking areas and lots.*

10. _____ *(a) As designated by the client, a determination of the relationship and location of certain division or party walls with respect to adjoining properties (client to obtain necessary permissions).*

_____*(b) As designated by the client, a determination of whether certain walls are plumb (client to obtain necessary permissions).*

11. _____ *Location of utilities existing on or serving the surveyed property as determined by:*
- *observed evidence collected pursuant to Section 5.E.iv.*
- *evidence from plans requested by the surveyor and obtained from utility companies, or provided by client (with reference as to the sources of information), and*
- *markings requested by the surveyor pursuant to an 811 utility locate or similar request*

Representative examples of such utilities include, but are not limited to:
- *Manholes, catch basins, valve vaults and other surface indications of subterranean uses;*
- *Wires and cables (including their function, if readily identifiable) crossing the surveyed property, and all poles on or within ten feet of the surveyed property. Without expressing a legal opinion as to the ownership or nature of the potential encroachment, the dimensions of all encroaching utility pole crossmembers or overhangs; and*
- *Utility company installations on the surveyed property.*

Note to the client, insurer, and lender - With regard to Table A, item 11, source information from plans and markings will be combined with observed evidence of utilities pursuant to Section 5.E.iv. to develop a view of the underground utilities. However, lacking excavation, the exact location of underground features cannot be accurately, completely, and reliably depicted. In addition, in some jurisdictions, 811 or other similar utility locate requests from surveyors may be ignored or result in an incomplete response, in which case the surveyor shall note on the plat or map how this affected the surveyor's assessment of the location of the utilities. Where additional or more detailed information is required, the client is advised that excavation and/or a private utility locate request may be necessary.

12. _____ *As specified by the client, Governmental Agency survey-related requirements (e.g., HUD surveys, surveys for leases on Bureau of Land Management managed lands).*

13. _____ *Names of adjoining owners according to current tax records. If more than one owner, identify the first owner's name listed in the tax records followed by "et al."*

14. _____ *As specified by the client, distance to the nearest intersecting street.*

15. _____ *Rectified orthophotography, photogrammetric mapping, remote sensing, airborne/mobile laser scanning and other similar products, tools or technologies as the basis for the showing the location of certain features (excluding boundaries) where ground measurements are not otherwise necessary to locate those features to an appropriate and acceptable accuracy relative to a nearby boundary. The surveyor shall (a) discuss the ramifications of such methodologies (e.g., the potential precision and completeness of the data gathered thereby) with the insurer, lender, and client prior to the performance of the survey, and (b) place a note on the face of the survey explaining the source, date, precision, and other relevant qualifications of any such data.*

16. _____ *Evidence of recent earth moving work, building construction, or building additions observed in the process of conducting the fieldwork.*

17. _____ *Proposed changes in street right of way lines, if such information is made available to the surveyor by the controlling jurisdiction. Evidence of recent street or sidewalk construction or repairs observed in the process of conducting the fieldwork.*

18. _____ *If there has been a field delineation of wetlands conducted by a qualified specialist hired by the client, the surveyor shall locate any delineation markers observed in the process of conducting the fieldwork and show them on the face of the plat or map. If no markers were observed, the surveyor shall so state.*

19. _____ *Include any plottable offsite (i.e., appurtenant) easements or servitudes disclosed in documents provided to or obtained by the surveyor as a part of the survey pursuant to Sections 5 and 6 (and applicable selected Table A items) (client to obtain necessary permissions).*

20. _____ *Professional Liability Insurance policy obtained by the surveyor in the minimum amount of $_____to be in effect throughout the contract term. Certificate of Insurance to be furnished upon request, but this item shall not be addressed on the face of the plat or map.*

21. _____ _____

Adopted by the Board of Governors, American Land Title Association, on October 8, 2015.
American Land Title Association, 1800 M St., N.W., Suite 300S, Washington, D.C. 20036-5828.
www.alta.org

Adopted by the Board of Directors, National Society of Professional Surveyors, on October 9, 2015.
National Society of Professional Surveyors, Inc., 5119 Pegasus Court, Suite Q, Frederick, MD 21704.
http://www.nsps.us.com/