TIERRA

January 8, 2026

Long and Associates, Inc.
4525 S. Manhattan Avenue
Tampa, Florida 33611

Attn: Mr. Lex Long, AIA, IIDA, CGC, LEED AP

RE: Geotechnical Engineering Services Report
115 S. Martin Luther King Jr. Avenue, Clearwater
Pinellas County, Florida
Tierra Project No: 6511-25-337

Mr. Long

Tierra, Inc. has completed geotechnical engineering services for the above-referenced project. The results of our field exploration program and subsequent geotechnical recommendations are presented in this report.

Should there be any questions regarding this report, please do not hesitate to contact our office at (813) 989-1354. Tierra would be pleased to continue providing geotechnical services throughout the implementation of the project. We look forward to working with you on this and future projects.

Respectfully Submitted,

TIERRA, INC.

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PROJECT DESCRIPTION

Project Information

The project site consists of an existing office/warehouse structure located at 115 S. Martin Luther King Jr. Avenue and the adjacent vacant parcel to the east in Clearwater, Florida. We understand the site is being considered for a new office/warehouse structure. The existing office/warehouse structure is also being assessed for potential use as part of this project.

Structural and grading information were not available at the time of this report. Based on our experience with similar projects, we anticipate that maximum column and wall loads will not exceed 50 kips and 7 kips per linear foot, respectively. In addition, we anticipate that proposed finished grades will be within 2 feet of the existing site grades. If the loading conditions or anticipated finished grade information differ from the ones presented in this report, then Tierra should be given the opportunity to review the final design information and amend the recommendations herein, if necessary.

Scope of Services

The purpose of this study is to obtain information concerning the subsurface soil conditions and relating engineering properties at the project site to base engineering estimates and recommendations in each of the following areas:

1. Identify the existing concrete slab-on-grade characteristics including thickness and compressive strength.

2. Identify the existing pavement section at the site.

3. General location and description of potentially deleterious conditions discovered during the field testing which may interfere with structure and pavement performance.

4. Identification of groundwater levels at the boring locations. Estimate the seasonal high groundwater level at selected boring locations.

5. Geotechnical considerations with regards to potential causes of the apparent building and pavement settlement and support for proposed remediation/replacement alternatives.

6. Feasibility of utilizing a shallow spread foundation system to support the proposed structure. Suitability of sab-on-grade.

7. Preliminary design parameters required for the proposed structure foundation system, including allowable bearing pressure, foundation levels and soil subgrade compaction recommendations.

8. General location and description of potentially deleterious materials discovered in the borings which may interfere with construction progress and structure performance, including existing fills or surficial organics.

9. General pavement section design parameters and construction considerations.

In order to meet the preceding objectives, we provided the following services:

1. Reviewed published soils and topographic information obtained from the "Clearwater, Florida" Quadrangle Map published by the United States Geological Survey (USGS), as well as the Soil Survey of Pinellas County, Florida, published by the United States Department of Agriculture (USDA) Natural Resources Conservation Services (NRCS).

2. Executed a program of subsurface exploration and field testing consisting of borings and subsurface sampling. Tierra performed the following:

    a. Performed six (6) Standard Penetration Test (SPT) borings across the site to depths of approximately 30 feet below existing grades.

    b. Performed eight (8) pavement cores at selected locations within the existing pavement section.

    c. Performed four (4) concrete pavement cores at selected locations within the existing warehouse structure. Performed compressive strength testing on the obtained slab cores.

    d. Performed three (3) hand auger borings within the undeveloped lot.

3. Visually classified the samples in the laboratory using the Unified Soil Classification System (USCS). Identified soil conditions at each boring location.

4. Collected groundwater level measurements at the boring locations. Estimated the Seasonal High Groundwater Table (SHGWT) at select boring locations.

5. Prepared this engineering report which summarizes the course of study pursued, the field and laboratory data generated, the subsurface conditions encountered and our geotechnical recommendations in each of the above-listed areas.

The scope of our services did not include an environmental assessment for determining the presence or absence of wetlands or hazardous or toxic materials in the soil, bedrock, groundwater, or air, on or below or around this site. Any statements in this report or on the boring logs regarding odors, colors, unusual or suspicious items or conditions are strictly for the information of our client.

SITE AND SUBSURFACE CONDITIONS

Topographic Map Review

Based on a review of the "Clearwater, Florida" United States Geological Survey (USGS) Quadrangle Map, the natural ground elevation at the project site is on the order of approximately +30 to +40 feet, National Geodetic Vertical Datum of 1929 (NGVD).

Soil Survey Map Review

Based on a review of the Pinellas County Soil Survey, it appears that there are two (2) primary soil-mapping units noted within the vicinity of the project site. The general soil descriptions are presented in the following paragraphs and table, as described in the Soil Survey.

Tavares fine sand-Urban land complex, 0 to 5 percent slopes (Map Unit 29) - The Tavares component makes up 43 percent of the map unit. Slopes are 0 to 5 percent. This component is on hills on marine terraces on coastal plains. The parent material consists of eolian or sandy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is low. Shrink-swell potential is low. This soil is not flooded or ponded. A seasonal zone of water saturation is at 30 inches during June, July, August, September, October. Organic matter content in the surface horizon is about 2 percent.

Urban land, 0 to 2 percent slopes (Map Unit 30) - The Urban land component consists of areas where most of the surface is covered with impervious materials, such as buildings and paved areas. This land type consists of areas where the original soil has been modified through cutting, grading, filling and shaping or has been generally altered for urban development.

Summary of USDA Soil Survey
Pinellas, Florida

USDA Map Symbol and Soil Name	Depth (in)	Soil Classification		Permeability (in/hr)	pH	Seasonal High Water Table	
		USCS	AASHTO			Depth (feet)	Months
(29) Tavares - Urban Land	0-6	SP-SM, SM	A-3, A-2-4	6.0 - 20.0	3.5-6.0	1.5-3.5	Jun-Oct
	6-80	SP-SM, SM	A-3, A-2-4	6.0 - 20.0	3.5-6.0		
	The USDA Soil Survey does not contain information for the Urban Land component						
(30) Urban Land	The USDA Soil Survey does not contain information for the Urban Land component						

It should be noted that information contained in the USDA NRCS Soil Survey may not be reflective of current subsurface conditions, particularly if recent development in the project vicinity has modified existing soils or surface/subsurface drainage.

Subsurface Conditions

The subsurface conditions at the project site were explored with Ground Penetrating Radar (GPR), SPT borings, pavement/slab cores, and hand auger borings. The results of the field explorations are depicted in the **Appendix**.

The borings were located in the field by a representative of Tierra using our hand-held Global Positioning System (GPS) devices and should be considered approximate. The approximate boring locations are shown on the **Boring Location Plan** sheet in the **Appendix**. If a more accurate determination of the boring locations and elevations is required, then Tierra recommends the boring locations be survey located by the project surveyor.

The SPT borings were performed with the use of a drill rig equipped with an automatic hammer using Bentonite mud-rotary drilling procedures. The soil sampling was performed in general accordance with the American Society for Testing and Materials (ASTM) Test Designation D-1586. The initial 4 feet of each borehole were manually augered to verify utility clearance. SPT resistance N-values were then taken continuously to a depth of 10 feet and on intervals of 5 feet thereafter to the boring termination depth. Representative portions of the soil samples were sealed in glass jars, labeled and transferred to our laboratory for classification and analyses.

The pavement cores were performed with the use of a 4-inch outside diameter core bit. The hand auger borings were performed to depths ranging from 3 to 10 feet to identify the subgrade materials present. The hand auger borings were performed by manually twisting and advancing

a bucket auger into the ground. Representative portions of the soil samples were sealed and transferred to our laboratory for classification and analysis. The soil sampling was performed in general accordance with the American Society for Testing and Materials (ASTM) test designation D-1586 and the soil samples were classified using the AASHTO soil classification system.

The borings generally encountered sandy soils within the upper 10 to 20 feet underlain by clayey sand to clay to the boring terminations depths. Several of the hand auger borings performed near the southwest portion of the site encountered minor debris consisting of brick, nails, wire and/or asphalt at depths of approximately 3 feet where hand auger refusal was encountered.

The soil strata encountered in the borings performed at the project site are summarized in the following table:

Stratum Designation	Stratum Description	USCS Symbol
1	Light Brown to Gray Sand to Sand with Silt	SP/SP-SM
2	Light Brown to Gray to Orange Silty Sand	SM
3	Light Gray to Orange Clayey Sand	SC
4	Light Gray to Gray Sandy Clay to Clay	CL/CH

The subsurface soil stratification is of a generalized nature to highlight the major subsurface stratification features and material characteristics. The soil profiles included in the **Appendix** should be reviewed for specific information at individual boring locations. These profiles include soil descriptions, stratifications and penetration resistances when applicable. The stratifications shown on the boring profiles represent the conditions only at the actual boring location. Variations did occur and should be expected between boring locations. The stratifications represent the approximate boundary between subsurface materials and the actual transition may be gradual.

Groundwater Information

Within the borings completed, groundwater depths, when encountered, were encountered at depths ranging from 6½ to 10 feet below existing grades.

Within some SPT borings performed, groundwater was not apparent prior to the introduction of bentonite drilling fluid. Therefore, Groundwater Not Apparent (GNA) is depicted adjacent to these soil profiles. The groundwater level encountered at each boring location is depicted adjacent to the soil profiles on the **Soil Profiles** sheets.

Within many of the hand auger/pavement core borings, groundwater was not encountered prior to boring termination. Therefore, GNE (Groundwater Not Encountered) is indicated adjacent to these boring profiles.

Groundwater conditions will vary with environmental variations and seasonal conditions, such as the frequency and magnitude of rainfall patterns, as well as man-made influences (i.e. existing swales, drainage drainages, underdrains and areas of covered soils, such as paved parking lots). It should be noted that groundwater levels tend to fluctuate during periods of

prolonged drought and extended rainfall and may be affected by man-made influences. In addition, a seasonal effect will also occur in which higher groundwater levels are normally recorded in rainy seasons.

GPR Survey

A GPR survey was performed to aid in characterization of the subsurface conditions present at the site. The purpose of the survey was to evaluate the lateral continuity and thickness of soil to evaluate any non-homogeneity that could be interpreted as indicative of potential subsurface anomalous conditions. The GPR did not encounter conditions that could be interpreted as indicative of potential karst activity. However, several of the GPR transects did encounter conditions indicative of disturbed/modified subsurface conditions. Tierra completed thirty (30) of the GPR transects in accessible areas. The approximate transect locations along with the identified anomalies are shown on the **GPR Survey Plan** in the **Appendix**.

Compressive strength testing was performed on four (4) concrete core samples obtained from the subject slab on grade. The following Table summarizes the results of the compressive strength testing:

REPORT OF CONCRETE CORE TESTS (ASTM C-42)				
CORE NUMBER	1	2	3	4
CORE LOCATION	Too Short To Test			
DATE CONCRETE PLACED:				
DATE CORE OBTAINED:				
DATE CORE TESTED:	NO TEST	1/9/26	1/9/26	1/9/26
AVERAGE DIAMETER (Inches):		3.72	3.72	3.72
AVERAGE LENGTH (Inches) AS CORED:		4.00	4.29	5.05
AVERAGE LENGTH (Inches) AFTER TRIM BY SAWING:		3.69	3.97	4.53
AVERAGE LENGTH (Inches) AFTER CAPPING:		3.80	4.13	4.82
LENGTH / DIAMETER RATIO:		1.02	1.11	1.30
AREA (Square Inches):		10.87	10.87	10.87
MAXIMUM LOAD (Pounds):		57,490	61,680	51,770
COMPRESSIVE STRENGTH (PSI):		5290	5680	4760
STRENGTH CORRECTION FACTOR:		0.875	0.896	0.936
CORRECTED STRENGTH (PSI):		4630	5090	4460
TYPE OF FRACTURE:		Shear	Shear	Shear
DEFECTS IN SPECIMEN OR CAP:		N/A	N/A	N/A
AGE OF SPECIMEN AT TESTS (DAYS):				
WEIGHT AFTER TRIM		3.2	3.4	3.7
UNIT WEIGHT				
DIRECTION OF APPLICATION OF LOAD WITH RESPECT TO THE HORIZONTAL PLAN OF CONCRETE PLACED:		Perpendicular	Perpendicular	Perpendicular
MOISTURE CONDITION AT TEST:		Air Dry	Air Dry	Air Dry

EVALUATION AND RECOMMENDATIONS

General

The project site will require proper site preparation before development including surface compaction. Once structure loading and foundation layout become finalized, Tierra should be retained to review and amend recommendations given in this report, if necessary.

Existing Warehouse Structure

Tierra understands that the existing warehouse structure is being considered for use as an office building. Tierra performed a geotechnical assessment of the building. During the assessment, Tierra identified signs of building settlement, including racked doorways/garage bay doors and cracked masonry walls. The majority of the observed distress was along the southwest and southern portion of the building. In addition to the building distress, several depressional areas were observed within the existing pavement areas, most notably in the southern and southwestern pavement areas. Tierra cannot make assessments on structural integrity of the existing warehouse structure. Tierra recommends that a structural engineer be allowed to assess the building.

Based on the results of the subsurface exploration, it appears debris laden soils may be present beneath the southwestern and southern portions of the site in proximity to the existing building. To better characterize the encountered debris at the site, Tierra recommends the performance of test pit excavation in the areas where apparent buried debris was encountered in the hand auger borings.

The presence of the debris materials underlying foundations and pavement areas will result in differential settlement over time. Debris materials can shift and provide conduits for erosion of overlying soil. As stated above, Tierra recommends the performance of test pit excavation in the areas where apparent buried debris was encountered in the hand auger borings. The test pits will provide information necessary to provide recommendations for remediation of the conditions encountered to improve support for the affected building and pavement areas. Possible remediation could include removal and disposal of debris material followed by replacement with approved compacted structural fill, treating the debris areas with expanding foam polyurethane to fill voids and stabilize the affected areas, underpinning portions of the structure or a combination of these methods.

On Site Soil Suitability

If unsuitable materials are encountered during site preparation activities, the unsuitable materials should be removed and the proposed footing/finish elevation may be re-established by backfilling after the undesirable material has been removed. This backfilling may be done with a well-compacted, suitable fill such as clean sand (i.e. less than 12 percent passing the no. 200 sieve), gravel, or FDOT No. 57 or FDOT No. 67 stone.

In general, the soils of Stratum 1 (SP/SP-SM) may be moved and used for grading purposes, site leveling, general engineering fill, structural fill and backfill in other areas, provided the fill is free of organic materials, clay, debris or any other material deemed unsuitable for construction and evaluated against engineering fill requirements. The appropriate Pasco County

Specifications should be consulted to determine the specific use/suitability of the soil types encountered during construction.

Stratum 2 soils (SM) may be moved and used for grading purposes, site leveling, general engineering fill, structural fill and backfill in other areas, provided the fill is free of organic materials, clay, debris or any other material deemed unsuitable for construction and evaluated against engineering fill requirements. It should be noted that Stratum 2 soils may be difficult to dry and compact due to their fines content. Stratum 2 soils should only be placed above the groundwater level at the time of construction.

Plastic clayey soils (Stratum 3 and 4) were encountered in the SPT borings performed for this study. Based on laboratory testing performed, these materials have a relatively moderate to high potential to shrink or swell under varying moisture conditions. Due to the plastic nature and fines content of the Stratum 3 and 4 soils, these materials should not be utilized as fill and it is recommended that there be a minimum separation of at least 3 feet between the bottom of proposed foundations and the top of the Stratum 3 and 4 soils. In addition, it is recommended that pavement areas be designed to have a minimum separation of at least 18 inches between the bottom of the base course and the top of Stratum 3 and 4 soils.

Site Preparation

Prior to construction, the location of any existing underground utilities within the construction area should be established. Provisions should then be made to relocate any interfering utility lines within the construction area to appropriate locations and backfilling the excavation with compacted structural fill. In this regard, it should be noted that if abandoned underground pipes are not properly removed or plugged, they might serve as conduits for subsurface erosion, which subsequently may result in excessive settlement.

The site should be cleared of surface vegetation and any apparent deleterious materials. As a minimum, it is recommended that the clearing operations extend to the depth needed to remove material considered deleterious at least 5 feet beyond the proposed development area. Deleterious materials to be removed may include roots, stumps, and organic soils. Fill placement and subgrade preparation recommendations are presented in the “Construction Considerations” section of this report.

Foundation Recommendations – Vacant Parcel

Based on our evaluation and analyses, the soils encountered in the borings should be capable of supporting the proposed structure on shallow foundations after proper subgrade preparation. Based on the anticipated construction, field results indicate shallow foundations may be designed for a net maximum allowable bearing pressure of approximately 2,000 pounds per square foot (psf).

All footings should be embedded so that the bottoms of the foundations are a minimum of 18 inches below adjacent compacted grades on all sides. Strip or wall footings should be a minimum of 24 inches wide and pad or column footings should be a minimum of 30 inches wide. The minimum footing sizes should be used regardless of whether or not the foundation loads and allowable bearing pressures dictate a smaller size. These minimum footing sizes tend to provide adequate bearing area to develop bearing capacity and account for minor variations in the bearing materials. All footings should be constructed in a dry fashion. All footing excavations

should be covered during rain events. Uncovered excavations may become oversaturated and difficult to compact during rain events. Surface run-off water should be drained away from the excavations and not allowed to pond. It is important that the structural elements be centered on the footings such that the load is transferred evenly unless the footings are proportioned for eccentric loads.

Settlement – Vacant Parcel

The settlement of shallow foundations supported on the compacted sand fill and native sandy soils should occur rapidly after loading. Thus, the expected settlement should occur during construction as dead loads are imposed. Provided the recommended site preparation operations are properly performed and the recommendations previously stated are utilized, the total settlement of wall and isolated column footings should not exceed approximately 1 inch. Differential settlement is estimated to be on the order of 1/480 (1 inch over 40 feet). Differential settlement of this magnitude is usually considered tolerable for the anticipated construction; however, the tolerance of the proposed structure to the predicted total and differential settlement should be confirmed by the structural engineer. If final loading conditions differ from the loads assumed above, Tierra should be given the opportunity to review and amend our recommendations, if necessary.

Floor Slab

The floor slab may be safely supported as a slab-on-grade provided any unsuitable materials are removed and replaced with controlled structural fill. It is also recommended that the floor slab bearing soils be covered by a lapped polyethylene sheeting in order to reduce the potential for floor dampness which can affect the performance of various flooring materials (if any are used). This membrane should consist of a minimum six (6) mil single layer of non-corroding, non-deteriorating sheeting material placed to reduce seams and to cover all of the soil below the building floor. This membrane should be cut in a cross shape for pipes or other penetrations; the membrane should extend to within one-half inch of all pipes or other penetrations. All seams of the membrane should be lapped at least 12 inches. Punctures or tears in the membrane should be repaired with the same or compatible material.

Pavement Considerations

Actual pavement section thickness should be provided by the design civil engineer based on traffic loads, volume, and the owners design life requirements. The following sections represent minimum thicknesses representative of typical load and construction practices and as such periodic maintenance should be anticipated. All pavement materials and construction procedures should conform to the appropriate City or County requirements.

We understand the proposed development may include constructing a new building on the vacant parcel, demolishing the existing structure and using the western portion of the site for paved parking. During site preparation activities, the debris encountered beneath proposed pavement areas should be removed and replaced with approved structural fill placed and compacted as detailed in the “Construction Considerations” section of this report.

In general, following the completion of the recommended clearing and grading operations and fill placement, the compacted fill and natural shallow sandy soils should be acceptable for

construction and support of a flexible (limerock, crushed concrete, or shell base) type pavement section or rigid (concrete) pavement section.

Any fill utilized to elevate the cleared pavement areas to subgrade elevation should consist of reasonably clean (maximum 12% passing #200 sieve sizes) sands uniformly compacted to a minimum depth of 12 inches to a minimum density of 95% of the Modified Proctor maximum dry density. In flexible pavement areas we recommend 12 inches of Type B stabilized subgrade (LBR = 40) compacted to a minimum density of 98% of the modified Proctor maximum dry density below the base course. Traffic should not be allowed on the subgrade as the base is placed to avoid rutting. The subgrade should be checked for soundness and be true to line and grade prior to the placement of the base course.

The choice of pavement base type will depend on final pavement grades in relation to the seasonal high groundwater levels presented in this report. If a minimum separation of 18 inches between the bottom of the base and the seasonal high groundwater level is obtained, then a limerock, shell, or crushed concrete base can be utilized. A crushed concrete base should be utilized if the separation between final grade and the seasonal high groundwater is a minimum of 12 inches and less than 18 inches. Base material elevations should not be designed for saturated conditions. If the designer wishes to have base material closer than 12 inches to the SHGWT, then an underdrain system should be utilized that will maintain the 12 inches of separation. The SHGWT should be re-established relative to a known elevation prior to setting final grades. Limerock, shell and crushed concrete base material should meet Florida Department of Transportation (FDOT) requirements including compaction to a minimum density of 98% of the modified Proctor maximum dry density, Limerock and Shell base should have a minimum Limerock Bearing Ratio (LBR) of 100%. Crushed concrete should be graded in accordance with FDOT Specifications amd have a minimum LBR of 150%. As a guideline for pavement design, we recommend that the base course be a minimum of 6 inches thick in parking areas and 8 inches thick in heavily traveled drives. Before paving, the base should be checked for soundness.

The asphaltic concrete structural course should consist of at least one and one-half (1½) inches of Type SP asphaltic concrete material. The asphaltic concrete should meet standard FDOT material requirements and placement procedures as outlined in the current FDOT Specifications.

As an alternate to the above referenced flexible pavement design, a rigid (concrete) pavement design could be used. The concrete should have a minimum compressive strength of 4,000 psi at 28 days when tested in accordance with ASTM C-39. Based on our experience, a minimum thickness of five (5) inches should be utilized for standard duty applications and a minimum thickness of six (6) inches should be utilized for heavy-duty applications. The steel reinforcement within the concrete pavement should be designed by the project civil engineer. The subgrade soils should be compacted to a minimum density of 95% of the Modified Proctor maximum dry density.

CONSTRUCTION CONSIDERATIONS

General

It is recommended that a qualified and certified material engineering firm be retained to provide observation and testing of construction activities involved in the foundation earthwork, and

related activities of this project. Tierra cannot accept any responsibility for any conditions, which deviate from those described in this report, if not engaged to provide construction observation and testing for this project.

Fill Placement and Subgrade Preparation

The following are our recommendations for overall site preparation and mechanical densification work for the construction of the proposed improvements based on the anticipated construction and our boring results. These recommendations should be used as a guideline for the project general specifications prepared by the design engineer.

1. The site should be cleared; this primarily includes removing any deleterious materials currently on the site such as roots, organics, tree stumps or other buried or surface debris. It is recommended that any undesirable material be removed to the satisfaction of Tierra prior to beginning construction at the site. Resulting excavations should be backfilled with compacted structural fill. It is important that pavement and structure remnants be removed in their entirety. As a minimum, it is recommended that the clearing operations extend at least five (5) feet beyond the development perimeters.

2. Following the clearing operations, the development area should be proofrolled. The proofrolling may consist of compaction with a large vibratory roller or a fully loaded 2 cubic yard front-end loader or equivalent (i.e. through non-vibratory means). The proofrolling equipment should make a minimum of eight (8) overlapping passes over the structure and pavement areas with the successive passes aligned perpendicular. Vibratory rollers should not be used within 100 feet of existing structures**.**

3. Careful observations should be made during compaction to help identify any areas of soft yielding soils that may require over excavation and replacement. It is recommended that within the building area, the natural ground, to a minimum depth of one (1) foot below stripped grade, be compacted to a dry density of at least 95% of the Modified Proctor maximum dry density.

4. Following satisfactory completion of the initial compaction and proofrolling, the structure areas may be brought up to finished subgrade levels, if needed, using structural fill. Imported fill should consist of fine sand with less than 12% passing the No. 200 sieve, free of rubble, organics, clay, debris and other unsuitable material. Fill should be tested and approved prior to acquisition. Approved sand fill should be placed in loose lifts not exceeding 12 inches in thickness and should be compacted to a minimum density of 95% of the Modified Proctor maximum dry density. Density tests to confirm compaction should be performed in each fill lift before the next lift is placed.

5. Prior to beginning compaction, soil moisture contents may need to be controlled in order to facilitate proper compaction. If additional moisture is necessary to achieve compaction objectives, then water should be applied in such a way that it will not cause erosion or removal of the subgrade soils. Moisture content within the percentage range needed to achieve compaction is recommended prior to compaction of the natural ground and fill.

6. After compaction, the building foundation excavations can begin. Foundation excavations should be observed by the geotechnical engineer or a representative to explore the extent of any loose, soft, or otherwise undesirable materials. If the foundation excavations appear

suitable as load bearing materials, the bottom of the foundation excavations should be compacted to a minimum density of 95% of the Modified Proctor maximum dry density for a minimum depth of one (1) foot below the bottom of the footing depth, as determined by field density compaction tests.

7. If pockets of soft or unsuitable materials are encountered in the footing excavations, the unsuitable materials should be removed and the proposed footing elevation may be re-established by backfilling after the undesirable materials have been removed. This backfilling may be done with a well-compacted, suitable fill such as clean sand, gravel, or crushed FDOT No. 57 or FDOT No. 67 stone. Sand backfill should be compacted to a minimum density of 95% of the Modified Proctor maximum dry density.

8. Immediately prior to reinforcing steel placement, it is suggested that the bearing surfaces of all footing and floor slab areas be compacted using hand operated mechanical tampers. In this manner, any localized areas, which have been loosened by excavation operations, should be adequately recompacted.

9. Backfill soils placed adjacent to footings or walls should be carefully compacted with a light rubber-tired roller or vibratory plate compactor to avoid damaging the footings or walls. Approved sand fills to provide foundation embedment constraint should be placed in loose lifts not exceeding 6 inches and should be compacted to a minimum density of 95% of the Modified Proctor maximum dry density.

Tierra should be retained to provide on-site observation of earthwork activities. Density tests should be performed in the top one (1) foot of compacted existing ground, each fill lift, and the bottom of foundation excavations. It is important that Tierra be retained to observe that the subsurface conditions are as we have discussed herein, and that foundation construction, ground modification and fill placement is in accordance with our recommendations.

Drainage and Groundwater Concerns

We recommend that the Contractor determine the actual groundwater levels at the time of construction to determine potential groundwater impacts that may occur during construction.

Water should not be allowed to collect in the foundation excavations, on the floor slab areas, or on prepared subgrades of the construction either during or after construction. Undercut or excavated areas should be sloped toward one corner to facilitate removal of any collected rainwater, groundwater, or surface runoff. Positive site drainage should be provided to reduce infiltration of surface water around the perimeter of the building and beneath the floor slabs. The grades should be sloped away from the building and surface drainage should be collected and discharged such that water is not permitted to infiltrate the backfill and floor slab areas of the building.

Structural Fill

All materials used for structural fill or backfill should be evaluated and, if necessary, tested by Tierra prior to placement to determine if they are suitable for the intended use. Suitable fill materials should consist of fine to medium sand with less than 12% passing the No. 200 sieve, free of rubble, organics, clay, debris and other unsuitable material.

Excavations

The contractor is solely responsible for designing and constructing stable, temporary excavations and should shore, slope, or bench the sides of the excavations as required to maintain stability of both the excavation sides and bottom in accordance with OSHA 29 CFR, Part 1926, Subpart P as well as the "Trench Safety Act" in Chapter 90-96 of the Florida Statutes. The contractors "responsible persons", as defined in 29 CFR Part 1926, should evaluate the soil exposed in the excavations as part of the contractor's safety procedures. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in all local, state, and federal safety regulations.

We are providing this information solely as a service to our client. Tierra does not assume responsibility for construction site safety or the contractor's or other party's compliance with current local, state, and federal safety or other regulations.

REPORT LIMITATIONS

The analyses, conclusions and recommendations contained in this report are opinions based on the site conditions and project layout described herein and further assumes that the conditions observed in the exploratory borings are representative of the subsurface conditions throughout the site, i.e., the subsurface conditions elsewhere on the site are the same as those disclosed by the borings. If, during construction, subsurface conditions different from those encountered in the exploratory borings are observed or appear to be present beneath excavations, we should be advised at once so that we can review these conditions and reconsider our recommendations where necessary.

If there is a substantial lapse in time between the submittal of this report and the start of work at the site, or if conditions or project layout are changed due to natural causes or construction operations at or adjacent to the site, we recommend that this report be reviewed to determine the applicability of conclusions and recommendations considering the changed conditions and time lapse.

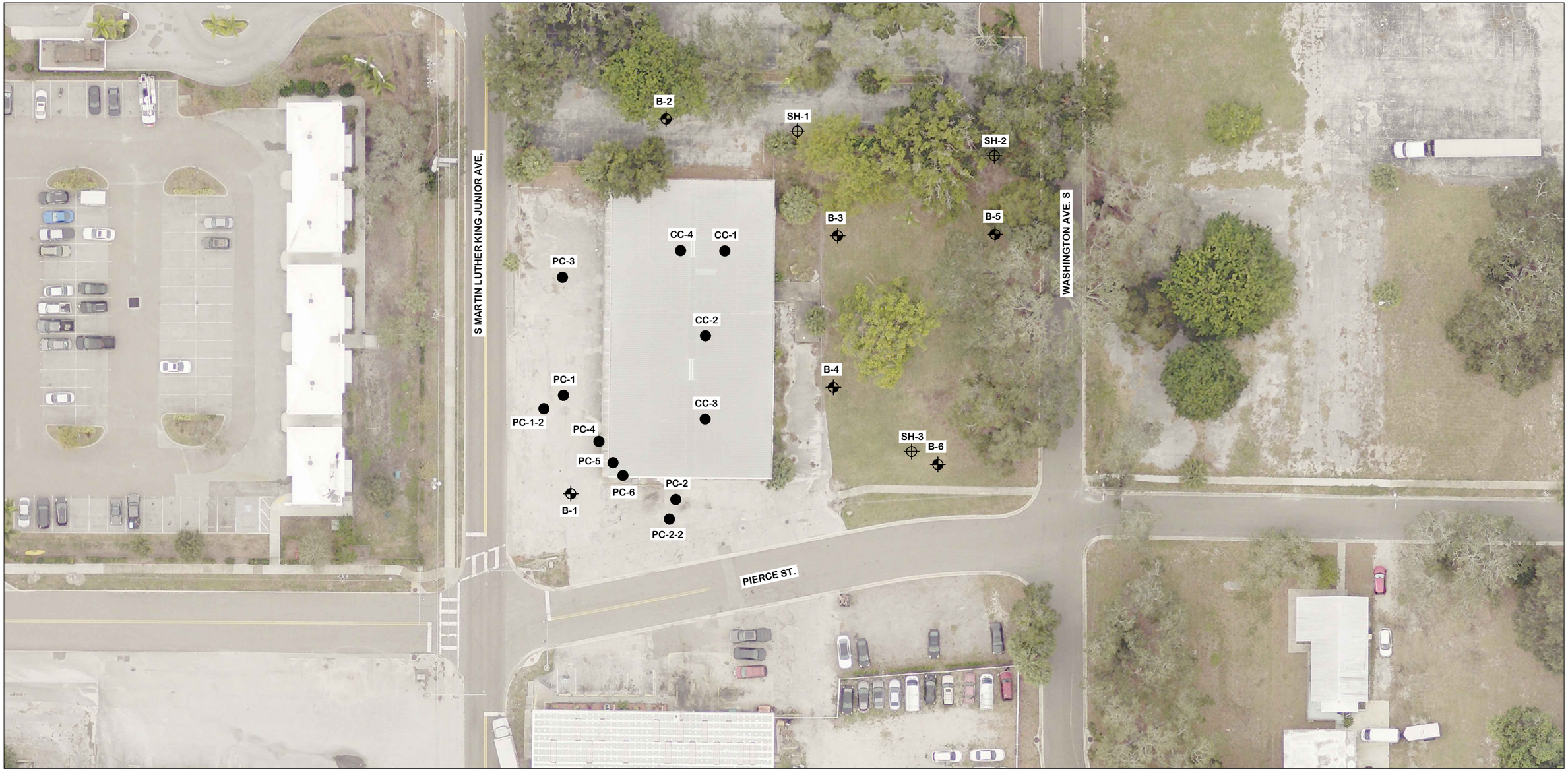
This report was prepared for the exclusive use of Long and Associates, Inc. and their client for evaluating the design of the project as it relates to the geotechnical aspects discussed herein. It should be made available to prospective contractors for information on factual data only and not as a warranty of subsurface conditions included in this report. Unanticipated soil conditions may require that additional expense be made to attain a properly constructed project. Therefore, some contingency fund is recommended to accommodate such potential extra costs.

APPENDIX

Boring Location Plan

Soil Profiles

GPR Survey Plan



BORING LOCATION PLAN

0 50'

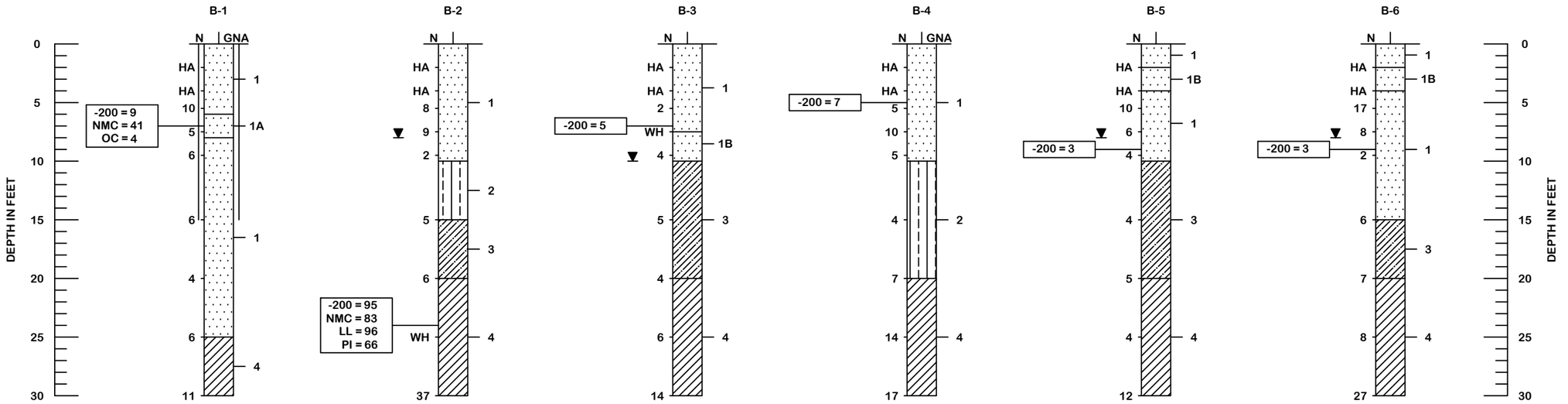
PLAN SCALE

LEGEND

- APPROXIMATE LOCATION OF AUGER BORING
- APPROXIMATE LOCATION OF SPT BORING
- APPROXIMATE LOCATION OF PAVEMENT CORE

DRAWN BY: SW CHECKED BY: EA/TJ	APPROVED BY: KHS DATE: JAN 2026	ENGINEER OF RECORD: KEVIN H. SCOTT, P.E. FLORIDA LICENSE NO.: 65514	TIERRA 7351 Temple Terrace Highway Tampa, Florida 33637 Phone: 813-989-1354 Fax: 813-989-1355	SCALE: NOTED	PROJECT NUMBER: 6511-25-337	GEOTECHNICAL ENGINEERING SERVICES 115 S MLK JR AVE PINELLAS COUNTY, FLORIDA	SHEET 1

SOIL PROFILES



LEGEND

1		LIGHT BROWN TO GRAY SAND TO SAND WITH SILT (SP/SP-SM)
2		LIGHT BROWN TO GRAY TO ORANGE SILTY SAND (SM)
3		LIGHT GRAY TO ORANGE CLAYEY SAND (SC)
4		LIGHT GRAY TO GRAY SANDY CLAY TO CLAY (CL/CH)

A - WITH TRACE ORGANICS
B - WITH ROOTS
C - WITH DEBRIS CONSISTING OF BRICK NAILS, WIRE AND/OR ASPHALT

▼	GROUNDWATER LEVEL ENCOUNTERED DURING INVESTIGATION
▽	ESTIMATED SEASONAL HIGH GROUNDWATER TABLE
N	SPT N-VALUE IN BLOWS/FOOT FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED)
SP	UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2488) GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND LABORATORY TESTING ON SELECTED SAMPLES FOR CONFIRMATION OF VISUAL REVIEW
GNE	GROUNDWATER TABLE NOT ENCOUNTERED
GNA	GROUNDWATER NOT APPARENT DUE TO DRILLING METHOD USED
HA	HAND AUGERED TO VERIFY UTILITY CLEARANCES
| |	CASING

WH	FELL UNDER WEIGHT OF ROD AND HAMMER
Qc	CONE INDEX (TSF)
-200	PERCENT PASSING #200 SIEVE
NMC	NATURAL MOISTURE CONTENT (%)
LL	LIQUID LIMIT (%)
PI	PLASTICITY INDEX (%)
OC	ORGANIC CONTENT (%)

AUTOMATIC HAMMER	
GRANULAR MATERIALS-RELATIVE DENSITY	SPT (BLOWS/FT.)
VERY LOOSE	LESS THAN 3
LOOSE	3 TO 8
MEDIUM	8 TO 24
DENSE	24 TO 40
VERY DENSE	GREATER THAN 40
SILTS AND CLAYS CONSISTENCY	SPT (BLOWS/FT.)
VERY SOFT	LESS THAN 1
SOFT	1 TO 3
FIRM	3 TO 6
STIFF	6 TO 12
VERY STIFF	12 TO 24
HARD	GREATER THAN 24

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TIERRA
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Tampa, Florida 33637
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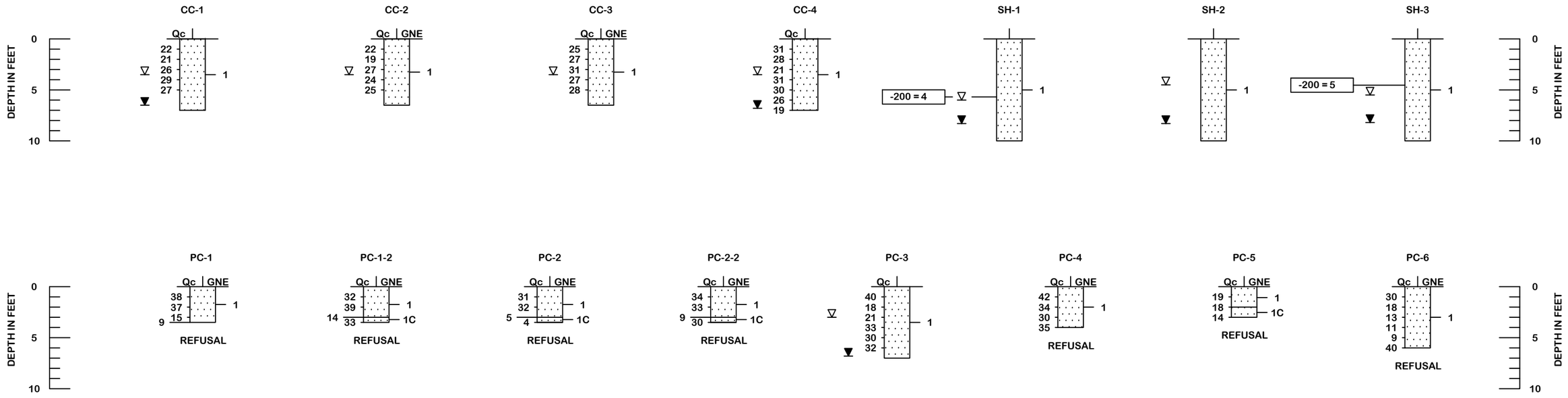
GEOTECHNICAL ENGINEERING SERVICES
115 S MLK JR AVE
PINELLAS COUNTY, FLORIDA

SHEET 2

SOIL PROFILES



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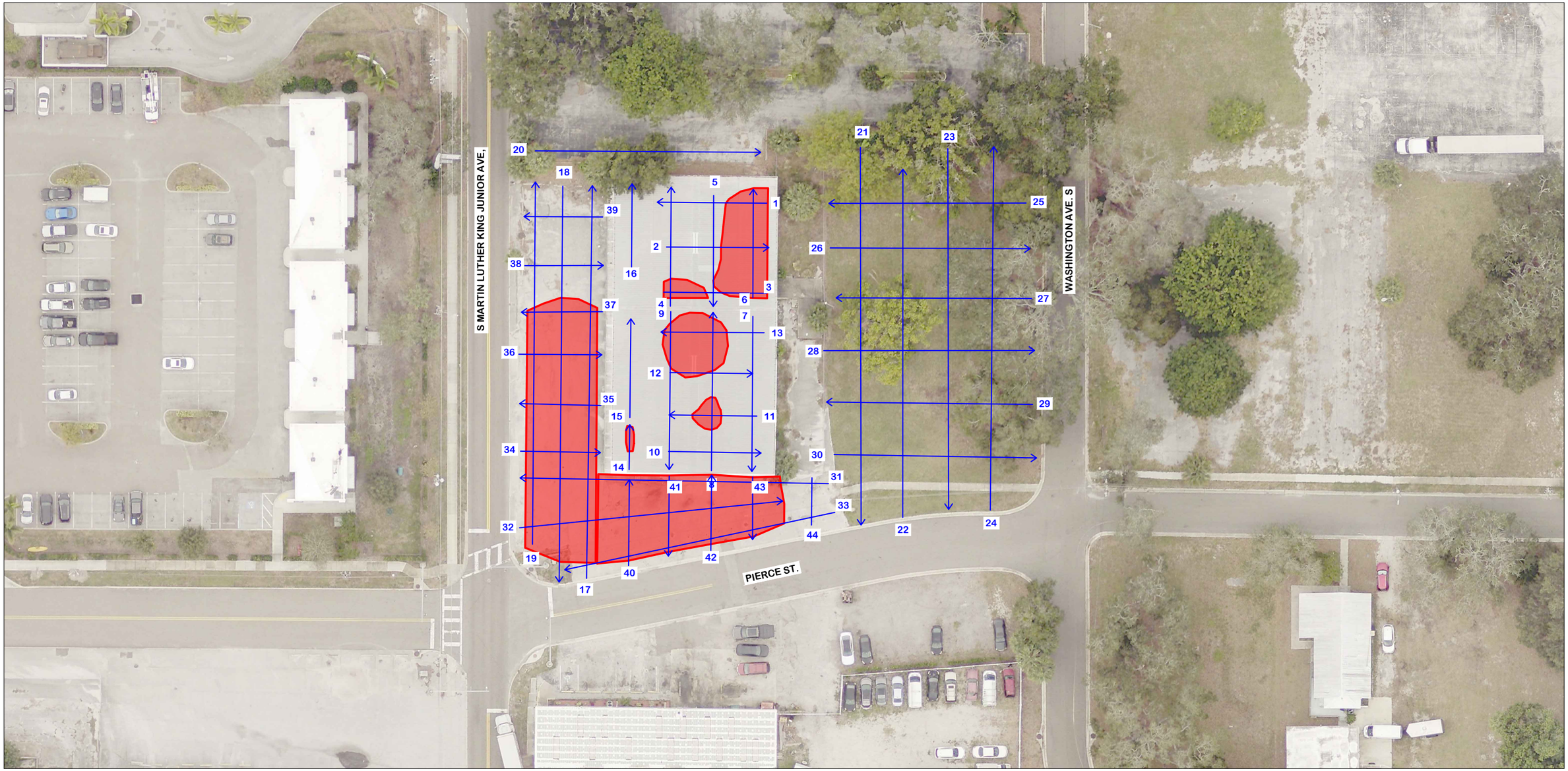
SHEET 3



GPR SURVEY PLAN

0 50'

PLAN SCALE

APPROXIMATE LOCATION OF GPR ANOMALY

10 PATH OF GPR TRANSECT LINES WITH DESIGNATION NUMBER (250 MHz ANTENNA)

DRAWN BY: SW CHECKED BY: EA/TJ	APPROVED BY: KHS DATE: JAN 2026	ENGINEER OF RECORD: KEVIN H. SCOTT, P.E. FLORIDA LICENSE NO.: 65514	TIERRA 7351 Temple Terrace Highway Tampa, Florida 33637 Phone: 813-989-1354 Fax: 813-989-1355	SCALE: NOTED	PROJECT NUMBER: 6511-25-337	GEOTECHNICAL ENGINEERING SERVICES 115 S MLK JR AVE PINELLAS COUNTY, FLORIDA	SHEET 4