csra TESTING & ENGINEERING CO., INC.
1005 Emmett Street, Suite A, Augusta, Georgia 30904 • (706) 733-6960 • Fax (706) 737-0629

July 9, 2021

Meybohm
4426 Evans To Locks Rd
Evans, Georgia 30809

Attn: Mr. Keith Lawrence

Re: Report of Preliminary Geotechnical Exploration
Addison Square
Riverwood Plantation
Evans, Georgia
CSRA Report No. B-066.21

Dear Mr. Lawrence:

CSRA Testing & Engineering Company, Inc., (CSRA) is pleased to submit this report of our exploration services for the proposed project. Our services were provided in accordance with your email authorization. This report presents a review of the information provided to us, a discussion of the site and subsurface conditions, and our preliminary foundation and earthwork recommendations. The Appendix contains a Boring Location Plan and the results of our field testing.

Project Information

Based on the information provided, the project involves the future development of 5 to 6 lots within the existing Addison Square development at the intersection of William Few Parkway and Riverwood Parkway in Evans, Georgia. We anticipate the buildings will be one to two-story, wood-framed structures with a masonry/vinyl exteriors. The foundation systems are expected to consist of lightly loaded shallow footings with a concrete slab on grade at each structure. No grading plans have been provided to us at this time. However, the site is gently sloping in the proposed building areas and we anticipate that only minor earthwork will be required to achieve final grades for each structure. The site was graded and pavement constructed as part of the initial construction of the general development area.

Purpose Of Exploration

The purpose of this exploration was to obtain specific subsurface data at the site and to provide preliminary foundation recommendations and earthwork for the proposed project.

Site Conditions

We conducted a site reconnaissance to observe and document surface conditions at the site. Information gathered was used to help us interpret the subsurface data and to detect conditions which could affect our recommendations.

The Addison Square site is at the intersection of William Few Parkway and Riverwood Parkway in Evans, Georgia. The lots are gently sloping to the southeast. The site was previously graded and is currently grass covered or has exposed surface soils. Surface soils consist of either a loamy organic topsoil, previous fills, or typical residual clayey soils of the piedmont. No surface water was noted on the site at the time of our field work.

Site Geologic Conditions

Based on published literature, the project site is in Georgia's Piedmont physiographic province. The soil overburden of this area is residuum formed by in-place weathering of the parent rocks. A typical upland soil profile consists of thin topsoil underlain by a few feet of clayey soils that transition with increasing depth into less clayey, coarser grained silts and sands with varying mica content. Separating the completely weathered soil overburden from the unaltered parent rock is a transition zone of residuum with penetration resistances of more than 100 blows per foot (bpf) which is locally described as partially weathered rock (PWR). The PWR retains much of the appearance and fabric of the parent rock formations, and may consist of thinly interlayered very hard or dense soil and rock.

The weathering processes that formed the overburden soils and partially weathered rock were extremely variable. Differential weathering of the rock mass has resulted in erratically varying subsurface conditions, evidenced by abrupt changes in soil type and consistency in relatively short horizontal and vertical distances. Although no rock outcrops were noted at the surface, depths to rock can be irregular, and isolated boulders, discontinuous rock layers, or rock pinnacles can be present within the overburden transition zones.

Subsurface Conditions

The subsurface conditions were explored with soil test borings drilled according to the procedures presented in the Appendix. The boring locations were selected by CSRA. The actual field boring locations were determined by our field crew by taped distances relative to the existing site features. Boring elevations were obtained by interpolation between contours on the drawing provided to us. The boring locations shown in the Appendix should be considered accurate only to the degree implied by the method used.

The subsurface conditions encountered at the boring locations are shown on the test boring records in the Appendix. These boring records represent our interpretation of the subsurface conditions based on the field logs and visual examination of field samples by our geotechnical engineer. The lines designating the interface between various strata on the boring records represent the approximate interface location. Water levels shown on the boring records represent the conditions only at the time of our exploration.

Four (4) test borings were drilled in the proposed lot areas to a depth of 15 feet below the existing ground surface. Under a thin layer of topsoil and possible fill, the virgin soils consisted of a few feet of clayey soils that transition with increasing depth into less clayey, coarser grained silts and sands with varying mica content (typical upland Piedmont soil profile). The clayey soils extend to depths of 6.0 to over 15.0 feet below the surface and consist of very stiff, sandy clayey silts (ML) and firm to very firm, clayey sands (SC) with standard penetration resistances of 12 to 30 blows per foot.

The final strata was encountered below the clayey soils and extend to the boring termination depth. Loose to dense silty sands (SM) are the most prominent in this stratum. Standard penetration resistances ranged from 10 to 36 blows per foot.

Groundwater Conditions

Groundwater was encountered in only one (1) test boring (B-4) at a depth of 10 feet at the time of drilling. In silty sands the water levels can usually be determined accurately near the time of drilling. In fine grained soils and clayey sands, it may take several days for water levels to stabilize. Fluctuations in the groundwater level can occur due to variations in rainfall, evaporation, construction activity, surface runoff, and other site specific factors. The highest groundwater levels are generally encountered in early spring and the lowest in late summer. The likelihood of groundwater in the near surface soils at some areas of the site can be expected to increase following periods wet weather.

Preliminary Site Preparation Recommendations

All topsoil, vegetation, debris, and surface soils containing organic material should be removed from the proposed construction area and either wasted from the site or used as topsoil in areas to be landscaped. The depth of topsoil or other unsuitable material encountered in our borings varied from approximately 1.5 to 6.0 inches deep.

During the stripping and rough grading, positive surface drainage should be maintained to prevent the accumulation of water. If the exposed subgrade becomes excessively wet or frozen, or if conditions are encountered different from those described previously in this report, the geotechnical engineer should be contacted.

After stripping and rough grading, we recommend the subgrade be proofrolled prior to excavation of foundations or placing structural fills (if any). We recommend the proofrolling operation be observed and documented by the construction testing agency. If unsuitable conditions are encountered at the subgrade level, recommendations for dealing with the conditions should be provided to the owner's representative by the geotechnical engineer.

Preliminary Foundation Recommendations

We recommend a system of shallow spread footings be utilized to support the proposed structures. Based on the anticipated grades, shallow footings will bear in very stiff virgin ML soils, firm virgin sands and possibly compacted fill. Shallow footings bearing in these materials can be designed for a maximum allowable net bearing pressure of 2,000 psf if the fill is placed in accordance with the compacted fill section of this report.

The maximum net allowable bearing pressures recommended are based on our previous experience and correlations made previously between standard penetration test resistances and the performance of foundations supported by soils similar to those at this site. We expect total settlements on the order of 1 inch and differential settlements of up to 0.5 inch.

We recommend the walls be provided with construction joints at locations of change in soil support from virgin soils to compacted fill in order to accommodate some possible differential settlements at such locations. Individual column footings should be entirely supported by either compacted fill or virgin material.

We recommend the minimum widths for individual column and continuous wall footings be 24 and 16 inches, respectively. The minimum widths are recommended to provide a margin of safety against a local or punching shear failure of the foundation soils. Exterior footings should bear at least 18 inches below final exterior grade. The depths of interior footings should be a minimum of 12 inches below the top of the floor slab. This embedment is necessary to provide adequate confinement of the bearing soils and to achieve the recommended bearing pressure.

Foundation concrete should be placed the same day that excavations are dug, if possible. If the bearing soils are softened by surface water intrusion or exposure, the softened soils must be removed from the foundation excavation bottom immediately prior to placement of concrete. If the excavation must remain open overnight or if rainfall becomes imminent while the bearing soils are exposed, we recommend a 2 to 4-inch thick "mud-mat" of "lean" (2,000 psi) concrete be placed on the bearing soils before the placement of reinforcing steel.

We recommend the construction testing agency observe the footing excavations immediately prior to placing concrete. They should compare the soils exposed with those encountered in the soil test borings and document the results. Any significant issues noted should be brought to the attention of the owners' representative along with appropriate recommendations. The foundation bearing area should be level or suitably benched. It should also be free of loose soil, ponded water and debris prior to the inspection.

A potential final geotechnical exploration may be required once more detailed site development plans are developed. The final geotechnical exploration may consist of additional borings in the proposed building areas, if needed.

Preliminary Grade Slab Recommendations

We understand a soil supported grade slabs will be used for the proposed structures. The grade slabs should be jointed around columns and along footing supported walls so that the slabs and foundations can settle differentially without damage. Joints containing dowels or keys may be used in the slabs to permit rotational movement between parts of the slabs without cracking or sharp vertical displacements.

A 4 to 6 inch layer of clean gravel or free draining sand covered with an impermeable membrane should be placed beneath the grade slabs to provide a vapor barrier and permit lateral drainage beneath the slabs.

Piping underneath the grade slabs should be avoided whenever possible. Where absolutely necessary, pipe joints must be tight to prevent leakage. Leakage from under floor piping is often the source of excessive soil moisture which can lead to damage due to potential soil expansion or erosion.

Construction activities and exposure to the environment can cause deterioration of prepared subgrades. Therefore, we recommend density and moisture content tests be conducted on the final subgrade soils immediately prior to grade slab construction to determine their condition.

Preliminary Compacted Fill Recommendations

We recommend soils used as compacted fills be free of debris and have less than 3% by weight fibrous organic material. They should have a maximum dry density of at least 90 pcf, a liquid limit of less than 50, and a plasticity index of less than 20. Before filling operations begin, representative samples of each proposed fill material should be collected. The samples should be tested to determine the maximum dry density, optimum moisture content, natural moisture content, gradation and plasticity of the soil. These tests are needed for quality control during compaction and also to determine if the fill material is acceptable. Visual observation indicates that the near surface soils can be utilized as fill.

We recommend all compacted fill be constructed by spreading acceptable soil in loose layers not more than 8 inches thick. The fill should be compacted in thin lifts to at least 95 percent of the Standard Proctor maximum dry density (ASTM D-698). The moisture content of the fill soils should be maintained within +3 and -3 percentage points of the optimum moisture content as determined from the proctor compaction test. This provision may require the contractor to dry the soils during periods of wet weather or wet the soils during the hot summer months.

We recommend the fill placement and compaction be observed and documented by the construction testing agency. Significant deviations, either from specifications or good practice, should be brought to the attention of the owner's representative, along with appropriate recommendations. At least one (1) field density test should be performed in each 3,000 square feet of fill for each fill layer.

Basis For Recommendations

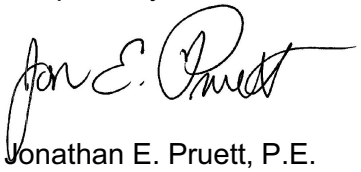
The recommendations provided are based in part on project information provided to us and they only apply to the specific project and site discussed in this report. If the project information section in this report contains incorrect information or if additional information is available, you should convey the correct or additional information to us and retain us to review our recommendations. We can then modify our recommendations if they are inappropriate for the proposed project.

Regardless of the thoroughness of a geotechnical exploration, there is always a possibility conditions between borings will be different from those at specific boring locations and that conditions will not be as anticipated by the designers or contractors. In addition, the construction process may itself alter soil conditions. Therefore, experienced geotechnical personnel should observe and document the construction procedures used and the conditions encountered. Unanticipated conditions and inadequate procedures should be reported to the design team along with timely recommendations to solve the problems created. We recommend the owner retain CSRA to provide this service based upon our familiarity with the project, the subsurface conditions and the intent of the recommendations.

We wish to remind you that our exploration services include storing the samples collected and making them available for inspection for 60 days. The samples are then discarded unless you request otherwise.

We will be happy to discuss our recommendations with you and would welcome the opportunity to provide the additional studies or services necessary to complete this project. We appreciate the opportunity to provide our professional services and look forward to working with you on the remainder of this project and on future projects. If you have any questions concerning this report or wish to have further discussions, please contact us at (706) 733-6960.

Respectfully submitted,

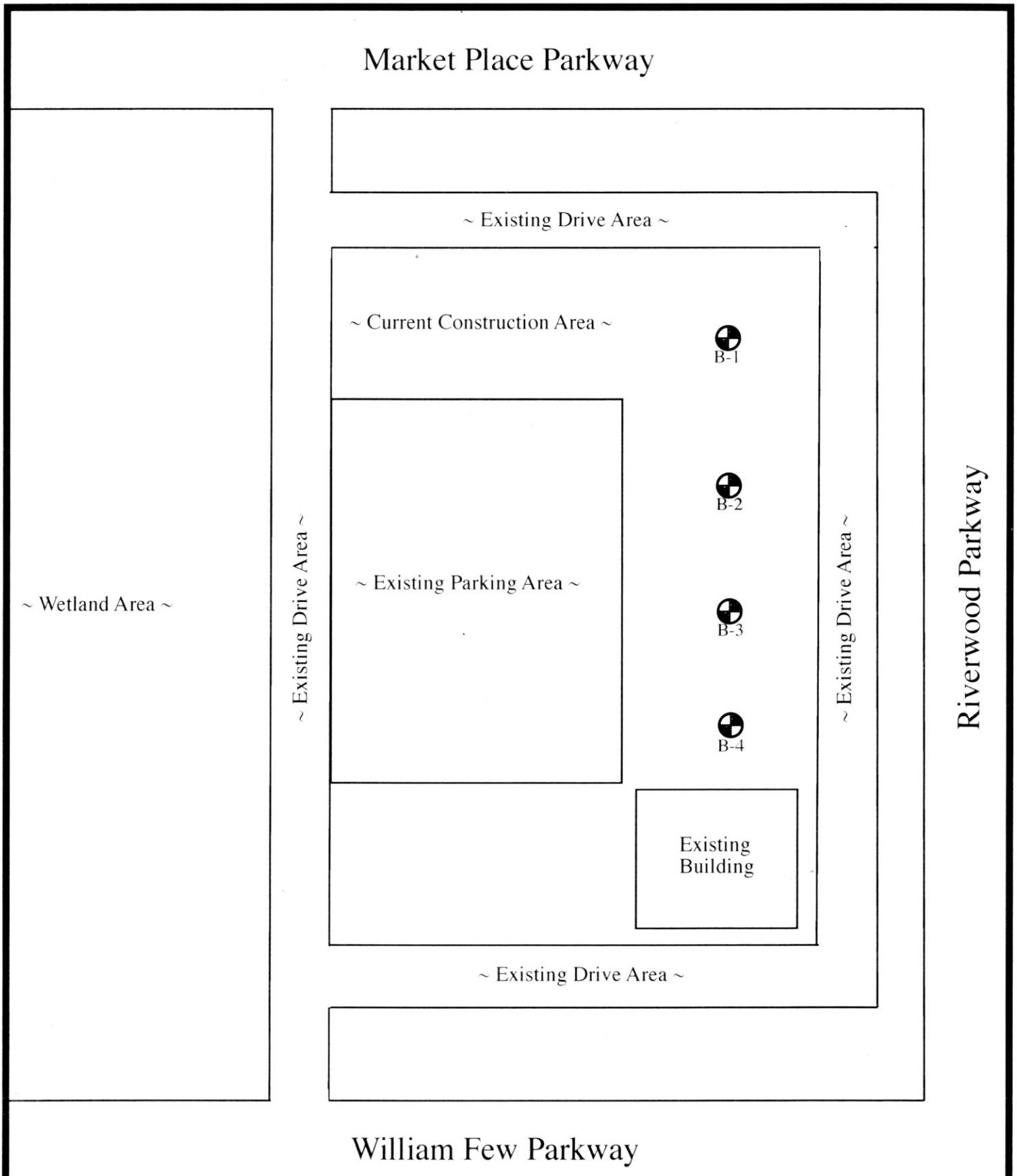


Jonathan E. Pruett, P.E.

APPENDICES

APPENDIX I

Boring Location Plan



csra

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SKETCH OF BORING LOCATIONS

Addison Square
Columbia County, Georgia

JOB NO.	DESIGNED BY
B-066.21	
SCALE	DRAWN BY
N.T.S.	R.W.S.
DATE	CHECKED BY
07/08/21	J.E.P.

APPENDIX II

Soil Boring Logs

csra TESTING & ENGINEERING CO., INC.
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PROJECT Addison Square BORING NO. B-1

LOCATION Evans, Georgia DATE June 24, 2021

DEPTH FEET	VISUAL SOIL DESCRIPTION	PENETRATION VALUE (N)	VISUAL UNIFIED CLASS.	PERCENT MOISTURE
	Tan and Red Slightly Clayey Silty Sand (Fill)	26 @ 1'	SM	
	Very Stiff, Tan, Red, and Gray Sandy Clayey Silt	30 @ 3.5'	ML	
5'		27 @ 6'		
		26 @ 8.5'		
10'	Very Firm, Gray and Tan Clayey Silty Sand		SC	
		24 @ 13.5'		
15'	Boring Terminated at 15 feet. Upper 1.5" is Topsoil.			
20'				
25'				
30'				
35'				
40'				

N Value is number of blows of 140 pound hammer required to drive 2" split-tube sampler one foot after seated.

NO WATER TABLE AT TIME OF BORING

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PROJECT Addison Square BORING NO. B-2

LOCATION Evans, Georgia DATE June 24, 2021

DEPTH FEET	VISUAL SOIL DESCRIPTION	PENETRATION VALUE (N)	VISUAL UNIFIED CLASS.	PERCENT MOISTURE
	Reddish-Tan Clayey Silty Sand (Possible Fill)	25 @ 1'	SC	
	Very Stiff, Tan, Red, and Gray Sandy Clayey Silt	24 @ 3.5'	ML	
5'	Very Firm to Firm, Gray and Tan Clayey Silty Sand	13 @ 6'	SC	
		17 @ 8.5'		
10'	Firm, Tan and Gray Silty Sand		SM	
		16 @ 13.5'		
15'	Boring Terminated at 15 feet. Upper 6" is Topsoil.			
20'				
25'				
30'				
35'				
40'				

N Value is number of blows of 140 pound hammer required to drive 2" split-tube sampler one foot after seated.

NO WATER TABLE AT TIME OF BORING

csra TESTING & ENGINEERING CO., INC.
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PROJECT Addison Square BORING NO. B-3

LOCATION Evans, Georgia DATE June 24, 2021

DEPTH FEET	VISUAL SOIL DESCRIPTION	PENETRATION VALUE (N)	VISUAL UNIFIED CLASS.	PERCENT MOISTURE
	Reddish-Tan and Gray Sandy Clayey Silt	18 @ 1'	ML	
	Firm, Tan, Gray, and Red Clayey Silty Sand	20 @ 3.5'	SC	
5'		24 @ 6'		
		31 @ 8.5'		
10'	Very Firm to Dense, Tan, Brown, and Gray Silty Sand		SM	
		36 @ 13.5'		
15'	Boring Terminated at 15 feet. Upper 1.5" is Topsoil.			
20'				
25'				
30'				
35'				
40'				

N Value is number of blows of 140 pound hammer required to drive 2" split-tube sampler one foot after seated.

NO WATER TABLE AT TIME OF BORING

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PROJECT Addison Square BORING NO. B-4

LOCATION Evans, Georgia DATE June 24, 2021

DEPTH FEET	VISUAL SOIL DESCRIPTION	PENETRATION VALUE (N)	VISUAL UNIFIED CLASS.	PERCENT MOISTURE
	Reddish-Tan Silty Clayey Sand (Possible Fill)	16 @ 1'	SC	
	Very Stiff, Reddish-Tan Sandy Clayey Silt	22 @ 3.5'	ML	
5'		12 @ 6'		
	Firm, Tan, Gray, and Red Clayey Silty Sand	10 @ 8.5'	SC	
10'	Loose to Firm, Tan, Red, and Gray Silty Sand		SM	
		19 @ 13.5'		
15'	Boring Terminated at 15 feet. Upper 1.5" is Topsoil.			
20'				
25'				
30'				
35'				
40'				

N Value is number of blows of 140 pound hammer required to drive 2" split-tube sampler one foot after seated.

10' WATER TABLE AT TIME OF BORING

APPENDIX III

Field Testing Procedures

FIELD TESTING PROCEDURES

SOIL TEST BORINGS

Soil sampling and penetration testing were performed in general accordance with ASTM D 1586.

The borings were made by mechanically twisting a continuous steel flight hollow stem auger into the soil. At regular intervals, soil samples obtained with a standard 1.4 inch I.D., 2 inch O.D., split-barrel sampler. The sampler was first seated 6 inches to penetrate any loose cuttings, then driven an additional foot with blows of a 140-pound hammer falling 30 inches. The number of hammer blows required to drive the sampler the final foot was recorded as the "penetration resistance". The penetration resistance, when properly evaluated, is an index to the soil strength and foundation supporting capability.

Representative portions of the soil samples, obtained from the sampler, were placed in glass jars and transported to our laboratory. In the laboratory, the samples were examined by an engineer to verify the driller's field classifications. Test boring records are attached, graphically showing the soil descriptions and penetration resistances.