REPORT OF

PRELIMINARY GEOTECHNICAL SITE INVESTIGATION
KERSHAW COUNTY EXIT 87 OFFICE PARK

ELGIN, SOUTH CAROLINA
S&ME Project No. 1611-04-450

Prepared For:

KERSHAW COUNTY ECONOMIC DEVELOPMENT OFFICE
Post Office Box 763
Columbia, South Carolina 29020

Prepared By
S&ME, Inc.
134 Suber Rd.
Columbia, SC 29210

September 22, 2004

S&ME

September 22, 2004

Mr. Nelson Lindsay
Kershaw County Economic Development Office
Post Office Box 763
Camden, South Carolina 29020

Reference: **Report of Preliminary Geotechnical Exploration**
Kershaw County Exit 87 Office Park
Camden, South Carolina
S&ME Project No. 1611-04-450

Dear Mr. Lindsay:

As requested, S&ME, Inc. has conducted a preliminary geotechnical exploration at the above referenced site. The exploration was conducted in general accordance with S&ME Proposal No. 1611-3704-04. The purpose of the exploration was to characterize and provide information about the on site subsurface soils based upon the soil test borings conducted. Information obtained was then used to provide site specific recommendations for potential construction including likely site preparation recommendations and foundation types. The purpose of this exploration was to provide general site information only. A final geotechnical report should be conducted for each building site once building configurations and locations are determined.

S&ME appreciates this opportunity to work with Kershaw County Economic Development Office as your geotechnical engineering consultant on this project. If you have any questions or need any further information in regard to this geotechnical report, please do not hesitate to contact us.

Very truly yours,
S&ME, Inc.

SOUTH CAROLINA
S & ME, INC.
No. C00473
CERTIFICATE OF AUTHORIZATION

William M. Jones III
Staff Professional
Author

SOUTH CAROLINA
REGISTERED PROFESSIONAL ENGINEER
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James T. Palmer, P.E.
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1.0 Project Information

Information about the project was provided by Kershaw County Economic Development Office. The information provided included location, size and intended use of this site. We noted that the site is moderately sloping with approximately 50 ft of surface relief. Access to the site is off Whiting Way Road along the south border of the property. The site consists of approximately 60 acres and is located northwest of Interstate 20 in Kershaw County. Currently, the site is mainly wood land with a small pond in the North West portion of the parcel. A site vicinity map is included in the Appendix as Figure 1.

Construction at the site will likely consist of light to medium office facilities with the associated parking and drive areas.

Exploration Procedures

In exploring the site, we generally followed the approach described in our proposal 1614-3704-04 dated August 30, 2004. Right-of-entry to perform borings and other fieldwork on the property was granted with acceptance of our proposal.

A Field Assignment Sheet was prepared for the field exploration staff indicating minimum boring depths, drilling method, sampling methods and depths, and backfilling method. During a site visit on September 14, 2004, a total of 5 boring locations were spaced around the tract.

A brief summary of exploration and laboratory procedures is attached in the Appendix.

Site Work

After receiving notice to proceed, we notified the Palmetto Utility Protection Service (PUPS) of our intent to drill at the site. S&ME checked proposed sampling points for conflicts with

marked utilities, overhead power lines, tree limbs, or man-made structures during reconnaissance of the site.

S&ME laid out sampling points by measuring distances from existing site features and by turning rough right angles from existing features marked on the aerial photograph. Sampling point locations were marked in the field with small colored flags with the sampling point numbers inscribed. Sampling points indicated on the attached "Boring Location Plan" must be considered as approximate.

Top-of-ground elevations at sampling point locations were interpolated from the USGS 7.5-minute topographic map. Interpolations between adjacent topographic contours were made using the care and judgment ordinarily exercised in similar work. No survey of the boring locations or elevations was conducted by S&ME.

Representatives of S&ME, Inc. visited the sites on September14 and 17, 2004**.** During the visit we conducted the following activities:

- Observed site features and topography
- Laid out 5 boring locations by measuring from existing landmarks.
- Advanced 4 soil test (STP) borings to a depth of 25 feet each and on seismic boring to auger refusal at 63 feet.
- Water level measurements at the sampling locations were taken at the time of completion of the soil test borings and at least 24 hours after drilling.

Standard Penetration Testing and Sampling

Exploration work included five SPT borings (B-1 to B-5) advanced to 25-63 ft. using a ATV-mounted drill rig. Hollow-stem continuous flight augers were used to advance the borings into the ground. Groundwater levels in the boring holes were measured at the time of completion.

Standard Penetration Tests were performed at designated intervals in general accordance with ASTM D 1586 to provide an index for estimating soil strength and density. In conjunction with the penetration testing, split-spoon soil samples were recovered for soil classification and potential laboratory testing. The SPT data is attached in the Appendix

Site Conditions

The site is bordered by Whiting Way Road to the south, White Pond Road to the south west and Haig Creek to the north east. The majority of the site is currently wooded with mature pines and few small hardwoods. Ground cover on the site consists of mainly thin underbrush with some dense pockets of vegetation. No rock outcroppings were observed on the site. No existing structures were noted on site.

Topography

The site is located in the Coastal Plains Province of South Carolina. The site is moderately sloping with approximately 50 feet of surface relief. Surface elevation was estimated as ranging from about 250 ft at the south side of the site to about 200 ft. near Haig Creek to the north east. Elevations given are above mean sea level estimated from the USGS topographic map for Kershaw County.

Surface Soils

Table I, USDA Soil Survey Soil Series

Soil Series	Slope	Runoff	Permeability	Available Water Capacity	Location
Blanton Sand (BaB)	0-6%	slow	rapid	low	Coastal plain ridges
Dorovan muck (Do)	-	very slow	moderate	very high	Bottom lands of the coastal plain
Johnston loam (Jo)	-	slow to ponded	moderately rapid	Low	Flood plains of the costal plains
Lakeland Sands (LaB)	6-10%	slow	very rapid	Low	Ride tops of the Sand Hills

The site lies within the White Sand Hills Physiographic Region of the Upper Coastal Plain of South Carolina. The White Sand Hills form the most inland portion of the coastal plain and are underlain by mostly sandy Cretaceous age sediments of the Black Mingo and Middendorf formations. These soils were eroded from a range of mountains in the northwest portion of the state approximately 65,000,000 years ago and laid down in their present positions as fan deposits, where they have weathered in place. In many areas groundwater is relatively shallow and supports heavy forest cover. Fresh soil exposures are typically white, but become pink, purple or rusty orange with weathering. Iron-oxide cemented sandstone beds are common.

3.3 Interpreted Subsurface Profile

The generalized subsurface conditions at the site are described below. For detailed descriptions and stratification at a particular boring location, the respective SPT boring log record should be reviewed.

Our borings encountered about 3 to 6 in. of topsoil at the boring locations. Underlying the topsoil, our borings encountered generally three layers of subsurface soils, which are grouped on the basis of data from the STP borings and our observation and manipulation of the recovered soil samples.

In borings B-1 and B-2 the upper approximately 3-1/2 ft. of the boring consists mainly medium dense poorly graded sands (SP) Standard Penetration Test (SPT) N-values in this strata ranged from 13 to 16 blows per foot (bpf). Beneath the poorly graded sand layer in boring B-2, medium dense silty sand (SM) was encountered to termination of the boring at about 25 ft. SPT-N values in the silty sands ranged from 17 to 34 bpf. In boring B-1 medium dense silty sand was encountered from about 3-1/2 ft/ to approximately 6.5 ft. with N values in this strata ranging from 18 to 26 bpf. The silty sand layer is underlain by a stiff silt with sand (ML) layer from approximately 6-1/2 ft. to about 13-1/2 ft. with N-values ranging from 29 to 11 bpf. Elastic silt with sand (MH) was encountered from approximately 13-1/2 ft. to 23-1/2

ft. with SPT N-values ranging from 11 to 28 bpf. From 23-1/2 ft. to termination of the boring at 25 ft. B-1 encountered dense silty sand (SM) the N-value recorded at this depth was 31 bpf

In boring B-3 approximately the upper 13-1/2 ft. of the boring encountered loose to medium dense poorly graded sands (SP) with SPT N-values ranging from 4 to 21 bpf. From approximately 13-1/2 ft. to 23-1/2 ft. boring B-3 encountered medium dense to dense silty sand (SM) with SPT N-values ranging from 29 to 34 bpf. This strata was underlain by an elastic silt layer from approximately 23-1/2 ft. to 28-1/2 ft. with SPT N-values in this layer ranging from 13 to 19 bpf. The elastic silt is underlain by dense poorly graded sand with silt (SP-SM) from approximately 28-1/2 ft. to 43-1/2 ft. with SPT N-values ranging from 33 to 38 bpf. From about 43-1/2 ft. to auger refusal at about 63 ft. boring B-3 encountered very dense silty sand (SM) with SPT N-values ranged from 81 to greater than 100 bpf. Auger refusal generally occurs on rock or in coarse gravel.

In borings B-4 and B-5 elastic silt with sand was encountered from just below the topsoil to a depth of about 8-1/2 ft. in B-5 and about 3-1/2 ft. in B-4. Standard penetration N-values in the silt ranged from 7 to 17 bpf. The elastic silt strata was underlain by a medium dense silty sand layer to termination of the boring at 25 feet. SPT N-values in the silty sands ranged from 9 to 31 bpf .

Subsurface Water

Subsurface water elevations were measured after the completion of each boring. Subsurface water was measured at 26 ft. in B-3 and at 9-1/2 ft. in B-4 at time of boring. Subsurface waster was not encountered at the time of our exploration in borings B-1, B-2 and B-5. After at least 24 hours we re-checked for the presence of subsurface water and no water was encountered in any of the borings. However, hole caving had occurred at depths ranging from about 7 to 10 ft. below the existing ground surface. Hole caving often occurs within a few feet of the water table.

Fluctuation in depth of water may occur with rainfall variation, construction, surface runoff, and other factors. By comparing estimated water elevations to estimated site grades, it does not appear that subsurface water will significantly impact proposed construction. Water level measurements made at different times than our exploration may indicate water levels substantially different than indicated on the boring records in the Appendix.

Conclusions and Recommendations

The conclusions and recommendations included in this section are based on the information outlined previously and the data obtained during our exploration. This exploration was intended for preliminary information only and further geotechnical exploration should be conducted prior to any construction on the site.

Seismic Considerations

Seismic induced ground shaking at the foundation is the effect taken into account by seismic-resistant design provisions of the 2003 International Building Code (IBC). Other effects, including landslides or soil liquefaction, are not addressed in building codes but must also be considered for Seismic Design Category D structures.

Boring data available at this site extends to 63 ft. below the existing ground surface. Based on the STP N-values, **Site Class D** appears to generally represent the conditions in and around the site as determine the Seismic Site Class by the IBC 2003 formulas. Soil liquefaction does not appear likely (to the depth of our borings) due to the relative density and/or fines content of the soils encountered.

Foundations

Shallow foundations appear feasible for support of light to medium office facilities provided foundations are properly designed and constructed. However, very loose to loose soil conditions may require low bearing pressures or undercutting of soft or loose soils to reduce settlement.

Grade Slab Support and Construction

It is likely that grade slabs on the site will be supported by shallow on-site cut or fill soils. The in-place poorly graded and silty sands similar to those penetrated by our borings will generally provide adequate support to soil-supported slabs-on-grade, assuming proper preparation, moisture control, and compaction of the subgrade for static load conditions. Elastic silts encountered at or near the ground surface in borings B-4 and B-5 may require some stabilization or undercutting prior to placement of grade slabs.

Potential Borrow Material and Site Preparation

The poorly graded sands encountered at the site are suitable for use as structural fill. The silty sand can also likely be used as structural fill; however, the high fines content of some of these soils will result in the material being difficult to dry if it is allowed to become wet. Care should be exercised during site work to segregate excessively wet fine-grained sols from structural fill. The elastic silts encountered at this site should be avoided as use for structural fill; however, this material could possibly be used in deep (greater than 10 ft.) parking area fills.

Site preparation may require ditching to lower subsurface water levels prior to deep cuts or trenching for utility lines. Care should be taken to seal the surface of building pads and pavement subgrades if rain is pending. Fill material should maintain a slope of at least 1V:100H to allow runoff of rain water during site grading.

Qualifications of Report

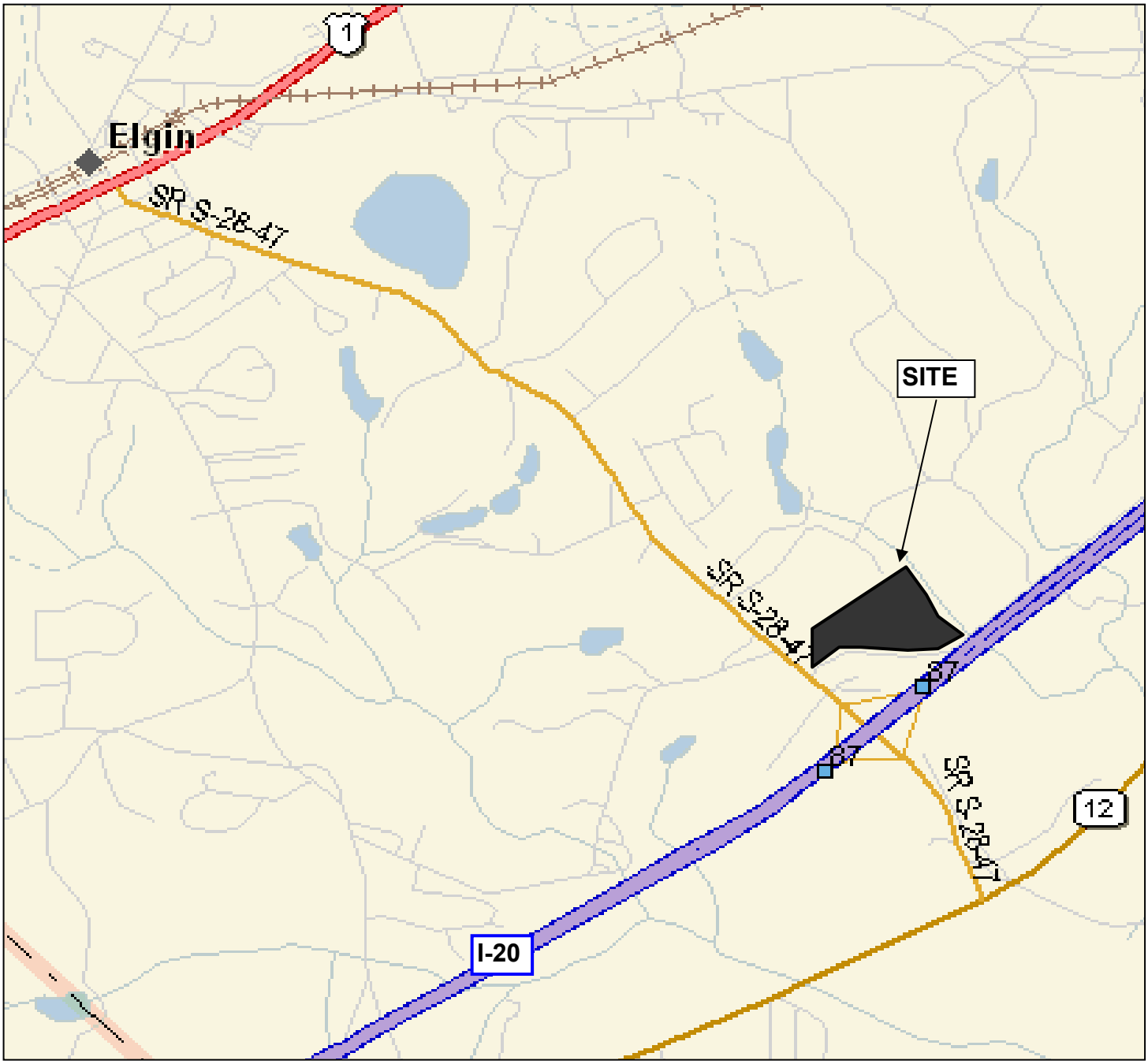
This report has been prepared in accordance with generally accepted geotechnical engineering practice for specific application to this project. The conclusions and recommendations contained in this report were based on the applicable standards of our profession at the time this report was prepared. No other warranty, express or implied, is made.

The analyses and recommendations submitted in this report are based, in part, upon the data obtained from the subsurface exploration. The nature and extent of variations between the borings may not become evident until construction. Due to the distance between each boring, subsurface conditions can be expected to vary from the conditions described herein.

In the event that any changes in the nature, design, or location of the project are planned, the conclusions and recommendations contained in this report will not be considered valid unless the changes are reviewed and conclusions of the report modified or verified in writing by us.

We recommend that S&ME, Inc. be provided the opportunity to review the final design plans and specifications in order to ensure that earthwork and foundation recommendations are properly interpreted and implemented.

APPENDIX



SOURCE: **NAPP AERIAL PHOTOGRAPH - 1999**

SCALE:	NTS
CHECKED BY:	JWW
DRAWN BY:	WMJ
DATE:	9/17/2004

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SITE VICINITY MAP
KERSHAW COUNTY EXIT 87 OFFICE PARK
ELGIN, SOUTH CAROLINA

JOB NO. 1611-04-450

FIGURE NO.
1

SOURCE: **NAPP AERIAL PHOTOGRAPH - 1999**

SCALE:	NTS
CHECKED BY:	JWW
DRAWN BY:	WMJ
DATE:	9/7/2004

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BORING LOCATION MAP
KERSHAW COUNTY EXIT 87 OFFICE PARK
ELGIN, SOUTH CAROLINA

JOB NO. 1611-04-450

FIGURE NO. 2

LEGEND TO SOIL CLASSIFICATION AND SYMBOLS

SOIL TYPES

(Shown in Graphic Log)


Fill


Asphalt


Concrete


Topsoil


Gravel


Sand


Silt


Clay


Organic


Silty Sand


Clayey Sand


Sandy Silt


Clayey Silt


Sandy Clay


Silty Clay


Partially Weathered Rock


Cored Rock

WATER LEVELS

(Shown in Water Level Column)

▽ = Water Level At Termination of Boring
▼ = Water Level Taken After 24 Hours
◄ = Loss of Drilling Water
HC = Hole Cave

CONSISTENCY OF COHESIVE SOILS

CONSISTENCY	STD. PENETRATION RESISTANCE BLOWS/FOOT
Very Soft	0 to 2
Soft	3 to 4
Firm	5 to 8
Stiff	9 to 15
Very Stiff	18 to 30
Hard	31 to 50
Very Hard	Over 50

RELATIVE DENSITY OF COHESIONLESS SOILS

RELATIVE DENSITY	STD. PENETRATION RESISTANCE BLOWS/FOOT
Very Loose	0 to 4
Loose	5 to 10
Medium Dense	11 to 30
Dense	31 to 50
Very Dense	Over 50

SAMPLER TYPES

(Shown in Samples Column)

■ Shelby Tube

⊠ Split Spoon

I Rock Core

□ No Recovery

TERMS

Standard Penetration Resistance - The Number of Blows of 140 lb. Hammer Falling 30 in. Required to Drive 1.4 in. I.D. Split Spoon Sampler 1 Foot. As Specified in ASTM D-1588.

REC - Total Length of Rock Recovered in the Core Barrel Divided by the Total Length of the Core Run Times 100%.

RQD - Total Length of Sound Rock Segments Recovered that are Longer Than or Equal to 4" (mechanical breaks excluded) Divided by the Total Length of the Core Run Times 100%.

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PROJECT: Kershaw County Office Park Elgin 1611-04-450	BORING LOG B-1
DATE DRILLED: **9/16/04**	ELEVATION: **250.0**
DRILLING METHOD: **2¼" H.S.A.**	BORING DEPTH: **25.0**
LOGGED BY: **WMJ**	WATER LEVEL: **Not encountered**
DRILLER: **Howard Wessinger**	DRILL RIG: **CME 45-B**

NOTES:

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	ELEVATION (feet-MSL)	SAMPLE NO/TYPE	STANDARD PENETRATION TEST DATA (blows/foot) 10 20 30 60 80	N VALUE
		TOPSOIL - approximately 4 inches of topsoil.					
		POORLY GRADED SAND (SP) - mostly fine sands, trace non-plastic fines, moist, light brown, medium dense.			1		16
5		SILTY SAND (SM) - mostly fine sand, some low plasticity fines, trace small roots, slightly micaceous, moist, light tan, yellow, orange, medium dense.		245.0	2		26
		decrease in fines content.	HC		3		18
		SILT WITH SAND (ML) - mostly low to medium plasticity fines, few fine sands, moist, light gray, purple, very stiff.			4		29
10				240.0			
15		ELASTIC SILT WITH SAND (MH) - mostly medium to high plasticity fines, few fine sands, moist, light gray, yellow, stiff to very stiff.		235.0	5		11
		- light brown			6		28
20				230.0			
		SILTY SAND (SM) - mostly fine to medium sands, some low plasticity fines, slightly micaceous, moist, purple, gray, dense.			7		31
25		BORING TERMINATED AT 25 FEET.		225.0			

BORING LOG KERSHAW COUNTY OFFICE PARK.GPJ S&ME.GDT 9/21/04

1. BORING AND SAMPLING IS IN ACCORDANCE WITH ASTM D-1586.

2. PENETRATION (N-VALUE) IS THE NUMBER OF BLOWS OF 140 LB. HAMMER FALLING 30 IN. REQUIRED TO DRIVE 1.4 IN. I.D. SAMPLER 1 FT.

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PROJECT: Kershaw County Office Park Elgin 1611-04-450	BORING LOG B-2
DATE DRILLED: 9/16/04	ELEVATION: 235.0
DRILLING METHOD: 2¼" H.S.A.	BORING DEPTH: 25.0
LOGGED BY: WMJ	WATER LEVEL: Not encountered
DRILLER: Howard Wessinger	DRILL RIG: CME 45-B

NOTES:

DEPTH (feet)	MATERIAL DESCRIPTION	WATER LEVEL	ELEVATION (feet-MSL)	SAMPLE NO/TYPE	STANDARD PENETRATION TEST DATA (blows/foot) 10 20 30 60 80	N VALUE
	TOPSOIL - approximately 3 inches of topsoil.					
	POORLY GRADED SAND (SP) - mostly fine to medium sands, trace non-plastic fines, moist, light tan, medium dense.			1		13
	SILTY SAND (SM) - mostly fine to medium sands, some low plasticity fines, moist, light brown, medium dense.			2		16
5	- low to medium plasticity fines, light brown.		230.0	3		21
	-mostly fine to coarse sands, brown, yellow, gray.	HC		4		34
10			225.0			
	- mostly fine to medium sands, micaceous, moist, tan, yellow.			5		20
15			220.0			
	- saturated, light gray , light brown.			6		17
20			215.0			
	- light gray, light purple.			7		18
25	BORING TERMINATED AT 25 FEET.		210.0			

BORING LOG KERSHAW COUNTY OFFICE PARK.GPJ S&ME.GDT 9/21/04

1. *BORING AND SAMPLING IS IN ACCORDANCE WITH ASTM D-1586.*
2. *PENETRATION (N-VALUE) IS THE NUMBER OF BLOWS OF 140 LB. HAMMER FALLING 30 IN. REQUIRED TO DRIVE 1.4 IN. I.D. SAMPLER 1 FT.*

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PROJECT:	Kershaw County Office Park Elgin 1611-04-450	BORING LOG B-3
DATE DRILLED: 9/16/04	ELEVATION: 240.0	NOTES:
DRILLING METHOD: 2¼" H.S.A.	BORING DEPTH: 63.0	
LOGGED BY: WMJ	WATER LEVEL: 26 FEET AT T.O.B.	
DRILLER: Howard Wessinger	DRILL RIG: CME 45-B	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	ELEVATION (feet-MSL)	SAMPLE NO/TYPE	STANDARD PENETRATION TEST DATA (blows/foot) 10 20 30 60 80	N VALUE
		TOPSOIL - approximately 3 inches of topsoil.					
		POORLY GRADED SAND (SP) - mostly fine to medium sands, trace non-plastic fines, trace small roots, moist, light brown, loose to medium dense.			1		4
5				235.0	2		11
		- mostly fine sand, light tan.	HC		3		17
10				230.0	4		21
		SILTY SAND (SM) - mostly fine to medium sands, some low to medium plasticity fines, moist, light gray, medium dense to dense.			5		29
15				225.0			
		- trace coarse sand, slightly micaceous.			6		34
20				220.0			
		ELASTIC SILT (MH) - mostly medium to high plasticity fines, trace fine sands, moist, light gray, stiff to hard.			7		13
25				215.0			
					8		19

BORING LOG KERSHAW COUNTY OFFICE PARK.GPJ S&ME.GDT 9/21/04

1. *BORING AND SAMPLING IS IN ACCORDANCE WITH ASTM D-1586.*
2. *PENETRATION (N-VALUE) IS THE NUMBER OF BLOWS OF 140 LB. HAMMER FALLING 30 IN. REQUIRED TO DRIVE 1.4 IN. I.D. SAMPLER 1 FT.*

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PROJECT: Kershaw County Office Park Elgin 1611-04-450	BORING LOG B-3
DATE DRILLED: **9/16/04**	ELEVATION: **240.0**
DRILLING METHOD: **2¼" H.S.A.**	BORING DEPTH: **63.0**
LOGGED BY: **WMJ**	WATER LEVEL: **26 FEET AT T.O.B.**
DRILLER: **Howard Wessinger**	DRILL RIG: **CME 45-B**

NOTES:

DEPTH (feet)	MATERIAL DESCRIPTION	ELEVATION (feet-MSL)	SAMPLE NO/TYPE	STANDARD PENETRATION TEST DATA (blows/foot)	N VALUE
	ELASTIC SILT (MH) - mostly medium to high plasticity fines, trace fine sands, moist, light gray, stiff to hard. *(continued)*				
35	POORLY GRADED SAND WITH SILT (SP-SM) - mostly fine to coarse sands, some low plasticity fines, saturated, light gray, tan, orange, dense to very dense.	205.0	9		33
40		200.0	10		38
45	SILTY SAND (SM) - mostly fine to medium sands, some low to medium plasticity fines, moist, light gray, very dense.	195.0	11		81
50	- trace coarse sand.	190.0	12		50/ 4"
55		185.0	13		50/ 4"
			14		50/ 3"

STANDARD PENETRATION TEST DATA (blows/foot): 10 20 30 60 80

BORING LOG KERSHAW COUNTY OFFICE PARK.GPJ S&ME.GDT 9/21/04

1. *BORING AND SAMPLING IS IN ACCORDANCE WITH ASTM D-1586.*
2. *PENETRATION (N-VALUE) IS THE NUMBER OF BLOWS OF 140 LB. HAMMER FALLING 30 IN. REQUIRED TO DRIVE 1.4 IN. I.D. SAMPLER 1 FT.*

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PROJECT: Kershaw County Office Park Elgin 1611-04-450	BORING LOG B-3
DATE DRILLED: **9/16/04**	ELEVATION: **240.0**
DRILLING METHOD: **2¼" H.S.A.**	BORING DEPTH: **63.0**
LOGGED BY: **WMJ**	WATER LEVEL: **26 FEET AT T.O.B.**
DRILLER: **Howard Wessinger**	DRILL RIG: **CME 45-B**

NOTES:

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	ELEVATION (feet-MSL)	SAMPLE NO/TYPE	STANDARD PENETRATION TEST DATA (blows/foot) 10 20 30 60 80	N VALUE
		SILTY SAND (SM) - mostly fine to medium sands, some low to medium plasticity fines, moist, light gray, very dense. *(continued)*					
		AUGER REFUSAL AT 63 FEET.					

BORING LOG KERSHAW COUNTY OFFICE PARK.GPJ S&ME.GDT 9/21/04

1. *BORING AND SAMPLING IS IN ACCORDANCE WITH ASTM D-1586.*
2. *PENETRATION (N-VALUE) IS THE NUMBER OF BLOWS OF 140 LB. HAMMER FALLING 30 IN. REQUIRED TO DRIVE 1.4 IN. I.D. SAMPLER 1 FT.*

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PROJECT: Kershaw County Office Park Elgin 1611-04-450	BORING LOG B-5
DATE DRILLED: **9/16/04**	ELEVATION: **230.0**
DRILLING METHOD: **2¼" H.S.A.**	BORING DEPTH: **25.0**
LOGGED BY: **WMJ**	WATER LEVEL: **Not encountered**
DRILLER: **Howard Wessinger**	DRILL RIG: **CME 45-B**

NOTES:

DEPTH (feet)	MATERIAL DESCRIPTION	WATER LEVEL	ELEVATION (feet-MSL)	SAMPLE NO/TYPE	N VALUE
	TOPSOIL - approximately 3 inches of topsoil.				
	ELASTIC SILT WITH SAND (MH) - mostly medium to high plasticity fines, few fine sands, trace small roots, moist, light gray, yellow, firm to stiff.			1	7
	- trace fine sands.			2	10
5			225.0	3	17
	SILTY SAND (SM) - mostly fine to medium sands, some low plasticity fines, slightly micaceous, light tan, light purple, medium dense.	HC		4	25
10			220.0		
	- fine to coarse sand, some low plasticity fines, few silt nodulus, moist, tan, orange.			5	31
15			215.0		
				6	18
20			210.0		
	- saturated.			7	13
25	BORING TERMINATED AT 25 FEET.		205.0		

STANDARD PENETRATION TEST DATA (blows/foot)

10 20 30 60 80

BORING LOG KERSHAW COUNTY OFFICE PARK.GPJ S&ME.GDT 9/21/04

1. *BORING AND SAMPLING IS IN ACCORDANCE WITH ASTM D-1586.*
2. *PENETRATION (N-VALUE) IS THE NUMBER OF BLOWS OF 140 LB. HAMMER FALLING 30 IN. REQUIRED TO DRIVE 1.4 IN. I.D. SAMPLER 1 FT.*

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PROCEDURES

Configuration and Layout of Borings

Checks for Hazardous Conditions - After receiving notice to proceed, we notified the Palmetto Utility Protection Service (PUPS) of our intent to drill at the site. PUPS is operated by the major water, sewer, electrical, telephone, CATV, and natural gas suppliers of South Carolina. PUPS forwarded our location request to the participating utilities. Location crews then marked buried lines with colored flags within 72 hours. S&ME checked proposed sampling points for conflicts with marked utilities, overhead power lines, tree limbs, or man-made structures during reconnaissance of the site.

Staking of Borings - S&ME laid out the borings by measuring distances from existing site features and by turning rough right angles from existing features marked on the aerial photograph. Boring locations were marked in the field with small colored flags with the boring numbers inscribed. Boring locations indicated on the attached "Boring Location Plan" must be considered as approximate.

Boring Elevations - Top-of-ground elevations at borings were interpolated from USGS topographic mapping data and should be considered approximate for demonstration purposes only. No survey of the boring locations or elevations was conducted by S&ME.

Boring and Sampling Procedures

Field Boring Records - The subsurface conditions encountered during drilling were reported on a field test boring record by the chief driller. The record contains information about the drilling method, samples attempted and sample recovery, indications of materials in the borings such as coarse gravel, cobbles, etc, and indications of materials encountered between sample intervals. Field boring records are retained at our office.

Soil Test Borings by Hollow Stem Auger - Soil test borings were advanced at the marked locations by hollow-stem auger and are denoted "B-"on the boring location plan. All borings were advanced to their assigned depths or to auger refusal. In each boring - penetration testing were performed in general accordance with ASTM D1586, "Standard Test Method for Penetration Test and Split Barrel Sampling of Soils. At regular intervals, soil samples were obtained with a standard 1.4 inch I. D., two-inch O. D., split barrel sampler. The sampler was first seated six inches to penetrate any loose cuttings, and then driven an additional 12 inches with blows of a 140-pound hammer falling 30 inches. The number of hammer blows required to drive the sampler through the two final six inch increments was recorded as the penetration resistance (SPT N) value. The N-value, when properly interpreted by qualified professional staff, is an index of the soil strength and foundation support capability.

Borehole Closure - Following collection of relevant geotechnical data, boreholes were filled by slowly pouring auger cuttings into the open hole such that minimal "bridging" of the material occurred in the hole. Backfilling of the upper two feet of each hole was tamped as heavily as possible with a shovel handle or other hand held equipment, and the backfill crowned to direct rainfall away on the surface. Where boreholes exceeded five feet in depth, a plastic hole plug was firmly tamped into place within the backfill at a depth of about two feet.

Water Measurements - Water level readings were made in the open boreholes immediately after completing drilling and withdrawal of the tools and at least 24 hours after drilling.

Preservation and Handling of Recovered Earth Materials

Preservation and Transporting of Soil Samples with Control of Field Moisture – Procedures for preserving soil samples obtained in the field and transportation of samples to the laboratory generally followed those
given in ASTM D 4220, "Standard Practice for Preserving and Transporting Soil Samples" for Group B samples as defined in Section 4. Representative samples split spoon samples were placed in suitably identified, sealed glass jars or plastic containers and transported to the laboratory. Sample identification numbers on the containers corresponded to sample numbers recorded on field boring records or test pit records.

LABORATORY EVALUATION AND ARCHIVING OF SAMPLES

Recovered field samples and field boring records were reviewed in the laboratory by the geotechnical engineer. Soils were classified in general accordance with the visual-manual method described in ASTM D 2488, "Standard Practice for Description and Identification of Soils (Visual-Manual Method)". With this information the geotechnical engineer prepared the final boring records enclosed with this report.