





SHEET 1 OF 1	JOB NO.		8682.S3
	PROJECT MGR.		JIB
	DRAWN		ES, JT, JB
	FIELD WORK		
	SCALE		1" = 1200'
SHEET TITLE:		PROJECT NAME:	
DETAIL SOILS EVALUATION		CLIENT NAME	
		BUCK MOUNTAIN SOUTH	
		CHATHAM CO, NORTH CAROLINA	
		JANUARY 2005	
		<div><div>S&EC</div><div>Soil & Environmental Consultants, PA</div><div>11010 Raven Ridge Road • Raleigh, North Carolina 27614 • Phone: (919) 846-5900 • Fax: (919) 846-9467</div><div>www.SandEC.com</div></div>	
		FILE \\SEC2\8682.S1\NEW SOILS.DWG	

Job #4-1405

December 1st, 2004

Mr. Ed Andrews
P.O. BOX 30653
5004 Hermitage Dr. 27612
RALEIGH, NC 27622

Dear Mr. Andrews:

This letter is a determination of the Ksat results for the buck Mountain South project located in Chatham County. You already have a soils map of the proposed wetted area which includes soil types and their boundaries. Below are the raw numbers generated from both field and laboratory measurements for each of the soil horizons.

Lab Setting

	K in/year
Georgeville1 Bt 18"	656.5136219
Georgeville2 Bt 33"	726.7973186
Georgeville1BC 38"	218.0391956
Georgeville2 BC 75"	882.7497797
Cid/Lig2 Bt 27"	137.1414836
Cid/Lig1 BC 40"	355.3067863
Cid/Lig1 BC 47"	100.8856891
Badin Bt 26"	252.2142228
Badin Bt2 48"	141.8705003
Goldston1 Bt 14"	357.313373
Goldston1 Bt 22"	50.44284456

Ksat Measurements in situ

	K in/year
Georgeville Bt	292.8068325
Georgeville BC	366.1416817
Georgeville C	694.2929789
Goldston C	16.11834525
Goldston C	7.587832613

The averages for the series horizons were as follows:

Georgeville Bt----- 558 inches/yr
Georgeville BC----- 487 inches/yr
Georgeville C----- 694 inches/yr

Badin Bt----- 196 inches/yr

Goldston Bt----- 203 inches/yr
Goldston C----- 12 inches/yr

Cid/Lignum Bt----- 137 inches/yr
Cid/Lignum BC----- 227 inches/yr

These averages look to be extremely low. I would apply these numbers to the model and see what we can arrive at as for an application rate. If this can get us through the winter we could run some additional numbers in the spring. The Cid/Lignum C horizon could not be measured due to the presence of rock. I have included the profile descriptions of each of the series as well. This report is NOT the final version of the soils report. I will prepare the final soils report when necessary. If you have any further questions please feel free to call.

Sincerely,

James L. Beeson

**Profile Descriptions
Buck Mountain
November 2004
Project 4-1405 S1**

Soil & Environmental Consultants, PA
Project Manager: Jim Beeson

**Profile Descriptions
Buck Mountain
November 2004
Project 4-1405 S1**

Georgeville

A	0-9"	Sandy Loam	Granular, ns, np	7.5 YR 4/4
Bt1	9-26"	Clay	mod, med, sbcky, fr, s, sp	5YR 5/8
Bt2	26-38"	Clay loam	mod, med, sbcky, fr, ss, sp Few manganese concretions	5YR 5/8
BC	38-51"	Scl	wk, fine, sbcky, fr, ss, sp Many common dis. Mottles	7.5YR 4/6 7.5YR 5/3

Cid/Lignum area

A	0-4"	Loam	gr, ns, np	7.5YR 4/4
Bt1	4-14"	Silt loam, wk, mod, abcky, ss, sp, fi, many	Common, distinct mottles	2.5Y 6/8 2.5Y 7/2
Bt2	14-26"	Clay, fi, s, p med, sbcky, many common	Distinct mottles, and red concretions	2.5Y 6/8 2.5Y 7/2
Bt3	36-38"	Clay, fi, med, mod, sbcky, vfi, vs, vp, red	Concretions	2.5Y 7/2Matrix 2.5Y 6/8
BC	38-48"	Silty clay loam, weak,fr,nsnp, many rock	Rock fragments bottom of horizon	2.5Y 7/2Matrix
C	48-52"	Silt loam, massive, many rock fragments		2.5Y 7/2 matrix

Goldston area

A	0-7"	Silt loam	Gran, many slate fragments	10YR 6/3
B	7-14	Silt loam/clay	massive rock controlled, clay	10 YR 6/4
			Pockets flows vf, vs, vp	
C	14-22	Silt loam	many slate fragments, massive, Hard, auger refusal at 22in	

Badin Area

A	0-8"	Silt loam	Gran, many slate fragments	7.5YR 5/4
Bt	8-48	siltyclay	Channery massive vf, vs, vp	5 YR 5/8

Georgeville

A	0-9"	Sandy Loam	Granular, ns, np	7.5 YR 4/4
Bt1	9-26"	Clay	mod, med, sbcky, fr, s, sp	5YR 5/8
Bt2	26-38"	Clay loam	mod, med, sbcky, fr, ss, sp	5YR 5/8
			Few manganese concretions	
BC	38-51"	Scl	wk, fine, sbcky, fr, ss, sp	7.5YR 4/6
			Many common dis. Mottles	7.5YR 5/3

Cid/Lignum area

A	0-4"	Loam gr, ns, np	7.5YR 4/4
Bt1	4-14"	Silt loam, wk, mod, abcky, ss, sp, fi, many Common, distinct mottles	2.5Y 6/8 2.5Y 7/2
Bt2	14-26"	Clay, fi, s, p med, sbcky, many common Distinct mottles, and red concretions	2.5Y 6/8 2.5Y 7/2
Bt3	36-38"	Clay, fi, med, mod, sbcky, vfi, vs, vp, red Concretions Rock fragments bottom of horizon	2.5Y 7/2Matrix 2.5Y 6/8
BC	38-48"	Silty clay loam, weak,fr,nsnp, many rock Fragments	2.5Y 7/2Matrix
C	48-52"	Silt loam, massive, many rock fragments	2.5Y 7/2 matrix

Goldston area

A	0-7"	Silt loam	Gran, many slate fragments	10YR 6/3
B	7-14	Silt loam/clay Pockets	massive rock controlled, clay flows vf, vs, vp	10 YR 6/4
C	14-22	Silt loam	many slate fragments, massive, Hard, auger refusal at 22in	

Badin Area

A	0-8"	Silt loam	Gran, many slate fragments Channery	7.5YR 5/4
Bt	8-48	siltyclay	massive vf, vs, vp	5 YR 5/8

Georgeville Area Deep Boring

A	0-9"	Sandy Loam	Granular, ns, np	7.5 YR 4/4
Bt1	9-26"	Clay	mod, med, sbcky, fr, s, sp	5YR 5/8
Bt2	26-38"	Clay loam	mod, med, sbcky, fr, ss, sp	5YR 5/8
			Few manganese concretions	
BC	38-51"	Scl	wk, fine, sbcky, fr, ss, sp	7.5YR 4/6
			Many common dis. Mottles	7.5YR 5/3
BC2	51-55"	Scl	weak, sbcky, vf, s, p	7.5YR 4/6
			Mottles	7.5YR 5/3 & 5/1
BC3	55-76"	Scl	weak, sbcky, vf, s, p	7.5YR 4/6
			Mottles	7.5YR 6/6
C	76-130"	Siltloam	fr, ns, np, common mg.conc.	7.5YR 5/6
			Common fine mottles	10YR 7/1
2Bt	130-149"	Clay	Mod, med, sbcky,s,p	7.5YR 5/8
			common distinct mottles	7.5YR 7/1
2BC	149-160"	Siltyclayloam	wk, sbky, ss, sp few distinct	7.5YR 5/8
			mottles	7.5YR 7/1
2C	160-192"	Silt loam	fr, ns, np, mass, few	7.5YR 5/6
			mottles	10YR 7/1