Earthwise Designs
Soils & Land Evaluation

10/18/2022

On-site Septic Feasibility Study

11.256-acre Lot T-100, Ironwood Lane, Creston development

McDowell Co. NC Parcel ID: 0637-0079-4339

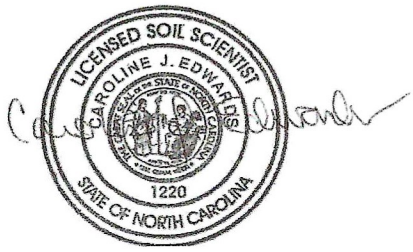
Prepared for: Matthew Orton

Earthwise Designs has performed a soils and site evaluation of the lot referenced above, per NC General Statues 15A NCAC 18A .1900. Ten pits were evaluated to depths of 48"+ with favorable results. Suitable soils and space exists for the proposed use – one three-bedroom home and a future one-two bedroom cottage. Conditions are suitable for conventional septic systems and equivalent. See attached maps and soil notes for details.

This report represents my best professional opinion. Please contact me if you have any questions or we can be of future service. Thank you.

Sincerely,
Caroline J. Edwards

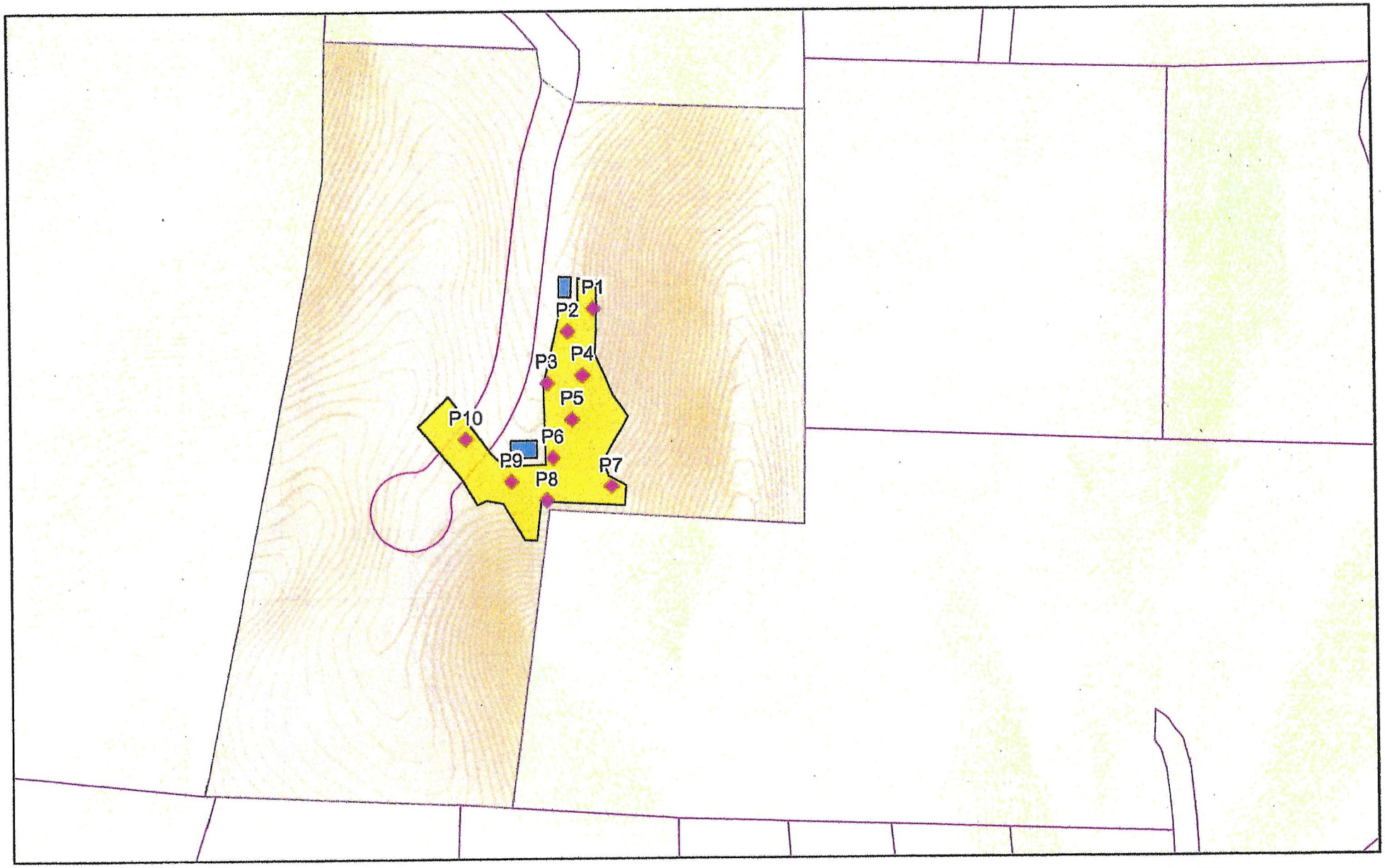
NC Licensed Soil Scientist #1220
SC Professional Soil Classifier #117
NC Land Application of Bio-Solids #10006173



Attachments:
Two site maps
Two soils sheets

Orton - Ironwood Lane Septic Feasibility

Earthwise Designs
Soils & Land Evaluation



10/18/2022

1:2,532

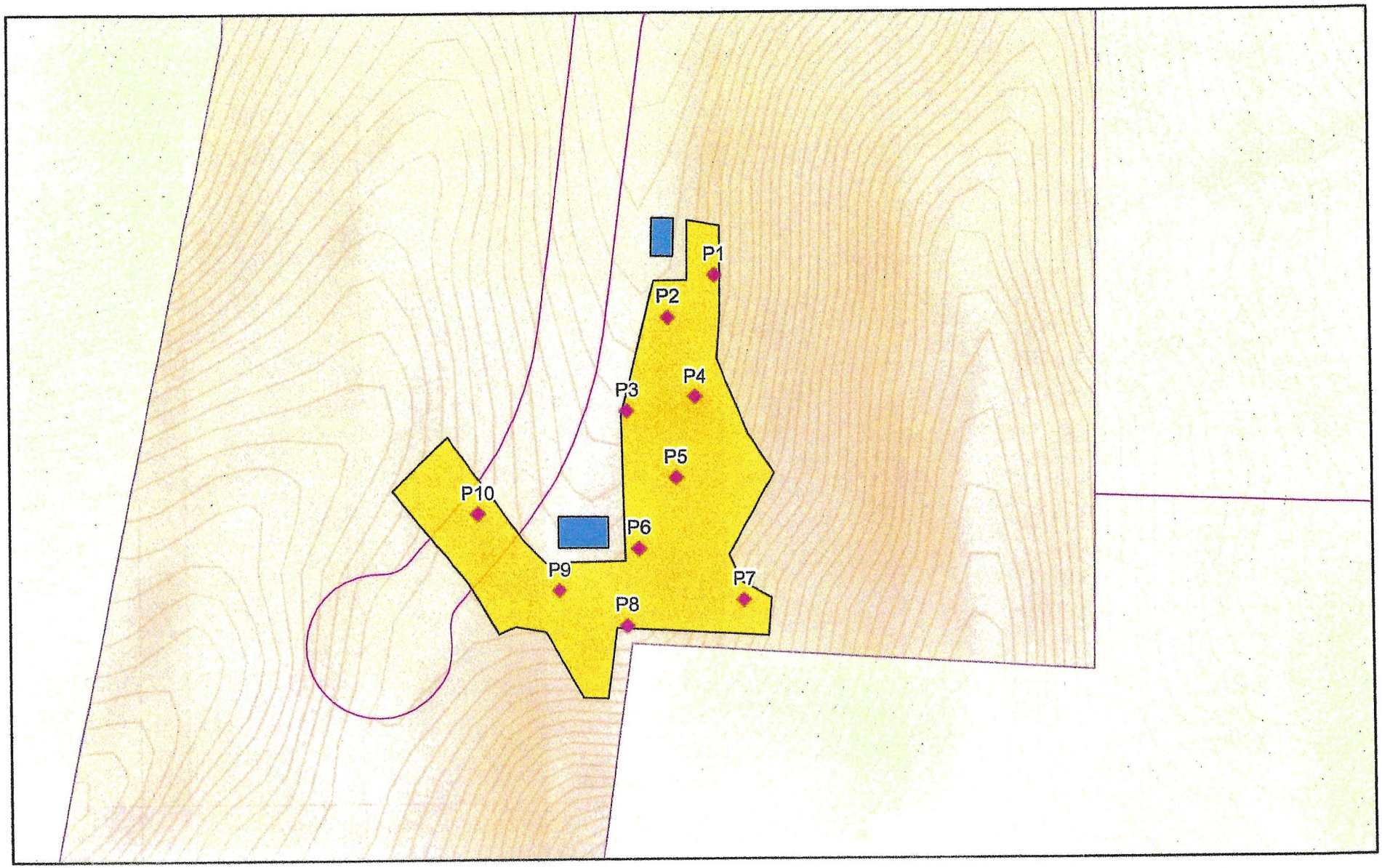
0 0.02 0.04 0.07 mi

0 0.03 0.06 0.11 km

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA,

- P1-P10 = pit locations.
- Orange area = suitable for typical septic systems such as LDP and III g. with 25% reduction.

Orton - Ironwood Lane Septic Feasibility



10/18/2022

1:1,386

0 0.01 0.01 0.03 mi

0 0.01 0.03 0.06 km

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA,

- P1-P10 = pit locations.
- Orange area = suitable for typical septic systems such as LDP and III g. with 25% reduction.

Earthwise Designs
Soils & Land Evaluation

Owner/Buyer Orton Date Evaluated 10-18-22 Location of Site Ironwood Ln. Pond 063700794359 Co:

Proposed Facility _____ Proposed Design Flow (.1949) _____ gal/day Property Size 11 ac.

Well Supply (Private, Public, Well, Spring, Other _____) Evaluation Method (Auger, Pit, Cut)

Profile	Flag Color	Landscape grade/ Slope	Horizon	depth (in)	Texture	Soil structure Grade	Class	Type	Mineralogy consistence moist/wet			Soil color Matrix	Soil color Mottles	Notes/LTAR	
3	0	18% 5 Ridgetop	Bt1	0-7	CL	1	F	SBK	FR	NS	NP	5YR 6/8		Group III P.S	30/48+
			Bt2	7-20	SiCL	2	F	SBK	FR	SS	SP	5YR 5/8		Group II saprolite	
			BC	20-30	SiL	1	F	SBK	FR	NS	NP	11		LTAR 0.3	
			C	30-48	SiL	0	-	MA	FR	NS	NP	10YR 6/6			
5	0	4% SE L	Bt1	0-10	CL	1	F	SBK	FR	NS	NP	5YR 6/8		Group III P.S.	42/48+
			Bt2	10-27	SiCL	2	m	SBK	FR	NS	NP	5YR 6/8		Group II saprolite	
			BC	27-42	SiL	1	F	SBK	FR	NS	NP	11		0.35 or 0.3 sap	
			C	42-48+	SiL	0	-	MA	FR	NS	NP	10YR 6/6			
4	0	4% E L	Bt1	0-8	CL	1	F	SBK	FR	NS	NP	7.5YR 6/6		Group III P.S.	48+
			Bt2	8-29	SiCL	1	F	SBK	FR	NS	NP	5YR 6/6		0.35	
			BC/CB	29-48+	SiL	1	VF	SBK	FR	NS	NP	11			
2	0	27% SE shoulder	Bt1	0-8	CL	1	F	SBK	FR	NS	NP	7.5YR 6/6		Group III P.S.	42/48+
			Bt2	8-19	SiCL	1	m	SBK	FR	NS	NP	5YR 6/6		Group II saprolite	
			BC/CB	19-42	SiL	1	F	SBK	FR	NS	NP	11		0.35 or 0.3 sap.	
			C	42-48+	SiL	1	F	SBK	FR	NS	NP	7.5YR 7/3	& gray granitic parent material - no redox		
1	0	4% E L	Bt1	0-7	CL	1	F	SBK	FR	NS	NP	7.5YR 6/6		Group III P.S.	48+
			Bt2	7-33	SiCL	2	F	SBK	FR	NS	NP	5YR 6/6		0.35	
			BC/CB	33-48+	SiL	1	F	SBK	FR	NS	NP	11			

TEXTURE				STRUCTURE GRADE		STRUCTURE TYPE		MINERALOGY MOIST	
Coarse Sand	COS	Very Fine Sandy Loam	VFSL	Structureless	0	Granular	GR	Loose	L
Sand	S	Loam	L	Weak	1	Angular Blocky	ABK	Very Friable	VFR
Fine Sand	FS	Silt Loam	SIL	Moderate	2	Subangular Blocky	SBK	Friable	FR
Very Fine Sand	VFS	Silt	SI	Strong	3	Platy	PL	Firm	FI
Loamy Coarse Sand	LCOS	Sandy Clay Loam	SCL	CLASS		Wedge	WEG	Very Firm	VFI
Loamy Sand	LS	Clay Loam	CL	Very fine	VF	Prismatic	PR	Extr. Firm	EFI
Loamy Fine Sand	LFS	Silty Clay Loam	SICL	Fine	F	Columnar	COL	WET	
Loamy Very Fine Sand	LVFS	Sandy Clay	SC	Medium	M			Non-Sticky	NS
Coarse Sandy Loam	COSL	Silty Clay	SIC	Coarse	CO	Single Grain	SGR	Slightly Sticky	SS
Sandy Loam	SL	Clay	C	Thick (PL)	TK	Massive	MA	Moderately Sticky	S
Fine Sandy Loam	FSL			Very Coarse	VC			Very Sticky	VS
				Very Thick (PL)	VK	Cloddy	CDY	Non-Plastic	NP
				Extremely Coarse	EC			Slightly Plastic	SP
								Moderately Plastic	P
								Very Plastic	VP

LICENSED SOIL SCIENTIST CAROLINE J. EDWARDS 1228 STATE OF NORTH CAROLINA

Owner/Buyer Orton Date Evaluated 10-18-22 Location of Site Ironwood Ln. Parcel 0637007947359 Co: McDowell

Proposed Facility _____ Proposed Design Flow (.1949) _____ gal/day Property Size 11 ac.

Well Supply (Private, Public, Well, Spring, Other _____) Evaluation Method (Auger, Pit, Cut)

Profile	Flag Color	Landscape grade/ Slope	Horizon	depth (in)	Texture	Soil structure Grade	Class	Type	Mineralogy consistence moist/wet			Soil color Matrix	Soil color Mottles	Notes/LTAR	
10	orange O	25% W L	Bt1	0-13	CL	1	M	SBK	FR	SS	SP	7.5YR 5/6		Group III P.S. LTAR 0.3	48+
			Bt2	13-42	SiC	2	M	SBK	FI	MS	MP	5YR 5/8			
			BC	42-48+	SiCL	1	M	SBK	FR	SS	SP	11			
9	O	26% S/SW Ridge top	Bt1	0-11	L	1	F	SBK	FR	NS	NP	5YR 6/8		Group III P.S. 0.35	48+
			Bt2	11-27	SiCL	2	M	SBK	FR	SS	SP	5YR 5/8			
			BC	27-48+	SiL	1	F	SBK	FR	NS	NP	11			
8	O	37% S/SE Ridge top	Bt1	0-8	L	1	F	SBK	FR	NS	NP	5YR 6/8		Group III P.S. 0.35	48+
			Bt2	8-27	SiCL	2	M	SBK	FR	SS	SP	5YR 5/8			
			BC	27-48	SiL	1	F	SBK	FR	NS	NP	11			
6	O	34% SE shoulder	Bt1	0-9	CL	1	F	SBK	FR	NS	NP	5YR 6/8		Group III P.S. Group II saprolite 0.3	37/48+
			Bt2	9-19	SiCL	1	F	SBK	FR	NS	NP	5YR 5/6			
			BC	19-37	SiL	1	F	SBK	FR	NS	NP	11			
			C	37-53+	SiL	0	-	MA	FR	NS	NP	7.5YR 6/6			
7	O	39% E/SE L	Bt1	0-10	CL	1	M	SBK	FR	SS	SP	7.5YR 5/6		Group III P.S. 0.3	48+
			Bt2	10-48+	SiC	2	M	SBK	FI	MS	MP	5YR 5/8			

TEXTURE			
Coarse Sand	COS	Very Fine Sandy Loam	VFSL
Sand	S	Loam	L
Fine Sand	FS	Silt Loam	SIL
Very Fine Sand	VFS	Silt	SI
Loamy Coarse Sand	LCOS	Sandy Clay Loam	SCL
Loamy Sand	LS	Clay Loam	CL
Loamy Fine Sand	LFS	Silty Clay Loam	SICL
Loamy Very Fine Sand	LVFS	Sandy Clay	SC
Coarse Sandy Loam	COSL	Silty Clay	SIC
Sandy Loam	SL	Clay	C
Fine Sandy Loam	FSL		

STRUCTURE			
GRADE		TYPE	
Structureless	0	Granular	GR
Weak	1	Angular Blocky	ABK
Moderate	2	Subangular Blocky	SBK
Strong	3	Platy	PL
CLASS		Wedge	WEG
Very fine	VF	Prismatic	PR
Fine	F	Columnar	COL
Medium	M		
Coarse	CO	Single Grain	SGR
Thick (PL)	TK	Massive	MA
Very Coarse	VC		
Very Thick (PL)	VK	Cloddy	CDY
Extremely Coarse	EC		

MINERALOGY	
MOIST	
Loose	L
Very Friable	VFR
Friable	FR
Firm	FI
Very Firm	VFI
Extr. Firm	EFI
WET	
Non-Sticky	NS
Slightly Sticky	SS
Moderately Sticky	S
Very Sticky	VS
Non-Plastic	NP
Slightly Plastic	SP
Moderately Plastic	P
Very Plastic	VP

LICENSED SOIL SCIENTIST CAROLINE J. EDWARDS 1220 STATE OF NORTH CAROLINA