Appendix B:

Addendum Geotechnical Report, Montevallo, August 2005

PREPARED FOR

PHOENIX DEVELOPMENT, INC.

August 1, 2005

ADDENDUM GEOTECHNICAL REPORT MONTEVALLO WOODINVILLE, WASHINGTON

ES-0067

Earth Solutions NW, LLC 2603 – 151st Place Northeast, Redmond, Washington 98052 Ph: 425-284-3300 Fax: 425-284-2855 Toll Free: 866-336-8710



August 1, 2005 ES-0067.001

Earth Solutions NW LLC

- Geotechnical Engineering
- Construction Monitoring
- Environmental Sciences

Phoenix Development, Inc. 16108 Ash Way, Suite 201 Lynnwood, Washington 98087

Attention: Ms. Loree Quade

Dear Ms. Quade:

Earth Solutions NW, LLC (ESNW) has prepared this addendum geotechnical report for the proposed residential development. The purpose of this report was to provide additional subsurface data in the vicinity of the proposed storm water detention vault. For continuity, logs for all the test sites on the property and the lab data have been included in this supplement report. A revised site plan illustrating the approximate locations of the test sites, and the locations of the recent test site has also been included.

The following information regarding our findings at the additional test site has also been presented as part of the narrative portion of the Environmental Impact Statement (EIS) prepared for the proposed development.

Site Characterization

Subsurface conditions at the Montevallo property were explored by excavating thirteen (13) test pits. The test pit logs for the Montevallo site are included in Appendix A of this addendum geotechnical report. The referenced geologic maps of the Bothell area indicate the site is underlain by glacial till (Qvt) deposits. The native soils encountered at our test pit locations are generally consistent with glacial till deposits. The Soil Survey of King County indicates the site is underlain by Alderwood gravelly sandy loam, 6 to 15 percent slopes (AgC). Groundwater seepage is associated with relatively shallow perched zones. A relatively deep test excavation recently completed in the vicinity of the proposed storm water vault (ESNW TP-1) did not encounter persistent or chronic groundwater seepage conditions. Soil conditions at depth are characterized as very dense.

We trust the information provided in this supplement report meets your current needs. If you have any questions or if additional information is needed, please call.

Sincerely,

EARTH SOLUTIONS NW, LLC

PEXPIRES 7/29 2006
Raymond A. Coglas, P.E.

Principal

Attachments:

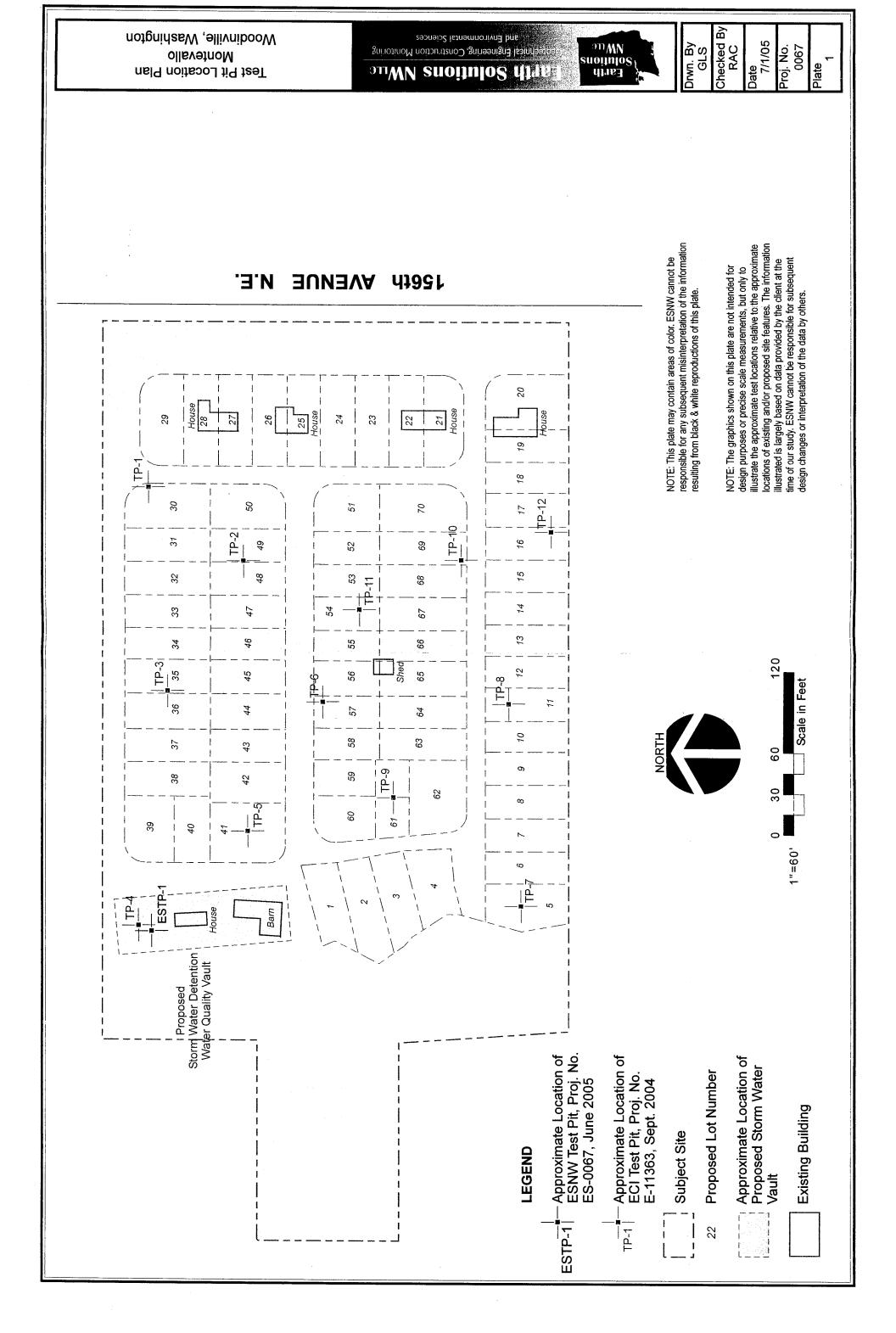
Plate 1 - Test Pit Location Plan (7/1/05)

Appendix A - Test Pit Logs

CC:

Huckell/Weinman Associates, Inc.

Mr. Chris Lawson



APPENDIX A TEST PIT LOGS ES-0067

Earth Solutions NW_{LLC} SOIL CLASSIFICATION CHART

			SYM	BOLS	TYPICAL
M	IAJOR DIVISI	ONS	GRAPH	LETTER	DESCRIPTIONS
	GRAVEL AND	CLEAN GRAVELS		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
	GRAVELLY SOILS	(LITTLE OR NO FINES)		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
COARSE GRAINED SOILS	MORE THAN 50% OF COARSE FRACTION	GRAVELS WITH FINES		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
	RETAINED ON NO. 4 SIEVE	(APPRECIABLE AMOUNT OF FINES)		GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
MORE THAN 50% OF MATERIAL IS	SAND AND	CLEAN SANDS		sw	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
LARGER THAN NO. 200 SIEVE SIZE	SANDY SOILS	(LITTLE OR NO FINES)	\times	SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION	SANDS WITH FINES		SM	SILTY SANDS, SAND - SILT MIXTURES
	PASSING ON NO. 4 SIEVE	(APPRECIABLE AMOUNT OF FINES)		SC	CLAYEY SANDS, SAND - CLAY MIXTURES
				ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
50.20				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE				MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
SIZE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		СН	INORGANIC CLAYS OF HIGH PLASTICITY
				ОН	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
Ню	GHLY ORGANIC S		ጥ ጥ ጥ ጥ ጥ የ ጥ ጥ ጥ ፦ ጥ ጥ ጥ ጥ ጥ	PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

DUAL SYMBOLS are used to indicate borderline soil classifications.

The discussion in the text of this report is necessary for a proper understanding of the nature of the material presented in the attached logs.

Earth Solutions NWnc

Earth Solutions NW, LLC 2603 151st Pl. NE Redmond, WA 98052 Telephone: 4252843300

TEST PIT NUMBER TP-1ESNW

PAGE 1 OF 1

1	pment	PROJECT NAME Montevallo
PROJECT NUMBER 006		PROJECT LOCATION Woodinville, Washington
EXCAVATION CONTRACT EXCAVATION METHOD _ LOGGED BY SEP	COMPLETED 6/14/05 TOR NW Excavating CHECKED BY RAC & Sod 1.5': grass	GROUND WATER LEVELS: AT TIME OF EXCAVATION AT END OF EXCAVATION
SAMPLE TYPE NUMBER U.S.C.S.		MATERIAL DESCRIPTION
SM	Brown gray silty SAND with gravelseepage encountered	, loose, moist
SM	Brown silty SAND with gravel, dense seepage encountered cobbles 10" by 8" -seepage encountered (light)	se, moist
	-too dense to continue with excava 15.5 Test pit terminated at 15.5 feet belifeet during excavation.	

Project Name:					W-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1				5	Sheet	of	
Montevallo)									1	1	
Job No.	L	.ogged b	y:			Date:		Test Pit No.:				
11363		ELW				8/26/04	<u></u> .	TP-1				
Excavation Con								Ground Surface E	levatio	on:		
Northwest	Exca	<u>vating</u>						478'				
Notes:												
												
General Notes	W (%)	Graphic Symbol	Depth Ft. Sample	USCS Symbol	Surface Condit	tions: 1 OpsoIl &	Topsoil & sod 10" grass					
Notes	(70)	ଓ ଓ	S. D	_ ⊃ ເ∂								
·		\ \ \ \ \ \ \ \		TPSL Brown topsoil								
	8.1		1	SM	Light brow -trace grav	n silty SAND, loc	ose, mo	ist				
	0		2	SM			ravel. m	edium dense, mo	ist			
	8.5				-iron oxide							
			3		-becomes	gray, dense						
			4									
			5		-increase i	moistura						
	10.1		+	SM		fine SAND, dens	e moist	<u> </u>				
			6		-trace grav			•				
			7		-becomes	very dense						
					Test pit ter encounter NOTE: Te Rubber-Ti	rminated at 7 fee ed during excava st pit excavated red Backhoe.	ation. by Norti	existing grade. Nowest Excavating ap by Triad Assoc	with		ater	
Earth Consultants Inc. Geolechnical Engineers, Geologists & Environmental Scientists						1110111011110						
Proj. No. 1136	3	Dwn.	GAP	Da	ate 9/24/04	Checked El	LW	Date 9/24/04		Plate		

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Project Name: Montevalle								Sheet of 1 1
Job No.	I	Logged b	y:		i i	ite:	Test Pit No.:	-
11363		ELW				8/26/04	TP-2	
Excavation Co							Ground Surface Elev	ation:
Northwest	Exca	vating			·		465'	
Notes:								
	1	т —			T	T 10 140		
General Notes	(%)	Graphic Symbol	Depth Ft. Sample	USCS Symbol	Surface Conditions	s: Topsoil & sod 10	" grass	
		Ψ,		TPSL	Brown topsoi	I		
		firmin	1	SM	Reddish brow	vn silty fine SAND, lo	ose moist	
				OW	-trace gravel	IN SIRLY HITE SAND, IO	ose, moist	
	15.1		2		adob graver			
					-becomes gra	ay, medium dense		
			3		-iron oxide sta			
	11.5		4		-becomes dei	nse		
1			-					
			5					
					<u> </u>	· · · · · · · · · · · · · · · · · · ·		
			6	SM	-increase moi	sture SAND with gravel, o	donno moiat	
			1	Civi	Gray Silty Illie	SAND WILLI GLAVEL, C	Jense, moist	
	9.0		7		-becomes ver	v dense		
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TEST PIT LOG 11363.GPJ ECI.GDT 9/27/04

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Project Name: Montevallo)									Sheet 1	of 1	
Job No.	L	ogged t	y:			Date:		Test	Pit No.:			
11363		ELW				8/26/04		TF	P-3			
Excavation Co								1	ind Surface Elev	vation:		
Northwest	Exca	vaung							+37			
Notes:												
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General Notes	(%)	Graphic Symbol	Depth Ft. Sample	USCS	Surface Con	ditions: I OPSO	il & sod 10'	grass	i			
		Ψ,	-	TPS	L Brown to	psoil		·				
		min	1	SM	Reddish	brown silty fine	SAND. loc	ose. m	oist			
	22.6			İ		s gravel - 42.8%		,				
			2]		s gray, medium						
			3			de staining, bed	omes mois	st to w	et			
	13.3				-trace gr							
			4		-become	s dense						
			5									
			+									
			6									
					-contains	sand lenses						
	11.3		7]	-contains	gravel						
			8			_						
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			9		-become	s very dense						
	i				Test pit to	erminated at 9.	5 feet belo	w exis	ting grade. N	lo ground	dwater	
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Job No. 11363	L	ogged b	y:			Date: 8/26/04	Т	est Pit No.:	1 1
Excavation Co	ntactor:				<u></u>	0/20/04		TP-4 Fround Surface E	levation [.]
Northwes			-····					434'	
Notes:									
General Notes	W (%)	Graphic Symbol	Depth Ft. Sample	USCS Symbol	Surface Condi	tions: Topsoil &	sod 16" gra	ass	
	(70)	9 0		⊃ ທີ TPSL	Brown top	enil			
		,	1		Brown top				
	12.3		2	SM	Reddish b	rown silty fine SA gravel	ND, loose,	moist	
			3	SM	-iron oxide		avel, medi	um dense, m	oist
	9.3		5		-becomes	dense			
			6		-becomes	very dense			
	8.0		8						
			++		Test pit ter	minated at 8.5 fe ed during excavat	et below ex	kisting grade.	No groundwate
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					ronmental Scientists			ville, Washin	gton
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General Notes	W (%)	Graphic Symbol	Depth Ft. Sample	USCS	Surface Condition	ons: Topso	il & sod 16	" grass	5		
		+ +	1	TPSL	Brown tops	soil	······			 	
	11.2		2	SM		own silty fine					
	12.1		4		-contains g	ravel	,				
	17.7		5		-decrease f -iron oxide	fine, become staining	es moist to	wet			
			7		-increase ir	n fines, beco	mes moist				
			8		bosomos	vanu danaa					
	10.7		9		-becomes v	ravel				-	
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Earth Consultants Inc. Georechnical Engineers, Geologists & Environmental Scientists							Wo	Mo	t Pit Log ontevallo lle, Washing	ton	
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Northwest										55'			
Notes:					 -				l				
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General Notes	W (%)	Graphic Symbol	Depth Ft. Sample	USCS	Surface Cor	nditions:	Topsoil & so	od 5" g	ırass		•		
		0 3											
	9.7		1	SM	Reddish -trace gi -become -iron oxi -become -reduced -increas -trace gi	brown ravel es tan es grade de sta es den d fines e fines	n silty fine SAN y, medium dens ining to 4' use, trace grave s, increase mois	se el sture			lo gro	ound	water
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Northwest								438'	auon.			
Notes:		<u> </u>			·			· 				
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General Notes	(%)	Graphic Symbol	Depth Ft. Sample	USCS	Surface Condi	tions: Topsoil &	sod 12"	grass				
		4,		TPSL	Brown top	soil						
			1	SM	Reddish b	rown silty fine SA	AND, loc	se, moist to wet				
	24.5		2		-contains		•	·				
			-		b			-:-4				
			3		-becomes	gray, medium de e staining	ense, mo	DIST				
	11.8					edium grained sa	nd - cor	ntains gravel				
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			5		-becomes	dense						
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			7			very dense						
			+		-trace grav	vel						
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Excavation Cor Northwest								Ground Surface Elev 453'	ation:				
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General Notes	W (%)	Graphic Symbol	Depth Ft. Sample	USCS Symbol	Surface Condit	tions:	Topsoil & sod 12	" grass					
		ψ,		TPSL	Brown top	soil							
	7.7		2 3 4	SM	-becomes	gray m	ND with gravel, loose, moist ay medium dense, iron oxide staining						
		1111111	_	SM	-becomes dense Gray silty fine SAND, dense, moist								
			5 6 7 8	O.M	-trace grav		MAD, GCH3G, MOIS	•					
			9		-becomes	very de	ense						
	11.1				Test pit ter	rminate ed durii	ed at 9.5 feet belong excavation	w existing grade. N	o groundwater				
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Northwes			ı					Ground Surface Elev 449'	ation:		
Notes:	<u> </u>	17 64						440			
General	w	ž jic Pod	t ed	S. lod	Surface Condition	ions: Topsoil & so	iod 2" ç	grass			
Notes	(%)	Graphic Symbol	Depth Ft. Sample	USCS Symbol				··· -			
				SM	Tan silty fin	ne SAND, loose, n	noist				
			2		l .	reddish brown					
	22.5		3	SM			avel, m	nedium dense, mois	st ·		
			,		-iron oxide	staining to 8'	-·· .		•		
	9.6		5		-becomes o	dense					
			6		ĺ						
			8								
	14.4		9	SM	-contains gr	ravel	ND, m	edium dense, wet			
			10		- 40.4% fine						
			11		-becomes r	nedium dense to d	dense				
			12		total a						
			 	SM	-contains sa Gray silty fir		NID wit	h stoyed dence we	-4		
	123	ШЩ	13	Sivi		Gray silty fine to medium SAND with gravel, dense, wet					
	12.3			l est pit terri groundwate	ninated at 13.5 rear r encountered dur	et belo Iring ex	ow existing grade. N xcavation	lo			
	,										
	F	Earth	n Cons	sulta	ants Inc.		<u> </u>	Test Pit Log Montevallo			
	/\ Table 1 / /				vironmenial Scientists		Wood	dinville, Washingto	n		
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11363	-	ELW	.,.			8/26/04		TP-10				
		LLVV				0/20/04		Ground Surface Elevation:				
Excavation Co		. 4							vation:			
Northwest	Exca	vating			·····		·	463'				
Notes:												
		0 =	4	_	Surface Condit	tions: Topsoil 8	3 sod 8"	grass				
General	w	돌철	를 뉴를	ပြည်		•						
Notes	(%)	Graphic Symbol	Depth Ft. Sample	USCS Symbol						İ		
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		Ţψ,		TPSL	Brown top	soil						
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			' '	SM	Reddish b	rown silty fine S	SAND, lo	ose, moist				
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			2		-contains							
	7.6		†		,	J. 2. C.						
			3	SM	Grav silty	fine SAND with	gravel r	nedium dense mo	et			
			+	0.0.								
	8.9		4		-iron oxide staining							
	0.5		+		h	danaa						
			5	CNA	-becomes	fine SAND, den		4	··· · · · · · · · · · · · · · · · · ·			
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Job No. 11363		Logged b	y:			Date:		Test Pit No.:			
Excavation C	ontactor				<u> </u>	0/20/04	8/26/04 TP-11 Ground Surface Elevation:				
Northwes	st Exca	vating						459'			
Notes:	-										
General Notes	W (%)	Graphic Symbol	Depth Ft. Sample	USCS Symbol	Surface Condition	ons: Topsoil & s	sod 14" g	grass		<u> </u>	
· · · · ·		4		TPSL	Brown tops	oil		· · · · · · · · · · · · · · · · · · ·		~ ~~	
	15.9		1 2 3 4 5 6	SM	-contains g -becomes c -lron oxide -becomes c	Reddish brown silty fine SAND, loose, moist -contains gravel -becomes gray, medium dense -Iron oxide staining -becomes dense -decrease in fines, becomes moist to wet					
	11.0		8		-becomes re-trace grave	vet - sand lens	et below e	existing grade.	No ground	wate	
		Earth	a Con	ısulta	nts Inc.		7	Test Pit Log			
	1128 9				Onmental Scientists		Wood	Montevallo linville, Washin	ngton		
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Project Name: Montevalle									Sheet of 1 1		
Job No. 11363	L	ogged b	y:	**	· · · · · · · · · · · · · · · · · · ·	Date: 8/24/04		Test Pit No.:			
Excavation Co	ntactor:					0/24/04		TP-12 Ground Surface Ele	vation:		
Northwest								465'	ration.		
Notes:		· uning	· · · · · · · · · · · · · · · · · · ·					1			
General Notes	W (%)	Graphic Symbol	Depth Ft. Sample	USCS	Surface Cond	itions: Tops	oil & sod 6"	grass			
		1		TPSL	Brown to	psoil					
		XXX		SM			with grave	l, loose, moist (Fill)			
			'	SM		prown silty fir					
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	9.2		3			s gray mediur	n dense				
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