DATE DRILLING METHOD: Hollow Stem Auger  24 HR WATER LEVEL: ft TOB WATER LEVEL: ft LAR RESULTS FIELD DATA  LAR RESULTS FIELD DATA  SAMPLE DESCRIPTION  SAMPLE DESCRIPTION  1027.1  Besidum: Very stiff, red-brown-black sandy  SIT. (ML)  Boring Terminated at 40 feet.  50.0  50.0  CONTOUR ENGINEERING, LLC   CONTOUR ENGINEERING, LLC  SERBOLUM: Very stiff, red-brown-black sandy  STIFF (ML)  SERBOLUM: Very stiff, red-brown-black sandy  SIT. (ML)  SIT	LOGGED BY: Andrew Rebeiz	ELEV	ATION	: 1064.	1 ft									
Column   C												_	_	_
1027.1   SAMPLE DESCRIPTION	DRILLING METHOD: Hollow Stem Auger				EL: ft		ТО	B W	/ATI	ER LEV	EL: ſ	ít		
1027.1 RESIDUM: Very stiff, red-brown-black sandy   1024.1		LAE	RESU	ILTS										_
RESIDUUM: Very stiff, red-brown-black sandy SILT (ML)  Boring Terminated at 40 feet.  50.0  60.0  70.0	DEPTH (feet)  ELEVATION (feet)  GRAPHIC LOG  OUTPER  O	NATURAL MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC INDEX (%)	BLOW COUNTS	1					s/ft.	5(	0 -	1
RESIDUUM: Very stiff, red-brown-black sandy SILT (ML)  Boring Terminated at 40 feet.  50.0  60.0  70.0	1027.1									$\prod$			П	I
Boring Terminated at 40 feet.  45.0	RESIDUUM: Very stiff, red-brown-black sandy SILT (ML)				5 8 10						•			
50.0	Boring Terminated at 40 feet.				10							П	Ť	1
55.0	45.0													
60.0	50.0													
60.0														
65.0	55.0													
70.0_	60.0													
	65.0													
CONTOUR ENGINEERING, LLC      LEGEND	-													
GUNTUUM CREMENTE MINU, LLU REMARKS		Δ	= TIME	OF BO	ORING				<u>v</u> =	24 HO	UR R	ΕΑΓ	1IC	١
AUTOMATIC HAMMER	CUNTUUN ENDERFING, LLC					REMA	RKS	S						•

			v Rebeiz	_		: 1063.4								
			ruary 10, 2012			PTH: 20								
DRILL	ING ME	THOD:	Hollow Stem Auger			R LEV	EL: ft	1			ER LEVI	EL: ft		
DEPTH (feet)	ELEVATION (feet)	GRAPHIC LOG	SAMPLE DESCRIPTION	NATURAL MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC INDEX (%)	BLOW COUNTS	1		⁄alu	e, blows		50	100
5.0 _ 5.0 _ - 10.0 _ - 15.0 _	1060.4		FILL: Red-brown sandy SILT (ML), with rock fragments, some organic material consisting of topsoil with wood fragments and rock fragments  Red-brown sandy SILT (ML), with rock fragments				568 691 555 333 455					•		
20.0	1043.4		Boring Terminated at 20 feet.				2 3 3					$\frac{1}{1}$		
25.0														
25.0 _														
	CO	NT(	DUR ENGINEERING, LLC	Δ	= TIME	OF BO		LEGEN (TOB) REMAR DMATIC	KS .			JR REA		

LOGG	ED BY:	Andrev	v Rebeiz	ELEV	ATION	: 1060.2	2 ft								
			ruary 9, 2012	_	NG DE										
DRILLI	ING ME	THOD:	Hollow Stem Auger		WATE		EL: ft					LEVE	_: ft		
				LAE	RESU	LTS			FIE	ELD	DAT	Ά			
DEPTH (feet)	ELEVATION (feet)	GRAPHIC LOG	SAMPLE DESCRIPTION	NATURAL MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC INDEX (%)	BLOW COUNTS	1	N	l Valı 5	ue, b 10	olows/ft		50	100
-	1057.2		FILL: Brown-tan silty SAND (SM), with rock fragments  Red-orange silty SAND (SM), with rock fragments				4 4 5								
5.0_	_						3 2 4 4				<b>)</b>				
- 10.0 _	-						4 4 4 6 3 4								
-	1048.2		Red-brown sandy SILT (ML)				*								
15.0							6 11 12						)		
-	1043.2		RESIDUUM: Medium dense, brown-tan silty SAND (SM)				4 6 8								
20.0_	1040.2		Boring Terminated at 20 feet.				8								
25.0 _ - - - 30.0 _ - - 35.0 _															
30.0_															
- - 35.0 _															
	CO	NT(	DUR ENGINEERING, LLC	Ā	= TIME	OF BO	DRING	LEGE (TOB)		<u>*</u>	= 24	HOUF	R REA	ADII	VG
							AUTO	OMATIO		ИМЕ	R	PA	GE 1	Oi	F 1

LOGG	ED BY: /	Andrev	v Rebeiz	ELEV	ATION:	: 1058.0	) ft	
			ruary 9, 2012	BORII	NG DEI	PTH: 3	5 ft	
DRILL	ING ME	THOD:	Hollow Stem Auger		WATE		EL: ft	TOB WATER LEVEL: ft
				LAB	RESU	LTS		FIELD DATA
DEPTH (feet)	ELEVATION (feet)	GRAPHIC LOG	SAMPLE DESCRIPTION	NATURAL MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC INDEX (%)	BLOW COUNTS	N Value, blows/ft. 1 5 10 50 100
-	1055.0		FILL: Brown-red silty SAND (SM), with rock fragments  Red-brown sandy SILT (ML), with rock fragments				2 1 3	
5.0_			· · · · · · · · · · · · · · · · · · ·				4 5 5	
-	1050.0		Brown-red silty SAND (SM), with rock fragments				556	
10.0_	-		(2.4),				2 3 3	
15.0 _	-						336	
-	-						455	
20.0_	1036.0		Sampled as organic fill consisting of topsoil with wood fragments and rock fragments				3	
25.0 _	1031.0						1 2 1	
25.0	1031.0		Red-brown sandy SILT (ML)				7 9 10	
- -	1026.0		RESIDUUM: Very dense, red-brown-tan sandy SILT (ML)				a	
35.0	1023.0		Boring Terminated at 35 feet.				9 11 12	
	CO	NT(	DUR ENGINEERING, LLC	Δ	= TIME	OF BO		REMARKS
							AUTO	OMATIC HAMMER  PAGE 1 OF 1

LOGG	ED BY:	Andrev	v Rebeiz	ELEV	ATION	: 1056.3	3 ft								
			ruary 9, 2012	BORII	NG DE	PTH: 20	O ft								
DRILLI	ING ME	THOD:	Hollow Stem Auger		R WATE		EL: ft					R LEVE	_: ft		
	<u> </u>				RESU				FI	ELD	) DA	ATA		—	_
DEPTH (feet)	ELEVATION (feet)	GRAPHIC LOG	SAMPLE DESCRIPTION	NATURAL MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC INDEX (%)	BLOW COUNTS	1	N	l Va		, blows/fi		50 ·	100
- -	1053.3		FILL: Medium dense, red-orange silty SAND (SM), with rock fragments  Very stiff, red-brown sandy SILT (ML), with rock				3 7 6								
5.0_	1050.3		fragments				5 8 12					$\prod$	+	<del>  </del>	$\prod$
-	1048.3		Medium dense, orange-brown silty SAND (SM), with rock fragments	-			4 8 10								
10.0_	-		Stiff to firm, red-brown sandy SILT (ML), with rock fragments, some organic material consisting of topsoil with wood fragments and rock fragments				3 4 6						+	+	
- -	_						3 4 4				•				
15.0_	1039.3		Stiff, red-brown sandy SILT (ML), with rock fragments				4								
20.0	1036.3		Boring Terminated at 20 feet.				4 5 7					•			
- - -			Bolling Tellimated at 20 100t.												
25.0	-														
30.0 _	-														
35.0 _	-														
	CO	NT(	DUR ENGINEERING, LLC	Ā	= TIME	OF BO	DRING	(TOB)		Ā	<u> </u>	24 HOUF	₹ RE	\DII	ΝG
							AUTO	OMATIO		ИМЕ	<u>E</u> R	PA	GE 1		F 1

RILLING			ruary 9, 2012 Hollow Stem Auger	24 HR	NG DEI	PTH: 20 R LEV		Т	OB I	VAT	ГЕР	)   E\/	EL: f	t	
			Hollow Stelli Augel		WAIL	K LEV	EL: π		$() \bowtie ($	/VAI	ᅡᅡ		EL: T	τ	
DEPTH (feet)	ELEVATION (feet)	HIC LOG			RESU			'	FIE					-	_
		GRAPI	SAMPLE DESCRIPTION	NATURAL MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC INDEX (%)	BLOW COUNTS	1	N			blows	/ft.	50	 ) 1
5.0	042.5 1/2		FILL: Red-brown silty SAND (SM), with rock fragments  Red-brown sandy SILT (ML), with rock fragments, with organic material consisting of topsoil with wood fragments and rock fragments				668 286 445 339				•	•			
5.0	)33.5   <u>}</u>   <u>/</u>		Sampled as organic fill consisting of topsoil with wood fragments and rock fragments				213		•						
25.0	030.5		Boring Terminated at 20 feet.				<u> </u>								
35.0															
	CON	NTC	OUR ENGINEERING, LLC	Ā	= TIME	OF BO		LEGEN (TOB) REMAR	ΚS			4 HOL	JR R	EAD	

DATE DRILLED: February 9, 201  RILLING METHOD: Hollow Ster  (1994)  ORIGINAL (1994)  ORIGIN	SAMPLE DESCRIPTION	24 HF	NG DEFENSION OF SERVICE (%) LIMIT GINDIT	R LEV				WA1		R LEVE	EL: f	t	_
DEPTH (feet)  ELEVATION (feet)  GRAPHIC LOG	SAMPLE DESCRIPTION	LAE	RESU	LTS							EL: f	<u></u>	_ _
XXX FILL: Rec	d-brown sandy SILT (ML), with rock				v counts		r 1C	ַ ע	<b>υ</b> Α	17			
- FILL: Rec	d-brown sandy SILT (ML), with rock			PLA	BLOW	1		Valu 5	ue, 10	blows/	ft.	50	1
5.0	I <u>M:</u> Very stiff to stiff, red-brown-purple T (ML)				5 9 1 1 166 12 7 9 12 4 7 9 4 6 5								
20.0 1041.2	Boring Terminated at 20 feet.				5 6 8								
25.0													
30.0													
						LEGE	ND						
CONTOURE	NCINEERING, LLC	Ā	= TIME	OF BO		(TOB) REMAF				4 HOU	IR RI	<u>E</u> AD	IN

	bruary 9, 2012 D: Hollow Stem Auger	24 HR	NG DEI			-						_
	D: HOIIOW Stem Auger		'\/\/			1 -		 	. =			
feet) N (feet) LOG			RESU		EL: ft	T	OB V		LEVE	L: ft		
DEPTH (feet) ELEVATION (feet) GRAPHIC LOG	SAMPLE DESCRIPTION	NATURAL MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC INDEX (%)	BLOW COUNTS	1	N,		olows/i		50	1(
1058.8	FILL: Tan-brown silty SAND (SM), with rock fragments  Red-brown silty SAND (SM), with rock fragments	-			455 788 678 579				•			
10.0	RESIDUUM: Very stiff to stiff, red-brown-purple sandy SILT (ML)				9 6811 555							
25.0	Boring Terminated at 20 feet.				•							
35.0												
CONT	OUR ENGINEERING, LLC	Δ	= TIME	OF BO		LEGEN (TOB) REMARI <b>DMATIC</b> I	KS		HOU	R RE	AD	N

LOGGI	ED BY:	Andrev	v Rebeiz	ELEV	ATION:	1060.8	3 ft								
			ruary 9, 2012	BORII	NG DEI	PTH: 20	) ft								
DRILLI	ING ME	THOD:	Hollow Stem Auger		WATE		EL: ft						/EL: ft		
				LAB	RESU	LTS			F	IELI	D D	ATA			
DEPTH (feet)	ELEVATION (feet)	GRAPHIC LOG	SAMPLE DESCRIPTION	NATURAL MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC INDEX (%)	BLOW COUNTS	1	l	N V:		e, blow	s/ft.	50	10(
			FILL: Red-brown sandy SILT (ML), with rock												$\prod$
5.0			fragments				334 332			•	\big				
- 10.0 _							7 14 22 8 14 10								
- - -							7 9 9								
15.0 _	1043.8		RESIDUUM: Very stiff, red-brown sandy SILT (ML)												
20.0 _	1040.8		Boring Terminated at 20 feet.				7 10 10								
25.0 _															
25.0															
-								150						Ш	Ш
	CO	NTO	DUR ENGINEERING, LLC	Ā	= TIME	OF BO	ORING	LEGE (TOB) REMA			<u></u>	24 HO	UR RE	ADI	NG
							AUTO	DMATI			<u>E</u> R		PAGE	1 0	_

			v Rebeiz	ELEV	ATION:	: 1063.6									_
			ruary 9, 2012 Hollow Stem Auger			PTH: 20			TOI	2 14	/ A T		<b>-1.4</b>		_
JKILL	ING ME	1 100.	Hollow Stern Auger		RESU	R LEV	EL: π					ER LEV ATA	EL: π		_
DEPTH (feet)	ELEVATION (feet)	GRAPHIC LOG	SAMPLE DESCRIPTION	NATURAL MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC INDEX (%)	BLOW COUNTS	1			'alu	e, blows	/ft.	50	1
- - - 5.0 _	1060.6		FILL: Red-brown silty SAND (SM), with rock fragments  Red-brown sandy SILT (ML), with rock fragments	-			335 587 8112						<b>&gt;</b>		
- - _ 10.0 -	1055.6		Tan-brown silty SAND (SM), with rock fragments				12 3 7 6								
- - - 15.0 _ - -	1051.6		Red-brown sandy SILT (ML), with rock fragments  Red-brown sandy SILT (ML), with rock fragments, organic material consisting of topsoil with wood				3 7 8					•			
- 20.0 - -	1043.6	70.71 7.74.	fragments and rock fragments  Boring Terminated at 20 feet.				3 7 9					•			
- - 25.0 _ - -															
- - 30.0 _ - -															
- - 35.0 _ -															
	CO	NT(	OUR ENGINEERING, LLC	Ā	= TIME	OF BO	ORING	LEGE (TOB) REMAR			<u>_</u> =	24 HOL	JR RE	AD	IN

LOGGED BY: Shelley Zimmerman	ELEV	ATION:	: 1044.0	) ft							
DATE DRILLED: February 1, 2012		NG DEI									
DRILLING METHOD: Komatsu PC130 Excavator		WATE			Т	OB W	/ATI	ER LEV	EL: ft		
		RESU						АТА			
DEPTH (feet)  ELEVATION (feet)  GRAPHIC LOG  OUTPER  O	NATURAL MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC INDEX (%)	BLOW COUNTS	1	N V		e, blows		50	•
FILL: Red tan sandy SILT (ML)											1
1042.0 UNSUITABLE FILL: Fill with organic topsoil, boulders and debris											
- \(\begin{align*} \begin{align*} \b											
10.0 _											
15.0 1029.0 Test Pit Terminated at 15 feet.											
20.0											
25.0											
35.0											
							$\parallel \parallel$				
CONTOUR ENGINEERING, LLC	Ţ	= TIME	OF BO	DRING	LEGENI (TOB) REMARK		<u> </u>	 24 HO	UR RE	 ADI	
								E	PAGE	1 0	F

LOGGED BY: DATE DRILLE			_		: 1041.0 PTH: 1									_
		Komatsu PC130 Excavator	_		R LEV			то	D \/	'ΛΤI	ER LE	/EI ·	ft	_
Z. VILLING IVIL	ob.	TOTAL TO TOO EXCAVATOR	_	RESU		_ L. Il					ATA	v LL.		
DEPTH (feet) ELEVATION (feet)	GRAPHIC LOG	SAMPLE DESCRIPTION	NATURAL MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC INDEX (%)	BLOW COUNTS	1			alu	e, blow	rs/ft.	5	0
_		FILL: Tan red sandy SILT (ML)								Ш			П	П
5.0	7 7 7 7 7 7 7 7 7 7 7 7	UNSUITABLE ORGANIC FILL: Fill material with organic topsoil, boulders and debris												
10.0														
15.0 1026.0		Test Pit Terminated at 15 feet.												
20.0 _														
30.0														
35.0 _														
CO	NT(	OUR ENGINEERING, LLC	Σ	= TIME	OF BO	ORING	LEGI (TOB)			<u> </u>	24 HC	UR R	EAI	DI

OGGED BY: Shelley Zimmerman	ELEV	ATION	: 1049.0	O ft									
DATE DRILLED: February 1, 2012	_		PTH: 1										_
DRILLING METHOD: Komatsu PC130 Excavator	_		R LEV	EL: ft		_				EVE	∟: ft	_	
	LAB	RESU	LTS				FIEI	_D	DATA			_	_
DEPTH (feet)  ELEVATION (feet)  GRAPHIC LOG  NOITHGRAPHIC LOG	NATURAL MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC INDEX (%)	BLOW COUNTS	1		N Y		ue, bli	ows/ft		50	)
FILL: Red tan sandy SILT (ML)					 			, III	П			T	Τ
1047.0  UNSUITABLE FILL: Fill containing organic topsoil, boulders and debris  5.0													
10.0													
15.0 1034.0													
Test Pit Terminated at 15 feet.										<u> </u>			+
25.0 _													
30.0													
35.0_					LEG	END	)						
CONTOUR ENGINEERING, LLC	$\overline{\Delta}$	= TIME	OF BO	ORING				▼ :	= 24 l	HOUF	≀ RE	AD	)

LOGGI	ED BY:	Shelle	y Zimmerman	1	ATION:	: 1059.0	) ft										_
			ruary 1, 2012	BORII	NG DEI	PTH: 1	5 ft										
DRILLI	ING ME	THOD:	Komatsu PC130 Excavator	_	WATE		EL: ft							L: ft			_
					RESU	LTS			F	IEL	.D [	DATA	4			_	-
DEPTH (feet)	ELEVATION (feet)	GRAPHIC LOG	SAMPLE DESCRIPTION	NATURAL MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC INDEX (%)	BLOW COUNTS	1		N \ 5		ıe, bl	ows/	it.	50	1(	)(
	1058.5		FILL: Red sandy SILT (ML)														
- - 5.0 _ - -			BOULDER FILL: Red brown silty SAND (SM), with 50 percent rock fragments ranging in size from 8-inches to 30- inches in diameter.														
-																	
10.0 _																	
-	1044.0																
15.0 _	1044.0	XXXX	Test Pit Terminated at 15 feet.							$\dagger$	Ħ	Ш			$\forall$	$\forall$	+
- - - 20.0_																	
- - -																	
25.0 _ - - -																	
30.0 _																	
35.0 _	1									+	$\parallel$	H	-	+	$\dashv$	+	-
_	CO	NT(	DUR ENGINEERING, LLC	Δ	= TIME	OF BO	DRING				<u> </u>   <u>▼</u> =	= 24	HOU	R RE	AD	ING	-
	UU	14 1 (	JUN CHARLETINU, LLU					REMA	RKS	3				GE			_

1000	ED DV	01 11	PROJECT NO.:			4050	2.6									_
			y Zimmerman vruary 1, 2012		ATION: NG DEI											
			: Komatsu PC130 Excavator	+	R WATE				-OB	۱۸//	\TE	R LE\	/EI ·	f+		_
DIVILLI	INO ME	11100.	. Normalisa i O 100 Excavator	_	RESU		LL. II					ATA	<u>/ L L.</u>	11		_
DEPTH (feet)	ELEVATION (feet)	GRAPHIC LOG	SAMPLE DESCRIPTION	NATURAL MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC INDEX (%)	BLOW COUNTS	1			alue	, blow	s/ft.	5	0 1	00
	1052.5		<u>FILL:</u> Red sandy SILT (ML)	_									$\prod$	П	П	П
5.0 _ - - - -			FILL CONTAINING ROCK/BOULDERS:Red brown silty SAND (SM), with 50 percent rock/boulders ranging in size from 8" to 30" in diameter													
-	1	3														
10.0 _ - - -																
15.0 _	1038.0	. 7	Test Pit Terminated at 15 feet.								+		++	+	$\mathbb{H}$	$^{\parallel}$
- - - 20.0 _			restriction action to the control of													
- - - 25.0 _																
- - - 30.0 _																
- - - 35.0_																
_																
	00	NIT!		$\nabla$	= TIME	OF BO	ORING	LEGEN (TOB)	D	<b>_▼</b>	 : = :	 24 HO	UR R	LL NABS		ІG
	UU	N I (	DUR ENGINEERING, LLC					REMAR	KS							_
													PAGE	- 1	$\bigcap F$	-

LOGGI	ED BY:				ATION:	1061.0	) ft										_
DATE	DRILLE	D:		BORII	NG DEI	PTH: 1	5 ft										
DRILLI	ING ME	THOD:			R WATE		EL: ft		TC	OB V	۷A	TE	R LEV	EL: 1	it		
				LAB	RESU	LTS				FIEI	_D	DA	TA				
DEPTH (feet)	ELEVATION (feet)	GRAPHIC LOG	SAMPLE DESCRIPTION	NATURAL MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC INDEX (%)	BLOW COUNTS	1			√alı ō	ue,	blows 0	/ft.	5(	0 1	00
			FILL: Tan-red, sandy SILT (ML)													П	П
5.0																	
10.0															<u> </u>	+	<u> </u>
- - 15.0 _	1046.0		Test Pit Terminated at 15 feet.														
- - - 20.0 _																	
- - - 25.0 _																	
-																	
25.0 _																	
35.0_	1								$\dashv$	+	Н	+			+	$\dashv$	#
3 -	-																
	CO	NT(	DUR ENCINEERING, LLC	⊻	= TIME	OF BO	DRING	LEGI (TOB) REMA			<u> </u>	= 2	4 HOL	JR R	EAC	)IN	G
/				I									Р	AGE	1	ŌF	- 1

LOGGI	ED BY: I	3lake \$	Summers	ELEV	ATION:	: 1061.0	) ft								_	_
			l 16, 2014	BORII	NG DE	PTH: 1	5 ft									
DRILLI	ING ME	THOD:	CAT 325 Excavator		R WATE		EL: ft					R LEV	EL: f	t	_	
				LAB	RESU	LTS			FIE	LD	DA	TA			_	
DEPTH (feet)	ELEVATION (feet)	GRAPHIC LOG	SAMPLE DESCRIPTION	NATURAL MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC INDEX (%)	BLOW COUNTS	1	N'			blows 0	:/ft.	50	) 1	00
		$\bowtie$	FILL: Red-brown, sandy SILT (ML), with rock													
5.0_	1056.0 1055.0	1 . 1 7 1	Fill material with topsoil and organics  Tan-red-brown, silty SAND (SM)													
10.0			Tan red brown, sity OARD (OW)													
- - - 15.0 _	1046.0															
- 20.0 _		* * * *	Test Pit Terminated at 15 feet.													
-																
25.0																
<u> </u>	-															
	CO	NT(	DUR ENGINEERING, LLC	∇	= TIME	OF BO	ORING	LEGI (TOB) REMA		<u>¥</u>	= 2	4 HOI				
												Р	AGE	1 (	Œ	

LOGG	ED BY: I	Blake	Summers	ELEV	ATION	: 1065.0	) ft										$\exists$
			il 16, 2014	BORI	NG DE	PTH: 1	5 ft										
DRILL	ING ME	THOD:	CAT 325 Excavator	24 HF	R WATE	R LEV	EL: ft		TC	OB V	۷A	TEI	R LEV	EL: f	t		
				LAE	RESU	LTS				FIEL	LD	DA	TA				
DEPTH (feet)	ELEVATION (feet)	GRAPHIC LOG	SAMPLE DESCRIPTION	NATURAL MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC INDEX (%)	BLOW COUNTS	1		N Y			blows	/ft.	50	) 1	00
		$\bowtie$	FILL: Red-brown, sandy SILT (ML)												П	П	П
5.0_	1063.0		Tan-red, sandy silty SAND (SM)  Red-brown, sandy SILT (ML), with rock fragments														
10.0																	 
15.0	1050.0		Test Pit Terminated at 15 feet.														<u></u>
20.0																	
- - 25.0_																	
- - - 30.0_																	
25.0																	
-	1																
	CO	NT(	DUR ENCINEERING, LLC	Ā	= TIME	OF BO	DRING	LEGE (TOB)			<u>¥</u>	= 2	L 4 HOL	JR RI	⊥⊥ EAD	∐ <u>NI¢</u>	Ц G
				-									P	AGE	1 (	ΩF.	1

LOGG	ED BY: I	Blake	Summers	ELEV	ATION:	: 1065.0	) ft										-
			il 16, 2014	BORII	NG DE	PTH: 1	5 ft										
DRILL	ING ME	THOD:	CAT 325 Excavator		R WATE		EL: ft		_				R LEV	EL: f	t		
				LAE	RESU	LTS				FIE	LD	DA	TA				
DEPTH (feet)	ELEVATION (feet)	GRAPHIC LOG	SAMPLE DESCRIPTION	NATURAL MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC INDEX (%)	BLOW COUNTS	1			Val ō		blows 0	/ft.	50	) 1	00
			FILL: Tan-brown, silty SAND (SM), with rock												$\prod$	П	П
-	1062.0		fragments  Red-brown, silty SAND (SM), with rock fragments														
5.0 _																	$\prod$
-	-																
10.0 _	1								-	-		$\parallel$			+	$\parallel$	#
-	-																
15.0_	1050.0		Test Pit Terminated at 15 feet.														
- - -	-		rest Fit Terminated at 15 feet.														
20.0 _	-																
25.0															$\coprod$	1	  -
25.0	-																
30.0_	- - -																#
35.0_	-														$\perp$	$\prod$	
	1							150	-,,-	$\perp$					$\coprod$	Ш	
	CO	NT(	DUR ENGINEERING, LLC	$\overline{\Delta}$	= TIME	OF BO	ORING	LEGE (TOB) REMA			<u>▼</u>	= 2	24 HOI	JR RI	ΞΑΣ	IN	G
<u> </u>													P	AGE	1 (	OF.	- 1

METHOD: CAT 325 Excavator  24 HR WATER LEVEL: ft  LAB RESULTS  FIELD DATA  SAMPLE DESCRIPTION  SAMPLE DESCRIPTION  SAMPLE DESCRIPTION  FILL; Red-brown, sandy SiLT (ML)  FILL; Red-brown, sandy SiLT (ML)  FILL material with topsoil and rock fragments  700  Red-brown, sandy SiLT (ML)  Test Pit Terminated at 15 feet.	LOGGED BY: Blake				1065.0								_		_
SAMPLE DESCRIPTION  N Value, blows/ft.  N Value, blows/ft.  N Value, blows/ft.  SELL; Red-brown, sandy SiLT (ML)  Red-brown, sandy SiLT (ML)  Red-brown, sandy SiLT (ML)  Red-brown, sandy SiLT (ML)  Test Pit Terminated at 15 feet.	DATE DRILLED: Apr		+					ТО	D 14	/ A T F	-015	\/[].			_
SAMPLE DESCRIPTION  N Value, blows/ft.  N Value, blows/ft.  N Value, blows/ft.  N Value, blows/ft.  Red-brown, sandy SiLT (ML)  Red-brown, sandy SiLT (ML)  Red-brown, sandy SiLT (ML)  Test Pit Terminated at 15 feet.	DRILLING WETHOD	. CAT 323 Excavator				EL: π						VEL:	π		-
58.0 Fill material with topsoil and rock fragments 6.0 Red-brown, sandy SILT (ML) 55.0 Fill material with topsoil Red-brown, sandy SILT (ML)  Test Pit Terminated at 15 feet.	DEPTH (feet) ELEVATION (feet) GRAPHIC LOG	SAMPLE DESCRIPTION				BLOW COUNTS	1		ΝV	′alue	e, blov	vs/ft.		50	_
Test Pit Terminated at 15 feet.	1056.0	Fill material with topsoil and rock fragments  Red-brown, sandy SILT (ML)  Fill material with topsoil													_
	15.0 1050.0	Test Pit Terminated at 15 feet.													_
	25.0														_
LEGEND  7 TIME OF POPING (TOP)	35.0		77	TINAF		DIMO		END			24.14		DE A	<u> </u>	
CONTOUR ENGINEERING, LLC  \[ \times = \text{TIME OF BORING (TOB)} \\ \text{REMARKS}	CONT	DUR ENGINEERING, LLC	Δ̄	= TIME	OF BO	DRING	(TOB)				<u></u>	<u>▼</u> = 24 HC	<u>▼</u> = 24 HOUR I	▼ = 24 HOUR REA	▼ = 24 HOUR READI

LOGG	ED BY: I	Blake	Summers	ELEV	ATION:	: 1065.0	) ft										$\exists$
			il 16, 2014	BORII	NG DE	PTH: 1	5 ft										
DRILLI	ING ME	THOD:	: CAT 325 Excavator		R WATE		EL: ft		_				R LEV	EL:	ft		
				LAB	RESU	LTS				FIE	LD	DA	TA			_	
DEPTH (feet)	ELEVATION (feet)	GRAPHIC LOG	SAMPLE DESCRIPTION	NATURAL MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC INDEX (%)	BLOW COUNTS	1		N'			blows 0	s/ft.	50	0 1	00
	1064.0	$\bowtie$	FILL: Red-tan, silty SAND (SM)														
5.0 _	1060.0		Red-brown, sandy SILT (ML)  Fill material with topsoil	-													
10.0																	
- - - 15.0 _	1050.0																
- - - 20.0 _			Test Pit Terminated at 15 feet.														
-																	
25.0																	
25.0 _																	
33.0_	1											$\parallel$			$\parallel$	$\parallel$	Ħ
	CO	NT(	DUR ENGINEERING, LLC	Δ̄	= TIME	OF BO	DRING	LEGI (TOB) REMA			Ţ	= 2	 24 HOI	UR R	EAC	∐ NIC	∐ lG
,													P	AGE	1	OF	- 1

LOGGI	ED BY: I	Blake :	Summers	ELEV	ATION:	1065.0	) ft										$\exists$
			il 16, 2014	BORII	NG DEI	PTH: 1	5 ft										
DRILLI	NG ME	THOD:	: CAT 325 Excavator		WATE		EL: ft		_				R LEV	EL: f	t		
				LAE	RESU	LTS				FIEL	_D	DA	TA				
DEPTH (feet)	ELEVATION (feet)	GRAPHIC LOG	SAMPLE DESCRIPTION	NATURAL MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC INDEX (%)	BLOW COUNTS	1		N Y		ue,	blows 0	/ft.	50	) 1	00
			FILL: Red-brown, sandy SILT (ML)													П	
5.0	1059.0		Fill material with topsoil													-	+
10.0 _		2 22										Ш			Ш	Ц	Щ
- - - 15.0 _	1050.0		Test Pit Terminated at 15 feet.														
20.0																	
- - - - - - - 25.0 _																	
25.0																	
실 _																	
	CO	NT(	OUR ENGINEERING, LLC	⊻	= TIME	OF BO	DRING	LEGE (TOB) REMA			<u>¥</u>	= 2	4 HOL				
													P	AGE	1 (	ΩĒ	1

LOGG	ED BY: I	3lake \$	Summers	ELEV	ATION:	: 1065.0	) ft									_	
			il 16, 2014	BORII	NG DE	PTH: 1	5 ft										
DRILL	ING ME	THOD:	CAT 325 Excavator		R WATE		EL: ft		_				R LEV	EL: f	t		
				LAB	RESU	LTS				FIE	LD	DA	TA			_	_
DEPTH (feet)	ELEVATION (feet)	GRAPHIC LOG	SAMPLE DESCRIPTION	NATURAL MOISTURE CONTENT (%)	LIQUID LIMIT (%)	PLASTIC INDEX (%)	BLOW COUNTS	1		N'			blows 0	s/ft.	50	) 1	00
	1064.0		FILL: Red-brown, sandy SILT (ML)												П		П
5.0_	1063.0		Tan-red, silty SAND (SM)  Red-brown, sandy SILT (ML)	-													
-	1057.0		Fill material <b>with topsoil</b>														
10.0_	-																
15.0 _	1050.0		Test Pit Terminated at 15 feet.													H	H
20.0																	
25.0	-															+	
25.0 _																	
																П	$\prod$
	CO	NT(	DUR ENGINEERING, LLC	<u> </u>	= TIME	OF BO	ORING	LEGI (TOB) REMA			<u>↓</u>	= 2	 24 HOI	JR R	EAD	∐ NI¢	G G
				-									P	AGE	1 (	ŌF	1

OGGED BY: Blake Summers	ELI	EVATION	: 1064.0	) ft								
OATE DRILLED: April 16, 2014	ВО	RING DE	PTH: 15	5 ft								
PRILLING METHOD: CAT 325 Excavator		HR WATE		EL: ft		_			ER LE	/EL:	ft	
	<u>L</u>	AB RESU	JLTS			F	FIEL	D D	DATA			
DEPTH (feet) ELEVATION (feet) GRAPHIC LOG	DESCRIPTION ATURAL MOUSTURE	CONTENT (%) LIQUID LIMIT (%)	PLASTIC INDEX (%)	BLOW COUNTS	1		N V		e, blow	s/ft.	50	0
FILL: Red-brown, s	andy SILT (ML)				<u> </u>		ΤŤ	П	П	T	TĬ	Ť
5.0 1059.0 Tan-red, silty SAND	D (SM)											
Fill material with to	psoil											
15.0 1049.0												
Test Pit 1	Terminated at 15 feet.											
25.0												
30.0												
35.0					LEGE	END						
CONTOUR ENGIN	FERING LLC	∑ = TIME	OF BO	DRING				<b>▼</b> =	24 HC	UR R	(EA	DI

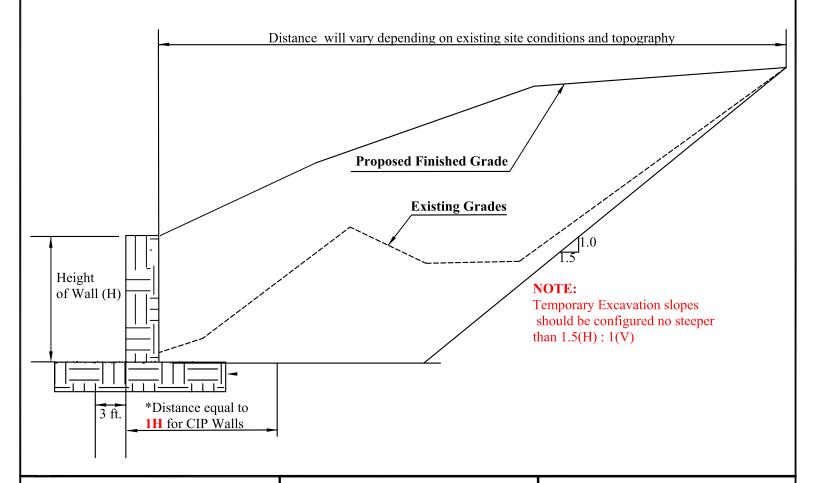
## **SOIL CLASSIFICATION CHART**

MAJOR DIVISIONS			SYMBOLS		TYPICAL
			GRAPH	LETTER	DESCRIPTIONS
	GRAVEL AND	CLEAN GRAVELS		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
COARSE GRAINED SOILS	GRAVELLY SOILS	(LITTLE OR NO FINES)		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
		(APPRECIABLE AMOUNT OF FINES)		GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	SAND AND SANDY SOILS	CLEAN SANDS		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		(LITTLE OR NO FINES)		SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	SANDS WITH FINES		SM	SILTY SANDS, SAND - SILT MIXTURES
		(APPRECIABLE AMOUNT OF FINES)		sc	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		МН	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				СН	INORGANIC CLAYS OF HIGH PLASTICITY
				ОН	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				РТ	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

## EARTHWORK RECOMMNEDATIONS FOR CAST-IN-PLACE (CIP) LOCATED ON THE EASTERN PORTION OF THE SITE

### NOTES:

- 1. To allow for construction of the proposed retaining wall on the eastern portion of the site as a cast-in-place (CIP) retaining wall, unsuitable materials within the existing slope should be removed from the face of the wall to a distance behind the wall equal to the height of the wall (H, i.e. distance will vary depending on wall height throughout the length of the wall). Also, all unsuitable soils, if any, should be undercut beneath the retaining wall footing plus 3 feet in front and back of the concrete footing.
- 2. Temporary excavations slopes should be configured no steeper than 1.5 (Horizontally) to 1.0 (Vertically). Temporary slopes may require flattening depending on the materials exposed during temporary excavations.



CONTOUR ENGINEERING, LLC

1955 Vaughn Road, Suite 101, Kennesaw, GA 30144

Phone: (770) 794-0266 Fax: (770) 794-9483

Retaining Wall Detail

**LEGEND:** 

Scale: Not to Scale

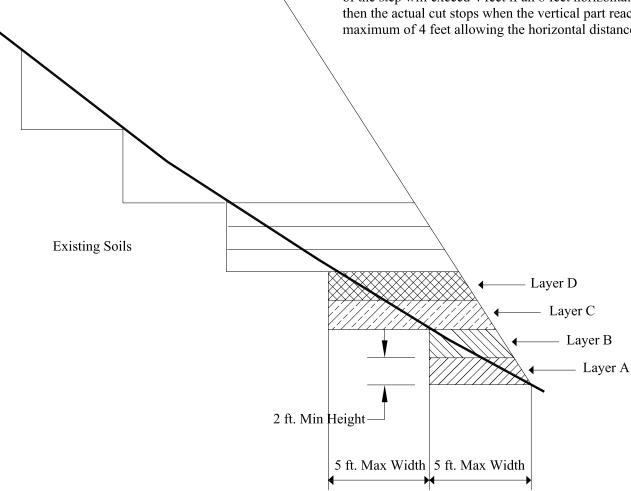
PROJECT:
Earthwork Recommendations for
Retaining Walls
Avalon Development

Alpharetta, Fulton County, Georgia Project No: G12NAP01

### **NOTES:**

- 1. Where the new slope is to placed on an existing hillside, the new slope must be benched into the existing slope.
- 2. The detail shows that before Layer "A" is placed, the first step is to cut into the slope a maximum distance of about 8 feet.

  Successive Layer B is then placed. Before Layer C is placed, the second step is cut 8 feet into the slope and successive layers are then placed. If it is anticipated that the vertical part of the step will exceed 4 feet if an 8 feet horizontal cut is made, then the actual cut stops when the vertical part reaches a maximum of 4 feet allowing the horizontal distance to vary.





New Structural Fill for Slope

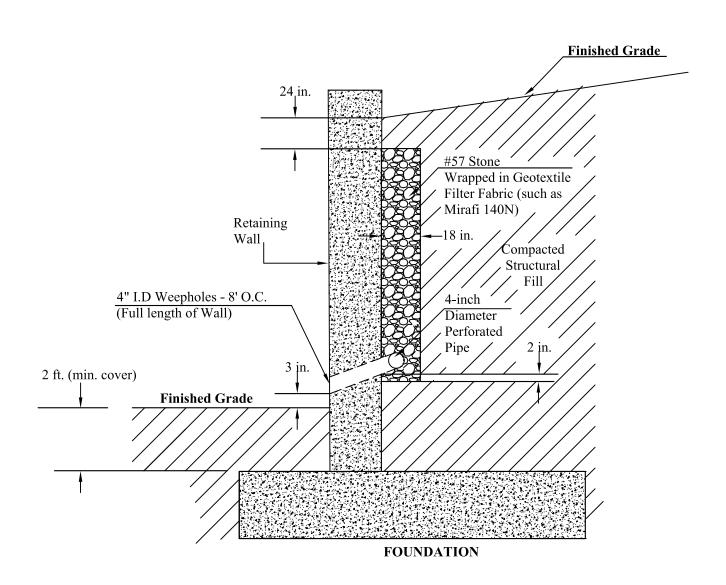
1955 Vaughn Road, Sulte 101, Kennesaw, GA 30144 Phone: (770) 794-0266 Fax: (770) 794-9483 **LEGEND** 

**Typical Benching Detail** 

Scale: Not To Scale

PROJECT
Geotechnical Exploration
Hotel and Conference Center

Avalon Alpharetta, Fulton County, Georgia Project No: G14NAP02



CONTOUR ENGINEERING, LLC

1955 Vaughn Road, Sulte 101, Kennesaw, GA 30144 Phone: (770) 794-0266 Fax: (770) 794-9483 LEGEND
Typical Detail for Concrete
Retaining Wall
Drainage System

Scale: Not to Scale

PROJECT Geotechnical Exploration Hotel and Conference Center

Avalon Alpharetta, Fulton County, Georgia Project No: G14NAP02