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PROJECT DESCRIPTION

THE PROJECT CONSISTS OF CONSTRUCTING TWIN STRUCTURES FOR PROPOSED SR 823 OVER SLOCUM AVENUE (TR-248). THE TWO STRUCTURES ARE THREE-SPAN STRUCTURES USING SPILL-THROUGH SLOPES AT THE ABUTMENTS. AN MSE WALL IS ALSO PROPOSED TO RETAIN THE EMBANKMENT ON THE EAST SIDE OF THE BRIDGE BETWEEN PIER 2 AND THE FORWARD ABUTMENT.

HISTORIC RECORDS

HISTORIC BORING RECORDS FOR THE AREA WERE REQUESTED FROM THE ODOT OFFICE OF GEOTECHNICAL ENGINEERING AND THE DISTRICT, HOWEVER, NO SUCH RECORDS EXISTED.

GEOLOGY

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BEDROCK IS OF THE MISSISSIPPIAN LOGAN FORMATION. GENERALLY, THIS FORMATION CONSISTS OF PRIMARILY SANDSTONE OR SANDY SILTSTONE WITH OCCASIONAL AREAS OF INTERBEDDED SHALE. HOWEVER, THE LITHOLOGY OF THE SANDSTONES VARIES BOTH LATERALLY AND VERTICALLY. WITHIN THIS AREA THE LOGAN FORMATION TYPICALLY CONSISTS OF THICK, MASSIVE SANDSTONE UNITS.

RECONNAISSANCE

SEVERAL SITE RECONNAISSANCE VISITS WERE MADE BETWEEN AUGUST 2004 AND SEPTEMBER 2006. THE SURROUNDING AREA IS DESCRIBED AS RURAL RESIDENTIAL. THE PROJECT AREA IS LOCATED IN THE LITTLE SCIOTO RIVER VALLEY AND AND IS BOUNDED ON EITHER END BY STEEP SLOPES. THE STEEP SLOPES ARE COVERED WITH TREES AND BRUSH WHILE THE RELATIVELY LEVEL VALLEY BOTTOM IS A RESIDENTIAL AREA.

SUBSURFACE EXPLORATION

THE SUBSURFACE EXPLORATION CONSISTED OF DRILLING A TOTAL OF SEVEN BORINGS. BORINGS TR-36 THROUGH TR-38 WERE DRILLED BETWEEN JANUARY 27 AND FEBRUARY 10, 2005 FOR THE PRELIMINARY BRIDGE CONFIGURATION. BORINGS B-31 AND B-32 WERE DRILLED BETWEEN JANUARY 11 AND 16, 2007, FOR THE CURRENTLY PROPOSED STRUCTURE. TWO ADDITIONAL BORINGS, TR-35A AND TR-38A, WHICH WERE DRILLED FOR THE FORWARD ABUTMENT EMBANKMENT AND THE REAR ABUTMENT EMBANKMENT, RESPECTIVELY, WERE ALSO CONSIDERED IN THE ANALYSES. BORING TR-35A WAS DRILLED ON JANUARY 12, 2006 AND BORING TR-38A ON JANUARY 9 AND 10, 2006 WITH AN ATV MOUNTED ROTARY DRILL RIG, USING 3 1/4 -INCH 1.D. HOLLOW STEM AUGERS TO ADVANCE THE HOLES THROUGH SOIL. DISTURBED SOIL SAMPLES WERE OBTAINED IN ACCORDANCE WITH THE STANDARD PENETRATION TEST (AASHTO T206) AT 1.5 TO 5.0-FOOT INTERVALS FOR THE FULL DEPTH OF THE SOIL PORTION OF THE BORINGS. UNDISTURBED SOIL SAMPLES WERE OBTAINED AT THE DEPTHS SHOWN ON THE LOGS AND IN THE PROFILE, IN ACCORDANCE WITH AASHTO T207. WHERE BEDROCK WAS ENCOUNTERED, THE BORINGS WERE ADVANCED AND THE ROCK WAS SAMPLED USING A TYPE NO SERIES CORE BARREL, WATER METHOD.

EXPLORATION FINDINGS

THE TEST BORINGS DISCLOSED PRDOMINANTLY COHESIVE DEPOSITS THAT CONSISTED OF MAINLY STIFF TO HARD SILT AND CLAY (A-6A), SOFT TO MEDIUM STIFF SANDY SILT (A-4A), MEDIUM STIFF TO HARD SILT (A-4B), STIFF TO HARD SILTY CLAY (A-6B), AND STIFF TO HARD CLAY (A-7-6), WHILE THE GRANULAR SOILS ENCOUNTERED CONSISTED OF MAINLY OF VERY LOOSE TO MEDIUM DENSE SANDY SILT (A-4A), VERY LOOSE TO MEDIUM DENSE SILT (A-4B) AND LOOSE TO MEDIUM DENSE COARSE AND FINE SAND (A-3A). THE NATIVE SOILS EXTENDED TO DEPTHS RANGING BETWEEN 72 AND 81 FEET BELOW THE GROUND SURFACE, WHERE BEDROCK WAS ENCOUNTERED.

BEDROCK ENCOUNTERED IN THE BORINGS WAS MOSTLY SANDSTONE EXCEPT IN BORING B-31 WHERE SILTSTONE WAS ENCOUNTERED WITHIN THE DEPTH OF BORING. THE BEDROCK ENCOUNTERED WAS MOSTLY MEDIUM HARD TO HARD, MODERATELY WEATHERED, AND SLIGHTLY TO MODERATELY FRACTURED. HOWEVER, A LAYER OF SEVERELY WEATHERED ROCK, APPROXIMATELY 2 FEET THICK, WAS ENCOUNTERED ABOVE THE MORE COMPETENT, CORED BEDROCK IN BORINGS TR-36 AND TR-37. THE AMOUNT OF ROCK RECOVERED IN EACH CORE RUN MOSTLY VARIED FROM 96 TO 100 PERCENT AND THE ROCK QUALITY DESIGNATION (ROD) OF THE BEDROCK GENERALLY RANGED FROM 65 TO 97 PERCENT WITH AN AVERAGE OF 83 PERCENT, INDICATING GOOD QUALITY ROCK, RELATIVELY SEVERE LOSS OF RECOVERY OCCURRED IN THE CORE RUNS BETWEEN DEPTHS OF 90 AND 100 FEET IN BORING TR-38. RECOVERY OF THE CORE SAMPLE WAS ONLY 55 PERCENT AND THE ROD VALUE WAS 55 PERCENT BETWEEN THE DEPTHS OF 90 AND 95 FEET OF THIS BORING. HOWEVER, THE CORE SAMPLE WAS UNABLE TO BE RECOVERED BETWEEN THE DEPTHS OF 95 AND 100 FEET.

SEEPAGE WAS FIRST ENCOUNTERED IN THE BORINGS AT DEPTHS RANGING FROM 10.0 TO 62.0 FEET BELOW THE GROUND SURFACE. A MEASURABLE WATER LEVEL WAS ENCOUNTERED IN BORINGS B-31, B-32, TR-38 AND TR-38A, PRIOR TO ROCK CORING, AT DEPTHS RANGING FROM 9.8 TO 59.5 FEET BELOW THE GROUND SURFACE. WATER WAS USED DURING ROCK CORING AND MASKED ANY SEEPAGE ZONES THAT MIGHT EXIST IN THE ROCK.

	LEGEND	ODOT		SSIFIED
DES	CRIPTION	CLASS		./VISUAL
GRAV	EL AND/OR STONE FRAGS. WITH SAND	A-1-b	1	0
FINE	SAND	A-3	1	2
COAR	SE AND FINE SAND	A-3a	2	10
SAND	Y SILT	A-4a	3	1
*** SILT		A-4b	23	24
SILT	AND CLAY	A-6a	13	16
SILTY	Y CLAY	A-6b	5	8
CLAY		A-7-6	14	31
		TOTAL	62	92
SILTS	STONE	VISUAL		
WEAT	HERED SANDSTONE	VISUAL		
SAND	STONE	VISUAL		
-	BORING LOCATION - PLAN VIEW			
	DRIVE SAMPLE AND/OR CORE BORING PLOTTED TO VERTICAL SCALE ONLY	LOCATION		
w ———	INDICATES FREE WATER ELEVATION			
∇	INDICATES STATIC WATER ELEVATION			
——ТR	INDICATES THE TOP OF ROCK ELEVAT	ION		
X/Y/Z	FIGURES BESIDE THE BORING IN PROFI INDICATE THE NUMBER OF BLOWS FOR PENETRATION TEST X = NUMBER OF BLOWS FOR FIRST Y = NUMBER OF BLOWS FOR SECONI Z = NUMBER OF BLOWS FOR THIRD	STANDARD 6 INCHES 0 6 INCHES		
50 (n)	INDICATES NUMBER OF BLOWS (50) TO BARREL SAMPLER A DEPTH OF (n) INCH THAN THE NORMAL 6 INCH INCREMENT.	IES OTHER		

SPECIFICATIONS

THIS GEOTECHNICAL EXPLORATION WAS PERFORMED IN ACCORDANCE WITH THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, OFFICE OF GEOTECHNICAL ENGINEERING, SPECIFICATIONS FOR GEOTECHNICAL EXPLORATIONS, DATED NOVEMBER 1995.

AVAILABLE INFORMATION

ALL AVAILABLE SOIL AND BEDROCK INFORMATION THAT CAN BE CONVENIENTLY SHOWN ON THE SOIL PROFILE SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE EXPLORATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE OFFICE OF GEOTECHNICAL ENGINEERING AT 1600 WEST BROAD STREET OR THE OFFICE OF STRUCTURAL ENGINEERING AT 1980 WEST BROAD STREET.



PARTICLE SIZE DEFINITIONS

	12"	3		.O nm	0. m		0.0 mr		005 nm
Boulders	С	obbles	Gravel	Coarse	Sand	Fine	Sand	Silt	Clay
			No.		No.	-		200 VE	
			No. SIE		NO. SIE	-			SIEVE

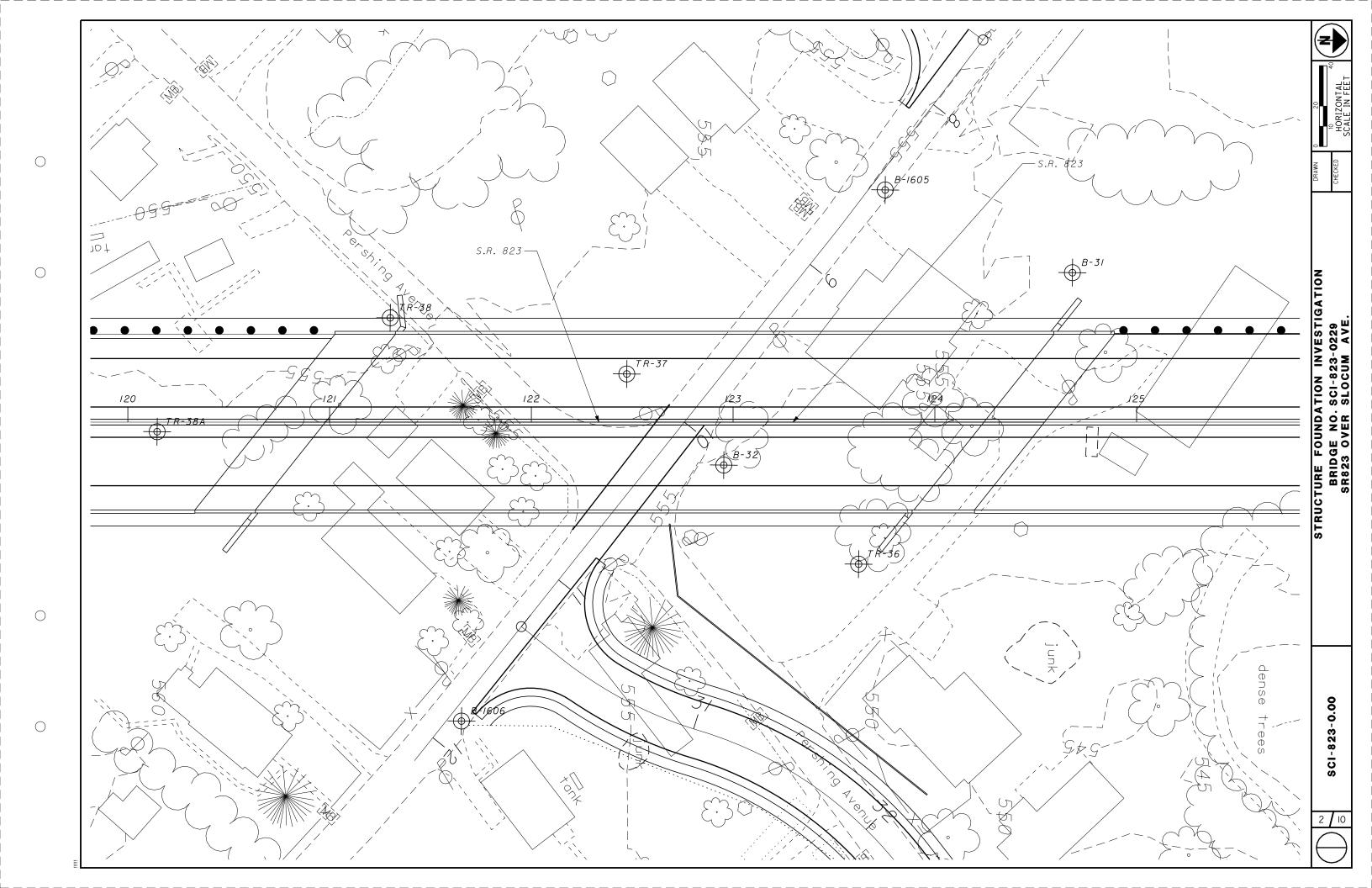
RECON. - AMJ AND SJR 06/04 to 06/06

DRILLING - DW AND RB 01/11/07 TO 01/16/07, 01/09/06 TO 01/10/06, 01/27/05

TO 02/10/05

DRAWN - RLS & AMJ 8/09
REVIEWED - AEN 8/19/09

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		ems, In			٦.		Project: SCI-823-0.00					_			_	JOD I	10. U	121-3	070.0)3
UG OF:	: Boring		TR-38A	Sam		ocation: Sta	. 120+14.5, 4.7 ft. RT of SR 823 CL Date Drilled:	\neg		/06 GRA	DAT	to TON		/10/0	5	—		—		
Depth	Elev.	.er 6"	ıry (in)	No.		Hand Penetro- meter	OBSERVATIONS: Water seepage at: 43.5', 73.5' Water level at completion: 43.0' (prior to coring) 13.6' (includes drilling water	n P							al M			NETR	t %	N (N) LL
(ft) 0 —	(ft) 556.0	Blows per (Recovery	Drive	Press / Core	(tsf)	41.5' (after 15 hours) DESCRIPTION Topsoil - 9"	.) Angragate	% C. Sand	% M. Sand	% F.	% Silt	% Clay	111	10		ws pe 20	r foot	_) 40
0.8 <u>-</u> - -	-555.2-	2 4 8	13	1		4.5+	Very stiff to hard mottled brown and gray CLAY (A-7-6), some to "and" silt, trace fine sand; damp to moist.		0	-	4	43	53			$\mathbb{R}^{ }$	+●			4
- 5. 8	-551.0-	6 7 9	18	2		2.75	Stiff to very stiff mottled brown and gray SILT AND	4												
7.5—	-548.5-				P-1	2.0	CLAY (A-6a), trace fine sand; moist.	°	0	-	4	47	49			Ш			$\dagger \dagger$	
-		4 6 8	16	3		4.0	Hard brown CLAY (A-7-6), trace fine sand, some silt; damp to moist.	,	, 0	. _	1	27	72			$\ $		\prod	Щ	Щ
10 — 10.5 —	-545.5-	3 4	10	4		1.25	Stiff brown SILT (A-4b), "and" clay, trace fine sand; moist.	\dashv			3	54	43		\prod_{i}				$\parallel \parallel$	
13.0—	-543.0-	5	18			1.23	Stiff to very stiff brown SILT AND CLAY (A-6a), trace	╡`			ľ	5	2		Ø					
- 15.0	-541.0-	³3 5	18	5		2.0	fine sand; moist.	<u>ا</u> ر		1		48	51 55		\int			*	₩	
15.7—	-540.3-				2A 2B	1.5 1.0	Stiff brown SILTY CLAY (A-6b), trace fine sand; \text{moist.} Stiff brown SILT (A-4b), trace fine sand; moist.	ا-		1		74					H	H	\prod	
-		3 4		6		1.75														
20.0—	-536.0-	4	18		P-3	1.0	Stiff brown SILT AND CLAY (A-6a), trace to little fine to coarse sand; moist.	\dashv	, 7	-	4	53	36					 	$\parallel \parallel$	
-																				
25 — 25.5—	-530.5-	3 5 7	18	7		2.0										$\left \cdot \right $				
-		⁵ 69	18	8		0.75	Medium stiff brown SILT (A-4b), little clay; wet.	١	0	-	0	82	18				H	4		
30 —		³ ₄ ₆	18	9		0.75	Medium stiff brown SILT (A-4b), little clay; wet.													
-							medium sum nown sich (A-40), mue day, wei.								$/\!\!/$					
35 —		WOH 2 3		10		0.75		,	0	-	0	69	31					4	•	
-		1 1		11		0.75														
40 —		4	18											DQ.	$\left\ \right\ $					
42.0 —	-514.0-						Loose to medium dense brown FINE SAND (A-3), trace silty clay, trace coarse sand; wet.									\mathbb{N}				
44.5— 45.0—	511.5- 511.0-	4 10 13	18	128		2.75	_ Very stiff brownish gray SILT AND CLAY (A-6a), some	\dashv			3	24	73					╬╫	₩	
	-510.2-				P- 4A 4B		\silt, trace fine sand; moist. \text{Loose to medium dense brown FINE SAND (A-3), trace} \silty clay; wet.	\dashv			91 1	31		Non-	Plas	stic		\coprod	₩	
=		5					Very stiff to hard dark brown SILT AND CLAY (A-6a), trace fine sand; damp to moist.										$\ \ $			
50 —		8 11	18	13		4.0											ϕ			
-																				
- 55 —		7 10 14	15	14		2.75														
- 57.0—	499.0-						Stiff dark brown CLAY (A-7-6), little to some slit,	\dashv												
	1	6		15		1.5	trace fine sand; moist.			_	1	23	76		П		1/11			

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JG OF	: Boring		TR-38/	١.		Location: Sta	. 120+14.5, 4.7 ft. RT of SR 823 CL Date Drilled: 1.	/9/06	<u> </u>			to		1/10/0	<u> </u>							
Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	San	Press / Core	Hand Penetro- meter (tsf)	WATER OBSERVATIONS: Water seepage at: 43.5', 73.5' Water level at completion: 43.0' (prior to coring) 13.6' (includes drilling water) 41.5' (after 15 hours)	% Aggregate		Sand	Sand	TION #		N:	atura	al Mo	oistu	re C	onte	⊓RAT	-	(N
60 —	496.0	읆	Rec	Drive	<u>8</u>		DESCRIPTION	· %	8	₩	8	%	%	<u> </u>	10		ws p	er fo	30 30		40	_
-	494.0-						Stiff dark brown CLAY (A-7-6), little to some slit, trace fine sand; moist. Soft to medium stiff bluish gray SANDY SILT (A-4a),															
65 —		⁴ 7 6	18	16		0.5	some fine sand, some clay; moist to wet.	0	0	_	29	48	23			ϕ	1					
37.0 <u>—</u> –	489.0-	2					Loose gray SILT (A-4b), trace to little fine sand, trace clay; moist to wet.															
70 —		4 4	12	17											ф							
'2.0— - -	-484 .0-	2 6 3	18	18			Loose brown COARSE AND FINE SAND (A-3a), little silty clay, trace gravel; moist to wet.															
75 — - 77.0—	479.0-		10				Hard gray SILT AND CLAY (A-6a), trace to little fine								O	\	$\left \right $					
80 —		50/3	2	19		4.0	sand; damp.															50
31.0— - - -	-4 75.0-	Core 60"	Rec 60"	RQ 65%	ြ R-1		Medium hard gray SANDSTONE; very fine to fine grained, moderately to highly weathered, argillaceous, micaceous, medium bedded, moderately to highly fractured.															
85 — 86.0 —	-4 70.0-						@ 91.4', 91.9', 92.2', low angle fractures. Bottom of Boring - 86.0'															

STRUCTURE FOUNDATION INVESTIGATION BRIDGE NO. SCI-823-0229 SR823 OVER SLOCUM AVE.

8CI-823-0.00

710

Location: S Sample No.	Project: SCI-823-0.00 Sta. 121+30.1, 51.7 ft. LT of SR 823 CL Date Drilled: 01 WATER		LOG OF: Boring TR-38	Project: SCI-823-0.00	Job No. 0121-3070.03 02/09/05 to 02/10/05	\dashv
	WATER					
Hand Penetro-	WATER OBSERVATIONS: Water seepage at: 10.0'-21.5' 33.0'-38.5', 65.0'-80.0' Water level at completion: 9.8' (Prior to coring) 7.3' (Includes drilling water)	GRADATION STANDARD PENETRAT	`` 5 5 1 g	WATER OBSERVATIONS: Water seepage at: 10.0'-21.5' 33.0'-38.5', 65.0'-80.0' Water level at completion: 9.8' (Prior to coring)	GRADATION STANDARD PENETRATION	
Press / Crat)	DESCRIPTION	Natural Moisture Content, */ PL Harmonia Natural Moisture Cont	(tt) (tt) d swolg land	(tsf) DESCRIPTION	Natural Moisture Content, % - PL LL	
1 2.5	Topsoil - 4" Very stiff CLAY (A-7-6), brown, trace fine sand; damp.		60.0 4 8 9 18 19	Medium dense gray COARSE AND FINE SAND (A-3a), some silt, little clay; moist.		
3 3.5		0 0 - 1 29 70	65— 66 _{7,18} 20	@ 65.0', wet.		
4 2.0			-68.0 -486.0 -	Loose gray SANDY SILT (A-4a); wet.	-	
5 1.5	Stiff brown SILT (A-4b), little to some clay, trace fine to coarse sand; moist.	-	70— ———————————————————————————————————		0 1 – 54 45 Non-Plastic	
7 1.25		0 1 - 1 63 35	75—	Very dense gray GRAVEL WITH SAND (A-1-b); wet.	50 19 - 12 19	iastic
8 1.25						9 440
9 1.5				Medium hard to hard gray SANDSTONE; very fine to fine grained, slightly to moderately weathered, argillaceous, thinly to thickly bedded.		
10 1.5			85 — — — —	@ 80.0'-80.2', argillaceous zone, broken.		
12 1.0		$egin{array}{cccccccccccccccccccccccccccccccccccc$		@ 85.9',86.2',86.7', low angle clay filled fractures.		
13 1.0	Stiff brown SILT AND CLAY (A-6a), little fine sand; moist.	0 0 - 5 59 36		3		
14	Medium dense gray COARSE AND FINE SAND (A-3a); moist.	0 21 - 49 20 10 Non-Plastic	95 —	@ 95.0'-100.0', sample lodged in core barrel; unable to recover.		
	Very stiff gray SILTY CLAY (A-6b), little fine sand; damp to moist.	_		4		
15 3.5				Bottom of Boring - 100.0'		
16 3.0		0 0 - 1 31 68	105—			
17 4.0						
18 3.5	Very stiff gray SILT (A-4b), little fine sand, little silty clay; moist.	_	115—			
			120			
	\$\frac{8}{4}	Section Clark Cl	DESCRIPTION	Section Process Proc	1	Second Control

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March Color Colo	ent: TranSystems, Inc.			DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 Project: SCI-823-0.00	* (614)888-0040	Job No. 012	21-3070 03	Client Tree	Systems Inc			DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * Project: SCI-823-0.00	(614)888-004	10		Lin	ob No. 0121	-3070 03	N.
The content of the			Location:		Orilled: 01/27/05 to		L 1-001 U.U3			37	Location:	Sta. 122+47.3, 23.9 ft. LT of SR 823 CL Date Dri	led: 01/27/05	5	to C		ω 14U. U1Z1	-5010.03	DRAV
A				WATER ORSEDVATIONS:								WATER OBSERVATIONS:				-			1 ⊢
The content of the		<u> </u>	Hand	Water seepage at: 16.0'-18.0', 28.5'-37.5', 68.0'		STANDARD PI	ENETRATION (N)			h	☐ Hand	vvaler seepage at. 10.0-10.0, 20.5-37.5, 00.0				STAN	NDARD PEN	IETRATION (N)	
1		=		vvater lever at completion. Not Reported			• •		1 7 1	11			age	ᄝᄝᄝ				, ,	
1	epth Elev. <u>ອັ</u> t) (ft) ທ	§ '	(tsf)		San San San			Depth El	ev. <u>8.</u>	§ _	(tsf)		B	Sar Sar	₄ ₄	PL +			
1	8	Se Se	1 2 2 3 3 3 3 3 3 3 3 3 3	DESCRIPTION	S S S S S S S S S S	Blows per for	ot - O		<u>8</u>	<u> </u>	1 SE	DESCRIPTION	{}	ი გ ფ ი <u>გ</u> ო.	iii iii	Blo	ows per foot	- 0	
1	3-555.8-		-	Topsoil - 3"		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		60 - 48	6.1	- 11 -		Hard gray CLAY (A-7-6); damp to moist.			6	шш	ПППЫ	30 40	1
	2		2.25	Very stiff brown CLAY (A-7-6); trace fine to coarse	0 1 4 41 54			1 1								11111111	11111/111		
Column C	3 3	14	2.25	sand; moist.	0 1 - 4 41 54	ПФППППП	T	62.0 49	4.1-							11111111	1111/111		
### 1	- 			@ 3.5'-5.0', brown and gray.		\mathbb{N}		I -	, 			coarse sand, little clay, trace gravel; moist.				11111111	1111/1111		
### 1	_ 4 ₅	18 2	2.0					1	1010							11111111			
March Marc	550.6			Stiff brown SILT CLAY (A Sh) trace fine to coome		$\Pi \Pi $		65								11111111	1111/1111		
Section Sect	3 4	3	1.5		0 1 - 6 38 55			1 1								11111111	ШШИ		
S] 5	18														ШШИ	<i>{</i>		
1] 3			@ 8.5'-10.0', hard; damp.		1111N111111			3 _	_		@ 68.0', loose, wet.		_		ШШИЈ]]		
1	1 1 4	17 4	4.5+			$\mathbb{H} \mathbb{H} $		70	3 4	18 ²⁰			1	2 - 30	57 10	Non-Plastic	i ¢ •		II I_
1	545.6-			Very stiff brown SILT (A-4b), "and" clay, trace fine		111111/111111		I "□								$\Pi \Pi $			
3 1 3 0 3 0 3 0 4 4 3 0 4 4 4 4 4 4 4 4 4 4	4	5	2.25			ШИШ		72.0	4.1-							111/1111			
S	_ " 	10						'' '								11111111			VESTIGAT
1	_ 2 ₂		30						0 4	21		grates, also stay, tron	17	2 52	21 6		<u> </u>		
## 4 1 2 2	15 5	18] 3.0		0 0 - 1 01 30	ШЫШП	<u> </u>	75 —	' 4	18			["	3 - 3			" 		
## 4 1 2 2				@ 16 0'-18 0' soft to medium stiff wet													\mathbb{H}		l li
A	4 4	18 7	0.5	G 1916 1916 1916 1916 1916 1916 1916				-77.0 47	9.1-			Severely weathered gray SANDSTONE assillances	<u> </u>			$\ \ \ \ \ $		$\parallel \parallel \parallel \parallel \parallel \parallel \parallel \parallel$	
2014 - 1	4					$\Pi\Psi\Pi\Pi\Pi\Pi$						Severely weathered gray SANDSTONE, arginaceous.				11111111			
S 10 10 10 10 10 10 10	3 4	8	2.0					—79.0 — 4 7	7.1 50/2	1 22		Medium hard to hard gray SANDSTONE; year fine to fine				11111111			6 .
## Section 10 2.0	20 5	18						80 —				grained moderately weathered amillaceous thinly				11111111			ll lä
## Section 10 2.0	- ₂							I -				to thickly bedded, slightly fractured. @ 79.0'-80.2', broken.				11111111			€
## Section 10 2.0	3 5	18	2.25					1 -				@ 79.3'-79.4', 79.8'-80.1', iron stained bands.				11111111			
Sign 1 1						$\Pi \Psi \Pi \Pi \Pi \Pi$		I -				& oc.o,oc.o, low angle nactures.				11111111			
Solution 1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	- 2 4	10	2.0						Core F	Rec RQE 17" 74%	R-1					11111111			
Section Sect	25 530.6 5	18						85 —								11111111			
S 5 5 5 7 10 12	J.5 7 30.0 3 _ 1							1 -								11111111			
The content of the	5 5	18	-	moist to wet.	0 0 - 0 79 21		¹ ₽									11111111			
A	-					$\Pi \Pi \Psi \Pi \Pi \Pi$		-								11111111			
S24.1	- 3 ₄	12			0 0 - 2 77 21		⊣ ♦	I -				@ 88.3'-88.6', decomposed argillaceous band.				11111111			TIBE
Find gray SLIT CLAY (A-56), trace the sent, most. 1	30 - - 6	18				 		90 —					1			1111111	1111111		l lo
Find gray SLIT CLAY (A-56), trace the sent, most. 1	-															11111111			
## display of the control of the con	2.0			Hard brownish gray SILTY CLAY (A-6b), trace fine		11111/111111		1 -				@ 91 9'-92 0' 94 4'-94 7' 96 9'-97 4' calcareous				11111111			
9 18 14 425 90.0 457.1 80tom of Boding - 90.0* 100 1	1 1			sand; moist.				1 1	Corre	POF		G = 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10				11111111			ll l'
5 8 9 18 14 4.25	6	18	4.5+					1 1	120" 1	99%	R-2					11111111			
514.1- 47 18	5 -					$\Pi \Pi \Psi \Pi \Pi$		95 —								11111111			
514.1- 47 18	1							1 1								11111111			
514.1- 47 18	1							1 1								11111111			
514.1- 47 18] 								7.1							11111111			
614.1- 4 7 11 18 15 4.25 Hard gray CLAY (A-7-8); damp to moist.	10 8 9	18	4.25		0 0 - 1 38 61		}}}}		"··'T			Bottom of Boring - 99.0'				11111111			
4 7 11 18 15 4.25 106 — 106 — 110 — 110 — 1115 — 115 —	~_]					H H H H H H H H		""]								11111111			
4 7 11 18 15 4.25 106 — 106 — 110 — 110 — 1115 — 115 —	.0—514.1-							l								$\ \ \ \ \ $			
110 - 110 -	4			Hard gray CLAY (A-7-6); damp to moist.												$\ \ \ \ \ $			
110 - 110 -	4 7	15	425													11111111			
8 13 18 16 4.5+ 110 — 110 — 115 — 115 —		18	4.25			ШШШШ		105—								11111111			
	4															11111111			
	4							I -								$\ \ \ \ \ $			
	-															$\ \ \ \ \ $			
	8 13	16	4.5+					I -								$\ \ \ \ \ $			
<u> </u>	0 13	18	"""					110—								$\ \ \ \ \ $			
<u> </u>	-							I -								$\ \ \ \ \ $			
<u> </u>	-							I -								$\ \ \ \ \ $			
<u> </u>	-					ШШШИ		I -								$\ \ \ \ \ $			
<u> </u>	- 4 ₇	17	4.0					I -								$\ \ \ \ \ $			
	55 —	18						115—								$\ \ \ \ \ $			
								I -								$\ \ \ \ \ $			
								I -								$\ \ \ \ \ $			
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	- <u> </u>					//										$\ \ \ \ \ $			
<u> 12 10 </u>	8 12	18	4.5+		0 0 - 0 21 79			I -											
	80 I I 12	18		1				120		Ш		ı				шшш	шшш		□

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	TranSys				_		Project: SCI-823-0.00								┙	Job	No.	01:	21-3	3070	0.03		_
OG OF	: Boring		B-32	Sar	nple o.	Location: Sta	. 122+95.4, 21.3 ft. RT of SR 823 CL Date Drilled: ' WATER OBSERVATIONS: Wicker scenero et . 28 0' 32 0' 68 0' 78 E'	1/15/0		3RA	DAT	to ION		1/16/0)7		—	_		_			_
Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Drive	/ Core	Hand Penetro- meter (tsf)	OBSERVATIONS: Water seepage at: 28.0'-32.0', 68.0'-78.5' Water level at completion: 59.5' (prior to coring) 21.1' (inside hollowstem augers) DESCRIPTION	% Aggregate	% C. Sand	M. Sand	F. Sand	Silt	Clay	Na	tur PL	「ANI al Ma . ⊢ Blow	oistu vs pe	ire C	Conf ot -	tent,	% 1 L	- L	•
-0.3 - -	555.0 -554.7-			1	-	1.5	Topsoil - 3" Stiff brown SILTY CLAY (A-6b), trace to little fine to coarse sand, trace gravel; damp.	- *	%	*	*	%	*			Ţ		ÌŢ	3	Ţ		0	
-3.0 — - 5 —	-552.0-	4 7 9	18	2		3.5	Stiff to very stiff brown CLAY (A-7-6), some silt, trace fine sand; damp to moist.	- •	0	-	1	29	70	0					₽H	\parallel		1	
- - -8.0	547.0-	2 2 3	18	3		1.5								Q		1							
10 —		² 4 ₅	18	4	P1	3.0 1.25	Stiff to very stiff brown SILT AND CLAY (A-6a), trace fine sand; damp. @ 10.1', torvane=0.40 tsf			_	2	53	45		V	ŀ							
12.5 <u> </u>	542.5-	3		_		3.0	@ 11.8', torvane=0.5 tsf Stiff to very stiff brown SILT (A-4b), little to some clay, trace fine to coarse sand; damp to moist.	+															
15 —		3 4	18	5	P2	1.75 1.0 3.5	@ 15.1', torvane=0.25 tsf @ 16.8', torvane=0.35 tsf	0	1	-	1	58	40	(•	1			
20 —		3 4 7	18	6		2.5																	
- -	-	3 4 7	18	7		1.25		0	0	-	1	80	19]			•				
25 —		3 3 6	18	8		1.0									¢	ı							
-	-	3 5 5	18	9		2.0		0	°	-	1	68	31					#	•				
30.0 -	-525.0	- 4 6	18	10		0.25	Stiff gray SILTY CLAY (A-6b), little fine to coarse sand; moist.								9)							
- 35 —	-	3 3 4	18	11		1.0								(
40—	-	4 7 9	18	12		1.25											Þ						
 42.0— - - 45—	513.0-	5 7 11	18	13		4.0	Very stiff to hard gray CLAY (A-7-6), little to some silt, trace fine sand; damp.										R						
50 —		10 11 16	18	14		3.5													þ				
- - - 55 —		10 11 17	18	15		2.75													P				
-		5 7 9	18	16		2.25																	

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	ranSyst				٠.		Project SCI-823-0.00								o No.	0121	3070.	03	_
OG OF	Boring		3-32	Sam		ocation: Sta	. 122+95.4, 21.3 ft. RT of SR 823 CL Date Drilled: 1/2 WATER	/15/0	GRA	DA"	to ION		1/16/0	7	—	—	—		_
Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Drive	Press / Core	Hand Penetro- meter (tsf)	OBSERVATIONS: Water seepage at: 28.0'-32.0', 68.0'-78.5' Water level at completion: 59.5' (prior to coring) 21.1' (inside hollowstern augers) DESCRIPTION	% Aggregate		Sand		% Clay	Na	ntural N PL ⊢	/loistu	re Cor	ntent, '	LL	(N
60.0———————————————————————————————————	495.0 -	6 7 9	18	17			Medium dense gray COARSE AND FINE SAND (A-3a), little to some silt, trace gravel, trace clay; contains sandstone fragments; damp to moist.								7				
70 — - - - 75 —		3 7 9	18	19			@ 78.5', auger refusal, sand heave, washed out.												
-78.5 80	-4 76.5-						@ 78.5', auger refusal, sand heave, washed out. Medium hard to hard gray SANDSTONE interbedded with SHALE; fine grained, slightly weathered, micaceous, medium bedded, slightly fractured.												
- -		Core 66"	Rec 66"	RQE 93%	R1		@ 78.8'-78.9', clay seam.												
-84.0 85 - - -	-4 71.0-						Bottom of Boring - 84.0'												

STRUCTURE FOUNDATION INVESTIGATION BRIDGE NO. SCI-823-0229 SR823 OVER SLOCUM AVE.

Column C	FranSveteme Inc	DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614 Project: SCI-823-0.00	4)888-0040 Job No. 0121-3070.03	Client: TranSystems, Inc.	DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (6 Project: SCI-823-0.00	314)888-0040 Job No. 0121-3070.03	ן '
The content of the							1 '
## 1					WATER OPERIVATIONS:		1 '
Companies Comp	Han	nd vvater seepage at. 62.0-73.0	STANDARD RENETRATION (N)		Hand vvater seepage at: 62.0-73.0	STANDARD RENETRATION (N)	. '
1	1 1 5 1 11 121 mere		101 1 1 1				'
The state of the	Elev. b c c U U C (tsf)		Natural Moisture Content, % -	Depth Elev.	tsfi	S S S S S S S S S S S S S S S S S S S	'
1			Blows per foot -			Blows per foot -	1 '
1			<u> </u>	60 492.6 6 6 6	Hard gray Sii T (A_4h): damn		А ′
Company Comp	{	Very stiff brown and gray CLAY (A-7-6), trace fine	─ ┤		riald gray O'LT (Y-15), damp.		(I '
1	3 4 17 1 2.0	sand; moist. @ 0.3'-1.8', contains root fragments.		-62.0-490.6-	Very loose gray SANDY SILT (A-4a); wet.	 	ıl '
1	1	3			toly losses girly of the Property lives		ıl '
Second Control Seco	6 7 2 2 3.0	ı	0 0 - 1 31 68				(I '
	547.1-			65 — 2 18			(I '
Total Tota	 3 						ıl '
### 3 4 25 ***	3 4 18 3 3.0	variou, mote.					(I '
### 10 10 10 10 10 10 10 1				I			(I '
### 1	3 5 16 4 3.0	,	0 0 - 1 38 61 <u> </u>		@ 69.0', medium dense.	0 1 - 60 31 8 Non-Piastic 📥	(I '
Section Sect				1 70			
The control of the	3 5 25			 			ıl '
1	6 18			-72.0 4 80.6	Severely weathered gray SANDSTONE, argillaceous.		(I '
1	 2 			50/1 1 21			(I '
The state of the	4 6 3.25	5			Hard light gray SANDSTONE; very fine to fine grained,	 	ıl '
The content of the	 			'°			/ 1
S	3 4 7 3.0	,	_				ı 1
No. 1	5 18						ıI.
1	<u> </u>	.	_	Core Rec RQD _{R-1}			ı1
3 1 2 3 3 3 3 3 3 3 3 3							ıl
S	532.1-	Very stiff brown SILT AND CLAY (A-6a); varved; moist.	─┤				ıI.
## 1	. 3 4 _{5 49}		0 0 - 1 65 34				
Control Cont	5 18 M		I				ı İ
10 10 10 10 10 10 10 10	3 4 40 30	,			@ 83.4'-84.9', medium hard, very fine grained.		ı
Company 1				85 —			ı
Section Sect		N 1971 - 011 T (A 11)	—				ı
20 1 2 2 3 1 1 2 2.75	1 2 4 18 11 3.5	Very stiff brown SILT (A-4b); varved; moist.	0 0 - 2 67 31 				ıI.
Total Tota	<u> </u>						ıI.
Med (displays) SANGTORIE, truy, five 6th op gained, sightly for some content, sightly for some c		Very stiff gray CLAY (A-7-6); varved; damp to moist.	<u> </u>	Core Rec RQD			
Section of Boring - 94.0 100 1	2 18		IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII		Hard light group CANDSTONE, your fine to fine grained		ı
## 10 1 3 3.75 ## 10 1 5 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	1				slightly to moderately weathered, argillaceous,		
8 to 11 13 3 3.75 Button of Boring -94.0	1				massive, slightly fractured.		
10 1 1 2 3 5 5 5 5 7 1 10 10 10 10 10 10 10 10 10 10 10 10 1	1				G 5512 5515, 5215 5111, 52150505		ı
100	5 8 13 3.7£	5		94.0 458.6	Bottom of Boring - 94.0'	 	ı
10 19 100 100 100 100 100 100 100 100 10	10 11			95 —			ı
10 19 100 100 100 100 100 100 100 100 10	1						ı
10 10 10 10 10 10 10 10 10 10 10 10 10 1	1						ı
100 — 100 —	1 - 	@ 38.0', brownish gray.					ı
(a) 42.0°-47.0°, hard. (b) 42.0°-47.0°, hard. (c) 47.0°, gray, damp to moist. (c) 47.0°, gray, damp to moist. (c) 47.0°, gray, damp to moist. (d) 47.0°, gray, damp to moist. (e) 42.0°-47.0°, hard. (f) 100 18 18 4.5+	8 10 18 ■ 14 3.75	5	0 0 - 0 33 67	1 1			ı
3 912 18 15 4.5+ 105— 106— 110— 110— 110— 1110— 1115—				100-			ı
3 912 18 15 4.5+ 105— 106— 110— 110— 110— 1110— 1115—]			ı
7 10 18 16 2.75		@ 42.0'-47.0', hard.]			ı
7 10 18 16 2.75 5 9 18 17 3.0 Hard gray Sil.T (A-4b); damp.	<u> </u>		_]			ıI.
7 10 18 16 2.75	912 18 15 4.5+	'		105—			ı
10 18 16 2.75 110 - 110	.			I			ı
10 18 16 2.75 110 - 18 17 3.0 115 - 115	(@ 47.0' gray damp to majet	_	 			ı
17 3.0 Hard gray Sil.T (A-4b); damp.	(ي عربي yıay, uanıp to IIIUSt.	_	 			ı
5 9 9 18 17 3.0 Hard gray SiLT (A-4b); damp.	7 10 18 27	5	_	 			ı
3.0 Hard gray SILT (A-4b); damp.	10 18 10 2.79	´		110			ı
Hard gray SILT (A-4b); damp.	(_	 			ı
Hard gray SILT (A-4b); damp.	(ı
Hard gray SiLT (A-4b); damp.				I			ıI 💮
Hard gray SiLT (A-4b); damp.	5 9 17 3.0	,	_	 			ı
- Hard gray SIL1 (A-4b); damp. O 1 - 9 53 37	9 18			115			ı
- Hard gray SiL1 (A-4b); damp. O 1 - 9 53 37	$\{ $			 			ı
$\begin{bmatrix} 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 $	495.6-	Hard gray SILT (A-4b); damp	<u></u>	 			ı
			_				ı
	5 10 18 4.54	+	0 1 - 9 53 37	 			ı I
111 18	1 111 10		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	120	I		_

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DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040 Job No. 0121-3070.03 Client: TranSystems, Inc. Project: SCI-823-0.00 LOG OF: Boring B-1605 Location: Sta. 20+05.8, 88.5 ft. RT of Pershing Ave. South BL

WATER
OBSERVATIONS:
Water seepage at: None Date Drilled: 1/10/06 GRADATION Sample No. ONS: Water seepage at: None Water level at completion: None Hand Penetro-meter STANDARD PENETRATION (N) Recovery (in) Blows per 6" Natural Moisture Content, 70 - PL Blows per foot - 10 20 30 40

5 48 46

3 40 57

7 46 47 % Aggregate
% C. Sand
% M. Sand
% F. Sand
% Silt
% Clay Depth (ft) Elev. (ft) DESCRIPTION Asphalt Concrete Pavement - 9" Aggregate Base -73"
Very stiff mottled brown and gray SILT AND CLAY (A-6a), trace fine to coarse sand; damp to moist.

@ 3.0', trace organic clay, moist. 3.25 3.0 2.5 Very stiff mottled brown and gray CLAY (A-7-6), "and" silt, trace fine to coarse sand; damp to moist. 2.5 2.75 Bottom of Boring - 10.0' 15 — 20 – 25 –

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	FranSyst				٦.		Project: SCI-823-0.00	44 10	17					1401	_	Job	No.	. 01	21-3	3070	.03	
UG OF	Boring		B-31	Sam		ocation: Sta.	124+68.2, 74.1 ft. LT of SR 823 CL Date Drilled: 1/ WATER	11/0		GRA	DAT	to ION		/12/0	1/			_				
Depth (ft)	Elev.	Blows per 6"	ery (in)	No	Press / Core	Hand Penetro- meter (tsf)	OBSERVATIONS: Water seepage at: 14.8', 19.6' Water level at completion: 30.2' (prior to coring) 24.6' (with augers removed, includes drilling water)	% Addregate	Sand	Sand	Sand		y		itura	al M		ure (ent,		ON (N
-0.2 <i>=</i> =	555.4 555.2	Blows	Recovery	Drive	Press		DESCRIPTION \tag{Topsoil - 2"}	% Age	% C. Sand	% M. Sand	% F. Sand	% Silt	% Cla			3lov		er fo	ot - 30	(
-	000.2	3 4 4	11	1		2.75	to your stiff brown and gray SILT AND CLAY (A-6a), trace to little fine to coarse sand, trace gravel; damp to moist. @ 0.2-5.0', contains trace organic material.								φ							
_ 5—	549.9-	⁴ ₅	18	2		2.75									¢							
-		3 5 7	18	3		3.75	Very stiff brown and gray CLAY (A-7-6), some silt, trace fine sand; moist.	٥	٥	-	6	29	65					4	H	\parallel	Ш	4
_	547.4-	4 6 8	18	4		3.5	Very stiff brown and gray SILTY CLAY (A-6b), trace fine to coarse sand; moist.									$\left[\right]$						
10 —	-				P1	2.5		0	1	-	6	37	56					+	Н	H	4	
13.0— —	542.4-	3 4		5		3.25	Very stiff to hard brown and gray SILT AND CLAY (A- 6a), trace fine to coarse sand; moist.															
15 — –		6	18		P2	4.5+		0	. 0	-	2	53	45		¢			+	Ш	H		
-		5 5		6		3.5																
20 —		3 5	18	7		2.25			2			31	65			ф						
-		4	18					ľ		-	_	31	65			þ		П				
25 — 25.5 —	529.9-	3	18	8		2.5	Stiff brown and gray SILT (A-4b), some clay, trace									arraycolorginal						
_ 28.0—	-527.4 <i>-</i>	4 5	18	9		1.5	fine sand; damp to moist. Medium dense brown COARSE AND FINE SAND (A-3a), trace	0	0	-	6	65	29		Ø		+	Ħ				
30 —		4 5 8	18	10			silty clay; moist.									 						
32.0—	523.4-						Very stiff to hard gray SILT AND CLAY (A-6a), trace fine to coarse sand; damp to moist.															
35 —		² 3	18	11		1.0		0	0	-	3	47	50	C	$\left\{ \right $		H	\parallel	H	1		
-																$\left\ {} \right\ $						
40 —		4 7 11	18	12		3.0											b					
-		5 8 13	18	13		4.25																
45 —		,,,																				
50 —		6 9 14	18	14		3.0		٥	2	-	7	34	57						\prod			
-	<u> </u>																	$\ $				
55 —		8 12 15	17	15		4.5+													$\left \begin{array}{c} \\ \\ \end{array} \right $			
-																		$\left\ \cdot \right\ $				
-	1	6 9 12	18	16		3.75			1									Л				

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							DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)	888-0	040					
Client:					٦.		Project: SCI-823-0.00							Job No. 0121-3070.03
.OG OF	Boring		B-31	San	_	ocation: Sta	. 124+68.2, 74.1 ft. LT of SR 823 CL Date Drilled: WATER	1/11/		GR/	DA ⁻	to TION		1/12/07
Depth (ft)	Elev. (ft) 495.4	Blows per 6"	Recovery (in)	Drive	Press / Core	Hand Penetro- meter (tsf)	OBSERVATIONS: Water seepage at: 14.8', 19.6' Water level at completion: 30.2' (prior to coring) 24.6' (with augers removed, includes drilling water) DESCRIPTION	% Accreases		% M. Sand			% Clay	STANDARD PENETRATION (N) Natural Moisture Content, % - ● PL
65 — -67.0 — -70 — -75 —	-4 88.4-	8 8 10 3 5 3 5 3 6	15	17			Stiff gray SILT AND CLAY (A-8a), little fine to coarse sand; moist to wet. Loose gray COARSE AND FINE SAND (A-3a), little silt; wet.							<i>P</i>
-79.0 — 80 —	-476.4- -471.2-	Core 63"	Rec 63"	RQ 97%	R1		Hard gray SILTSTONE; fine grained, slightly weathered, arenaceous, medium to thickly bedded. @ 79.4', 83.6', clay seams. Bottom of Boring - 84.3'							

STRUCTURE FOUNDATION INVESTIGATION BRIDGE NO. SCI-823-0229 SR823 OVER SLOCUM AVE.