DLZ Ohio, Inc. * 6121 Huntley Road, Columbus, Ohio 43229 * (614) 888-0040

Client: ms consultants | *Project:* FRA-70-8.93 | *Job No.* 0221-1004.01

LOG OF: Boring B-040 | *Location:* Sta. 760+61.33, 137.60 ft Rt. of I-70 CL | *Date Drilled:* 8/15/2008 to 8/19/2008

WATER OBSERVATIONS:
Water seepage at: 10.5', 23.0', 47.0'
Water level at completion: 29.7' (beginning of shift, 8/18/08)
29.3' (includes drilling water)

FIELD NOTES:
Advanced boring using 4.0" diameter flush joint casing.

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery	Sample No. Drive	Sample No. Press / Core	Hand Penetrometer (tsf)	DESCRIPTION	Graphic Log	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N60) / Natural Moisture Content, % - / PL — LL / Blows per foot - ○ / Non-Plastic - NP
	658.9						Very dense gray COARSE AND FINE SAND (A-3a), some silt, little gravel; possible cobbles; wet.								
		40 50/5	4	30											50+
105															
107.0	651.9														
							Hard brown CLAY (A-7-6), some fine to coarse sand, trace gravel; contains rust stains; damp. (POSSIBLE DECOMPOSED SHALE)		1	18	---	10	29	42	
		50/5	5	31		4.5									50+
110															
113.5	645.4														
		38 42 50/5	7	32			Severely weathered brownish gray SHALE.								50+
115															
116.5	642.4						@ 116.1'-116.5', encountered granite cobble/boulder (cored through).								
		Core 60"	Rec 60"	RQD 73%	R1		Shale, blue-gray, highly weathered, weak, laminated, friable, fissile, jointed, fractured to moderately fractured, tight, slightly rough, RQD 77%, Loss 0%. Contains dark gray, well cemented shale zones [thin, dark bands]. Dark shale zones are typically 1-2 inches thick, spaced at intervals of 12 to 18 inches.								
120															
120.8	638.1						Interbedded Shale (92%) and Limestone (8%), RQD 86%, Loss 1%; Shale, dark gray, highly weathered, weak, thinly laminated, calcareous, fissile, pyritic, jointed, slightly rough, tight; Limestone, gray, moderately weathered, strong, thinly bedded.								
		Core 60"	Rec 58"	RQD 53%	R2										
125	633.9														