Drilling Firm: Kentucky Transportation Cabinet
For: Division of Structural Design
Geotechnical Branch

EXTRUSION LOG

Project ID: S-XXX-2016
Item Number: ###

County: *Ohio*
Route: *US-0062MP 11.0-12.0*

Project Type: *Structure State Bridge*
Project Manager: _____

Location	Hole No.	Samp. No.	Depth	Moisture Content AASHTO T-265					Visual Soil Description	Samp Type	No. of Samp	Penet-rometer / Torvane	Request for Testing					
				Can No.	Tare	Wet Weight + Tare	Dry Weight + Tare	% Water					QU	Consol-idation	Triaxial Test Type	Triaxial # Samp.	Triaxial Press-ure	Class. / Wash
14+22.15 20.8' Lt.	1001	ST-1	2.5 - 4.5	19	45.3	80.5	73.4	25.3	BRW & GREY CLAY	ST	1	4.5	1					1029
		SPT-1	5.0 - 5.7	12	45.2	65.0	64.0	5.3	BRW SILT	SPT								1030
14+82.00 22.0' Rt.	1006	ST-1	2.5 - 4.5						No Specimen	ST								—
		ST-2	5.0 - 7.0	4	32.8	60.1	54.7	24.7	BRW SILT	ST	1	1.0			UU	1	21	1031
		ST-3	10.0 - 12.0	1	45.3	81.8	74.7	24.1	BRW SILT	ST	1	2.0		1				1032
		SPT-1	12.0 - 13.5	2	45.5	64.1	60.6	23.2	BRW & GREY SANDY CLAY	SPT								1033
		SPT-2	15.0 - 16.5	2	45.5	64.1	60.6	23.2	BRW & GREY SANDY CLAY	SPT								1033
		SPT-3	20.0 - 21.5	22	45.5	79.2	75.9	10.9	BRW & GREY SANDY CLAY	SPT								1034

9

KENTUCKY TRANSPORTATION CABINET

Division of Structural Design, Geotechnical Branch

Disturbed Soil Classification Worksheet (KYT Input)

Project # _____ Hole # _____

County: Ohio Lab #: 1079

LIQUID LIMIT DATA

Can #	Wet Soil + Can (gm)	Dry Soil + Can (gm)	Can Wt (gm)	# of Blows
53	31.48	24.25	13.91	26

PLASTIC LIMIT DATA

Can #	Wet Soil + Can (gm)	Dry Soil + Can (gm)	Can Wt (gm)
42	17.67	16.31	13.92

ATTERBURG LIMIT CHECKS

LL	PL	PI

MECHANICAL ANALYSIS

Total Air Dry Sample	Sieve	Amount (g)
	2	
	1	
	3/8	
	3/8	
	#4 sieve	
	#10 sieve	

SIEVE ANALYSIS OF FINE AGGREGATE

Sieve #	Retained
[illegible]	.17
[illegible]	.26

SPECIFIC GRAVITY

Flask # =	15
Wet Mass of Oven-dried Soil =	29.15
Mass of Flask and Water Mass =	141.67
Mass of Flask and Water Mass =	192.4
Test Temperature =	72

HYGROSCOPIC MOISTURE

Can #	Wet Soil + Can (gm)	Dry Soil + Can (gm)	Can Wt (gm)
	30.39	29.13	

HYDROMETER ANALYSIS

Wet Sample and Dry (gm)	Tube #

Elasped Time	Hydrometer Reading	Temperature (deg F)
2	50	68
6		
16		
30		
60	39	
250	30	.69
1440	23	

10

KENTUCKY TRANSPORTATION CABINET

Division of Structural Design Geotechnical Branch

Disturbed Soil Classification Worksheet/KNT Input

Project #:

County: Ohio

Hole #:

Lab #: 1630

LIQUID LIMIT DATA

Can #	Wet Soil + Can (gm)	Dry Soil + Can (gm)	Can Wt (gm)	# of Blows
9	31.21	26.91	14.12	23

PLASTIC LIMIT DATA

Can #	Wet Soil + Can (gm)	Dry Soil + Can (gm)	Can Wt (gm)
18	19.23	18.27	14.12

ATTERBURG LIMIT CHECKS

LL	PL	PI

MECHANICAL ANALYSIS

Total Air Dry Sample	Sieve	Amount (gm)
	2	
	1	
	3/4	
	3/8	
	#4 Sieve	
	#10 Sieve	

SIEVE ANALYSIS OF FINE AGGREGATE

Sieve #	Retained
40	.57
200	4.14

SPECIFIC GRAVITY

Flask #	17
Wet mass of oven-dried soil	32.76
Wt Flask and Water Mass	156.71
Wt Flask and Water Mass	176.98
°F Test Temperature	72

HYDROMETER ANALYSIS

Wt Sample at dry (gm)	Tube #

Elapsed Time	Hydrometer Reading	Temperature (deg F)
2	46	68
6		
16		
30		
60	21	
250	16	69
1440	11	

HYGROSCOPIC MOISTURE

Can #	Wet Soil + Can (gm)	Dry Soil + Can (gm)	Can Wt (gm)
	33.55	32.79	

11

KENTUCKY TRANSPORTATION CABINET

Division of Structural Design Geotechnical Branch

Disturbed Soil Classification Worksheet (KT Input)

Project # _____ Hole # _____

County: Ohio Lab # 1031

LIQUID LIMIT DATA

Can #	Wet Soil + Can (gm)	Dry Soil + Can (gm)	Can Wt (gm)	# of Blows
16	33.77	29.14	14.22	24

PLASTIC LIMIT DATA

Can #	Wet Soil + Can (gm)	Dry Soil + Can (gm)	Can Wt (gm)
35	20.38	19.08	13.88

ATTERBURG LIMIT CHECKS

LL	PL	PI

MECHANICAL ANALYSIS

Total Air Dry Sample	Sieve	Amount (g)
	2	
	[illegible]	
	3/8	
	3/8	
	#4 sieve	
	#10 sieve	

SIEVE ANALYSIS OF FINE AGGREGATE

Sieve #	Retained
[illegible]	0.0
[illegible]	3.70

SPECIFIC GRAVITY

Flask #	18
Wt. Mass of Oven-dried Soil =	30.55
Wt. Flask and Water Mass =	153.63
Wt. Flask and Soil and Water Mass =	172.51
Test Temperature =	72

HYDROMETER ANALYSIS

Wt. Sample at Dry (gm)	Tube #

Elasped Time (min)	Hydrometer Reading	Temperature (deg F)
2	45	68
6		
16		
30		
60	17	
250	12	69
1440	10.5	

HYGROSCOPIC MOISTURE

Can #	Wet Soil + Can (gm)	Dry Soil + Can (gm)	Can Wt (gm)
	31.26	30.55	

12

KENTUCKY TRANSPORTATION CABINET

Division of Structural Design Geotechnical Branch

Disturbed Soil Classification Worksheet (KYT Input)

Project # =

County: Ohio

Hole # =

Lab #: 1032

LIQUID LIMIT DATA

Can #	Wet Soil + Can (gm)	Dry Soil + Can (gm)	Can Wt (gm)	# of Blows
60	32.31	27.86	14.03	23

PLASTIC LIMIT DATA

Can #	Wet Soil + Can (gm)	Dry Soil + Can (gm)	Can Wt (gm)
44	18.79	17.82	13.93

ATTERBURG LIMIT CHECKS

LL	PL	PI

MECHANICAL ANALYSIS

Total Air Dry Sample	Sieve	Amount (g)
	2	
	[illegible]	
	3/4	
	3/8	
	#4 Sieve	
	#10 Sieve	

SIEVE ANALYSIS OF FINE AGGREGATE

Sieve #	Retained
[illegible]	.73
[illegible]	4.99

SPECIFIC GRAVITY

Flask # =	24
Wet Mass of Oven-dried Soil =	31.13
Wt. Flask and Water Mass =	152.58
Wt. Flask and Water and Soil Mass =	171.44
T Test Temperature =	72

HYDROMETER ANALYSIS

Wt. Sample (gm)	Tube #

Elasped Time (min)	Hydrometer Reading	Temperature (deg F)
2	47	68
6		
16		
30		
60	19	
250	15	69
1440	12	

HYGROSCOPIC MOISTURE

Can #	Wet Soil + Can (gm)	Dry Soil + Can (gm)	Can Wt (gm)
	31.93	31.21	

13

KENTUCKY TRANSPORTATION CABINET

Division of Structural Design Geotechnical Branch

Disturbed Soil Classification Worksheet (KYT Input)

Project # _____ Hole # _____

County: Ohio Lab #: 1673

LIQUID LIMIT DATA

Can #	Wet Soil + Can (gm)	Dry Soil + Can (gm)	Can Wt (gm)	# of Blows
5	32.70	28.85	13.90	25

PLASTIC LIMIT DATA

Can #	Wet Soil + Can (gm)	Dry Soil + Can (gm)	Can Wt (gm)
3	21.13	19.96	13.90

ATTERBURG LIMIT CHECKS

LL	PL	PI

MECHANICAL ANALYSIS

Total Air Dry Sample	Sieve	Amount (g)
	2	
	[illegible]	
	3/8	
	3/8	
	#4 Sieve	
	#10 Sieve	

SIEVE ANALYSIS OF FINE AGGREGATE

Sieve #	Retained
[illegible]	.66
[illegible]	16.42

SPECIFIC GRAVITY

Flask #	25
Wt. Mass of Oven Dried Soil =	31.96
Wt. Flask and Water Mass =	165.19
Wt. Flask and Soil and Water Mass =	184.69
Test Temperature =	72

HYGROSCOPIC MOISTURE

Can #	Wet Soil + Can (gm)	Dry Soil + Can (gm)	Can Wt (gm)
	32.66	31.97	

HYDROMETER ANALYSIS

Wt. Sample air dry (gm)	Tube #

Elasped Time (min)	Hydrometer Reading	Temperature (deg F)
2	35	68
6		
16		
30		
60	16	
250	13	69
1440	11	

14

KENTUCKY TRANSPORTATION CABINET

Division of Structural Design, Geotechnical Branch

Disturbed Soil Classification Worksheet (KYT Input)

Project #: _____ Hole #: _____

County: Ohio Lab #: 1634

LIQUID LIMIT DATA

Can #	Wet Soil + Can (gm)	Dry Soil + Can (gm)	Can Wt (gm)	# of Blows
10	30.00	26.82	14.47	24

PLASTIC LIMIT DATA

Can #	Wet Soil + Can (gm)	Dry Soil + Can (gm)	Can Wt (gm)
1	19.50	18.68	13.75

ATTERBURG LIMIT CHECKS

LL	PL	PI

MECHANICAL ANALYSIS

Total Air Dry Sample	Sieve	Amount (g)
603	2	
	3/4	
	3/8	24
	#4 Sieve	9
	#10 Sieve	6

SIEVE ANALYSIS OF FINE AGGREGATE

Sieve #	Retained
40	.50
200	16.40

HYDROMETER ANALYSIS

Wt Sample (air dry) (gm)	Tube #

Elapsed Time (Min)	Hydrometer Reading	Temperature (deg F)
2	54	68
6		
16		
30		
60	18	
250	15	69
1440	12	

SPECIFIC GRAVITY

Flask #	26
Wet mass of flask and dry soil (g)	30.6
Mass of flask and water (g)	139.57
Mass of flask, soil and water (g)	158.15
Test Temperature (°C)	72

HYGROSCOPIC MOISTURE

Can #	Wet Soil + Can (gm)	Dry Soil + Can (gm)	Can Wt (gm)
	31.04	30.58	

KENTUCKY TRANSPORTATION CABINET
Division of Structural Design, Geotechnical Branch
1236 Wilkinson Blvd.
Frankfort, KY 40601

#1029

Tested by: _____
Technical Responsibility: _____

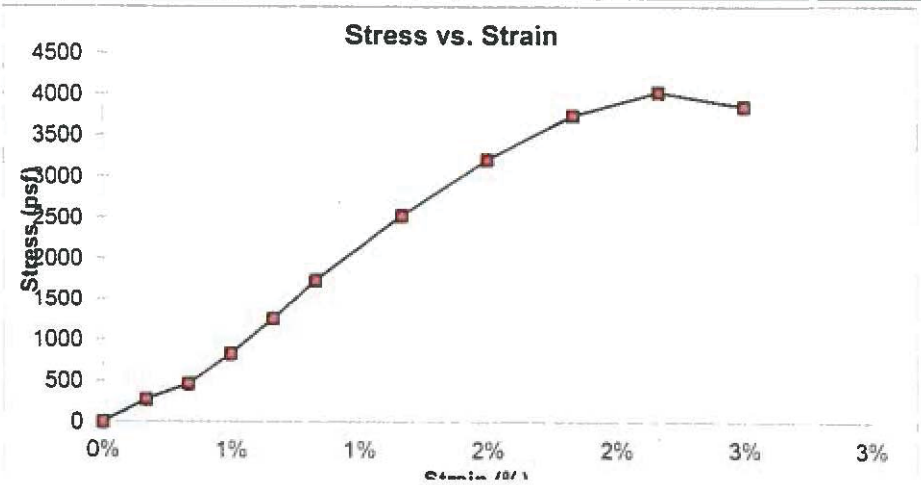
Unconfined Compression Test, AASHTO T 208-05

Operator:		Date:	
County:	OHIO	Hole:	1001
Sample:	1	Depth (ft.):	2.5-4.5
Station:	14+22.15 20.8LT		
Proj. #:	S-XXX-2016		
VISUAL DESC:	BRW & GREY CLAY		
Machine #:	90	Load Ring #:	A1-506
PP/Torvane		Time to Failure (min):	1.50
1.)	4.5		
2.)	4.5		
3.)	4.5		
Average:	4.5		
Max. Stress (psi):	27.95	Strain (%)	2.17%
Max. Stress (psf):	4024.81		
Limiting Stress @ 10 % Strain (psf):			
Max. Stress (kPa):	192.71		
Limiting Stress @ 10 % Strain (kPa):			

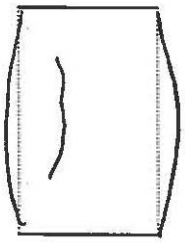
Initial Diameter			Initial Height		
1.)	2.87	in.	1.)	6	in.
2.)	2.87	in.	2.)	6	in.
3.)	2.87	in.	3.)	6	in.
Avg.:	2.870	in.	Avg.:	6.000	in.
Avg.:	72.898	mm	Avg.:	152.400	mm

Initial Weight:	1345	g
Initial Area:	6.47	in^2
Initial Volume:	38.82	in^3
Can #:	3	
Tare:	45.7	
Wet + Tare:	69.6	
Dry + Tare:	65.8	
Moisture (%):	18.9	
Wet Density (pcf):	131.9	
Wet Density (kg/m^3):	2113	

Deflection (in)	Load Ring Defl (in)	Elapsed Time (mm:ss.00)	Elapsed Time (min.)	Adj. Area (in^2)	Stress (psi)	Stress (psf)	Strain (%)
0.000	0.0000			6.47	0.00	0.00	0.00%
0.010	0.0042			6.48	1.91	274.68	0.17%
0.020	0.0071			6.49	3.22	463.56	0.33%
0.030	0.0127			6.50	5.75	827.80	0.50%
0.040	0.0193			6.51	8.72	1255.89	0.67%
0.050	0.0267			6.52	12.05	1734.51	0.83%
0.070	0.0390			6.55	17.53	2525.03	1.17%
0.090	0.0497			6.57	22.27	3206.95	1.50%
0.110	0.0582			6.59	25.99	3742.71	1.83%
0.130	0.0628			6.61	27.95	4024.81	2.17%
0.150	0.0603			6.64	26.75	3851.42	2.50%



Failure Sketch:



Remarks:

1031

Commonwealth Office of Technology

Unconsolidated Undrained Triaxial Test (ASTM D2850)

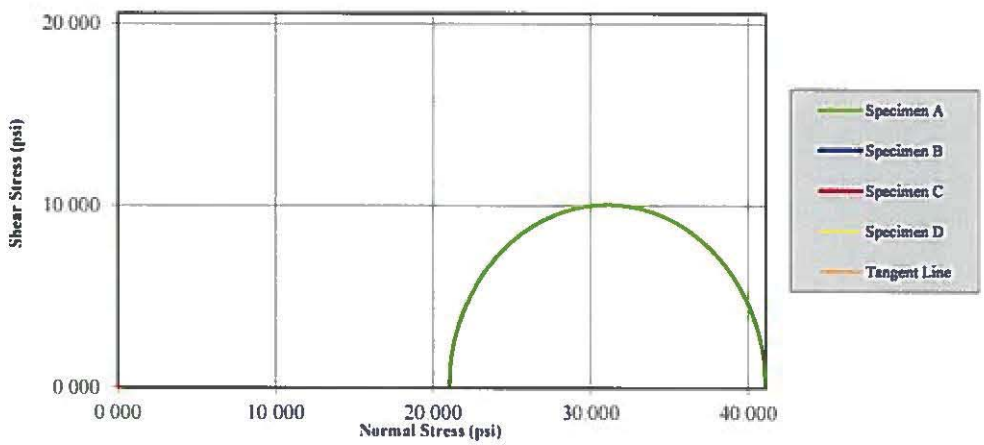
Date:

Checked By:

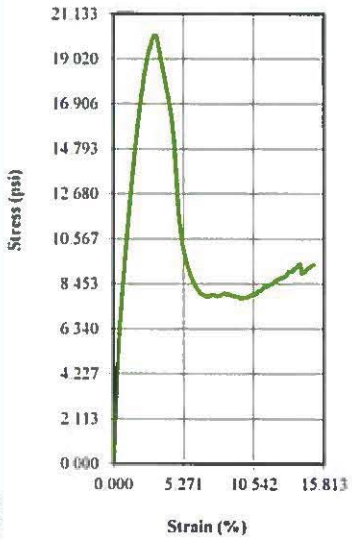
Date:

Tested By:

Mohr Circles



Stress-Strain Curve



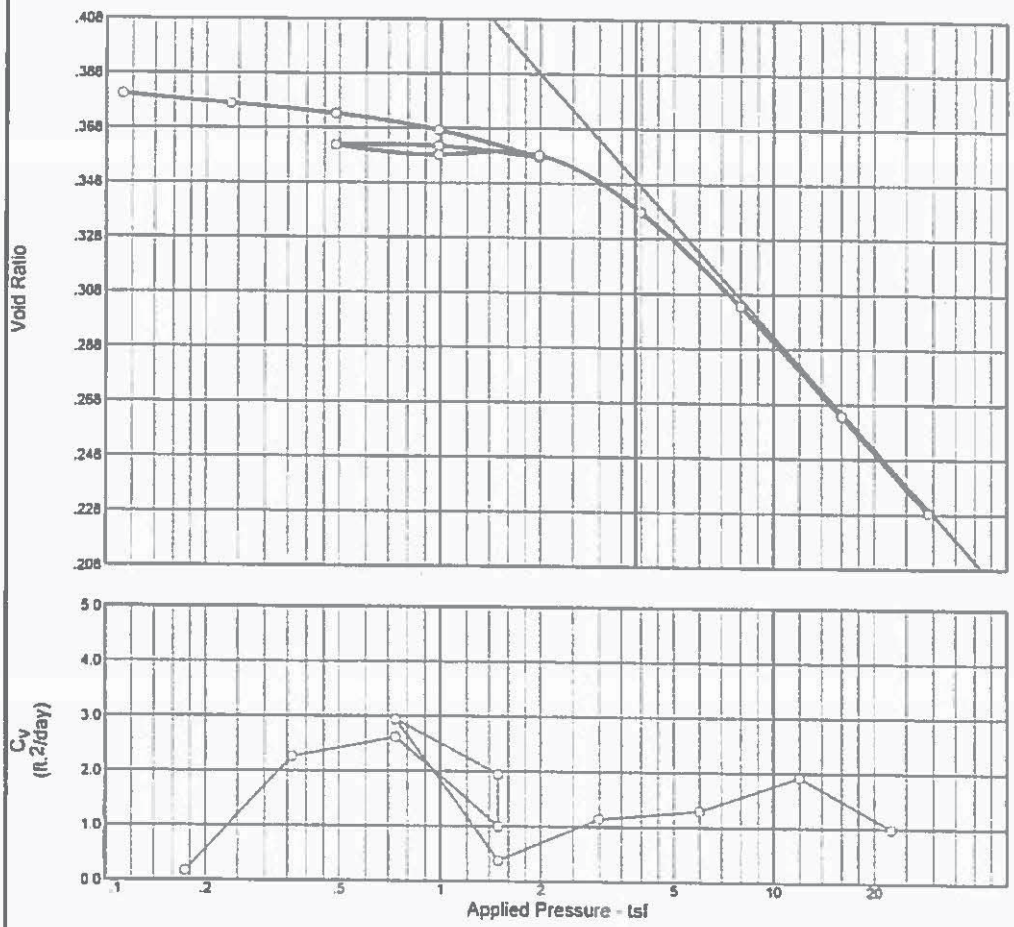
Before Test	Specimen A	B	C	D
Water Content (%)	13.62	0.00	0.00	0.00
Dry Density (pcf)	118.17	0.00	0.00	0.00
Saturation (%)	90.24	0.00	0.00	0.00
Void Ratio	0.40	0.00	0.00	0.00
Diameter (in)	2.870	0.000	0.000	0.000
Height (in)	5.800	0.000	0.000	0.000
Liquid Limit				
Plastic Limit				
Specific Gravity	2.536			
After Test	**A**	**B**	**C**	**D**
Water Content (%)	14.16	0.00	0.00	0.00
Test Data	**A**	**B**	**C**	**D**
Strain Rate (in/min)	0.06	0.00	0.00	0.00
Peak Deviator Stress (psi)	20.127	0.000	0.000	0.000
Axial Strain @ Failure (%)	3.221	0.000	0.000	0.000
	Cell Pressure			
Cell (psi)	21.0	0.0	0.0	0.0
Back (psi)	n/a	n/a	n/a	n/a
	Principle Stresses at Failure			
σ1 (psi)	41.1	0.0	0.0	0.0
σ3 (psi)	21.0	0.0	0.0	0.0

Mohr-Coulomb Strength Parameters		Sample Description
C (psi)	0.0	BRW SILT
Friction Angle O	0.00	

Project Information			
Project Name:	Example Structure		
Project Number:	S-XXX-2016	Job Number:	
Location:	14+82.00 22' Rt.	Boring Number:	1006
Client:	KYTC	Sample Number:	2
Remarks:			

#1032

CONSOLIDATION TEST REPORT



Natural Sat.	Natural Moist	Dry Dens (pcf)	LL	PI	Sp. Gr.	Overburden (tsf)	P_c (tsf)	C_c	C_r	Swell Press. (tsf)	Swell %	e_o
30.3%	24.7%	91.1	31	25	2.617		4.84	0.14	0.01			0.793

MATERIAL DESCRIPTION	USCS	AASHTO
BRW SILT	ML	A-4

Project No. S-XXX-2016 Client:
Project:
Location: 14+82, 22' Rt. (Hole # 1006)

Remarks:

CONSOLIDATION TEST REPORT

Kentucky Transportation Cabinet

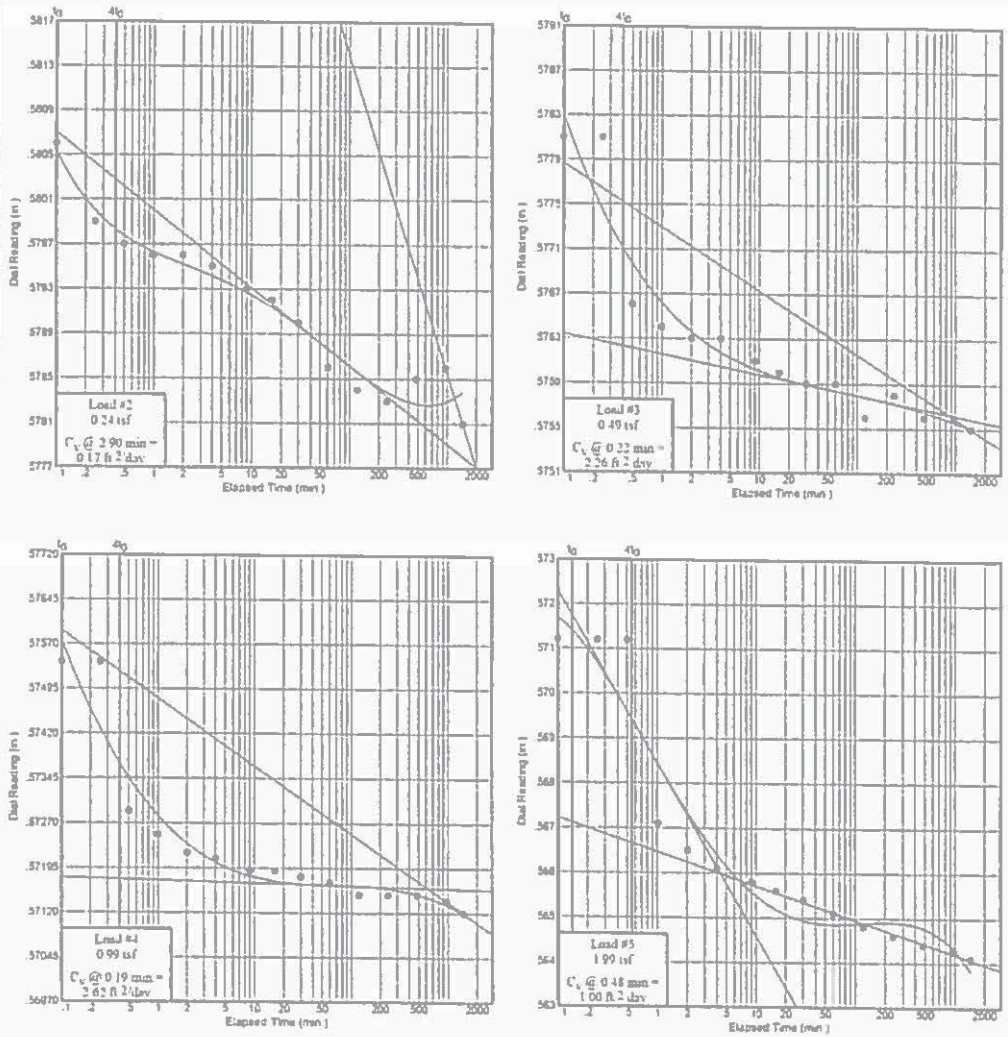
Plate

#1032

Dial Reading vs. Time

Project No.: S-XXX-2016
Project:

Location: 14+82, 22' Rt. (Hole # 1006)



Dial Reading vs. Time

Kentucky Transportation Cabinet

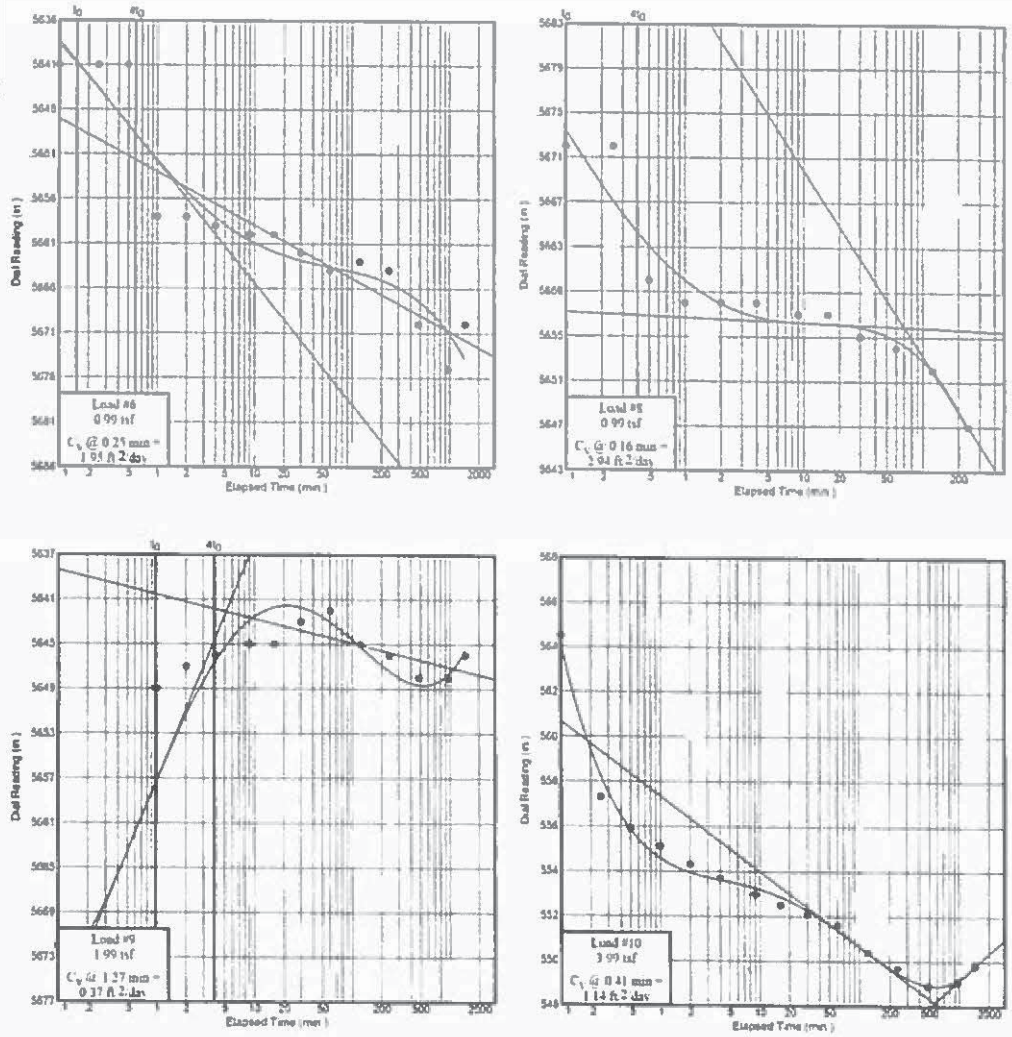
Plate

#1032

Dial Reading vs. Time

Project No.: S-XXX-2016
Project:

Location: 14+82, 22' Rt. (Hole # 1006)



Dial Reading vs. Time

Kentucky Transportation Cabinet

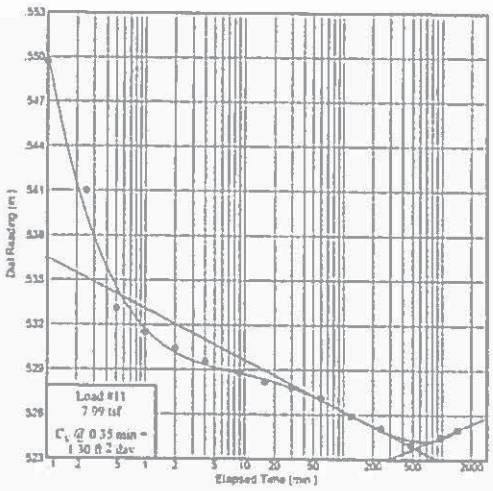
Plate

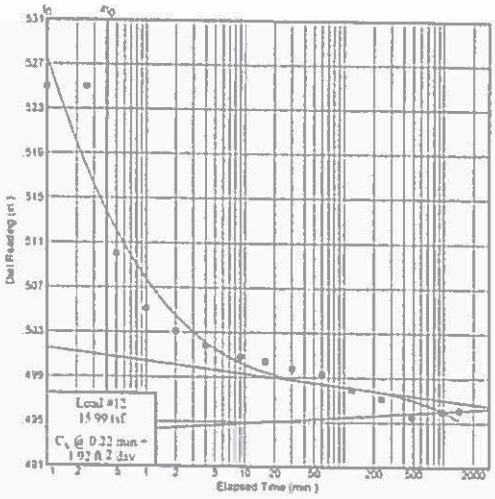
1032

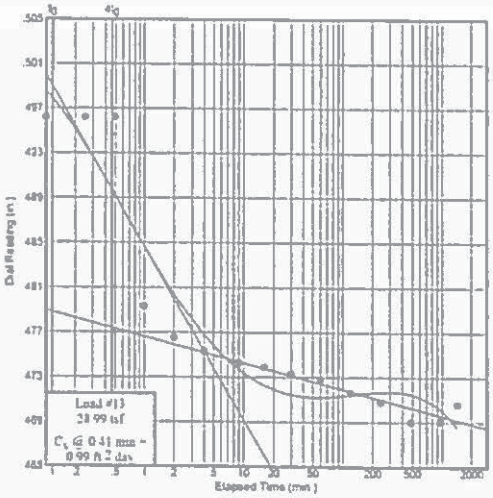
Dial Reading vs. Time

Project No.: S-XXX-2016
Project:

Location: 14+82, 22' Rt. (Hole # 1006)







Dial Reading vs. Time

Kentucky Transportation Cabinet

Plate