Report for:

Subsurface Exploration
Proposed Highland Bend Embankments
Project SCI-823-0.00
Scioto County, Ohio

Prepared for:

TranSystems Corporation
5747 Perimeter Drive, Suite 240
Dublin, Ohio 43017

Ohio Department of Transportation
District 9

DLZ Ohio, Inc.

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DLZ Job No. 0121-3070.03

June 8, 2006

Prepared by

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REPORT

OF

SUBSURFACE EXPLORATION

PROPOSED HIGHLAND BEND

ROADWAY EMBANKMENTS

PROJECT SCI-823-0.00

SCIOTO COUNTY, OHIO

For:

TranSystems Corporation
5747 Perimeter Drive, Suite 240
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REPORT
OF
SUBSURFACE EXPLORATION
PROPOSED HIGHLAND BEND EMBANKMENTS
PROJECT SCI-823-0.00
SCIOTO COUNTY, OHIO

1.0 INTRODUCTION

The SCI-823 project consists of constructing approximately sixteen miles of new roadway. The analyses and recommendations outlined in this report pertain to the embankments in the Highland Bend area only. To construct the proposed roadway in this area, three embankments will be constructed from approximately stations 105+00 to 133+00. Three structures will also be constructed in this area. The recommendations for the structures are presented in separate documents.

The exploration presented in this report has been performed essentially in accordance with DLZ Ohio, Inc.'s proposal for the project. The subsurface explorations and embankment recommendations for the three roadway embankments are presented in this report.

The purpose of this exploration was to 1) determine the subsurface conditions to the depths of the borings, 2) evaluate the engineering characteristics of the subsurface materials, and 3) provide information to assist in designing the roadway embankments.

The geotechnical engineer has planned and supervised the performance of the geotechnical engineering services, has considered the findings, and has prepared this report in accordance with generally accepted geotechnical engineering practices. No other warranties, either expressed or implied, are made as to the professional advice included in this report.

2.0 GENERAL PROJECT INFORMATION

It is understood that the embankments heights for proposed SR-823 in the Highland Bend area will range from approximately 104 feet, near station 109+00 to 44 feet, near station 131+00. Three bridge structures will be constructed in the Highland Bend area crossing the CSX Railroad, Slocum and Pershing Avenues, and the Little Scioto River. It is assumed that the structures in the Highland Bend area will be supported on piles or drilled shafts. Bridge foundation recommendations have been submitted previously in separate documents. All roadway embankments were analyzed for global stability and settlement. Stability analyses were also performed for the embankment at the rear abutment location of the structure crossing the Little Scioto River. Alternative bridge options, providing variations in the construction of the embankment at the rear abutment of the Little Scioto River Structure were analyzed for stability and are outlined in this report.

The analyses and recommendations presented in this report have been made on the basis of the foregoing information. If the proposed embankment locations, heights or concept is changed or

differs from that assumed, DLZ Ohio, Inc. should be informed of the changes so that recommendations and conclusions presented in this report may be revised as necessary.

3.0 FIELD EXPLORATION

A subsurface exploration was performed between the dates January 27, and May 17, 2005 and consisted of eleven preliminary structural borings as well as five roadway borings. An additional exploration was performed between January 10, and January 12, 2006 and consisted of three roadway borings. All borings were drilled with a truck-mounted, rotary-type drill rig. All borings were advanced to bedrock, with total depths ranging from 21.0 to 103.6 feet.

The results of these evaluations are based upon the findings of eleven preliminary structural borings and eight roadway borings. Boring logs for borings TR-32 through TR-42, TR-35A, TR-38A, R-56, R-57, R-58, R-61, R-64, R-68, and R-64A can be found in Appendix A. A boring location plan and generalized subsurface profile can also be found in Appendix A.

4.0 FINDINGS

4.1 Geology of the Site

The project area in Highland Bend has generally gently rolling terrain and is bounded down-station and up-station by steep slopes. The main drainage feature in the valley is the Little Scioto River at approximately station 136+00. The soil consists primarily of alluvial and lacustrine deposits. The overburden in this area is generally fine-grained soils, seventy to ninety feet deep. The area is located in the Shawnee-Mississippian Plateau, and can be found on the Minford 7.5-minute Quadrangle.

Bedrock is of the Mississippian Logan Formation. Generally, this formation consists of primarily sandstone or sandy siltstone with 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.

4.2 Subsurface Conditions

4.2.1 Subsurface Conditions, Station 105+00 to 114+00

In the area of this proposed roadway embankment, borings R-57, R-58, TR-41 and TR-42 were drilled. The soil properties and subsurface profile at boring TR-41 was more critical that the other borings. Therefore, a soil profile based upon boring TR-41 was used to evaluate embankment stability and settlement for this roadway embankment.

Boring TR-41 generally encountered nine inches of topsoil at the surface. Below the topsoil layer, primarily very stiff clay (A-7-6) was encountered to a depth of

21 feet below the ground surface. Below 21 feet, primarily stiff to very stiff silt (A-4b) was encountered to a depth of 70 feet. Below 70 feet, primarily stiff to very stiff silt and clay (A-6a) was encountered to a depth of 83 feet. Below 83 feet, primarily loose to medium dense coarse and fine sand (A-3a) was encountered to a depth of 93 feet, at the top of bedrock. Underlying the soil, this boring encountered medium hard to hard, slightly to moderately weathered sandstone to the bottom of the boring at 113 feet.

4.2.2 Subsurface Conditions, Station 116+00 to 122+00

In the area of this proposed roadway embankment, borings R-61, TR-38, TR-38A, TR-39 and TR-40 were drilled. The soil properties and subsurface profile at boring TR-38A was more critical that the other borings. Therefore, a soil profile based upon boring TR-38A was used to evaluate embankment stability and settlement for this roadway embankment.

Boring TR-38A generally encountered nine inches of topsoil at the surface. Below the topsoil layer, primarily medium stiff to stiff silt and clay (A-6a) was encountered to a depth of 25 feet below the ground surface. Below 25 feet, primarily medium stiff silt (A-4b) was encountered to a depth of 45 feet. Below 45 feet, primarily stiff to very stiff silty clay (A-6b) was encountered to a depth of 62 feet. Below 62 feet, primarily loose sandy silt (A-4a) was encountered to a depth of 81 feet, at the top of bedrock. Underlying the soil, this boring encountered medium hard to hard, slightly to moderately weathered sandstone to the bottom of the boring at 86 feet.

4.2.3 Subsurface Conditions, Station 123+50 to 131+60

In the area of this proposed roadway embankment, borings R-64, R-64A, R-68, TR-35A and TR-36 were drilled. The soil properties and subsurface profile at boring TR-35A was more critical that the other borings. Therefore, a soil profile based upon boring TR-35A was used to evaluate embankment stability and settlement for this roadway embankment.

Boring TR-35A generally encountered three inches of gravel at the surface. Below the topsoil layer, primarily stiff to very stiff clay (A-7-6) was encountered to a depth of 5 feet below the ground surface. Below 5 feet, primarily very soft to medium stiff silt (A-4b) was encountered to a depth of 32 feet. Below 32 feet, primarily very stiff to hard clay (A-7-6) was encountered to a depth of 65 feet. Below 65 feet, primarily stiff silt (A-4b) was encountered to a depth of 72 feet. Below 72 feet, primarily loose to medium dense coarse and fine sand (A-3a) was encountered to a depth of 81 feet, at the top of bedrock. Underlying the soil, this boring encountered medium hard, moderately to highly weathered sandstone to the bottom of the boring at 86 feet.

4.3 Groundwater Conditions

Most of the borings encountered water seepage, which was first observed at depths between 4.0 and 79.0 feet. Generally, these depths correspond approximately with depths where granular layers were first encountered in the borings. Water level readings taken at the completion of soil sampling (prior to adding core water) ranged between depths of 7.0 and 67.8 feet. It is anticipated that groundwater conditions will vary with the level of the Little Scioto River throughout the Highland Bend area. A piezometer was installed at boring location R-57. Readings in the piezometer have shown that the water level is consistently 60 feet below the ground surface, corresponding to an elevation of approximately 501 feet, which corresponds approximately to the nominal water level in the Little Scioto River.

4.4 Laboratory Testing

All of the soil and rock samples collected were visually identified in the laboratory. Index tests (grain size and plasticity tests) were performed on representative soil samples. Shear strength and consolidation tests were also performed on representative soil samples. The results of index testing are presented on the boring logs. For more detailed testing information, refer to Appendix B for the Laboratory Test Results.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 General Information

At the time this letter was prepared, it was assumed that the plan alignment for proposed 823 through Highland Bend had not changed from the location shown on the plan and profile drawings found in Appendix C. It is understood that the proposed grade elevation has been modified as per the profile information dated January 16, 2006, also found in Appendix C. It is understood that the approximate maximum embankment height for the embankment constructed from station 105+00 to 114+00 is 104 feet. Also, it is understood that the approximate maximum embankment heights for embankments constructed between stations 116+00 to 122+00 and 123+50 to 131+85 are 70 and 74 feet, respectively.

A global stability analysis and settlement analysis were performed for each embankment location in accordance with ODOT and AASHTO guidelines. The stability analyses were performed using UTEXAS3 Version 1.204, a slope stability computer program using variations of the method of slices. UTEXAS3 was developed by Dr. Stephen Wright at the University of Texas for the U.S. Army Corps of Engineers. The results of stability analyses and settlement calculations are included in Appendix D.

5.2 Shear Strength Selection

Shear strength values for use in stability analyses have been determined from laboratory testing and hand penetrometer values obtained from samples collected in borings in the area of the proposed embankments. Plots of shear strength values from laboratory testing and hand penetrometer values verses depth are presented in Appendix D. Table 1, on the following page outlines the strength parameters used in analyses for the respective embankments. A more comprehensive summary of soil properties is included in Appendix D. Also, the results of laboratory testing are included in Appendix B.

*Table 1 Selected Shear Strengths**

Embankment Sta. 105+00 to 114+00		Undrained		Drained	
Depth	Primary Soil Type	c (psf)	Φ (deg)	c' (psf)	Φ' (deg)
0	Clay	1700	0	0	30
20	Silt	1100	0	0	28
68	Silt and Clay	1500	0	0	29
83	Coarse and Fine Sand	0	0	0	32
Embankment Sta. 116+00 to 122+00		Undrained		Drained	
Depth	Primary Soil Type	c (psf)	Φ (deg)	c' (psf)	Φ' (deg)
0	Clay	1700	0	0	30
14	Silt	750	0	0	28
43	Silty Clay	2700	0	0	29
61	Sandy Silt	0	0	0	29
Embankment Sta. 123+50 to 131+85		Undrained		Drained	
Depth	Primary Soil Type	c (psf)	Φ (deg)	c' (psf)	Φ' (deg)
0	Clay	1700	0	0	30
5	Silt	900	0	0	28
32	Silty Clay	2700	0	0	29
57	Sandy Silt	0	0	0	29

*For more information please refer to the summary table in Appendix D.

In accordance with ODOT guidelines, a unit weight of 120 pcf and a friction angle of 30 degrees were selected for the fill material used to construct the roadway embankments. If the embankment fill material for the roadway embankments has properties significantly different from these values, DLZ should be informed so that the analyses may be revised as necessary.

5.3 Embankment Recommendations (Highland Bend)

5.3.1 Roadway Embankment, Station 105+00 to 114+00

The maximum roadway embankment height at this location is understood to be approximately 104 feet. Initial analyses yielded factors of safety for drained global stability below the minimum recommended values using 2:1 slopes. Consequently, 2.5:1 slopes were evaluated for global stability. Analyses indicated that factors of safety for drained and seismic global stability are adequate using 2.5:1 slopes to construct the embankment. However, the factor of safety for undrained global stability was still below recommended minimum

values. Flatter slopes were then analyzed for undrained global stability, also with unsatisfactory results. Therefore, it will be necessary to maintain a drained condition during the construction of this embankment. Consequently, it is recommended that wick drains be installed beneath the roadway embankment, and 2.5:1 or flatter slopes be used to construct the embankment. In addition, staged construction of the roadway embankment will be necessary. Stability analyses have determined that the embankment can be constructed in 30-foot stages while maintaining undrained global stability. The height of the construction stages was determined using an allowable undrained safety factor of 1.30 as per FHWA, for structures supported on piles. Time-rate of consolidation calculations have been performed for this embankment and can be found in Appendix D. Several spacing options are presented assuming triangular grid spacing. It is also recommended that instrumentation be installed for monitoring settlement and pore water pressures during construction. Details of the wick drain layouts and instrumentation programs will be determined for the final design of the embankment. Table 2 below presents the time to ninety percent consolidation using several wick drain spacing options.

Table 2 Wick Drain Spacing and Consolidation Periods, Embankment 105+00 to 114+00

Spacing (ft)	U=90% (days)	Approximate Depth (ft)
4	30	80
6	65	80
7	90	80

The total maximum settlement of the proposed roadway embankment at this location was estimated to be approximately 64 inches at the centerline of the embankment. Calculations are included in Appendix D.

5.3.2 Roadway Embankment, Station 116+00 to 122+00

The maximum roadway embankment height at this location is understood to be approximately 70 feet. Initial analyses yielded factors of safety for drained global stability below the minimum recommended values using 2:1 slopes. Consequently, 2.5:1 slopes were analyzed for stability. Analyses indicate that factors of safety for drained and seismic global stability are adequate using 2.5:1 slopes to construct the embankments. However, the factor of safety for undrained global stability was still below recommended minimum values. Flatter slopes were then analyzed for undrained global stability, also with unsatisfactory results. Therefore, it will be necessary to maintain a drained condition during the construction of this embankment. Consequently, it is recommended that wick drains be installed beneath the roadway embankment, and 2.5:1 or flatter slopes be used to construct the embankment. In addition, staged construction of the roadway embankment will be necessary. Stability analyses have determined that the embankment can be constructed in 40-foot stages while maintaining undrained global stability. The height of the construction stages was determined using an allowable undrained safety factor of 1.30 as per FHWA, for structures supported on piles. Time-rate of consolidation calculations have been performed for this

embankment and can be found in Appendix D. Several spacing options are presented assuming triangular grid spacing. It is also recommended that instrumentation be installed for monitoring settlement and pore water pressures during construction. Details of the wick drain layouts and instrumentation programs will be determined for the final design of the embankment. Table 3 below presents the time to ninety percent consolidation using several wick drain spacing options.

Table 3 Wick Drain Spacing and Consolidation Periods, Embankment 116+00 to 122+00

Spacing (ft)	U=90% (days)	Approximate Depth (ft)
4	35	60-80
5.5	60	60-80
7	95	60-80

The total maximum settlement of the proposed roadway embankment at this location was estimated to be approximately 38 inches at the centerline of the embankment. Calculations are included in Appendix D.

5.3.3 Roadway Embankment, Station 123+50 to 131+85

The maximum roadway embankment height at this location is understood to be approximately 74 feet. Initial analyses yielded factors of safety for drained global stability below the minimum recommended values using 2:1 slopes. Consequently, 2.5:1 slopes were analyzed for stability. Analyses indicate that factors of safety for drained and seismic global stability are adequate using 2.5:1 slopes to construct the embankments. However, the factor of safety for undrained global stability was still below recommended minimum values. Flatter slopes were then analyzed for undrained global stability, also with unsatisfactory results. Therefore, it will be necessary to maintain a drained condition during the construction of this embankment. Consequently, it is recommended that wick drains be installed beneath the roadway embankment, and 2.5:1 or flatter slopes be used to construct the embankment. In addition, staged construction of the roadway embankment will be necessary. Stability analyses have determined that the embankment can be constructed in 30-foot stages while maintaining undrained global stability. The height of the construction stages was determined using an allowable undrained safety factor of 1.30 as per FHWA, for structures supported on piles. Time-rate of consolidation calculations have been performed for this embankment and can be found in Appendix D. Several spacing options are presented assuming triangular grid spacing. It is also recommended that instrumentation be installed for monitoring settlement and pore water pressures during construction. Details of the wick drain layouts and instrumentation programs will be determined for the final design of the embankment. Table 4, on the following page presents the time to ninety percent consolidation using several wick drain spacing options.

Table 4 Wick Drain Spacing and Consolidation Periods, Embankment 123+50 to 131+85

Spacing (ft)	U=90% (days)	Approximate Depth (ft)
4	35	65
5.5	60	65
7	95	65

The total maximum settlement of the proposed roadway embankment at this location was estimated to be approximately 39 inches at the centerline of the embankment. Calculations are included in Appendix D.

5.3.4 Little Scioto River Structure Bridge Spill Through Slope Recommendations

In this area, the terrain slopes into the riverbed of the Little Scioto River. The initial configuration consisted of a 44-foot embankment with 2:1 slopes. The proposed abutment would be placed at approximately station 132+20. The proposed toe of the roadway embankment would be at approximately station 132+80. This will place the toe at the crest of the existing bank, which stability is a concern. See the plan and profile drawings in Appendix C. Analyses have determined that the initial configuration will have a factor of safety below the recommended minimum value for global stability. Consequently, two embankment / bridge options were explored for stability at the request of TranSystems. The options are outlined below, and a partial plan and profile drawing illustrating the configuration can be found in Appendix C. Additionally, a third option was also evaluated. This option consists of using a drilled shaft retaining wall to stabilize the slope and allow the embankment to be placed closer to the river, allowing for shorter span lengths for the structure crossing the Little Scioto River.

Option 1: It is understood that this option consists of placing the rear abutment of the Little Scioto River structure at approximately station 130+75, and a pier at station 132+25 to support the bridge structure. This option allows for 2.5:1 embankment slopes, with the toe of the embankment at approximately station 131+63, which is approximately 100 feet from the crest of the existing bank. See the plan and profile drawing in Appendix C.

The results of global stability analyses for this option yielded undrained factors of safety below the minimum required values. However, the drained and seismic global stability are adequate at this location. As a result, it is recommended the embankment be constructed with 2.5:1 slopes using wick drains and staged construction, as outlined in section 5.3.3 of this report. This recommendation applies only to the configuration outlined above for option 1.

Option 2: It is understood that this option consists of placing the rear abutment of the Little Scioto River structure at approximately station 131+35. This option allows for 2:1 embankment slopes, with the toe of the embankment at approximately station 132+23, which is approximately 65 feet from the crest of the existing bank. See the plan and profile drawing in Appendix C.

The results of global stability analyses for this option yielded undrained and drained factors of safety below the minimum required values. As a result, this configuration was analyzed using 2.5:1 slopes. This analysis also indicated that factors of safety were below minimum recommended values. Consequently, it is not recommended that the configuration as presented in option 2 be used at this location.

Option 3: Option 3, as it is presented here, consists of using a drilled shaft retaining wall to stabilize the slope near the Little Scioto River and allow an embankment with 2:1 slopes to be constructed with the toe of the embankment essentially at the crest of the existing bank at station 132+80. This option allows the use of the original configuration. This option would allow the rear abutment of the Little Scioto River structure to be placed at approximately station 132+00, as shown in the plan and profile drawing dated 7/14/06 in Appendix C.

A preliminary evaluation determined that 6-foot diameter drilled shafts on 9-foot center-to-center spacing would be required to resist the lateral earth pressures. This wall was sized based upon an unfactored maximum moment of 3,300 kip-ft, and unfactored maximum shear of 151 kips. These preliminary evaluations also indicated that the drilled shafts will need to be extended approximately 5 feet into the bedrock to develop adequate resistance.

The results of all analyses presented in this section as well as calculations performed can be found in Appendix D.

5.3 Groundwater Considerations

Water seepage was first encountered in the borings between depths of 4.0 and 79.0 feet. Water level readings taken at the completion soil sampling (prior to adding core water) ranged between depths of 7.0 and 67.8 feet. It is anticipated that groundwater conditions will vary with the level of the Little Scioto River throughout the Highland Bend area.

If it is necessary to make excavations, it is likely that seepage will be encountered. Consequently, pumps may be required to maintain reasonably dry excavations if water from seepage or precipitation enters the culvert excavations.

6.0 CLOSING REMARKS

We appreciate having the opportunity to be of service to you on this project. Please do not hesitate to call if you have any questions concerning our report.

Respectfully submitted,

DLZ OHIO, INC.

Steven J. Riedy
Geotechnical Engineer

Arthur (Pete) Nix, P.E.
Geotechnical Division Manager

SJR

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APPENDIX A

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APPENDIX A

Boring Location Plan
General Information – Drilling Procedures and Logs of Borings
Legend – Boring Log Terminology
Boring Logs – Nineteen (19) Borings
Generalized Subsurface Profile

Boring Location Plan

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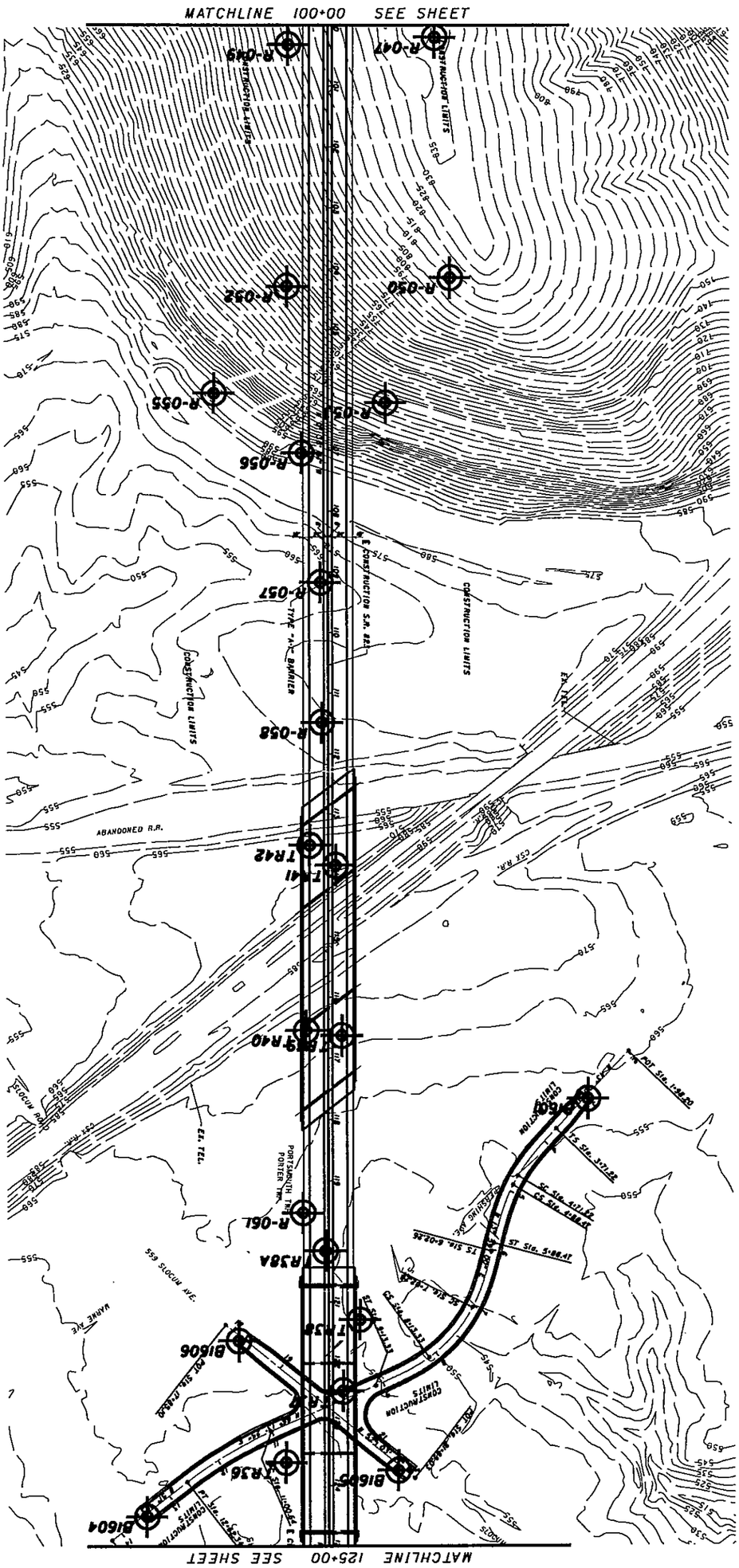

SCI-823 PORTSMOUTH BYPASS	BORING PLAN (HIGHLAND BEND)	CALCULATED / CHECKED	HORIZONTAL SCALE IN FEET (0, 100, 50, 200)	N

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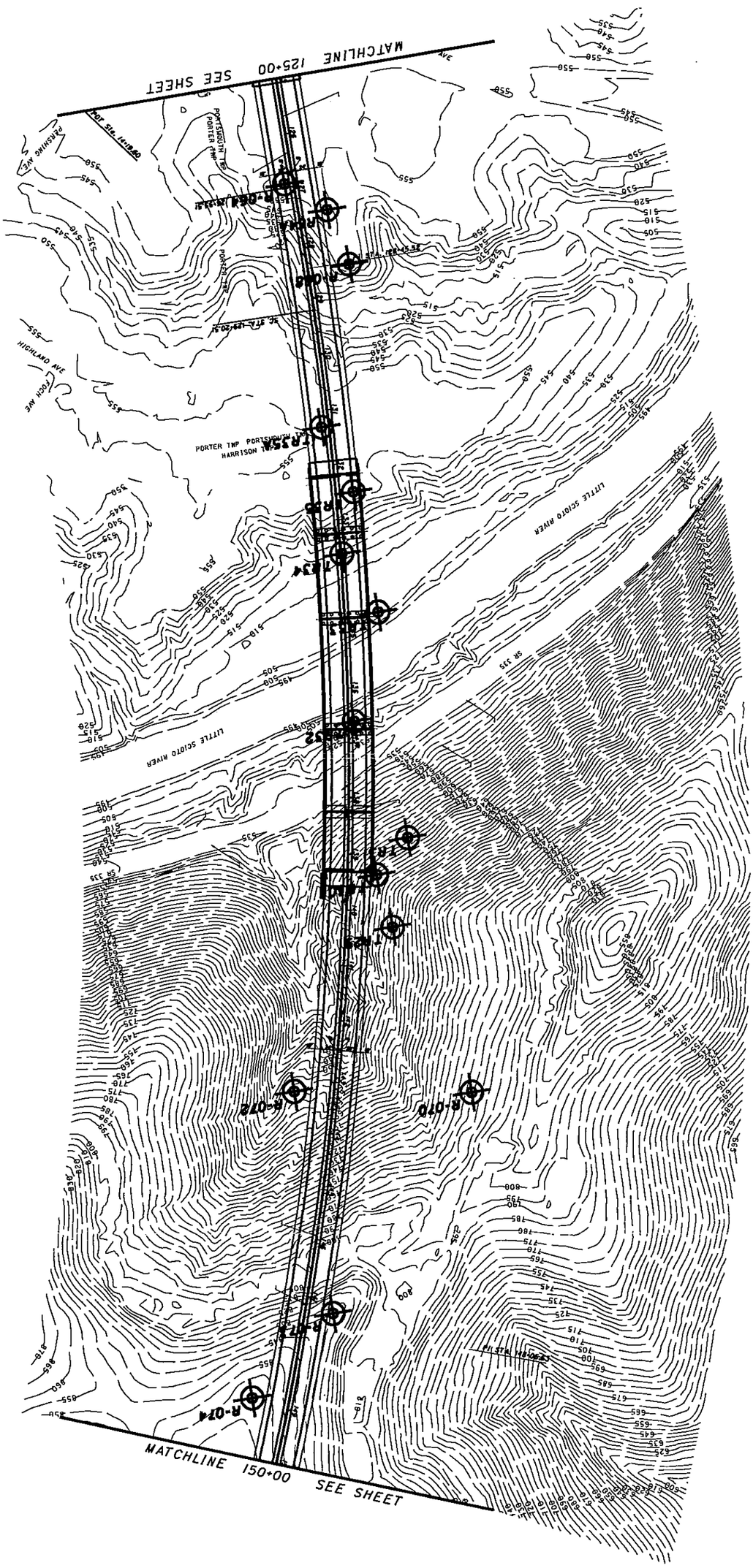


SCI-823 PORTSMOUTH BYPASS	BORING PLAN (HIGHLAND BEND)	CALCULATED CHECKED	0 100 50 200 HORIZONTAL SCALE IN FEET	N

General Information – Drilling Procedures and Logs of Borings

GENERAL INFORMATION
DRILLING PROCEDURES AND LOGS OF BORINGS

Drilling and sampling were conducted in accordance with procedures generally recognized and accepted as standardized methods of investigation of subsurface conditions concerning geotechnical engineering considerations. Borings were drilled with either a truck-mounted or ATV-mounted drill rig.

Drive split-barrel sampling was performed in 1.5 foot increments at intervals not exceeding 5 feet. In the event the sampler encountered resistance to penetration of 6 inches or less after 50 blows of the drop hammer, the sampling increment was discontinued. Standard penetration data were recorded and one or more representative samples were preserved from each sampling increment.

In borings where rock was cored, NXM or NQ size diamond coring tools were used.

In the laboratory all samples were visually classified by a geotechnical engineer. Moisture contents of representative fine-grained soil samples were determined. A limited number of samples, considered representative of foundation materials present, were selected for performance of grain-size analyses and plasticity characteristics tests. The results of these tests are shown on the boring logs.

The boring logs included in the Appendix have been prepared on the basis of the field record of drilling and sampling, and the results of the laboratory examination and testing of samples. Stratification lines on the boring logs indicating changes in soil stratigraphy represent depths of changes approximated by the driller, by sampling effort and recovery, and by laboratory test results. Actual depths to changes may differ somewhat from the estimated depths, or transitions may occur gradually and not be sharply defined. The boring logs presented in this report therefore contain both factual and interpretative information and are not an exact copy of the field log.

Although it is considered that the borings have disclosed information generally representative of site conditions, it should be expected that between borings conditions may occur which are not precisely represented by any one of the borings. Soil deposition processes and natural geologic forces are such that soil and rock types and conditions may change in short vertical intervals and horizontal distances.

Soil/rock samples will be stored at our laboratory for a period of six months. After this period of time, they will be discarded, unless notified to the contrary by the client.

Legend – Boring Log Terminology

LEGEND – BORING LOG TERMINOLOGY

Explanation of each column, progressing from left to right

1. Depth (in feet) – refers to distance below the ground surface.

2. Elevation (in feet) – is referenced to mean sea level, unless otherwise noted.

3. Standard Penetration (N) – the number of blows required to drive a 2-inch O.D., 1-3/8 inch I.D., split-barrel sampler, using a 140-pound hammer with a 30-inch free fall. The blows are recorded in 6-inch drive increments. Standard penetration resistance is determined from the total number of blows required for one foot of penetration by summing the second and third 6-inch increments of an 18-inch drive.

   50/n – indicates number of blows (50) to drive a split-barrel sampler a certain number of inches (n) other than the normal 6-inch increment.

4. The length of the sampler drive is indicated graphically by horizontal lines across the "Standard Penetration" and "Recovery" columns.

5. Sample recovery from each drive is indicated numerically in the column headed "Recovery".

6. The drive sample location is designated by the heavy vertical bar in the "Sample No., Drive" column.

7. The length of hydraulically pressed "Undisturbed" samples is indicated graphically by horizontal lines across the "Press" column.

8. Sample numbers are designated consecutively, increasing in depth.

9. Soil Description

   a. The following terms are used to describe the relative compactness and consistency of soils:

   Granular Soils – Compactness

Term	Blows/Foot Standard Penetration
Very Loose	0 – 4
Loose	4 – 10
Medium Dense	10 – 30
Dense	30 – 50
Very Dense	over 50

   Cohesive Soils – Consistency

Term	Unconfined Compression tons/sq.ft.	Blows/Foot Standard Penetration	Hand Manipulation
Very Soft	less than 0.25	below 2	Easily penetrated by fist
Soft	0.25 – 0.50	2 – 4	Easily penetrated by thumb
Medium Stiff	0.50 – 1.0	4 – 8	Penetrated by thumb with moderate pressure
Stiff	1.0 – 2.0	8 – 15	Readily indented by thumb but not penetrated
Very Stiff	2.0 – 4.0	15 – 30	Readily indented by thumb nail
Hard	over 4.0	over 30	Indented with difficulty by thumb nail

   b. Color – If a soil is a uniform color throughout, the term is single, modified by such adjective as light and dark. If the predominant color is shaded by a secondary color, the secondary color precedes the primary color. If two major and distinct colors are swirled throughout the soil, the colors are modified by the term "mottled".

   c. Texture is based on the Ohio Department of Transportation Classification System. Soil particle size definitions are as follows:

Description		Size	Description		Size
Boulders		Larger than 8"	Sand	– Coarse	2.0 mm to 0.42 mm
Cobbles		8" to 3"		– Fine	0.42 mm to 0.074 mm
Gravel	– Coarse	3" to ¾"	Silt		0.074 mm to 0.005 mm
	– Fine	¾" to 2.0 mm	Clay		smaller than 0.005 mm

d. The main soil component is listed first. The minor components are listed in order of decreasing percentage of particle size.

e. Modifiers to main soil descriptions are indicated as a percentage by weight of particle sizes.

trace	0 to 10%
little	10 to 20%
some	20 to 35%
"and"	35 to 50%

f. Moisture content of **cohesionless soils** (sands and gravels) is described as follows:

Term	Relative Moisture or Appearance
Dry	No moisture present
Damp	Internal moisture, but none to little surface moisture
Moist	Free water on surface
Wet	Voids filled with free water

g. The moisture content of **cohesive soils** (silts and clays) is expressed relative to plastic properties.

Term	Relative Moisture or Appearance
Dry	Powdery
Damp	Moisture content slightly below plastic limit
Moist	Moisture content above plastic limit but below liquid limit
Wet	Moisture content above liquid limit

10. Rock Hardness and Rock Quality Designation

a. The following terms are used to describe the relative hardness of the **bedrock.**

Term	Description
Very Soft	Permits denting by moderate pressure of the fingers. Resembles hard soil but has rock structure. (Crushes under pressure of fingers and/or thumb)
Soft	Resists denting by fingers, but can be abraded and pierced to shallow depth by a pencil point. (Crushes under pressure of pressed hammer)
Medium Hard	Resists pencil point, but can be scratched with a knife blade. (Breaks easily under single hammer blow, but with crumbly edges.)
Hard	Can be deformed or broken by light to moderate hammer blows. (Breaks under one or two strong hammer blow, but with resistant sharp edges.)
Very Hard	Can be broken only by heavy and in some rocks repeated hammer blows.

b. Rock Quality Designation, RQD – This value is expressed in percent and is an indirect measure of rock soundness. It is obtained by summing the total length of all core pieces which are at least four inches long, and then dividing this sum by the total length of the core run.

11. Gradation – when tests are performed, the percentage of each particle size is listed in the appropriate column (defined in item 9c).

12. When a test is performed to determine the natural moisture content, liquid limit moisture content, or plastic limit moisture content, the moisture content is indicated graphically.

13. The standard penetration (N) value in blows per foot is indicated graphically.

Boring Logs -- Nineteen (19) Borings

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring R-56 | Location: | Date Drilled: 5/11/05

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetrometer (tsf)	DESCRIPTION	% Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N)
0	585.0						WATER OBSERVATIONS: Water seepage at: None Water level at completion: None (prior to coring) 6.0' (includes drilling water)							Natural Moisture Content, % - ● PL ⊢——⊣ LL Blows per foot - ○ 10 20 30 40
		1 3 5	5	1			No Topsoil / Drilled on logging road Loose brown SANDY SILT (A-4a), little gravel; contains coal fragments; damp.							
3.5	581.5	11 25 21	15	2			Severely weathered brown SANDSTONE argillaceous.							
5		12 28 31	14	3										59
		4 6 9	16	4			@ 8.5'-10.0', brown and gray.							
10		27 50/3	8	5										50+
13.0	572.0	Core 96"	Rec 92"	RQD 93%	R-1	--	Hard gray SANDSTONE; very fine to fine grained, moderately weathered, argillaceous, micaceous, medium bedded, moderately fractured, discoloration on fractures with little clay infilling; Exhibits friability in zones where very fine grained sandstone is present. @ 14.8'-14.9',15.7'-15.9', high angle fractures.							
15														
20							@ 19.5', ≅ 2/10" clay seam.							
21.0	564.0						Bottom of Boring - 21.0'							
25														
30														

GRADATION

FILE: 0121-3070-03 [5/11/2006 10:48 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring R-57 | Location: | Date Drilled: 5/9/05 to 5/11/05

WATER OBSERVATIONS: Water seepage at: 58.5', 77.5', 78.0'-92.0'
Water level at completion: 54.0' (prior to coring)
57.0' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetrometer (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
0	561.3												
0.8	560.5						Topsoil - 9"						
		WOH WOH 1	9	1		1.0	Very stiff to hard brown SILT AND CLAY (A-6a), trace fine to coarse sand; damp to moist. @ 1.0'-2.5', stiff, contains trace organic material.						
		WOH 1 3	12	2		3.25	@ 3.5'-7.5', mottled light brown, brown, and gray.						
5		2 5 7	16	3		3.5							
		3 7 11	18	4		4.0							
10		3 6 10	18	5		4.5							
		3 4 7	17	6		4.5+		0	0	–	0	40	60
15		3 6 8	18	7		4.5+							
		2 3 5	18	8		3.5							
20		3 4 6	18	9		3.5							
		5 6 9	17	10		3.5	@ 23.5', gray.						
25		6 9 11	18	11		4.5							
		3 5 9	16	12		4.5+							
30													

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢——⊣ LL
Blows per foot - ○
10 20 30 40

FILE: 0121-3070-03 [5/11/2006 10:48 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring R-57 | Location: | Date Drilled: 5/9/05 to 5/11/05

WATER OBSERVATIONS: Water seepage at: 58.5', 77.5', 78.0'-92.0'
Water level at completion: 54.0' (prior to coring)
57.0' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetro-meter (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
30.0	531.3						Hard gray SILTY CLAY (A-6b), little fine to coarse sand; damp.						
35		3 6 10	18	13		4.5+							
40		4 7 15	15	14		4.5+							
45		3 9 14	18	15		4.5+		0	0	--	1	33	66
50		4 8 10	18	16		4.5+							
52.5	508.8						Very stiff to hard gray SILT AND CLAY (A-6a), little fine to coarse sand; damp.						
55		5 7 10	18	17		4.5+							
60		4 5 7	18	18		3.25	@ 58.5', wet spoon.						

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢——⊣ LL
Blows per foot - ○
10 20 30 40

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

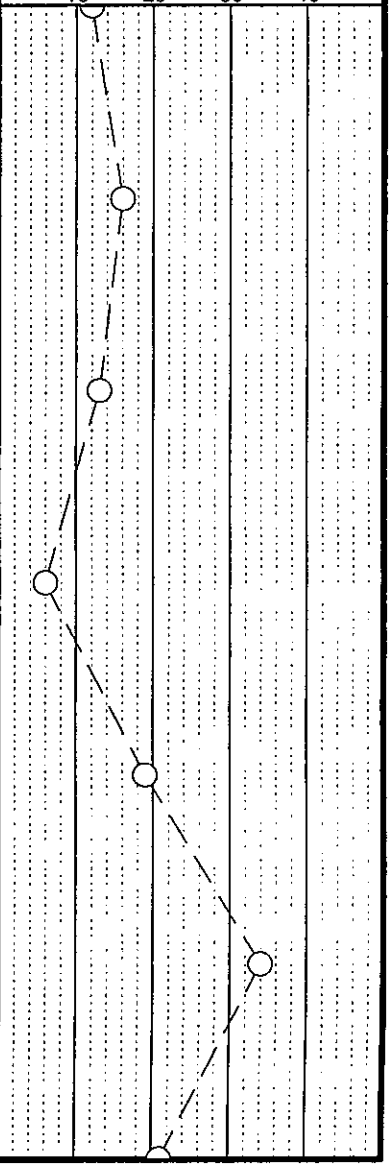
Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring R-57 | Location: | Date Drilled: 5/9/05 to 5/11/05

WATER OBSERVATIONS: Water seepage at: 58.5', 77.5', 78.0'-92.0'
Water level at completion: 54.0' (prior to coring)
57.0' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetro-meter (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
60	501.3						Very stiff to hard gray SILT AND CLAY (A-6a), little fine to coarse sand; damp.						
65		3 6 10	18	19		4.5+							
70		4 6 7	18	20		2.25	@ 68.5', moist.						
75		1 2 4	18	21		2.75							
77.5	483.8						Medium dense to dense brown SANDY SILT (A-4a), some gravel, little clay; wet.						
80		8 9 10	12	22									
85		17 17 17	16	23									
90		4 9 12	14	24			@ 88.5'-90.0', contains sandstone fragments.						

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢——⊣ LL
Blows per foot - ○
10 20 30 40



FILE: 0121-3070-03 [5/11/2006 10:48 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring R-57 | Location: | Date Drilled: 5/9/05 to 5/11/05

WATER OBSERVATIONS: Water seepage at: 58.5', 77.5', 78.0'-92.0'
Water level at completion: 54.0' (prior to coring)
57.0' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetro-meter (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) Natural Moisture Content, % - ● PL — LL Blows per foot - ○ 10 20 30 40
90.0	471.3						Severely weathered SANDSTONE							
93.0	468.3	Core 67"	Rec 67"	RQD 79%	R-1	–	Hard gray SANDSTONE; fine grained, slightly weathered, medium bedded, slightly to moderately fractured, clay infilling along bedding planes. @ 96.7', contains turbidity bedding.							
98.6	462.7						Bottom of Boring - 98.6'							

95 100 105 110 115 120

FILE: 0121-3070-03 [5/11/2006 10:48 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring R-58 | Location: | Date Drilled: 3/31/05 to 4/1/05

WATER OBSERVATIONS: Water seepage at: 79.0'-85.0'
Water level at completion: 59.0' (prior to coring)
60.0' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetro-meter (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
0	568.5												
0.2	568.3						Topsoil - 2"						
		2 3 5	11	1		3.5	Very stiff to hard brown SILT AND CLAY (A-6a), little fine to coarse sand; damp.						
		3 5 9	15	2		4.5+							
5		4 6 8	18	3		3.0							
		2 5 7	16	4		4.25							
10		4 8 10	17	5		4.5+							
		2 5 6	15	6		4.5+							
15		4 6 9	17	7		4.5+		0	0	--	1	30	69
		3 6 10	18	8		4.5							
20		3 6 7	18	9		4.5							
23.5	545.0												
		1 3 5	17	10		2.25	Very Stiff brown SILT (A-4b), some to "and" clay; moist.	0	0	--	0	64	36
25		2 4 5	18	11		3.25							
		3 4 5	18	12		3.75		0	0	--	2	45	54
30													

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢ LL
Blows per foot - ○
10 20 30 40

FILE: 0121-3070-03 (5/11/2006 10:48 AM)

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring R-58 | Location: | Date Drilled: 3/31/05 to 4/1/05

WATER OBSERVATIONS: Water seepage at: 79.0'-85.0'
Water level at completion: 59.0' (prior to coring)
60.0' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetrometer (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
30.2	538.5						Very stiff to hard brown SILT AND CLAY (A-6a), trace fine to coarse sand; damp.						
35	538.3	1 4 5	18	13		2.5							
40		4 8 10	18	14		4.5	@ 38.5', gray.						
45		6 10 11	18	15		4.5+							
50		4 11 13	18	16		4.5+		0	0	–	1	33	66
55		5 10 13	18	17		4.5+							
60		4 8 9	18	18		4.5+							

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢——⊣ LL
Blows per foot - ○
10 20 30 40

FILE: 0121-3070-03 [5/11/2006 10:48 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring R-58 | Location: | Date Drilled: 3/31/05 to 4/1/05

WATER OBSERVATIONS: Water seepage at: 79.0'-85.0'
Water level at completion: 59.0' (prior to coring)
60.0' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetrometer (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
60.0	508.5						Stiff to very stiff gray SILT (A-4b), little fine to coarse sand; damp.						
65		4 6 7	18	19		3.0							
70		2 5 6	18	20		2.25		0	1	--	10	57	32
75		1 2 3	18	21		1.25	@ 73.5', thin sand seam.						
78.5	490.0	4 7 11	17	22			Medium dense brown and gray COARSE AND FINE SAND (A-3a), little silt, little gravel; contains rock fragments; wet.						
82.0	486.5						Loose to medium dense gray SANDY SILT (A-4a), little clay, little gravel; contains rock fragments; moist.						
85		WOH WOH 10	18	23			@ 88.5', Very dense.						
90		23 50/5	10	24									

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢ LL
Blows per foot - ○
10 20 30 40 50+

FILE: 0121-3070-03 [5/11/2006 10:48 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring R-58 | Location: | Date Drilled: 3/31/05 to 4/1/05

WATER OBSERVATIONS: Water seepage at: 79.0'-85.0'
Water level at completion: 59.0' (prior to coring)
60.0' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetrometer (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N)
90.0	478.5						Dense to very dense brown GRAVEL WITH SAND (A-1-b), some fine to coarse sand, little silt; contains sandstone fragments; wet.							Natural Moisture Content, % - ● PL — LL; Blows per foot - ○ 10 20 30 40
95		2 6 24	5	25										
97.0	471.5						Severly Weathered gray Sandstone							
98.6	469.9	50/1	1	26			Medium hard gray/dark gray SANDSTONE; very fine grained, slightly weathered, argillaceous, micaceous, thickly bedded, slightly fractured, contains moderate argillaceous laminations.							50+
100		Core 60"	Rec 60"	RQD 100%	R-1									
103.6	464.9						Bottom of Boring - 103.6'							
105														
110														
115														
120														

FILE: 0121-3070-03 [5/11/2006 10:48 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring R-61 | Location: | Date Drilled: 3/23/05 to 3/29/05

WATER OBSERVATIONS: Water seepage at: 37.0', 67.0'
Water level at completion: 35.0' (prior to coring, 3/29/05 AM)
19.0' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetrometer (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
0	558.3												
0.3	558.0						Topsoil - 3"						
		2 3 3	14	1		4.5+	Very stiff to hard brown CLAY (A-7-6), trace fine sand; damp to moist.						
		3 5 6	16	2		3.0							
5													
7.0	551.3				P-1	3.0, 2.0	Very Stiff to Hard brown SILT (A-4b), trace fine sand, some clay; moist to wet.	0	0	–	2	28	70
		1 4 6	15	3									
10													
		5 7 9	16	4		4.5+							
		2 2 4	17	5		2.75							
15													
15.5	542.8												
		2 4 5	18	6		2.25	Very stiff brown SILT AND CLAY (A-6a), trace fine sand; moist to wet.	0	0	–	1	58	41
18.0	540.3				P-2	2.25, 4.25	Very stiff brown SILT (A-4b), some clay, trace fine sand; wet.	0	0	–	1	72	27
20													
20.5	537.8						Very stiff brown SILT AND CLAY (A-6a), trace fine sand; moist to wet.	0	0	–	1	50	49
		3 5 6	18	7		3.25							
		2 4 7	15	8		3.75							
25													
		5 7 8	18	9		2.25							
		3 5 7	18	10		2.75							
30													

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢——⊣ LL
Blows per foot - ○
10 20 30 40

FILE: 0121-3070-03 [5/11/2006 10:48 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring R-61 | Location: | Date Drilled: 3/23/05 to 3/29/05

WATER OBSERVATIONS: Water seepage at: 37.0', 67.0'
Water level at completion: 35.0' (prior to coring, 3/29/05 AM)
19.0' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetro-meter (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
30.0	528.3												
	528.3						Loose gray SILT (A-4b), some fine sand; wet.						
35					P-3	2.75, 3.25		0	0	--	1	62	37
		4 3 4	18	11									
40													
42.0	516.3												
							Very stiff to hard gray SILT AND CLAY (A-6a), trace fine to coarse sand, trace gravel; damp to moist.						
		6 9 14	18	12		2.75		3	1	--	8	32	56
45													
50					P-4								
		3 9 11	18	13		4.5							
55													
		6 10 11	18	14		4.5+							
60													

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢—⊣ LL
Blows per foot - ○
10 20 30 40

FILE: 0121-3070-03 [5/11/2006 10:48 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring R-61 | Location: | Date Drilled: 3/23/05 to 3/29/05

WATER OBSERVATIONS: Water seepage at: 37.0', 67.0'
Water level at completion: 35.0' (prior to coring, 3/29/05 AM)
19.0' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetrometer (tsf)	DESCRIPTION	% Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
60	498.3												
		2 4 3	18	15		0.5							
65													
67.0	491.3						Medium dense gray SANDY SILT (A-4a), trace gravel; moist to wet.						
		8 13 6	15	16									
70													
		W O 0H	18	17									
75													
77.0	481.3						Very dense brown GRAVEL WITH SAND (A-1-b), trace clay; contains sandstone fragments; wet.						
		18 34 50	18	18			@ 80.0', resumed augering on 3/29/05.						
80													
82.0	476.3						Severely weathered gray SANDSTONE argillaceous.						
83.7	474.6	50/2	2	19			Medium hard gray SANDSTONE ; very fine to fine grained, moderately weathered, argillaceous, micaceous, medium bedded to thinly bedded, slightly fractured, iron stains; contains argillaceous laminations.						
85		Core 78"			R-1								
90													

GRADATION

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢——⊣ LL
Blows per foot - ○
10 20 30 40

84 →

50+

FILE: 0121-3070-03 [5/11/2006 10:48 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD * COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring R-61 | Location: | Date Drilled: 3/23/05 to 3/29/05

WATER OBSERVATIONS: Water seepage at: 37.0', 67.0'
Water level at completion: 35.0' (prior to coring, 3/29/05 AM)
19.0' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetro-meter (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) Natural Moisture Content, % - ● PL — LL Blows per foot - ○ 10 20 30 40
90.2	468.1						Bottom of Boring - 90.2'							

95
100
105
110
115
120

FILE: 0121-3070-03 [5/11/2006 10:48 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring R-64 | Location: approx. 20' SE of marking | Date Drilled: 05/16/05 to 05/17/05

WATER OBSERVATIONS: Water seepage at: 63.5'
Water level at completion: 65.5' (prior to coring)
2.0' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetrometer (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
0	551.6												
0.3	551.3						Topsoil - 3"						
		4 4 4	11	1		4.5	Very stiff to hard brown SILT AND CLAY (A-6a), little fine to coarse sand; damp.						
		2 4 7	15	2		4.25							
5		4 5 7	17	3		3.0							
					P1								
10		3 4 6	18	4		3.75							
13.5	538.1	1 3 4	17	5		3.0	Very stiff brown SILTY CLAY (A-6b), trace fine to coarse sand; moist to wet.						
15		2 4 4	18	6		2.5							
					P2			0	5	--	2	51	42
20													
21.0	530.6	3 4 4	18	7		3.0	Very stiff brown SILT AND CLAY (A-6a), little fine to coarse sand; damp to moist.						
23.5	528.1	3 4 5	18	8		1.75	Stiff brown and gray SILT (A-4b), little fine sand, little clay; moist.						
25		2 2 4	18	9		1.75							
30		3 6 10	18	10		4.5+							

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢—⊣ LL
Blows per foot - ○
10 20 30 40

FILE: 0121-3070-03 [5/11/2006 10:48 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring R-64 | Location: approx. 20' SE of marking | Date Drilled: 05/16/05 to 05/17/05

WATER OBSERVATIONS: Water seepage at: 63.5'
Water level at completion: 65.5' (prior to coring)
2.0' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetro-meter (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
30.0	521.6						Very stiff to hard gray CLAY (A-7-6); damp.						
	521.6												
35		5 9 12	16	11		4.5+							
40		3 7 11	18	12		4.5		0	0	–	0	23	77
45		4 8 12	16	13		4.5+							
50		3 7 9	18	14		4.5							
55		5 7 10	18	15		3.5							
57.0	494.6						Hard gray SILTY CLAY (A-6b), some fine to coarse sand, trace gravel; damp.						
60		3 7 7	18	16		4.25							

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢ LL
Blows per foot - ○
10 20 30 40

FILE: 0121-3070-03 [5/11/2006 10:48 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring R-64 | Location: approx. 20' SE of marking | Date Drilled: 05/16/05 to 05/17/05

WATER OBSERVATIONS: Water seepage at: 63.5'
Water level at completion: 65.5' (prior to coring)
2.0' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetro-meter (tsf)	DESCRIPTION	% Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N)
60.0	491.6						Loose to medium dense gray FINE SAND (A-3), some silt, little gravel; wet.							
		5 6 8	14	17										
65														
		WOH 1 7	18	18										
70														
73.5	478.1	50/5	5	19			Severely weathered gray SANDSTONE, argillaceous.							50+
75														
75.5	476.1	Core 65"	Rec 65"	RQD 83%	R-1		Medium hard to hard gray to dark gray SANDSTONE; fine grained, slightly weathered, argillaceous, thickly bedded, highly fractured, clay seam from 79.4' to 79.5'.							
80														
80.9	470.7						Bottom of Boring - 80.9'							
85														
90														

GRADATION

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢——⊣ LL
Blows per foot - ○
10 20 30 40

FILE: 0121-3070-03 [5/11/2006 10:48 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

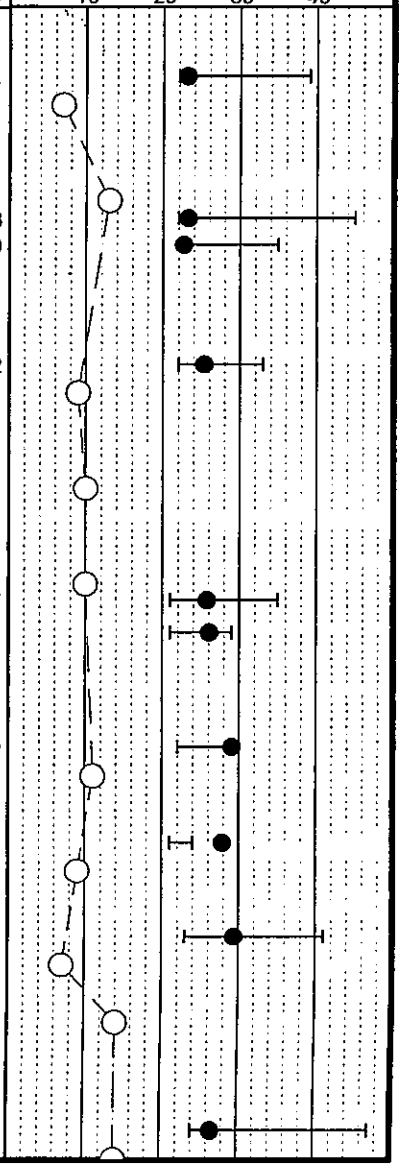
Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring R-64A | Location: Highland Bend | Date Drilled: 1/11/06

WATER OBSERVATIONS: Water seepage at: 68.5' - 70.0'
Water level at completion: 64.8' (prior to coring)
13.9' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetrometer (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
0	552.0												
0.3	551.7						Topsoil - 4"						
		2 2 5	13	1		2.25	Very stiff brown SILTY CLAY (A-6b), trace fine to coarse sand; damp.	0	1	--	5	43	51
		4 5 8	18	2		4.5+	@ 3.0'-7.5', Hard, trace organic soil.						
5.0	547.0				P1A	2.0 / 0	Stiff to very stiff brown CLAY (A-7-6), "and" silt, trace fine to	0	1	--	2	49	48
5.9	546.1				P1B		coarse sand; damp to moist.	0	1	--	1	48	50
							Very stiff brown SILT AND CLAY (A-6a), trace fine sand; damp.						
		3 3 6	18	3		2.5		0	0	--	1	47	52
10													
		4 4 6	18	4		2.5							
		2 5 5	18	5		2.5							
15													
15.8	536.2				P2A	0.5 / 2.0		0	0	--	1	52	47
					P2B		Soft to medium stiff brown SILT (A-4b), some to "and" clay, trace fine sand; moist.	0	0	--	2	67	31
		2 5 6	18	6		0.5		0	0	--	1	70	29
20													
		3 3 6	18	7		0.25	@ 21.0', little clay.	0	0	--	1	81	18
23.0	529.0												
		2 3 4	18	8		0.75	Medium stiff brownish gray CLAY (A-7-6), "and" silt, trace fine to coarse sand; damp.	0	1	--	2	43	54
25		4 6 8	16	9		2.5	@ 25.0', Very stiff.						
		4 5 9	18	10		2.5	@ 28.5', little silt.	0	0	--	1	17	82
30													

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢——⊣ LL
Blows per foot - ○
10 20 30 40



FILE: 0121-3070-03 [5/11/2006 10:48 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, UMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring R-64A | Location: Highland Bend | Date Drilled: 1/11/06

WATER OBSERVATIONS: Water seepage at: 68.5' - 70.0'
Water level at completion: 64.8' (prior to coring)
13.9' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetro-meter (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
30	522.0						Very stiff to hard gray CLAY (A-7-6), little silt, trace coarse sand; damp.						
35		5 7 11	18	11		4.5+							
37.0	515.0						Hard gray SILTY CLAY (A-6b), some silt, trace silt; damp to moist.						
40		6 10 11	18	12		4.5+							
					P4	4.0		0	0	–	1	26	73
45		6 9 12	18	13		4.5+							
							@ 47.0', Trace organic clay.						
50		5 7 10	18	14		4.0							
55		4 7 9	18	15		2.5							
57.0	495.0						Medium stiff to stiff gray SILT (A-4b), some clay, little fine to coarse sand; damp to moist.						
60		WOH 2 5	18	16		1.0		0	1	–	14	58	27

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢——⊣ LL
Blows per foot - ○
10 20 30 40

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring R-64A | Location: Highland Bend | Date Drilled: 1/11/06

WATER OBSERVATIONS: Water seepage at: 68.5' - 70.0'
Water level at completion: 64.8' (prior to coring)
13.9' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetro-meter (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) / Natural Moisture Content, % / Atterberg Limits / Blows per foot
60	492.0													
		3 4 5	18	17		1.0	@ 62.5', Little to some fine to coarse sand, trace to little gravel, trace to little clay, moist to wet.							
65														
67.0	485.0						Medium dense gray SANDY SILT (A-4a), trace clay, trace gravel; moist to wet.							
		3 6 9	18	18				1	6	--	53	31	9	Non-Plastic
70														
72.0	480.0						Severely weathered gray SANDSTONE argillaceous, micaceous.							
		50/5	4	19										50+
75.0	477.0						Medium hard gray SANDSTONE; very fine to fine grained, slightly to moderately weathered, argillaceous, micaceous, thickly bedded, slightly fractured. @ 78.8' to 79.3', very fine grained interbed, soft.							
		Core 60"	Rec 60"	RQD 100%	R-1									
80.0	472.0						Bottom of Boring - 80.0'							
85														
90														

STANDARD PENETRATION (N) / Natural Moisture Content, % - ● / PL ⊢⊣ LL / Blows per foot - ○ (10 20 30 40)

FILE: 0121-3070-03 [5/11/2006 10:48 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

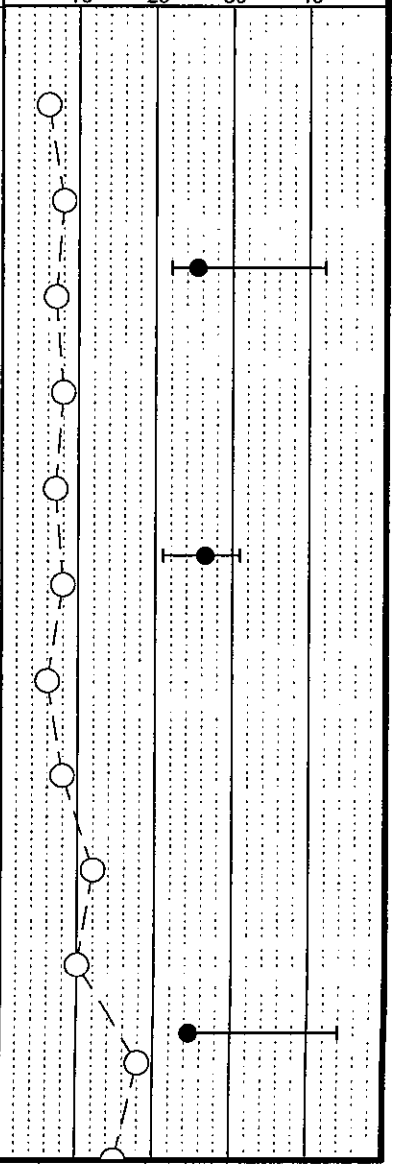
Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring R-68 | Location: | Date Drilled: 5/12/05

WATER OBSERVATIONS: Water seepage at: 63.0'
Water level at completion: 65.4' (prior to coring)
25.0' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetrometer (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
0	548.8												
0.2	548.6						Topsoil - 2"						
		3 3 3	15	1		3.5	Very stiff brown SILT AND CLAY (A-6a), little fine to coarse sand; damp.						
3.0	545.8												
		3 4 4	14	2		3.5	Very stiff brown CLAY (A-7-6), "and" silt, trace fine sand; damp to moist.						
5		2 3 4	15	3		3.25		0	0	–	4	35	61
		2 4 4	17	4		3.75							
10													
11.0	537.8	2 3 4	17	5		3.0	Very stiff brown SILT (A-4b), some clay, trace fine to coarse sand; moist.						
		1 4 4	18	6		2.0		0	2	–	1	65	32
15		2 2 4	18	7		2.75							
		2 3 5	18	8		2.5							
20		2 5 7	18	9		3.0							
		3 4 6	18	10		1.75	@ 23.5'-25.0', contains sand seams.						
25													
26.0	522.8	4 7 11	18	11		4.5	Hard gray CLAY (A-7-6), some silt, trace fine sand; damp.	0	0	–	1	26	73
		4 6 9	16	12		4.5							
30													

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢——⊣ LL
Blows per foot - ○
10 20 30 40



FILE: 0121-3070-03 [5/11/2006 10:49 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring R-68 | Location: | Date Drilled: 5/12/05

WATER OBSERVATIONS: Water seepage at: 63.0'
Water level at completion: 65.4' (prior to coring)
25.0' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetro-meter (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
30	518.8						Very stiff to hard gray CLAY (A-7-6), some silt, trace fine sand; damp.						
		2 4 8	16	13		4.5+							
35													
		7 8 12	0	14									
40													
		4 8 11	18	15		4.5+							
45													
		5 7 12	15	16		4.5+		0	0	–	0	29	71
50													
		4 5 7	18	17		3.0							
55													
57.0	491.8						Very stiff gray SILTY CLAY (A-6b), trace to little fine to coarse sand; damp.						
		1 6 10	18	18		2.25							
60													

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢——⊣ LL
Blows per foot - ○
10 20 30 40

FILE: 0121-3070-03 [5/11/2006 10:48 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, UMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring R-68 | Location: | Date Drilled: 5/12/05

WATER OBSERVATIONS: Water seepage at: 63.0'
Water level at completion: 65.4' (prior to coring)
25.0' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetro-meter (tsf)	DESCRIPTION	% Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) / Natural Moisture Content, % / PL — LL / Blows per foot
	488.8													
60.0	488.8						Very loose gray SANDY SILT (A-4a), trace clay; wet.							
		1 2 1	18	19				0	1	—	44	46	9	Non-Plastic
65														
		10 16 15	18	20			@ 68.5', Dense, some gravel, contains sandstone fragments.							
70.0	478.8						Severely weathered gray SANDSTONE.							
73.6	475.2	50/1	1	21			SANDSTONE							50+
75		Core 66"	Rec 66"	RQD 26%	R-1									
79.1	469.7						Bottom of Boring - 79.1'							
80														
85														
90														

FILE: 0121-3070-03 [5/11/2006 10:48 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-32 | Location: Pier 3 - Little Scioto Crossing | Date Drilled: 3/10/05

WATER OBSERVATIONS: Water seepage at: 4.0'-11.0', 26.5'-38.0'
Water level at completion: 7.0' (Prior to coring)
3.0' (Including drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetro-meter (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) / Natural Moisture Content, % / Atterberg Limits / Blows per foot
0	515.1	1 2 3	18	1			Loose brown SILT (A-4b), little fine sand; moist to wet. @ 0.0'-1.5', organic odor.							
		1 1 1	16	2										
5		2 2 4	15	3				0	0	–	26	58	16	
		3 3 4	17	4				0	0	–	15	69	16	
10		4 12 8	18	5			@ 10.0' to 12.5', medium dense, trace coarse sand.	1	5	–	24	58	12	Non-Plastic
12.5	502.6	4 5 7	16	6		1.5	Stiff gray SILT AND CLAY (A-6a), little fine to coarse sand; moist.	0	3	–	15	49	33	
15.0	500.1	5 5 5	16	7			Loose gray SILT (A-4b), trace fine sand; moist to wet.	0	1	–	8	66	25	
		3 3 3	17	8				0	1	–	11	63	25	
20		WOH 3 3	15	9				0	0	–	8	67	25	
		3 4 3	18	10			@ 22.0', gray and brown, little fine to coarse sand, trace gravel.	2	2	–	18	55	23	
25		1 4 6	18	11				7	9	–	14	58	12	Non-Plastic
		2 2 4	18	12			@ 27.0', some fine sand. trace gravel.	0	1	–	33	55	11	Non-Plastic
30														

STANDARD PENETRATION (N) / Natural Moisture Content, % - ● / PL ⊢—⊣ LL / Blows per foot - ○ (10 20 30 40)

FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-32 | Location: Pier 3 - Little Scioto Crossing | Date Drilled: 3/10/05

WATER OBSERVATIONS: Water seepage at: 4.0'-11.0', 26.5'-38.0'
Water level at completion: 7.0' (Prior to coring)
3.0' (Including drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetrometer (tsf)	DESCRIPTION	% Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) / Natural Moisture Content, % / Blows per foot
30	485.1	1 1 1	17	13			Loose gray SILT (A-4b), some fine sand; moist to wet.	0	1	--	31	56	12	Non-Plastic
33.0	482.1						Medium dense gray SANDY SILT (A-4a), trace gravel; wet.							
35		2 8 13	18	14				3	3	--	51	36	7	Non-Plastic
39.0	476.1						Medium hard to hard gray SANDSTONE; very fine to fine grained, slightly to moderately weathered, argillaceous, micaceous, thinly bedded to thickly bedded, slightly fractured. @ 39.0' to 40.5', argillaceous, highly weathered to decomposed.							
40		Core 120"	Rec 120"	RQD 100%	R-1		@ 39.6',42.0',43.1', low angle fractures.							
45														
50		Core 120"	Rec 120"	RQD 100%	R-2									
55														
59.0	456.1						Bottom of Boring - 59.0'							
60														

FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-33 | Location: Pier 2 - Little Scioto Crossing | Date Drilled: 2/23/05 to 2/24/05

WATER OBSERVATIONS: Water seepage at: 5.5'-34.0'
Water level at completion: 15.0' (Prior to coring)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetrometer (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N)
0	502.7						Very soft brown SILT (A-4b), little fine sand; wet.							Natural Moisture Content, % - ● PL ⊢—⊣ LL Blows per foot - ○ 10 20 30 40
		WOH WOH 1	12	1		0.25		0	0	–	18	62	20	
3.0	499.7						Very soft brown SANDY SILT (A-4a), some fine sand; wet.							
5		1 WOH 1	16	2		0.25		0	1	–	32	47	20	
5.5	497.2						Very soft brown SILT (A-4b), little fine sand; wet.							
		WOH WOH WOH	3	3		0.25		0	0	–	17	60	23	
							@ 8.0' to 10.0', very loose.							
10		WOH WOH 1	18	4				0	0	–	16	66	18	Non-Plastic
		WOH WOH 1	18	5		0.25		0	0	–	14	59	27	
							@ 13.0' to 16.0', trace fine sand.							
15		WOH 1 2	18	6		0.5		0	0	–	4	73	23	
							@ 16.0', some fine sand.							
		WOH WOH 1	18	7		0.25		0	0	–	32	51	17	
							@ 18.5', very loose to loose.							
20		WOH 2 2	18	8		---		0	0	–	36	50	14	Non-Plastic
21.0	481.7						Medium dense gray COARSE AND FINE SAND (A-3a), some silt, trace gravel, trace clay; wet.							
		2 9 7	18	9				8	10	–	54	22	6	Non-Plastic
23.5	479.2						Loose gray FINE SAND (A-3), little to some silt; wet.							
25		2 2 2	18	10										
		1 2 3	18	11										
28.5	474.2						Loose gray SANDY SILT (A-4a); moist to wet.							
30		2 4		12										

FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, UMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-33 | Location: Pier 2 - Little Scioto Crossing | Date Drilled: 2/23/05 to 2/24/05

WATER OBSERVATIONS: Water seepage at: 5.5'-34.0'
Water level at completion: 15.0' (Prior to coring)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetrometer (tsf)	DESCRIPTION
30	472.7	6					Loose gray SANDY SILT (A-4a); moist to wet.
34.0	468.7	50/1	0	13			
35		Core 42"	Rec 42"		R-1		Medium hard to hard gray SANDSTONE; very fine grained, slightly to moderately weathered, argillaceous, micaceous, thinly bedded to thickly bedded. @ 34.6', high angle fracture. @ 34.7' to 36.1', contains moderate argillaceous laminations.
36.1	466.6						Hard gray SANDSTONE; very fine grained, slighty weathered, argillaceous, micaceous, thinly bedded to thickly bedded.
40		Core 60"	Rec 60"		R-2		
							@ 41.6' to 42.4', contains few to moderate argillaceous laminations. @ 41.9', clay seam. @ 42.4', low angle fracture.
45		Core 60"	Rec 60"		R-3		
50		Core 60"	Rec 60"		R-4		
		Core 18"	Rec 18"		R-5		@ 53.3', iron staining.
54.0	448.7						Bottom of Boring - 54.0'
55							
60							

GRADATION: % Aggregate | % C. Sand | % M. Sand | % F. Sand | % Silt | % Clay

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢——⊣ LL
Blows per foot - ○
10 20 30 40
50+

FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

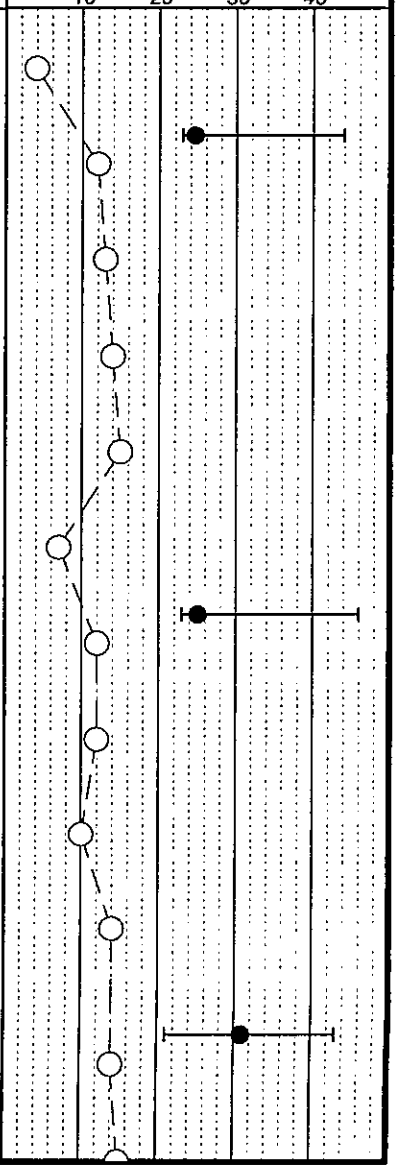
Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-34 | Location: Pier 1 - Little Scioto Crossing | Date Drilled: 2/24/05 to 3/2/05

WATER OBSERVATIONS: Water seepage at: 30.0'-38.0'
Water level at completion: 20.0' (Prior to coring)
6.0' (Including drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetrometer (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
0	516.4												
0.6	515.8	1 2 2	16	1		2.5	Topsoil - 7" Very stiff brown SILT AND CLAY (A-6a); damp.						
2.0	514.4	4 5 7	18	2		4.0	Very stiff to hard brown CLAY (A-7-6), trace fine sand; varved; damp to moist.	0	0	--	1	21	78
5		4 5 8	18	3		4.5	@ 6.0', contains occasional very thin gray seams with desiccation cracking.						
		3 6 8	18	4		4.5+							
10		3 6 9	18	5		4.5+	@ 10.0', gray.						
		2 3 4	18	6		2.25							
15		2 5 7	18	7		3.25		0	0	--	1	22	77
		2 5 7	18	8		2.25	@ 17.5'-19.0', slightly organic.						
20		2 4 6	0	9		---							
		3 6 8	18	10		3.75							
25		4 6 8	18	11		2.25	@ 25.0', grayish brown, trace fine sand; moist.	0	1	--	4	56	39
		3 6 9	0	12		---							
30													

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢ LL
Blows per foot - ○
10 20 30 40



FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-34 | Location: Pier 1 - Little Scioto Crossing | Date Drilled: 2/24/05 to 3/2/05

WATER OBSERVATIONS: Water seepage at: 30.0'-38.0'
Water level at completion: 20.0' (Prior to coring)
6.0' (Including drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetrometer (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) / Natural Moisture Content, % - ● / PL — LL / Blows per foot - ○
30.0	486.4	2 1 2	0	13			Very loose gray SILT (A-4b), some fine sand, trace clay; wet.							
35		0 1 2	18	14				0	0	--	31	60	9	Non-Plastic
38.0	478.4						Medium dense gray GRAVEL WITH SAND AND SILT (A-2-4), trace clay; moist.							
40		10 12 50/4	14	15				23	26	--	19	27	5	Non-Plastic
42.0	474.4	Core 12"	Rec 12"	RQD 75%	R-1		Soft to medium hard gray SANDSTONE; very fine to fine grained, slightly to moderately weathered, argillaceous, micaceous, thinly bedded to thickly bedded, moderately to highly fractured.							62
45		Core 60"	Rec 60"	RQD 70%	R-2		@ 44.5' to 45.4', very fine grained, fissile after desiccation. @ 42.2',43.6',44.7', low angle clay filled fractures. @ 47.1',47.2',47.6', low angle clay filled fractures. @ 46.6' to 48.0', very fine grained, fissile after desiccation.							
48.0	468.4						@ 44.2' to 44.4',45.0' to 45.1',46.7' high angle clay filled fractures.							
50		Core 60"	Rec 60"	RQD 100%	R-3		Hard gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, micaceous, massively bedded, unfractured to slightly fractured.							
55		Core 60"	Rec 60"	RQD 97%	R-4		@ 53.4' to 54.3', very fine grained. @ 53.5', low angle clay filled fractures.							
60		Core 48"	Rec 48"	RQD 100%	R-5		@ 59.1' to 59.5', red iron staining.							

FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-34 | Location: Pier 1 - Little Scioto Crossing | Date Drilled: 2/24/05 to 3/2/05

WATER OBSERVATIONS: Water seepage at: 30.0'-38.0'
Water level at completion: 20.0' (Prior to coring)
6.0' (Including drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetro-meter (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) Natural Moisture Content, % - ● PL — LL Blows per foot - ○ 10 20 30 40
60	456.4													
62.0	454.4						Hard gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, micaceous, massively bedded, unfractured.							
							Bottom of Boring - 62.0'							
65														
70														
75														
80														
85														
90														

FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, UMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-35 | Location: Rear Abutment - Little Scioto Crossing | Date Drilled: 2/22/05 to 2/23/05

WATER OBSERVATIONS: Water seepage at: 7.0'-22.0', 63.0'-76.5'
Water level at completion: 50.0' (Prior to coring)
7.4' (including drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetro-meter (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
0	552.8												
0.3	552.5	1 2 4	18	1		3.75	Topsoil - 4" Medium stiff to very stiff brown SILT AND CLAY (A-6a), trace fine to coarse sand, contains roots; damp to moist.						
		3 3 5	18	2		2.0	@ 3.5', wet.	0	0	--	1	70	29
5		3 5 4	18	3		1.75							
		2 3 4	18	4		0.75							
10		1 2 4	18	5		1.75							
		2 4 4	18	6		1.0							
15		2 3 6	18	7		3.0							
		1 3 6	18	8		1.25		0	2	--	5	58	35
20		2 3 4	18	9		1.25							
22.0	530.8						Very stiff to hard gray CLAY (A-7-6), trace fine sand; varved; damp.						
		2 4 7	18	10		2.75							
25		4 8 10	18	11		4.25		0	0	--	1	26	73
		5 8 12	18	12		4.0							
30													

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢——⊣ LL
Blows per foot - ○
10 20 30 40

FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

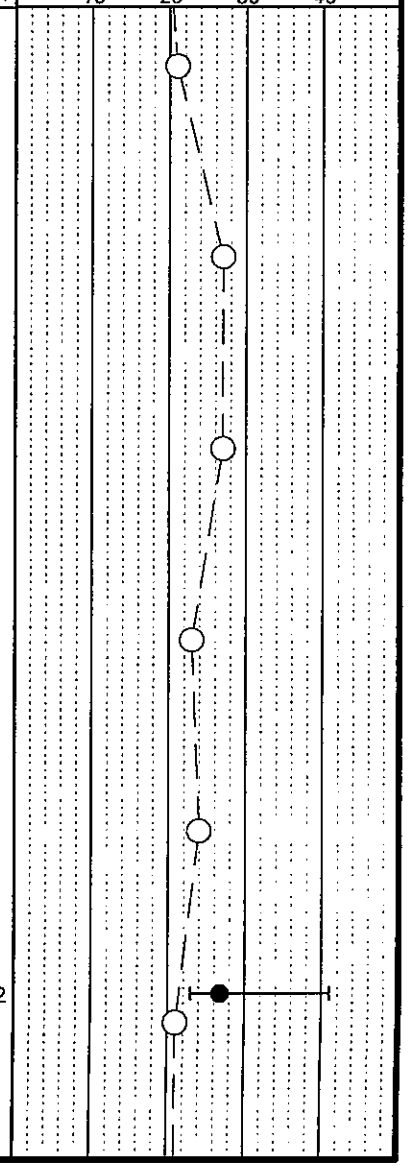
Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-35 | Location: Rear Abutment - Little Scioto Crossing | Date Drilled: 2/22/05 to 2/23/05

WATER OBSERVATIONS: Water seepage at: 7.0'-22.0', 63.0'-76.5'
Water level at completion: 50.0' (Prior to coring)
7.4' (including drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetro-meter (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
30	522.8	6 8 13	18	13		4.5+	Very stiff to hard gray CLAY (A-7-6), trace fine sand; varved; damp.						
35		7 11 16	18	14		4.5+							
40		4 12 15	18	15		4.5+							
45		7 9 14	18	16		4.5+							
50		7 10 14	18	17		4.5+							
55		5 8 13	18	18		3.75	@ 55.0', slightly organic, contains very thin fine grained sand seams; damp to moist.	0	0	--	1	27	72
60													

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢——⊣ LL
Blows per foot - ○
10 20 30 40



FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-35 | Location: Rear Abutment - Little Scioto Crossing | Date Drilled: 2/22/05 to 2/23/05

WATER OBSERVATIONS: Water seepage at: 7.0'-22.0', 63.0'-76.5'
Water level at completion: 50.0' (Prior to coring)
7.4' (including drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetrometer (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) / Natural Moisture Content, % / PL — LL / Blows per foot
60	492.8	4 9 12	18	19		2.75	Very stiff to hard gray CLAY (A-7-6), trace fine sand; varved; damp to moist.							
63.0	489.8						Medium dense gray SILT (A-4b), little clay, some fine sand; moist to wet.							
65		5 8 8	18	20				0	1	--	21	59	19	Non-Plastic
70		0 6 8	18	21										
73.0	479.8						Dense gray SANDY SILT (A-4a), trace gravel, trace clay; moist.							
75		11 16 16	12	22				6	26	--	24	37	7	Non-Plastic
80.0	472.8	Core 30"	Rec 24"	RQD 80%	R-1		Medium hard to hard gray SANDSTONE; very fine to fine grained, slightly to moderately weathered, argillaceous, micaceous, thinly bedded to thickly bedded. @ 82.8',84.7',84.8', low angle clay filled fractures. @ 83.8' to 83.9', high angle clay filled fracture. @ 83.9' to 84.8', few to moderate argillaceous laminations.							
84.8	468.0	Core 60"	Rec 60"	RQD 90%	R-2		Hard gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, micaceous, thinly bedded to thickly bedded. @ 84.8' to 85.0', vuggy zone.							
90		Core 60"	Rec 60"	RQD 100%	R-3									

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-35 | Location: Rear Abutment - Little Scioto Crossing | Date Drilled: 2/22/05 to 2/23/05

WATER OBSERVATIONS: Water seepage at: 7.0'-22.0', 63.0'-76.5'
Water level at completion: 50.0' (Prior to coring)
7.4' (including drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetrometer (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) Natural Moisture Content, % - ● PL ⊢—⊣ LL Blows per foot - ○ 10 20 30 40
90	462.8						Hard gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, micaceous, thickly bedded, slightly fractured.							
95		Core 60"	Rec 60"	RQD 100%	R-4		@ 91.1', low angle clay filled fracture.							
		Core 36"	Rec 36"	RQD 100%	R-5									
100														
100.5	452.3						Bottom of Boring - 100.5'							
105														
110														
115														
120														

FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, UMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-35A | Location: Highland Bend - Bennette Property | Date Drilled: 1/12/06

WATER OBSERVATIONS: Water seepage at: 24.5'-25.0', 68.5'-79.0'
Water level at completion: 67.8' (prior to coring)
13.4' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press / Core	Hand Penetrometer (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) / Natural Moisture Content, % / PL / LL / Blows per foot
0	553.0													
0.3	552.7						Limestone gravel (driveway) - 3"							
		3 4 6	12	1		3.0	Very stiff yellowish brown CLAY (A-7-6), some silt, trace fine sand; damp to moist.	0	0	--	1	32	66	
		6 6 8	13	2		2.25								
5.0	548.0				P-1 P-1	1.0	Stiff brown SILT (A-4b), little fine sand, little to some clay, (contains thin clay seams); moist.	0	0	--	4	63	33	
		2 2 3	18	3		1.5		0	0	--	1	71	29	
10														
11.0	542.0						Medium stiff brown SILT AND CLAY (A-6a), trace fine sand; moist.							
12.4	540.6				P-2A	0.75		0	0	--	1	51	47	
					P-2B	0.75	Medium stiff to stiff brown SILT (A-4b), some clay, trace fine to coarse sand; moist to wet.	0	2	--	2	66	30	
15														
		2 4 5	18	4		1.25								
		12 3 4	18	5		1.00								
20														
20.5	532.5													
		3 5 6	18	6		1.5	Medium stiff to stiff gray CLAY (A-7-6), little to some silt, trace fine sand; damp.							
23.5	529.5													
		woh 1 1	18	7		0.25	Very soft to soft gray SILT (A-4b); moist to wet.	0	0	--	0	75	25	Non-Plastic
25														
					P-3	0.5		0	0	--	1	77	22	Non-Plastic
30														

FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

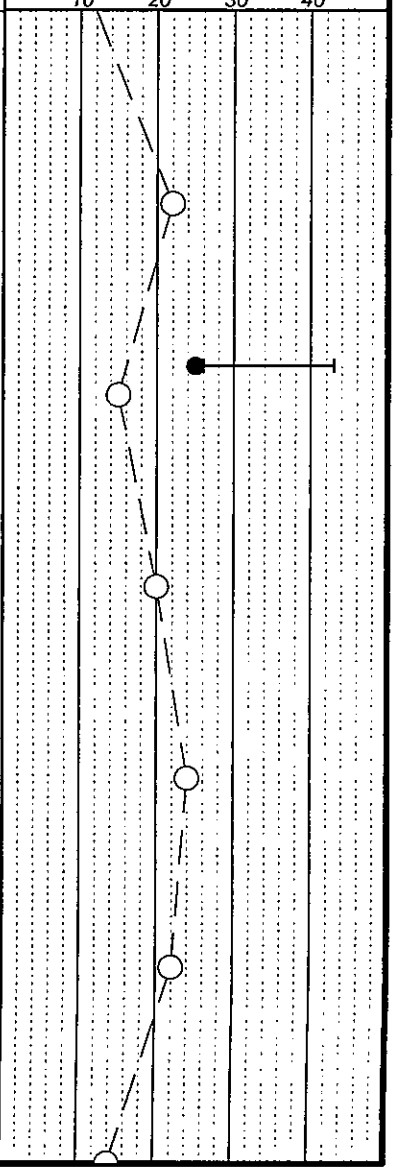
Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-35A | Location: Highland Bend - Bennette Property | Date Drilled: 1/12/06

WATER OBSERVATIONS: Water seepage at: 24.5'-25.0', 68.5'-79.0'
Water level at completion: 67.8' (prior to coring)
13.4' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press / Core	Hand Penetrometer (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
30	523.0												
32.0	521.0						Hard grayish brown CLAY (A-7-6), trace fine sand; damp to moist.						
35		5 9 13	18	8		4.5+							
40		4 6 9	18	9		4.5+		0	0	–	0	20	79
							@ 42.0', Very stiff.						
45		5 9 11	18	10		3.0							
							@ 47.0', Hard, damp.						
50		5 10 14	18	11		4.5+							
55		5 9 13	18	12		4.5+							
							@ 57.0', Very stiff.						
60		4 7 7	18	13		2.75							

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢——⊣ LL
Blows per foot - ○
10 20 30 40



FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-35A | Location: Highland Bend - Bennette Property | Date Drilled: 1/12/06

WATER OBSERVATIONS: Water seepage at: 24.5'-25.0', 68.5'-79.0'
Water level at completion: 67.8' (prior to coring)
13.4' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetrometer (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
60	493.0												
62.0	491.0												
		4 5 6	18	14		1.5	Stiff mottled dark brown and black ORGANIC SILT (A-4b), trace fine to coarse sand, trace gravel; moist.	1	2	–	2	66	29
65													
65.5	487.5				P-4A	1.0	Medium stiff to stiff dark brown CLAY (A-7-6), "and" silt, trace fine to coarse sand; trace gravel; moist.	0	6	–	3	65	27
66.9	486.1				P-4B	1.75	Stiff gray SILT (A-4b), little to some fine sand; damp to moist.	0	1	–	20	63	16
		3 4 4	18	15									
70													
72.0	481.0						Loose gray FINE SAND (A-3), trace silty clay; moist to wet.						
		woh 3 5	18	16									
75													
77.0	476.0						Loose to medium dense brown COARSE AND FINE SAND (A-3a), trace to little silty clay, trace gravel; moist.						
		5 50/5	10	17a 17b			@ 79.5', Some silt, trace clay.						
80													
81.0	472.0						Medium hard gray SANDSTONE; very fine to fine grained, highly weathered, argillaceous, micaceous, medium bedded to thickly bedded, moderately fractured.						
		Core 60"	Rec 60"	RQD 71%	R-1		@ 84.1' to 84.7',84.3' to 84.5', high angle fractures. @ 81.7', 82.6', 83.7', low angle fractures.						
85													
86.0	467.0						Bottom of Boring - 86.0'						
90													

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢—⊣ LL
Blows per foot - ○
10 20 30 40

Non-Plastic
Non-Plastic
50+

FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-36 | Location: Forward Abutment SCI-823.00 over Slocum Ave | Date Drilled: 01/31/05 to 02/01/05

WATER OBSERVATIONS: Water seepage at: 62'-73'
Water level at completion: 12.0' (Prior to coring)
12.0' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetrometer (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
0	552.6												
0.3	552.3						Topsoil - 4"						
		2 3 4	17	1		2.0	Very stiff brown and gray CLAY (A-7-6), trace fine sand; moist. @ 0.0'-1.8', contains root fragments.						
		6 7 8	16	2		3.0		0	0	--	1	31	68
5.5	547.1						Very stiff brown CLAY (A-7-6), trace fine sand; varved; moist.						
		3 3 4	18	3		3.0							
		2 3 5	16	4		3.0		0	0	--	1	38	61
		3 4 6	18	5		2.5							
		2 4 5	18	6		3.25							
		3 4 5	18	7		3.0							
		4 5 6	18	8		3.0							
20.5	532.1						Very stiff brown SILT (A-4b); varved; moist.						
		3 4 5	18	9		3.25		0	0	--	1	65	34
		3 4 4	18	10		3.0							
		2 4 4	18	11		3.5		0	0	--	2	67	31
28.5	524.1						Very stiff gray CLAY (A-7-6); varved; wet.						
		2 2 2	18	12		2.75							

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢——⊣ LL
Blows per foot - ○
10 20 30 40

FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

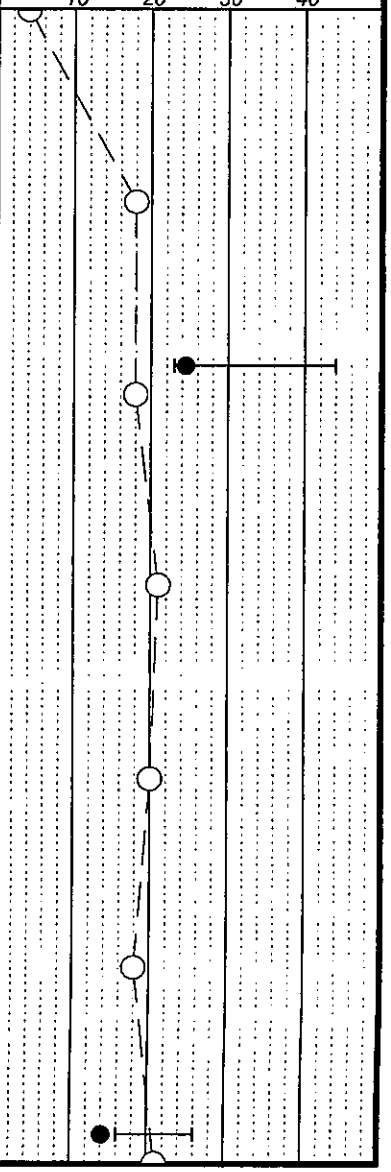
Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-36 | Location: Forward Abutment SCI-823.00 over Slocum Ave | Date Drilled: 01/31/05 to 02/01/05

WATER OBSERVATIONS: Water seepage at: 62'-73'
Water level at completion: 12.0' (Prior to coring)
12.0' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetro-meter (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
30	522.6						Very stiff gray CLAY (A-7-6); varved; damp to moist.						
35		5 8 10	11	13		3.75							
							@ 38.0', brownish gray.						
40		7 8 10	18	14		3.75		0	0	--	0	33	67
							@ 42.0' to 47.0', hard.						
45		4 9 12	18	15		4.5+							
							@ 47.0', gray, damp to moist.						
50		7 10 10	18	16		2.75							
55		5 9 9	18	17		3.0							
57.0	495.6						Hard gray SILT (A-4b); damp.						
60		5 10 11	18	18		4.5+		0	1	--	9	53	37

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢——⊣ LL
Blows per foot - ○
10 20 30 40



FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-36 | Location: Forward Abutment SCI-823.00 over Slocum Ave | Date Drilled: 01/31/05 to 02/01/05

WATER OBSERVATIONS: Water seepage at: 62'-73'
Water level at completion: 12.0' (Prior to coring)
12.0' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetrometer (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) / Natural Moisture Content, % / Atterberg Limits
60	492.6						Hard gray SILT (A-4b); damp.							
62.0	490.6						Very loose gray SANDY SILT (A-4a); wet.							
		5 1 2	18	19										
65														
		0 4 7	18	20			@ 69.0', medium dense.	0	1	–	60	31	8	Non-Plastic
70														
72.0	480.6						Severely weathered gray SANDSTONE argillaceous.							
74.0	478.6	50/1	1	21			Hard light gray SANDSTONE; very fine to fine grained, slightly to moderately weathered, argillaceous, massively bedded, slightly fractured.							
75							@ 76.0', 76.3', low angle fractures.							
							@ 77.6',77.7', low angle fracture.							
		Core 120"	Rec 116"	RQD 70%	R-1									
80														
							@ 83.4' to 84.9', medium hard, very fine grained.							
85														
		Core 120"	Rec 119"	RQD 93%	R-2									
90														

STANDARD PENETRATION (N) / Natural Moisture Content, % - ● / PL — LL / Blows per foot - ○
10 20 30 40

FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-36 | Location: Forward Abutment SCI-823.00 over Slocum Ave | Date Drilled: 01/31/05 to 02/01/05

WATER OBSERVATIONS: Water seepage at: 62'-73'
Water level at completion: 12.0' (Prior to coring)
12.0' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetro-meter (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) Natural Moisture Content, % - ● PL — LL Blows per foot - ○ 10 20 30 40
462.6														
90.0	462.6						Hard light gray SANDSTONE; very fine to fine grained, slightly to moderately weathered, argillaceous, massively bedded, slightly fractured. @ 90.2' to 90.5', calcareous layer. @ 92.6' to 97.1', calcareous.							
94.0	458.6						Bottom of Boring - 94.0'							
95														
100														
105														
110														
115														
120														

FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

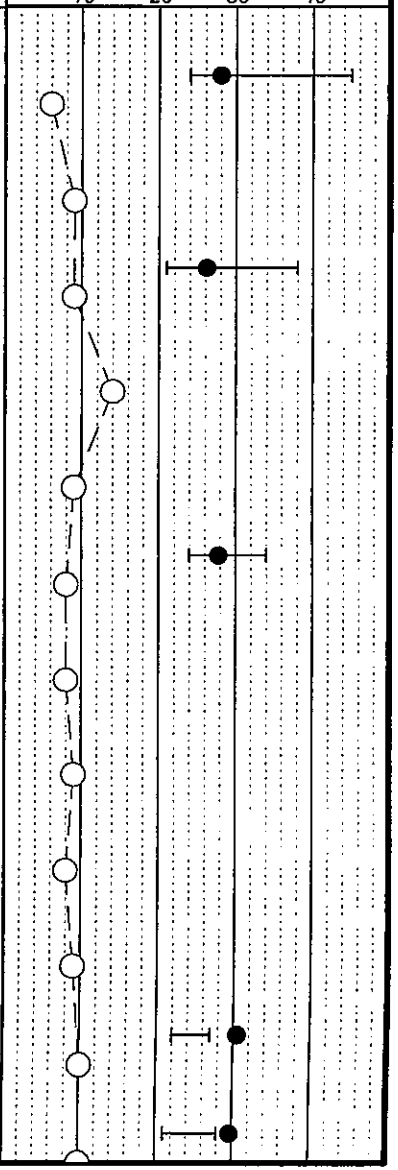
Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-37 | Location: Pier 1 SCI-823.00 over Slocum Ave | Date Drilled: 01/27/05 to 01/31/05

WATER OBSERVATIONS: Water seepage at: 16.0'-18.0', 37'-37.5', 68'
Water level at completion: Not Recorded

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetro-meter (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
0	556.1												
0.3	555.8						Topsoil - 3"						
		2 3 3	14	1		2.25	Very stiff brown CLAY (A-7-6); trace fine to coarse sand; moist.	0	1	–	4	41	54
							@ 3.0', brown and gray.						
		3 4 5	18	2		2.0							
5													
5.5	550.6						Hard brown SILT CLAY (A-6b), trace fine to coarse sand; damp.						
		3 4 5	18	3		1.5		0	1	–	6	38	55
							@ 8.0', hard; damp.						
		3 6 8	17	4		4.5+							
10													
10.5	545.6						Very stiff brown SILT (A-4b), "and" clay, trace fine sand; varved; damp to moist.						
		3 4 5	10	5		2.25							
		2 3 5	18	6		3.0		0	0	–	1	61	38
15													
		2 4 4	18	7		0.5	@ 16.0'-18.0', soft; wet.						
		3 4 5	18	8		2.0							
20													
		2 3 5	18	9		2.25							
		2 4 5	18	10		2.0							
25													
25.5	530.6						Medium dense brown SILT (A-4b), some clay, trace fine sand; moist.						
		3 5 5	18	11		---		0	0	–	0	79	21
		3 4 6	18	12				0	0	–	2	77	21
30													

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢——⊣ LL
Blows per foot - ○
10 20 30 40



FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

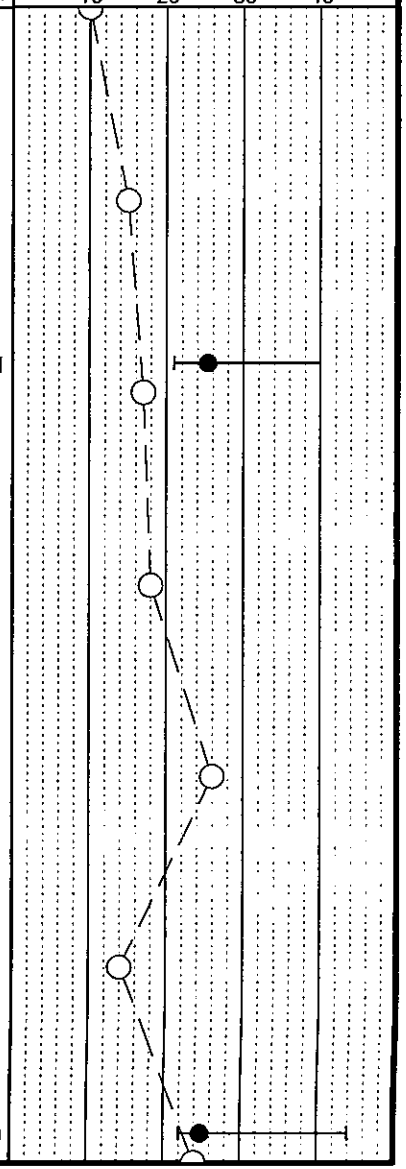
Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-37 | Location: Pier 1 SCI-823.00 over Slocum Ave | Date Drilled: 01/27/05 to 01/31/05

WATER OBSERVATIONS: Water seepage at: 16.0'-18.0', 37'-37.5', 68'
Water level at completion: Not Recorded

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetrometer (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
30	526.1						Medium dense brown SILT (A-4b); moist.						
32.0	524.1						Hard brownish gray SILTY CLAY (A-6b), trace fine sand; moist.						
35		4 6 9	18	13		4.5+							
40		6 8 9	18	14		4.25		0	0	--	1	38	61
42.0	514.1						Hard gray CLAY (A-7-6); damp to moist.						
45		4 7 11	18	15		4.25							
50		8 13 13	18	16		4.5+							
55		4 7 7	18	17		4.0							
60		8 12 12	18	18		4.5+		0	0	--	0	21	79

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢ LL
Blows per foot - ○
10 20 30 40



FILE: 0121-3070-03 (5/11/2006 11:04 AM)

DLZ OHIO INC. * 6121 HUNTLEY ROAD UMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-37 | Location: Pier 1 SCI-823.00 over Slocum Ave | Date Drilled: 01/27/05 to 01/31/05

WATER OBSERVATIONS: Water seepage at: 16.0'-18.0', 37'-37.5', 68'
Water level at completion: Not Recorded

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetrometer (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) / Natural Moisture Content, % / PL — LL / Blows per foot
60	496.1						Hard gray CLAY (A-7-6); damp to moist.							
62.0	494.1						Medium dense light gray SILT (A-4b), some fine to coarse sand, little clay, trace gravel; moist.							
65		7 10 10	18	19										
							@ 68.0', loose, wet.	1	2	–	30	57	10	Non-Plastic
70		3 3 4	18	20										
72.0	484.1						Loose gray GRAVEL WITH SAND AND SILT (A-2-4), trace clay; wet.							
75		0 1 4	18	21				17	3	–	53	21	6	Non-Plastic
							Severely weathered gray SANDSTONE argillaceous.							
79.0	477.1	50/2	1	22			@ 79.0' to 80.2', broken.							
80							Medium hard to hard gray SANDSTONE; very fine to fine grained, moderately weathered, argillaceous, thinly bedded to thickly bedded, slightly fractured.							
							@ 79.3' to 79.4' and 79.8' to 80.1', iron stained bands.							
							@ 80.8', low angle fracture.							
		Core 120"	Rec 117"	RQD 74%	R-1									
85							@ 86.0', low angle fracture.							
							@ 87.5' to 89.2', contains moderate argillaceous laminations.							
							@ 88.3' to 88.6', decomposed argillaceous band.							
90														

FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-37 | Location: Pier 1 SCI-823.00 over Slocum Ave | Date Drilled: 01/27/05 to 01/31/05

WATER OBSERVATIONS: Water seepage at: 16.0'-18.0', 37'-37.5', 68'
Water level at completion: Not Recorded

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetro-meter (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) / Natural Moisture Content, % - ● / PL ⊢ LL / Blows per foot - ○
90	466.1													10 20 30 40
		Core 120"	Rec 119"	RQD 99%	R-2		@ 91.9' to 92.0', calcareous.							
95							@ 94.4' to 94.7', calcareous.							
							@ 96.9' to 97.4', calcareous layer.							
99.0	457.1						Bottom of Boring - 99.0'							
100														
105														
110														
115														
120														

FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-38 | Location: Rear Abutment SCI-823.00 over Slocum Ave | Date Drilled: 02/09/05 to 02/10/05

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' *Including drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetro-meter (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
0	554.0												
0.3	553.7	WOH 3 4	18	1		2.5	Topsoil - 4" / Very stiff CLAY (A-7-6), brown , trace fine sand; damp.						
		3 5 9	18	2		3.25							
5		4 6 11	18	3		3.5		0	0	--	1	29	70
		4 6 8	18	4		2.0							
10.0	544.0	2 3 5	18	5		1.5	Stiff brown SILT (A-4b), little clay, trace fine to coarse sand; moist.						
		3 5 6	18	6		1.5							
15		3 5 9	18	7		1.25		0	1	--	2	63	35
		2 5 6	18	8		1.25							
20		3 5 8	18	9		1.5							
		4 8 9	16	10		1.5		0	0	--	1	72	27
25.0	529.0	2 4 5	18	11		1.5	Stiff brown SILT (A-4b), some clay, trace fine sand, contains silt laminae; moist.						
		3 4 5	18	12		1.0							
30													

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢——⊣ LL
Blows per foot - ○
10 20 30 40

FILE: 0121-3070-03 [6/7/2006 8:15 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-38 | Location: Rear Abutment SCI-823.00 over Slocum Ave | Date Drilled: 02/09/05 to 02/10/05

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' *Including drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetrometer (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) / Natural Moisture Content, % / PL — LL / Blows per foot
30	524.0	3 2 4	16	13		1.0	Stiff brown SILT AND CLAY (A-6a), little fine sand; moist.	0	0	–	5	59	36	
33.0	521.0						Medium dense gray COARSE AND FINE SAND (A-3A); moist.							
35		4 7 11	18	14				0	21	–	50	20	10	Non-Plastic
38.0	516.0						Very stiff gray SILTY CLAY (A-6b), little fine sand; damp to moist.							
40		7 12 14	18	15		3.5								
45		10 13 17	18	16		3.0		0	0	–	1	32	68	
50		5 9 13	18	17		4.0								
55.0	499.0	7 9 10	18	18		3.5	Very stiff gray SILT (A-4b), little fine sand, little silty clay; moist.							
60														

FILE: 0121-3070-03 [6/7/2006 8:15 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-38 | Location: Rear Abutment SCI-823.00 over Slocum Ave | Date Drilled: 02/09/05 to 02/10/05

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' *Including drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetrometer (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) / Natural Moisture Content, % / Blows per foot
60.0	494.0	4 8 9	18	19			Medium dense gray COARSE AND FINE SAND (A-3a), some silt, little clay; moist.							
65		6 6 7	18	20			@ 65.0', wet.							
68.0	486.0						Loose gray SANDY SILT (A-4a); wet.							
70		WOH 5 5	15	21				0	1	--	54	45		Non-Plastic
73.0	481.0						Very dense gray GRAVEL WITH SAND (A-1-b); wet.							
75		9 20 50/3	13	22				50	19	--	12	20		Non-Plastic 70
80.0	474.0	Core 60"	Rec 60"	RQD 90%	R-1		Medium hard to hard gray SANDSTONE; very fine to fine grained, slightly to moderately weathered, argillaceous, arenaceous, thinly bedded to thickly bedded.							
85							@ 80.0' to 80.2', argillaceous zone, broken.							
		Core 60"	Rec 60"	RQD 80%	R-2		@ 85.9',86.2',86.7', low angle clay filled fractures.							
90														

STANDARD PENETRATION (N) / Natural Moisture Content, % - ● / PL ⊢——⊣ LL / Blows per foot - ○ (10 20 30 40)

FILE: 0121-3070-03 [6/7/2006 8:15 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-38 | Location: Rear Abutment SCI-823.00 over Slocum Ave | Date Drilled: 02/09/05 to 02/10/05

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' *Including drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetro-meter (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) Natural Moisture Content, % - ● PL — LL Blows per foot - ○ 10 20 30 40
90	464.0	Core 60"	Rec 33"	RQD 55%	R-3		Medium hard to hard gray SANDSTONE; very fine to fine grained, slightly to moderately weathered, argillaceous, arenaceous, massively bedded, slightly fractured.							
95		Core 60"	Rec 0"	RQD 0%	R-4		@ 92.8' to 100.0', lost recovery; unknown reason.							
100.0	454.0						Bottom of Boring - 100.0'							
105														
110														
115														
120														

FILE: 0121-3070-03 [6/7/2006 8:15 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD * COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-38A | Location: Highland Bend | Date Drilled: 1/9/06 to 1/10/06

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 6 hours)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetrometer (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
0	554.0												
0.8	553.2	2 4 8	13	1		4.5+	Topsoil - 9" Hard mottled brown and gray CLAY (A-7-6), some to "and" silt, trace fine sand; damp to moist.	0	0	--	4	42	53
		6 7 9	18	2		2.75	@ 3.5', Very stiff.						
5.0	549.0				P-1	2.0	Stiff to very stiff mottled brown and gray SILT AND CLAY (A-6a), trace fine sand; moist.	0	0	--	4	47	49
7.5	546.5	4 6 8	16	3		4.0	Hard brown CLAY (A-7-6), trace fine sand, some silt; damp to moist.	0	0	--	1	27	72
10													
10.5	543.5	3 4 5	18	4		1.25	Stiff brown SILT (A-4b), "and" clay, trace fine sand; moist.	0	0	--	3	54	44
13.0	541.0	3 3 5	18	5		2.0	Stiff to very stiff brown SILT AND CLAY (A-6a), trace fine sand; moist.	0	0	--	1	48	51
15.0	539.0				P-2	1.5 / 1.0	Medium stiff to stiff brown SILTY CLAY (A-6b), trace fine sand; moist.	0	0	--	1	44	55
								0	0	--	1	74	25
		3 4 4	18	6		1.75							
20.0	534.0				P-3	1.0	Medium stiff brown SILT AND CLAY (A-6a), trace to little fine to coarse sand; moist.	0	7	--	4	53	36
		3 5 7	18	7		2.0							
25													
25.5	528.5	5 6 9	18	8		0.75	Medium stiff brown SILT (A-4b), little clay; wet.	0	0	--	0	82	18
		3 4 6	18	9		0.75							
30													

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ——— LL
Blows per foot - ○
10 20 30 40

FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

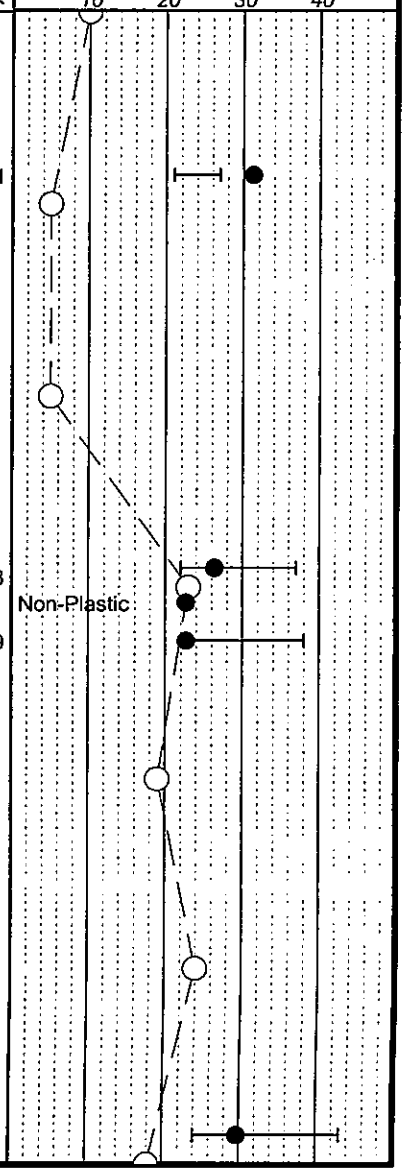
Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-38A | Location: Highland Bend | Date Drilled: 1/9/06 to 1/10/06

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 16 hours)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetrometer (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
30	524.0												
		WOH 2 3	18	10		0.75		0	0	–	0	69	31
35													
		1 1 4	18	11		0.75							
40													
42.0	512.0						Loose to medium dense brown FINE SAND (A-3), trace silty clay, trace coarse sand; wet.						
		4 10 13	18	12a									
44.5	509.5			12b		2.75	Very stiff brownish gray SILTY CLAY (A-6b), little to some silt, trace fine sand; moist.	0	0	–	3	24	73
45.0	509.0							0	0	–	91	9	Non-Plastic
45.8	508.2				P-4	NC / 4.5+	Poorly graded sand with silt	0	0	–	1	31	69
							Loose to medium dense brown FINE SAND (A-3), trace silty clay; wet.						
		5 8 11	18	13		4.0	Very stiff to hard dark brown SILTY CLAY (A-6b), some silt, trace fine sand; damp to moist.						
50							@ 52.0', Very stiff.						
		7 10 14	15	14		2.75							
55													
57.0	497.0						Stiff dark brown CLAY (A-7-6), little to some silt, trace fine sand; moist.						
		6 8 10	18	15		1.5		0	0	–	1	23	76
60													

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢——⊣ LL
Blows per foot - ○
10 20 30 40



FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-38A | Location: Highland Bend | Date Drilled: 1/9/06 to 1/10/06

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 6 hours)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetrometer (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
60	494.0												
62.0	492.0	4 7 6	18	16		0.5	Soft to medium stiff blue-gray SANDY SILT (A-4a), some fine sand, little to some clay; moist to wet.	0	0	–	29	48	23
67.0	487.0	2 4 4	12	17			Loose gray SILT (A-4b), trace to little fine sand, trace clay; moist to wet.						
72.0	482.0	2 6 3	18	18			Loose to medium dense brown COARSE AND FINE SAND (A-3a), little silty clay, trace gravel; moist to wet.						
77.0	477.0	50/3	2	19		4.0	Hard gray SILT AND CLAY (A-6a), trace to little fine sand; damp.						
81.0	473.0	Core 60"	Rec 60"	RQD 65%	R-1		Medium hard gray SANDSTONE; very fine to fine grained, moderately to highly weathered, argillaceous, micaceous, medium bedded, moderately to highly fractured. @ 91.4', 91.9', 92.2', low angle fractures.						
86.0	468.0						Bottom of Boring - 86.0'						
90													

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢——⊣ LL
Blows per foot - ○
10 20 30 40
50+

FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-39 | Location: Forward Abutment SCI-823.00 over CSX RR | Date Drilled: 02/02/05 to 02/03/05

WATER OBSERVATIONS: Water seepage at: 33.5'-50', 73.5'-80'
Water level at completion: 36.0' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetrometer (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
0	566.2												
0.3	565.9						Topsoil - 4"						
		1 3 4	16	1		2.25	Very stiff brown SILTY CLAY (A-6b); damp. @ 0.0' to 1.5', contains organics.						
		3 6 8	18	2		3.5		0	0	--	1	47	52
5													
5.5	560.7						Very stiff to hard brown SILT AND CLAY (A-6a), trace fine to coarse sand; damp.						
		3 5 9	18	3		2.25							
		3 5 8	18	4		3.25							
10													
		4 7 9	16	5		2.75							
		3 5 5	18	6		2.75		0	0	--	1	53	46
15													
		5 10 14	16	7		4.0							
		4 8 10	15	8		3.75							
20													
		4 6 7	18	9		3.25		0	0	--	1	59	40
		4 4 6	16	10		3.0							
25													
		6 8 11	18	11		3.0		0	0	--	1	46	53
28.0	538.2						Very stiff brown SILTY CLAY (A-6b), trace fine sand; wet.						
		4 6 6	18	12		3.25							
30													

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢——⊣ LL
Blows per foot - ○
10 20 30 40

FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-39 | Location: Forward Abutment SCI-823.00 over CSX RR | Date Drilled: 02/02/05 to 02/03/05

WATER OBSERVATIONS: Water seepage at: 33.5'-50', 73.5'-80'
Water level at completion: 36.0' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetrometer (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) / Natural Moisture Content, % / PL / LL / Blows per foot
30	536.2													
		6 8 10	18	13		2.25	Very stiff brown SILTY CLAY (A-6b), trace fine sand; wet.	0	0	--	1	80	19	
35														
37.0	529.2													
		5 3 5	15	14			Loose gray SILT (A-4b), trace fine sand; wet.	0	0	--	1	81	18	Non-Plastic
40														
		3 3 5	16	15										
45														
47.0	519.2													
		3 3 4	18	16		0.5	Medium stiff to stiff gray SILT AND CLAY (A-6a); damp to wet.	0	0	--	1	57	42	
50														
		4 5 9	18	17		1.0								
55														
57.0	509.2													
		9 16 25	18	18		4.5+	Hard brownish gray CLAY (A-7-6), trace to little fine sand; damp to moist.							
60														

FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-39 | Location: Forward Abutment SCI-823.00 over CSX RR | Date Drilled: 02/02/05 to 02/03/05

WATER OBSERVATIONS: Water seepage at: 33.5'-50', 73.5'-80'
Water level at completion: 36.0' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetro-meter (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) / Natural Moisture Content, % / Blows per foot
60	506.2						Hard brownish gray CLAY (A-7-6), trace fine sand; moist.							
65		12 15 23	16	19		4.5+		0	0	--	3	32	65	
70		11 18 24	15	20		2.5								
72.0	494.2						Very stiff gray SILT (A-4b), trace fine sand; slightly organic; damp.							
75		5 10 16	16	21		3.5		0	0	--	9	60	31	
77.0	489.2						Medium dense brown SANDY SILT (A-4a), trace gravel; slightly organic; wet.							
80		7 8 9	18	22				0	3	--	38	48	11	Non-Plastic
82.0	484.2						Medium dense gray FINE SAND (A-3), trace gravel, trace silt; moist.							
85		12 10 12	18	23										
87.0	479.2						Severely weathered brown and gray SANDSTONE argillaceous.							
90		27 23 17	14	24				41	11	--	13	27	8	Non-Plastic

STANDARD PENETRATION (N) — Natural Moisture Content, % - ● — PL ⊢—⊣ LL — Blows per foot - ○ — 10 20 30 40

FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-39 | Location: Forward Abutment SCI-823.00 over CSX RR | Date Drilled: 02/02/05 to 02/03/05

WATER OBSERVATIONS: Water seepage at: 33.5'-50', 73.5'-80'
Water level at completion: 36.0' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetro-meter (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) Natural Moisture Content, % - ● PL — LL Blows per foot - ○ 10 20 30 40
90	476.2						Severely weathered brown and gray SANDSTONE argillaceous.							
92.0	474.2						Medium hard to hard gray SANDSTONE; very fine to fine grained, moderately weathered, argillaceous, thinly bedded to massive, slightly fractured, contains few argillaceous laminations.							
95		Core 60"	Rec 60"	RQD 90%	R-1		@ 92.0' to 92.2' and 92.3' to 92.5', filled fracture.							
100		Core 60"	Rec 56"	RQD 93%	R-2		@ 97.7',97.8', low angle fracture.							
105		Core 60"	Rec 60"	RQD 100%	R-3		@ 100.7' to 101.1', highly weathered and broken. @ 101.7' to 101.9', decomposed shale layer.							
110		Core 60"	Rec 60"	RQD 100%	R-4									
112.0	454.2						@ 111.0' to 111.3', calcareous layer. @ 111.3' to 112.0', fine to medium grained clean sandstone. Bottom of Boring - 112.0'							
115														
120														

FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-40 | Location: Pier 2 SCI-823.00 over CSX RR | Date Drilled: 02/04/05 to 02/09/05

WATER OBSERVATIONS: Water seepage at: 30'-46.5', 75'-95'
Water level at completion: 26.7' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetrometer (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
0	567.9												
0.5	567.4	1 2 4	18	1		1.5	Topsoil - 6" Stiff to very stiff brown SILTY CLAY (A-6b), trace fine sand; damp to moist.						
		2 6 6	16	2		3.5							
5		3 5 6	18	3		1.5		0	0	–	1	48	51
		4 4 5	16	4		1.5							
10		6 8 10	18	5		2.5	@ 10.0', very stiff.						
		4 6 10	18	6		2.5							
15		2 5 7	18	7		2.5							
17.0	550.9												
		5 8 10	18	8		4.0	Hard brown CLAY (A-7-6), some to "and" silt, trace fine sand; damp to moist.						
20		3 7 12	16	9		4.5+							
		5 7 10	18	10		4.0							
25		4 6 8	16	11		4.5							
27.5	540.4	5 8 8	18	12		2.25	Stiff to very stiff brown SILT (A-4b),"and" clay, trace fine sand, moist.	0	0	–	2	56	42
30													

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢——⊣ LL
Blows per foot - ○
10 20 30 40

FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD; UMBUS, OHIO 43229 * (614)888-0040

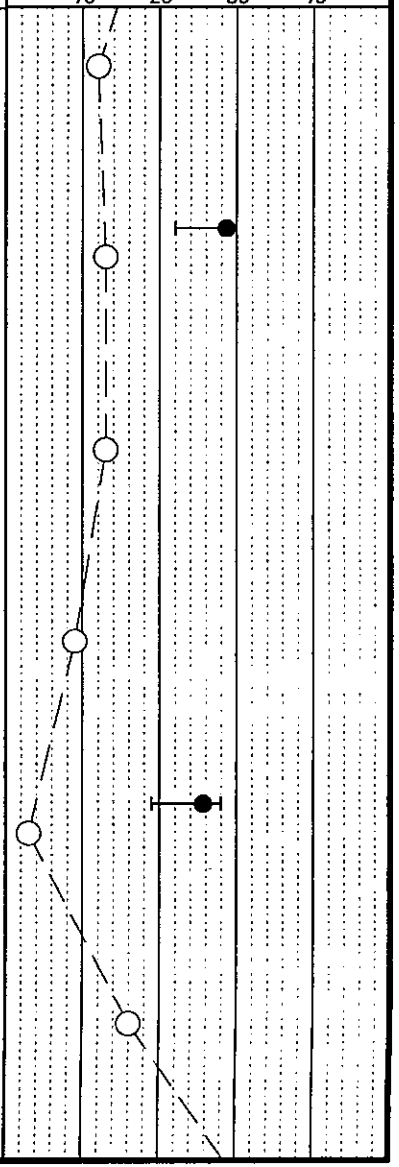
Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-40 | Location: Pier 2 SCI-823.00 over CSX RR | Date Drilled: 02/04/05 to 02/09/05

WATER OBSERVATIONS: Water seepage at: 30'-46.5', 75'-95'
Water level at completion: 26.7' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetro-meter (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
30	537.9	5 5 7	15	13		2.0	Stiff to very stiff brown SILT (A-4b), some to "and" clay, trace fine to coarse sand; moist to wet.						
35		6 7 6	17	14		1.5		0	2	--	2	74	22
40		4 5 8	18	15		2.0							
45		4 4 5	18	16		1.5							
50		WOH WOH 3	18	17		1.5	@ 50.0', trace gravel.	1	1	--	4	56	38
55		4 8 8	18	18		3.5							
60													

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢ LL
Blows per foot - ○
10 20 30 40



FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD * COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-40 | Location: Pier 2 SCI-823.00 over CSX RR | Date Drilled: 02/04/05 to 02/09/05

WATER OBSERVATIONS: Water seepage at: 30'-46.5', 75'-95'
Water level at completion: 26.7' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetro-meter (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) / Natural Moisture Content, % / PL — LL / Blows per foot
	507.9													
60.0	507.9	8 15 19	18	19		3.0	Very stiff to hard gray CLAY (A-7-6), some silt, trace fine sand; damp to moist.							
65		5 15 19	18	20		3.0								
70		11 16 20	16	21		4.5+								
75		4 7 10	18	22		3.5								
78.0	489.9						Medium dense gray and brown SILT (A-4b), some fine to coarse sand, little clay, trace gravel; wet.							
80		WOH WOH 16	15	23				1	2	—	25	58	14	Non-Plastic
85		9 11 14	18	24										
88.0	479.9						Very dense gray COARSE AND FINE SAND (A-3a), little silty clay, trace fine gravel; wet.							
90														

FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-40 | Location: Pier 2 SCI-823.00 over CSX RR | Date Drilled: 02/04/05 to 02/09/05

WATER OBSERVATIONS: Water seepage at: 30'-46.5', 75'-95'
Water level at completion: 26.7' (includes drilling water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press / Core	Hand Penetrometer (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) / Natural Moisture Content, % - ● / PL — LL / Blows per foot - ○
90	477.9	50/5	5	25			Very dense gray COARSE AND FINE SAND (A-3a), little silty clay, trace fine gravel; wet.							10 20 30 40
95.0	472.9	Core 60"	Rec 58"	RQD 67%	R-1		Medium hard to hard gray SANDSTONE; very fine to fine grained, slightly to moderately weathered, argillaceous, arenaceous, thickly bedded to massive, slightly to moderately fractured.							
100		Core 60"	Rec 60"	RQD 93%	R-2		@ 95.5',95.8',99.6', low angle clay filled fractures.							
105		Core 60"	Rec 49"	RQD 75%	R-3		@ 100.8',102.7',103.0', low angle clay filled fractures.							
110		Core 60"	Rec 60"	RQD 90%	R-4		@ 106.7',112.5', low angle clay filled fractures.							
115.0	452.9						Bottom of Boring - 115.0'							
120														

FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, UMBUS, OHIO 43229 * (614)888-0040

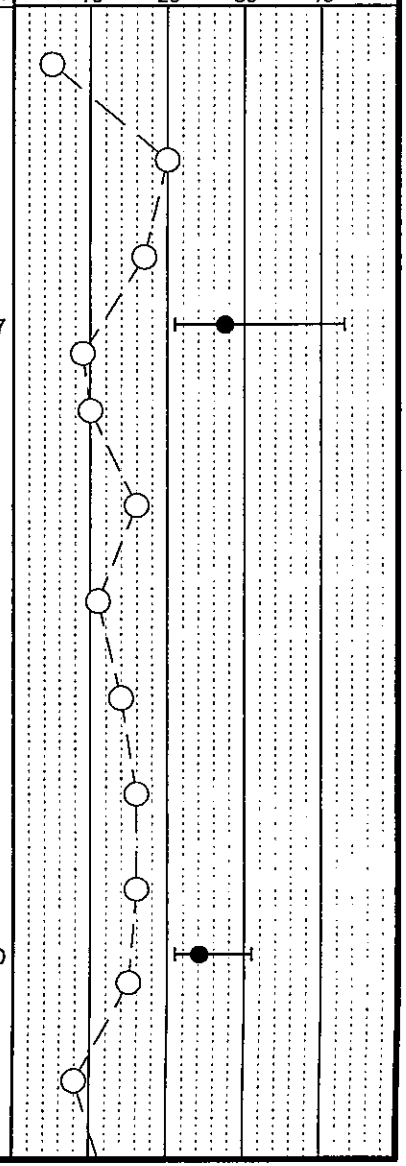
Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-41 | Location: Pier 1 SCI-823.00 over CSX RR | Date Drilled: 2/15/05 to 2/16/05

WATER OBSERVATIONS: Water seepage at: 21.8'-29.5', 69.0'-71.0', 84.0'-93.0'
Water level at completion: 20.2' (Start of Shift 2/16/05 @ 80')
23.5' (prior to coring)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetro-meter (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
0	569.4												
0.8	568.6	2 3 2	15	1		2.0	Topsoil 9" / Very stiff brown CLAY (A-7-6), "and" silt, trace fine sand; moist.						
		4 9 11	18	2		4.0							
5		4 7 10	18	3		2.5							
		3 4 5	18	4		2.25		0	0	--	1	42	57
10		2 4 6	18	5		2.5							
		4 7 9	18	6		3.5							
15		3 4 7	18	7		3.25							
		2 6 8	18	8		3.5							
20		2 6 10	18	9		4.0							
21.0	548.4						Very stiff brown SILT (A-4b), "and" clay, trace fine sand; moist.						
		6 7 9	18	10		3.75							
25		6 7 8	18	11		2.5		0	1	--	4	55	40
		2 3 5	18	12		2.5							
30		2 5		13		2.5							

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢——⊣ LL
Blows per foot - ○
10 20 30 40



FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

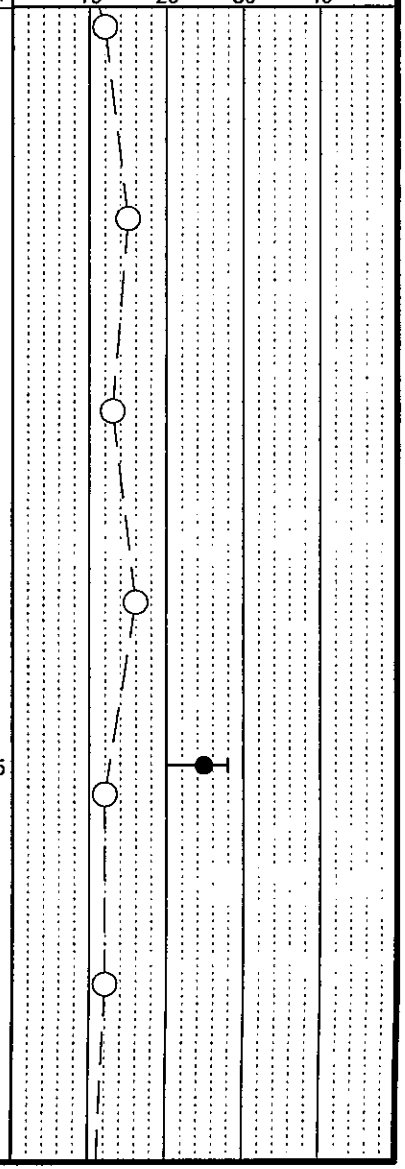
Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-41 | Location: Pier 1 SCI-823.00 over CSX RR | Date Drilled: 2/15/05 to 2/16/05

WATER OBSERVATIONS: Water seepage at: 21.8'-29.5', 69.0'-71.0', 84.0'-93.0'
Water level at completion: 20.2' (Start of Shift 2/16/05 @ 80')
23.5' (prior to coring)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press / Core	Hand Penetrometer (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
30	539.4	7	18										
35		3 6 9	18	14		2.25							
39.5	529.9												
40		5 6 7	18	15		2.5	Stiff to very stiff gray SILT (A-4b), some to "and" clay, trace fine sand, moist.						
45		3 7 9	18	16		1.5							
50		3 5 7	18	17		2.0		0	0	–	2	63	35
55		4 5 7	18	18		2.5							
60		2 5		19		1.75							

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢——⊣ LL
Blows per foot - ○
10 20 30 40



FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-41 | Location: Pier 1 SCI-823.00 over CSX RR | Date Drilled: 2/15/05 to 2/16/05

WATER OBSERVATIONS: Water seepage at: 21.8'-29.5', 69.0'-71.0', 84.0'-93.0'
Water level at completion: 20.2' (Start of Shift 2/16/05 @ 80')
23.5' (prior to coring)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetro-meter (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
60	509.4	6	18										
65		7 7 10	18	20		2.0	@ 64.0' to 65.5', trace organics.						
68.0	501.4						Loose to medium dense brownish gray FINE SAND (A-3), little silty clay; wet.						
70.0	499.4	10 7 8	18	21			Stiff to very stiff gray SILT AND CLAY (A-6a), trace fine to coarse sand; damp to moist.						
75		5 9 14	18	22		3.0		0	1	--	4	55	40
80		3 9 12	18	23		1.5							
83.0	486.4						Loose to medium dense gray SANDY SILT (A-4a), little clay, trace gravel; wet.						
85		10 9 14	18	24				7	7	--	27	48	11
87.0	482.4						Severely weathered brown SANDSTONE.						
90		10 12		25				36	9	--	35	16	4

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢ LL
Blows per foot - ○
10 20 30 40

Non-Plastic

Non-Plastic

FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-41 | Location: Pier 1 SCI-823.00 over CSX RR | Date Drilled: 2/15/05 to 2/16/05

WATER OBSERVATIONS: Water seepage at: 21.8'-29.5', 69.0'-71.0', 84.0'-93.0'
Water level at completion: 20.2' (Start of Shift 2/16/05 @ 80')
23.5' (prior to coring)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetrometer (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) Natural Moisture Content, % - ● PL ⊢—⊣ LL Blows per foot - ○ 10 20 30 40
90	479.4	21	17				Severely weathered brown SANDSTONE.							
93.0	476.4													
95		Core 60"	Rec 48"	RQD 50%	R-1		Medium hard to hard brown and gray SANDSTONE; very fine to fine grained, moderately to highly weathered, argillaceous, micaceous, thinly bedded to thickly bedded, highly fractured, with typically low angle rust stained fractures. @ 95.1' to 95.5', broken zone. @ 93.0' to 93.7', lost recovery.							
95.6	473.8													
100		Core 60"	Rec 60"	RQD 85%	R-2		Medium hard to hard gray SANDSTONE; very fine to fine grained, slightly to moderately weathered, argillaceous, micaceous, thinly bedded to thickly bedded, moderately fractured, with typically low angle clay filled fractures.							
105		Core 60"	Rec 54"	RQD 67%	R-3		@ 103.0' to 103.5', lost recovery. @ 103.5' to 104.0',106.7' to 107.7',1 broken zone.							
110		Core 60"	Rec 60"	RQD 90%	R-4									
113.0	456.4						Bottom of Boring - 113.0'							
115														
120														

FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-42 | Location: Rear Abutment SCI-823.00 over CSX RR | Date Drilled: 2-18-05 to 2-22-05

WATER OBSERVATIONS: Water seepage at: 27.6', 33'-37', 50'-58', 67'-72', 84'-92'
Water level at completion: 25.5' (start of shift 2/22/05)
25.5' (Prior to coring)
25.3' (Including core water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetrometer (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
0	568.0	1 3 2	13	1		1.75	Stiff dark brown SILT AND CLAY (A-6b), trace fine sand; damp to moist.						
		4 4 10	18	2		2.0	@ 1.5', brown.	0	1	--	3	51	45
3.5	564.5												
5		4 5 8	18	3		3.5	Very stiff brown CLAY (A-7 6), trace fine to coarse sand; damp to moist.	0	0	--	1	44	55
		2 4 6	18	4		3.5	@ 6.5', varved.						
10		2 4 6	18	5		3.75							
		2 6 7	18	6		3.25							
13.5	554.5												
15		4 7 11	18	7		4.0	Very stiff to hard brown SILTY CLAY (A-6b), trace fine sand; damp to moist.						
		4 6 7	18	8		4.5+		0	0	--	1	35	64
20		4 5 9	18	9		4.5+							
		3 5 8	18	10		3.5							
25		3 4 5	18	11		2.75							
		3 4 5	18	12		3.0	@ 27.6', Thin sandy silt seam; wet.						
30		4 5		13		3.0							

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢——⊣ LL
Blows per foot - ○
10 20 30 40

FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

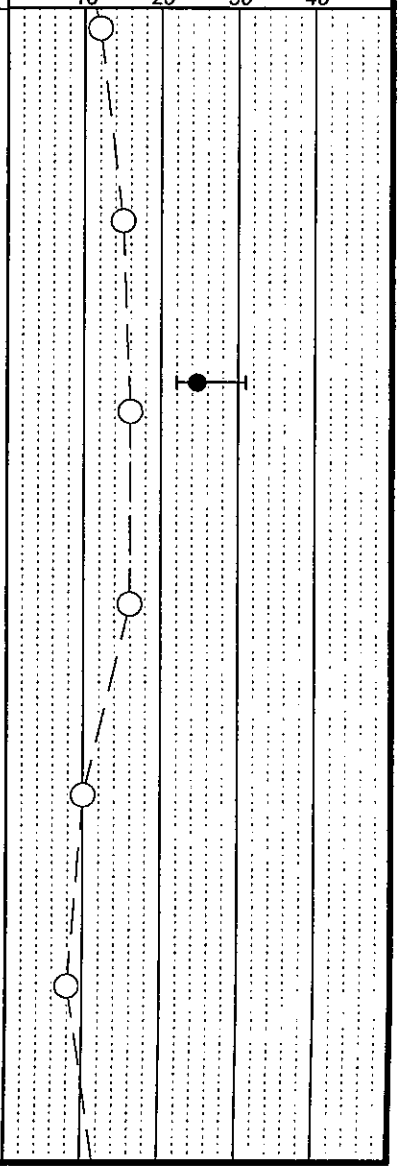
Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-42 | Location: Rear Abutment SCI-823.00 over CSX RR | Date Drilled: 2-18-05 to 2-22-05

WATER OBSERVATIONS: Water seepage at: 27.6', 33'-37', 50'-58', 67'-72', 84'-92'
Water level at completion: 25.5' (start of shift 2/22/05)
25.5' (Prior to coring)
25.3' (Including core water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetro-meter (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay
30	538.0	7	18				Very stiff to hard brown SILTY CLAY (A-6b), trace fine sand; moist.						
35		4 7 8	18	14		2.0							
37.0	531.0						Very stiff to hard gray SILT (A-4b), "and" clay, trace fine to coarse sand; moist.						
40		6 5 11	18	15		4.5+		0	0	–	0	53	47
45		5 6 10	18	16		3.5							
50		3 4 6	18	17		2.5	@ 49.0', stiff to very stiff; wet.						
55		3 3 5	18	18		1.5							
60		4 5		19		3.25							

STANDARD PENETRATION (N)
Natural Moisture Content, % - ●
PL ⊢——⊣ LL
Blows per foot - ○
10 20 30 40



FILE: 0121-3070-03 (5/11/2006 11:04 AM)

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

LOG OF: Boring TR-42 | Location: Rear Abutment SCI-823.00 over CSX RR | Date Drilled: 2-18-05 to 2-22-05

WATER OBSERVATIONS: Water seepage at: 27.6', 33'-37', 50'-58', 67'-72', 84'-92'
Water level at completion: 25.5' (start of shift 2/22/05)
25.5' (Prior to coring)
25.3' (Including core water)

Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetro-meter (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) / Natural Moisture Content, % - ● / PL — LL / Blows per foot - ○
60	508.0	7	18				Very stiff to hard gray SILT (A-4b), "and" clay, trace fine to coarse sand; wet.							
65		4 7 8	18	20		2.0		0	0	–	0	74	26	
67.0	501.0						Medium dense brown SANDY SILT (A-4a), trace gravel, trace clay; wet.							
70		4 10 10	18	21				3	11	–	50	36		Non-Plastic
72.0	496.0						Very stiff brownish gray SILT AND CLAY (A-6a), trace fine sand; moist to wet.							
75		7 14 20	18	22		2.25		0	0	–	8	57	35	
77.0	491.0						Medium dense to dense brownish gray SILT (A-4b), "and" clay, trace gravel; moist to wet.							
80		5 7 16	18	23										
85		8 6 9	18	24			@ 84.0', wet.							
88.0	480.0						Dense brown GRAVEL WITH SAND (A-1-b), trace silt; wet.							
90		10 14		25										

FILE: 0121-3070-03 [5/11/2006 11:04 AM]

DLZ OHIO INC. * 6121 HUNTLEY ROAD, COLUMBUS, OHIO 43229 * (614)888-0040

Client: TranSystems, Inc. | Project: SCI-823-0.00 | Job No. 0121-3070.03

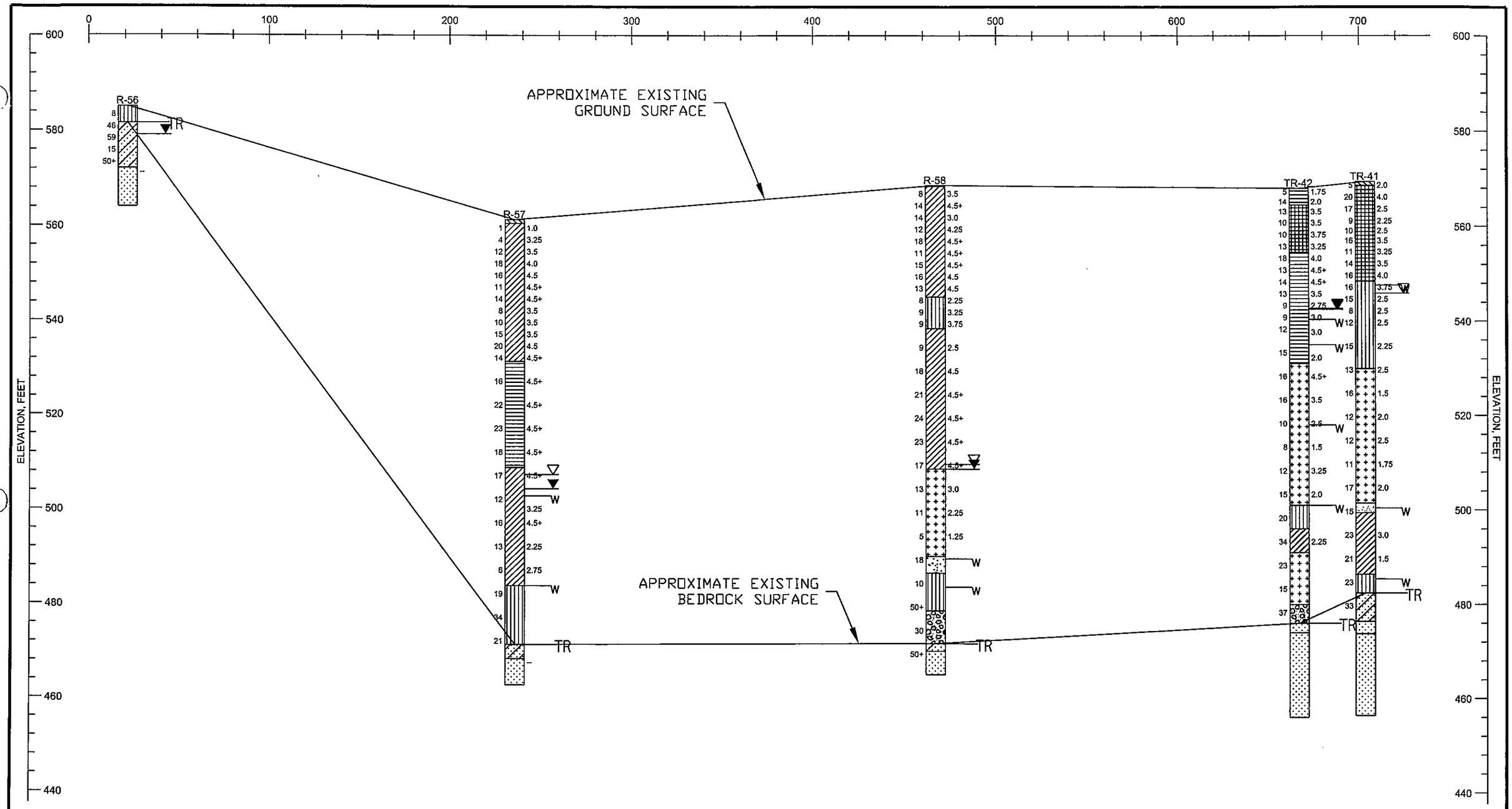
LOG OF: Boring TR-42 | Location: Rear Abutment SCI-823.00 over CSX RR | Date Drilled: 2-18-05 to 2-22-05

WATER OBSERVATIONS: Water seepage at: 27.6', 33'-37', 50'-58', 67'-72', 84'-92'
Water level at completion: 25.5' (start of shift 2/22/05)
25.5' (Prior to coring)
25.3' (Including core water)

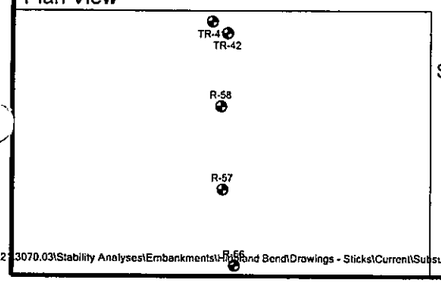
Depth (ft)	Elev. (ft)	Blows per 6"	Recovery (in)	Sample No. Drive	Sample No. Press /Core	Hand Penetrometer (tsf)	DESCRIPTION	GRADATION % Aggregate	% C. Sand	% M. Sand	% F. Sand	% Silt	% Clay	STANDARD PENETRATION (N) Natural Moisture Content, % - ● PL — LL Blows per foot - ○ 10 20 30 40
90	478.0	23	18				Dense brown GRAVEL WITH SAND (A-1-b), trace silt; wet.							
92.0	476.0						Medium hard gray SANDSTONE; very fine to fine grained, moderately to highly weathered, argillaceous, micaceous, thickly bedded to massive, highly fractured.							
94.0	474.0	Core 60"	Rec 48"	RQD 75.0%	R1		Hard gray SANDSTONE; very fine to fine grained, slightly weathered, argillaceous, micaceous, massively bedded, moderately to highly fractured. @ 94.1', 94.6', 95.1', 96.1', 97.4', 97.8', 100.8' and 101.4', fractured.							
100		Core 60"	Rec 58"	RQD 88.3%	R2		@ 104.0', high angle fracture. @ 102.2', 105.8' and 108.9' clay filled fractures.							
105		Core 60"	Rec 55"	RQD 60.0%	R3		@ 104.3' to 104.5', high angle fracture. @ 104.5' to 105.1', broken.							
110		Core 60"	Rec 59"	RQD 85.0%	R4									
112.0	456.0						Bottom of Boring - 112.0'							
115														
120														

FILE: 0121-3070-03 [5/11/2006 11:04 AM]

Generalized Subsurface Profile



Plan View



Legend

Boring Number

SPT N Value 10

3.0 Hand Penetrometer (tsf)

W Seepage Encountered

Water Level (drilling water added)

Water Level

TR Top of Rock

Strata symbols

- Sandy Silt (A-4a)
- Weathered Sandstone
- Sandstone
- Topsoil
- Silt and Clay (A-6a)
- Silty Clay (A-6b)
- Silt (A-4b)
- Coarse and Fine Sand (A-3a)
- Gravel with Sand (A-1-b)
- Clay (A-7-6)
- Fine Sand (A-3)

GENERALIZED SUBSURFACE PROFILE
STATION 105+00 TO 114+00
VIEW FACING WEST
SCI-823 HIGHLAND BEND

DLZ Ohio, Inc.
6121 Huntley Road • Columbus, Ohio 43229-1003
Phone (614)888-0040 • Fax (614)848-6712
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Engineers • Architects • Scientists
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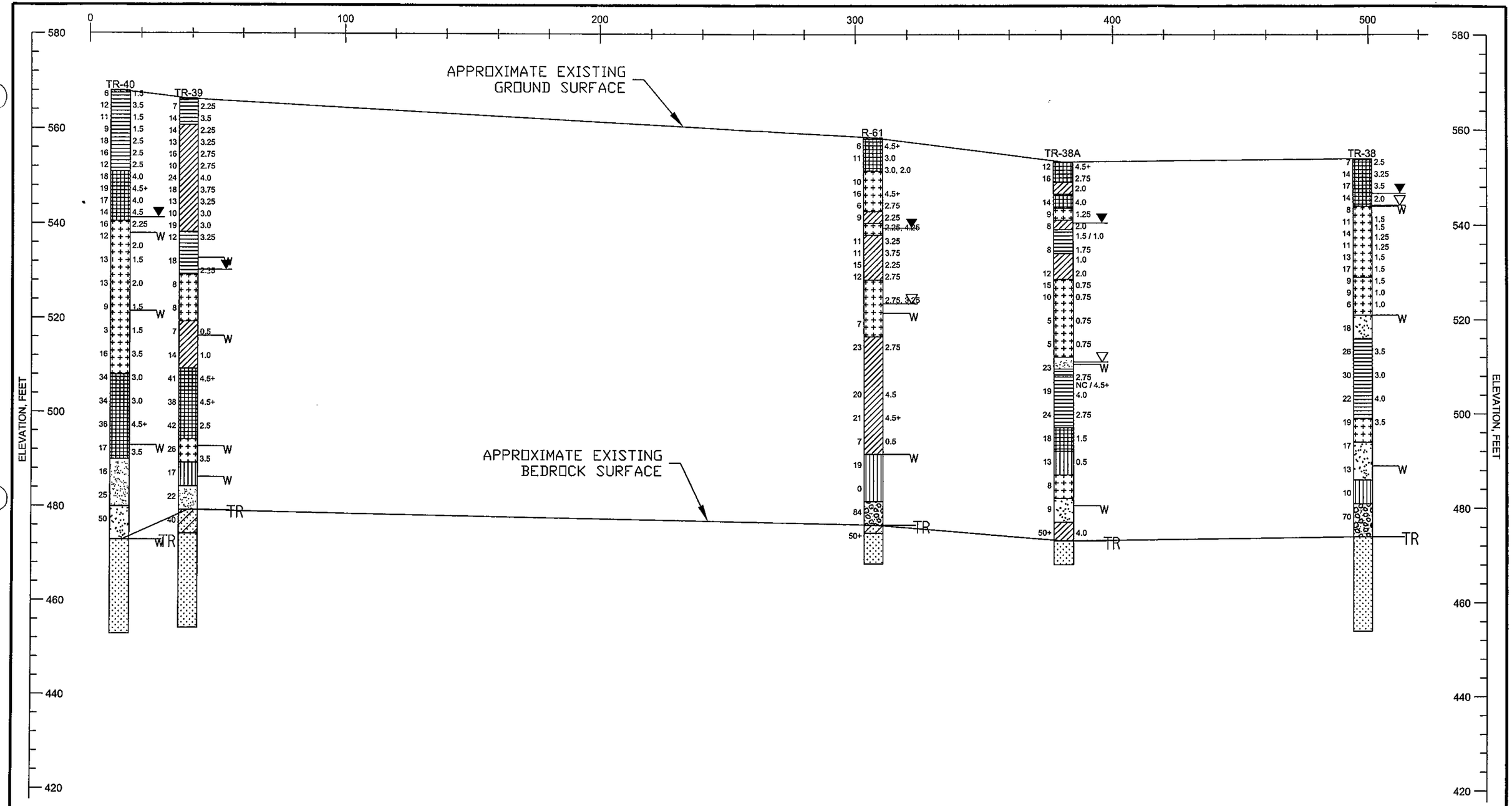
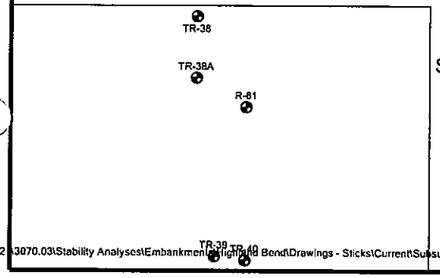
PROJECT NO. 0121-3070.03

PORTSMOUTH BYPASS



Plan View



Legend

Boring Number

SPT N Value 10 — 3.0 Hand Penetrometer (tsf)

W Seepage Encountered

Water Level (drilling water added)

Water Level

TR Top of Rock

Strata symbols

- Topsoil
- Clay (A-7-6)
- Silt (A-4b)
- Coarse and Fine Sand (A-3a)
- Silty Clay (A-6b)
- Sandy Silt (A-4a)
- Gravel with Sand (A-1-b)
- Sandstone
- Silt and Clay (A-6a)
- Fine Sand (A-3)
- Weathered Sandstone

M:\proj\0121\3070.03\Stability Analyses\Embankments\Highland Bend\Drawings - Sticks\Current\Subsurface Profile 116+00 to 122+00.dwg, 6/7/2006 8:12:51 AM, \\Dlztroot\Q_geotechhplj5100tn

GENERALIZED SUBSURFACE PROFILE
STATION 116+00 TO 122+00
VIEW FACING WEST
SCI-823 HIGHLAND BEND

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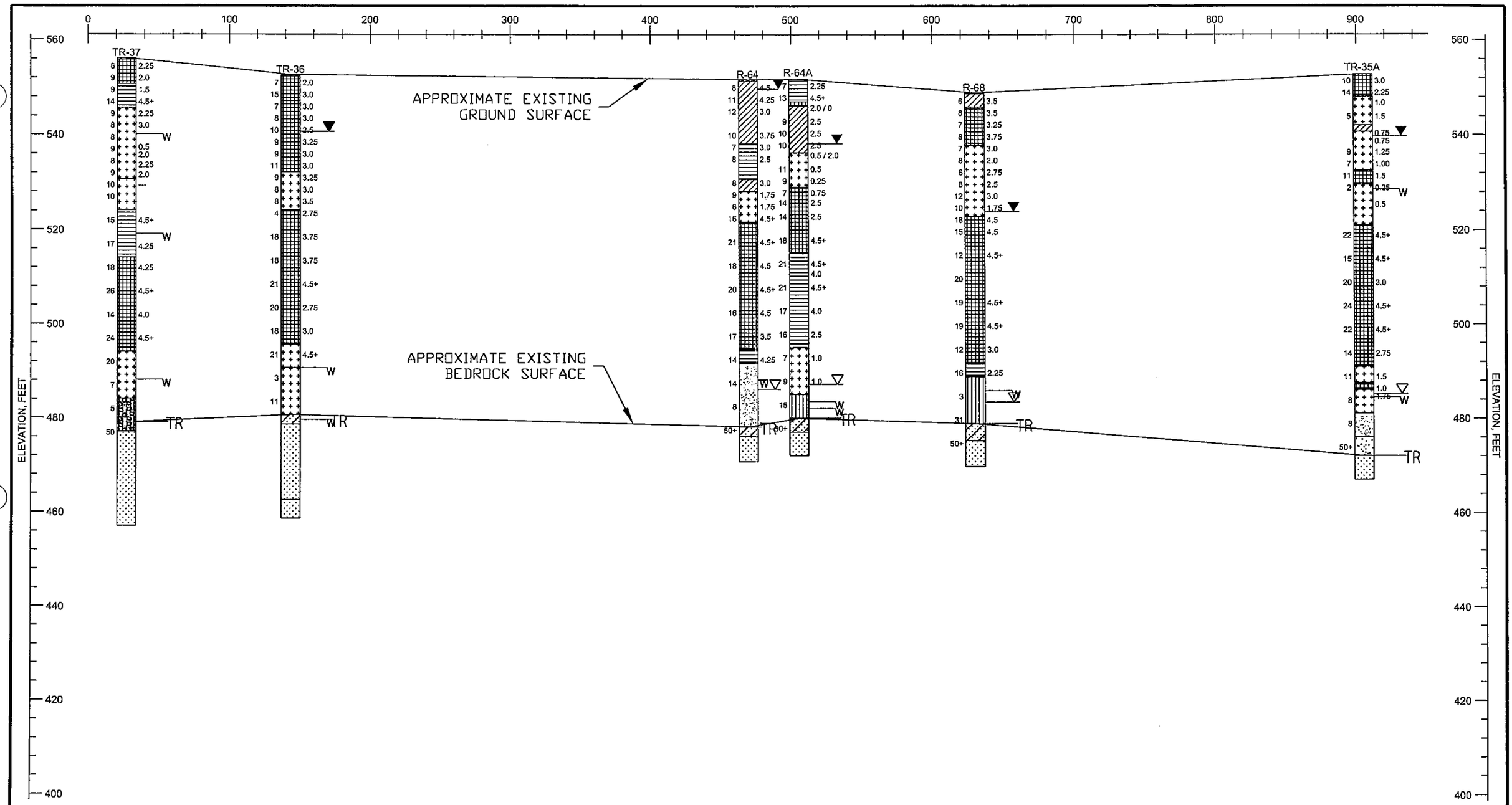
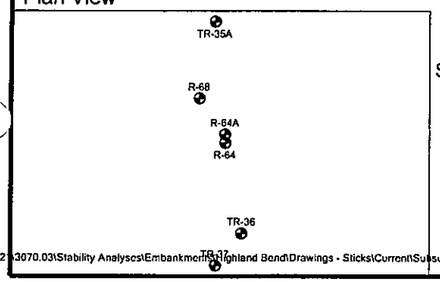
PROJECT NO. 0121-3070.03 | PORTSMOUTH BYPASS



Plan View



Legend

Boring Number

SPT N Value 10 — 3.0 Hand Penetrometer (tsf)

W Seepage Encountered

Water Level (drilling water added)

Water Level

TR Top of Rock

Strata symbols

- Topsoil
- Clay (A-7-6)
- Silty Clay (A-6b)
- Silt (A-4b)
- Gravel with Sand and Silt (A-2-4)
- Sandstone
- Weathered Sandstone
- Silt and Clay (A-6a)
- Fine Sand (A-3)
- Sandy Silt (A-4a)
- Coarse and Fine Sand (A-3a)

GENERALIZED SUBSURFACE PROFILE
STATION 123+50 TO 131+85
VIEW FACING WEST
SCI-823 HIGHLAND BEND

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PROJECT NO. 0121-3070.03 | PORTSMOUTH BYPASS

APPENDIX B

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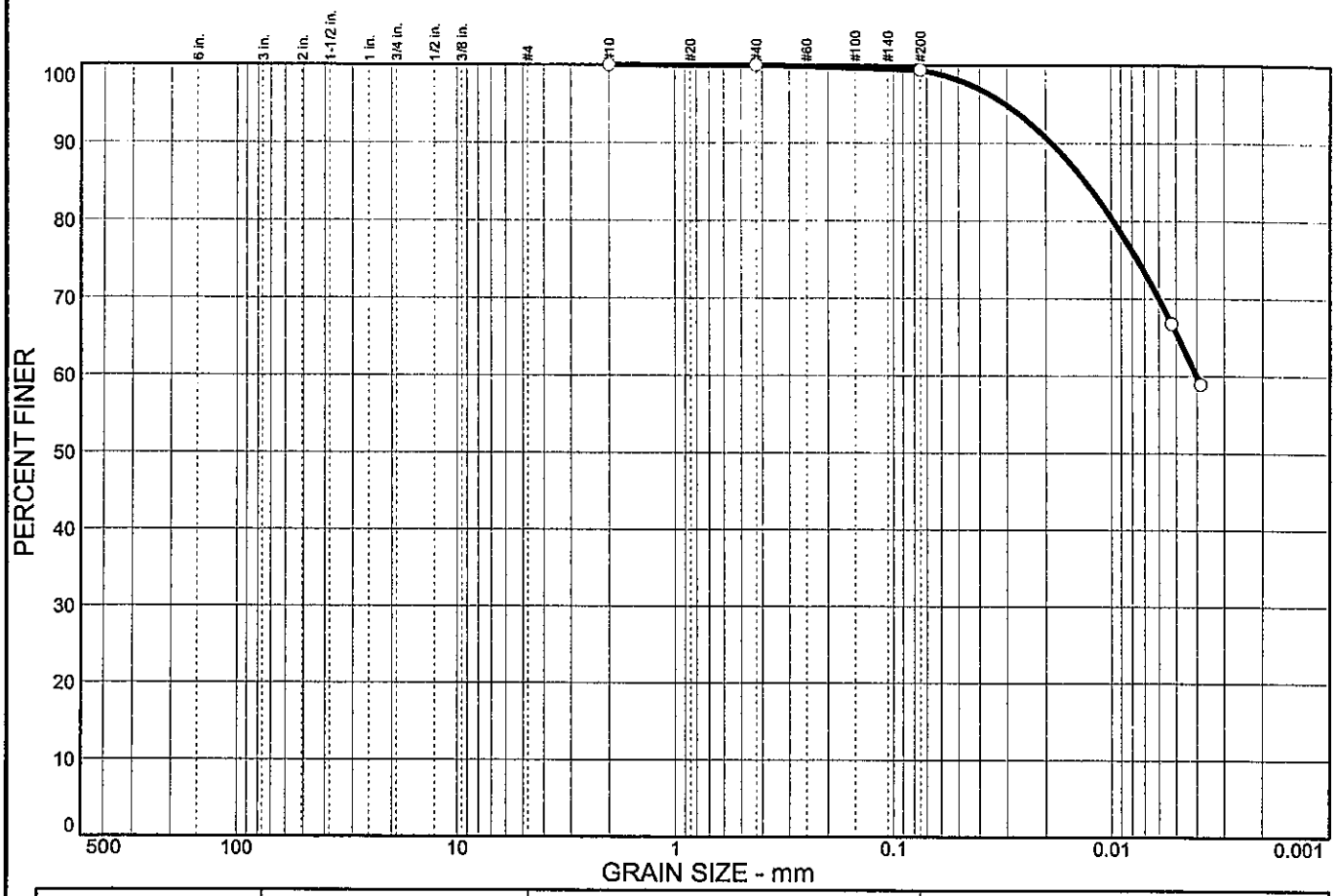
APPENDIX B

Laboratory Test Results
Particle Size Distribution Tests
Shear Strength Tests
Consolidation Tests

Laboratory Test Results

Particle Size Distribution Tests

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.0	0.6	33.7	65.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	100.0		
#200	99.4		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 22 LL= 40 PI= 18

Coefficients

D_{85}= 0.0131 D_{60}= 0.0040 D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(20)

Remarks

Moisture Content= 22.6%

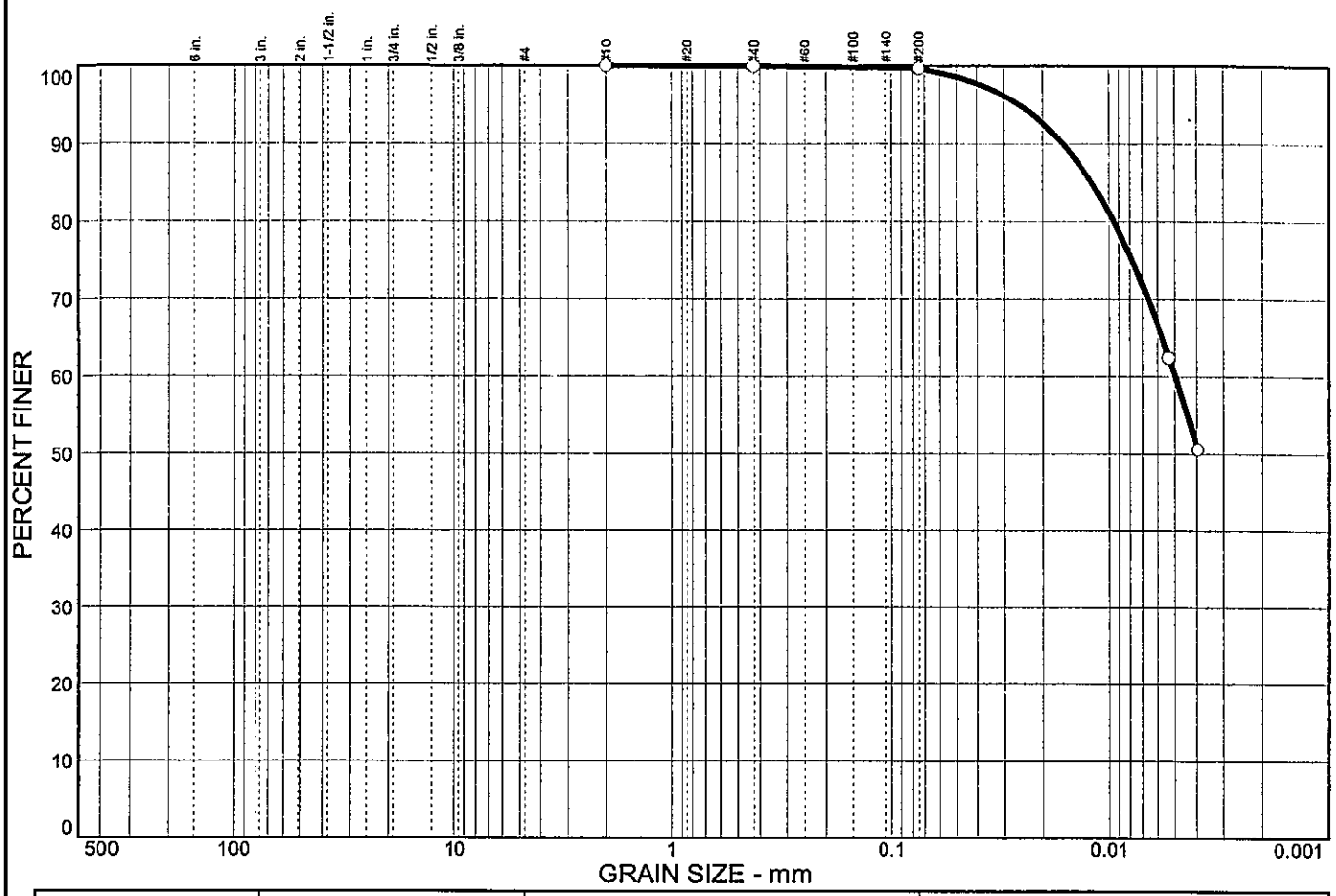
Sample No.: 15 **Source of Sample:** R-57 **Date:** 7/12/05
Location: **Elev./Depth:** 43.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.0	0.3	39.5	60.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	100.0		
#200	99.7		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 24 LL= 39 PI= 15

Coefficients

D_{85}= 0.0120 D_{60}= 0.0050 D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(17)

Remarks

Moisture Content= 24.8%

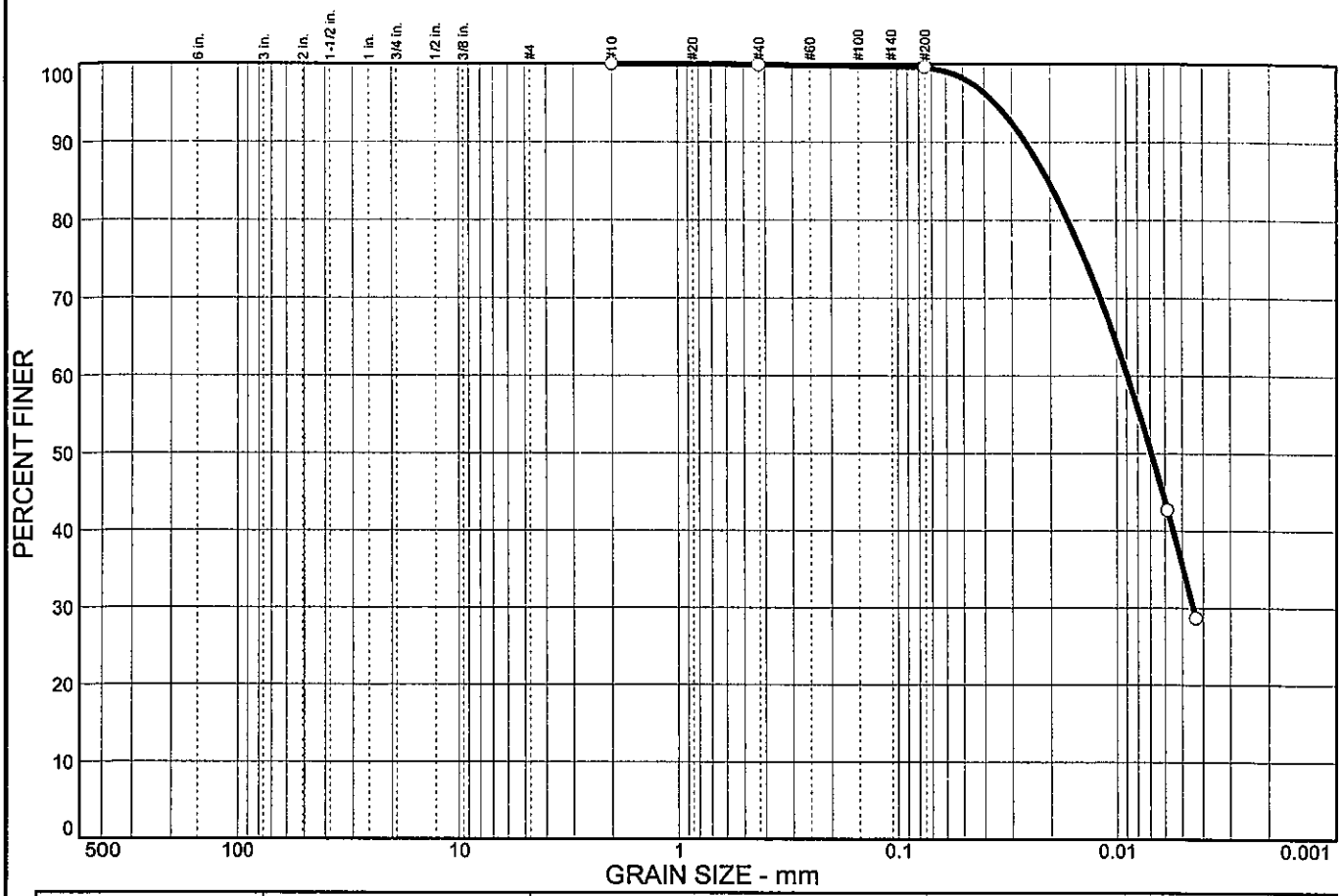
Sample No.: 6 **Source of Sample:** R-57 **Date:** 7/12/05
Location: **Elev./Depth:** 13.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.1	0.3	64.0	35.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.9		
#200	99.6		

* (no specification provided)

Soil Description

Silt

Atterberg Limits

PL= 23 LL= 31 PI= 8

Coefficients

D_{85}= 0.0203 D_{60}= 0.0089 D_{50}= 0.0069
D_{30}= 0.0044 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= ML AASHTO= A-4(8)

Remarks

Moisture Content= 28.5%

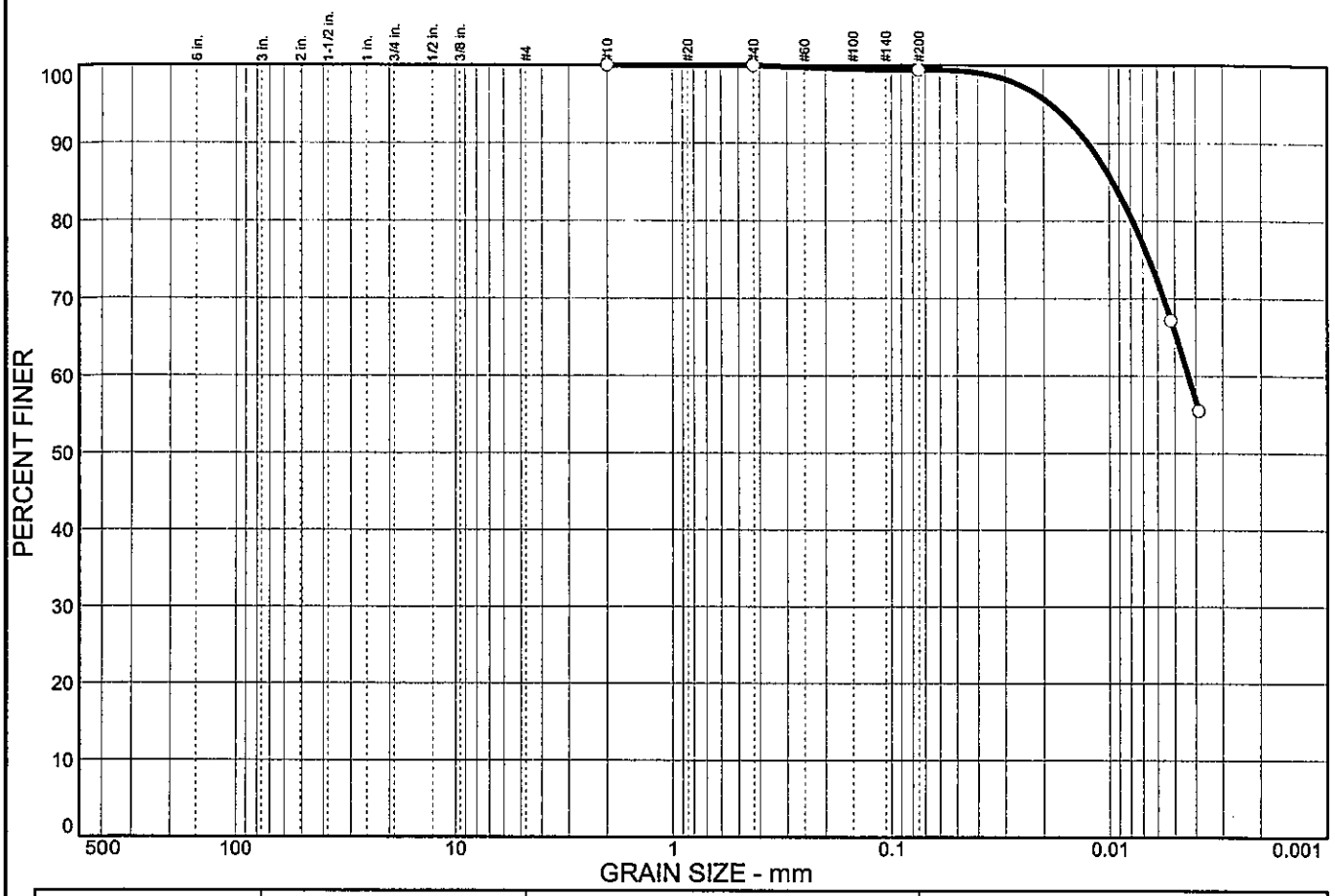
Sample No.: 10 **Source of Sample:** R-58 **Date:** 7/12/05
Location: **Elev./Depth:** 23.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.0	0.6	33.6	65.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	100.0		
#200	99.4		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 23 LL= 38 PI= 15

Coefficients

D_{85}= 0.0096 D_{60}= 0.0043 D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(16)

Remarks

Moisture Content= 22.5%

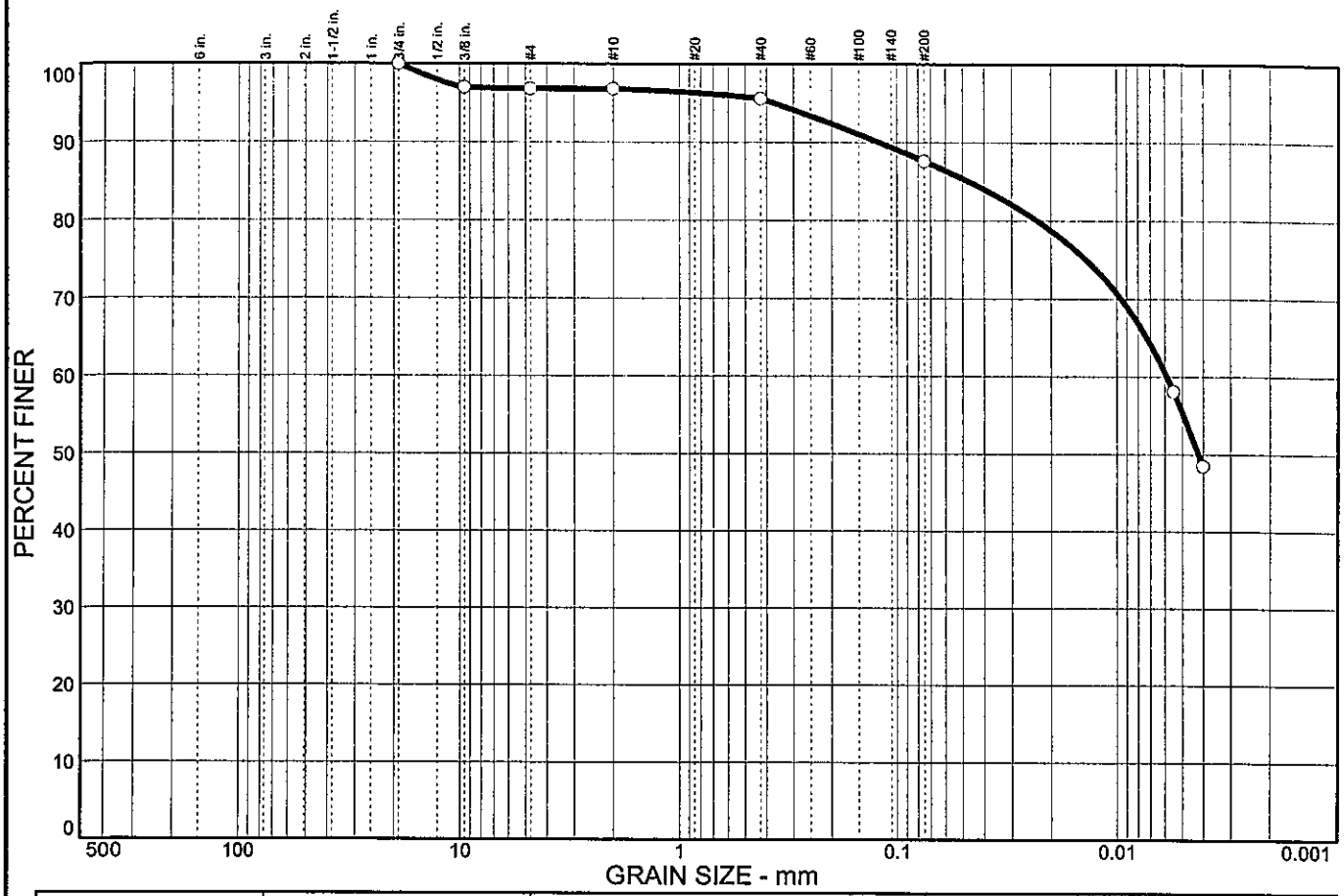
Sample No.: 16 **Source of Sample:** R-58 **Date:** 7/12/05
Location: **Elev./Depth:** 48.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	3.2	0.0	1.2	8.0	32.2	55.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.75 in.	100.0		
0.375 in.	97.0		
#4	96.8		
#10	96.8		
#40	95.6		
#200	87.6		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 21 LL= 36 PI= 15

Coefficients

D_{85}= 0.0468 D_{60}= 0.0059 D_{50}= 0.0042
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(13)

Remarks

Moisture Content= 23.5%

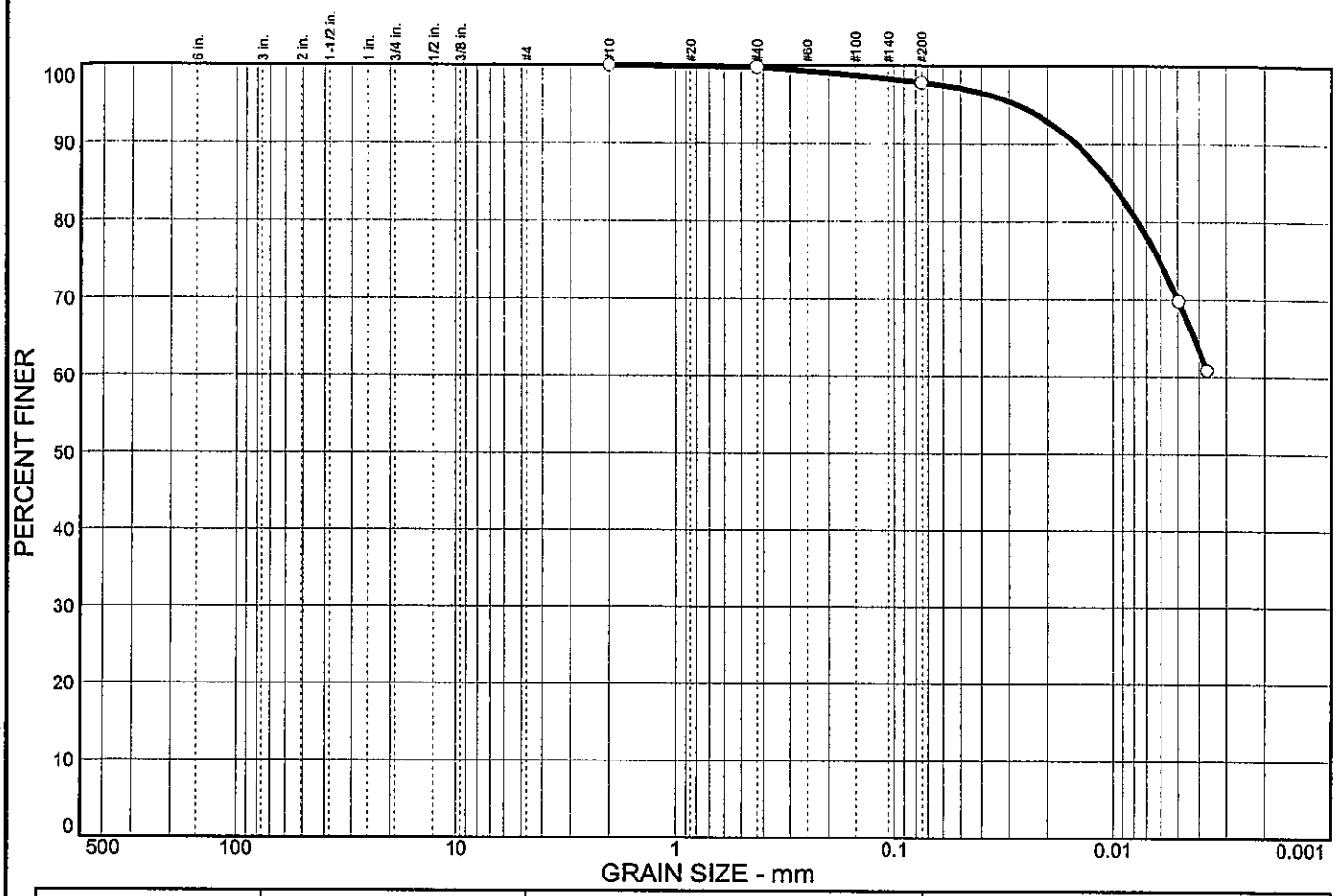
Sample No.: 12 **Source of Sample:** R-61 **Date:** 8/6/05
Location: **Elev./Depth:** 43.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.2	1.9	27.9	70.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.8		
#200	97.9		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 24 LL= 49 PI= 26

Coefficients

D_{85}= 0.0101 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(28

Remarks

Moisture Content= 26.6%
Specific Gravity= 2.78

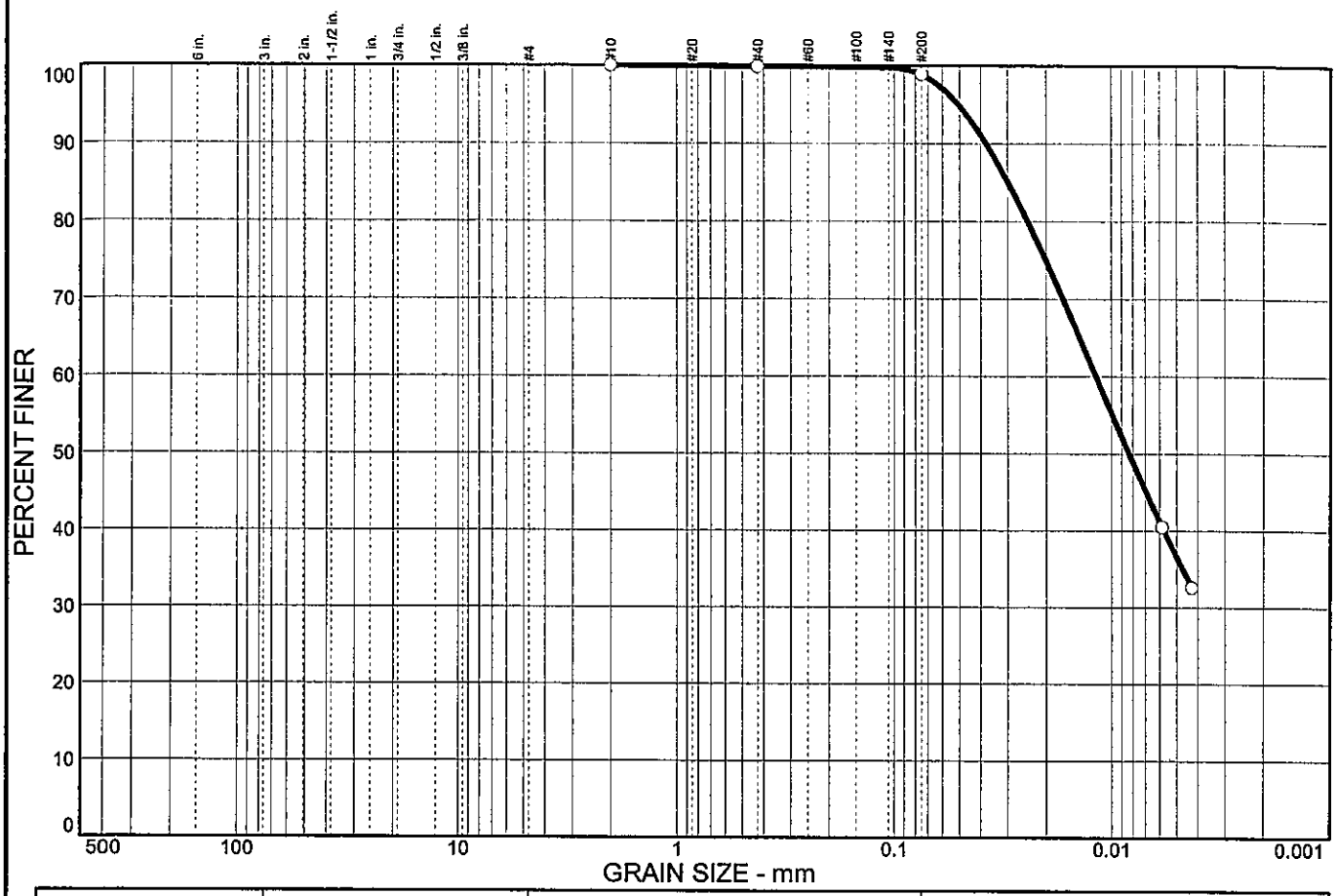
Sample No.: P-1 **Source of Sample:** R-61 **Date:** 8/5/05
Location: **Elev./Depth:** 6.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.1	1.0	62.3	36.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.9		
#200	98.9		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 19 LL= 29 PI= 10

Coefficients

D_{85}= 0.0299 D_{60}= 0.0118 D_{50}= 0.0083
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-4(9)

Remarks

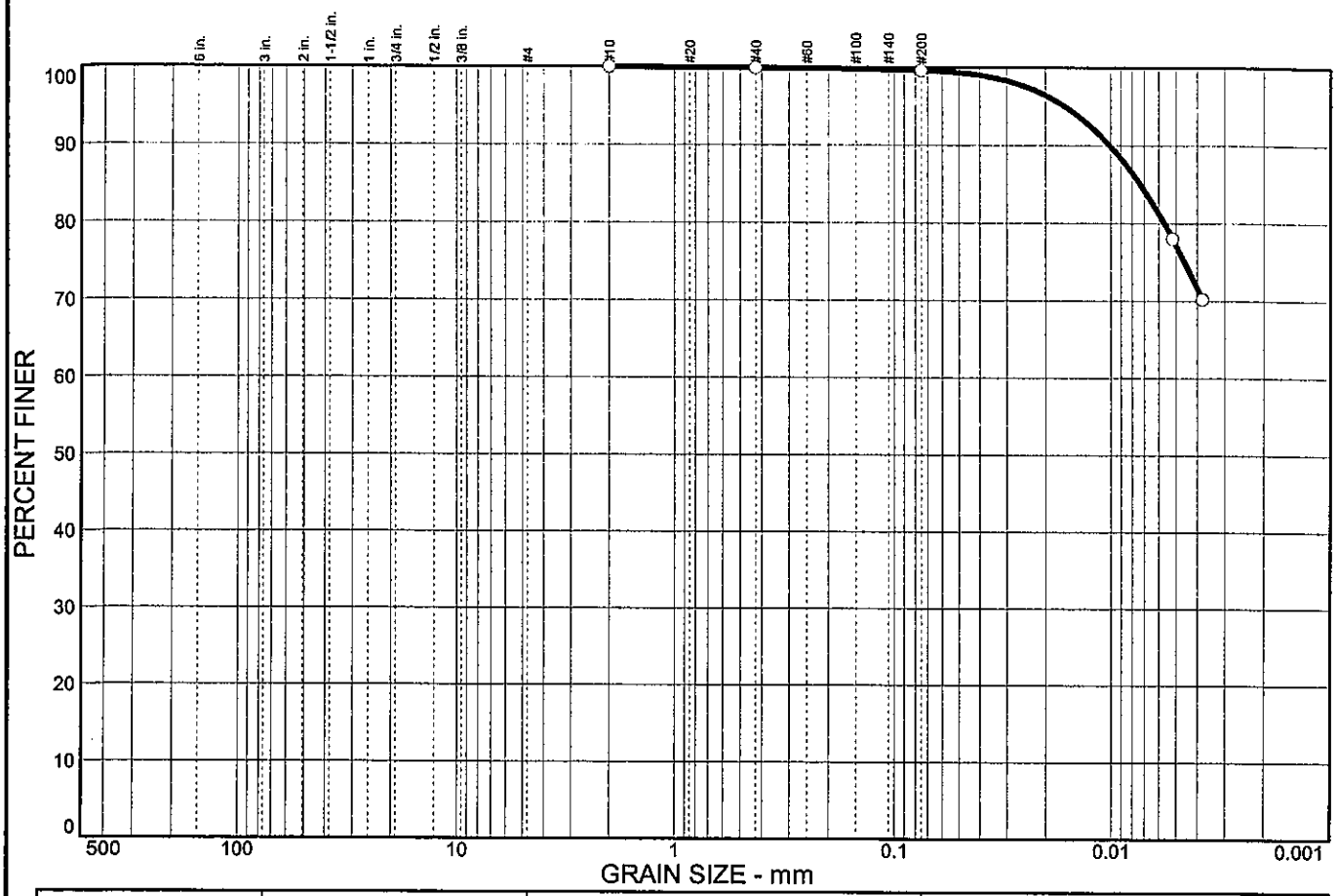
Moisture Content= 25.1%

Sample No.: P-3 **Source of Sample:** R-61 **Date:** 8/6/05
Location: **Elev./Depth:** 33.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00
Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.1	0.3	22.4	77.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.9		
#200	99.6		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 23 LL= 46 PI= 23

Coefficients

D_{85}= 0.0073 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(26)

Remarks

Moisture Content= 23.9%

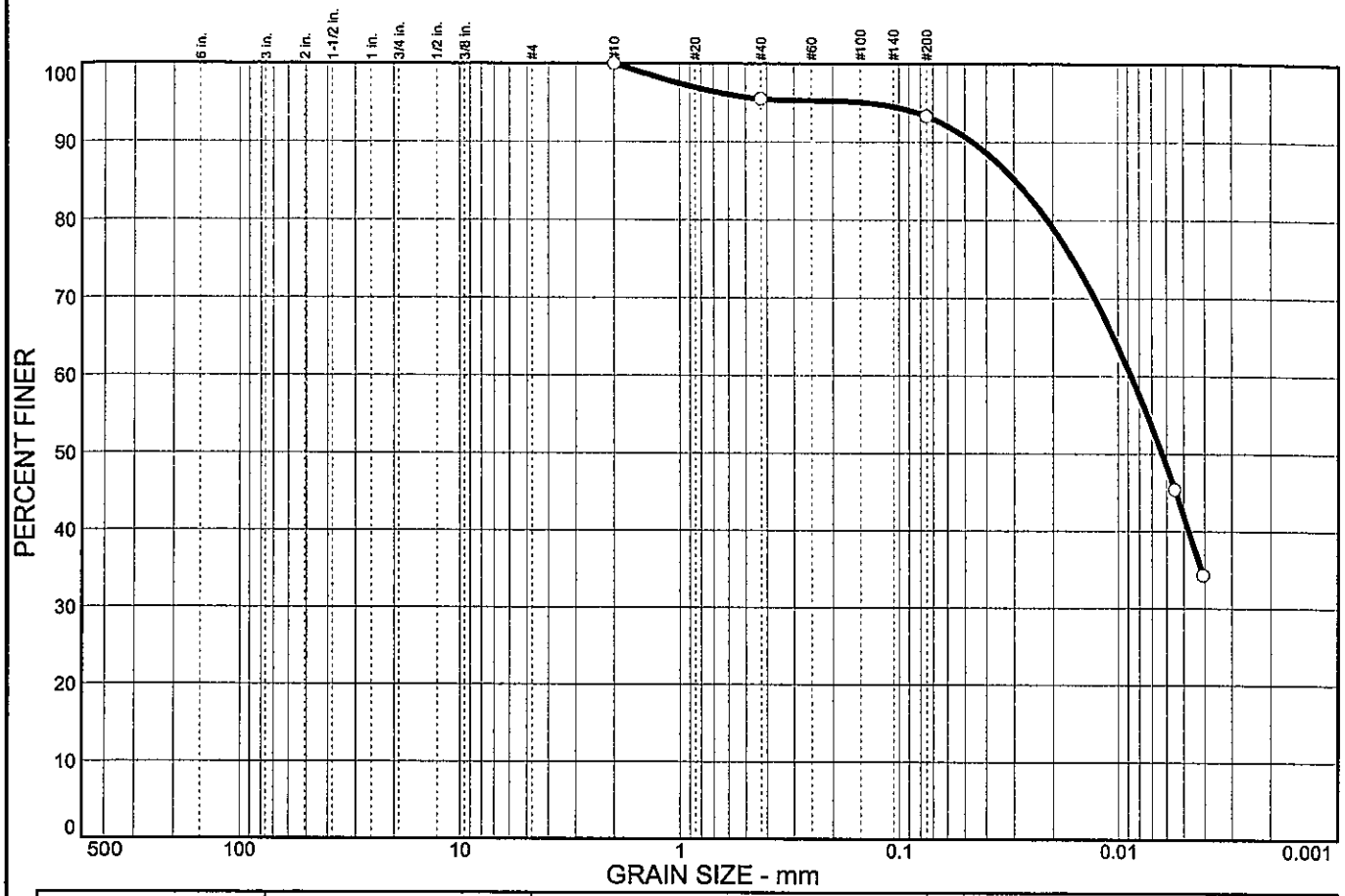
Sample No.: 12 **Source of Sample:** R-64 **Date:** 8/6/05
Location: **Elev./Depth:** 38.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	4.5	2.2	51.3	42.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	95.5		
#200	93.3		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 22 LL= 34 PI= 12

Coefficients

D_{85}= 0.0294 D_{60}= 0.0087 D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(11)

Remarks

Moisture Content= 27.5%
Specific Gravity= 2.74

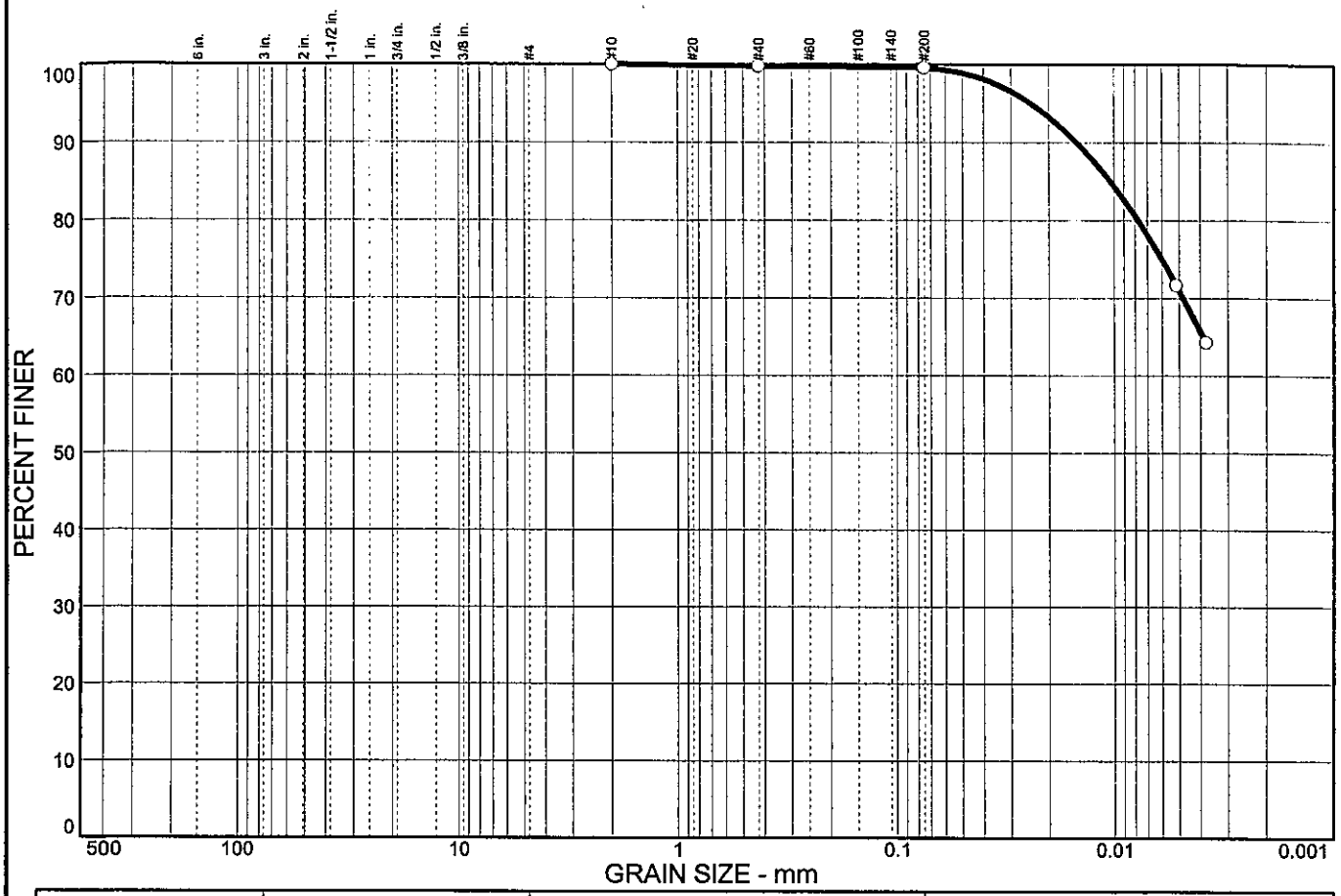
Sample No.: P2 **Source of Sample:** R-64 **Date:** 8/6/05
Location: **Elev./Depth:** 18.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.2	0.2	28.6	71.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.8		
#200	99.6		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 23 LL= 42 PI= 19

Coefficients

D_{85}= 0.0104 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(21)

Remarks

Moisture Content= 24.0%

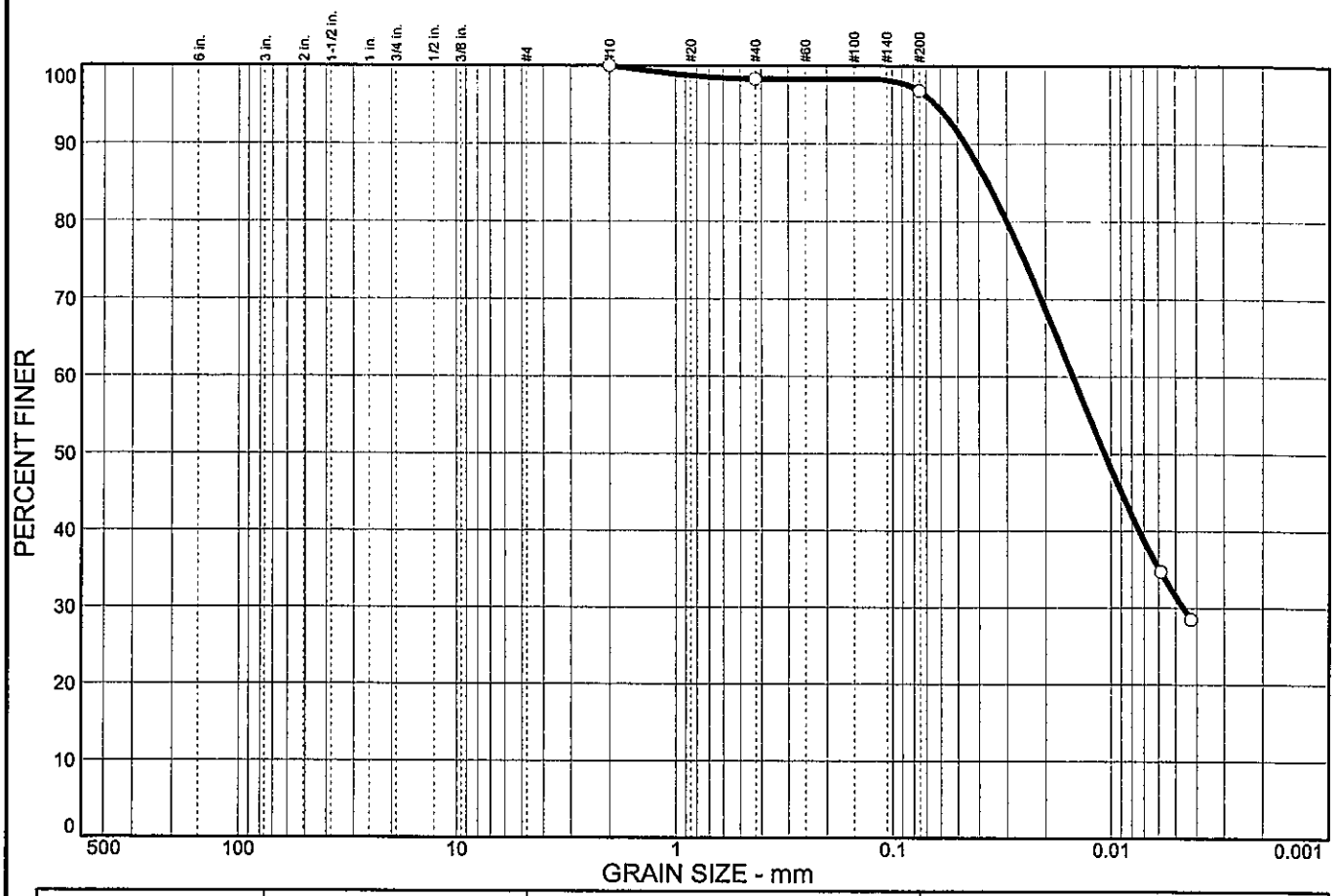
Sample No.: 16 **Source of Sample:** R-68 **Date:** 7/12/05
Location: **Elev./Depth:** 48.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	1.7	1.5	65.3	31.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	98.3		
#200	96.8		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 21 LL= 31 PI= 10

Coefficients

D_{85}= 0.0365 D_{60}= 0.0150 D_{50}= 0.0107
D_{30}= 0.0046 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-4(10)

Remarks

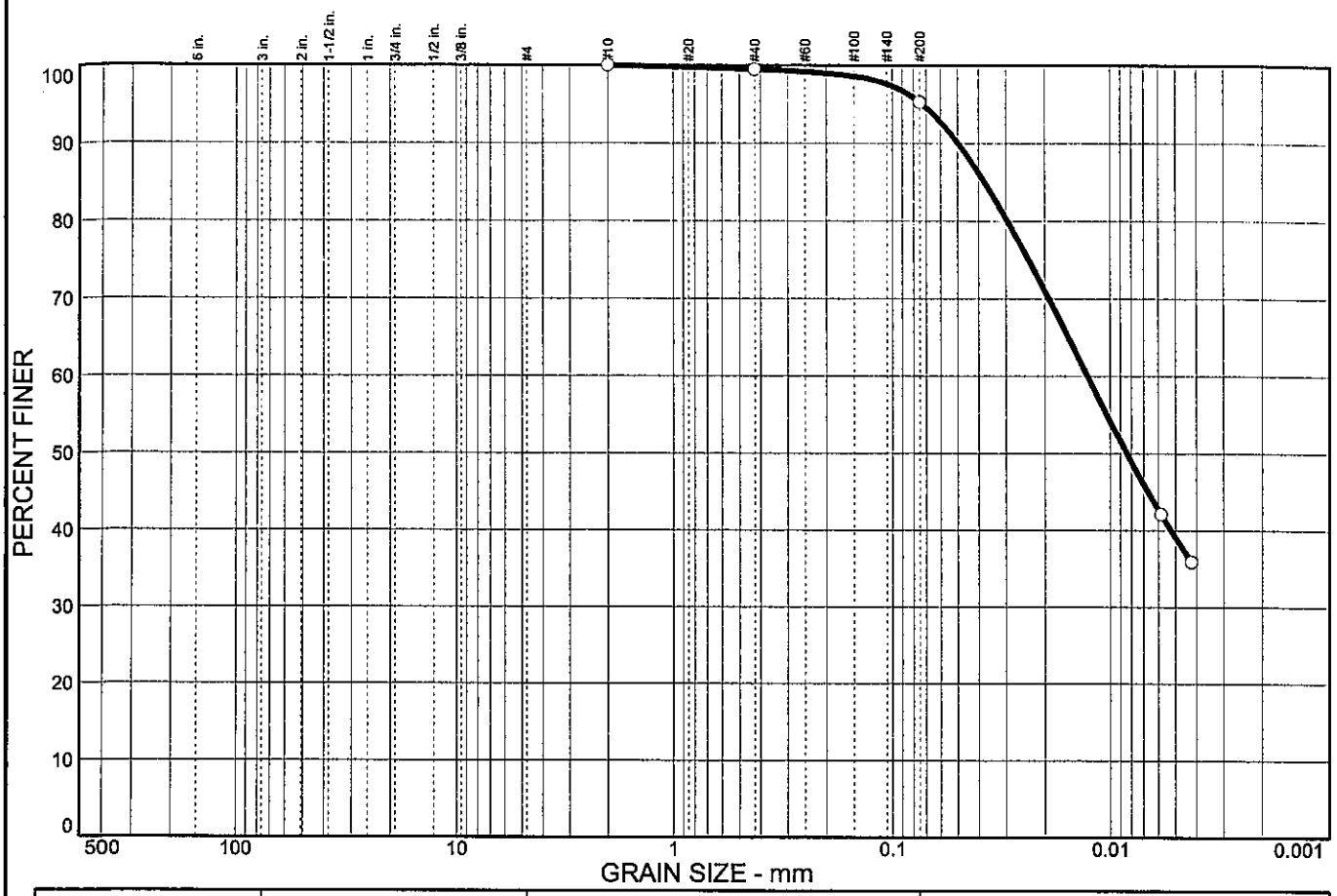
Moisture Content= 26.5%

Sample No.: 6 **Source of Sample:** R-68 **Date:** 7/12/05
Location: **Elev./Depth:** 13.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00
Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.5	4.2	56.2	39.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.5		
#200	95.3		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 21 LL= 43 PI= 22

Coefficients

D_{85}= 0.0376 D_{60}= 0.0127 D_{50}= 0.0084
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(22)

Remarks

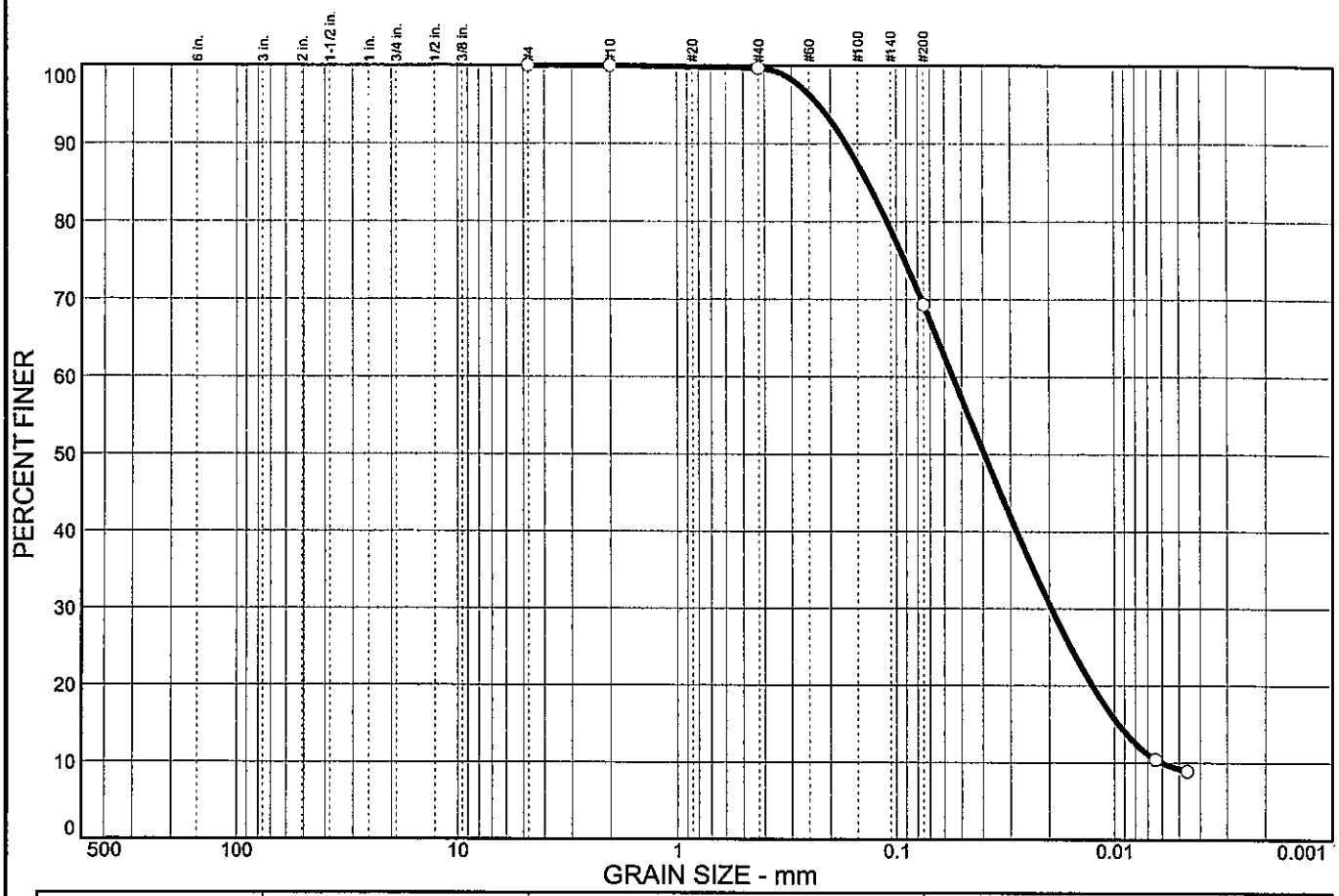
Moisture Content= 30.9%

Sample No.: 11 **Source of Sample:** TR-34 **Date:** 4/5/05
Location: **Elev./Depth:** 26

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00
Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.3	30.4	60.1	9.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	100.0		
#40	99.7		
#200	69.3		

* (no specification provided)

Soil Description

Sandy silt

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{85}= 0.135 D_{60}= 0.0548 D_{50}= 0.0394
D_{30}= 0.0195 D_{15}= 0.0096 D_{10}= 0.0060
C_u= 9.10 C_c= 1.15

Classification

USCS= ML AASHTO= A-4(0)

Remarks

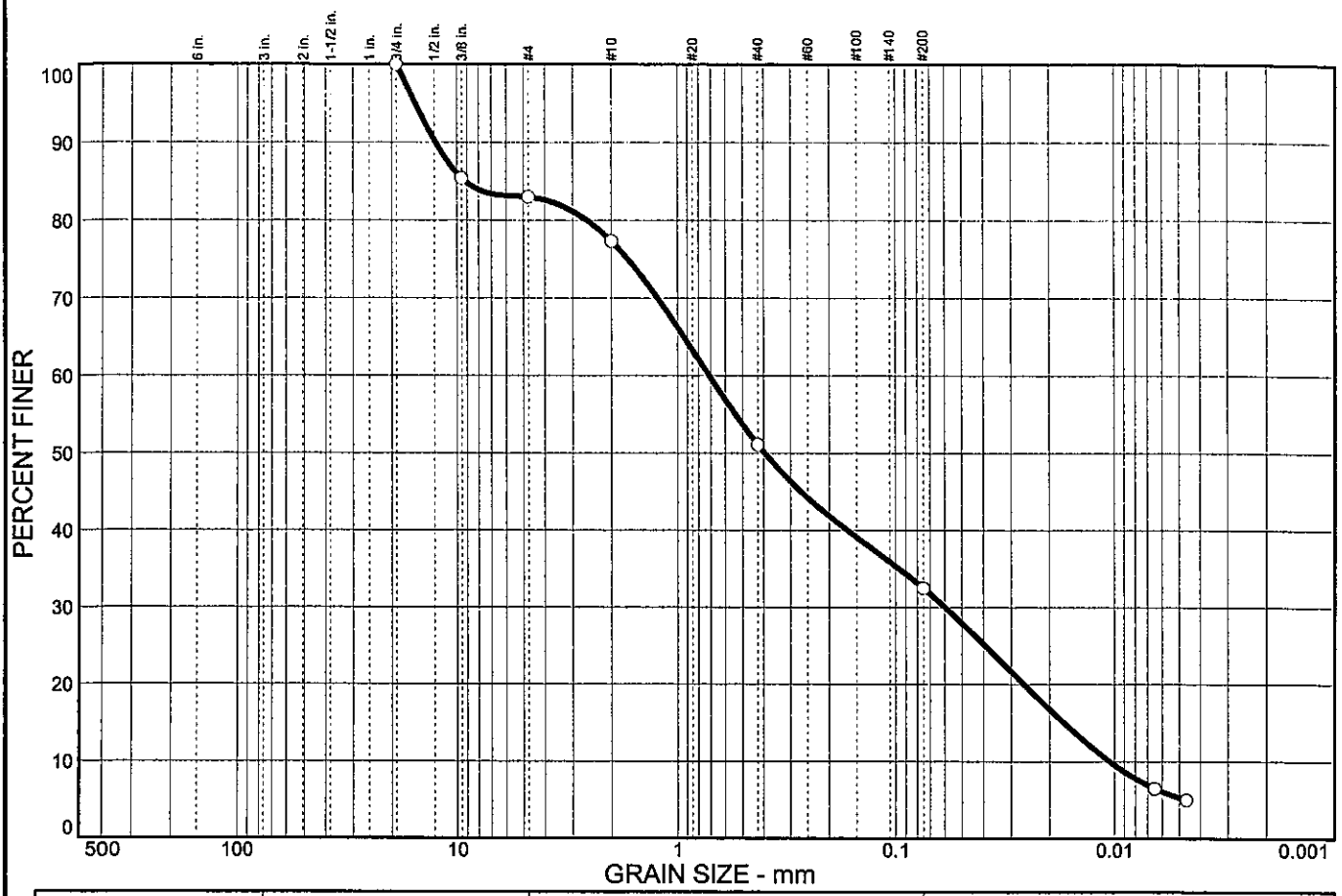
Moisture Content= 23.0%

Sample No.: 14 **Source of Sample:** TR-34 **Date:** 4/5/05
Location: **Elev./Depth:** 35

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00
Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	17.0	5.7	26.2	18.6	27.2	5.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.75 in.	100.0		
0.375 in.	85.4		
#4	83.0		
#10	77.3		
#40	51.1		
#200	32.5		

* (no specification provided)

Soil Description

Silty sand with gravel

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{85}= 9.18 D_{60}= 0.712 D_{50}= 0.395
D_{30}= 0.0596 D_{15}= 0.0171 D_{10}= 0.0105
C_u= 67.80 C_c= 0.48

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

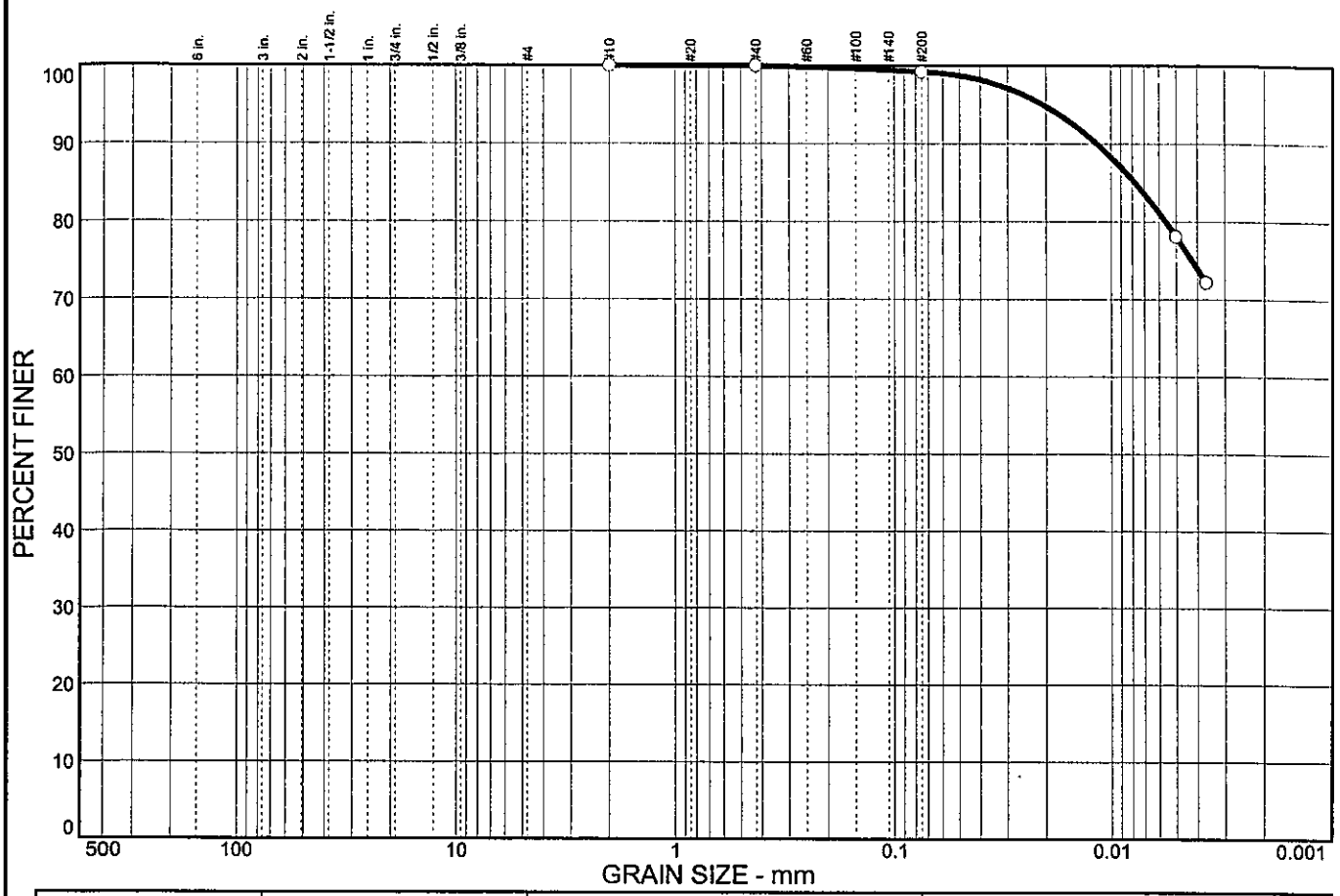
Moisture Content= 13.0%

Sample No.: 15 **Source of Sample:** TR-34 **Date:** 4/5/05
Location: **Elev./Depth:** 40

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00
Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.0	0.8	21.1	78.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	100.0		
#200	99.2		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 23 LL= 44 PI= 21

Coefficients

D_{85}= 0.0078 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(23)

Remarks

Moisture Content= 24.6%

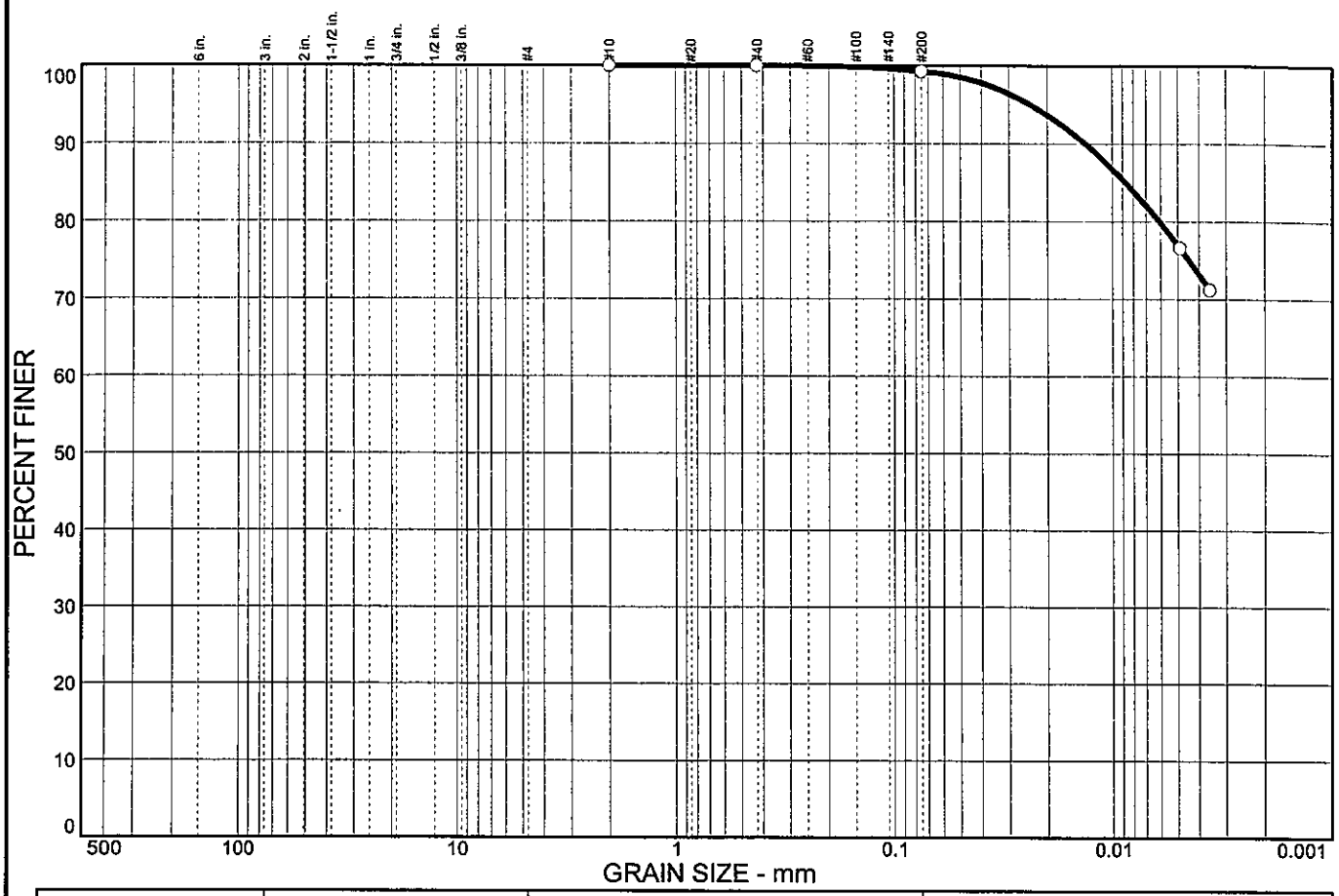
Sample No.: 2 **Source of Sample:** TR-34 **Date:** 4/5/05
Location: **Elev./Depth:** 2.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.0	0.7	22.3	77.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	100.0		
#200	99.3		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 23 LL= 46 PI= 23

Coefficients

D_{85}= 0.0087 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(26)

Remarks

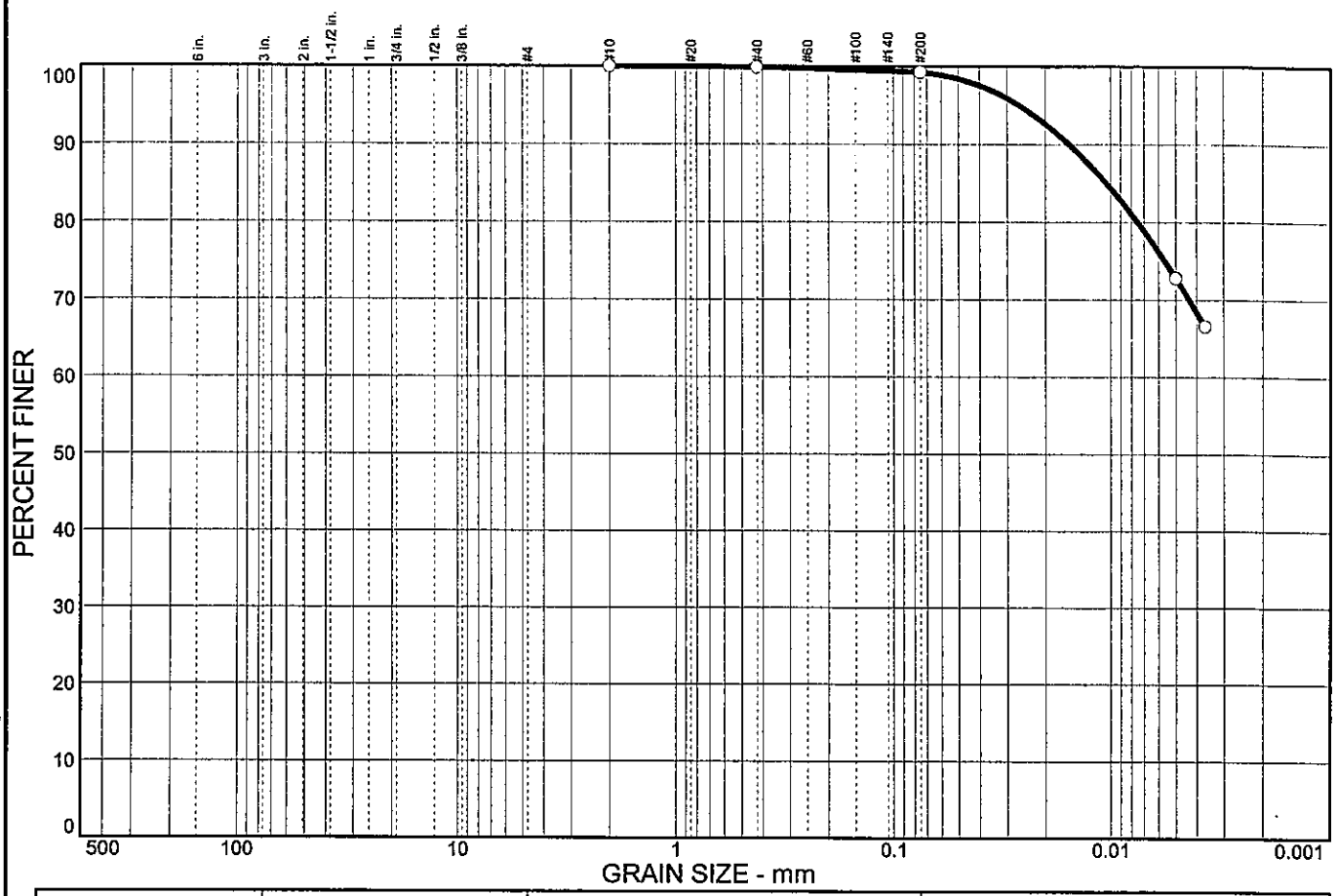
Moisture Content= 25.1%

Sample No.: 7 **Source of Sample:** TR-34 **Date:** 4/5/05
Location: **Elev./Depth:** 15

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00
Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.1	0.6	26.5	72.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.9		
#200	99.3		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 23 LL= 44 PI= 21

Coefficients

D_{85}= 0.0104 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(23)

Remarks

Moisture Content= 23.8%

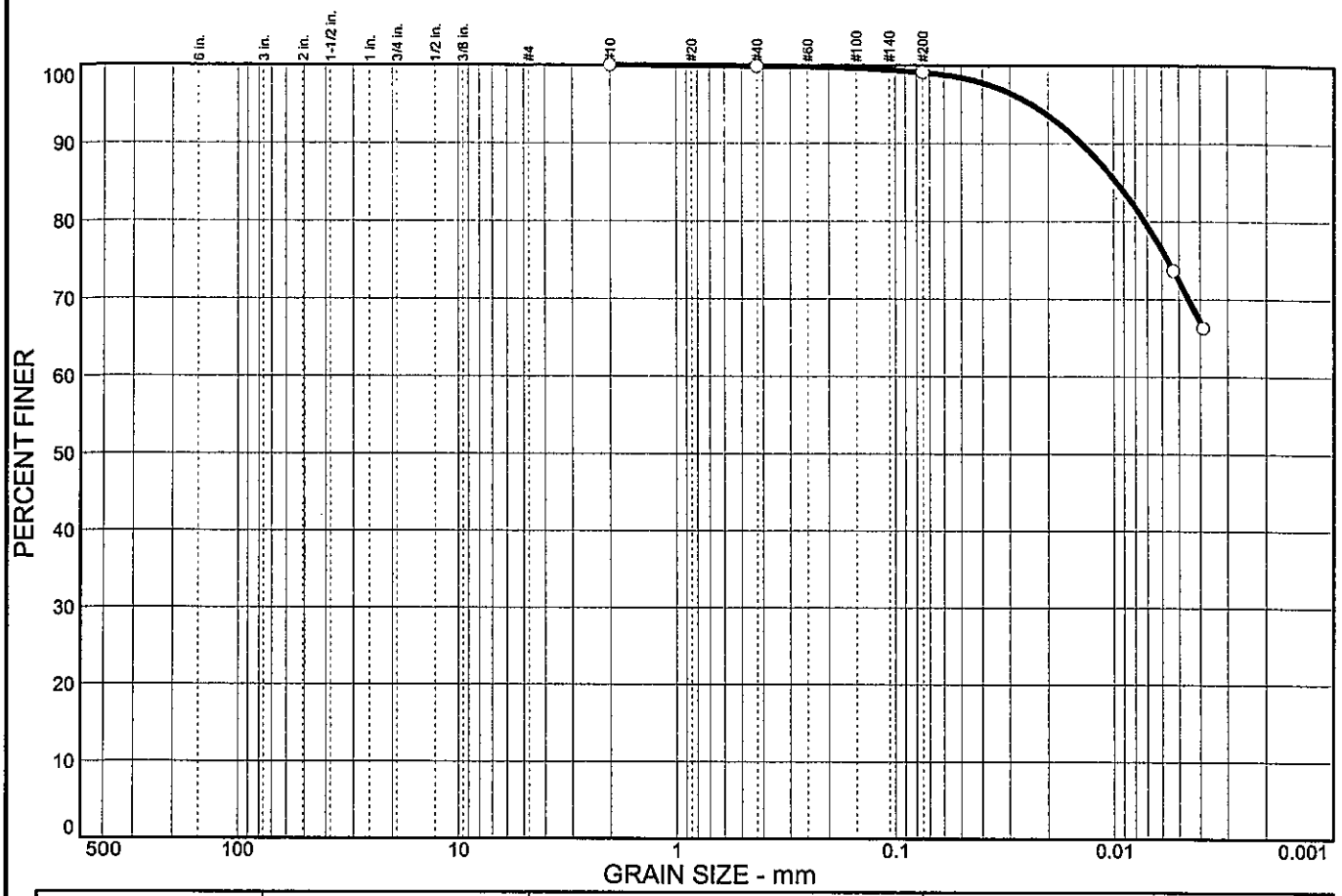
Sample No.: 11 **Source of Sample:** TR-35 **Date:** 4/5/05
Location: **Elev./Depth:** 25

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.1	0.8	26.7	72.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.9		
#200	99.1		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 23 LL= 41 PI= 18

Coefficients

D_{85}= 0.0097 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(20)

Remarks

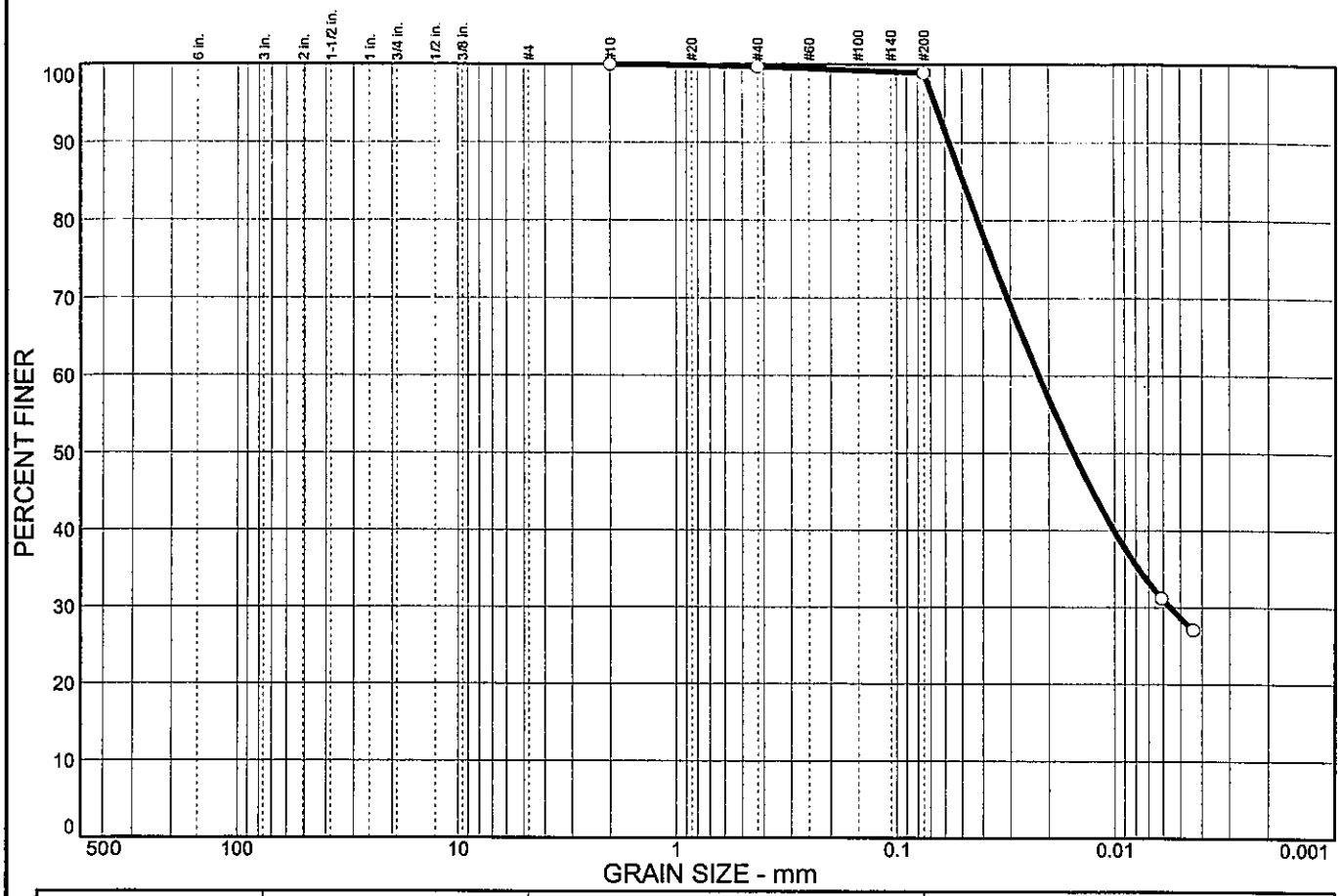
Moisture Content= 26.8%

Sample No.: 18 **Source of Sample:** TR-35 **Date:** 4/5/05
Location: **Elev./Depth:** 55

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00
Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.3	0.8	70.2	28.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.7		
#200	98.9		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 21 LL= 33 PI= 12

Coefficients

D_{85}= 0.0494 D_{60}= 0.0222 D_{50}= 0.0154
D_{30}= 0.0056 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(12)

Remarks

Moisture Content= 27.8%

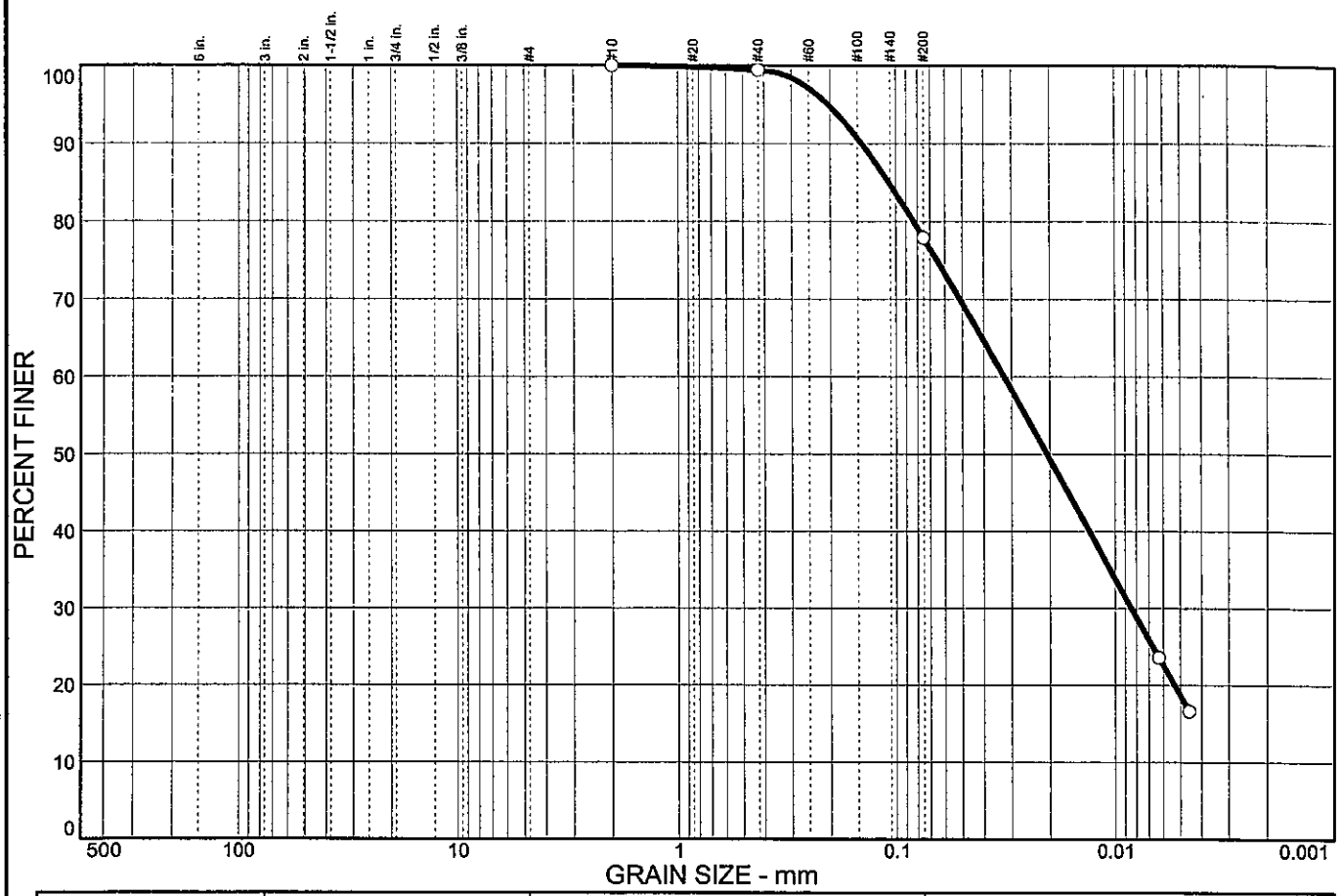
Sample No.: 2 **Source of Sample:** TR-35 **Date:** 4/5/05
Location: **Elev./Depth:** 2.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.6	21.5	59.3	18.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.4		
#200	77.9		

* (no specification provided)

Soil Description

Silt with sand

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{85}= 0.108 D_{60}= 0.0323 D_{50}= 0.0206
D_{30}= 0.0084 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= ML AASHTO= A-4(0)

Remarks

Moisture Content= 22.2%

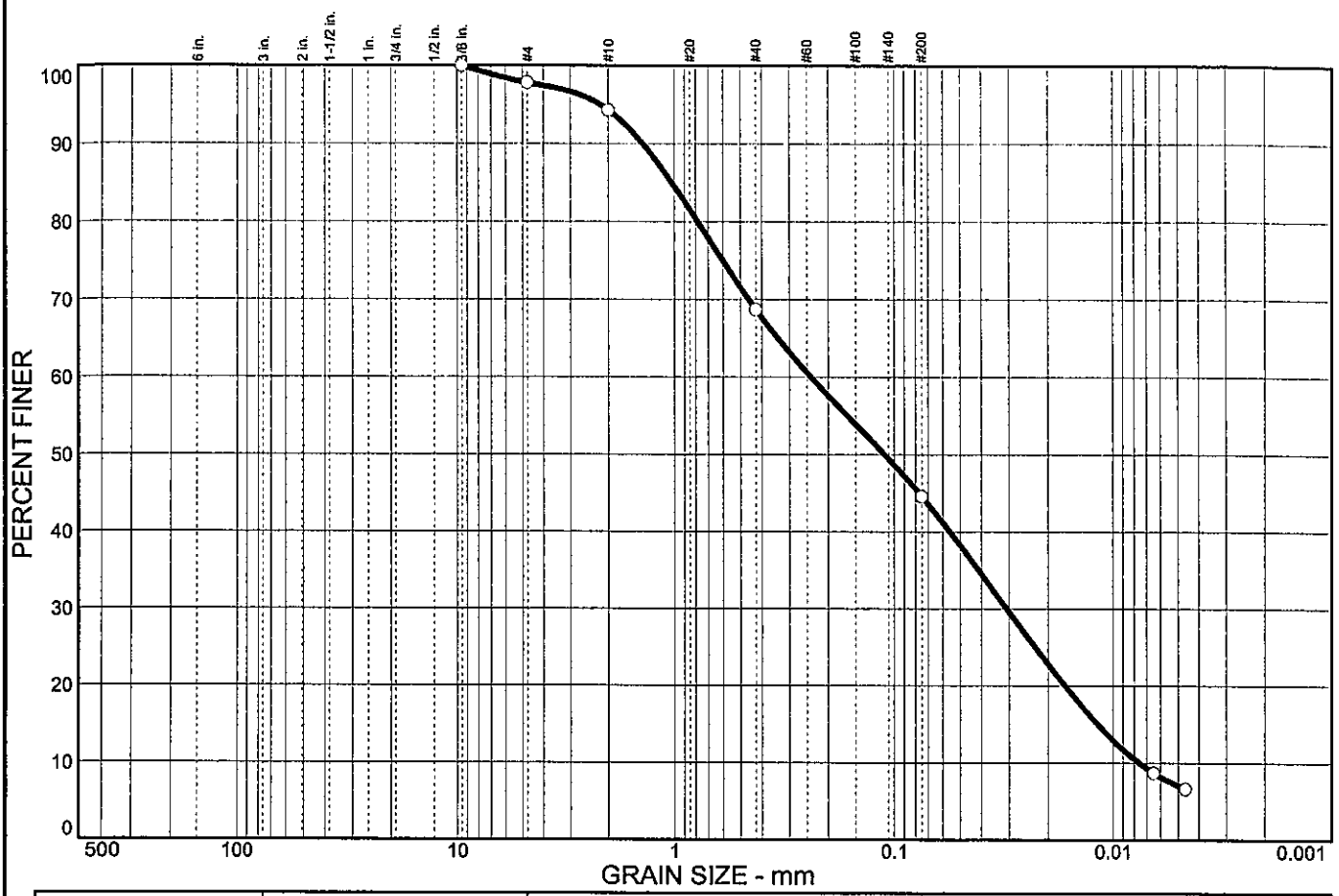
Sample No.: 20 **Source of Sample:** TR-35 **Date:** 4/5/05
Location: **Elev./Depth:** 65

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	2.2	3.5	25.6	24.1	37.6	7.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.375 in.	100.0		
#4	97.8		
#10	94.3		
#40	68.7		
#200	44.6		

* (no specification provided)

Soil Description

Silty sand

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{85}= 1.03 D_{60}= 0.239 D_{50}= 0.111
D_{30}= 0.0307 D_{15}= 0.0118 D_{10}= 0.0076
C_u= 31.57 C_c= 0.52

Classification

USCS= SM AASHTO= A-4(0)

Remarks

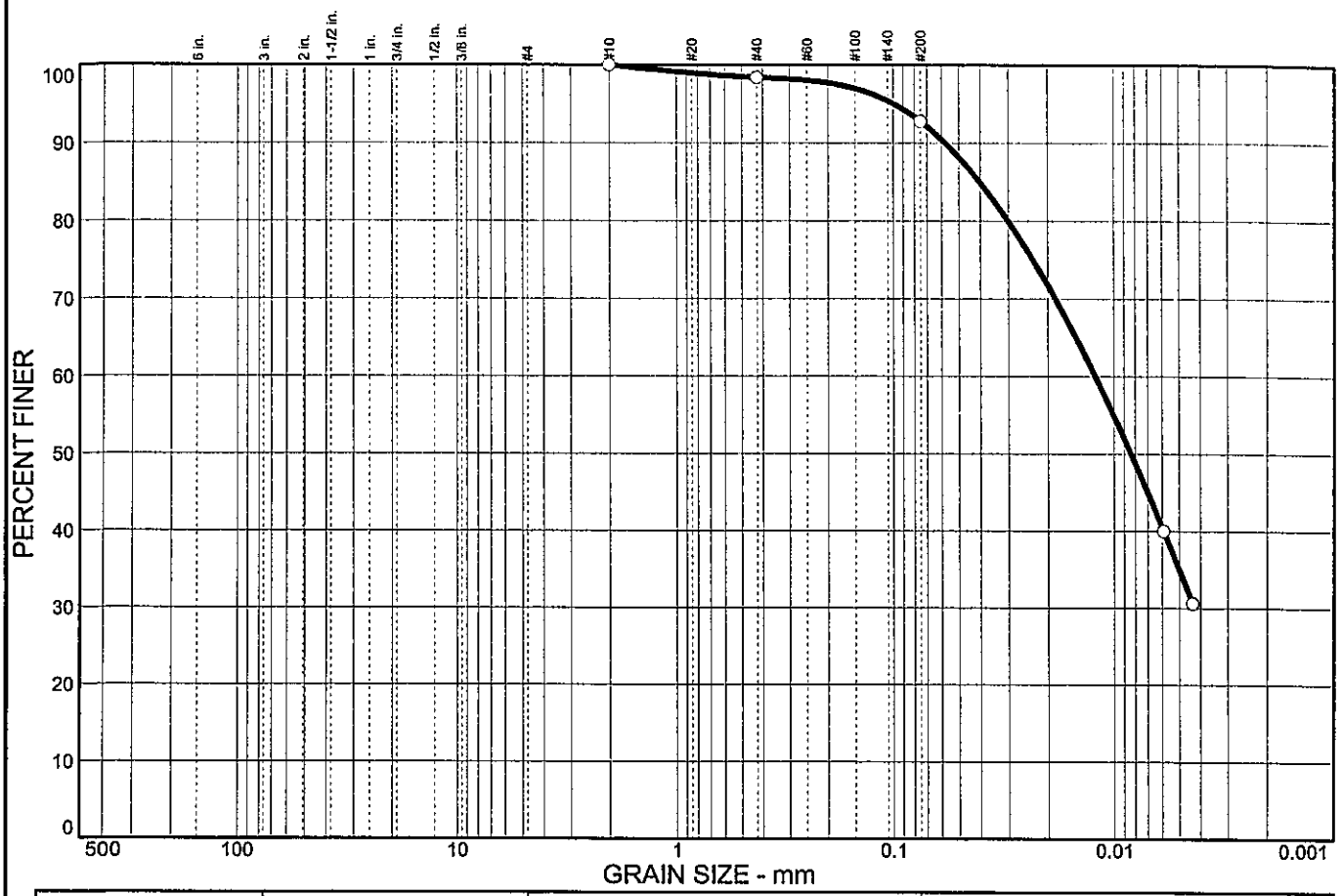
Moisture Content= 14.3%

Sample No.: 22 **Source of Sample:** TR-35 **Date:** 4/5/05
Location: **Elev./Depth:** 75

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00
Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	1.6	5.6	57.8	35.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	98.4		
#200	92.8		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 20 LL= 31 PI= 11

Coefficients

D_{85}= 0.0403 D_{60}= 0.0122 D_{50}= 0.0084
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(10)

Remarks

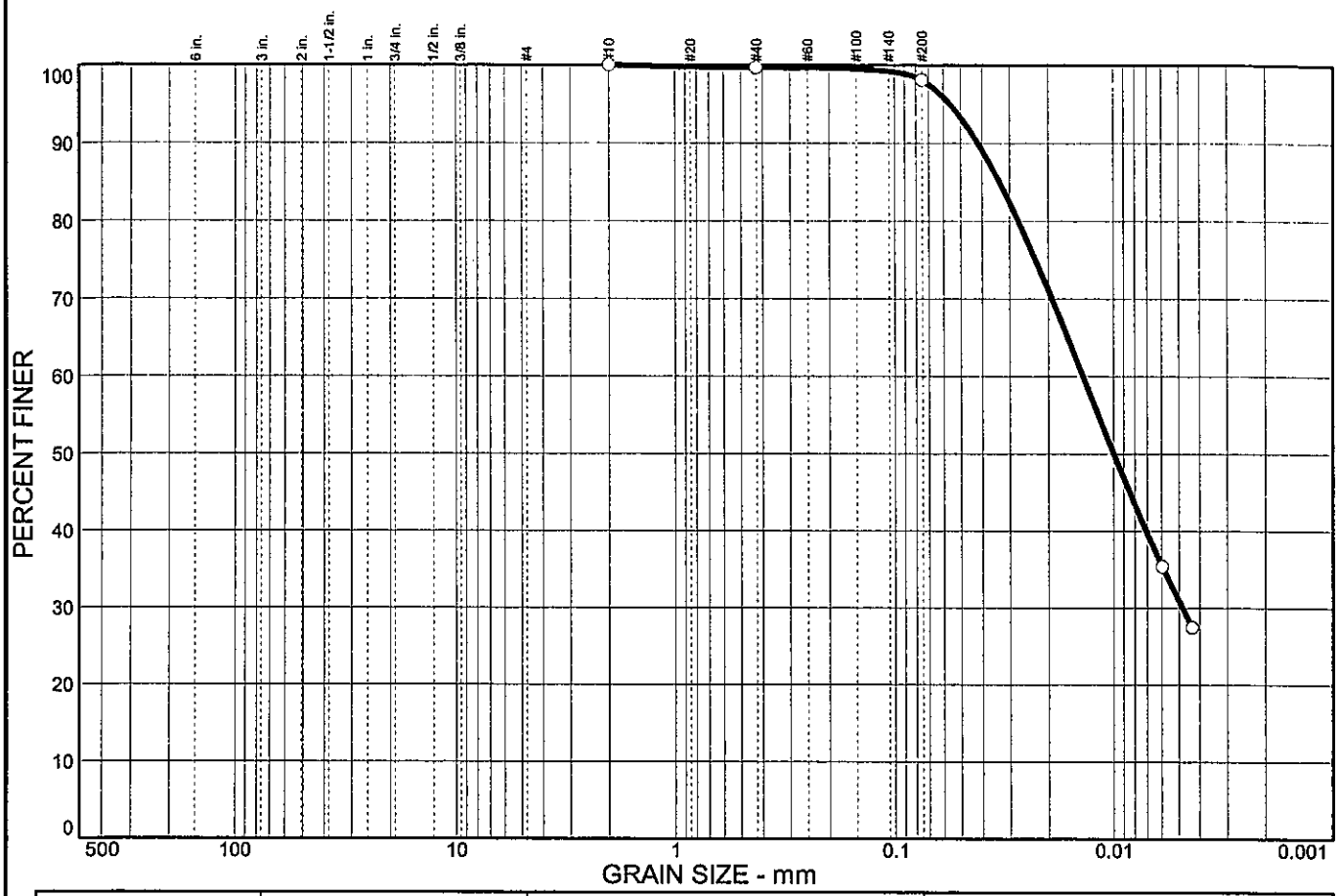
Moisture Content= 28.1%

Sample No.: 8 **Source of Sample:** TR-35 **Date:** 4/5/05
Location: **Elev./Depth:** 17.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00
Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.3	1.6	67.1	31.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.7		
#200	98.1		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 22 LL= 32 PI= 10

Coefficients

D_{85}= 0.0334 D_{60}= 0.0138 D_{50}= 0.0100
D_{30}= 0.0048 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-4(10)

Remarks

Moisture Content= 27.6%

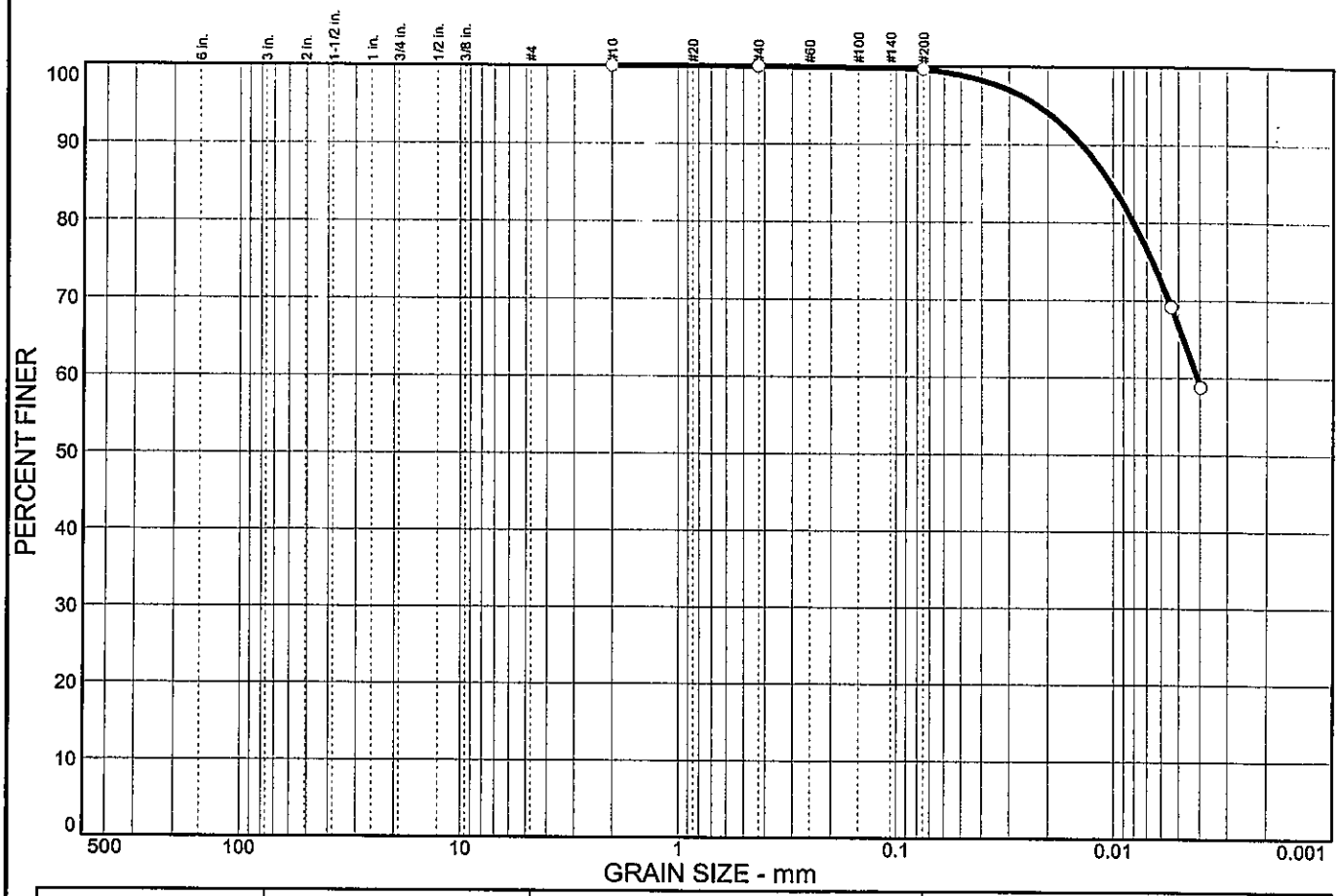
Sample No.: 11 **Source of Sample:** TR-36 **Date:** 2/17/05
Location: **Elev./Depth:** 26

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.0	0.3	33.0	66.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	100.0		
#200	99.7		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 23 LL= 44 PI= 21

Coefficients

D_{85}= 0.0102 D_{60}= 0.0041 D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(24)

Remarks

Moisture Content= 24.5%

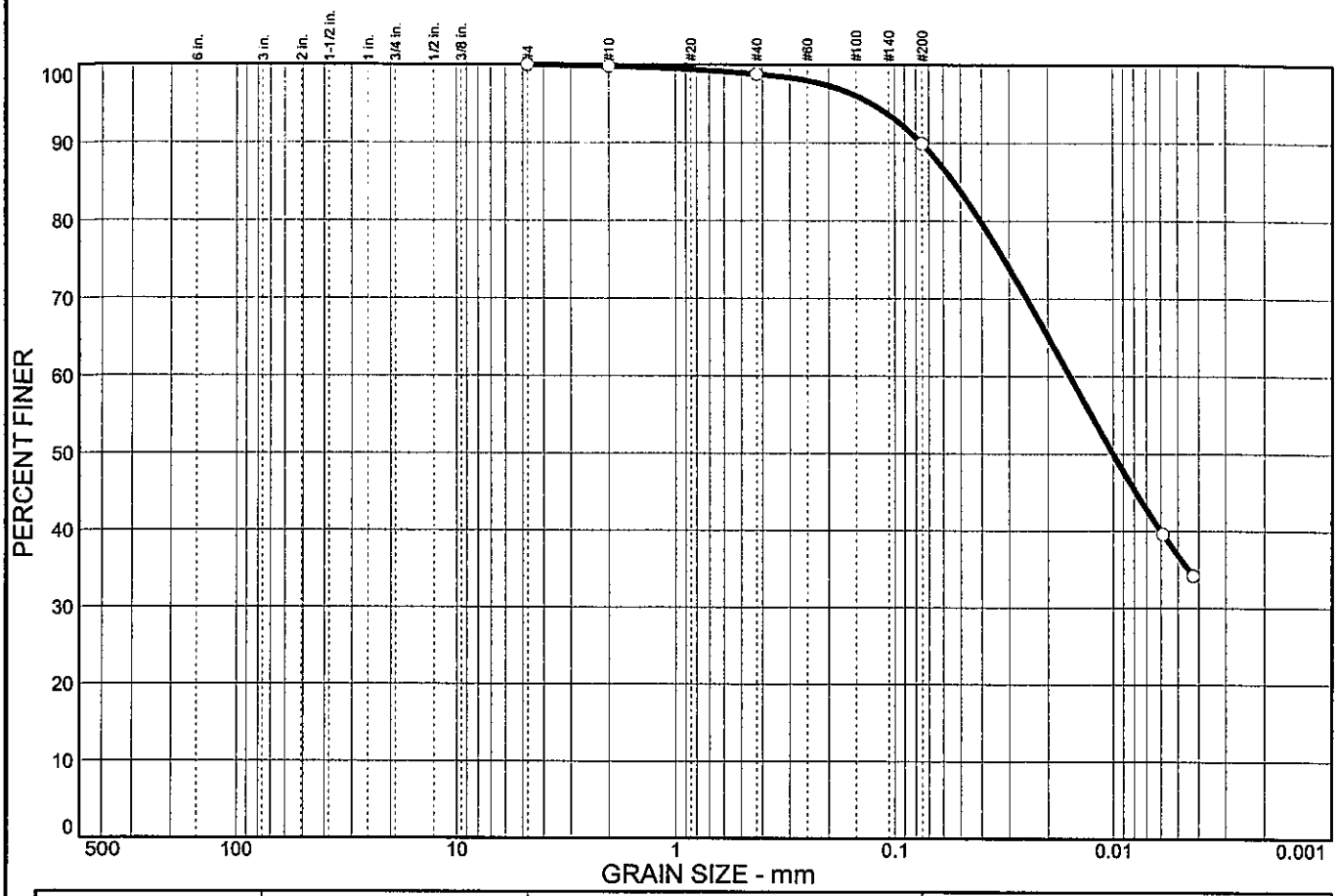
Sample No.: 14 **Source of Sample:** TR-36 **Date:** 2/17/05
Location: **Elev./Depth:** 38.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.2	1.0	8.9	53.0	36.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.8		
#40	98.8		
#200	89.9		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 16 LL= 26 PI= 10

Coefficients

D_{85}= 0.0538 D_{60}= 0.0158 D_{50}= 0.0100
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-4(7)

Remarks

Moisture Content= 14.1%

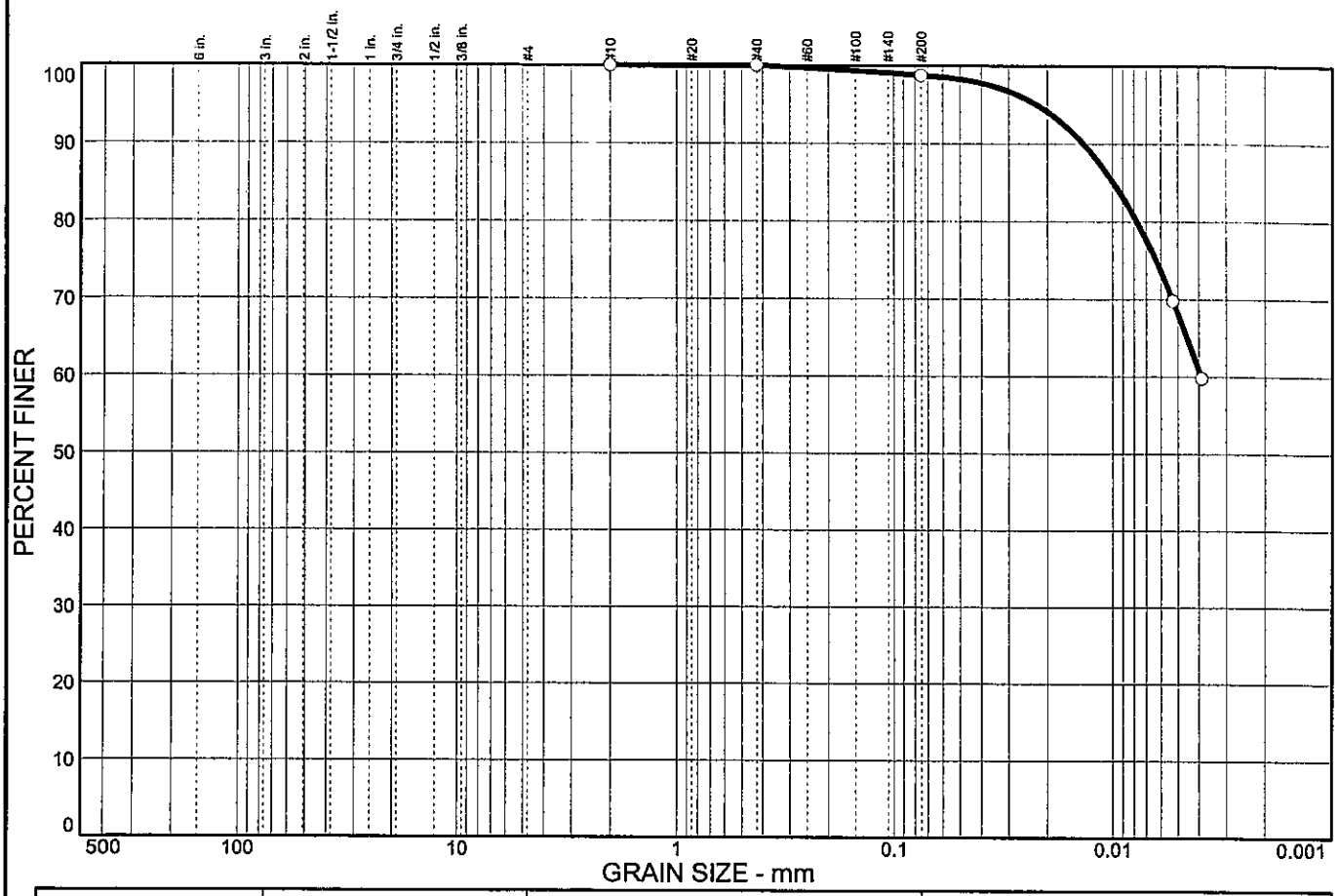
Sample No.: 18 **Source of Sample:** TR-36 **Date:** 2/17/05
Location: **Elev./Depth:** 58.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.0	1.2	30.6	68.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	100.0		
#200	98.8		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 23 LL= 44 PI= 21

Coefficients

D_{85}= 0.0099 D_{60}= 0.0039 D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(23)

Remarks

Moisture Content= 25.6%

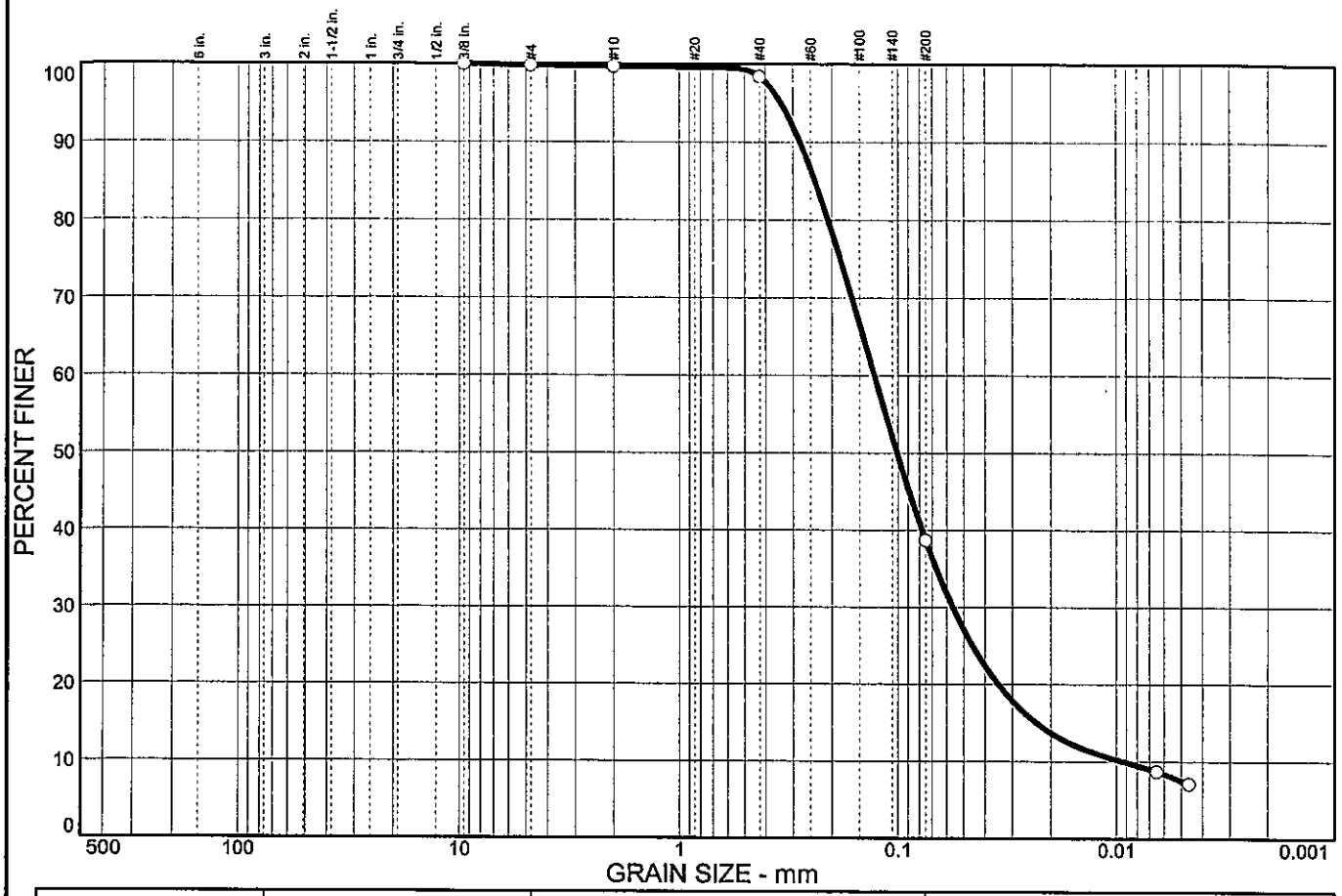
Sample No.: 2 **Source of Sample:** TR-36 **Date:** 2/17/05
Location: **Elev./Depth:** 3.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.2	0.1	1.3	59.7	31.2	7.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.375 in.	100.0		
#4	99.8		
#10	99.7		
#40	98.4		
#200	38.7		

* (no specification provided)

Soil Description

Silty sand

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{85}= 0.239 D_{60}= 0.128 D_{50}= 0.101
D_{30}= 0.0562 D_{15}= 0.0233 D_{10}= 0.0093
C_u= 13.78 C_c= 2.64

Classification

USCS= SM AASHTO= A-4(0)

Remarks

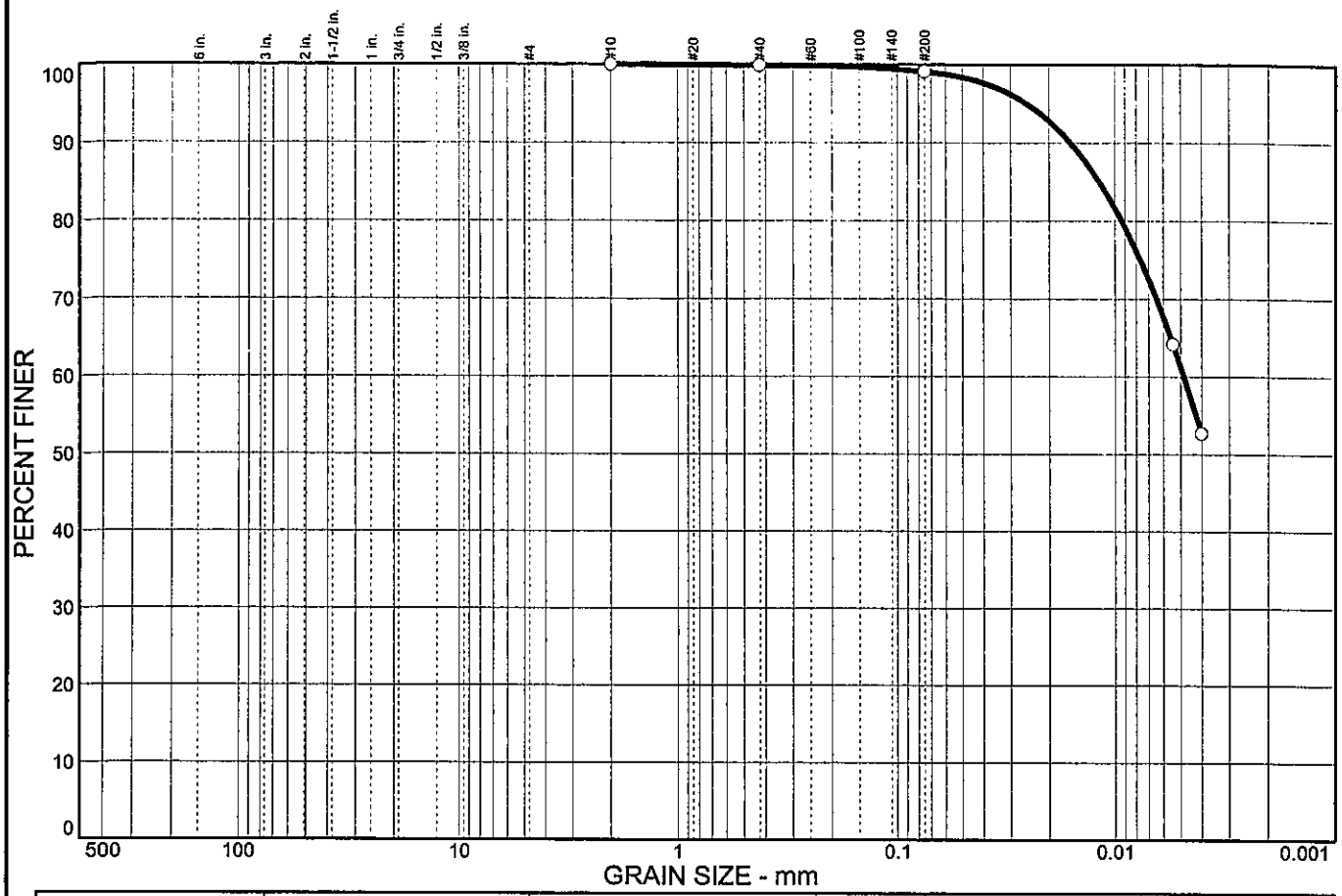
Moisture Content= 23.6%

Sample No.: 20 **Source of Sample:** TR-36 **Date:** 2/17/05
Location: **Elev./Depth:** 68.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00
Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.1	0.8	37.9	61.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.9		
#200	99.1		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 23 LL= 42 PI= 19

Coefficients

D_{85}= 0.0118 D_{60}= 0.0048 D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(21)

Remarks

Moisture Content= 27.4%

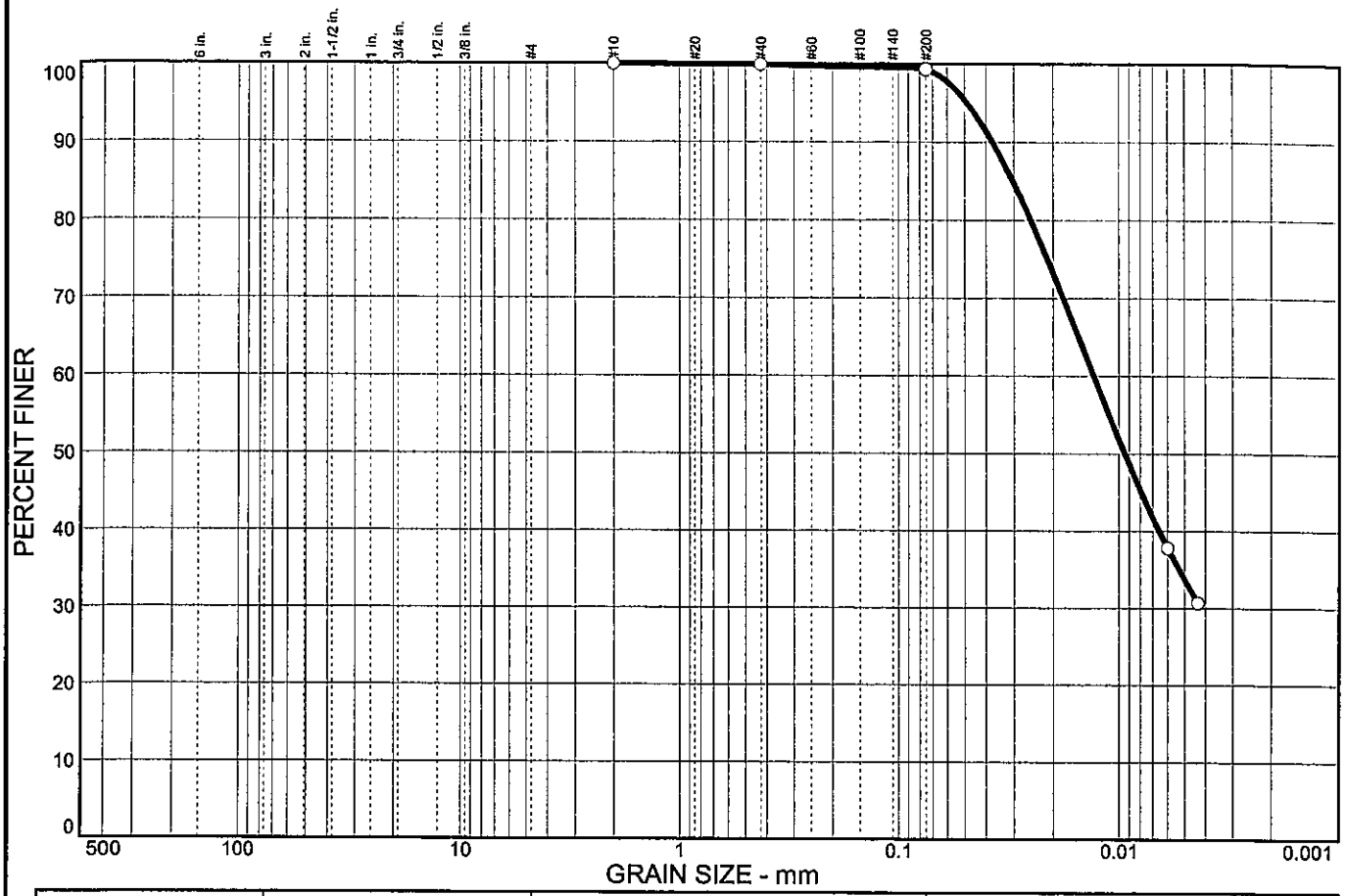
Sample No.: 4 **Source of Sample:** TR-36 **Date:** 2/17/05
Location: **Elev./Depth:** 8.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.1	0.6	65.5	33.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.9		
#200	99.3		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 21 LL= 32 PI= 11

Coefficients

D_{85}= 0.0303 D_{60}= 0.0130 D_{50}= 0.0094
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(11)

Remarks

Moisture Content= 25.7%

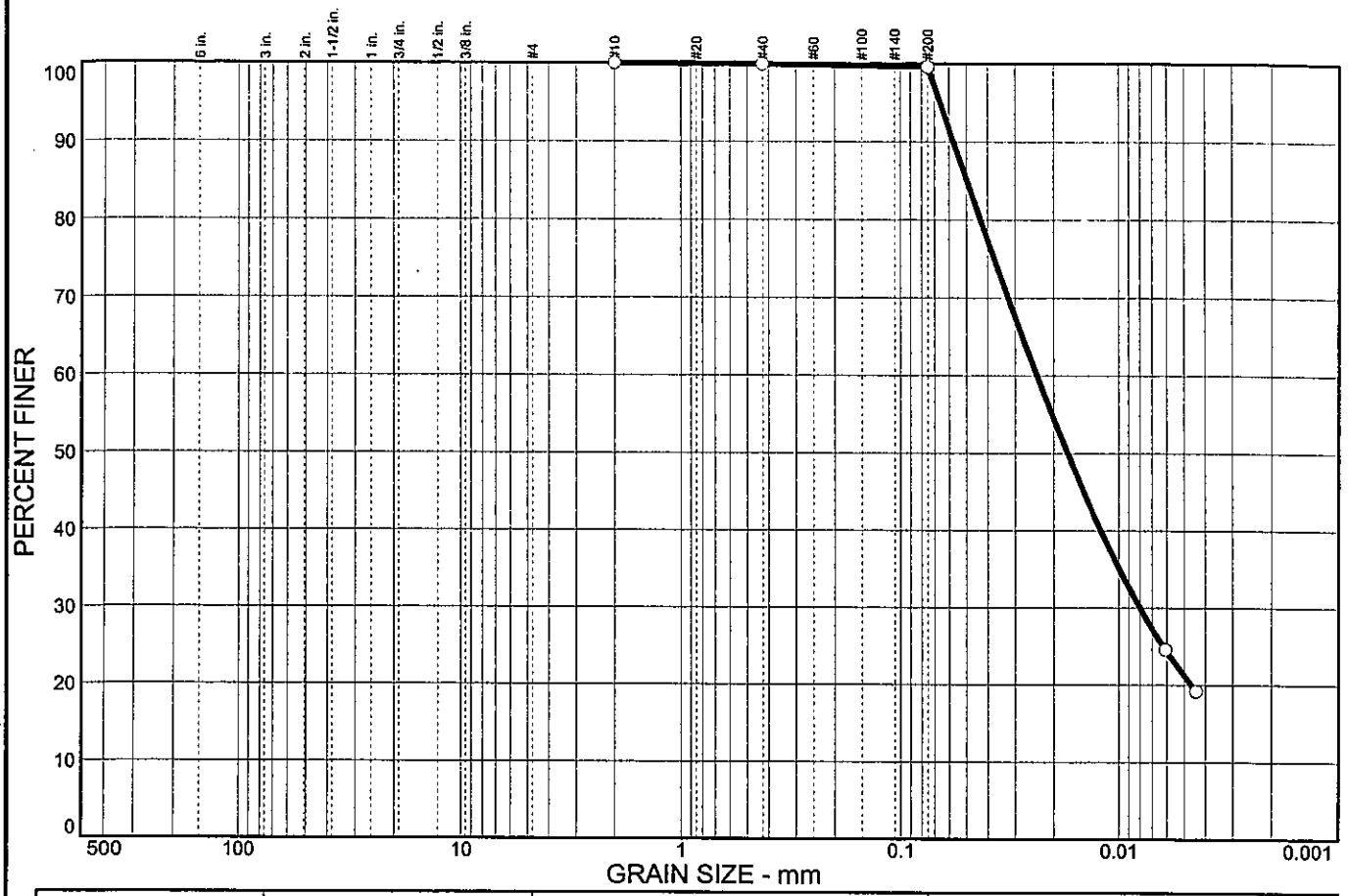
Sample No.: 9 **Source of Sample:** TR-36 **Date:** 2/17/05
Location: **Elev./Depth:** 21.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.1	0.3	78.4	21.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.9		
#200	99.6		

* (no specification provided)

Soil Description

Silt

Atterberg Limits

PL= 22 LL= 27 PI= 5

Coefficients

D_{85}= 0.0498 D_{60}= 0.0238 D_{50}= 0.0172
D_{30}= 0.0080 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= ML AASHTO= A-4(5)

Remarks

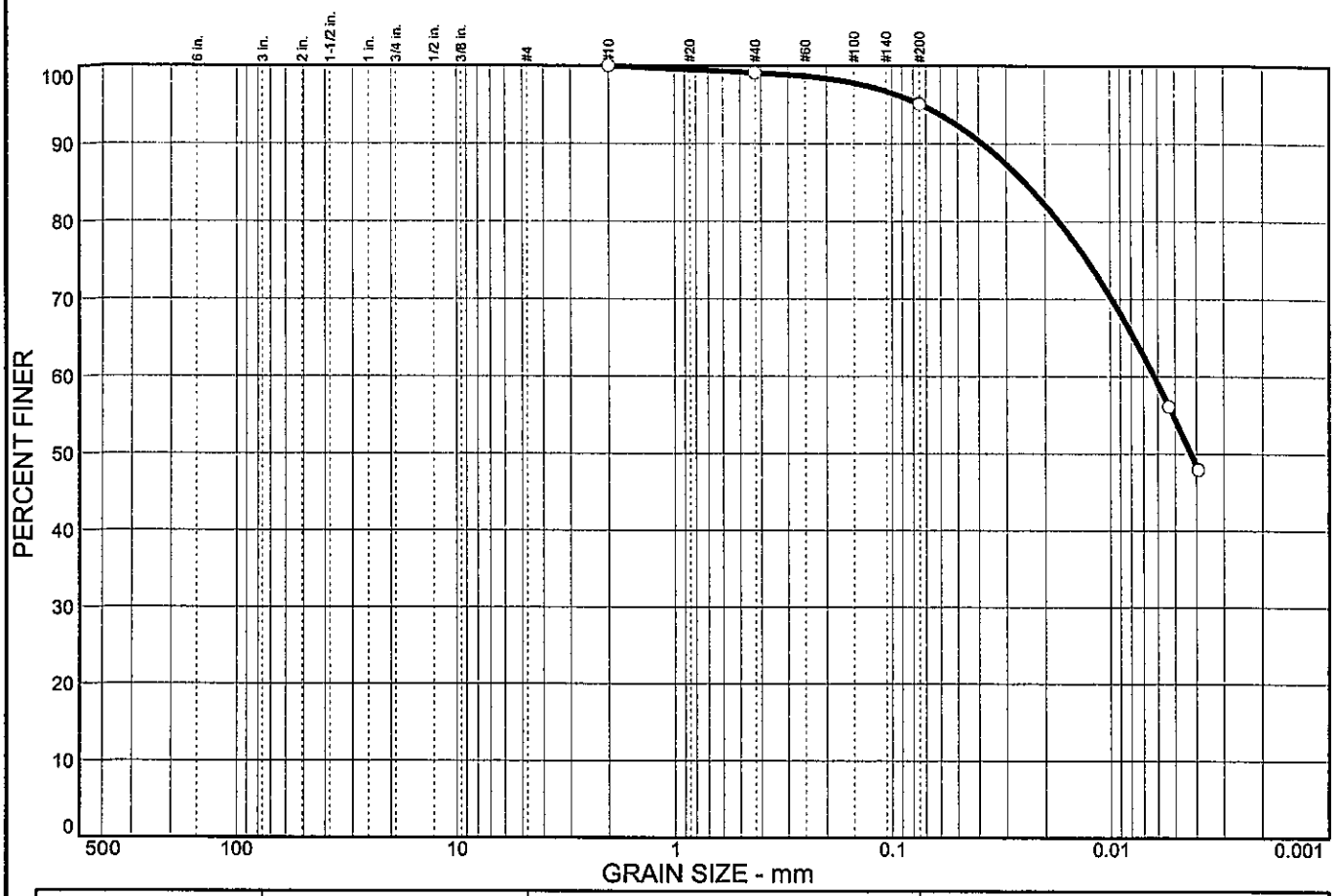
Moisture Content= 30.5%

Sample No.: 11 **Source of Sample:** TR-37 **Date:** 2/17/05
Location: **Elev./Depth:** 26.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00
Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.9	4.0	40.7	54.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.1		
#200	95.1		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 24 LL= 45 PI= 21

Coefficients

D_{85}= 0.0246 D_{60}= 0.0062 D_{50}= 0.0042
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(22)

Remarks

Moisture Content= 28.0%

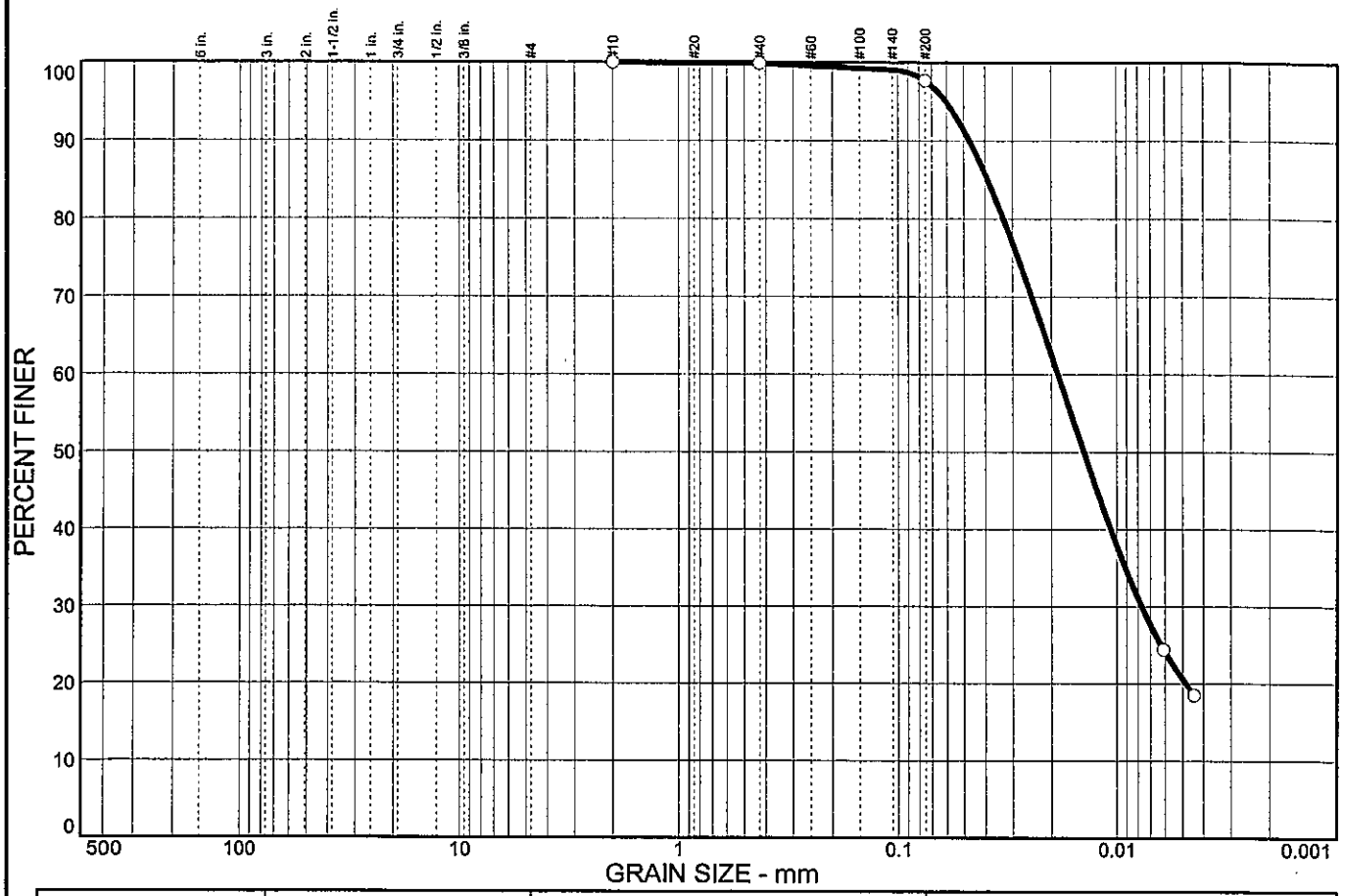
Sample No.: 1 **Source of Sample:** TR-37 **Date:** 2/17/05
Location: **Elev./Depth:** 1.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.1	2.2	77.1	20.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.9		
#200	97.7		

* (no specification provided)

Soil Description

Silty clay

Atterberg Limits

PL= 21 LL= 28 PI= 7

Coefficients

D_{85}= 0.0390 D_{60}= 0.0186 D_{50}= 0.0142
D_{30}= 0.0077 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL-ML AASHTO= A-4(6)

Remarks

Moisture Content= 29.7%

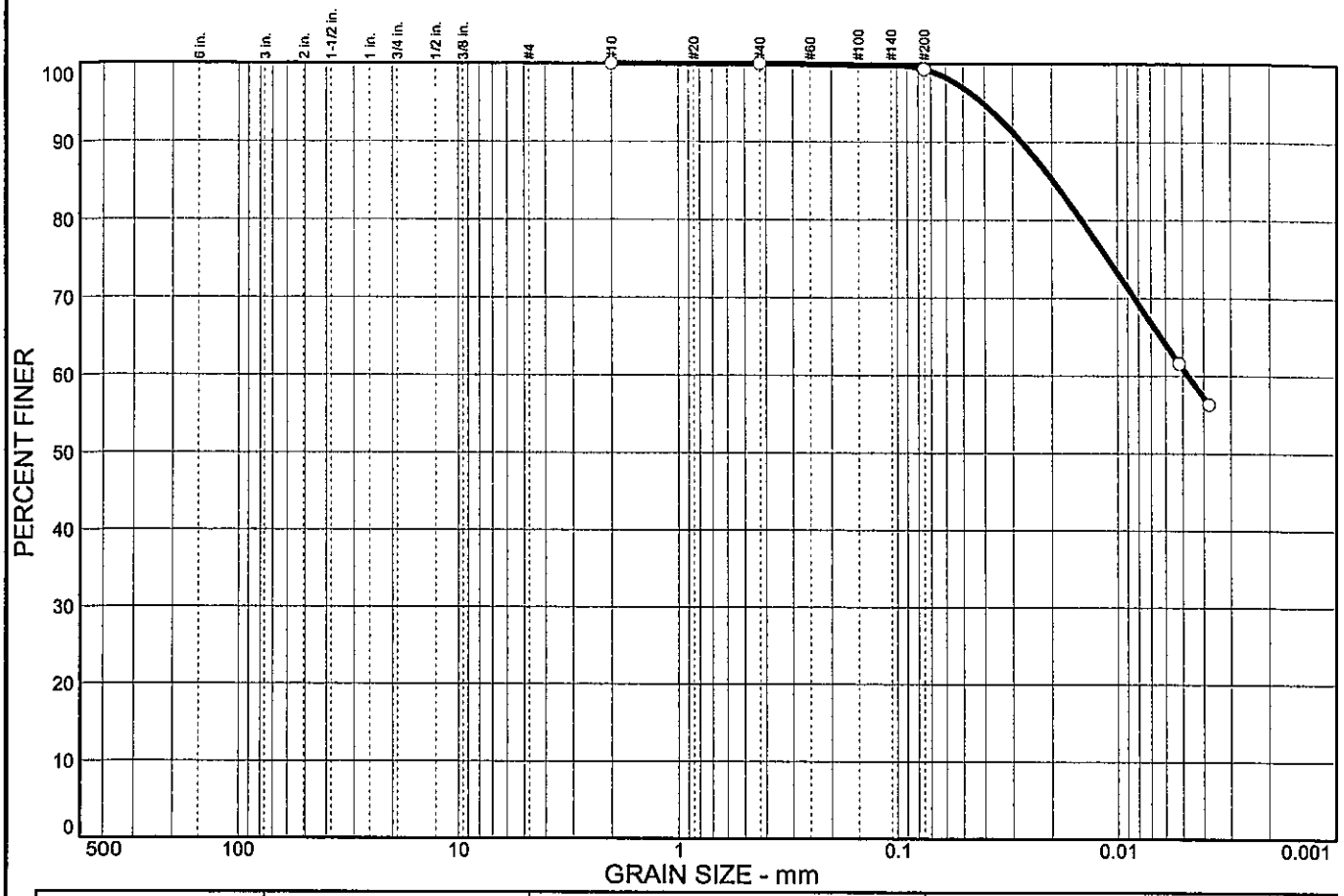
Sample No.: 12 **Source of Sample:** TR-37 **Date:** 2/17/05
Location: **Elev./Depth:** 28.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.0	0.7	38.3	61.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	100.0		
#200	99.3		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 21 LL= 40 PI= 19

Coefficients

D_{85}= 0.0196 D_{60}= 0.0047 D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(20)

Remarks

Moisture Content= 25.4%

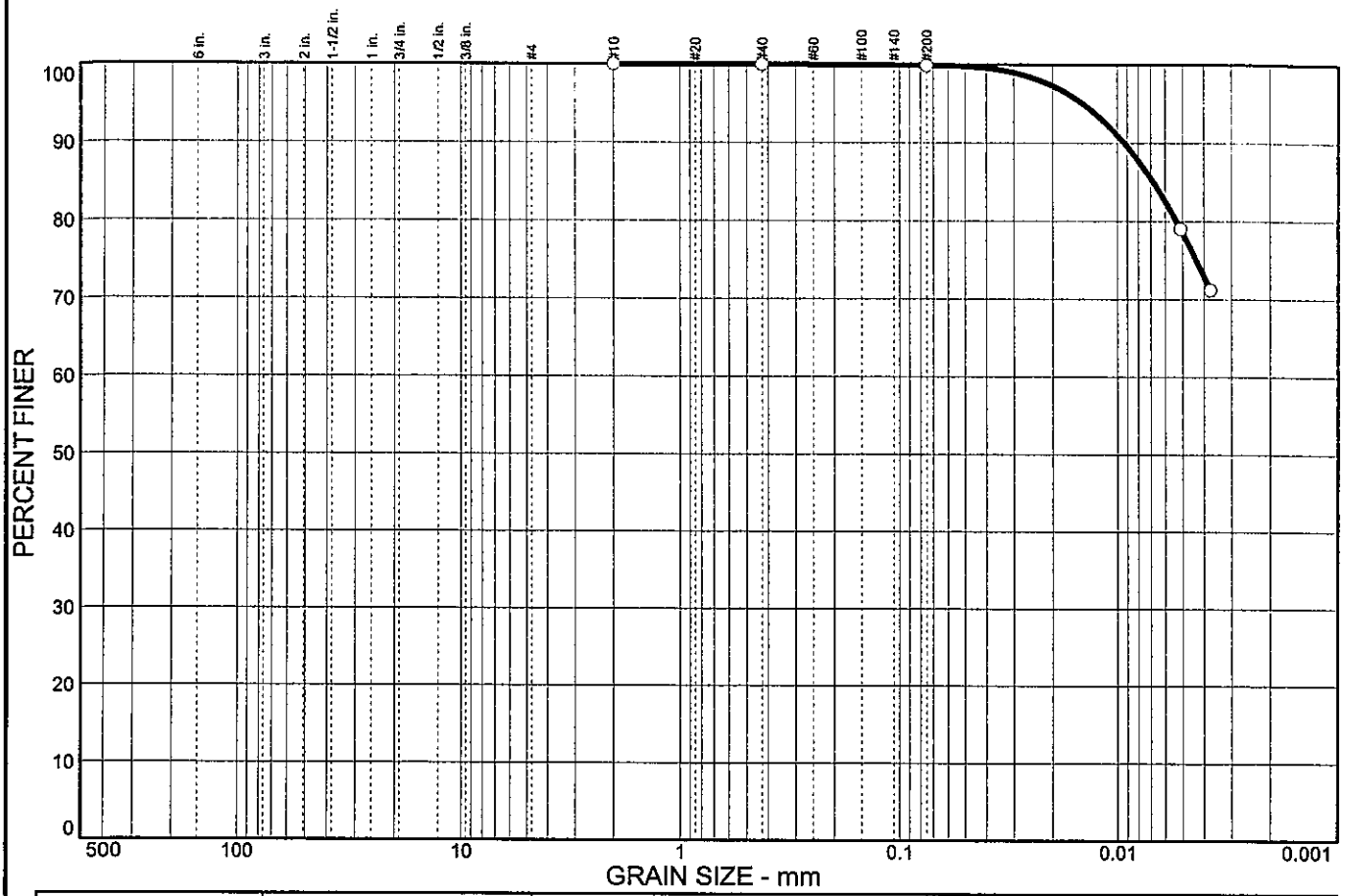
Sample No.: 14 **Source of Sample:** TR-37 **Date:** 2/17/05
Location: **Elev./Depth:** 38.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.0	0.1	21.4	78.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	100.0		
#200	99.9		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 22 LL= 44 PI= 22

Coefficients

D_{85}= 0.0068 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(24)

Remarks

Moisture Content= 24.8%

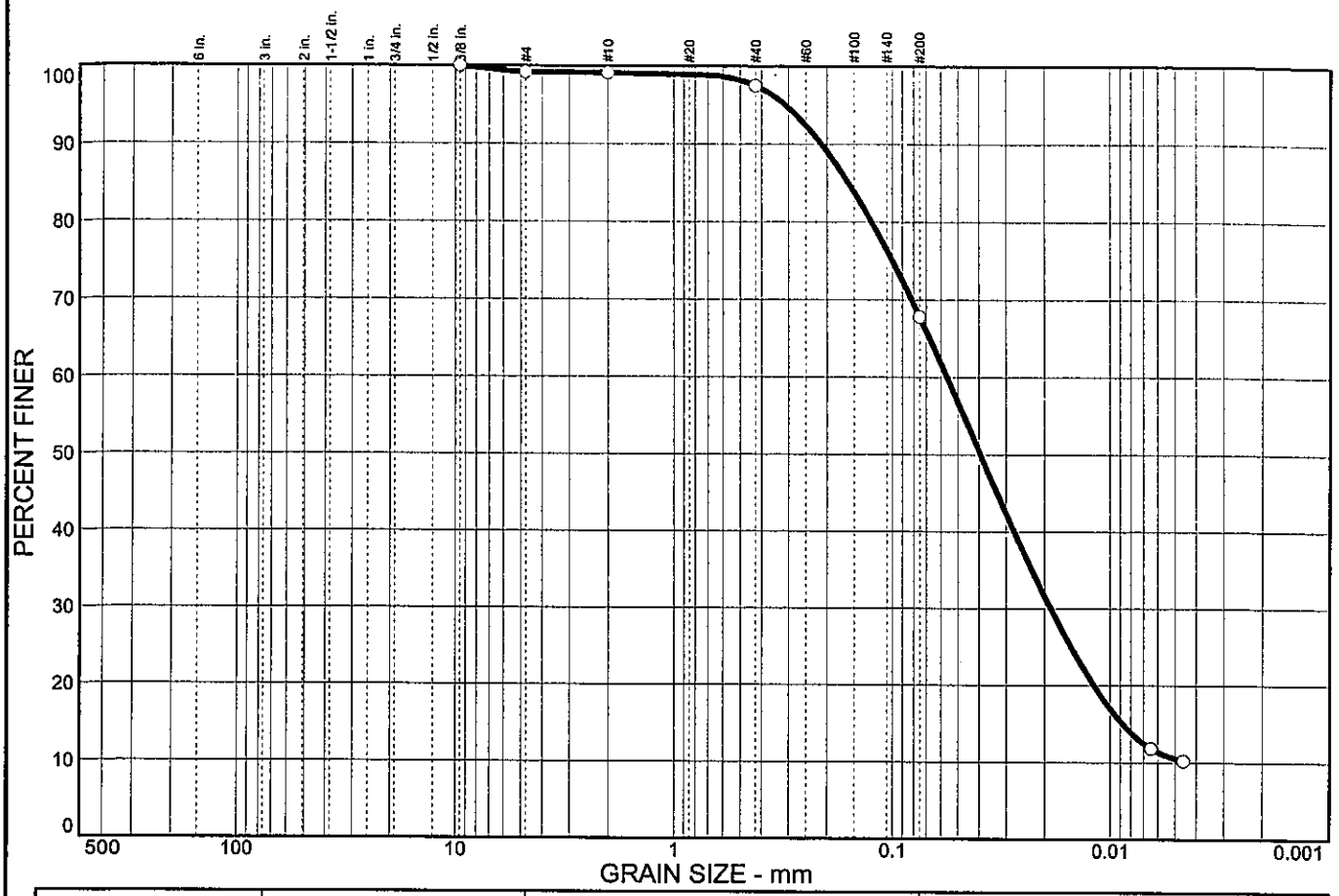
Sample No.: 18 **Source of Sample:** TR-37 **Date:** 2/17/05
Location: **Elev./Depth:** 58.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.8	0.1	1.6	29.7	57.3	10.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.375 in.	100.0		
#4	99.2		
#10	99.1		
#40	97.5		
#200	67.8		

* (no specification provided)

Soil Description

Sandy silt

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{85}= 0.159 D_{60}= 0.0562 D_{50}= 0.0394
D_{30}= 0.0188 D_{15}= 0.0087 D_{10}=
C_u= C_c=

Classification

USCS= ML AASHTO= A-4(0)

Remarks

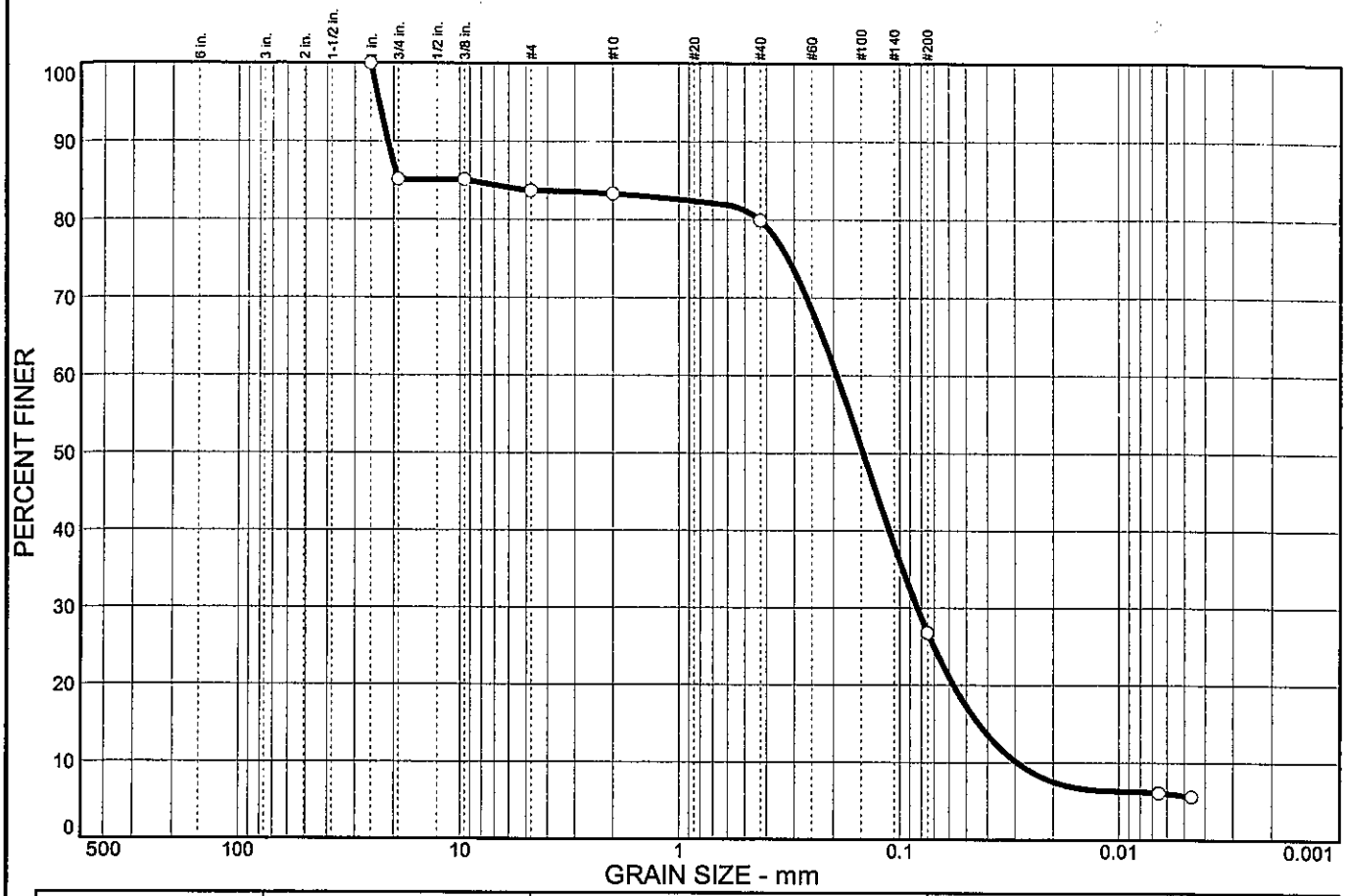
Moisture Content= 23.7%

Sample No.: 20 **Source of Sample:** TR-37 **Date:** 2/17/05
Location: **Elev./Depth:** 68.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00
Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	14.9	1.4	0.4	3.4	53.1	21.1	5.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.00 in.	100.0		
0.75 in.	85.1		
0.375 in.	85.1		
#4	83.7		
#10	83.3		
#40	79.9		
#200	26.8		

* (no specification provided)

Soil Description

Silty sand with gravel

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{85}= 9.13 D_{60}= 0.193 D_{50}= 0.147
D_{30}= 0.0834 D_{15}= 0.0440 D_{10}= 0.0294
C_u= 6.59 C_c= 1.23

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

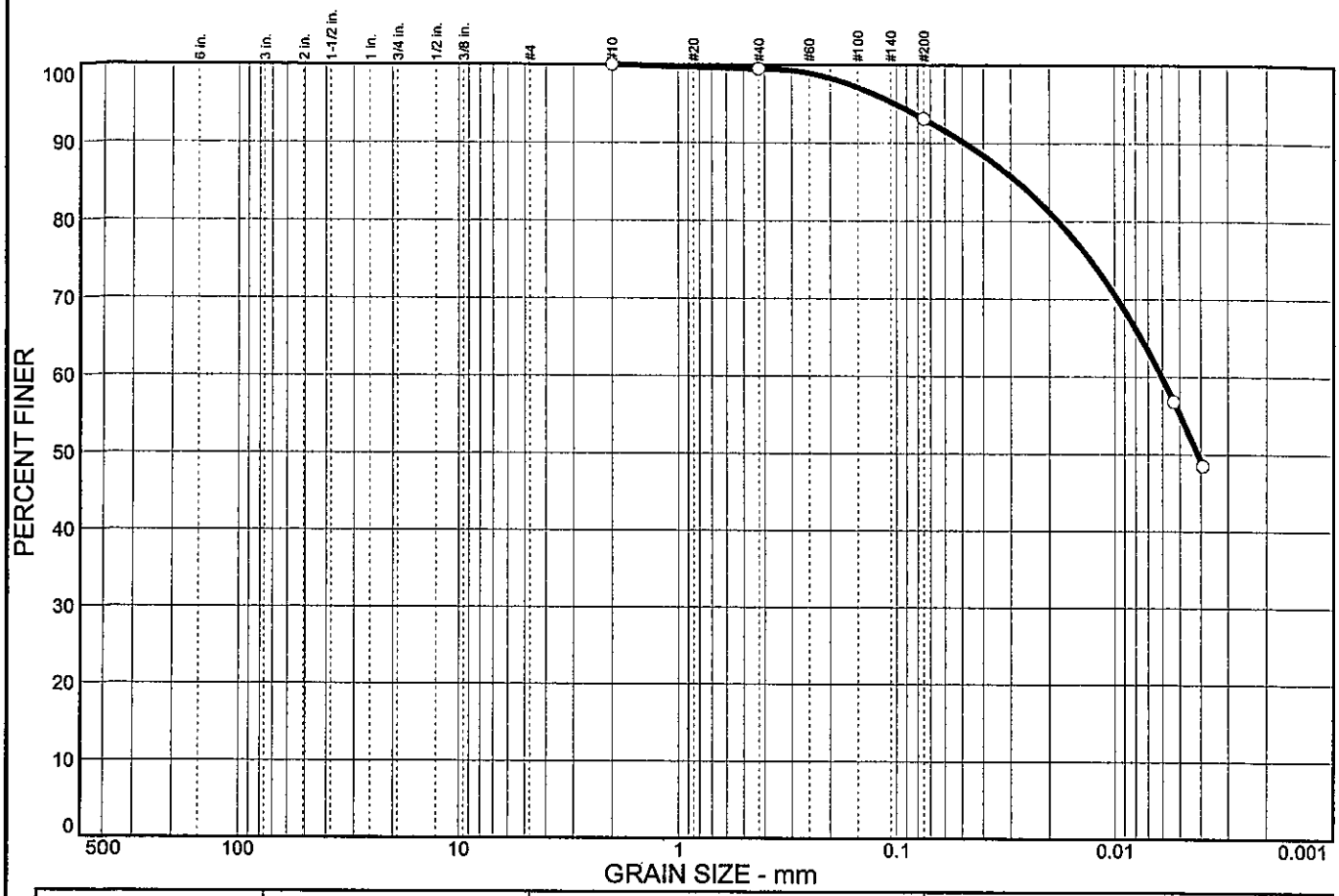
Moisture Content= 23.4%

Sample No.: 21 **Source of Sample:** TR-37 **Date:** 2/17/05
Location: **Elev./Depth:** 73.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00
Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.5	6.4	37.9	55.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.5		
#200	93.1		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 21 LL= 38 PI= 17

Coefficients

D_{85}= 0.0278 D_{60}= 0.0061 D_{50}= 0.0041
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(16)

Remarks

Moisture Content= 26.2%

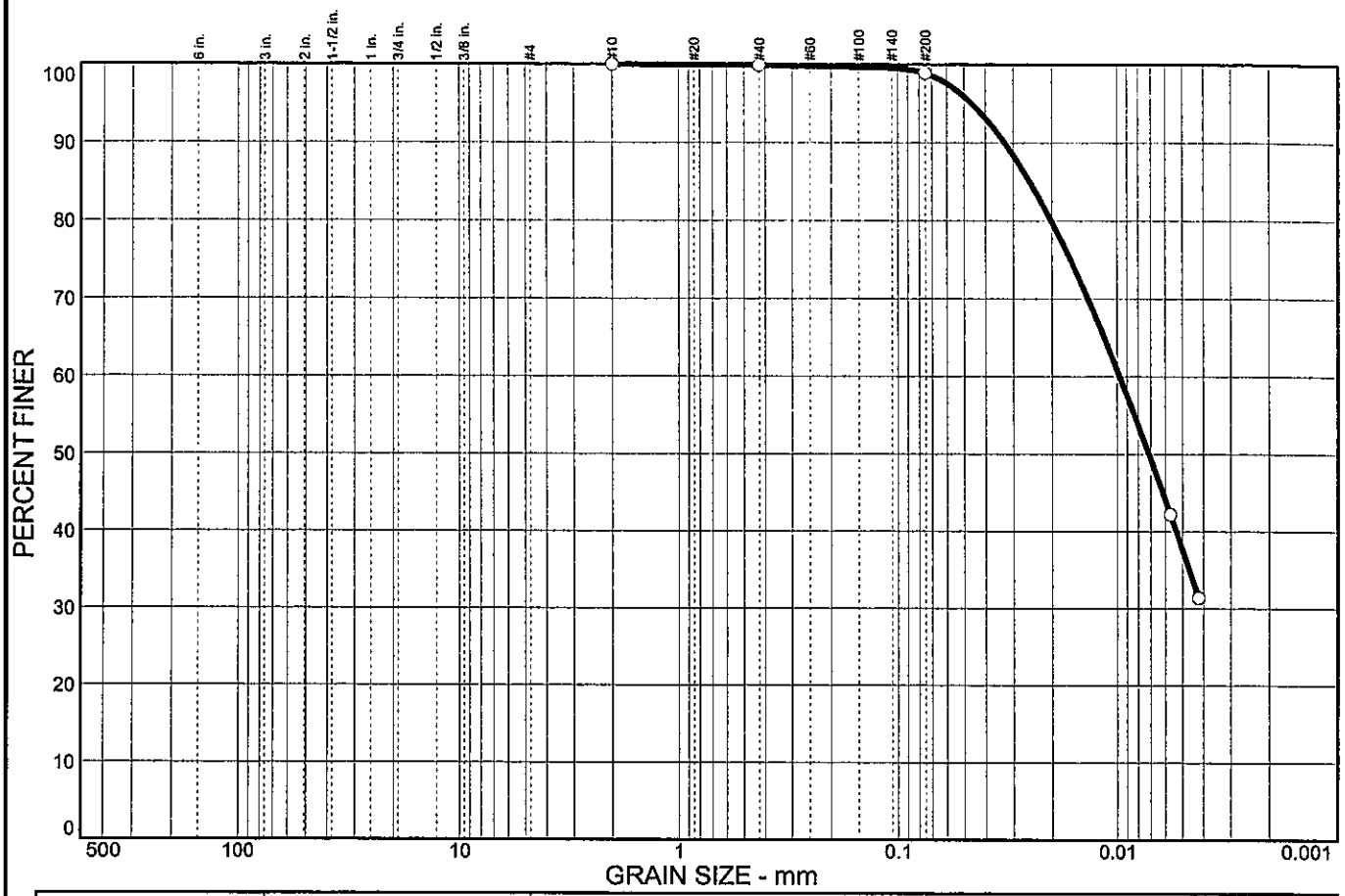
Sample No.: 3 **Source of Sample:** TR-37 **Date:** 2/17/05
Location: **Elev./Depth:** 6.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.1	1.0	61.3	37.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.9		
#200	98.9		

* (no specification provided)

Soil Description

Silt

Atterberg Limits

PL= 24 LL= 34 PI= 10

Coefficients

D_{85}= 0.0252 D_{60}= 0.0097 D_{50}= 0.0071
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= ML AASHTO= A-4(11)

Remarks

Moisture Content= 27.8%

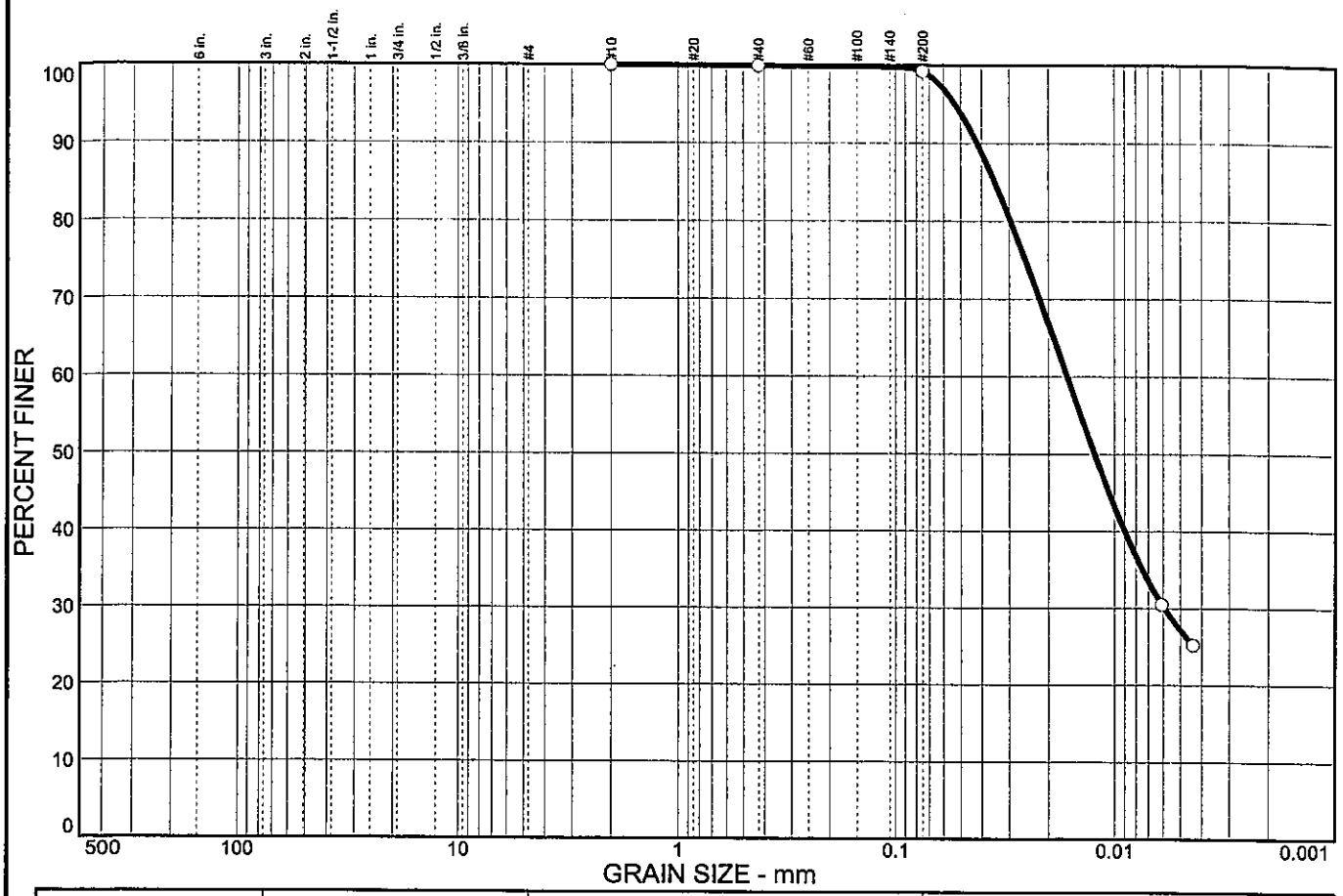
Sample No.: 6 **Source of Sample:** TR-37 **Date:** 2/17/05
Location: **Elev./Depth:** 13.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.1	0.7	72.0	27.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.9		
#200	99.2		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 22 LL= 30 PI= 8

Coefficients

D_{85}= 0.0349 D_{60}= 0.0165 D_{50}= 0.0123
D_{30}= 0.0059 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-4(8)

Remarks

Moisture Content= 26.3%

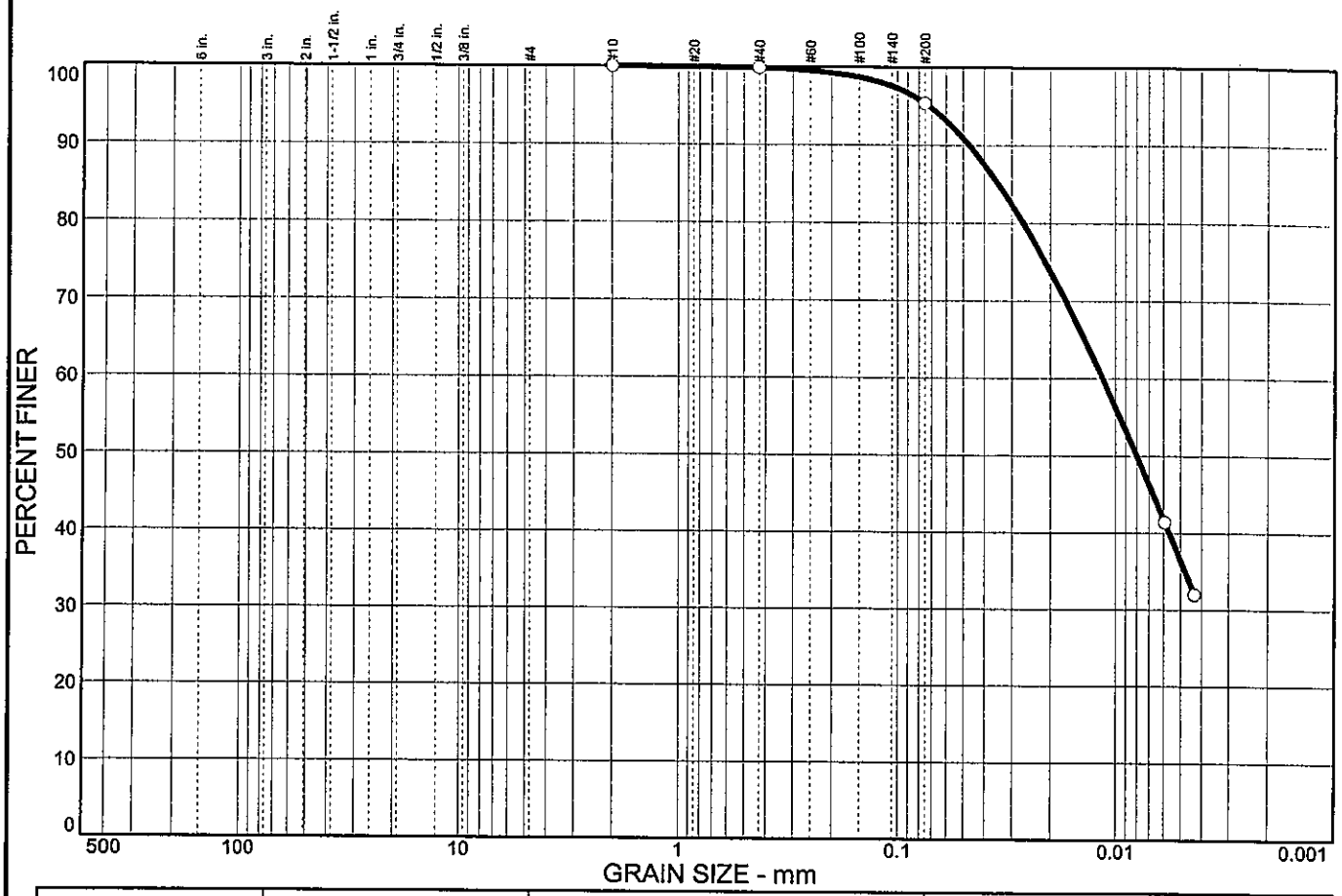
Sample No.: 10 **Source of Sample:** TR-38 **Date:** 3/21/05
Location: **Elev./Depth:** 22.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.1	4.5	59.0	36.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.9		
#200	95.4		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 21 LL= 32 PI= 11

Coefficients

D_{85}= 0.0345 D_{60}= 0.0115 D_{50}= 0.0080
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(10)

Remarks

Moisture Content= 29.3%

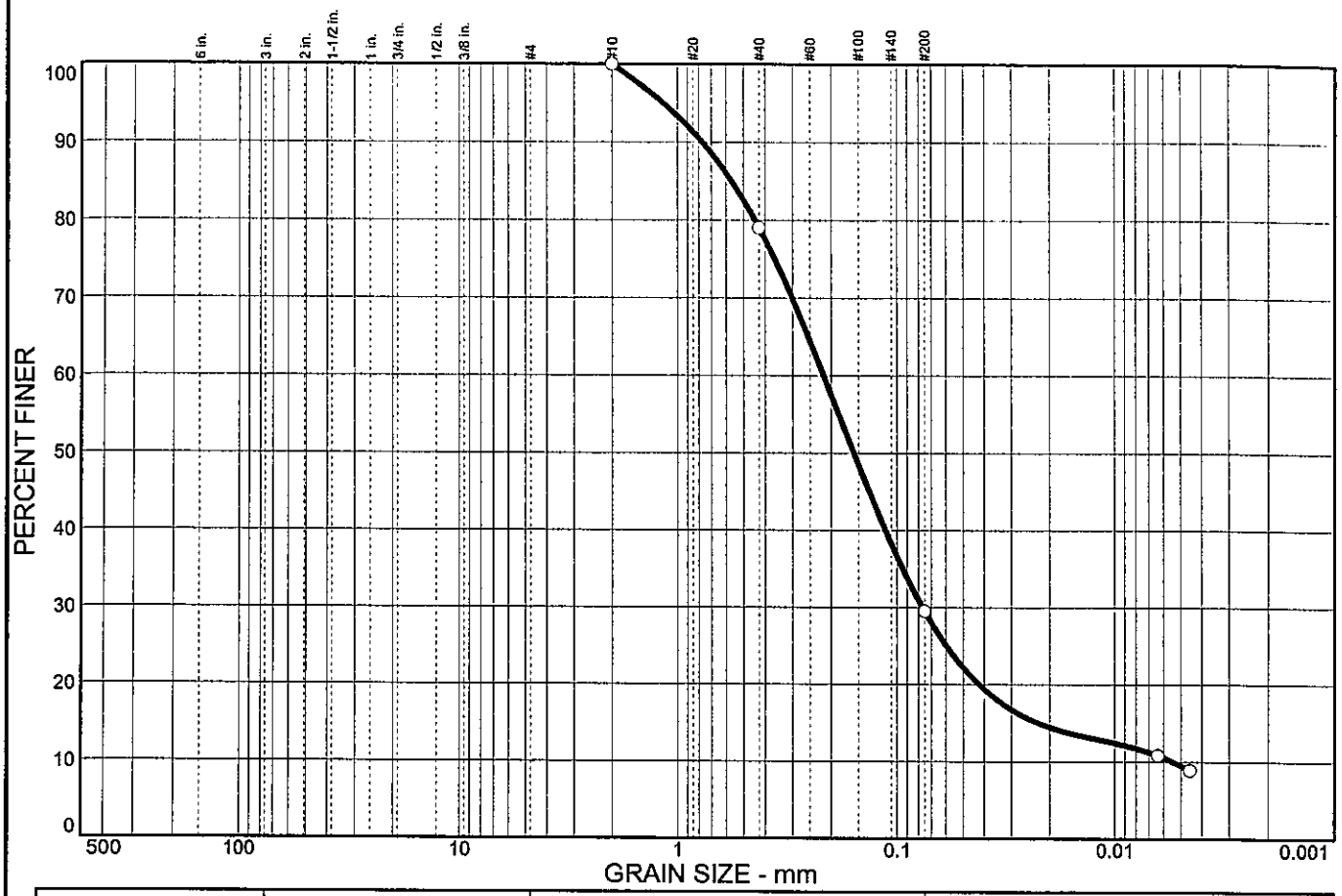
Sample No.: 13 **Source of Sample:** TR-38 **Date:** 3/21/05
Location: **Elev./Depth:** 30.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	21.0	49.5	20.0	9.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	79.0		
#200	29.5		

* (no specification provided)

Soil Description

Silty sand

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{85}= 0.566 D_{60}= 0.217 D_{50}= 0.158
D_{30}= 0.0767 D_{15}= 0.0225 D_{10}= 0.0055
C_u= 39.67 C_c= 4.97

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

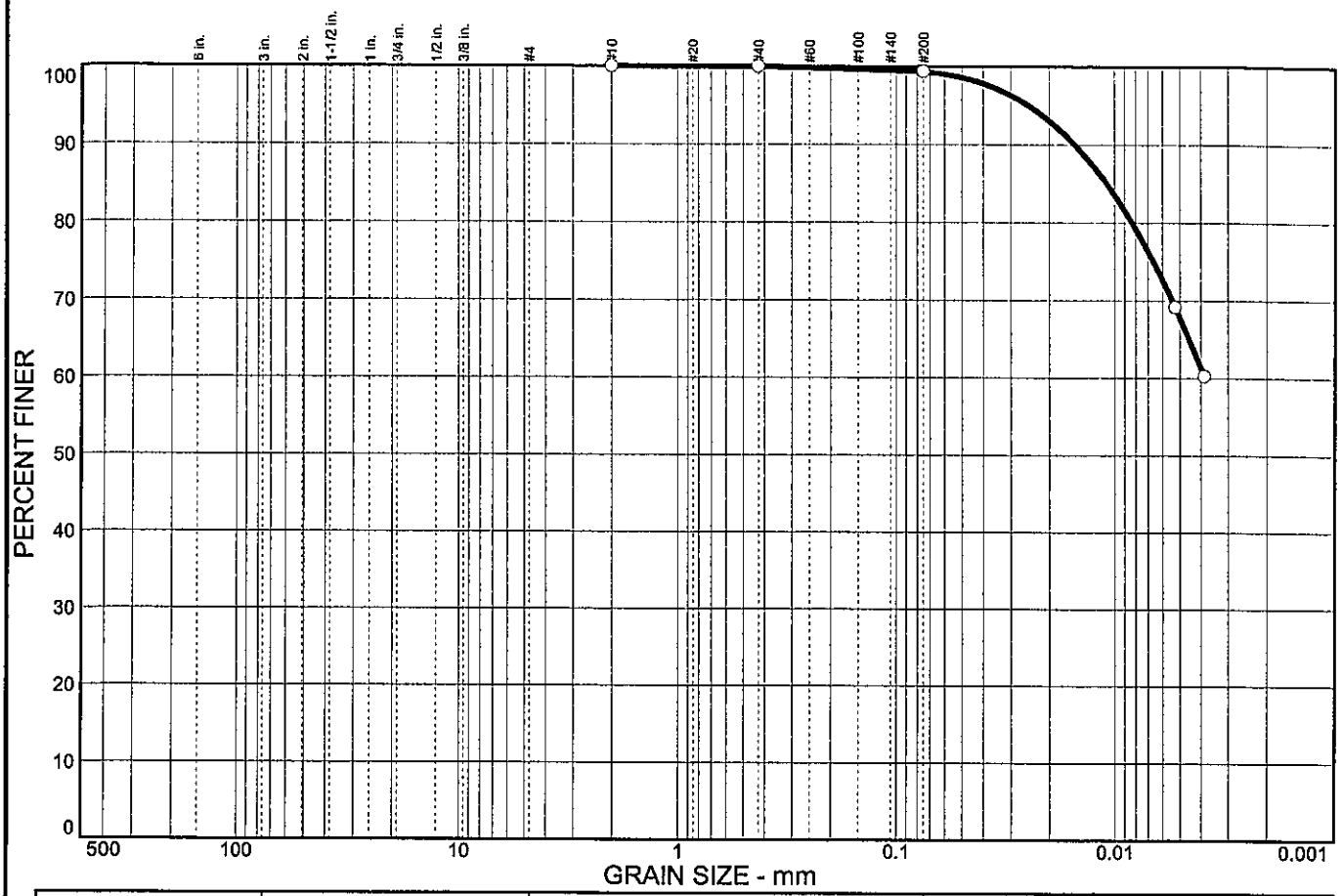
Moisture Content= 21.5%

Sample No.: 14 **Source of Sample:** TR-38 **Date:** 3/21/05
Location: **Elev./Depth:** 35.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00
Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.0	0.6	31.6	67.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	100.0		
#200	99.4		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 23 LL= 39 PI= 16

Coefficients

D_{85}= 0.0109 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(18)

Remarks

Moisture Content= 27.0%

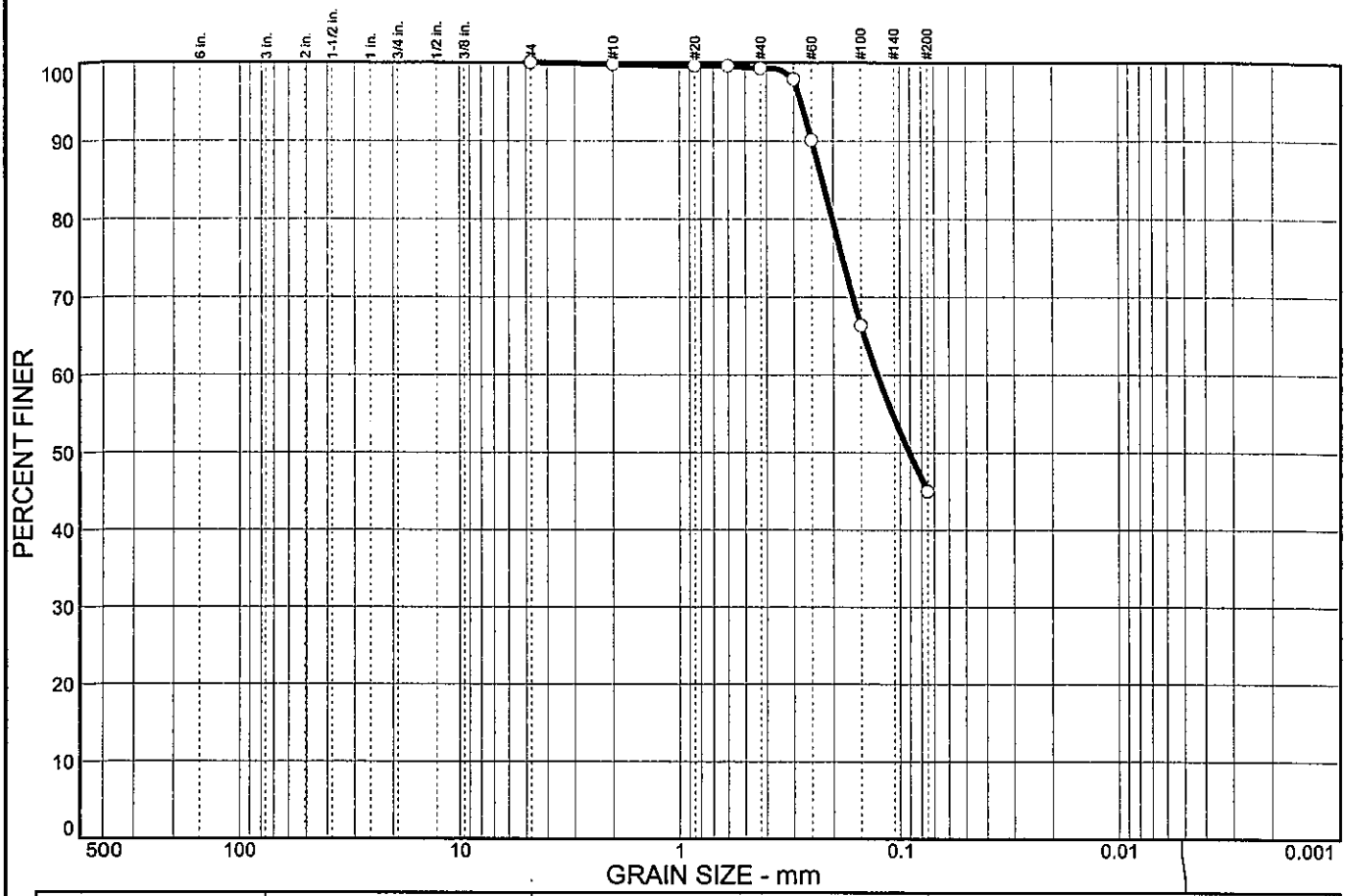
Sample No.: 16 **Source of Sample:** TR-38 **Date:** 3/21/05
Location: **Elev./Depth:** 45.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.2	0.5	54.3	45.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.8		
#20	99.6		
#30	99.6		
#40	99.3		
#50	97.9		
#60	90.1		
#100	66.4		
#200	45.0		

* (no specification provided)

Soil Description

Silty sand

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{85}= 0.224 D_{60}= 0.127 D_{50}= 0.0908
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO= A-4(0)

Remarks

Moisture Content= 23.1%

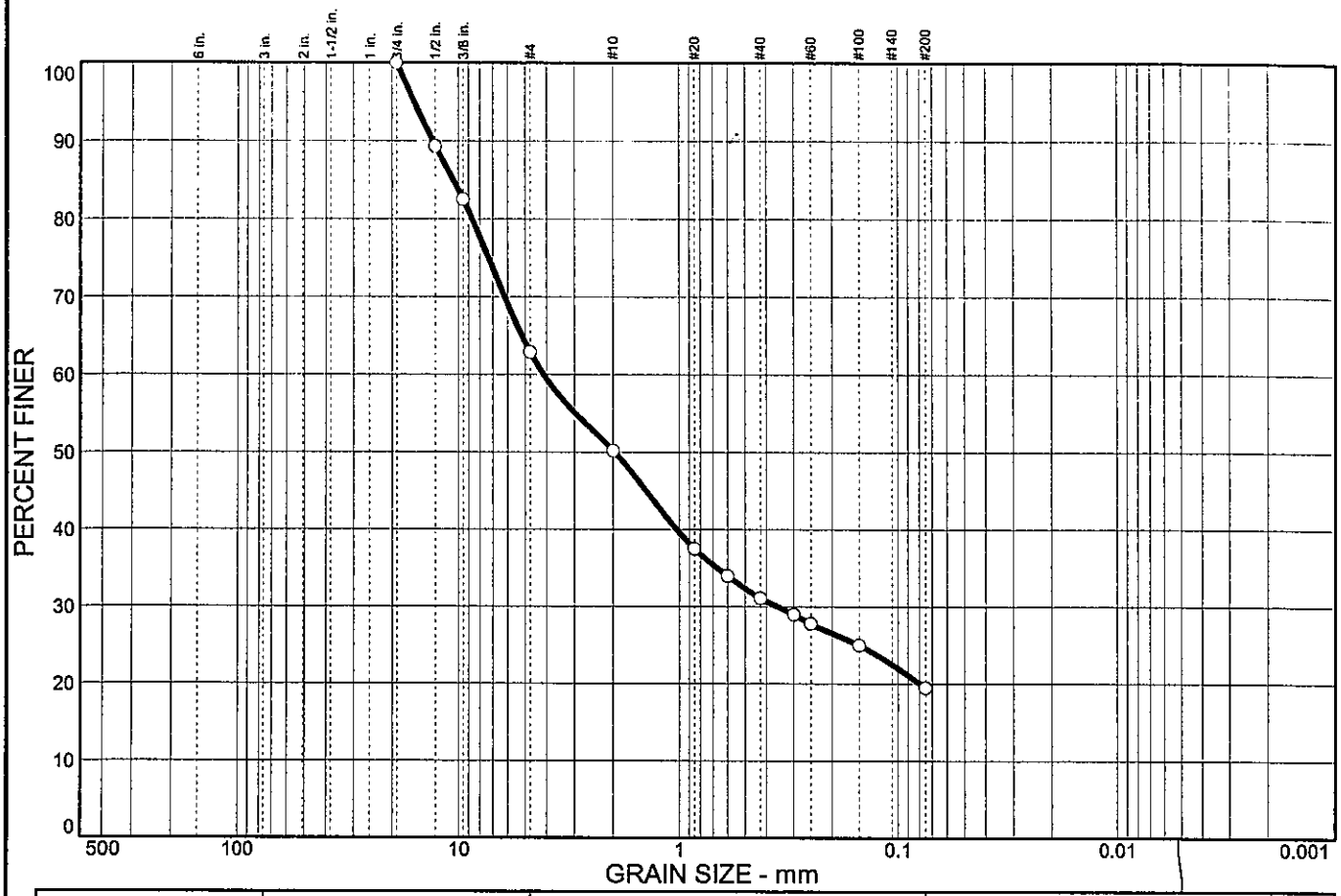
Sample No.: 21 **Source of Sample:** TR-38 **Date:** 3/21/05
Location: **Elev./Depth:** 70.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	37.1	12.7	19.1	11.6	19.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.75 in.	100.0		
0.50 in.	89.3		
0.375 in.	82.5		
#4	62.9		
#10	50.2		
#20	37.5		
#30	34.0		
#40	31.1		
#50	29.0		
#60	27.8		
#100	25.0		
#200	19.5		

* (no specification provided)

Soil Description

Silty sand with gravel

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{85}= 10.6 D_{60}= 4.13 D_{50}= 1.97
D_{30}= 0.356 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO= A-1-b

Remarks

Moisture Content= 12.2%

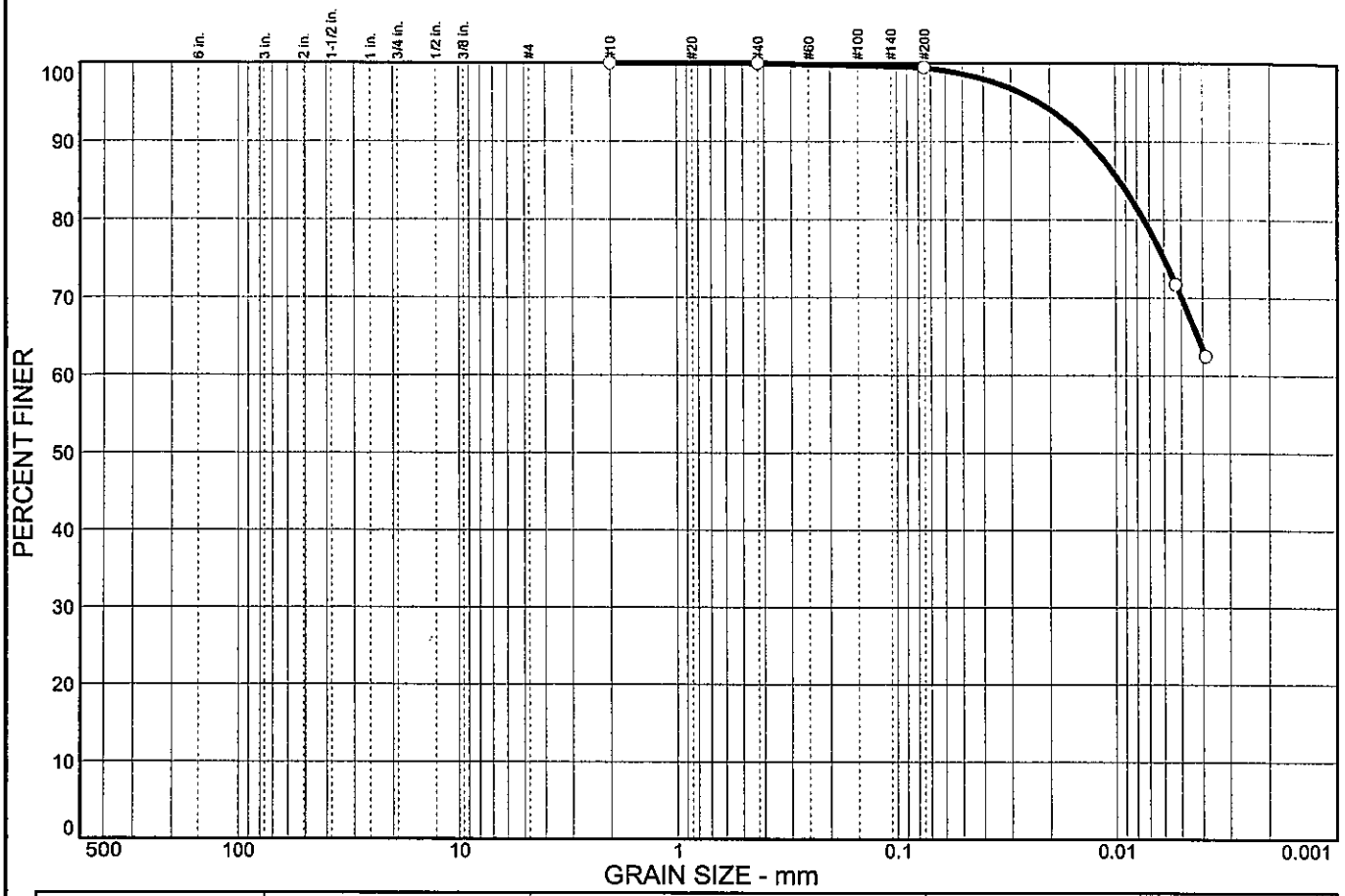
Sample No.: 22 **Source of Sample:** TR-38 **Date:** 3/21/05
Location: **Elev./Depth:** 75.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.0	0.5	29.4	70.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	100.0		
#200	99.5		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 25 LL= 44 PI= 19

Coefficients

D_{85}= 0.0096 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(22)

Remarks

Moisture Content= 25.9%

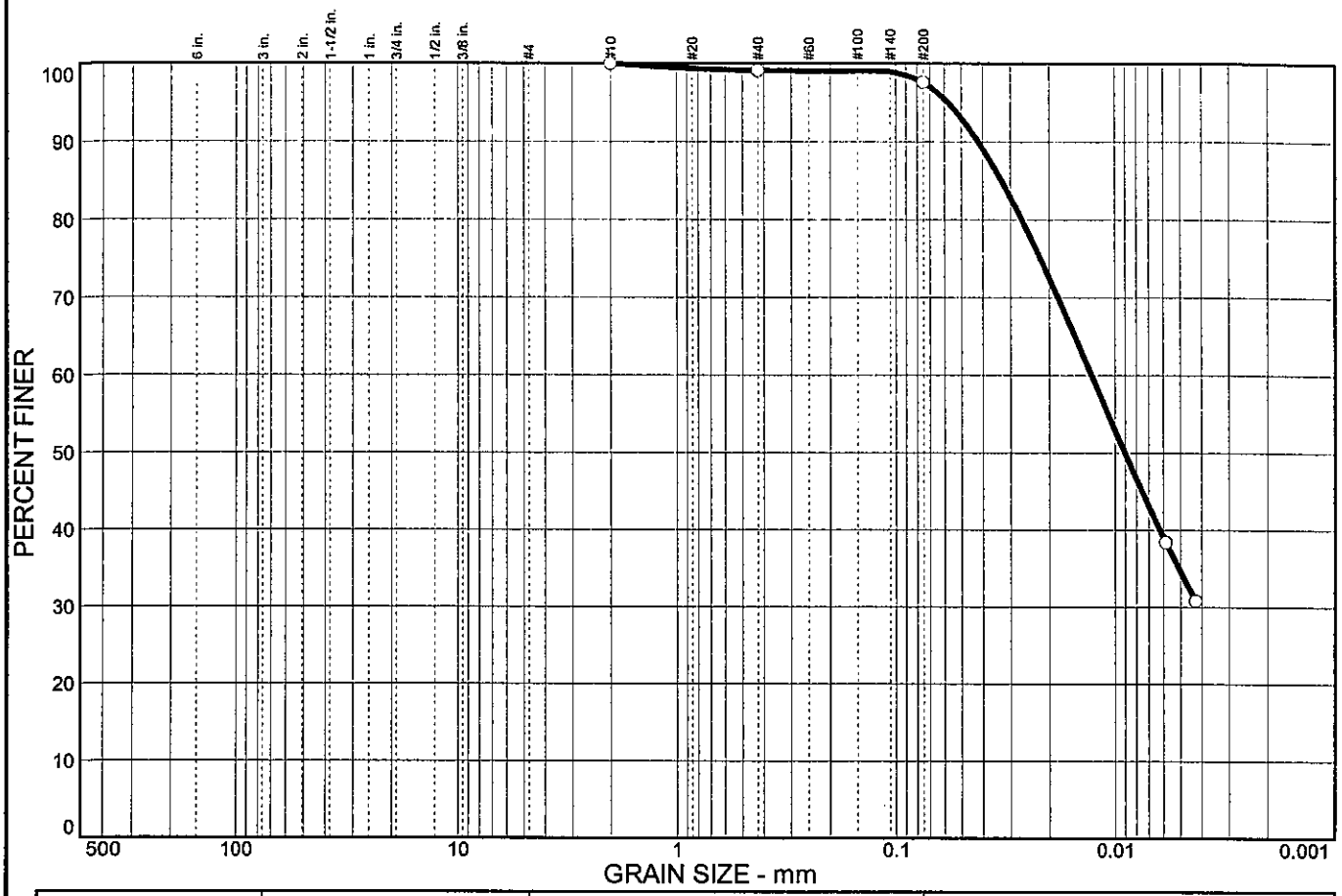
Sample No.: 3 **Source of Sample:** TR-38 **Date:** 3/21/05
Location: **Elev./Depth:** 5.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.9	1.5	63.0	34.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.1		
#200	97.6		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 22 LL= 32 PI= 10

Coefficients

D_{85}= 0.0330 D_{60}= 0.0128 D_{50}= 0.0090
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-4(10)

Remarks

Moisture Content= 28.0%

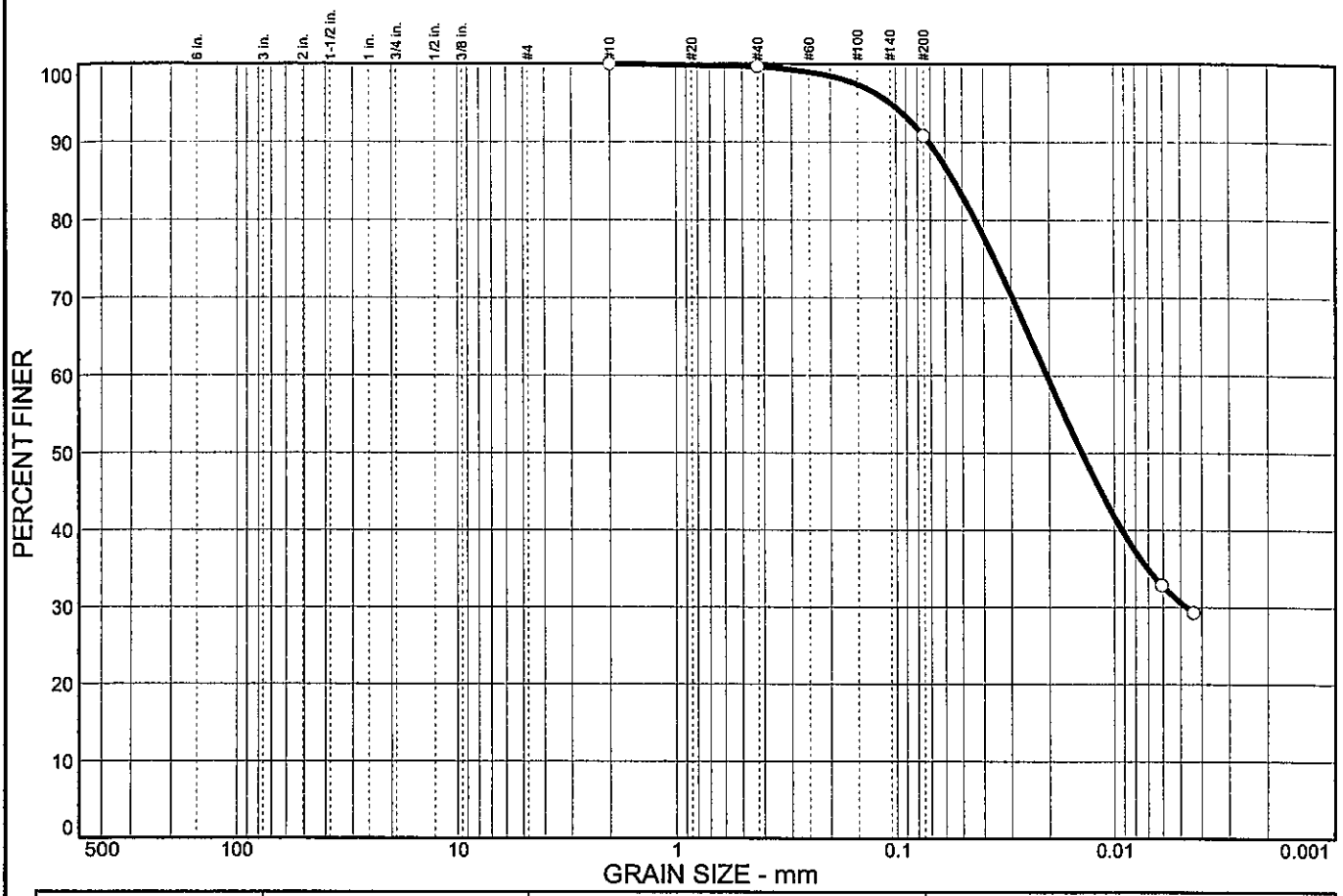
Sample No.: 7 **Source of Sample:** TR-38 **Date:** 3/21/05
Location: **Elev./Depth:** 15.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.3	8.9	60.2	30.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.7		
#200	90.8		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 17 LL= 27 PI= 10

Coefficients

D_{85}= 0.0546 D_{60}= 0.0205 D_{50}= 0.0141
D_{30}= 0.0047 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-4(8)

Remarks

Moisture Content= 19.5%

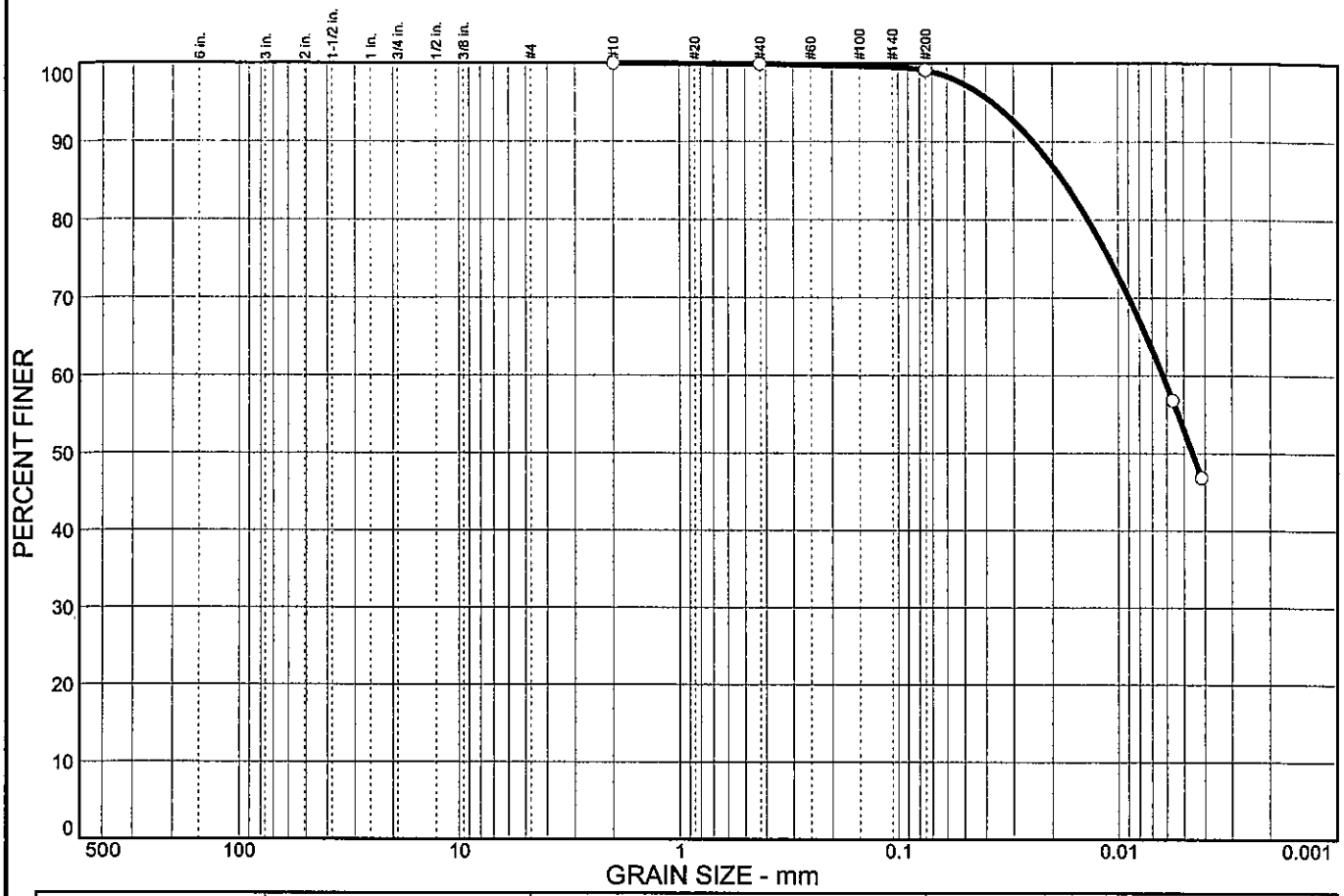
Sample No.: 21 **Source of Sample:** TR-39 **Date:** 2/22/05
Location: **Elev./Depth:** 73.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.1	0.8	46.1	53.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.9		
#200	99.1		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 22 LL= 35 PI= 13

Coefficients

D_{85}= 0.0179 D_{60}= 0.0062 D_{50}= 0.0046
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(14)

Remarks

Moisture Content= 24.9%

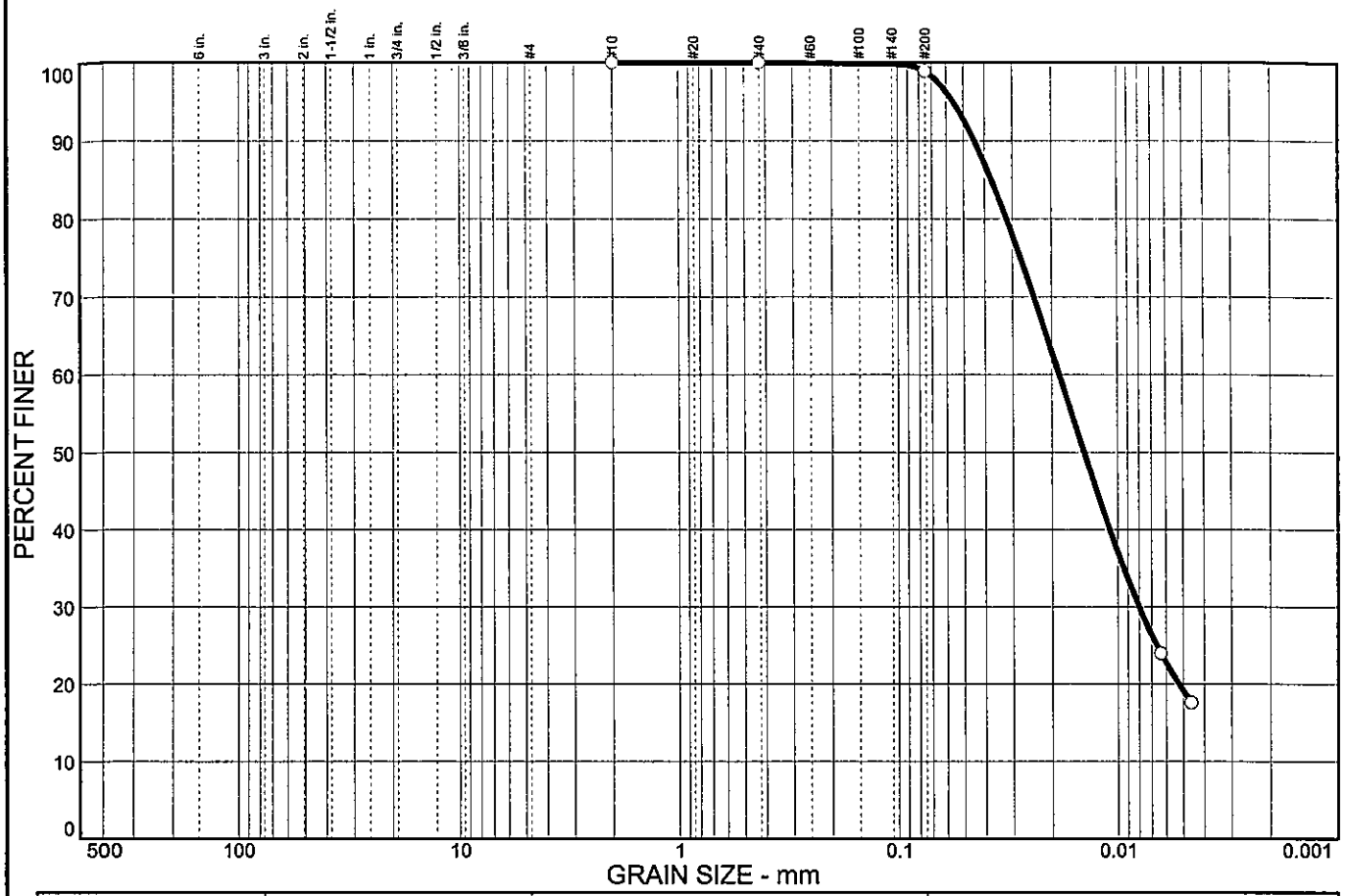
Sample No.: 11 **Source of Sample:** TR-39 **Date:** 2/22/05
Location: **Elev./Depth:** 26.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.0	1.1	79.7	19.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	100.0		
#200	98.9		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 20 LL= 37 PI= 17

Coefficients

D_{85}= 0.0374 D_{60}= 0.0185 D_{50}= 0.0143
D_{30}= 0.0080 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(18)

Remarks

Moisture Content= 30.1%

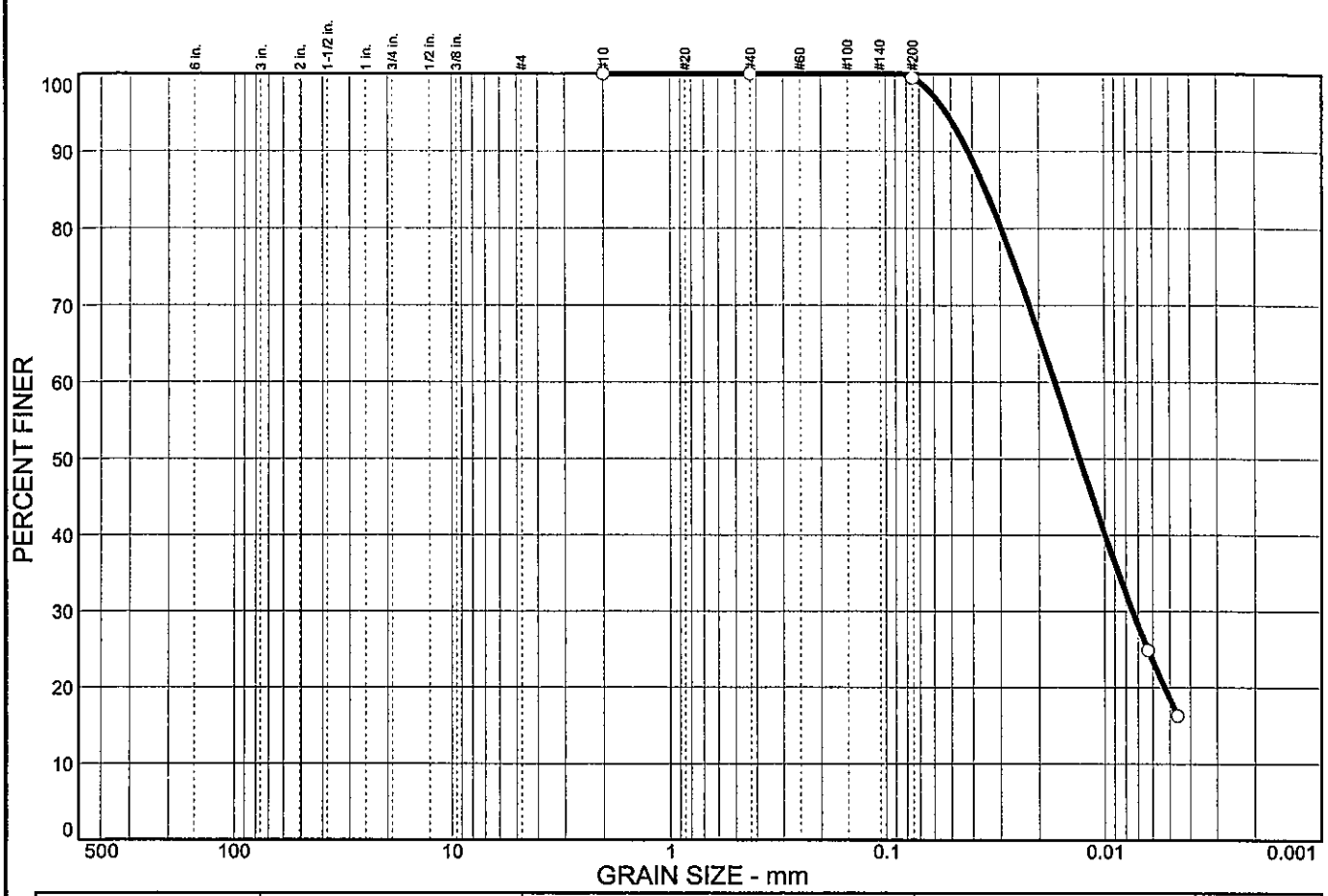
Sample No.: 13 **Source of Sample:** TR-39 **Date:** 2/22/05
Location: **Elev./Depth:** 33.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.0	0.5	80.9	18.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	100.0		
#200	99.5		

* (no specification provided)

Soil Description

Silt

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{85}= 0.0349 D_{60}= 0.0169 D_{50}= 0.0130
D_{30}= 0.0074 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= ML AASHTO= A-4(0)

Remarks

Moisture Content= 28.4%

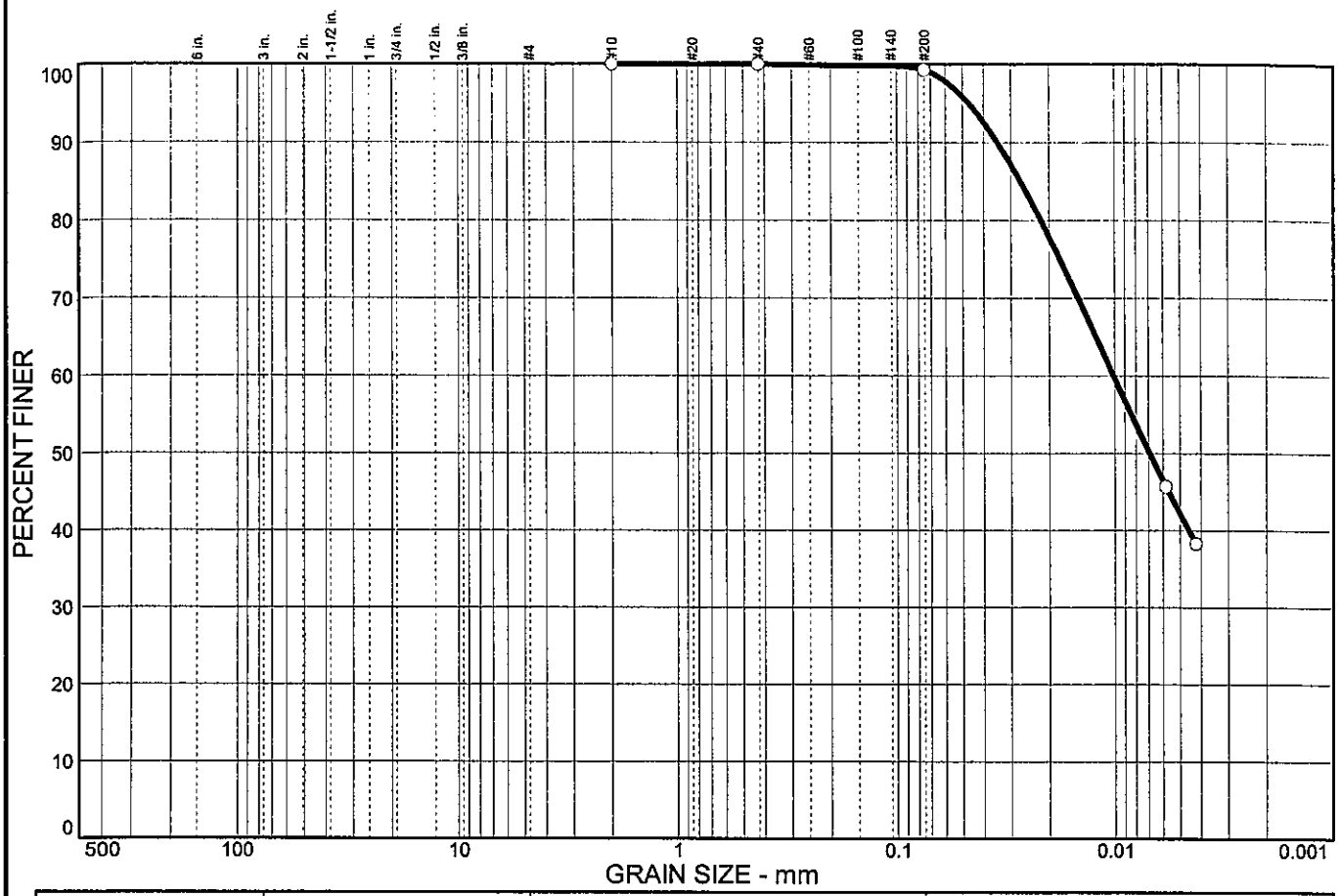
Sample No.: 14 **Source of Sample:** TR-39 **Date:** 2/22/05
Location: **Elev./Depth:** 38.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.0	0.7	57.1	42.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	100.0		
#200	99.3		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 19 LL= 32 PI= 13

Coefficients

D_{85}= 0.0271 D_{60}= 0.0101 D_{50}= 0.0069
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(13)

Remarks

Moisture Content= 27.3%

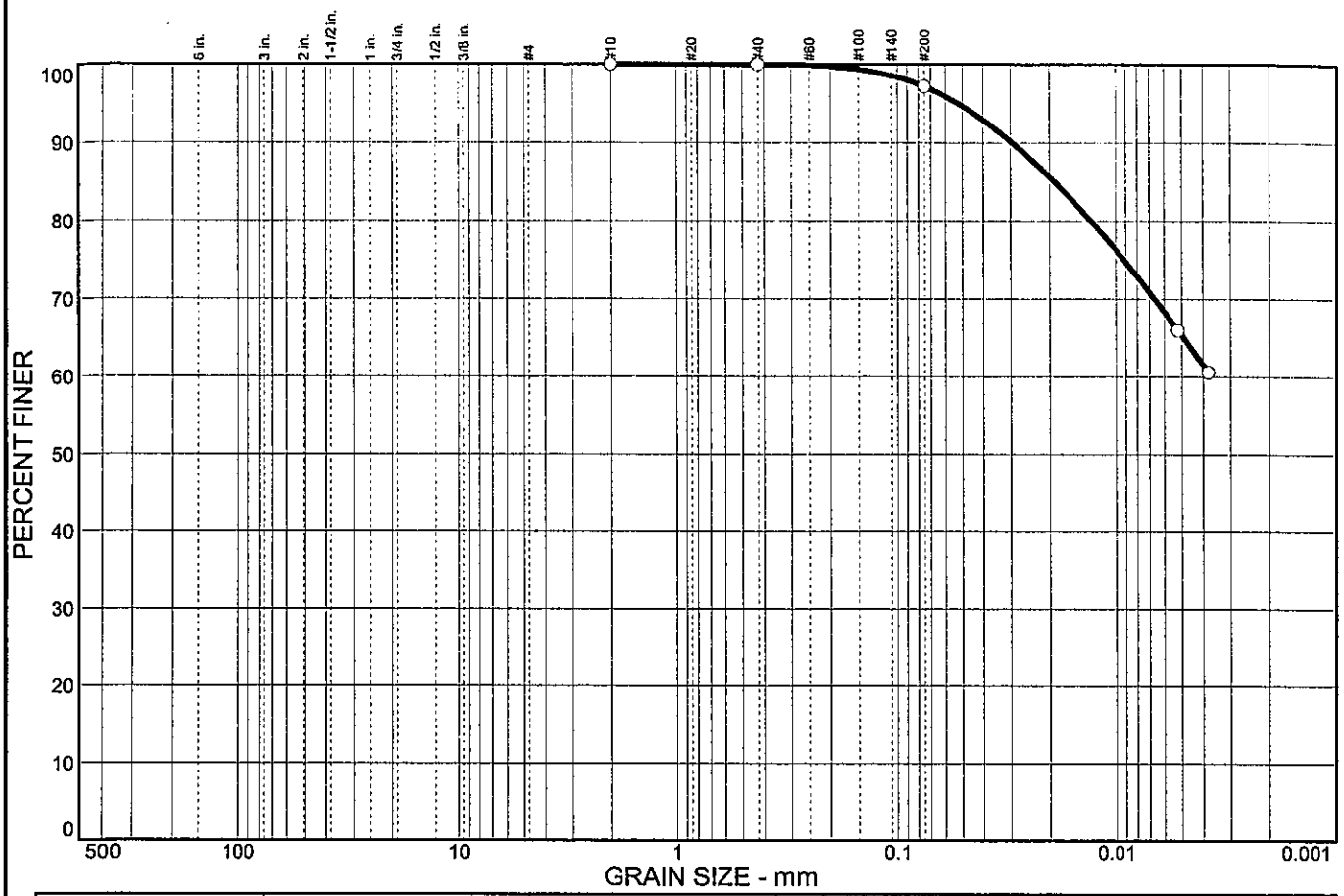
Sample No.: 16 **Source of Sample:** TR-39 **Date:** 2/22/05
Location: **Elev./Depth:** 48.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.0	2.8	31.9	65.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	100.0		
#200	97.2		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 23 LL= 41 PI= 18

Coefficients

D_{85}= 0.0190 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(19)

Remarks

Moisture Content= 25.2%

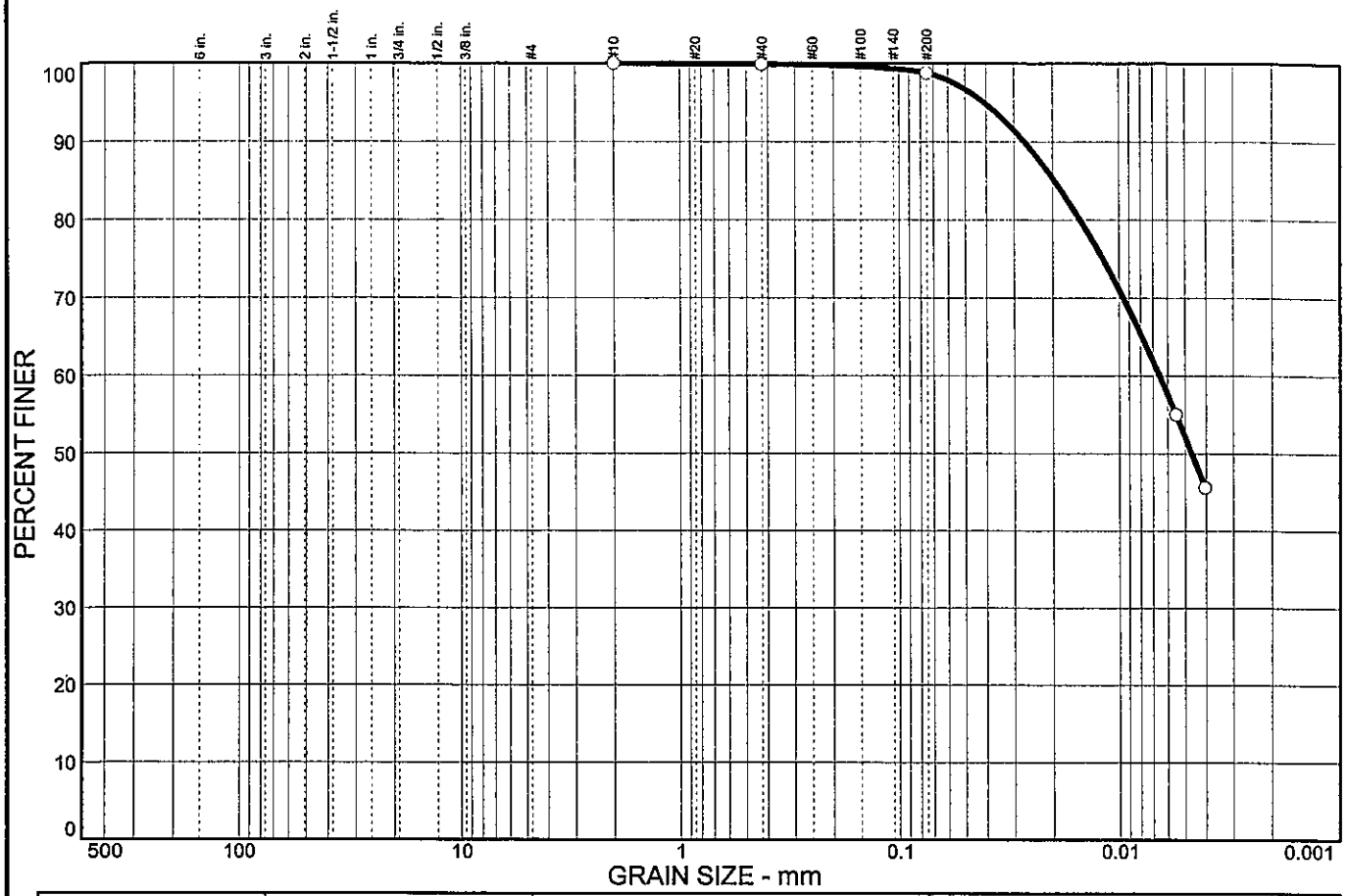
Sample No.: 19 **Source of Sample:** TR-39 **Date:** 2/22/05
Location: **Elev./Depth:** 63.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.1	1.1	46.7	52.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.9		
#200	98.8		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 23 LL= 40 PI= 17

Coefficients

D_{85}= 0.0196 D_{60}= 0.0065 D_{50}= 0.0047
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(19)

Remarks

Moisture Content= 25.0%

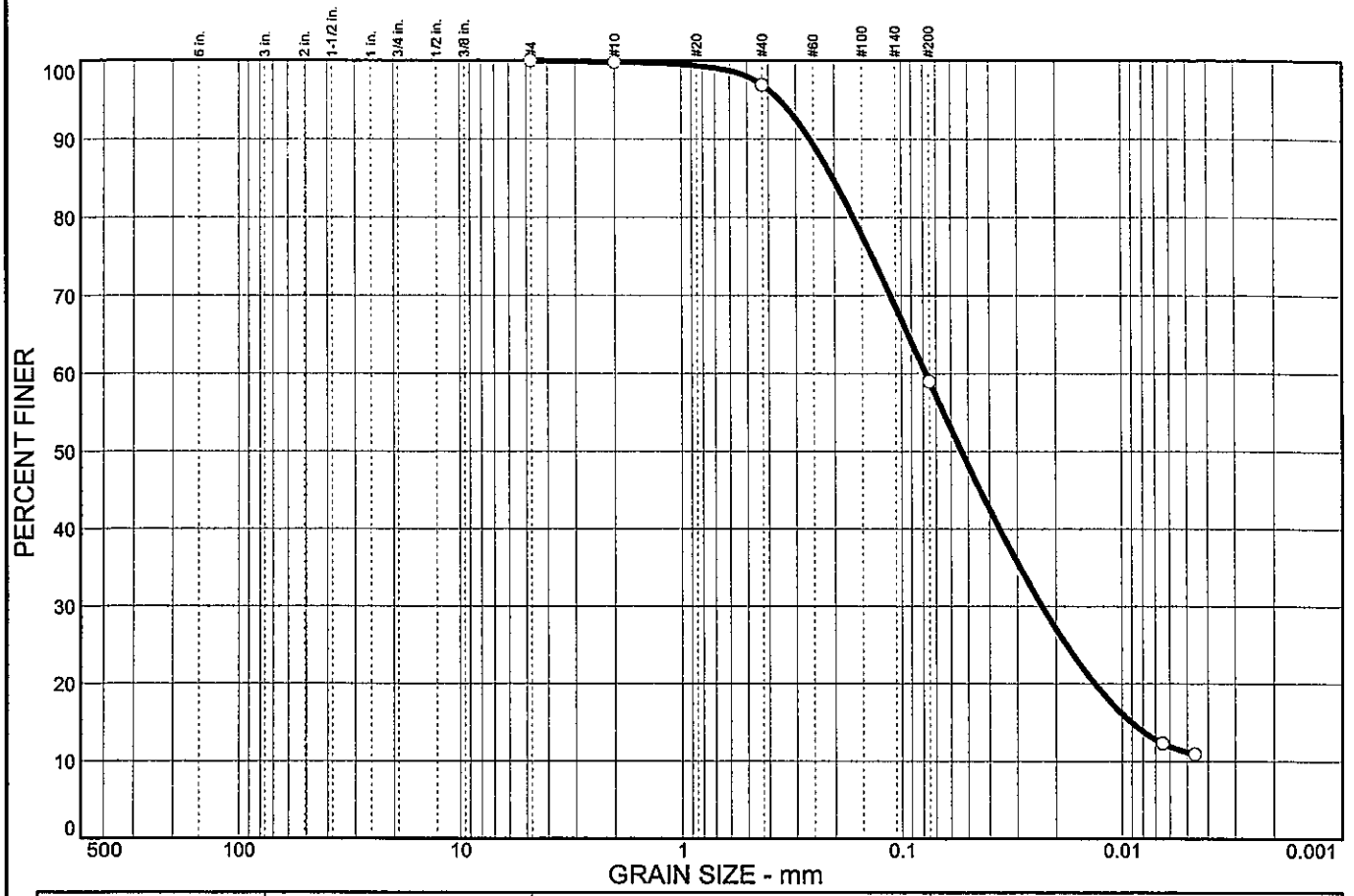
Sample No.: 2 **Source of Sample:** TR-39 **Date:** 2/22/05
Location: **Elev./Depth:** 3.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.2	2.9	37.9	47.8	11.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.8		
#40	96.9		
#200	59.0		

* (no specification provided)

Soil Description

Sandy silt

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{85}= 0.203 D_{60}= 0.0778 D_{50}= 0.0536
D_{30}= 0.0231 D_{15}= 0.0090 D_{10}=
C_u= C_c=

Classification

USCS= ML AASHTO= A-4(0)

Remarks

Moisture Content= 20.7%

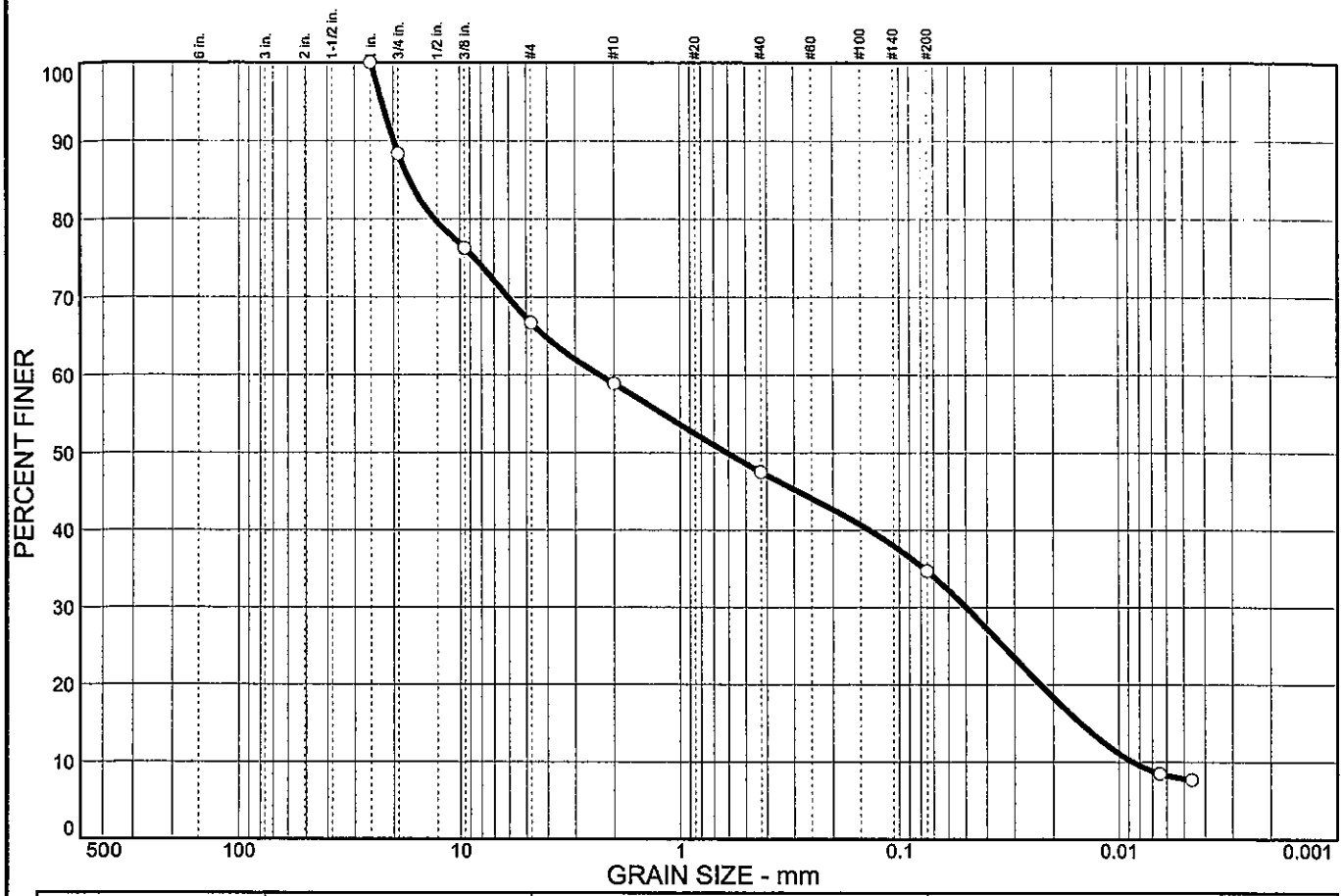
Sample No.: 22 **Source of Sample:** TR-39 **Date:** 2/22/05
Location: **Elev./Depth:** 78.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	11.7	21.6	7.8	11.4	12.8	26.9	7.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.00 in.	100.0		
0.75 in.	88.3		
0.375 in.	76.3		
#4	66.7		
#10	58.9		
#40	47.5		
#200	34.7		

* (no specification provided)

Soil Description

Silty gravel with sand

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{85}= 17.0 D_{60}= 2.32 D_{50}= 0.610
D_{30}= 0.0498 D_{15}= 0.0150 D_{10}= 0.0086
C_u= 269.65 C_c= 0.12

Classification

USCS= GM AASHTO= A-2-4(0)

Remarks

Moisture Content= 13.4%

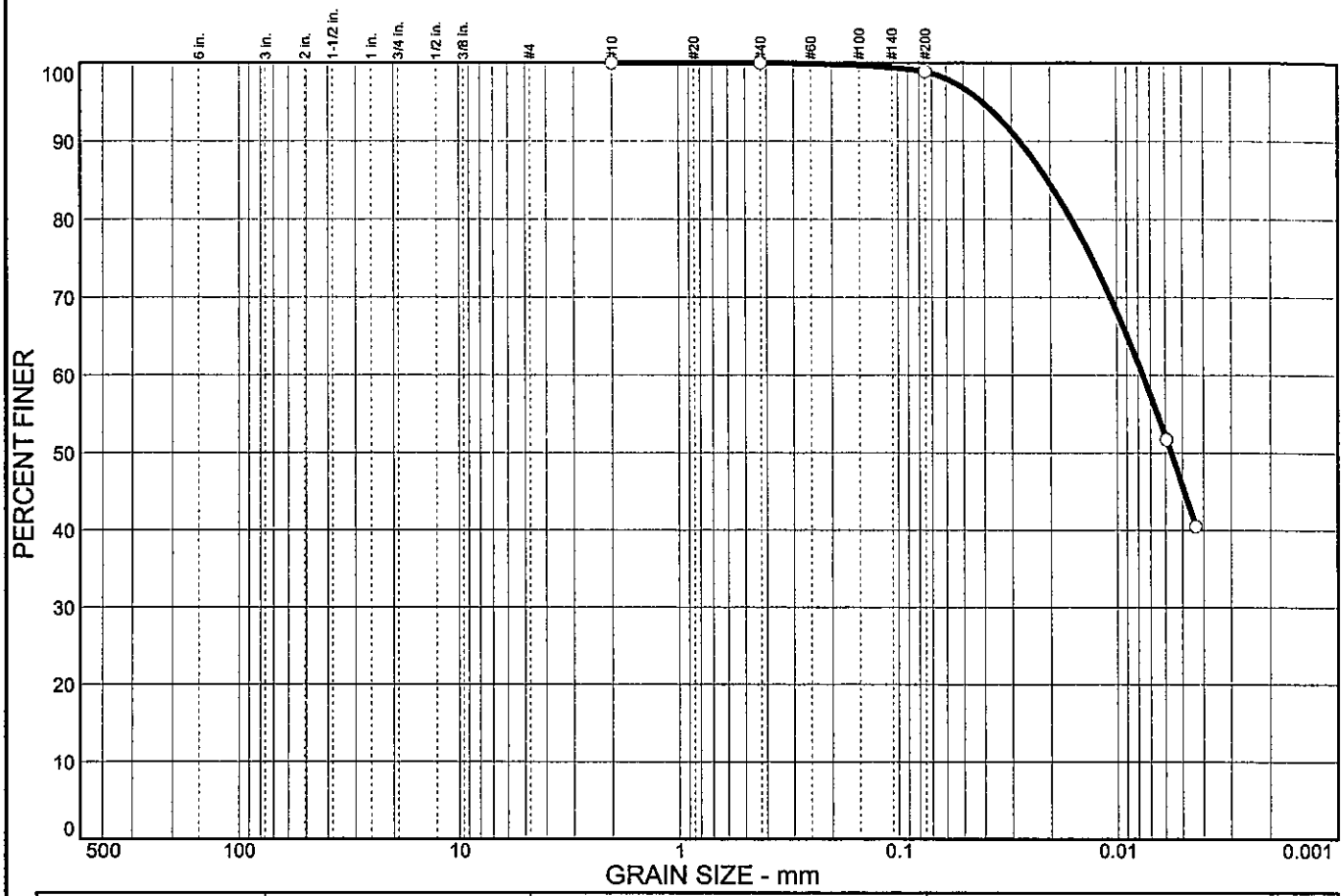
Sample No.: 24 **Source of Sample:** TR-39 **Date:** 2/22/05
Location: **Elev./Depth:** 88.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.0	1.1	53.2	45.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	100.0		
#200	98.9		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 21 LL= 33 PI= 12

Coefficients

D_{85}= 0.0205 D_{60}= 0.0076 D_{50}= 0.0056
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(12)

Remarks

Moisture Content= 25.5%

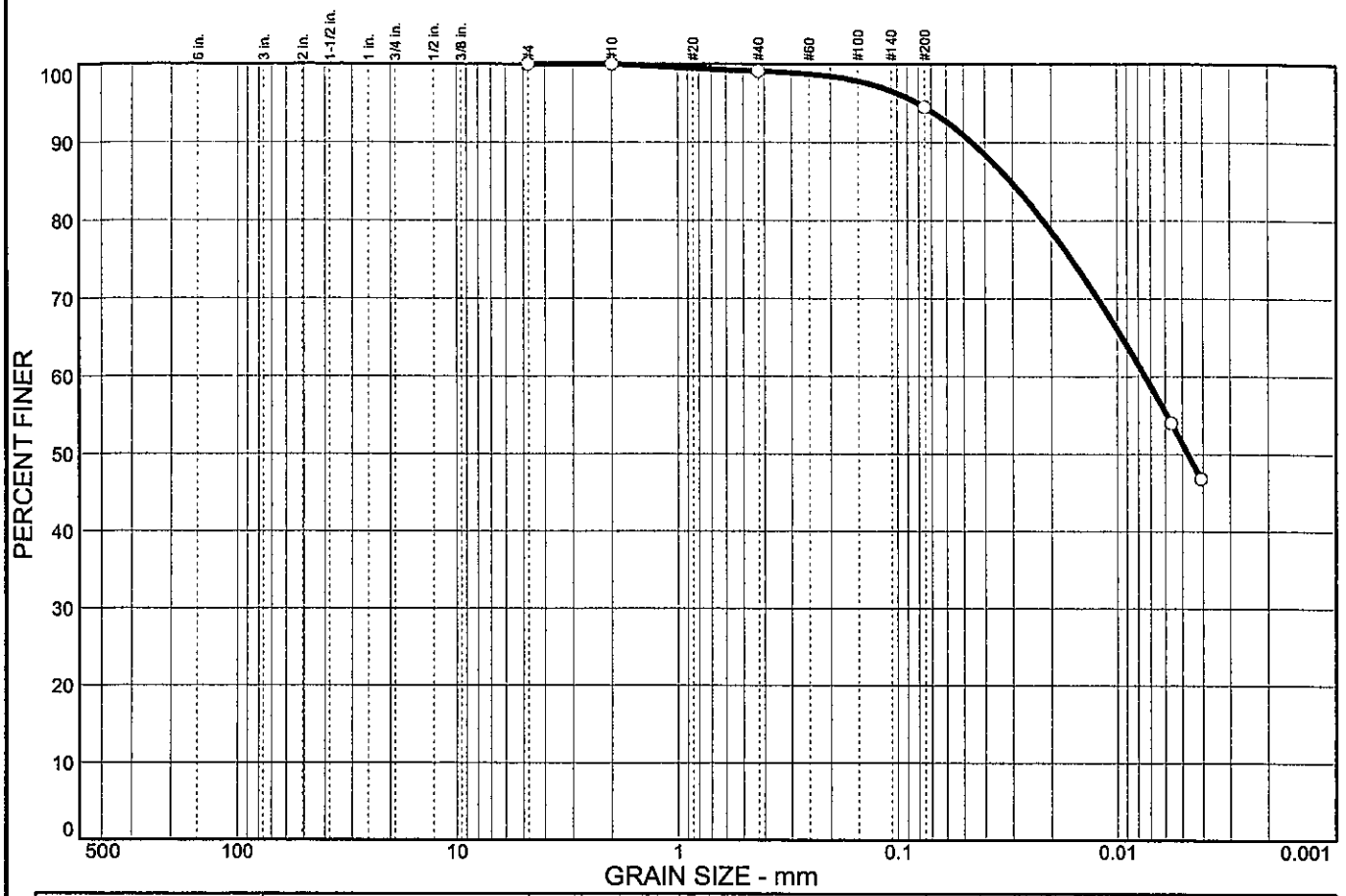
Sample No.: 6 **Source of Sample:** TR-39 **Date:** 2/22/05
Location: **Elev./Depth:** 13.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.9	4.6	43.1	51.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	100.0		
#40	99.1		
#200	94.5		

* (no specification provided)

Soil Description

Atterberg Limits

PL= 22 LL= 39 PI= 17

Coefficients

D_{85}= 0.0306 D_{60}= 0.0074 D_{50}= 0.0047
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(17)

Remarks

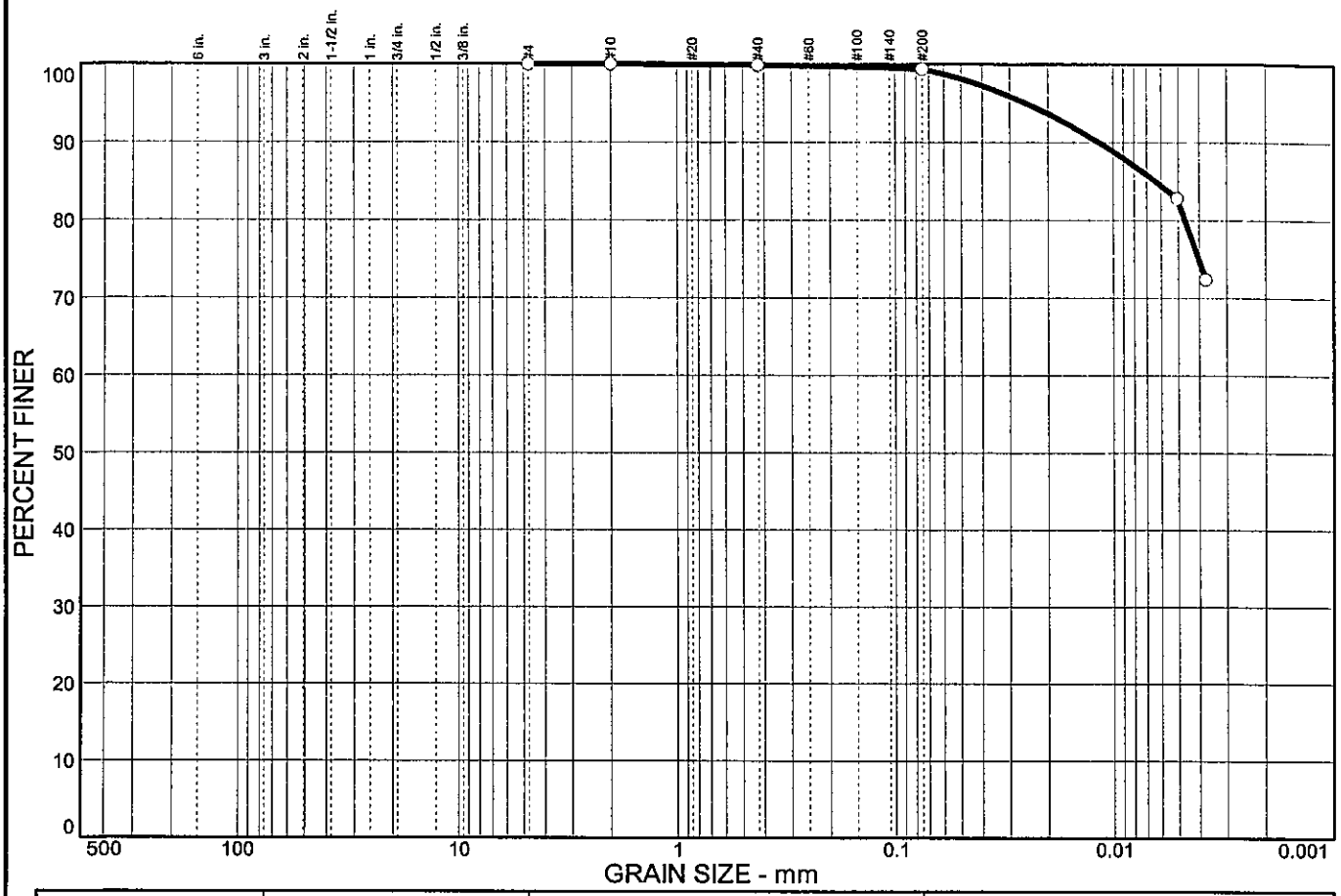
Moisture Content = 23.1%

Sample No.: 1 **Source of Sample:** R-64A **Date:** 02/09/06
Location: **Elev./Depth:** 1.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00
Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.1	0.5	16.9	82.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	100.0		
#40	99.9		
#200	99.4		

* (no specification provided)

Soil Description

Atterberg Limits

PL= 24 LL= 47 PI= 23

Coefficients

D_{85}= 0.0064 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(26)

Remarks

Moisture Content = 26.6%

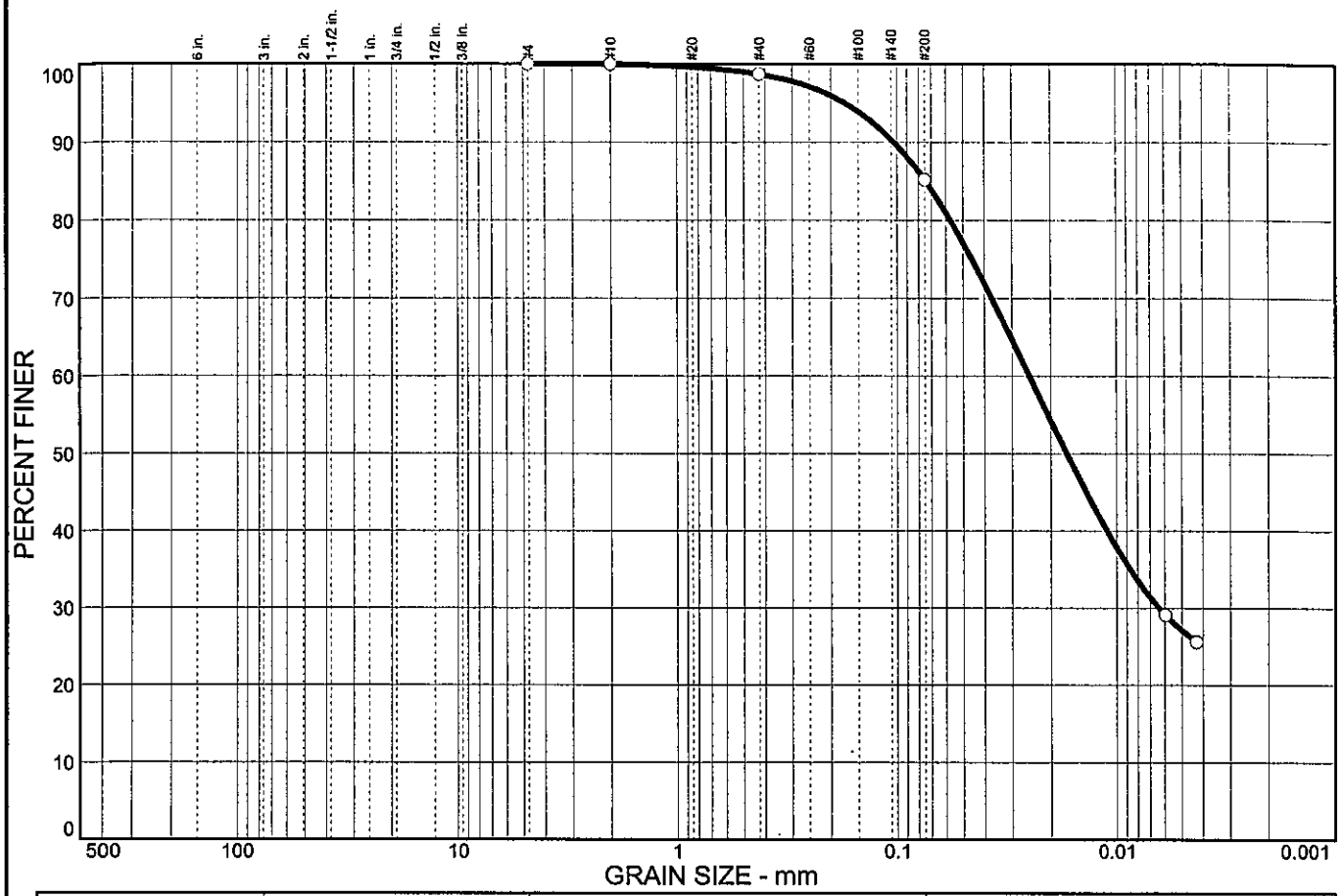
Sample No.: 10 **Source of Sample:** R-64A **Date:** 02/09/06
Location: **Elev./Depth:** 28.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	1.3	13.5	58.1	27.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	100.0		
#40	98.7		
#200	85.2		

* (no specification provided)

Soil Description

Atterberg Limits

PL= 16 LL= 23 PI= 7

Coefficients

D_{85}= 0.0741 D_{60}= 0.0250 D_{50}= 0.0169
D_{30}= 0.0064 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL-ML AASHTO= A-4(4)

Remarks

Moisture Content = 9.3%

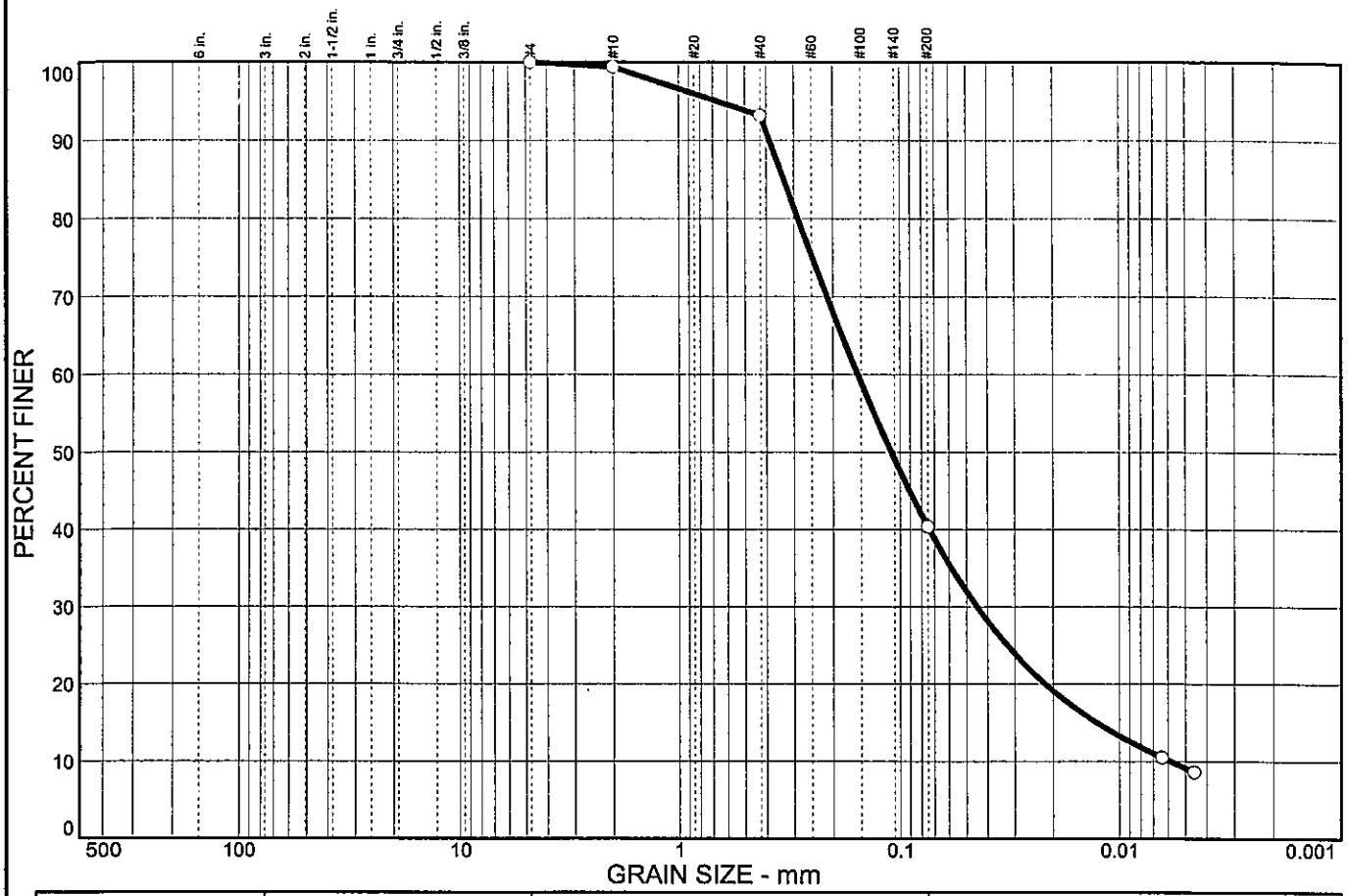
Sample No.: 16 **Source of Sample:** R-64A **Date:** 02/09/06
Location: **Elev./Depth:** 58.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.6	6.2	52.8	31.3	9.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.4		
#40	93.2		
#200	40.4		

* (no specification provided)

Soil Description

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{85}= 0.334 D_{60}= 0.155 D_{50}= 0.110
D_{30}= 0.0446 D_{15}= 0.0126 D_{10}= 0.0058
C_u= 26.46 C_c= 2.20

Classification

USCS= SM AASHTO= A-4(0)

Remarks

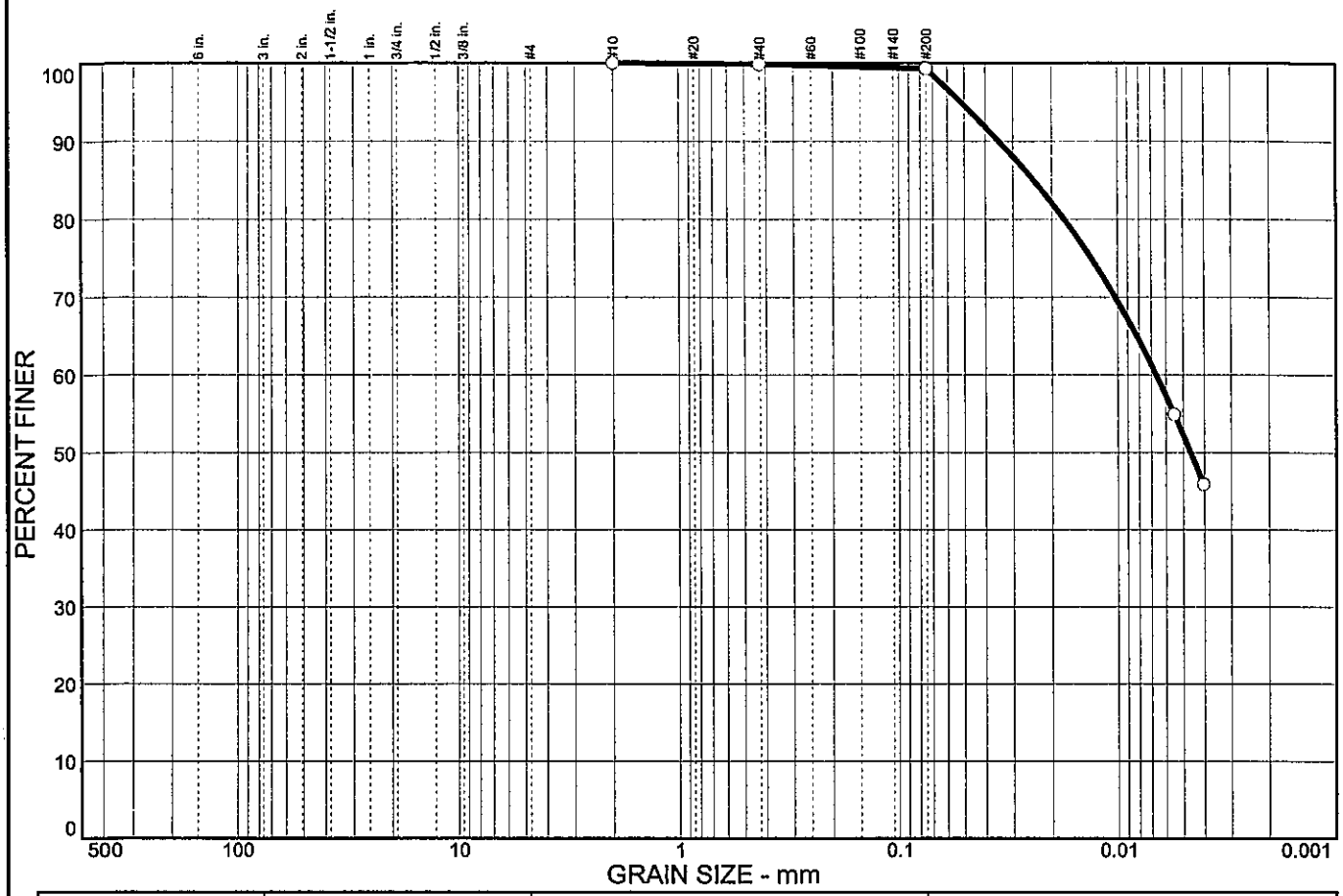
Moisture Content = 20.0%

Sample No.: 18 **Source of Sample:** R-64A **Date:** 02/09/06
Location: **Elev./Depth:** 68.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00
Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.1	0.6	47.1	52.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.9		
#200	99.3		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 22 LL= 33 PI= 11

Coefficients

D_{85}= 0.0242 D_{60}= 0.0067 D_{50}= 0.0046
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(11)

Remarks

Moisture Content = 25.4%

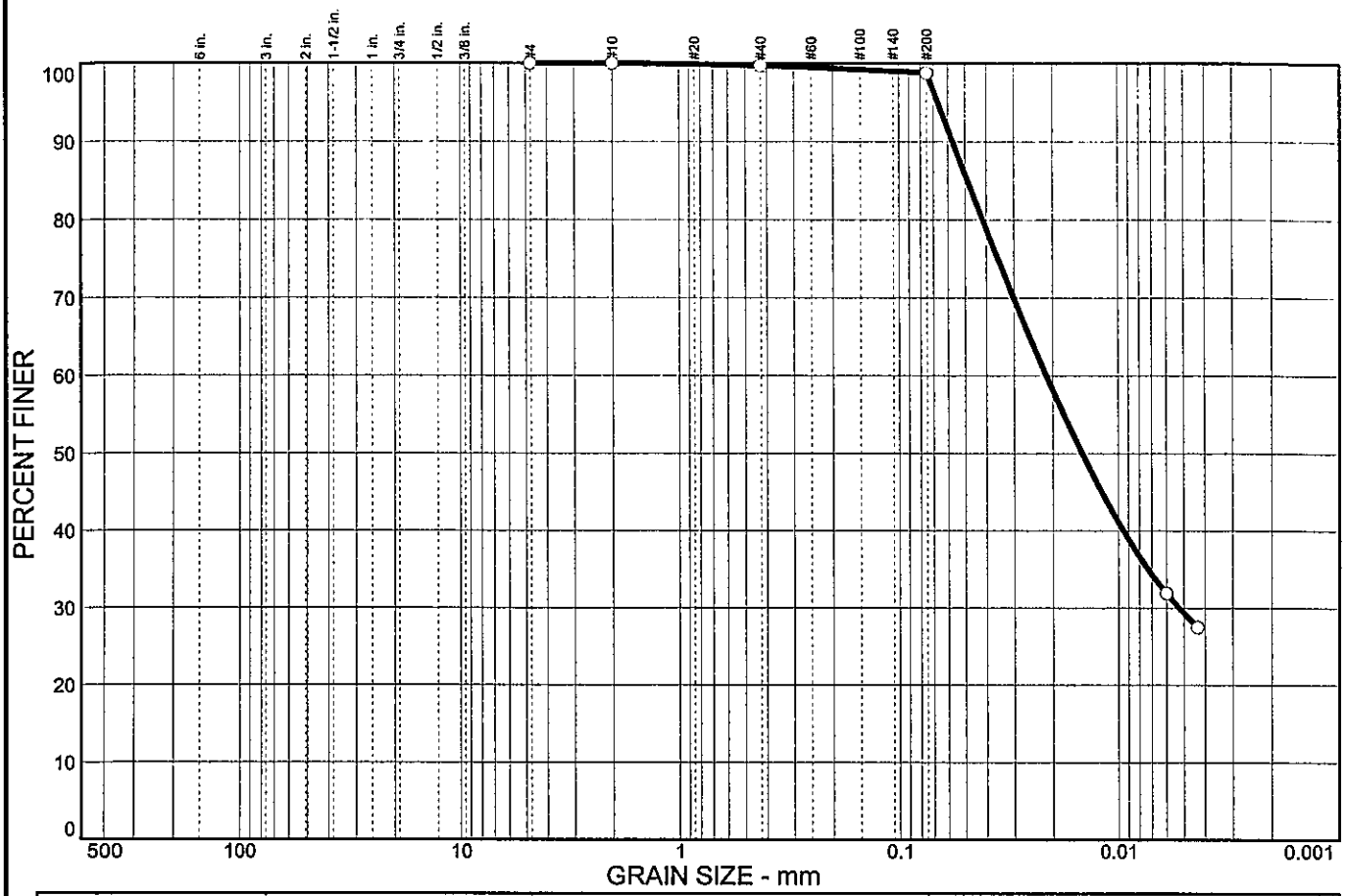
Sample No.: 3 **Source of Sample:** R-64A **Date:** 1/31/06
Location: **Elev./Depth:** 8.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.3	0.9	69.4	29.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	100.0		
#40	99.7		
#200	98.8		

* (no specification provided)

Soil Description

Atterberg Limits

PL= 22 LL= 29 PI= 7

Coefficients

D_{85}= 0.0488 D_{60}= 0.0213 D_{50}= 0.0147
D_{30}= 0.0052 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL-ML AASHTO= A-4(7)

Remarks

Moisture Content = 29.1%

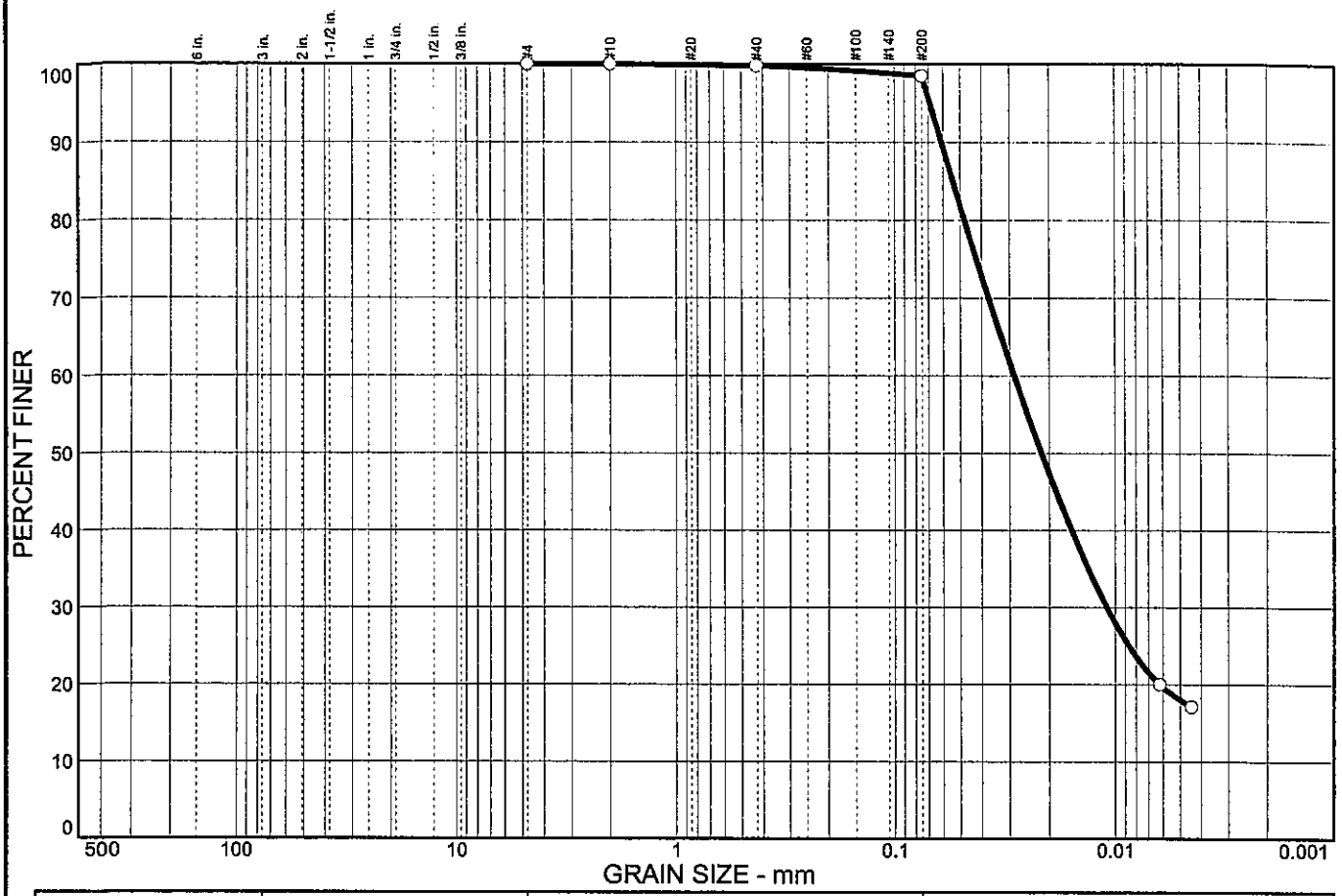
Sample No.: 6 **Source of Sample:** R-64A **Date:** 02/09/06
Location: **Elev./Depth:** 18.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.2	1.3	80.5	18.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	100.0		
#40	99.8		
#200	98.5		

* (no specification provided)

Soil Description

Atterberg Limits

PL= 21 LL= 24 PI= 3

Coefficients

D_{85}= 0.0541 D_{60}= 0.0286 D_{50}= 0.0216
D_{30}= 0.0109 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= ML AASHTO= A-4(2)

Remarks

Moisture Content = 27.9%

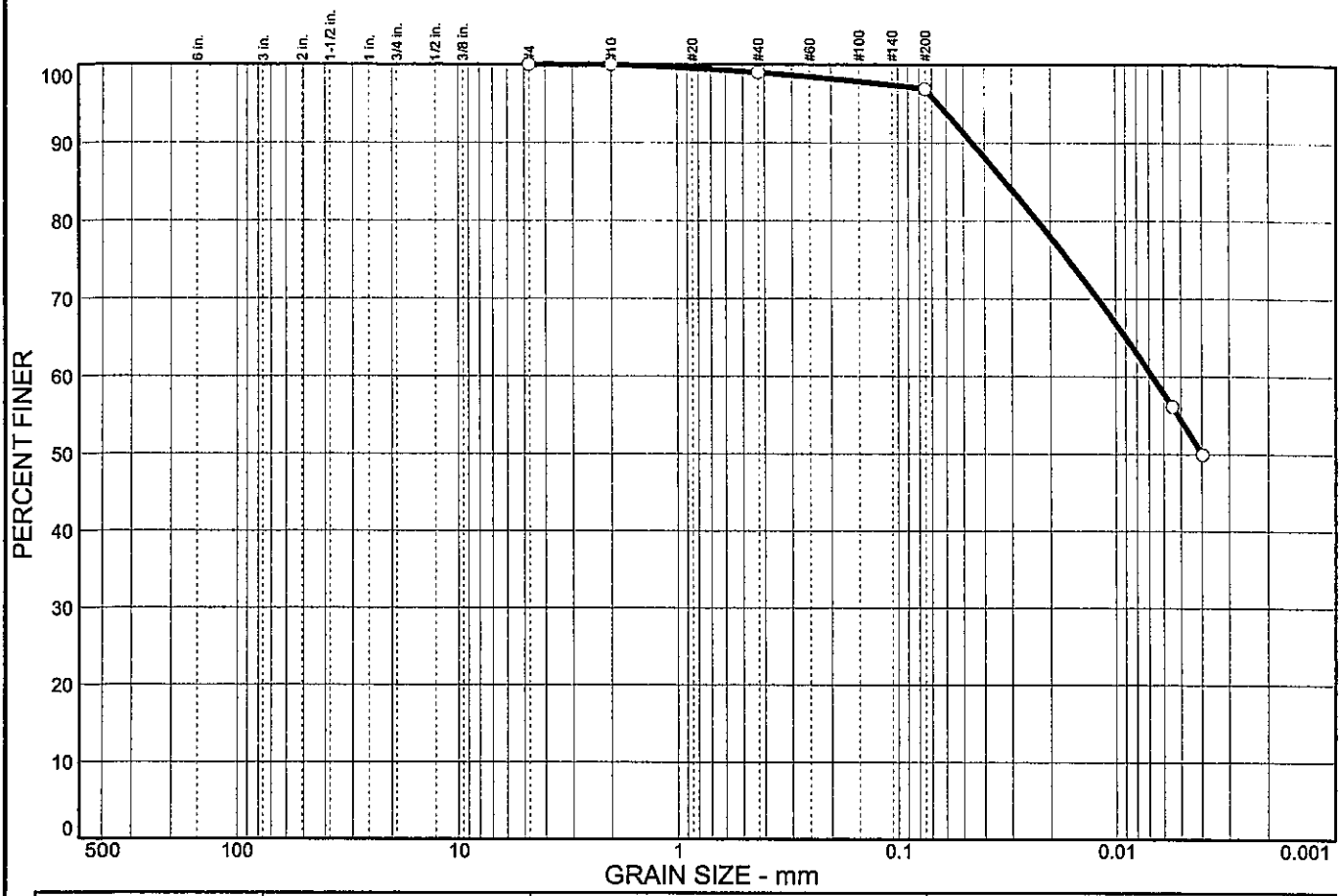
Sample No.: 7 **Source of Sample:** R-64A **Date:** 02/09/06
Location: **Elev./Depth:** 21.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	1.0	2.1	42.5	54.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	100.0		
#40	99.0		
#200	96.9		

* (no specification provided)

Soil Description

Atterberg Limits

PL= 23 LL= 41 PI= 18

Coefficients

D_{85}= 0.0321 D_{60}= 0.0068 D_{50}= 0.0040
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(19)

Remarks

Moisture Content = 29.4%

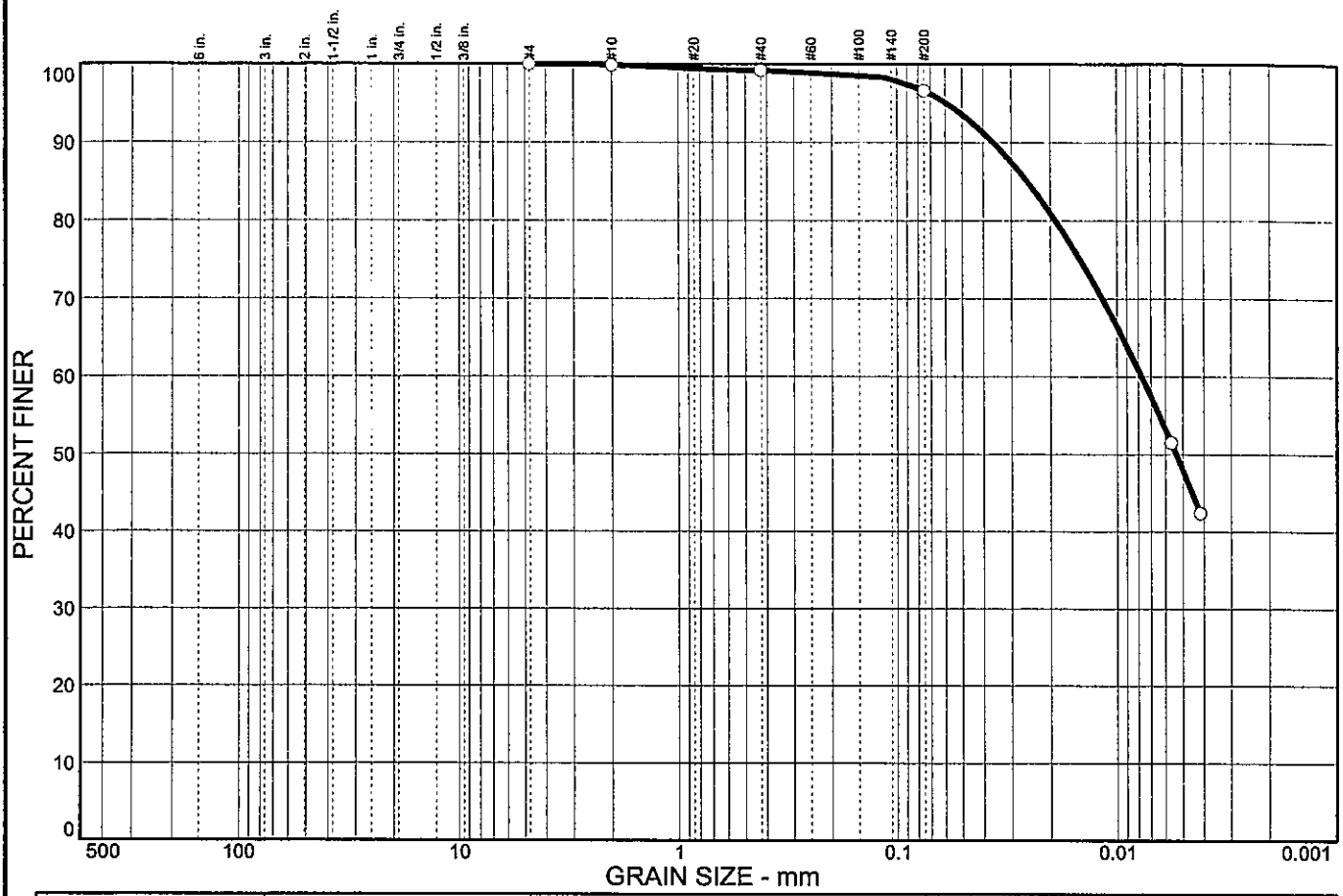
Sample No.: 8 **Source of Sample:** R-64A **Date:** 02/09/06
Location: **Elev./Depth:** 23.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.1	0.7	2.6	48.7	47.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#40	99.2		
#200	96.6		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 22 LL= 45 PI= 23

Coefficients

D_{85}= 0.0254 D_{60}= 0.0077 D_{50}= 0.0054
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(25)

Remarks

Moisture Content= 23.3%

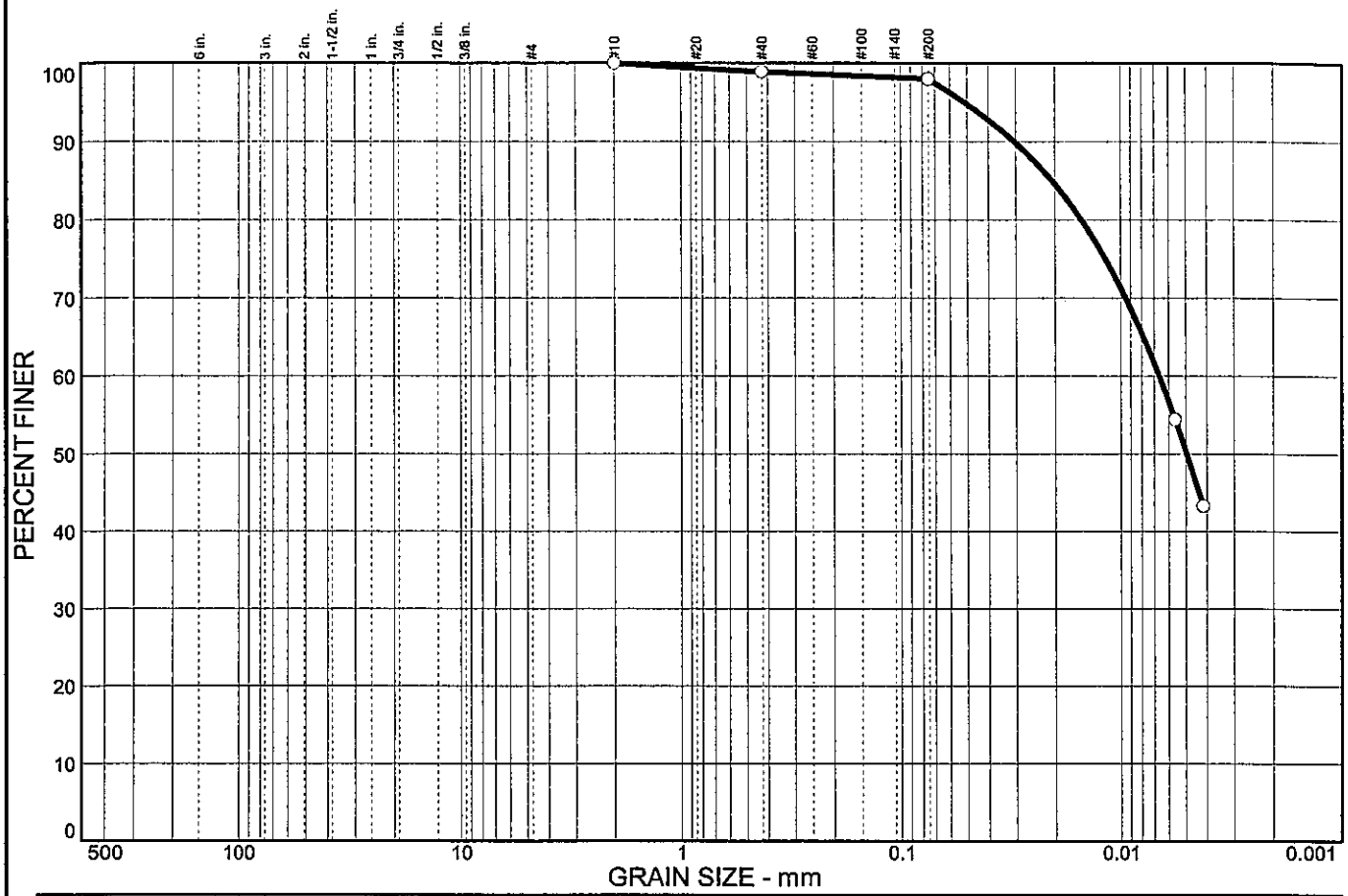
Sample No.: P1A **Source of Sample:** R-64A **Date:** 2/8/06
Location: **Elev./Depth:** 5.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	1.1	0.9	47.7	50.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	98.9		
#200	98.0		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 23 LL= 35 PI= 12

Coefficients

D_{85}= 0.0175 D_{60}= 0.0066 D_{50}= 0.0050
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(13)

Remarks

Moisture Content= 22.7%

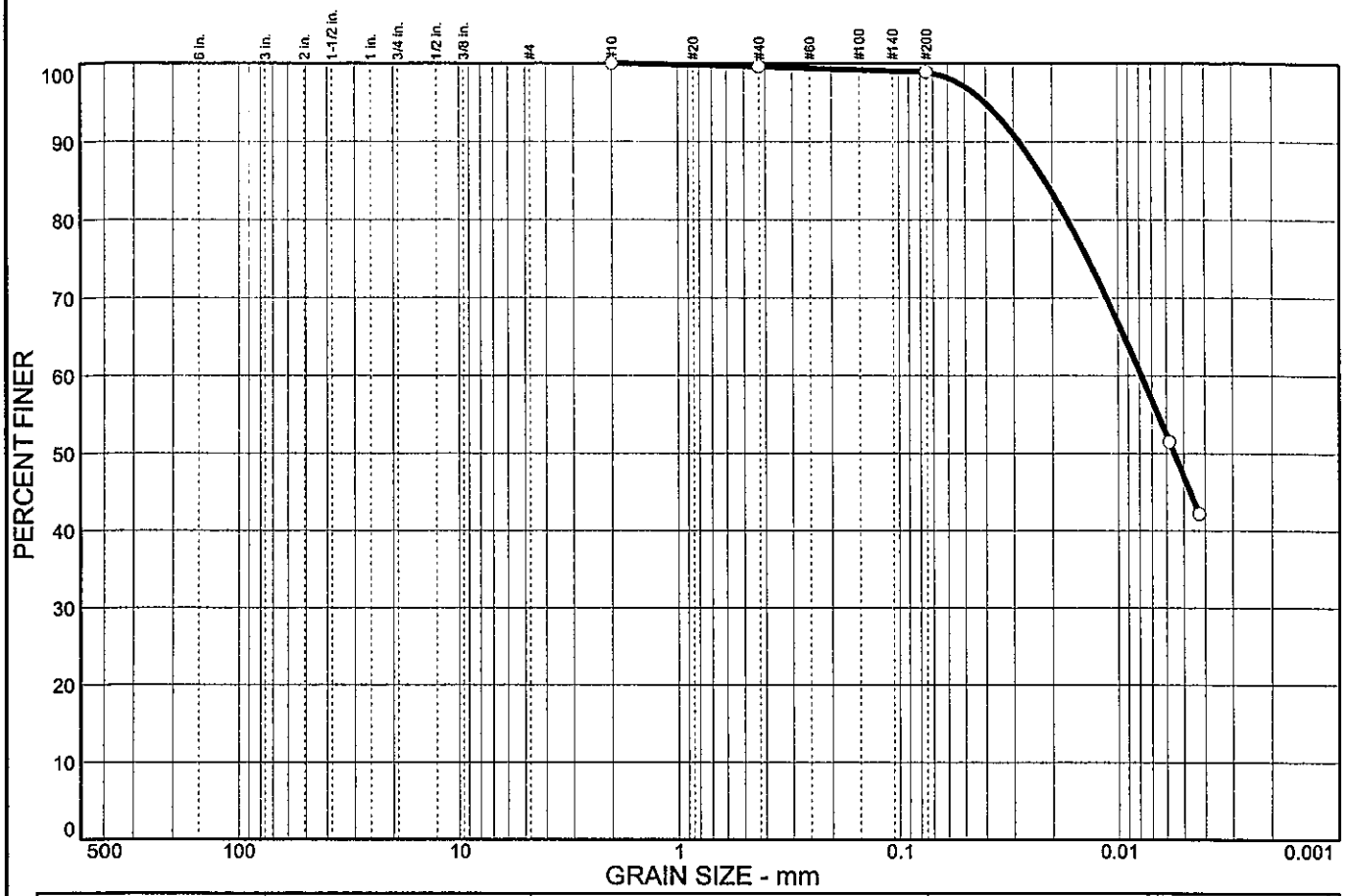
Sample No.: P1B **Source of Sample:** R-64A **Date:** 2/8/06
Location: **Elev./Depth:** 5.9

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.4	0.7	51.9	47.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.6		
#200	98.9		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 21 LL= 35 PI= 14

Coefficients

D_{85}= 0.0216 D_{60}= 0.0078 D_{50}= 0.0055
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(15)

Remarks

Moisture Content= 25.8%

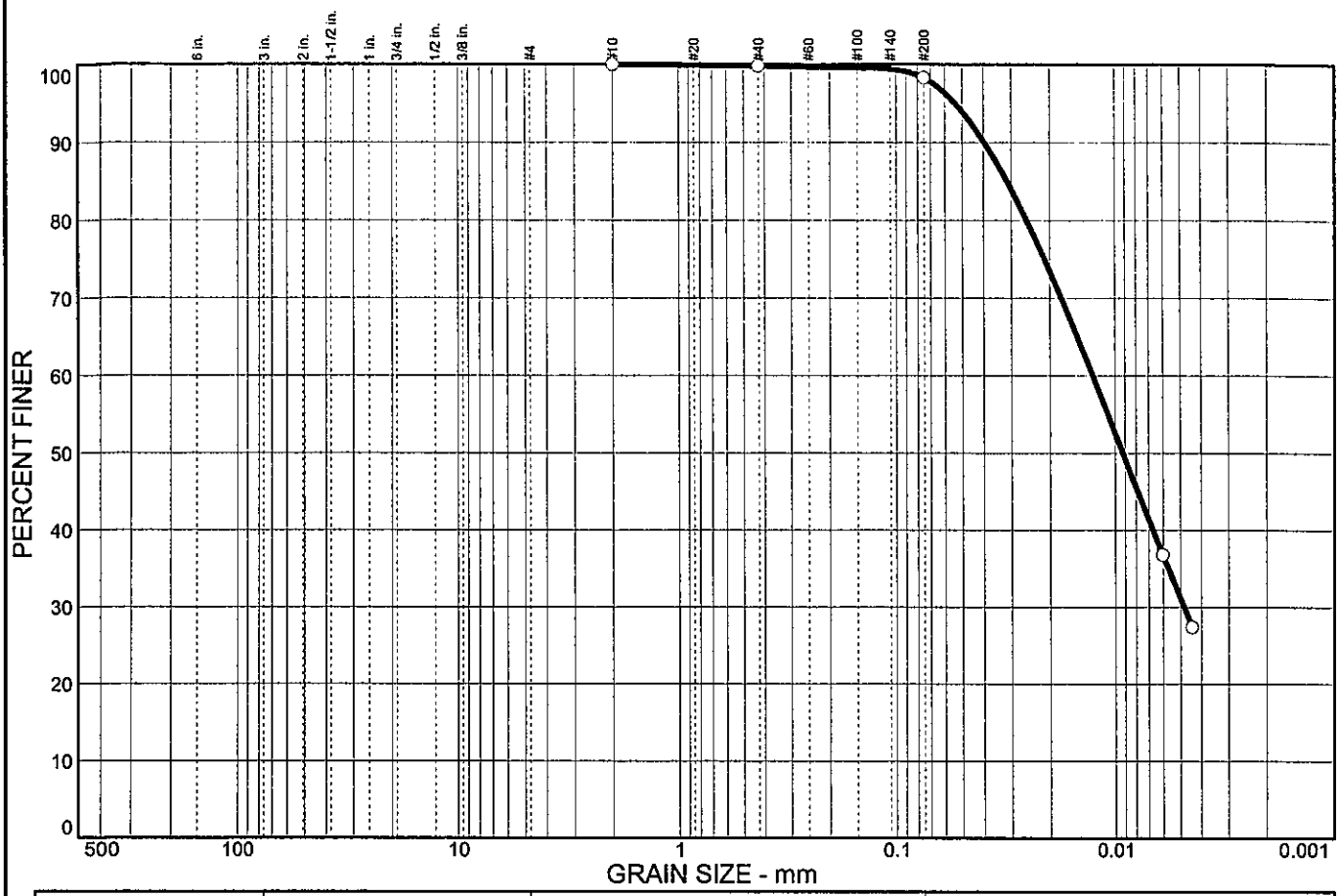
Sample No.: P2A **Source of Sample:** R-64A **Date:** 2/8/06
Location: **Elev./Depth:** 15.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.2	1.5	67.2	31.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.8		
#200	98.3		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 21 LL= 29 PI= 8

Coefficients

D_{85}= 0.0314 D_{60}= 0.0127 D_{50}= 0.0092
D_{30}= 0.0048 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-4(7)

Remarks

Moisture Content= 26.1%

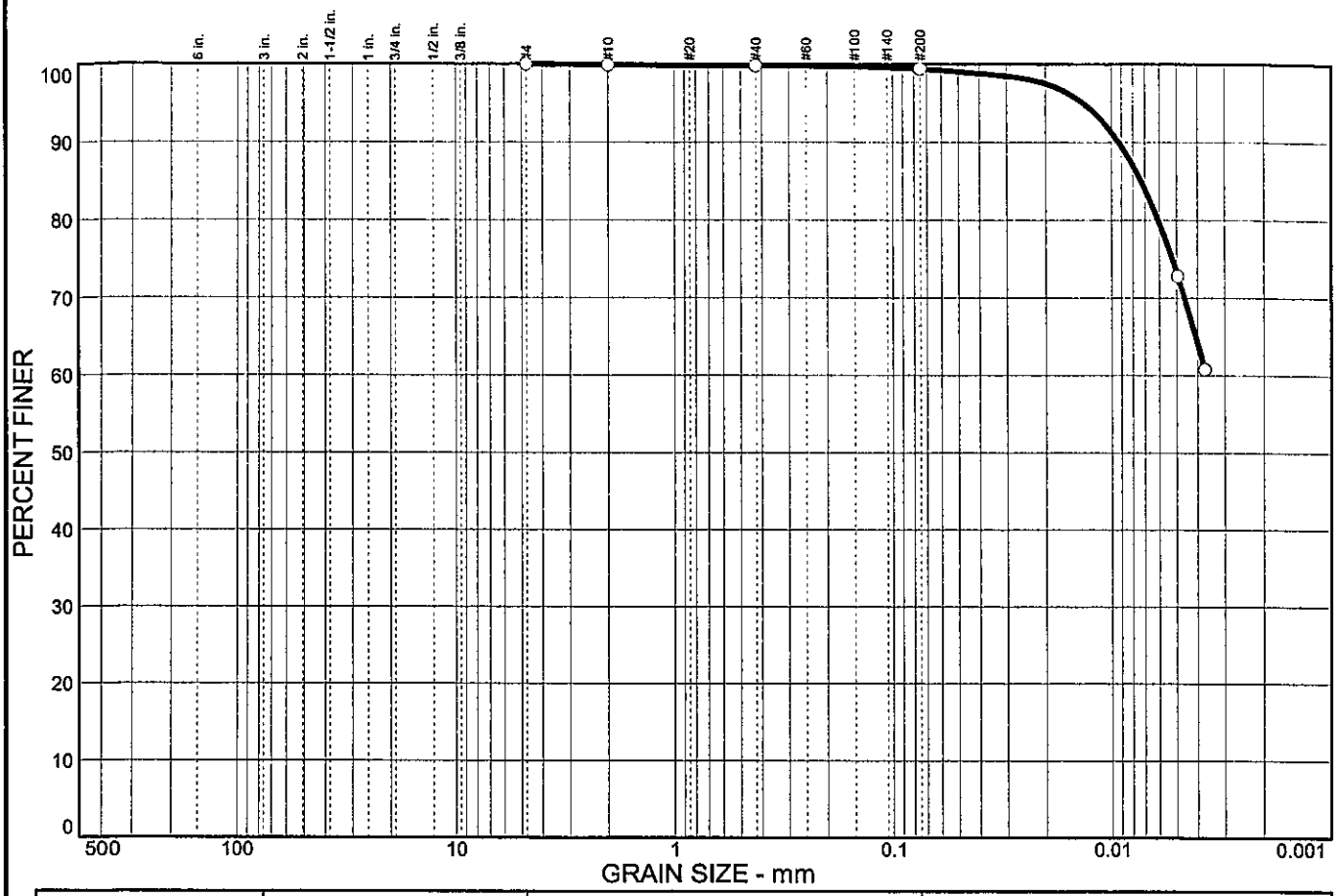
Sample No.: P2B **Source of Sample:** R-64A **Date:** 2/8/06
Location: **Elev./Depth:** 15.8

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.1	0.1	0.4	26.1	73.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#40	99.8		
#200	99.4		

* (no specification provided)

Soil Description

Atterberg Limits

PL= 22 LL= 39 PI= 17

Coefficients

D_{85}= 0.0073 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(18)

Remarks

Moisture Content= 22.6%

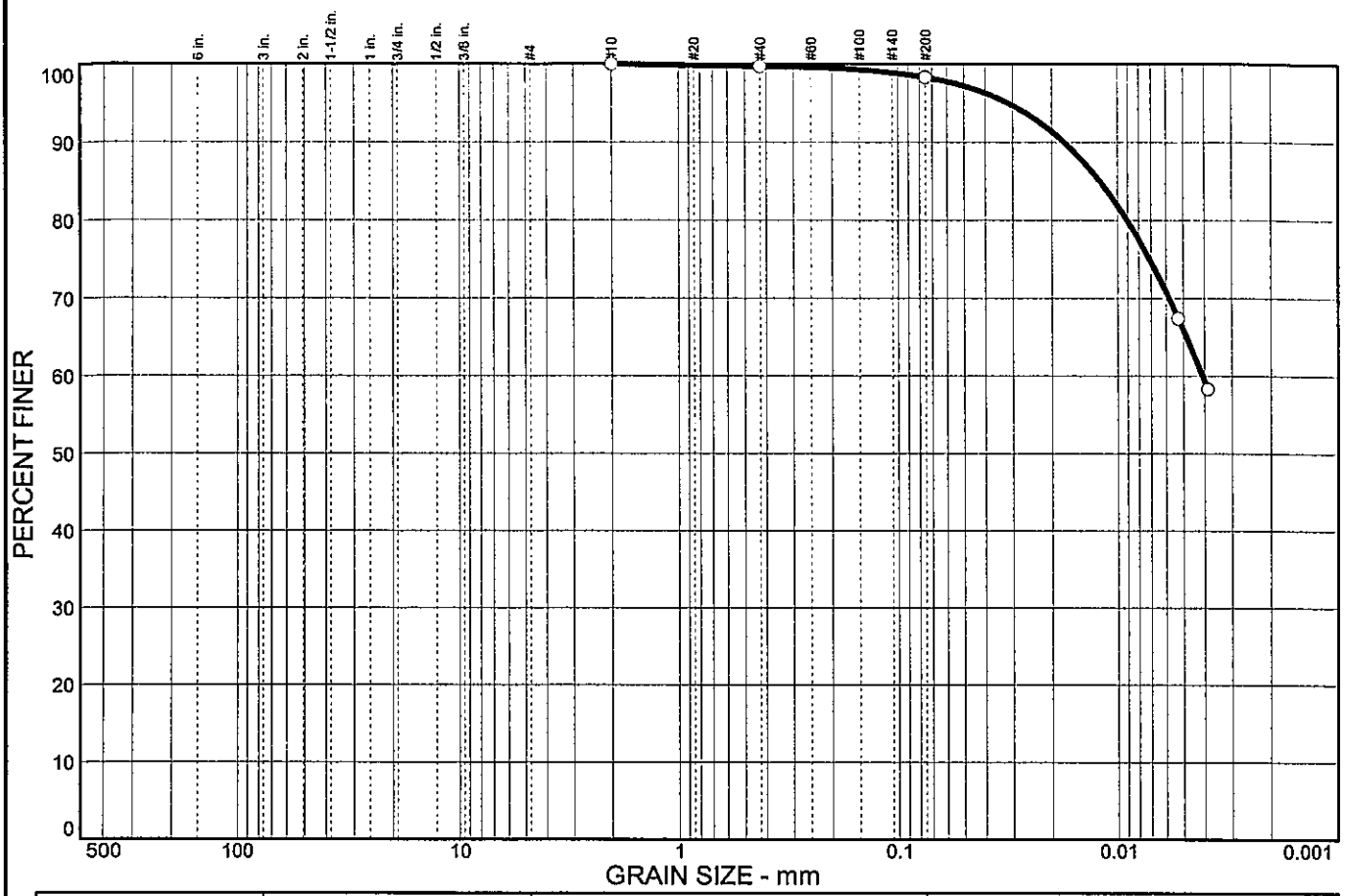
Sample No.: P4 **Source of Sample:** R-64A **Date:** 2/8/06
Location: **Elev./Depth:** 40.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.3	1.4	32.3	66.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.7		
#200	98.3		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 27 LL= 46 PI= 19

Coefficients

D_{85}= 0.0120 D_{60}= 0.0041 D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(22)

Remarks

Moisture Content= 26.7%

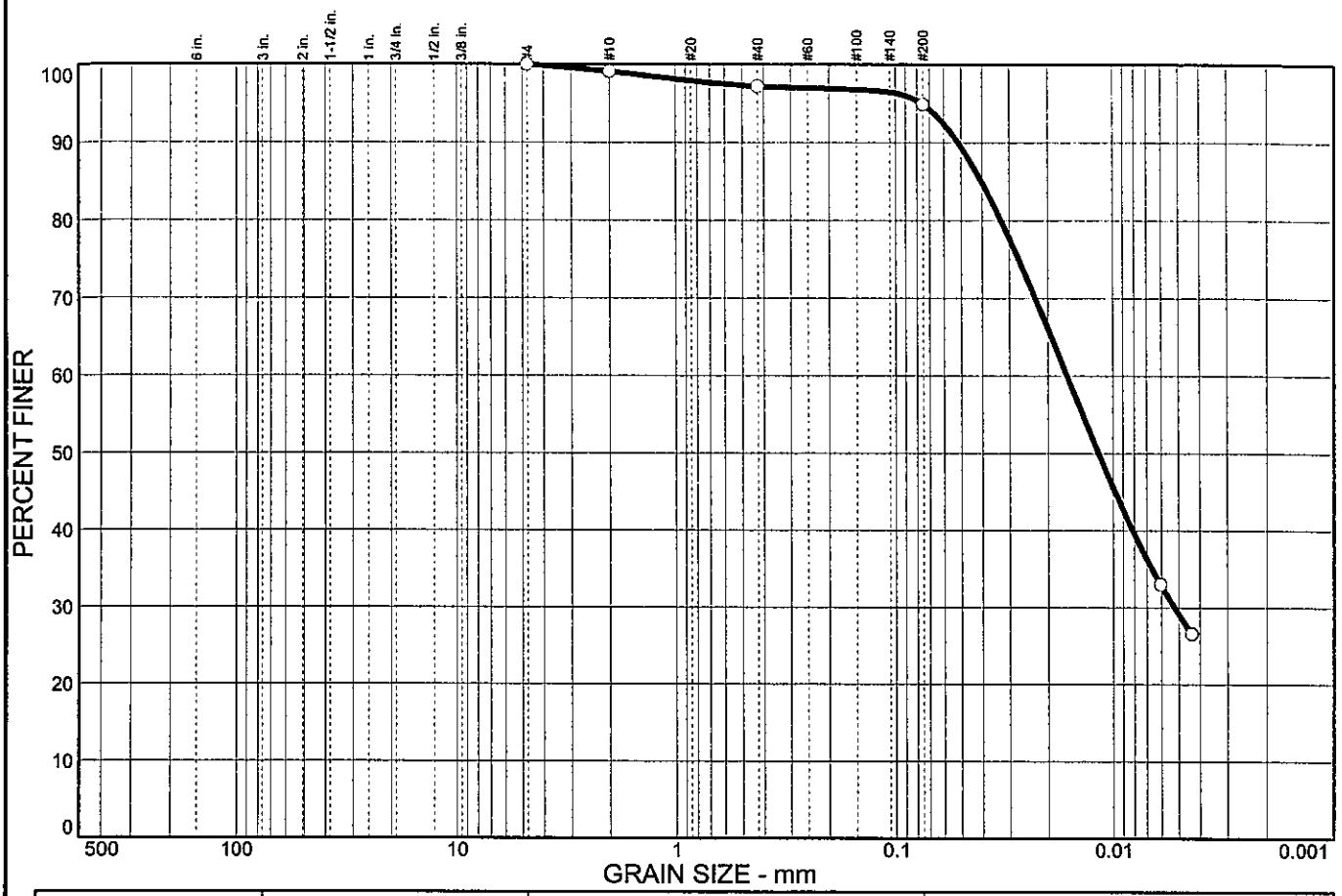
Sample No.: 1 **Source of Sample:** TR-35A **Date:** 2/8/06
Location: **Elev./Depth:** 1.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.9	1.9	2.3	65.7	29.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.1		
#40	97.2		
#200	94.9		

* (no specification provided)

Soil Description

Organic Silt

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{85}= 0.0403 D_{60}= 0.0163 D_{50}= 0.0117
D_{30}= 0.0052 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= ML/OL AASHTO= A-4(0)

Remarks

Moisture Content= 42.2%
Loss on Ignition @ 440 C= 7.7%

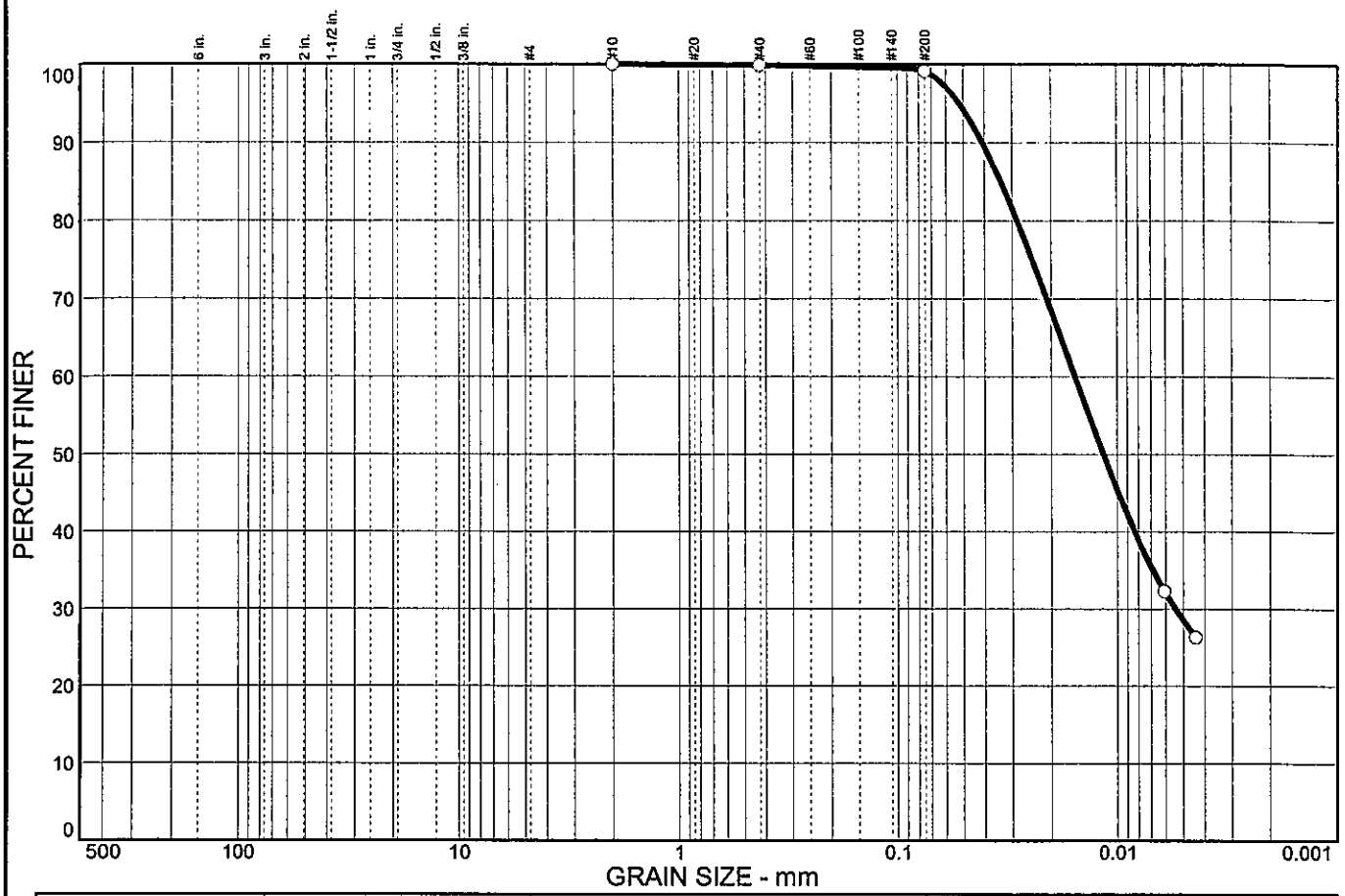
Sample No.: 14 **Source of Sample:** TR-35A **Date:** 2/8/06
Location: **Elev./Depth:** 63.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.1	0.8	70.6	28.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.9		
#200	99.1		

* (no specification provided)

Soil Description

Silt

Atterberg Limits

PL= 25 LL= 31 PI= 6

Coefficients

D_{85}= 0.0337 D_{60}= 0.0156 D_{50}= 0.0115
D_{30}= 0.0054 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= ML AASHTO= A-4(7)

Remarks

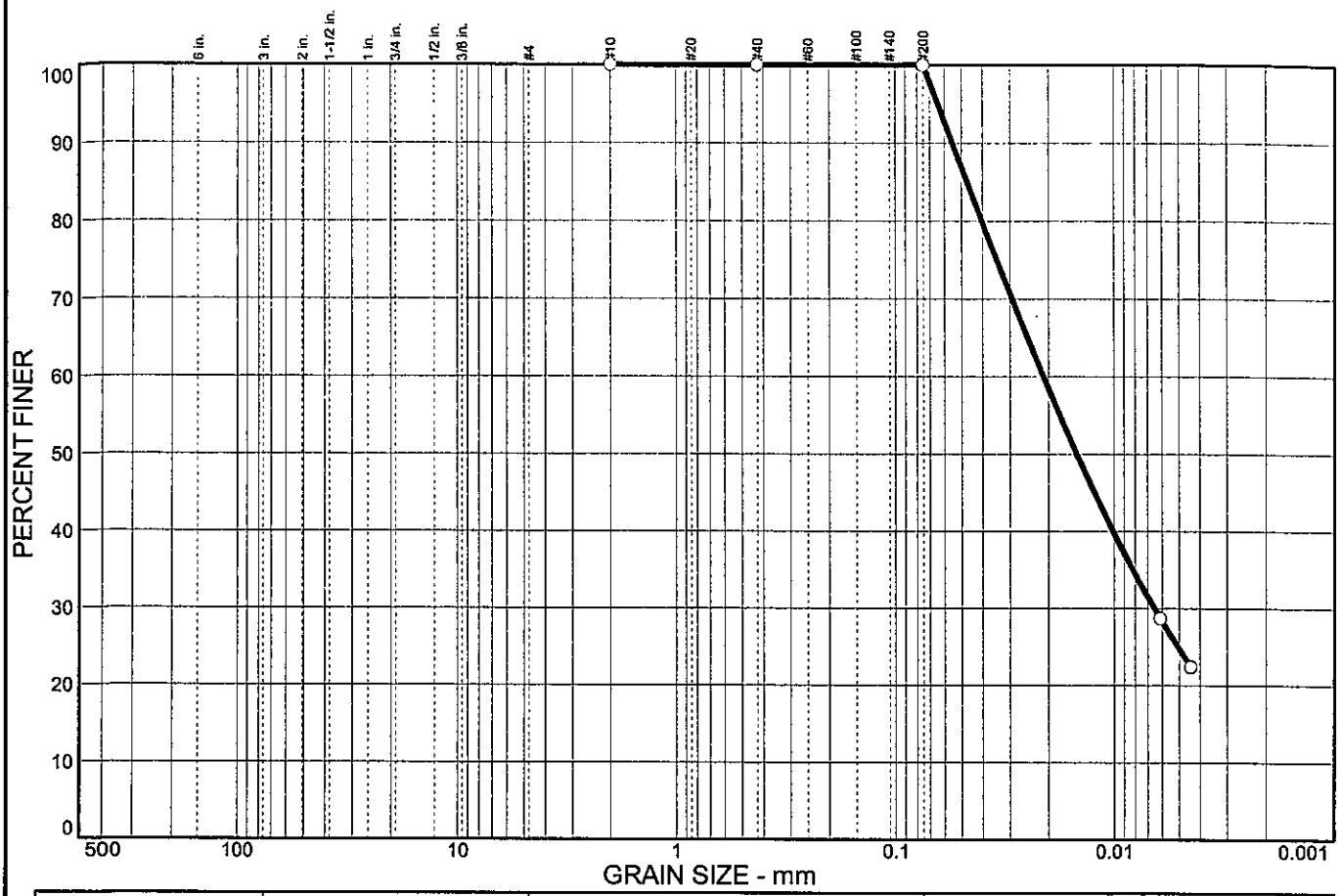
Moisture Content= 28.9%

Sample No.: 3 **Source of Sample:** TR-35A **Date:** 2/8/06
Location: **Elev./Depth:** 8.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00
Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.0	0.0	75.2	24.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	100.0		
#200	100.0		

* (no specification provided)

Soil Description

Silt

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{85}= 0.0472 D_{60}= 0.0211 D_{50}= 0.0148
D_{30}= 0.0065 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= ML AASHTO= A-4(0)

Remarks

Moisture Content= 29.4%

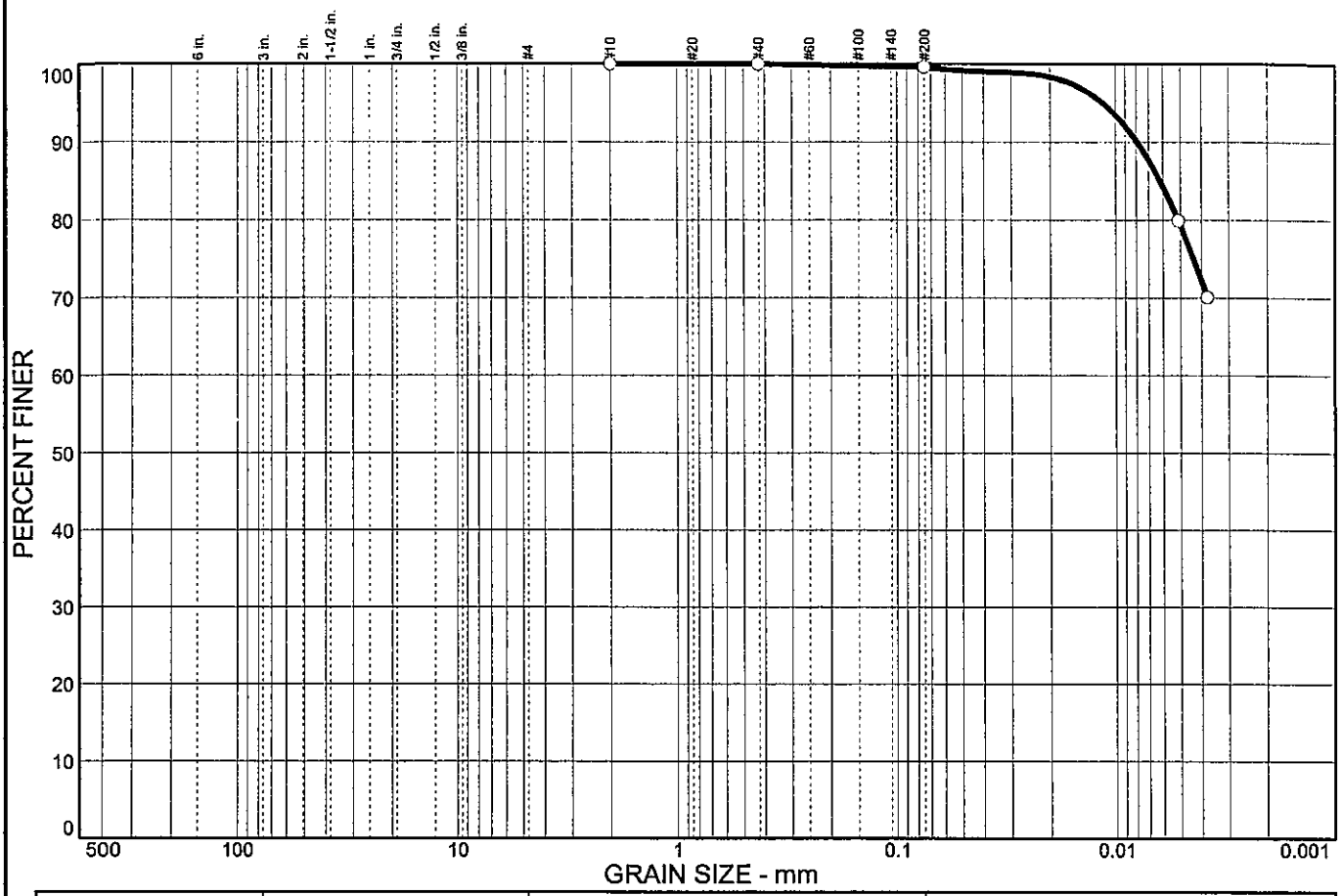
Sample No.: 7 **Source of Sample:** TR-35A **Date:** 2/8/06
Location: **Elev./Depth:** 23.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.0	0.4	20.3	79.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	100.0		
#200	99.6		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 26 LL= 43 PI= 17

Coefficients

D_{85}= 0.0062 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(20)

Remarks

Moisture Content= 25.0%

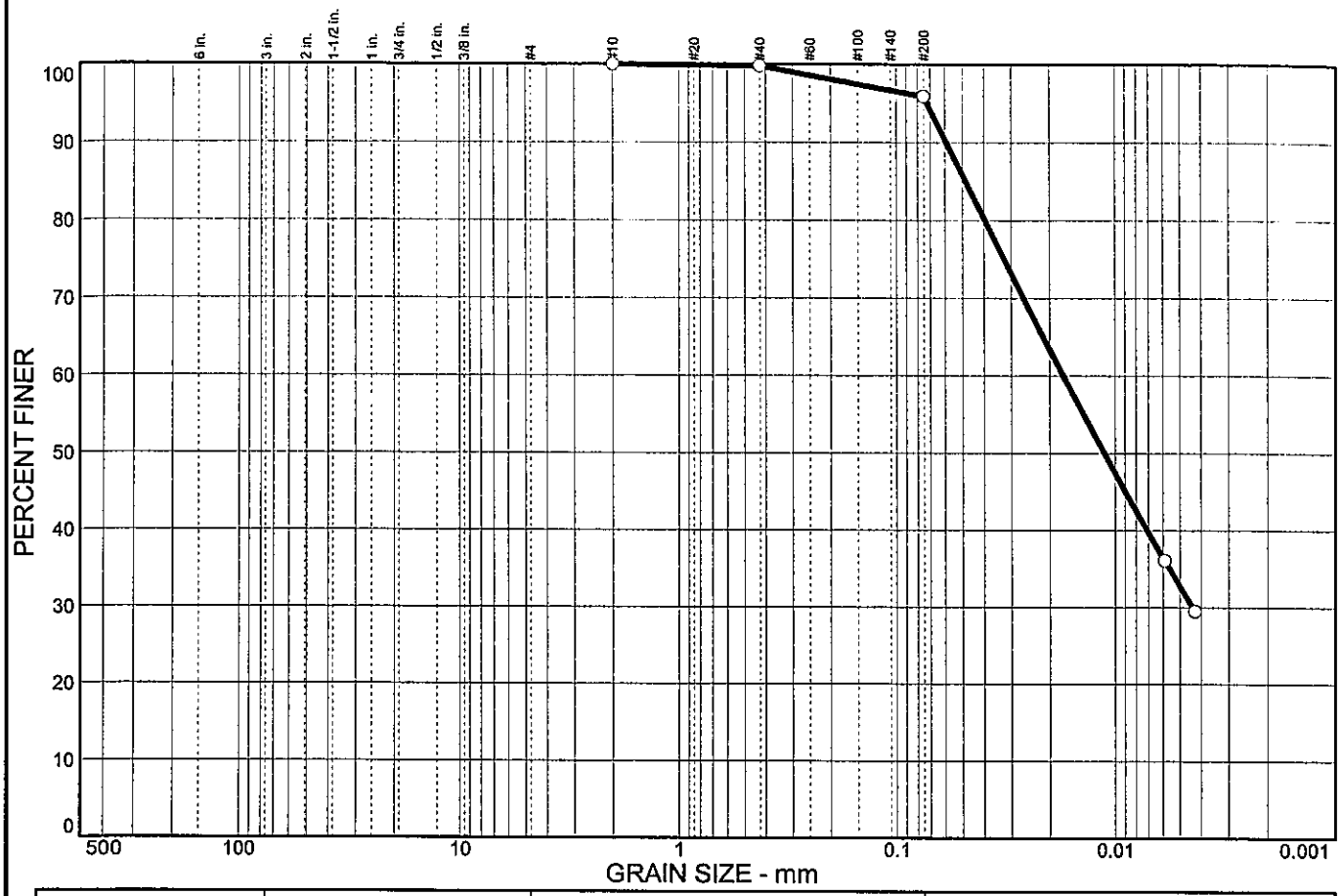
Sample No.: 9 **Source of Sample:** TR-35A **Date:** 2/8/06
Location: **Elev./Depth:** 38.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.2	3.9	63.2	32.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.8		
#200	95.9		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 19 LL= 27 PI= 8

Coefficients

D_{85}= 0.0389 D_{60}= 0.0149 D_{50}= 0.0104
D_{30}= 0.0044 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-4(7)

Remarks

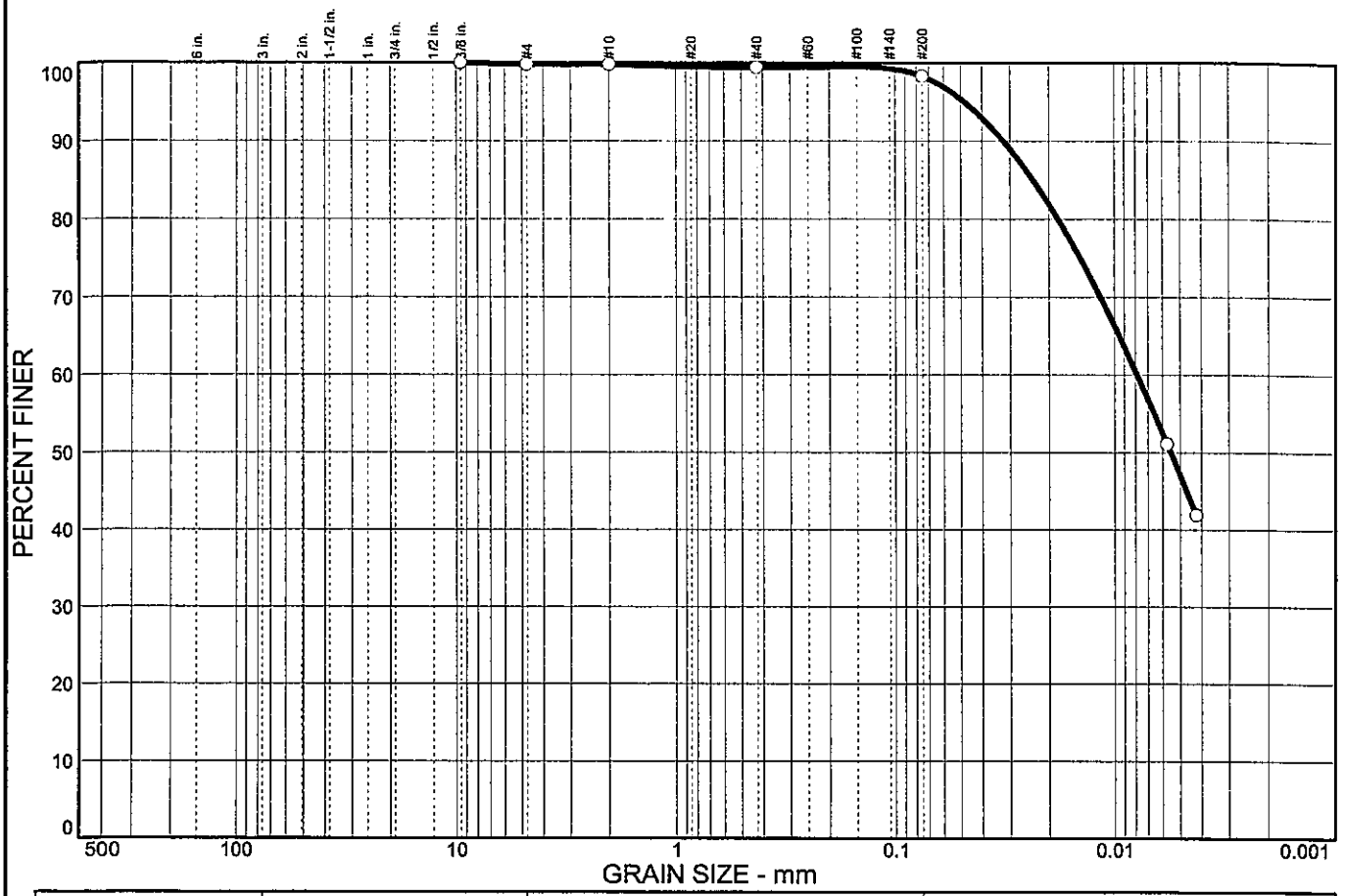
Moisture Content= 22.7%

Sample No.: P-1 **Source of Sample:** TR-35A **Date:** 2/6/06
Location: **Elev./Depth:** 5.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00
Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.2	0.0	0.4	1.1	51.2	47.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.375 in.	100.0		
#4	99.8		
#10	99.8		
#40	99.4		
#200	98.3		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 21 LL= 33 PI= 12

Coefficients

D_{85}= 0.0236 D_{60}= 0.0078 D_{50}= 0.0055
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(12)

Remarks

Moisture Content= 26.9%

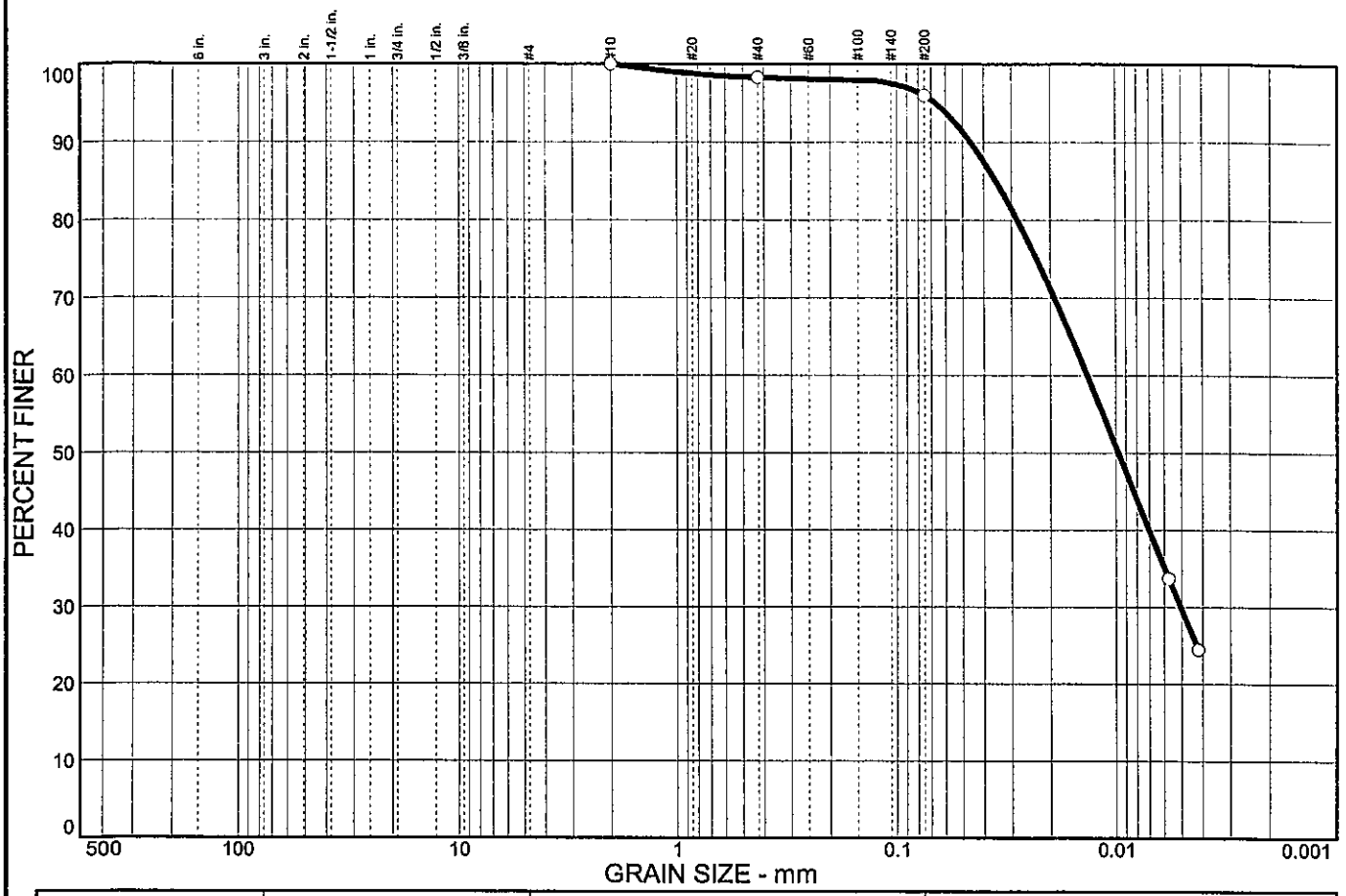
Sample No.: P-2A **Source of Sample:** TR-35A **Date:** 2/6/06
Location: **Elev./Depth:** 12.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	1.7	2.3	66.3	29.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	98.3		
#200	96.0		

* (no specification provided)

Soil Description

Silt

Atterberg Limits

PL= 22 LL= 27 PI= 5

Coefficients

D_{85}= 0.0353 D_{60}= 0.0135 D_{50}=
D_{30}= 0.0050 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= ML AASHTO= A-4(4)

Remarks

Moisture Content= 27.9%
Specific Gravity= 2.76

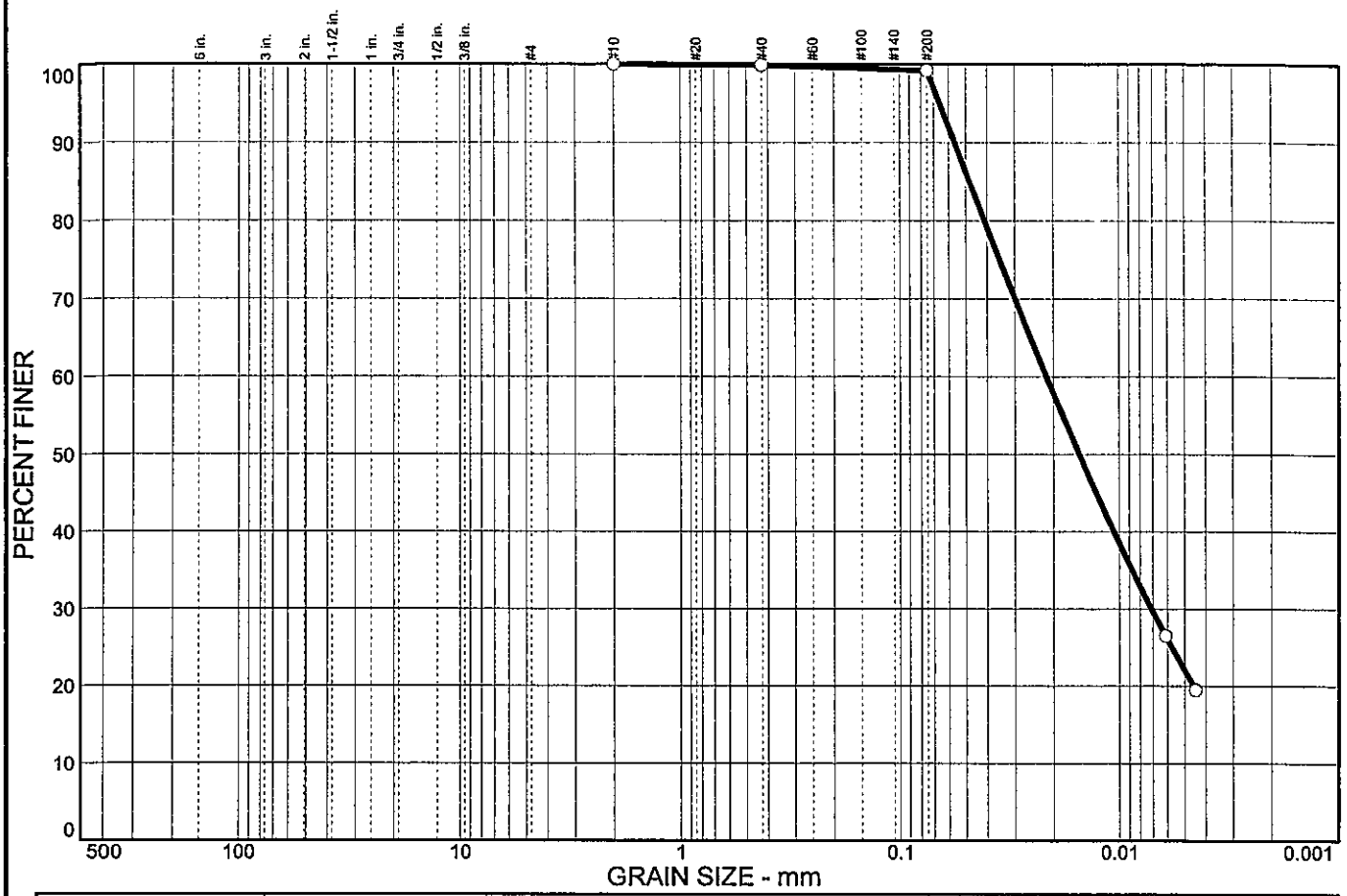
Sample No.: P-2B **Source of Sample:** TR-35A **Date:** 2/6/06
Location: **Elev./Depth:** 12.4

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.1	0.7	77.2	22.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.9		
#200	99.2		

* (no specification provided)

Soil Description

Silt

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{85}= 0.0350 D_{60}= 0.0168 D_{50}=
D_{30}= 0.0070 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= ML AASHTO= A-4(0)

Remarks

Moisture Content= 27.6%
Specific Gravity= 2.76

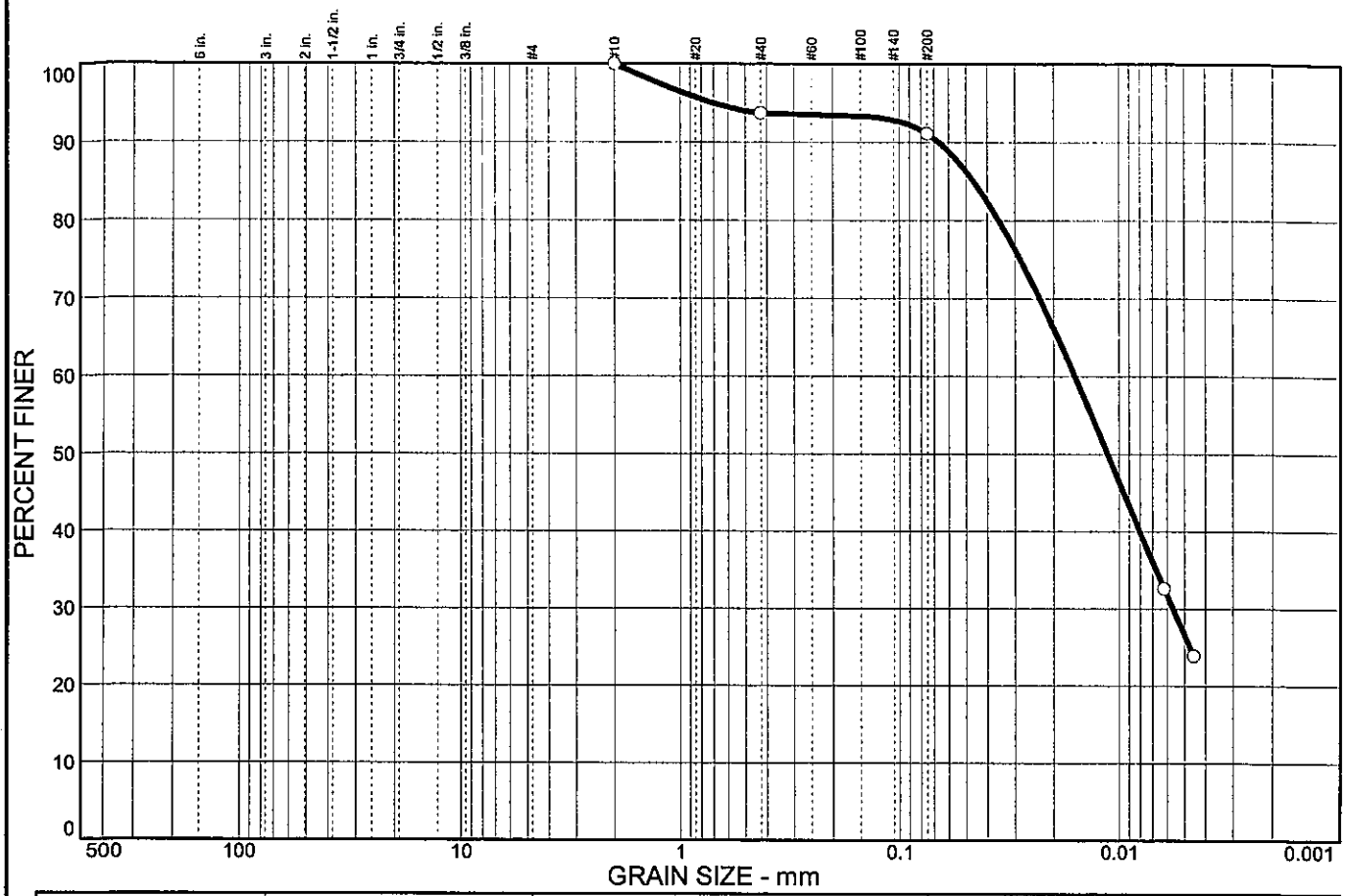
Sample No.: P-3 **Source of Sample:** TR-35A **Date:** 2/6/06
Location: **Elev./Depth:** 27.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	6.3	2.6	64.5	26.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	93.7		
#200	91.1		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 26 LL= 44 PI= 18

Coefficients

D_{85}= 0.0463 D_{60}= 0.0160 D_{50}= 0.0113
D_{30}= 0.0056 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(18)

Remarks

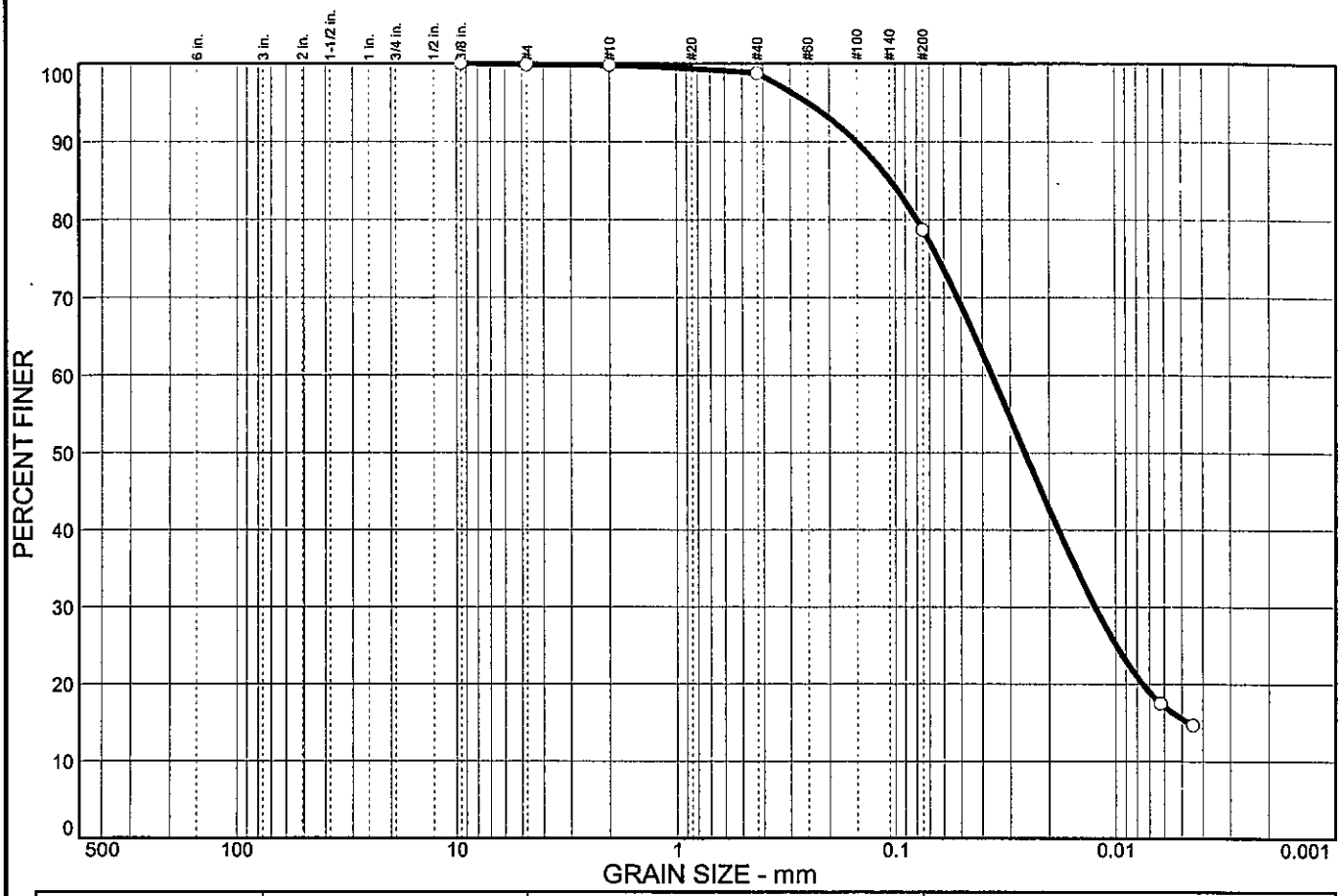
Moisture Content= 33.5%

Sample No.: P-4A **Source of Sample:** TR-35A **Date:** 2/6/06
Location: **Elev./Depth:** 66.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00
Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.1	0.1	1.0	20.1	63.2	15.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.375 in.	100.0		
#4	99.9		
#10	99.8		
#40	98.8		
#200	78.7		

* (no specification provided)

Soil Description

Silt with sand

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{85}= 0.100 D_{60}= 0.0374 D_{50}=
D_{30}= 0.0126 D_{15}= 0.0046 D_{10}=
C_u= C_c=

Classification

USCS= ML AASHTO= A-4(0)

Remarks

Moisture Content= 18.8%
Specific Gravity= 2.69

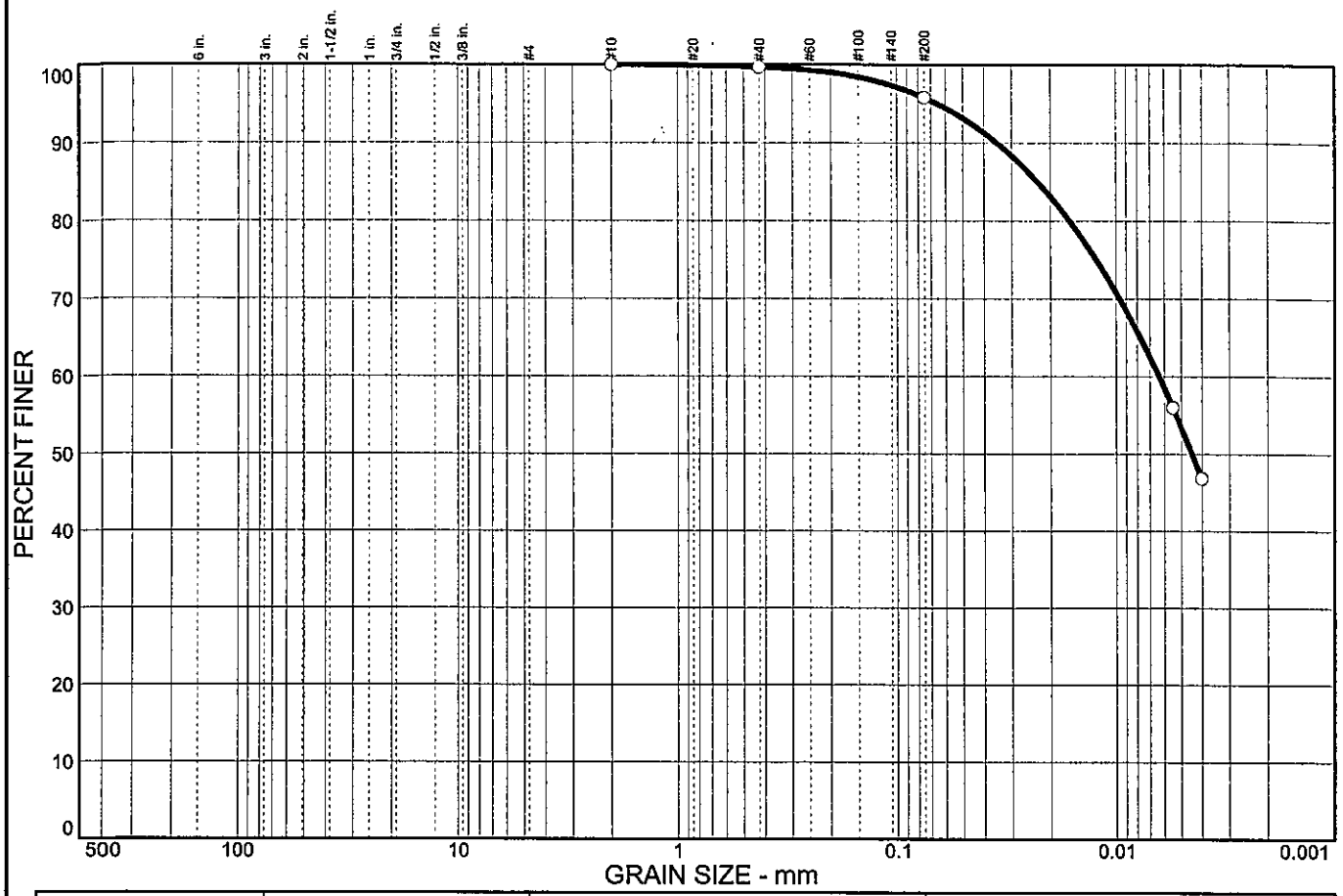
Sample No.: P-4B **Source of Sample:** TR-35A **Date:** 2/6/06
Location: **Elev./Depth:** 66.9

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.3	3.9	42.4	53.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.7		
#200	95.8		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 19 LL= 41 PI= 22

Coefficients

D_{85}= 0.0228 D_{60}= 0.0063 D_{50}= 0.0045
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(22)

Remarks

Moisture Content= 21.1%

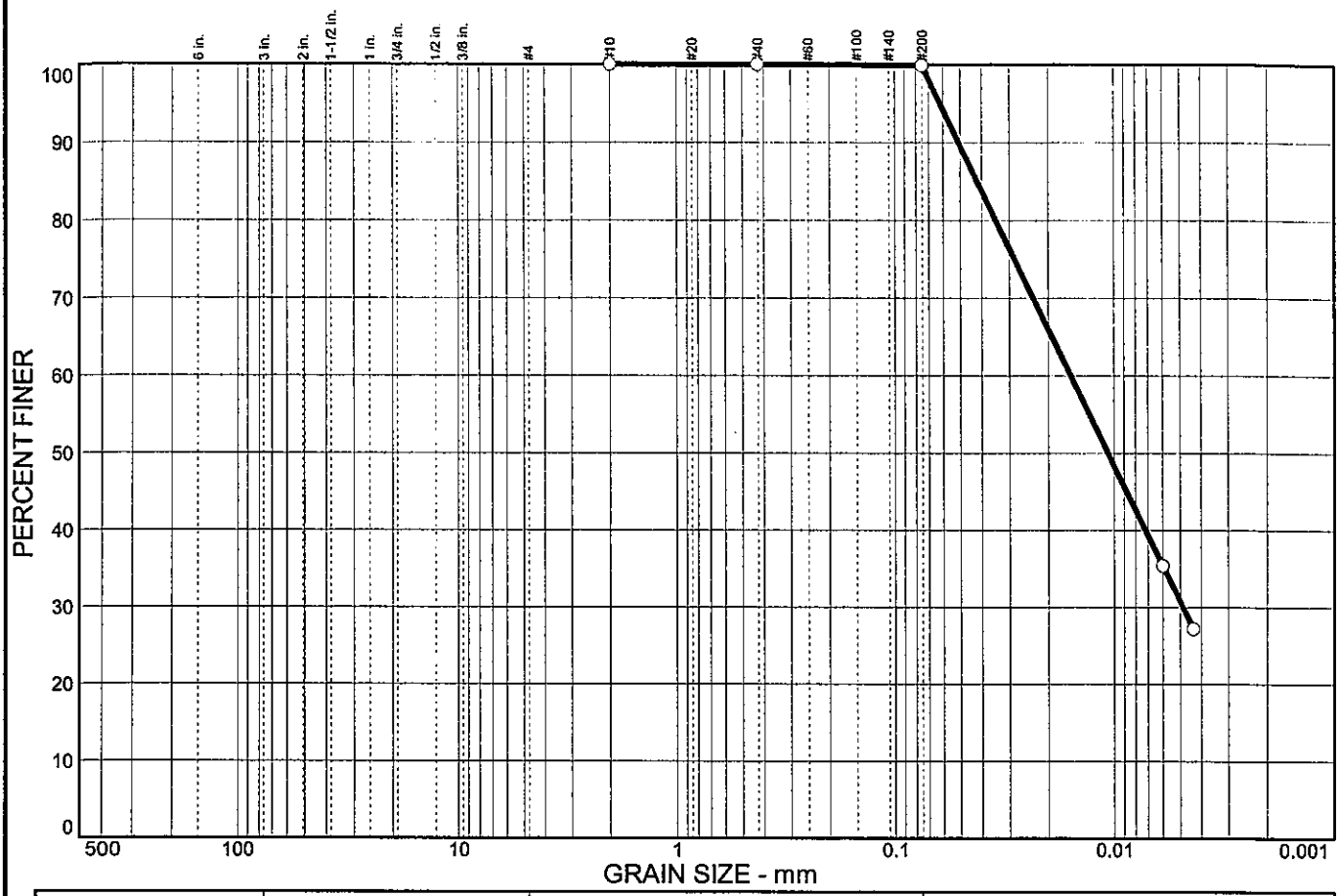
Sample No.: 1 **Source of Sample:** TR-38A **Date:** 2/8/06
Location: **Elev./Depth:** 1.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.0	0.1	69.1	30.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	100.0		
#200	99.9		

* (no specification provided)

Soil Description

Silty clay

Atterberg Limits

PL= 21 LL= 27 PI= 6

Coefficients

D_{85}= 0.0420 D_{60}= 0.0158 D_{50}= 0.0107
D_{30}= 0.0048 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL-ML AASHTO= A-4(5)

Remarks

Moisture Content= 31.3%

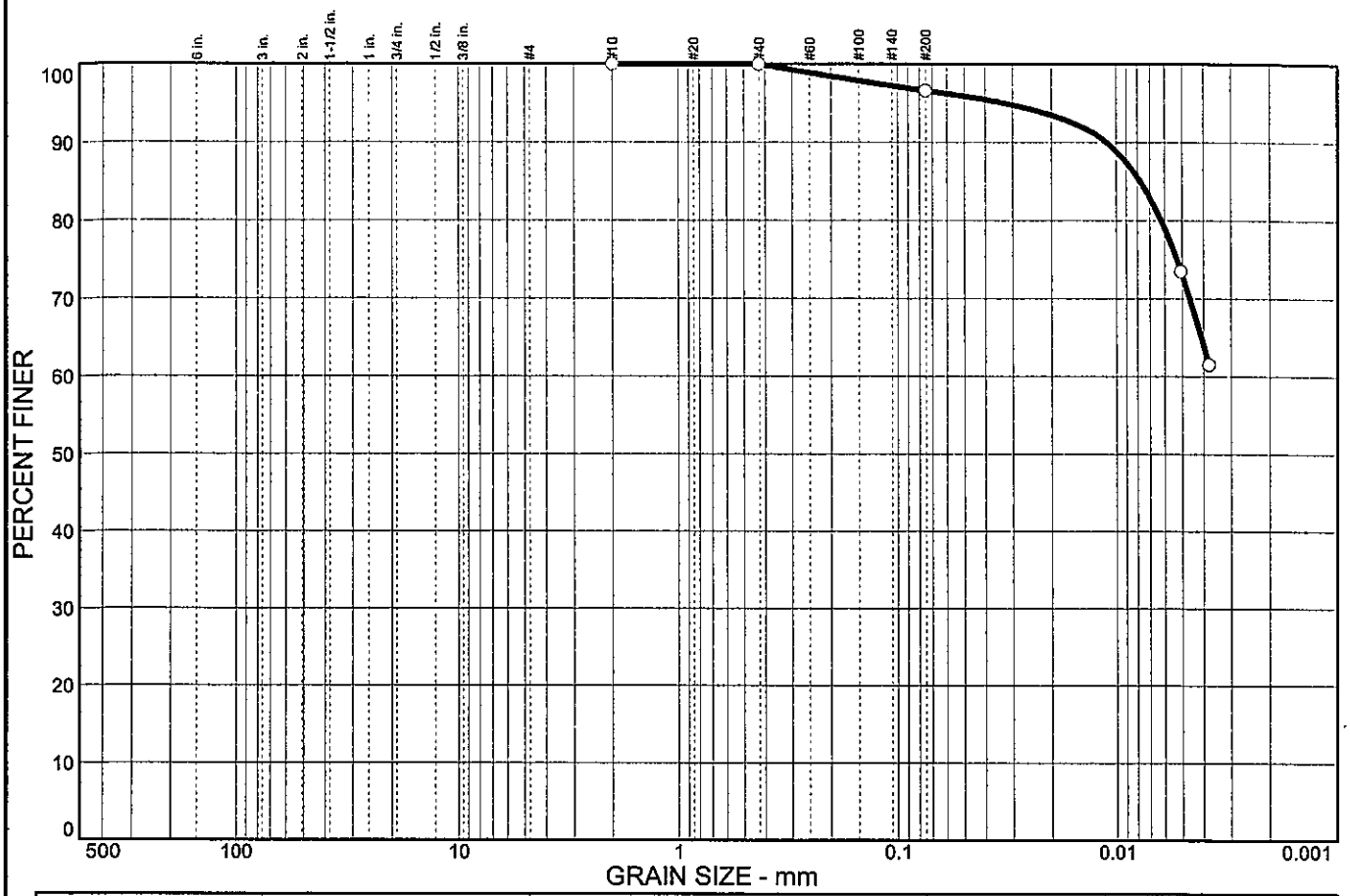
Sample No.: 10 **Source of Sample:** TR-38A **Date:** 2/8/06
Location: **Elev./Depth:** 33.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.0	3.4	23.5	73.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	100.0		
#200	96.6		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 22 LL= 37 PI= 15

Coefficients

D_{85}= 0.0077 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(16)

Remarks

Moisture Content= 26.4%

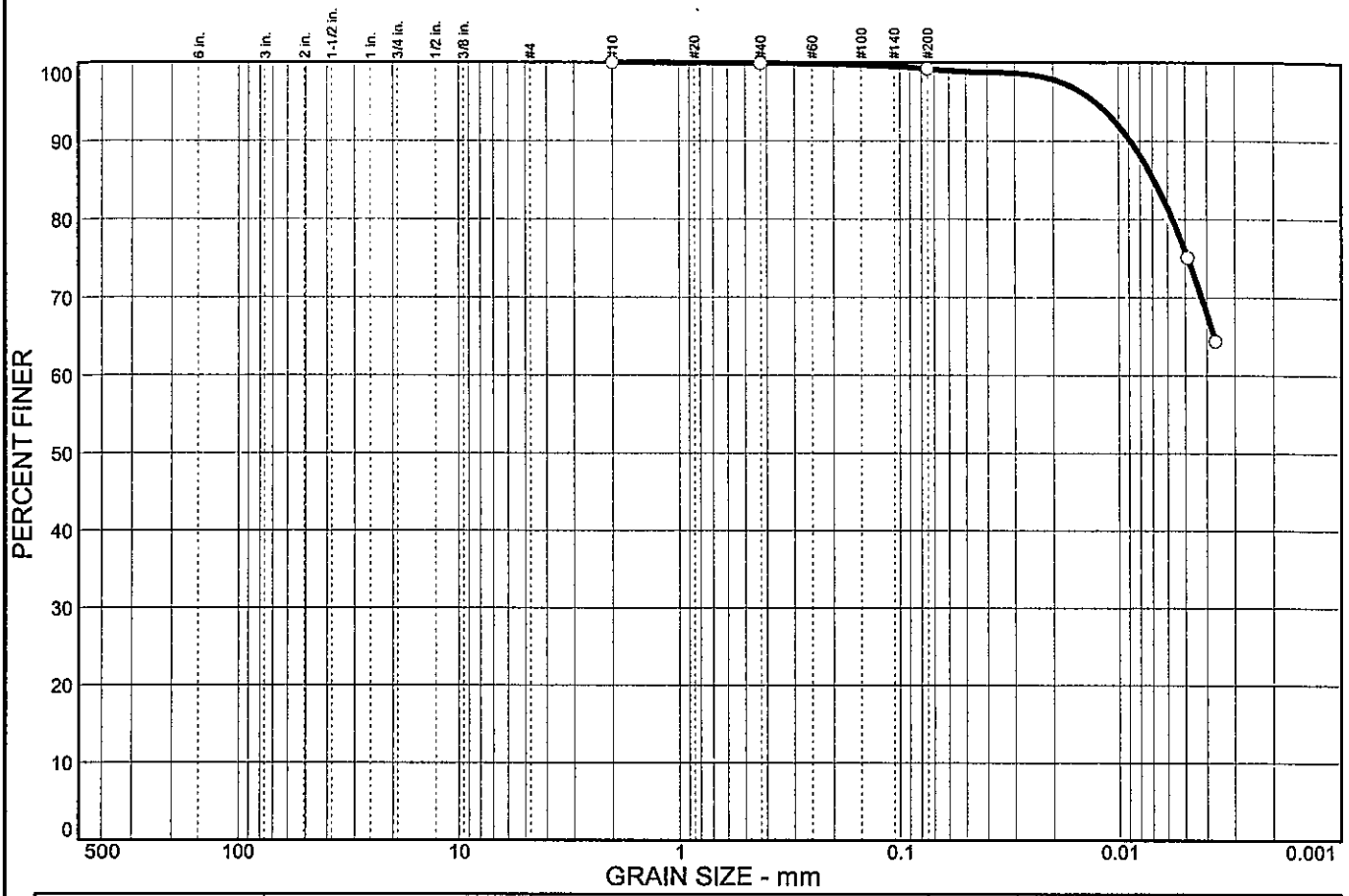
Sample No.: 12b **Source of Sample:** TR-38A **Date:** 2/8/06
Location: **Elev./Depth:** 44.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.1	0.7	23.2	76.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.9		
#200	99.2		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 24 LL= 43 PI= 19

Coefficients

D_{85}= 0.0069 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(21)

Remarks

Moisture Content= 29.7%

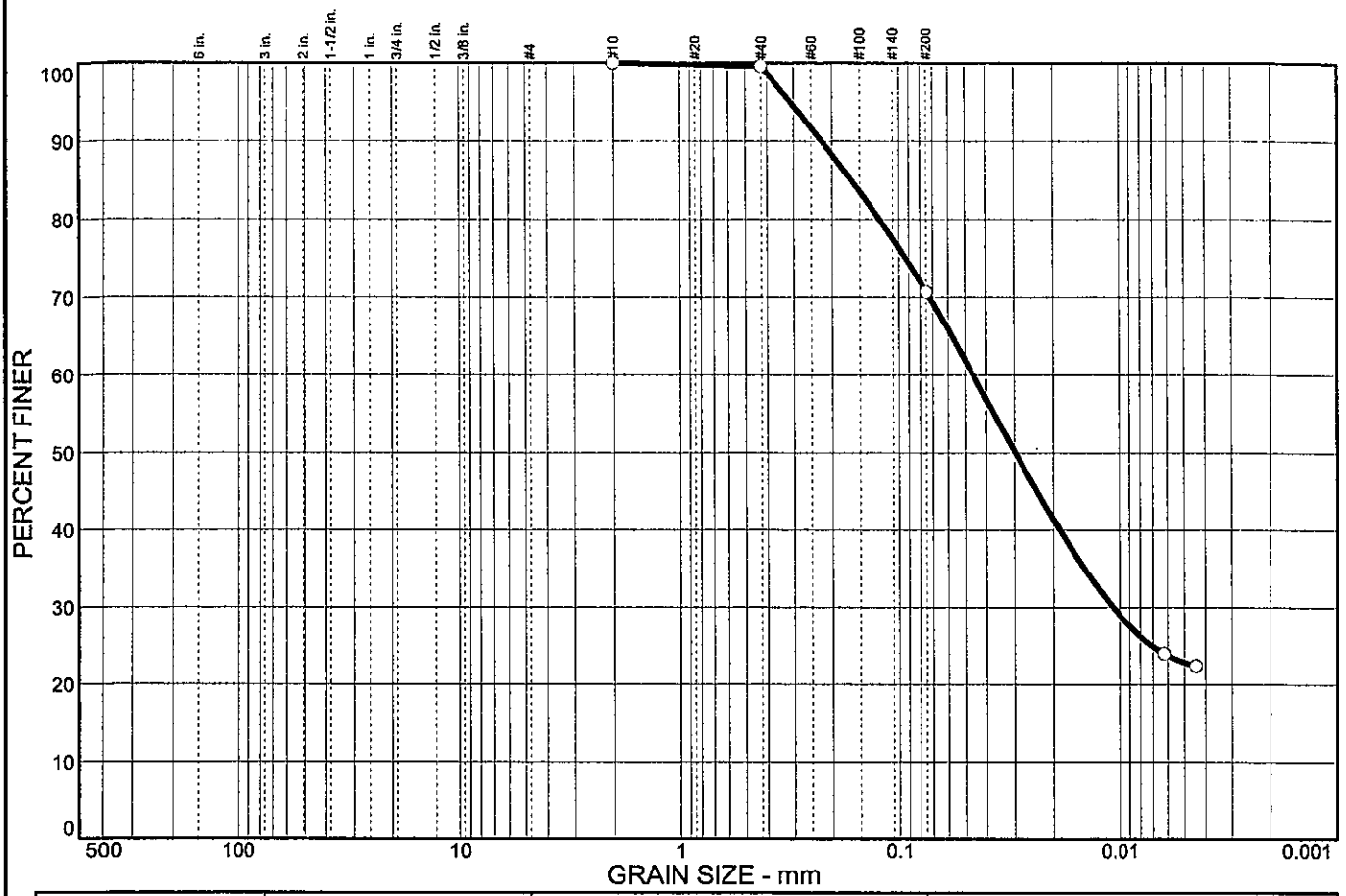
Sample No.: 15 **Source of Sample:** TR-38A **Date:** 2/8/06
Location: **Elev./Depth:** 58.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.4	28.9	47.8	22.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.6		
#200	70.7		

* (no specification provided)

Soil Description

Silty clay with sand

Atterberg Limits

PL= 18 LL= 23 PI= 5

Coefficients

D_{85}= 0.164 D_{60}= 0.0460 D_{50}= 0.0296
D_{30}= 0.0107 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL-ML AASHTO= A-4(1)

Remarks

Moisture Content= 24.1%

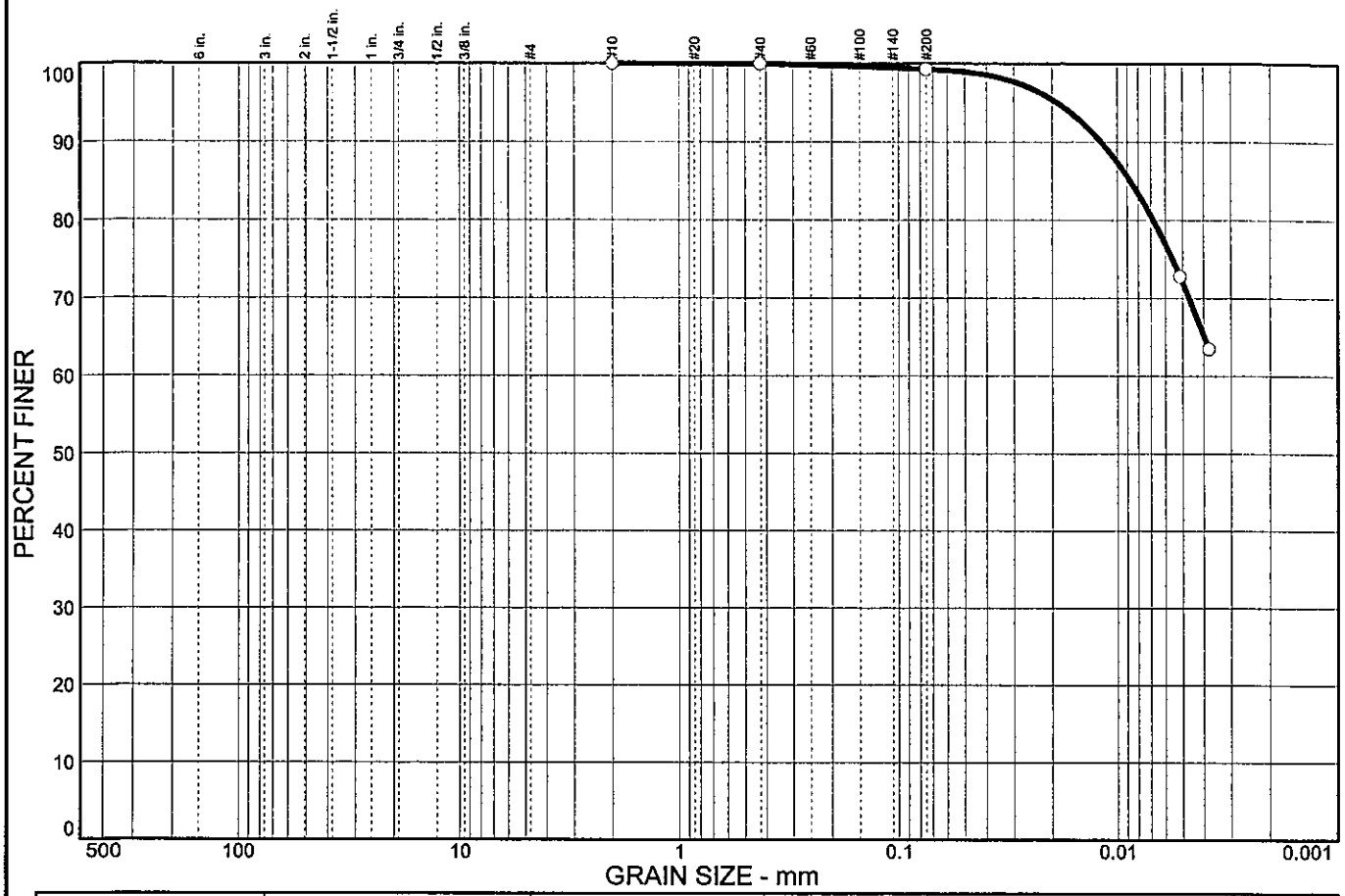
Sample No.: 16 **Source of Sample:** TR-38A **Date:** 2/8/06
Location: **Elev./Depth:** 63.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.0	0.7	27.3	72.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	100.0		
#200	99.3		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 24 LL= 43 PI= 19

Coefficients

D_{85}= 0.0087 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(21)

Remarks

Moisture Content= 23.7%

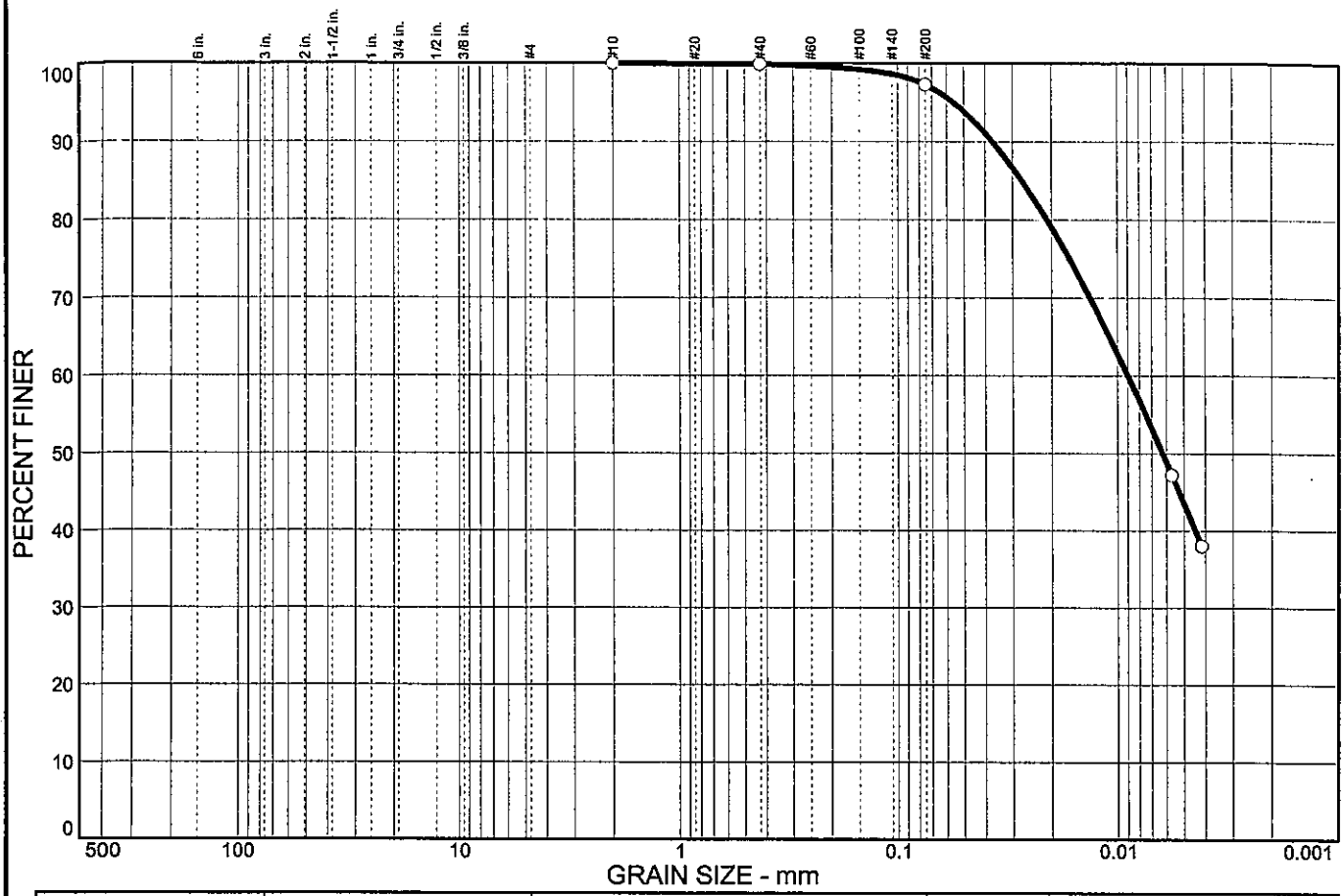
Sample No.: 3 **Source of Sample:** TR-38A **Date:** 2/8/06
Location: **Elev./Depth:** 8.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.1	2.6	53.8	43.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.9		
#200	97.3		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 22 LL= 32 PI= 10

Coefficients

D_{85}= 0.0272 D_{60}= 0.0090 D_{50}= 0.0063
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-4(10)

Remarks

Moisture Content= 25.5%

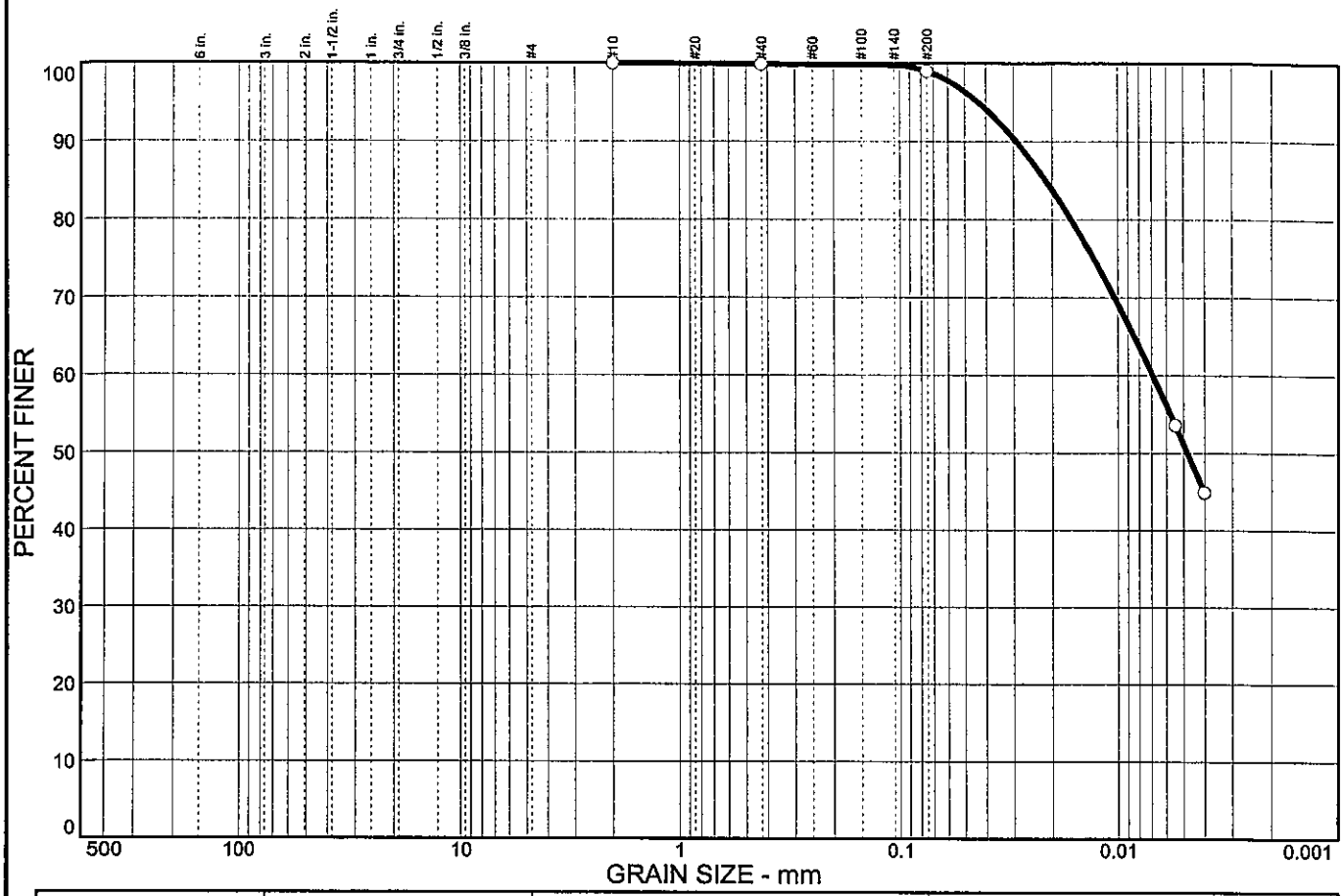
Sample No.: 4 **Source of Sample:** TR-38A **Date:** 2/8/06
Location: **Elev./Depth:** 11.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.1	0.9	47.9	51.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.9		
#200	99.0		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 23 LL= 37 PI= 14

Coefficients

D_{85}= 0.0214 D_{60}= 0.0069 D_{50}= 0.0048
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(15)

Remarks

Moisture Content= 27.4%

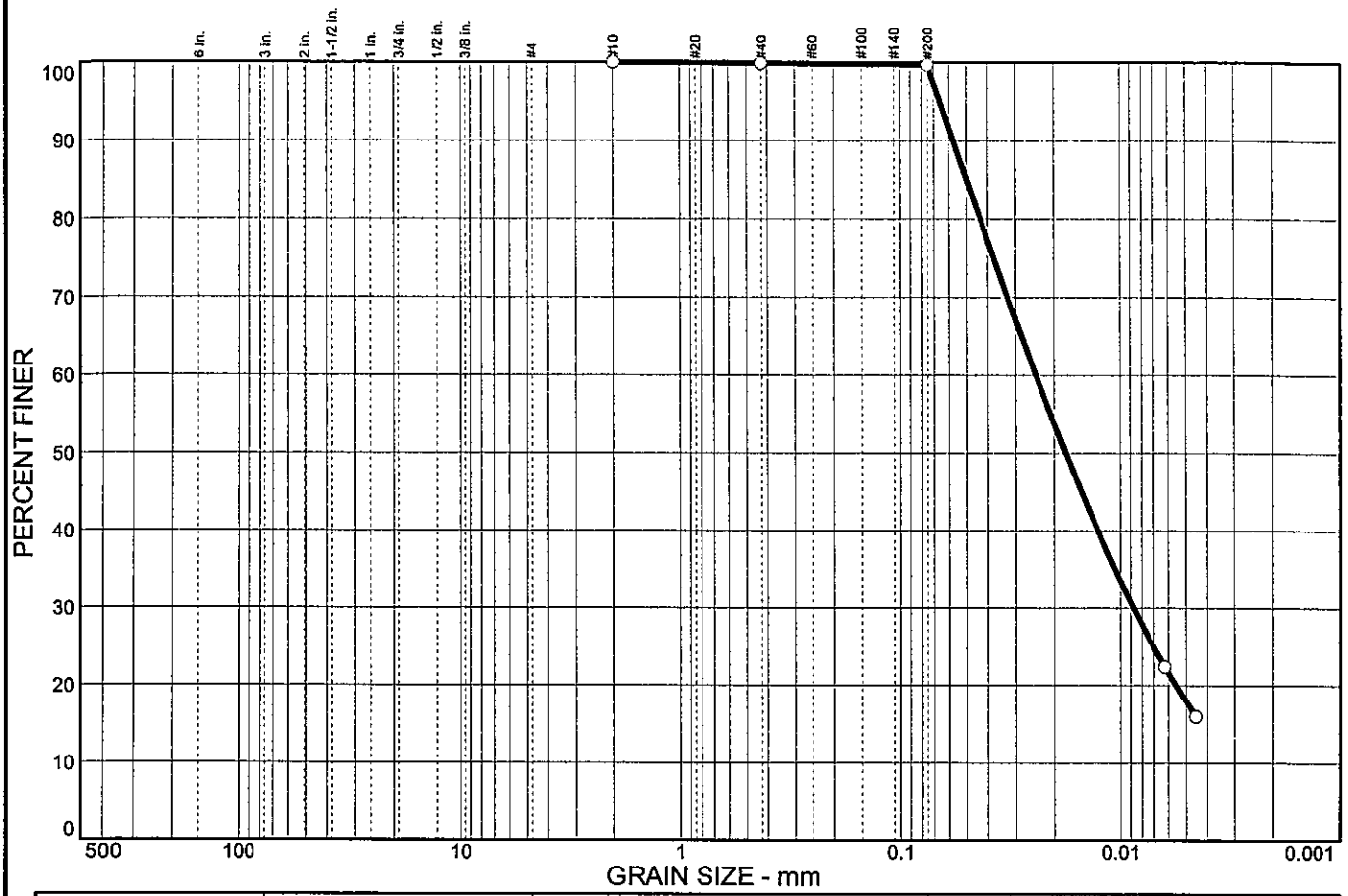
Sample No.: 5 **Source of Sample:** TR-38A **Date:** 2/8/06
Location: **Elev./Depth:** 13.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.1	0.2	81.7	18.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.9		
#200	99.7		

* (no specification provided)

Soil Description

Silt

Atterberg Limits

PL= 22 LL= 26 PI= 4

Coefficients

D_{85}= 0.0499 D_{60}= 0.0242 D_{50}= 0.0178
D_{30}= 0.0087 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= ML AASHTO= A-4(3)

Remarks

Moisture Content= 29.5%

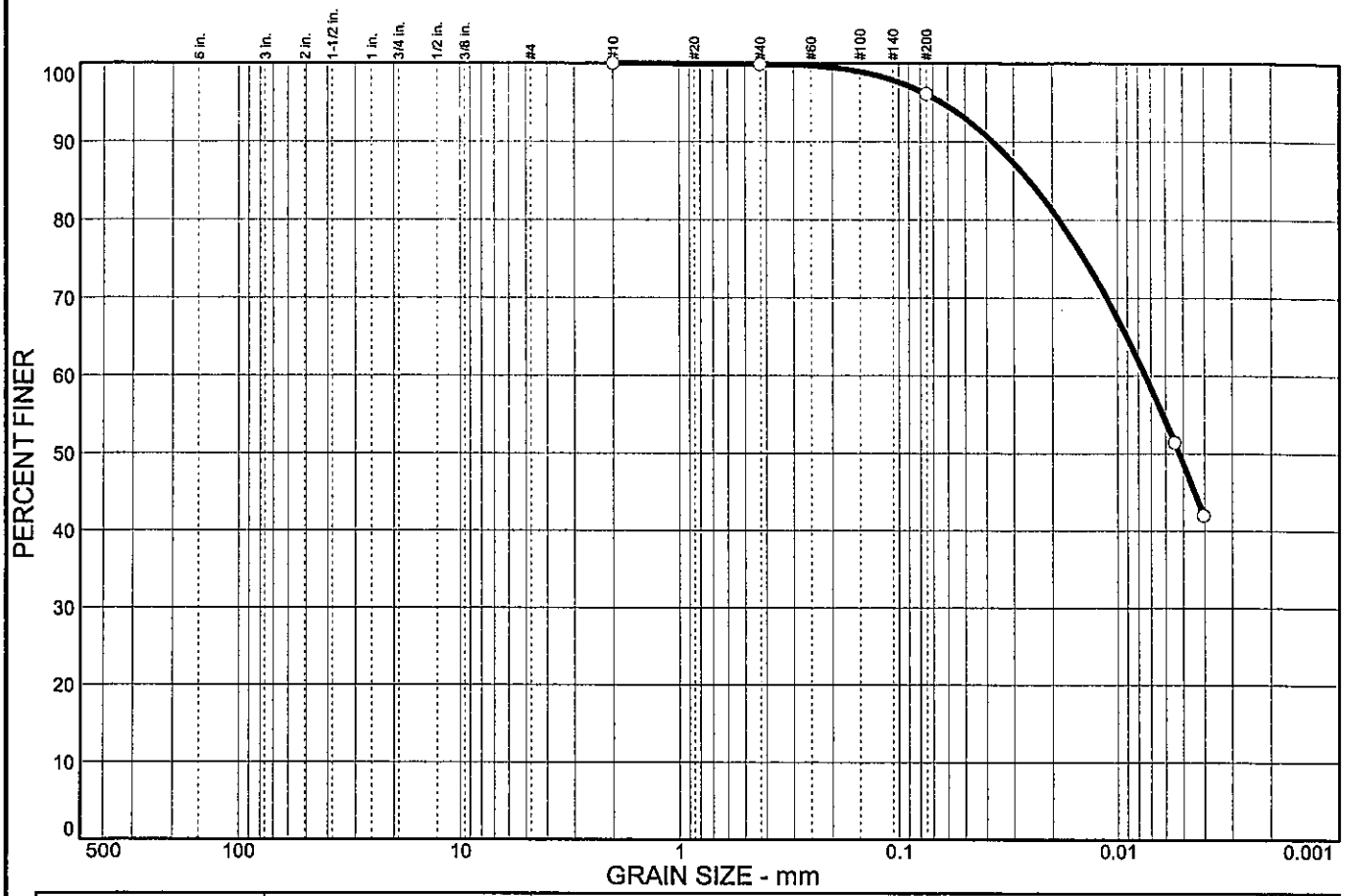
Sample No.: 8 **Source of Sample:** TR-38A **Date:** 2/8/06
Location: **Elev./Depth:** 26.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.1	3.8	47.4	48.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.9		
#200	96.1		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 22 LL= 35 PI= 13

Coefficients

D_{85}= 0.0254 D_{60}= 0.0074 D_{50}= 0.0052
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(13)

Remarks

Moisture Content= 29.1%

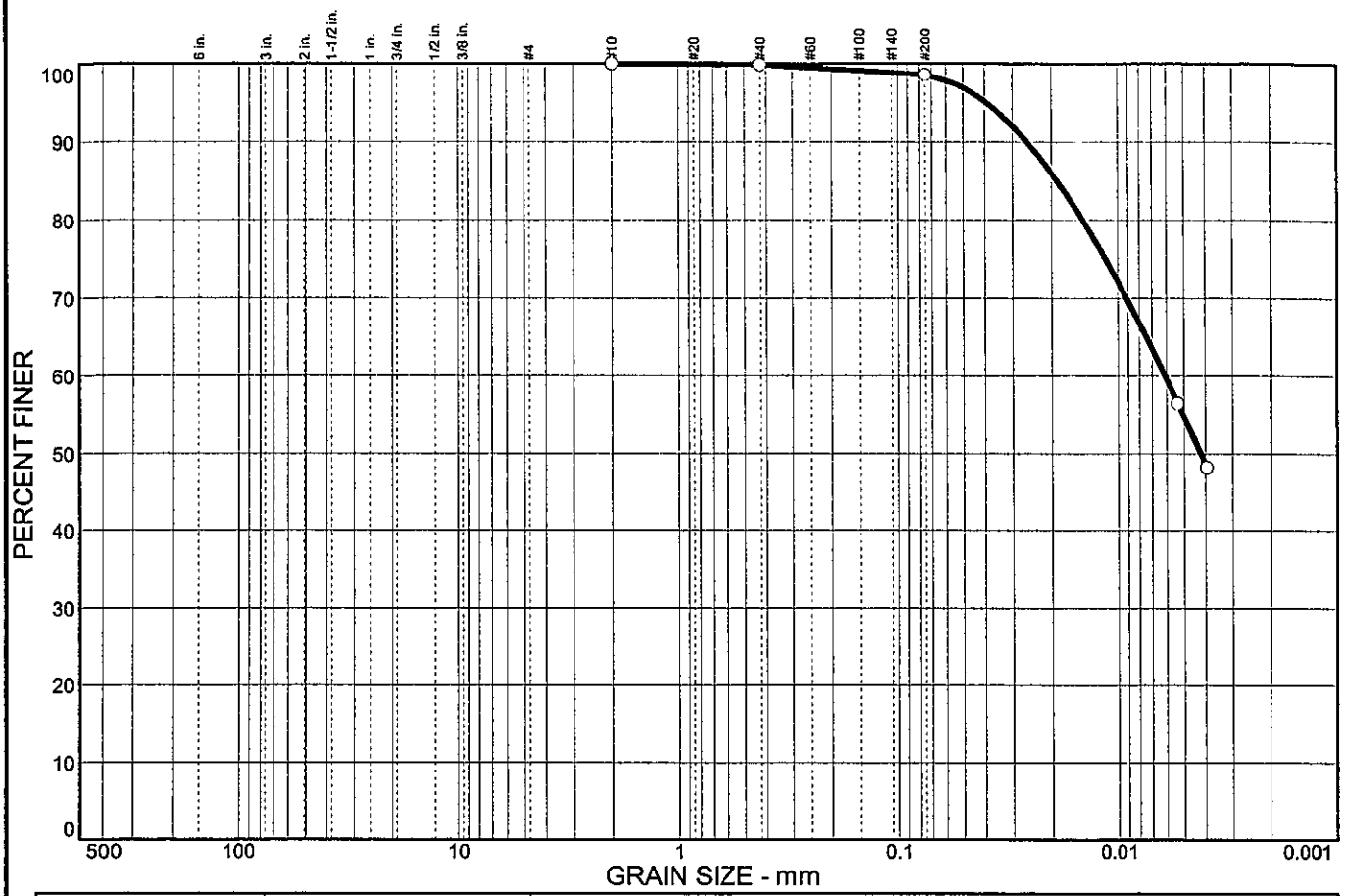
Sample No.: P-1 **Source of Sample:** TR-38A **Date:** 1/31/06
Location: **Elev./Depth:** 5.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.1	1.3	43.9	54.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.9		
#200	98.6		

* (no specification provided)

Soil Description

Atterberg Limits

PL= 22 LL= 38 PI= 16

Coefficients

D_{85}= 0.0189 D_{60}= 0.0061 D_{50}= 0.0042
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(17)

Remarks

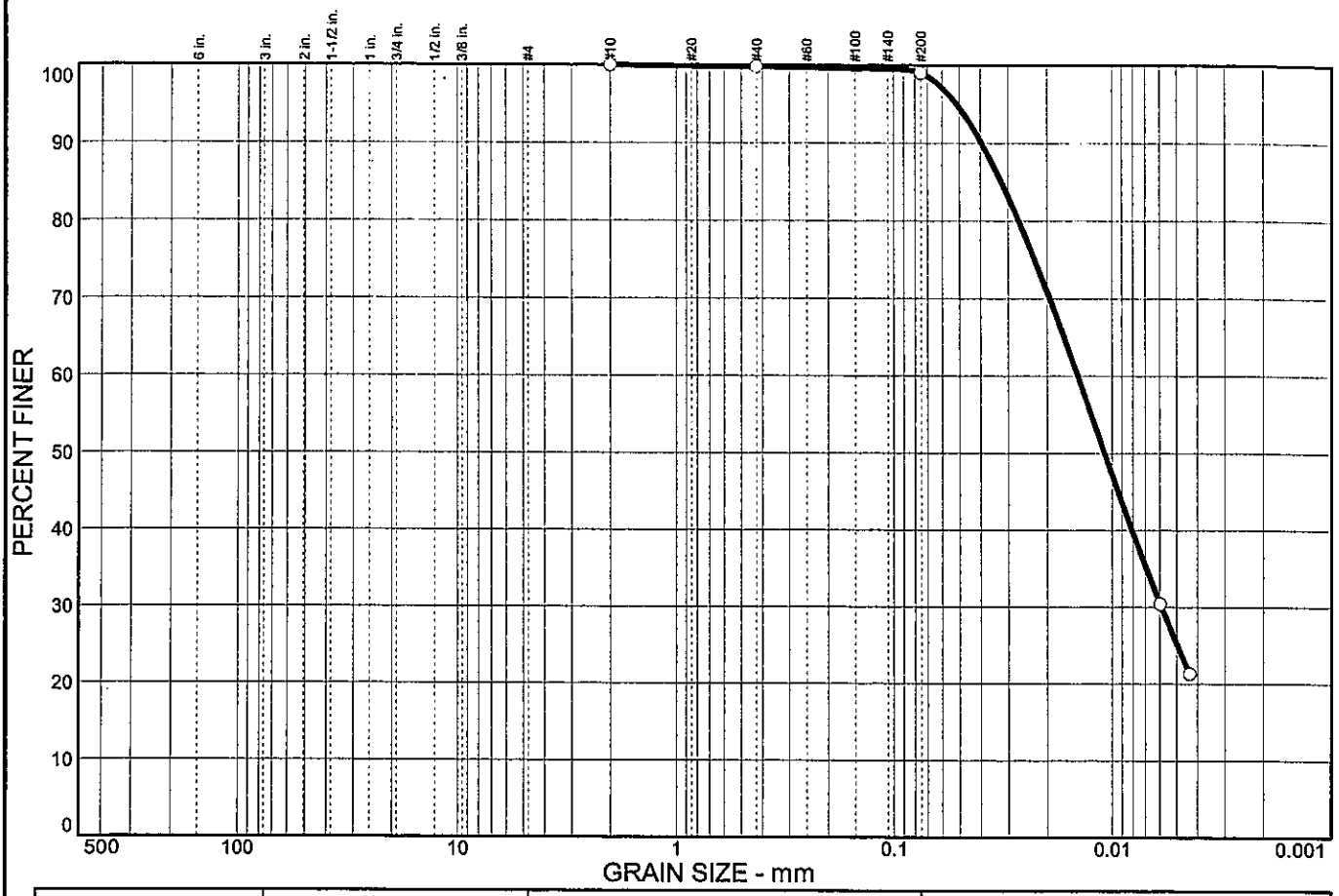
Moisture Content= 26.3%

Sample No.: P-2A **Source of Sample:** TR-38A **Date:** 1/31/06
Location: **Elev./Depth:** 15.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00
Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.2	0.8	73.7	25.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.8		
#200	99.0		

* (no specification provided)

Soil Description

Atterberg Limits

PL= 22 LL= 38 PI= 16

Coefficients

D_{85}= 0.0322 D_{60}= 0.0145 D_{50}= 0.0108
D_{30}= 0.0059 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(17)

Remarks

Moisture Content= 26.3%
Specific Gravity= 2.77

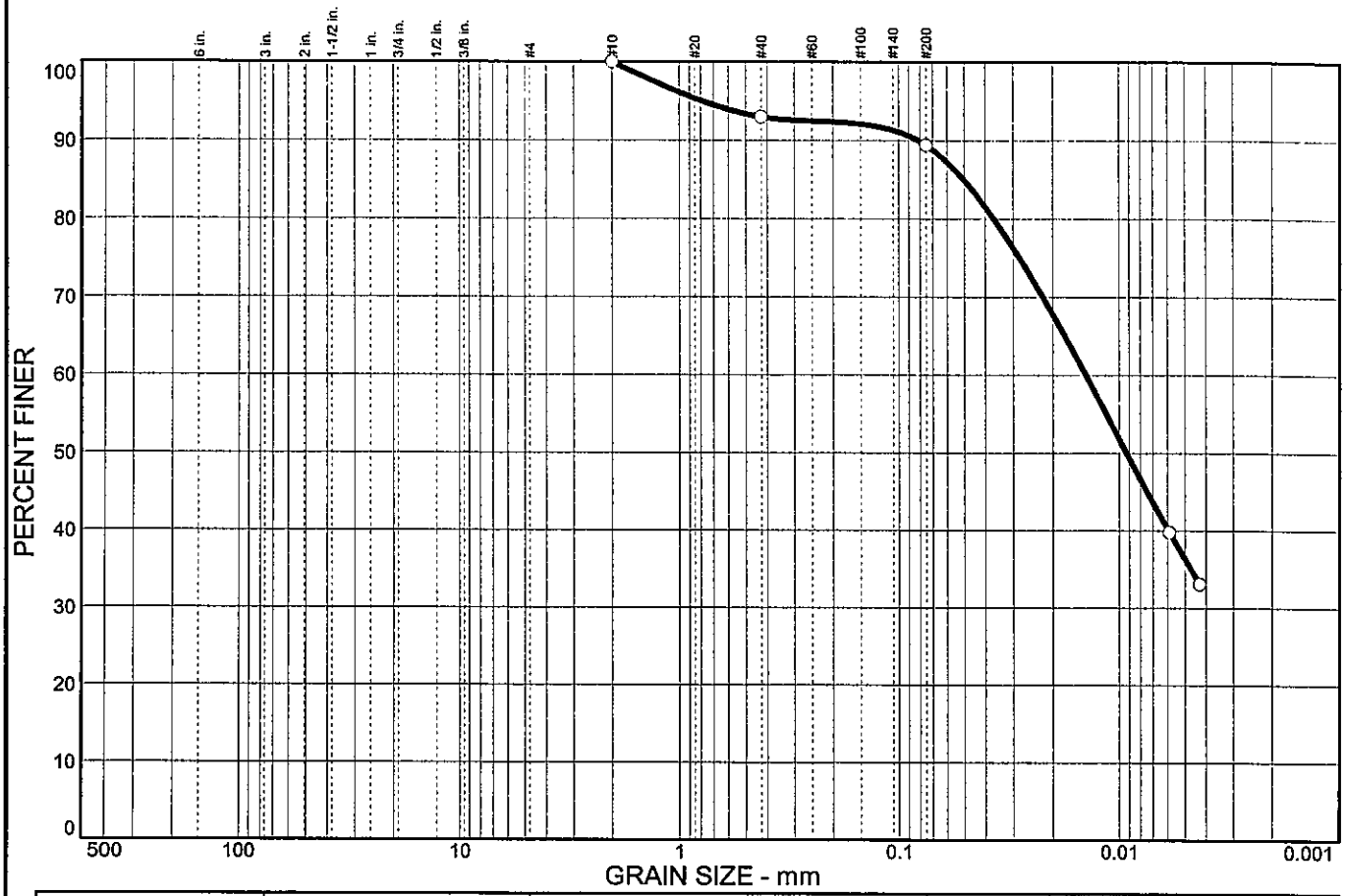
Sample No.: P-2B **Source of Sample:** TR-38A **Date:** 1/31/06
Location: **Elev./Depth:** 15.7

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	7.0	3.6	53.0	36.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	93.0		
#200	89.4		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 23 LL= 34 PI= 11

Coefficients

D_{85}= 0.0503 D_{60}= 0.0142 D_{50}= 0.0092
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(10)

Remarks

Moisture Content= 27.8%

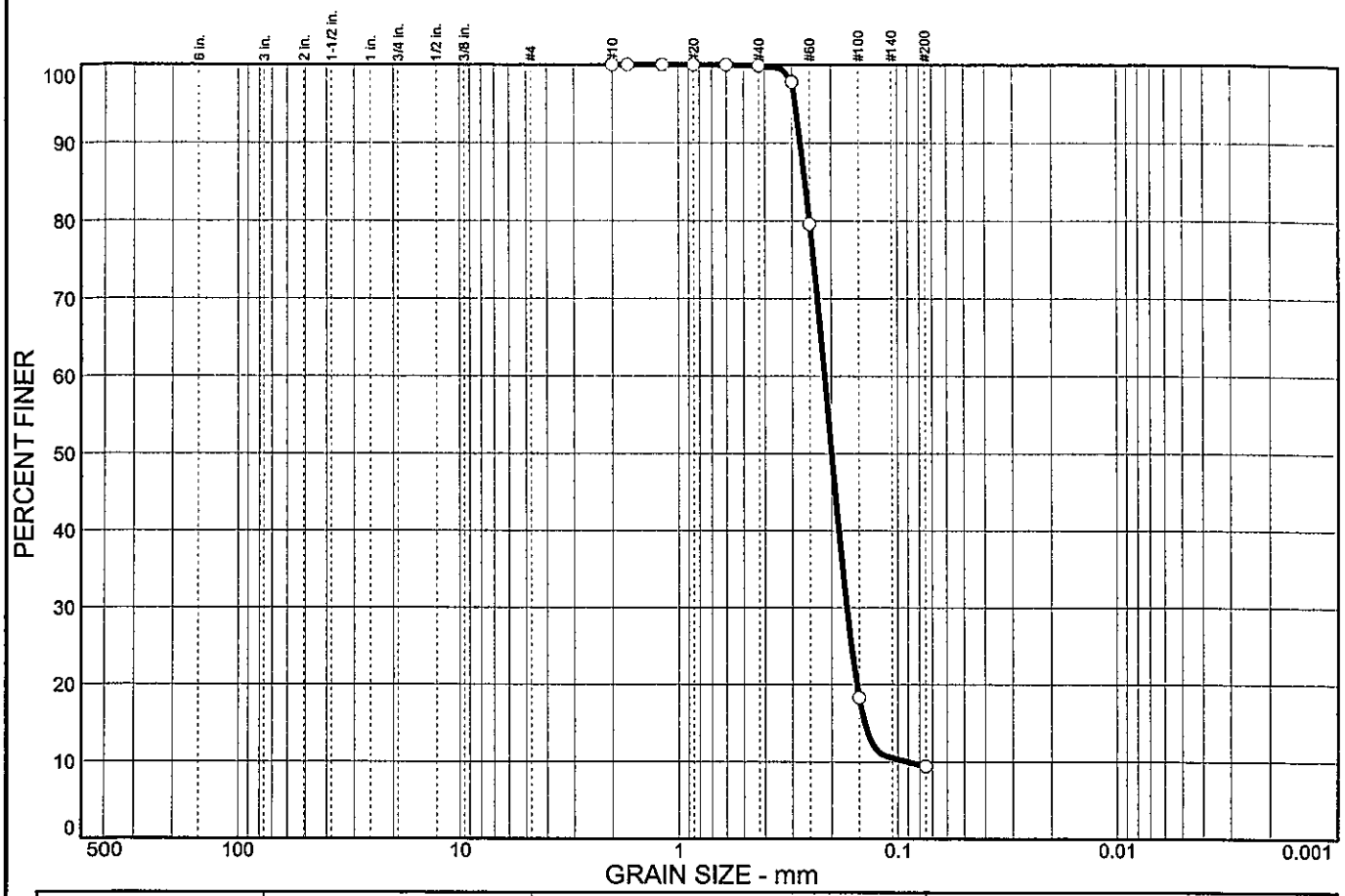
Sample No.: P-3 **Source of Sample:** TR-38A **Date:** 1/31/06
Location: **Elev./Depth:** 20.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.1	90.5	9.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#12	100.0		
#16	100.0		
#20	100.0		
#30	100.0		
#40	99.9		
#50	97.8		
#60	79.6		
#100	18.3		
#200	9.4		

* (no specification provided)

Soil Description

Poorly graded sand with silt

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{85}= 0.262 D_{60}= 0.215 D_{50}= 0.200
D_{30}= 0.170 D_{15}= 0.141 D_{10}= 0.0906
C_u= 2.37 C_c= 1.49

Classification

USCS= SP-SM AASHTO= A-3

Remarks

Moisture Content= 22.7%

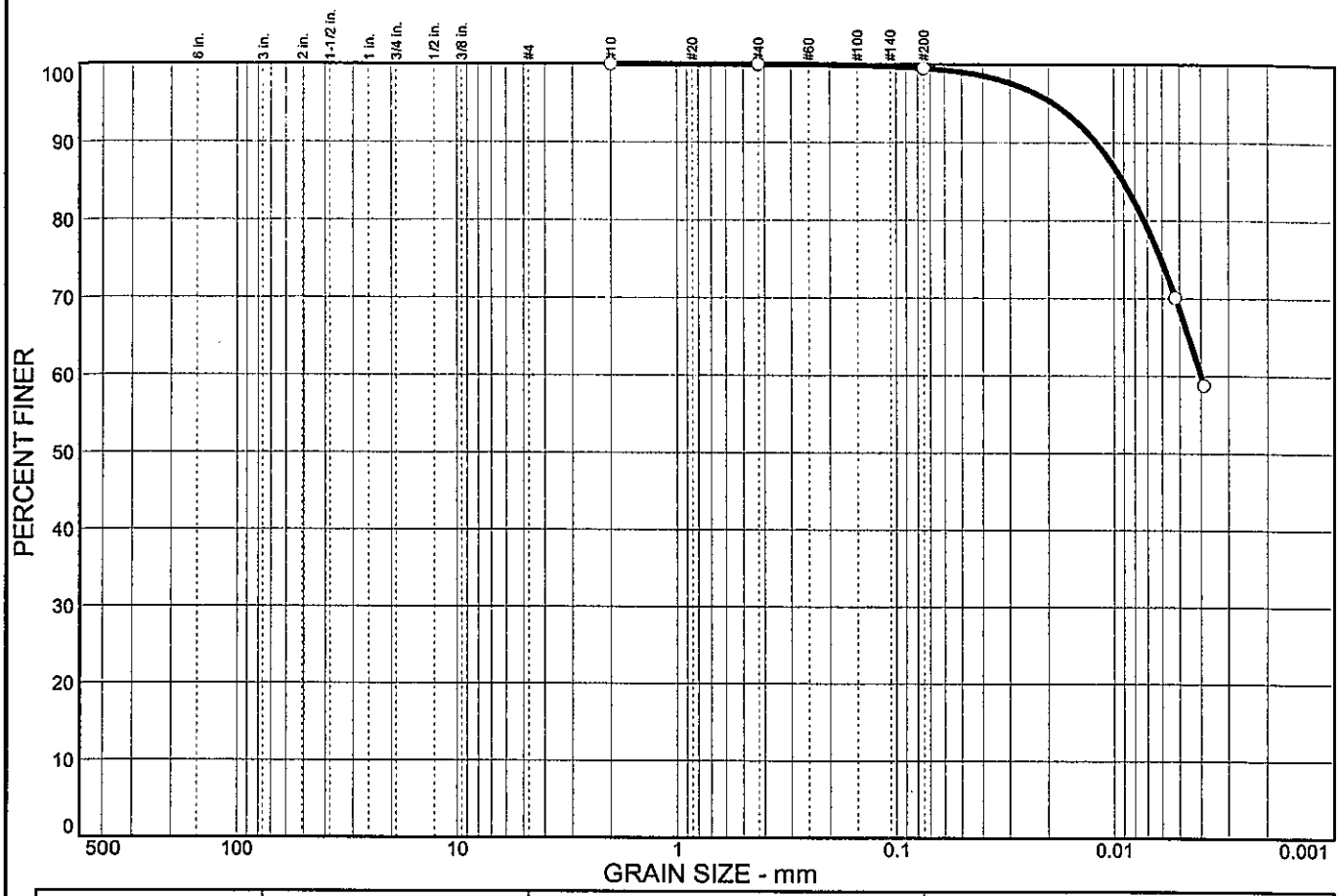
Sample No.: P-4A **Source of Sample:** TR-38A **Date:** 1/31/06
Location: **Elev./Depth:** 45.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.0	0.5	31.0	68.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	100.0		
#200	99.5		

* (no specification provided)

Soil Description

Atterberg Limits

PL= 23 LL= 38 PI= 15

Coefficients

D_{85}= 0.0090 D_{60}= 0.0040 D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(17)

Remarks

Moisture Content= 22.7%
Specific Gravity= 2.76

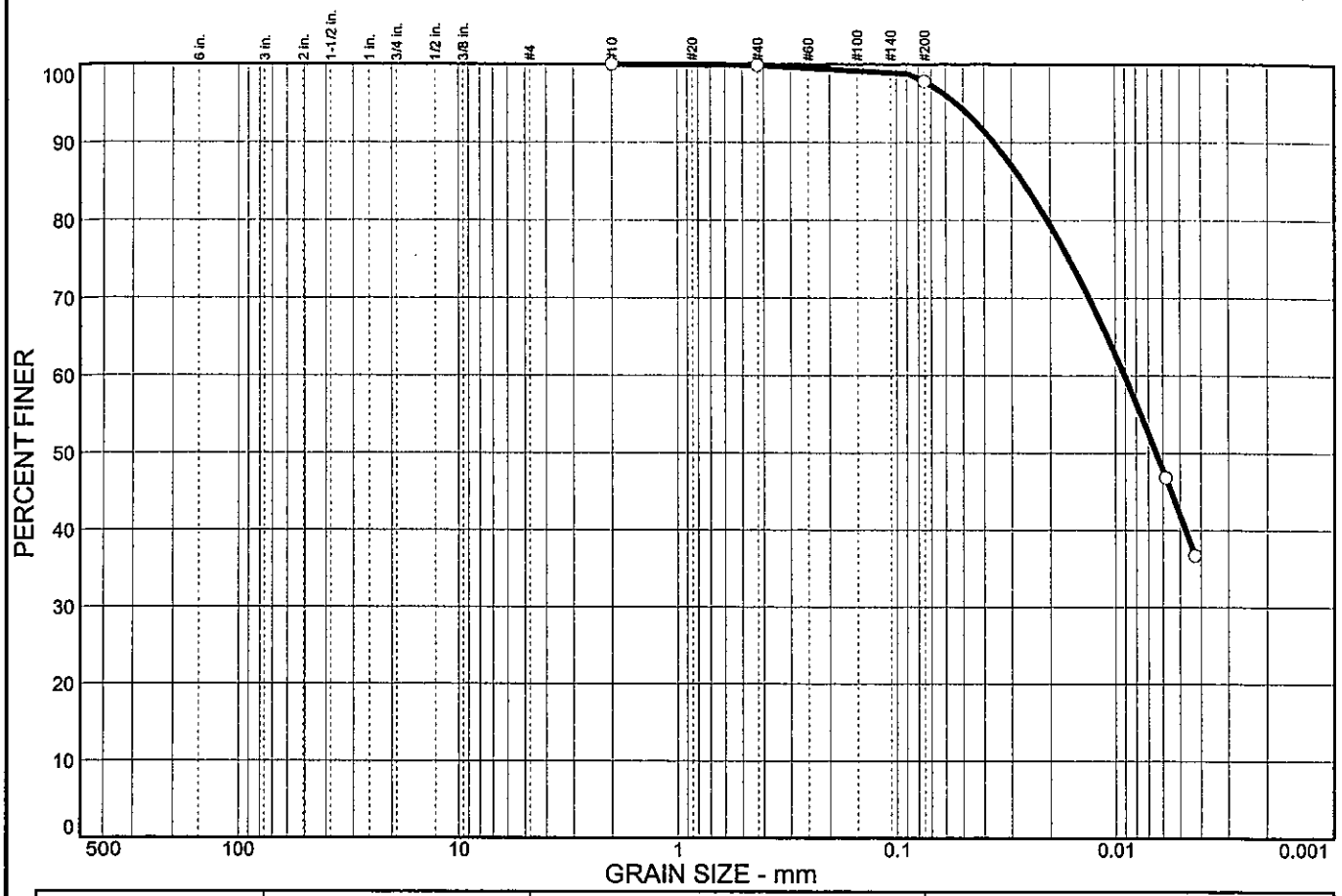
Sample No.: P-4B **Source of Sample:** TR-38A **Date:** 1/31/06
Location: **Elev./Depth:** 45.8

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.1	2.1	55.8	42.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.9		
#200	97.8		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 21 LL= 30 PI= 9

Coefficients

D_{85}= 0.0267 D_{60}= 0.0091 D_{50}= 0.0064
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-4(9)

Remarks

Moisture Content= 24.8%

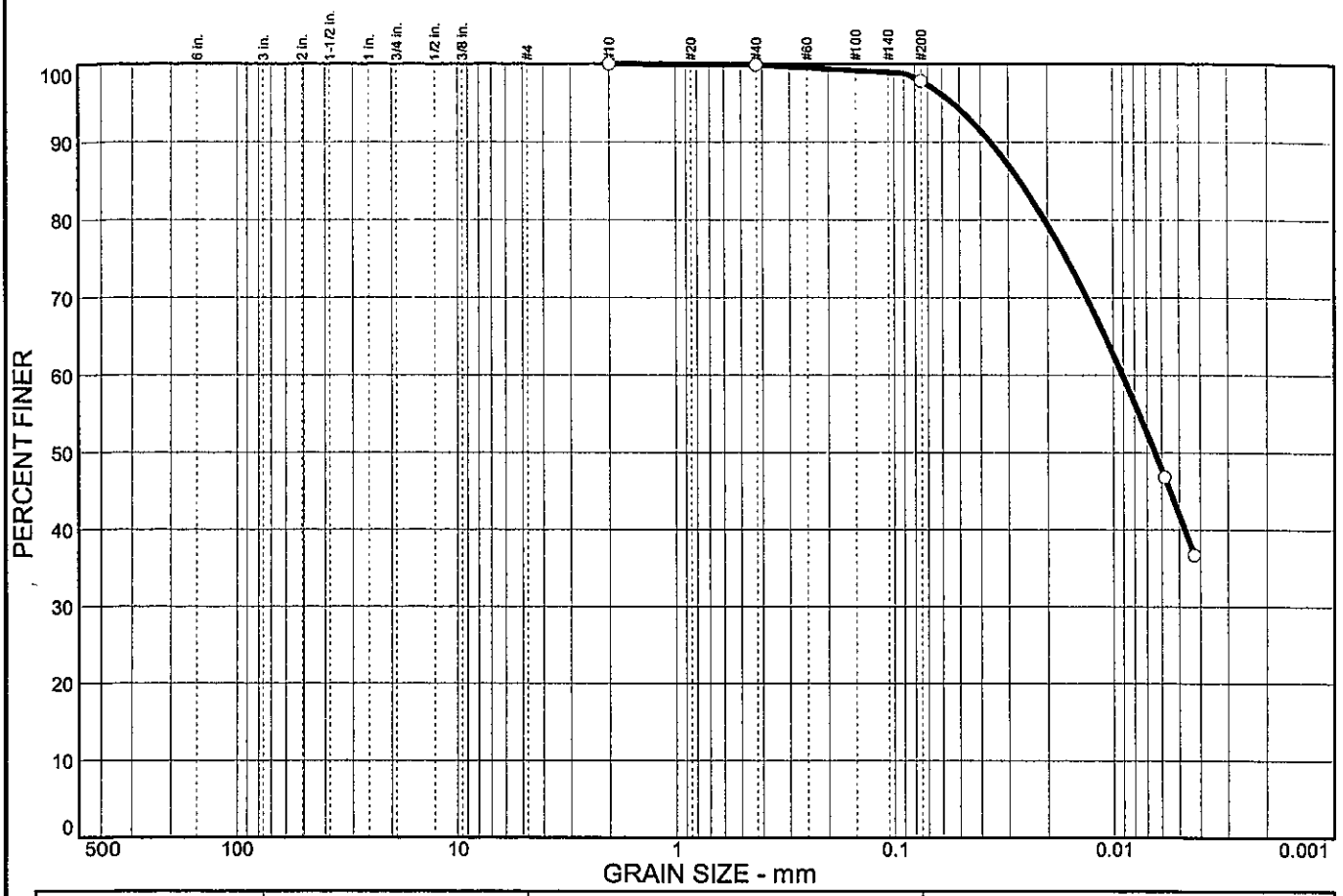
Sample No.: 12 **Source of Sample:** TR-40 **Date:** 4/5/05
Location: **Elev./Depth:** 27.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.1	2.1	55.8	42.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.9		
#200	97.8		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 21 LL= 30 PI= 9

Coefficients

D_{85}= 0.0267 D_{60}= 0.0091 D_{50}= 0.0064
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-4(9)

Remarks

Moisture Content= 24.8%

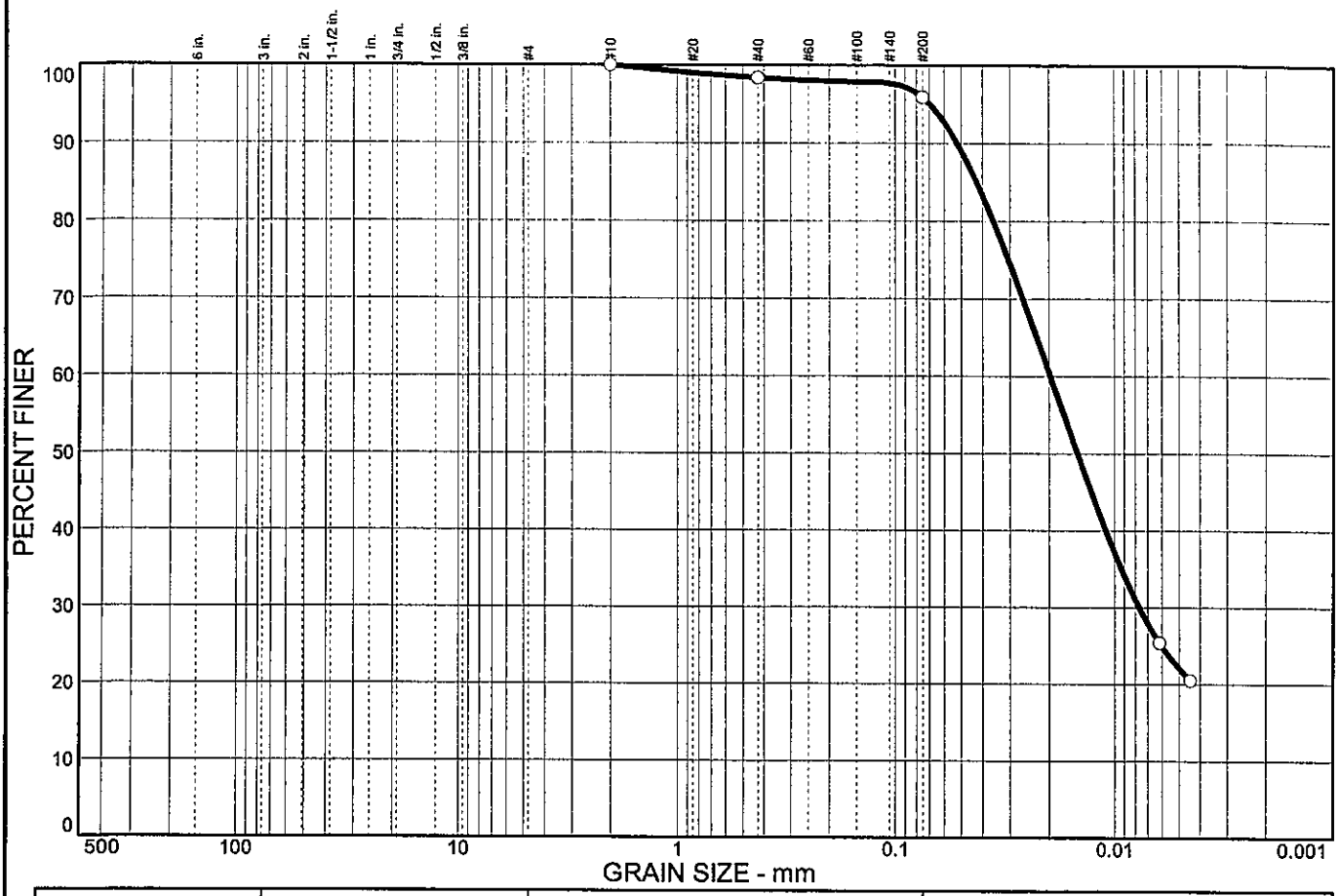
Sample No.: 12 **Source of Sample:** TR-40 **Date:** 4/5/05
Location: **Elev./Depth:** 27.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	1.6	2.5	73.8	22.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	98.4		
#200	95.9		

* (no specification provided)

Soil Description

Silty clay

Atterberg Limits

PL= 22 LL= 28 PI= 6

Coefficients

D_{85}= 0.0426 D_{60}= 0.0197 D_{50}= 0.0148
D_{30}= 0.0077 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL-ML AASHTO= A-4(5)

Remarks

Moisture Content= 28.7%

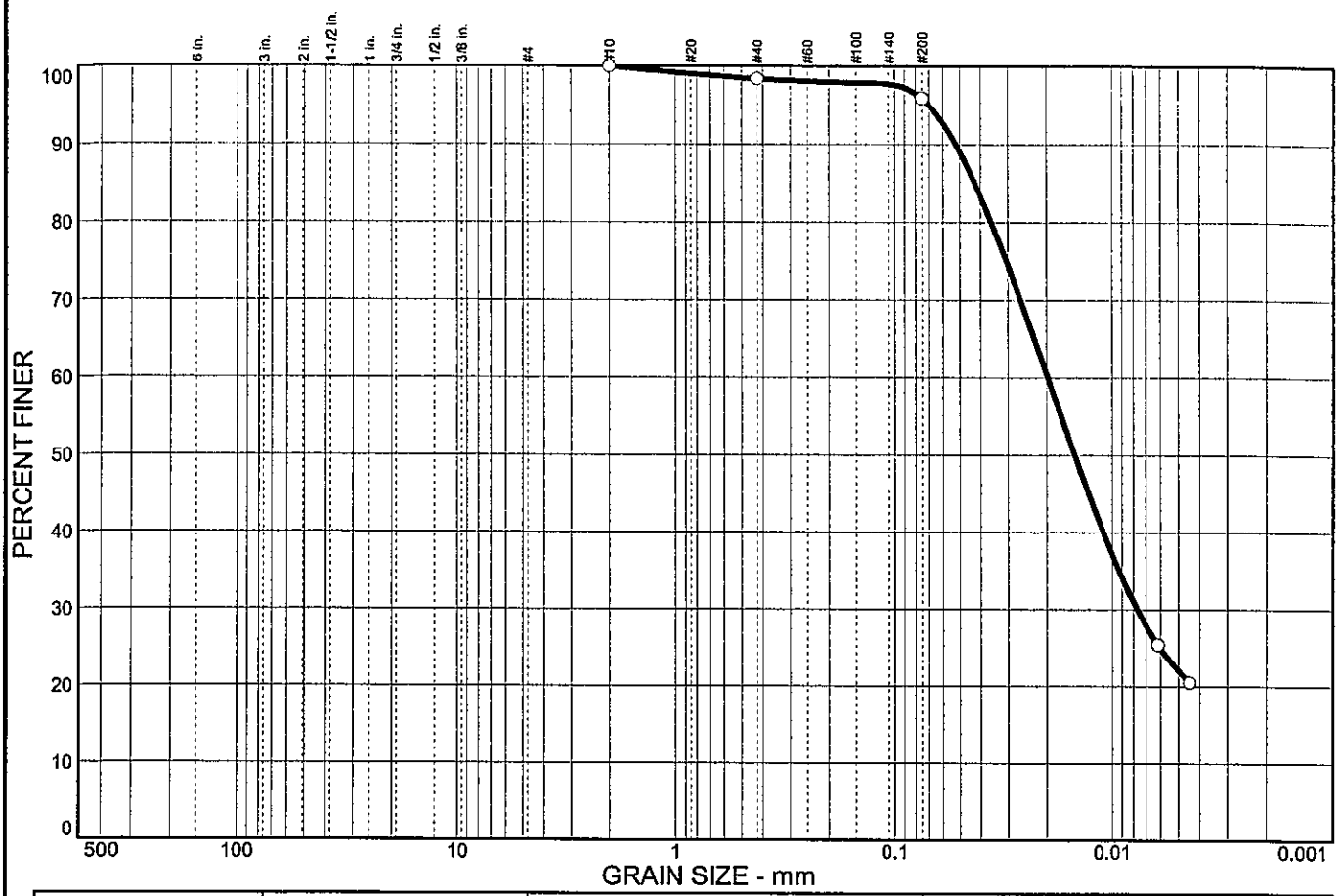
Sample No.: 14 **Source of Sample:** TR-40 **Date:** 4/5/05
Location: **Elev./Depth:** 35.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	1.6	2.5	73.8	22.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	98.4		
#200	95.9		

* (no specification provided)

Soil Description

Silty clay

Atterberg Limits

PL= 22 LL= 28 PI= 6

Coefficients

D_{85}= 0.0426 D_{60}= 0.0197 D_{50}= 0.0148
D_{30}= 0.0077 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL-ML AASHTO= A-4(5)

Remarks

Moisture Content= 28.7%

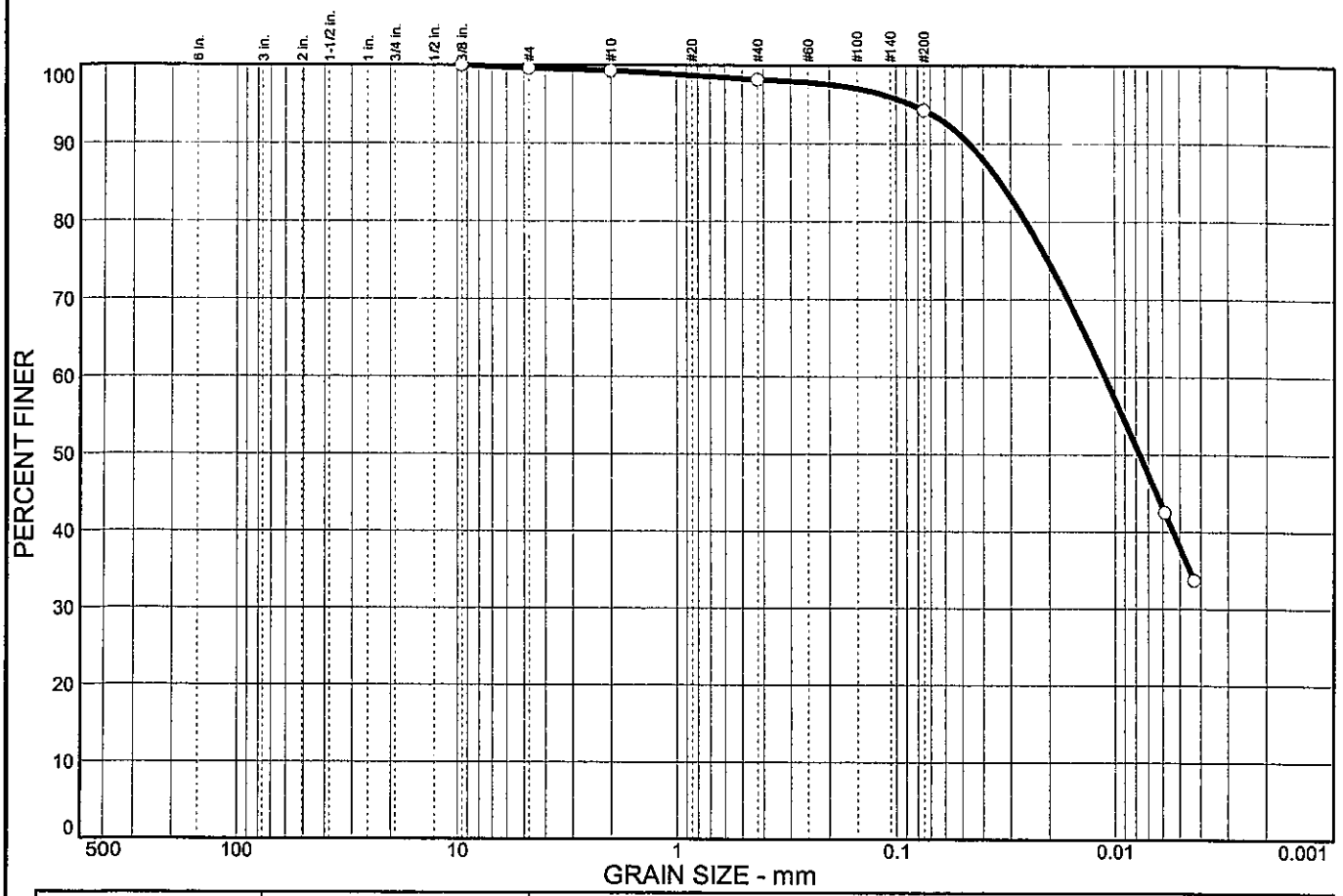
Sample No.: 14 **Source of Sample:** TR-40 **Date:** 4/5/05
Location: **Elev./Depth:** 35.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.4	0.3	1.1	3.9	56.3	38.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.375 in.	100.0		
#4	99.6		
#10	99.3		
#40	98.2		
#200	94.3		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 19 LL= 28 PI= 9

Coefficients

D_{85}= 0.0333 D_{60}= 0.0111 D_{50}= 0.0077
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-4(7)

Remarks

Moisture Content= 25.7%

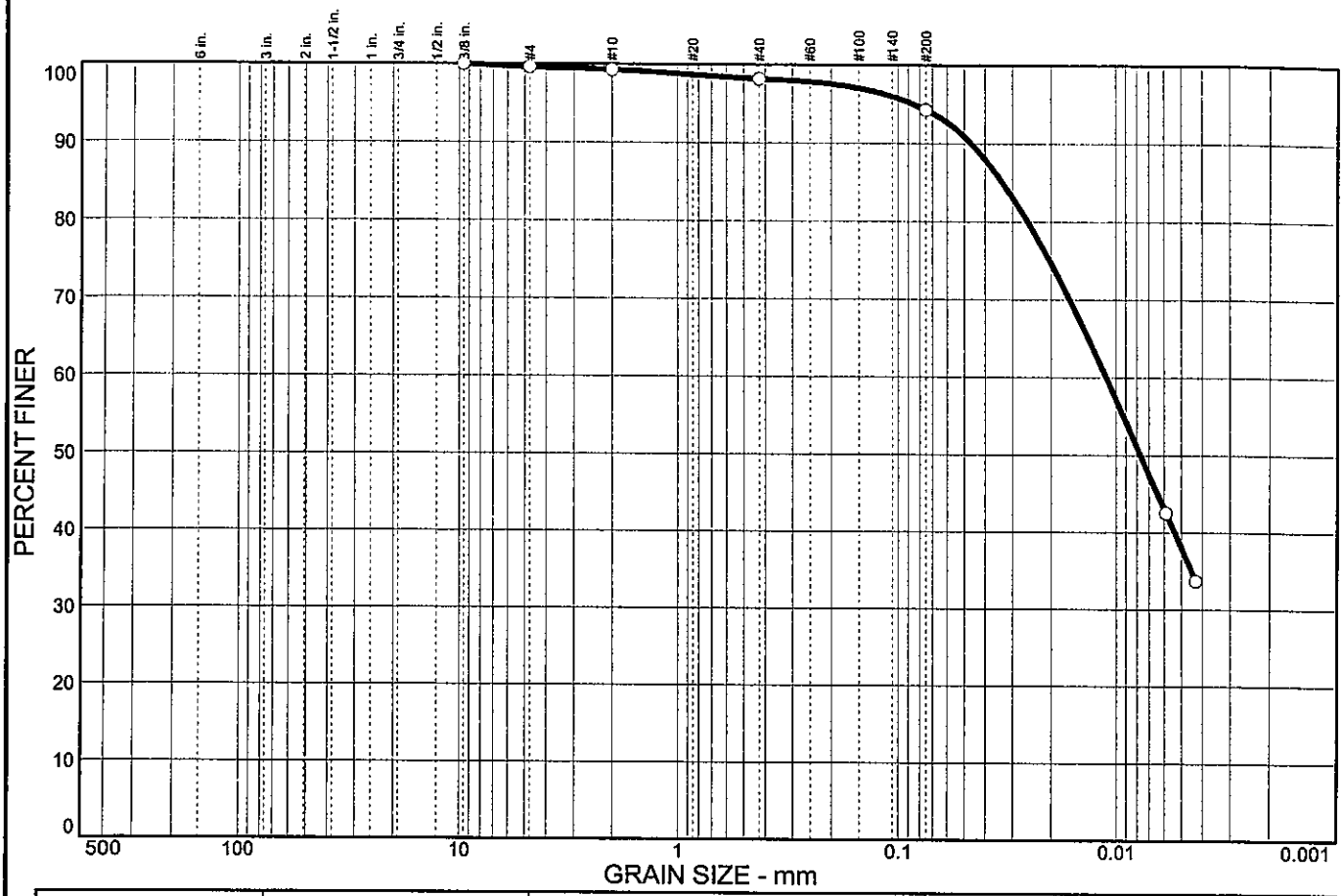
Sample No.: 17 **Source of Sample:** TR-40 **Date:** 4/5/05
Location: **Elev./Depth:** 50.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.4	0.3	1.1	3.9	56.3	38.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.375 in.	100.0		
#4	99.6		
#10	99.3		
#40	98.2		
#200	94.3		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 19 LL= 28 PI= 9

Coefficients

D_{85}= 0.0333 D_{60}= 0.0111 D_{50}= 0.0077
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-4(7)

Remarks

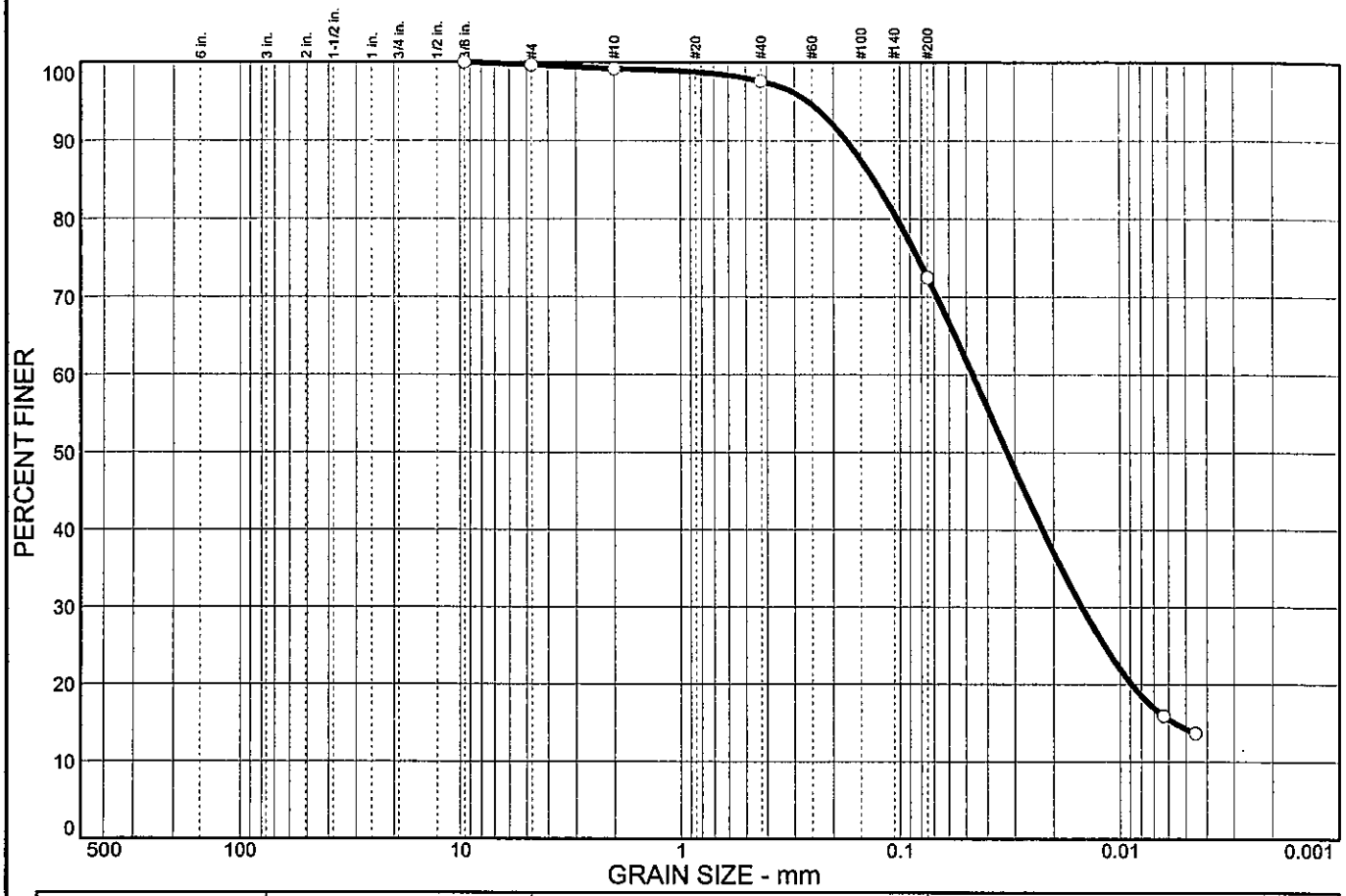
Moisture Content= 25.7%

Sample No.: 17 **Source of Sample:** TR-40 **Date:** 4/5/05
Location: **Elev./Depth:** 50.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00
Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.3	0.5	1.6	25.1	58.2	14.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.375 in.	100.0		
#4	99.7		
#10	99.2		
#40	97.6		
#200	72.5		

* (no specification provided)

Soil Description

Silt with sand

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{85}= 0.131 D_{60}= 0.0467 D_{50}= 0.0325
D_{30}= 0.0149 D_{15}= 0.0056 D_{10}=
C_u= C_c=

Classification

USCS= ML AASHTO= A-4(0)

Remarks

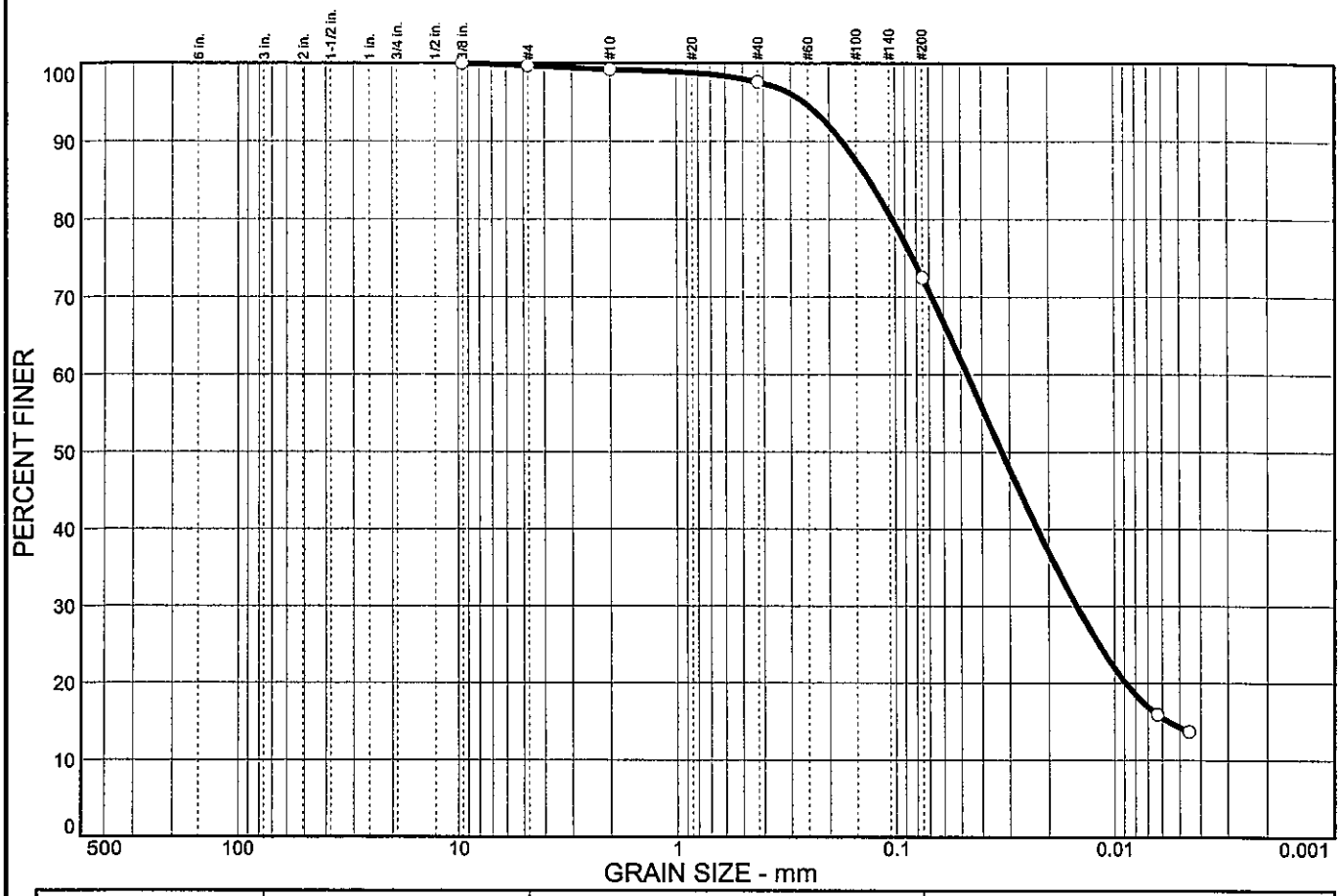
Moisture Content= 21.7%

Sample No.: 23 **Source of Sample:** TR-40 **Date:** 4/5/05
Location: **Elev./Depth:** 80.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00
Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.3	0.5	1.6	25.1	58.2	14.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.375 in.	100.0		
#4	99.7		
#10	99.2		
#40	97.6		
#200	72.5		

* (no specification provided)

Soil Description

Silt with sand

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{85}= 0.131 D_{60}= 0.0467 D_{50}= 0.0325
D_{30}= 0.0149 D_{15}= 0.0056 D_{10}=
C_u= C_c=

Classification

USCS= ML AASHTO= A-4(0)

Remarks

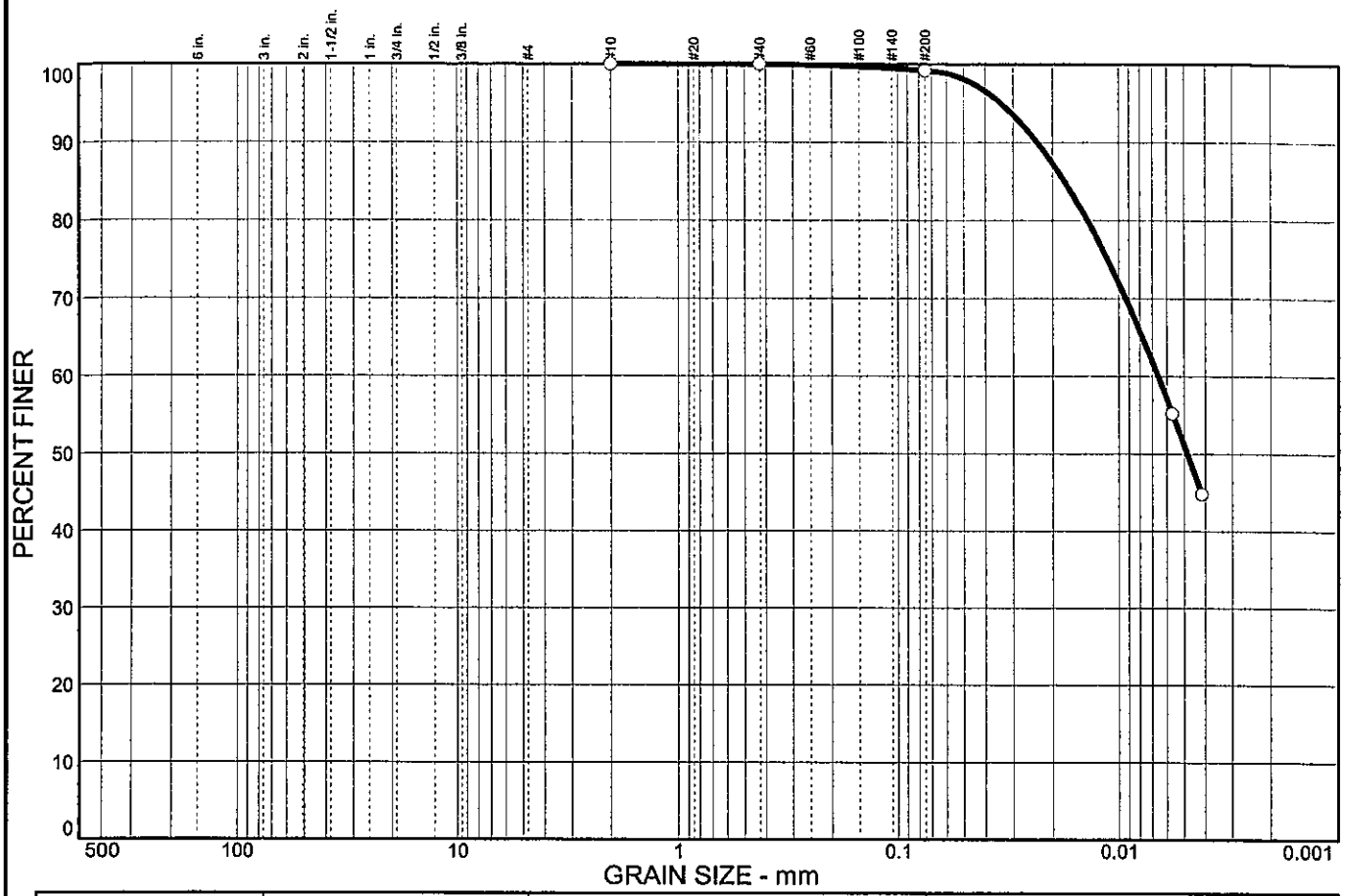
Moisture Content= 21.7%

Sample No.: 23 **Source of Sample:** TR-40 **Date:** 4/5/05
Location: **Elev./Depth:** 80.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00
Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.0	0.8	48.1	51.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	100.0		
#200	99.2		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 22 LL= 40 PI= 18

Coefficients

D_{85}= 0.0176 D_{60}= 0.0066 D_{50}= 0.0048
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(20)

Remarks

Moisture Content= 27.8%

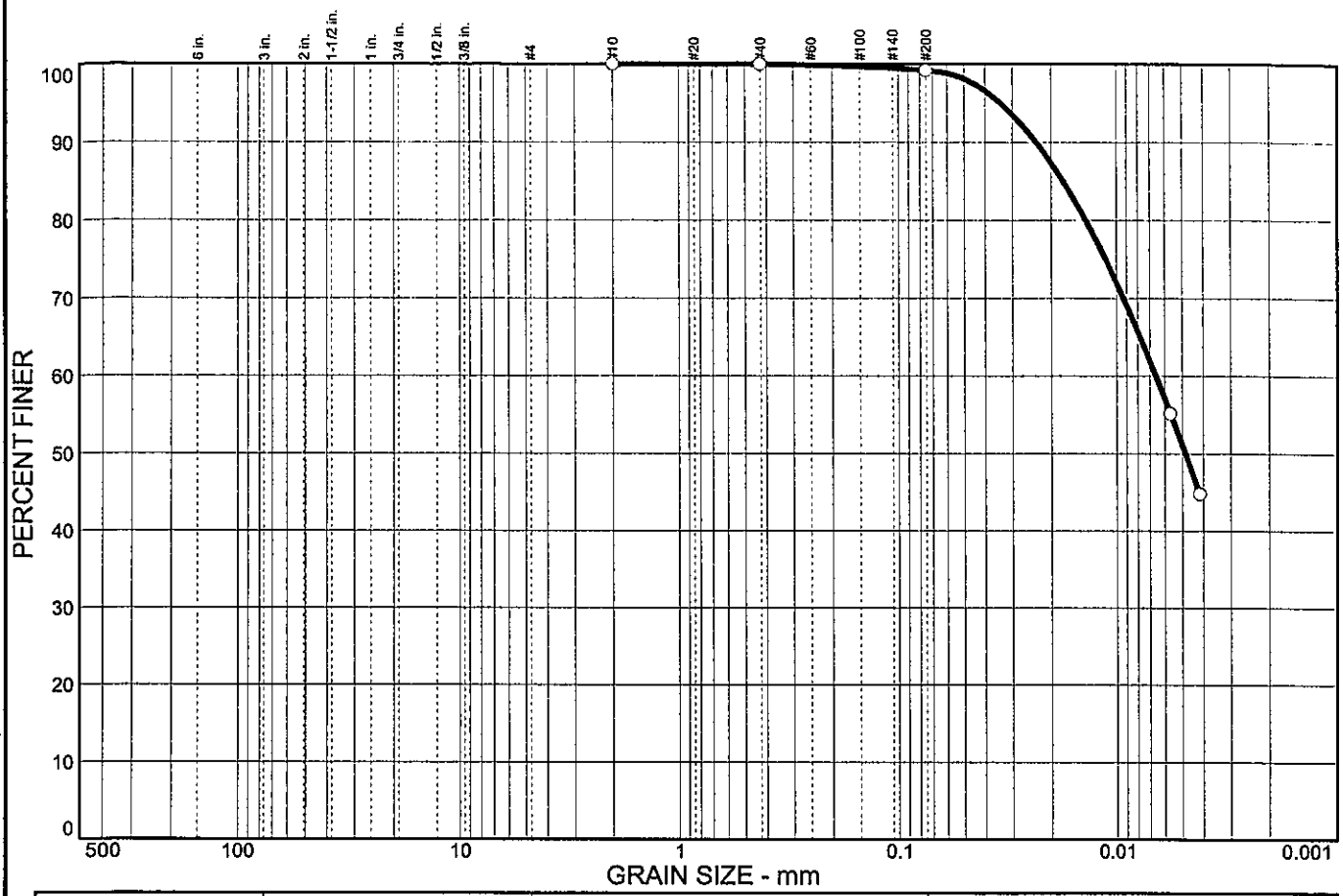
Sample No.: 3 **Source of Sample:** TR-40 **Date:** 4/5/05
Location: **Elev./Depth:** 5.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.0	0.8	48.1	51.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	100.0		
#200	99.2		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 22 LL= 40 PI= 18

Coefficients

D_{85}= 0.0176 D_{60}= 0.0066 D_{50}= 0.0048
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(20)

Remarks

Moisture Content= 27.8%

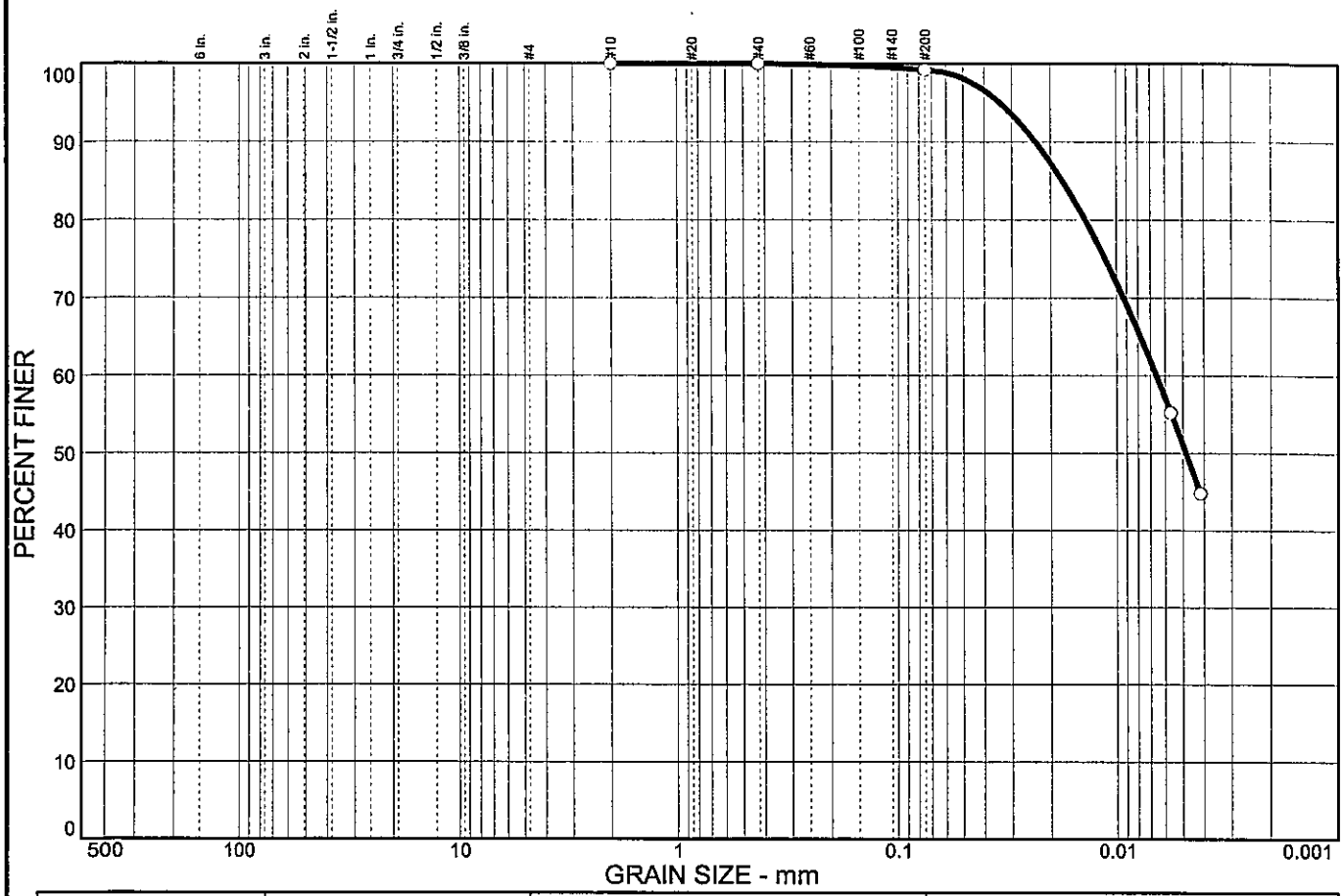
Sample No.: 3 **Source of Sample:** TR-40 **Date:** 4/5/05
Location: **Elev./Depth:** 5.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.0	0.8	48.1	51.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	100.0		
#200	99.2		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 22 LL= 40 PI= 18

Coefficients

D_{85}= 0.0176 D_{60}= 0.0066 D_{50}= 0.0048
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(20)

Remarks

Moisture Content= 27.8%

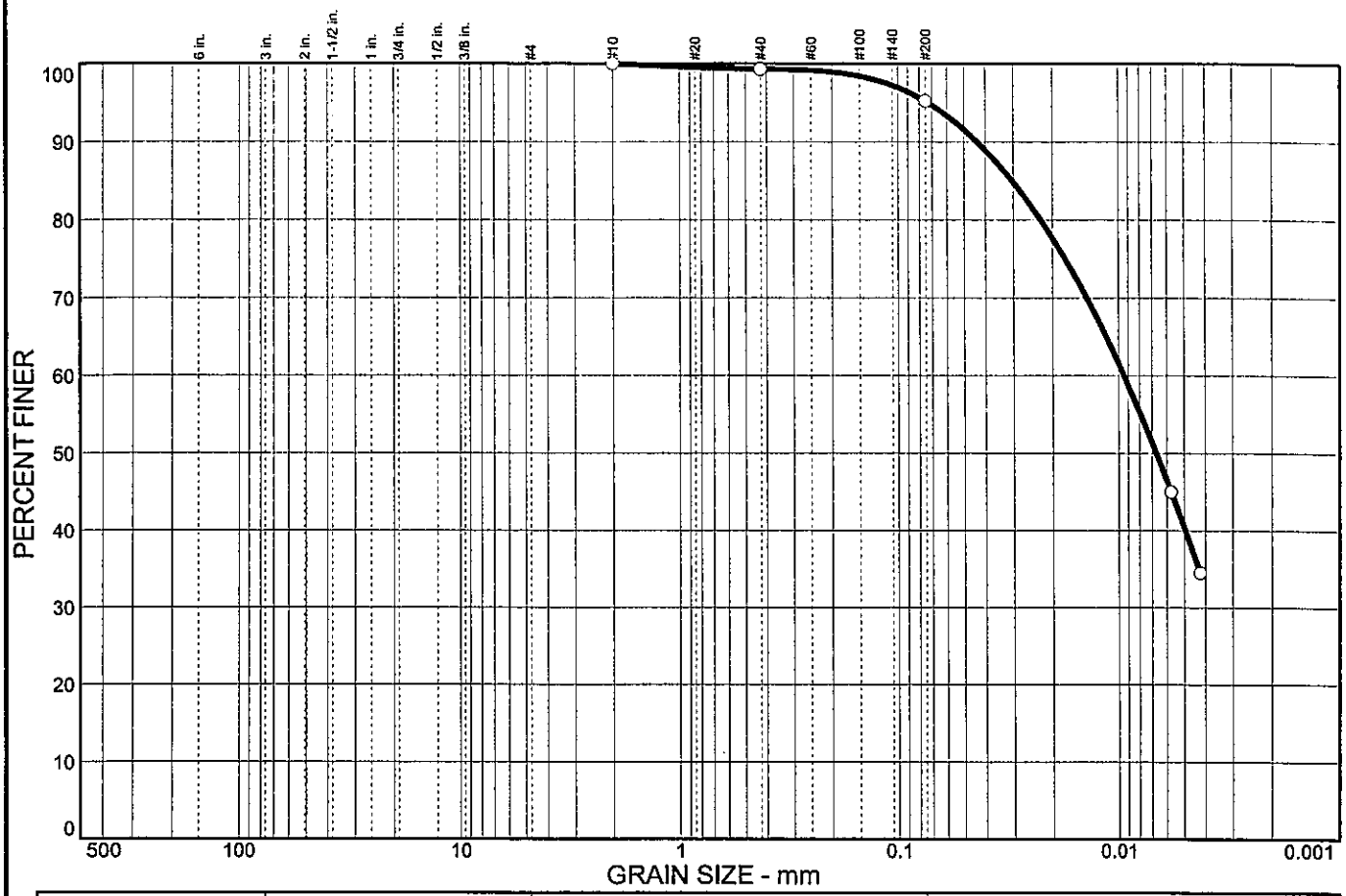
Sample No.: 3 **Source of Sample:** TR-40 **Date:** 4/5/05
Location: **Elev./Depth:** 5.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.7	4.1	54.8	40.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.3		
#200	95.2		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 21 LL= 31 PI= 10

Coefficients

D_{85}= 0.0303 D_{60}= 0.0094 D_{50}= 0.0067
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-4(9)

Remarks

Moisture Content= 24.2%

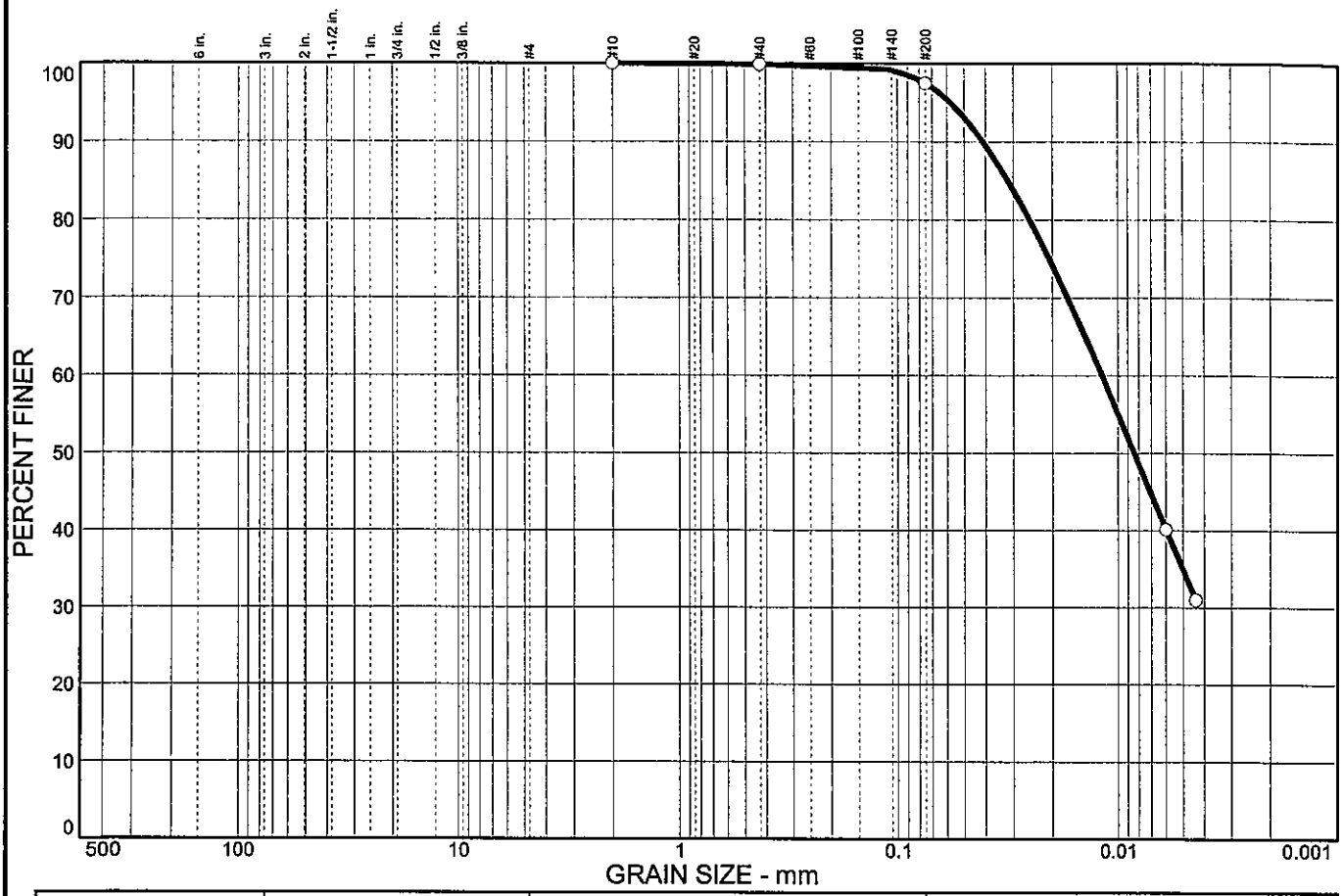
Sample No.: 11 **Source of Sample:** TR-41 **Date:** 4/5/05
Location: **Elev./Depth:** 24

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.1	2.4	62.6	34.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.9		
#200	97.5		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 20 LL= 28 PI= 8

Coefficients

D_{85}= 0.0317 D_{60}= 0.0119 D_{50}= 0.0084
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-4(7)

Remarks

Moisture Content= 24.9%

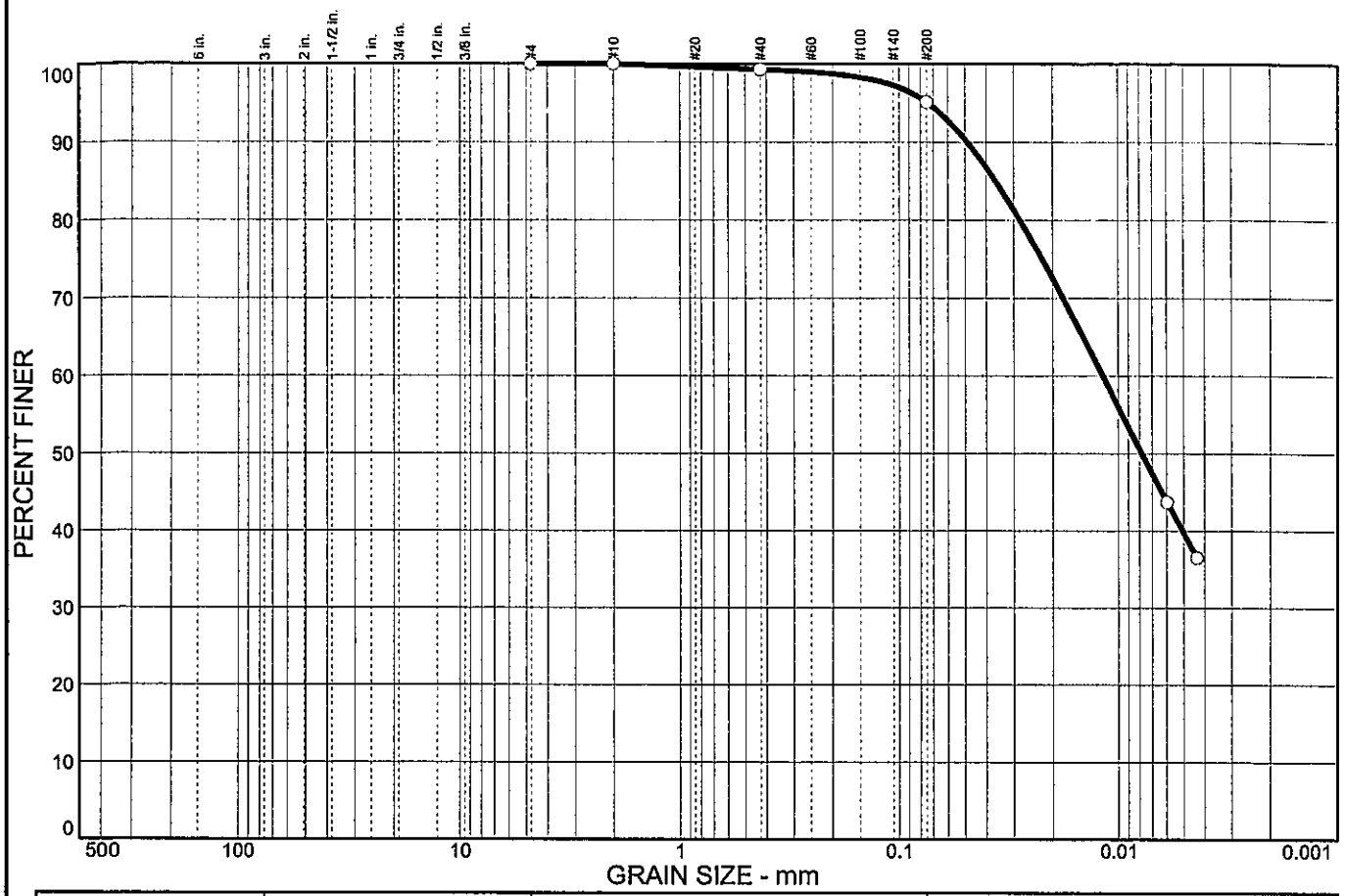
Sample No.: 17 **Source of Sample:** TR-41 **Date:** 4/1/05
Location: **Elev./Depth:** 49

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.7	4.2	55.4	39.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	100.0		
#40	99.3		
#200	95.1		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 20 LL= 35 PI= 15

Coefficients

D_{85}= 0.0363 D_{60}= 0.0118 D_{50}= 0.0078
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(14)

Remarks

Moisture Content= 20.9%

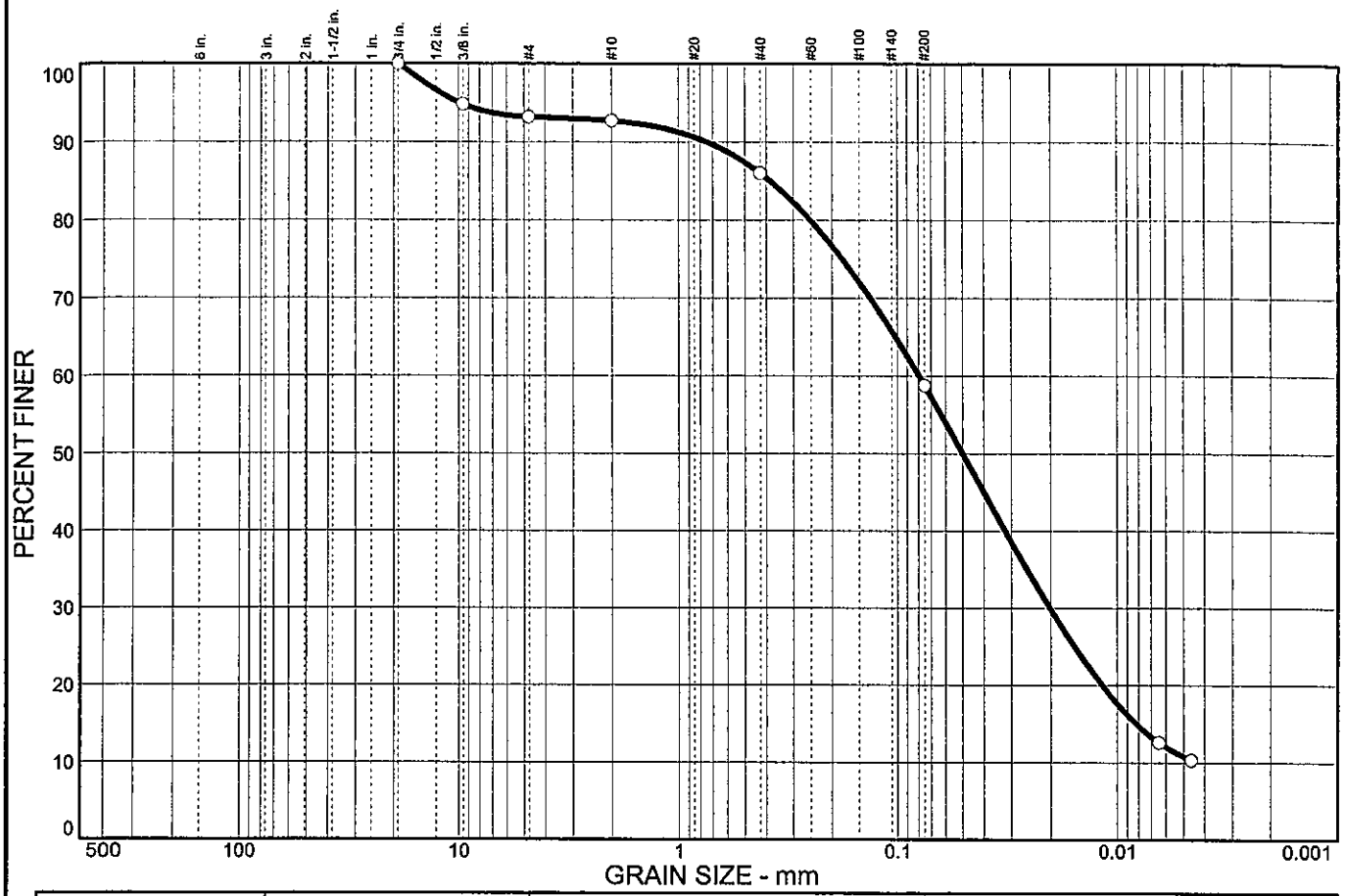
Sample No.: 22 **Source of Sample:** TR-41 **Date:** 4/1/05
Location: **Elev./Depth:** 74

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	6.8	0.5	6.7	27.2	48.0	10.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.75 in.	100.0		
0.375 in.	94.8		
#4	93.2		
#10	92.7		
#40	86.0		
#200	58.8		

* (no specification provided)

Soil Description

Sandy silt

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{85}= 0.384 D_{60}= 0.0794 D_{50}= 0.0501
D_{30}= 0.0201 D_{15}= 0.0082 D_{10}=
C_u= C_c=

Classification

USCS= ML AASHTO= A-4(0)

Remarks

Moisture Content= 19.1%

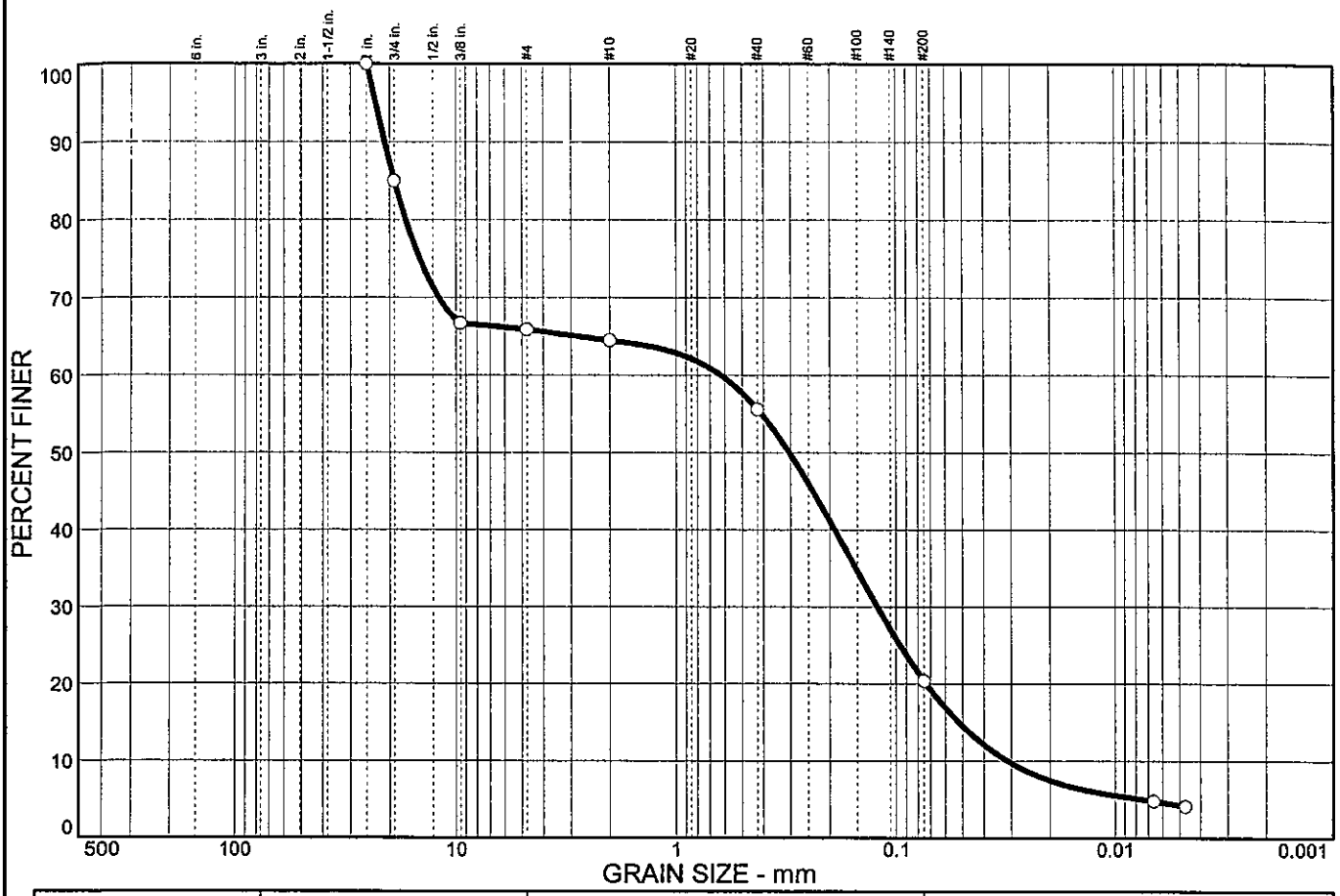
Sample No.: 24 **Source of Sample:** TR-41 **Date:** 4/1/05
Location: **Elev./Depth:** 84

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	15.0	19.1	1.4	8.9	35.2	16.2	4.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.00 in.	100.0		
0.75 in.	85.0		
0.375 in.	66.7		
#4	65.9		
#10	64.5		
#40	55.6		
#200	20.4		

* (no specification provided)

Soil Description

Silty sand with gravel

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{85}= 19.0 D_{60}= 0.624 D_{50}= 0.305
D_{30}= 0.122 D_{15}= 0.0520 D_{10}= 0.0312
C_u= 20.02 C_c= 0.76

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

Moisture Content= 14.1%

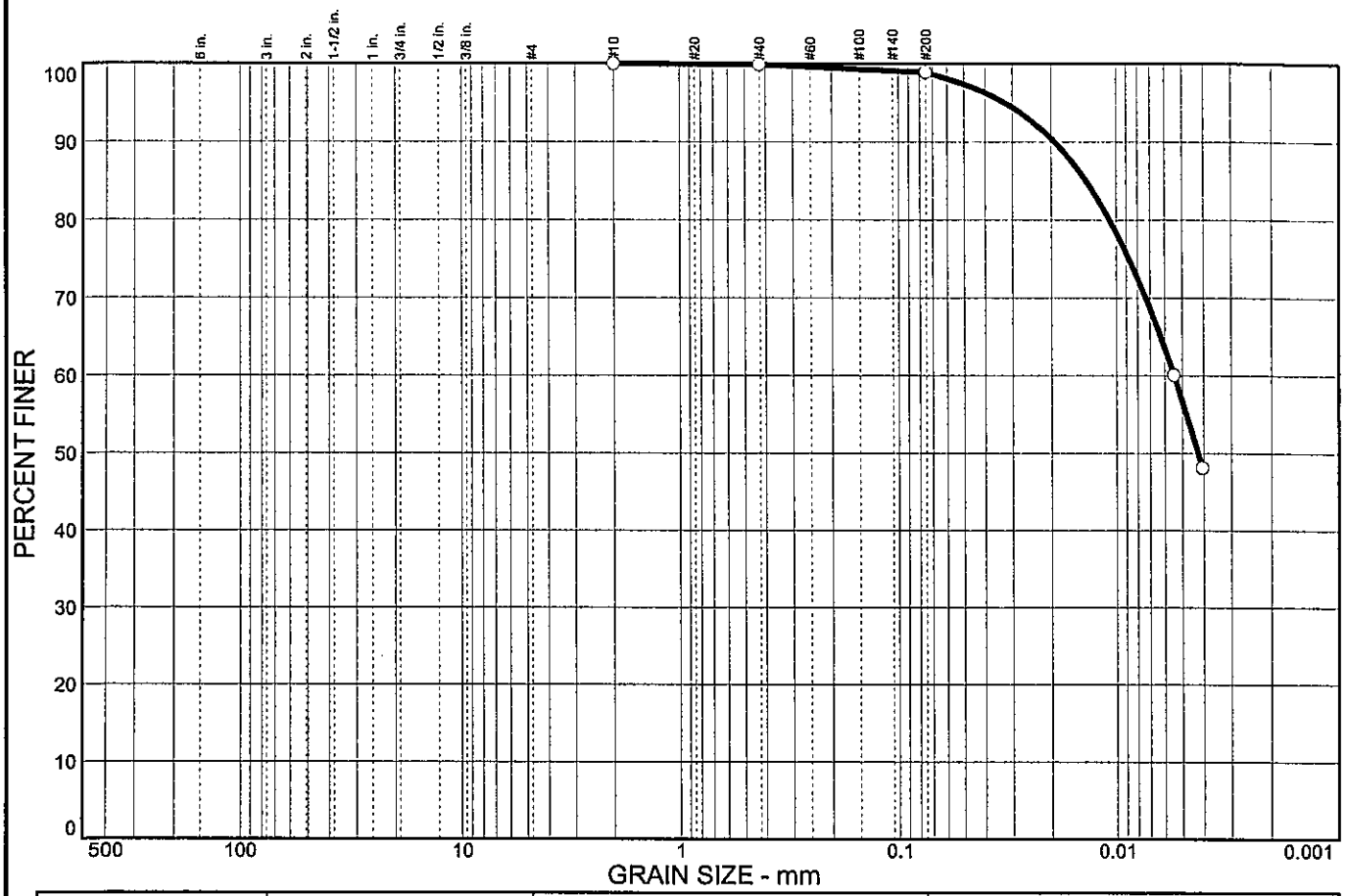
Sample No.: 25 **Source of Sample:** TR-41 **Date:** 4/1/05
Location: **Elev./Depth:** 89

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.1	1.0	42.2	56.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.9		
#200	98.9		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 21 LL= 43 PI= 22

Coefficients

D_{85}= 0.0138 D_{60}= 0.0055 D_{50}= 0.0042
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(24)

Remarks

Moisture Content= 27.5%

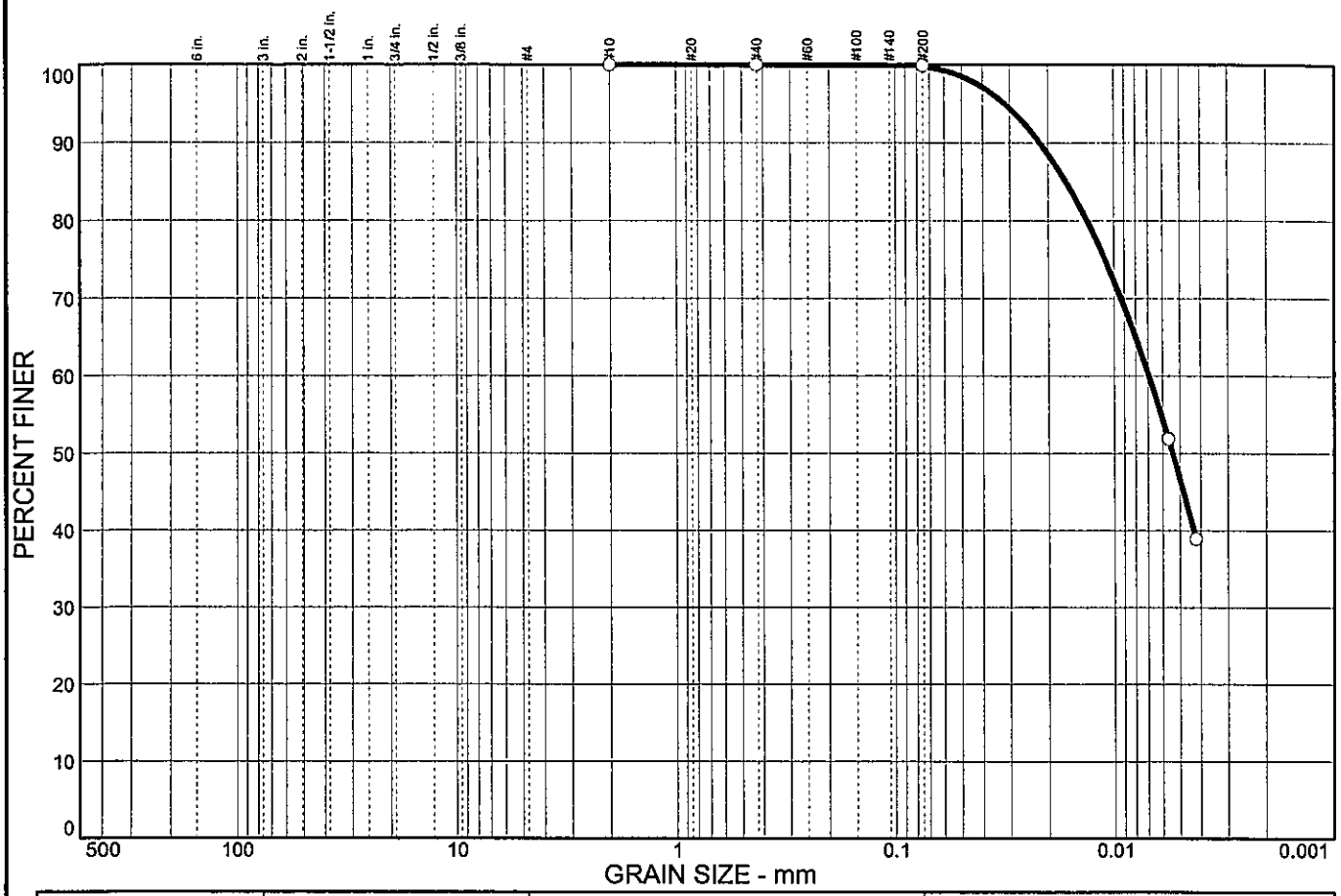
Sample No.: 4 **Source of Sample:** TR-41 **Date:** 4/5/05
Location: **Elev./Depth:** 7.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.0	0.1	53.2	46.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	100.0		
#200	99.9		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 22 LL= 31 PI= 9

Coefficients

D_{85}= 0.0166 D_{60}= 0.0069 D_{50}= 0.0054
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-4(9)

Remarks

Moisture Content= 24.7%

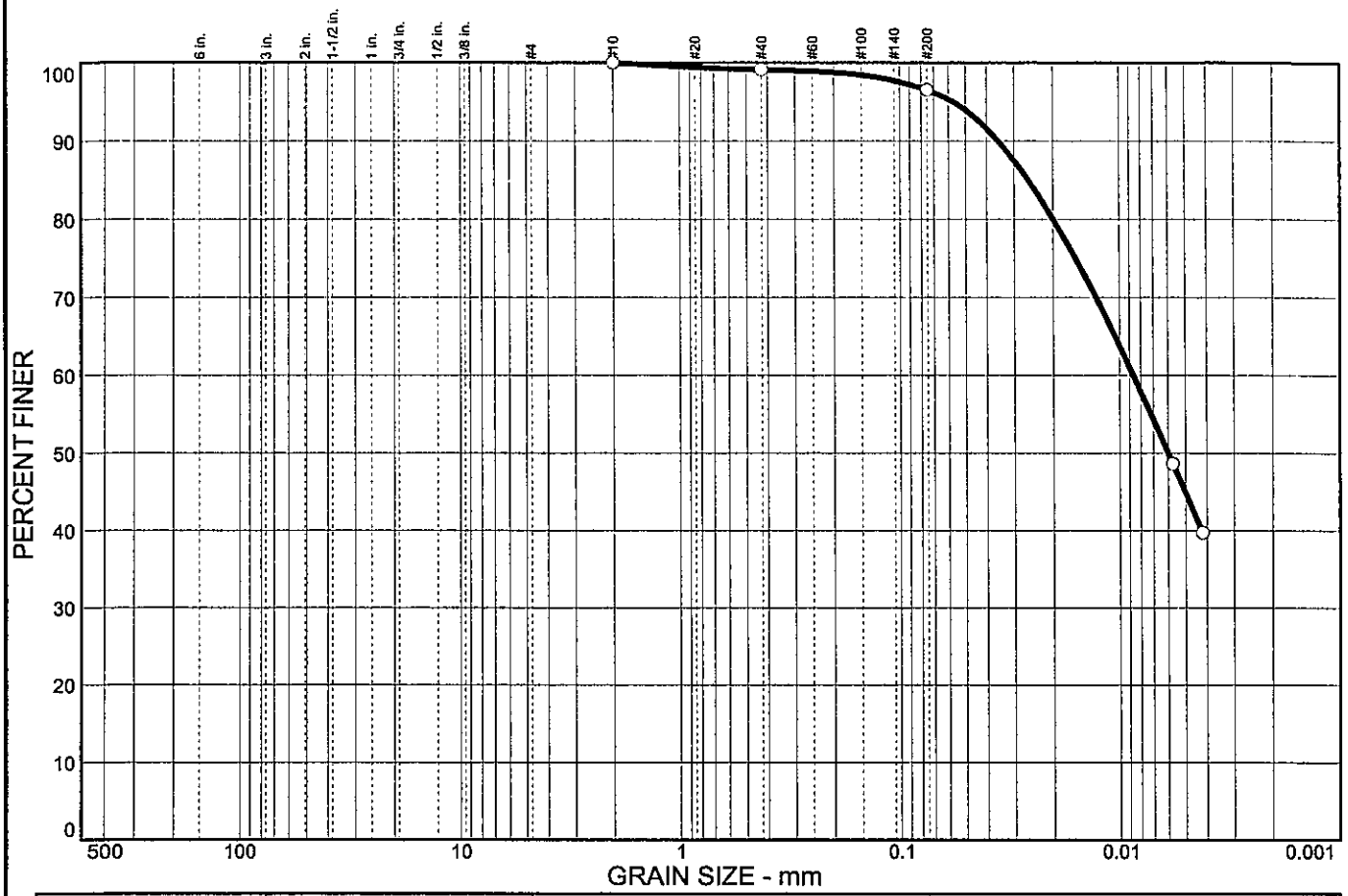
Sample No.: 15 **Source of Sample:** TR-42 **Date:** 4/11/05
Location: **Elev./Depth:** 39.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.9	2.6	51.6	44.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.1		
#200	96.5		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 21 LL= 39 PI= 18

Coefficients

D_{85}= 0.0259 D_{60}= 0.0087 D_{50}= 0.0060
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(18)

Remarks

Moisture Content= 24.7%

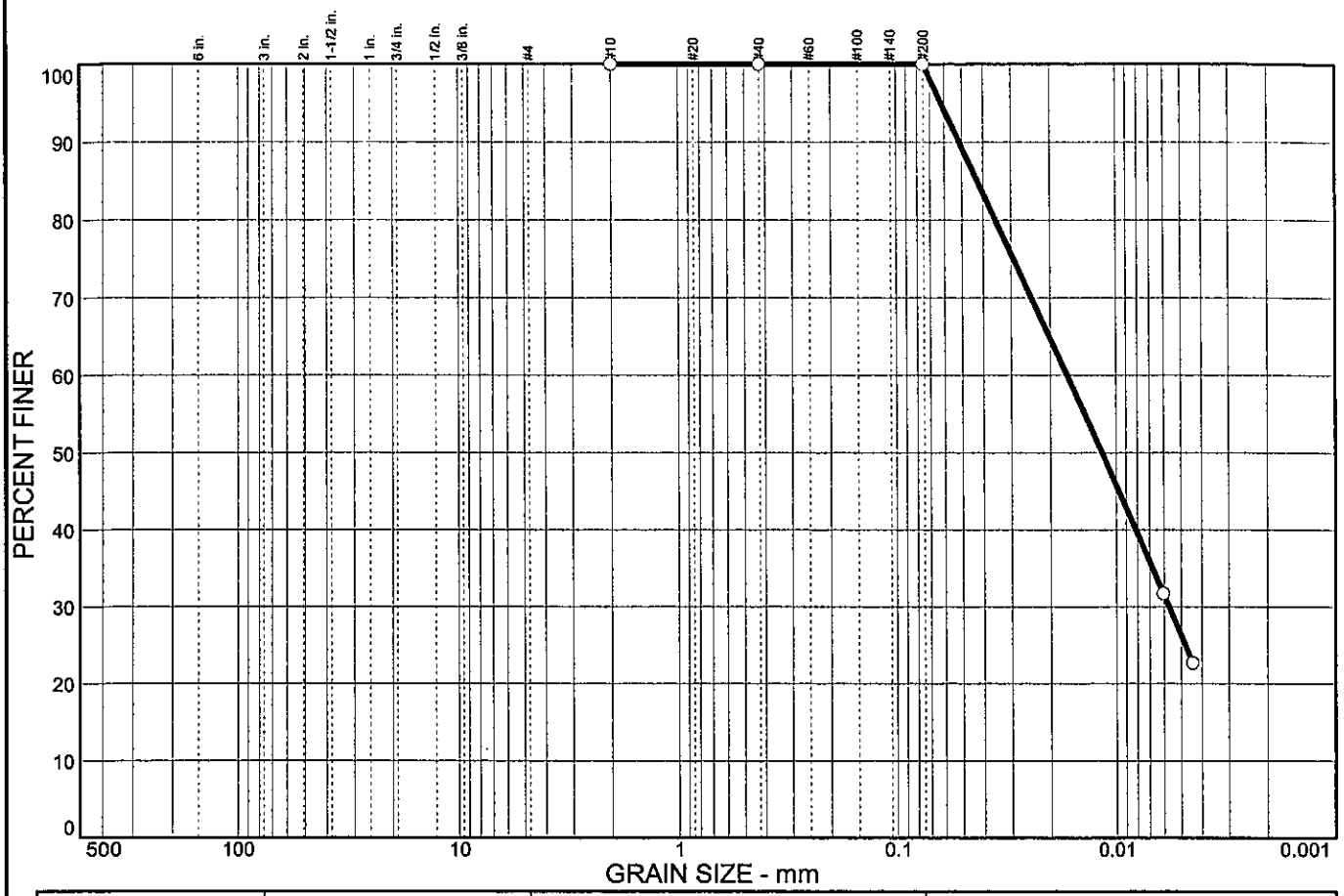
Sample No.: 2 **Source of Sample:** TR-42 **Date:** 4/11/05
Location: **Elev./Depth:** 1.5

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.0	0.0	73.7	26.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	100.0		
#200	100.0		

* (no specification provided)

Soil Description

Silt

Atterberg Limits

PL= 23 LL= 27 PI= 4

Coefficients

D_{85}= 0.0426 D_{60}= 0.0168 D_{50}= 0.0116
D_{30}= 0.0057 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= ML AASHTO= A-4(4)

Remarks

Moisture Content= 25.5%

Sample No.: 20 **Source of Sample:** TR-42 **Date:** 4/11/05
Location: **Elev./Depth:** 64.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT

% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	1.4	1.1	11.0	50.1	36.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.375 in.	100.0		
#4	98.6		
#10	97.5		
#20	96.3		
#30	95.5		
#40	86.5		
#50	66.3		
#60	51.0		
#100	40.2		
#200	36.4		

* (no specification provided)

Soil Description

Silty sand

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{85}= 0.411 D_{60}= 0.279 D_{50}= 0.246
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO= A-4(0)

Remarks

Moisture Content= 24.0%

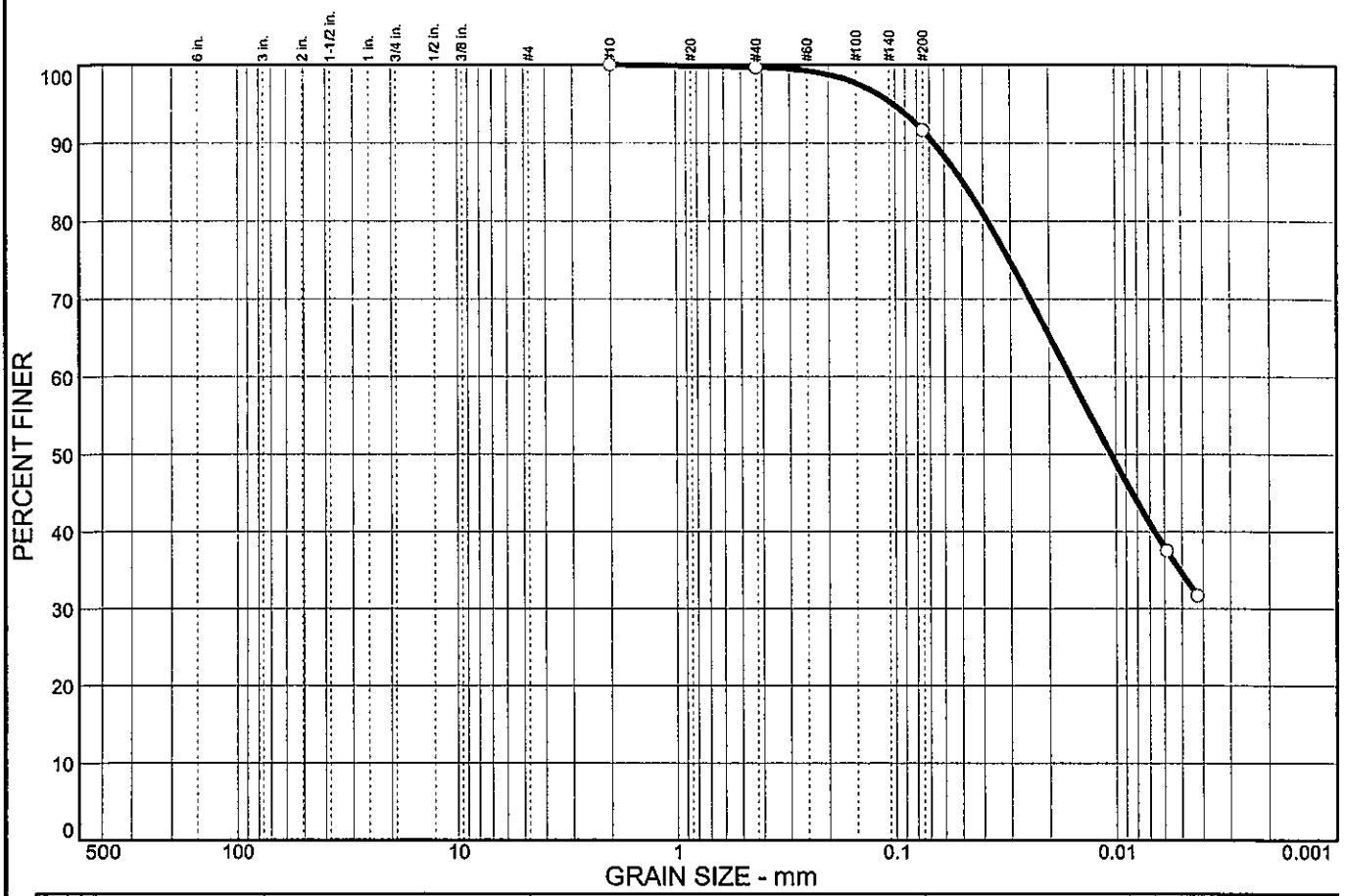
Sample No.: 21 **Source of Sample:** TR-42 **Date:** 4/11/05
Location: **Elev./Depth:** 69.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.3	8.1	57.0	34.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.7		
#200	91.6		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 18 LL= 29 PI= 11

Coefficients

D_{85}= 0.0494 D_{60}= 0.0160 D_{50}= 0.0105
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(9)

Remarks

Moisture Content= 19.1%

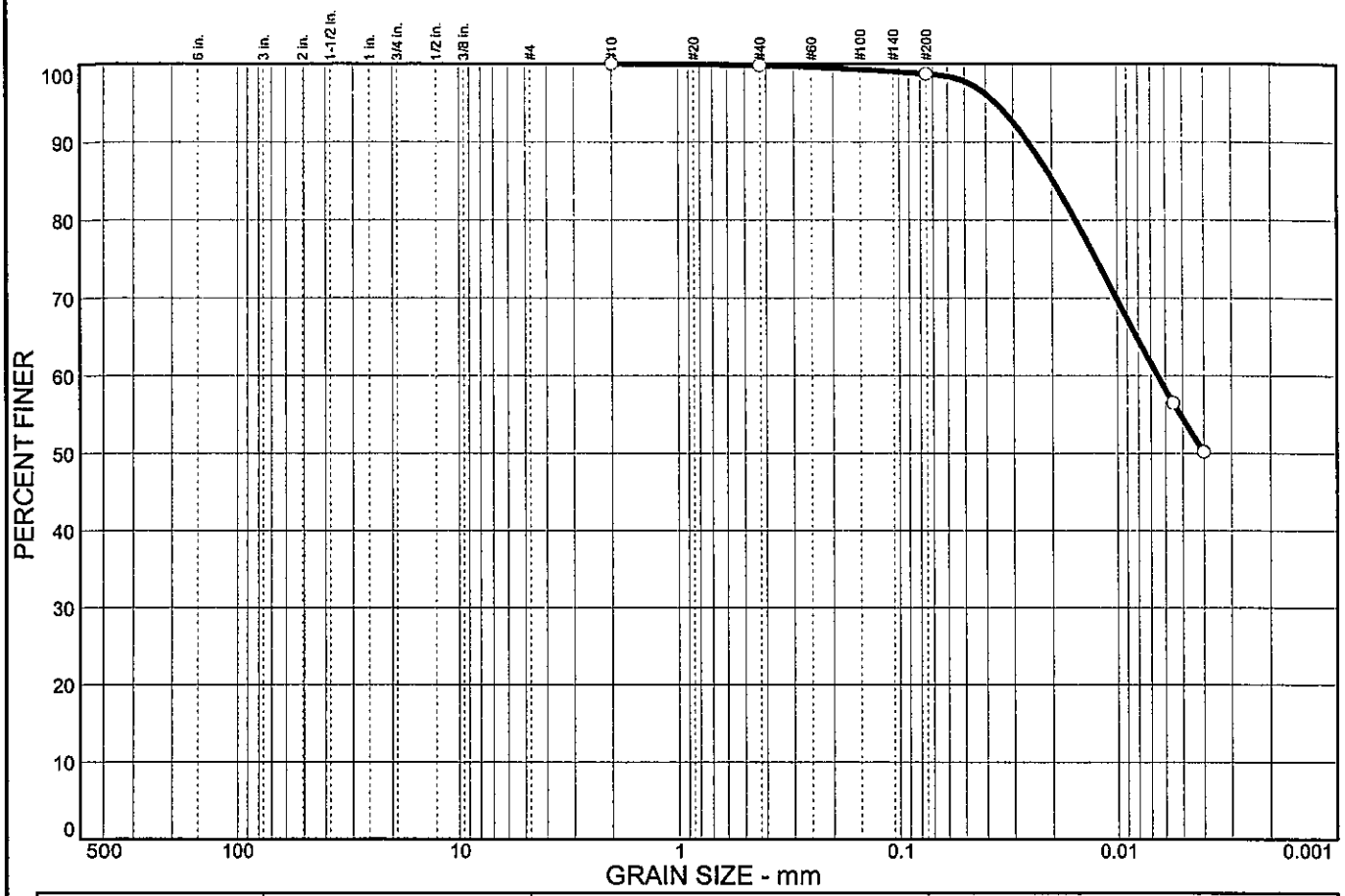
Sample No.: 22 **Source of Sample:** TR-42 **Date:** 4/11/05
Location: **Elev./Depth:** 74.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.2	1.1	44.2	54.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.8		
#200	98.7		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 24 LL= 43 PI= 19

Coefficients

D_{85}= 0.0197 D_{60}= 0.0065 D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(21)

Remarks

Moisture Content= 26.3%

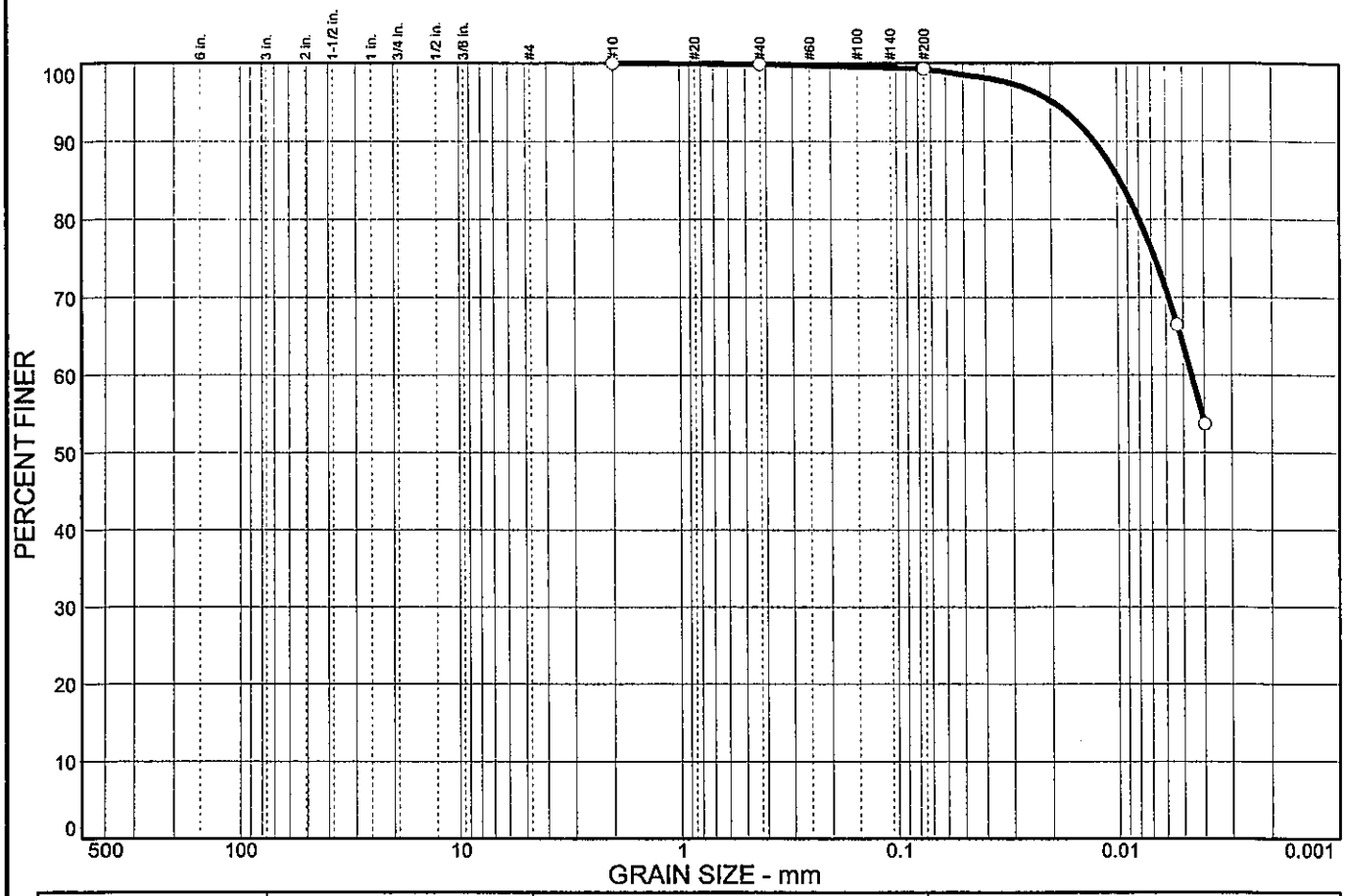
Sample No.: 3 **Source of Sample:** TR-42 **Date:** 4/11/05
Location: **Elev./Depth:** 4.0

DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.1	0.6	35.4	63.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.9		
#200	99.3		

* (no specification provided)

Soil Description

Lean clay

Atterberg Limits

PL= 22 LL= 40 PI= 18

Coefficients

D_{85}= 0.0097 D_{60}= 0.0046 D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-6(20)

Remarks

Moisture Content= 22.6%

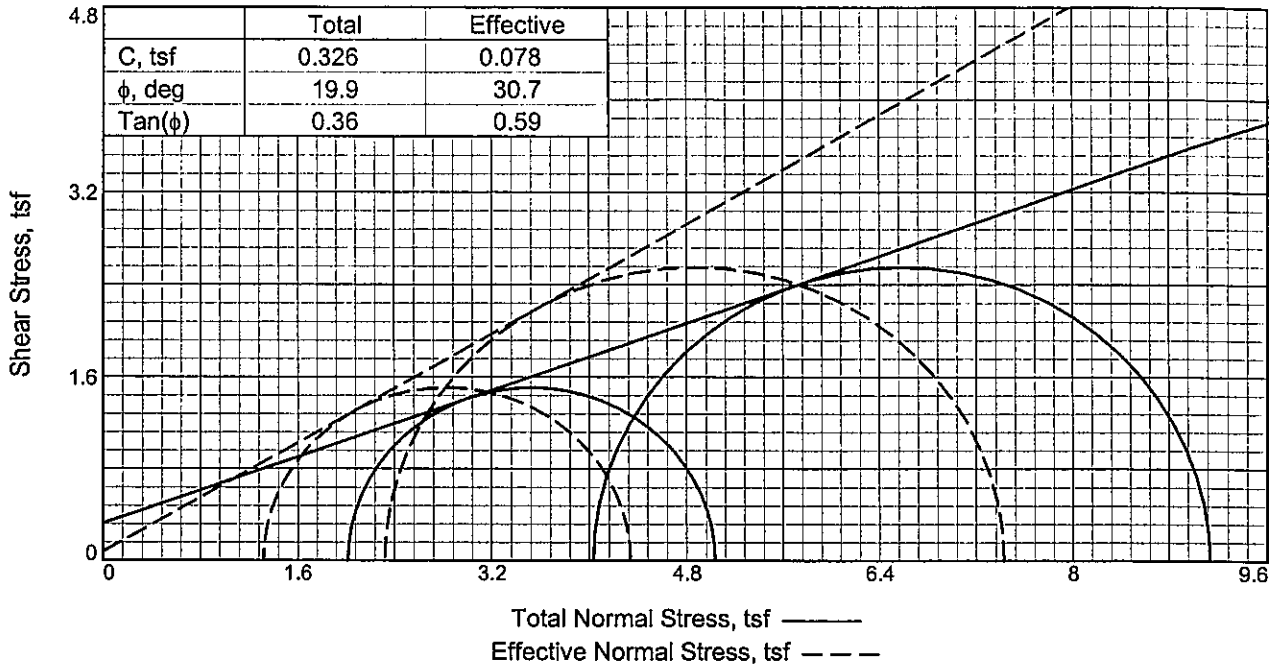
Sample No.: 8 **Source of Sample:** TR-42 **Date:** 4/11/05
Location: **Elev./Depth:** 16.5

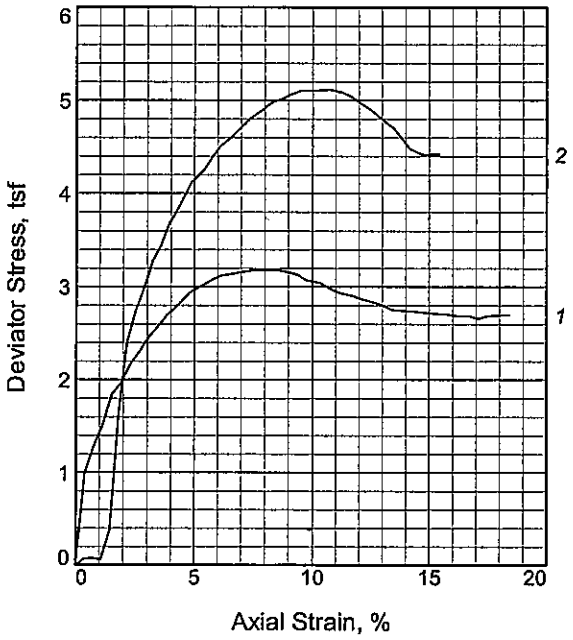
DLZ

Client: TranSystems, Inc.
Project: SCI-823-0.00

Project No: 0121-3070.03 **Figure**

Shear Strength Tests





Sample No.		1	2
Initial	Water Content,	22.7	22.7
	Dry Density, pcf	100.9	100.0
	Saturation,	89.2	87.1
	Void Ratio	0.7011	0.7173
	Diameter, in.	2.85	2.87
	Height, in.	5.21	5.57
At Test	Water Content,	25.5	26.1
	Dry Density, pcf	100.9	100.0
	Saturation,	100.0	100.0
	Void Ratio	0.7011	0.7173
	Diameter, in.	2.85	2.87
	Height, in.	5.21	5.57
Strain rate, in./min.		0.06	0.06
Back Pressure, tsf		4.03	4.03
Cell Pressure, tsf		6.05	8.06
Fail. Stress, tsf		3.02	5.11
Total Pore Pr., tsf		4.73	5.74
Ult. Stress, tsf		3.02	5.11
Total Pore Pr., tsf		4.73	5.74
$\bar{\sigma}_1$ Failure, tsf		4.34	7.43
$\bar{\sigma}_3$ Failure, tsf		1.32	2.32

Type of Test:
CU with Pore Pressures

Sample Type: 3" Press Tube

Description:

Assumed Specific Gravity= 2.75

Remarks:

Figure _____

Client: TranSystems, Inc.

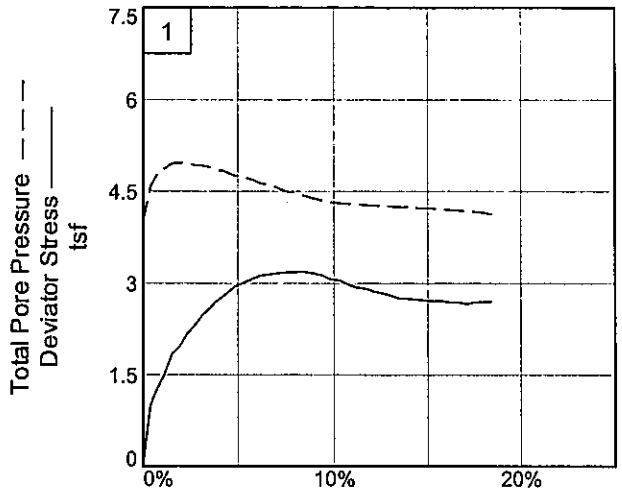
Project: SCI-823-0.00

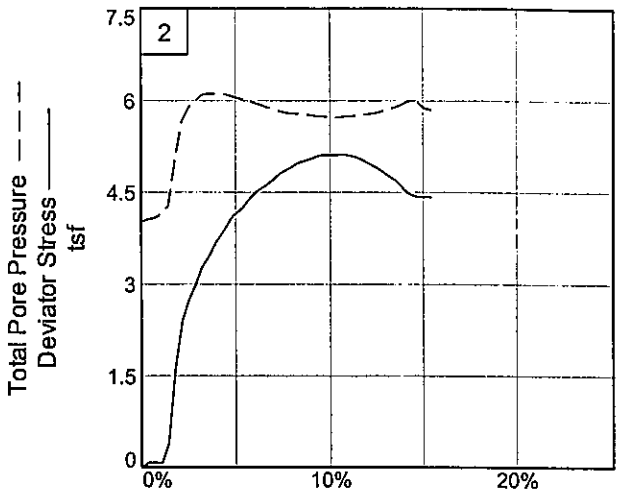
Source of Sample: TR-35A **Depth:** 5.0

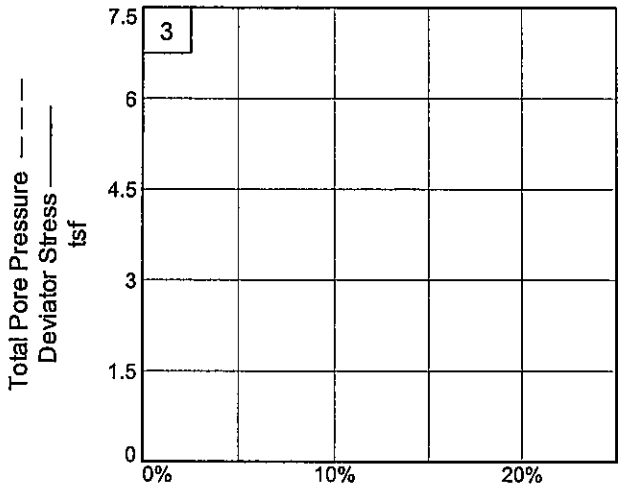
Sample Number: P-1

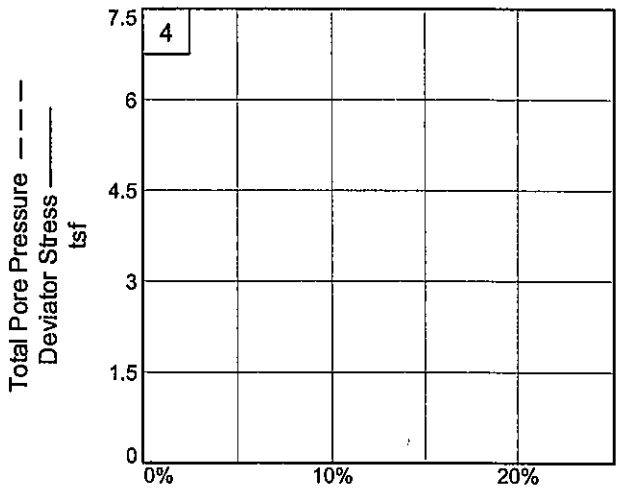
Proj. No.: 0121-3070.03 **Date:**

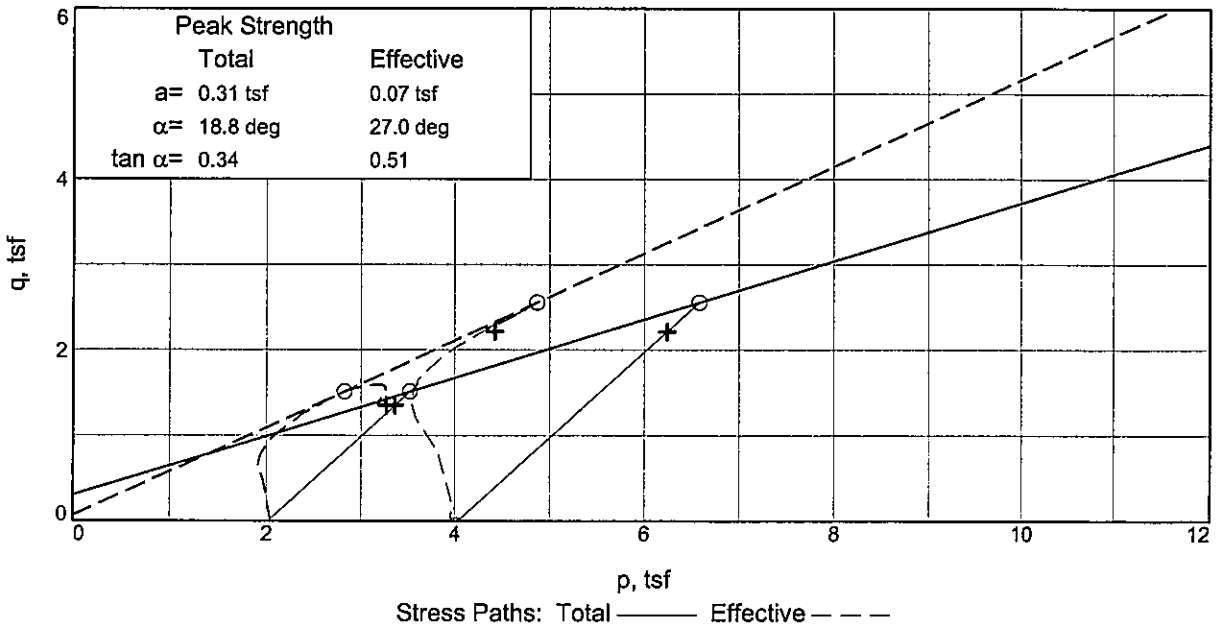
DLZ





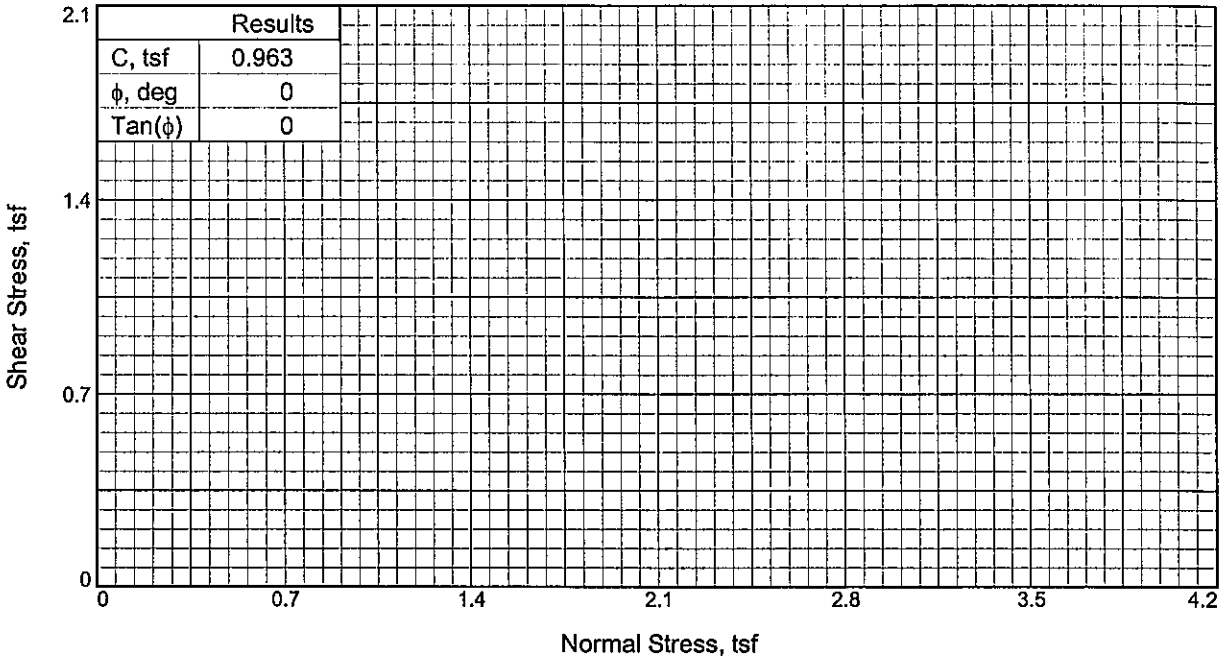


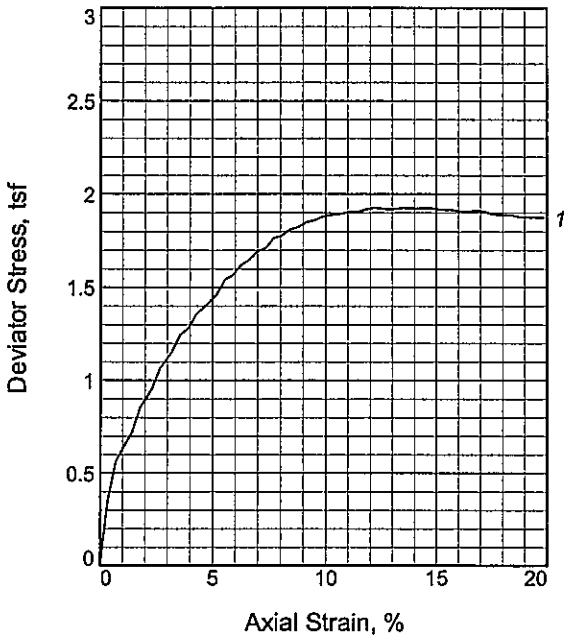




Client: TranSystems, Inc.
Project: SCI-823-0.00
Source of Sample: TR-35A **Depth:** 5.0 **Sample Number:** P-1
Project No.: 0121-3070.03 **Figure** _____

DLZ, INC.





Sample No.		1
Initial	Water Content,	25.6
	Dry Density, pcf	97.5
	Saturation,	92.6
	Void Ratio	0.7611
	Diameter, in.	2.85
	Height, in.	5.59
At Test	Water Content,	27.7
	Dry Density, pcf	97.5
	Saturation,	100.0
	Void Ratio	0.7611
	Diameter, in.	2.85
	Height, in.	5.59
Strain rate, in./min.		0.06
Back Pressure, tsf		0.00
Cell Pressure, tsf		2.02
Fail. Stress, tsf		1.93
Ult. Stress, tsf		
σ_1 Failure, tsf		3.94
σ_3 Failure, tsf		2.02

Type of Test:
Unconsolidated Undrained
Sample Type: 3" Press Tube
Description: Lean clay

LL= 27 **PL=** 19 **PI=** 8
Assumed Specific Gravity= 2.75
Remarks:

Client: TranSystems, Inc.

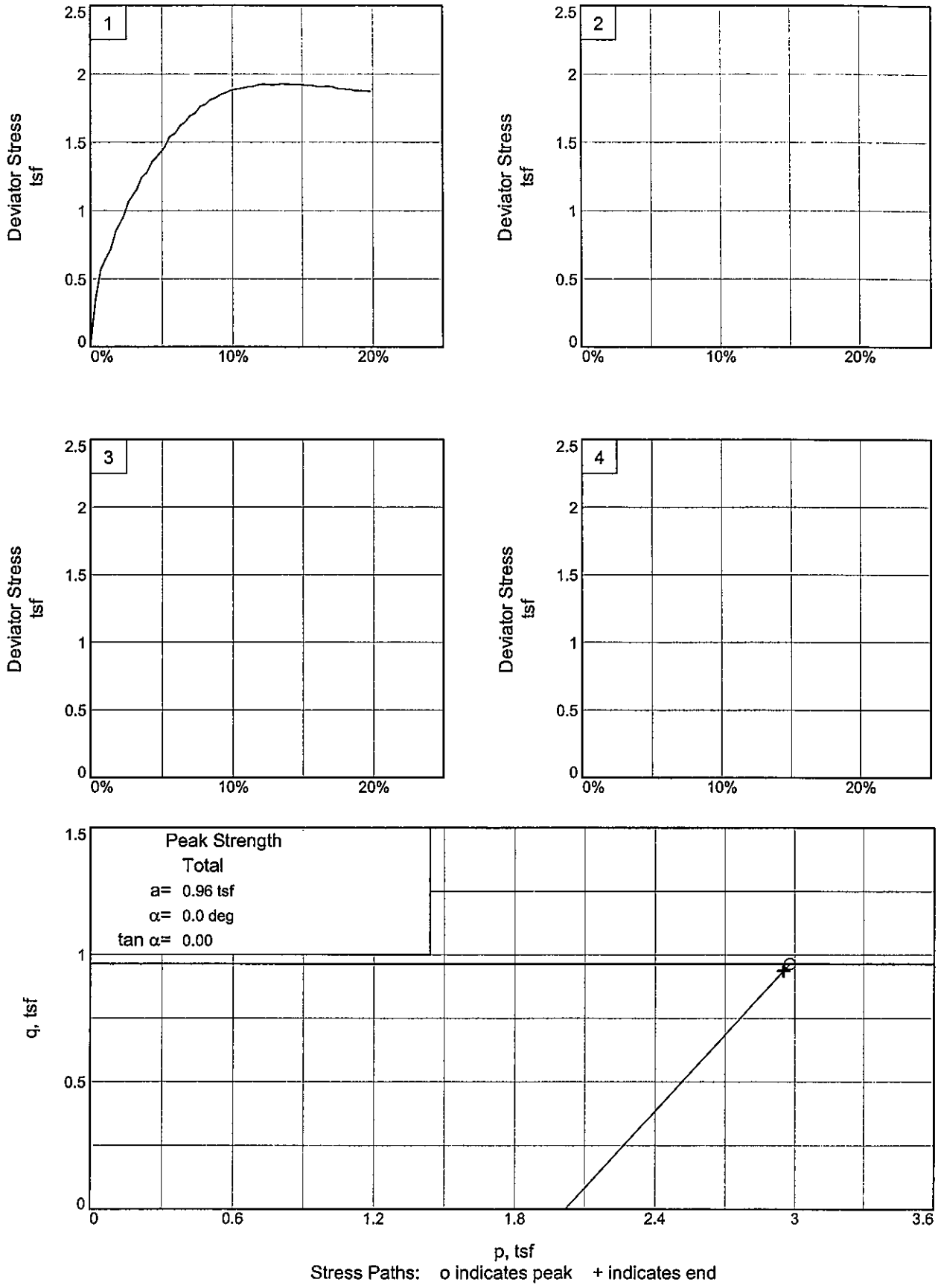
Project: SCI-823-0.00

Source of Sample: TR-35A **Depth:** 5.0
Sample Number: P-1

Proj. No.: 0121-3070.03 **Date:** 2/6/06

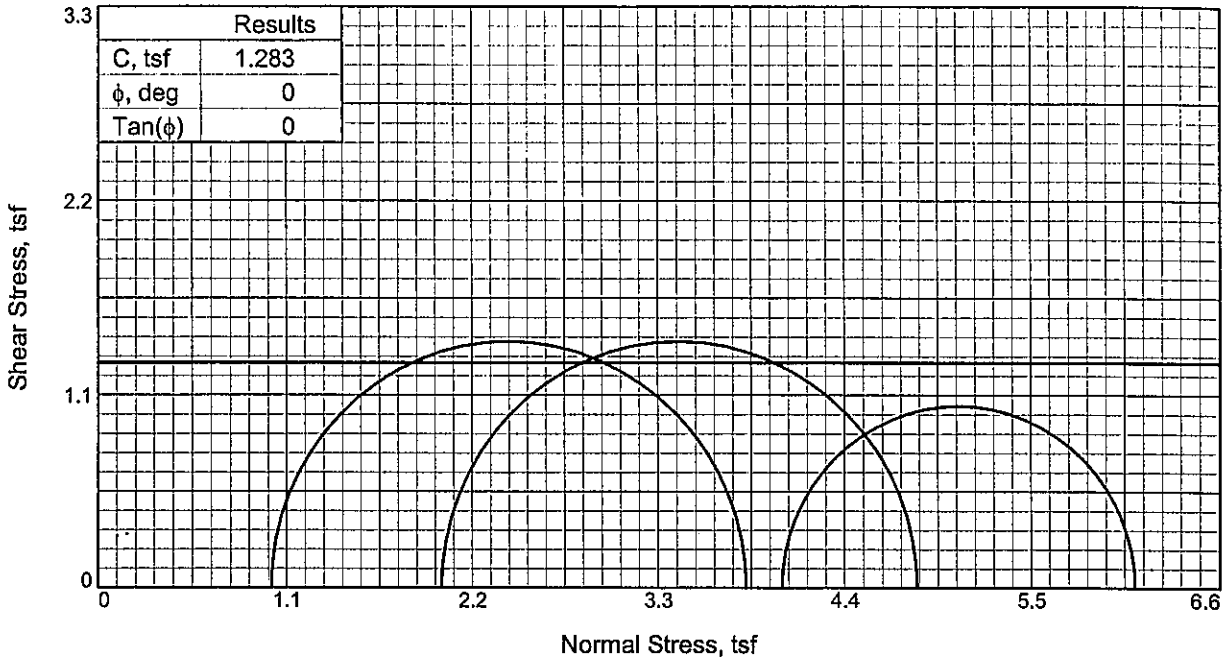
DLZ

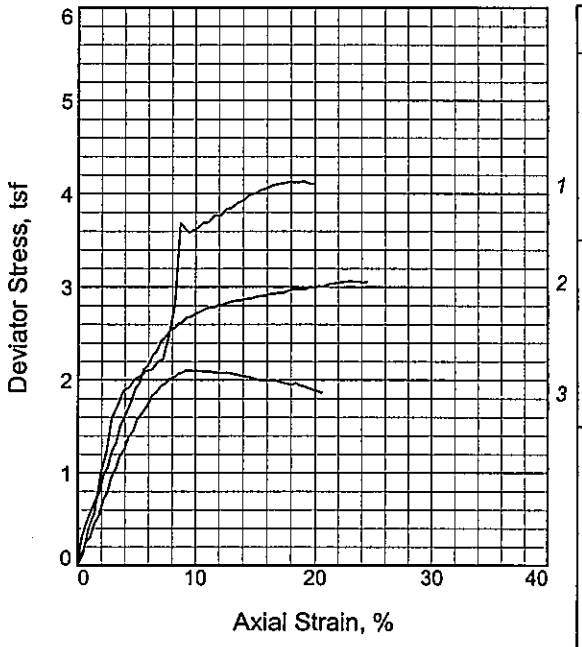
Figure _____



Client: TranSystems, Inc.
Project: SCI-823-0.00
Source of Sample: TR-35A **Depth:** 5.0 **Sample Number:** P-1
Project No.: 0121-3070.03 **Figure** _____

DLZ, INC.





Sample No.		1	2	3
Initial	Water Content,	28.6	27.9	30.9
	Dry Density, pcf	97.4	96.2	92.4
	Saturation,	105.8	100.1	101.2
	Void Ratio	0.7300	0.7522	0.8243
	Diameter, in.	2.83	2.86	2.85
	Height, in.	4.14	5.51	5.55
At Test	Water Content,	27.0	27.9	30.5
	Dry Density, pcf	97.4	96.2	92.4
	Saturation,	100.0	100.0	100.0
	Void Ratio	0.7300	0.7522	0.8243
	Diameter, in.	2.83	2.86	2.85
	Height, in.	4.14	5.51	5.55
Strain rate, in./min.		0.06	0.06	0.06
Back Pressure, tsf		0.00	0.00	0.00
Cell Pressure, tsf		1.01	2.02	4.03
Fail. Stress, tsf		2.81	2.81	2.08
Ult. Stress, tsf		2.81	2.81	2.08
σ_1 Failure, tsf		3.82	4.83	6.11
σ_3 Failure, tsf		1.01	2.02	4.03

Type of Test:
Unconsolidated Undrained
Sample Type: 3" Press Tube
Description: Silt

LL= 27 **PL=** 22 **PI=** 5
Assumed Specific Gravity= 2.7
Remarks:

Client: TranSystems, Inc.

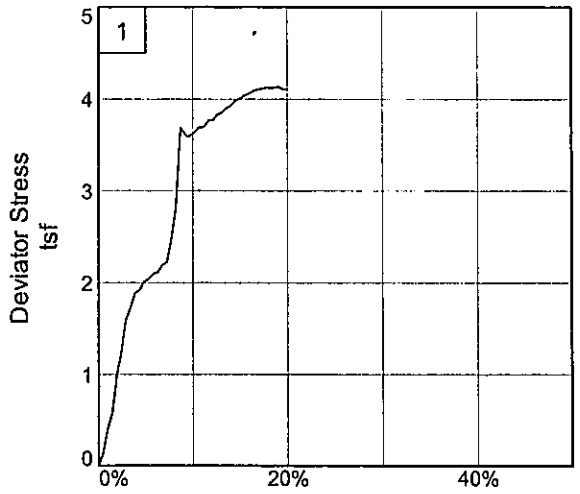
Project: SCI-823-0.00

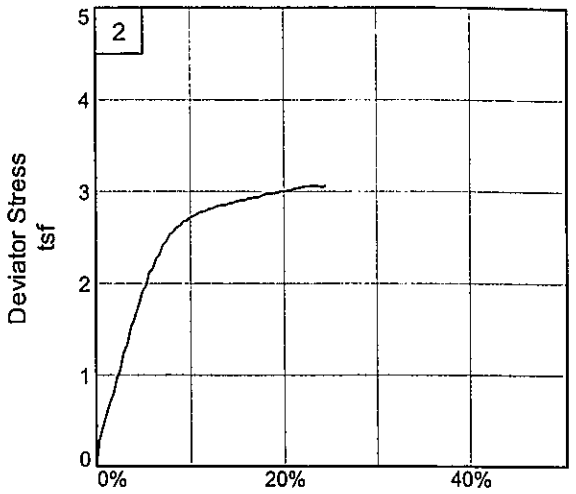
Source of Sample: TR-35A **Depth:** 12.4
Sample Number: P-2B

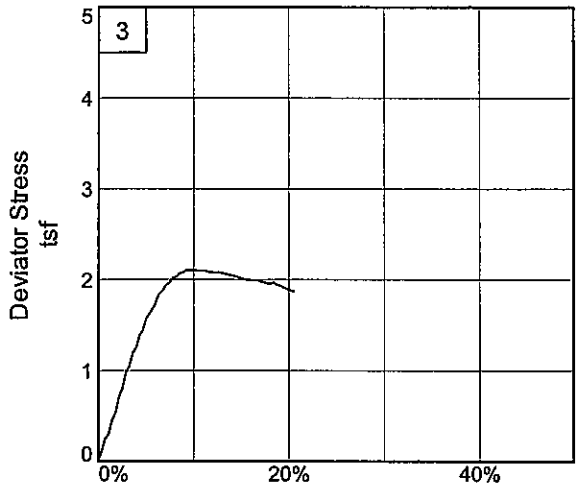
Proj. No.: 0121-3070.03 **Date:** 2/6/06

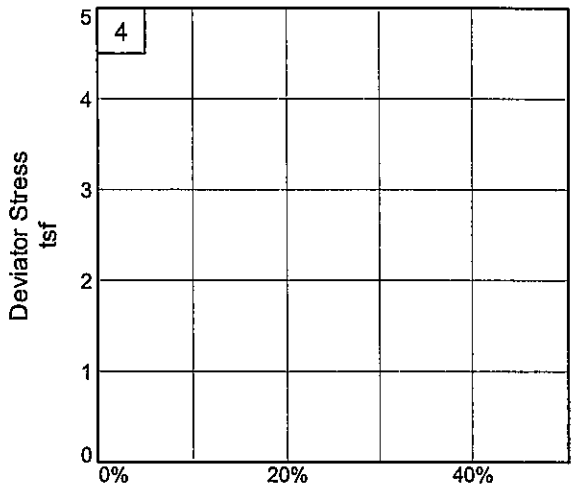
DLZ

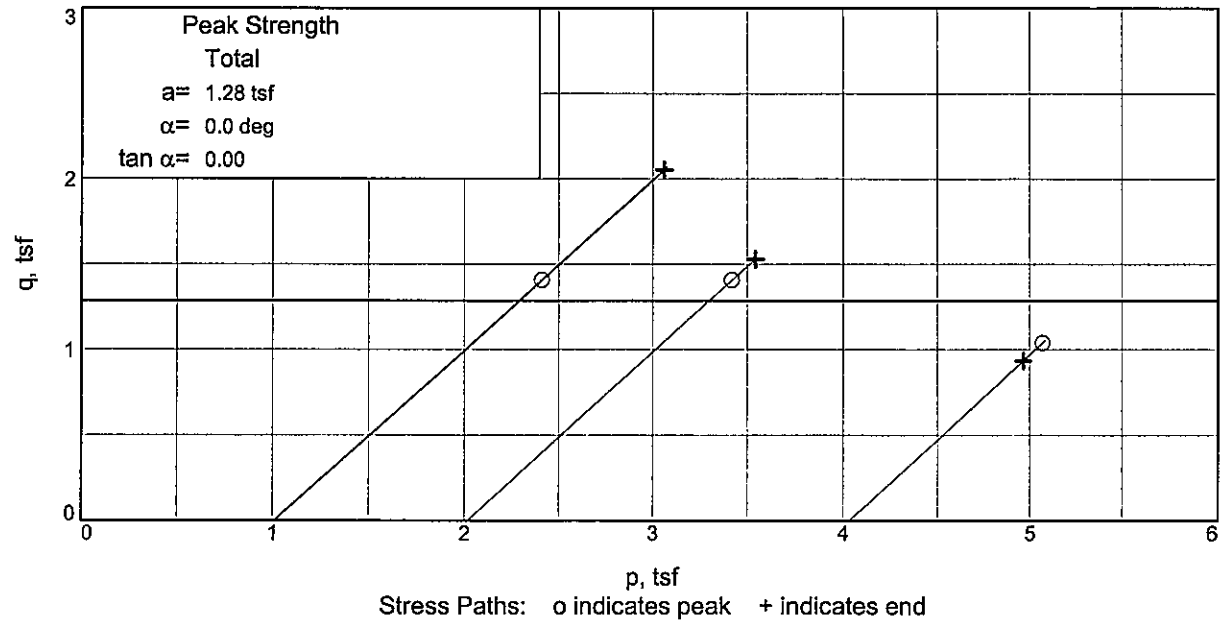
Figure _____









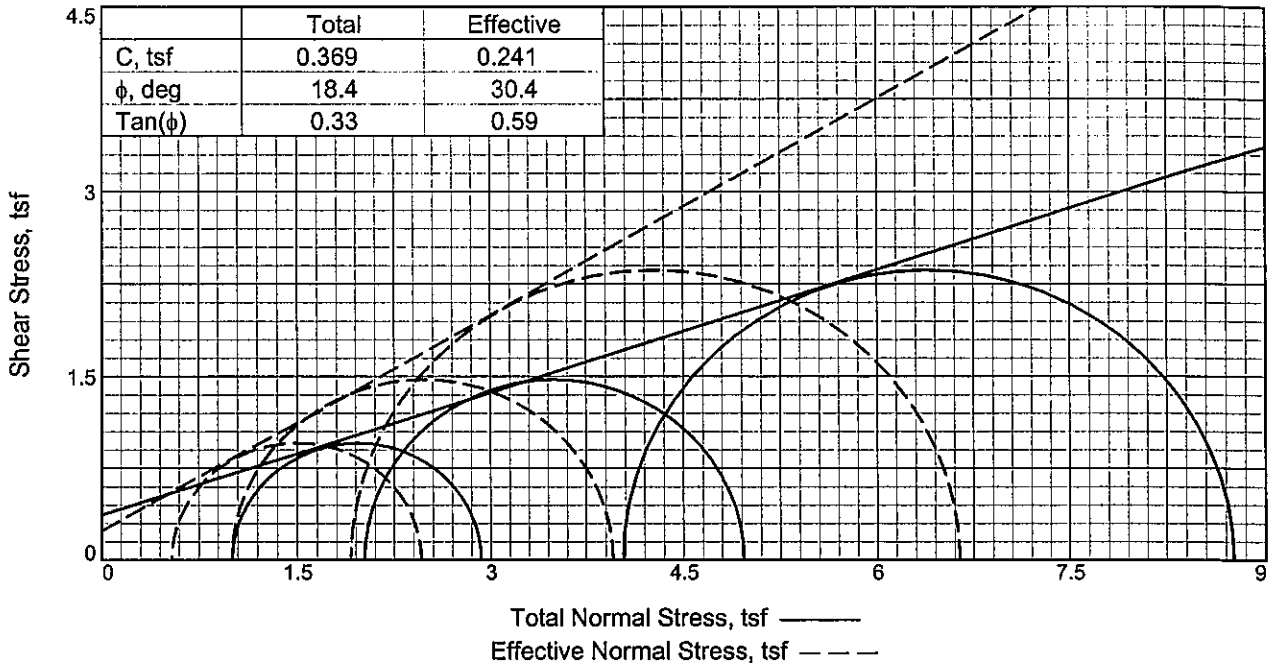


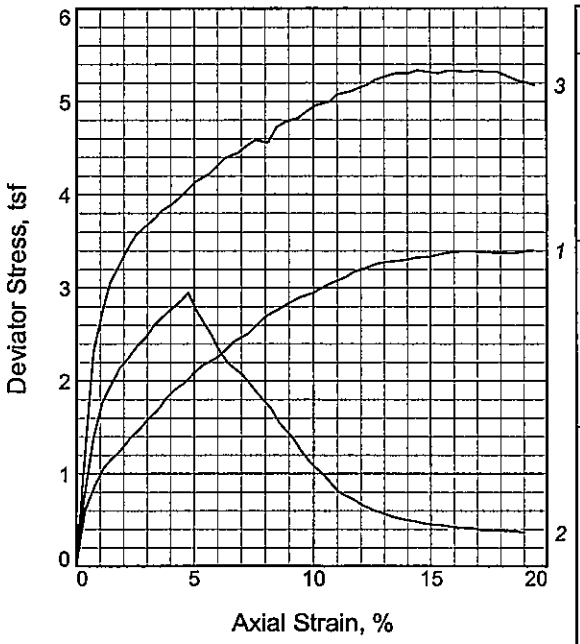
Stress Paths: o indicates peak + indicates end

Client: TranSystems, Inc.
Project: SCI-823-0.00
Source of Sample: TR-35A **Depth:** 12.4 **Sample Number:** P-2B
Project No.: 0121-3070.03 **Figure** _____

DLZ, INC.

	Total	Effective
C, tsf	0.369	0.241
ϕ, deg	18.4	30.4
Tan(ϕ)	0.33	0.59





Sample No.		1	2	3
Initial	Water Content,	27.6	27.6	27.6
	Dry Density, pcf	97.1	96.2	95.1
	Saturation,	98.8	96.7	94.3
	Void Ratio	0.7685	0.7852	0.8048
	Diameter, in.	2.85	2.83	2.83
	Height, in.	5.21	5.47	5.54
At Test	Water Content,	27.9	28.6	29.3
	Dry Density, pcf	97.1	96.2	95.1
	Saturation,	100.0	100.0	100.0
	Void Ratio	0.7685	0.7852	0.8048
	Diameter, in.	2.85	2.83	2.83
	Height, in.	5.21	5.47	5.54
Strain rate, in./min.		0.06	0.06	0.06
Back Pressure, tsf		4.03	4.03	4.03
Cell Pressure, tsf		5.04	6.05	8.06
Fail. Stress, tsf		1.91	2.95	4.73
Total Pore Pr., tsf		4.50	5.04	6.15
Ult. Stress, tsf		1.91	2.95	4.73
Total Pore Pr., tsf		4.50	5.04	6.15
$\bar{\sigma}_1$ Failure, tsf		2.46	3.95	6.64
$\bar{\sigma}_3$ Failure, tsf		0.54	1.00	1.91

Type of Test:
CU with Pore Pressures

Sample Type: 3" Press Tube

Description:

Assumed Specific Gravity= 2.75

Remarks:

Figure _____

Client: TranSystems, Inc.

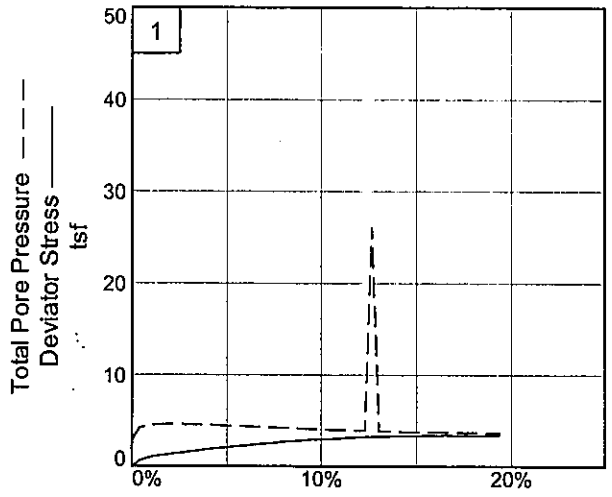
Project: SCI-823-0.00

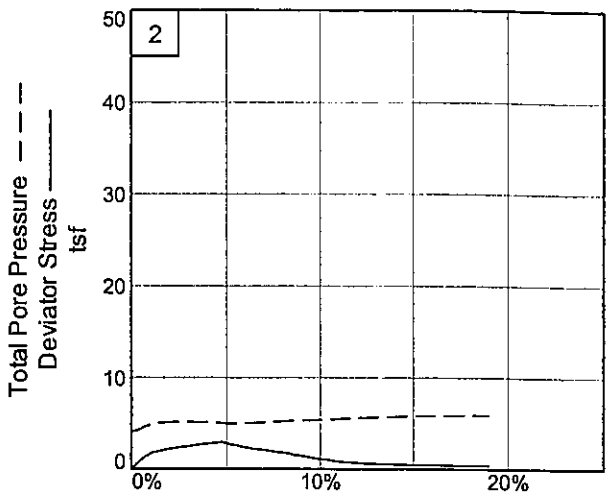
Source of Sample: TR-35A **Depth:** 27.0

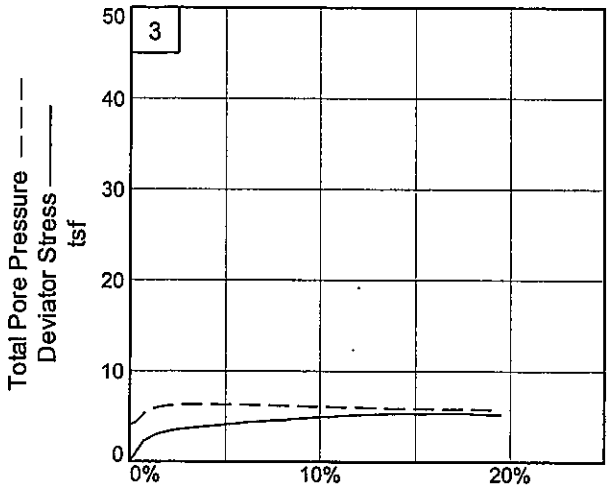
Sample Number: P-3

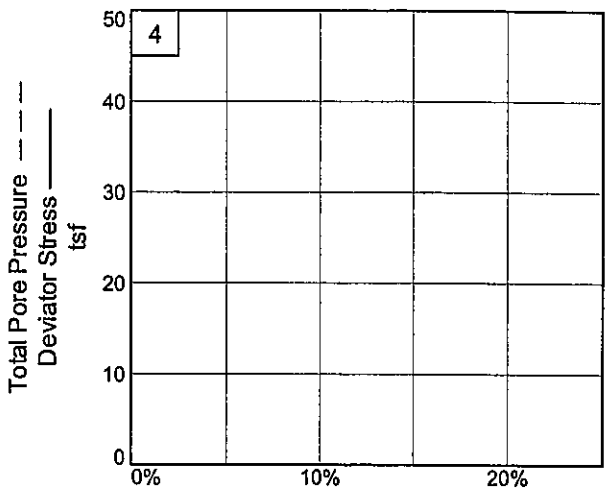
Proj. No.: 0121-3070.03 **Date:**

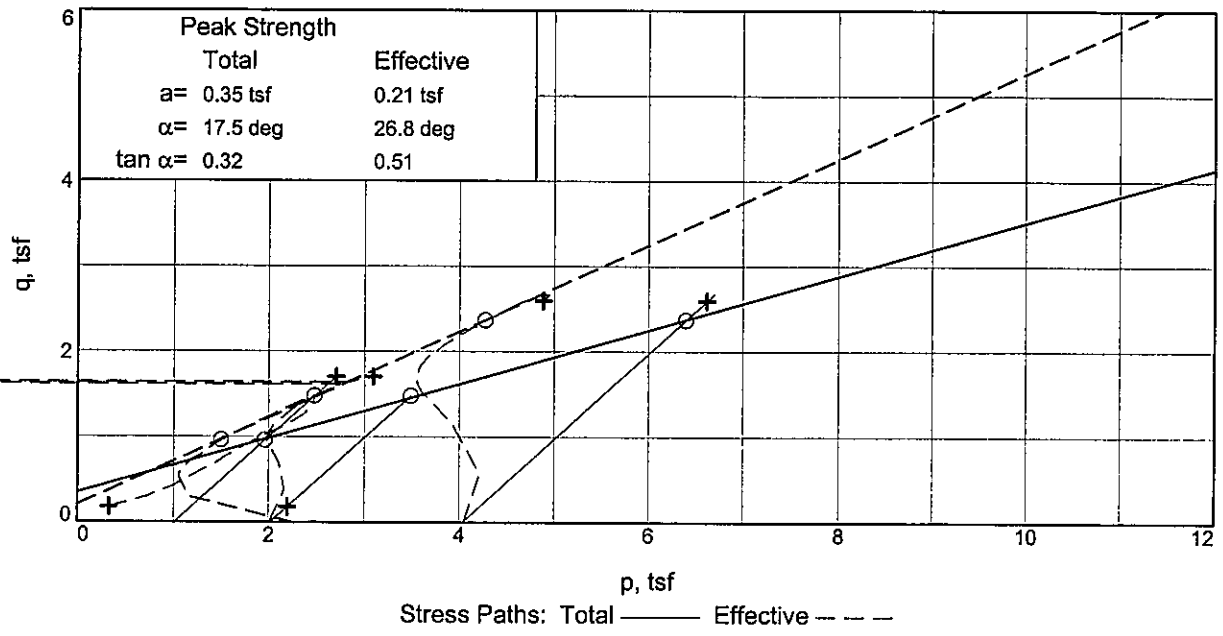
DLZ











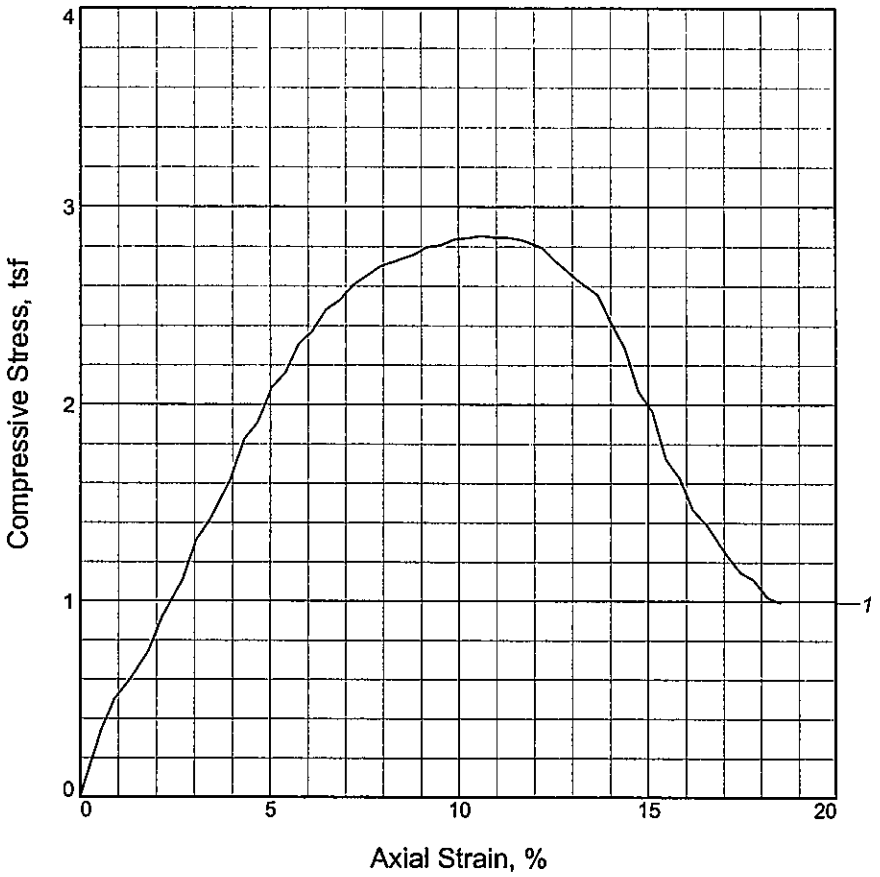
Client: TranSystems, Inc.
Project: SCI-823-0.00
Source of Sample: TR-35A
Project No.: 0121-3070.03

Depth: 27.0
Figure _____

Sample Number: P-3

DLZ, INC.

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	2.854			
Undrained shear strength, tsf	1.427			
Failure strain,	10.6			
Strain rate, in./min.	0.06			
Water content, %	25.5			
Wet density, pcf	118.2			
Dry density, pcf	94.2			
Saturation, %	87.3			
Void ratio	0.7894			
Specimen diameter, in.	2.85			
Specimen height, in.	5.56			
Height/diameter ratio	1.95			

Description: Lean clay

LL = 44	**PL** = 26	**PI** = 18	**Assumed GS=** 2.7	**Type:** 3" Press Tube

Project No.: 0121-3070.03

Date: 2/6/06

Remarks:

Client: TranSystems, Inc.

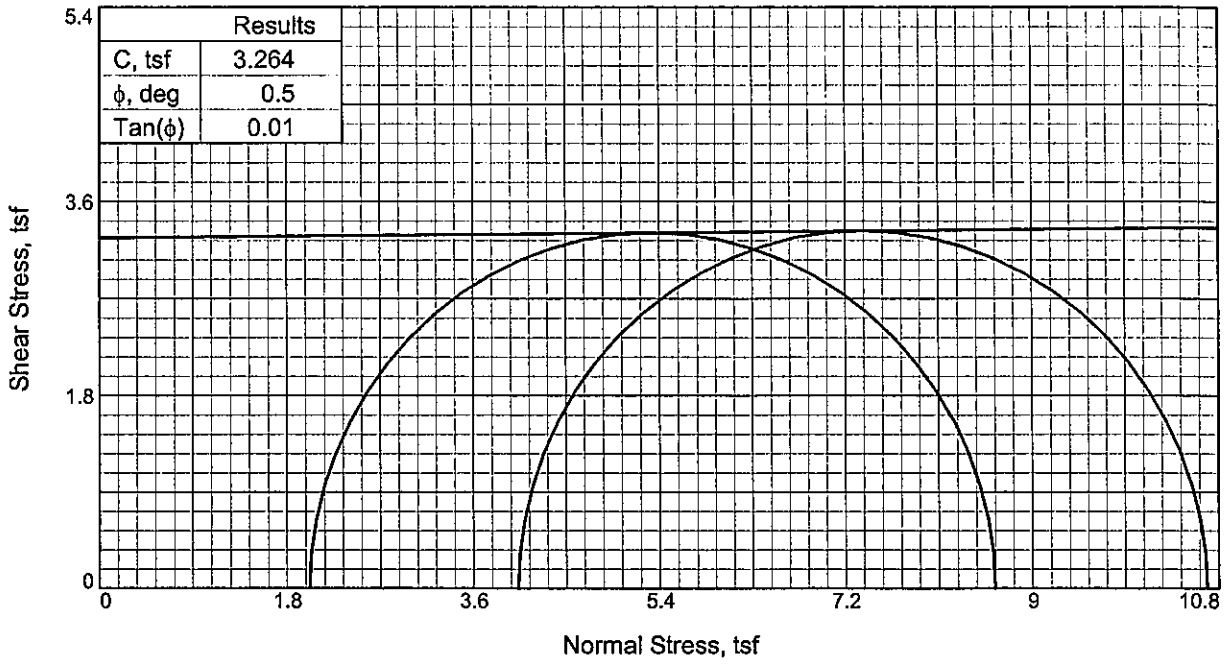
Project: SCI-823-0.00

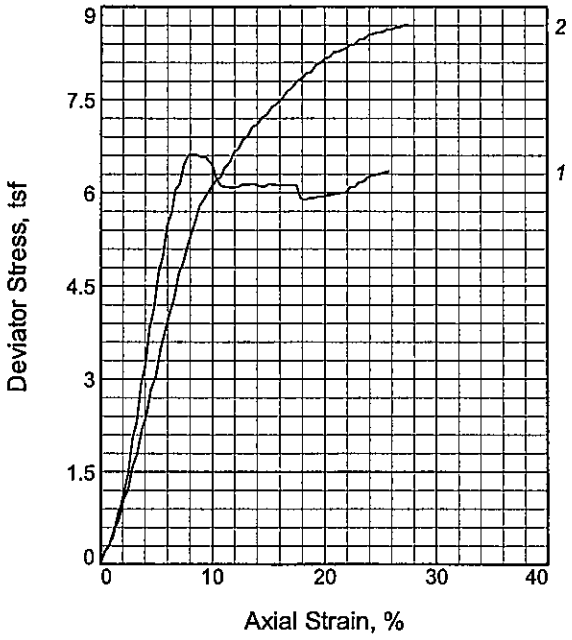
Source of Sample: TR-35A **Depth:** 66.0

Sample Number: P-4A

Figure _____

DLZ





Sample No.		1	2
Initial	Water Content,	18.8	18.8
	Dry Density, pcf	112.6	113.5
	Saturation,	101.9	104.4
	Void Ratio	0.4971	0.4855
	Diameter, in.	2.83	2.80
	Height, in.	5.21	4.85
At Test	Water Content,	18.4	18.0
	Dry Density, pcf	112.6	113.5
	Saturation,	100.0	100.0
	Void Ratio	0.4971	0.4855
	Diameter, in.	2.83	2.80
	Height, in.	5.21	4.85
Strain rate, in./min.		0.06	0.06
Back Pressure, tsf		0.0	0.0
Cell Pressure, tsf		2.0	4.0
Fail. Stress, tsf		6.6	6.7
Ult. Stress, tsf		6.6	6.7
σ_1 Failure, tsf		8.6	10.7
σ_3 Failure, tsf		2.0	4.0

Type of Test:
Unconsolidated Undrained

Sample Type: 3" Press Tube

Description: Silt with sand

LL= NP **PI=** NP

Assumed Specific Gravity= 2.7

Remarks: Sample S3 - 66.0' - 66.9'

Figure _____

Client: TranSystems, Inc.

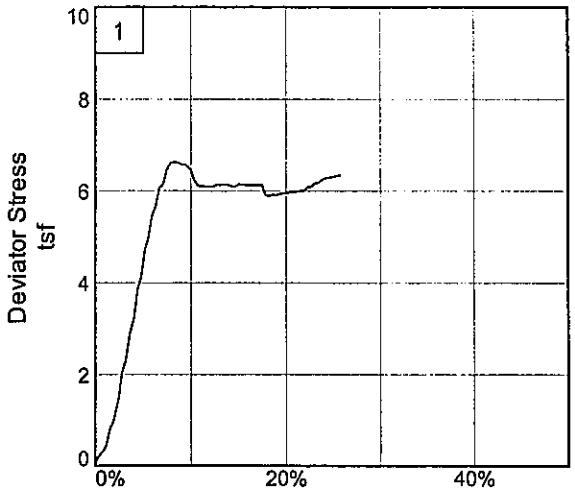
Project: SCI-823-0.00

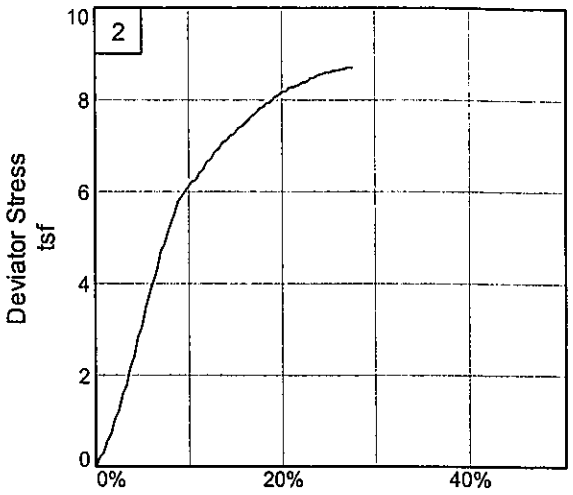
Source of Sample: TR-35A **Depth:** 66.9

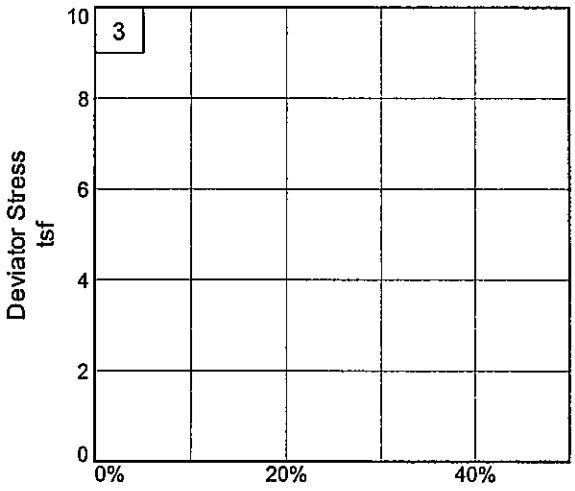
Sample Number: P-4B

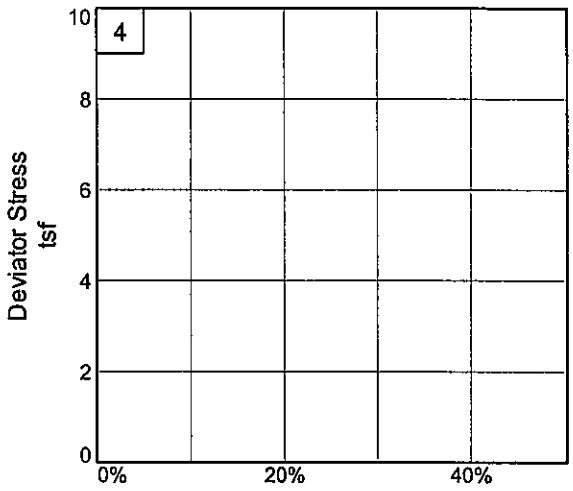
Proj. No.: 0121-3070.03 **Date:** 2/6/06

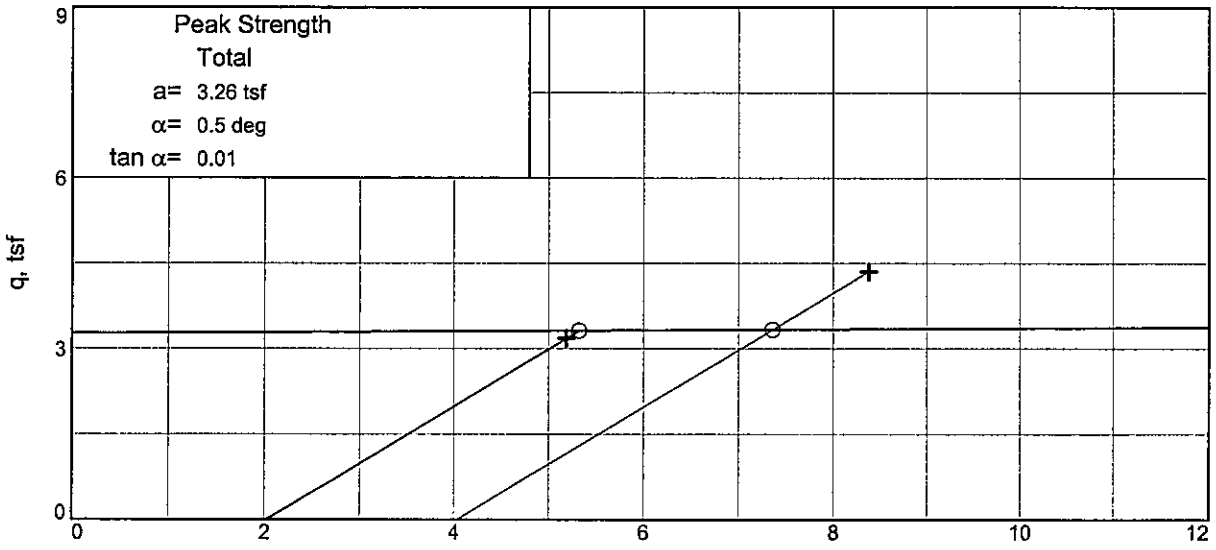
DLZ









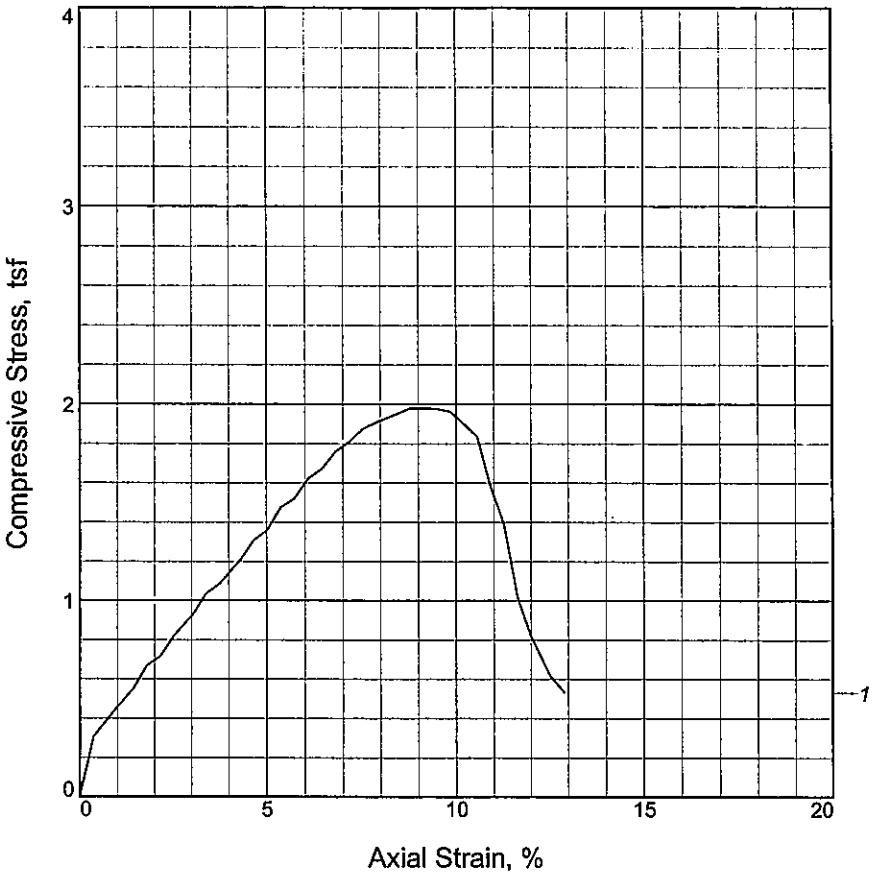


Stress Paths: o indicates peak + indicates end

Client: TranSystems, Inc.
Project: SCI-823-0.00
Source of Sample: TR-35A **Depth:** 66.9 **Sample Number:** P-4B
Project No.: 0121-3070.03 **Figure** _____

DLZ, INC.

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	1.979			
Undrained shear strength, tsf	0.989			
Failure strain,	9.1			
Strain rate, in./min.	0.06			
Water content, %	21.3			
Wet density, pcf	124.2			
Dry density, pcf	102.4			
Saturation, %	88.9			
Void ratio	0.6460			
Specimen diameter, in.	2.84			
Specimen height, in.	5.59			
Height/diameter ratio	1.97			

Description: Lean clay

LL = 45	**PL** = 22	**PI** = 23	**Assumed GS=** 2.7	**Type:** 3" Press Tube

Project No.: 0121-3070.03

Date: 2/8/06

Remarks:
Sample S1 - 5.0' to 5.9'

Client: TranSystems, Inc.

Project: SCI-823-0.00

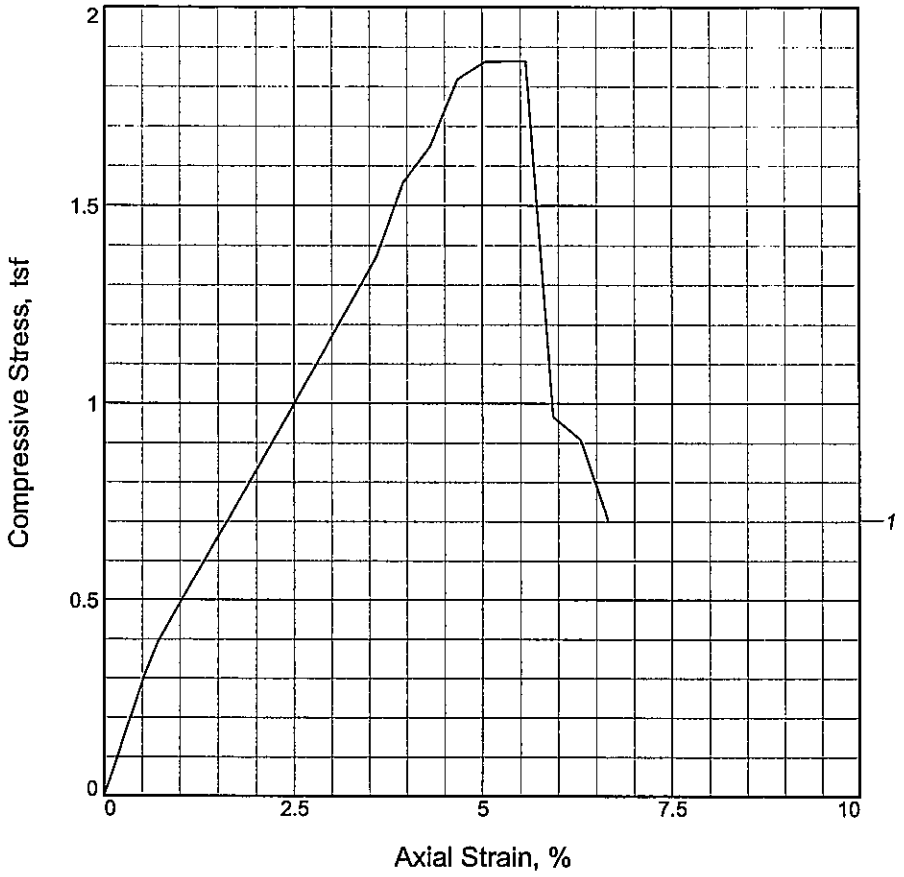
Source of Sample: R-64A **Depth:** 5.0

Sample Number: P1A

Figure _____

DLZ

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	1.864			
Undrained shear strength, tsf	0.932			
Failure strain,	5.6			
Strain rate, in./min.	0.06			
Water content, %	22.6			
Wet density, pcf	120.2			
Dry density, pcf	98.1			
Saturation, %	82.8			
Void ratio	0.7499			
Specimen diameter, in.	2.84			
Specimen height, in.	5.56			
Height/diameter ratio	1.96			

Description: Lean clay

LL = 35	**PL** = 23	**PI** = 12	**Assumed GS=** 2.75	**Type:** 3" Press Tube

Project No.: 0121-3070.03

Date: 2/8/06

Remarks:

Figure _____

Client: TranSystems, Inc.

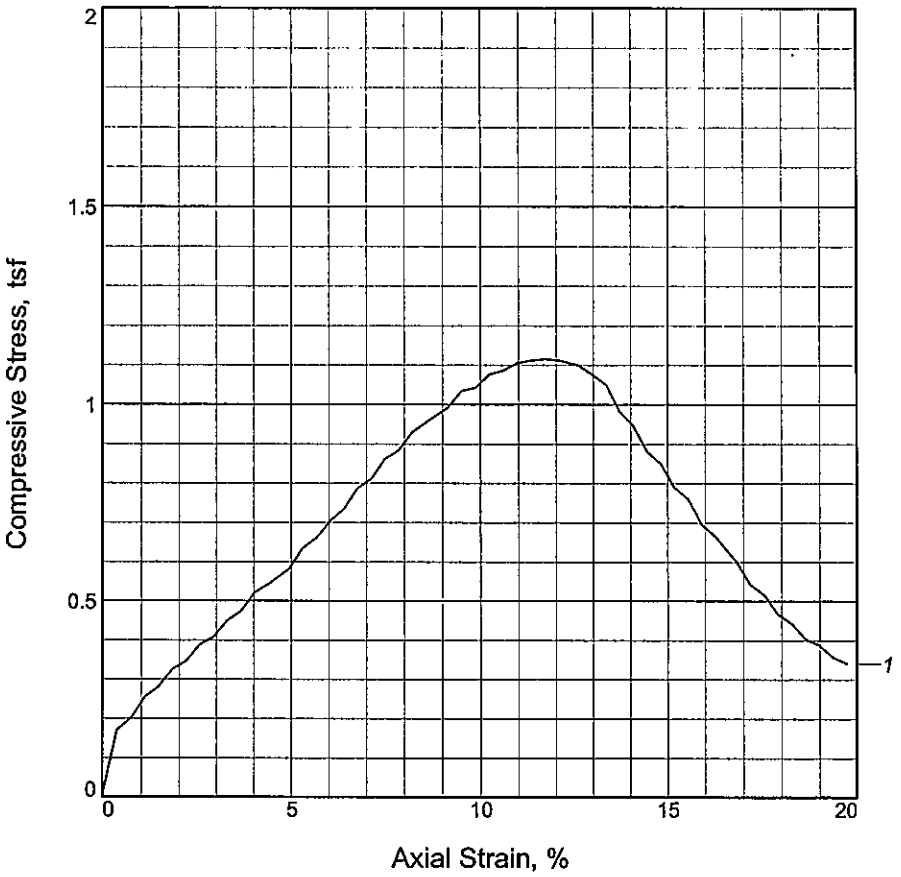
Project: SCI-823-0.00

Source of Sample: R-64A **Depth:** 5.9

Sample Number: P1B

DLZ

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	1.116			
Undrained shear strength, tsf	0.558			
Failure strain,	11.7			
Strain rate, in./min.	0.06			
Water content, %	25.0			
Wet density, pcf	124.7			
Dry density, pcf	99.7			
Saturation, %	97.9			
Void ratio	0.6902			
Specimen diameter, in.	2.88			
Specimen height, in.	5.47			
Height/diameter ratio	1.90			

Description: Lean clay

LL = 35	**PL =** 21	**PI =** 14	**Assumed GS=** 2.7	**Type:** 3" Press Tube

Project No.: 0121-3070.03

Date: 2/8/06

Remarks:
Sample S1 - 15.0' to 15.8'

Figure _____

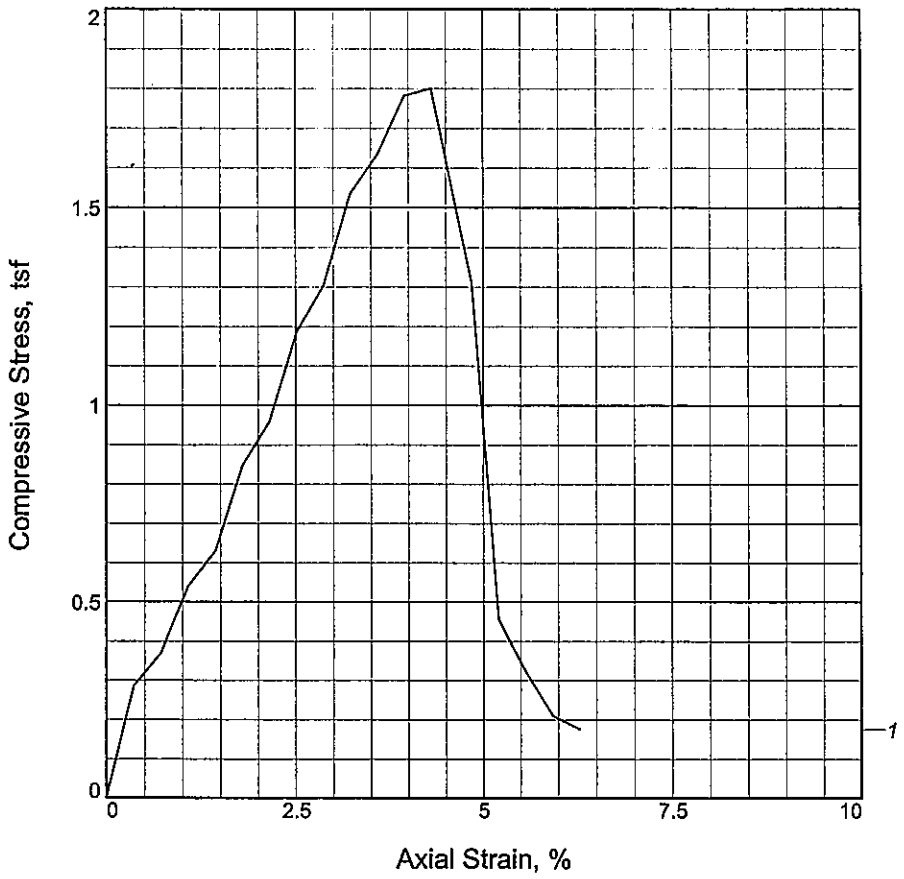
Client: TranSystems, Inc.

Project: SCI-823-0.00

Source of Sample: R-64A **Depth:** 15.0
Sample Number: P2A

DLZ

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	1.800			
Undrained shear strength, tsf	0.900			
Failure strain,	4.3			
Strain rate, in./min.	0.06			
Water content, %	22.0			
Wet density, pcf	122.2			
Dry density, pcf	100.1			
Saturation, %	84.6			
Void ratio	0.7143			
Specimen diameter, in.	2.85			
Specimen height, in.	5.57			
Height/diameter ratio	1.95			

Description:

LL =	**PL =**	**PI =**	**Assumed GS=** 2.75	**Type:** 3" Press Tube

Project No.: 0121-3070.03

Date:

Remarks:

Figure _____

Client: TranSystems, Inc.

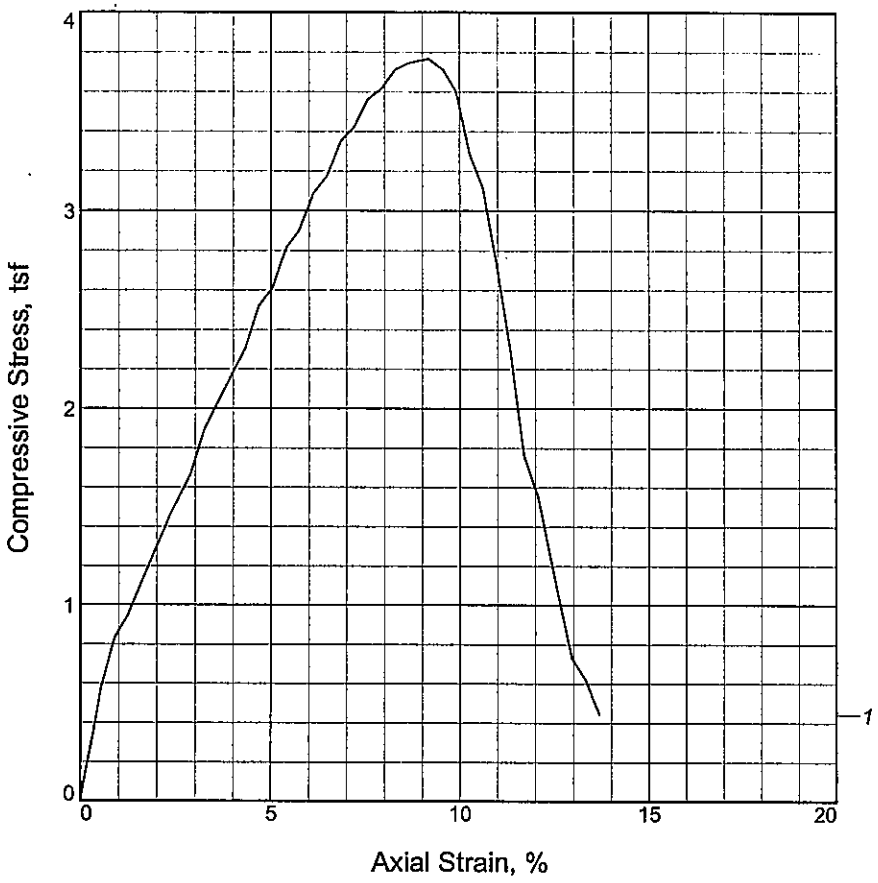
Project: SCI-823-0.00

Source of Sample: R-64A **Depth:** 15.8

Sample Number: P-2B

DLZ

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	3.766			
Undrained shear strength, tsf	1.883			
Failure strain,	9.2			
Strain rate, in./min.	0.06			
Water content, %	24.4			
Wet density, pcf	127.6			
Dry density, pcf	102.6			
Saturation, %	102.5			
Void ratio	0.6434			
Specimen diameter, in.	2.85			
Specimen height, in.	5.55			
Height/diameter ratio	1.95			

Description:

LL =	PL =	PI =	**Assumed GS=** 2.7	**Type:** 3" press tube

Project No.: 0121-3070.03

Date:

Remarks:

Figure _____

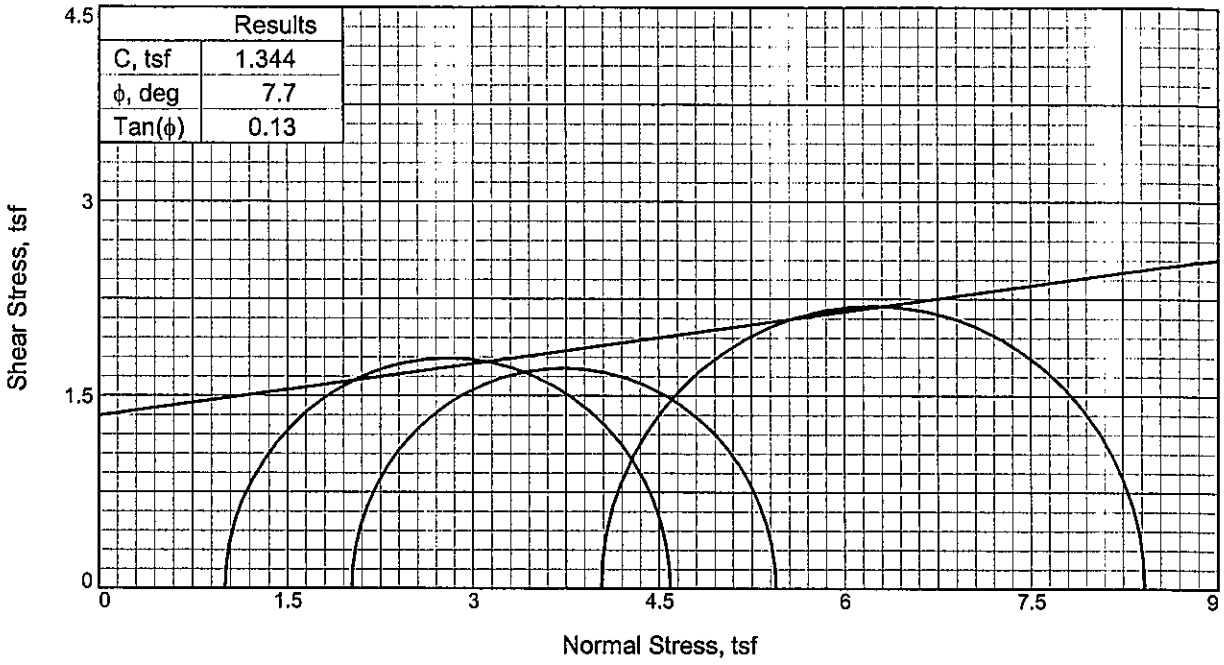
Client: TranSystems, Inc.

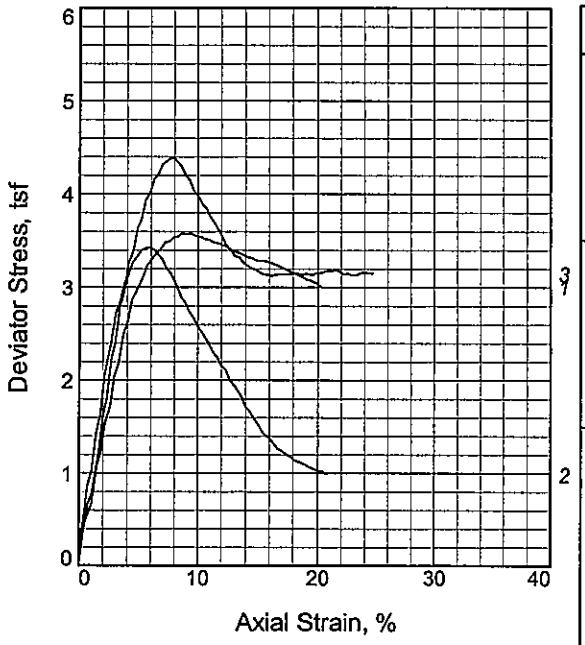
Project: SCI-823-0.00

Source of Sample: R-64A **Depth:** 40.0

Sample Number: P4

DLZ





Sample No.		1	2	3
Initial	Water Content,	25.6	24.8	24.9
	Dry Density, pcf	100.4	101.5	100.6
	Saturation,	101.8	101.4	99.5
	Void Ratio	0.6782	0.6605	0.6762
	Diameter, in.	2.85	2.85	2.86
	Height, in.	5.43	5.58	5.57
At Test	Water Content,	24.7	28.0	24.8
	Dry Density, pcf	100.4	101.5	100.6
	Saturation,	98.3	114.6	99.1
	Void Ratio	0.6782	0.6605	0.6762
	Diameter, in.	2.85	2.85	2.86
	Height, in.	5.43	5.58	5.57
Strain rate, in./min.		0.06	0.06	0.06
Back Pressure, tsf		0.00	0.00	0.00
Cell Pressure, tsf		1.01	2.02	4.03
Fail. Stress, tsf		3.58	3.43	4.39
Ult. Stress, tsf		3.58	3.43	4.39
σ_1 Failure, tsf		4.59	5.44	8.42
σ_3 Failure, tsf		1.01	2.02	4.03

Type of Test:
Unconsolidated Undrained

Sample Type: 3" Press Tube

Description:

LL= 39 **PL=** 22 **PI=** 17

Assumed Specific Gravity= 2.7

Remarks:

Figure _____

Client: TranSystems, Inc.

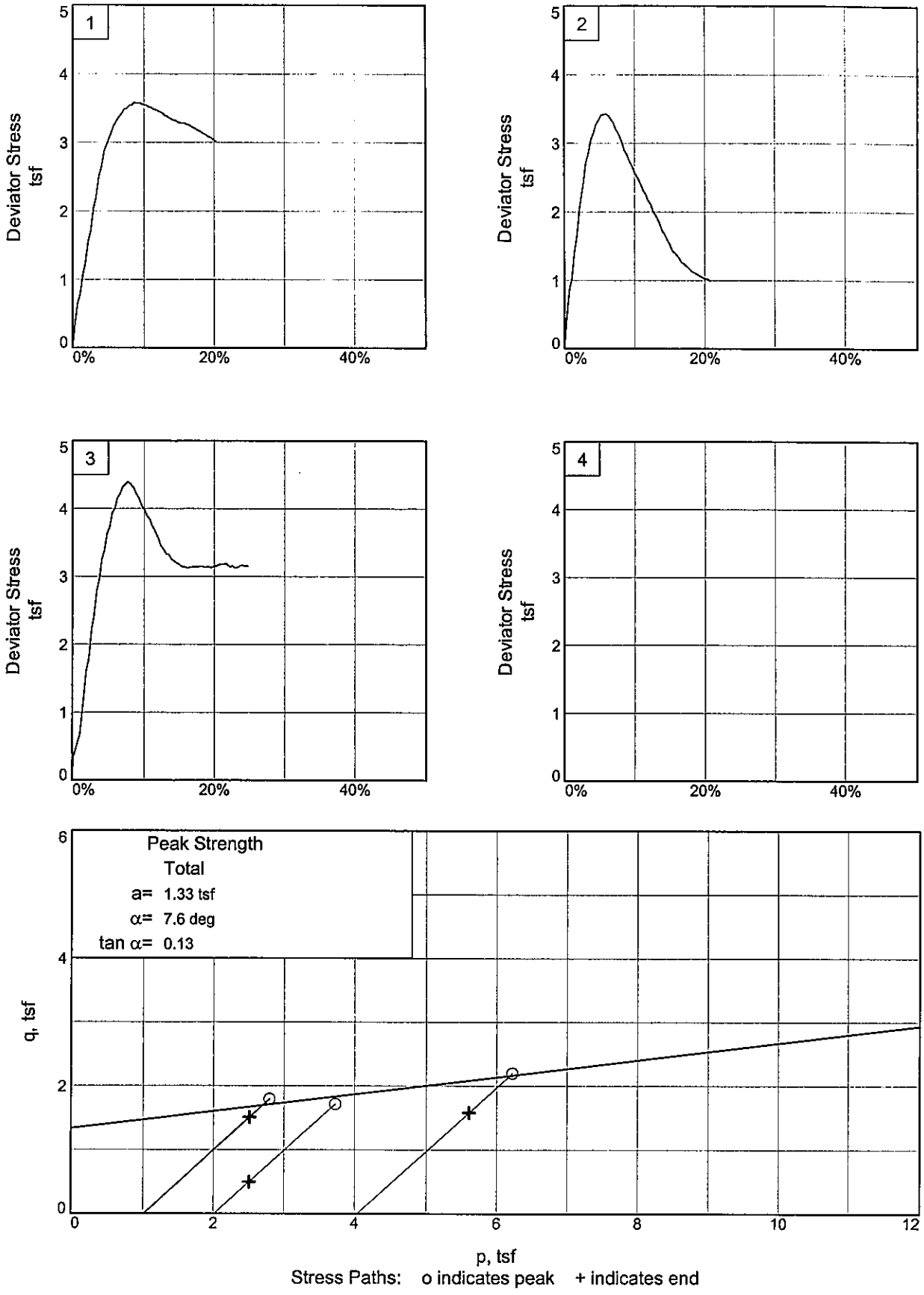
Project: SCI-823-0.00

Source of Sample: R-64A **Depth:** 40.0

Sample Number: P4

Proj. No.: 0121-3070.03 **Date:** 2/8/06

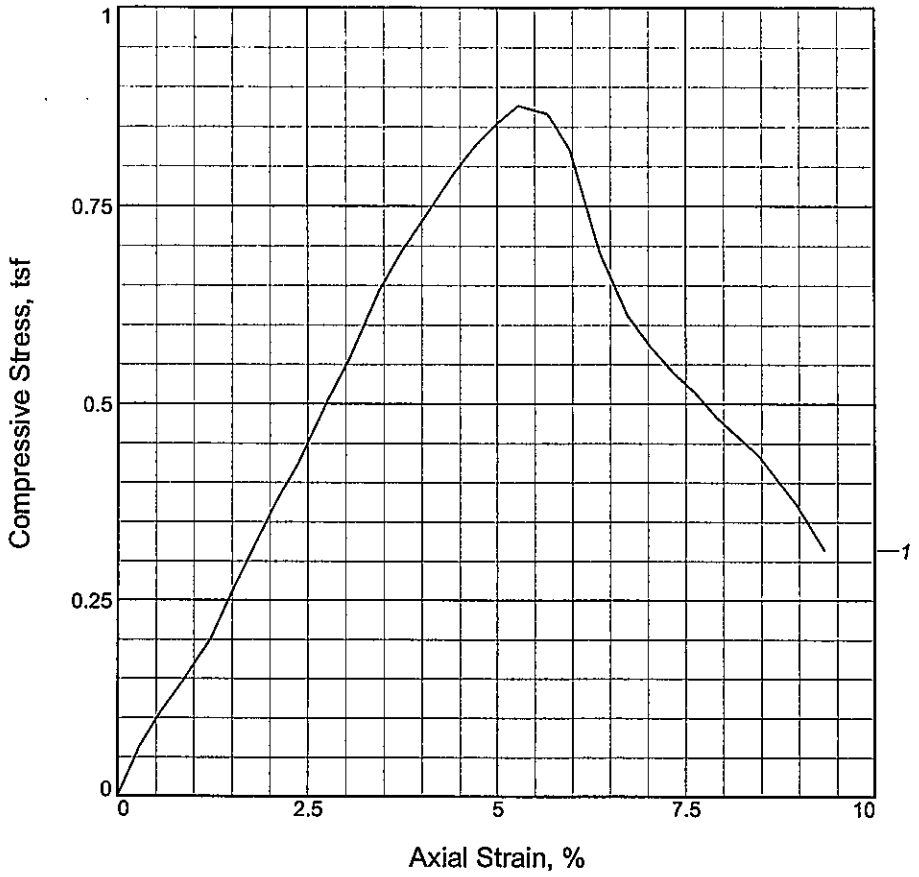
DLZ



Client: TranSystems, Inc.
Project: SCI-823-0.00
Source of Sample: R-64A **Depth:** 40.0 **Sample Number:** P4
Project No.: 0121-3070.03 **Figure** _____

DLZ, INC.

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	0.876			
Undrained shear strength, tsf	0.438			
Failure strain,	5.3			
Strain rate, in./min.	0.06			
Water content, %	27.5			
Wet density, pcf	124.3			
Dry density, pcf	97.5			
Saturation, %	99.8			
Void ratio	0.7539			
Specimen diameter, in.	2.83			
Specimen height, in.	5.52			
Height/diameter ratio	1.95			

Description: Lean clay

LL = 34	**PL** = 22	**PI** = 12	**GS**= 2.74	**Type:** 3" Press Tube

Project No.: 0121-3070.03

Date: 8/6/05

Remarks:

Figure _____

Client: TranSystems, Inc.

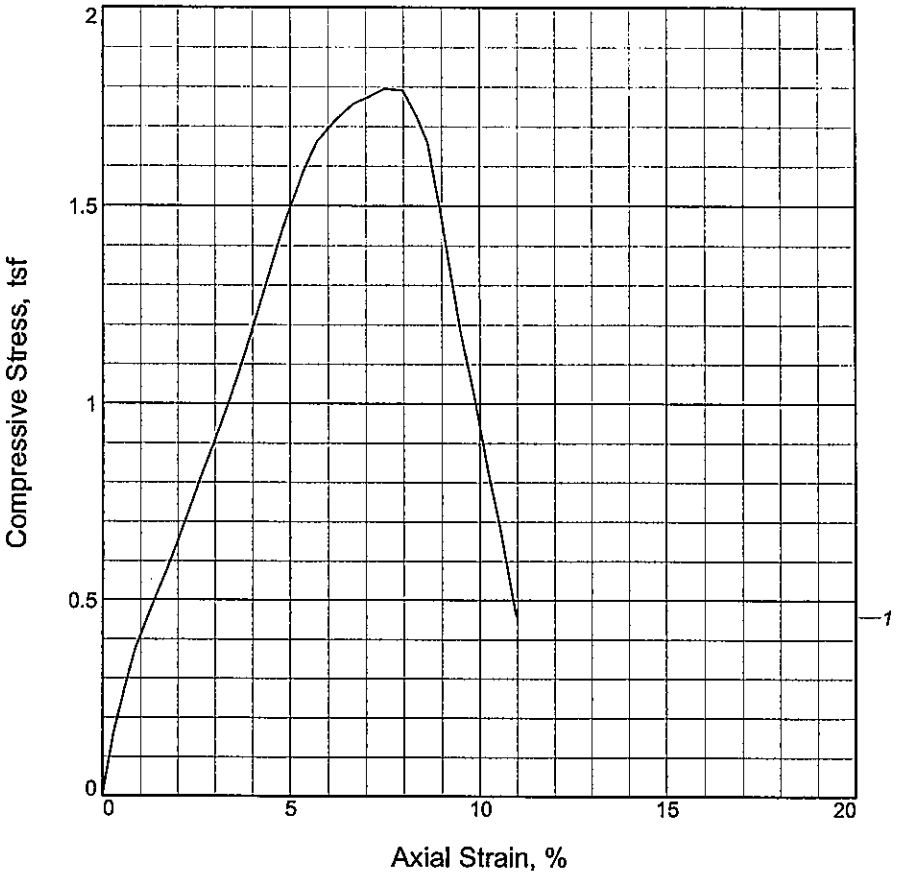
Project: SCI-823-0.00

Source of Sample: R-64 **Depth:** 18.0

Sample Number: P2

DLZ

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	1.795			
Undrained shear strength, tsf	0.897			
Failure strain,	7.5			
Strain rate, in./min.	0.06			
Water content, %	26.6			
Wet density, pcf	125.7			
Dry density, pcf	99.3			
Saturation, %	99.0			
Void ratio	0.7484			
Specimen diameter, in.	2.80			
Specimen height, in.	5.55			
Height/diameter ratio	1.98			

Description: Lean clay

LL = 49	**PL =** 23	**PI =** 26	**GS=** 2.78	**Type:** 3" press tube

Project No.: 0121-3070.03

Date: 8/5/05

Remarks:

Figure _____

Client: TranSystems, Inc.

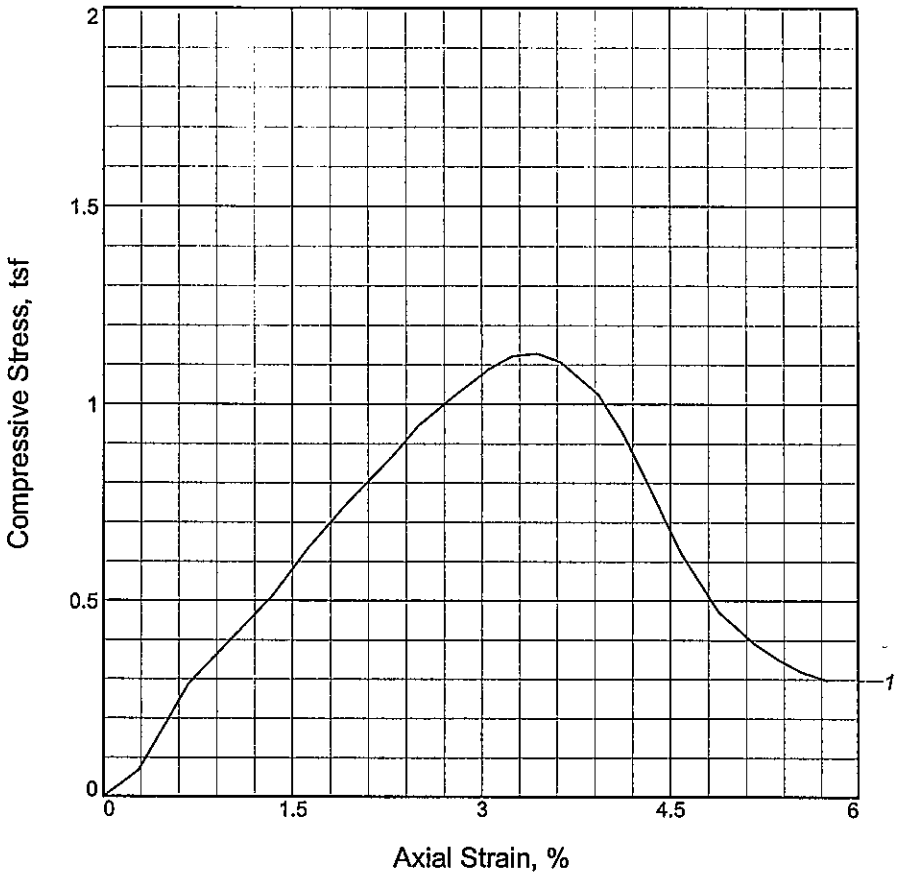
Project: SCI-823-0.00

Source of Sample: R-61 **Depth:** 6.0

Sample Number: P-1

DLZ

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	1.129			
Undrained shear strength, tsf	0.565			
Failure strain,	3.4			
Strain rate, in./min.	0.06			
Water content, %	26.9			
Wet density, pcf	126.1			
Dry density, pcf	99.3			
Saturation, %	99.7			
Void ratio	0.7533			
Specimen diameter, in.	2.83			
Specimen height, in.	5.52			
Height/diameter ratio	1.95			

Description: Silt

LL = 24	**PL** = 21	**PI** = 3	**GS**= 2.79	**Type:** 3" Press Tube

Project No.: 0121-3070.03

Date: 8/6/05

Remarks:

Figure _____

Client: TranSystems, Inc.

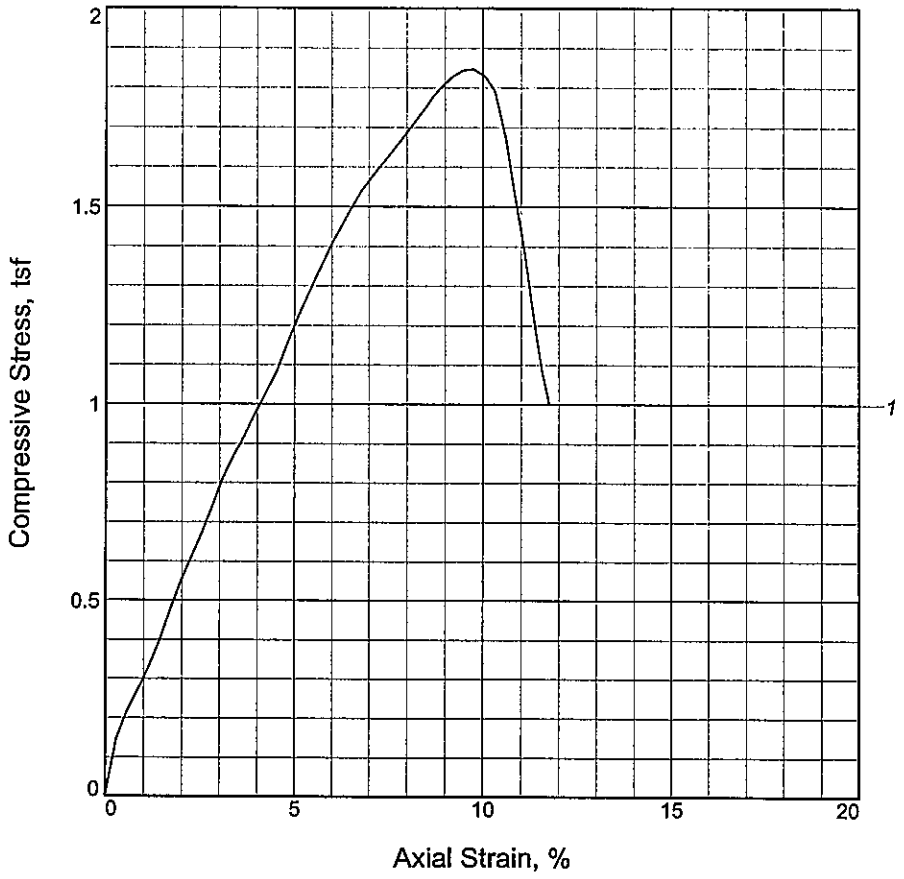
Project: SCI-823-0.00

Source of Sample: R-61 **Depth:** 18.0

Sample Number: P-2

DLZ

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	1.847			
Undrained shear strength, tsf	0.924			
Failure strain,	9.7			
Strain rate, in./min.	0.06			
Water content, %	25.1			
Wet density, pcf	127.9			
Dry density, pcf	102.2			
Saturation, %	100.0			
Void ratio	0.6974			
Specimen diameter, in.	2.81			
Specimen height, in.	5.55			
Height/diameter ratio	1.97			

Description: Lean clay

LL = 29	**PL** = 19	**PI** = 10	**GS**= 2.78	**Type:** 3' Press Tube

Project No.: 0121-3070.03

Date: 8/6/05

Remarks:

Figure _____

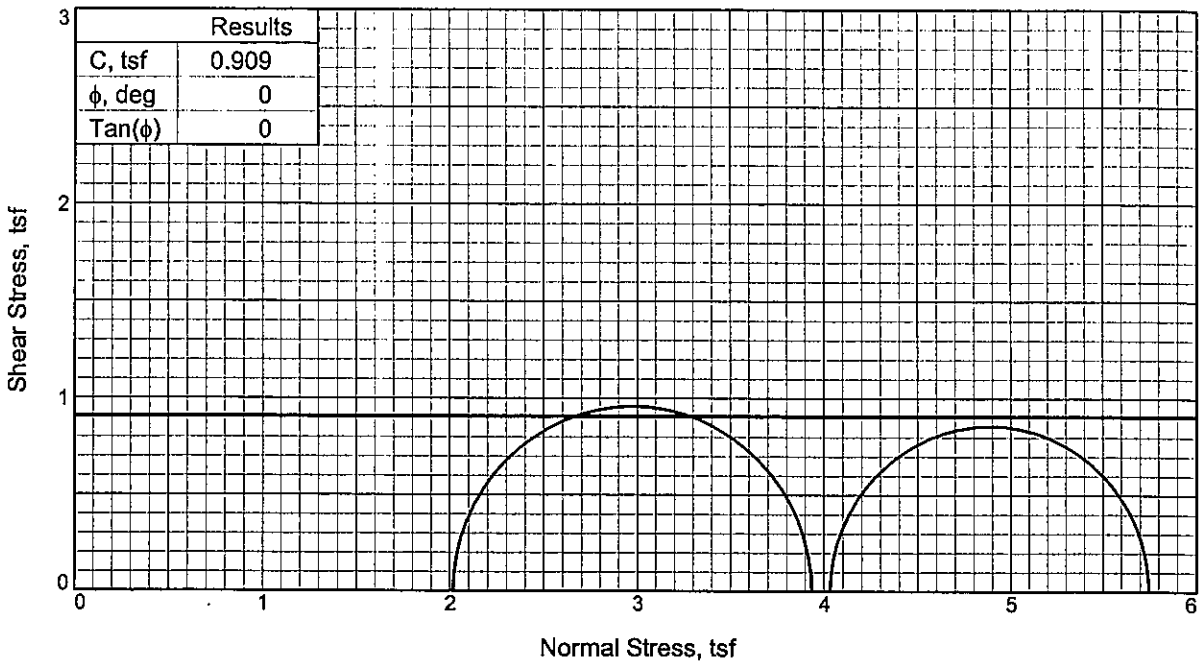
Client: TranSystems, Inc.

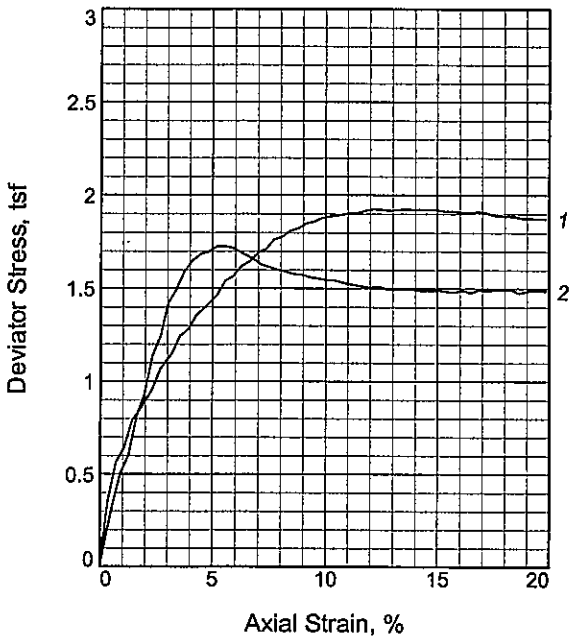
Project: SCI-823-0.00

Source of Sample: R-61 **Depth:** 33.5

Sample Number: P-3

DLZ





Sample No.		1	2
Initial	Water Content,	25.6	25.5
	Dry Density, pcf	97.5	97.3
	Saturation,	94.9	93.9
	Void Ratio	0.7291	0.7330
	Diameter, in.	2.85	2.85
	Height, in.	5.59	5.58
At Test	Water Content,	27.0	27.1
	Dry Density, pcf	97.5	97.3
	Saturation,	100.0	100.0
	Void Ratio	0.7291	0.7330
	Diameter, in.	2.85	2.85
	Height, in.	5.59	5.58
Strain rate, in./min.			0.06
Back Pressure, tsf		0.00	0.00
Cell Pressure, tsf		2.02	4.03
Fail. Stress, tsf		1.92	1.72
Ult. Stress, tsf		1.92	1.72
σ_1 Failure, tsf		3.93	5.75
σ_3 Failure, tsf		2.02	4.03

Type of Test:
Unconsolidated Undrained

Sample Type: Press Tube

Description: Lean clay

LL= 35 **PL=** 22 **PI=** 13

Assumed Specific Gravity= 2.7

Remarks:

Client: TranSystems, Inc.

Project: SCI-823-0.00

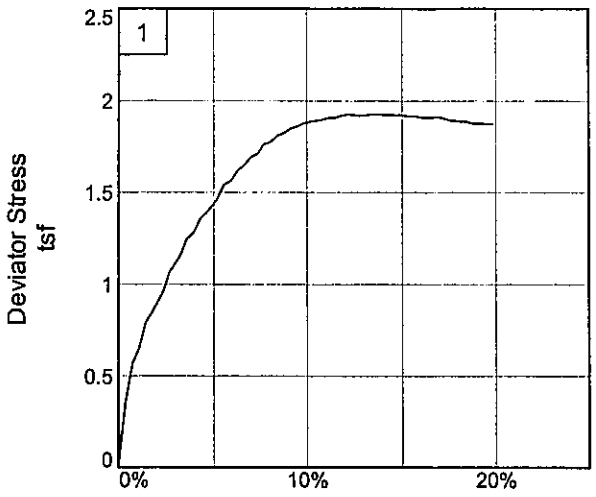
Source of Sample: TR-38A **Depth:** 5.0

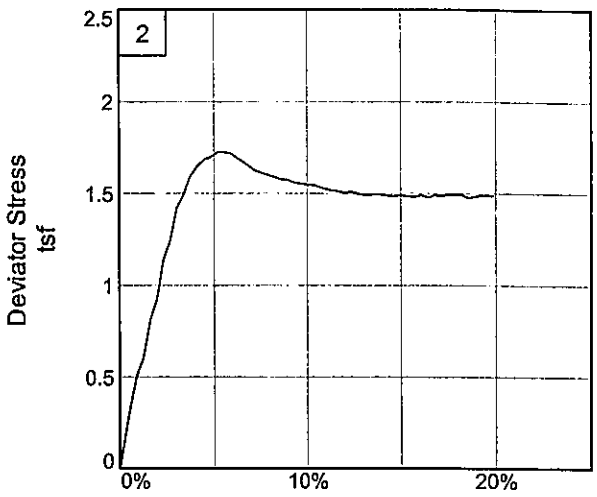
Sample Number: P-1

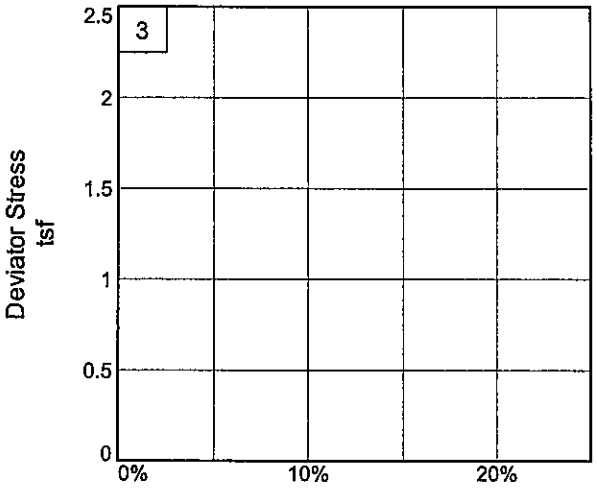
Proj. No.: 0121-3070.03 **Date:** 1/31/06

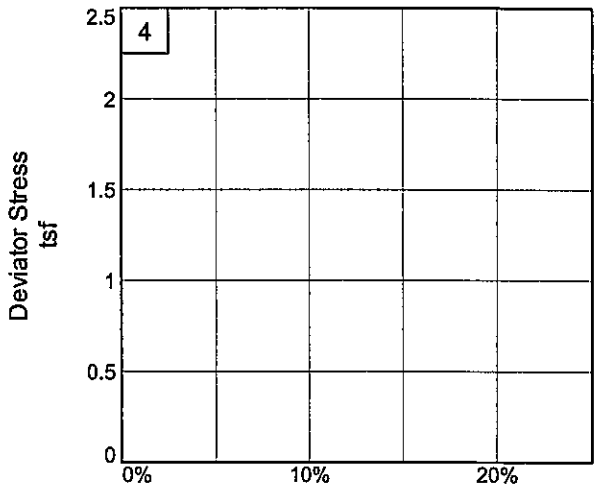
DLZ

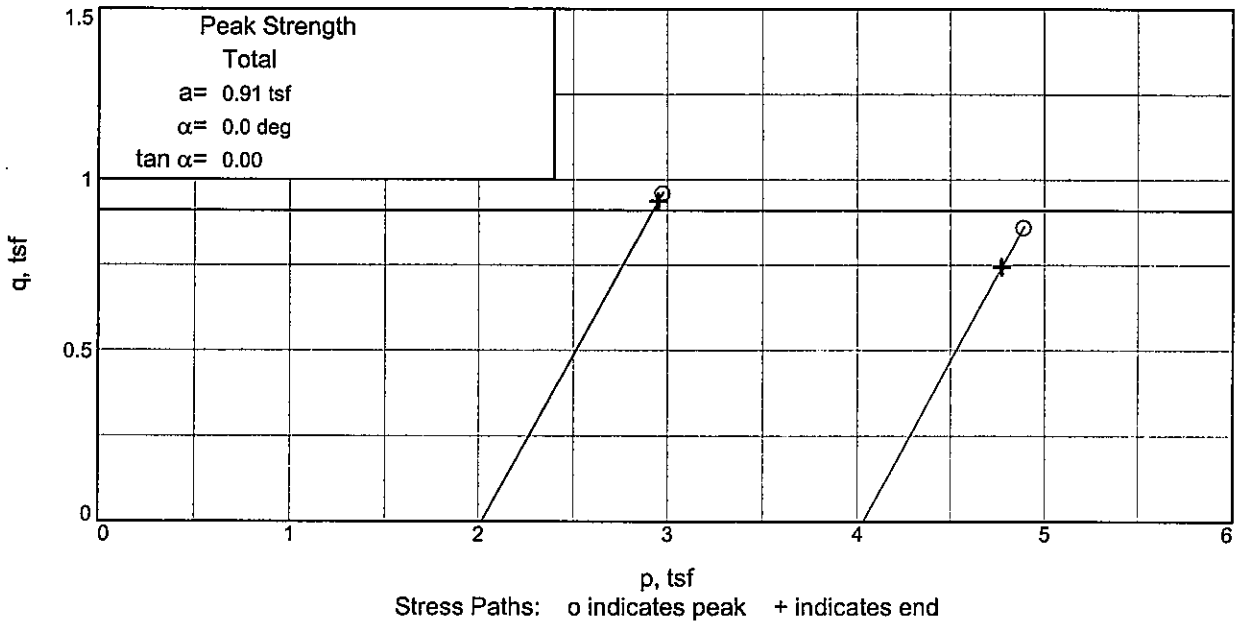
Figure _____







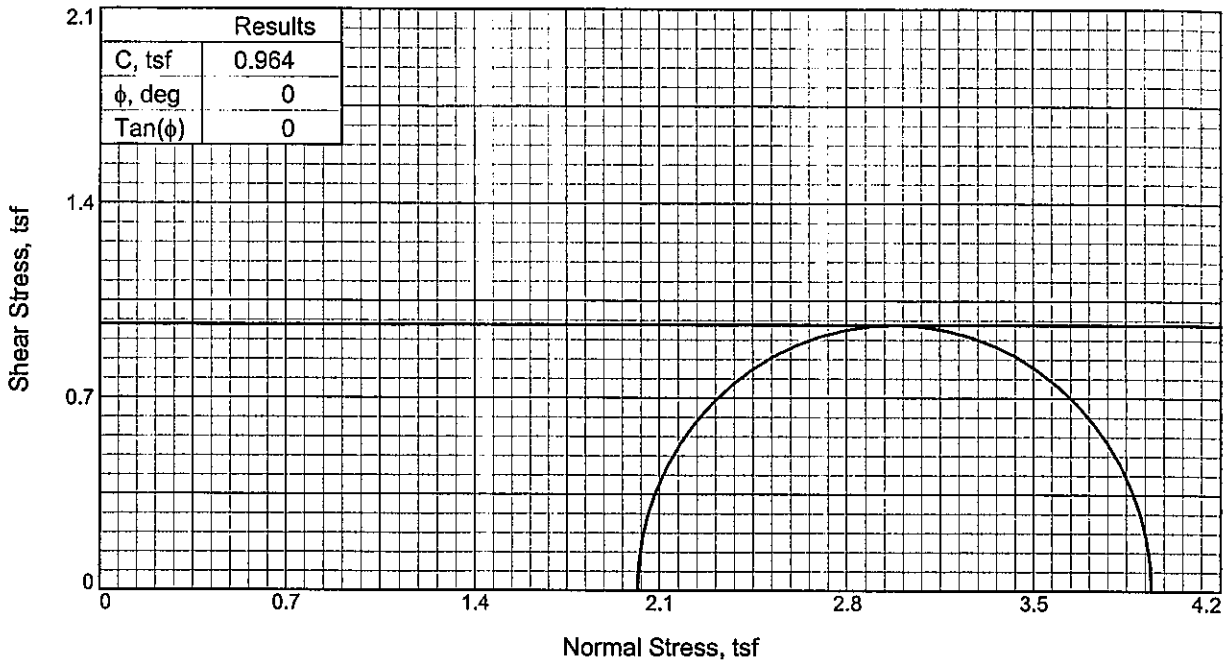


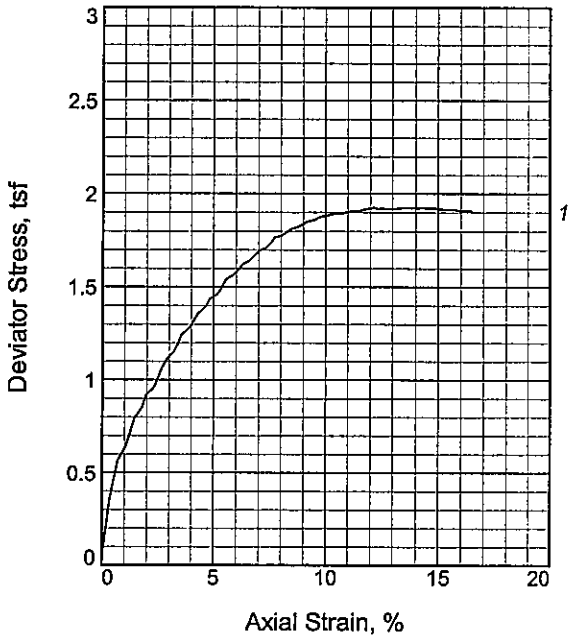


Stress Paths: o indicates peak + indicates end

Client: TranSystems, Inc.
Project: SCI-823-0.00
Source of Sample: TR-38A **Depth:** 5.0 **Sample Number:** P-1
Project No.: 0121-3070.03 **Figure** _____

DLZ, INC.





Sample No.		1
Initial	Water Content,	25.6
	Dry Density, pcf	97.5
	Saturation,	92.6
	Void Ratio	0.7611
	Diameter, in.	2.85
	Height, in.	5.59
At Test	Water Content,	27.7
	Dry Density, pcf	97.5
	Saturation,	100.0
	Void Ratio	0.7611
	Diameter, in.	2.85
	Height, in.	5.59
Strain rate, in./min.		0.06
Back Pressure, tsf		0.00
Cell Pressure, tsf		2.02
Fail. Stress, tsf		1.93
Ult. Stress, tsf		
σ_1 Failure, tsf		3.94
σ_3 Failure, tsf		2.02

Type of Test:
Unconsolidated Undrained
Sample Type: 3" press tube
Description: Lean clay

LL= 43 **PL=** 24 **PI=** 19
Assumed Specific Gravity= 2.75
Remarks:

Figure _____

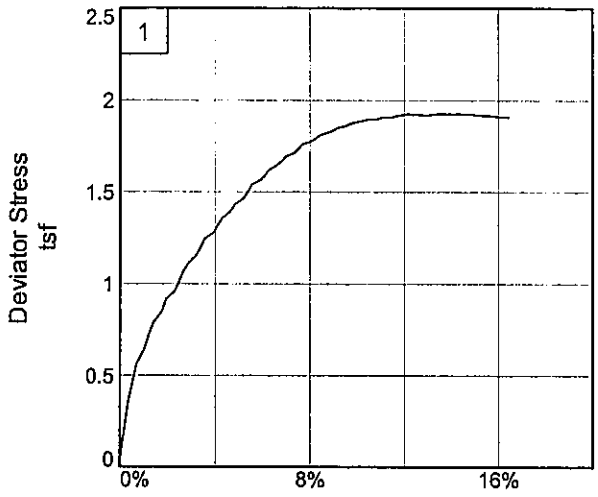
Client: TranSystems, Inc.

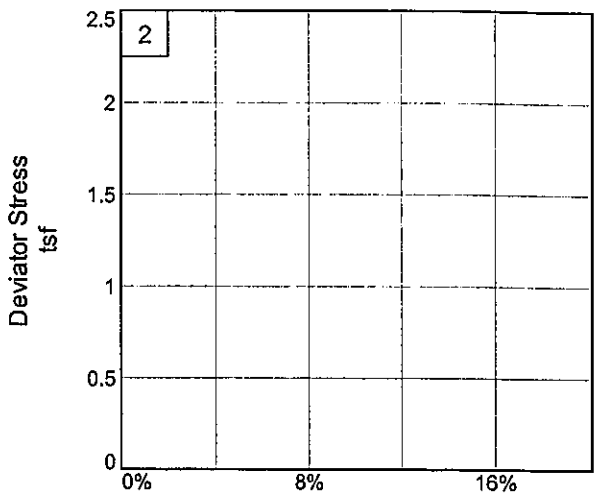
Project: SCI-823-0.00

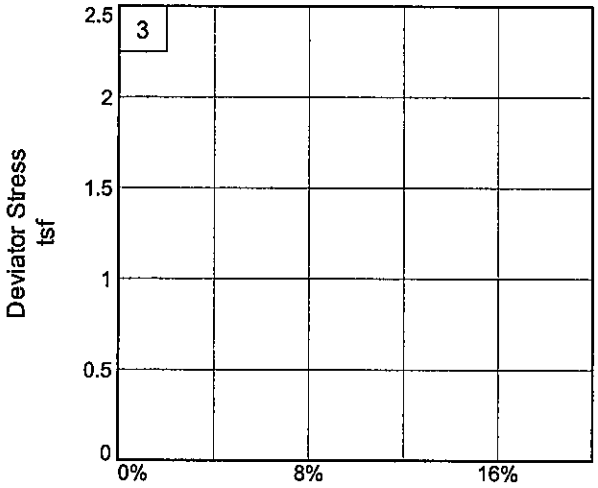
Source of Sample: TR-38A **Depth:** 8.5
Sample Number: 3

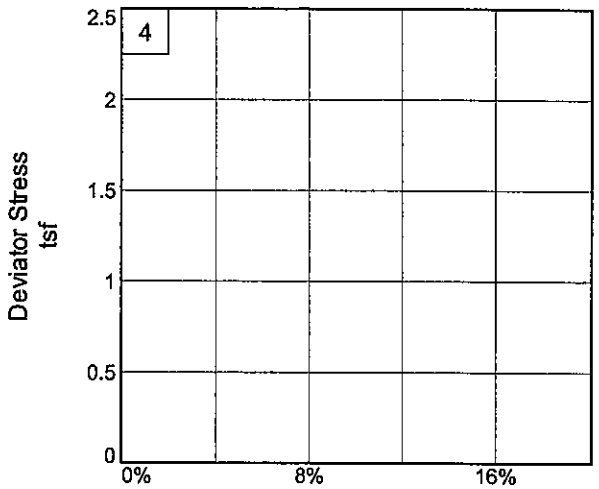
Proj. No.: 0121-3070.03 **Date:** 2/8/06

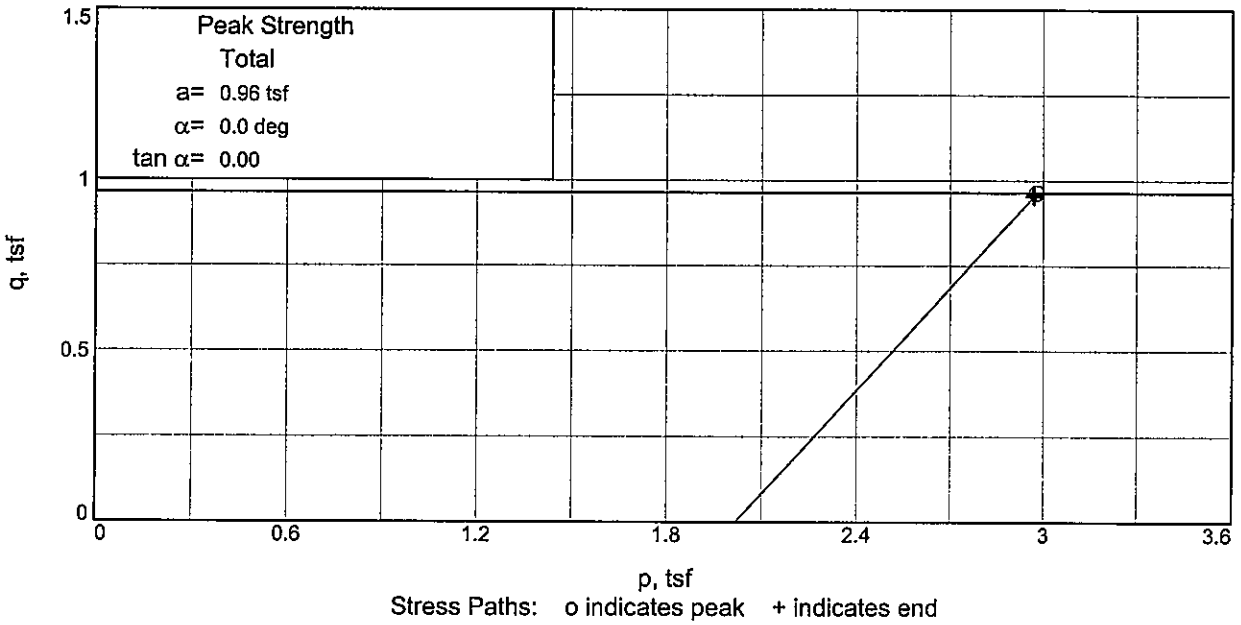
DLZ







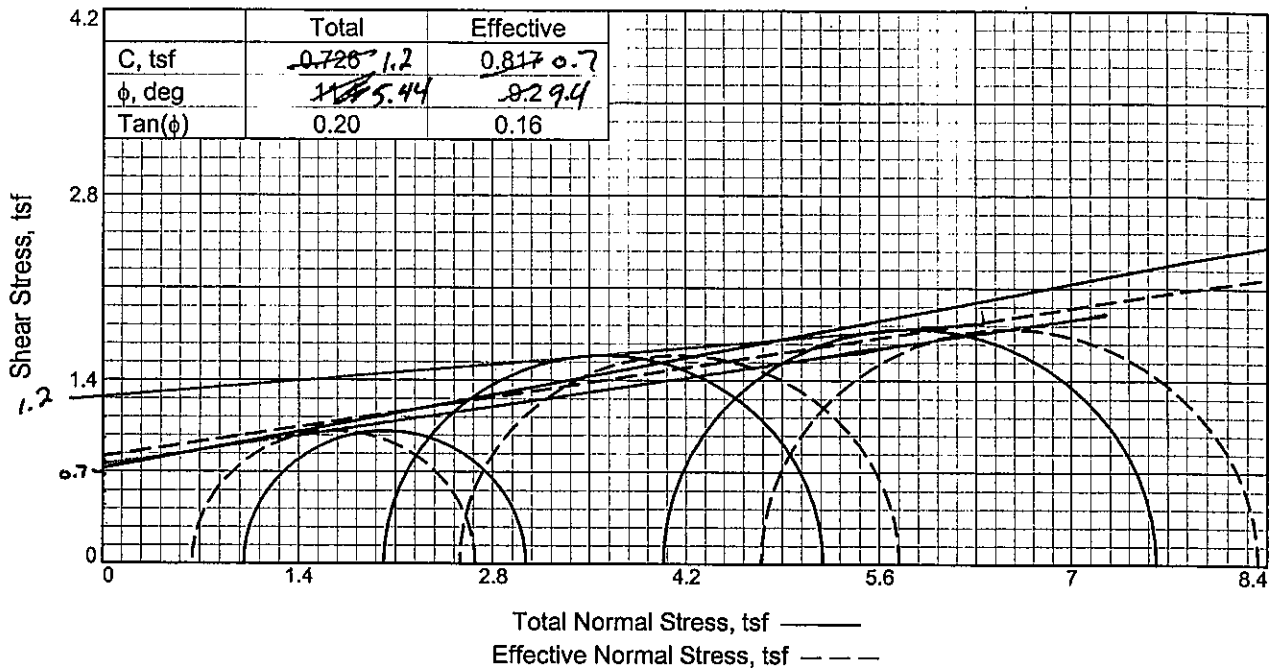


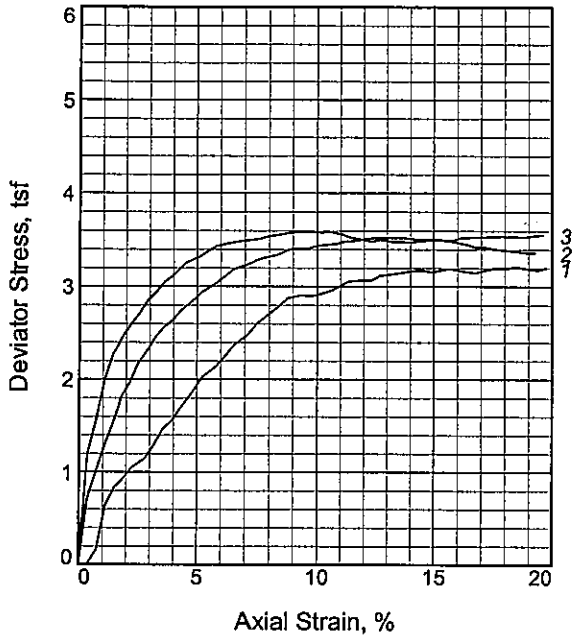


Stress Paths: o indicates peak + indicates end

Client: TranSystems, Inc.
Project: SCI-823-0.00
Source of Sample: TR-38A **Depth:** 8.5 **Sample Number:** 3
Project No.: 0121-3070.03 **Figure** _____

DLZ, INC.





Sample No.		1	2	3
Initial	Water Content,	28.8	28.0	26.2
	Dry Density, pcf	96.9	96.7	98.4
	Saturation,	102.7	99.1	96.7
	Void Ratio	0.7711	0.7754	0.7454
	Diameter, in.	2.87	2.85	2.84
	Height, in.	5.37	5.55	5.51
At Test	Water Content,	28.0	28.2	27.1
	Dry Density, pcf	96.9	96.7	98.4
	Saturation,	100.0	100.0	100.0
	Void Ratio	0.7711	0.7754	0.7454
	Diameter, in.	2.87	2.85	2.84
	Height, in.	5.37	5.55	5.51
Strain rate, in./min.		0.06	0.06	0.06
Back Pressure, tsf		4.03	4.03	4.03
Cell Pressure, tsf		5.04	6.05	8.06
Fail. Stress, tsf		2.03	3.18	3.59
Total Pore Pr., tsf		4.39	3.49	3.32
Ult. Stress, tsf		2.03	3.18	3.59
Total Pore Pr., tsf		4.39	3.49	3.32
$\bar{\sigma}_1$ Failure, tsf		2.67	5.74	8.33
$\bar{\sigma}_3$ Failure, tsf		0.65	2.56	4.75

Type of Test:
CU with Pore Pressures

Sample Type: 3" Press Tube

Description:

Assumed Specific Gravity= 2.75

Remarks:

Figure _____

Client: TranSystems, Inc.

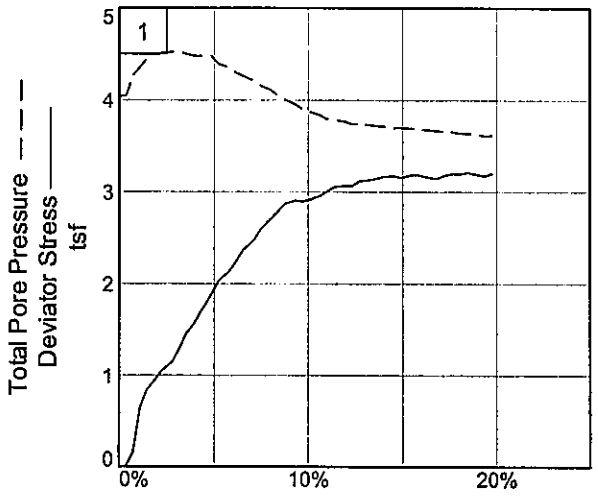
Project: SCI-823-0.00

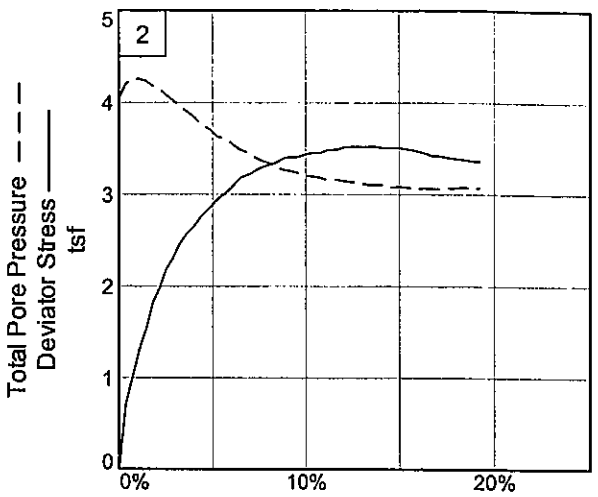
Source of Sample: TR-38A **Depth:** 20.0

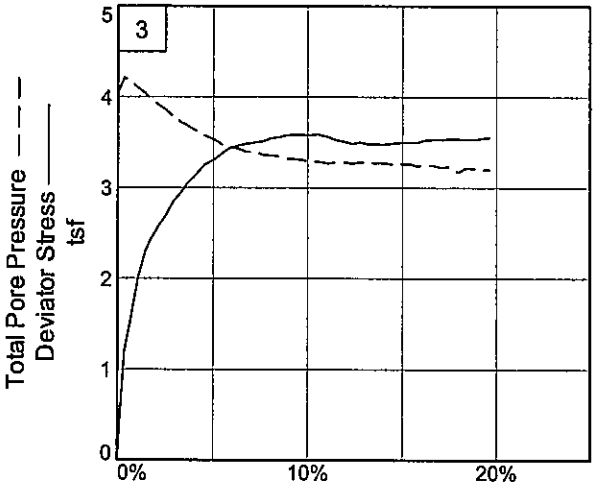
Sample Number: P-3A

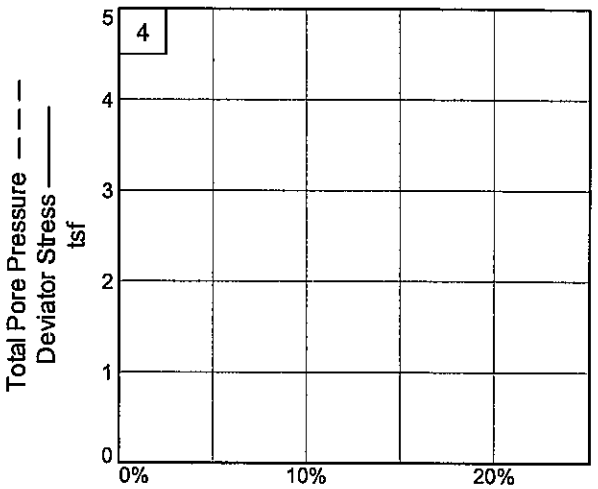
Proj. No.: 0121-3070.03 **Date:**

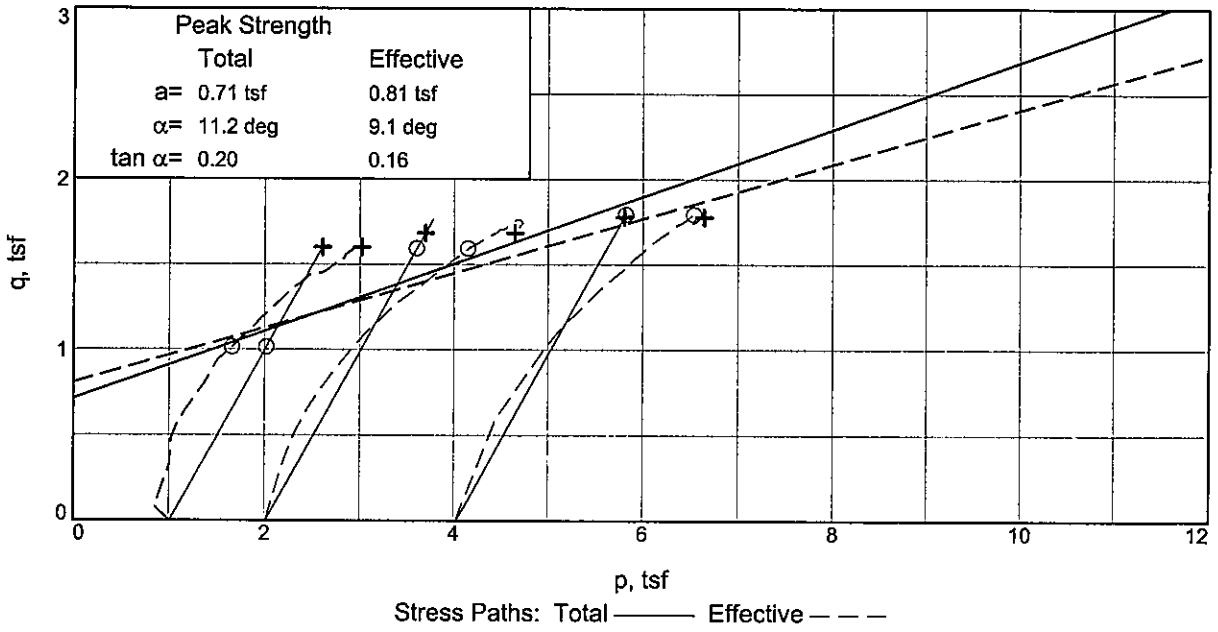
DLZ









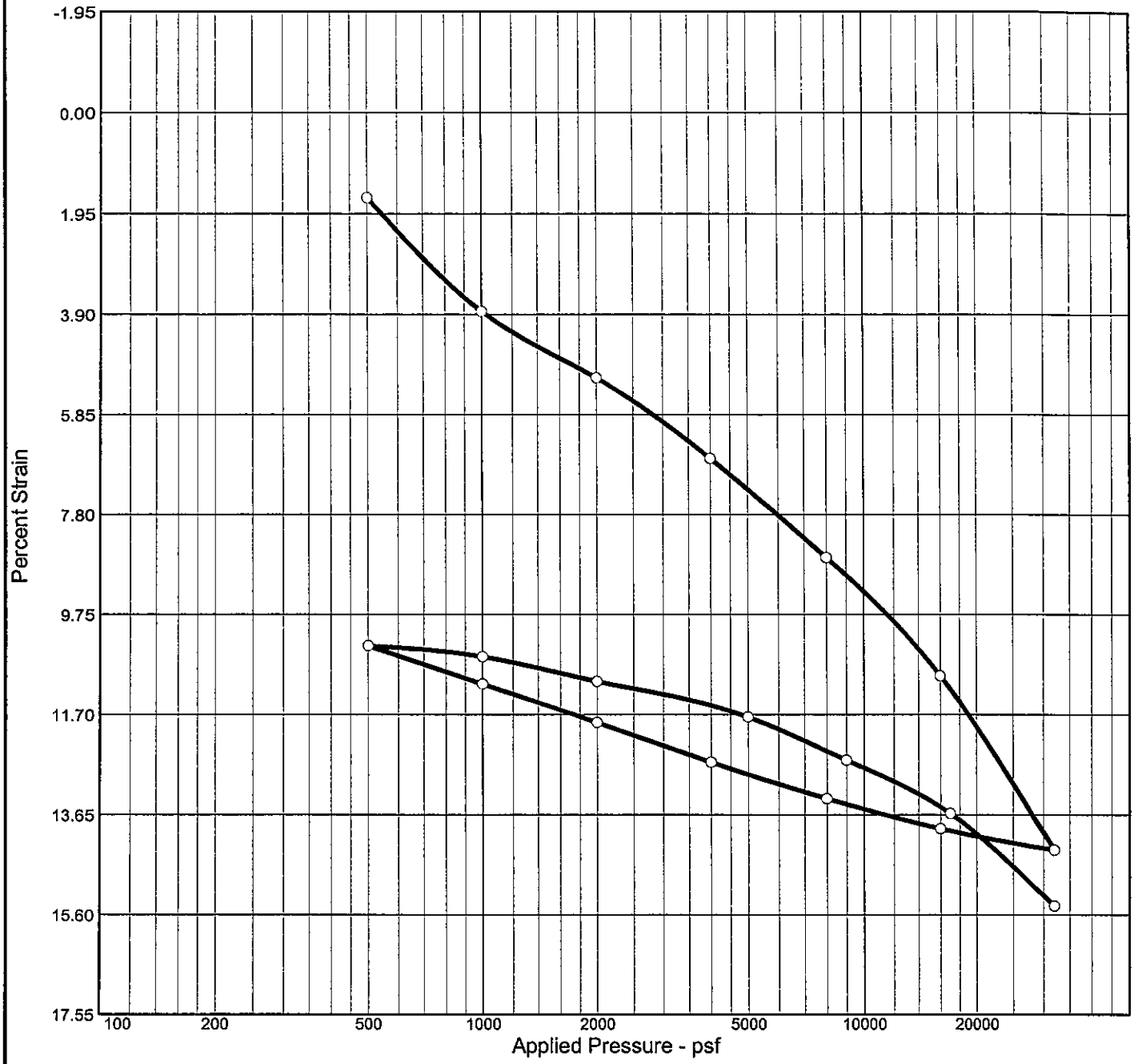


Client: TranSystems, Inc.
Project: SCI-823-0.00
Source of Sample: TR-38A
Depth: 20.0
Sample Number: P-3A
Project No.: 0121-3070.03
Figure _____

DLZ, INC.

Consolidation Tests

CONSOLIDATION TEST REPORT



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	USCS	AASHTO	Initial Void Ratio
Saturation	Moisture							
93.4 %	26.6 %	96.8	49	26	2.78	CL	A-7-6(28	0.793

MATERIAL DESCRIPTION

Lean clay

Project No. 0121- **Client:** TranSystems, Inc.

Project: SCI-823-0.00

Source: R-61 **Sample No.:** P-1 **Elev./Depth:** 6.0

DLZ

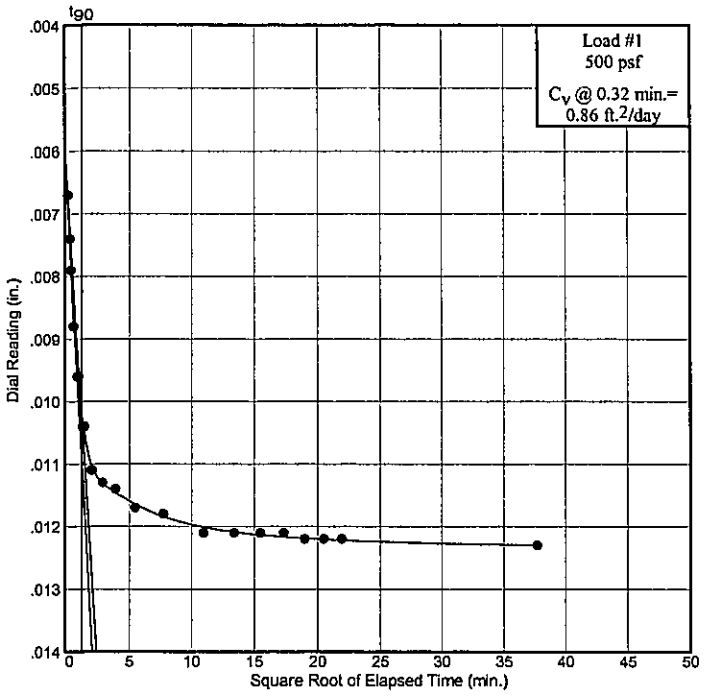
Remarks:

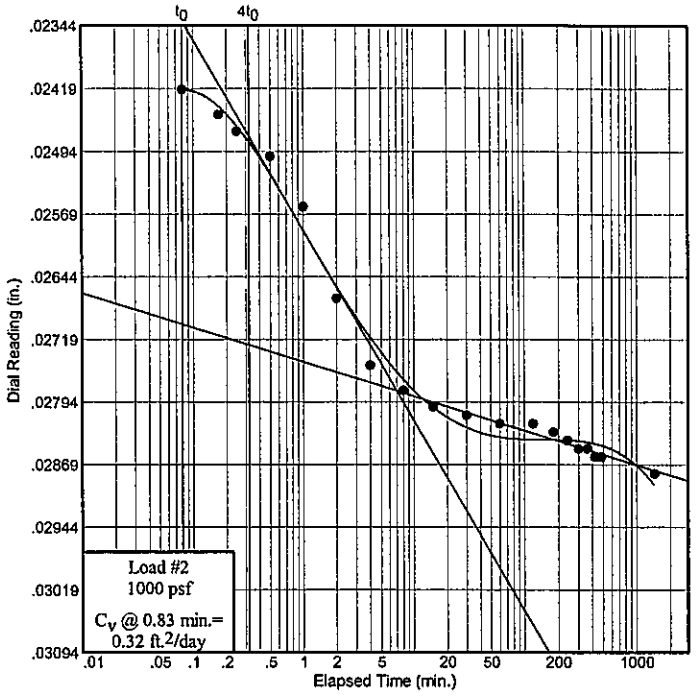
Figure

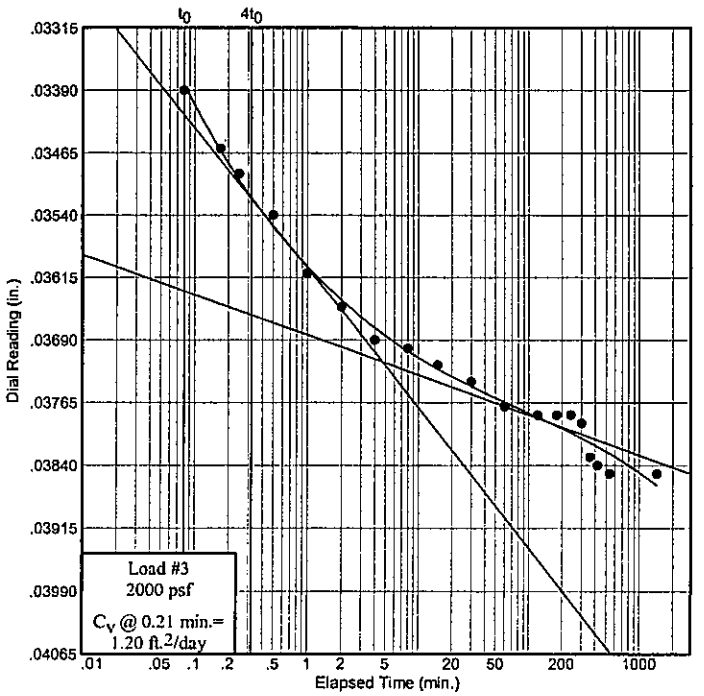
Dial Reading vs. Time

Project No.: 0121-3070.03
Project: SCI-823-0.00

Source: R-61 Sample No.: P-1 Elev./Depth: 6.0







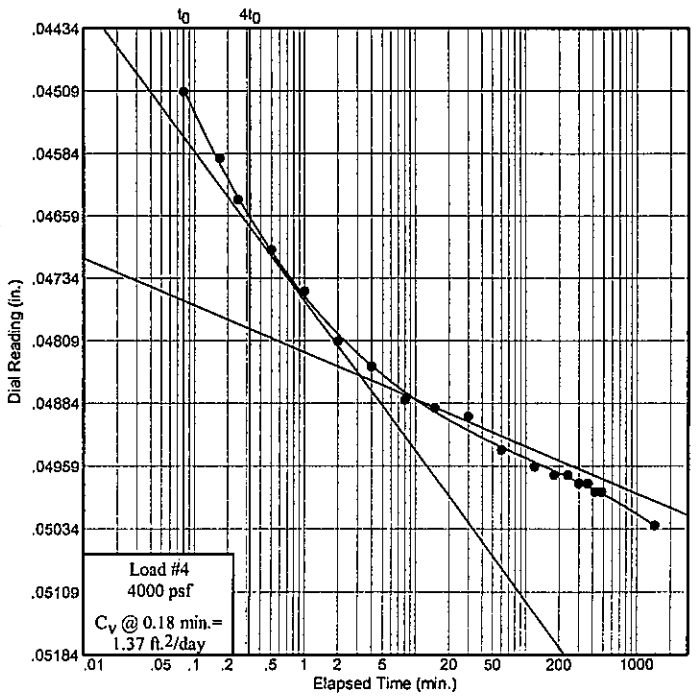


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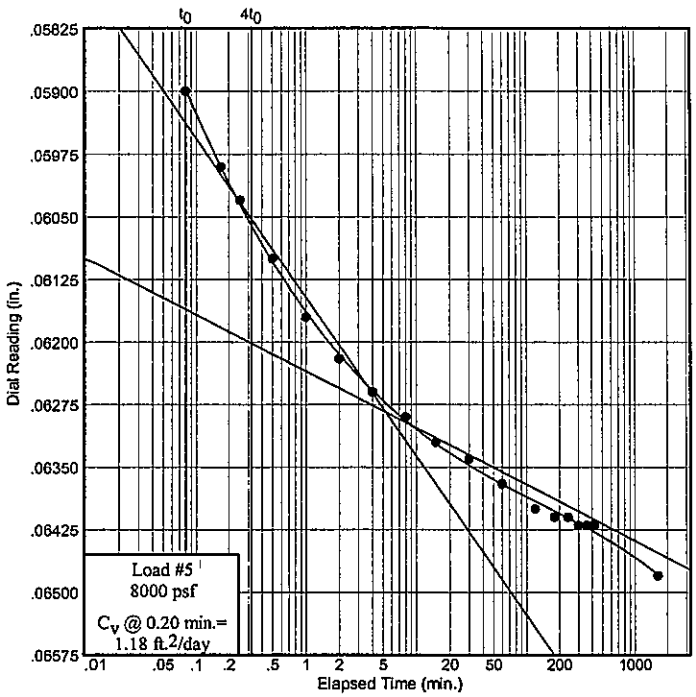
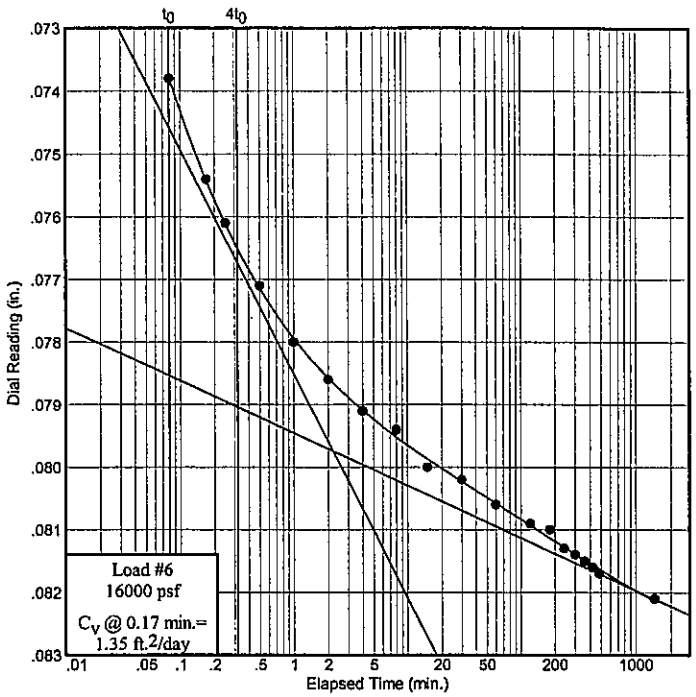
Figure

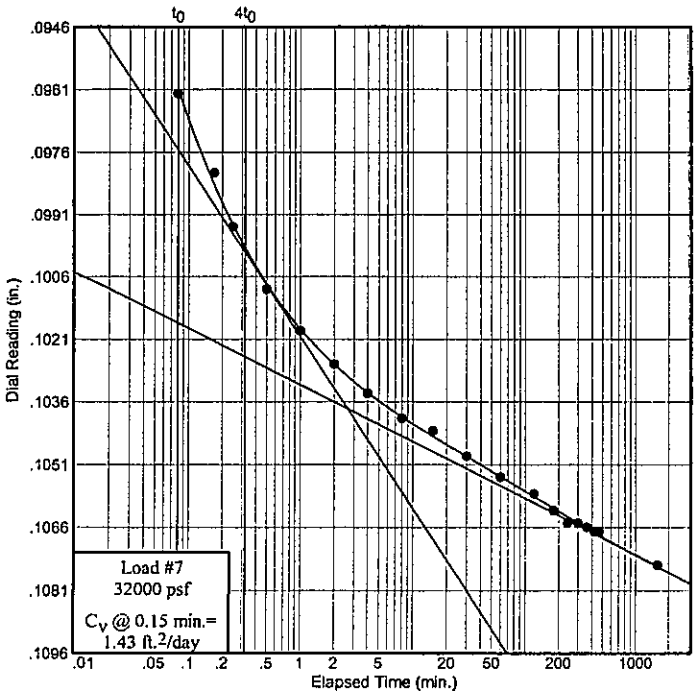
Dial Reading vs. Time

Project No.: 0121-3070.03
Project: SCI-823-0.00

Source: R-61 Sample No.: P-1 Elev./Depth: 6.0







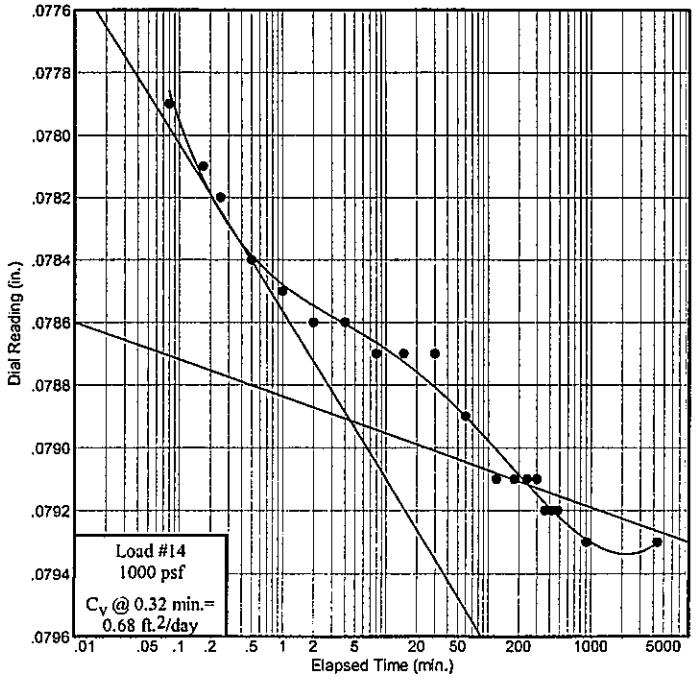


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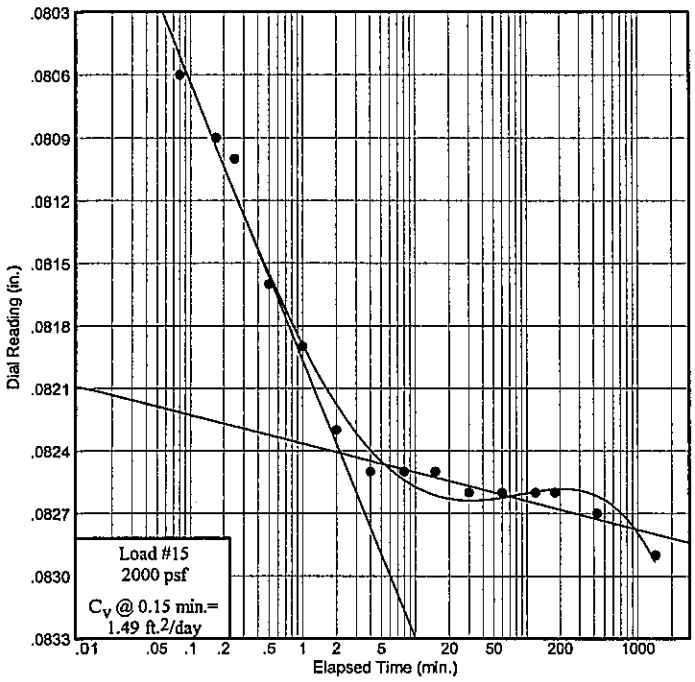
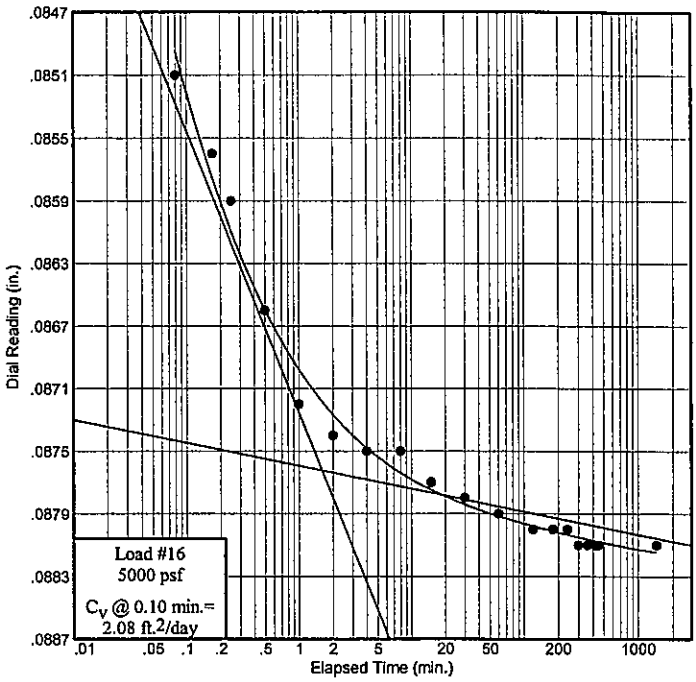
Figure

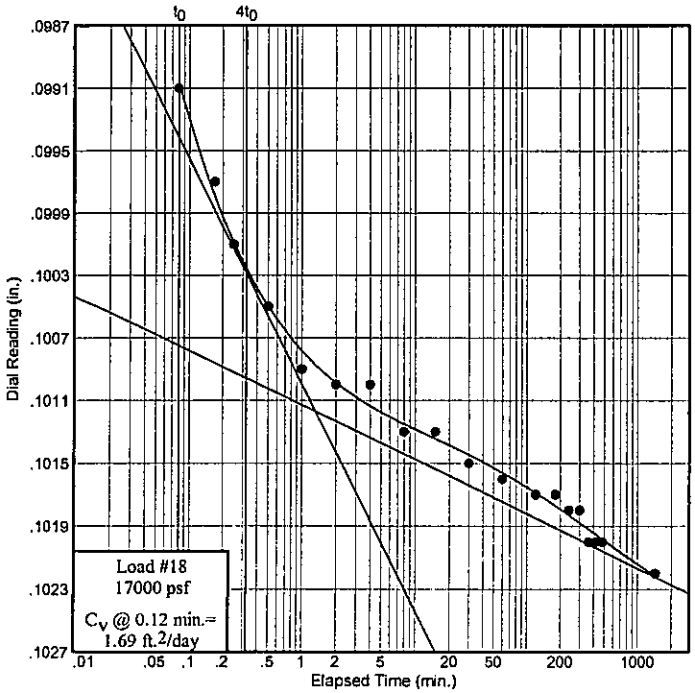
Dial Reading vs. Time

Project No.: 0121-3070.03
Project: SCI-823-0.00

Source: R-61 Sample No.: P-1 Elev./Depth: 6.0







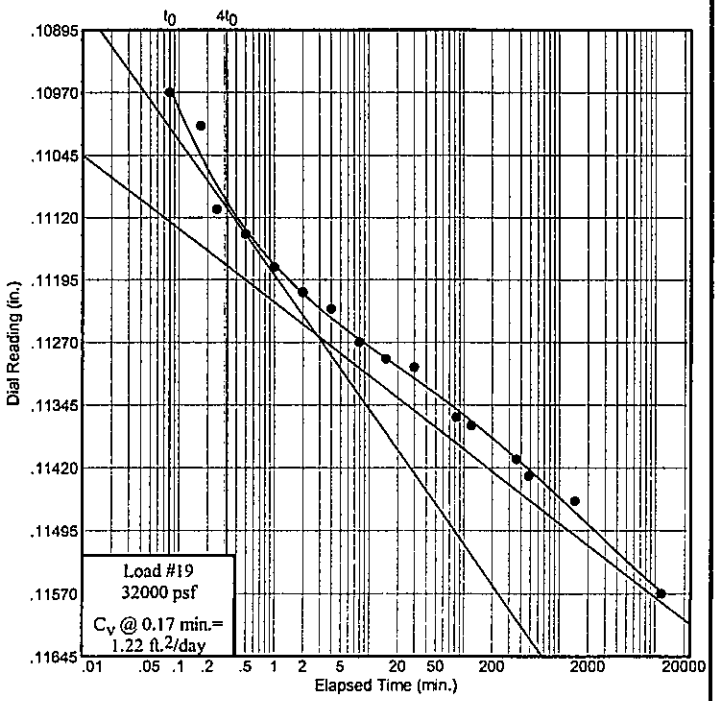


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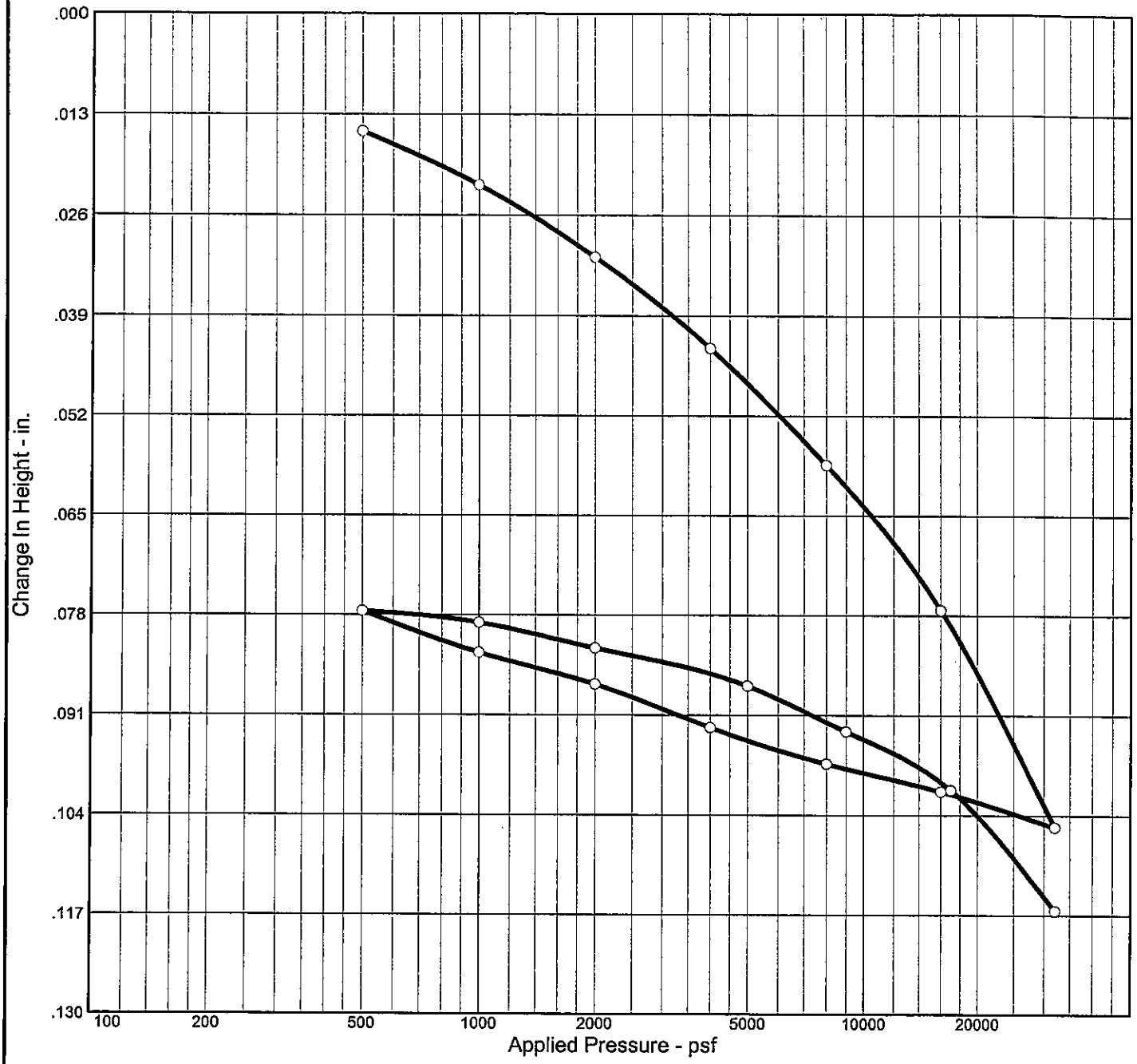
Figure

CONSOLIDATION TEST REPORT



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	USCS	AASHTO	Initial Void Ratio
Saturation	Moisture							
96.5 %	27.5 %	96.0	34	12	2.74	CL	A-6(11)	0.781

MATERIAL DESCRIPTION

Lean clay

Project No. 0121- **Client:** TranSystems, Inc.

Project: SCI-823-0.00

Source: R-64 **Sample No.:** P2 **Elev./Depth:** 18.0

DLZ

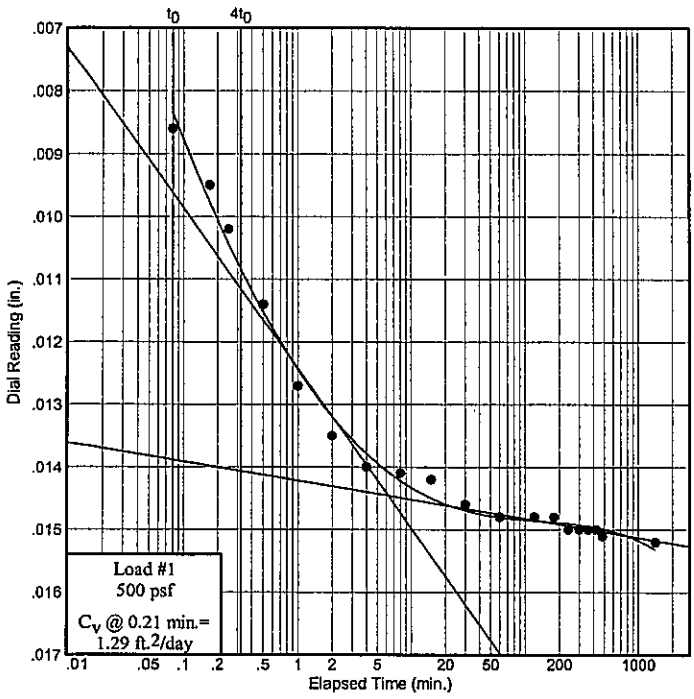
Remarks:

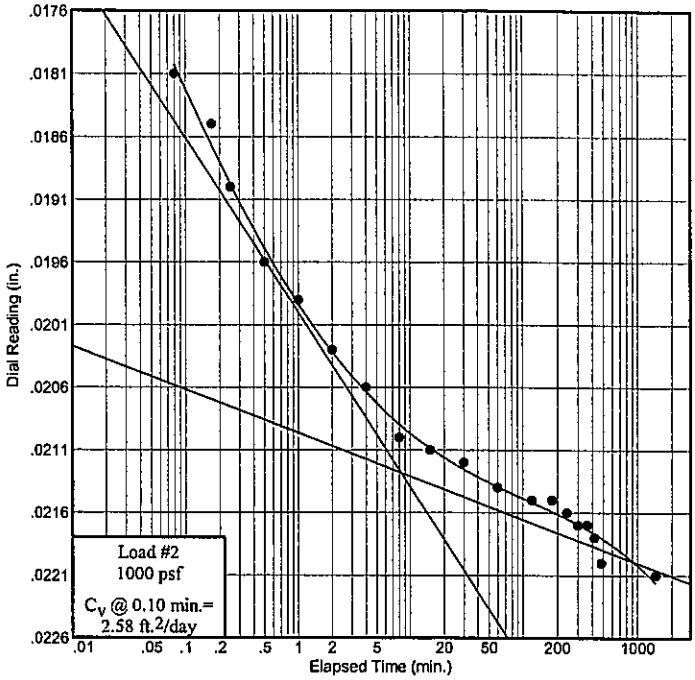
Figure

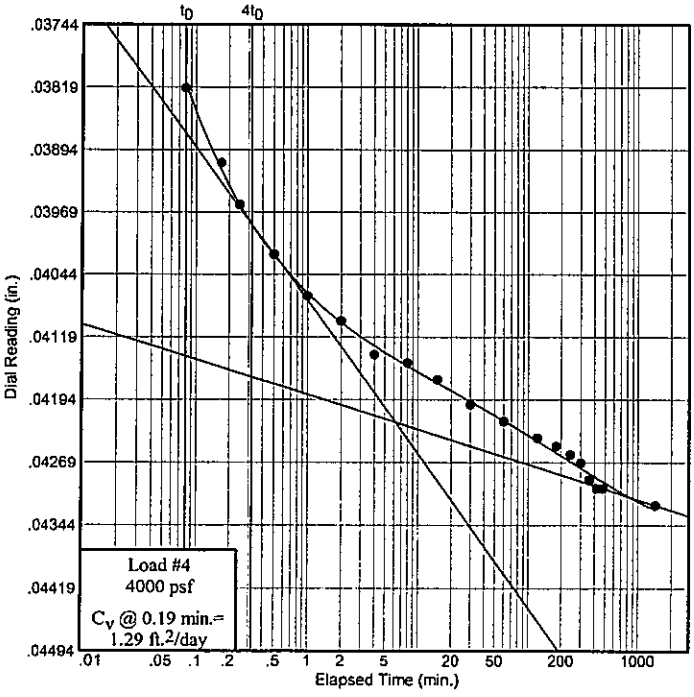
Dial Reading vs. Time

Project No.: 0121-3070.03
Project: SCI-823-0.00

Source: R-64 Sample No.: P2 Elev./Depth: 18.0







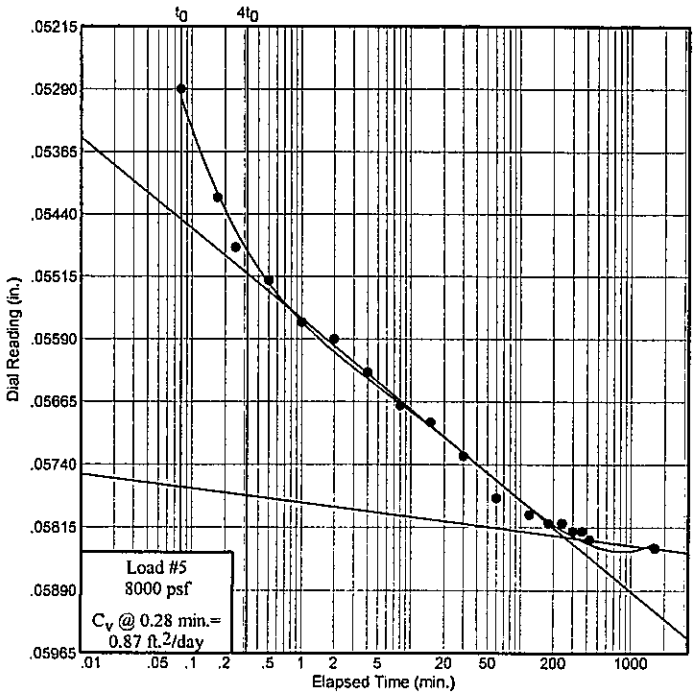


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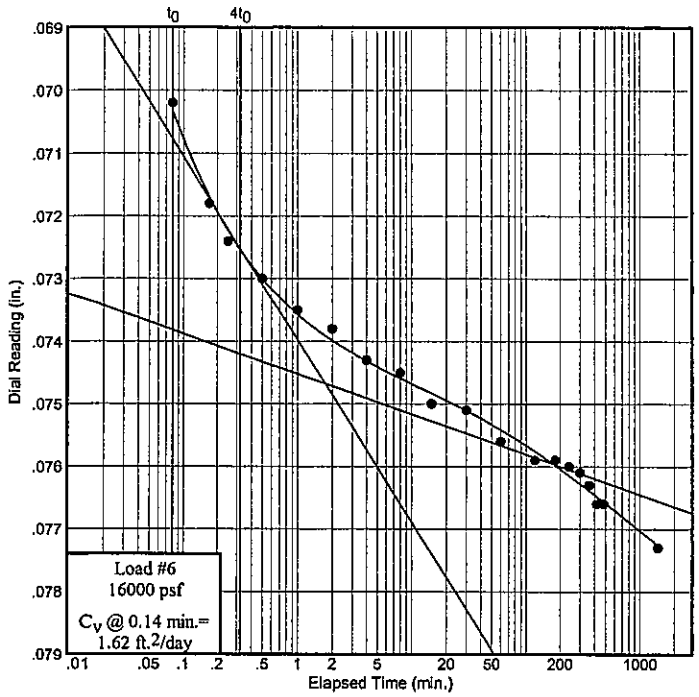
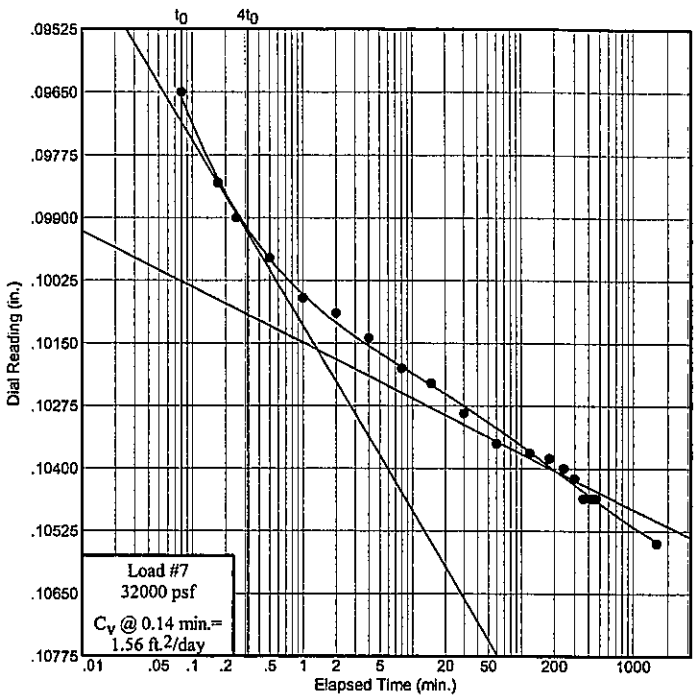
Figure

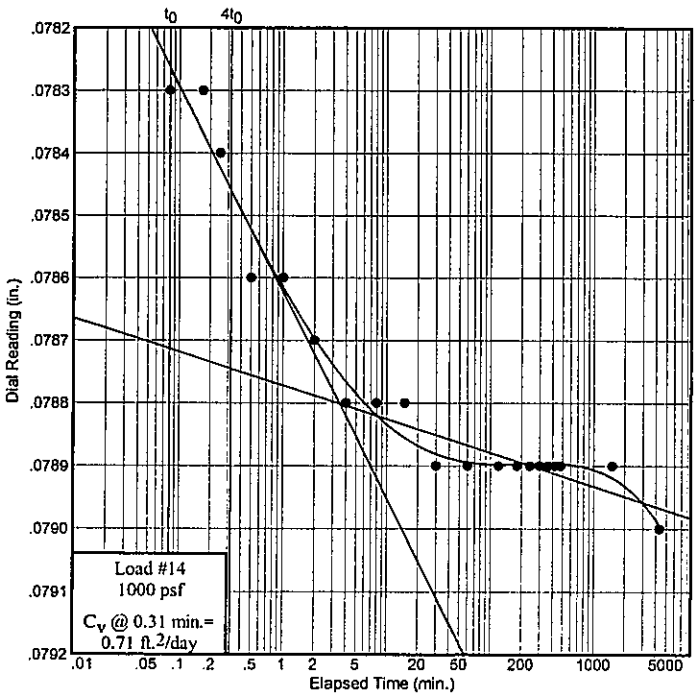
Dial Reading vs. Time

Project No.: 0121-3070.03
Project: SCI-823-0.00

Source: R-64 Sample No.: P2 Elev./Depth: 18.0







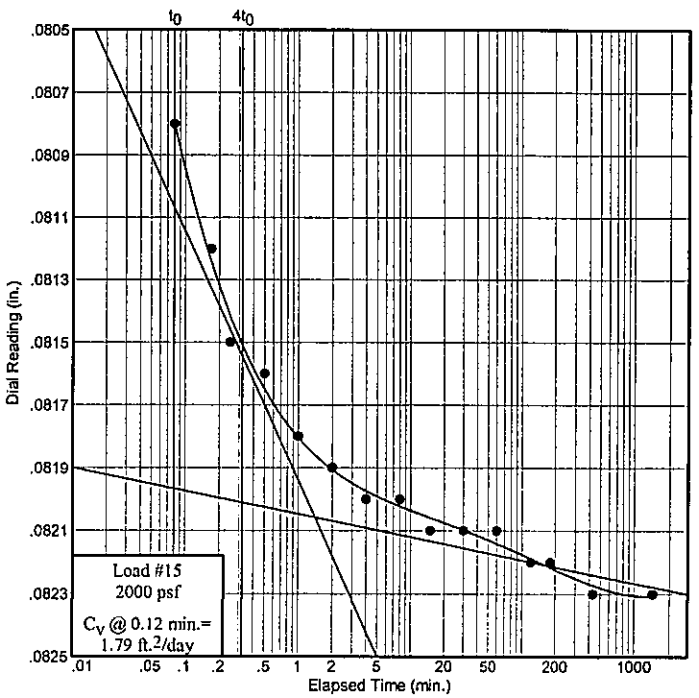


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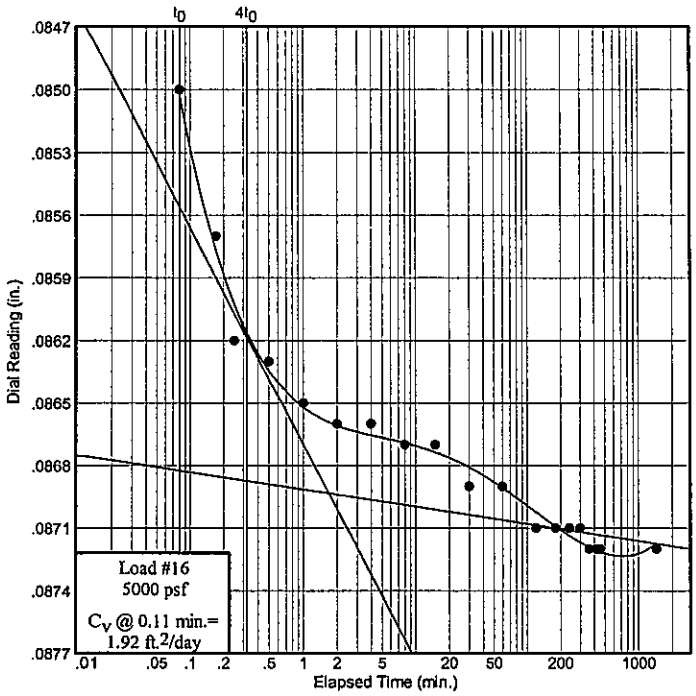
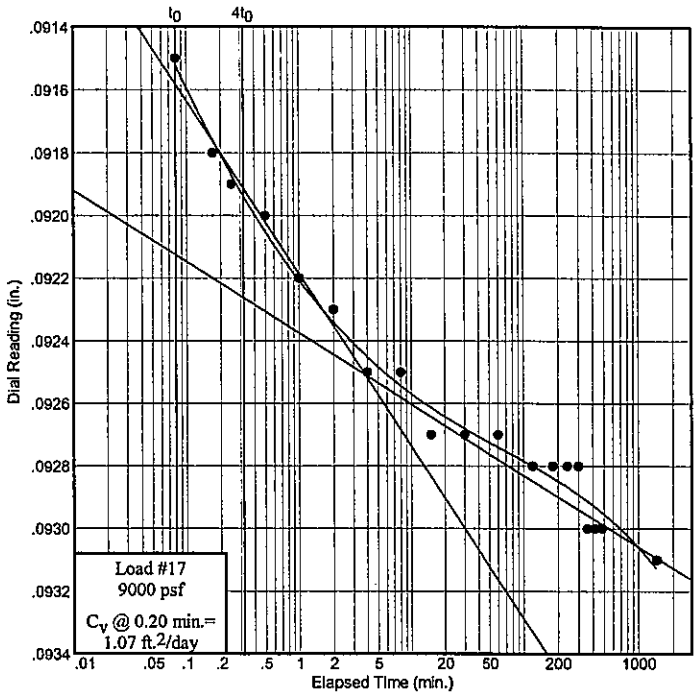
Figure

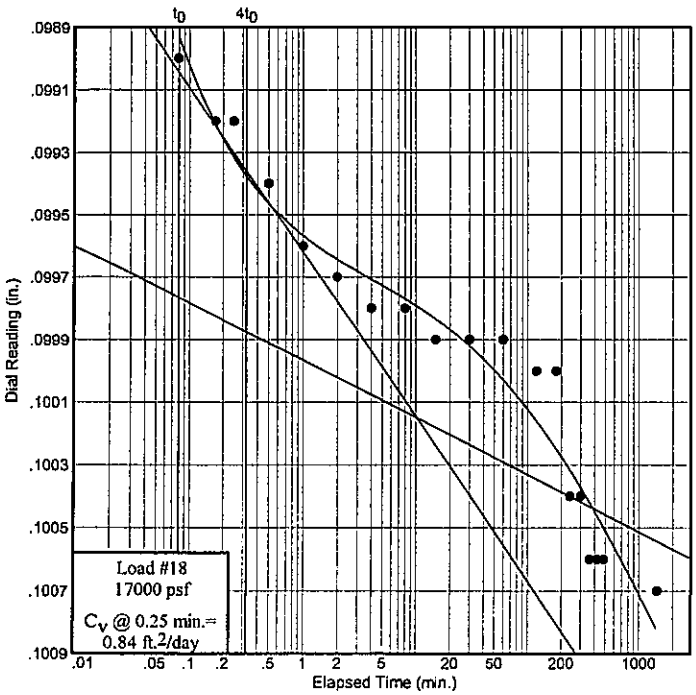
Dial Reading vs. Time

Project No.: 0121-3070.03
Project: SCI-823-0.00

Source: R-64 Sample No.: P2 Elev./Depth: 18.0







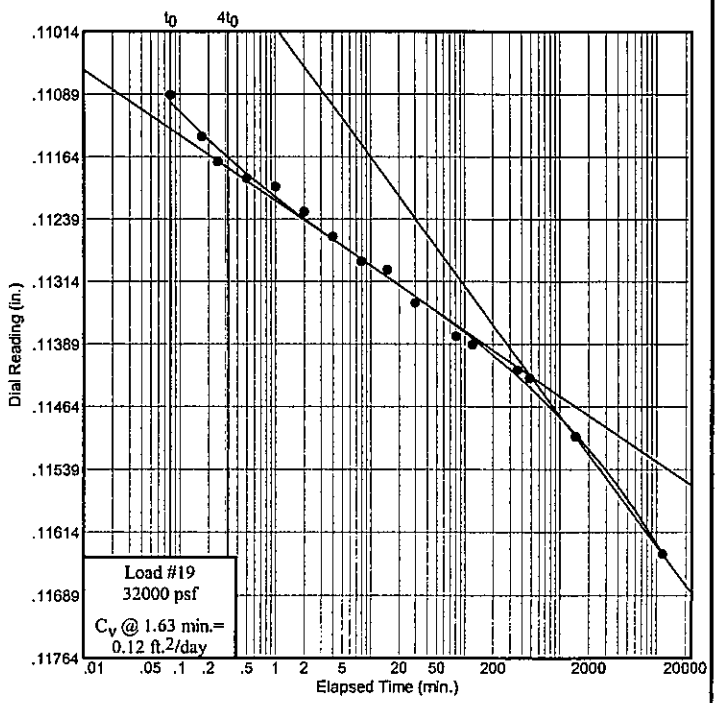


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Figure

CONSOLIDATION TEST DATA

Client: TranSystems, Inc.
Project: SCI-823-0.00
Project Number: 0121-3070.03

Sample Data

Source: TR-38A
Sample No.: P-2B
Elev. or Depth: 15.7 **Sample Length(in./cm.):** 25.5
Location:
Description:
Liquid Limit: 38 **Plasticity Index:** 16
USCS: CL **AASHTO:** A-6(17) **Figure No.:**
Testing Remarks:

Test Specimen Data

TOTAL SAMPLE		BEFORE TEST		AFTER TEST	
Wet w+t	= 191.37 g.	Consolidometer #	= 6	Wet w+t	= 215.10 g.
Dry w+t	= 164.69 g.			Dry w+t	= 182.96 g.
Tare Wt.	= 65.13 g.	Spec. Gravity	= 2.77	Tare Wt.	= 62.10 g.
Height	= 1.00 in.	Height	= 1.00 in.		
Diameter	= 2.50 in.	Diameter	= 2.50 in.		
Weight	= 153.73 g.	Defl. Table	= n/a		
Moisture	= 26.8 %	Ht. Solids	= 0.5441 in.	Moisture	= 26.6 %
Wet Den.	= 119.3 pcf	Dry Wt.	= 121.24 g.*	Dry Wt.	= 120.86 g.
Dry Den.	= 94.1 pcf	Void Ratio	= 0.838	Void Ratio	= 0.650
Ovrbrdn.	= 0 psf	Saturation	= 88.6 %		

* Initial dry weight used in calculations

End-of-Load Summary

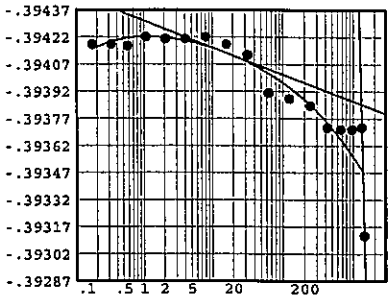
Pressure (psf)	Final Dial (in.)	Machine Defl. (in.)	C_v (ft.^{2}/day)	C_α	Void Ratio	% Compression /Swell
start	-0.39417				0.838	
500000	-0.39312	0.00000	0.01	0.016	0.836	0.1 Comprs.
1000000	-0.38837	0.00000	3.22	0.000	0.827	0.6 Comprs.
2000000	-0.38000	0.00000	3.94		0.812	1.4 Comprs.
4000000	-0.36733	0.00000		0.017	0.788	2.7 Comprs.
8000000	-0.35151	0.00000	1.12	0.014	0.759	4.3 Comprs.
.6000000	-0.33238	0.00000	1.26	0.015	0.724	6.2 Comprs.
32000000	-0.30673	0.00000	0.78	0.015	0.677	8.7 Comprs.
10000000	-0.29742	0.00000	0.16	0.013	0.660	9.7 Comprs.
32000000	-0.29755	0.00000	0.01		0.660	9.7 Comprs.
.6000000	-0.30475	0.00000	0.44	0.000	0.673	8.9 Comprs.
8000000	-0.31183	0.00000	3.07	0.000	0.686	8.2 Comprs.
4000000	-0.31833	0.00000			0.698	7.6 Comprs.
2000000	-0.32377	0.00000	2.96		0.708	7.0 Comprs.
1000000	-0.32887	0.00000	1.29		0.718	6.5 Comprs.

Pressure (psf)	Final Dial (in.)	Machine Defl. (in.)	C_v (ft.^{2}/day)	C_α	Void Ratio	% Compression /Swell
500000	-0.33306	0.00000	0.65		0.726	6.1 Comprs.
1000000	-0.33283	0.00000	0.04		0.725	6.1 Comprs.
2000000	-0.33049	0.00000	2.09		0.721	6.4 Comprs.
4000000	-0.32564	0.00000		0.002	0.712	6.9 Comprs.
8000000	-0.31870	0.00000	3.46	0.016	0.699	7.5 Comprs.
16000000	-0.31040	0.00000		0.000	0.684	8.4 Comprs.
32000000	-0.29757	0.00000	1.98	0.017	0.660	9.7 Comprs.
10000000	-0.29224	0.00000	0.07	0.002	0.650	10.2 Comprs.

C_c = 0.18 P_c = 9116 psf C_r = 0.04

Pressure: 500000 psf **TEST READINGS** **Load No. 1**

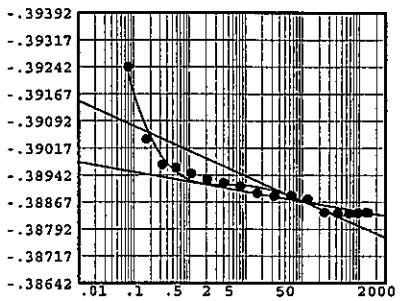
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.39417	11	64.10	-0.39391
2	0.17	-0.39418	12	124.10	-0.39388
3	0.33	-0.39418	13	244.00	-0.39384
4	0.58	-0.39417	14	424.10	-0.39372
5	1.08	-0.39422	15	664.10	-0.39371
6	2.08	-0.39421	16	964.10	-0.39371
7	4.08	-0.39421	17	1324.10	-0.39372
8	8.10	-0.39422	18	1440.10	-0.39312
9	16.10	-0.39418			
10	32.10	-0.39412			



Void Ratio = 0.836 Compression = 0.1 %
D_0 = -0.39417 D_{50} = -0.39401 D_{100} = -0.39385
C_v at 68.9 min. = 0.01 ft.^{2}/day C_α = 0.016

Pressure: 1000000 psf **TEST READINGS** **Load No. 2**

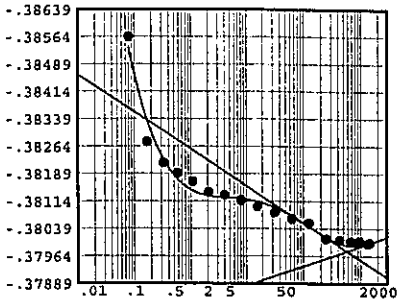
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.39311	11	32.10	-0.38884
2	0.08	-0.39242	12	64.10	-0.38885
3	0.17	-0.39042	13	124.10	-0.38875
4	0.33	-0.38971	14	244.10	-0.38839
5	0.58	-0.38962	15	424.10	-0.38836
6	1.08	-0.38946	16	664.10	-0.38836
7	2.08	-0.38929	17	964.10	-0.38837
8	4.08	-0.38920	18	1324.10	-0.38838
9	8.08	-0.38911	19	1440.47	-0.38837
10	16.08	-0.38892			



Void Ratio = 0.827 Compression = 0.6 %
D_0 = -0.39311 D_{50} = -0.39089 D_{100} = -0.38868
C_v at 0.2 min. = 3.22 ft.^{2}/day C_α = 0.000

Pressure: 2000000 psf | TEST READINGS | Load No. 3

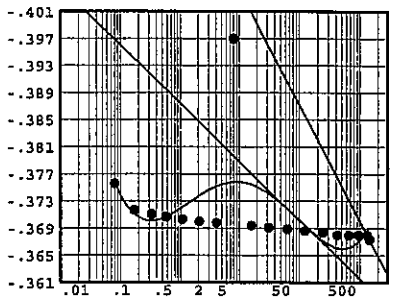
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.38837	11	32.08	-0.38083
2	0.08	-0.38563	12	64.08	-0.38066
3	0.17	-0.38276	13	124.08	-0.38054
4	0.33	-0.38218	14	244.08	-0.38011
5	0.58	-0.38190	15	424.10	-0.38008
6	1.08	-0.38168	16	664.10	-0.38004
7	2.08	-0.38138	17	964.10	-0.38005
8	4.08	-0.38131	18	1324.10	-0.37998
9	8.08	-0.38116	19	1440.03	-0.38000
10	16.08	-0.38099			



Void Ratio = 0.812 Compression = 1.4 %
D_0 = -0.38837 D_{50} = -0.38407 D_{100} = -0.37978
C_v at 0.1 min. = 3.94 ft.^{2}/day

Pressure: 4000000 psf | TEST READINGS | Load No. 4

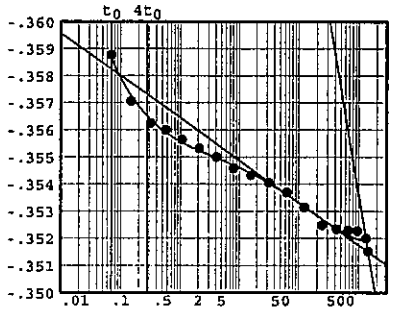
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.38000	11	32.10	-0.36907
2	0.08	-0.37556	12	64.10	-0.36883
3	0.17	-0.37166	13	124.10	-0.36860
4	0.33	-0.37105	14	244.10	-0.36836
5	0.58	-0.37065	15	424.10	-0.36802
6	1.08	-0.37032	16	664.10	-0.36797
7	2.08	-0.36999	17	964.10	-0.36798
8	4.10	-0.36978	18	1324.10	-0.36796
9	8.10	-0.39696	19	1440.48	-0.36733
10	16.10	-0.36935			



Void Ratio = 0.788 Compression = 2.7 %

Pressure: 8000000 psf | TEST READINGS | Load No. 5

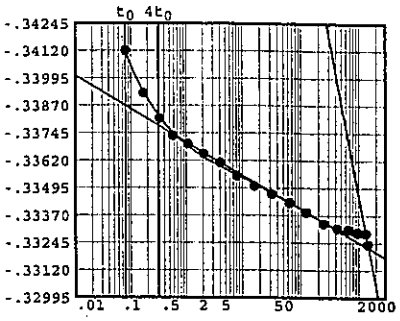
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.36732	11	32.08	-0.35405
2	0.07	-0.35877	12	64.08	-0.35368
3	0.15	-0.35705	13	124.08	-0.35314
4	0.32	-0.35624	14	244.08	-0.35248
5	0.57	-0.35599	15	424.08	-0.35233
6	1.07	-0.35563	16	664.08	-0.35229
7	2.08	-0.35531	17	964.08	-0.35226
8	4.08	-0.35499	18	1324.10	-0.35199
9	8.08	-0.35458	19	1440.02	-0.35151
10	16.08	-0.35432			



Void Ratio = 0.759 Compression = 4.3 %
D_0 = -0.36079 D_{50} = -0.35614 D_{100} = -0.35149
C_v at 0.4 min. = 1.12 ft.^{2}/day C_α = 0.014

Pressure: 16000000 psf — TEST READINGS — Load No. 6

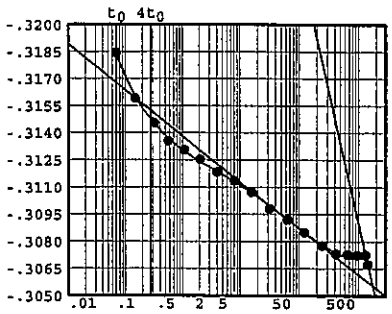
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.35151	11	32.08	-0.33467
2	0.08	-0.34120	12	64.08	-0.33427
3	0.17	-0.33926	13	124.08	-0.33384
4	0.33	-0.33812	14	244.08	-0.33333
5	0.58	-0.33732	15	424.08	-0.33311
6	1.08	-0.33694	16	664.08	-0.33306
7	2.08	-0.33650	17	964.08	-0.33292
8	4.08	-0.33609	18	1324.08	-0.33289
9	8.08	-0.33550	19	1440.22	-0.33238
10	16.08	-0.33502			



Void Ratio = 0.724 Compression = 6.2 %
D_0 = -0.34400 D_{50} = -0.33811 D_{100} = -0.33221
C_v at 0.4 min. = 1.26 ft.^{2}/day C_α = 0.015

Pressure: 32000000 psf — TEST READINGS — Load No. 7

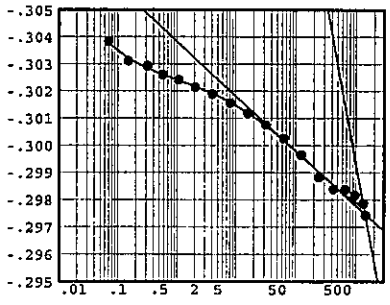
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.33238	11	32.08	-0.30981
2	0.07	-0.31842	12	64.08	-0.30920
3	0.15	-0.31590	13	124.08	-0.30849
4	0.32	-0.31455	14	244.08	-0.30777
5	0.57	-0.31355	15	424.08	-0.30730
6	1.08	-0.31305	16	664.08	-0.30728
7	2.08	-0.31253	17	964.08	-0.30725
8	4.08	-0.31183	18	1324.08	-0.30726
9	8.08	-0.31135	19	1440.02	-0.30673
10	16.08	-0.31071			



Void Ratio = 0.677 Compression = 8.7 %
D_0 = -0.32192 D_{50} = -0.31375 D_{100} = -0.30557
C_v at 0.5 min. = 0.78 ft.^{2}/day C_α = 0.015

Pressure: 40000000 psf — TEST READINGS — Load No. 8

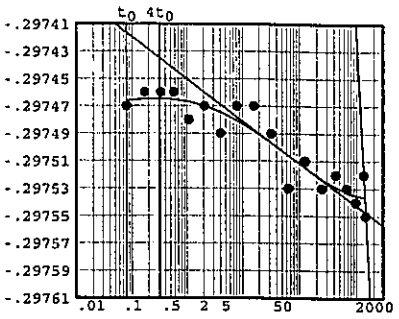
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.30673	11	32.08	-0.30075
2	0.07	-0.30383	12	64.08	-0.30025
3	0.15	-0.30310	13	124.08	-0.29964
4	0.32	-0.30292	14	244.08	-0.29882
5	0.58	-0.30259	15	424.08	-0.29839
6	1.08	-0.30241	16	664.08	-0.29836
7	2.08	-0.30213	17	964.08	-0.29816
8	4.08	-0.30189	18	1324.08	-0.29786
9	8.08	-0.30156	19	1440.37	-0.29742
10	16.08	-0.30118			



Void Ratio = 0.660 Compression = 9.7 %
D_0 = -0.30673 D_{50} = -0.30210 D_{100} = -0.29747
C_v at 2.5 min. = 0.16 ft.^{2}/day C_α = 0.013

Pressure: 32000000 psf — TEST READINGS — Load No. 9

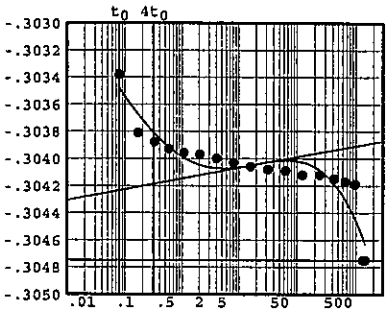
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.29742	11	32.08	-0.29749
2	0.08	-0.29747	12	64.08	-0.29753
3	0.17	-0.29746	13	124.08	-0.29751
4	0.33	-0.29746	14	244.08	-0.29753
5	0.58	-0.29746	15	424.08	-0.29752
6	1.08	-0.29748	16	664.08	-0.29753
7	2.08	-0.29747	17	964.10	-0.29754
8	4.08	-0.29749	18	1324.10	-0.29752
9	8.08	-0.29747	19	1440.40	-0.29755
10	16.08	-0.29747			



Void Ratio = 0.660 Compression = 9.7 %
D_0 = -0.29747 D_{50} = -0.29751 D_{100} = -0.29755
C_v at 71.8 min. = 0.01 ft.^{2}/day

Pressure: 16000000 psf — TEST READINGS — Load No. 10

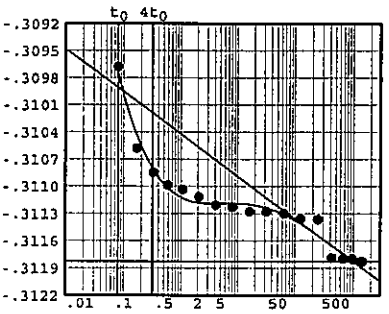
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.29754	11	32.10	-0.30408
2	0.08	-0.30338	12	64.10	-0.30409
3	0.17	-0.30381	13	124.10	-0.30412
4	0.33	-0.30388	14	244.10	-0.30412
5	0.58	-0.30393	15	424.10	-0.30415
6	1.08	-0.30396	16	664.10	-0.30417
7	2.08	-0.30397	17	964.10	-0.30419
8	4.08	-0.30400	18	1324.10	-0.30475
9	8.08	-0.30403	19	1440.48	-0.30475
10	16.08	-0.30406			



Void Ratio = 0.673 Compression = 8.9 %
D_0 = -0.30315 D_{50} = -0.30395 D_{100} = -0.30475
C_v at 0.9 min. = 0.44 ft.^{2}/day C_α = 0.000

Pressure: 8000000 psf — TEST READINGS — Load No. 11

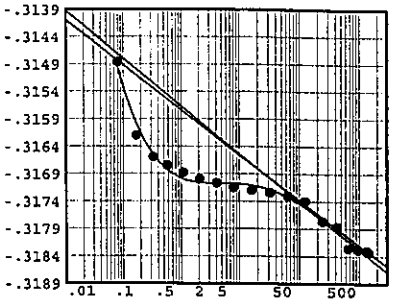
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.30475	11	32.10	-0.31128
2	0.08	-0.30968	12	64.10	-0.31130
3	0.17	-0.31058	13	124.10	-0.31136
4	0.33	-0.31085	14	244.10	-0.31137
5	0.58	-0.31099	15	424.10	-0.31179
6	1.08	-0.31104	16	664.10	-0.31180
7	2.10	-0.31112	17	964.10	-0.31180
8	4.10	-0.31121	18	1324.12	-0.31183
9	8.10	-0.31123	19	1440.35	-0.31183
10	16.10	-0.31128			



Void Ratio = 0.686 Compression = 8.2 %
D_0 = -0.30869 D_{50} = -0.31026 D_{100} = -0.31183
C_v at 0.1 min. = 3.07 ft.^{2}/day C_α = 0.000

Pressure: 4000000 psf — TEST READINGS — Load No. 12

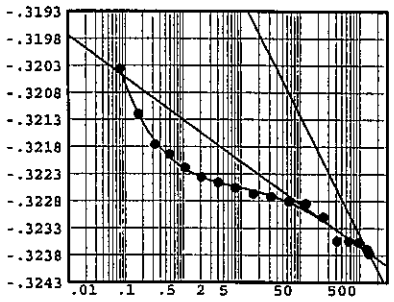
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.31183	11	32.10	-0.31724
2	0.08	-0.31486	12	64.10	-0.31730
3	0.17	-0.31620	13	124.10	-0.31740
4	0.33	-0.31660	14	244.10	-0.31776
5	0.58	-0.31675	15	424.10	-0.31786
6	1.08	-0.31688	16	664.10	-0.31826
7	2.08	-0.31700	17	964.10	-0.31828
8	4.10	-0.31707	18	1324.10	-0.31830
9	8.10	-0.31715	19	1440.35	-0.31833
10	16.10	-0.31720			



Void Ratio = 0.698 Compression = 7.6 %

Pressure: 2000000 psf — TEST READINGS — Load No. 13

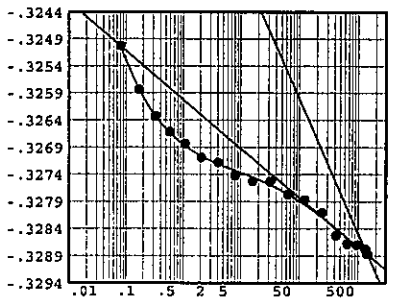
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.31833	11	32.10	-0.32272
2	0.08	-0.32037	12	64.10	-0.32281
3	0.17	-0.32120	13	124.10	-0.32285
4	0.33	-0.32176	14	244.10	-0.32310
5	0.58	-0.32194	15	424.10	-0.32354
6	1.08	-0.32219	16	664.10	-0.32354
7	2.08	-0.32236	17	964.10	-0.32356
8	4.08	-0.32246	18	1324.10	-0.32369
9	8.08	-0.32256	19	1440.48	-0.32377
10	16.10	-0.32267			



Void Ratio = 0.708 Compression = 7.0 %
D_0 = -0.31833 D_{50} = -0.32104 D_{100} = -0.32375
C_v at 0.1 min. = 2.96 ft.^{2}/day

Pressure: 1000000 psf — TEST READINGS — Load No. 14

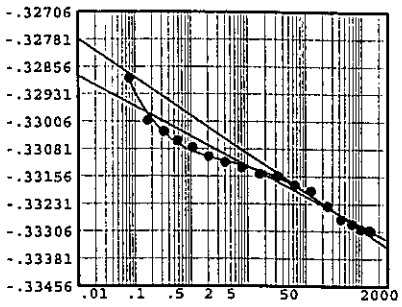
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.32378	11	32.10	-0.32753
2	0.08	-0.32503	12	64.10	-0.32777
3	0.17	-0.32584	13	124.10	-0.32787
4	0.33	-0.32633	14	244.10	-0.32811
5	0.58	-0.32662	15	424.10	-0.32853
6	1.08	-0.32684	16	664.10	-0.32868
7	2.08	-0.32709	17	964.10	-0.32870
8	4.08	-0.32718	18	1324.10	-0.32878
9	8.08	-0.32742	19	1440.13	-0.32887
10	16.08	-0.32753			



Void Ratio = 0.718 Compression = 6.5 %
D_0 = -0.32378 D_{50} = -0.32633 D_{100} = -0.32888
C_v at 0.3 min. = 1.29 ft.^{2}/day

Pressure: 500000 psf | TEST READINGS | Load No. 15

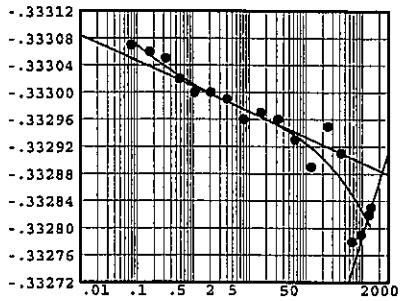
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.32887	11	32.08	-0.33155
2	0.08	-0.32888	12	64.10	-0.33179
3	0.17	-0.33003	13	124.10	-0.33196
4	0.33	-0.33034	14	244.10	-0.33237
5	0.58	-0.33059	15	424.10	-0.33274
6	1.08	-0.33078	16	664.10	-0.33286
7	2.08	-0.33102	17	964.10	-0.33300
8	4.08	-0.33118	18	1324.10	-0.33303
9	8.08	-0.33132	19	1440.33	-0.33306
10	16.08	-0.33149			



Void Ratio = 0.726 Compression = 6.1 %
D_0 = -0.32887 D_{50} = -0.33072 D_{100} = -0.33257
C_v at 0.7 min. = 0.65 ft.^{2}/day

Pressure: 1000000 psf | TEST READINGS | Load No. 16

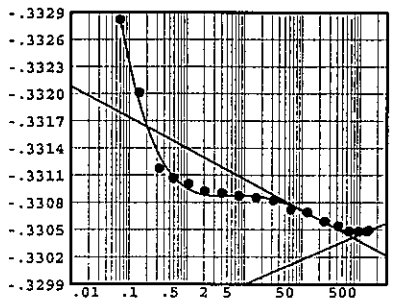
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.33306	11	32.08	-0.33296
2	0.08	-0.33307	12	64.08	-0.33293
3	0.17	-0.33306	13	124.08	-0.33289
4	0.33	-0.33305	14	244.10	-0.33295
5	0.58	-0.33302	15	424.10	-0.33291
6	1.08	-0.33300	16	664.10	-0.33278
7	2.08	-0.33300	17	964.10	-0.33279
8	4.08	-0.33299	18	1324.10	-0.33282
9	8.08	-0.33296	19	1440.23	-0.33283
10	16.08	-0.33297			



Void Ratio = 0.725 Compression = 6.1 %
D_0 = -0.33306 D_{50} = -0.33297 D_{100} = -0.33288
C_v at 10.0 min. = 0.04 ft.^{2}/day

Pressure: 2000000 psf | TEST READINGS | Load No. 17

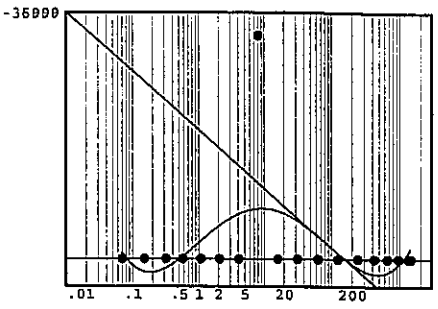
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.33283	11	32.08	-0.33082
2	0.07	-0.33282	12	64.08	-0.33072
3	0.15	-0.33201	13	124.08	-0.33069
4	0.33	-0.33117	14	244.08	-0.33059
5	0.58	-0.33106	15	424.10	-0.33054
6	1.08	-0.33100	16	664.10	-0.33048
7	2.08	-0.33092	17	964.10	-0.33048
8	4.08	-0.33090	18	1324.10	-0.33048
9	8.08	-0.33087	19	1440.10	-0.33049
10	16.08	-0.33085			



Void Ratio = 0.721 Compression = 6.4 %
D_0 = -0.33283 D_{50} = -0.33162 D_{100} = -0.33041
C_v at 0.2 min. = 2.09 ft.^{2}/day

Pressure: 4000000 psf — TEST READINGS — Load No. 18

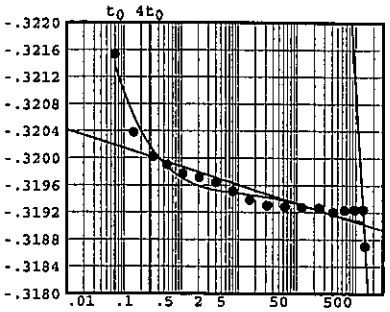
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.33049	11	32.08	-0.32615
2	0.07	-0.32800	12	64.08	-0.32604
3	0.15	-0.32686	13	124.08	-0.32578
4	0.32	-0.32656	14	244.08	-0.32576
5	0.58	-0.32642	15	424.10	-0.32574
6	1.08	-0.32635	16	664.10	-0.32572
7	2.08	-0.32629	17	964.10	-0.32571
8	4.08	-0.32625	18	1324.10	-0.32570
9	8.08	-32623.0000	19	1440.05	-0.32564
10	16.08	-0.32620			



Void Ratio = 0.712 Compression = 6.9 %

Pressure: 8000000 psf — TEST READINGS — Load No. 19

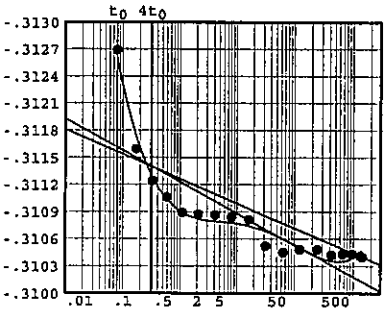
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.32564	11	32.08	-0.31930
2	0.07	-0.32153	12	64.08	-0.31928
3	0.15	-0.32038	13	124.08	-0.31927
4	0.32	-0.32002	14	244.08	-0.31926
5	0.57	-0.31990	15	424.08	-0.31920
6	1.07	-0.31977	16	664.08	-0.31923
7	2.07	-0.31971	17	964.08	-0.31924
8	4.07	-0.31964	18	1324.08	-0.31924
9	8.08	-0.31951	19	1440.28	-0.31870
10	16.08	-0.31938			



Void Ratio = 0.699 Compression = 7.5 %
D_0 = -0.32255 D_{50} = -0.32079 D_{100} = -0.31903
C_v at 0.1 min. = 3.46 ft.^{2}/day C_α = 0.016

Pressure: 16000000 psf — TEST READINGS — Load No. 20

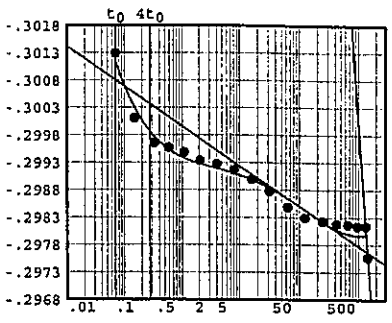
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.31869	11	32.10	-0.31052
2	0.08	-0.31269	12	64.10	-0.31045
3	0.17	-0.31159	13	124.10	-0.31048
4	0.33	-0.31124	14	244.10	-0.31048
5	0.58	-0.31106	15	424.10	-0.31042
6	1.10	-0.31089	16	664.10	-0.31043
7	2.10	-0.31087	17	964.10	-0.31043
8	4.10	-0.31086	18	1324.10	-0.31041
9	8.10	-0.31084	19	1440.30	-0.31040
10	16.10	-0.31081			



Void Ratio = 0.684 Compression = 8.4 %

Pressure: 32000000 psf | TEST READINGS | Load No. 21

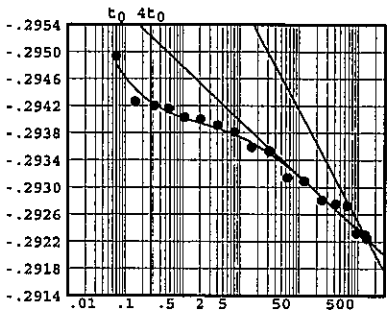
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.31040	11	32.08	-0.29878
2	0.07	-0.30129	12	64.08	-0.29849
3	0.15	-0.30011	13	124.08	-0.29829
4	0.33	-0.29965	14	244.08	-0.29823
5	0.58	-0.29957	15	424.08	-0.29818
6	1.08	-0.29948	16	664.08	-0.29817
7	2.08	-0.29933	17	964.08	-0.29814
8	4.08	-0.29927	18	1324.08	-0.29814
9	8.08	-0.29916	19	1440.00	-0.29757
10	16.08	-0.29899			



Void Ratio = 0.660 Compression = 9.7 %
D_0 = -0.30244 D_{50} = -0.30005 D_{100} = -0.29767
C_v at 0.2 min. = 1.98 ft.^{2}/day C_α = 0.017

Pressure: 40000000 psf | TEST READINGS | Load No. 22

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.29757	11	32.08	-0.29353
2	0.07	-0.29493	12	64.08	-0.29314
3	0.15	-0.29426	13	124.08	-0.29309
4	0.32	-0.29420	14	244.08	-0.29281
5	0.57	-0.29415	15	424.08	-0.29275
6	1.07	-0.29403	16	664.08	-0.29273
7	2.08	-0.29400	17	964.10	-0.29232
8	4.08	-0.29391	18	1324.10	-0.29230
9	8.08	-0.29381	19	1440.35	-0.29224
10	16.08	-0.29359			



Void Ratio = 0.650 Compression = 10.2 %
D_0 = -0.29540 D_{50} = -0.29382 D_{100} = -0.29223
C_v at 6.1 min. = 0.07 ft.^{2}/day C_α = 0.002

CONSOLIDATION TEST DATA

Client: TranSystems, Inc.
Project: SCI-823-0.00
Project Number: 0121-3070.03

Sample Data

Source: TR-38A
Sample No.: P-4B
Elev. or Depth: 45.8 **Sample Length(in./cm.):** 14.4
Location:
Description:
Liquid Limit: 38 **Plasticity Index:** 15
USCS: CL **AASHTO:** A-6(17) **Figure No.:**
Testing Remarks:

Test Specimen Data

TOTAL SAMPLE		BEFORE TEST	AFTER TEST
Wet w+t =	234.95 g.	Consolidometer # = 5	Wet w+t = 214.57 g.
Dry w+t =	202.20 g.		Dry w+t = 189.22 g.
Tare Wt. =	56.84 g.	Spec. Gravity = 2.76	Tare Wt. = 60.86 g.
Height =	1.00 in.	Height = 1.00 in.	
Diameter =	2.50 in.	Diameter = 2.50 in.	
Weight =	159.44 g.	Defl. Table = n/a	
Moisture =	22.5 %	Ht. Solids = 0.5861 in.	Moisture = 19.7 %
Wet Den. =	123.7 pcf	Dry Wt. = 130.12 g.*	Dry Wt. = 128.36 g.
Dry Den. =	101.0 pcf	Void Ratio = 0.706	Void Ratio = 0.455
		Saturation = 88.1 %	

* Initial dry weight used in calculations

End-of-Load Summary

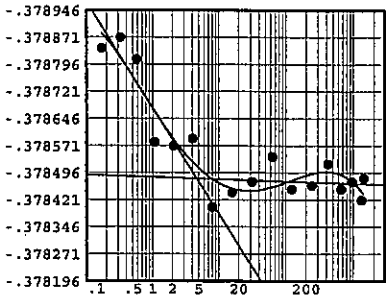
Pressure (psf)	Final Dial (in.)	Machine Defl. (in.)	C_v (ft.^{2}/day)	C_α	Void Ratio	% Compression /Swell
start	-0.37877				0.706	
500000	-0.37848	0.00000	0.30	0.000	0.706	0.0 Comprs.
1000000	-0.37258	0.00000	0.09	0.086	0.696	0.6 Comprs.
2000000	-0.36105	0.00000	0.21	0.001	0.676	1.8 Comprs.
4000000	-0.34570	0.00000	0.70	0.001	0.650	3.3 Comprs.
8000000	-0.32629	0.00000	0.02	0.008	0.617	5.2 Comprs.
.6000000	-0.30394	0.00000	1.19	0.002	0.579	7.5 Comprs.
32000000	-0.27822	0.00000	1.39	0.002	0.535	10.1 Comprs.
64000000	-0.24742	0.00000	1.53	0.002	0.482	13.1 Comprs.
30000000	-0.23637	0.00000		0.002	0.463	14.2 Comprs.
64000000	-0.23965	0.00000	0.17	0.001	0.469	13.9 Comprs.
32000000	-0.25005	0.00000	1.84		0.487	12.9 Comprs.
.6000000	-0.26051	0.00000	3.48		0.504	11.8 Comprs.
8000000	-0.27147	0.00000	0.29		0.523	10.7 Comprs.
4000000	-0.28229	0.00000			0.542	9.6 Comprs.

Pressure (psf)	Final Dial (in.)	Machine Defl. (in.)	C_v (ft.^{2}/day)	C_α	Void Ratio	% Compression /Swell
2000000	-0.29385	0.00000	0.55		0.561	8.5 Comprs.
1000000	-0.30442	0.00000	0.03		0.579	7.4 Comprs.
500000	-0.31516	0.00000	0.02		0.598	6.4 Comprs.
1[illegible]0000	-0.31193	0.00000	0.83		0.592	6.7 Comprs.
2000000	-0.30572	0.00000	0.09		0.582	7.3 Comprs.
4000000	-0.29735	0.00000	0.18	0.001	0.567	8.1 Comprs.
8000000	-0.28616	0.00000	0.23	0.001	0.548	9.3 Comprs.
16000000	-0.27324	0.00000	0.72	0.001	0.526	10.6 Comprs.
32000000	-0.25759	0.00000	1.42	0.001	0.499	12.1 Comprs.
64000000	-0.23915	0.00000	3.18	0.001	0.468	14.0 Comprs.
30000000	-0.23163	0.00000	1.28	0.005	0.455	14.7 Comprs.

C_c = 0.19 P_c = 3242 psf C_r = 0.07

Pressure: 500000 psf **TEST READINGS** **Load No. 1**

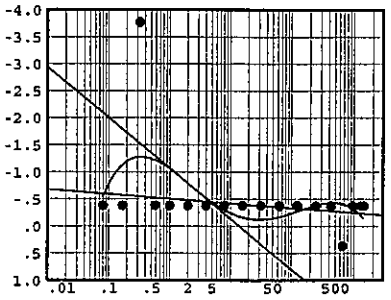
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.37877	11	64.00	-0.37854
2	0.17	-0.37884	12	124.00	-0.37845
3	0.33	-0.37887	13	244.00	-0.37846
4	0.58	-0.37881	14	424.00	-0.37852
5	1.08	-0.37858	15	664.00	-0.37845
6	2.08	-0.37857	16	964.00	-0.37847
7	4.08	-0.37859	17	1324.00	-0.37842
8	8.00	-0.37840	18	1440.00	-0.37848
9	16.00	-0.37844			
	32.00	-0.37847			



Void Ratio = 0.706 Compression = 0.0 %
D_0 = -0.37877 D_{50} = -0.37862 D_{100} = -0.37848
C_v at 1.6 min. = 0.30 ft.^{2}/day C_α = 0.000

Pressure: 1000000 psf **TEST READINGS** **Load No. 2**

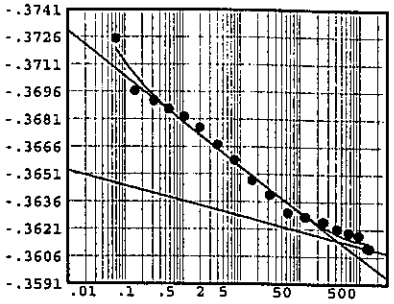
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.37847	11	32.00	-0.37482
2	0.08	-0.37829	12	64.00	-0.37436
3	0.17	-0.37674	13	124.00	-0.37407
4	0.33	-3.76662	14	244.00	-0.37385
5	0.58	-0.37636	15	424.00	-0.37351
6	1.00	-0.37636	16	664.00	0.37306
7	2.00	-0.37631	17	964.00	-0.37284
8	4.00	-0.37587	18	1324.00	-0.37260
9	8.00	-0.37551	19	1440.00	-0.37258
10	16.00	-0.37512			



Void Ratio = 0.696 Compression = 0.6 %
D_0 = -0.37847 D_{50} = -0.41382 D_{100} = -0.44918
C_v at 5.4 min. = 0.09 ft.^{2}/day C_α = 0.086

Pressure: 2000000 psf — TEST READINGS — Load No. 3

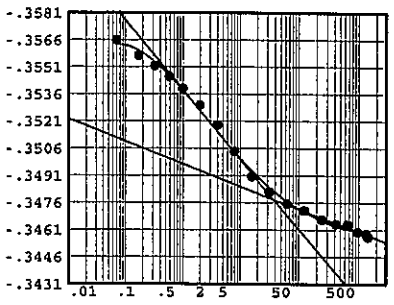
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.37259	11	32.00	-0.36397
2	0.07	-0.37252	12	64.00	-0.36299
3	0.15	-0.36966	13	124.00	-0.36276
4	0.32	-0.36910	14	244.00	-0.36250
5	0.57	-0.36867	15	424.00	-0.36211
6	1.07	-0.36824	16	664.00	-0.36190
7	2.00	-0.36764	17	964.00	-0.36175
8	4.00	-0.36670	18	1324.00	-0.36108
9	8.00	-0.36587	19	1440.00	-0.36105
10	16.00	-0.36476			



Void Ratio = 0.676 Compression = 1.8 %
D_0 = -0.37259 D_{50} = -0.36704 D_{100} = -0.36149
C_v at 2.3 min. = 0.21 ft.^{2}/day C_α = 0.001

Pressure: 4000000 psf — TEST READINGS — Load No. 4

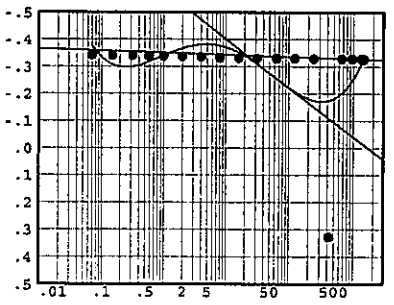
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.36105	11	32.00	-0.34818
2	0.07	-0.35657	12	64.00	-0.34754
3	0.17	-0.35572	13	124.00	-0.34716
4	0.33	-0.35516	14	244.00	-0.34667
5	0.58	-0.35455	15	424.00	-0.34641
6	1.00	-0.35390	16	664.00	-0.34638
7	2.00	-0.35298	17	964.00	-0.34599
8	4.00	-0.35188	18	1324.00	-0.34589
9	8.00	-0.35043	19	1440.00	-0.34570
10	16.00	-0.34903			



Void Ratio = 0.650 Compression = 3.3 %
D_0 = -0.36105 D_{50} = -0.35441 D_{100} = -0.34777
C_v at 0.7 min. = 0.70 ft.^{2}/day C_α = 0.001

Pressure: 8000000 psf — TEST READINGS — Load No. 5

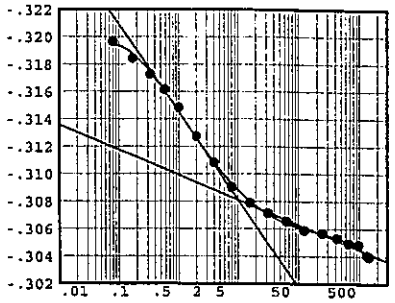
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.34570	11	32.00	-0.32954
2	0.07	-0.34066	12	64.00	-0.32884
3	0.15	-0.33893	13	124.00	-0.32871
4	0.32	-0.33816	14	244.00	-0.32809
5	0.58	-0.33749	15	424.00	0.32772
6	1.00	-0.33653	16	664.00	-0.32762
7	2.00	-0.33511	17	964.00	-0.32758
8	4.00	-0.33350	18	1324.00	-0.32657
9	8.00	-0.33194	19	1440.00	-0.32629
10	16.00	-0.33038			



Void Ratio = 0.617 Compression = 5.2 %
D_0 = -0.34570 D_{50} = -0.34299 D_{100} = -0.34028
C_v at 18.6 min. = 0.02 ft.^{2}/day C_α = 0.008

Pressure: 16000000 psf — TEST READINGS — Load No. 6

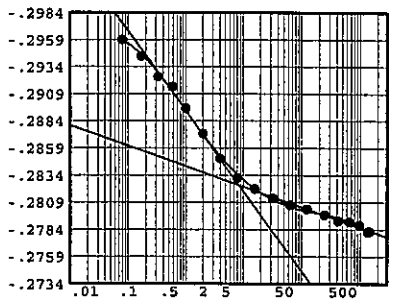
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.32633	11	32.00	-0.30714
2	0.08	-0.31966	12	64.00	-0.30654
3	0.17	-0.31841	13	124.00	-0.30588
4	0.33	-0.31727	14	244.00	-0.30567
5	0.58	-0.31616	15	424.00	-0.30532
6	1.00	-0.31482	16	664.00	-0.30495
7	2.00	-0.31275	17	964.00	-0.30483
8	4.00	-0.31084	18	1324.00	-0.30408
9	8.00	-0.30903	19	1440.00	-0.30394
10	16.00	-0.30788			



Void Ratio = 0.579 Compression = 7.5 %
D_0 = -0.32633 D_{50} = -0.31722 D_{100} = -0.30810
C_v at 0.4 min. = 1.19 ft.^{2}/day C_α = 0.002

Pressure: 32000000 psf — TEST READINGS — Load No. 7

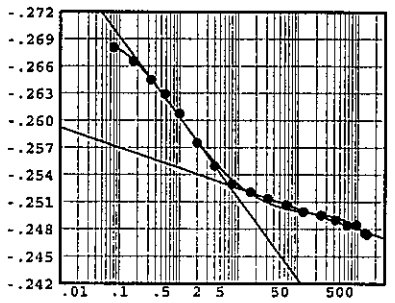
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.30391	11	32.00	-0.28130
2	0.08	-0.29589	12	64.00	-0.28065
3	0.17	-0.29436	13	124.00	-0.28028
4	0.33	-0.29246	14	244.00	-0.27974
5	0.58	-0.29153	15	424.00	-0.27920
6	1.00	-0.28955	16	664.00	-0.27910
7	2.00	-0.28722	17	964.00	-0.27882
8	4.00	-0.28492	18	1324.00	-0.27818
9	8.00	-0.28311	19	1440.00	-0.27822
10	16.00	-0.28213			



Void Ratio = 0.535 Compression = 10.1 %
D_0 = -0.30391 D_{50} = -0.29319 D_{100} = -0.28248
C_v at 0.3 min. = 1.39 ft.^{2}/day C_α = 0.002

Pressure: 64000000 psf — TEST READINGS — Load No. 8

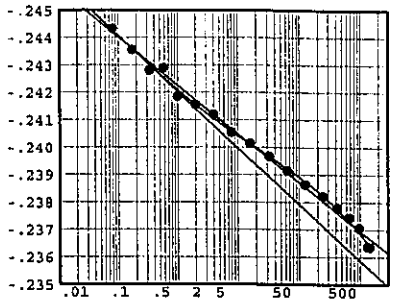
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.27823	11	32.00	-0.25135
2	0.08	-0.26804	12	64.00	-0.25065
3	0.17	-0.26654	13	124.00	-0.24990
4	0.33	-0.26445	14	244.00	-0.24949
5	0.58	-0.26288	15	424.00	-0.24896
6	1.00	-0.26072	16	664.00	-0.24841
7	2.00	-0.25750	17	964.00	-0.24844
8	4.00	-0.25491	18	1324.00	-0.24754
9	8.00	-0.25293	19	1440.00	-0.24742
10	16.00	-0.25204			



Void Ratio = 0.482 Compression = 13.1 %
D_0 = -0.27823 D_{50} = -0.26554 D_{100} = -0.25285
C_v at 0.3 min. = 1.53 ft.^{2}/day C_α = 0.002

Pressure: 80000000 psf — TEST READINGS — Load No. 9

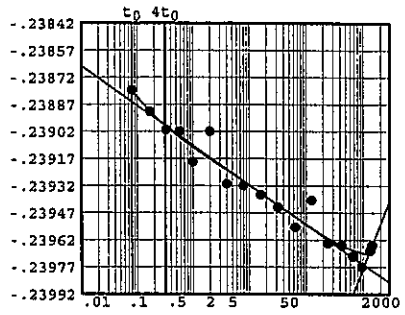
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.24741	11	32.00	-0.23968
2	0.08	-0.24432	12	64.00	-0.23914
3	0.17	-0.24355	13	124.00	-0.23865
4	0.33	-0.24280	14	244.00	-0.23822
5	0.58	-0.24289	15	424.00	-0.23780
6	1.00	-0.24185	16	664.00	-0.23744
7	2.00	-0.24156	17	964.00	-0.23706
8	4.00	-0.24119	18	1324.00	-0.23639
9	8.00	-0.24054	19	1440.00	-0.23637
10	16.00	-0.24014			



Void Ratio = 0.463 Compression = 14.2 %

Pressure: 64000000 psf — TEST READINGS — Load No. 10

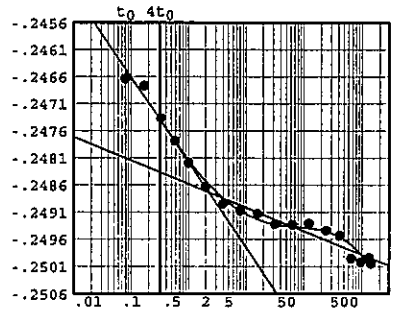
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.23638	11	32.00	-0.23944
2	0.08	-0.23879	12	64.00	-0.23955
3	0.17	-0.23891	13	124.00	-0.23940
4	0.33	-0.23901	14	244.00	-0.23964
5	0.58	-0.23902	15	424.00	-0.23965
6	1.00	-0.23919	16	664.00	-0.23971
7	2.00	-0.23902	17	964.00	-0.23977
8	4.00	-0.23931	18	1324.00	-0.23968
9	8.00	-0.23932	19	1440.00	-0.23965
10	16.00	-0.23937			



Void Ratio = 0.469 Compression = 13.9 %
D_0 = -0.23859 D_{50} = -0.23918 D_{100} = -0.23976
C_v at 2.1 min. = 0.17 ft.^{2}/day C_α = 0.001

Pressure: 32000000 psf — TEST READINGS — Load No. 11

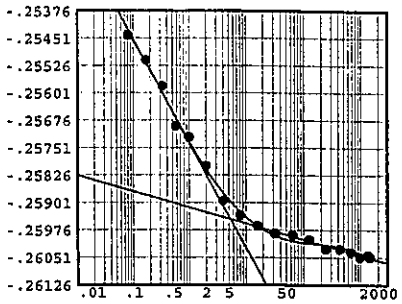
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.23965	11	32.00	-0.24932
2	0.08	-0.24664	12	64.00	-0.24933
3	0.17	-0.24677	13	124.00	-0.24931
4	0.33	-0.24737	14	244.00	-0.24944
5	0.58	-0.24779	15	424.00	-0.24953
6	1.00	-0.24820	16	664.00	-0.24995
7	2.00	-0.24864	17	964.00	-0.25002
8	4.00	-0.24895	18	1324.00	-0.24994
9	8.00	-0.24907	19	1440.00	-0.25005
10	16.00	-0.24913			



Void Ratio = 0.487 Compression = 12.9 %
D_0 = -0.24562 D_{50} = -0.24718 D_{100} = -0.24874
C_v at 0.2 min. = 1.84 ft.^{2}/day

Pressure: 16000000 psf — TEST READINGS — Load No. 12

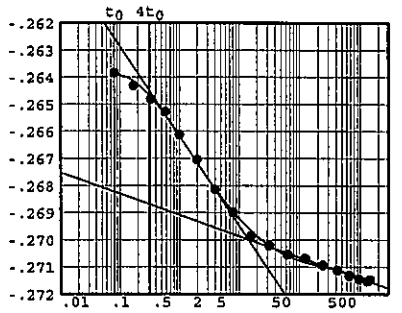
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.25007	11	32.00	-0.25985
2	0.08	-0.25443	12	64.00	-0.25989
3	0.17	-0.25511	13	124.00	-0.26002
4	0.33	-0.25583	14	244.00	-0.26028
5	0.58	-0.25692	15	424.00	-0.26028
6	1.00	-0.25722	16	664.00	-0.26037
7	2.00	-0.25801	17	964.00	-0.26050
8	4.00	-0.25896	18	1324.00	-0.26045
9	8.00	-0.25936	19	1440.00	-0.26051
10	16.00	-0.25964			



Void Ratio = 0.504 Compression = 11.8 %
D_0 = -0.25007 D_{50} = -0.25477 D_{100} = -0.25946
C_v at 0.1 min. = 3.48 ft.^{2}/day

Pressure: 8000000 psf — TEST READINGS — Load No. 13

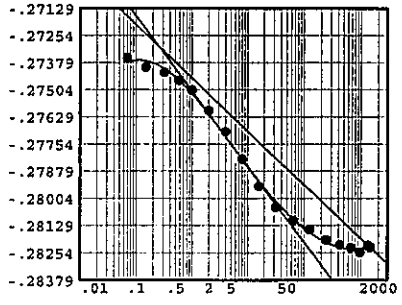
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.26070	11	32.00	-0.27022
2	0.08	-0.26384	12	64.00	-0.27055
3	0.17	-0.26432	13	124.00	-0.27069
4	0.33	-0.26481	14	244.00	-0.27094
5	0.58	-0.26529	15	424.00	-0.27112
6	1.00	-0.26613	16	664.00	-0.27132
7	2.00	-0.26705	17	964.00	-0.27146
8	4.00	-0.26815	18	1324.00	-0.27153
9	8.00	-0.26899	19	1440.00	-0.27147
10	16.00	-0.26985			



Void Ratio = 0.523 Compression = 10.7 %
D_0 = -0.26314 D_{50} = -0.26656 D_{100} = -0.26999
C_v at 1.3 min. = 0.29 ft.^{2}/day

Pressure: 4000000 psf — TEST READINGS — Load No. 14

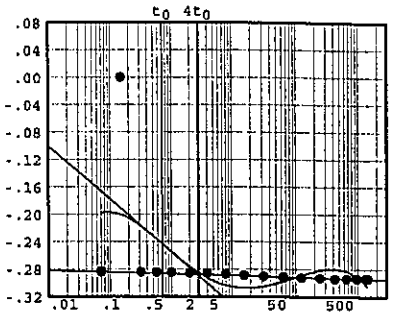
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.27148	11	32.00	-0.28046
2	0.07	-0.27358	12	64.00	-0.28107
3	0.15	-0.27401	13	124.00	-0.28148
4	0.32	-0.27425	14	244.00	-0.28195
5	0.58	-0.27462	15	424.00	-0.28218
6	1.00	-0.27507	16	664.00	-0.28232
7	2.00	-0.27601	17	964.00	-0.28253
8	4.00	-0.27698	18	1324.00	-0.28220
9	8.00	-0.27824	19	1440.00	-0.28229
10	16.00	-0.27950			



Void Ratio = 0.542 Compression = 9.6 %

Pressure: 2000000 psf | TEST READINGS | Load No. 15

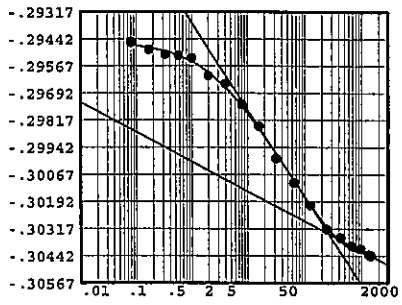
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.28238	11	32.00	-0.29042
2	0.07	-0.28358	12	64.00	-0.29137
3	0.15	.0000-28390	13	124.00	-0.29233
4	0.32	-0.28412	14	244.00	-0.29301
5	0.57	-0.28455	15	424.00	-0.29376
6	1.00	-0.28475	16	664.00	-0.29378
7	2.00	-0.28575	17	964.00	-0.29396
8	4.00	-0.28626	18	1324.00	-0.29391
9	8.00	-0.28724	19	1440.00	-0.29385
10	16.00	-0.28908			



Void Ratio = 0.561 Compression = 8.5 %
D_0 = -0.20095 D_{50} = -0.24442 D_{100} = -0.28789
C_v at 0.7 min. = 0.55 ft.^{2}/day

Pressure: 1000000 psf | TEST READINGS | Load No. 16

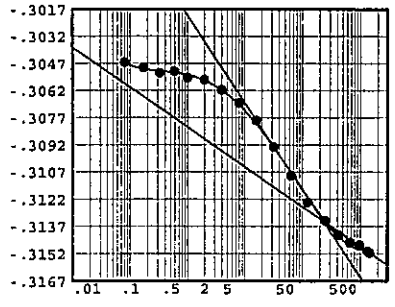
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.29385	11	32.00	-0.29994
2	0.08	-0.29458	12	64.00	-0.30104
3	0.17	-0.29491	13	124.00	-0.30210
4	0.33	-0.29513	14	244.00	-0.30319
5	0.58	-0.29519	15	424.00	-0.30358
6	1.00	-0.29531	16	664.00	-0.30397
7	2.00	-0.29613	17	964.00	-0.30411
8	4.00	-0.29649	18	1324.00	-0.30437
9	8.00	-0.29746	19	1440.00	-0.30442
10	16.00	-0.29844			



Void Ratio = 0.579 Compression = 7.4 %
D_0 = -0.29385 D_{50} = -0.29863 D_{100} = -0.30341
C_v at 16.6 min. = 0.03 ft.^{2}/day

Pressure: 500000 psf | TEST READINGS | Load No. 17

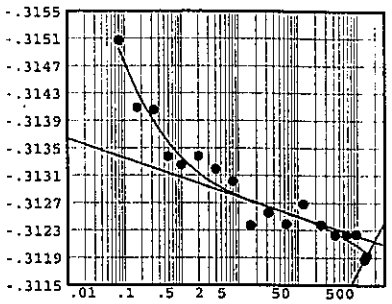
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.30441	11	32.00	-0.30933
2	0.08	-0.30465	12	64.00	-0.31091
3	0.17	-0.30496	13	124.00	-0.31238
4	0.33	-0.30523	14	244.00	-0.31337
5	0.58	-0.30514	15	424.00	-0.31417
6	1.00	-0.30551	16	664.00	-0.31459
7	2.00	-0.30561	17	964.00	-0.31474
8	4.00	-0.30617	18	1324.00	-0.31508
9	8.00	-0.30691	19	1440.00	-0.31516
10	16.00	-0.30786			



Void Ratio = 0.598 Compression = 6.4 %
D_0 = -0.30441 D_{50} = -0.30892 D_{100} = -0.31342
C_v at 25.9 min. = 0.02 ft.^{2}/day

Pressure: 1000000 psf — TEST READINGS — Load No. 18

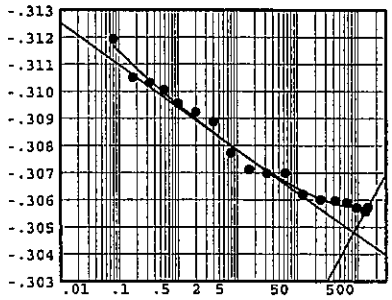
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.31515	11	32.00	-0.31255
2	0.08	-0.31507	12	64.00	-0.31239
3	0.17	-0.31409	13	124.00	-0.31268
4	0.33	-0.31405	14	244.00	-0.31238
5	0.58	-0.31337	15	424.00	-0.31223
6	1.00	-0.31325	16	664.00	-0.31223
7	2.00	-0.31338	17	964.00	-0.31224
8	4.00	-0.31319	18	1324.00	-0.31187
9	8.00	-0.31301	19	1440.00	-0.31193
10	16.00	-0.31237			



Void Ratio = 0.592 Compression = 6.7 %
D_0 = -0.31515 D_{50} = -0.31364 D_{100} = -0.31214
C_v at 0.5 min. = 0.83 ft.^{2}/day

Pressure: 2000000 psf — TEST READINGS — Load No. 19

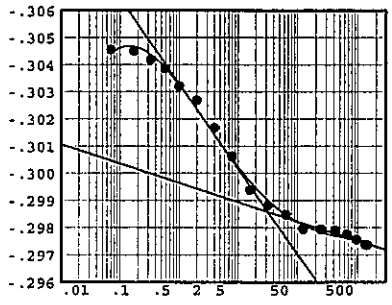
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.31194	11	32.00	-0.30697
2	0.08	-0.31194	12	64.00	-0.30699
3	0.17	-0.31051	13	124.00	-0.30619
4	0.33	-0.31032	14	244.00	-0.30600
5	0.58	-0.31004	15	424.00	-0.30596
6	1.00	-0.30955	16	664.00	-0.30589
7	2.00	-0.30923	17	964.00	-0.30571
8	4.00	-0.30888	18	1324.00	-0.30557
9	8.00	-0.30773	19	1440.00	-0.30572
10	16.00	-0.30711			



Void Ratio = 0.582 Compression = 7.3 %
D_0 = -0.31194 D_{50} = -0.30837 D_{100} = -0.30480
C_v at 4.7 min. = 0.09 ft.^{2}/day

Pressure: 4000000 psf — TEST READINGS — Load No. 20

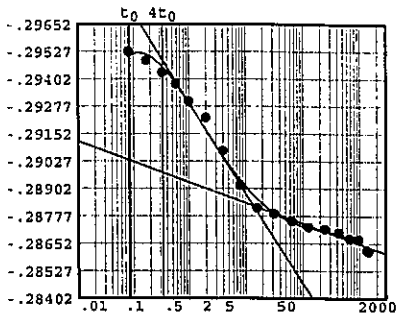
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.30573	11	32.00	-0.29880
2	0.07	-0.30455	12	64.00	-0.29848
3	0.17	-0.30449	13	124.00	-0.29795
4	0.33	-0.30419	14	244.00	-0.29793
5	0.58	-0.30385	15	424.00	-0.29788
6	1.00	-0.30321	16	664.00	-0.29775
7	2.00	-0.30268	17	964.00	-0.29756
8	4.00	-0.30167	18	1324.00	-0.29738
9	8.00	-0.30062	19	1440.00	-0.29735
10	16.00	-0.29938			



Void Ratio = 0.567 Compression = 8.1 %
D_0 = -0.30573 D_{50} = -0.30215 D_{100} = -0.29858
C_v at 2.3 min. = 0.18 ft.^{2}/day C_α = 0.001

Pressure: 8000000 psf — TEST READINGS — Load No. 21

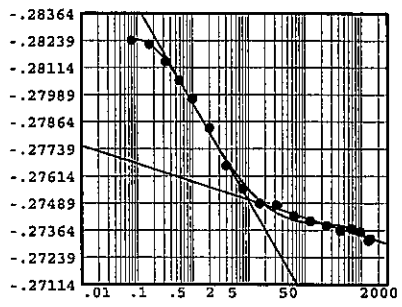
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.29736	11	32.00	-0.28787
2	0.08	-0.29527	12	64.00	-0.28755
3	0.17	-0.29486	13	124.00	-0.28726
4	0.33	-0.29431	14	244.00	-0.28718
5	0.58	-0.29379	15	424.00	-0.28701
6	1.00	-0.29300	16	664.00	-0.28673
7	2.00	-0.29225	17	964.00	-0.28670
8	4.00	-0.29073	18	1324.00	-0.28621
9	8.00	-0.28915	19	1440.00	-0.28616
10	16.00	-0.28814			



Void Ratio = 0.548 Compression = 9.3 %
D_0 = -0.29559 D_{50} = -0.29192 D_{100} = -0.28824
C_v at 1.8 min. = 0.23 ft.^{2}/day C_α = 0.001

Pressure: 16000000 psf — TEST READINGS — Load No. 22

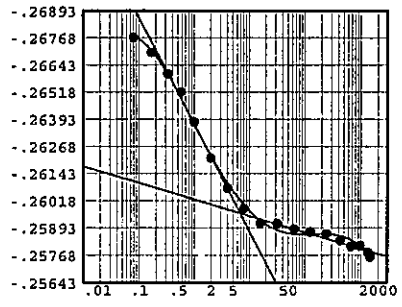
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.28616	11	32.00	-0.27478
2	0.08	-0.28238	12	64.00	-0.27428
3	0.17	-0.28221	13	124.00	-0.27405
4	0.33	-0.28141	14	244.00	-0.27386
5	0.58	-0.28055	15	424.00	-0.27361
6	1.00	-0.27970	16	664.00	-0.27371
7	2.00	-0.27835	17	964.00	-0.27358
8	4.00	-0.27661	18	1324.00	-0.27317
9	8.00	-0.27555	19	1440.00	-0.27324
10	16.00	-0.27486			



Void Ratio = 0.526 Compression = 10.6 %
D_0 = -0.28616 D_{50} = -0.28061 D_{100} = -0.27506
C_v at 0.6 min. = 0.72 ft.^{2}/day C_α = 0.001

Pressure: 32000000 psf — TEST READINGS — Load No. 23

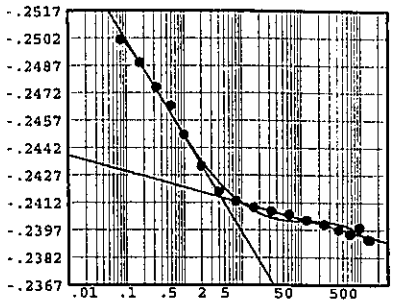
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.27324	11	32.00	-0.25913
2	0.08	-0.26768	12	64.00	-0.25887
3	0.17	-0.26700	13	124.00	-0.25874
4	0.33	-0.26601	14	244.00	-0.25866
5	0.58	-0.26518	15	424.00	-0.25835
6	1.00	-0.26379	16	664.00	-0.25806
7	2.00	-0.26214	17	964.00	-0.25810
8	4.00	-0.26076	18	1324.00	-0.25780
9	8.00	-0.25982	19	1440.00	-0.25759
10	16.00	-0.25914			



Void Ratio = 0.499 Compression = 12.1 %
D_0 = -0.27324 D_{50} = -0.26642 D_{100} = -0.25961
C_v at 0.3 min. = 1.42 ft.^{2}/day C_α = 0.001

Pressure: 64000000 psf TEST READINGS Load No. 24

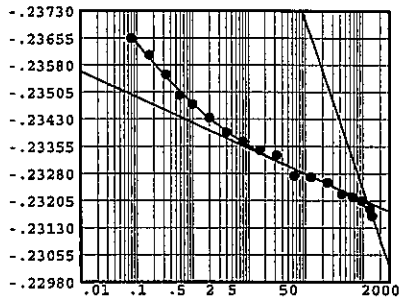
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.25763	11	32.00	-0.24072
2	0.08	-0.25012	12	64.00	-0.24056
3	0.17	-0.24888	13	124.00	-0.24023
4	0.33	-0.24750	14	244.00	-0.24000
5	0.58	-0.24649	15	424.00	-0.23970
6	1.00	-0.24492	16	664.00	-0.23948
7	2.00	-0.24319	17	964.00	-0.23983
8	4.00	-0.24180	18	1324.00	-0.23919
9	8.00	-0.24126	19	1440.00	-0.23915
10	16.00	-0.24093			



Void Ratio = 0.468 Compression = 14.0 %
D_0 = -0.25763 D_{50} = -0.24956 D_{100} = -0.24149
C_v at 0.1 min. = 3.18 ft.^{2}/day C_α = 0.001

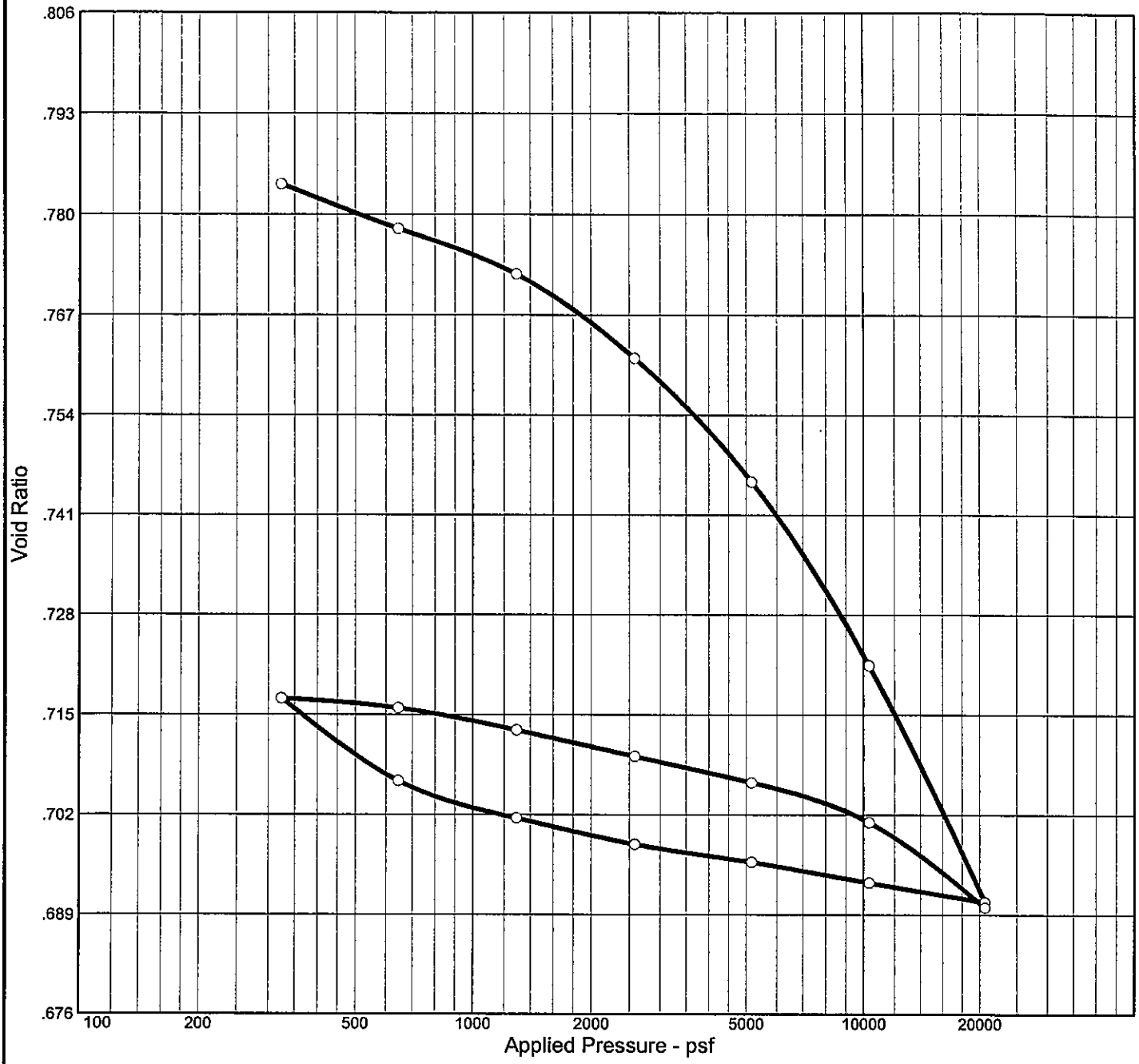
Pressure: 80000000 psf TEST READINGS Load No. 25

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	-0.23916	11	32.00	-0.23330
2	0.08	-0.23654	12	64.00	-0.23273
3	0.17	-0.23608	13	124.00	-0.23270
4	0.33	-0.23554	14	244.00	-0.23255
5	0.58	-0.23496	15	424.00	-0.23223
6	1.00	-0.23471	16	664.00	-0.23215
7	2.00	-0.23434	17	964.00	-0.23204
8	4.00	-0.23393	18	1324.00	-0.23180
9	8.00	-0.23368	19	1440.00	-0.23163
10	16.00	-0.23344			



Void Ratio = 0.455 Compression = 14.7 %
D_0 = -0.23916 D_{50} = -0.23559 D_{100} = -0.23203
C_v at 0.3 min. = 1.28 ft.^{2}/day C_α = 0.005

CONSOLIDATION TEST REPORT



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	USCS	AASHTO	Initial Void Ratio
Saturation	Moisture							
94.9 %	27.0 %	96.5	27	5	2.76	ML	A-4(4)	0.786

MATERIAL DESCRIPTION

Silt

Project No. 0121- **Client:** TranSystems, Inc.

Project: SCI-823-0.00

Source: TR-35A **Sample No.:** P-2B **Elev./Depth:** 12.4

Remarks:

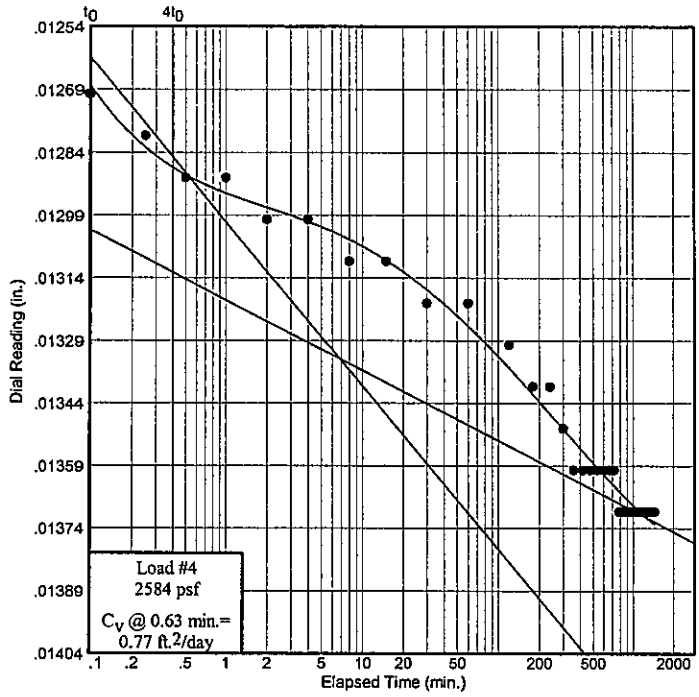
DLZ

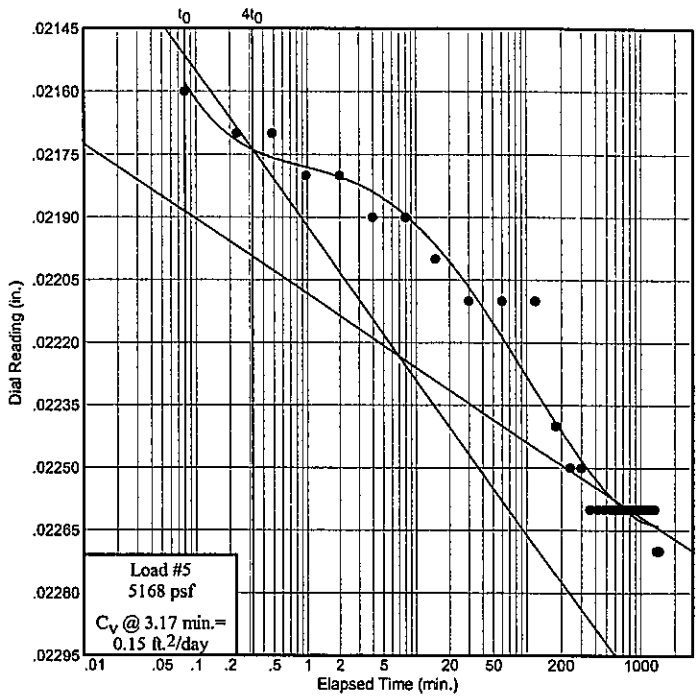
Figure

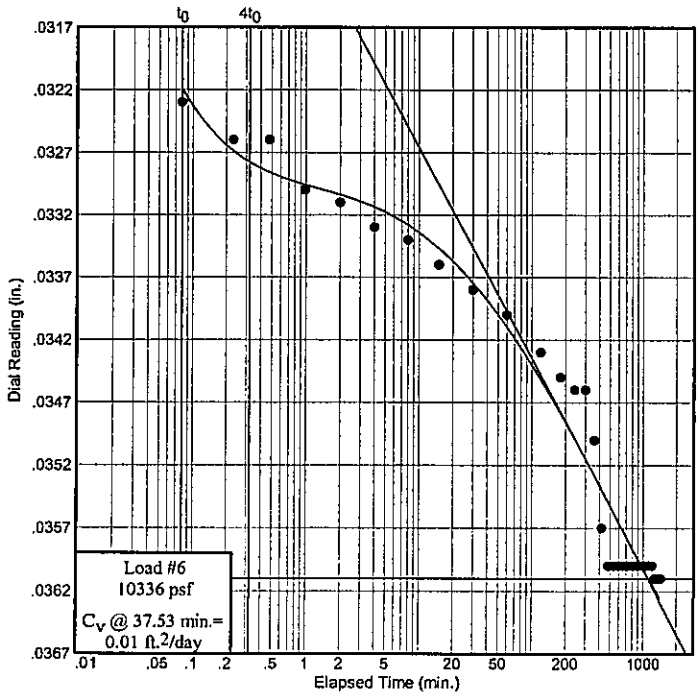
Dial Reading vs. Time

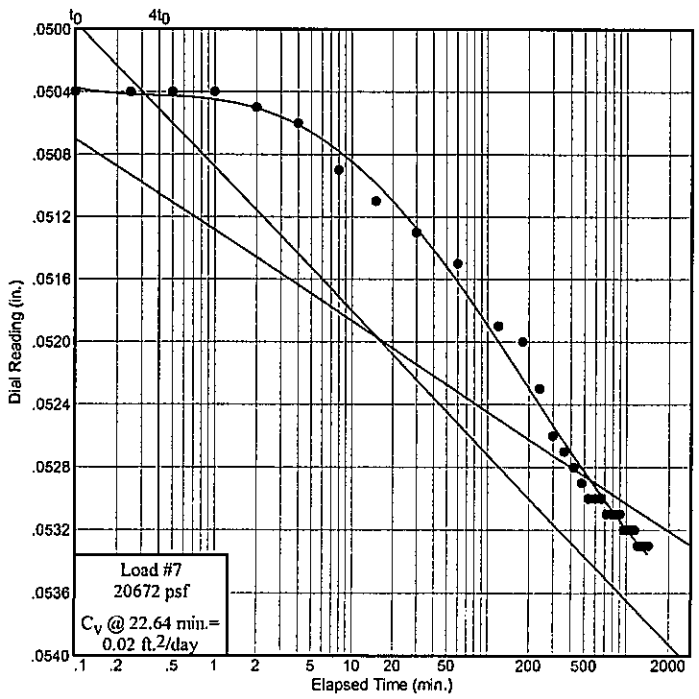
Project No.: 0121-3070.03
Project: SCI-823-0.00

Source: TR-35A Sample No.: P-2B Elev./Depth: 12.4









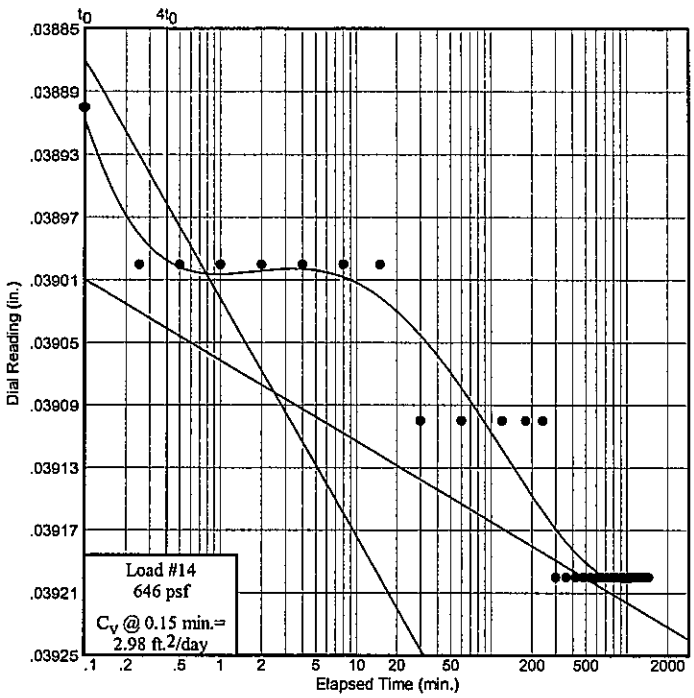
DLZ

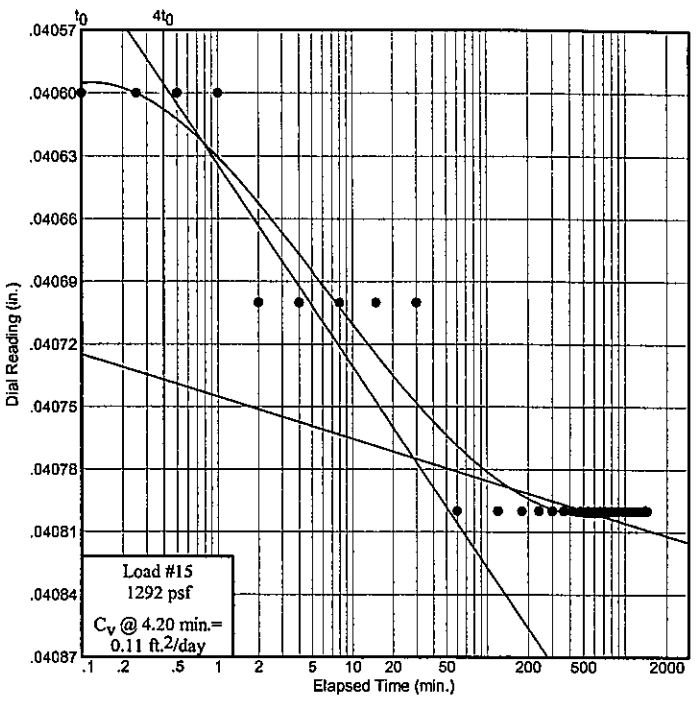
Figure

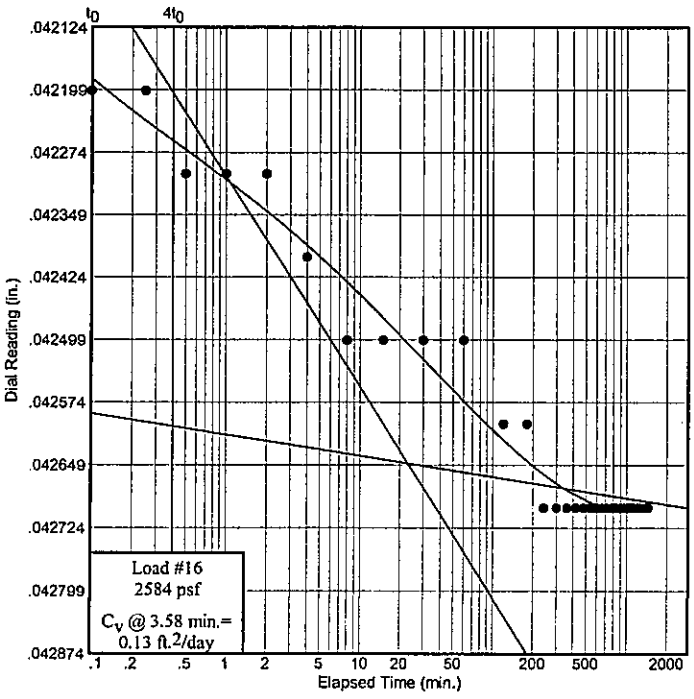
Dial Reading vs. Time

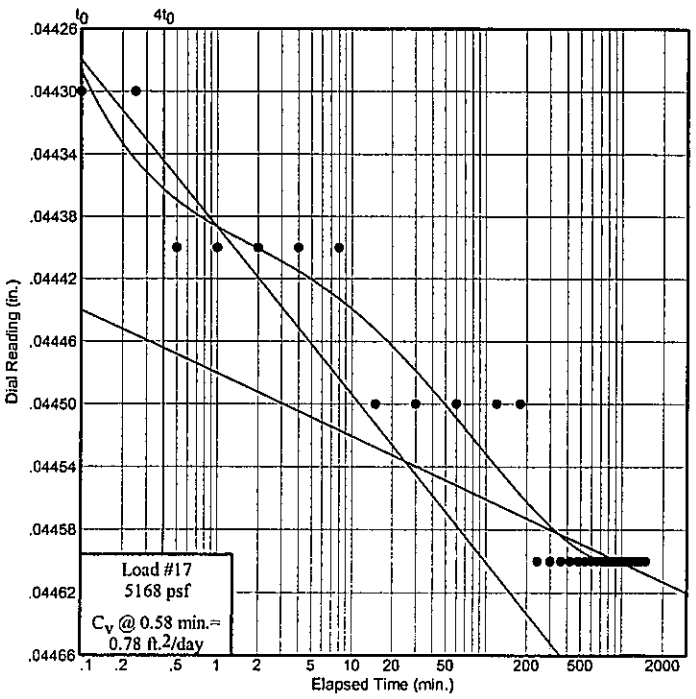
Project No.: 0121-3070.03
Project: SCI-823-0.00

Source: TR-35A Sample No.: P-2B Elev./Depth: 12.4









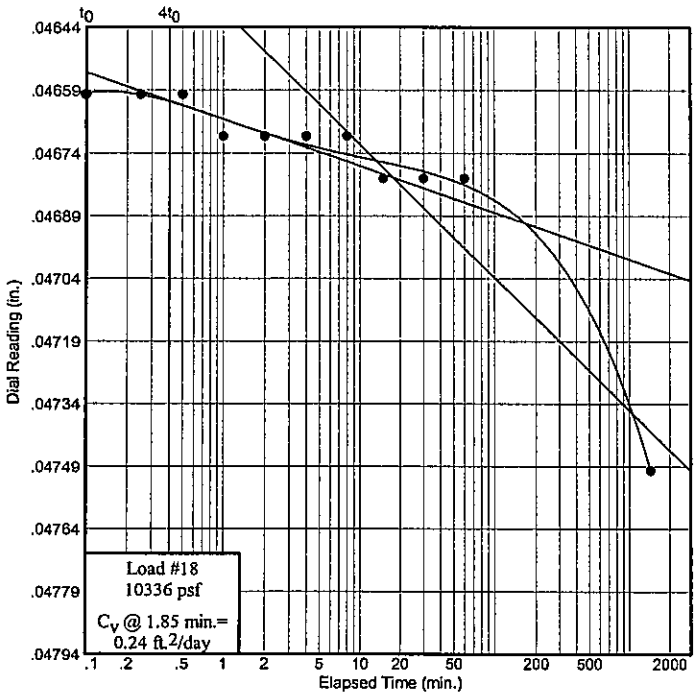
DLZ

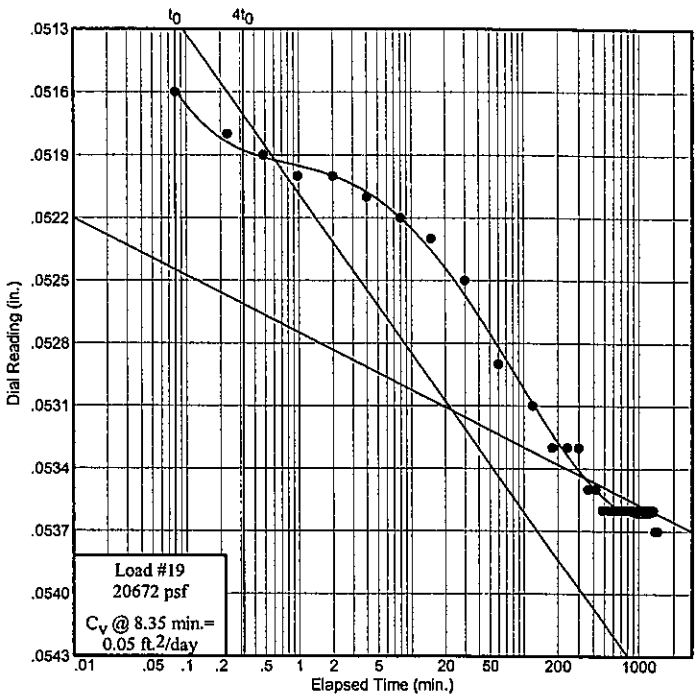
Figure

Dial Reading vs. Time

Project No.: 0121-3070.03
Project: SCI-823-0.00

Source: TR-35A Sample No.: P-2B Elev./Depth: 12.4





DLZ

Figure

CONSOLIDATION TEST DATA

Client: TranSystems, Inc.
Project: SCI-823-0.00
Project Number: 0121-3070.03

Sample Data

Source: TR-35A
Sample No.: P-2B
Elev. or Depth: 12.4 **Sample Length(in./cm.):** 18
Location:
Description: Silt
Liquid Limit: 27 **Plasticity Index:** 5
USCS: ML **AASHTO:** A-4(4) **Figure No.:**
Testing Remarks:

Test Specimen Data

TOTAL SAMPLE		BEFORE TEST	AFTER TEST
Wet w+t =	169.80 g.	Consolidometer # = 3	Wet w+t = 202.54 g.
Dry w+t =	146.47 g.		Dry w+t = 173.70 g.
Tare Wt. =	60.13 g.	Spec. Gravity = 2.76	Tare Wt. = 59.03 g.
Height =	1.00 in.	Height = 1.00 in.	
Diameter =	2.50 in.	Diameter = 2.50 in.	
Weight =	157.91 g.	Defl. Table = n/a	
Moisture =	27.0 %	Ht. Solids = 0.5600 in.	Moisture = 25.2 %
Wet Den. =	122.6 pcf	Dry Wt. = 124.32 g.*	Dry Wt. = 114.67 g.
Dry Den. =	96.5 pcf	Void Ratio = 0.786	Void Ratio = 0.690
		Saturation = 94.9 %	

* Initial dry weight used in calculations

End-of-Load Summary

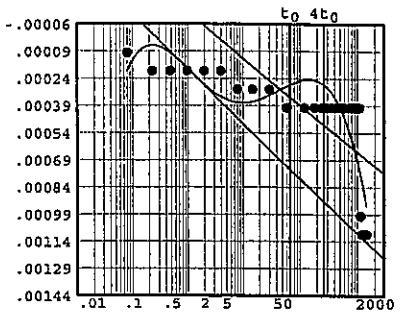
Pressure (psf)	Final Dial (in.)	Machine Defl. (in.)	C_v (ft.^{2}/day)	C_α	Void Ratio	% Compression /Swell
start	0.00000				0.786	
324	0.00110	0.00000		0.000	0.784	0.1 Comprs.
646	0.00430	0.00000		0.000	0.778	0.4 Comprs.
1292	0.00760	0.00000		0.000	0.772	0.8 Comprs.
2584	0.01370	0.00000	0.77	0.000	0.761	1.4 Comprs.
5168	0.02270	0.00000	0.15	0.000	0.745	2.3 Comprs.
10336	0.03610	0.00000	0.01	0.000	0.721	3.6 Comprs.
20672	0.05330	0.00000	0.02	0.001	0.691	5.3 Comprs.
10336	0.05190	0.00000			0.693	5.2 Comprs.
5168	0.05040	0.00000			0.696	5.0 Comprs.
2584	0.04910	0.00000			0.698	4.9 Comprs.
1292	0.04720	0.00000			0.702	4.7 Comprs.
646	0.04450	0.00000			0.706	4.4 Comprs.
324	0.03850	0.00000			0.717	3.8 Comprs.
646	0.03920	0.00000	2.98	0.000	0.716	3.9 Comprs.

Pressure (psf)	Final Dial (in.)	Machine Defl. (in.)	C_v ($ft.^2$/day)	C_α	Void Ratio	% Compression /Swell
1292	0.04080	0.00000	0.11	0.000	0.713	4.1 Comprs.
2584	0.04270	0.00000	0.13	0.000	0.710	4.3 Comprs.
5168	0.04460	0.00000	0.78	0.000	0.706	4.5 Comprs.
10336	0.04750	0.00000	0.24	0.000	0.701	4.8 Comprs.
20672	0.05370	0.00000	0.05	0.000	0.690	5.4 Comprs.

C_c = 0.10 P_c = 3876 psf C_r = 0.01

Pressure: 324 psf **TEST READINGS** **Load No. 1**

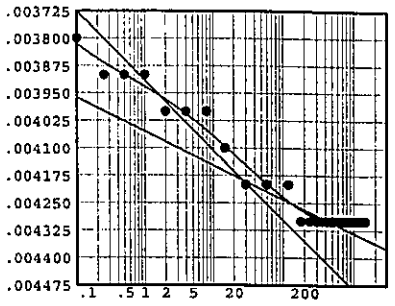
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.00000	18	480.00	0.00040
2	0.08	0.00010	19	540.00	0.00040
3	0.23	0.00020	20	600.00	0.00040
4	0.48	0.00020	21	660.00	0.00040
5	0.98	0.00020	22	720.00	0.00040
6	1.98	0.00020	23	780.00	0.00040
7	3.98	0.00020	24	840.00	0.00040
8	7.98	0.00030	25	900.00	0.00040
9	14.98	0.00030	26	960.00	0.00040
10	29.98	0.00030	27	1020.00	0.00040
11	59.98	0.00040	28	1080.00	0.00040
12	120.00	0.00040	29	1140.00	0.00100
13	180.00	0.00040	30	1200.00	0.00110
14	240.00	0.00040	31	1260.00	0.00110
15	300.00	0.00040	32	1320.00	0.00110
16	360.00	0.00040	33	1380.00	0.00110
17	420.00	0.00040	34	1440.00	0.00110



Void Ratio = 0.784 **Compression** = 0.1 %

Pressure: 646 psf — TEST READINGS — Load No. 2

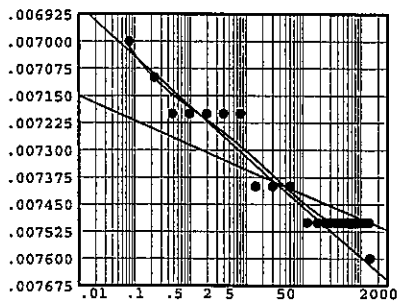
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.00110	18	480.00	0.00430
2	0.10	0.00380	19	540.00	0.00430
3	0.25	0.00390	20	600.00	0.00430
4	0.50	0.00390	21	660.00	0.00430
5	1.00	0.00390	22	720.00	0.00430
6	2.00	0.00400	23	780.00	0.00430
7	4.00	0.00400	24	840.00	0.00430
8	8.00	0.00400	25	900.00	0.00430
9	15.00	0.00410	26	960.00	0.00430
10	30.00	0.00420	27	1020.00	0.00430
11	60.00	0.00420	28	1080.00	0.00430
12	120.00	0.00420	29	1140.00	0.00430
13	180.00	0.00430	30	1200.00	0.00430
14	240.00	0.00430	31	1260.00	0.00430
15	300.00	0.00430	32	1320.00	0.00430
16	360.00	0.00430	33	1380.00	0.00430
17	420.00	0.00430	34	1440.00	0.00430



Void Ratio = 0.778 Compression = 0.4 %

Pressure: 1292 psf — TEST READINGS — Load No. 3

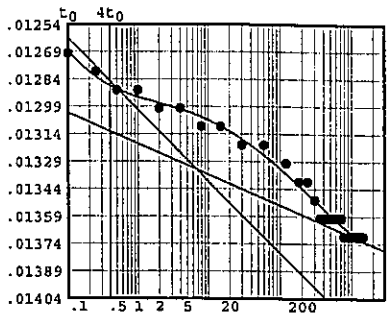
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.00430	18	480.00	0.00750
2	0.08	0.00700	19	540.00	0.00750
3	0.23	0.00710	20	600.00	0.00750
4	0.48	0.00720	21	660.00	0.00750
5	0.98	0.00720	22	720.00	0.00750
6	1.98	0.00720	23	780.00	0.00750
7	3.98	0.00720	24	840.00	0.00750
8	7.98	0.00720	25	900.00	0.00750
9	14.98	0.00740	26	960.00	0.00750
10	29.98	0.00740	27	1020.00	0.00750
11	59.98	0.00740	28	1080.00	0.00750
12	120.00	0.00750	29	1140.00	0.00750
13	180.00	0.00750	30	1200.00	0.00750
14	240.00	0.00750	31	1260.00	0.00750
15	300.00	0.00750	32	1320.00	0.00750
16	360.00	0.00750	33	1380.00	0.00750
17	420.00	0.00750	34	1440.00	0.00760



Void Ratio = 0.772 Compression = 0.8 %

Pressure: 2584 psf | TEST READINGS | Load No. 4

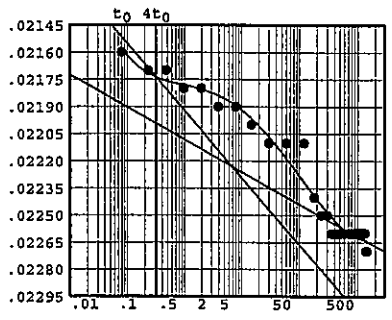
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.00760	18	480.00	0.01360
2	0.10	0.01270	19	540.00	0.01360
3	0.25	0.01280	20	600.00	0.01360
4	0.50	0.01290	21	660.00	0.01360
5	1.00	0.01290	22	720.00	0.01360
6	2.00	0.01300	23	780.00	0.01370
7	4.00	0.01300	24	840.00	0.01370
8	8.00	0.01310	25	900.00	0.01370
9	15.00	0.01310	26	960.00	0.01370
10	30.00	0.01320	27	1020.00	0.01370
11	60.00	0.01320	28	1080.00	0.01370
12	120.00	0.01330	29	1140.00	0.01370
13	180.00	0.01340	30	1200.00	0.01370
14	240.00	0.01340	31	1260.00	0.01370
15	300.00	0.01350	32	1320.00	0.01370
16	360.00	0.01360	33	1380.00	0.01370
17	420.00	0.01360	34	1440.00	0.01370



Void Ratio = 0.761 Compression = 1.4 %
D_0 = 0.01249 D_{50} = 0.01291 D_{100} = 0.01333
C_v at 0.6 min. = 0.77 ft.^{2}/day C_α = 0.000

Pressure: 5168 psf | TEST READINGS | Load No. 5

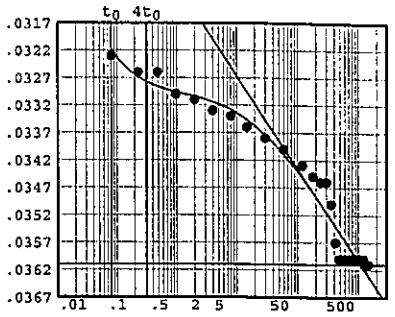
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.01370	19	480.00	0.02260
2	0.08	0.02160	20	540.00	0.02260
3	0.23	0.02170	21	600.00	0.02260
4	0.48	0.02170	22	660.00	0.02260
5	0.98	0.02180	23	720.00	0.02260
6	1.98	0.02180	24	780.00	0.02260
7	3.98	0.02190	25	840.00	0.02260
8	7.98	0.02190	26	900.00	0.02260
9	8.00	0.02190	27	960.00	0.02260
10	15.00	0.02200	28	1020.00	0.02260
11	30.00	0.02210	29	1080.00	0.02260
12	60.00	0.02210	30	1140.00	0.02260
13	120.00	0.02210	31	1200.00	0.02260
14	180.00	0.02240	32	1260.00	0.02260
15	240.00	0.02250	33	1320.00	0.02260
16	300.00	0.02250	34	1380.00	0.02270
17	360.00	0.02260	35	1440.00	0.02270
18	420.00	0.02260			



Void Ratio = 0.745 Compression = 2.3 %
D_0 = 0.02142 D_{50} = 0.02183 D_{100} = 0.02223
C_v at 3.2 min. = 0.15 ft.^{2}/day C_α = 0.000

Pressure: 10336 psf | TEST READINGS | Load No. 6

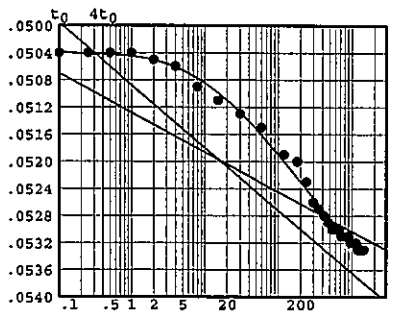
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.02270	18	480.00	0.03600
2	0.08	0.03230	19	540.00	0.03600
3	0.23	0.03260	20	600.00	0.03600
4	0.48	0.03260	21	660.00	0.03600
5	0.98	0.03300	22	720.00	0.03600
6	2.00	0.03310	23	780.00	0.03600
7	4.00	0.03330	24	840.00	0.03600
8	8.00	0.03340	25	900.00	0.03600
9	15.00	0.03360	26	960.00	0.03600
10	30.00	0.03380	27	1020.00	0.03600
11	60.00	0.03400	28	1080.00	0.03600
12	120.00	0.03430	29	1140.00	0.03600
13	180.00	0.03450	30	1200.00	0.03600
14	240.00	0.03460	31	1260.00	0.03610
15	300.00	0.03460	32	1320.00	0.03610
16	360.00	0.03500	33	1380.00	0.03610
17	420.00	0.03570	34	1440.00	0.03610



Void Ratio = 0.721 Compression = 3.6 %
D_0 = 0.03160 D_{50} = 0.03385 D_{100} = 0.03610
C_v at 37.5 min. = 0.01 ft.^{2}/day C_α = 0.000

Pressure: 20672 psf | TEST READINGS | Load No. 7

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.03610	18	480.00	0.05290
2	0.10	0.05040	19	540.00	0.05300
3	0.25	0.05040	20	600.00	0.05300
4	0.50	0.05040	21	660.00	0.05300
5	1.00	0.05040	22	720.00	0.05310
6	2.00	0.05050	23	780.00	0.05310
7	4.00	0.05060	24	840.00	0.05310
8	8.00	0.05090	25	900.00	0.05310
9	15.00	0.05110	26	960.00	0.05320
10	30.00	0.05130	27	1020.00	0.05320
11	60.00	0.05150	28	1080.00	0.05320
12	120.00	0.05190	29	1140.00	0.05320
13	180.00	0.05200	30	1200.00	0.05330
14	240.00	0.05230	31	1260.00	0.05330
15	300.00	0.05260	32	1320.00	0.05330
16	360.00	0.05270	33	1380.00	0.05330
17	420.00	0.05280	34	1440.00	0.05330



Void Ratio = 0.691 Compression = 5.3 %
D_0 = 0.05032 D_{50} = 0.05115 D_{100} = 0.05198
C_v at 22.6 min. = 0.02 ft.^{2}/day C_α = 0.001

Pressure: 10336 psf — TEST READINGS — Load No. 8

No.	Elapsed Time	Dial Reading
1	0.00	0.05330
2	0.10	0.05190
3	1440.00	0.05190

Void Ratio = 0.693 Compression = 5.2 %

Pressure: 5168 psf — TEST READINGS — Load No. 9

No.	Elapsed Time	Dial Reading
1	0.00	0.05190
2	0.15	0.05040
3	1440.00	0.05040

Void Ratio = 0.696 Compression = 5.0 %

Pressure: 2584 psf — TEST READINGS — Load No. 10

No.	Elapsed Time	Dial Reading
1	0.00	0.05040
2	0.13	0.04920
3	1440.00	0.04910

Void Ratio = 0.698 Compression = 4.9 %

Pressure: 1292 psf — TEST READINGS — Load No. 11

No.	Elapsed Time	Dial Reading
1	0.00	0.04910
2	0.13	0.04770
3	1440.00	0.04720

Void Ratio = 0.702 Compression = 4.7 %

Pressure: 646 psf — TEST READINGS — Load No. 12

No.	Elapsed Time	Dial Reading
1	0.00	0.04720
2	0.10	0.04540
3	1440.00	0.04450

Void Ratio = 0.706 Compression = 4.4 %

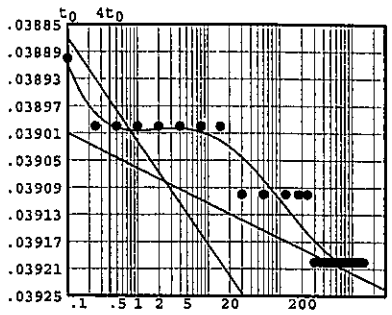
Pressure: 324 psf | TEST READINGS | Load No. 13

No.	Elapsed Time	Dial Reading
1	0.00	0.04450
2	0.10	0.03860
3	1440.00	0.03850

Void Ratio = 0.717 Compression = 3.8 %

Pressure: 646 psf | TEST READINGS | Load No. 14

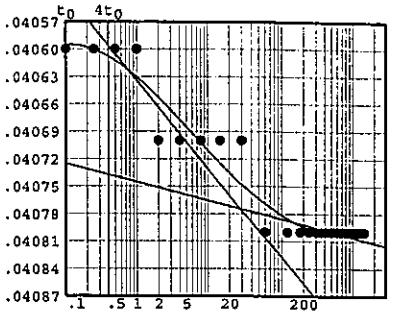
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.03850	18	480.00	0.03920
2	0.10	0.03890	19	540.00	0.03920
3	0.25	0.03900	20	600.00	0.03920
4	0.50	0.03900	21	660.00	0.03920
5	1.00	0.03900	22	720.00	0.03920
6	2.00	0.03900	23	780.00	0.03920
7	4.00	0.03900	24	840.00	0.03920
8	8.00	0.03900	25	900.00	0.03920
9	15.00	0.03900	26	960.00	0.03920
10	30.00	0.03910	27	1020.00	0.03920
11	60.00	0.03910	28	1080.00	0.03920
12	120.00	0.03910	29	1140.00	0.03920
13	180.00	0.03910	30	1200.00	0.03920
14	240.00	0.03910	31	1260.00	0.03920
15	300.00	0.03920	32	1320.00	0.03920
16	360.00	0.03920	33	1380.00	0.03920
17	420.00	0.03920	34	1440.00	0.03920



Void Ratio = 0.716 Compression = 3.9 %
D_0 = 0.03882 D_{50} = 0.03895 D_{100} = 0.03908
C_v at 0.2 min. = 2.98 ft.^{2}/day C_α = 0.000

Pressure: 1292 psf | TEST READINGS | Load No. 15

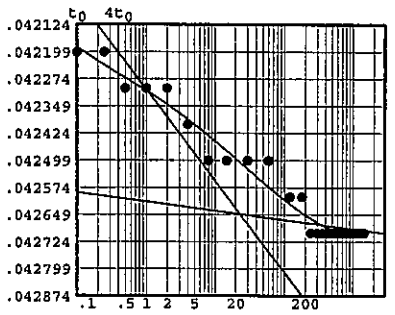
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.03920	18	480.00	0.04080
2	0.10	0.04060	19	540.00	0.04080
3	0.25	0.04060	20	600.00	0.04080
4	0.50	0.04060	21	660.00	0.04080
5	1.00	0.04060	22	720.00	0.04080
6	2.00	0.04070	23	780.00	0.04080
7	4.00	0.04070	24	840.00	0.04080
8	8.00	0.04070	25	900.00	0.04080
9	15.00	0.04070	26	960.00	0.04080
10	30.00	0.04070	27	1020.00	0.04080
11	60.00	0.04080	28	1080.00	0.04080
12	120.00	0.04080	29	1140.00	0.04080
13	180.00	0.04080	30	1200.00	0.04080
14	240.00	0.04080	31	1260.00	0.04080
15	300.00	0.04080	32	1320.00	0.04080
16	360.00	0.04080	33	1380.00	0.04080
17	420.00	0.04080	34	1440.00	0.04080



Void Ratio = 0.713 Compression = 4.1 %
D_0 = 0.04058 D_{50} = 0.04068 D_{100} = 0.04077
C_v at 4.2 min. = 0.11 ft.^{2}/day C_α = 0.000

Pressure: 2584 psf | TEST READINGS | Load No. 16

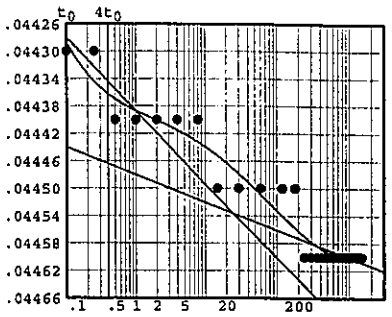
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.04080	18	480.00	0.04270
2	0.10	0.04220	19	540.00	0.04270
3	0.25	0.04220	20	600.00	0.04270
4	0.50	0.04230	21	660.00	0.04270
5	1.00	0.04230	22	720.00	0.04270
6	2.00	0.04230	23	780.00	0.04270
7	4.00	0.04240	24	840.00	0.04270
8	8.00	0.04250	25	900.00	0.04270
9	15.00	0.04250	26	960.00	0.04270
10	30.00	0.04250	27	1020.00	0.04270
11	60.00	0.04250	28	1080.00	0.04270
12	120.00	0.04260	29	1140.00	0.04270
13	180.00	0.04260	30	1200.00	0.04270
14	240.00	0.04270	31	1260.00	0.04270
15	300.00	0.04270	32	1320.00	0.04270
16	360.00	0.04270	33	1440.00	0.04270
17	420.00	0.04270			



Void Ratio = 0.710 Compression = 4.3 %
D_0 = 0.04211 D_{50} = 0.04238 D_{100} = 0.04265
C_v at 3.6 min. = 0.13 ft.^{2}/day C_α = 0.000

Pressure: 5168 psf | TEST READINGS | Load No. 17

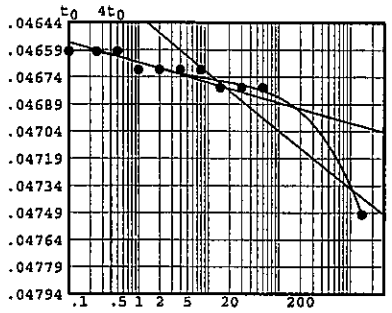
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.04270	18	480.00	0.04460
2	0.10	0.04430	19	540.00	0.04460
3	0.25	0.04430	20	600.00	0.04460
4	0.50	0.04440	21	660.00	0.04460
5	1.00	0.04440	22	720.00	0.04460
6	2.00	0.04440	23	780.00	0.04460
7	4.00	0.04440	24	840.00	0.04460
8	8.00	0.04440	25	900.00	0.04460
9	15.00	0.04450	26	960.00	0.04460
10	30.00	0.04450	27	1020.00	0.04460
11	60.00	0.04450	28	1080.00	0.04460
12	120.00	0.04450	29	1140.00	0.04460
13	180.00	0.04450	30	1200.00	0.04460
14	240.00	0.04460	31	1260.00	0.04460
15	300.00	0.04460	32	1320.00	0.04460
16	360.00	0.04460	33	1380.00	0.04460
17	420.00	0.04460	34	1490.00	0.04460



Void Ratio = 0.706 **Compression** = 4.5 %
D_0 = 0.04421 D_{50} = 0.04437 D_{100} = 0.04454
C_v at 0.6 min. = 0.78 ft.^{2}/day C_α = 0.000

Pressure: 10336 psf | TEST READINGS | Load No. 18

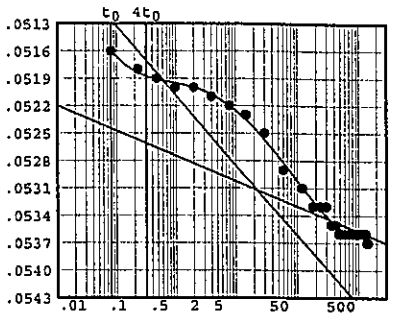
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.04460	11	60.00	0.04680
2	0.10	0.04660	12	1440.00	0.04750
3	0.25	0.04660			
4	0.50	0.04660			
5	1.00	0.04670			
6	2.00	0.04670			
7	4.00	0.04670			
8	8.00	0.04670			
9	15.00	0.04680			
10	30.00	0.04680			



Void Ratio = 0.701 **Compression** = 4.8 %
D_0 = 0.04658 D_{50} = 0.04669 D_{100} = 0.04680
C_v at 1.8 min. = 0.24 ft.^{2}/day C_α = 0.000

Pressure: 20672 psf | TEST READINGS | Load No. 19

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.04750	18	480.00	0.05360
2	0.08	0.05160	19	540.00	0.05360
3	0.23	0.05180	20	600.00	0.05360
4	0.48	0.05190	21	660.00	0.05360
5	0.98	0.05200	22	720.00	0.05360
6	2.00	0.05200	23	780.00	0.05360
7	4.00	0.05210	24	840.00	0.05360
8	8.00	0.05220	25	900.00	0.05360
9	15.00	0.05230	26	960.00	0.05360
10	30.00	0.05250	27	1020.00	0.05360
11	60.00	0.05290	28	1080.00	0.05360
12	120.00	0.05310	29	1140.00	0.05360
13	180.00	0.05330	30	1200.00	0.05360
14	240.00	0.05330	31	1260.00	0.05360
15	300.00	0.05330	32	1320.00	0.05360
16	360.00	0.05350	33	1380.00	0.05370
17	420.00	0.05350	34	1440.00	0.05370

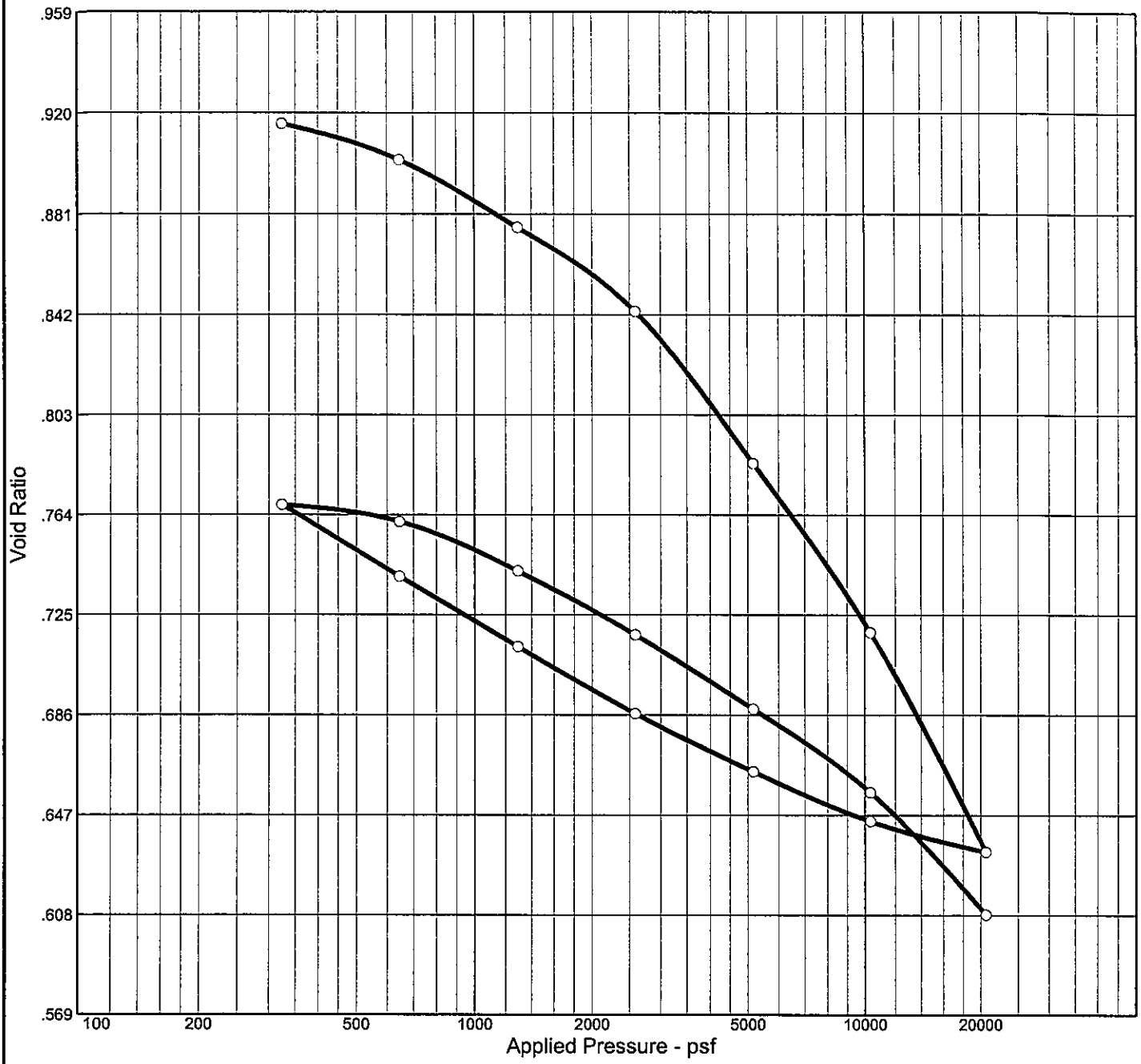


Void Ratio = 0.690 **Compression** = 5.4 %

D_0 = 0.05129 D_{50} = 0.05221 D_{100} = 0.05312

C_v **at 8.4 min.** = 0.05 ft.^{2}/day C_α = 0.000

CONSOLIDATION TEST REPORT



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	USCS	AASHTO	Initial Void Ratio
Saturation	Moisture							
91.8 %	30.9 %	89.4	NP	NP	2.76	ML	A-4(0)	0.928

MATERIAL DESCRIPTION

Silt

Project No. 0121- **Client:** TranSystems, Inc.

Project: SCI-823-0.00

Source: TR-35A **Sample No.:** P-3 **Elev./Depth:** 27.0

Remarks:

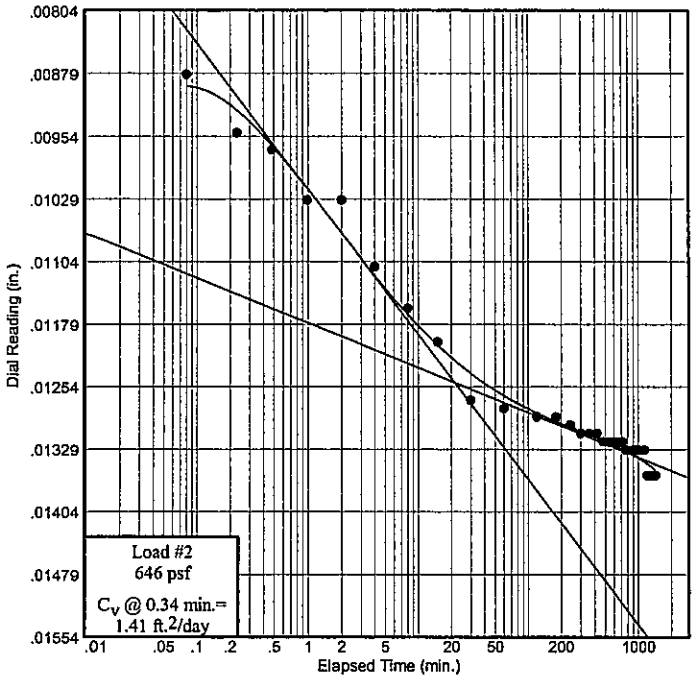
DLZ

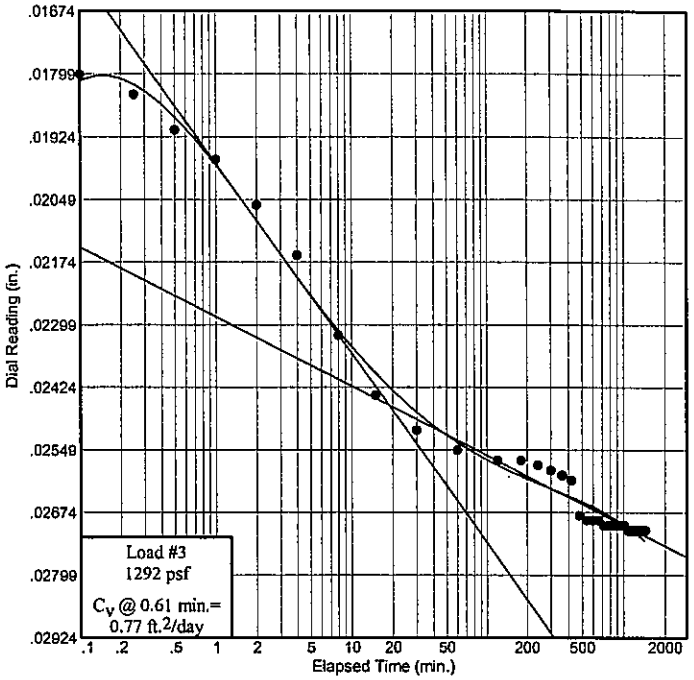
Figure

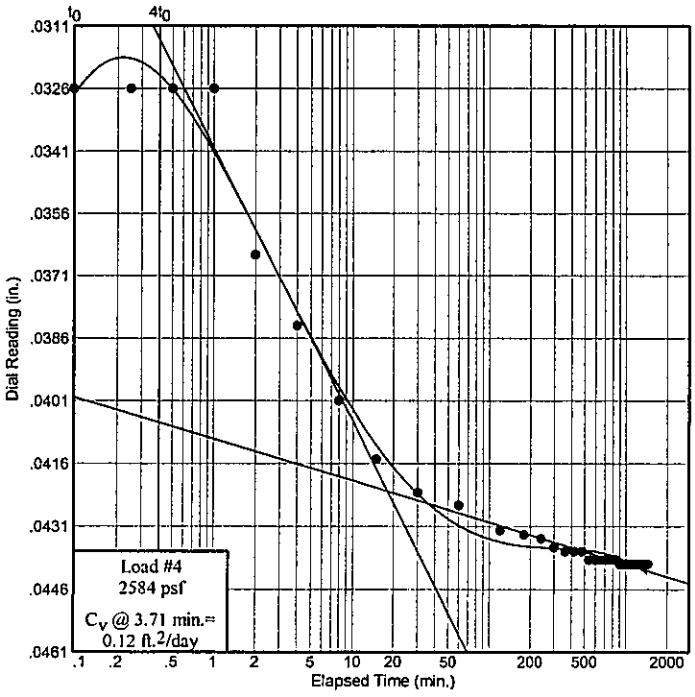
Dial Reading vs. Time

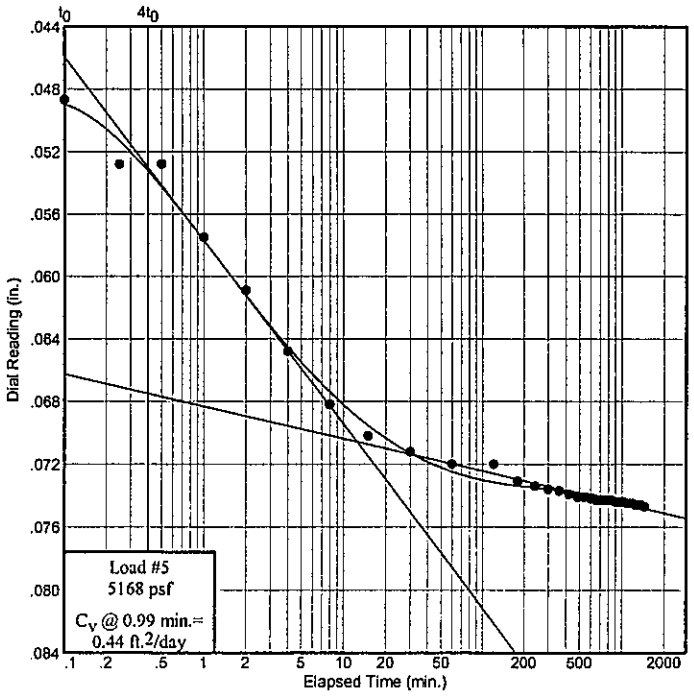
Project No.: 0121-3070.03
Project: SCI-823-0.00

Source: TR-35A Sample No.: P-3 Elev./Depth: 27.0









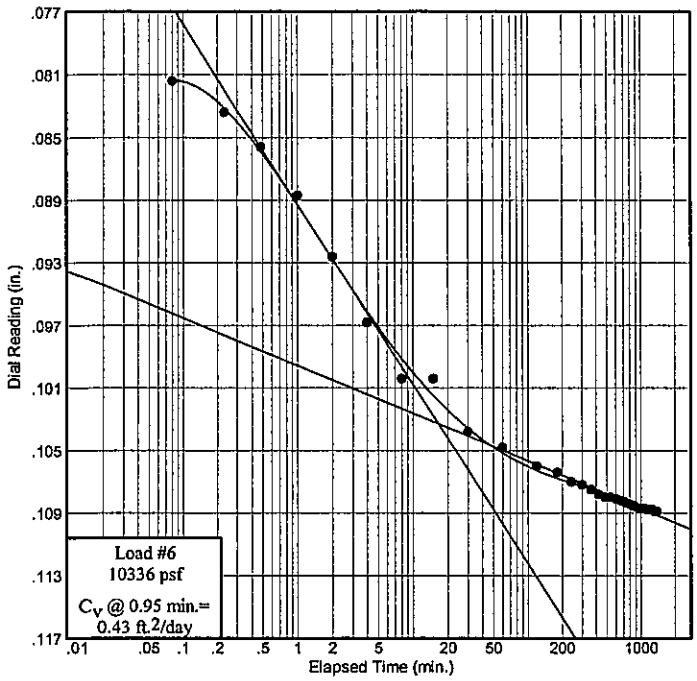
DLZ

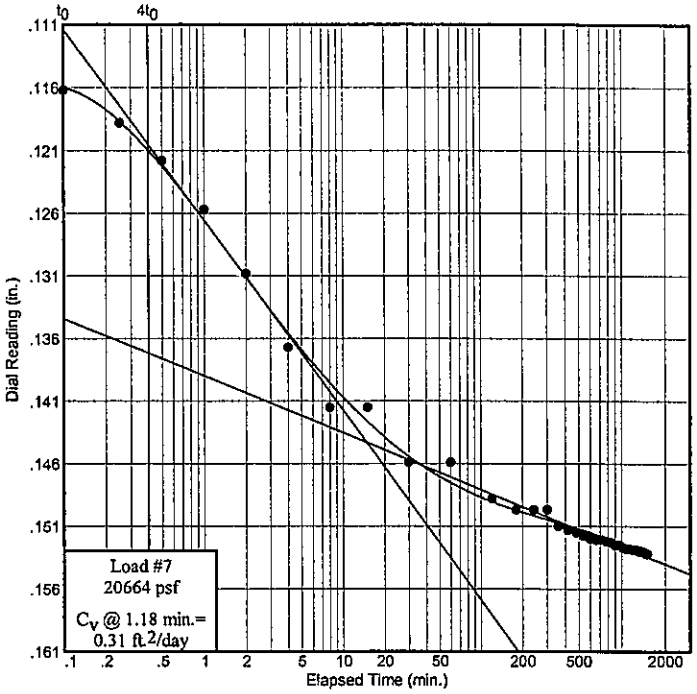
Figure

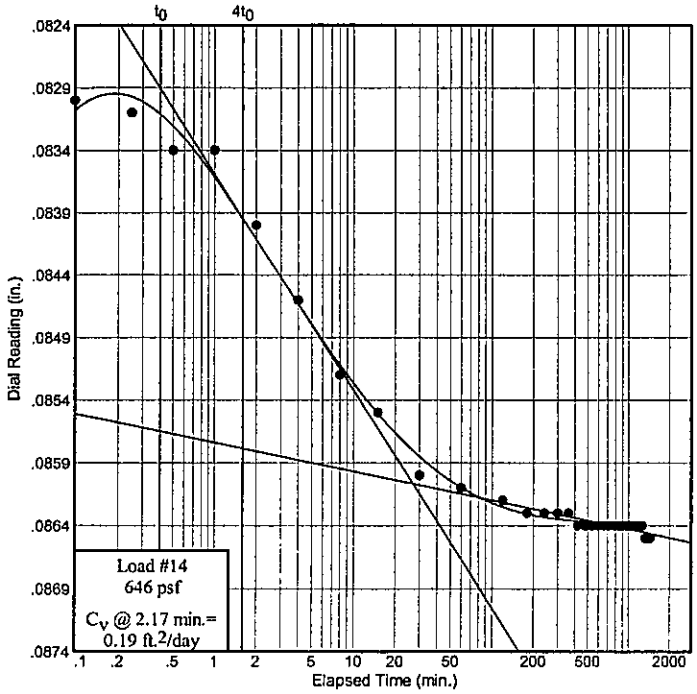
Dial Reading vs. Time

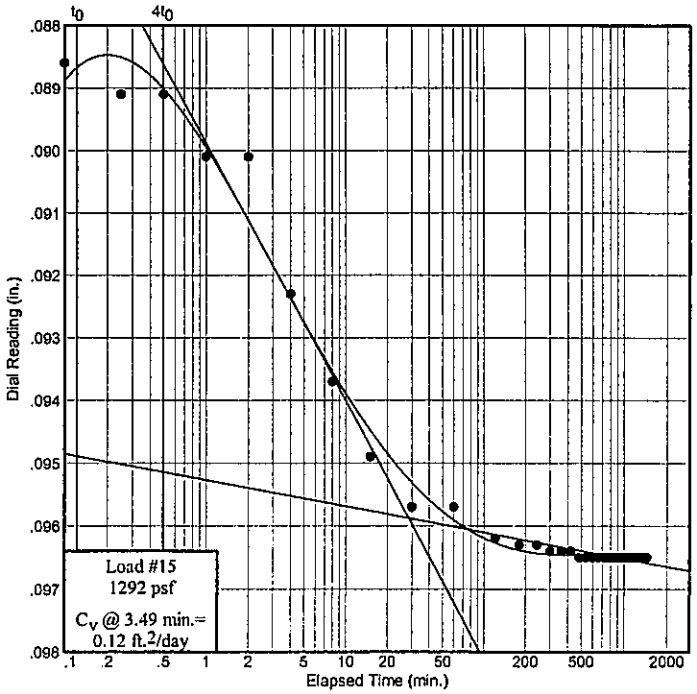
Project No.: 0121-3070.03
Project: SCI-823-0.00

Source: TR-35A Sample No.: P-3 Elev./Depth: 27.0









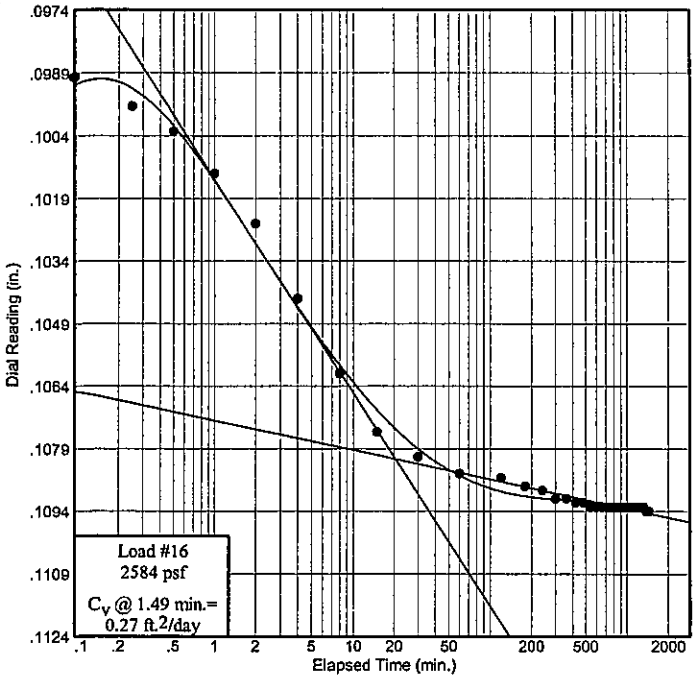
DLZ

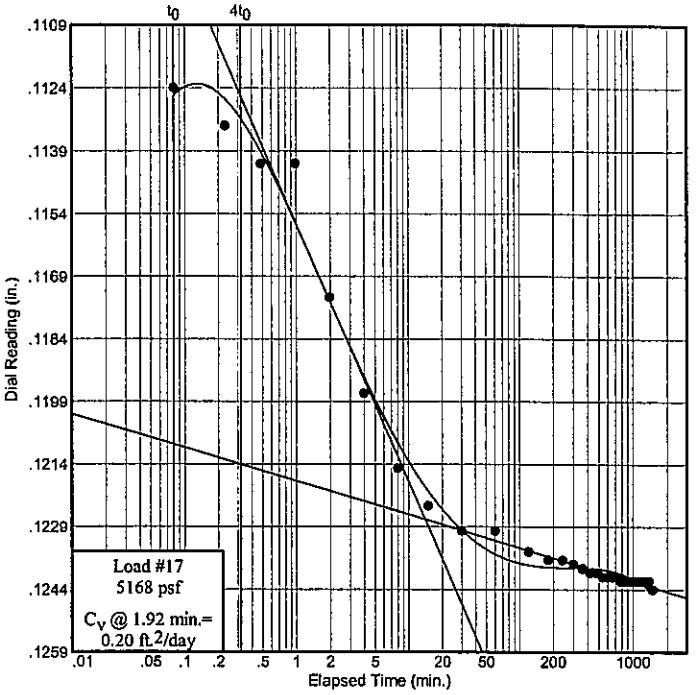
Figure

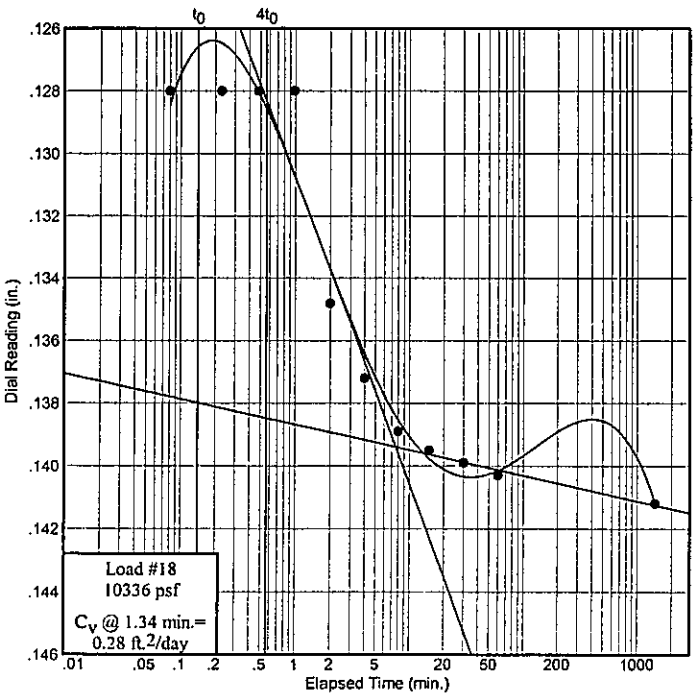
Dial Reading vs. Time

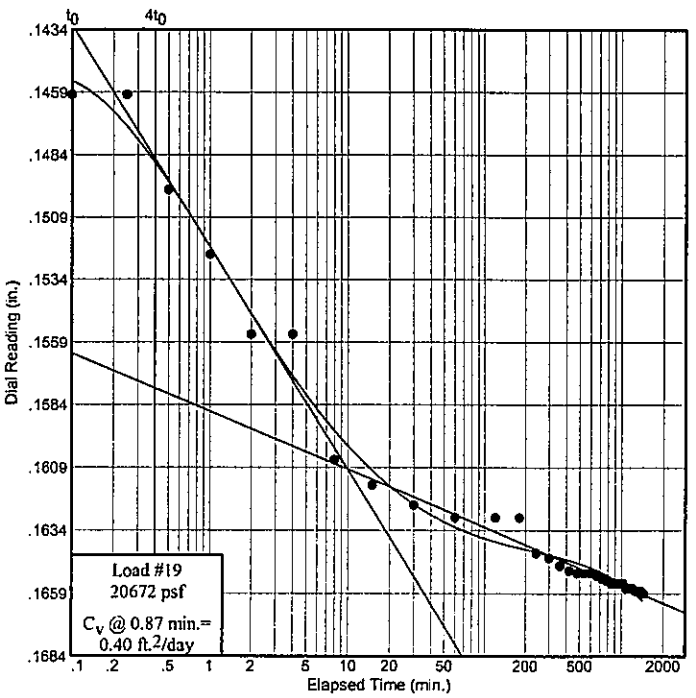
Project No.: 0121-3070.03
Project: SCI-823-0.00

Source: TR-35A Sample No.: P-3 Elev./Depth: 27.0









DLZ

Figure

CONSOLIDATION TEST DATA

Client: TranSystems, Inc.
Project: SCI-823-0.00
Project Number: 0121-3070.03

Sample Data

Source: TR-35A
Sample No.: P-3
Elev. or Depth: 27.0 **Sample Length(in./cm.):** 24
Location:
Description: Silt
Liquid Limit: NP **Plasticity Index:** NP
USCS: ML **AASHTO:** A-4(0) **Figure No.:**
Testing Remarks:

Test Specimen Data

TOTAL SAMPLE		BEFORE TEST	AFTER TEST	
Wet w+t =	318.33 g.	Consolidometer # = 4	Wet w+t =	205.76 g.
Dry w+t =	257.97 g.		Dry w+t =	173.06 g.
Tare Wt. =	62.42 g.	Spec. Gravity = 2.76	Tare Wt. =	65.18 g.
Height =	1.00 in.	Height = 1.00 in.		
Diameter =	2.50 in.	Diameter = 2.50 in.		
Weight =	150.69 g.	Defl. Table = n/a		
Moisture =	30.9 %	Ht. Solids = 0.5187 in.	Moisture =	30.3 %
Wet Den. =	116.9 pcf	Dry Wt. = 115.15 g.*	Dry Wt. =	107.88 g.
Dry Den. =	89.4 pcf	Void Ratio = 0.928	Void Ratio =	0.608
		Saturation = 91.8 %		

* Initial dry weight used in calculations

End-of-Load Summary

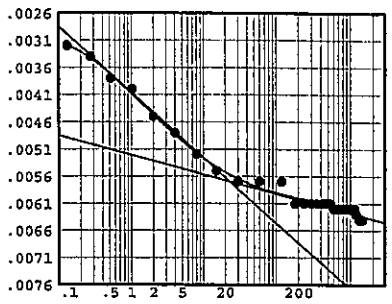
Pressure (psf)	Final Dial (in.)	Machine Defl. (in.)	C_v (ft.^{2}/day)	C_α	Void Ratio	% Compression /Swell
start	0.00001				0.928	
324	0.00640	0.00000		0.000	0.916	0.6 Comprs.
646	0.01360	0.00000	1.41	0.001	0.902	1.4 Comprs.
1292	0.02710	0.00000	0.77	0.001	0.876	2.7 Comprs.
2584	0.04400	0.00000	0.12	0.001	0.843	4.4 Comprs.
5168	0.07470	0.00000	0.44	0.002	0.784	7.5 Comprs.
10336	0.10890	0.00000	0.43	0.003	0.718	10.9 Comprs.
20664	0.15320	0.00000	0.31	0.005	0.633	15.3 Comprs.
10336	0.14700	0.00000			0.645	14.7 Comprs.
5168	0.13700	0.00000			0.664	13.7 Comprs.
2584	0.12530	0.00000			0.687	12.5 Comprs.
1292	0.11180	0.00000			0.713	11.2 Comprs.
646	0.09760	0.00000			0.740	9.8 Comprs.
324	0.08310	0.00000			0.768	8.3 Comprs.
646	0.08650	0.00000	0.19	0.000	0.761	8.6 Comprs.

Pressure (psf)	Final Dial (in.)	Machine Defl. (in.)	C_v (ft.^{2}/day)	C_α	Void Ratio	% Compression /Swell
1292	0.09650	0.00000	0.12	0.000	0.742	9.6 Comprs.
2584	0.10940	0.00000	0.27	0.001	0.717	10.9 Comprs.
5168	0.12440	0.00000	0.20	0.001	0.688	12.4 Comprs.
10336	0.14120	0.00000	0.28	0.001	0.656	14.1 Comprs.
20672	0.16590	0.00000	0.40	0.003	0.608	16.6 Comprs.

C_c = 0.27 P_c = 2687 psf C_r = 0.08

Pressure: 324 psf **TEST READINGS** **Load No. 1**

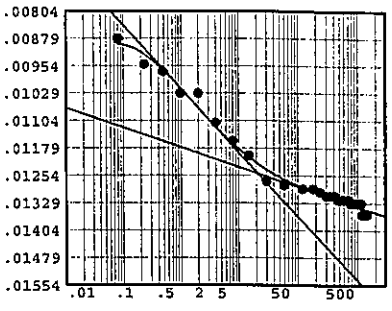
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.00001	18	480.00	0.00610
2	0.13	0.00320	19	540.00	0.00610
3	0.27	0.00340	20	600.00	0.00620
4	0.52	0.00380	21	660.00	0.00620
5	1.02	0.00400	22	720.00	0.00620
6	2.00	0.00450	23	780.00	0.00620
7	4.00	0.00480	24	840.00	0.00620
8	8.00	0.00520	25	900.00	0.00620
9	15.00	0.00550	26	960.00	0.00620
10	30.00	0.00570	27	1020.00	0.00620
11	60.00	0.00570	28	1080.00	0.00620
12	120.00	0.00570	29	1140.00	0.00620
13	180.00	0.00610	30	1200.00	0.00630
14	240.00	0.00610	31	1320.00	0.00640
15	300.00	0.00610	32	1380.00	0.00640
16	360.00	0.00610	33	1440.00	0.00640
17	420.00	0.00610			



Void Ratio = 0.916 **Compression** = 0.6 %

Pressure: 646 psf | TEST READINGS | Load No. 2

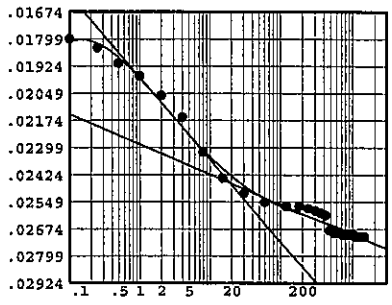
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.00640	17	420.00	0.01310
2	0.08	0.00880	18	480.00	0.01320
3	0.23	0.00950	19	540.00	0.01320
4	0.48	0.00970	20	600.00	0.01320
5	0.98	0.01030	21	660.00	0.01320
6	2.00	0.01030	22	720.00	0.01320
7	4.00	0.01110	23	780.00	0.01330
8	8.00	0.01160	24	900.00	0.01330
9	15.00	0.01200	25	960.00	0.01330
10	30.00	0.01270	26	1020.00	0.01330
11	60.00	0.01280	27	1140.00	0.01330
12	120.00	0.01290	28	1200.00	0.01360
13	180.00	0.01290	29	1260.00	0.01360
14	240.00	0.01300	30	1320.00	0.01360
15	300.00	0.01310	31	1380.00	0.01360
16	360.00	0.01310	32	1440.00	0.01360



Void Ratio = 0.902 Compression = 1.4 %
D_0 = 0.00640 D_{50} = 0.00944 D_{100} = 0.01249
C_v at 0.3 min. = 1.41 ft.^{2}/day C_α = 0.001

Pressure: 1292 psf | TEST READINGS | Load No. 3

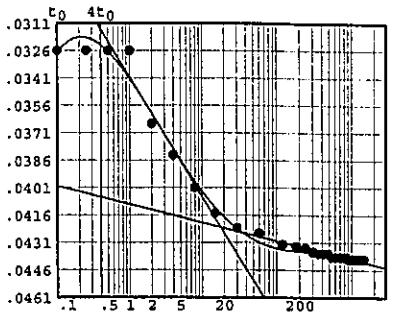
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.01360	18	480.00	0.02680
2	0.10	0.01800	19	540.00	0.02690
3	0.25	0.01840	20	600.00	0.02690
4	0.50	0.01910	21	660.00	0.02690
5	1.00	0.01970	22	720.00	0.02700
6	2.00	0.02060	23	780.00	0.02700
7	4.00	0.02160	24	840.00	0.02700
8	8.00	0.02320	25	900.00	0.02700
9	15.00	0.02440	26	960.00	0.02700
10	30.00	0.02510	27	1020.00	0.02700
11	60.00	0.02550	28	1080.00	0.02710
12	120.00	0.02570	29	1140.00	0.02710
13	180.00	0.02570	30	1200.00	0.02710
14	240.00	0.02580	31	1260.00	0.02710
15	300.00	0.02590	32	1320.00	0.02710
16	360.00	0.02600	33	1380.00	0.02710
17	420.00	0.02610	34	1440.00	0.02710



Void Ratio = 0.876 Compression = 2.7 %
D_0 = 0.01360 D_{50} = 0.01910 D_{100} = 0.02460
C_v at 0.6 min. = 0.77 ft.^{2}/day C_α = 0.001

Pressure: 2584 psf | TEST READINGS | Load No. 4

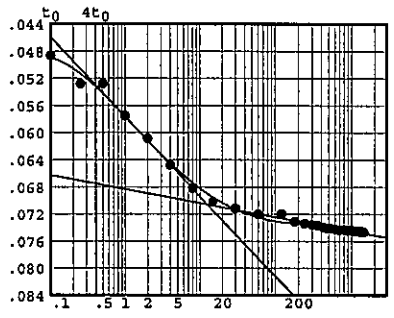
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.02730	18	480.00	0.04370
2	0.10	0.03260	19	540.00	0.04390
3	0.25	0.03260	20	600.00	0.04390
4	0.50	0.03260	21	660.00	0.04390
5	1.00	0.03260	22	720.00	0.04390
6	2.00	0.03660	23	780.00	0.04390
7	4.00	0.03830	24	840.00	0.04390
8	8.00	0.04010	25	900.00	0.04400
9	15.00	0.04150	26	960.00	0.04400
10	30.00	0.04230	27	1020.00	0.04400
11	60.00	0.04260	28	1080.00	0.04400
12	120.00	0.04320	29	1140.00	0.04400
13	180.00	0.04330	30	1200.00	0.04400
14	240.00	0.04340	31	1260.00	0.04400
15	300.00	0.04360	32	1320.00	0.04400
16	360.00	0.04370	33	1380.00	0.04400
17	420.00	0.04370	34	1440.00	0.04400



Void Ratio = 0.843 Compression = 4.4 %
D_0 = 0.03325 D_{50} = 0.03776 D_{100} = 0.04226
C_v at 3.7 min. = 0.12 ft.^{2}/day C_α = 0.001

Pressure: 5168 psf | TEST READINGS | Load No. 5

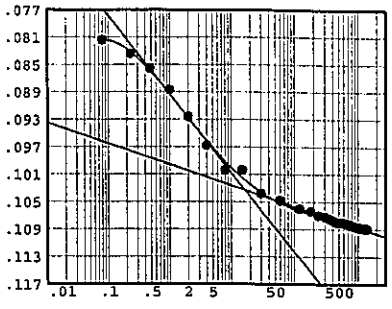
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.04400	18	480.00	0.07410
2	0.10	0.04870	19	540.00	0.07410
3	0.25	0.05280	20	600.00	0.07420
4	0.50	0.05280	21	660.00	0.07430
5	1.00	0.05750	22	720.00	0.07430
6	2.00	0.06090	23	780.00	0.07430
7	4.00	0.06480	24	840.00	0.07430
8	8.00	0.06820	25	900.00	0.07440
9	15.00	0.07020	26	960.00	0.07440
10	30.00	0.07120	27	1020.00	0.07440
11	60.00	0.07200	28	1080.00	0.07450
12	120.00	0.07200	29	1140.00	0.07450
13	180.00	0.07310	30	1200.00	0.07450
14	240.00	0.07340	31	1260.00	0.07460
15	300.00	0.07360	32	1320.00	0.07460
16	360.00	0.07370	33	1380.00	0.07460
17	420.00	0.07390	34	1440.00	0.07470



Void Ratio = 0.784 Compression = 7.5 %
D_0 = 0.04469 D_{50} = 0.05763 D_{100} = 0.07057
C_v at 1.0 min. = 0.44 ft.^{2}/day C_α = 0.002

Pressure: 10336 psf — TEST READINGS — Load No. 6

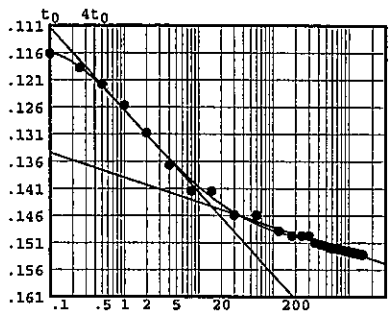
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.07480	18	480.00	0.10800
2	0.08	0.08140	19	540.00	0.10800
3	0.23	0.08340	20	600.00	0.10810
4	0.48	0.08560	21	660.00	0.10820
5	1.00	0.08870	22	720.00	0.10830
6	2.00	0.09260	23	780.00	0.10840
7	4.00	0.09680	24	840.00	0.10850
8	8.00	0.10040	25	900.00	0.10860
9	15.00	0.10040	26	960.00	0.10870
10	30.00	0.10380	27	1020.00	0.10870
11	60.00	0.10480	28	1080.00	0.10870
12	120.00	0.10600	29	1140.00	0.10880
13	180.00	0.10640	30	1200.00	0.10880
14	240.00	0.10700	31	1260.00	0.10880
15	300.00	0.10720	32	1320.00	0.10890
16	360.00	0.10750	33	1380.00	0.10890
17	420.00	0.10780			



Void Ratio = 0.718 Compression = 10.9 %
D_0 = 0.07480 D_{50} = 0.08904 D_{100} = 0.10328
C_v at 0.9 min. = 0.43 ft.^{2}/day C_α = 0.003

Pressure: 20664 psf — TEST READINGS — Load No. 7

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.10910	19	540.00	0.15180
2	0.10	0.11620	20	600.00	0.15200
3	0.25	0.11880	21	660.00	0.15210
4	0.50	0.12180	22	720.00	0.15210
5	1.00	0.12570	23	780.00	0.15220
6	2.00	0.13080	24	840.00	0.15230
7	4.00	0.13670	25	900.00	0.15250
8	8.00	0.14150	26	960.00	0.15250
9	15.00	0.14150	27	1020.00	0.15270
10	30.00	0.14590	28	1080.00	0.15280
11	60.00	0.14590	29	1140.00	0.15280
12	120.00	0.14880	30	1200.00	0.15290
13	180.00	0.14970	31	1260.00	0.15290
14	240.00	0.14970	32	1320.00	0.15300
15	300.00	0.14970	33	1380.00	0.15300
16	360.00	0.15100	34	1440.00	0.15310
17	420.00	0.15130	35	1500.00	0.15320
18	480.00	0.15150			



Void Ratio = 0.633 Compression = 15.3 %
D_0 = 0.11100 D_{50} = 0.12765 D_{100} = 0.14430
C_v at 1.2 min. = 0.31 ft.^{2}/day C_α = 0.005

Pressure: 10336 psf | TEST READINGS | Load No. 8

No.	Elapsed Time	Dial Reading
1	0.00	0.15320
2	0.10	0.15090
3	1440.00	0.14700

Void Ratio = 0.645 Compression = 14.7 %

Pressure: 5168 psf | TEST READINGS | Load No. 9

No.	Elapsed Time	Dial Reading
1	0.00	0.14700
2	0.12	0.14440
3	1440.00	0.13700

Void Ratio = 0.664 Compression = 13.7 %

Pressure: 2584 psf | TEST READINGS | Load No. 10

No.	Elapsed Time	Dial Reading
1	0.00	0.13700
2	0.15	0.13490
3	1440.00	0.12530

Void Ratio = 0.687 Compression = 12.5 %

Pressure: 1292 psf | TEST READINGS | Load No. 11

No.	Elapsed Time	Dial Reading
1	0.00	0.12530
2	0.15	0.12290
3	1440.00	0.11180

Void Ratio = 0.713 Compression = 11.2 %

Pressure: 646 psf | TEST READINGS | Load No. 12

No.	Elapsed Time	Dial Reading
1	0.00	0.11180
2	0.08	0.11020
3	1440.00	0.09760

Void Ratio = 0.740 Compression = 9.8 %

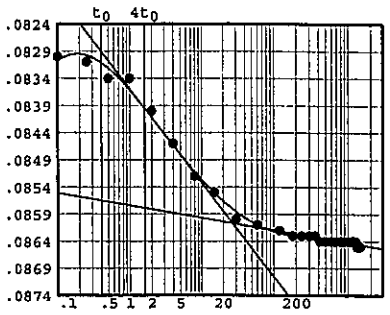
Pressure: 324 psf | TEST READINGS | Load No. 13

No.	Elapsed Time	Dial Reading
1	0.00	0.09760
2	0.08	0.09580
3	1440.00	0.08310

Void Ratio = 0.768 Compression = 8.3 %

Pressure: 646 psf | TEST READINGS | Load No. 14

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.08310	18	480.00	0.08640
2	0.10	0.08300	19	540.00	0.08640
3	0.25	0.08310	20	600.00	0.08640
4	0.50	0.08340	21	660.00	0.08640
5	1.00	0.08340	22	720.00	0.08640
6	2.00	0.08400	23	780.00	0.08640
7	4.00	0.08460	24	840.00	0.08640
8	8.00	0.08520	25	900.00	0.08640
9	15.00	0.08550	26	960.00	0.08640
10	30.00	0.08600	27	1020.00	0.08640
11	60.00	0.08610	28	1080.00	0.08640
12	120.00	0.08620	29	1140.00	0.08640
13	180.00	0.08630	30	1200.00	0.08640
14	240.00	0.08630	31	1260.00	0.08640
15	300.00	0.08630	32	1320.00	0.08650
16	360.00	0.08630	33	1380.00	0.08650
17	420.00	0.08640	34	1440.00	0.08650



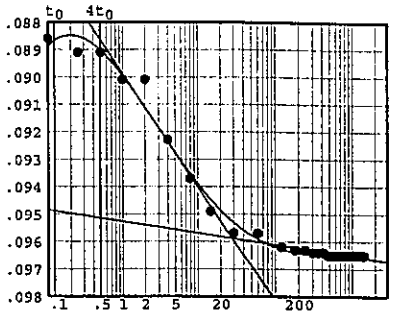
Void Ratio = 0.761 Compression = 8.6 %

D_0 = 0.08228 D_{50} = 0.08417 D_{100} = 0.08607

C_v at 2.2 min. = 0.19 ft.^{2}/day C_α = 0.000

Pressure: 1292 psf | TEST READINGS | Load No. 15

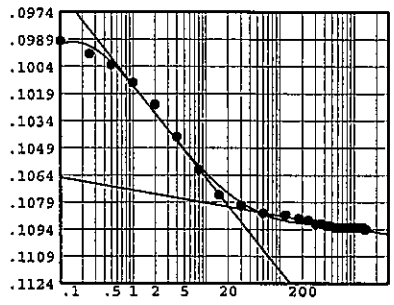
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.08650	18	480.00	0.09650
2	0.10	0.08860	19	540.00	0.09650
3	0.25	0.08910	20	600.00	0.09650
4	0.50	0.08910	21	660.00	0.09650
5	1.00	0.09010	22	720.00	0.09650
6	2.00	0.09010	23	780.00	0.09650
7	4.00	0.09230	24	840.00	0.09650
8	8.00	0.09370	25	900.00	0.09650
9	15.00	0.09490	26	960.00	0.09650
10	30.00	0.09570	27	1020.00	0.09650
11	60.00	0.09570	28	1080.00	0.09650
12	120.00	0.09620	29	1140.00	0.09650
13	180.00	0.09630	30	1200.00	0.09650
14	240.00	0.09630	31	1260.00	0.09650
15	300.00	0.09640	32	1320.00	0.09650
16	360.00	0.09640	33	1380.00	0.09650
17	420.00	0.09640	34	1440.00	0.09650



Void Ratio = 0.742 Compression = 9.6 %
D_0 = 0.08835 D_{50} = 0.09211 D_{100} = 0.09588
C_v at 3.5 min. = 0.12 ft.^{2}/day C_α = 0.000

Pressure: 2584 psf | TEST READINGS | Load No. 16

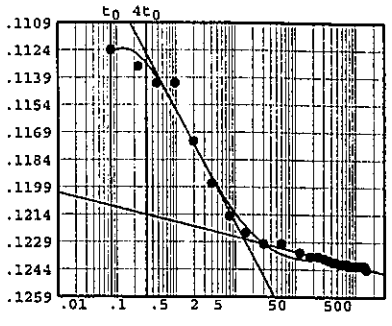
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.09650	18	480.00	0.10920
2	0.10	0.09900	19	540.00	0.10930
3	0.25	0.09970	20	600.00	0.10930
4	0.50	0.10030	21	660.00	0.10930
5	1.00	0.10130	22	720.00	0.10930
6	2.00	0.10250	23	780.00	0.10930
7	4.00	0.10430	24	840.00	0.10930
8	8.00	0.10610	25	900.00	0.10930
9	15.00	0.10750	26	960.00	0.10930
10	30.00	0.10810	27	1020.00	0.10930
11	60.00	0.10850	28	1080.00	0.10930
12	120.00	0.10860	29	1140.00	0.10930
13	180.00	0.10880	30	1200.00	0.10930
14	240.00	0.10890	31	1260.00	0.10930
15	300.00	0.10910	32	1320.00	0.10930
16	360.00	0.10910	33	1380.00	0.10940
17	420.00	0.10920	34	1440.00	0.10940



Void Ratio = 0.717 Compression = 10.9 %
D_0 = 0.09650 D_{50} = 0.10233 D_{100} = 0.10815
C_v at 1.5 min. = 0.27 ft.^{2}/day C_α = 0.001

Pressure: 5168 psf | TEST READINGS | Load No. 17

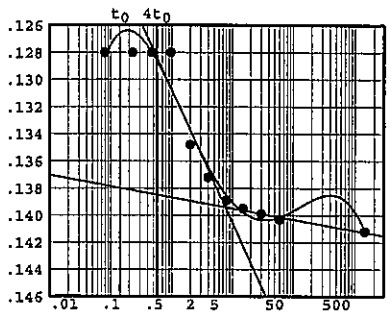
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.10940	18	480.00	0.12400
2	0.08	0.11240	19	540.00	0.12410
3	0.23	0.11330	20	600.00	0.12410
4	0.48	0.11420	21	660.00	0.12410
5	0.98	0.11420	22	720.00	0.12410
6	1.98	0.11740	23	780.00	0.12420
7	4.00	0.11970	24	840.00	0.12420
8	8.00	0.12150	25	900.00	0.12420
9	15.00	0.12240	26	960.00	0.12420
10	30.00	0.12300	27	1020.00	0.12420
11	60.00	0.12300	28	1080.00	0.12420
12	120.00	0.12350	29	1140.00	0.12420
13	180.00	0.12370	30	1200.00	0.12420
14	240.00	0.12370	31	1260.00	0.12420
15	300.00	0.12380	32	1320.00	0.12420
16	360.00	0.12390	33	1380.00	0.12420
17	420.00	0.12400	34	1485.00	0.12440



Void Ratio = 0.688 Compression = 12.4 %
D_0 = 0.11206 D_{50} = 0.11739 D_{100} = 0.12272
C_v at 1.9 min. = 0.20 ft.^{2}/day C_α = 0.001

Pressure: 10336 psf | TEST READINGS | Load No. 18

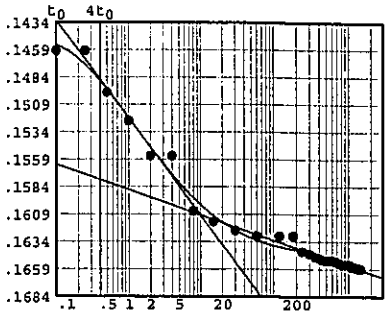
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.12440	11	60.00	0.14030
2	0.08	0.12800	12	1440.00	0.14120
3	0.23	0.12800			
4	0.48	0.12800			
5	0.98	0.12800			
6	2.00	0.13480			
7	4.00	0.13720			
8	8.00	0.13890			
9	15.00	0.13950			
10	30.00	0.13990			



Void Ratio = 0.656 Compression = 14.1 %
D_0 = 0.12464 D_{50} = 0.13202 D_{100} = 0.13939
C_v at 1.3 min. = 0.28 ft.^{2}/day C_α = 0.001

Pressure: 20672 psf | TEST READINGS | Load No. 19

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.14120	18	480.00	0.16510
2	0.10	0.14600	19	540.00	0.16510
3	0.25	0.14600	20	600.00	0.16510
4	0.50	0.14980	21	660.00	0.16520
5	1.00	0.15240	22	720.00	0.16530
6	2.00	0.15560	23	780.00	0.16540
7	4.00	0.15560	24	840.00	0.16550
8	8.00	0.16060	25	900.00	0.16550
9	15.00	0.16160	26	960.00	0.16550
10	30.00	0.16240	27	1020.00	0.16550
11	60.00	0.16290	28	1080.00	0.16570
12	120.00	0.16290	29	1140.00	0.16570
13	180.00	0.16290	30	1200.00	0.16570
14	240.00	0.16430	31	1260.00	0.16580
15	300.00	0.16450	32	1320.00	0.16580
16	360.00	0.16480	33	1380.00	0.16580
17	420.00	0.16500	34	1440.00	0.16590

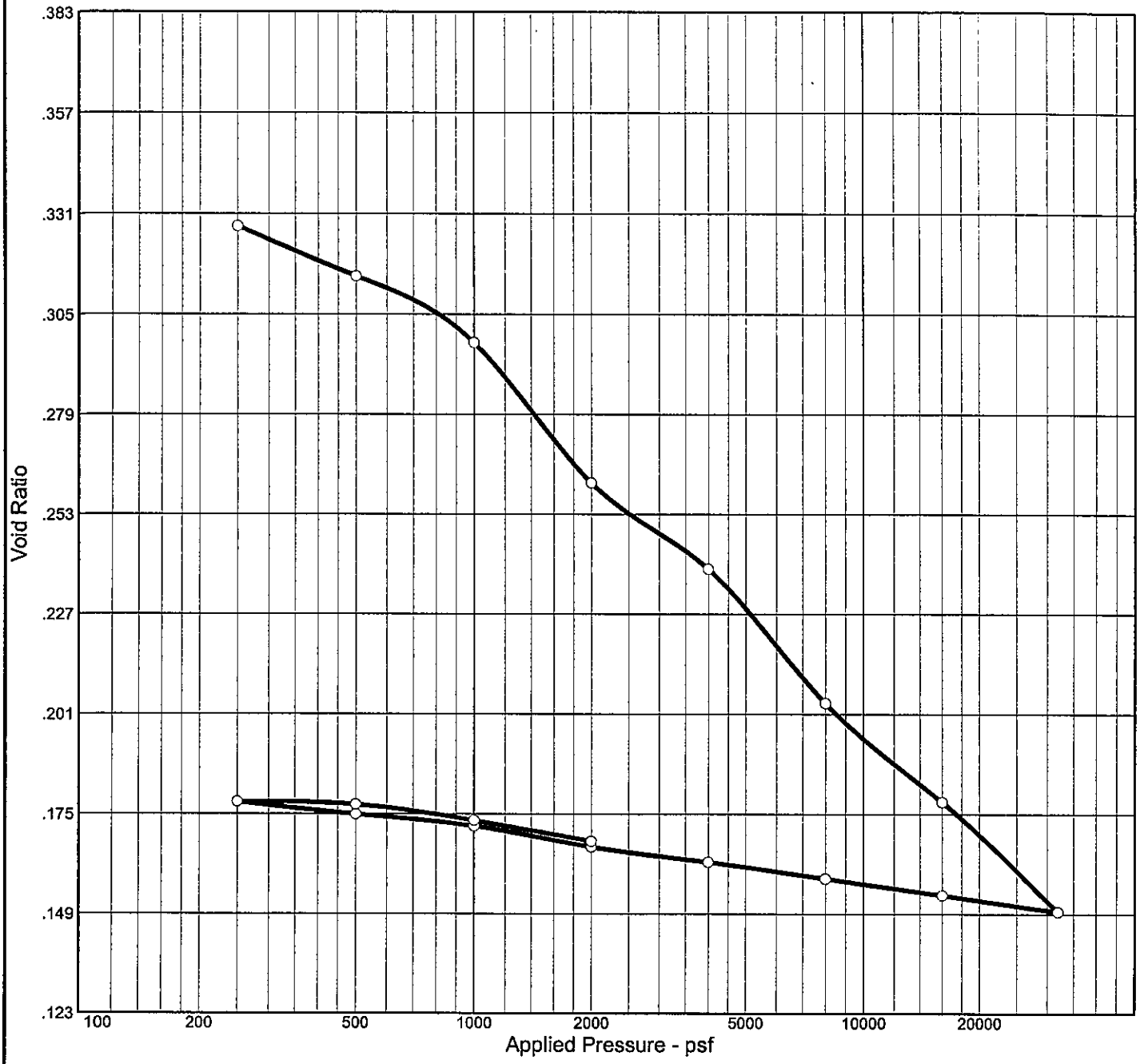


Void Ratio = 0.608 **Compression** = 16.6 %

D_0 = 0.14220 D_{50} = 0.15158 D_{100} = 0.16096

C_v **at 0.9 min.** = 0.40 ft.^{2}/day C_α = 0.003

CONSOLIDATION TEST REPORT



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	USCS	AASHTO	Initial Void Ratio
Saturation	Moisture							
108.9 %	13.8 %	127.4	NP	NP	2.75	ML	A-4(0)	0.347

MATERIAL DESCRIPTION

Silt with sand

Project No. 0121- **Client:** TranSystems, Inc.

Project: SCI-823-0.00

Source: TR-35A **Sample No.:** P-4B **Elev./Depth:** 66.9

DLZ

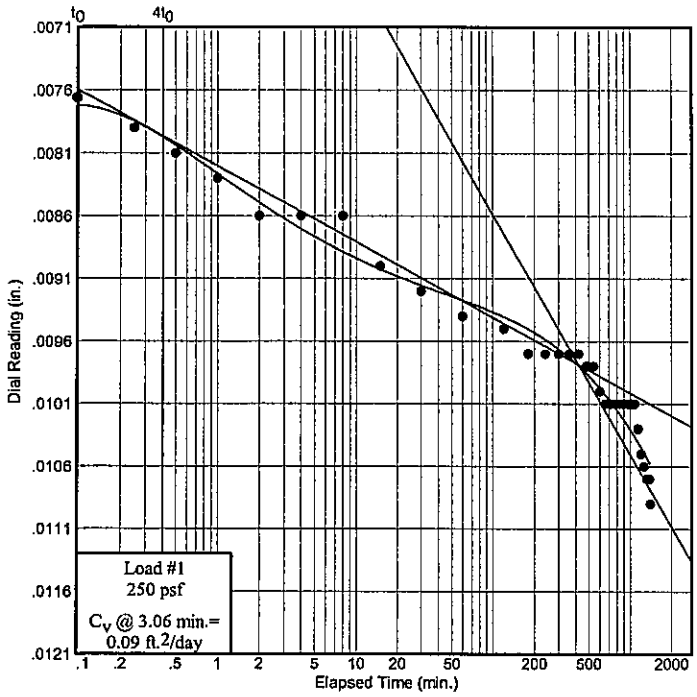
Remarks:

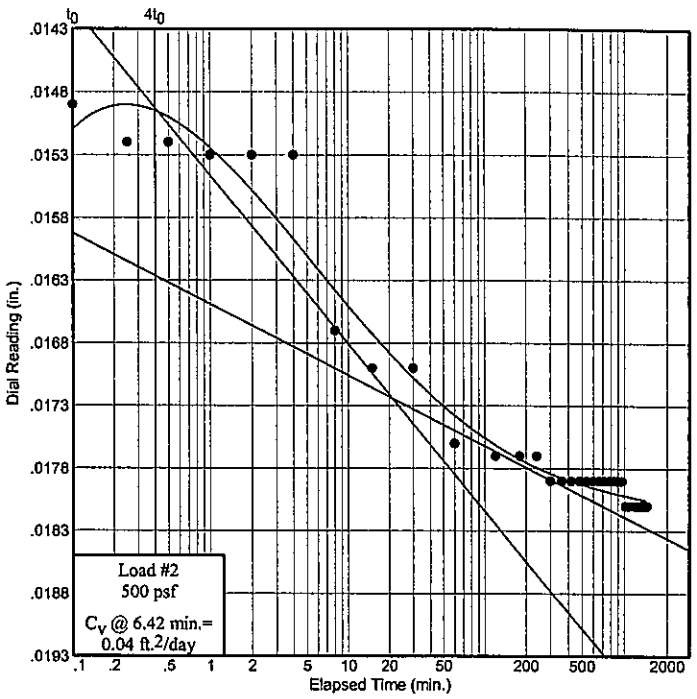
Figure

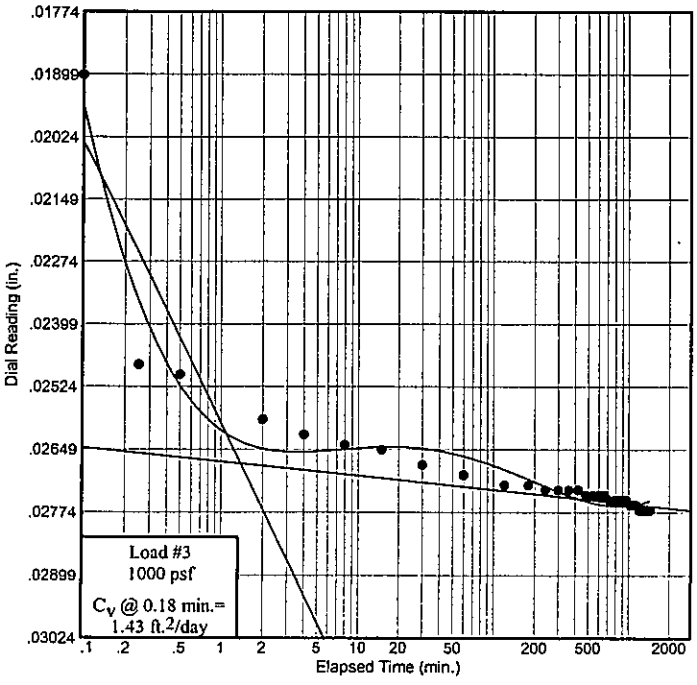
Dial Reading vs. Time

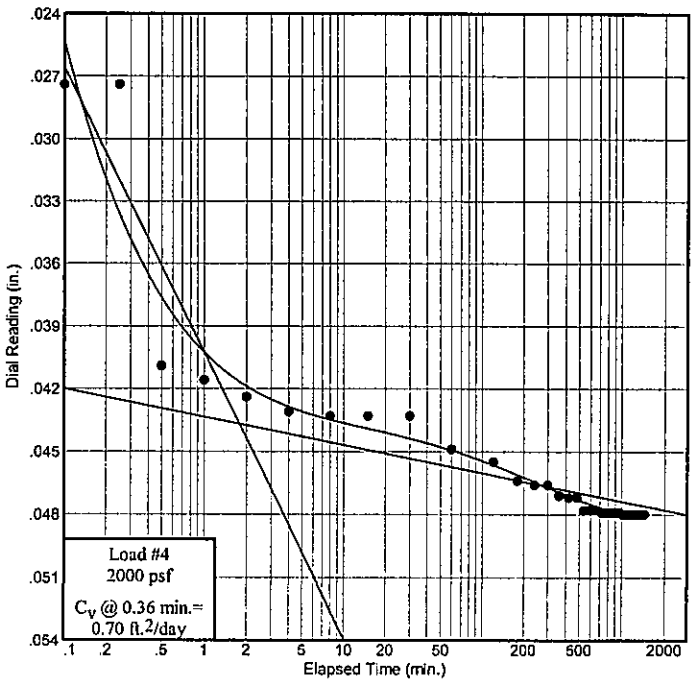
Project No.: 0121-3070.03
Project: SCI-823-0.00

Source: TR-35A Sample No.: P-4B Elev./Depth: 66.9









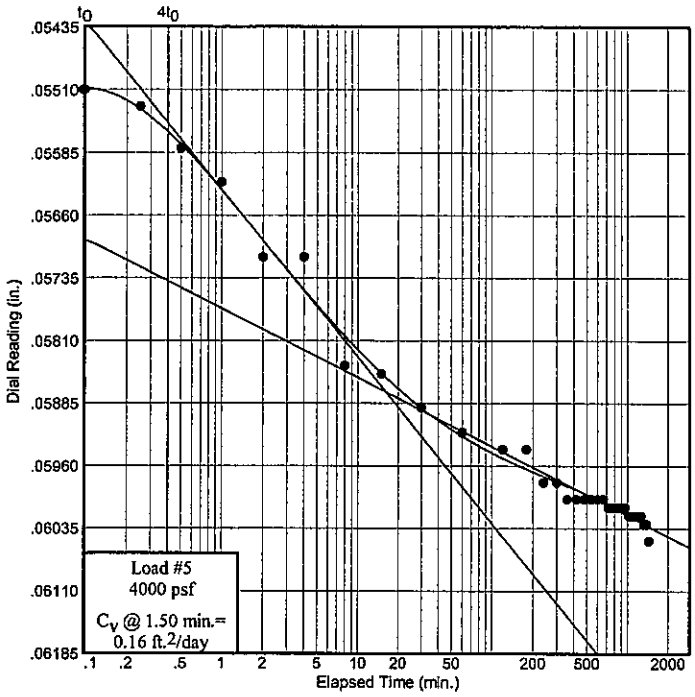
DLZ

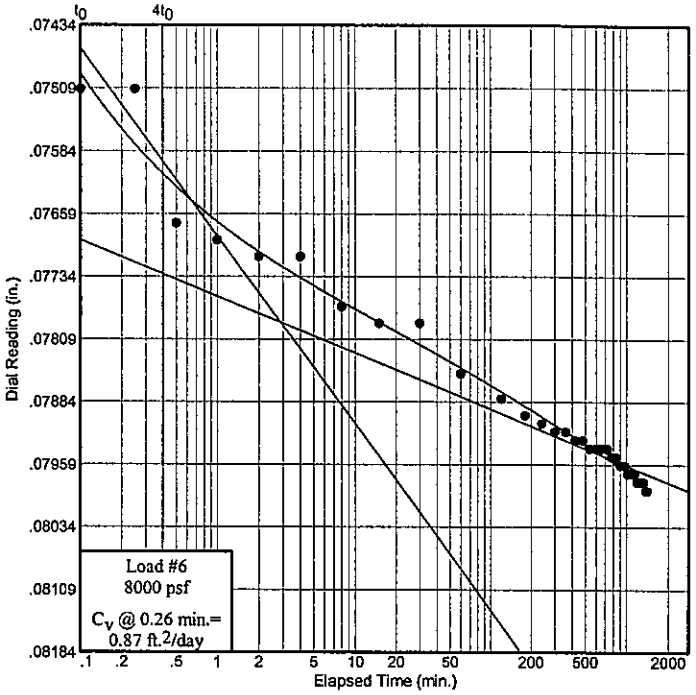
Figure

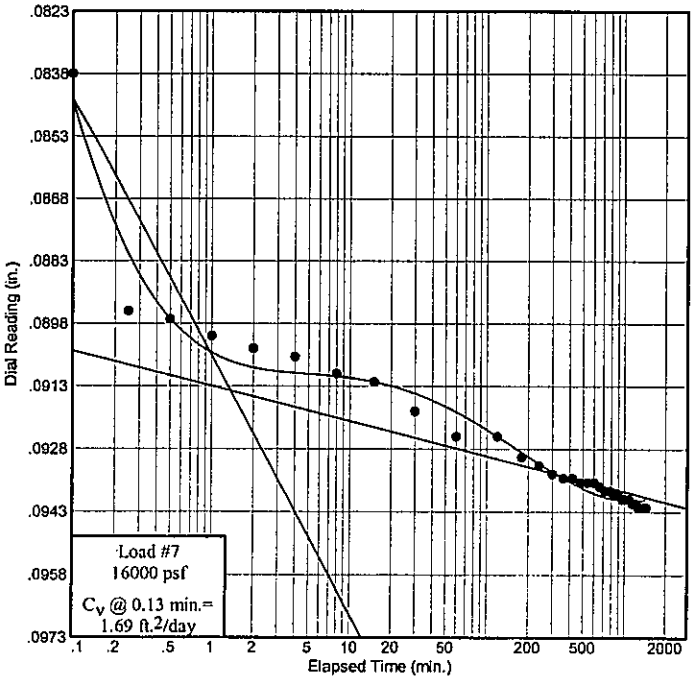
Dial Reading vs. Time

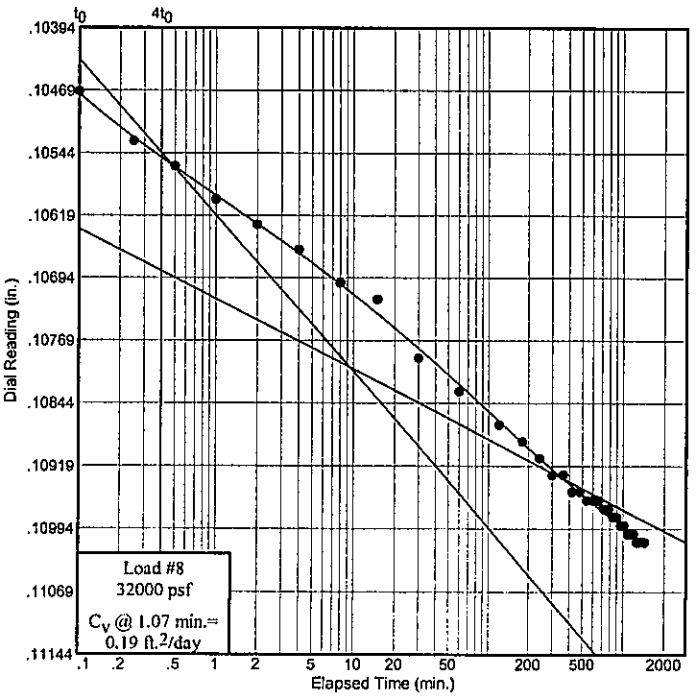
Project No.: 0121-3070.03
Project: SCI-823-0.00

Source: TR-35A Sample No.: P-4B Elev./Depth: 66.9









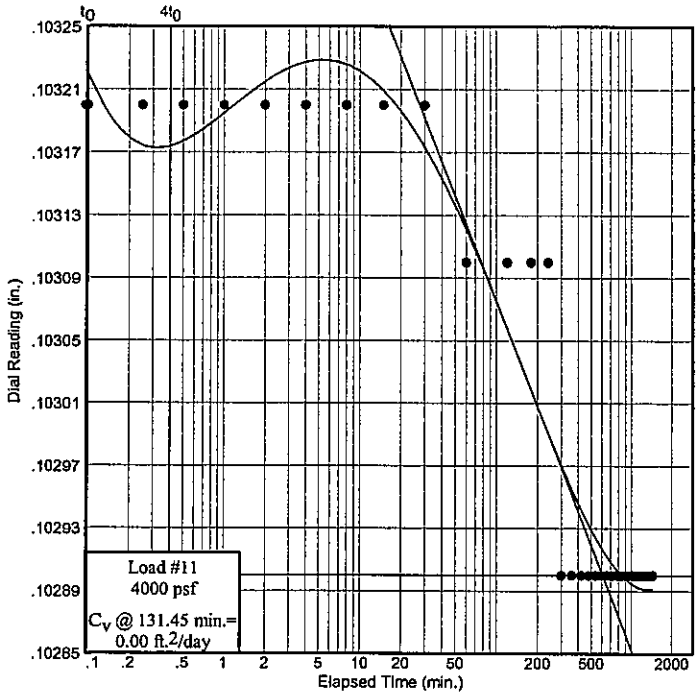
DLZ

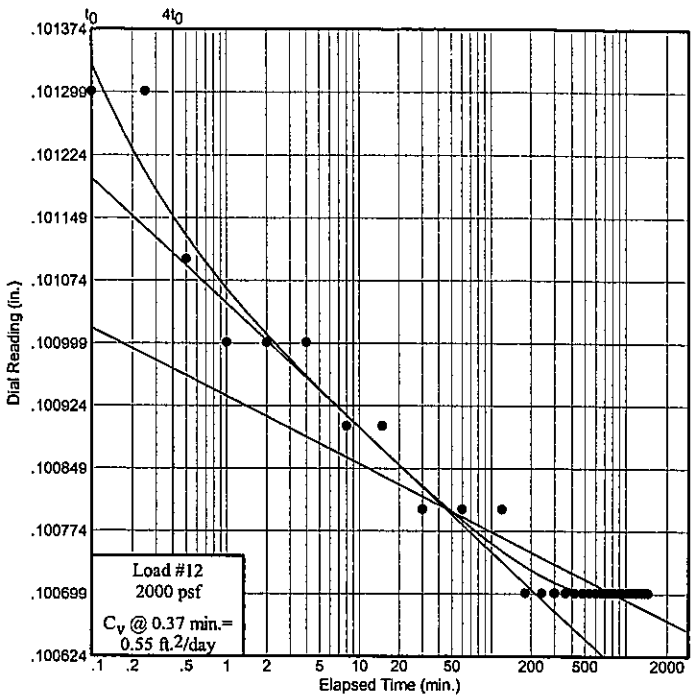
Figure

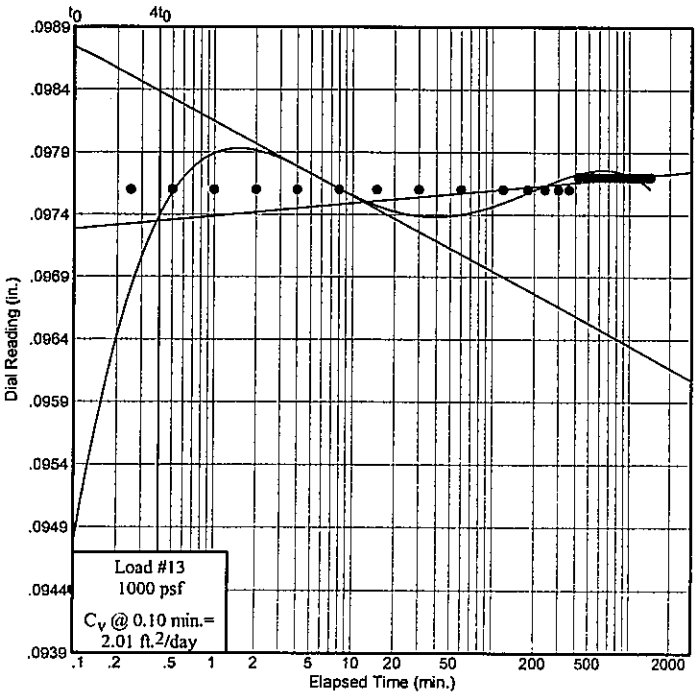
Dial Reading vs. Time

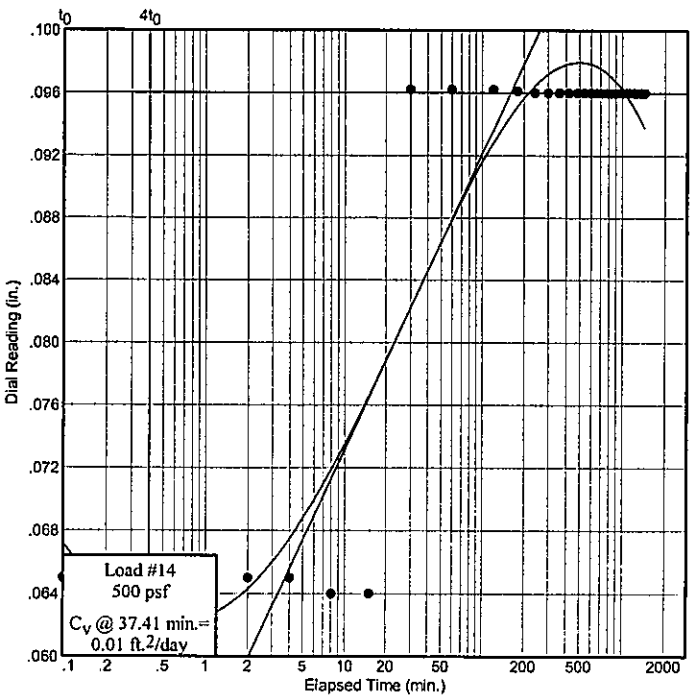
Project No.: 0121-3070.03
Project: SCI-823-0.00

Source: TR-35A Sample No.: P-4B Elev./Depth: 66.9









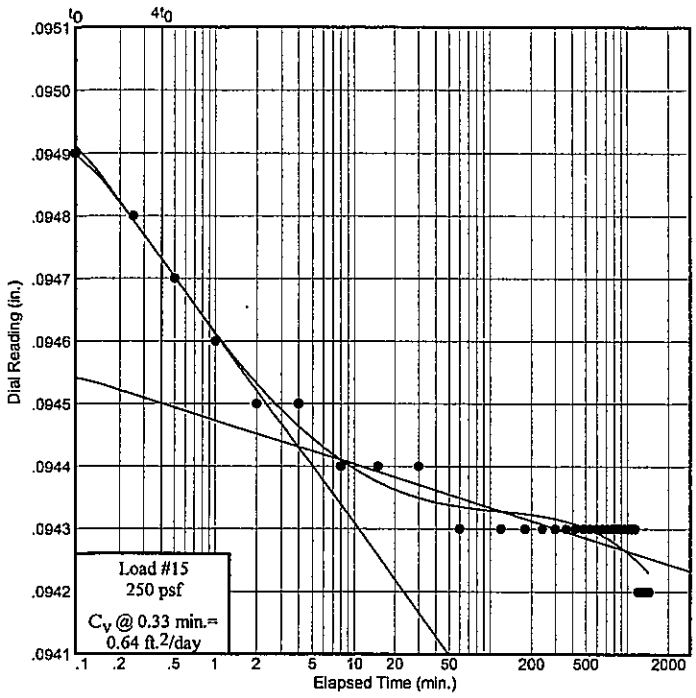
DLZ

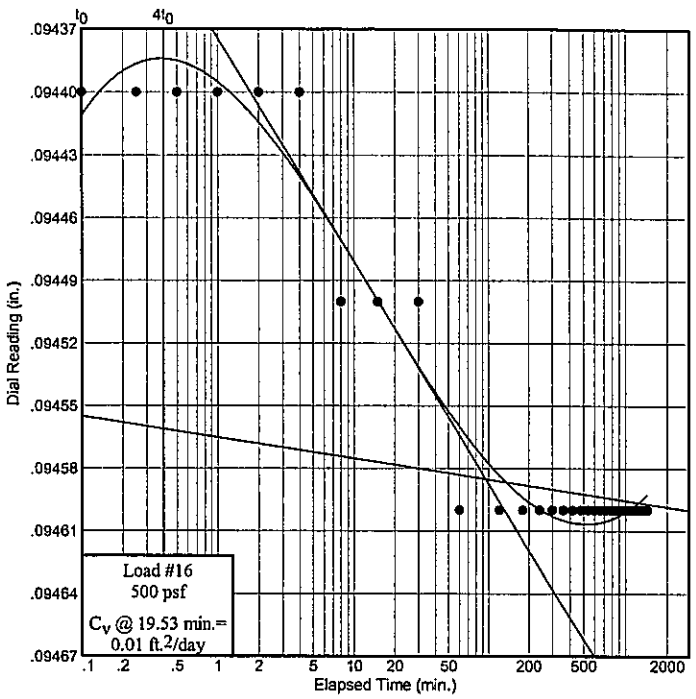
Figure

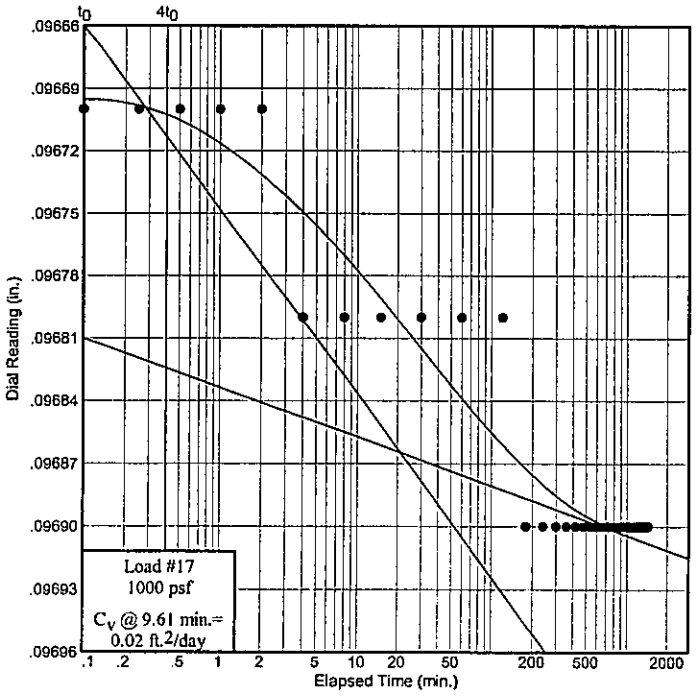
Dial Reading vs. Time

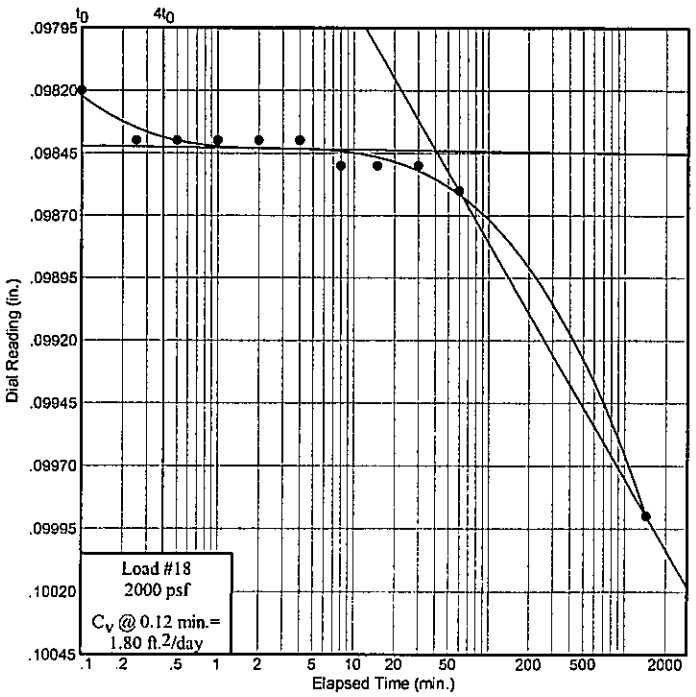
Project No.: 0121-3070.03
Project: SCI-823-0.00

Source: TR-35A Sample No.: P-4B Elev./Depth: 66.9









DLZ

Figure

CONSOLIDATION TEST DATA

Client: TranSystems, Inc.
Project: SCI-823-0.00
Project Number: 0121-3070.03

Sample Data

Source: TR-35A
Sample No.: P-4B
Elev. or Depth: 66.9 **Sample Length(in./cm.):** 13
Location:
Description: Silt with sand
Liquid Limit: NP **Plasticity Index:** NP
USCS: ML **AASHTO:** A-4(0) **Figure No.:**
Testing Remarks:

Test Specimen Data

TOTAL SAMPLE		BEFORE TEST	AFTER TEST
Wet w+t =	194.76 g.	Consolidometer # = 2	Wet w+t = 227.03 g.
Dry w+t =	178.56 g.		Dry w+t = 209.25 g.
Tare Wt. =	60.80 g.	Spec. Gravity = 2.75	Tare Wt. = 106.64 g.
Height =	.75 in.	Height = .75 in.	
Diameter =	2.50 in.	Diameter = 2.50 in.	
Weight =	140.07 g.	Defl. Table = n/a	
Moisture =	13.8 %	Ht. Solids = 0.5566 in.	Moisture = 17.3 %
Wet Den. =	144.9 pcf	Dry Wt. = 123.13 g.*	Dry Wt. = 102.61 g.
Dry Den. =	127.4 pcf	Void Ratio = 0.347	Void Ratio = 0.168
		Saturation = 108.9 %	

*** Initial dry weight used in calculations**

End-of-Load Summary

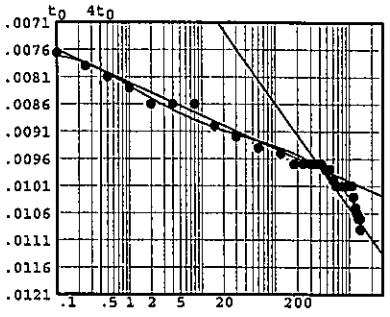
Pressure (psf)	Final Dial (in.)	Machine Defl. (in.)	C_v (ft.^{2}/day)	C_α	Void Ratio	% Compression /Swell
start	0.00000				0.347	
250	0.01090	0.00000	0.09	0.003	0.328	1.5 Comprs.
500	0.01810	0.00000	0.04	0.001	0.315	2.4 Comprs.
1000	0.02770	0.00000	1.43	0.000	0.298	3.7 Comprs.
2000	0.04800	0.00000	0.70	0.002	0.261	6.4 Comprs.
4000	0.06050	0.00000	0.16	0.001	0.239	8.1 Comprs.
8000	0.07990	0.00000	0.87	0.001	0.204	10.7 Comprs.
16000	0.09420	0.00000	1.69	0.001	0.178	12.6 Comprs.
32000	0.11010	0.00000	0.19	0.001	0.150	14.7 Comprs.
16000	0.10770	0.00000			0.154	14.4 Comprs.
8000	0.10530	0.00000			0.158	14.0 Comprs.
4000	0.10290	0.00000	0.00	0.000	0.163	13.7 Comprs.
2000	0.10070	0.00000	0.55		0.166	13.4 Comprs.
1000	0.09770	0.00000	2.01	0.000	0.172	13.0 Comprs.
500	0.09600	0.00000	0.01	0.000	0.175	12.8 Comprs.

Pressure (psf)	Final Dial (in.)	Machine Defl. (in.)	C_v ($ft.^2$/day)	C_α	Void Ratio	% Compression /Swell
250	0.09420	0.00000	0.64		0.178	12.6 Comprs.
500	0.09460	0.00000	0.01	0.000	0.177	12.6 Comprs.
1000	0.09690	0.00000	0.02	0.000	0.173	12.9 Comprs.
2000	0.09990	0.00000	1.80	0.001	0.168	13.3 Comprs.

C_c = 0.10 P_c = 1894 psf C_r = 0.01

Pressure: 250 psf **TEST READINGS** **Load No. 1**

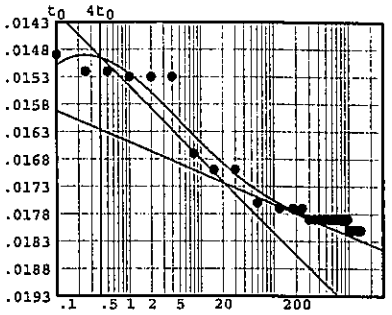
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.00000	18	480.00	0.00980
2	0.10	0.00766	19	540.00	0.00980
3	0.25	0.00790	20	600.00	0.01000
4	0.50	0.00810	21	660.00	0.01010
5	1.00	0.00830	22	720.00	0.01010
6	2.00	0.00860	23	780.00	0.01010
7	4.00	0.00860	24	840.00	0.01010
8	8.00	0.00860	25	900.00	0.01010
9	15.00	0.00900	26	960.00	0.01010
10	30.00	0.00920	27	1020.00	0.01010
11	60.00	0.00940	28	1080.00	0.01010
12	120.00	0.00950	29	1140.00	0.01030
13	180.00	0.00970	30	1200.00	0.01050
14	240.00	0.00970	31	1260.00	0.01060
15	300.00	0.00970	32	1320.00	0.01070
[illegible]	360.00	0.00970	33	1380.00	0.01070
[illegible]	420.00	0.00970	34	1400.00	0.01090



Void Ratio = 0.328 **Compression** = 1.5 %
D_0 = 0.00747 D_{50} = 0.00863 D_{100} = 0.00979
C_v **at 3.1 min.** = 0.09 $ft.^2$/day C_α = 0.003

Pressure: 500 psf — TEST READINGS — Load No. 2

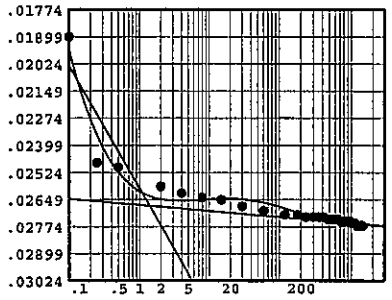
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.01090	18	480.00	0.01790
2	0.10	0.01490	19	540.00	0.01790
3	0.25	0.01520	20	600.00	0.01790
4	0.50	0.01520	21	660.00	0.01790
5	1.00	0.01530	22	720.00	0.01790
6	2.00	0.01530	23	780.00	0.01790
7	4.00	0.01530	24	840.00	0.01790
8	8.00	0.01670	25	900.00	0.01790
9	15.00	0.01700	26	960.00	0.01790
10	30.00	0.01700	27	1020.00	0.01810
11	60.00	0.01760	28	1080.00	0.01810
12	120.00	0.01770	29	1140.00	0.01810
13	180.00	0.01770	30	1200.00	0.01810
14	240.00	0.01770	31	1260.00	0.01810
15	300.00	0.01790	32	1320.00	0.01810
16	360.00	0.01790	33	1380.00	0.01810
17	420.00	0.01790	34	1440.00	0.01810



Void Ratio = 0.315 Compression = 2.4 %
D_0 = 0.01525 D_{50} = 0.01625 D_{100} = 0.01724
C_v at 6.4 min. = 0.04 ft.^{2}/day C_α = 0.001

Pressure: 1000 psf — TEST READINGS — Load No. 3

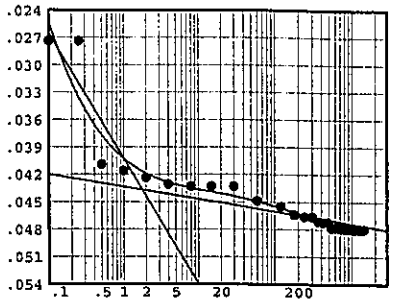
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.01820	18	540.00	0.02740
2	0.10	0.01900	19	600.00	0.02740
3	0.25	0.02480	20	660.00	0.02740
4	0.50	0.02500	21	720.00	0.02750
5	2.00	0.02590	22	780.00	0.02750
6	4.00	0.02620	23	840.00	0.02750
7	8.00	0.02640	24	900.00	0.02750
8	15.00	0.02650	25	960.00	0.02750
9	30.00	0.02680	26	1020.00	0.02760
10	60.00	0.02700	27	1080.00	0.02760
11	120.00	0.02720	28	1140.00	0.02760
12	180.00	0.02720	29	1200.00	0.02770
13	240.00	0.02730	30	1260.00	0.02770
14	300.00	0.02730	31	1320.00	0.02770
15	360.00	0.02730	32	1380.00	0.02770
16	420.00	0.02730	33	1440.00	0.02770
17	480.00	0.02740			



Void Ratio = 0.298 Compression = 3.7 %
D_0 = 0.01820 D_{50} = 0.02248 D_{100} = 0.02677
C_v at 0.2 min. = 1.43 ft.^{2}/day C_α = 0.000

Pressure: 2000 psf | TEST READINGS | Load No. 4

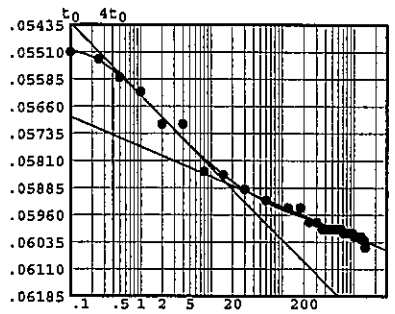
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.02810	18	480.00	0.04720
2	0.10	0.02740	19	540.00	0.04780
3	0.25	0.02740	20	600.00	0.04780
4	0.50	0.04090	21	660.00	0.04780
5	1.00	0.04160	22	720.00	0.04790
6	2.00	0.04240	23	780.00	0.04790
7	4.00	0.04310	24	840.00	0.04790
8	8.00	0.04330	25	900.00	0.04790
9	15.00	0.04330	26	960.00	0.04790
10	30.00	0.04330	27	1020.00	0.04800
11	60.00	0.04490	28	1080.00	0.04800
12	120.00	0.04550	29	1140.00	0.04800
13	180.00	0.04640	30	1200.00	0.04800
14	240.00	0.04660	31	1260.00	0.04800
15	300.00	0.04660	32	1320.00	0.04800
16	360.00	0.04710	33	1380.00	0.04800
17	420.00	0.04720	34	1440.00	0.04800



Void Ratio = 0.261 Compression = 6.4 %
D_0 = 0.02810 D_{50} = 0.03589 D_{100} = 0.04368
C_v at 0.4 min. = 0.70 ft.^{2}/day C_α = 0.002

Pressure: 4000 psf | TEST READINGS | Load No. 5

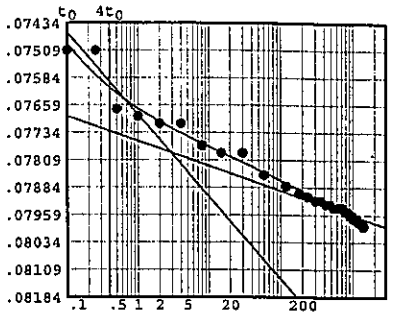
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.04800	18	480.00	0.06000
2	0.10	0.05510	19	540.00	0.06000
3	0.25	0.05530	20	600.00	0.06000
4	0.50	0.05580	21	660.00	0.06000
5	1.00	0.05620	22	720.00	0.06010
6	2.00	0.05710	23	780.00	0.06010
7	4.00	0.05710	24	840.00	0.06010
8	8.00	0.05840	25	900.00	0.06010
9	15.00	0.05850	26	960.00	0.06010
10	30.00	0.05890	27	1020.00	0.06020
11	60.00	0.05920	28	1080.00	0.06020
12	120.00	0.05940	29	1140.00	0.06020
13	180.00	0.05940	30	1200.00	0.06020
14	240.00	0.05980	31	1260.00	0.06020
15	300.00	0.05980	32	1320.00	0.06030
16	360.00	0.06000	33	1380.00	0.06030
17	420.00	0.06000	34	1440.00	0.06050



Void Ratio = 0.239 Compression = 8.1 %
D_0 = 0.05456 D_{50} = 0.05664 D_{100} = 0.05872
C_v at 1.5 min. = 0.16 ft.^{2}/day C_α = 0.001

Pressure: 8000 psf | TEST READINGS | Load No. 6

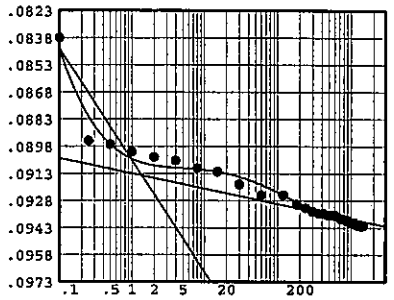
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.06050	18	480.00	0.07930
2	0.10	0.07510	19	540.00	0.07940
3	0.25	0.07510	20	600.00	0.07940
4	0.50	0.07670	21	660.00	0.07940
5	1.00	0.07690	22	720.00	0.07940
6	2.00	0.07710	23	780.00	0.07950
7	4.00	0.07710	24	840.00	0.07950
8	8.00	0.07770	25	900.00	0.07960
9	15.00	0.07790	26	960.00	0.07960
10	30.00	0.07790	27	1020.00	0.07970
11	60.00	0.07850	28	1080.00	0.07970
12	120.00	0.07880	29	1140.00	0.07970
13	180.00	0.07900	30	1200.00	0.07980
14	240.00	0.07910	31	1260.00	0.07980
15	300.00	0.07920	32	1320.00	0.07980
16	360.00	0.07920	33	1380.00	0.07990
17	420.00	0.07930	34	1400.00	0.07990



Void Ratio = 0.204 Compression = 10.7 %
D_0 = 0.07371 D_{50} = 0.07580 D_{100} = 0.07788
C_v at 0.3 min. = 0.87 ft.^{2}/day C_α = 0.001

Pressure: 16000 psf | TEST READINGS | Load No. 7

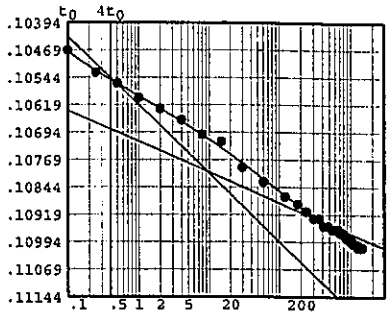
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.07990	18	480.00	0.09360
2	0.10	0.08380	19	540.00	0.09360
3	0.25	0.08950	20	600.00	0.09360
4	0.50	0.08970	21	660.00	0.09370
5	1.00	0.09010	22	720.00	0.09380
6	2.00	0.09040	23	780.00	0.09380
7	4.00	0.09060	24	840.00	0.09390
8	8.00	0.09100	25	900.00	0.09390
9	15.00	0.09120	26	960.00	0.09400
10	30.00	0.09190	27	1020.00	0.09400
11	60.00	0.09250	28	1080.00	0.09400
12	120.00	0.09250	29	1140.00	0.09410
13	180.00	0.09300	30	1200.00	0.09410
14	240.00	0.09320	31	1260.00	0.09420
15	300.00	0.09340	32	1320.00	0.09420
16	360.00	0.09350	33	1380.00	0.09420
17	420.00	0.09350	34	1440.00	0.09420



Void Ratio = 0.178 Compression = 12.6 %
D_0 = 0.07990 D_{50} = 0.08565 D_{100} = 0.09141
C_v at 0.1 min. = 1.69 ft.^{2}/day C_α = 0.001

Pressure: 32000 psf — TEST READINGS — Load No. 8

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.09420	18	480.00	0.10950
2	0.10	0.10470	19	540.00	0.10960
3	0.25	0.10530	20	600.00	0.10960
4	0.50	0.10560	21	660.00	0.10960
5	1.00	0.10600	22	720.00	0.10970
6	2.00	0.10630	23	780.00	0.10970
7	4.00	0.10660	24	840.00	0.10980
8	8.00	0.10700	25	900.00	0.10980
9	15.00	0.10720	26	960.00	0.10990
10	30.00	0.10790	27	1020.00	0.10990
11	60.00	0.10830	28	1080.00	0.11000
12	120.00	0.10870	29	1140.00	0.11000
13	180.00	0.10890	30	1200.00	0.11000
14	240.00	0.10910	31	1260.00	0.11010
15	300.00	0.10930	32	1320.00	0.11010
16	360.00	0.10930	33	1380.00	0.11010
17	420.00	0.10950	34	1440.00	0.11010



Void Ratio = 0.150 Compression = 14.7 %
D_0 = 0.10396 D_{50} = 0.10598 D_{100} = 0.10801
C_v at 1.1 min. = 0.19 ft.^{2}/day C_α = 0.001

Pressure: 16000 psf — TEST READINGS — Load No. 9

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.11030	13	180.00	0.10770	25	900.00	0.10770
2	0.10	0.10770	14	240.00	0.10770	26	960.00	0.10770
3	0.25	0.10770	15	300.00	0.10770	27	1020.00	0.10770
4	0.50	0.10770	16	360.00	0.10770	28	1080.00	0.10770
5	1.00	0.10770	17	420.00	0.10770	29	1140.00	0.10770
6	2.00	0.10770	18	480.00	0.10770	30	1200.00	0.10770
7	4.00	0.10770	19	540.00	0.10770	31	1260.00	0.10770
8	8.00	0.10770	20	600.00	0.10770	32	1320.00	0.10770
9	15.00	0.10770	21	660.00	0.10770	33	1380.00	0.10770
10	30.00	0.10770	22	720.00	0.10770	34	1440.00	0.10770
11	60.00	0.10770	23	780.00	0.10770			
12	120.00	0.10770	24	840.00	0.10770			

Void Ratio = 0.154 Compression = 14.4 %

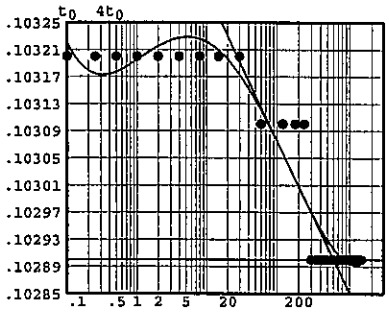
Pressure: 8000 psf — TEST READINGS — Load No. 10

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.10770	13	180.00	0.10530	25	900.00	0.10530
2	0.10	0.10530	14	240.00	0.10530	26	960.00	0.10530
3	0.25	0.10530	15	300.00	0.10530	27	1020.00	0.10530
4	0.50	0.10530	16	360.00	0.10530	28	1080.00	0.10530
5	1.00	0.10530	17	420.00	0.10530	29	1140.00	0.10530
6	2.00	0.10530	18	480.00	0.10530	30	1200.00	0.10530
7	4.00	0.10530	19	540.00	0.10530	31	1260.00	0.10530
8	8.00	0.10530	20	600.00	0.10530	32	1320.00	0.10530
9	15.00	0.10530	21	660.00	0.10530	33	1380.00	0.10530
10	30.00	0.10530	22	720.00	0.10530	34	1440.00	0.10530
11	60.00	0.10530	23	780.00	0.10530			
12	120.00	0.10530	24	840.00	0.10530			

Void Ratio = 0.158 Compression = 14.0 %

Pressure: 4000 psf — TEST READINGS — Load No. 11

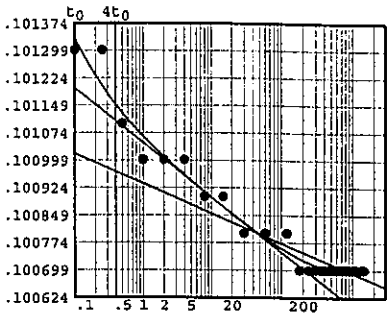
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.10530	18	480.00	0.10290
2	0.10	0.10320	19	540.00	0.10290
3	0.25	0.10320	20	600.00	0.10290
4	0.50	0.10320	21	660.00	0.10290
5	1.00	0.10320	22	720.00	0.10290
6	2.00	0.10320	23	780.00	0.10290
7	4.00	0.10320	24	840.00	0.10290
8	8.00	0.10320	25	900.00	0.10290
9	15.00	0.10320	26	960.00	0.10290
10	30.00	0.10320	27	1020.00	0.10290
11	60.00	0.10310	28	1080.00	0.10290
12	120.00	0.10310	29	1140.00	0.10290
13	180.00	0.10310	30	1200.00	0.10290
14	240.00	0.10310	31	1260.00	0.10290
15	300.00	0.10290	32	1320.00	0.10290
16	360.00	0.10290	33	1380.00	0.10290
17	420.00	0.10290	34	1440.00	0.10290



Void Ratio = 0.163 Compression = 13.7 %
D_0 = 0.10327 D_{50} = 0.10308 D_{100} = 0.10290
C_v at 131.5 min. = 0.00 ft.^{2}/day C_α = 0.000

Pressure: 2000 psf | TEST READINGS | Load No. 12

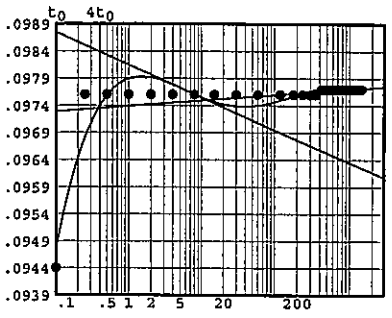
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.10290	18	480.00	0.10070
2	0.10	0.10130	19	540.00	0.10070
3	0.25	0.10130	20	600.00	0.10070
4	0.50	0.10110	21	660.00	0.10070
5	1.00	0.10100	22	720.00	0.10070
6	2.00	0.10100	23	780.00	0.10070
7	4.00	0.10100	24	840.00	0.10070
8	8.00	0.10090	25	900.00	0.10070
9	15.00	0.10090	26	960.00	0.10070
10	30.00	0.10080	27	1020.00	0.10070
11	60.00	0.10080	28	1080.00	0.10070
12	120.00	0.10080	29	1140.00	0.10070
13	180.00	0.10070	30	1200.00	0.10070
14	240.00	0.10070	31	1260.00	0.10070
15	300.00	0.10070	32	1320.00	0.10070
16	360.00	0.10070	33	1380.00	0.10070
17	420.00	0.10070	34	1440.00	0.10070



Void Ratio = 0.166 Compression = 13.4 %
D_0 = 0.10151 D_{50} = 0.10116 D_{100} = 0.10080
C_v at 0.4 min. = 0.55 ft.^{2}/day

Pressure: 1000 psf | TEST READINGS | Load No. 13

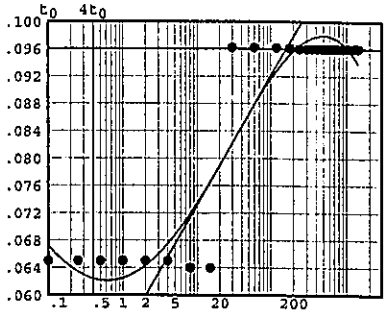
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.10060	18	480.00	0.09770
2	0.10	0.09440	19	540.00	0.09770
3	0.25	0.09760	20	600.00	0.09770
4	0.50	0.09760	21	660.00	0.09770
5	1.00	0.09760	22	720.00	0.09770
6	2.00	0.09760	23	780.00	0.09770
7	4.00	0.09760	24	840.00	0.09770
8	8.00	0.09760	25	900.00	0.09770
9	15.00	0.09760	26	960.00	0.09770
10	30.00	0.09760	27	1020.00	0.09770
11	60.00	0.09760	28	1080.00	0.09770
12	120.00	0.09760	29	1140.00	0.09770
13	180.00	0.09760	30	1200.00	0.09770
14	240.00	0.09760	31	1260.00	0.09770
15	300.00	0.09760	32	1320.00	0.09770
16	360.00	0.09760	33	1380.00	0.09770
17	420.00	0.09770	34	1440.00	0.09770



Void Ratio = 0.172 Compression = 13.0 %
D_0 = 0.09213 D_{50} = 0.09482 D_{100} = 0.09750
C_v at 0.1 min. = 2.01 ft.^{2}/day C_α = 0.000

Pressure: 500 psf | TEST READINGS | Load No. 14

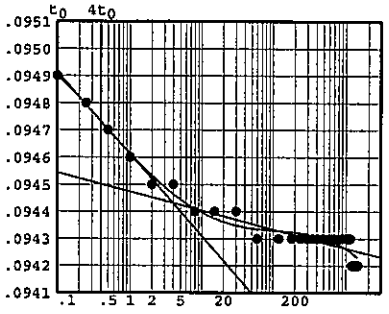
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.09770	18	480.00	0.09600
2	0.10	0.06500	19	540.00	0.09600
3	0.25	0.06500	20	600.00	0.09600
4	0.50	0.06500	21	660.00	0.09600
5	1.00	0.06500	22	720.00	0.09600
6	2.00	0.06500	23	780.00	0.09600
7	4.00	0.06500	24	840.00	0.09600
8	8.00	0.06400	25	900.00	0.09600
9	15.00	0.06400	26	960.00	0.09600
10	30.00	0.09620	27	1020.00	0.09600
11	60.00	0.09620	28	1080.00	0.09600
12	120.00	0.09620	29	1140.00	0.09600
13	180.00	0.09610	30	1200.00	0.09600
14	240.00	0.09600	31	1260.00	0.09600
15	300.00	0.09600	32	1320.00	0.09600
16	360.00	0.09600	33	1380.00	0.09600
17	420.00	0.09600	34	1440.00	0.09600



Void Ratio = 0.175 Compression = 12.8 %
D_0 = 0.07204 D_{50} = 0.08402 D_{100} = 0.09600
C_v at 37.4 min. = 0.01 ft.^{2}/day C_α = 0.000

Pressure: 250 psf | TEST READINGS | Load No. 15

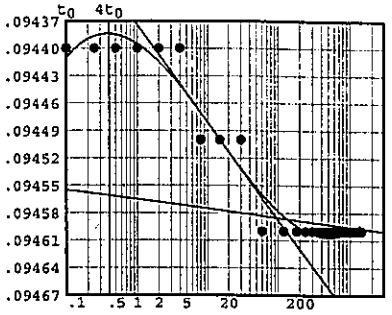
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.09600	18	480.00	0.09430
2	0.10	0.09490	19	540.00	0.09430
3	0.25	0.09480	20	600.00	0.09430
4	0.50	0.09470	21	660.00	0.09430
5	1.00	0.09460	22	720.00	0.09430
6	2.00	0.09450	23	780.00	0.09430
7	4.00	0.09450	24	840.00	0.09430
8	8.00	0.09440	25	900.00	0.09430
9	15.00	0.09440	26	960.00	0.09430
10	30.00	0.09440	27	1020.00	0.09430
11	60.00	0.09430	28	1080.00	0.09430
12	120.00	0.09430	29	1140.00	0.09430
13	180.00	0.09430	30	1200.00	0.09420
14	240.00	0.09430	31	1260.00	0.09420
15	300.00	0.09430	32	1320.00	0.09420
16	360.00	0.09430	33	1380.00	0.09420
17	420.00	0.09430	34	1440.00	0.09420



Void Ratio = 0.178 Compression = 12.6 %
D_0 = 0.09507 D_{50} = 0.09475 D_{100} = 0.09443
C_v at 0.3 min. = 0.64 ft.^{2}/day

Pressure: 500 psf | TEST READINGS | Load No. 16

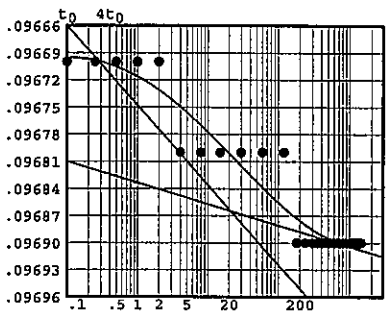
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.09400	18	480.00	0.09460
2	0.10	0.09440	19	540.00	0.09460
3	0.25	0.09440	20	600.00	0.09460
4	0.50	0.09440	21	660.00	0.09460
5	1.00	0.09440	22	720.00	0.09460
6	2.00	0.09440	23	780.00	0.09460
7	4.00	0.09440	24	840.00	0.09460
8	8.00	0.09450	25	900.00	0.09460
9	15.00	0.09450	26	960.00	0.09460
10	30.00	0.09450	27	1020.00	0.09460
11	60.00	0.09460	28	1080.00	0.09460
12	120.00	0.09460	29	1140.00	0.09460
13	180.00	0.09460	30	1200.00	0.09460
14	240.00	0.09460	31	1260.00	0.09460
15	300.00	0.09460	32	1320.00	0.09460
16	360.00	0.09460	33	1380.00	0.09460
17	420.00	0.09460	34	1440.00	0.09460



Void Ratio = 0.177 Compression = 12.6 %
D_0 = 0.09444 D_{50} = 0.09451 D_{100} = 0.09459
C_v at 19.5 min. = 0.01 ft.^{2}/day C_α = 0.000

Pressure: 1000 psf | TEST READINGS | Load No. 17

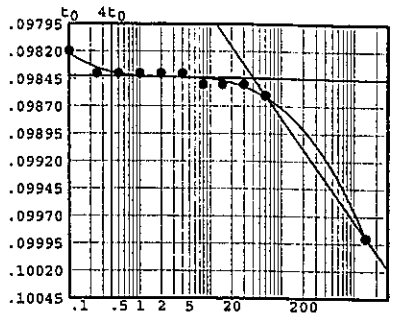
No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.09460	18	480.00	0.09690
2	0.10	0.09670	19	540.00	0.09690
3	0.25	0.09670	20	600.00	0.09690
4	0.50	0.09670	21	660.00	0.09690
5	1.00	0.09670	22	720.00	0.09690
6	2.00	0.09670	23	780.00	0.09690
7	4.00	0.09680	24	840.00	0.09690
8	8.00	0.09680	25	900.00	0.09690
9	15.00	0.09680	26	960.00	0.09690
10	30.00	0.09680	27	1020.00	0.09690
11	60.00	0.09680	28	1080.00	0.09690
12	120.00	0.09680	29	1140.00	0.09690
13	180.00	0.09690	30	1200.00	0.09690
14	240.00	0.09690	31	1260.00	0.09690
15	300.00	0.09690	32	1320.00	0.09690
16	360.00	0.09690	33	1380.00	0.09690
17	420.00	0.09690	34	1440.00	0.09690



Void Ratio = 0.173 Compression = 12.9 %
D_0 = 0.09669 D_{50} = 0.09678 D_{100} = 0.09686
C_v at 9.6 min. = 0.02 ft.^{2}/day C_α = 0.000

Pressure: 2000 psf | TEST READINGS | Load No. 18

No.	Elapsed Time	Dial Reading	No.	Elapsed Time	Dial Reading
1	0.00	0.09690	11	60.00	0.09860
2	0.10	0.09820	12	1440.00	0.09990
3	0.25	0.09840			
4	0.50	0.09840			
5	1.00	0.09840			
6	2.00	0.09840			
7	4.00	0.09840			
8	8.00	0.09850			
9	15.00	0.09850			
10	30.00	0.09850			



Void Ratio = 0.168 **Compression** = 13.3 %

D_0 = 0.09806 D_{50} = 0.09825 D_{100} = 0.09844

C_v **at 0.1 min.** = 1.80 ft.^{2}/day C_α = 0.001

APPENDIX C

DLZ

APPENDIX C

Plan and Profile Drawings (Highland Bend)
Current Profile Data (January 16, 2006)
Plan and Profile Drawings (Little Scioto River)

Plan and Profile Drawings (Highland Bend)

EX. TEL.

CSX R.R.

CONSTRUCTION LIMITS

℄ CONSTRUCTION S.R. 823

MATCH LINE STA. 106+00 S.R. 823

107 108 109 110 111 112 113 114 115 116 117 118 119

N 0° 38' 41" W

10' 6' 24' 6' 24' 10'

TYPE "A-1" BARRIER

160036000
FITZGERALD MARK + RACHEL

CONSTRUCTION LIMITS

ABANDONED R.R.

P001 160844000 MCGUIRE ORA + PEARL

P002 160843000 MCGUIRE ORA + PEARL

P003 341052000 HARRISON MARK D + TERESA J/S

TS Sta. 3+71.22

SC Sta. 4+71.22

CS Sta. 4+88.47

CONSTRUCTION LIMITS

PERSHING AVE.

N 35°

MATCH LINE STA. 120+00 S.R. 823

PORTSMOUTH TWP
PORTER TWP

340355000
BURKE HERSCHEL E

P003

160839000 MCGUIRE ORA + PEARL

160838000 MCGUIRE ORA + PEARL

160840000 MCGUIRE ORA + PEARL

160841000 MCGUIRE ORA + PEARL

160842000 NIEMOS ROBERT G. + CORA

160845000 NIEMOS ROBERT G. + CORA

160846000 MCGUIRE ORA + PEARL

P001

P002

EX. TEL.

160274000
PHILLIPS THOMAS + DIANE J/S

559 SLOCUM AVE.

CSX R.R.

SLOCUM ROAD

N

HORIZONTAL SCALE IN FEET
0 25 50 100

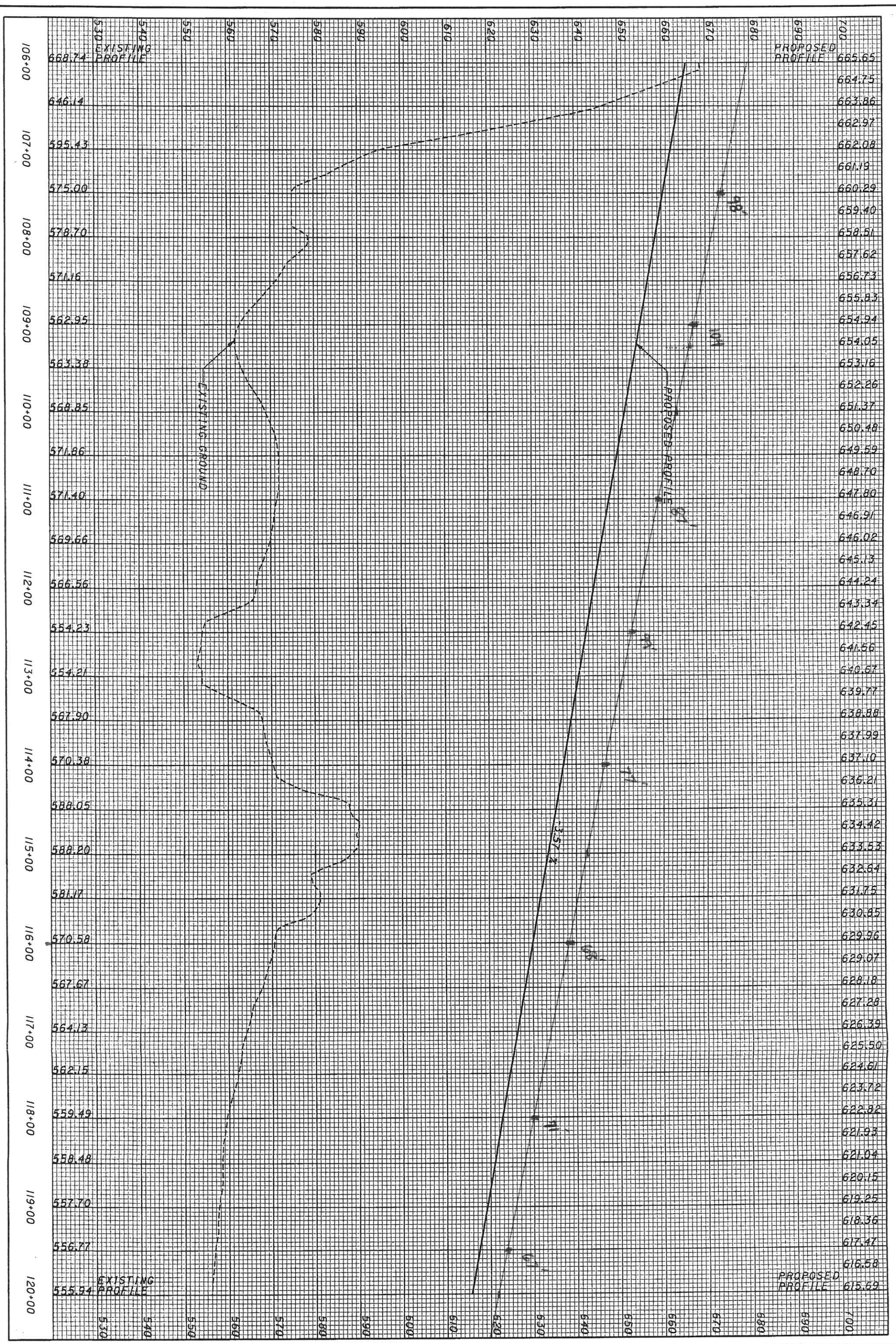
CALCULATED

CHECKED

PLAN - S.R. 823
STA. 106+00 TO STA. 120+00

SCI-823-0.00

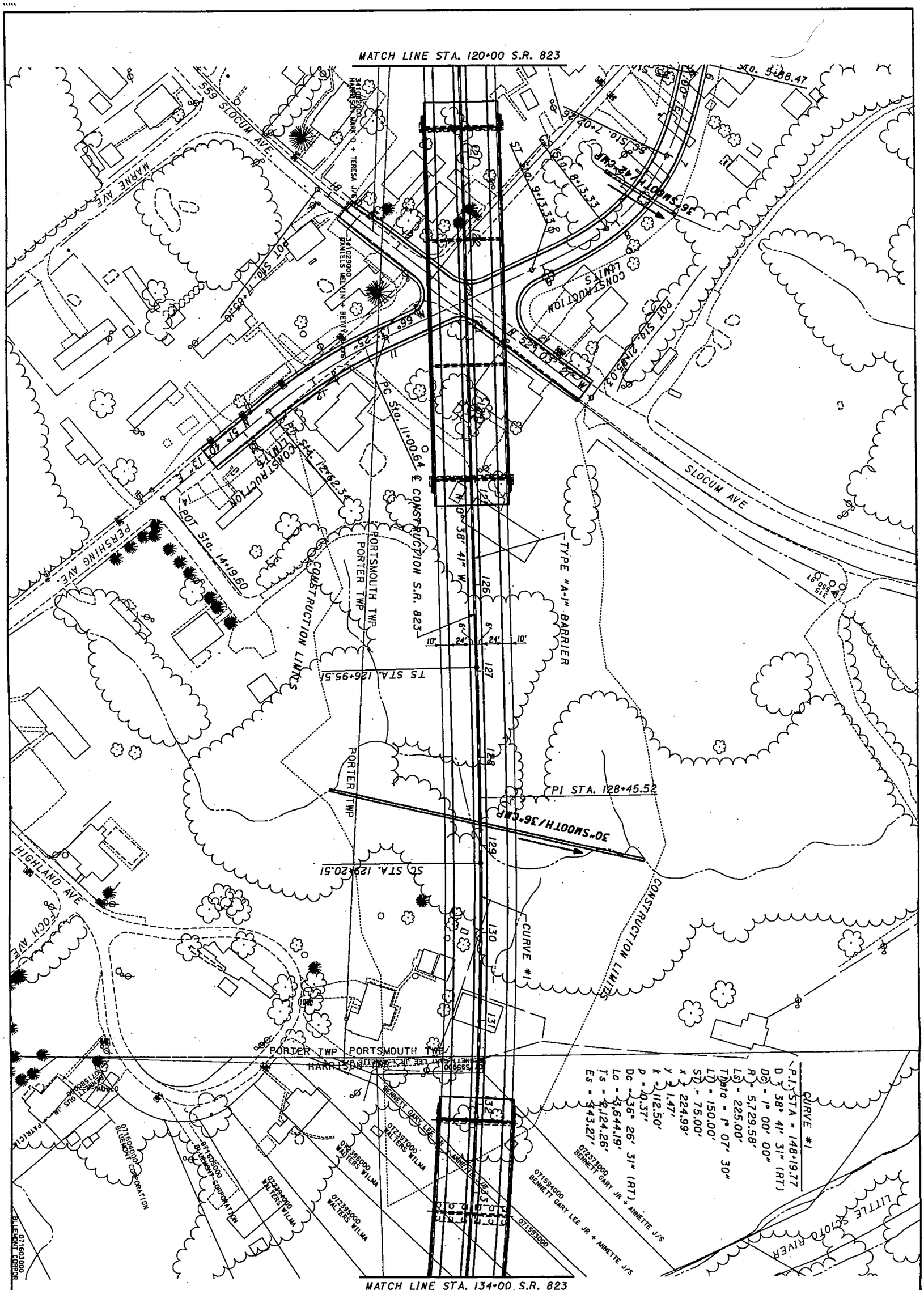
3x7



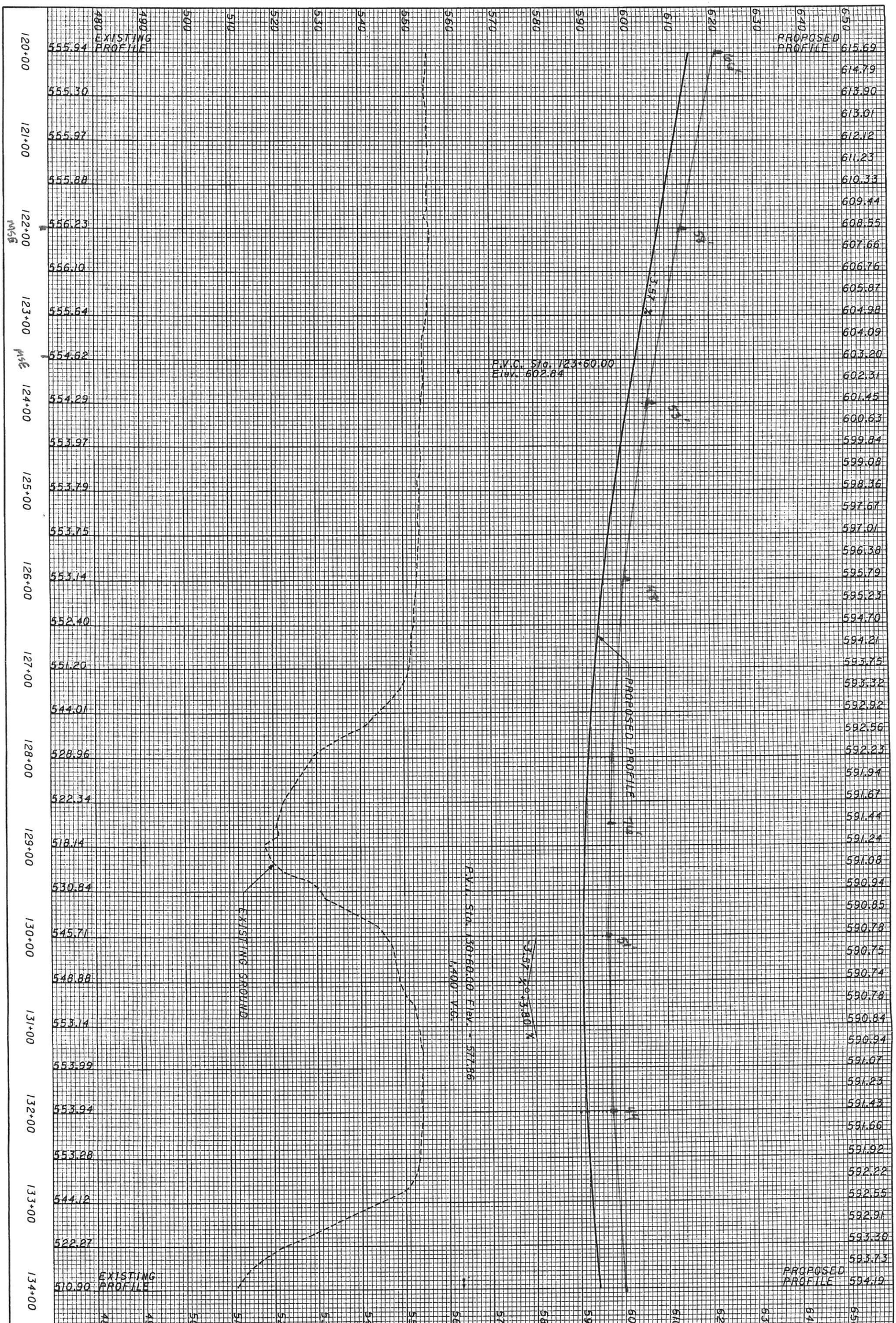
38	SCI-823-0.00	**PROFILE - S.R. 823** **STA. 106+00 TO STA. 120+00**

CALCULATED

CHECKED



37	SCI-823-0.00	PLAN - S.R. 823 STA. 120+00 TO STA. 134+00	CALCULATED CHECKED 0 50 25 100 HORIZONTAL SCALE IN FEET N



40	SCI-823-0.00	PROFILE - S.R. 823 STA. 120+00 TO STA. 134+00

CALCULATED

CHECKED

070450000
FISHER JOSEPH H

070358000
ADAMS JOHN B + LORI S J/S

PI STA. 148+06.63

EX. TEL.

EX. WL

CONSTRUCTION LIMITS

TYPE "A-1" BARRIER

MATCH LINE STA. 134+00 S.R. 823

072395000
WALTERS WILMA

072394000
WALTERS WILMA

071605000
BLUEMONT CORPORATION

071604000
BLUEMONT CORPORATION

071603000
BLUEMONT CORPORATION

072272000
SPURGEON JOHN + PAM J/S

072271000
SPURGEON JOHN + PAM J/S

071602000
BLUEMONT CORPORATION

LITTLE SCIOTO RIVER

135 136 137 138 139 140 141 142 143 144 145 146 147

10' 24' 6' 8" 6' 10'

℄ CONSTRUCTION S.R. 823

CURVE #1

MATCH LINE STA. 148+00 S.R. 823

CONSTRUCTION LIMITS

EX. WL

EX. TEL.

071369000
SANSON KIMBERLY R.

070188000
HADSELL DON

CURVE #1

P.I. STA = 148+19.77
D = 38° 41' 31" (RT)
Dc = 1° 00' 00"
R = 5,729.58'
Ls = 225.00'
Theta = 1° 07' 30"
LT = 150.00'
ST = 75.00'
x = 224.99'
y = 1.47'
k = 112.50'
p = 0.37'
Dc = 36° 26' 31" (RT)
Lc = 3,644.19'
Ts = 2,124.26'
Es = 343.27'

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED
CHECKED

PLAN - S.R.823
STA. 134+00 TO STA. 148+00

SCI-823-0.00

24

CALCULATED | CHECKED

PROFILE - S.R. 823

STA. 134+00 TO STA. 148+00

SCI-823-0.00

42

Current Profile Data (January 16, 2006)

```
Elev at 93+50.000000          =      697.29, grade = 0.99, On curve vpi 3
Elev at 93+75.000000          =      697.52, grade = 0.90, On curve vpi 3
Elev at 94+00.000000          =      697.74, grade = 0.80, On curve vpi 3
Elev at 94+25.000000          =      697.92, grade = 0.71, On curve vpi 3
Elev at 94+50.000000          =      698.09, grade = 0.61, On curve vpi 3
Elev at 94+75.000000          =      698.23, grade = 0.51, On curve vpi 3
Elev at 95+00.000000          =      698.35, grade = 0.42, On curve vpi 3
Elev at 95+25.000000          =      698.44, grade = 0.32, On curve vpi 3
Elev at 95+50.000000          =      698.51, grade = 0.23, On curve vpi 3
Elev at 95+75.000000          =      698.55, grade = 0.13, On curve vpi 3
Elev at 96+00.000000          =      698.57, grade = 0.04, On curve vpi 3
Elev at 96+25.000000          =      698.57, grade = -0.06, On curve vpi 3
Elev at 96+50.000000          =      698.54, grade = -0.15, On curve vpi 3
Elev at 96+75.000000          =      698.49, grade = -0.25, On curve vpi 3
Elev at 97+00.000000          =      698.42, grade = -0.34, On curve vpi 3
Elev at 97+25.000000          =      698.32, grade = -0.44, On curve vpi 3
Elev at 97+50.000000          =      698.20, grade = -0.54, On curve vpi 3
Elev at 97+75.000000          =      698.05, grade = -0.63, On curve vpi 3
Elev at 98+00.000000          =      697.88, grade = -0.73, On curve vpi 3
Elev at 98+25.000000          =      697.69, grade = -0.82, On curve vpi 3
Elev at 98+50.000000          =      697.47, grade = -0.92, On curve vpi 3
Elev at 98+75.000000          =      697.23, grade = -1.01, On curve vpi 3
Elev at 99+00.000000          =      696.97, grade = -1.11, On curve vpi 3
Elev at 99+25.000000          =      696.68, grade = -1.20, On curve vpi 3
Elev at 99+50.000000          =      696.36, grade = -1.30, On curve vpi 3
Elev at 99+75.000000          =      696.03, grade = -1.39, On curve vpi 3
Elev at 100+00.000000         =      695.67, grade = -1.49, On curve vpi 3
Elev at 100+25.000000         =      695.28, grade = -1.59, On curve vpi 3
Elev at 100+50.000000         =      694.87, grade = -1.68, On curve vpi 3
Elev at 100+75.000000         =      694.44, grade = -1.78, On curve vpi 3
Elev at 101+00.000000         =      693.99, grade = -1.87, On curve vpi 3
Elev at 101+25.000000         =      693.51, grade = -1.97, On curve vpi 3
Elev at 101+50.000000         =      693.00, grade = -2.06, On curve vpi 3
Elev at 101+75.000000         =      692.47, grade = -2.16, On curve vpi 3
Elev at 102+00.000000         =      691.92, grade = -2.25, On curve vpi 3
Elev at 102+25.000000         =      691.35, grade = -2.35, On curve vpi 3
Elev at 102+50.000000         =      690.75, grade = -2.44, On curve vpi 3
Elev at 102+75.000000         =      690.13, grade = -2.54, On curve vpi 3
Elev at 103+00.000000         =      689.48, grade = -2.64, On curve vpi 3
Elev at 103+25.000000         =      688.81, grade = -2.73, On curve vpi 3
Elev at 103+50.000000         =      688.11, grade = -2.83, On curve vpi 3
Elev at 103+75.000000         =      687.39, grade = -2.92, On curve vpi 3
Elev at 104+00.000000         =      686.65, grade = -3.02, On curve vpi 3
Elev at 104+25.000000         =      685.89, grade = -3.11, On curve vpi 3
Elev at 104+50.000000         =      685.10, grade = -3.21, On curve vpi 3
Elev at 104+75.000000         =      684.28, grade = -3.30, On curve vpi 3
Elev at 105+00.000000         =      683.44, grade = -3.40, On curve vpi 3
Elev at 105+25.000000         =      682.58, grade = -3.49, On curve vpi 3
Elev at 105+50.000000         =      681.70, grade = -3.59, On curve vpi 3
Elev at 105+75.000000         =      680.79, grade = -3.69, On curve vpi 3
Elev at 106+00.000000         =      679.85, grade = -3.78, On curve vpi 3
Elev at 106+25.000000         =      678.90, grade = -3.88, On curve vpi 3
Elev at 106+50.000000         =      677.92, grade = -3.97, On curve vpi 3
Elev at 106+75.000000         =      676.91, grade = -4.07, On curve vpi 3
Elev at 107+00.000000         =      675.88, grade = -4.16, On curve vpi 3
Elev at 107+25.000000         =      674.84, grade = -4.16, On tang betw 3 & 4
Elev at 107+50.000000         =      673.80, grade = -4.16, On tang betw 3 & 4
Elev at 107+75.000000         =      672.76, grade = -4.16, On tang betw 3 & 4
Elev at 108+00.000000         =      671.72, grade = -4.16, On tang betw 3 & 4
Elev at 108+25.000000         =      670.68, grade = -4.16, On tang betw 3 & 4
Elev at 108+50.000000         =      669.64, grade = -4.16, On tang betw 3 & 4
Elev at 108+75.000000         =      668.60, grade = -4.16, On tang betw 3 & 4
Elev at 109+00.000000         =      667.56, grade = -4.16, On tang betw 3 & 4
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Elev at 109+25.000000          =       666.52, grade = -4.16, On tang betw 3 & 4
Elev at 109+50.000000          =       665.48, grade = -4.16, On tang betw 3 & 4
Elev at 109+75.000000          =       664.43, grade = -4.16, On tang betw 3 & 4
Elev at 110+00.000000          =       663.39, grade = -4.16, On tang betw 3 & 4
Elev at 110+25.000000          =       662.35, grade = -4.16, On tang betw 3 & 4
Elev at 110+50.000000          =       661.31, grade = -4.16, On tang betw 3 & 4
Elev at 110+75.000000          =       660.27, grade = -4.16, On tang betw 3 & 4
Elev at 111+00.000000          =       659.23, grade = -4.16, On tang betw 3 & 4
Elev at 111+25.000000          =       658.19, grade = -4.16, On tang betw 3 & 4
Elev at 111+50.000000          =       657.15, grade = -4.16, On tang betw 3 & 4
Elev at 111+75.000000          =       656.11, grade = -4.16, On tang betw 3 & 4
Elev at 112+00.000000          =       655.07, grade = -4.16, On tang betw 3 & 4
Elev at 112+25.000000          =       654.03, grade = -4.16, On tang betw 3 & 4
Elev at 112+50.000000          =       652.99, grade = -4.16, On tang betw 3 & 4
Elev at 112+75.000000          =       651.95, grade = -4.16, On tang betw 3 & 4
Elev at 113+00.000000          =       650.91, grade = -4.16, On tang betw 3 & 4
Elev at 113+25.000000          =       649.87, grade = -4.16, On tang betw 3 & 4
Elev at 113+50.000000          =       648.82, grade = -4.16, On tang betw 3 & 4
Elev at 113+75.000000          =       647.78, grade = -4.16, On tang betw 3 & 4
Elev at 114+00.000000          =       646.74, grade = -4.16, On tang betw 3 & 4
Elev at 114+25.000000          =       645.70, grade = -4.16, On tang betw 3 & 4
Elev at 114+50.000000          =       644.66, grade = -4.16, On tang betw 3 & 4
Elev at 114+75.000000          =       643.62, grade = -4.16, On tang betw 3 & 4
Elev at 115+00.000000          =       642.58, grade = -4.16, On tang betw 3 & 4
Elev at 115+25.000000          =       641.54, grade = -4.16, On tang betw 3 & 4
Elev at 115+50.000000          =       640.50, grade = -4.16, On tang betw 3 & 4
Elev at 115+75.000000          =       639.46, grade = -4.16, On tang betw 3 & 4
Elev at 116+00.000000          =       638.42, grade = -4.16, On tang betw 3 & 4
Elev at 116+25.000000          =       637.38, grade = -4.16, On tang betw 3 & 4
Elev at 116+50.000000          =       636.34, grade = -4.16, On tang betw 3 & 4
Elev at 116+75.000000          =       635.30, grade = -4.16, On tang betw 3 & 4
Elev at 117+00.000000          =       634.26, grade = -4.16, On tang betw 3 & 4
Elev at 117+25.000000          =       633.21, grade = -4.16, On tang betw 3 & 4
Elev at 117+50.000000          =       632.17, grade = -4.16, On tang betw 3 & 4
Elev at 117+75.000000          =       631.13, grade = -4.16, On tang betw 3 & 4
Elev at 118+00.000000          =       630.09, grade = -4.16, On tang betw 3 & 4
Elev at 118+25.000000          =       629.05, grade = -4.16, On tang betw 3 & 4
Elev at 118+50.000000          =       628.01, grade = -4.16, On tang betw 3 & 4
Elev at 118+75.000000          =       626.97, grade = -4.16, On tang betw 3 & 4
Elev at 119+00.000000          =       625.93, grade = -4.16, On tang betw 3 & 4
Elev at 119+25.000000          =       624.89, grade = -4.16, On tang betw 3 & 4
Elev at 119+50.000000          =       623.85, grade = -4.16, On tang betw 3 & 4
Elev at 119+75.000000          =       622.81, grade = -4.16, On tang betw 3 & 4
Elev at 120+00.000000          =       621.77, grade = -4.16, On tang betw 3 & 4
Elev at 120+25.000000          =       620.73, grade = -4.16, On tang betw 3 & 4
Elev at 120+50.000000          =       619.69, grade = -4.16, On tang betw 3 & 4
Elev at 120+75.000000          =       618.65, grade = -4.16, On tang betw 3 & 4
Elev at 121+00.000000          =       617.60, grade = -4.16, On tang betw 3 & 4
Elev at 121+25.000000          =       616.56, grade = -4.16, On tang betw 3 & 4
Elev at 121+50.000000          =       615.52, grade = -4.16, On tang betw 3 & 4
Elev at 121+75.000000          =       614.48, grade = -4.16, On tang betw 3 & 4
Elev at 122+00.000000          =       613.44, grade = -4.16, On tang betw 3 & 4
Elev at 122+25.000000          =       612.42, grade = -4.04, On curve vpi 4
Elev at 122+50.000000          =       611.42, grade = -3.91, On curve vpi 4
Elev at 122+75.000000          =       610.46, grade = -3.78, On curve vpi 4
Elev at 123+00.000000          =       609.53, grade = -3.65, On curve vpi 4
Elev at 123+25.000000          =       608.64, grade = -3.53, On curve vpi 4
Elev at 123+50.000000          =       607.77, grade = -3.40, On curve vpi 4
Elev at 123+75.000000          =       606.94, grade = -3.27, On curve vpi 4
Elev at 124+00.000000          =       606.13, grade = -3.14, On curve vpi 4
Elev at 124+25.000000          =       605.36, grade = -3.02, On curve vpi 4
Elev at 124+50.000000          =       604.63, grade = -2.89, On curve vpi 4
Elev at 124+75.000000          =       603.92, grade = -2.76, On curve vpi 4
```

CSX
GL = 565
H = 90'

R. Abutment
S-D Intersection
GL = 554
H = 64'

S-P Intersection
GL = 554
H = 54

F Abutment
S-P Intersection
GL = 555
H = 50

```
Elev at 125+00.000000          =        603.24, grade = -2.64, On curve vpi 4
Elev at 125+25.000000          =        602.60, grade = -2.51, On curve vpi 4
Elev at 125+50.000000          =        601.99, grade = -2.38, On curve vpi 4
Elev at 125+75.000000          =        601.41, grade = -2.25, On curve vpi 4
Elev at 126+00.000000          =        600.86, grade = -2.13, On curve vpi 4
Elev at 126+25.000000          =        600.35, grade = -2.00, On curve vpi 4
Elev at 126+50.000000          =        599.86, grade = -1.87, On curve vpi 4
Elev at 126+75.000000          =        599.41, grade = -1.74, On curve vpi 4
Elev at 127+00.000000          =        598.99, grade = -1.62, On curve vpi 4
Elev at 127+25.000000          =        598.60, grade = -1.49, On curve vpi 4
Elev at 127+50.000000          =        598.25, grade = -1.36, On curve vpi 4
Elev at 127+75.000000          =        597.92, grade = -1.24, On curve vpi 4
Elev at 128+00.000000          =        597.63, grade = -1.11, On curve vpi 4
Elev at 128+25.000000          =        597.37, grade = -0.98, On curve vpi 4
Elev at 128+50.000000          =        597.14, grade = -0.85, On curve vpi 4
Elev at 128+75.000000          =        596.94, grade = -0.73, On curve vpi 4
Elev at 129+00.000000          =        596.77, grade = -0.60, On curve vpi 4
Elev at 129+25.000000          =        596.64, grade = -0.47, On curve vpi 4
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Elev at 129+75.000000          =        596.47, grade = -0.22, On curve vpi 4
Elev at 130+00.000000          =        596.43, grade = -0.09, On curve vpi 4
Elev at 130+25.000000          =        596.42, grade = 0.04, On curve vpi 4
Elev at 130+50.000000          =        596.45, grade = 0.16, On curve vpi 4
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Elev at 132+25.000000          =        597.52, grade = 1.05, On curve vpi 4
Elev at 132+50.000000          =        597.79, grade = 1.18, On curve vpi 4
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Elev at 134+75.000000          =        601.74, grade = 2.33, On curve vpi 4
Elev at 135+00.000000          =        602.34, grade = 2.45, On curve vpi 4
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Elev at 135+50.000000          =        603.63, grade = 2.71, On curve vpi 4
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Elev at 136+75.000000          =        607.42, grade = 3.35, On curve vpi 4
Elev at 137+00.000000          =        608.27, grade = 3.47, On curve vpi 4
Elev at 137+25.000000          =        609.15, grade = 3.60, On curve vpi 4
Elev at 137+50.000000          =        610.07, grade = 3.73, On curve vpi 4
Elev at 137+75.000000          =        611.02, grade = 3.85, On curve vpi 4
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Elev at 138+25.000000          =        613.01, grade = 4.11, On curve vpi 4
Elev at 138+50.000000          =        614.05, grade = 4.24, On curve vpi 4
Elev at 138+75.000000          =        615.13, grade = 4.36, On curve vpi 4
Elev at 139+00.000000          =        616.23, grade = 4.49, On curve vpi 4
Elev at 139+25.000000          =        617.37, grade = 4.62, On curve vpi 4
Elev at 139+50.000000          =        618.54, grade = 4.75, On curve vpi 4
Elev at 139+75.000000          =        619.74, grade = 4.87, On curve vpi 4
Elev at 140+00.000000          =        620.98, grade = 5.00, On curve vpi 4
Elev at 140+25.000000          =        622.23, grade = 5.00, On tang betw 4 & 5
Elev at 140+50.000000          =        623.48, grade = 5.00, On tang betw 4 & 5
```
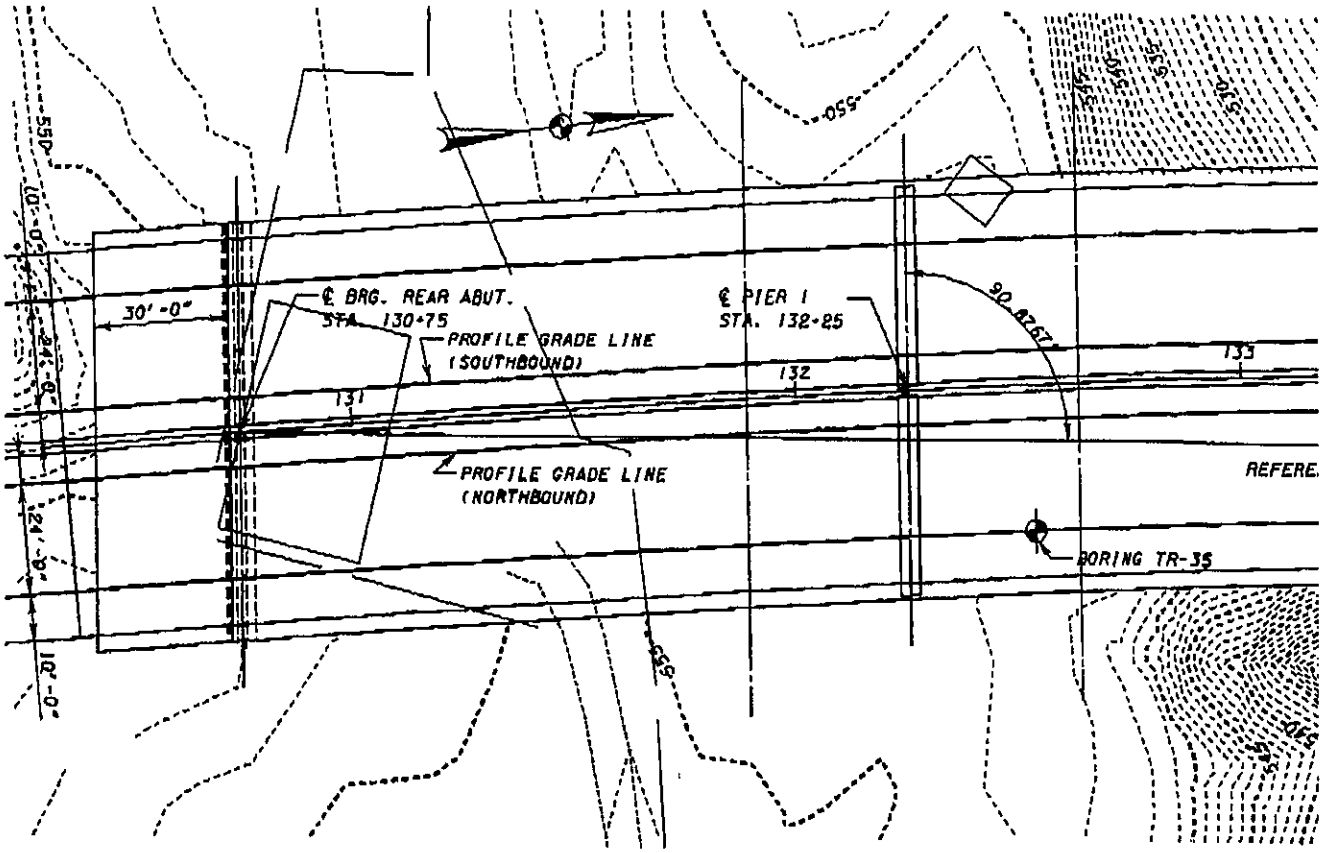

Little Scioto Struct.
GL = 553'
H = 45'

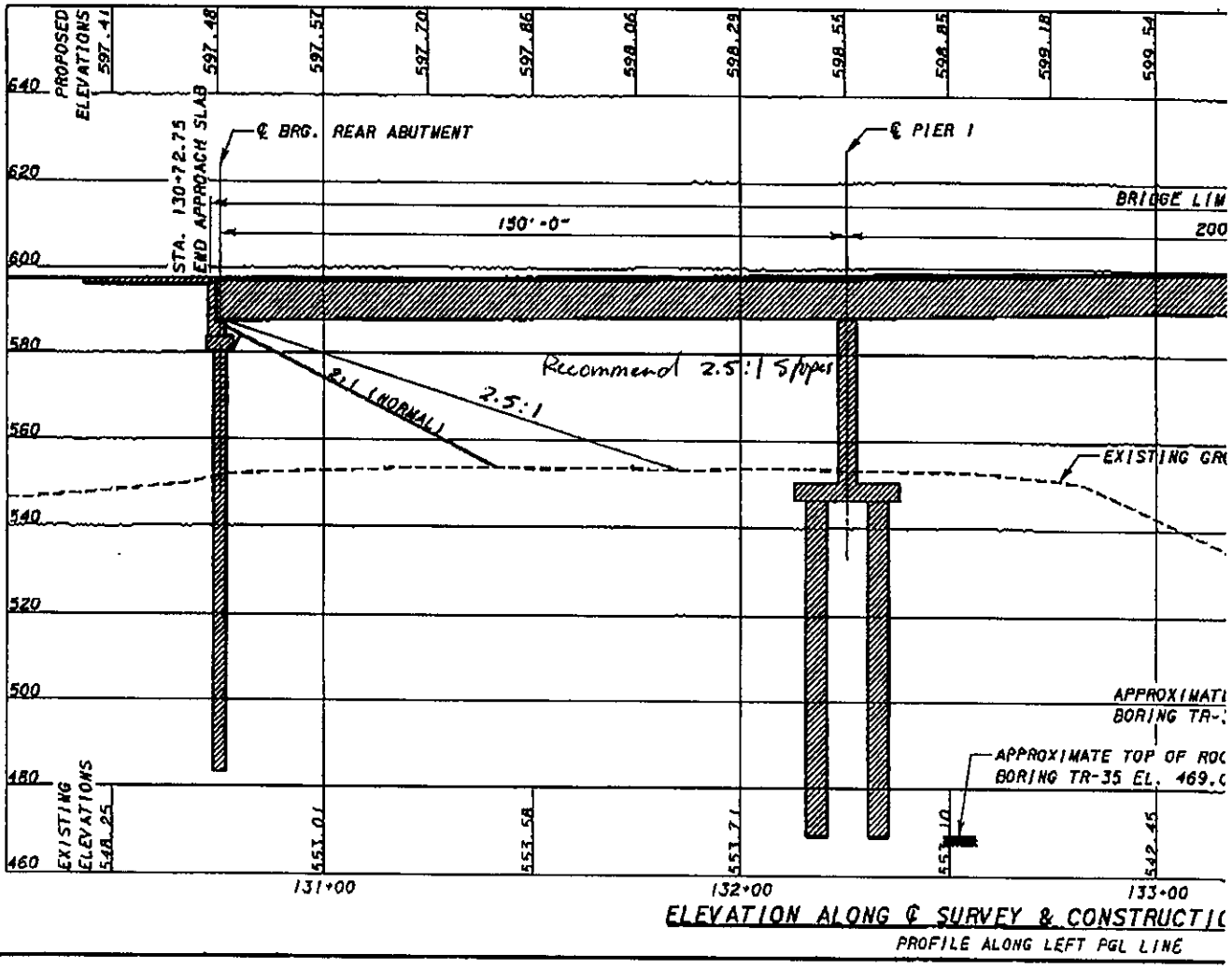
Plan and Profile Drawings (Little Scioto River)

Option (1)

5-Span



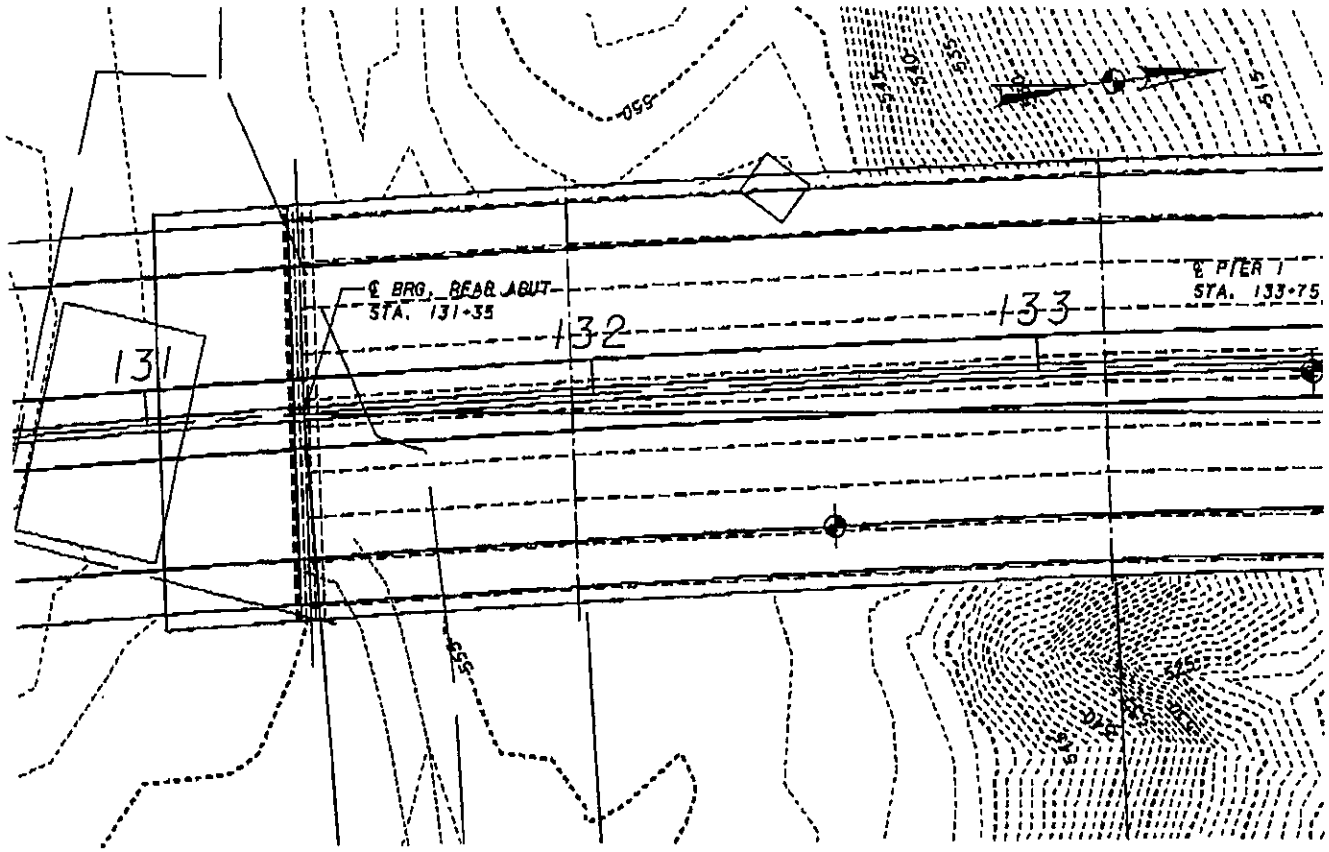
PLAN



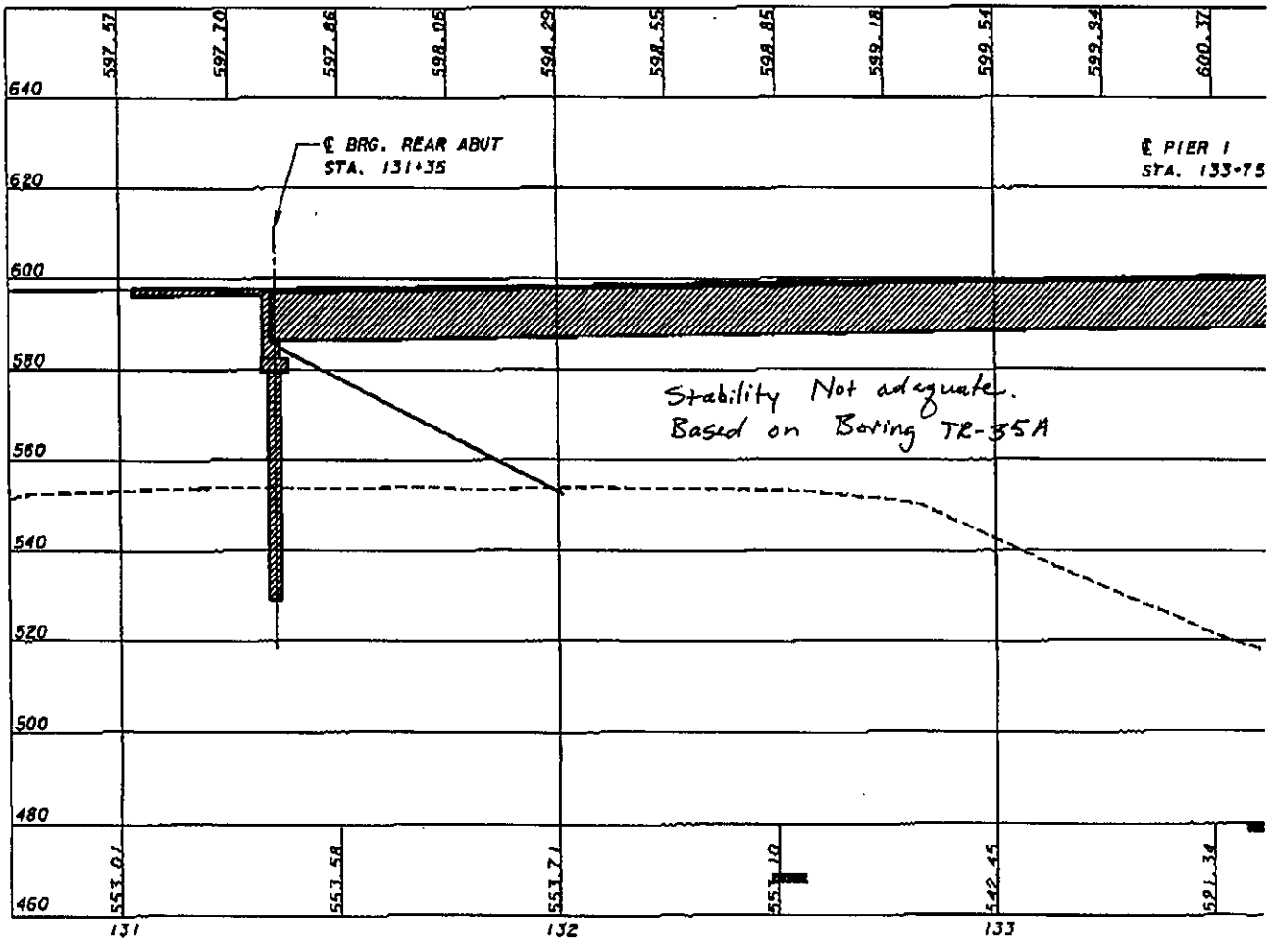
ELEVATION ALONG ℄ SURVEY & CONSTRUCTIO

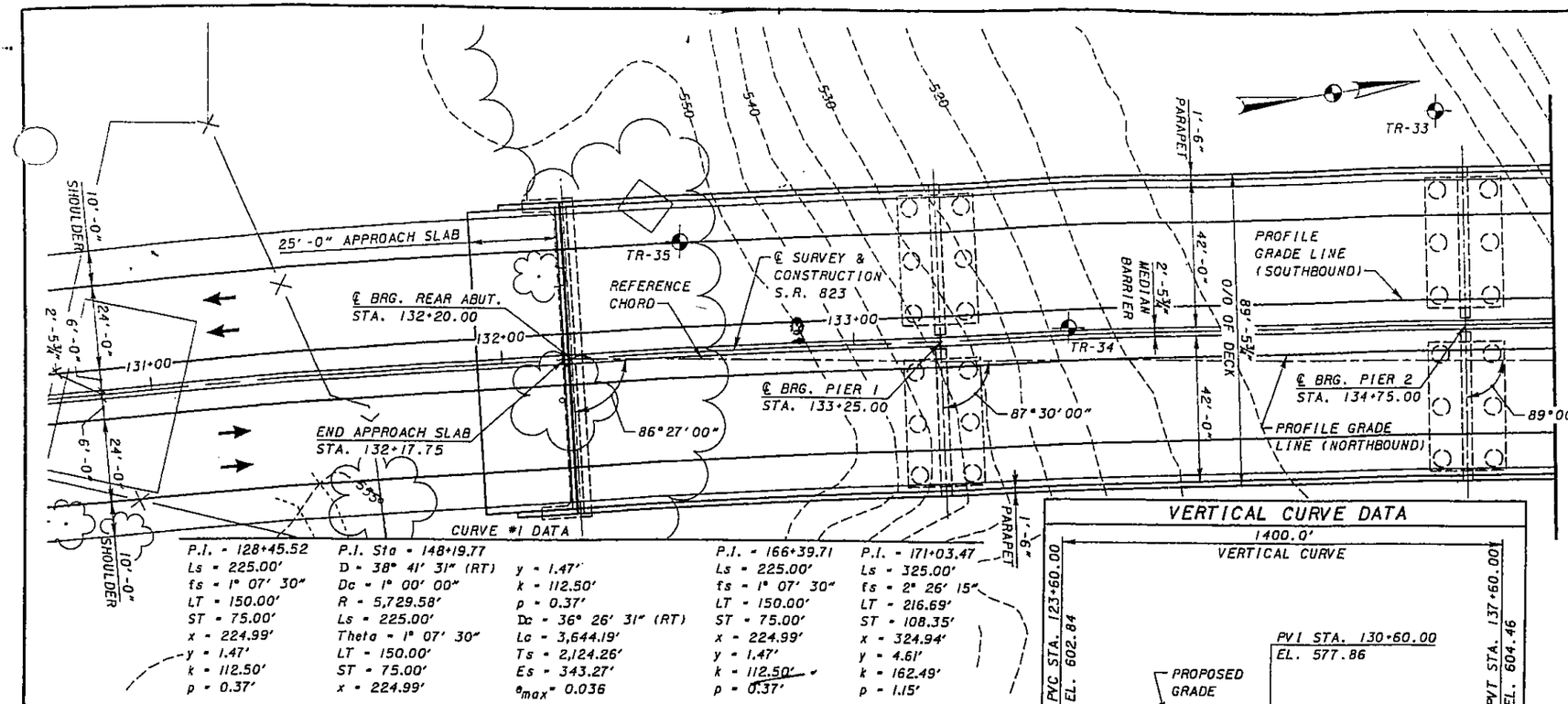
PROFILE ALONG LEFT PGL LINE

Option(2)



3-Span



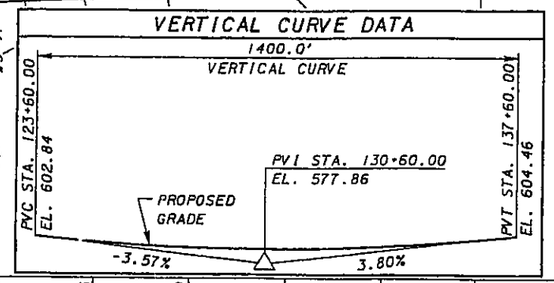


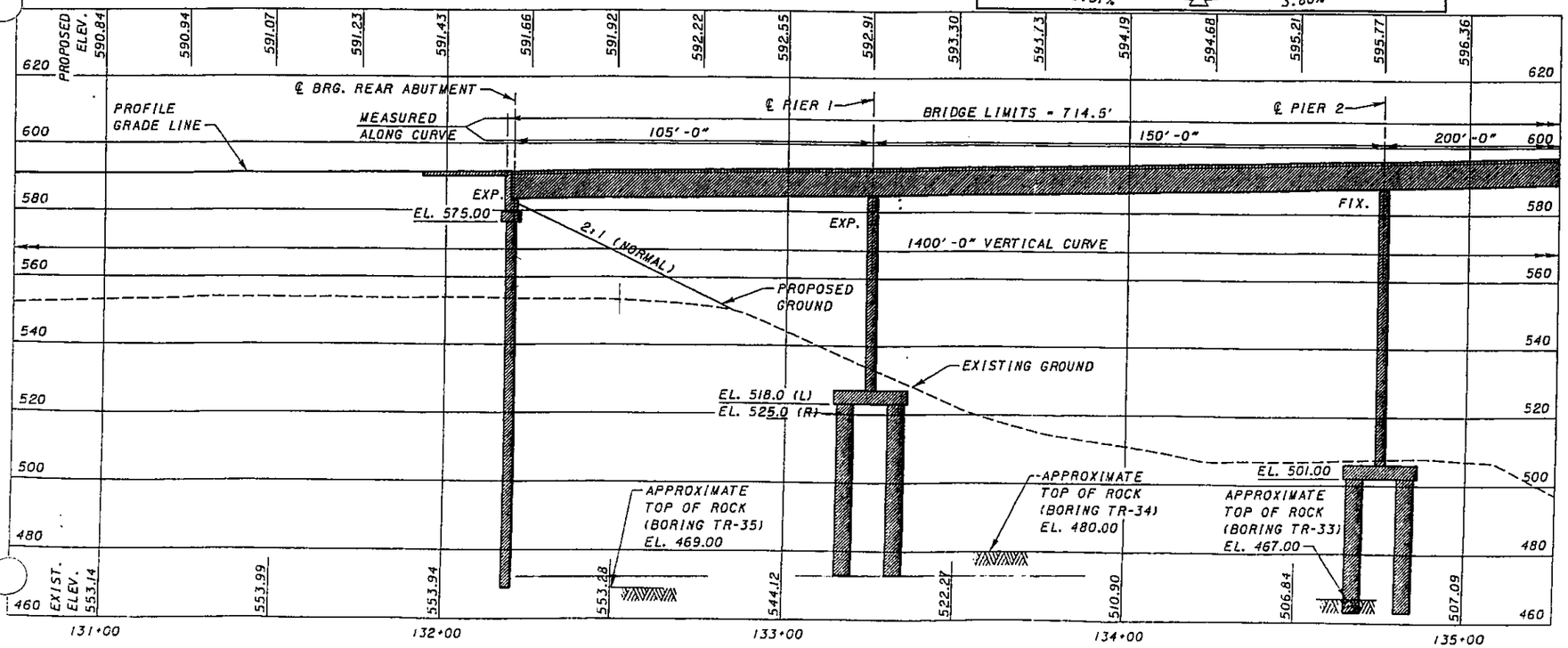
CURVE #1 DATA

P.I. = 128+45.52	P.I. Sta = 148+19.77	y = 1.47'	P.I. = 166+39.71	P.I. = 171+03.47
Ls = 225.00'	D = 38° 41' 31" (RT)	k = 112.50'	Ls = 225.00'	Ls = 325.00'
fs = 1° 07' 30"	Dc = 1° 00' 00"	p = 0.37'	fs = 1° 07' 30"	fs = 2° 26' 15"
LT = 150.00'	R = 5,729.58'	Dc = 36° 26' 31" (RT)	LT = 150.00'	LT = 216.69'
ST = 75.00'	Ls = 225.00'	Lc = 3,644.19'	ST = 75.00'	ST = 108.35'
x = 224.99'	Theta = 1° 07' 30"	Ts = 2,124.26'	x = 224.99'	x = 324.94'
y = 1.47'	LT = 150.00'	Es = 343.27'	y = 1.47'	y = 4.61'
k = 112.50'	ST = 75.00'	θ_{max} = 0.036	k = 112.50'	k = 162.49'
p = 0.37'	x = 224.99'		p = 0.37'	p = 1.15'

PLAN

VERTICAL CURVE DATA





ELEVATION ALONG ℄ SURVEY & CONSTRUCTION S.R. 823

FIRST GUARDRAIL POST OFF BRIDGE LOCATIONS		
LOCATION	STATION	SIDE
REAR ABUT.	x	RT.
REAR ABUT.	x	LT.
FWD. ABUT.	x	RT.
FWD. ABUT.	x	LT.

BORING LOCATIONS		
BORING No.	STATION	OFFSET
TR-29	140+26.71	84.49' LT.
TR-30	139+35.00	52.27' LT.
TR-31	138+68.69	66.40' LT.
TR-32	136+60.60	10.36' LT.
TR-33	134+67.78	60.60' LT.
TR-34	133+61.14	2.01' LT.
TR-35	132+52.32	31.48' LT.

BENCHMARK 1	BENCHMARK 2
(TO BE PROVIDED LATER)	(TO BE PROVIDED LATER)

TRAFFIC DATA

(SR 823)

CURRENT YEAR ADT (2010) = 21,200
DESIGN YEAR ADT (2030) = 31,200
CURRENT YEAR ADTT (2010) = 2970
DESIGN YEAR ADTT (2030) = 4370

PROPOSED STRUCTURE

TYPE: 5-SPAN CONTINUOUS A709 GRADE 50 W PLATE GIRDER WITH COMPOSITE REINFORCED CONCRETE DECK SUPPORTED BY REINFORCED CONCRETE SUBSTRUCTURE UNITS.
SPANS: 105'-0", 150'-0", 200'-0", 150'-0", 105'-0" c/c BEARINGS (MEASURED ALONG CURVE).
ROADWAY: 2 - 42'-0" TOE TO TOE OF PARAPETS
LOADING: HS-25 (CASE I) AND ALTERNATE MILITARY LOADING, FWS = 60 PSF
SKEW: VARIES
SUPERELEVATION: 0.036 FT/FT
ALIGNMENT: 1°00'00"
WEARING SURFACE: 1" MONOLITHIC CONCRETE
APPROACH SLABS: AS-1-81 (25'-0" LONG)
LATITUDE:
LONGITUDE:
STRUCTURE FILE NUMBER:

HYDRAULIC DATA

DRAINAGE AREA = sq.mi. = acres

Q_{50} = cfs	Q_{100} = cfs
V_{50} = fps	V_{100} = fps
EL =	EL =

(TO BE PROVIDED LATER)

NOTES:

1. ALL SHEETS WITH PLAN DIMENSIONS ARE SHOWN HORIZONTAL.
2. EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.
3. THE PROPOSED PROFILE GRADE IS WITHIN BRIDGE LIMITS. SEE ROADWAY PLANS FOR PAVEMENT ELEVATIONS BEYOND BRIDGE LIMITS.

FOUNDATION DATA:

DRILLED SHAFTS SHALL BE 3'-0" DIAMETER AT ABUTMENTS AND 5'-0" DIAMETER AT PIERS AND HAVE AN ALLOWABLE END BEARING CAPACITY OF 20 TSF. SPREAD FOOTINGS SHALL HAVE AN ALLOWABLE BEARING CAPACITY OF 15 TSF.

DESIGN WEIGHT
TRANSYSTEMS CORPORATION
55 PUBLIC SQUARE, SUITE 1900 CLEVELAND, OHIO 44113-1901

DESIGNED	DRAWN	REVIEWED	DATE
JDH	MLR	NFF	07/14/05
CHECKED	REVISED	STRUCTURE FILE NUMBER	
RER			

SCIOTO COUNTY
STA. 132+17.75
STA. 139+32.25

PRELIMINARY SITE PLAN - ALTERNATIVE 4
BRIDGE NO. SCI-823-XXXX
S.R. 823 OVER S.R. 335 AND THE LITTLE SCIOTO RIVER

SCI-823-0.00
PID 19415

1 / 3

ORIGINAL CONFIGURATION (OPTION 3)

APPENDIX D

DLZ

APPENDIX D

Summary of Results
Summary of Soil Properties
Plot of Soil Strength Values
Results of Stability Analyses
Settlement Calculations
Time-Rate of Consolidation Calculations (Wick Drains)

Summary of Results

DLZ

CLIENT	TranSystems Corporation	JOB NO.	0121-3070.03		
PROJECT	SCI-823 Portsmouth Bypass	SHEET NO.		OF	
ITEM	Summary of Analysis Results	COMP BY	SJR	DATE	6/6/2006

Summary of Results Highland Bend Embankment Analyses

EMBANKMENT STA. Begin: 105+00 End 114+00 Maximum Height 104'

Global Stability	Calculated	Required	Wick Drain Spacing	Approx. 90% Consolidation Time
Undrained Global Stability	**0.61**	**1.3**	4' spacing (triangular)	30 days
Drained Global Stability	1.58	1.5	6' spacing (triangular)	65 days
Seismic Global Stability	1.48	1.3	7' spacing (triangular)	90 days
Slopes Evaluated	2.5:1		Estimated Total Settlement	64"
Max. Construction Stage	30'	Using FS=1.30 (FHWA)	Consolidation without wick drains	5409 dayys

EMBANKMENT STA. Begin: 116+00 End 122+00 Maximum Height 70'

Global Stability	Calculated	Required	Wick Drain Spacing	Approx. 90% Consolidation Time
Undrained Global Stability	**0.89**	**1.3**	4' spacing (triangular)	35 days
Drained Global Stability	1.59	1.5	5.5' spacing (triangular)	60 days
Seismic Global Stability	1.55	1.3	7' spacing (triangular)	95 days
Slopes Evaluated	2.5:1		Estimated Total Settlement	38"
Max. Construction Stage	40'	Using FS=1.30 (FHWA)	Consolidation without wick drains	3287 days

EMBANKMENT STA. Begin: 123+50 End 131+85 Maximum Height 74'

Global Stability	Calculated	Required	Wick Drain Spacing	Approx. 90% Consolidation Time
Undrained Global Stability	**0.89**	**1.3**	4' spacing (triangular)	35 days
Drained Global Stability	1.61	1.5	5.5' spacing (triangular)	60 days
Seismic Global Stability	1.49	1.3	7' spacing (triangular)	95 days
Slopes Evaluated	2.5:1		Estimated Total Settlement	39"
Max. Construction Stage	30'	Using FS=1.30 (FHWA)	Consolidation without wick drains	2755 days

Summary of Soil Properties

DLZ

CLIENT	TranSystems / ODOT D-9	JOB NUMBER		0121-3070.03	
PROJECT	SCI-823 Portsmouth Bypass	SHEET NO.		OF	
ITEM	Soil Properties and analysis parameters	COMP. BY	SJR	DATE	05/10/06

Highland Bend Embankment Stability: Soil Properites

Embankment Stations **Begin: 105+00** **End: 114+00**

Profile Based on Boring TR-41

Depth (ft)	Soil Type	c (psf)	Φ'(deg)	C'	C_c	C_r	P_c(psf)	e_0	c_v (ft^2/day)
0	Clay	1700	30		0.21	0.05	6,000	0.761	0.27
20	Silt	1100	28		0.24	0.04	6,000	0.745	0.55
68	Silt and Clay	1500	29		0.22	0.06	4,000	0.685	0.40
83	C&F Sand	0	32	60					
92	Bedrock								

Embankment Stations **Begin: 116+00** **End: 122+00**

Profile Based on Boring TR-38A

Depth (ft)	Soil Type	c (psf)	Φ'(deg)	C'	C_c	C_r	P_c(psf)	e_0	c_v (ft^2/day)
0	Clay	1700	30		0.21	0.05	6,000	0.761	0.24
14	Silt	750	28		0.24	0.04	6,000	0.745	0.55
43	Silty Clay	2700	29		0.22	0.06	4,000	0.685	0.40
61	Sandy Silt	0	29	40					
76	Bedrock								

Embankment Stations **Begin: 123+50** **End: 131+85**

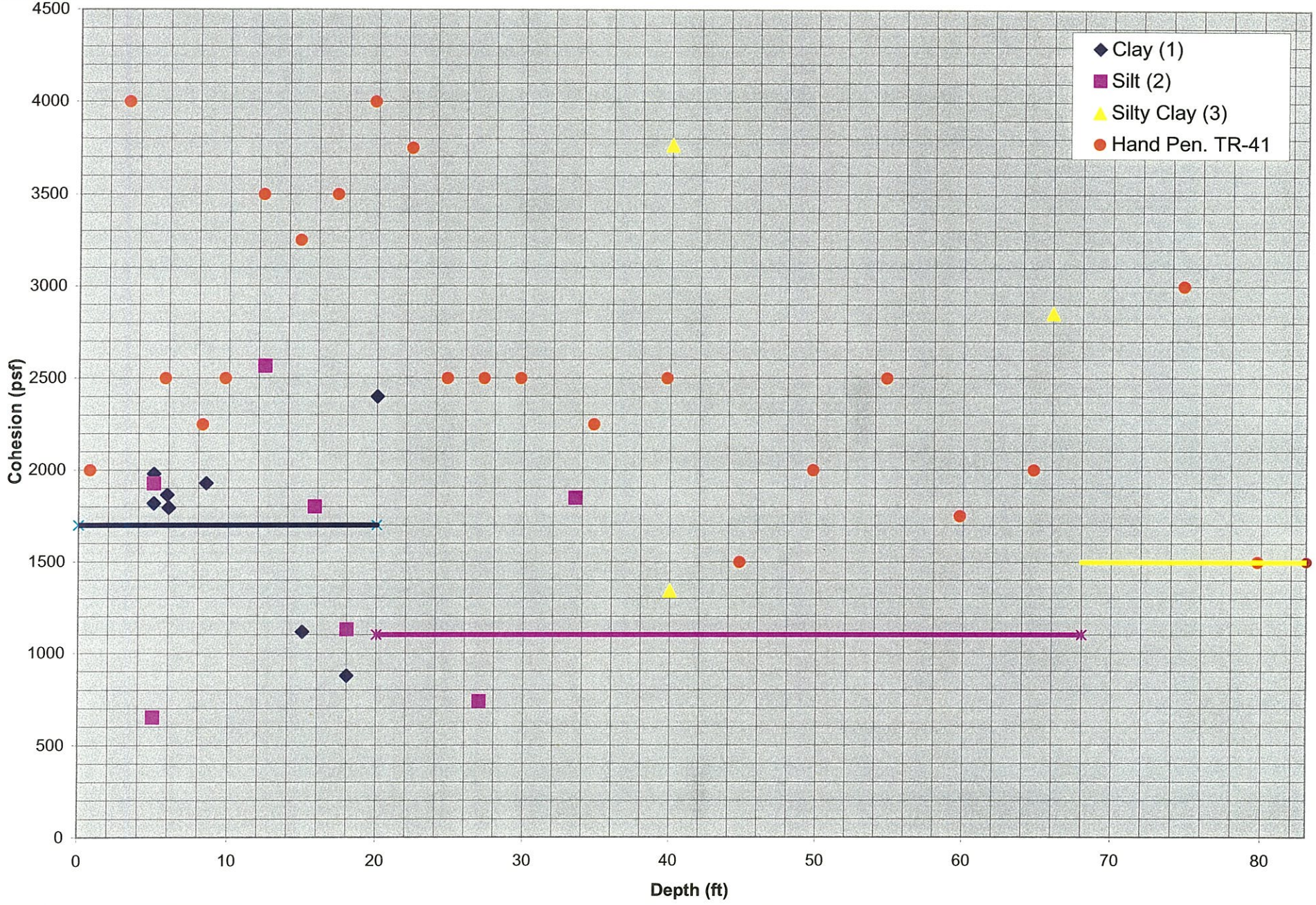
Profile Based on Boring TR-35A

Depth (ft)	Soil Type	c (psf)	Φ'(deg)	C'	C_c	C_r	P_c(psf)	e_0	c_v (ft^2/day)
0	Clay	1700	30		0.21	0.05	6,000	0.761	0.25
5	Silt	900	28		0.24	0.04	6,000	0.745	0.55
32	Silty Clay	2700	29		0.22	0.06	4,000	0.685	0.27
57	Sandy Silt	0	29	42.5					
74	Bedrock								

Plot of Soil Strength Values

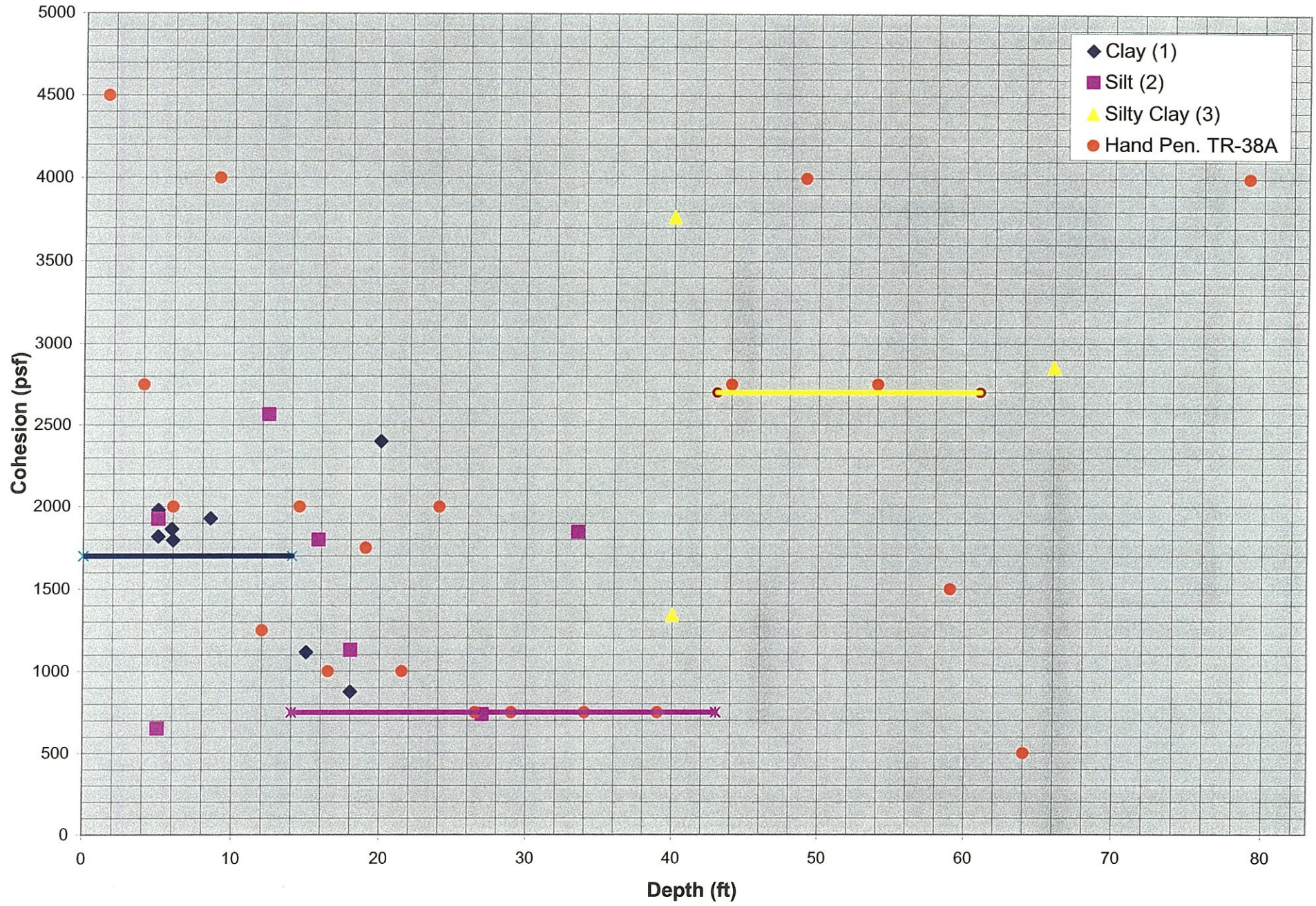
DLZ

Selected Strength Values Plotted with Laboratory Results
Embankment Sta. 105+00 to 114+00



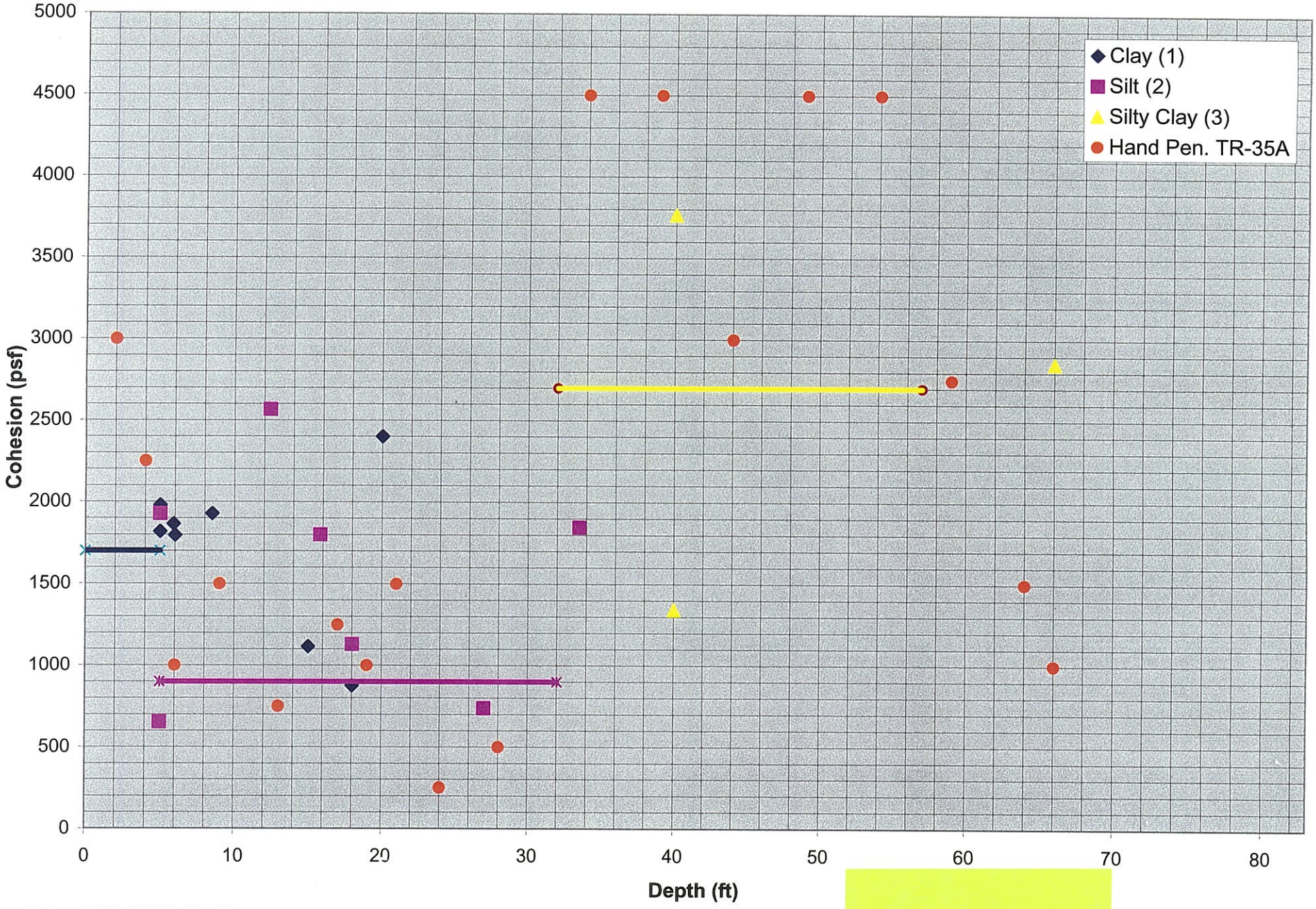
DLZ

Selected Strength Values Plotted with Laboratory Results
Embankment Sta. 116+00 to 122+00

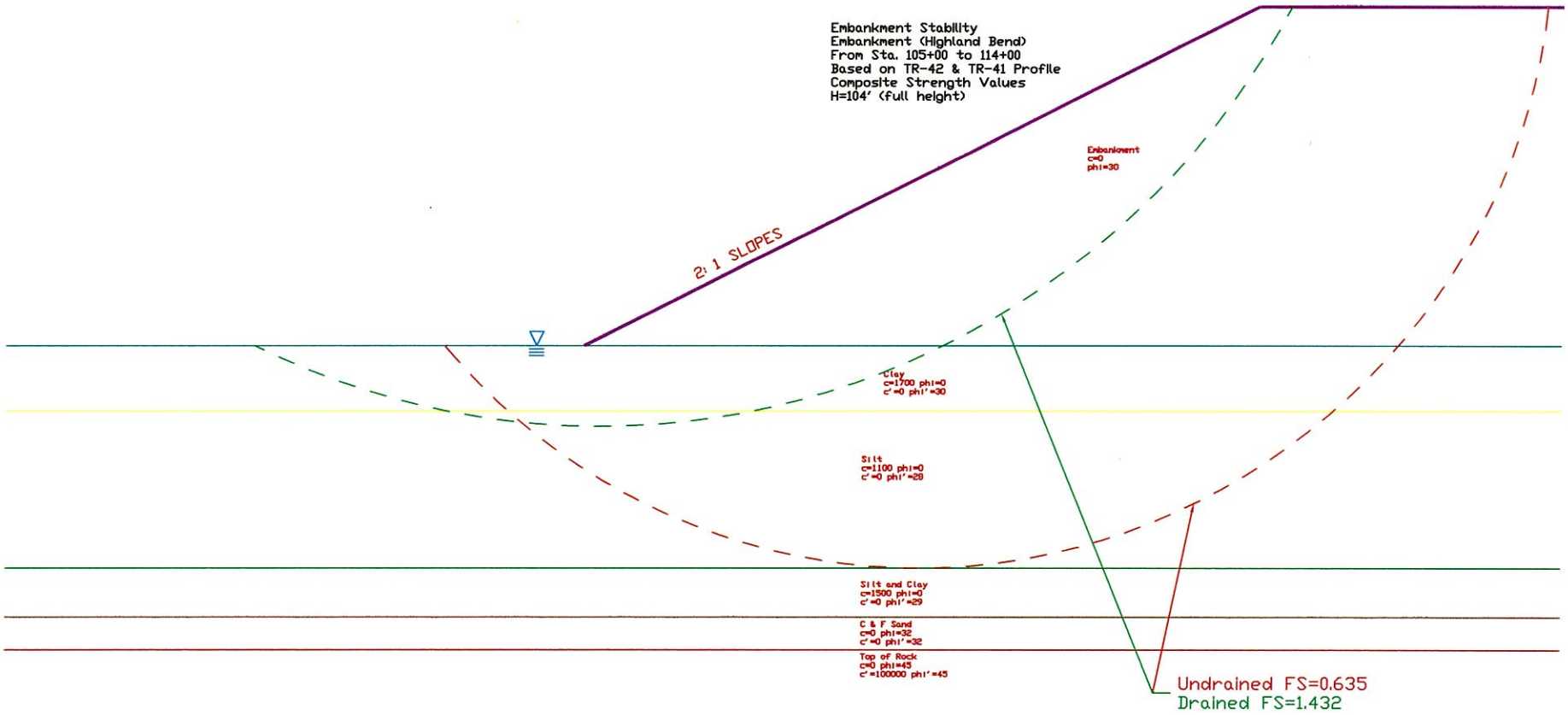


DLZ

Selected Strength Values Plotted with Laboratory Results
Embankment Sta. 123+50 to 131+85



Results of Stability Analyses



HIGHLAND BEND EMBANKMENT STABILITY		
BEGIN STATION 105+00 END STATION 114+00		
STABILITY ANALYSIS 2:1 SLOPES SCI-823-0.00		
PROJECT NO. 0121-3070.03	CALC: SJR	DATE 06-06-06

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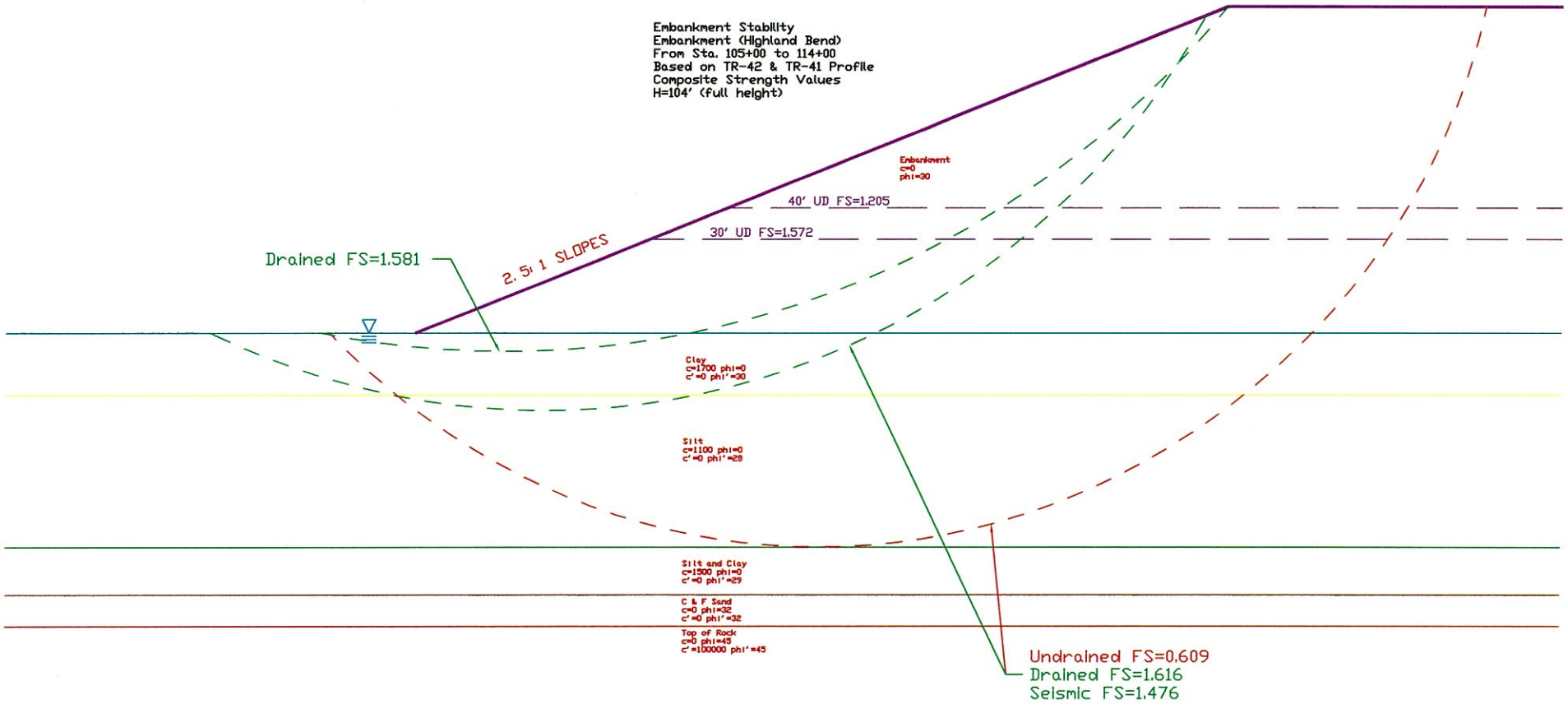

HIGHLAND BEND EMBANKMENT STABILITY

BEGIN STATION 105+00
END STATION 114+00

STABILITY ANALYSIS
2.5: 1 SLOPES
SCI-823-0.00

PROJECT NO. 0121-3070.03	CALC: SJR	DATE 06-06-06

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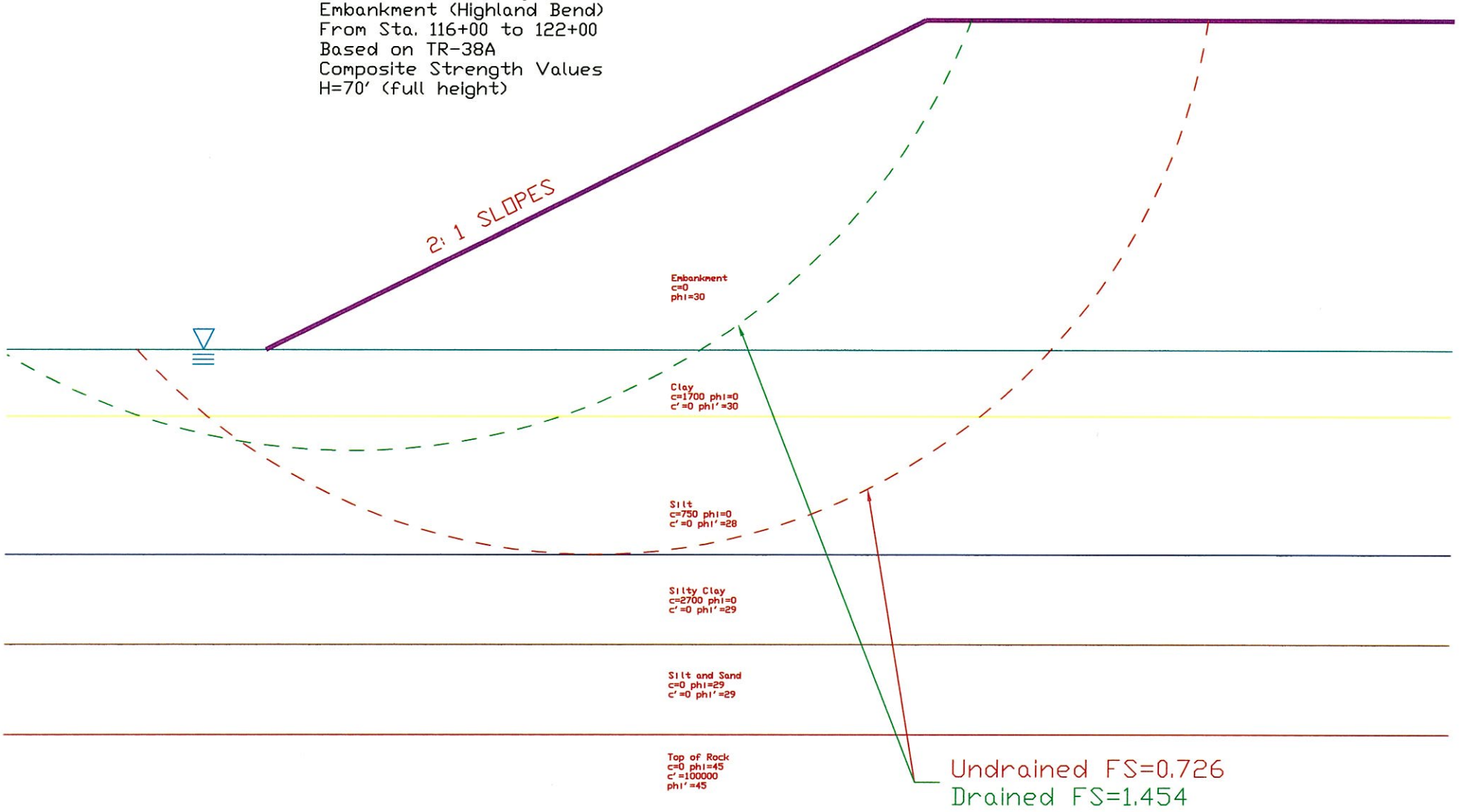
Embankment Stability
Embankment (Highland Bend)
From Sta. 116+00 to 122+00
Based on TR-38A
Composite Strength Values
H=70' (full height)



HIGHLAND BEND EMBANKMENT STABILITY BEGIN STATION 116+00 END STATION 122+00		
STABILITY ANALYSIS 2.0:1 SLOPES SCI-823-0.00		
PROJECT NO. 0121-3070.03	CALC: SJR	DATE 06-06-06

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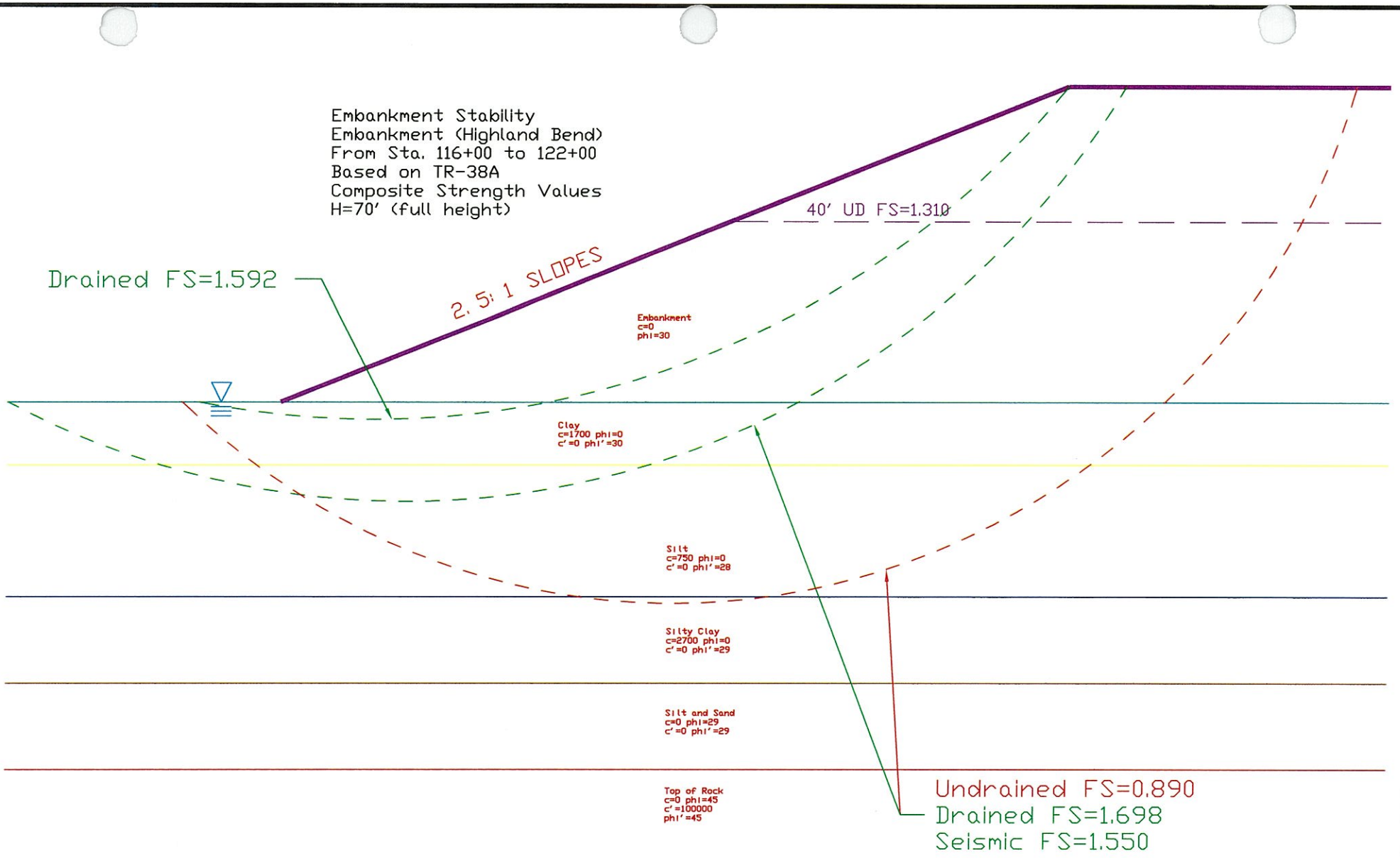

HIGHLAND BEND EMBANKMENT STABILITY

BEGIN STATION 116+00
END STATION 122+00

STABILITY ANALYSIS
2.5:1 SLOPES
SCI-823-0.00

PROJECT NO. 0121-3070.03	CALC: SJR	DATE 06-06-06

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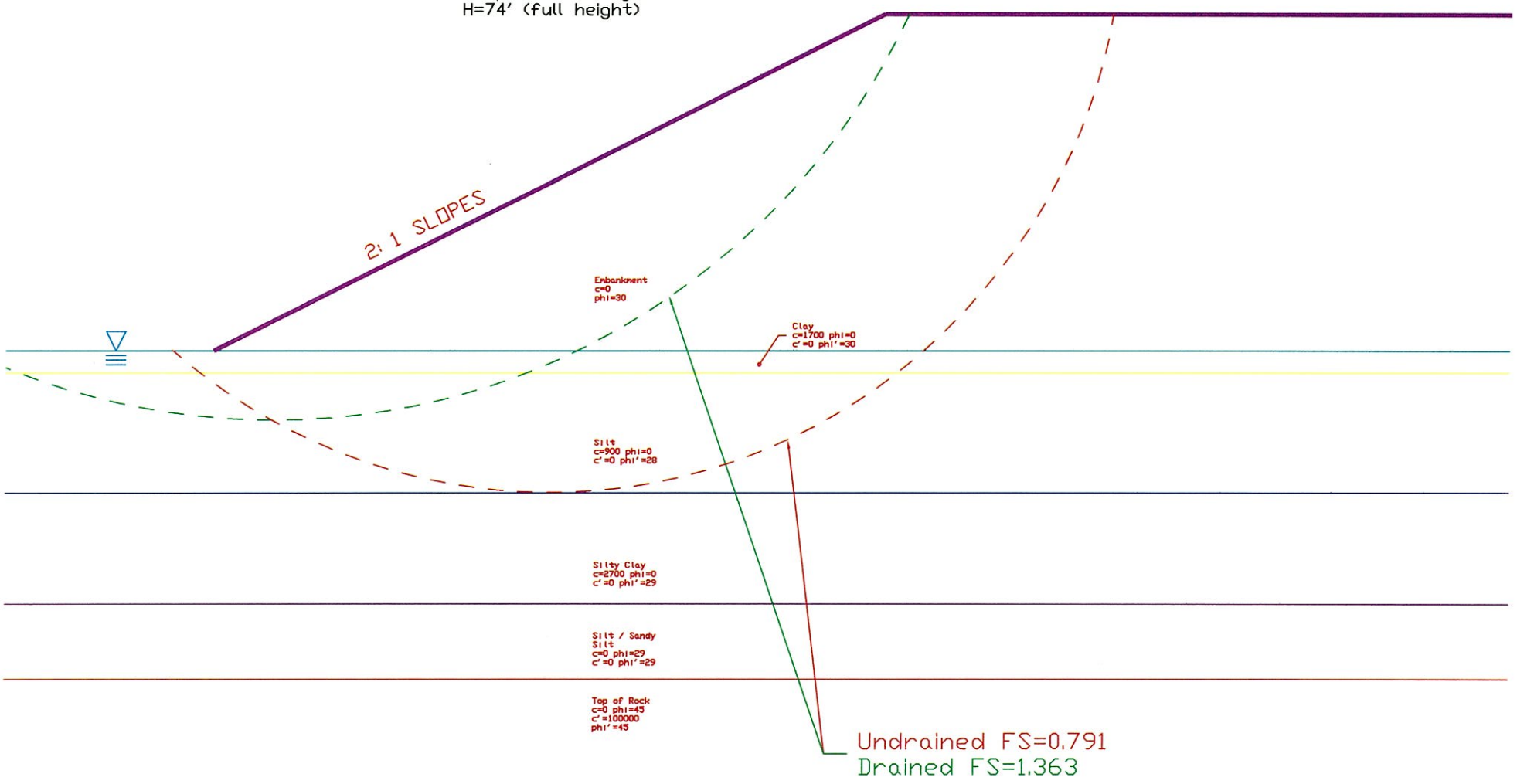
Embankment Stability
Embankment (Highland Bend)
From Sta. 123+50 to 131+85
Based on TR-35A
Composite Strength Values
H=74' (full height)



HIGHLAND BEND EMBANKMENT STABILITY BEGIN STATION 123+50 END STATION 131+85		
STABILITY ANALYSIS 2.0: 1 SLOPES SCI-823-0.00		
PROJECT NO. 0121-3070.03	CALC: SJR	DATE 06-06-06

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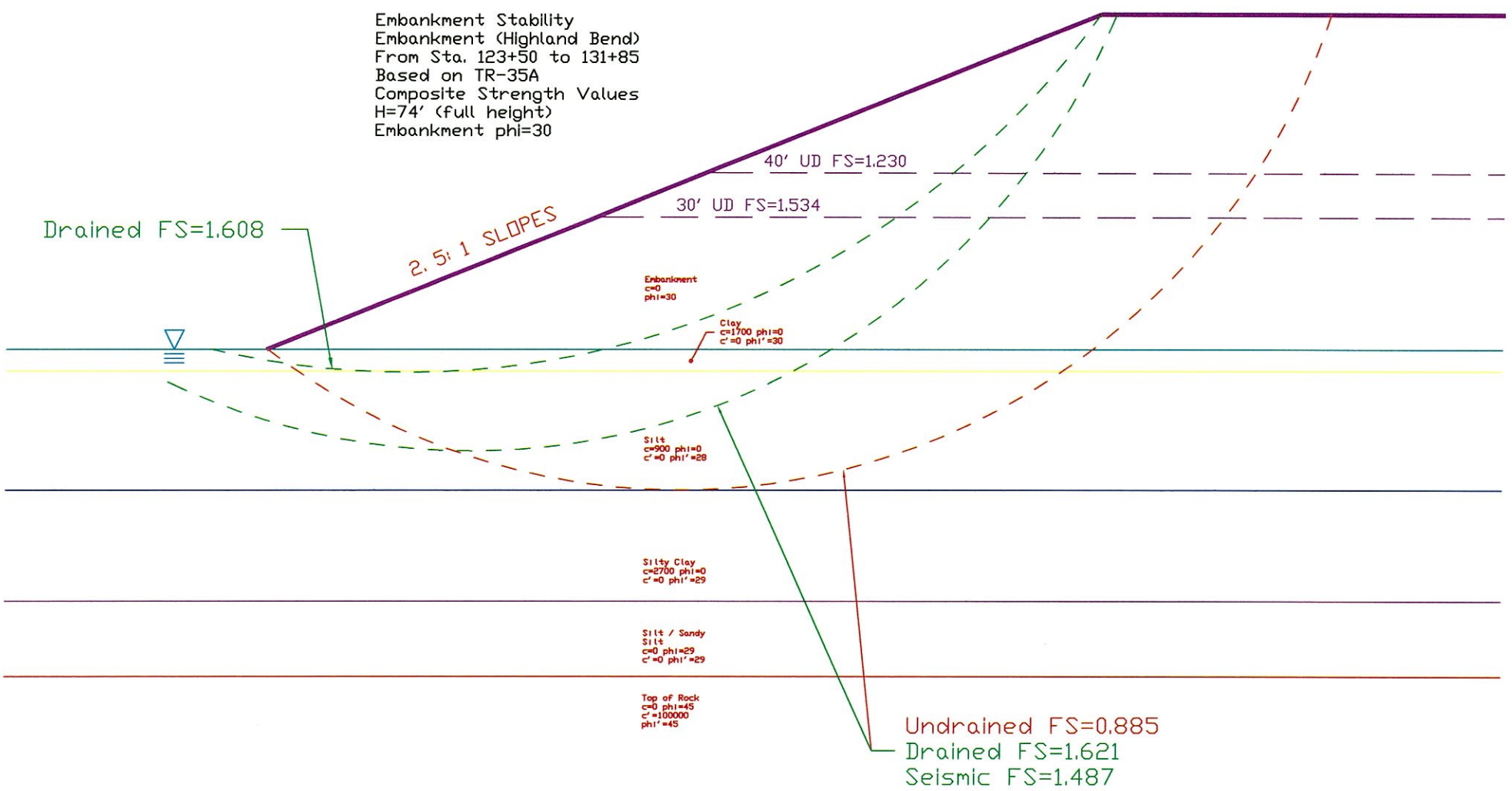

HIGHLAND BEND EMBANKMENT STABILITY

BEGIN STATION 123+50
END STATION 131+85

STABILITY ANALYSIS
2.5: 1 SLOPES
SCI-823-0.00

PROJECT NO. 0121-3070.03	CALC: SJR	DATE 06-06-06

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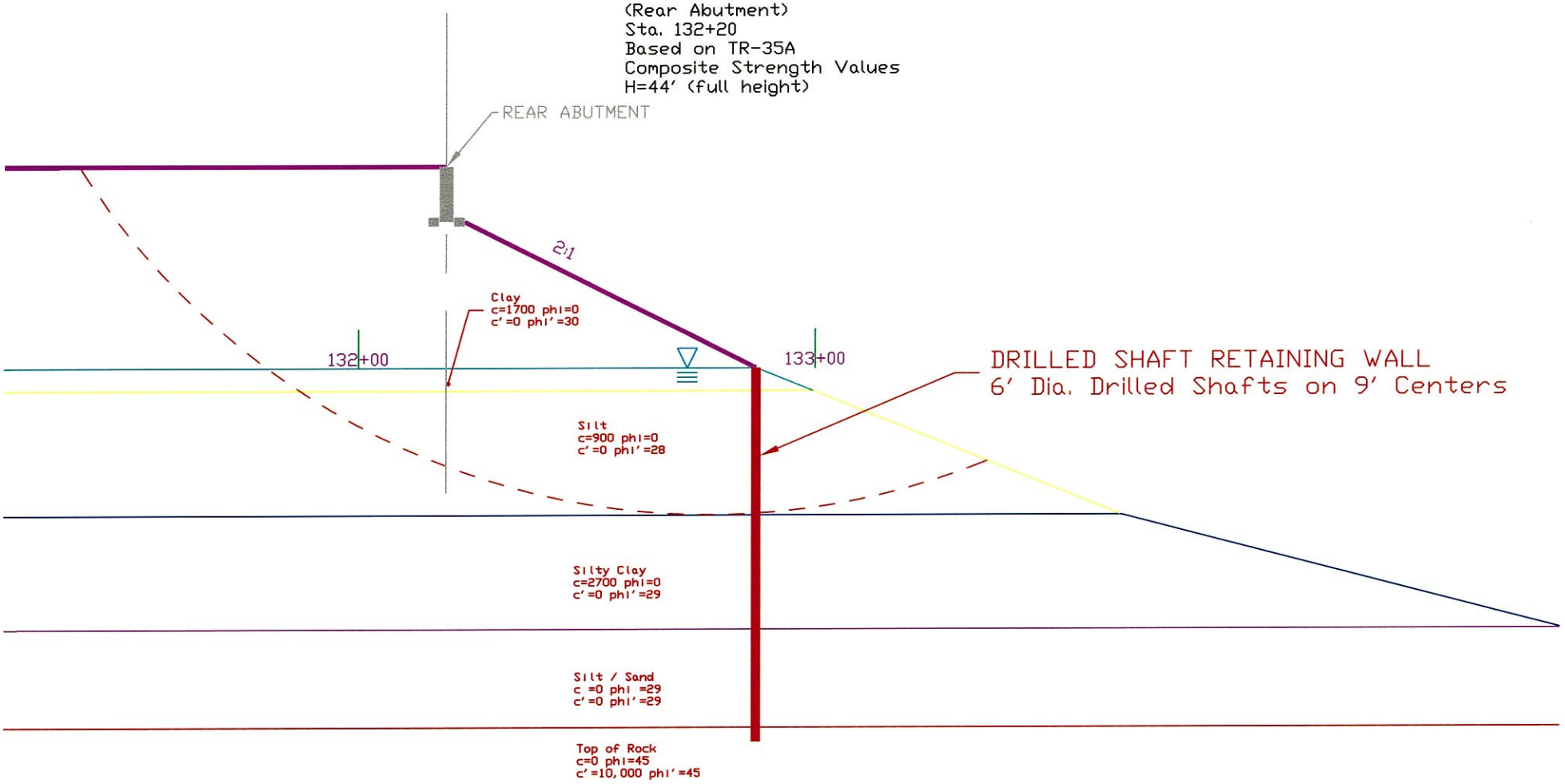
Embankment Stability Option 3
Using 2:1 Slopes
Embankment Little Scioto River
(Rear Abutment)
Sta. 132+20
Based on TR-35A
Composite Strength Values
H=44' (full height)



HIGHLAND BEND SLOPE STABILITY (OPTION 3)
ABUTMENT BEARING STA. 132+20

DRILLED SHAFT RETAINING WALL

SCI-823-0.00

PROJECT NO. 0121-3070.03	CALC: SJR	DATE 05-12-06

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Settlement Calculations

DLZ
ENGINEERS • ARCHITECTS • SCIENTISTS
PLANNERS • SURVEYORS

CLIENT Trans Systems
PROJECT SCI-823-0.00
SUBJECT Consolidation Parameters

PROJECT NO. 0121-3070.03
SHEET NO. 1 OF 1
COMP. BY SJR DATE 6-5-06
CHECKED BY DATE

C_c & C_r values were determined from Consolidation Test Results

The following borings had Consolidation Testing Performed

Boring	Depth	Soil	C_c	C_r	P_c
R-61	6.0'	A-7-6	0.21	0.05	6,000 psf
TR-38A	15.7'	A-6b	0.18	0.04	9,000 psf
TR-38A	45.8'	A-6a	0.19	0.07	3,000 psf
TR-35A	12.4'	A-4b	0.10	0.01	4,000 psf
TR-35A	27.0'	A-4b	0.27	0.08	3,000 psf
TR-35A	66.9'	A-4b	0.10	0.01	2,000 psf
R-64	18.0'	A-6a	0.24	0.04	6,000 psf

* Layers at similal elevations and having similar Atterberg limits were also assigned the same consolidation parameters

Typically:					
	Layer 1	Clay	C_c = 0.21	C_r = 0.05	P_c = 4,000 psf
	Layer 2	Silt	C_c = 0.24	C_r = 0.04	P_c = 6,000 psf
	Layer 3	Silty Clay	C_c = 0.22	C_r = 0.06	P_c = 4,000 psf

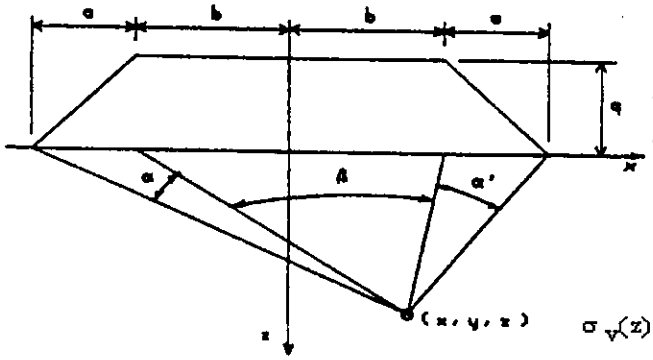
* See Property Summary Table in Appendix D for more detailed information.

DLZ

SUBJECT	Client TranSystems / ODOT D-9	JOB NUMBER	0121-3070.03
	Project SCI-823 Portsmouth Bypass	SHEET NO.	OF
	Item Embankment Settlement	COMP. BY	SJR DATE 06/07/06
	Sta. 105+00 to 114+00	CHECKED BY	DATE 6-7-06
	Profile Based on TR-41		

SETTLEMENT ANALYSIS - EMBANKMENT

Embankment Informaiton:



Groundwater Table:	D=	30.0	ft		
Embankment Height:	H =	104	ft		
Fill Unit Weight:	γ_{emb} =	120	pcf	q =	12,480 psf
Width of Slope:	a =	208			
Top half-width of Emb:	b =	75			
Distance from CL:	x =	0			
Output Range:	z =	0	to	104	ft

**See Data output Attached*

$$\sigma_v(z) := \left(\frac{q}{\pi}\right)\left(a\cdot(\alpha(z)+\beta(z)+\alpha'(z)) + b\cdot(\alpha(z)+\alpha'(z)) + x\cdot(\alpha(z)-\alpha'(z))\right)$$

$$\beta(z) := \operatorname{atan}\left[\frac{(b-x)}{z}\right] + \operatorname{atan}\left[\frac{(b+x)}{z}\right] \qquad \alpha'(z) := \operatorname{atan}\left[\frac{(a+b-x)}{z}\right] - \operatorname{atan}\left[\frac{(b-x)}{z}\right] \qquad \alpha(z) := \operatorname{atan}\left[\frac{(a+b+x)}{z}\right] - \operatorname{atan}\left[\frac{(b+x)}{z}\right]$$

Reference: US Army Corps of Engineers EM 1110-1-1904 "Settlement Analysis", Table C-1

Soil Properites: *Settlement is calculated at mid-point of layer*

No.	Bot. of Layer	Soil Type	γ_{soil} (pcf)	σ'_c (psf)	σ'_o (psf)	$\Delta\sigma z$ (psf)	σ'_f (psf)	Cohesionless Soils C'	Cohesive Soils C_r	C_c	e_o
1	10.0 ft	Clay	125	6,000	625	12,480	13,105	0.0	0.05	0.21	0.761
2	20.0 ft	Clay	125	6,000	1,875	12,474	14,349	0.0	0.05	0.21	0.762
3	30.0 ft	Silt	120	6,000	3,100	12,449	15,549	0.0	0.04	0.24	0.745
4	40.0 ft	Silt	120	6,000	3,988	12,405	16,393	0.0	0.04	0.24	0.745
5	50.0 ft	Silt	120	6,000	4,564	12,326	16,890	0.0	0.04	0.24	0.745
6	60.0 ft	Silt	120	6,000	5,140	12,229	17,369	0.0	0.04	0.24	0.745
7	68.0 ft	Silt	120	6,000	5,658	12,108	17,766	0.0	0.04	0.24	0.745
8	78.0 ft	Silt and Clay	120	4,000	6,177	11,966	18,142	0.0	0.06	0.22	0.685
9	83.0 ft	Silt and Clay	120	4,000	6,609	11,843	18,452	0.0	0.06	0.22	0.685
10	92.0 ft	C & F Sand	120	0	7,012	11,711	18,723	60.0	0.00	0.00	0.000

No.	Settlement:	
1	0.683	ft
2	0.595	ft
3	0.635	ft
4	0.641	ft
5	0.645	ft
6	0.650	ft
7	0.523	ft
8	0.611	ft
9	0.291	ft
10	0.064	ft

Total Settlement

5.339 ft

64.1 in

Reference: Geotechnical Engineering Principles and Practices; Coduto, 1999

Overconsolidated Soils - Case I ($\sigma'_0<\sigma'_c$) Eqn:11.24

$$(\delta_c)_{ult} = \sum \frac{C_r}{1+e_0} H \log\left(\frac{\sigma'_f}{\sigma'_0}\right)$$

Overconsolidated Soils - Case II ($\sigma'_0<\sigma'_c<\sigma_f$) Eqn:11.25

$$(\delta_c)_{ult} = \sum\left[\frac{C_r}{1+e_0} H \log\left(\frac{\sigma'_c}{\sigma'_0}\right) + \frac{C_c}{1+e_0} H \log\left(\frac{\sigma'_f}{\sigma'_c}\right)\right]$$

Normally Consolidated Soils ($\sigma'_0=\sigma'_c$) Eqn: 11.23

$$(\delta_c)_{ult} = \sum \frac{C_c}{1+e_0} H \log\left(\frac{\sigma'_f}{\sigma'_0}\right)$$

Reference: FHWA NHI-00-045

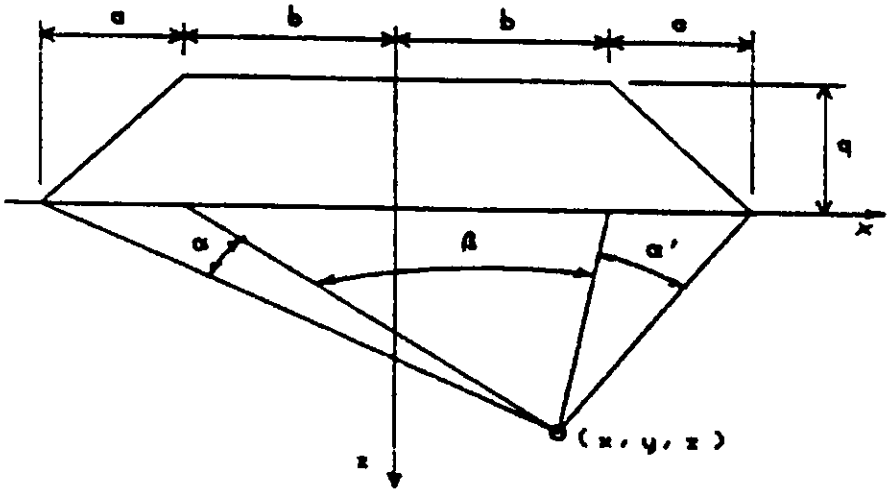
Cohesionless Soils ($\sigma'_0=\sigma'_c$)

$$(\delta_c)_{ult} = \sum \frac{1}{C'} H \log\left(\frac{\sigma'_f}{\sigma'_0}\right)$$

DLZ

SUBJECT	Client	TranSystems / ODOT D-9	JOB NUMBER
	Project	SCI-823 Portsmouth Bypass	SHEET NO. OF
	Item	Embankment Settlement	COMP. BY DATE
	Sta. 105+00 to 114+00		CHECKED BY DATE

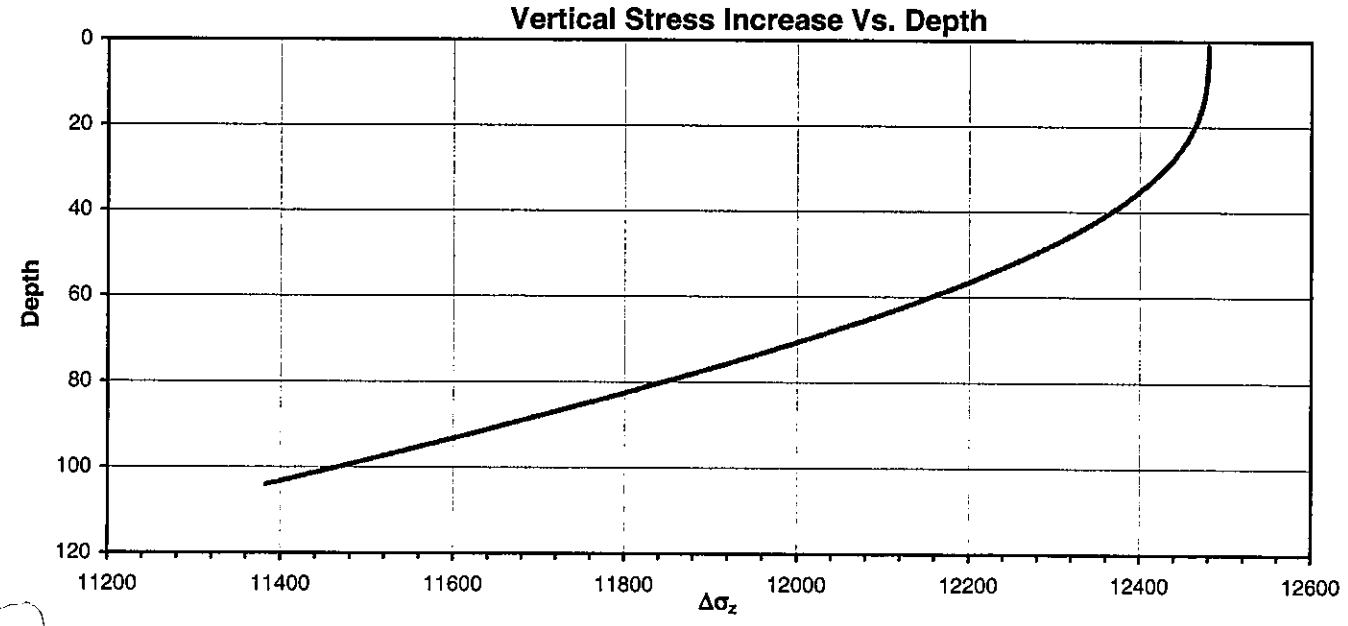
INCREASE IN VERTICAL STRESS DUE TO EMBANKMENT LOADING



q =	12480		load
a =	208		width of slope
b =	75		top half-width of embankment
x =	0		distance from CL
z =	0	to 104	depth range

$$\sigma_v(z) := \left(\frac{q}{\pi}\right)\left(a\cdot(\alpha(z)+\beta(z)+\alpha'(z))+b\cdot(\alpha(z)+\alpha'(z))+x\cdot(\alpha(z)-\alpha'(z))\right)$$

$$\beta(z) := \operatorname{atan}\left[\frac{(b-x)}{z}\right]+\operatorname{atan}\left[\frac{(b+x)}{z}\right] \quad ; \quad \alpha'(z) := \operatorname{atan}\left[\frac{(a+b-x)}{z}\right]-\operatorname{atan}\left[\frac{(b-x)}{z}\right] \quad \alpha(z) := \operatorname{atan}\left[\frac{(a+b+x)}{z}\right]-\operatorname{atan}\left[\frac{(b+x)}{z}\right]$$



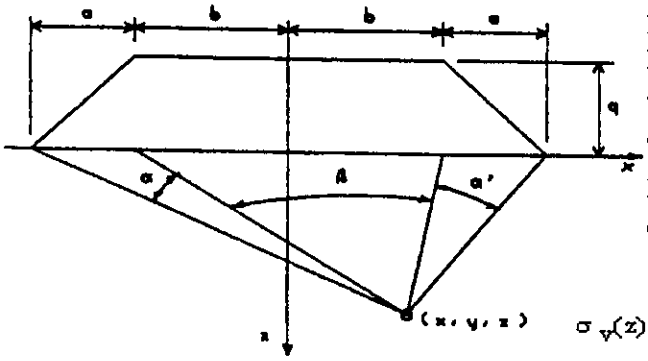
Reference: US Army Corps of Engineers EM 1110-1-1904 "Settlement Analysis", Table C-1

DLZ

SUBJECT	Client TranSystems / ODOT D-9	JOB NUMBER	0121-3070.03
	Project SCI-823 Portsmouth Bypass	SHEET NO.	OF
	Item Embankment Settlement	COMP. BY	SJR DATE 06/07/06
	Sta. 116+00 to 122+00	CHECKED BY	DATE 6-7-06
	Profile Based on TR-38A		

SETTLEMENT ANALYSIS - EMBANKMENT

Embankment Informaiton:



Groundwater Table:	D=	30.0	ft			
Embankment Height:	H =	70	ft			
Fill Unit Weight:	γ_{emb} =	120	pcf	q =	8,400	psf
Width of Slope:	a =	140				
Top half-width of Emb:	b =	75				
Distance from CL:	x =	0				
Output Range:	z =	0	to	76	ft	

**See Data output Attached*

$$\sigma_v(z) := \left\{\frac{q}{\pi\, a}\right\}\left(a\cdot(\alpha(z)+\beta(z)+\alpha'(z)) + b\cdot(\alpha(z)+\alpha'(z)) + x\cdot(\alpha(z)-\alpha'(z))\right)$$

$$\beta(z) := \operatorname{atan}\left[\frac{(b-x)}{z}\right] + \operatorname{atan}\left[\frac{(b+x)}{z}\right] \qquad \alpha'(z) := \operatorname{atan}\left[\frac{(a+b-x)}{z}\right] - \operatorname{atan}\left[\frac{(b-x)}{z}\right] \qquad \alpha(z) := \operatorname{atan}\left[\frac{(a+b+x)}{z}\right] - \operatorname{atan}\left[\frac{(b+x)}{z}\right]$$

Reference: US Army Corps of Engineers EM 1110-1-1904 "Settlement Analysis", Table C-1

Soil Properites: *Settlement is calculated at mid-point of layer*

No.	Bot. of Laye		Soil Type	γ_{soil} (pcf)	σ'_c (psf)	σ'_o (psf)	$\Delta\sigma z$ (psf)	σ'_f (psf)	Cohesionless Soils C'	Cohesive Soils C_r	C_c	e_o
1	10.0	ft	Clay	125	6,000	625	8,400	9,025	0.0	0.05	0.21	0.761
2	14.0	ft	Clay	125	6,000	1,500	8,397	9,897	0.0	0.05	0.21	0.761
3	24.0	ft	Silt	125	6,000	2,375	8,388	10,763	0.0	0.04	0.24	0.745
4	34.0	ft	Silt	120	6,000	3,600	8,356	11,956	0.0	0.04	0.24	0.745
5	43.0	ft	Silt	120	6,000	4,210	8,307	12,516	0.0	0.04	0.24	0.745
6	53.0	ft	Silty Clay	120	4,000	4,757	8,228	12,985	0.0	0.06	0.22	0.685
7	61.0	ft	Silty Clay	120	4,000	5,275	8,133	13,409	0.0	0.06	0.22	0.685
8	71.0	ft	Sandy Silt	120	0	5,794	8,030	13,823	40.0	0.00	0.00	0.000
9	76.0	ft	Sandy Silt	120	0	6,226	7,924	14,149	40.0	0.00	0.00	0.000
10	0.0			0	0							

No.	Settlement:		Total Settlement
1	0.490	ft	
2	0.172	ft	**3.125 ft**
3	0.441	ft	
4	0.463	ft	
5	0.427	ft	**37.5 in**
6	0.569	ft	
7	0.423	ft	
8	0.094	ft	
9	0.045	ft	
10			

Reference: Geotechnical Engineering Principles and Practices; Coduto, 1999

Overconsolidated Soils - Case I ($\sigma'_o < \sigma'_c$) Eqn:11.24

$$(\delta_c)_{ult} = \sum \frac{C_r}{1+e_0} H \log\left(\frac{\sigma'_f}{\sigma'_0}\right)$$

Overconsolidated Soils - Case II ($\sigma'_o < \sigma'_c < \sigma_f$) Eqn:11.25

$$(\delta_c)_{ult} = \sum\left[\frac{C_r}{1+e_0} H \log\left(\frac{\sigma'_c}{\sigma'_0}\right) + \frac{C_c}{1+e_0} H \log\left(\frac{\sigma'_f}{\sigma'_c}\right)\right]$$

Normally Consolidated Soils ($\sigma'_o = \sigma'_c$) Eqn: 11.23

$$(\delta_c)_{ult} = \sum \frac{C_c}{1+e_0} H \log\left(\frac{\sigma'_f}{\sigma'_0}\right)$$

Reference: FHWA NHI-00-045

Cohesionless Soils ($\sigma'_o = \sigma'_c$)

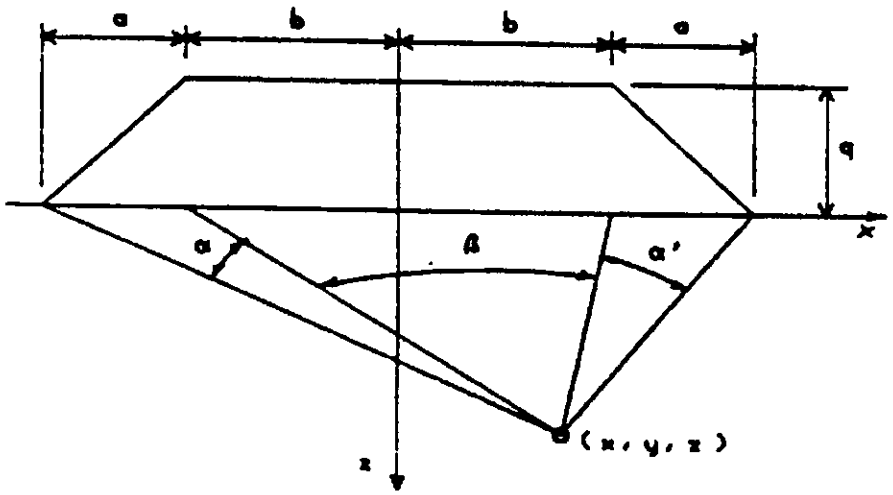
$$(\delta_c)_{ult} = \sum \frac{1}{C'} H \log\left(\frac{\sigma'_f}{\sigma'_0}\right)$$

DLZ

SUBJECT

Client	TranSystems / ODOT D-9	JOB NUMBER	
Project	SCI-823 Portsmouth Bypass	SHEET NO.	OF
Item	Embankment Settlement	COMP. BY	DATE
Sta. 116+00 to 122+00		CHECKED BY	DATE

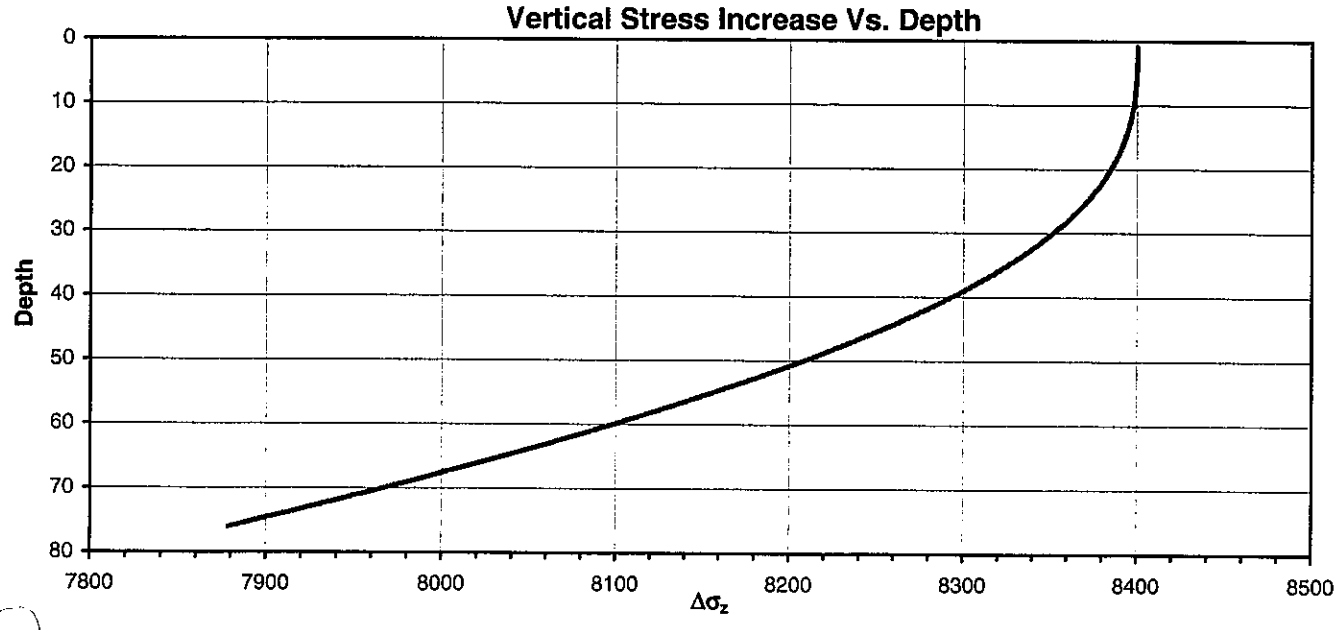
INCREASE IN VERTICAL STRESS DUE TO EMBANKMENT LOADING



q =	8400		load
a =	140		width of slope
b =	75		top half-width of embankment
x =	0		distance from CL
z =	0	to 76	depth range

$$\sigma_v(z) := \left(\frac{q}{\pi}\right)\left(a\cdot(\alpha(z)+\beta(z)+\alpha'(z)) + b\cdot(\alpha(z)+\alpha'(z)) + x\cdot(\alpha(z)-\alpha'(z))\right)$$

$$\beta(z) := \operatorname{atan}\left[\frac{(b-x)}{z}\right] + \operatorname{atan}\left[\frac{(b+x)}{z}\right] \quad ; \quad \alpha'(z) := \operatorname{atan}\left[\frac{(a+b-x)}{z}\right] - \operatorname{atan}\left[\frac{(b-x)}{z}\right] \quad \alpha(z) := \operatorname{atan}\left[\frac{(a+b+x)}{z}\right] - \operatorname{atan}\left[\frac{(b+x)}{z}\right]$$



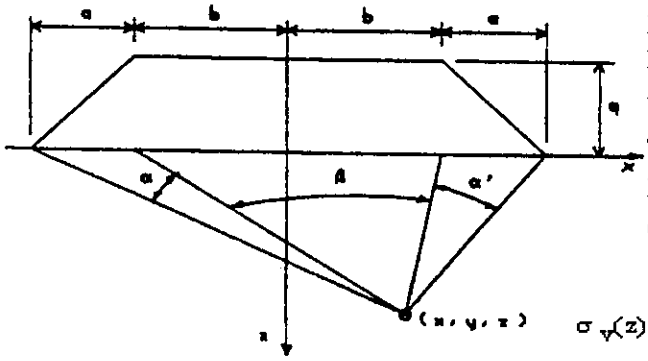
Reference: US Army Corps of Engineers EM 1110-1-1904 "Settlement Analysis", Table C-1

DLZ

SUBJECT	Client TranSystems / ODOT D-9	JOB NUMBER	0121-3070.03
	Project SCI-823 Portsmouth Bypass	SHEET NO.	OF
	Item Embankment Settlement	COMP. BY	SJR DATE 06/07/06
	Sta. 123+50 to 131+85	CHECKED BY	LT DATE 6-7-06
	Profile Based on TR-35A		

SETTLEMENT ANALYSIS - EMBANKMENT

Embankment Informaiton:



Groundwater Table:	D=	30.0	ft		
Embankment Height:	H =	74	ft		
Fill Unit Weight:	γ_{emb} =	120	pcf	q =	8,880 psf
Width of Slope:	a =	148			
Top half-width of Emb:	b =	75			
Distance from CL:	x =	0			
Output Range:	z =	0	to	74	ft

**See Data output Attached*

$$\sigma_v(z) := \left(\frac{q}{\pi\, a}\right)\left(a\cdot(\alpha(z)+\beta(z)+\alpha'(z)) + b\cdot(\alpha(z)+\alpha'(z)) + x\cdot(\alpha(z)-\alpha'(z))\right)$$

$$\beta(z) := \operatorname{atan}\left[\frac{(b-x)}{z}\right] + \operatorname{atan}\left[\frac{(b+x)}{z}\right] \qquad \alpha'(z) := \operatorname{atan}\left[\frac{(a+b-x)}{z}\right] - \operatorname{atan}\left[\frac{(b-x)}{z}\right] \qquad \alpha(z) := \operatorname{atan}\left[\frac{(a+b+x)}{z}\right] - \operatorname{atan}\left[\frac{(b+x)}{z}\right]$$

Reference: US Army Corps of Engineers EM 1110-1-1904 "Settlement Analysis", Table C-1

Soil Properites: *Settlement is calculated at mid-point of layer*

No.	Bot. of Laye		Soil Type	γ_{soil} (pcf)	σ'_c (psf)	σ'_o (psf)	$\Delta\sigma z$ (psf)	σ'_f (psf)	Cohesionless Soils C'	Cohesive Soils C_r	Cohesive Soils C_c	Cohesive Soils e_o
1	5.0	ft	Clay	125	6,000	313	8,880	9,192	0.0	0.05	0.21	0.761
2	15.0	ft	Silt	125	6,000	1,250	8,878	10,128	0.0	0.04	0.24	0.745
3	24.0	ft	Silt	120	6,000	2,415	8,866	11,281	0.0	0.04	0.24	0.745
4	32.0	ft	Silt	120	6,000	3,435	8,842	12,277	0.0	0.04	0.24	0.745
5	40.0	ft	Silty Clay	120	4,000	4,021	8,802	12,822	0.0	0.06	0.22	0.685
6	50.0	ft	Silty Clay	120	4,000	4,539	8,737	13,276	0.0	0.06	0.22	0.685
7	57.0	ft	Silty Clay	120	4,000	5,029	8,652	13,680	0.0	0.06	0.22	0.685
8	67.0	ft	Sandy Silt	120	0	5,518	8,556	14,075	42.5	0.00	0.00	0.000
9	74.0	ft	Sandy Silt	120	0	6,008	8,436	14,444	42.5	0.00	0.00	0.000
10	0.0			0	0							

No.	Settlement:		Total Settlement
1	0.293	ft	
2	0.469	ft	**3.259 ft**
3	0.421	ft	
4	0.387	ft	
5	0.526	ft	**39.1 in**
6	0.609	ft	
7	0.397	ft	
8	0.096	ft	
9	0.063	ft	
10			

Reference: Geotechnical Engineering Principles and Practices; Coduto, 1999

Overconsolidated Soils - Case I ($\sigma'_o<\sigma'_c$) Eqn:11.24

$$(\delta_c)_{ult} = \sum \frac{C_r}{1+e_0} H \log\left(\frac{\sigma'_f}{\sigma'_0}\right)$$

Overconsolidated Soils - Case II ($\sigma'_o<\sigma'_c<\sigma_f$) Eqn:11.25

$$(\delta_c)_{ult} = \sum\left[\frac{C_r}{1+e_0} H \log\left(\frac{\sigma'_c}{\sigma'_0}\right) + \frac{C_c}{1+e_0} H \log\left(\frac{\sigma'_f}{\sigma'_c}\right)\right]$$

Normally Consolidated Soils ($\sigma'_o=\sigma'_c$) Eqn: 11.23

$$(\delta_c)_{ult} = \sum \frac{C_c}{1+e_0} H \log\left(\frac{\sigma'_f}{\sigma'_0}\right)$$

Reference: FHWA NHI-00-045

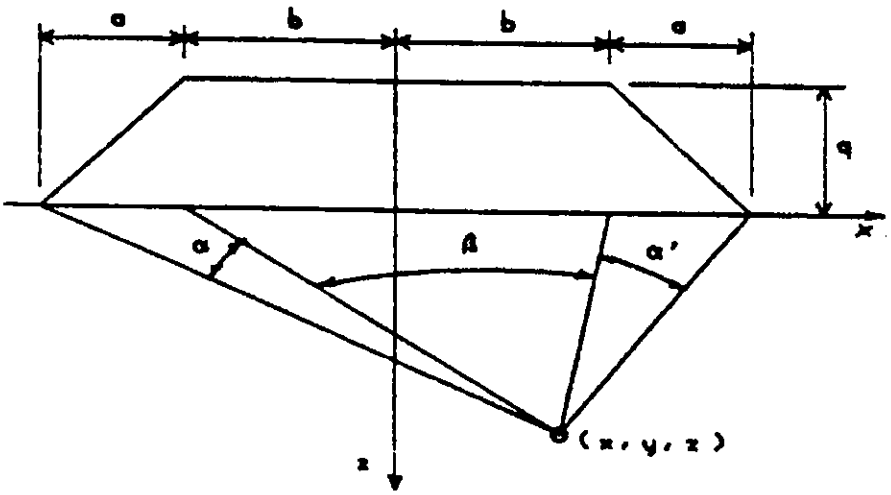
Cohesionless Soils ($\sigma'_o=\sigma'_c$)

$$(\delta_c)_{ult} = \sum \frac{1}{C'} H \log\left(\frac{\sigma'_f}{\sigma'_0}\right)$$

DLZ

SUBJECT	Client TranSystems / ODOT D-9	JOB NUMBER	
	Project SCI-823 Portsmouth Bypass	SHEET NO.	OF
	Item Embankment Settlement	COMP. BY	DATE
	Sta. 123+50 to 131+60	CHECKED BY	DATE

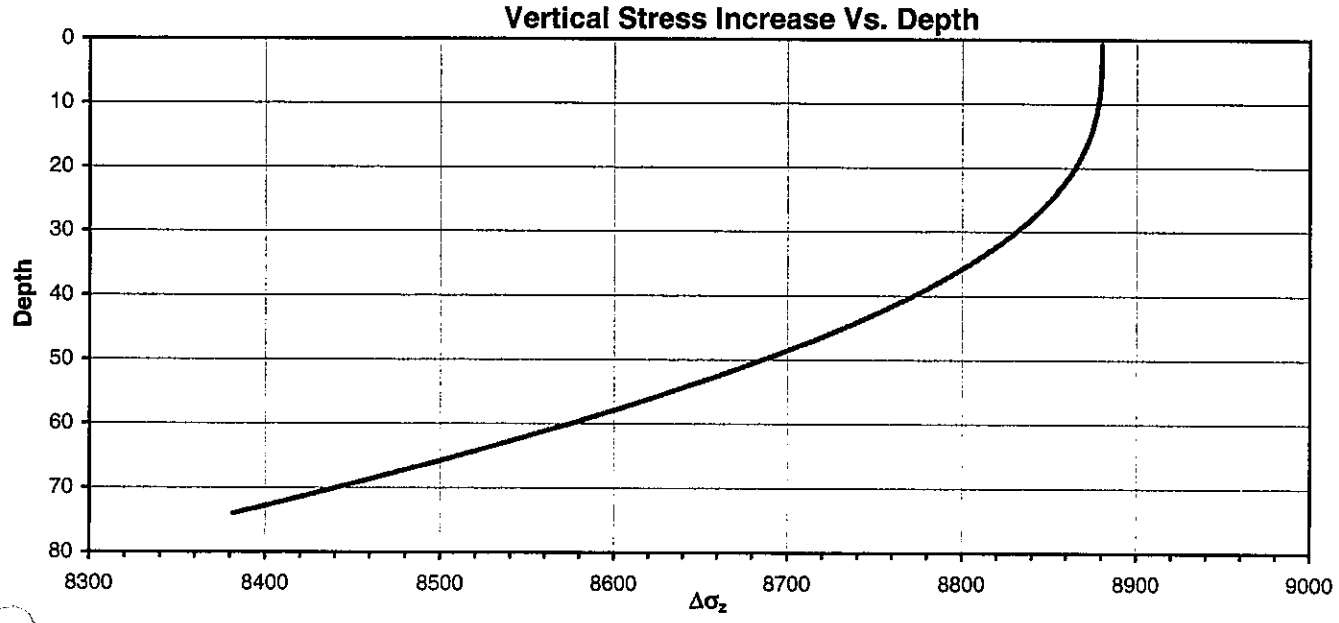
INCREASE IN VERTICAL STRESS DUE TO EMBANKMENT LOADING



q =	8880		load
a =	148		width of slope
b =	75		top half-width of embankment
x =	0		distance from CL
z =	0	to 74	depth range

$$\sigma_v(z) := \left(\frac{q}{\pi}\right)\left(a\cdot(\alpha(z)+\beta(z)+\alpha'(z)) + b\cdot(\alpha(z)+\alpha'(z)) + x\cdot(\alpha(z)-\alpha'(z))\right)$$

$$\beta(z) := \operatorname{atan}\left[\frac{(b-x)}{z}\right] + \operatorname{atan}\left[\frac{(b+x)}{z}\right] \quad ; \quad \alpha'(z) := \operatorname{atan}\left[\frac{(a+b-x)}{z}\right] - \operatorname{atan}\left[\frac{(b-x)}{z}\right] \quad \alpha(z) := \operatorname{atan}\left[\frac{(a+b+x)}{z}\right] - \operatorname{atan}\left[\frac{(b+x)}{z}\right]$$



Reference: US Army Corps of Engineers EM 1110-1-1904 "Settlement Analysis", Table C-1

Time-Rate of Consolidation Calculations (Wick Drains)

DLZ
ENGINEERS • ARCHITECTS • SCIENTISTS
PLANNERS • SURVEYORS

CLIENT Tran Systems / ODOT D-9 PROJECT NO. 0121-3070.03
PROJECT SCI-823-0.00 SHEET NO. ____ OF ____
SUBJECT Highland Bend Embankment Time Rate of Settlement Calcs COMP. BY SJK DATE 6-7-06
CHECKED BY ST DATE 6-8-06

Consolidation without with Drains (Vertick Drainage) * {Very few, Isolated areas of varved clay were noted.}

* Assume Double Drainage

$$t_{90} = \frac{T \cdot H_v^2}{c_v}$$

* For Conservative Estimates, the lowest c_v value will be used.

Station 105+00 to 114+00

$H_v = \frac{83'}{2} = 41.5'$ $\quad c_v = 0.27\ ft^2/day$

for $U = 90\%$ $\longrightarrow$ $T = 0.848$

$$t_{90} = \frac{(0.848)(41.5)^2}{0.27\ ft^2/day} = 5409\ days = 14.8\ years$$

Station 116+00 to 122+00

$H_v = \frac{61'}{2} = 30.5'$ $\quad c_v = 0.24\ ft^2/day$

for $U = 90\%$ $\longrightarrow$ $T = 0.848$

$$t_{90} = \frac{(0.848)(30.5')^2}{0.24\ ft^2/day} = 3287\ days = 9.0\ years$$

Station 123+50 to 131+85

$H_v = \frac{57'}{2} = 28.5'$ $\quad c_v = 0.25\ ft^2/day$

for $U = 90\%$ $\longrightarrow$ $T = 0.848$

$$t_{90} = \frac{(0.848)(28.5')^2}{0.25\ ft^2/day} = 2755\ days = 7.5\ years$$

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ENGINEERS • ARCHITECTS • SCIENTISTS
PLANNERS • SURVEYORS

CLIENT TranSystems / ODOT D-9
PROJECT SCI-823-0.00
SUBJECT Highland Bend Embankment Settlement C_v Values

PROJECT NO. 0121-3070.03
SHEET NO. _____ OF _____
COMP. BY SJR DATE 6-7-06
CHECKED BY ET DATE 6-8-06

* C_v values have been estimated from NAVFAC, DM-7.1, 1982
Taken from FHWA HI-97-021

Embankment Sta. 105+00 to 114+00

Layer 1	Clay	$\bar{LL}$ = 41 %	C_v = 0.27	ft²/day
Layer 2	Silt	$\bar{LL}$ = 29	C_v = 0.55	
Layer 3	Silt & Clay	$\bar{LL}$ = 35	C_v = 0.40	

Embankment Sta. 116+00 to 122+00

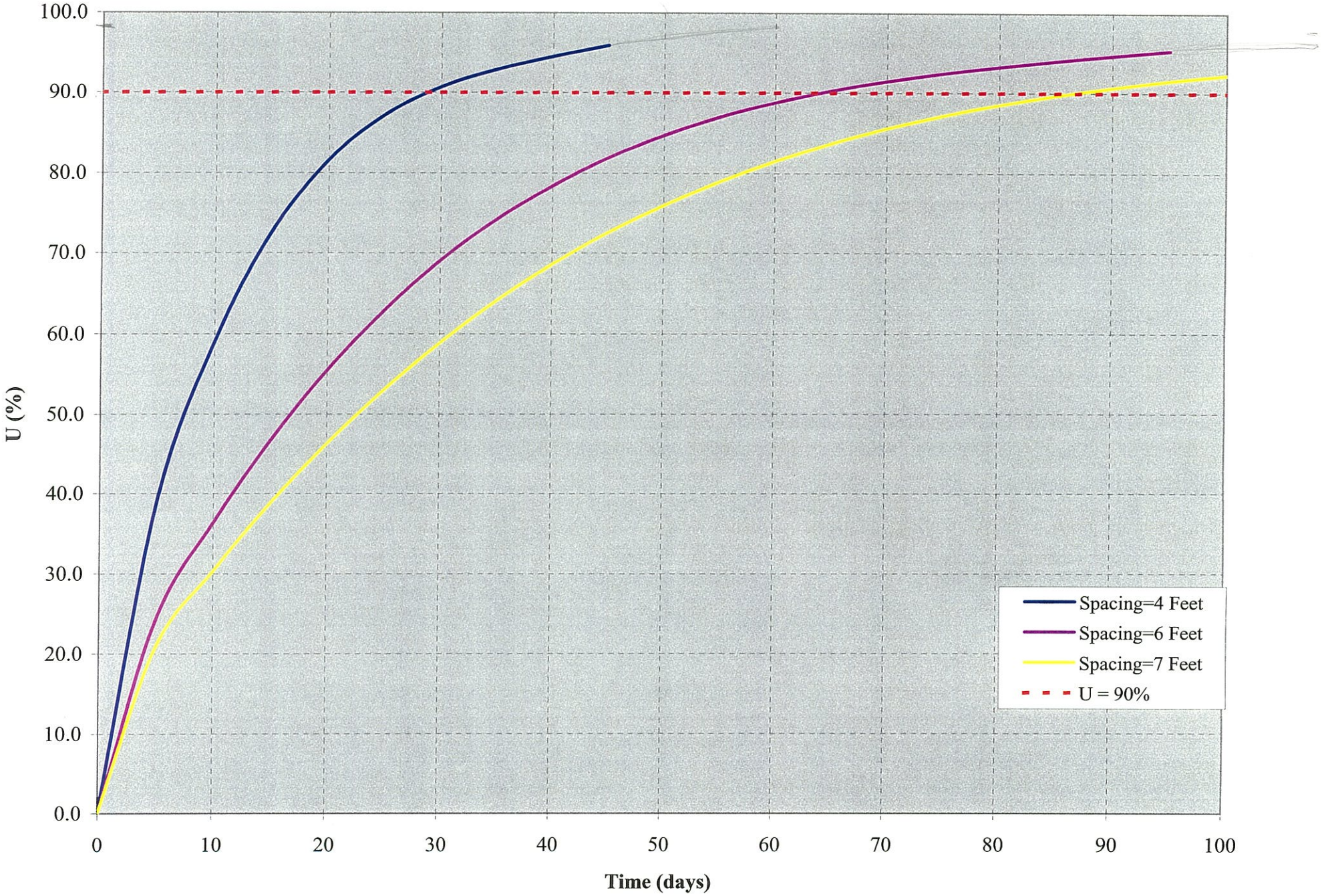
Layer 1	Clay	$\bar{LL}$ = 43 %	C_v = 0.24	ft²/day
Layer 2	Silt	$\bar{LL}$ = 29	C_v = 0.55	
Layer 3	Silty Clay	$\bar{LL}$ = 36	C_v = 0.40	

Embankment Sta. 123+50 to 131+85

Layer 1	Clay	$\bar{LL}$ = 42 %	C_v = 0.25	ft²/day
Layer 2	Silt	$\bar{LL}$ = 30	C_v = 0.55	
Layer 3	Silty Clay	$\bar{LL}$ = 41	C_v = 0.27	

DLZ

Percent Consolidation vs Time
Station 105+00 to 114+00



DLZ

Time Rate of Consolication of Foundation Soils with Wick Drians
Highland Bend **Station** **105+00 to 114+00**

Wick Drain Spacing **4.0** feet Use $\eta = 10$

t (days)	T_R	T_V	U_R	U_V	U_C	δ(inches)	d_e	c_v	H_v	δ_{max}
0	0.0000	0.0000	0.00	0.00	0.0	0.0	4.2	**0.27**	**41.5**	**64**
5	0.0765	0.0008	0.33	0.08	38.9	24.9				
10	0.1531	0.0016	0.55	0.09	59.1	37.8				
15	0.2296	0.0024	0.70	0.09	72.7	46.6				
20	0.3061	0.0031	0.80	0.09	81.7	52.3				
25	0.3827	0.0039	0.86	0.09	87.3	55.8				
30	0.4592	0.0047	0.90	0.10	90.7	58.1				
35	0.5357	0.0055	0.92	0.10	92.9	59.5				
40	0.6122	0.0063	0.94	0.10	94.6	60.5				
45	0.6888	0.0071	0.95	0.10	96.0	61.4				

DLZ

Time Rate of Consolication of Foundation Soils with Wick Drians
Highland Bend **Station** **105+00 to 114+00**

Wick Drain Spacing **6.0** feet Use $\eta = 10$

t (days)	T_R	T_V	U_R	U_V	U_C	δ(inches)	d_e	c_v	H_v	δ_{max}
0	0.0000	0.0000	0.00	0.00	0.0	0.0	6.3	**0.27**	**41.5**	**64**
5	0.0340	0.0008	0.17	0.08	24.3	15.6				
10	0.0680	0.0016	0.30	0.09	36.4	23.3				
15	0.1020	0.0024	0.42	0.09	46.7	29.9				
20	0.1361	0.0031	0.51	0.09	55.5	35.5				
25	0.1701	0.0039	0.59	0.09	62.9	40.3				
30	0.2041	0.0047	0.66	0.10	69.1	44.2				
35	0.2381	0.0055	0.71	0.10	74.2	47.5				
40	0.2721	0.0063	0.76	0.10	78.5	50.2				
45	0.3061	0.0071	0.80	0.10	81.9	52.4				
50	0.3401	0.0078	0.83	0.11	84.7	54.2				
55	0.3741	0.0086	0.85	0.11	87.0	55.7				
60	0.4082	0.0094	0.87	0.11	88.8	56.8				
65	0.4422	0.0102	0.89	0.12	90.3	57.8				
70	0.4762	0.0110	0.90	0.12	91.5	58.6				
75	0.5102	0.0118	0.91	0.12	92.5	59.2				
80	0.5442	0.0125	0.92	0.12	93.3	59.7				
85	0.5782	0.0133	0.93	0.13	94.0	60.2				
90	0.6122	0.0141	0.94	0.13	94.7	60.6				
95	0.6463	0.0149	0.95	0.13	95.3	61.0				

DLZ

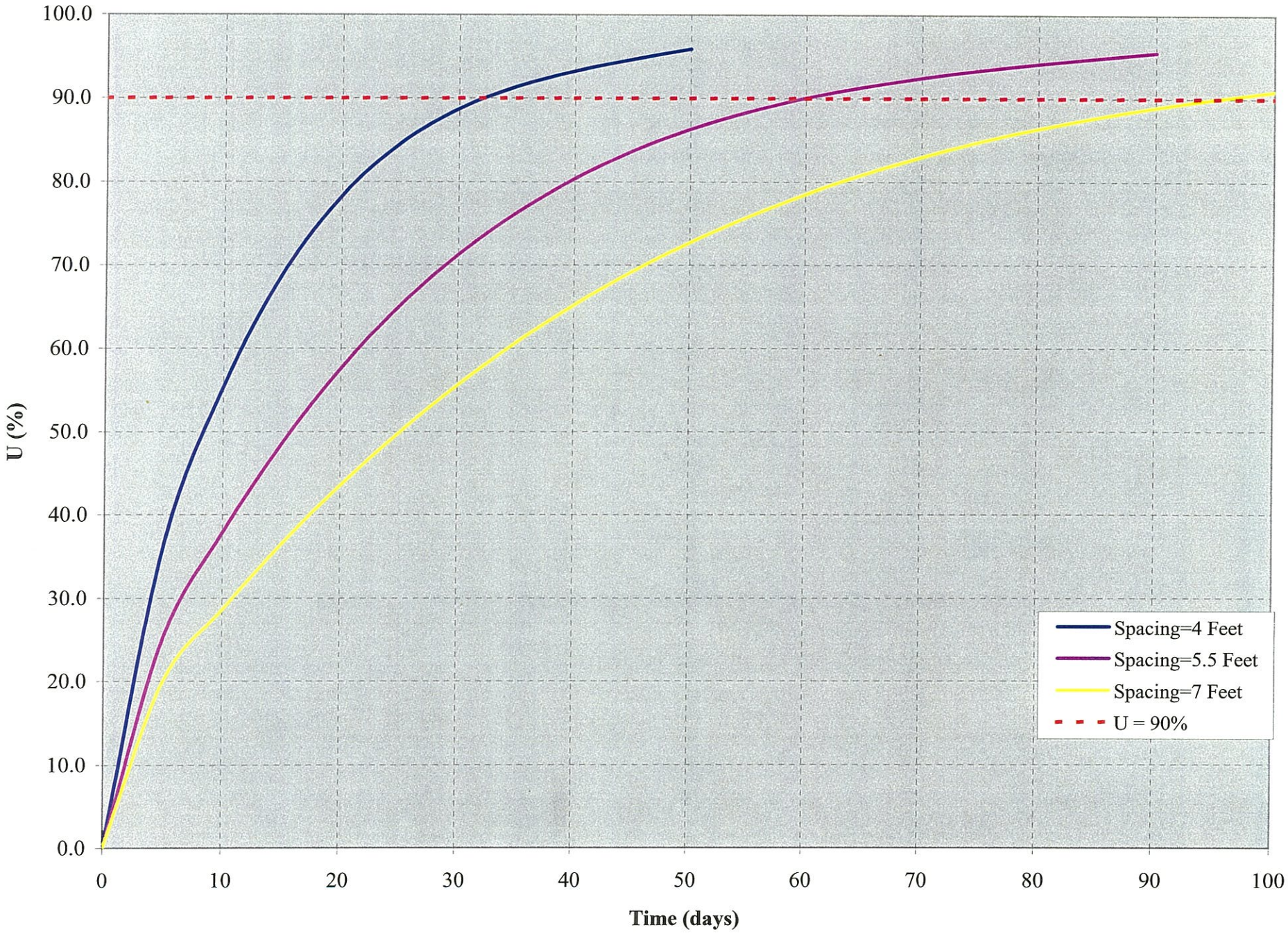
Time Rate of Consolication of Foundation Soils with Wick Drians
Highland Bend **Station** **105+00 to 114+00**

Wick Drain Spacing **7.0** feet Use $\eta = 10$

t (days)	T_R	T_V	U_R	U_V	U_C	δ(inches)	d_e	c_v	H_v	δ_{max}
0	0.0000	0.0000	0.00	0.00	0.0	0.0	7.35	**0.27**	**41.5**	**64**
5	0.0250	0.0008	0.14	0.08	20.9	13.4				
10	0.0500	0.0016	0.24	0.09	30.3	19.4				
15	0.0750	0.0024	0.33	0.09	38.8	24.8				
20	0.1000	0.0031	0.41	0.09	46.3	29.6				
25	0.1249	0.0039	0.48	0.09	53.0	33.9				
30	0.1499	0.0047	0.54	0.10	58.9	37.7				
35	0.1749	0.0055	0.60	0.10	64.0	41.0				
40	0.1999	0.0063	0.65	0.10	68.6	43.9				
45	0.2249	0.0071	0.69	0.10	72.5	46.4				
50	0.2499	0.0078	0.73	0.11	76.0	48.6				
55	0.2749	0.0086	0.76	0.11	79.0	50.5				
60	0.2999	0.0094	0.79	0.11	81.5	52.2				
65	0.3249	0.0102	0.82	0.12	83.7	53.6				
70	0.3499	0.0110	0.84	0.12	85.6	54.8				
75	0.3748	0.0118	0.85	0.12	87.2	55.8				
80	0.3998	0.0125	0.87	0.12	88.6	56.7				
85	0.4248	0.0133	0.88	0.13	89.7	57.4				
90	0.4498	0.0141	0.89	0.13	90.7	58.1				
95	0.4748	0.0149	0.90	0.13	91.6	58.6				
100	0.4998	0.0157	0.91	0.13	92.3	59.1				
105	0.5248	0.0165	0.92	0.14	93.0	59.5				
110	0.5498	0.0172	0.93	0.14	93.5	59.9				
115	0.5748	0.0180	0.93	0.14	94.1	60.2				
120	0.5998	0.0188	0.94	0.14	94.6	60.5				
125	0.6247	0.0196	0.94	0.15	95.0	60.8				

DLZ

Percent Consolidation vs Time
Station 116+00 to 122+00



DLZ

Time Rate of Consolication of Foundation Soils with Wick Drians
Highland Bend **Station** **116+00 to 122+00**

Wick Drain Spacing **4.0** feet Use $\eta = 10$

t (days)	T_R	T_V	U_R	U_V	U_C	δ (inches)	d_e	c_v	H_v	δ_{max}
0	0.0000	0.0000	0.00	0.00	0.0	0.0	4.2	**0.24**	**30.5**	**38**
5	0.0680	0.0013	0.30	0.09	36.3	13.8				
10	0.1361	0.0026	0.51	0.09	55.4	21.1				
15	0.2041	0.0039	0.66	0.09	69.0	26.2				
20	0.2721	0.0052	0.76	0.10	78.4	29.8				
25	0.3401	0.0064	0.83	0.10	84.7	32.2				
30	0.4082	0.0077	0.87	0.11	88.8	33.7				
35	0.4762	0.0090	0.90	0.11	91.4	34.7				
40	0.5442	0.0103	0.92	0.12	93.3	35.4				
45	0.6122	0.0116	0.94	0.12	94.7	36.0				
50	0.6803	0.0129	0.95	0.12	95.9	36.4				

DLZ

Time Rate of Consolication of Foundation Soils with Wick Drians
Highland Bend **Station** **116+00 to 122+00**

Wick Drain Spacing **5.5** feet Use $\eta = 10$

t (days)	T_R	T_V	U_R	U_V	U_C	δ (inches)	d_e	c_v	H_v	δ_{max}
0	0.0000	0.0000	0.00	0.00	0.0	0.0	5.775	**0.24**	**30.5**	**38**
5	0.0360	0.0013	0.18	0.09	25.2	9.6				
10	0.0720	0.0026	0.32	0.09	37.9	14.4				
15	0.1079	0.0039	0.43	0.09	48.6	18.5				
20	0.1439	0.0052	0.53	0.10	57.6	21.9				
25	0.1799	0.0064	0.61	0.10	65.1	24.7				
30	0.2159	0.0077	0.68	0.11	71.3	27.1				
35	0.2519	0.0090	0.73	0.11	76.3	29.0				
40	0.2879	0.0103	0.78	0.12	80.4	30.6				
45	0.3238	0.0116	0.81	0.12	83.7	31.8				
50	0.3598	0.0129	0.84	0.12	86.3	32.8				
55	0.3958	0.0142	0.87	0.13	88.4	33.6				
60	0.4318	0.0155	0.89	0.13	90.1	34.2				
65	0.4678	0.0168	0.90	0.14	91.4	34.7				
70	0.5037	0.0181	0.91	0.14	92.5	35.1				
75	0.5397	0.0193	0.92	0.14	93.4	35.5				
80	0.5757	0.0206	0.93	0.15	94.2	35.8				
85	0.6117	0.0219	0.94	0.15	94.8	36.0				
90	0.6477	0.0232	0.95	0.16	95.5	36.3				

DLZ

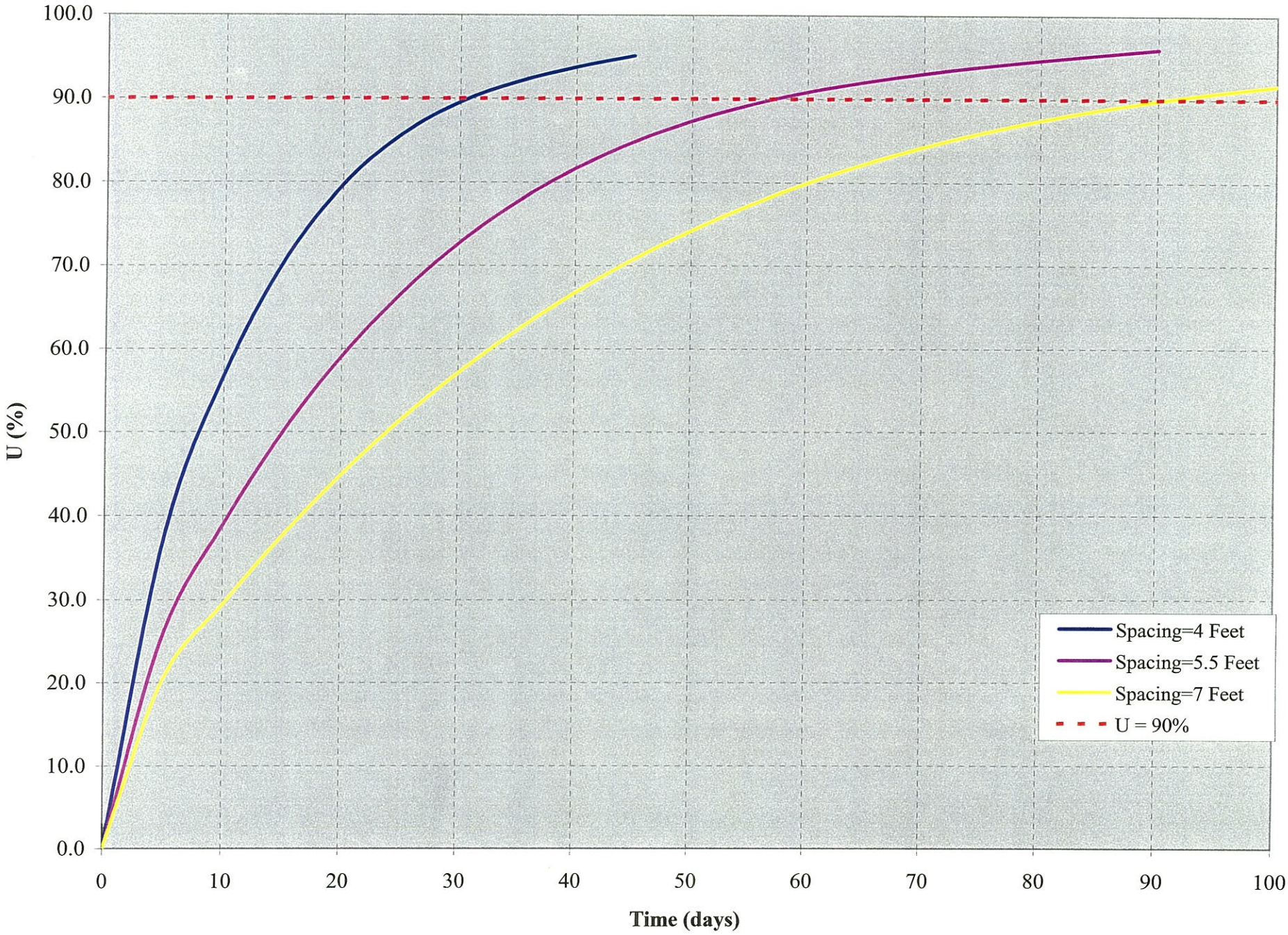
Time Rate of Consolication of Foundation Soils with Wick Drians
Highland Bend **Station** **116+00 to 122+00**

Wick Drain Spacing **7.0** feet Use $\eta = 10$

t (days)	T_R	T_V	U_R	U_V	U_C	δ(inches)	d_e	c_v	H_v	δ_{max}
0	0.0000	0.0000	0.00	0.00	0.0	0.0	7.35	**0.24**	**30.5**	**38**
5	0.0222	0.0013	0.12	0.09	19.9	7.6				
10	0.0444	0.0026	0.22	0.09	28.6	10.9				
15	0.0666	0.0039	0.30	0.09	36.5	13.9				
20	0.0889	0.0052	0.37	0.10	43.6	16.6				
25	0.1111	0.0064	0.44	0.10	49.9	19.0				
30	0.1333	0.0077	0.50	0.11	55.6	21.1				
35	0.1555	0.0090	0.56	0.11	60.7	23.1				
40	0.1777	0.0103	0.61	0.12	65.2	24.8				
45	0.1999	0.0116	0.65	0.12	69.2	26.3				
50	0.2221	0.0129	0.69	0.12	72.7	27.6				
55	0.2443	0.0142	0.72	0.13	75.8	28.8				
60	0.2666	0.0155	0.75	0.13	78.6	29.9				
65	0.2888	0.0168	0.78	0.14	81.0	30.8				
70	0.3110	0.0181	0.80	0.14	83.1	31.6				
75	0.3332	0.0193	0.82	0.14	84.9	32.3				
80	0.3554	0.0206	0.84	0.15	86.4	32.9				
85	0.3776	0.0219	0.86	0.15	87.8	33.4				
90	0.3998	0.0232	0.87	0.16	89.0	33.8				
95	0.4220	0.0245	0.88	0.16	90.0	34.2				
100	0.4443	0.0258	0.89	0.16	90.9	34.5				
105	0.4665	0.0271	0.90	0.17	91.7	34.8				
110	0.4887	0.0284	0.91	0.17	92.4	35.1				
115	0.5109	0.0297	0.91	0.18	93.0	35.3				
120	0.5331	0.0310	0.92	0.18	93.5	35.5				
125	0.5553	0.0322	0.93	0.18	94.0	35.7				
130	0.5775	0.0335	0.93	0.19	94.5	35.9				
135	0.5998	0.0348	0.94	0.19	94.9	36.1				
140	0.6220	0.0361	0.94	0.20	95.3	36.2				

DLZ

Percent Consolidation vs Time
Station 123+50 to 131+85



DLZ

Time Rate of Consolication of Foundation Soils with Wick Drians
Highland Bend **Station** **123+50 to 131+85**

Wick Drain Spacing **4.0** feet Use $\eta = 10$

t (days)	T_R	T_V	U_R	U_V	U_C	δ(inches)	d_e	c_v	H_v	δ_{max}
0	0.0000	0.0000	0.00	0.00	0.0	0.0	4.2	0.25	28.5	39
5	0.0709	0.0015	0.31	0.09	37.3	14.6				
10	0.1417	0.0031	0.52	0.09	56.8	22.1				
15	0.2126	0.0046	0.67	0.10	70.4	27.5				
20	0.2834	0.0062	0.77	0.10	79.7	31.1				
25	0.3543	0.0077	0.84	0.11	85.7	33.4				
30	0.4252	0.0092	0.88	0.11	89.6	34.9				
35	0.4960	0.0108	0.91	0.12	92.1	35.9				
40	0.5669	0.0123	0.93	0.12	93.8	36.6				
45	0.6378	0.0139	0.94	0.13	95.2	37.1				

DLZ

Time Rate of Consolication of Foundation Soils with Wick Drians
Highland Bend **Station** **123+50 to 131+85**

Wick Drain Spacing **5.5** feet Use $\eta = 10$

t (days)	T_R	T_V	U_R	U_V	U_C	δ(inches)	d_e	c_v	H_v	δ_{max}
0	0.0000	0.0000	0.00	0.00	0.0	0.0	5.775	**0.25**	**28.5**	**39**
5	0.0375	0.0015	0.19	0.09	25.8	10.1				
10	0.0750	0.0031	0.33	0.09	39.0	15.2				
15	0.1124	0.0046	0.45	0.10	49.9	19.5				
20	0.1499	0.0062	0.54	0.10	59.1	23.0				
25	0.1874	0.0077	0.63	0.11	66.6	26.0				
30	0.2249	0.0092	0.69	0.11	72.8	28.4				
35	0.2624	0.0108	0.75	0.12	77.7	30.3				
40	0.2998	0.0123	0.79	0.12	81.7	31.9				
45	0.3373	0.0139	0.83	0.13	84.9	33.1				
50	0.3748	0.0154	0.85	0.13	87.4	34.1				
55	0.4123	0.0169	0.88	0.14	89.3	34.8				
60	0.4498	0.0185	0.89	0.14	90.9	35.4				
65	0.4872	0.0200	0.91	0.15	92.1	35.9				
70	0.5247	0.0215	0.92	0.15	93.1	36.3				
75	0.5622	0.0231	0.93	0.16	93.9	36.6				
80	0.5997	0.0246	0.94	0.16	94.7	36.9				
85	0.6372	0.0262	0.94	0.17	95.4	37.2				
90	0.6747	0.0277	0.95	0.17	96.0	37.5				

DLZ

Time Rate of Consolication of Foundation Soils with Wick Drians
Highland Bend **Station** **123+50 to 131+85**

Wick Drain Spacing **7.0** feet Use $\eta = 10$

t (days)	T_R	T_V	U_R	U_V	U_C	δ(inches)	d_e	c_v	H_v	δ_{max}
0	0.0000	0.0000	0.00	0.00	0.0	0.0	7.35	**0.25**	**28.5**	**39**
5	0.0231	0.0015	0.13	0.09	20.4	8.0				
10	0.0463	0.0031	0.22	0.09	29.4	11.5				
15	0.0694	0.0046	0.31	0.10	37.6	14.7				
20	0.0926	0.0062	0.39	0.10	44.8	17.5				
25	0.1157	0.0077	0.46	0.11	51.3	20.0				
30	0.1388	0.0092	0.52	0.11	57.1	22.3				
35	0.1620	0.0108	0.57	0.12	62.2	24.3				
40	0.1851	0.0123	0.62	0.12	66.8	26.0				
45	0.2082	0.0139	0.67	0.13	70.8	27.6				
50	0.2314	0.0154	0.70	0.13	74.3	29.0				
55	0.2545	0.0169	0.74	0.14	77.3	30.2				
60	0.2777	0.0185	0.77	0.14	80.0	31.2				
65	0.3008	0.0200	0.79	0.15	82.3	32.1				
70	0.3239	0.0215	0.82	0.15	84.3	32.9				
75	0.3471	0.0231	0.83	0.16	86.0	33.6				
80	0.3702	0.0246	0.85	0.16	87.5	34.1				
85	0.3934	0.0262	0.87	0.17	88.8	34.6				
90	0.4165	0.0277	0.88	0.17	89.9	35.1				
95	0.4396	0.0292	0.89	0.17	90.9	35.4				
100	0.4628	0.0308	0.90	0.18	91.7	35.8				
105	0.4859	0.0323	0.91	0.18	92.4	36.0				
110	0.5090	0.0339	0.91	0.19	93.0	36.3				
115	0.5322	0.0354	0.92	0.19	93.6	36.5				
120	0.5553	0.0369	0.93	0.20	94.1	36.7				
125	0.5785	0.0385	0.93	0.20	94.6	36.9				
130	0.6016	0.0400	0.94	0.21	95.0	37.1				
135	0.6247	0.0416	0.94	0.21	95.4	37.2				
140	0.6479	0.0431	0.95	0.22	95.8	37.4				