

APPENDIX V

CLAY BORROW SOURCE INFORMATION

Kenowski Clay Borrow Report

WDNR Approval of Kenowski Clay Borrow Expansion

Kenowski Clay Borrow Expansion Report (2/5/2008)

February 5, 2008

Mr. Marty Herrick, PE
Wisconsin Department of Natural Resources
La Crosse Service Center
3550 Mormon Coulee Road
La Crosse, WI 54601

Re: Plan Modification Addendum, Veolia ES Seven Mile Creek Landfill
Kenowski Clay Borrow Site Expansion, License No 3097

Dear Marty,

The information included in this letter, along with plan sheets 1 through 7 are provided as an addendum to the approved Veolia ES Seven Mile Creek Landfill Plan Modification for the Kenowski Clay Borrow site.

1.0 INTRODUCTION

In an approval dated March 28, 2003, the Department approved the commercial Kenowski clay borrow site located in Clark County, Wisconsin for use in the clay component of the composite liner and cap for Sector 2 at the Veolia ES Seven Mile Creek Landfill (VSMCL).

The initial clay borrow investigation was conducted on an approximate 5 acre parcel located in the north east half of Section 17, Township 25N, Range 1 West, Township of York, Clark County Wisconsin. The site is part of the 157 acres of property owned by the Kenowski's. Plan Sheet 1 shows the location of the clay borrow site. The Kenowski's have an active sand and gravel operation on this property and with the clay characterization have added a fine-grained soil borrow source to their commercial borrow operation.

The initial investigation identified approximately 100,000 cubic yards of acceptable material for use in landfill liner or cap construction. However, in some test pit locations the bottom of clay exceeded the reach of the backhoe leading to expectations of additional clay soil available beyond the original calculated volume. Since the original approval in March 2003 at least three major hauls have been completed from this site. Two of the excavations have been for use at the VSMCL and one for a landfill cap project near Neillsville, Wisconsin. The area presently excavated is shown on Plan Sheet 2. Based on the isopack map on Plan Sheet 4 approximately 40,000 cubic yards of material remain in the initial approved borrow area.

Because of demand for fine-grained soil, the Kenowski's have decided to expand the existing approved borrow site by extending the site west and north. Plan Sheet 2 also shows the proposed clay borrow expansion area.

2.0 SOIL INVESTIGATION

On November 7, 2007, Ayres Associates personnel laid out 7 locations for the backhoe test pit investigations in the proposed expansion area. The approximate size of the expansion area is 21 acres. Per NR 504.075(5)(a) one test pit is required per each additional 3 acres investigated after 10 test pits were completed in the initial 5 acre borrow area. Ayres Associates' personnel were on site to observe and log the backhoe test pit excavations and collect representative soil samples for laboratory analysis. A minimum of two representative samples were collected from each backhoe test pit.

Soil samples were shipped to the testing laboratory and analyzed for moisture content, Atterberg limits, grain size through the 0.001-mm particle size, moisture density relationship, and hydraulic conductivity. The backhoe test pit locations and boring logs are shown in Plan Sheet 3. Soil boring logs developed from the backhoe test pit observation are also included in Attachment 1. Ground water was not encountered in any of the test pits, however sand stone was encountered in test pits TP-14,16,18 and 19 at an approximate range of 10 to 24 feet below ground surface. Visual observations made during test pit excavation show that the clay depth ranges from approximately 5 feet near the north end to approximately 22 feet near the center of the site as depicted on Plan Sheet 4.

3.0 SOIL LABORATORY TESTING

Soil samples were shipped to the soil-testing laboratory for moisture content, Atterberg analysis, and grain size through the 0.001-mm particle size. In addition, three moisture density relationship curves were developed and one hydraulic conductivity test for each proctor curve was also completed. Soil laboratory test results are summarized in Table 1, with laboratory reports included in Attachments 2 through 5.

3.1 Atterberg Limits

Twenty-three Atterberg limits tests were conducted. Liquid limits range from 35.1 to 22.7 with an average of 28.2. Plastic index results range from 7.0 to 27.0 with an average of 13.4, which meets the requirements of NR 504.06 which requires the minimum liquid limit to be 20.0 and the average of 25.0 or greater, and the minimum plastic limit of 10.0 and the average of 12.0 or greater. Test pits TP-17, 18 and 19 all had plastic index values in a portion of each respective profile that were below the NR-500 minimum value of 10.0. These areas will be further investigated during excavation. Atterberg limit tests are summarized in Table 1 and laboratory results are included in Attachment 2.

3.2 Grain Size Analysis

Nineteen grain size analyses through the 0.001-mm particle size were conducted on the representative test pit samples. Grain size analysis was not performed on samples where the plastic index was below the required NR-500 minimum of 10.0. The percent P-200 ranges from 44.3 to 90.0 with an average value of 58.4. Grain size results are summarized in Table 1 and laboratory results are in Attachment 3.

3.3 Proctor Analysis

Samples from test pits TP-15, TP-16, and TP-17 were collected for laboratory moisture density determination. Three 5-point modified proctor curves (one for each test pit) were developed per ASTM Method D-1557. The maximum dry density ranged from 120.5 pounds per cubic foot (pcf) to 134.5 pcf and optimum moisture content ranged from 8.0% to 13.0%. Proctor results are summarized in Table 1 and laboratory results are in Attachment 4.

3.4 Hydraulic Conductivity

Three hydraulic conductivity tests, per ASTM D 5084 Method C, were conducted on a remolded sample from each of the three test pits. Each sample was remolded to a moisture content approximately 1.5% to 2.5% greater than the optimum moisture for the respective sample. The hydraulic conductivity ranges from 1.18×10^{-8} to 1.77×10^{-8} centimeters per second (cm/sec), which satisfy the permeability requirements put forth in NR 504.06. Hydraulic conductivity results are summarized in Table 1 and laboratory results are in Attachment 5.

4.0 CLAY QUALITY AND QUANTITY

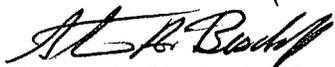
Based on the soil laboratory test results, the clay soil from the Kenowski borrow site expansion meets or exceeds the requirements of NR 504.06. Hydraulic conductivity tests indicate that if compacted to the required specifications, the material will have a hydraulic conductivity equal to or less than that required by NR 504.06.

Approximately 190,000 to 210,000 cubic yards of additional clay soil is available from the expansion area investigated. The additional clay available from the site can be utilized for future liner construction at the VSMCL or other area construction projects. Isopack map developed from observed clay thickness is shown in Plan Sheet 4 and cross sections developed from the test pit logs are shown in Plan Sheets 5 through 7.

I trust this information, along with the accompanying plan sheets will be sufficient for approval of the Kenowski clay borrow expansion. If you have any questions during your review of this plan modification please feel free to give me a call.

Sincerely,

Ayres Associates Inc



Steven A. Bischoff, PE
Environmental Engineer
Direct: 715.831.7634
Fax: 715.831.7500
Bischoffs@AyresAssociates.com

SAB:tah

Enclosure

cc: Don Smith, Veolia ES
Gary Albee, VSMCL
Mark Vinall, VSMCL

**TABLE 1
TEST PIT SOIL ANALYSIS
KENOWSKI CLAY BORROW SITE EXPANSION**

ID Number	Sample Depth	USCS	Percent Moisture	PL	LL	PI	P200	Usable Clay Depth*
TP-13	2'-4'	CL	15.9	19.0	36.0	17.0	90.0	5'
TP-14	2'-4'	CL	16.0	13.0	33.0	20.0	59.3	8'
TP-14	6'	CL	18.7	17.0	44.0	27.0	81.5	
TP-14	9'	CL	16.0	12.0	29.0	17.0	65.9	
TP-15	5'	CL	14.9	11.0	26.0	15.0	53.1	16.5'
TP-15	13'	CL	15.8	16.0	31.0	15.0	72.3	
TP-15	20'	CL	15.0	15.0	30.0	15.0	63.6	
TP-16	2'	CL	11.6	13.0	25.0	12.0	44.3	20'-22'
TP-16	6'	CL	15.2	11.0	27.0	16.0	54.3	
TP-16	8'-10'	CL	17.4	14.0	29.0	15.0	66.8	
TP-16	23'	CL	15.9	11.0	23.0	12.0	53.6	
TP-17	4'	CL	10.7	13.0	22.0	9.0	NA	10'
TP-17	8'	CL	13.3	14.0	21.0	7.0	NA	
TP-17	12'	SC	13.5	12.0	23.0	13.0	48.5	
TP-17	18'	CL	12.8	11.0	22.0	11.0	52.9	
TP-17	23'	CL	13.8	13.0	27.0	14.0	53.6	
TP-18	6'	CL	14.3	13.0	21.0	8.0	NA	6'
TP-18	14'	SC	15.8	13.0	24.0	11.0	49.1	
TP-18	19'	CL	16.0	12.0	25.0	13.0	50.8	
TP-19	2'	CL	11.1	14.0	22.0	8.0	NA	
TP-19	4'	CL	12.0	12.0	24.0	12.0	51.3	12'
TP-19	12'	SC	13.5	12.0	23.0	11.0	48.0	
TP-19	15'	CL	13.3	11.0	22.0	11.0	51.0	
Average			14.5		26.5	13.4	58.4	
NR 500 Standards	NS	NS	NS	NS	>20, Av25	>10,Av12	>50%	

*Usable depth is the estimated depth of acceptable material in each test pit meeting minimum NR-500 standards

PROCTOR RESULTS

Bulk Sample	PL	LL	PI	Maximum Dry Densit (PCF)	Optimum Water Content (%)	P200	Hydraulic Conductivity
TP-15 (8')	18	39	21	120.5	13.0	53.1	1.23x10 ⁻⁸
TP-16 (23')	11	24	13	133.5	8.0	53.6	1.77x10 ⁻⁸
TP-17 (19')	13	26	13	134.5	8.0	52.9	1.18x10 ⁻⁸
NR 500 Standards	NS	>20, Av25	>10,Av12	NS	NS	>50	< 1x10⁻⁷

NS = No standards

ATTACHMENT 1

TEST PIT LOGS

Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name Veolia ES 7 Mile LF-Kenowski Clay Borrow Site Expansion		License/Permit/Monitoring Number 3097		Boring Number TP-13	
Boring Drilled By: Name of crew chief (first, last) and Firm Randy Gansch Frattalone Companies		Date Drilling Started 11/7/2007		Date Drilling Completed 11/7/2007	
Drilling Method Excavator		WI Unique Well No.		DNR Well ID No.	
Common Well Name TP-13		Final Static Water Level Dry		Surface Elevation 1,172.2 Feet MSL	
Borehole Diameter inches		Local Grid Origin <input checked="" type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input type="checkbox"/> State Plane N, E S/C/N		Local Grid Location <input checked="" type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
1/4 of NW 1/4 of Section 17, T 25 N, R 1 W		Lat _____ "		6108.81 Feet	
Long _____ "		6108.81 Feet		4738.73 Feet	
Facility ID 618045450		County Clark		County Code 10	
		Civil Town/City/ or Village York			

Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments	
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200		
			0	Topsoil											
			1	Shaley red/green clay	CL										
			2	Dark brown clay											
			3							15.9	36	17	90		
			4		CL										
			5												
			6	White sandstone											
			7	End of test pit excation @ 7.5 feet											

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature *John P. Resmerre* Firm **AYRES ASSOCIATES** 3433 OAKWOOD HILLS EAU CLAIRE WI 54701 Tel: 715-834-3161 Fax: 715-834-7500

Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name Veolia ES 7 Mile LF-Kenowski Clay Borrow Site Expansion		License/Permit/Monitoring Number 3097		Boring Number TP-14	
Boring Drilled By: Name of crew chief (first, last) and Firm Randy Gansch Frattalone Companies		Date Drilling Started 11/7/2007		Date Drilling Completed 11/7/2007	
WI Unique Well No.		DNR Well ID No.		Common Well Name TP-14	
Local Grid Origin <input checked="" type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input type="checkbox"/>		Final Static Water Level Dry		Surface Elevation 1,178.8 Feet MSL	
State Plane 1/4 of NW 1/4 of Section 17, T 25 N, R 1 W		Lat _____ "		Local Grid Location <input checked="" type="checkbox"/> N <input type="checkbox"/> S <input checked="" type="checkbox"/> E <input type="checkbox"/> W	
Facility ID 618045450		County Clark		County Code 10	
		Civil Town/City/ or Village York			

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments	
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200		
			1	Topsoil											
			2	Dark brown sandy clay	CL					16	33	20	59.3		
		3													
		4													
		5													
			6	Gray/green sandy silt with some bedrock chips	ML					18.7	44	27	81.5		
		7													
			8	White sandstone						16	29	17	65.9		
		9													
			10	End of test pit excavation @ 10 feet											

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature *John Rosemore* Firm **AYRES ASSOCIATES** 3433 OAKWOOD HILLS EAU CLAIRE WI 54701 Tel: 715-834-3100 Fax: 715-834-7560

Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name Veolia ES 7 Mile LF-Kenowski Clay Borrow Site Expansion		License/Permit/Monitoring Number 3097		Boring Number TP-15	
Boring Drilled By: Name of crew chief (first, last) and Firm Randy Gansch Fratton Companies			Date Drilling Started 11/7/2007	Date Drilling Completed 11/7/2007	Drilling Method Excavator
WI Unique Well No.	DNR Well ID No.	Common Well Name TP-15	Final Static Water Level Dry	Surface Elevation 1,189.4 Feet MSL	Borehole Diameter inches
Local Grid Origin <input checked="" type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input type="checkbox"/> State Plane N, E S/C/N			Local Grid Location <input checked="" type="checkbox"/> N <input checked="" type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W		
1/4 of NW 1/4 of Section 17, T 25 N, R 1 W			Lat _____"	Long _____"	5718.86 Feet <input type="checkbox"/> S 4788.52 Feet <input type="checkbox"/> W
Facility ID 618045450	County Clark	County Code 10	Civil Town/City/ or Village York		

Sample	Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments	
										Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200		
				0.0	Topsoil											
				1.5	Brown sandy silt	ML										
				3.0	Brown sandy clay	CL					14.9	26	15	53.1		
				10.5	Brown sandy clay with coarse gravel	CL					15.8	31	15	72.3		
				19.5	End of test pit excavation @ 20 feet	CL					15	30	15	63.6		

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature *John Roseman* Firm **AYRES ASSOCIATES** 3433 OAKWOOD HILLS EAU CLAIRE WI 54701 Tel: 715-834-3161 Fax: 715-834-7500

Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name Veolia ES 7 Mile LF-Kenowski Clay Borrow Site Expansion		License/Permit/Monitoring Number 3097		Boring Number TP-16	
Boring Drilled By: Name of crew chief (first, last) and Firm Randy Gansch Frattalone Companies		Date Drilling Started 11/7/2007		Date Drilling Completed 11/7/2007	
WI Unique Well No.		DNR Well ID No.		Common Well Name TP-16	
Final Static Water Level Dry		Surface Elevation 1,199.4 Feet MSL		Borehole Diameter inches	
Local Grid Origin <input checked="" type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input type="checkbox"/>		State Plane N, E S/C/N		Local Grid Location <input checked="" type="checkbox"/> N <input checked="" type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
1/4 of NW 1/4 of Section 17, T 25 N, R 1 W		Lat _____"		5497.52 Feet	
Long _____"		4561.41 Feet			
Facility ID 618045450		County Clark		County Code 10	
				Civil Town/City/ or Village York	

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties				RQD/ Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	
			0	Topsoil									
			2	Reddish brown silty clay	CL					11.6	25	12	44.3
			4	Reddish brown sandy clay									
			6							15.2	27	16	54.3
			8							17.4	29	15	66.8
			10										
			12										
			14		CL								
			16										
			18										
			20										
			22										
			24	White sandstone						15.9	23	12	53.6
			24	End of test pit excavation @ 24 feet									

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature *Paul Rosemote* Firm **AYRES ASSOCIATES** Tel: 715-834-316
3433 OAKWOOD HILLS EAU CLAIRE WI 54701 Fax: 715-834-750

Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name Veolia ES 7 Mile LF-Kenowski Clay Borrow Site Expansion		License/Permit/Monitoring Number 3097		Boring Number TP-17	
Boring Drilled By: Name of crew chief (first, last) and Firm Randy Gansch Frattalone Companies		Date Drilling Started 11/7/2007		Date Drilling Completed 11/7/2007	
WI Unique Well No.		DNR Well ID No.		Common Well Name TP-17	
Local Grid Origin <input checked="" type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input type="checkbox"/>		Final Static Water Level Dry		Surface Elevation 1,200.8 Feet MSL	
State Plane N, E S/C/N		Lat _____"		Local Grid Location <input checked="" type="checkbox"/> N <input checked="" type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
1/4 of NW 1/4 of Section 17, T 25 N, R 1 W		Long _____"		5306.32 Feet <input type="checkbox"/> S 4525.31 Feet <input type="checkbox"/> W	
Facility ID 618045450		County Clark		County Code 10	
				Civil Town/City/ or Village York	

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
			0	Topsoil										
			2	Reddish brown sandy clay	CL					10.7	22	9		
			8	Cobbles (rock) with clay	CL					13.3	21	7		
			10	Reddish brown sandy clay	CL									
			12	Reddish brown clayey sand	SC					13.5	23	13	48.5	
			18	Reddish brown sandy clay	CL					12.8	22	11	52.9	
			22	Reddish brown sandy clay						13.8	27	14	53.6	
			23	End of test pit excavation @ 23 feet										

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature 	Firm AYRES ASSOCIATES 3433 OAKWOOD HILLS EAU CLAIRE WI 54701	Tel: 715-834-3161 Fax: 715-834-7500
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This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name Veolia ES 7 Mile LF-Kenowski Clay Borrow Site Expansion		License/Permit/Monitoring Number 3097		Boring Number TP-18	
Boring Drilled By: Name of crew chief (first, last) and Firm Randy Gansch Frattonone Companies			Date Drilling Started 11/7/2007	Date Drilling Completed 11/7/2007	Drilling Method Excavator
WI Unique Well No.	DNR Well ID No.	Common Well Name TP-18	Final Static Water Level Dry	Surface Elevation 1,189.5 Feet MSL	Borehole Diameter inches
Local Grid Origin <input checked="" type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input type="checkbox"/> State Plane N, E S/C/N			Local Grid Location		
1/4 of NW 1/4 of Section 17, T 25 N, R 1 W			Lat ° ' "	<input checked="" type="checkbox"/> N <input type="checkbox"/> S	<input checked="" type="checkbox"/> E <input type="checkbox"/> W
Facility ID 618045450		County Clark	County Code 10	Civil Town/City/ or Village York	

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments	
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200		
			0	Topsoil											
			2	Reddish brown silty sand with gravel	SM										
			4	Reddish brown silty sand	SM										
			6	Reddish brown clayey sand	CL					14.3	21	8			
			12	Reddish brown clayey sand with cobbles (rock)	SC										
			14	Reddish brown clay with cobbles(rock)	CL					15.8	24	11	49.1		
			16												
			18												
			20	White sandstone						16	25	13	50.8		
			22	End of test pit excavation @ 20 feet											

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature <i>John Rosemore</i>	Firm AYRES ASSOCIATES 3433 OAKWOOD HILLS EAU CLAIRE WI 54701	Tel: 715-834-3111 Fax: 715-834-7500
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Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name Veolia ES 7 Mile LF-Kenowski Clay Borrow Site Expansion		License/Permit/Monitoring Number 3097		Boring Number TP-19	
Boring Drilled By: Name of crew chief (first, last) and Firm Randy Gansch Fratallone Companies		Date Drilling Started 11/7/2007		Date Drilling Completed 11/7/2007	
WI Unique Well No.		DNR Well ID No.		Common Well Name	
				TP-19	
Final Static Water Level Dry		Surface Elevation 1,197.4 Feet MSL		Borehole Diameter inches	
Local Grid Origin <input checked="" type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input type="checkbox"/>		State Plane N, E S/C/N		Local Grid Location <input checked="" type="checkbox"/> N <input checked="" type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
1/4 of NW 1/4 of Section 17, T 25 N, R 1 W		Lat _____"		Long _____"	
Facility ID 618045450		County Clark		County Code 10	
				Civil Town/City/ or Village York	

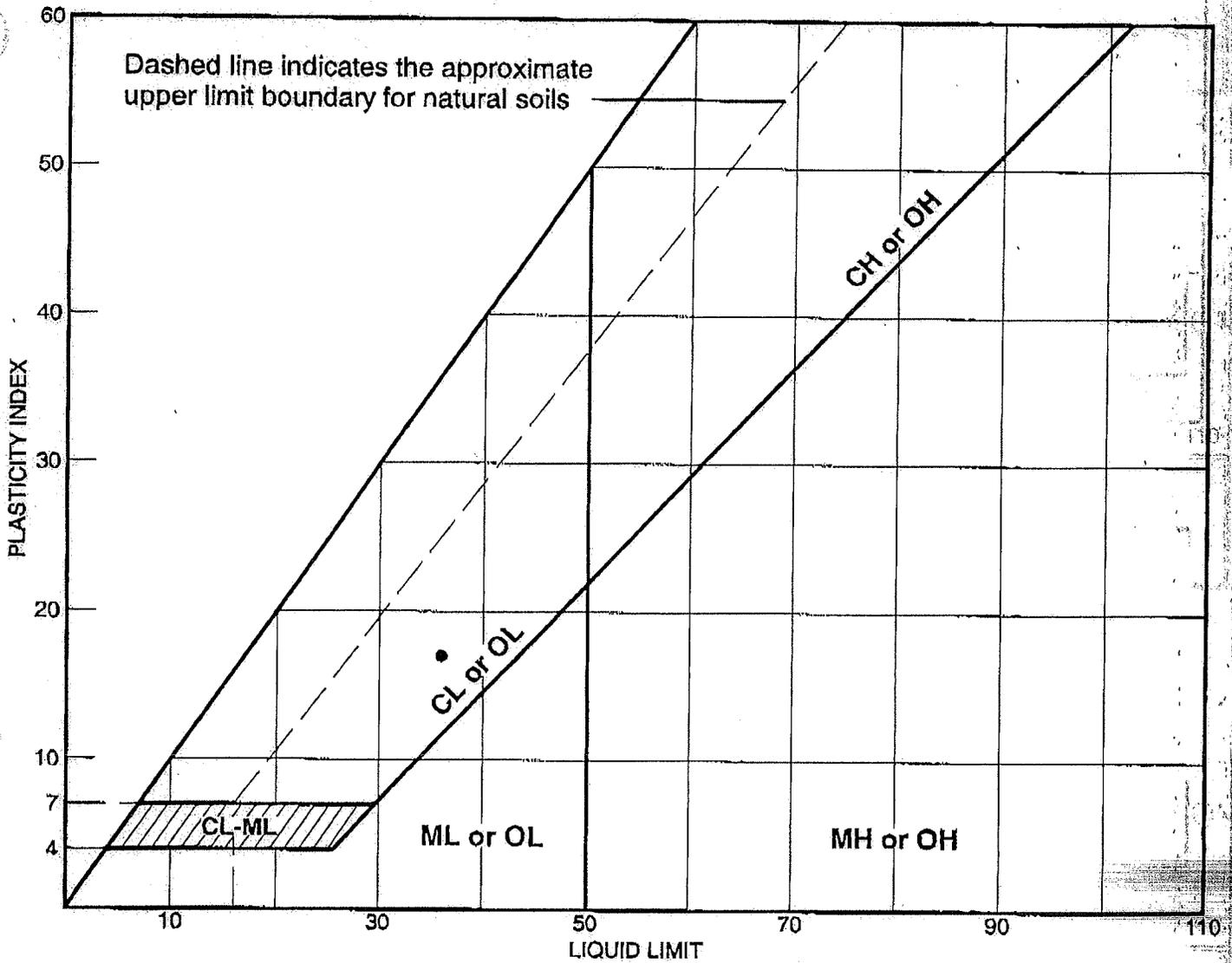
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									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200		
			0.0	Topsoil											
			1.5	Reddish brown sandy clay with coarse gravel	CL					11.1	22	8			
			3.0												
			4.5	Reddish brown clayey sand Reddish brown clay	SC					13.5	23	11	48		
			6.0												
			7.5	White sandstone End of test pit excavation @ 17 feet	CL					13.3	22	11	51		
			9.0												
			10.5												
			12.0												
			13.5												
			15.0												
			16.5												

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature *John Kasemiro* Firm **AYRES ASSOCIATES** 3433 OAKWOOD HILLS EAU CLAIRE WI 54701 Tel: 715-834-3161 Fax: 715-834-7500

ATTACHMENT 2
ATTERBERG LIMITS

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	KENOWSKI	TP-13	2.0'-4.0'	15.9	19	36	17	CL



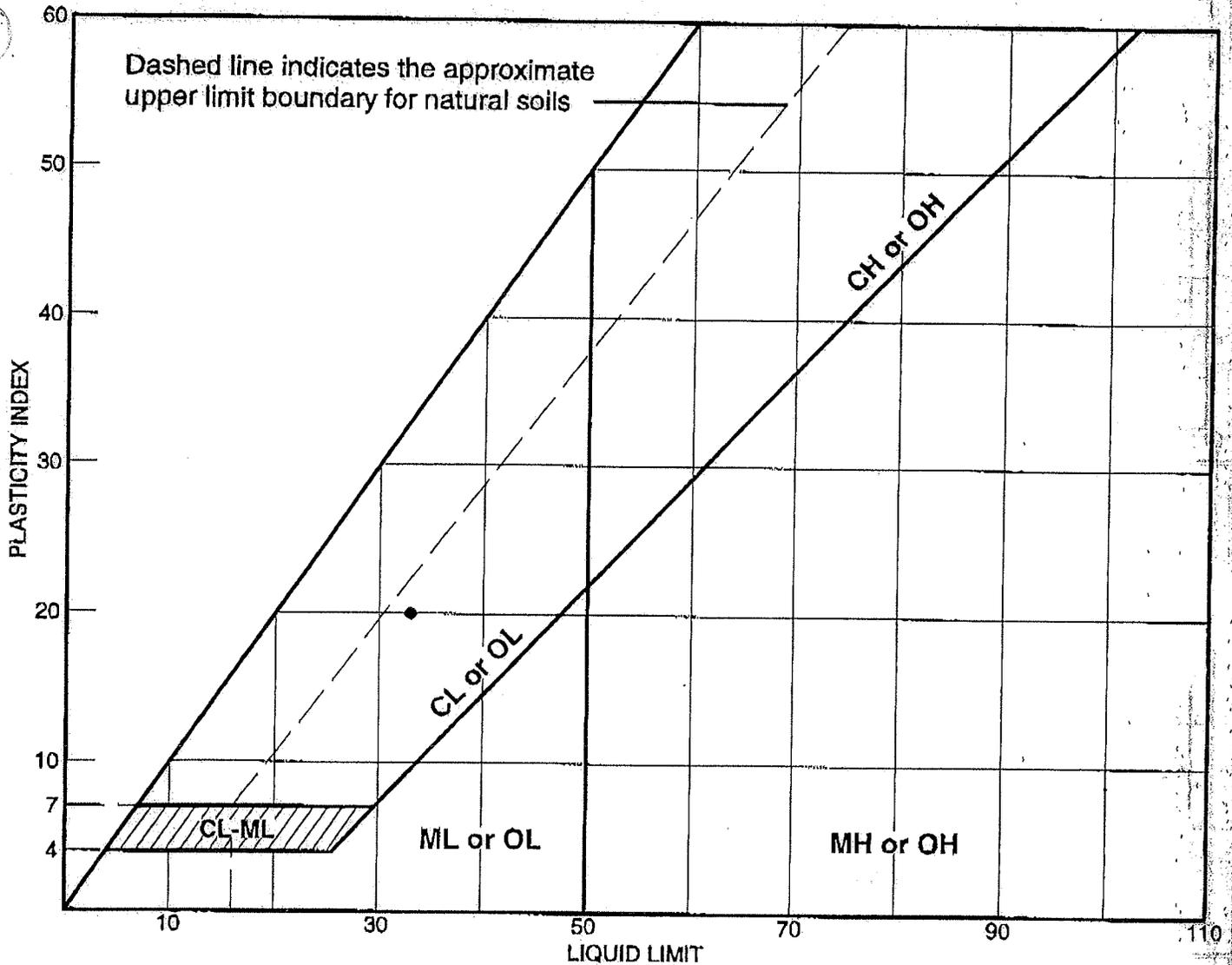
STS Consultants, Ltd.
 1035 Kepler Drive
 Green Bay, WI 54311

Client: AYRES ASSOCIATES
Project: VEOLIA SEVEN MILE CREEK LANDFILL

Project No.: 200702216

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	KENOWSKI	TP-14	2.0'-4.0'	16	13	33	20	CL



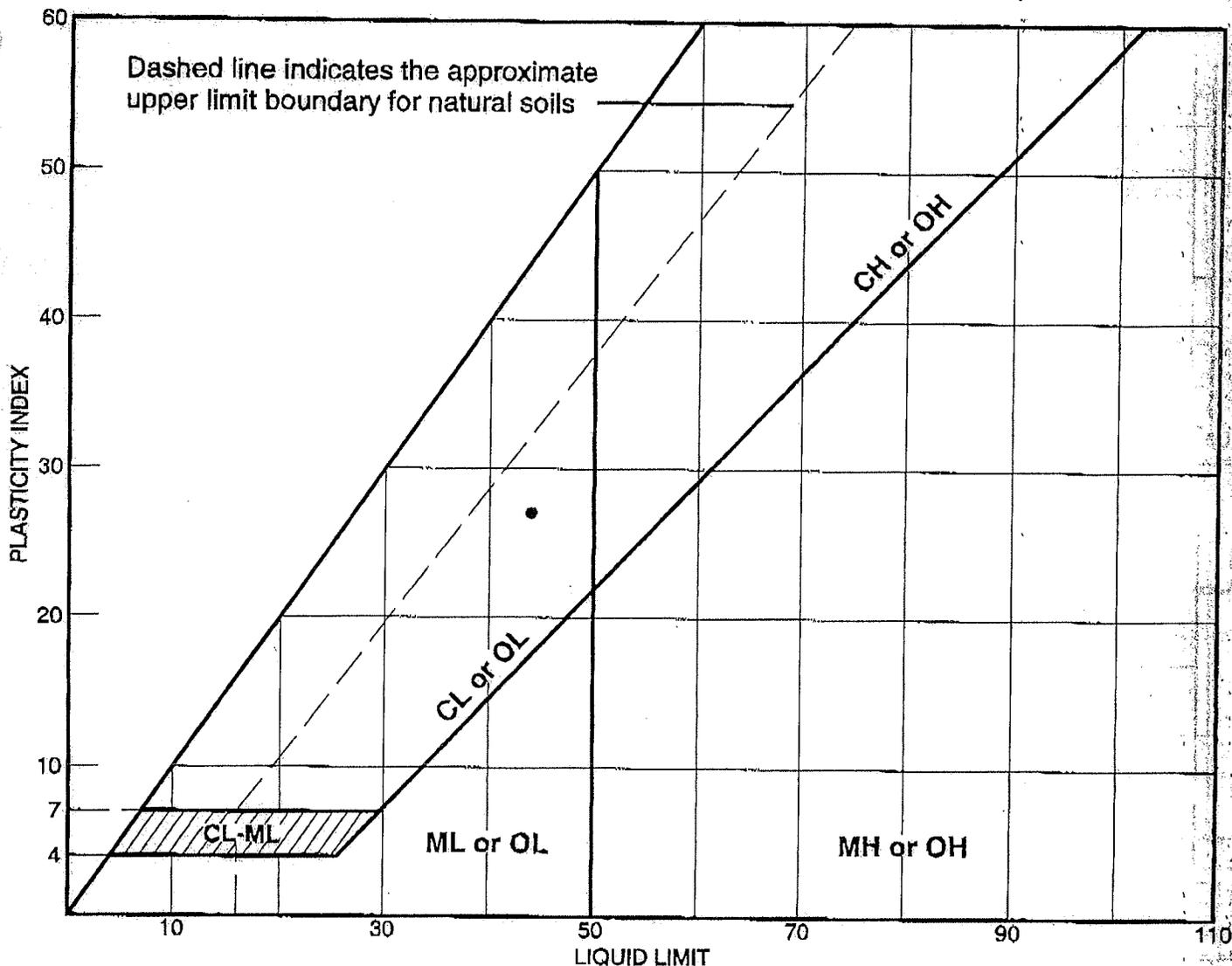
STS Consultants, Ltd.
 1035 Kepler Drive
 Green Bay, WI 54311

Client: AYRES ASSOCIATES
Project: VEOLIA SEVEN MILE CREEK LANDFILL

Project No.: 200702216

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	KENOWSKI	TP-14	6.0'	18.7	17	44	27	CL



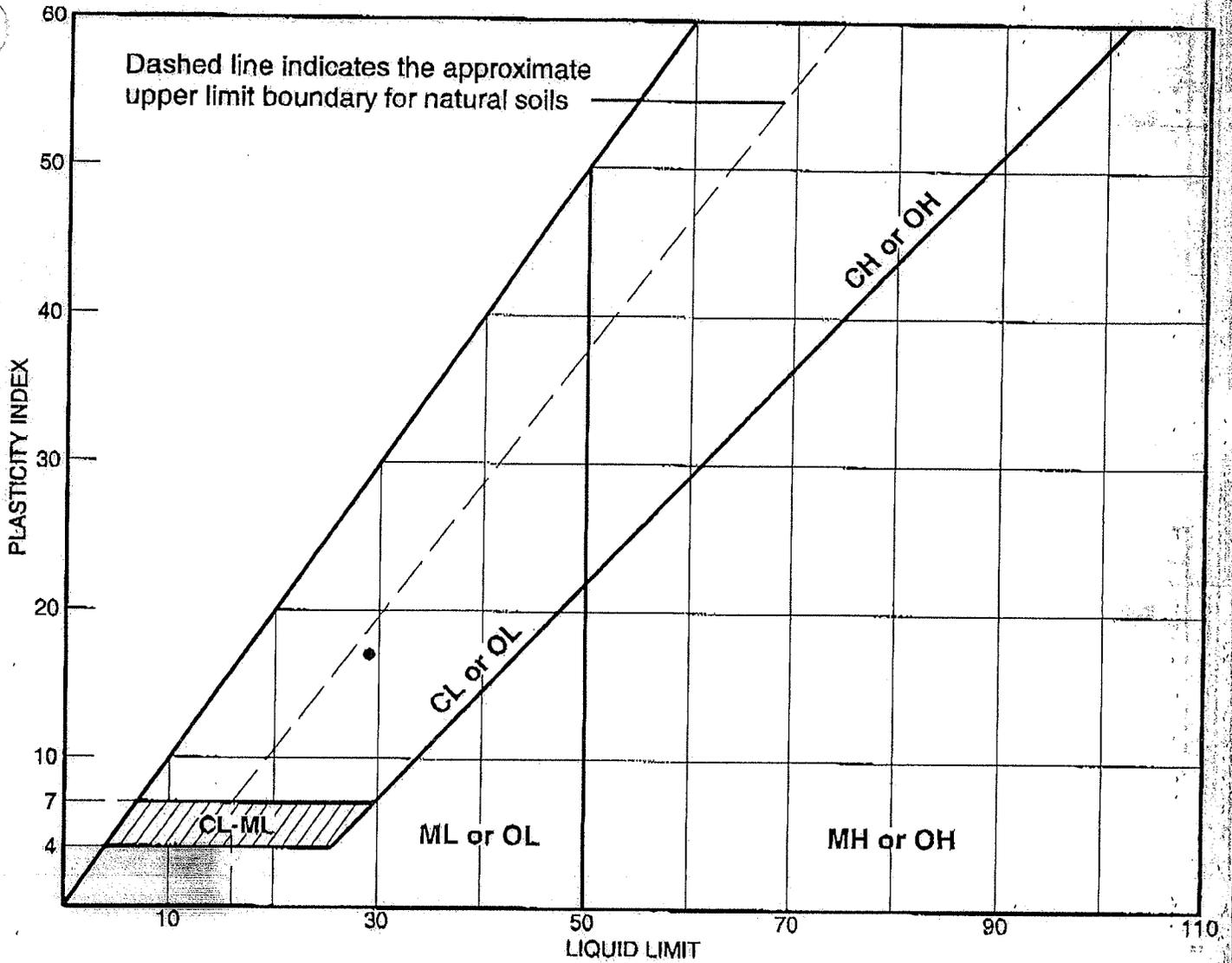
STS Consultants, Ltd.
 1035 Kepler Drive
 Green Bay, WI 54311

Client: AYRES ASSOCIATES
 Project: VEOLIA SEVEN MILE CREEK LANDFILL

Project No.: 200702216

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	KENOWSKI	TP-14	9.0'	16	12	29	17	CL



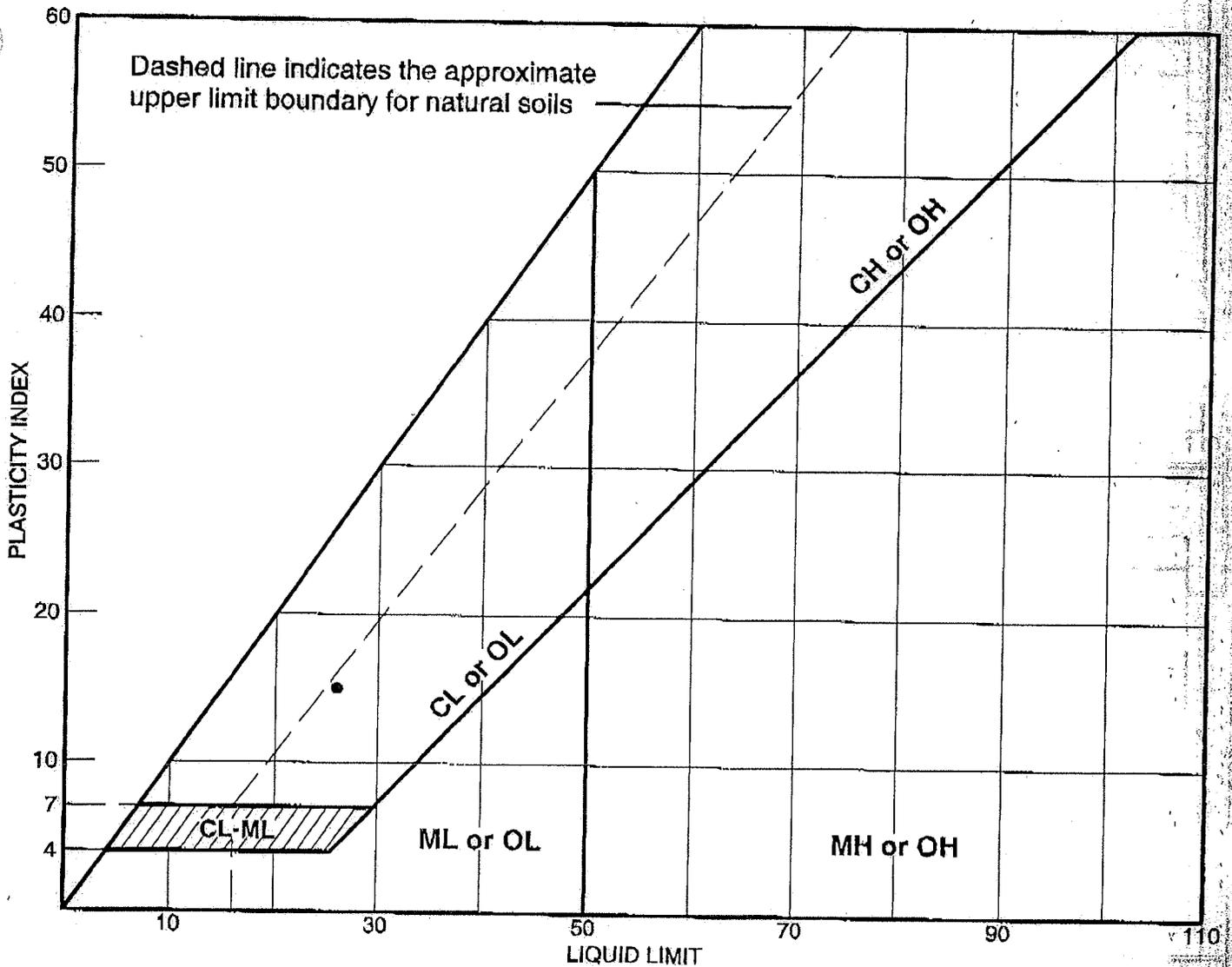
STS Consultants, Ltd.
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Client: AYRES ASSOCIATES
 Project: VEOLIA SEVEN MILE CREEK LANDFILL

Project No.: 200702216

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	KENOWSKI	TP-15	5.0'	14.9	11	26	15	CL



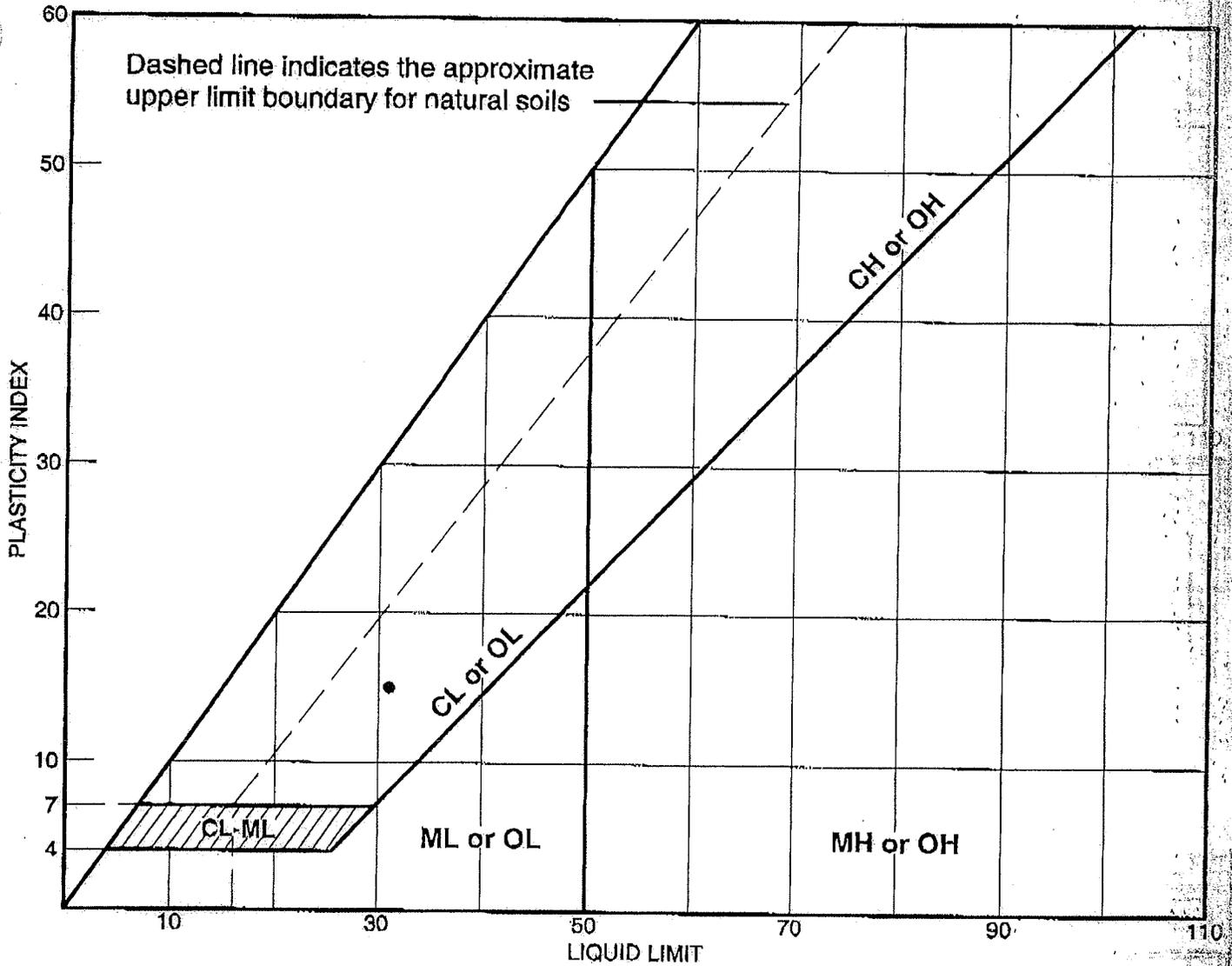
STS Consultants, Ltd.
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 Green Bay, WI 54311

Client: AYRES ASSOCIATES
Project: VEOLIA SEVEN MILE CREEK LANDFILL

Project No.: 200702216

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	KENOWSKI	TP-15	13.0'	15.8	16	31	15	CL



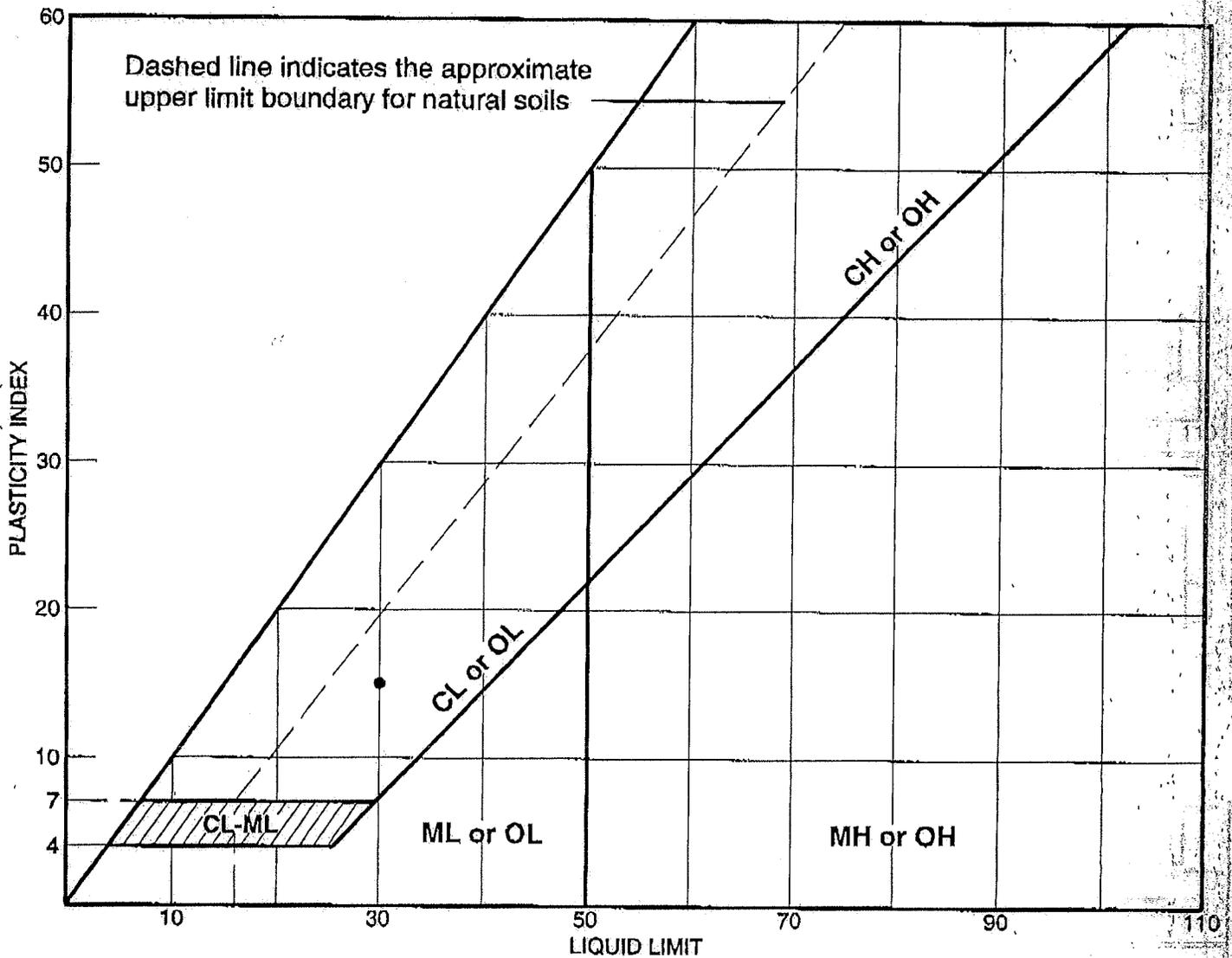
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Client: AYRES ASSOCIATES
Project: VEOLIA SEVEN MILE CREEK LANDFILL

Project No.: 200702216

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	KENOWSKI	TP-15	20.0'	15.0	15	30	15	CL



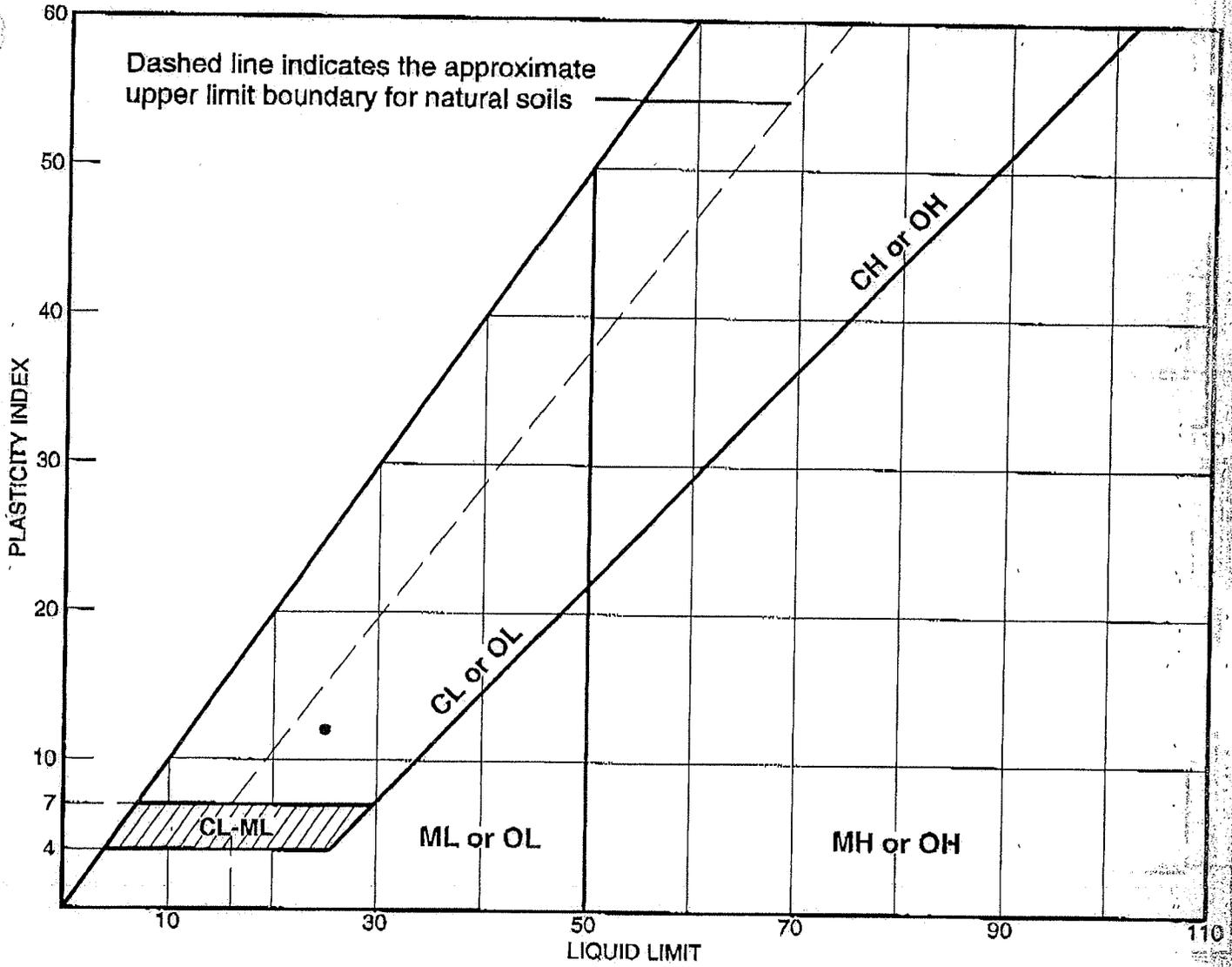
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Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	KENOWSKI	TP-16	2.0'	11.6	13	25	12	CL



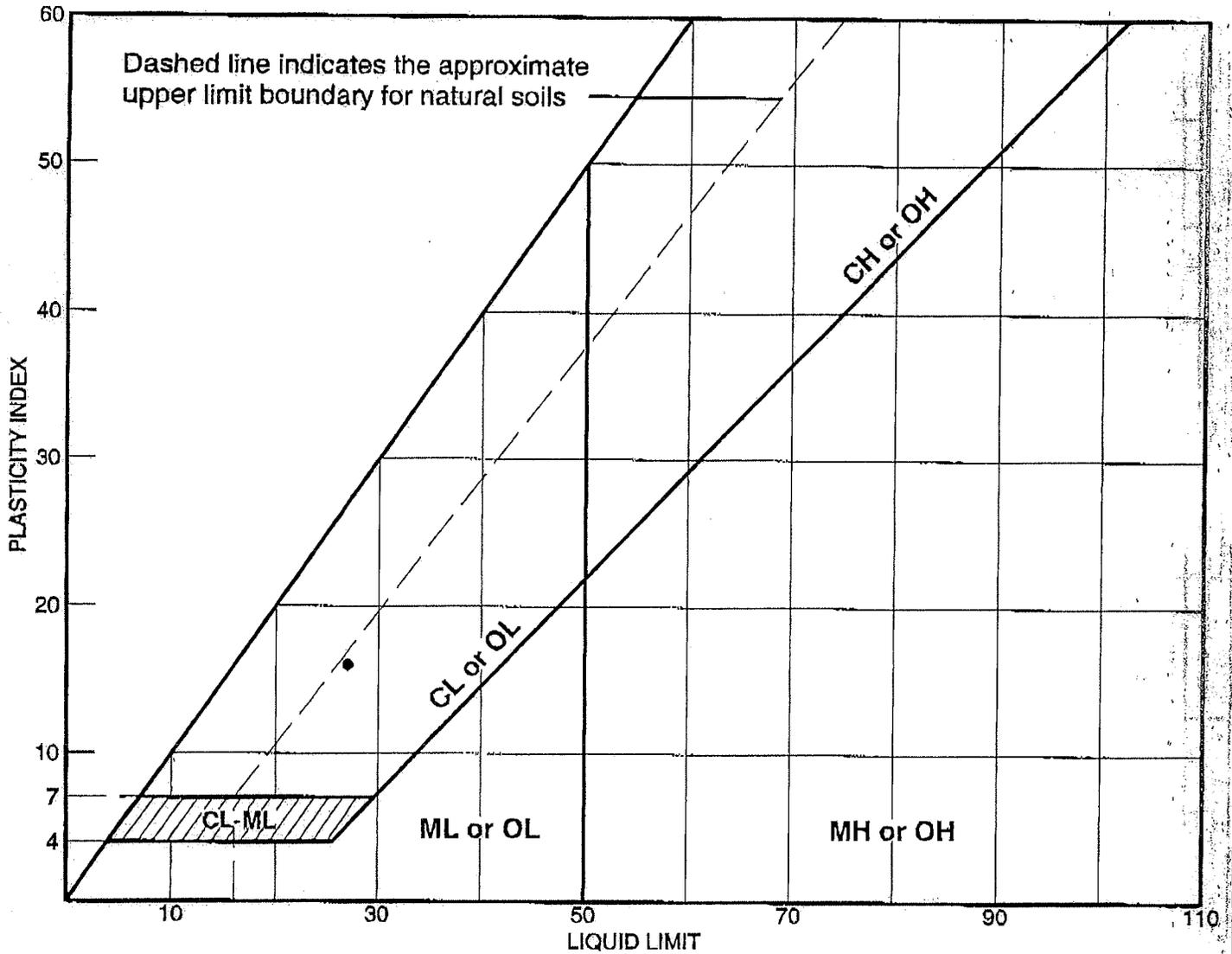
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 Project: VEOLIA SEVEN MILE CREEK LANDFILL

Project No.: 200702216

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	KENOWSKI	TP-16	6.0'	15.2	11	27	16	CL



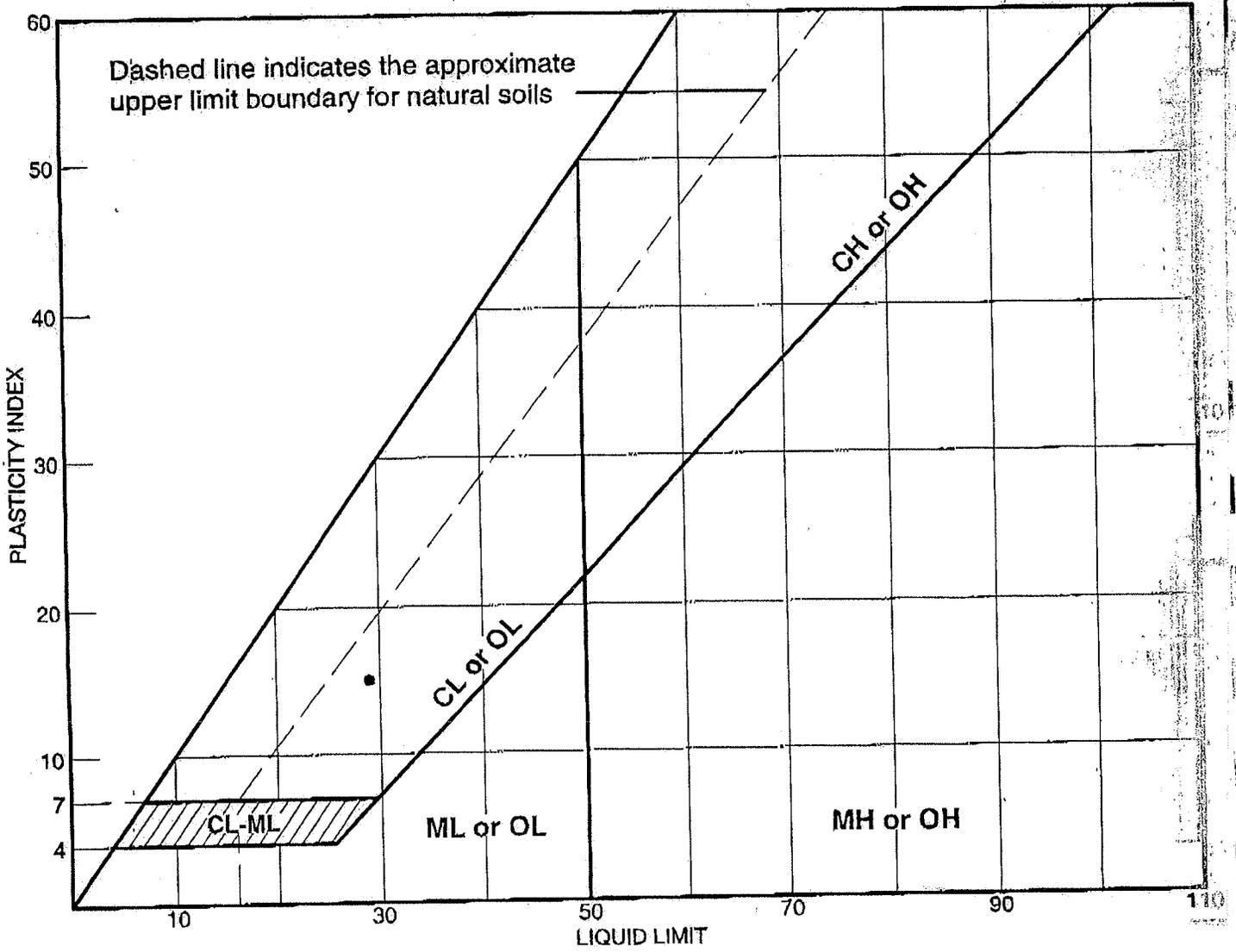
STS Consultants, Ltd.
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Project: VEOLIA SEVEN MILE CREEK LANDFILL

Project No.: 200702216

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	KENOWSKI	TP-16	8.0'-10.0'	17.4	14	29	15	CL



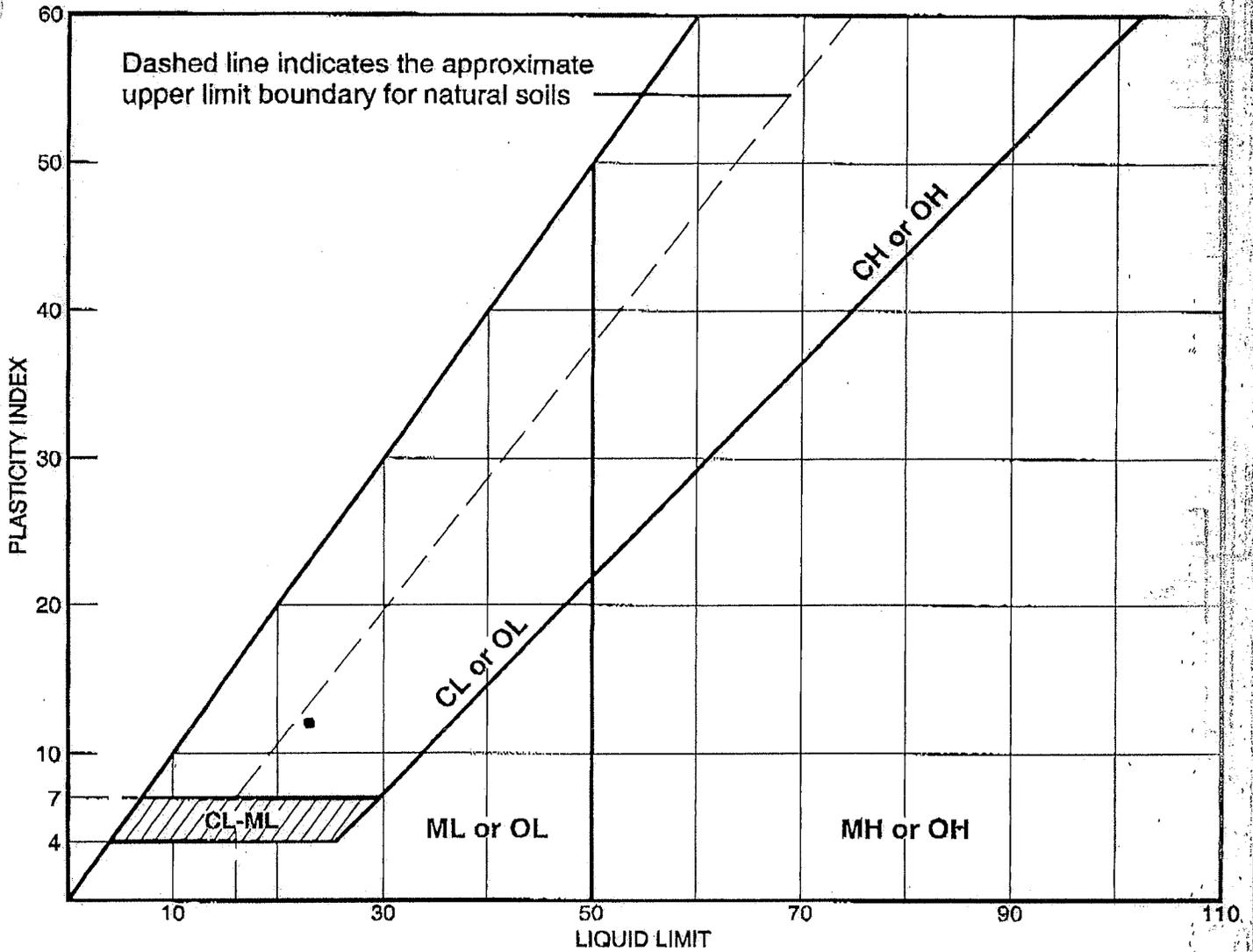
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Client: AYRES ASSOCIATES
 Project: VEOLIA SEVEN MILE CREEK LANDFILL

Project No.: 200702216

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	KENOWSKI	TP-16	23.0'	15.9	11	23	12	CL



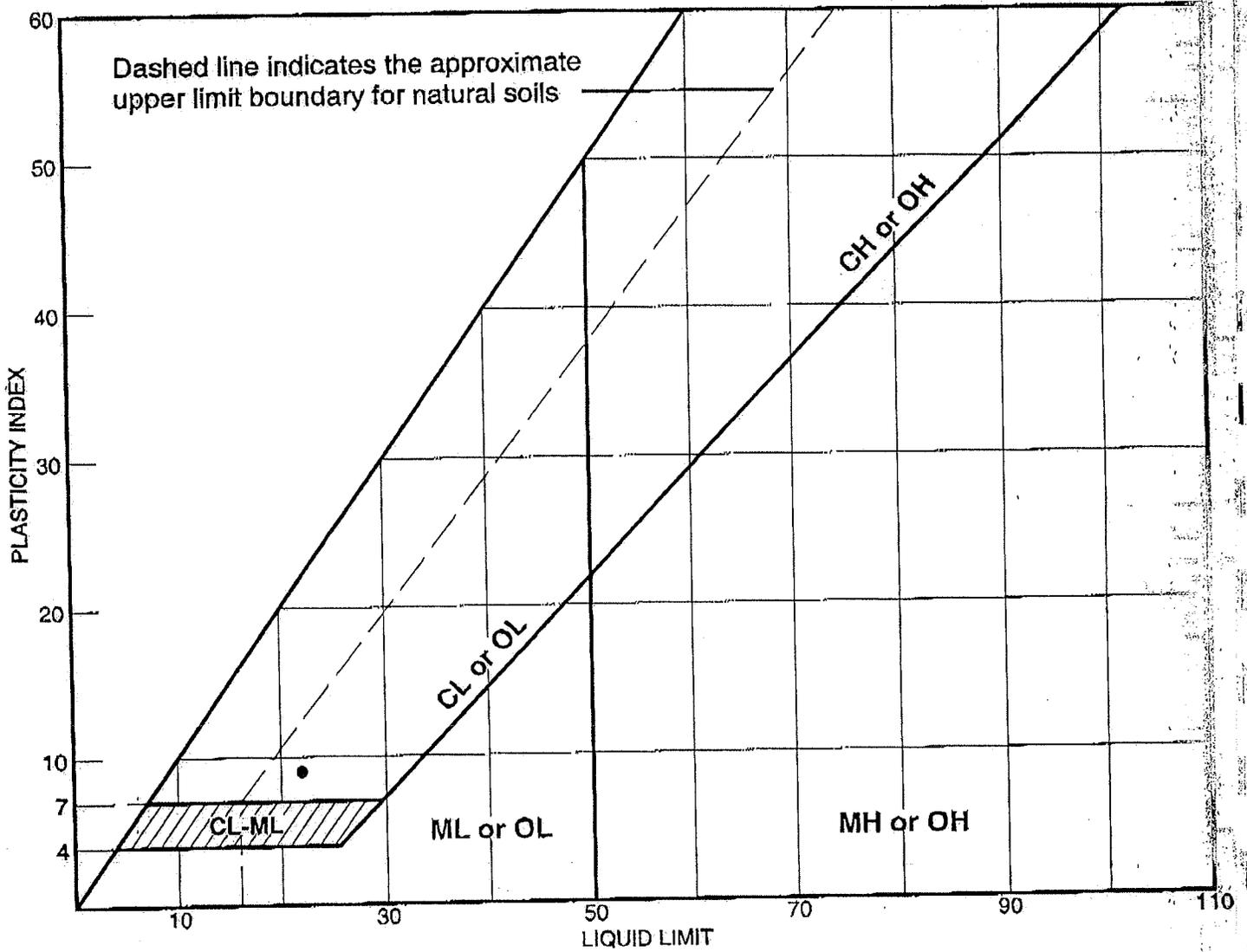
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Client: AYRES ASSOCIATES
 Project: VEOLIA SEVEN MILE CREEK LANDFILL

Project No.: 200702216

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	KENOWSKI	TP-17	4.0'	10.7	13	22	9	CL



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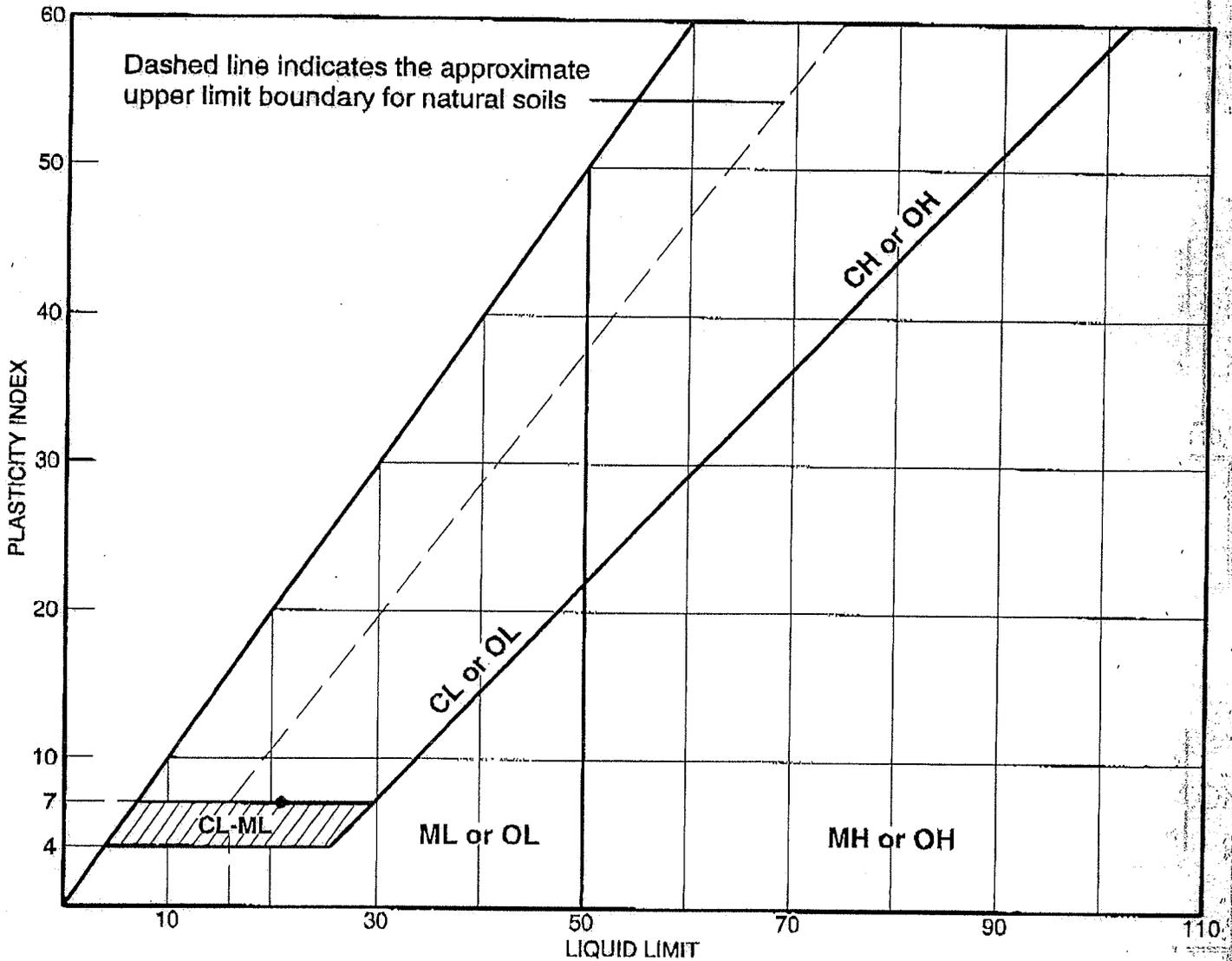
Client: AYRES ASSOCIATES

Project: VEOLIA SEVEN MILE CREEK LANDFILL

Project No.: 200702216

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	KENOWSKI	TP-17	8.0'	13.3	14	21	7	CL



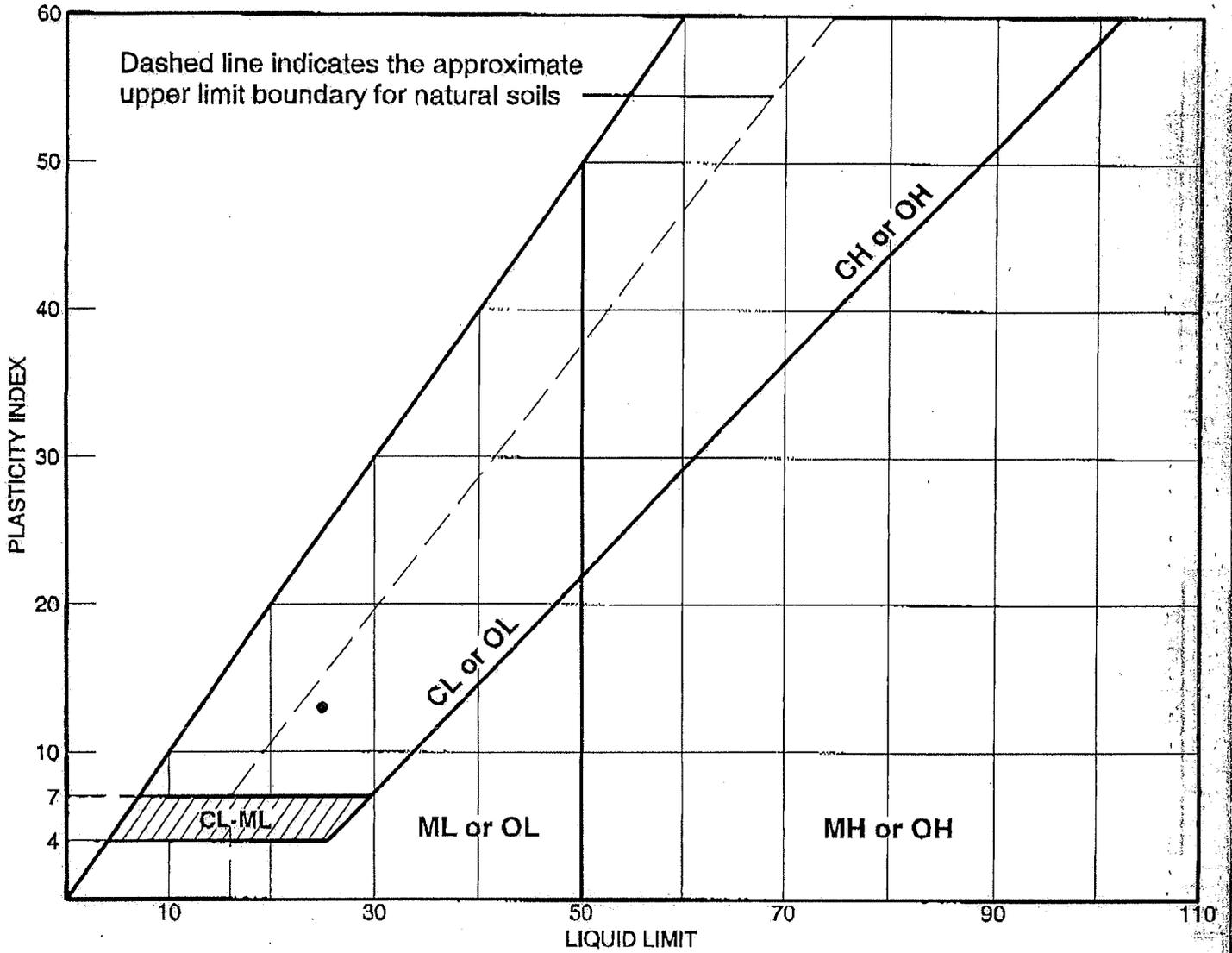
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Client: AYRES ASSOCIATES
 Project: VEOLIA SEVEN MILE CREEK LANDFILL

Project No.: 200702216

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	KENOWSKI	TP-17	12.0'	13.5	12	25	13	CL



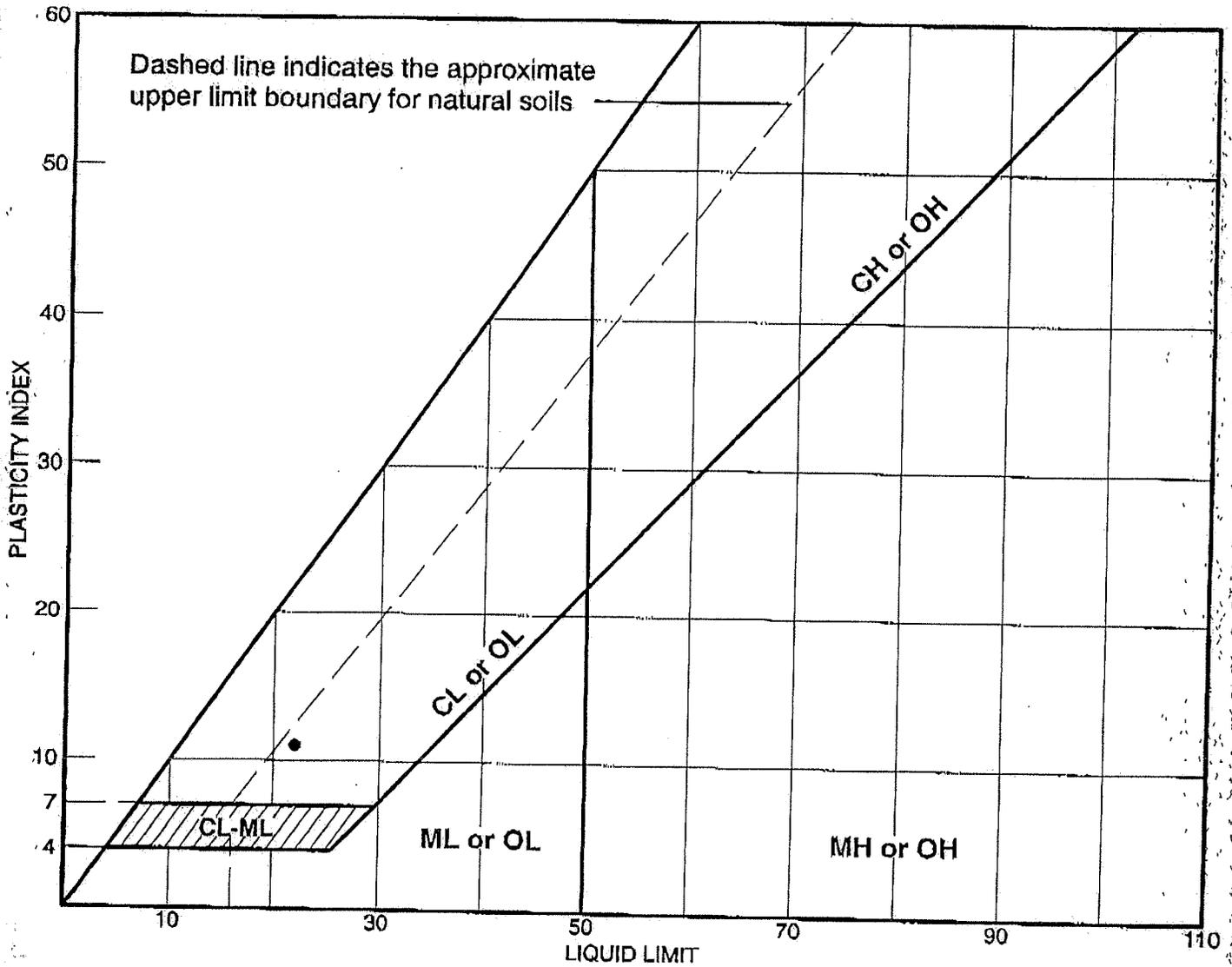
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Client: AYRES ASSOCIATES
Project: VEOLIA SEVEN MILE CREEK LANDFILL

Project No.: 200702216

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	KENOWSKI	TP-17	18.0'	12.8	11	22	11	CL

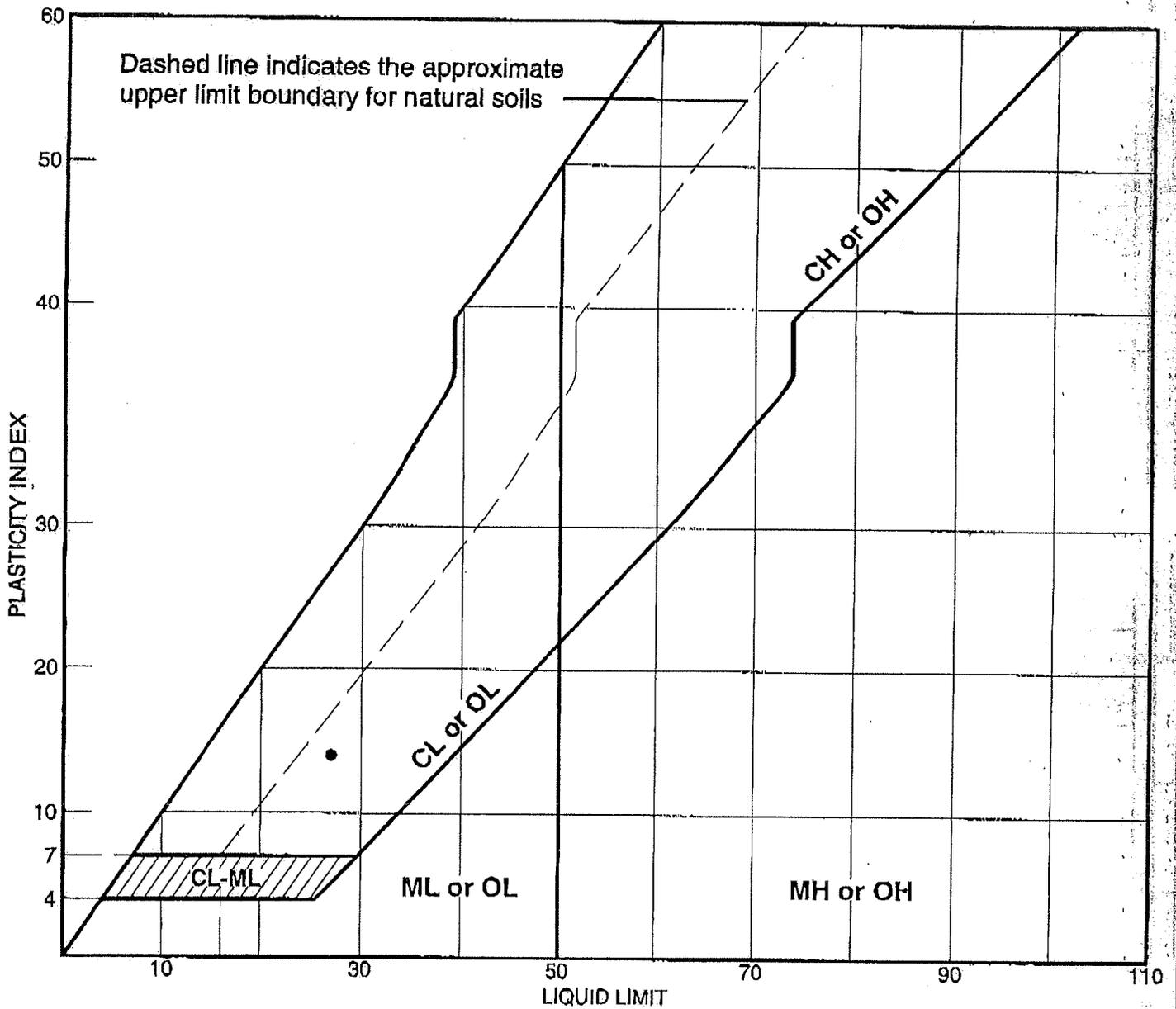


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Figure



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	KENOWSKI	TP-17	23.0'	13.8	13	27	14	CL



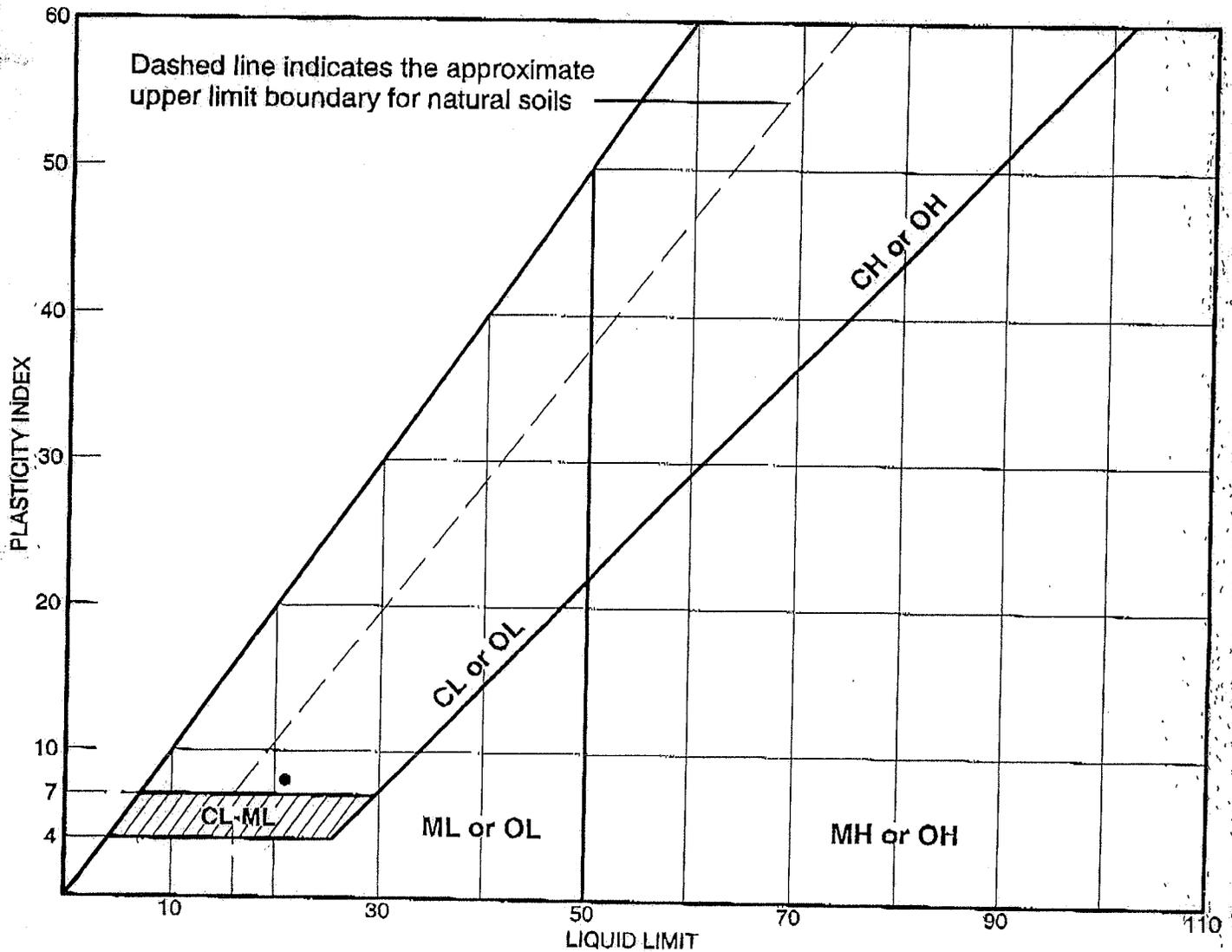
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 Project: VEOLIA SEVEN MILE CREEK LANDFILL

Project No.: 200702216

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	KENOWSKI	TP-18	6.0'	14.3	13	21	8	CL



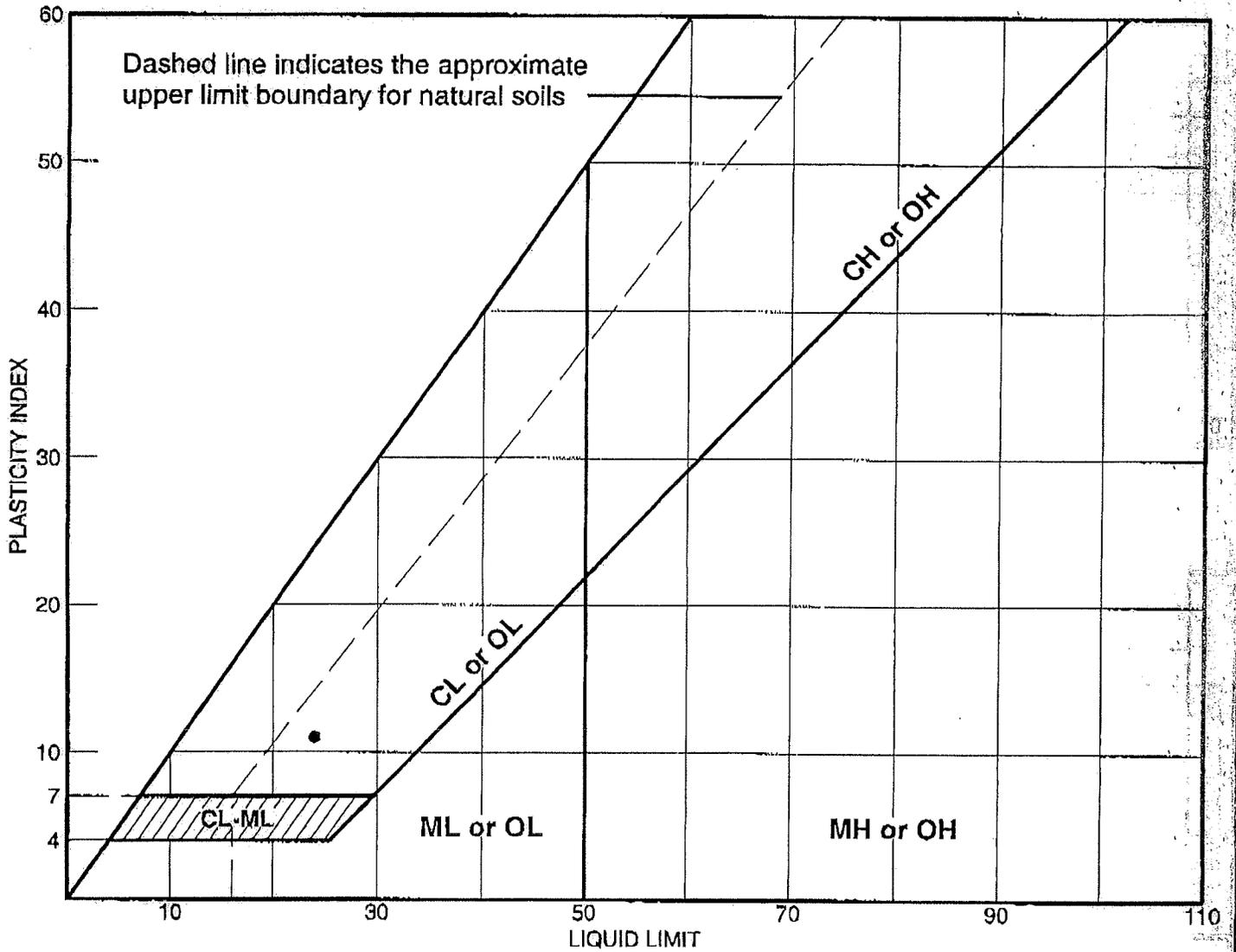
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Project No.: 200702216

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	KENOWSKI	TP-18	14.0'	15.8	13	24	11	CL



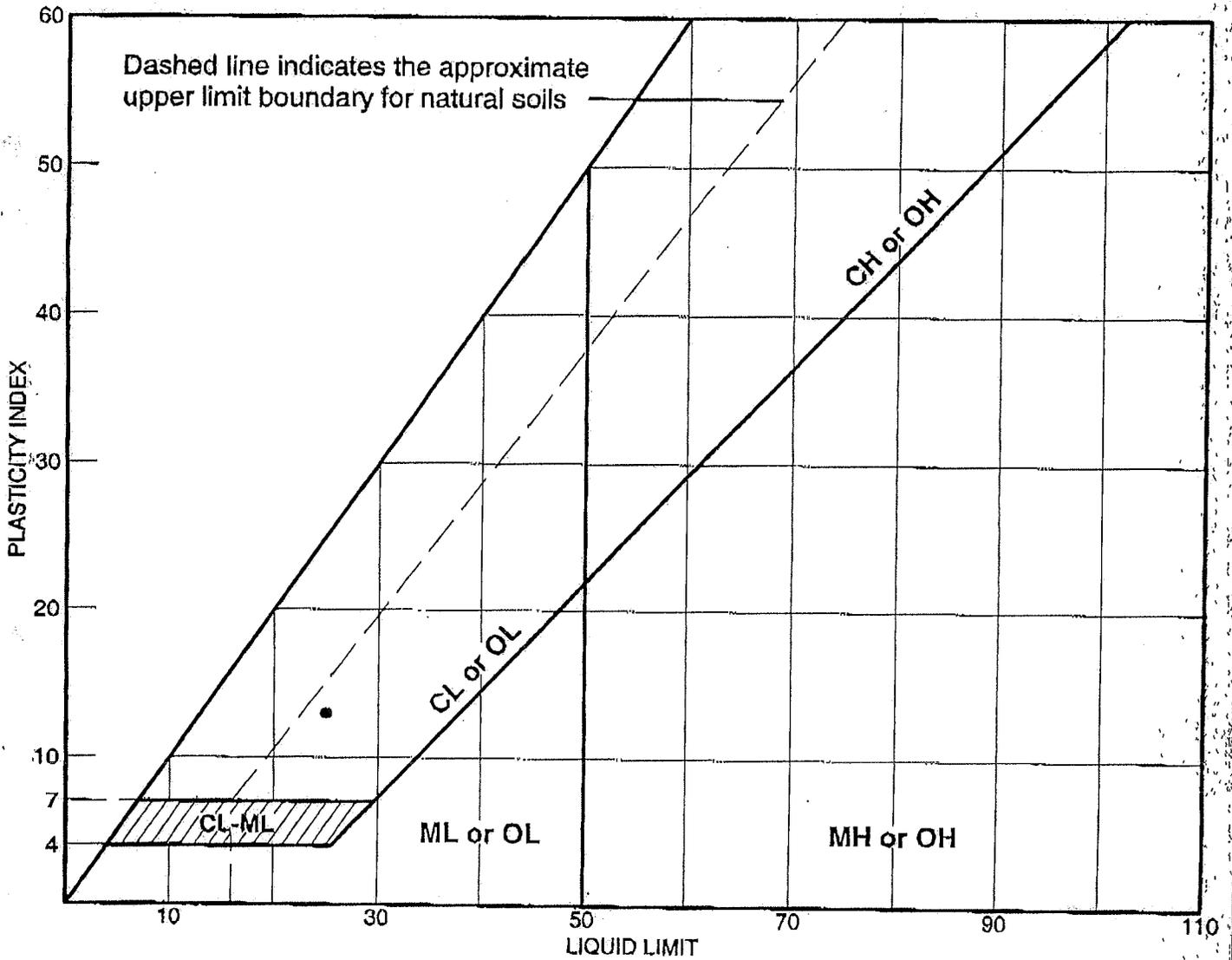
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Project: VEOLIA SEVEN MILE CREEK LANDFILL

Project No.: 200702216

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	KENOWSKI	TP-18	19.0'	16	12	25	13	CL



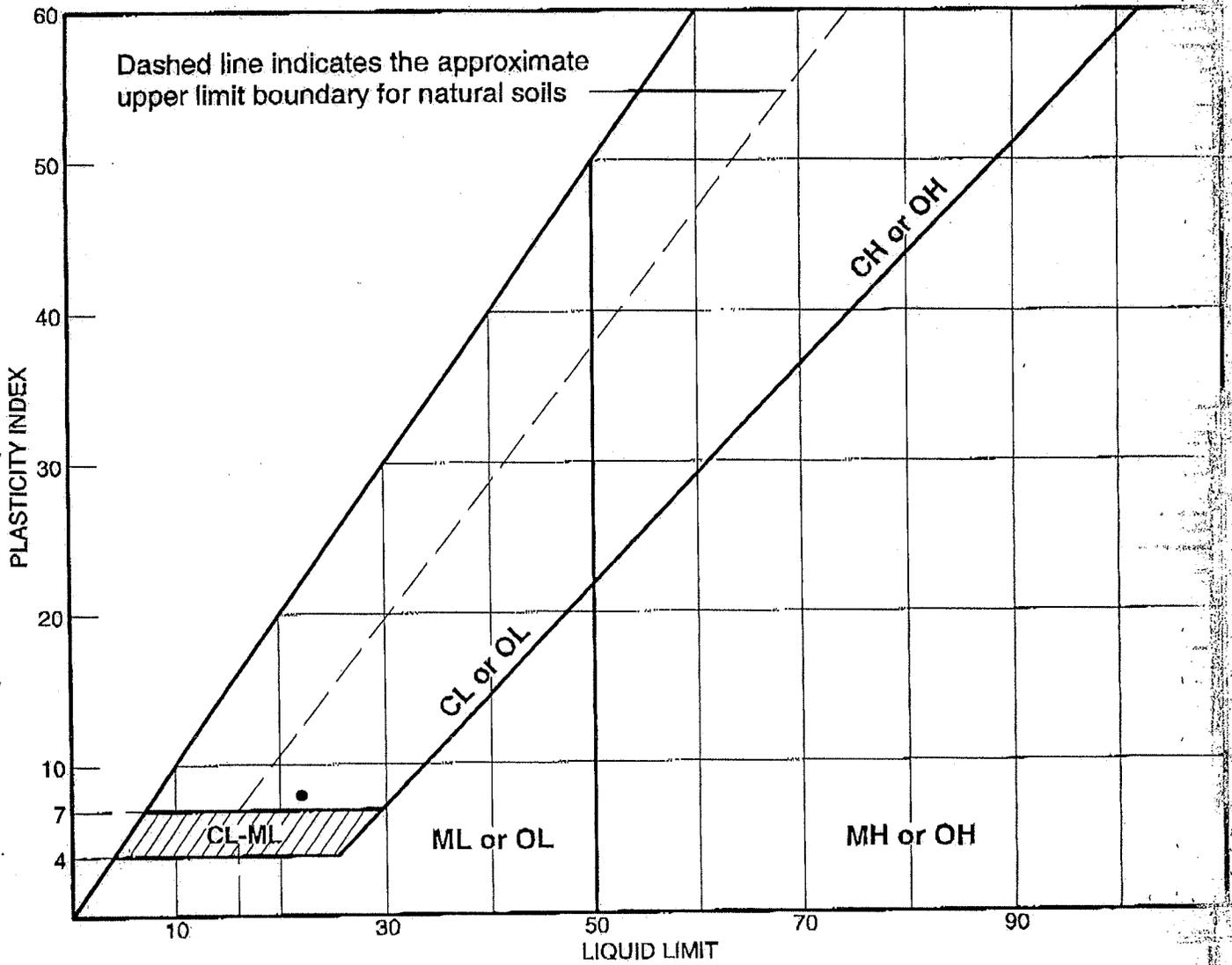
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 Project: VEOLIA SEVEN MILE CREEK LANDFILL

Project No.: 200702216

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	KENOWSKI	TP-19	2.0'	11.1	14	22	8	CL



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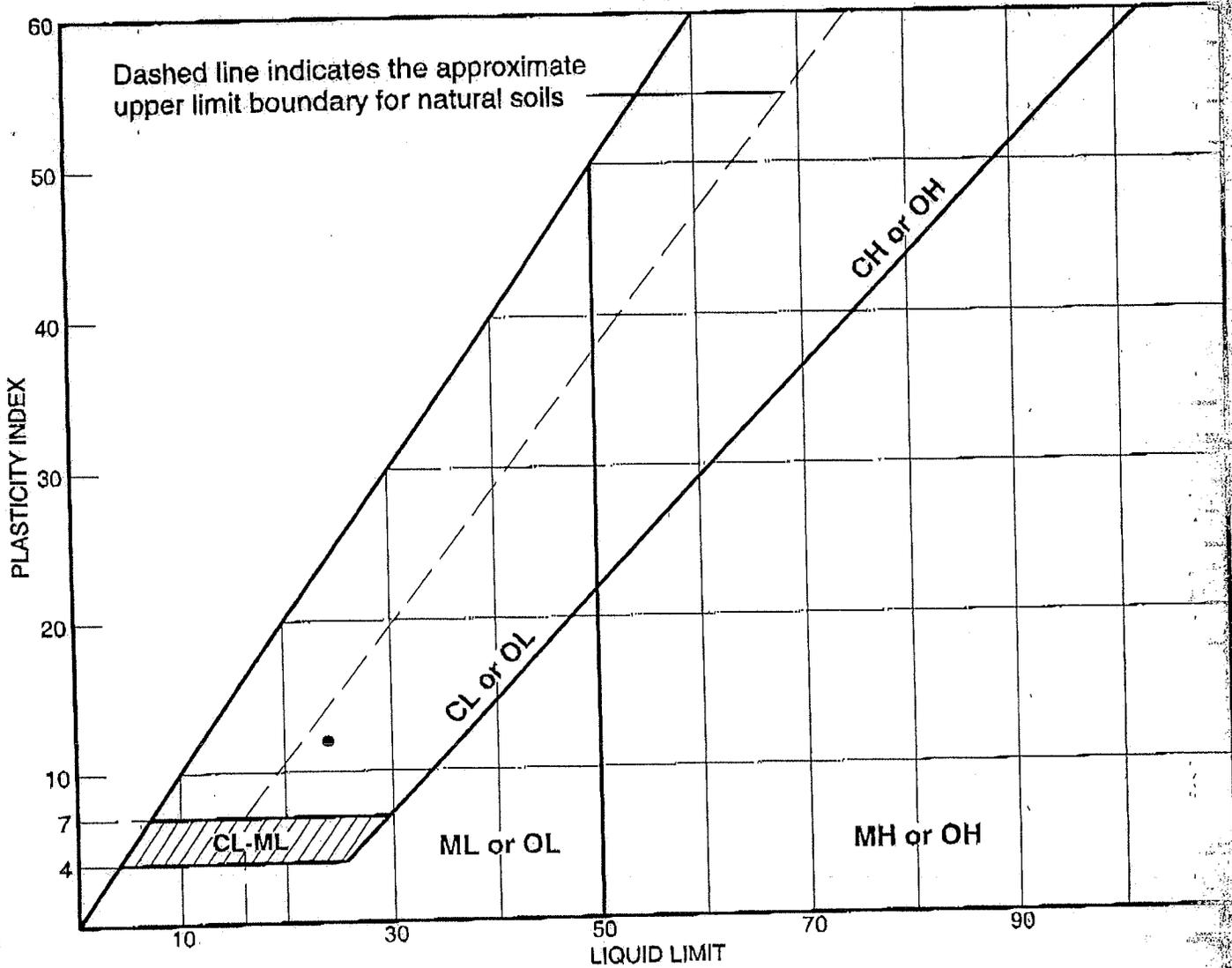
Client: AYRES ASSOCIATES

Project: VEOLIA SEVEN MILE CREEK LANDFILL

Project No.: 200702216

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	KENOWSKI	TP-19	4.0'	12.0	12	24	12	CL



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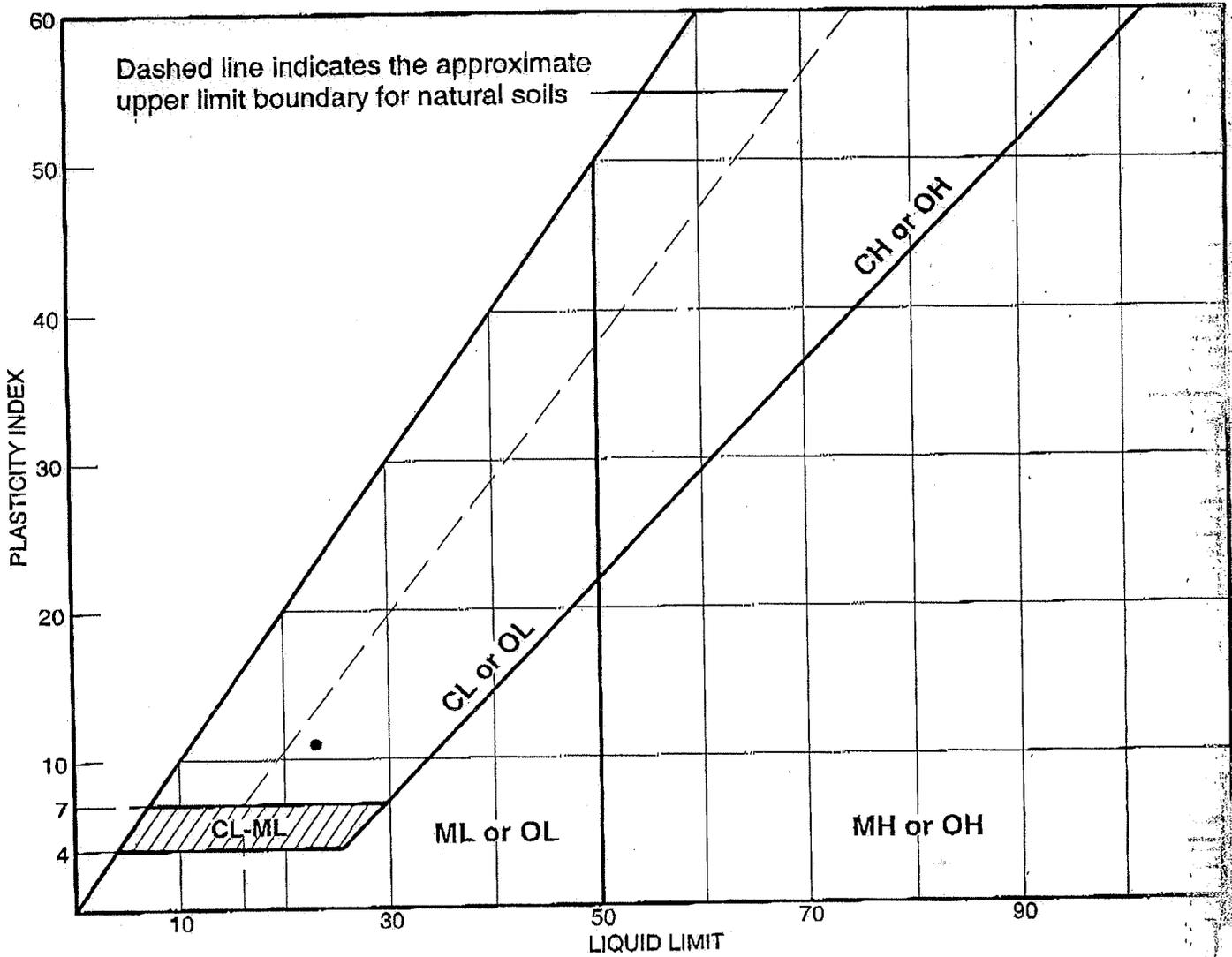
Client: AYRES ASSOCIATES

Project: VEOLIA SEVEN MILE CREEK LANDFILL

Project No.: 200702216

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	KENOWSKI	TP-19	12.0'	13.5	12	23	11	CL



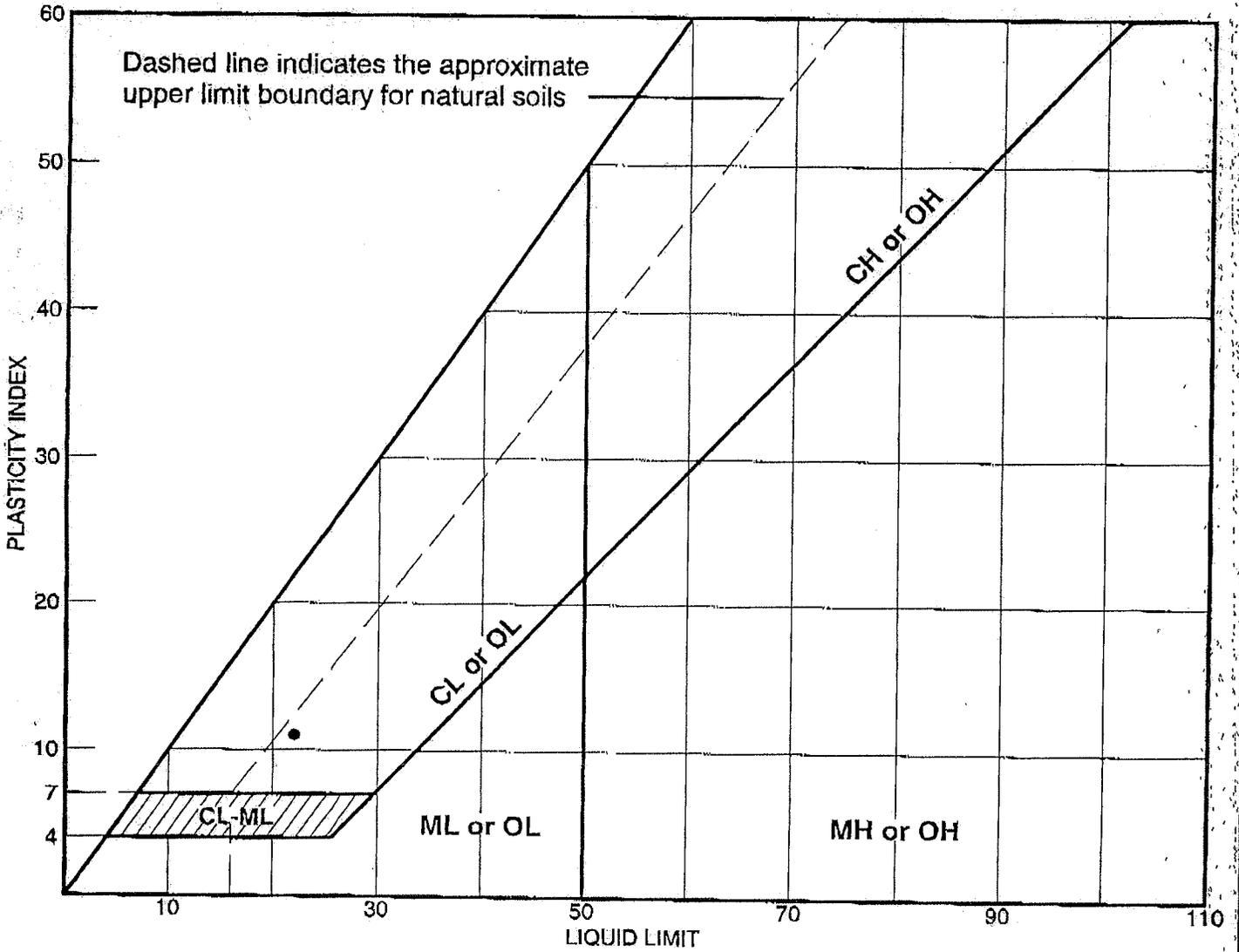
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Client: AYRES ASSOCIATES
 Project: VEOLIA SEVEN MILE CREEK LANDFILL

Project No.: 200702216

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT

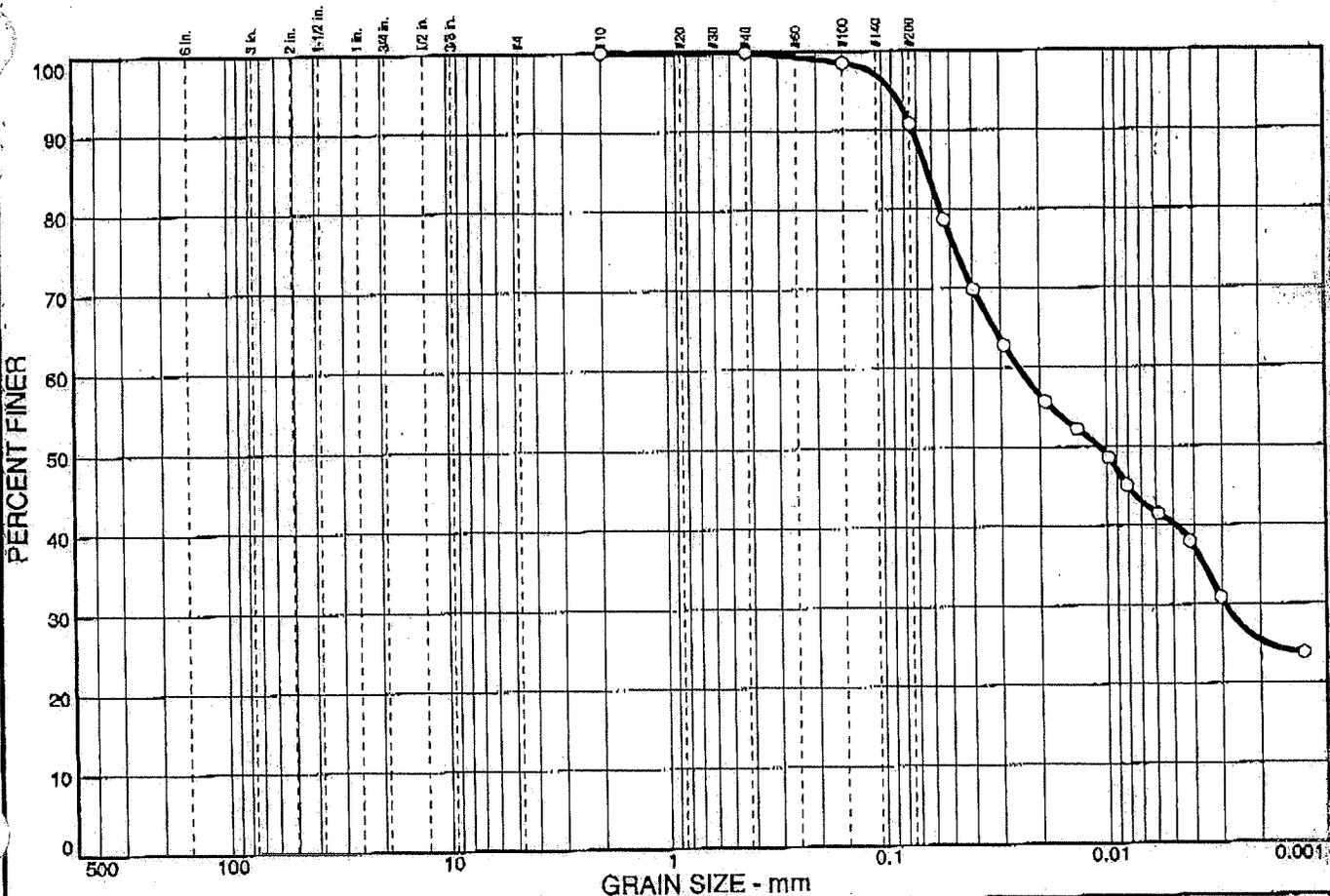


SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	KENOWSKI	TP-19	15.0'	13.3	11	22	11	CL

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ATTACHMENT 3
GRAINSIZE ANALYSIS

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	9.2	50.5	40.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.9		
#100	98.5		
#200	90.8		

Soil Description

Lean clay

Atterberg Limits

PL= 19 LL= 36 PI= 17

Coefficients

D₈₅= 0.0632 D₆₀= 0.0251 D₅₀= 0.0108
 D₃₀= 0.0029 D₁₅= D₁₀=
 C_u=

Classification

USCS= CL AASHTO=

Remarks

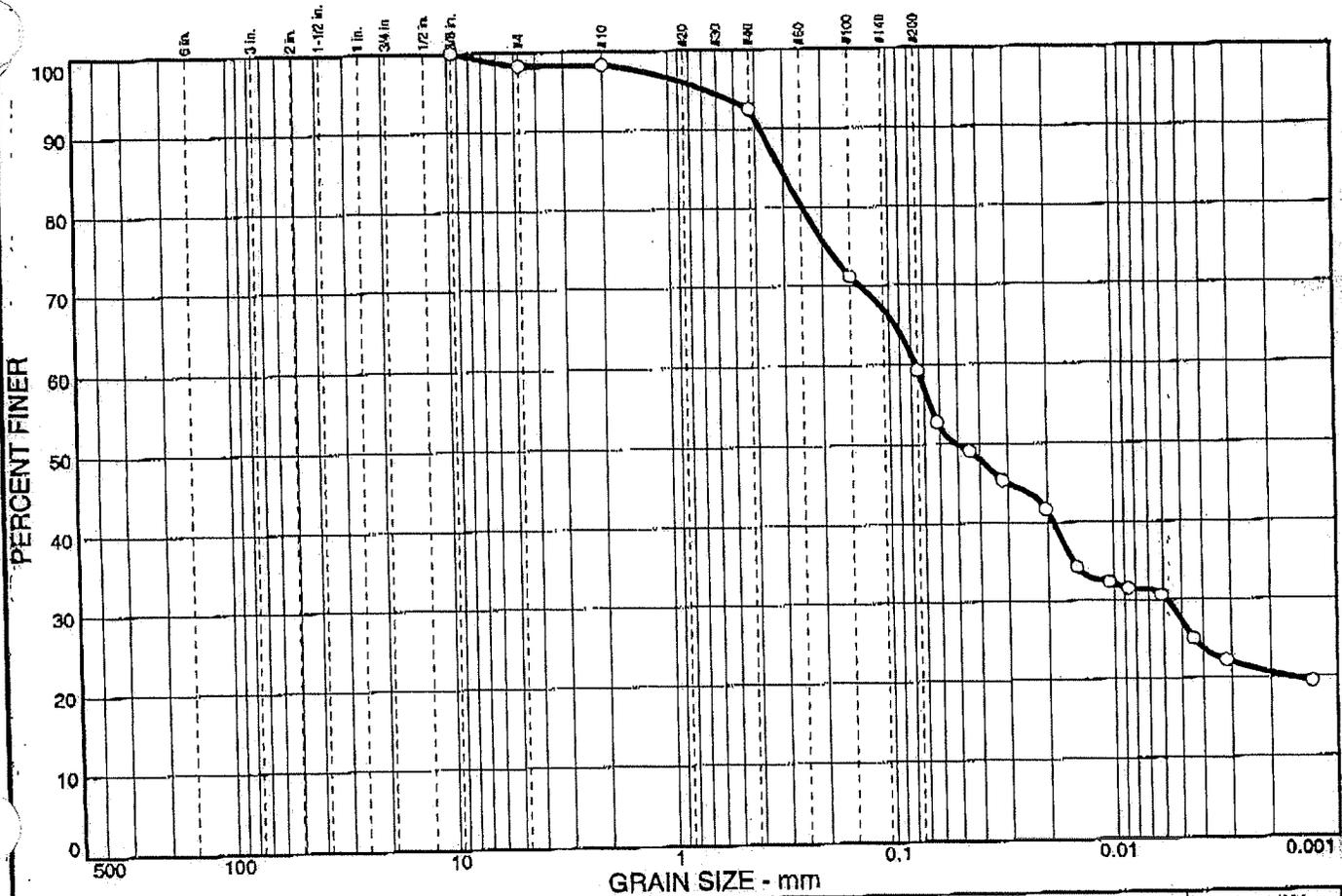
(no specification provided)

Sample No.: TP-13 Source of Sample: KENOWSKI PIT Date: 11-29-07
 Location: Elev./Depth: 2.0'-4.0'

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 Project No: 200702216 Figure

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	1.7	39.0	32.0	27.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375 in.	100.0		
#4	98.3		
#10	98.3		
#40	92.5		
#100	71.2		
#200	59.3		

Soil Description
Sandy lean clay

Atterberg Limits
 PL= 13 LL= 33 PI= 20

Coefficients
 D₈₅= 0.308 D₆₀= 0.0767 D₅₀= 0.0505
 D₃₀= 0.0058 D₁₅= D₁₀=
 C_u= C_c=

Classification
 USCS= CL AASHTO=

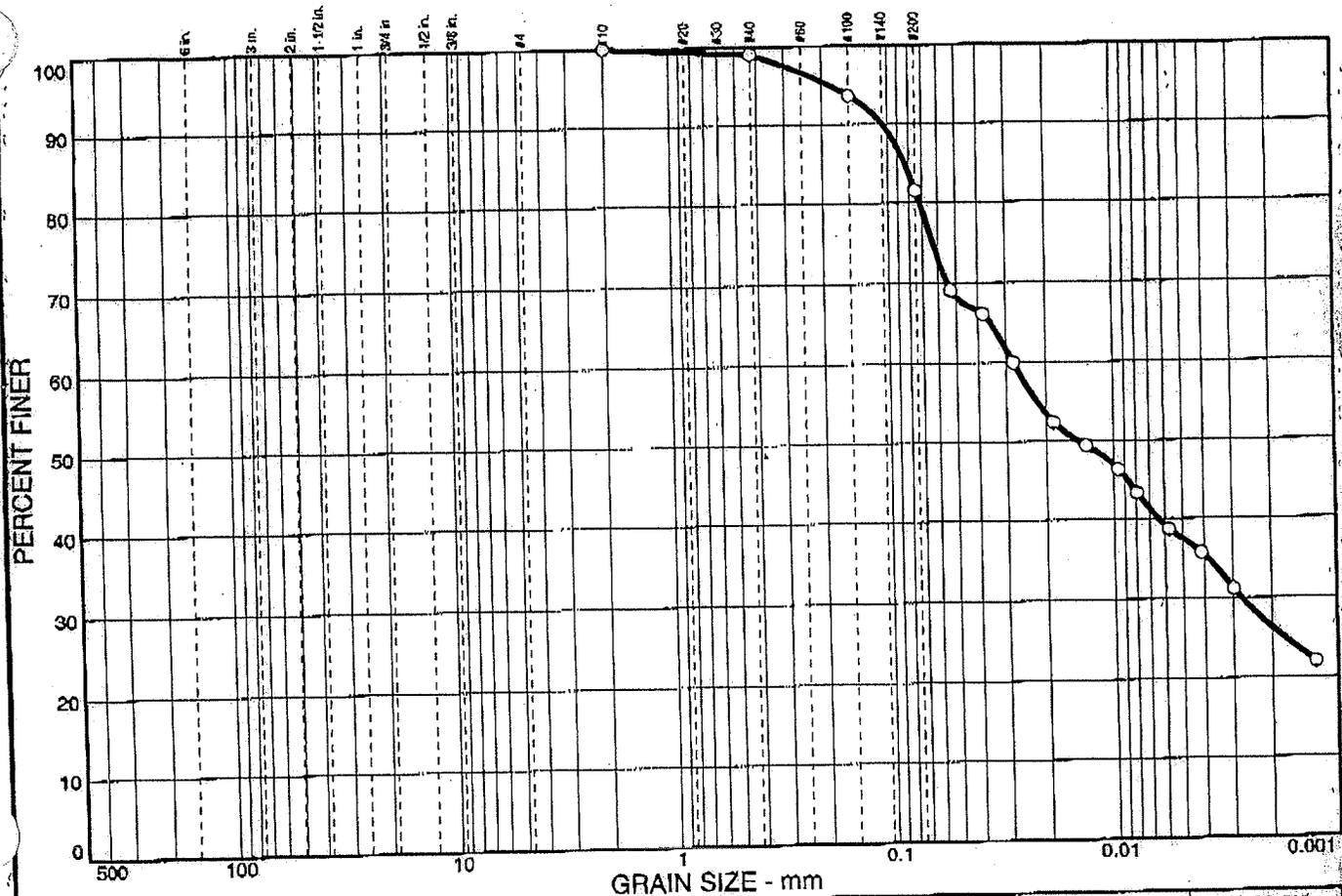
Remarks

* (no specification provided)

Sample No.: TP-14 Source of Sample: KENOWSKI PIT Date: 11-29-07
 Location: Elev./Depth: 2.0'-4.0'

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--	--	--	--------

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	18.5	44.1	37.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.0		
#100	93.6		
#200	81.5		

Soil Description

Lean clay with sand

Atterberg Limits

PL= 17 LL= 44 PI= 27

Coefficients

D₈₅= 0.0838 D₆₀= 0.0280 D₅₀= 0.0144
 D₃₀= 0.0028 C_c= D₁₀=

Classification

USCS= CL AASHTO=

Remarks

* (no specification provided)

Sample No.: TP-14
 Location:

Source of Sample: KENOWSKI PIT

Date: 11-29-07
 Elev./Depth: 6.0'



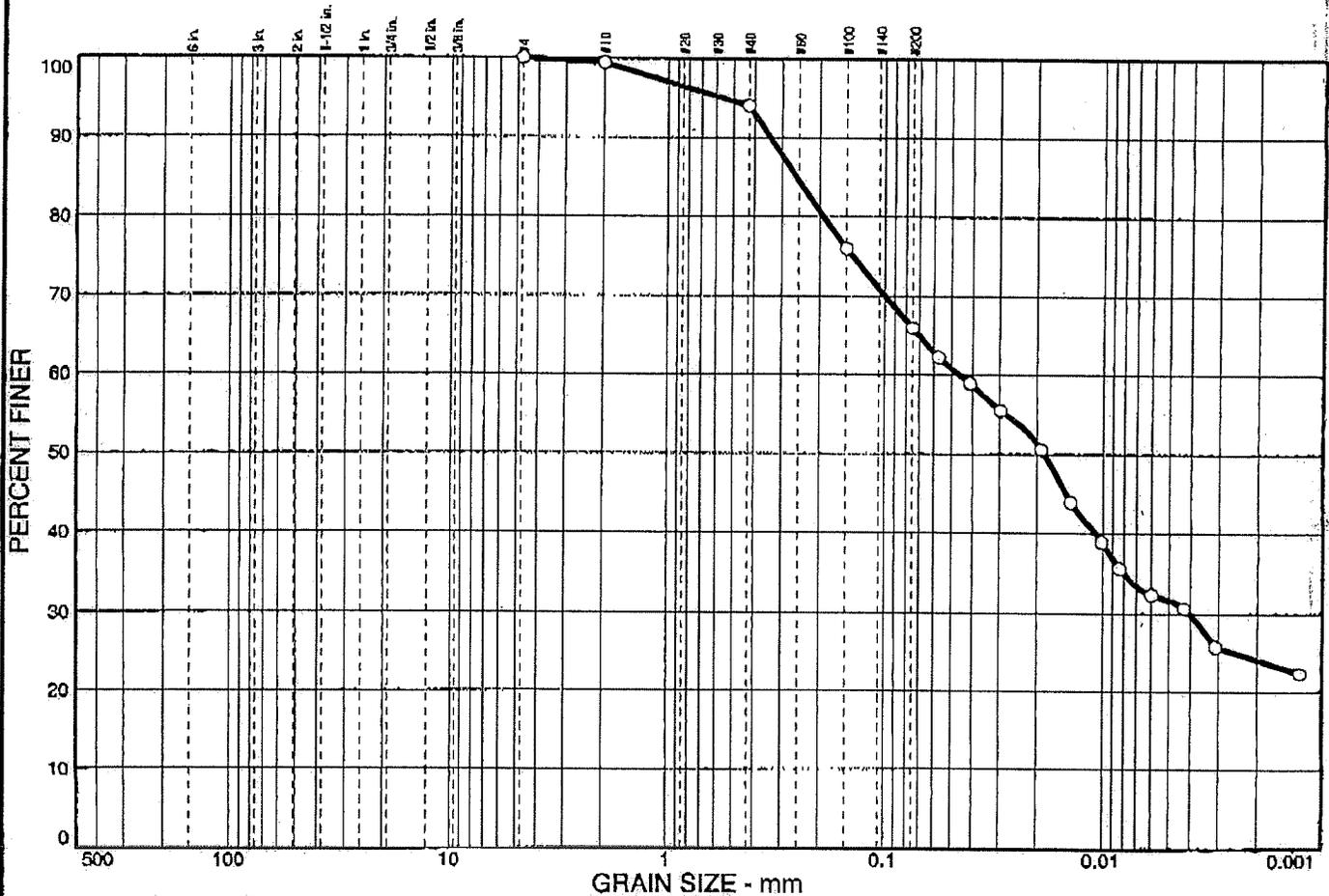
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Project No: 200702216

Figure

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	34.1	34.3	31.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.4		
#40	94.0		
#100	76.0		
#200	65.9		

Soil Description

Sandy lean clay

Atterberg Limits

PL= 12 LL= 29 PI= 17

Coefficients

D₈₅= 0.257 D₆₀= 0.0460 D₅₀= 0.0186
D₃₀= 0.0041 D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= CL AASHTO=

Remarks

* (no specification provided)

Sample No.: TP-14 Source of Sample: KENOWSKI PIT Date: 11-30-07
Location: Elev./Depth: 9.0'

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--	--	--

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.3	46.6	27.8	25.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
375 in.	100.0		
#4	99.7		
#10	98.8		
#40	89.9		
#100	66.7		
#200	53.1		

Soil Description

Sandy lean clay

Atterberg Limits

PL= 11 LL= 26 PI= 15

Coefficients

D₈₅= 0.334 D₆₀= 0.101 D₅₀= 0.0677
D₃₀= 0.0089 D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= CL AASHTO=

Remarks

* (no specification provided)

Sample No.: TP-15
 Location:

Source of Sample: KENOWSKI PIT

Date: 11-30-07
 Elev./Depth: 5.0'



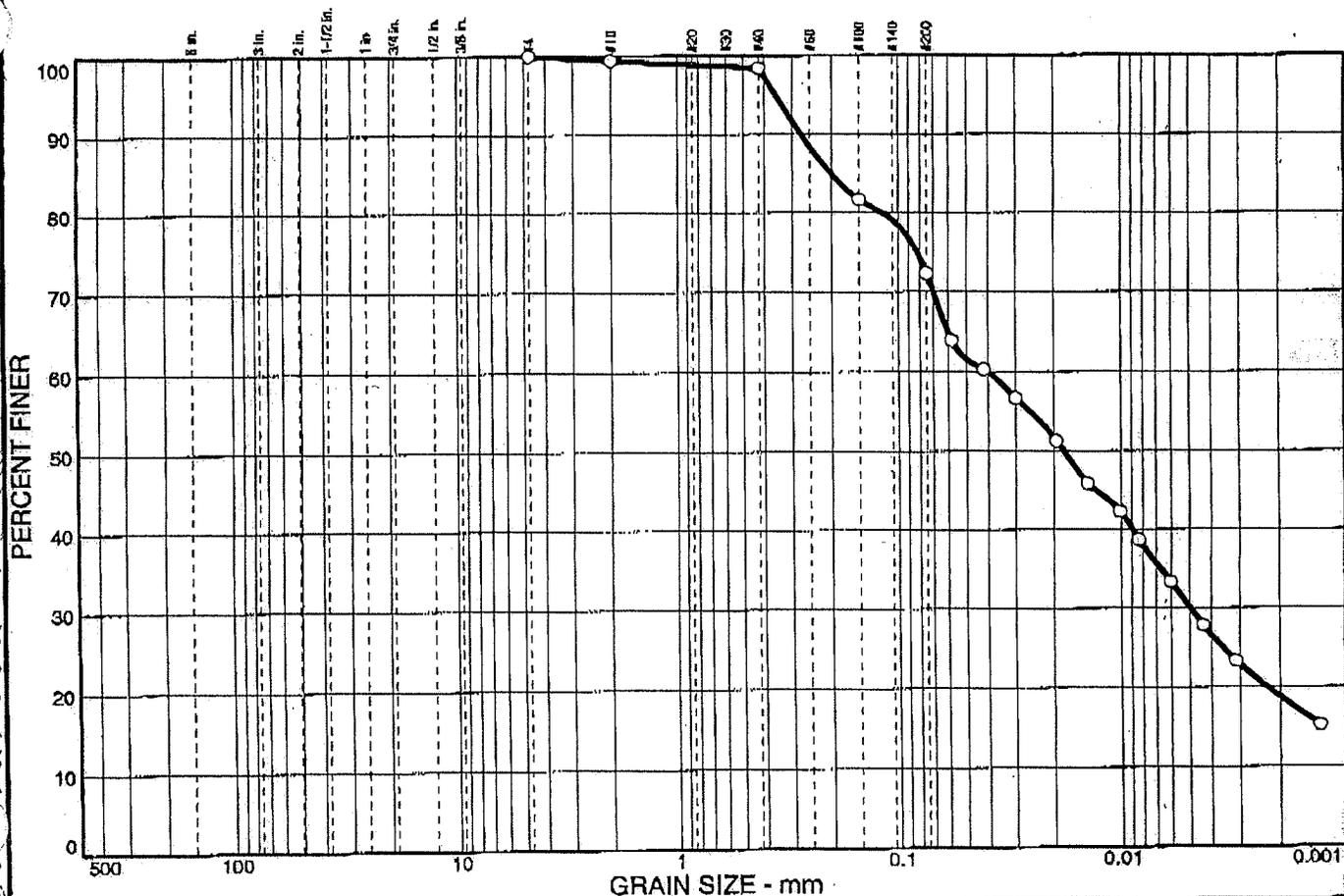
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Project No: 200702216

Figure

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	27.7	42.2	30.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.4		
#40	98.4		
#100	81.7		
#200	72.3		

Soil Description

Lean clay with sand

Atterberg Limits

PL= 16 LL= 31 PI= 15

Coefficients

D₈₅= 0.201 D₆₀= 0.0402 D₅₀= 0.0180
D₃₀= 0.0050 D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= CL AASHTO=

Remarks

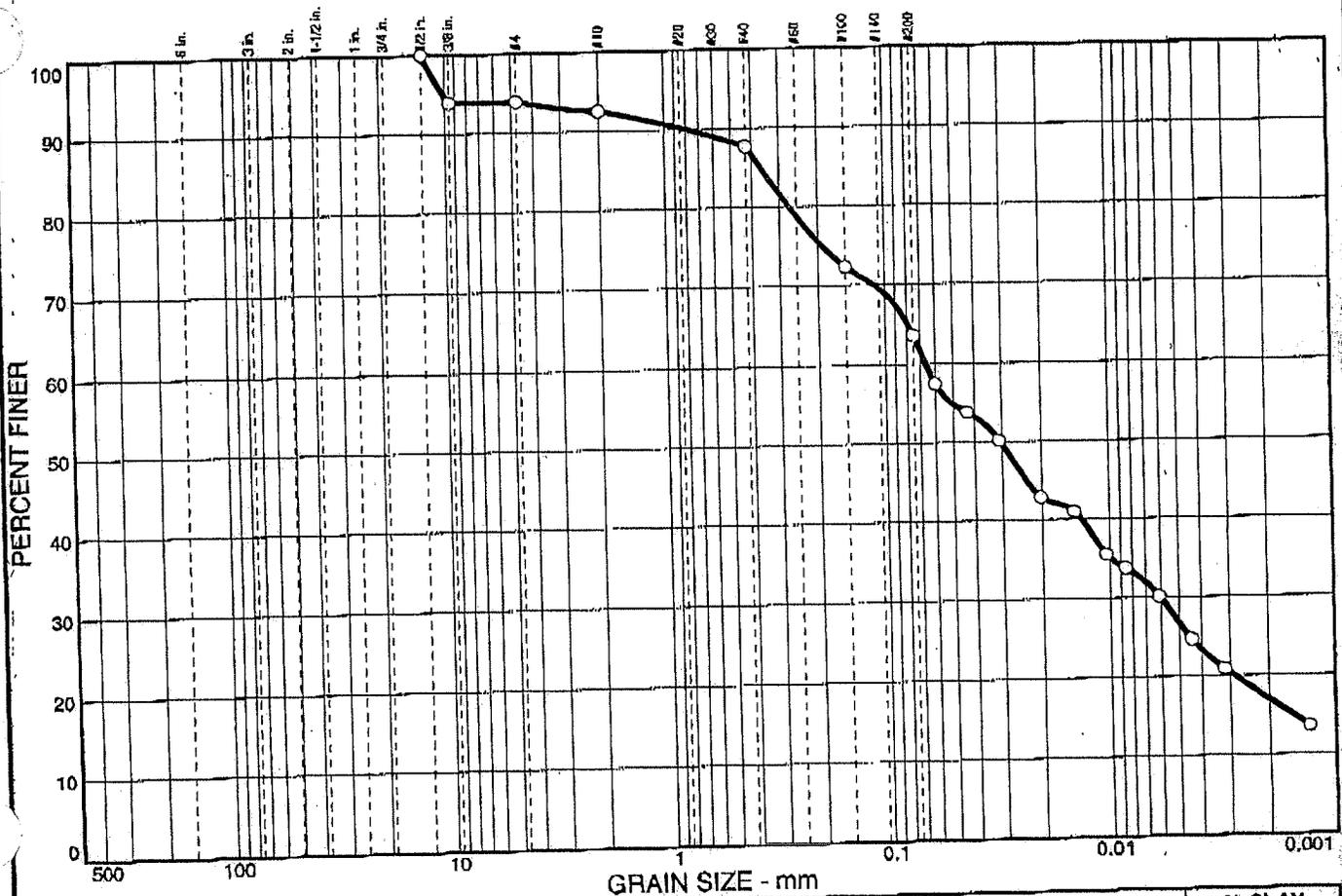
* (no specification provided)

Sample No.: TP-15 Source of Sample: KENOWSKI PIT Date: 11-29-07
 Location: Elev./Depth: 13.0'

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 Project No: 200702216 Figure

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	6.1	30.3	36.9	26.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.5 in.	100.0		
.375 in.	93.9		
#4	93.9		
#10	92.5		
#40	87.7		
#100	72.3		
#200	63.6		

Soil Description

Sandy lean clay

Atterberg Limits

PL= 15 LL= 30 PI= 15

Coefficients

D₈₅= 0.364 D₆₀= 0.0661 D₅₀= 0.0306
D₃₀= 0.0061 D₁₅= 0.0016 D₁₀=
C_u= C_c=

Classification

USCS= CL AASHTO=

Remarks

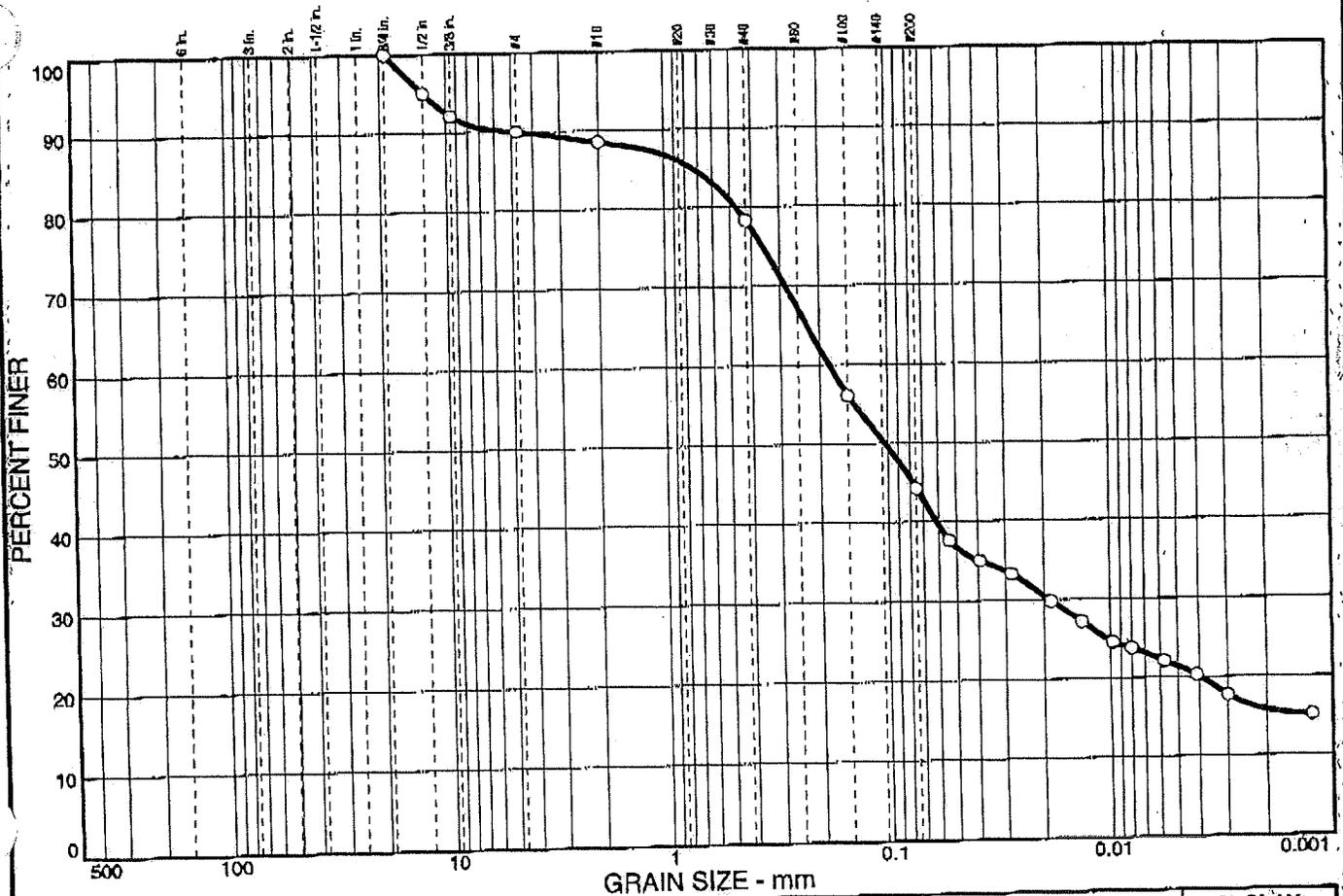
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Sample No.: TP-15 Source of Sample: KENOWSKI PIT Date: 11-29-07
Location: Elev./Depth: 20.0'

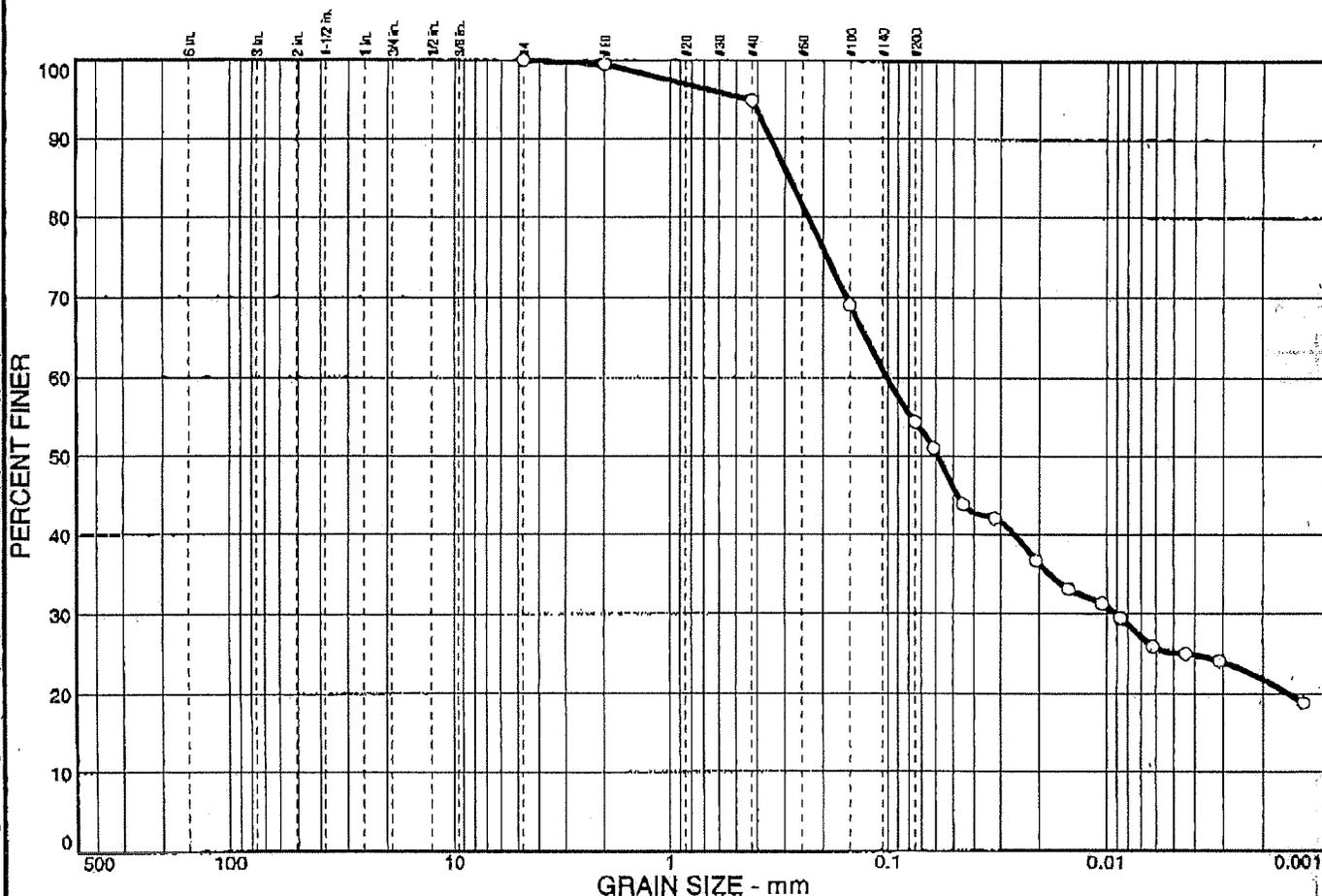
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Client: AYRES ASSOCIATES
Project: VEOLIA SEVEN MILE CREEK LANDFILL
Project No: 200702216 Figure

Particle Size Distribution Report



Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	45.7	29.2	25.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.5		
#40	94.9		
#100	69.0		
#200	54.3		

* (no specification provided)

Soil Description

Sandy lean clay

Atterberg Limits

PL= 11 LL= 27 PI= 16

Coefficients

D₈₅= 0.287 D₆₀= 0.102 D₅₀= 0.0588
D₃₀= 0.0091 D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= CL AASHTO=

Remarks

Sample No.: TP-16
Location:

Source of Sample: KENOWSKI PIT

Date: 11-30-07
Elev./Depth: 6.0'



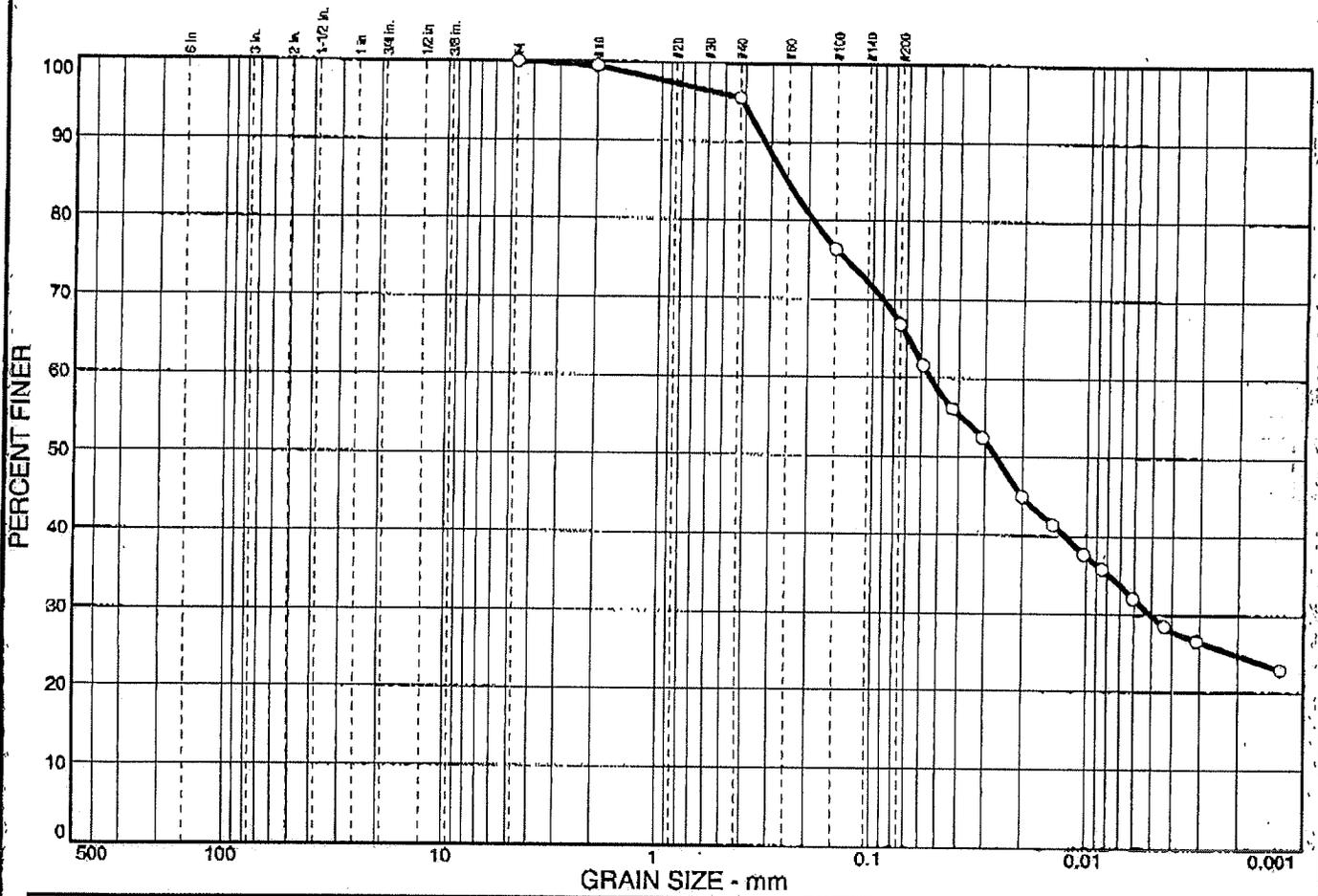
STS Consultants, Ltd.
1035 Kepler Drive
Green Bay, WI 54311

Client: AYRES ASSOCIATES
Project: VEOLIA SEVEN MILE CREEK LANDFILL

Project No: 200702216

Figure

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	33.2	37.0	29.8

SIEVE SIZE	PERCENT FINER	SPEC. PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.5		
#40	95.6		
#100	76.4		
#200	66.8		

Soil Description

Sandy lean clay

Atterberg Limits

PL= 14 LL= 29 PI= 15

Coefficients

D₈₅= 0.252 D₆₀= 0.0546 D₅₀= 0.0266
D₃₀= 0.0051 D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= CL AASHTO=

Remarks

(no specification provided)

Sample No.: TP-16
 Location:

Source of Sample: KENOWSKI PIT

Date: 12-6-07
 Elev./Depth: 8.0'-10.0'



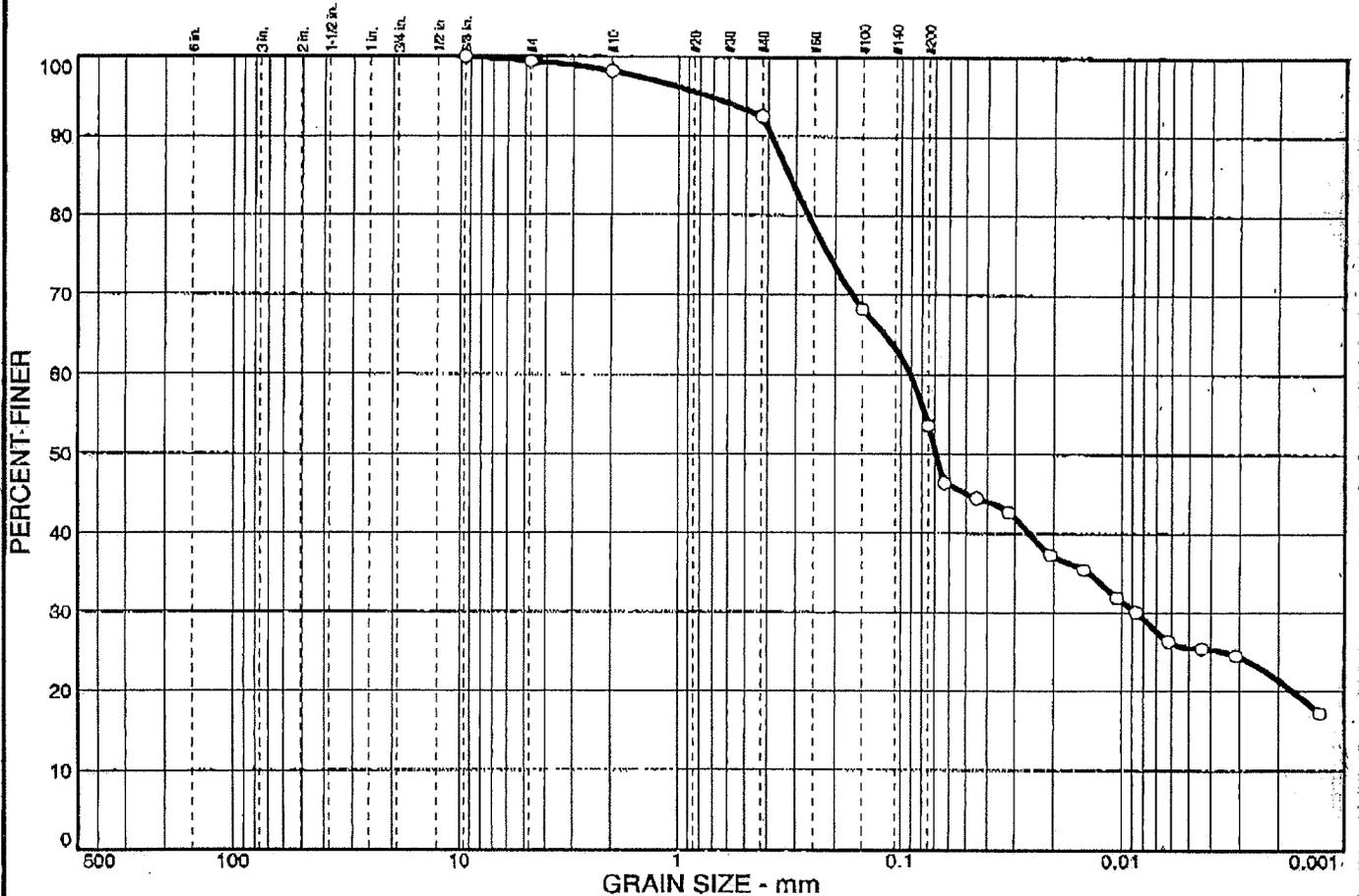
STS Consultants, Ltd.
 1035 Kepler Drive
 Green Bay, WI 54311

Client: AYRES ASSOCIATES
 Project: VEOLIA SEVEN MILE CREEK LANDFILL

Project No: 200702216

Figure

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.6	45.8	28.1	25.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375 in.	100.0		
#4	99.4		
#10	98.2		
#40	92.5		
#100	68.2		
#200	53.6		

Soil Description
Sandy lean clay

Atterberg Limits
 PL= 11 LL= 23 PI= 12

Coefficients
 D₈₅= 0.322 D₆₀= 0.0909 D₅₀= 0.0691
 D₃₀= 0.0087 D₁₅= D₁₀=
 C_u= C_c=

Classification
 USCS= CL AASHTO=

Remarks

(no specification provided)

Sample No.: TP-16
Location:

Source of Sample: KENOWSKI PIT

Date: 11-30-07
Elev./Depth: 23.0'



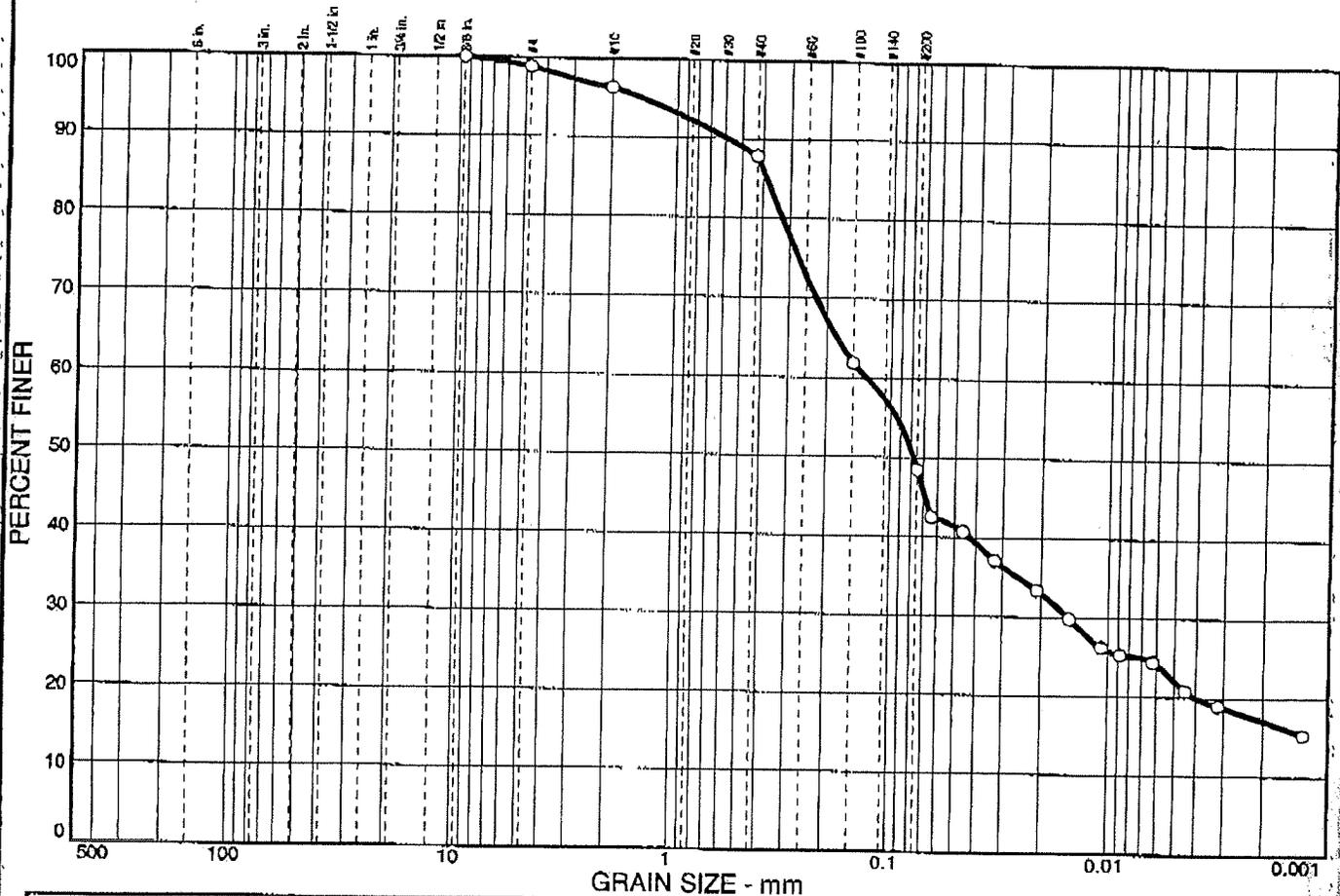
STS Consultants, Ltd.
1035 Kepler Drive
Green Bay, WI 54311

Client: AYRES ASSOCIATES
Project: VEOLIA SEVEN MILE CREEK LANDFILL

Project No: 200702216

Figure

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	1.2	50.3	26.5	22.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375 in.	100.0		
#4	98.8		
#10	96.3		
#40	87.8		
#100	61.9		
#200	48.5		

Soil Description

Clayey sand

Atterberg Limits

PL= 12 LL= 25 PI= 13

Coefficients

D₈₅= 0.386 D₆₀= 0.130 D₅₀= 0.0781
D₃₀= 0.0152 D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= SC AASHTO=

Remarks

(no specification provided)

Sample No.: TP-17
 Location:

Source of Sample: KENOWSKI PIT

Date: 12-6-07
 Elev./Depth: 12.0'



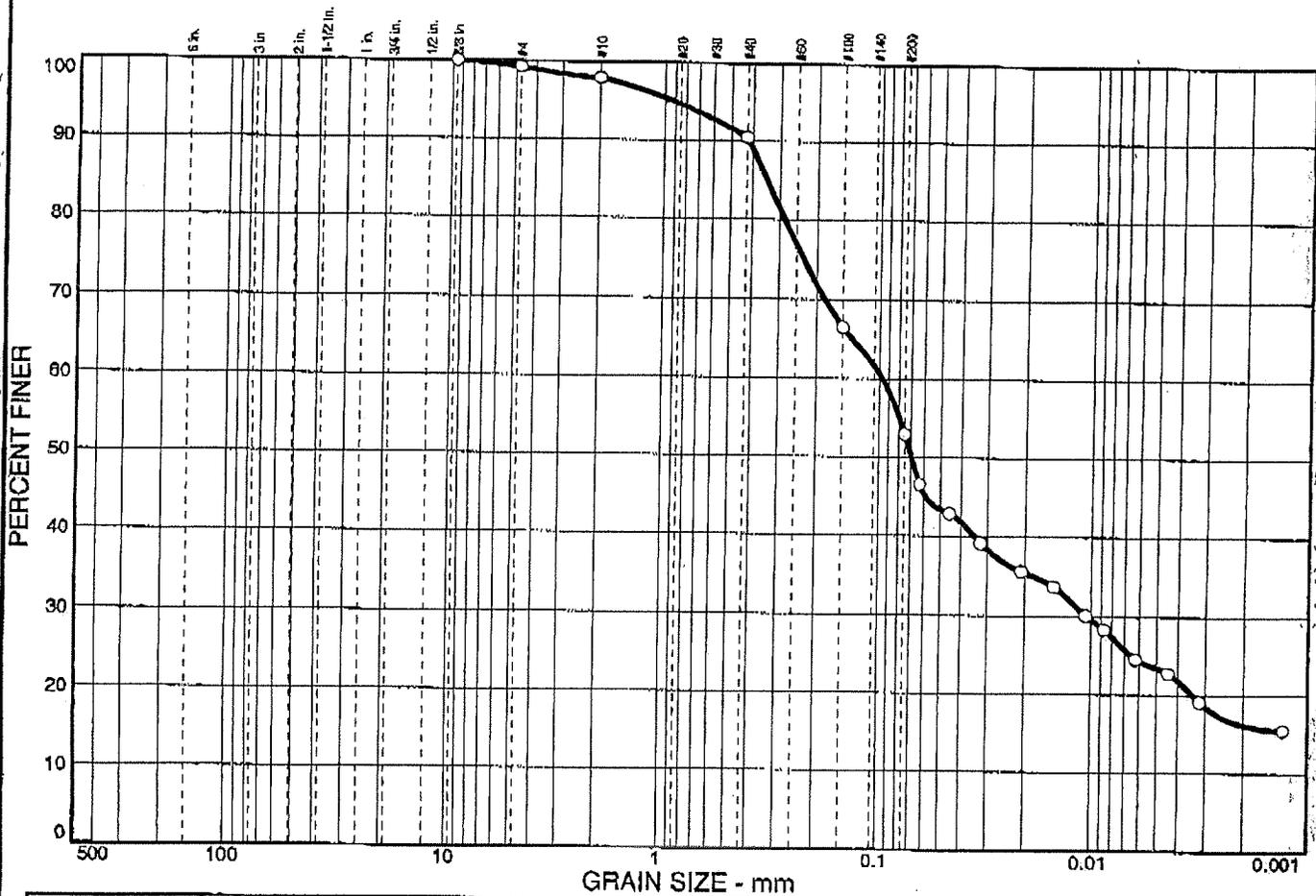
STS Consultants, Ltd.
 1035 Kepler Drive
 Green Bay, WI 54311

Client: AYRES ASSOCIATES
 Project: VEOLIA SEVEN MILE CREEK LANDFILL

Project No: 200702216

Figure

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.8	46.3	29.4	23.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375 in.	100.0		
#4	99.2		
#10	97.9		
#40	90.5		
#100	66.5		
#200	52.9		

Soil Description
Sandy lean clay

Atterberg Limits
PL= 11 LL= 22 Pi= 11

Coefficients
D₈₅= 0.345 D₆₀= 0.0971 D₅₀= 0.0696
D₃₀= 0.0105 D₁₅= D₁₀=
C_u= C_c=

Classification
USCS= CL AASHTO=

Remarks

* (no specification provided)

Sample No.: TP-17
Location:

Source of Sample: KENOWSKI PIT

Date: 12-6-07
Elev./Depth: 18.0'



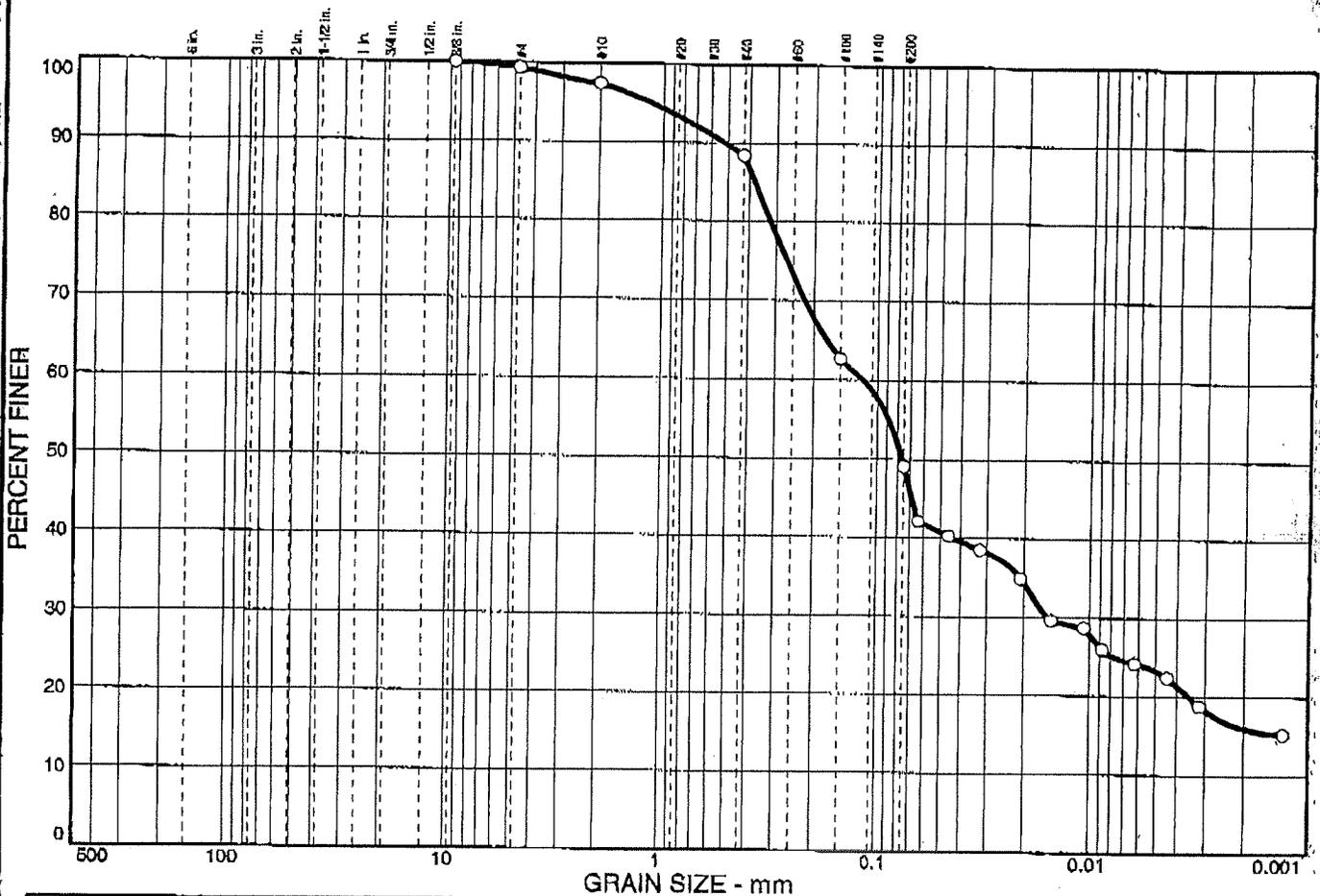
STS Consultants, Ltd.
1035 Kepler Drive
Green Bay, WI 54311

Client: AYRES ASSOCIATES
Project: VEOLIA SEVEN MILE CREEK LANDFILL

Project No: 200702216

Figure

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.7	50.2	25.8	23.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
375 in.	100.0		
#4	99.3		
#10	97.4		
#40	88.4		
#100	62.7		
#200	49.1		

Soil Description

Clayey sand

Atterberg Limits

PL= 13 LL= 24 PI= 11

Coefficients

D₈₅= 0.379 D₆₀= 0.118 D₅₀= 0.0766
D₃₀= 0.0156 D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= SC AASHTO=

Remarks

(no specification provided)

Sample No.: TP-18
Location:

Source of Sample: KENOWSKI PIT

Date: 12-6-07
Elev./Depth: 14.0'



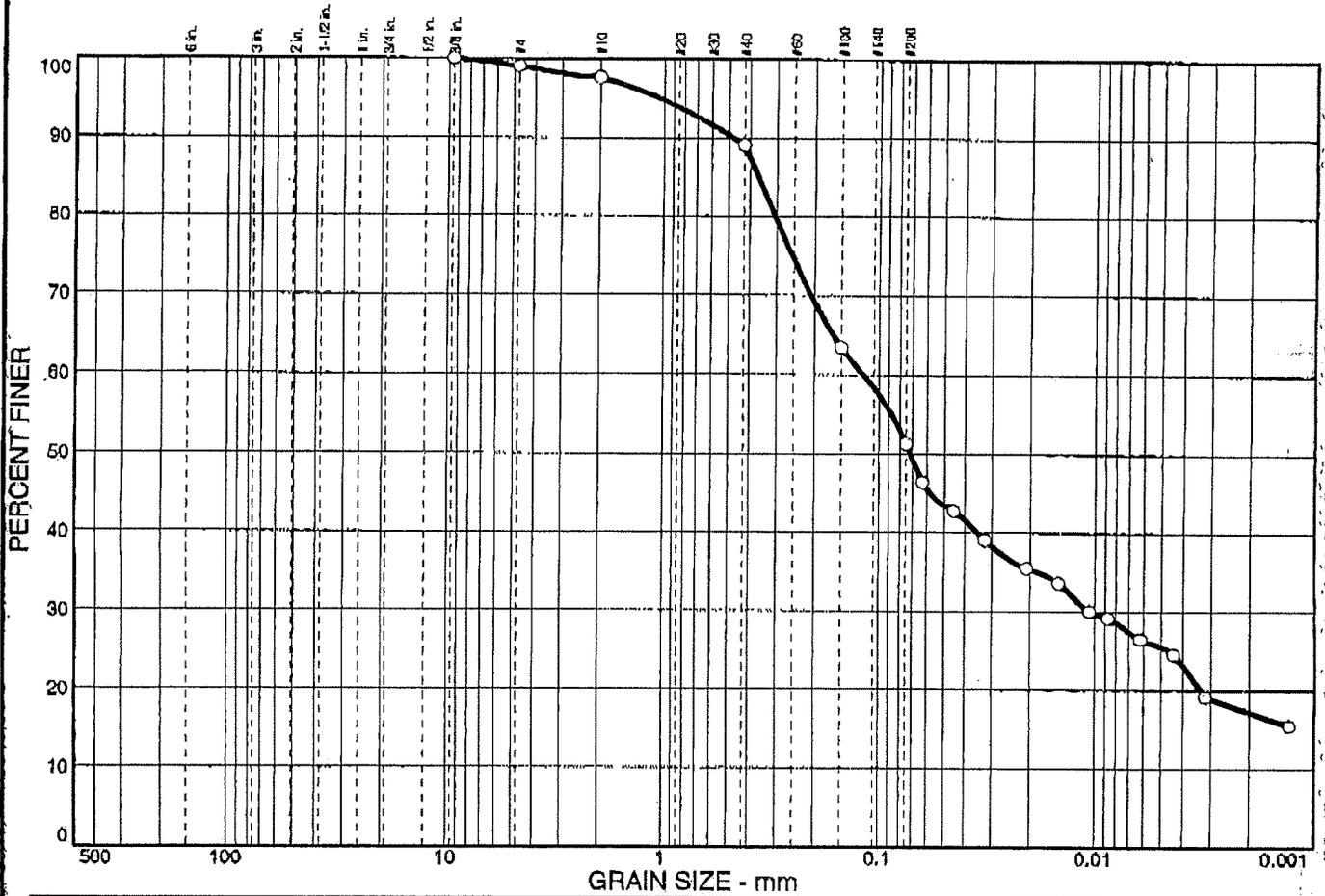
STS Consultants, Ltd.
1035 Kepler Drive
Green Bay, WI 54311

Client: AYRES ASSOCIATES
Project: VEOLIA SEVEN MILE CREEK LANDFILL

Project No: 200702216

Figure

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	1.0	47.7	25.8	25.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375 in.	100.0		
#4	99.0		
#10	97.6		
#40	89.1		
#100	63.4		
#200	51.3		

Soil Description

Sandy lean clay

Atterberg Limits

PL= 12 LL= 24 PI= 12

Coefficients

D₈₅= 0.367 D₆₀= 0.119 D₅₀= 0.0717
D₃₀= 0.0106 C_u= D₁₀=

Classification

USCS= CL AASHTO=

Remarks

* (no specification provided)

Sample No.: TP-19 Source of Sample: KENOWSKI PIT Date: 12-6-07
Location: Elev./Depth: 4.0'

	STS Consultants, Ltd. 1035 Kepler Drive Green Bay, WI 54311	Client: AYRES ASSOCIATES Project: VEOLIA SEVEN MILE CREEK LANDFILL
		Project No: 200702216

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	6.1	45.9	26.0	22.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.5 in.	100.0		
.375 in.	94.3		
#4	93.9		
#10	92.3		
#40	84.9		
#100	61.3		
#200	48.0		

Soil Description

Clayey sand

Atterberg Limits

PL= 12 LL= 23 PI= 11

Coefficients

D₈₅= 0.431 D₆₀= 0.133 D₅₀= 0.0788
D₃₀= 0.0137 D₁₅= 0.0015 D₁₀=
C_u= C_c=

Classification

USCS= SC AASHTO=

Remarks

(no specification provided)

Sample No.: TP-19
 Location:

Source of Sample: KENOWSKI PIT

Date: 12-6-07
 Elev./Depth: 12.0'



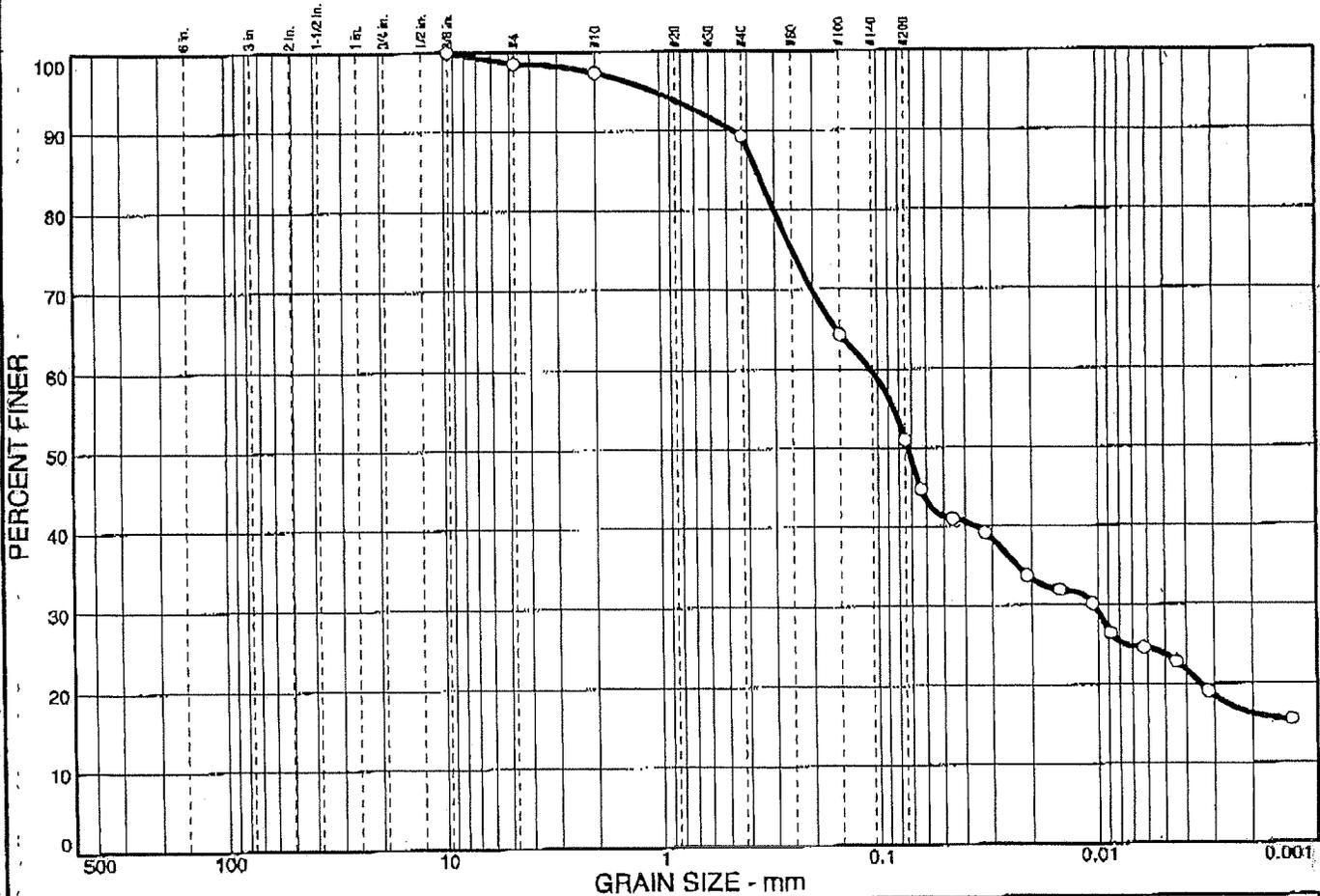
STS Consultants, Ltd.
 1035 Kepler Drive
 Green Bay, WI 54311

Client: AYRES ASSOCIATES
 Project: VEOLIA SEVEN MILE CREEK LANDFILL

Project No: 200702216

Figure

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	1.5	47.5	27.3	23.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375 in.	100.0		
#4	98.5		
#10	97.3		
#40	89.3		
#100	64.4		
#200	51.0		

Soil Description
Sandy lean clay

Atterberg Limits
 PL= 11 LL= 22 PI= 11

Coefficients
 D₈₅= 0.364 D₆₀= 0.109 D₅₀= 0.0731
 D₃₀= 0.0105 D₁₅= D₁₀=
 C_u= C_c=

Classification
 USCS= CL AASHTO=

Remarks

* (no specification provided)

Sample No.: TP-19
Location:

Source of Sample: KENOWSKI PIT

Date: 12-6-07
Elev./Depth: 15.0'



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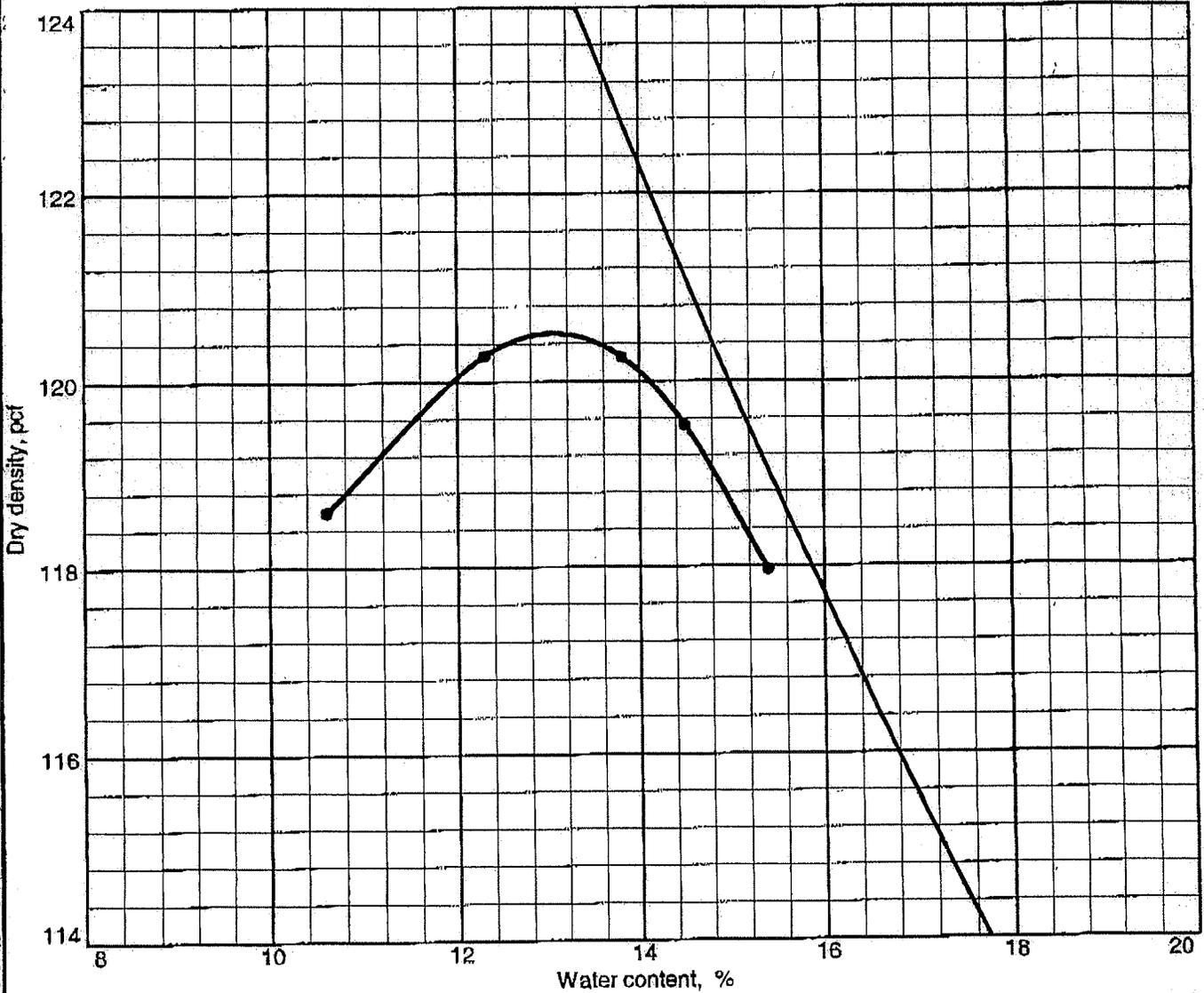
Client: AYRES ASSOCIATES
Project: VEOLIA SEVEN MILE CREEK LANDFILL

Project No: 200702216

Figure

ATTACHMENT 4
PROCTOR ANALYSIS

COMPACTION TEST REPORT



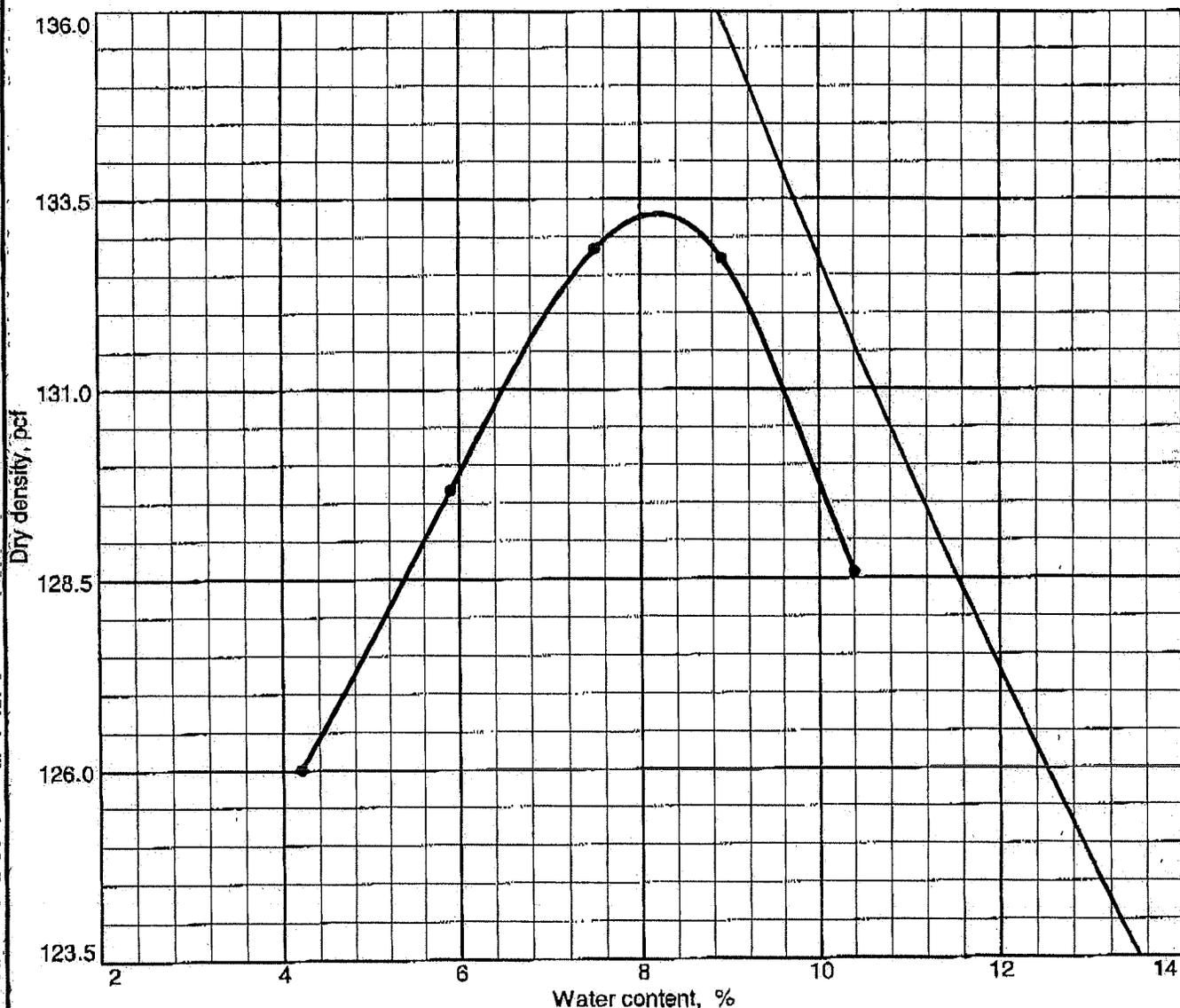
ZAV for Sp.G. = 2.7

Test specification: ASTM D 1557-00 Method A Modified

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
8.0'	CL		16.2	2.7	39	21		

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 120.5 pcf Optimum moisture = 13.0 %	REDDISH BROWN SILTY SANDY CLAY
Project No. 200702216 Client: AYRES ASSOCIATES Project: VEOLIA SEVEN MILE CREEK LANDFILL • Source: KENOWSKI PIT Sample No.: TP-15 Elev./Depth: 8.0'	Remarks:
STS Consultants, Ltd. 1035 Kepler Drive Green Bay, WI 54311	Figure

COMPACTION TEST REPORT



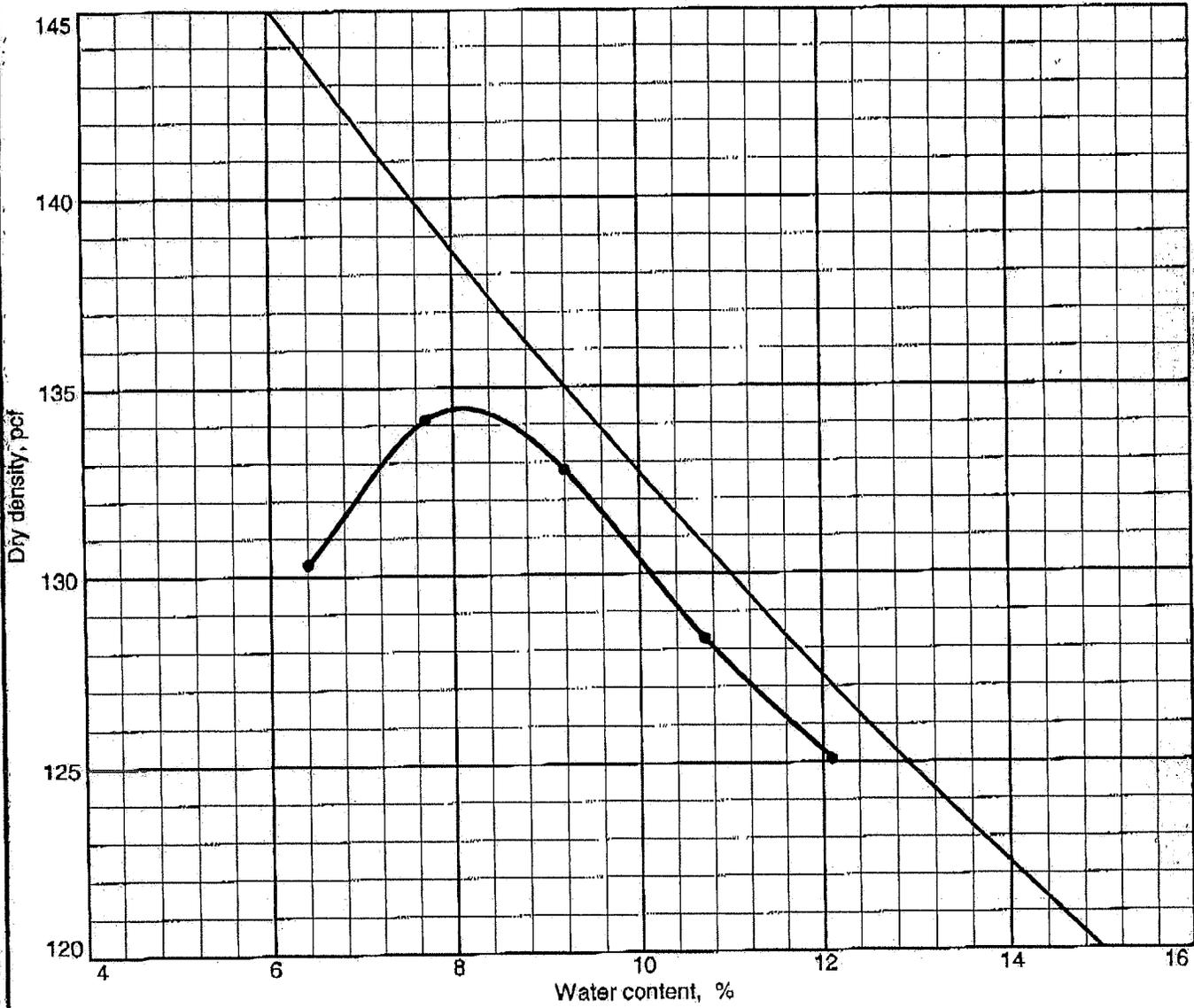
Test specification: ASTM D 1557-00 Method A Modified

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
23.0'	CL		15.7	2.7	24	13		

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 133.5 pcf Optimum moisture = 8.0 %	REDDISH BROWN SILTY SANDY CLAY, TRACE GRAVEL
Project No. 200702216 Client: AYRES ASSOCIATES Project: VEOLIA SEVEN MILE CREEK LANDFILL ● Source: KENOWSKI PIT Sample No.: TP-16 Elev./Depth: 23.0'	Remarks:
 STS Consultants, Ltd. 1035 Kepler Drive Green Bay, WI 54311	

Figure

COMPACTION TEST REPORT



Test specification: ASTM D 1557-00 Method A Modified

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
19.0'	CL		13.6	2.7	26	13		

TEST RESULTS	MATERIAL DESCRIPTION:
Maximum dry density = 134.5 pcf Optimum moisture = 8.0 %	REDDISH BROWN SILTY SANDY CLAY, TRACE GRAVEL
Project No. 200702216 Client: AYRES ASSOCIATES Project: VEOLIA SEVEN MILE CREEK LANDFILL Source: KENOWSKI PIT Sample No.: TP-17 Elev./Depth: 19.0'	Remarks:
 STS Consultants, Ltd. 1035 Kepler Drive Green Bay, WI 54311	

Figure

ATTACHMENT 5
PERMEABILITY RESULTS



STS Consultants, Ltd.

HYDRAULIC CONDUCTIVITY DETERMINATION
ASTM D 5084, METHOD C
RISING TAILWATER LEVEL

STS PROJECT NO.: 702216
PROJECT: VEOLIA SEVEN MILE CREEK LANDFILL
DATE: 12/31/2007

SUMMARY OF TEST RESULTS

SAMPLE NO. TP-15 8.0'
LOCATION BULK SAMPLE
CLASSIFICATION REDDISH BROWN SILTY SANDY CLAY, TRACE GRAVEL

	<u>INITIAL</u>	<u>FINAL</u>
DRY UNIT WEIGHT (pcf)	119.6	120.2
WATER CONTENT (%)	14.5	19.4
DIAMETER (cm)	10.16	10.16
LENGTH (cm)	11.63	11.63
HYDRAULIC GRADIENT (MAXIMUM)		7.6
PERCENT SATURATION	96.533657	131.42299
HYDRAULIC CONDUCTIVITY k (cm/sec)		1.23E-08



STS Consultants, Ltd.

HYDRAULIC CONDUCTIVITY DETERMINATION
ASTM D 5084, METHOD C
RISING TAILWATER LEVEL

STS PROJECT NO.: 702216
PROJECT: VEOLIA SEVEN MILE CREEK LANDFILL
DATE: 12/31/2007

SUMMARY OF TEST RESULTS

SAMPLE NO. TP-16 23.0'
LOCATION BULK SAMPLE
CLASSIFICATION REDDISH BROWN SILTY SANDY CLAY, TRACE GRAVEL

	<u>INITIAL</u>	<u>FINAL</u>
DRY UNIT WEIGHT (pcf)	127.2	127.7
WATER CONTENT (%)	10.4	11.9
DIAMETER (cm)	10.16	10.16
LENGTH (cm)	11.43	11.43
HYDRAULIC GRADIENT (MAXIMUM)		8.1
PERCENT SATURATION	87.004235	101.18792
HYDRAULIC CONDUCTIVITY k (cm/sec)		1.77E-08



STS Consultants, Ltd.

HYDRAULIC CONDUCTIVITY DETERMINATION
ASTM D 5084, METHOD C
RISING TAIL WATER LEVEL

STS PROJECT NO.: 702216
PROJECT: VEOLIA SEVEN MILE CREEK LANDFILL
DATE: 12/31/2007

SUMMARY OF TEST RESULTS

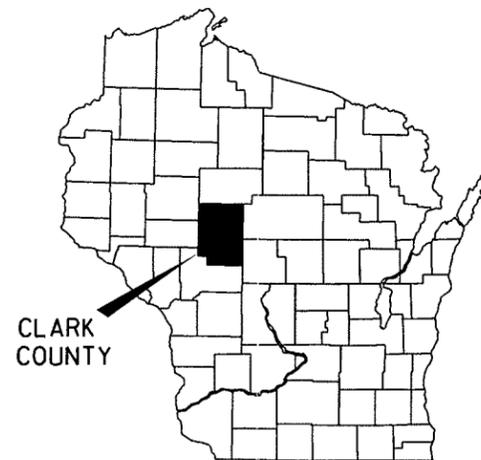
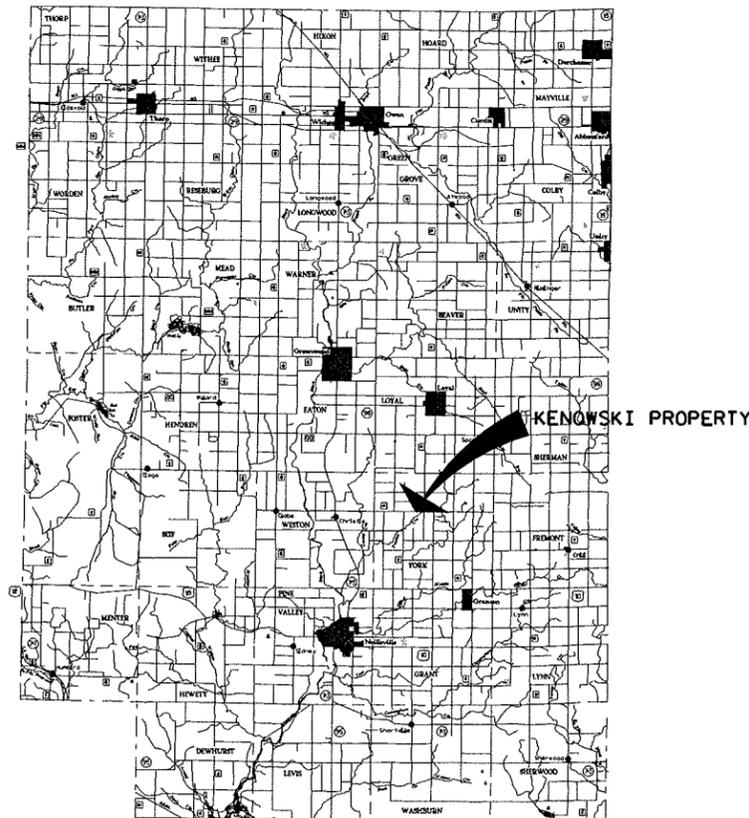
SAMPLE NO. TP-17 19.0'
LOCATION BULK SAMPLE
CLASSIFICATION REDDISH BROWN SILTY SANDY CLAY, TRACE GRAVEL

	<u>INITIAL</u>	<u>FINAL</u>
DRY UNIT WEIGHT (pcf)	128.4	128.4
WATER CONTENT (%)	10.7	11.6
DIAMETER (cm)	10.16	10.16
LENGTH (cm)	11.63	11.63
HYDRAULIC GRADIENT (MAXIMUM)		7.2
PERCENT SATURATION	93.193616	101.08235
HYDRAULIC CONDUCTIVITY k (cm/sec)		1.18E-08

VEOLIA SEVEN MILE CREEK LANDFILL , LLC PLAN MODIFICATION KENOWSKI CLAY BORROW SITE EXPANSION EAU CLAIRE , WISCONSIN

FEBRUARY 2008

SUBSET: 7MILE
 FILE NAME: KENOWSKI 110807_T1.DGN



 **VICINITY MAP**
 NOT TO SCALE

SHEET SCHEDULE	
SHT NO	DESCRIPTION
1	TITLE
2	EXISTING CONDITIONS
3	TEST PIT LOCATIONS & LOGS
4	ISOPACK MAP
5	CROSS SECTION A-A' AND B-B'
6	CROSS SECTION C-C' AND D-D'
7	CROSS SECTION E-E'

CLARK COUNTY



PLANS PREPARED FOR:



PLANS PREPARED BY:



C.T.H. H

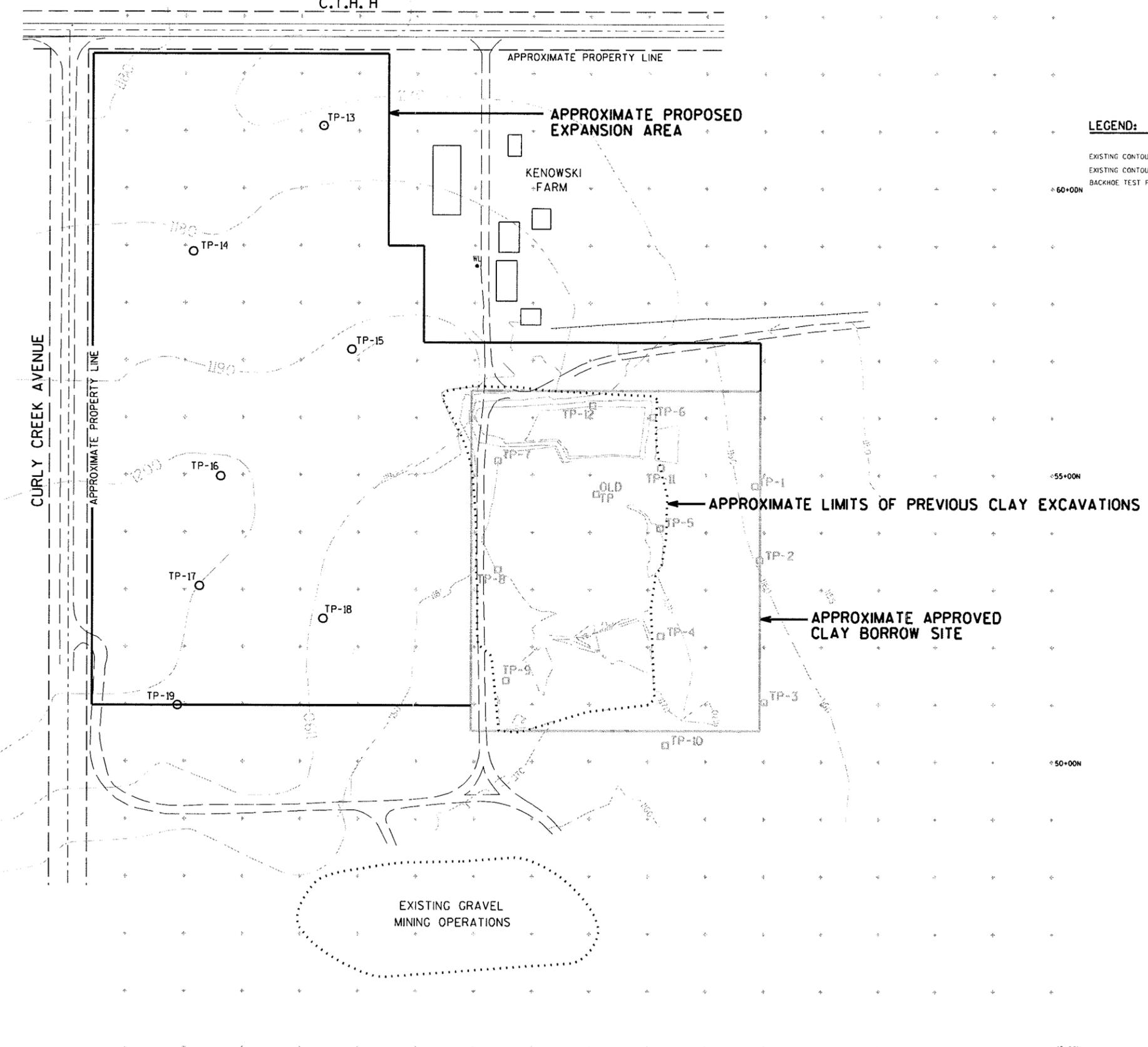


NORTH

0 100

LEGEND:

EXISTING CONTOUR (10' INTERVAL) - - - - -
EXISTING CONTOUR (2' INTERVAL) - - - - -
BACKHOE TEST PIT □ TP-2



2/5/2008 1:58:45-50.tbl D:\7MILE\kenowski job08.ec.dgn

DR. BY J. G. SCHWIDT	BOOK NO.			
CHK. BY S. A. BISCHOFF	JOB NO. 24-0193.00			
DATE FEB 2008	SCALE AS SHOWN	NO.	DATE	REVISION

VEOLIA ES SEVEN MILE CREEK LANDFILL, LLC
KENOWSKI CLAY BORROW SITE EXPANSION
EAU CLAIRE, WISCONSIN



EXISTING CONDITIONS
DRAWING REDUCED TO ONE-HALF ORIGINAL SCALE

DRAWING NO.
2

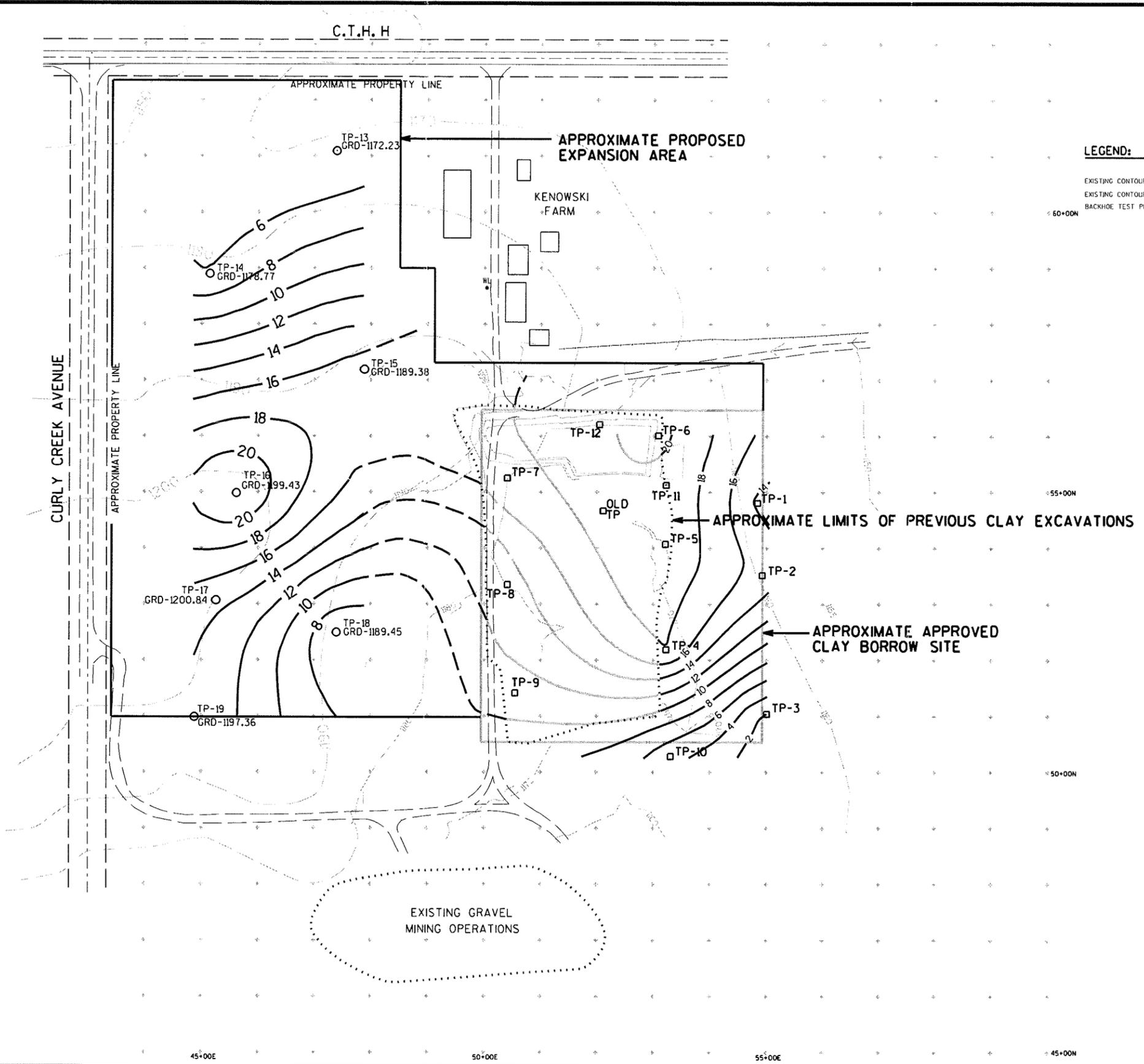


LEGEND:

EXISTING CONTOUR (10' INTERVAL) 300

EXISTING CONTOUR (2' INTERVAL) 898

BACKHOE TEST PIT TP-2



2/5/2008
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K:\7MILE\KENOWSKI\110807_EA_ISOPATCH.DGN	
DR. BY J.G. SCHMIDT	BOOK NO.
CHK. BY S.A. BISCHOFF	JOB NO. 24-0193.00
DATE FEB. 2008	SCALE AS SHOWN
NO.	DATE
REVISION	

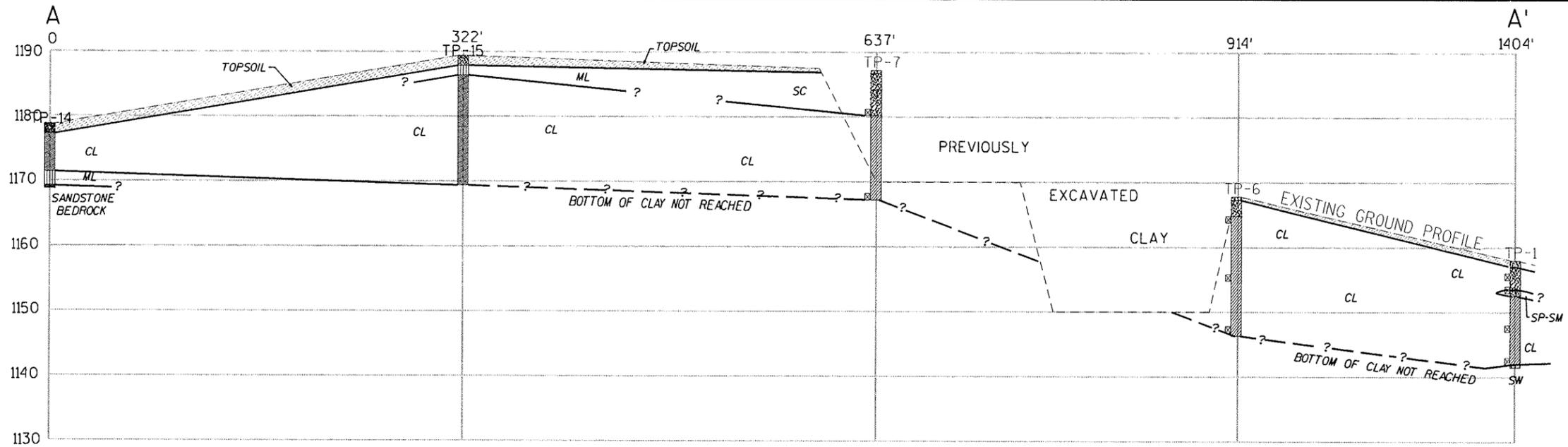
VEOLIA ES SEVEN MILE CREEK LANDFILL, LLC
 KENOWSKI CLAY BORROW SITE EXPANSION
 EAU CLAIRE, WISCONSIN



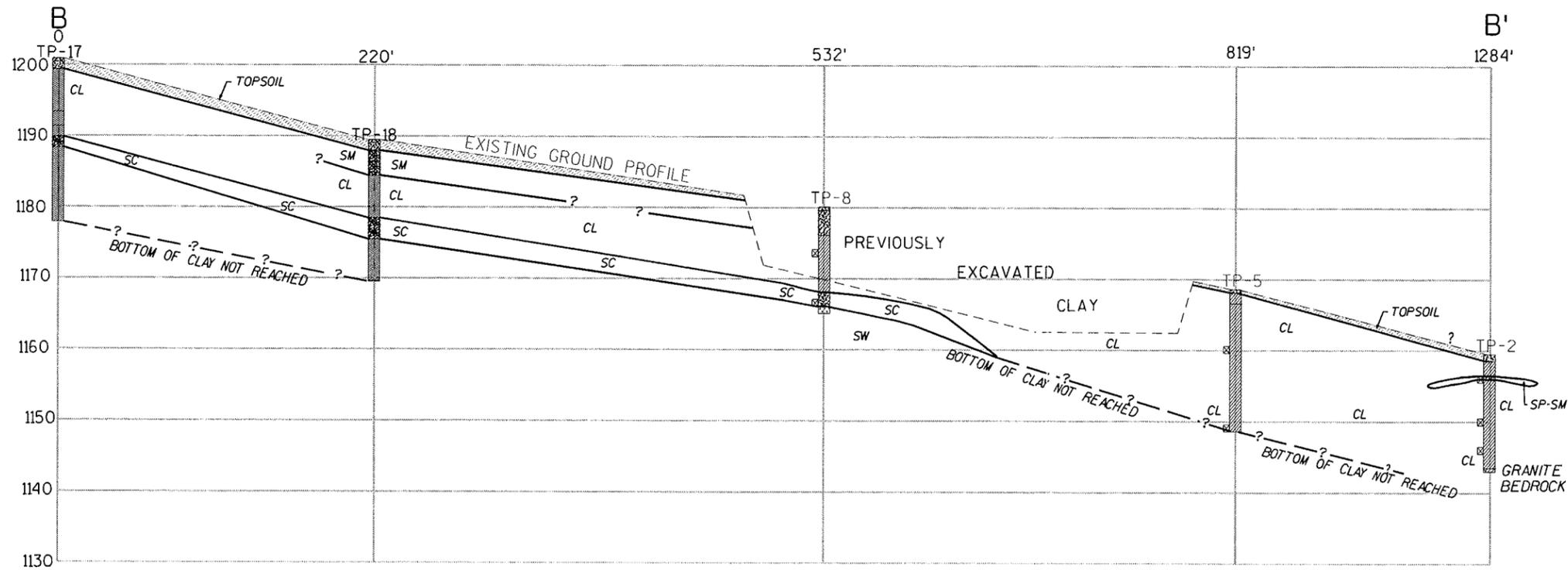
ISOPACK MAP

DRAWING NO.
4

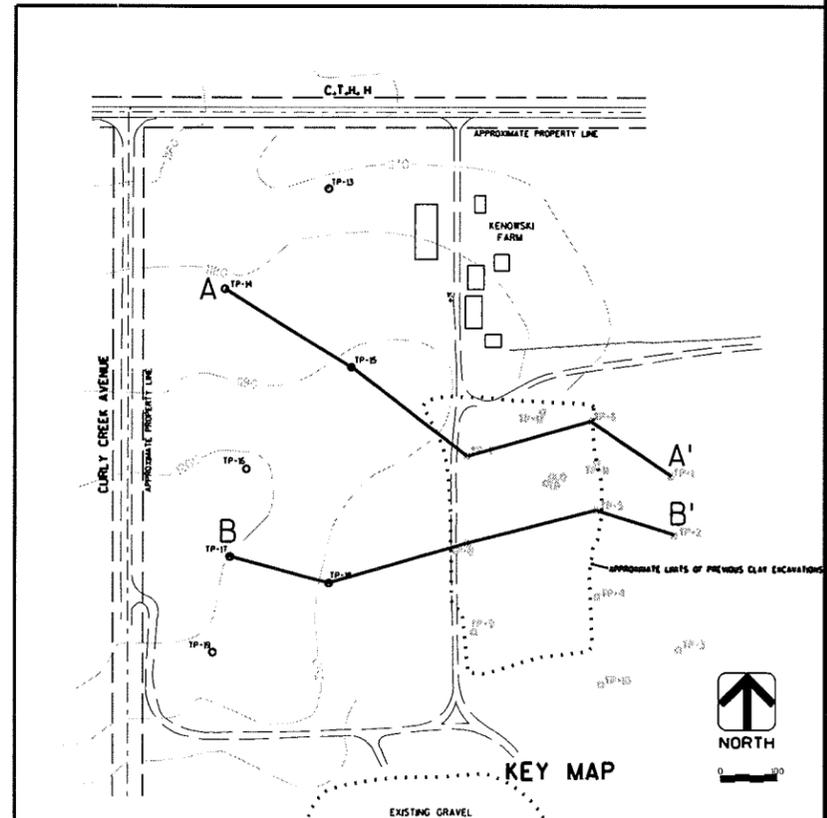
DRAWING REDUCED TO ONE-HALF ORIGINAL SCALE



CROSS SECTION A-A'



CROSS SECTION B-B'



K:\7MILE\KENOWSKI JAN08_X1.DGN

DR. BY J.G. SCHMIDT	BOOK NO.	
CHK. BY S.A. BISCHOFF	JOB NO. 24-0193.00	
DATE FEB 2008	SCALE AS SHOWN	NO. DATE REVISION

VEOLIA ES SEVEN MILE CREEK LANDFILL, LLC
KENOWSKI CLAY BORROW SITE EXPANSION
EAU CLAIRE, WISCONSIN

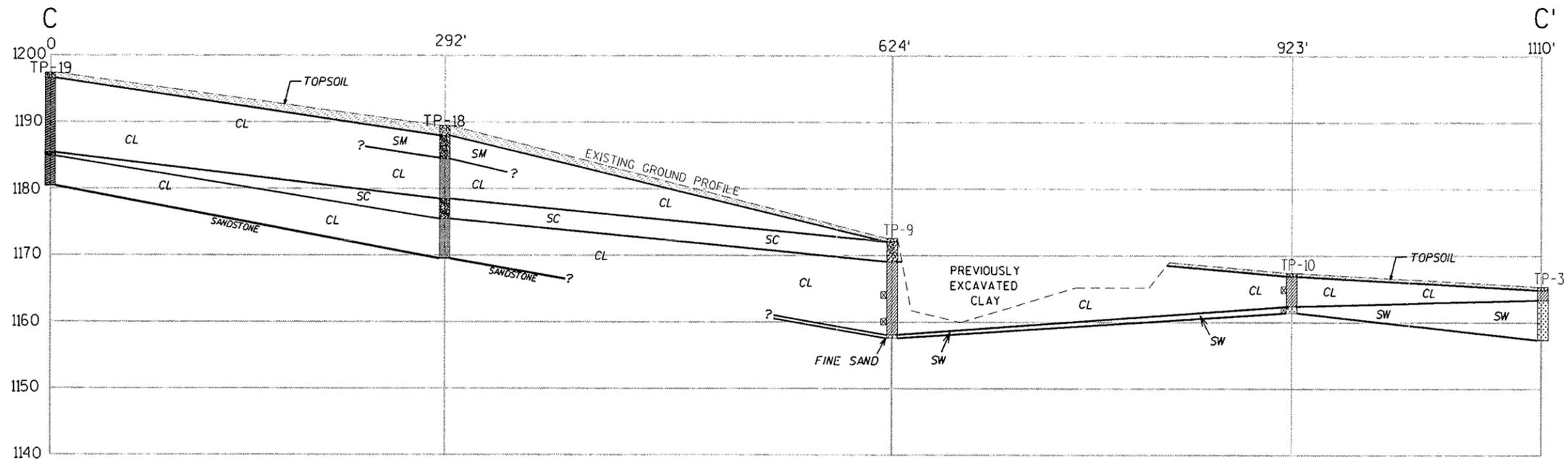


CROSS SECTION A-A' AND B-B'

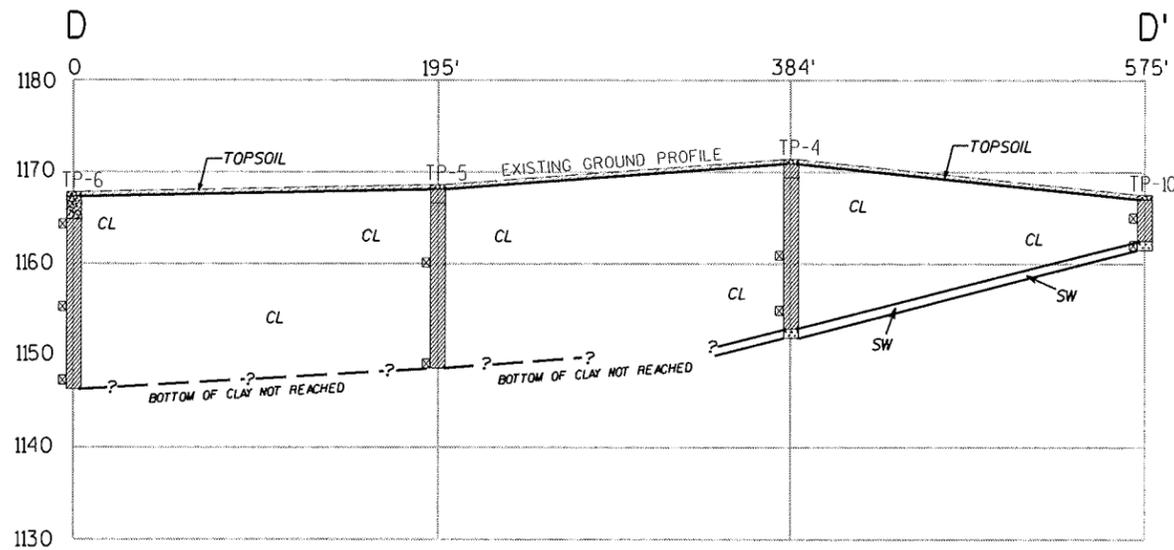
DRAWING REDUCED TO ONE-HALF ORIGINAL SCALE

DRAWING NO.
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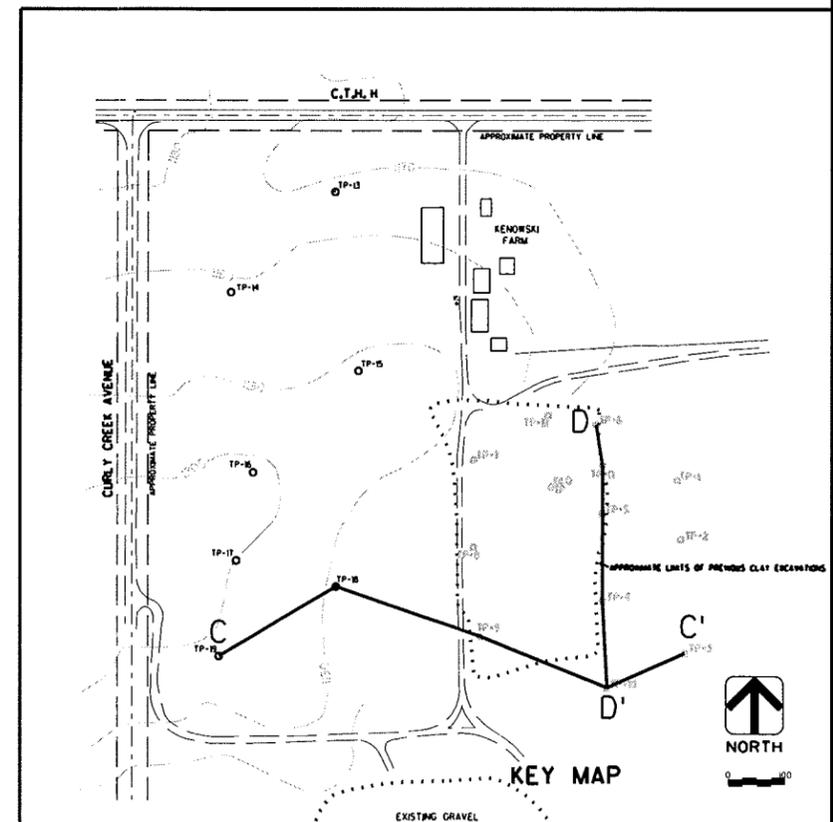
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CROSS SECTION C-C'



CROSS SECTION D-D'



KEY MAP



NORTH

2/5/2008 1:56:45-50.tbi D:\MILE\Kenowski Jan08_x2.dgn

K:\7MILE\KENOWSKI JAN08_X2.DGN

DR. BY J.G. SCHMIDT	BOOK NO.			
CHK. BY S.A. BISCHOFF	JOB NO. 24-0193.00			
DATE FEB 2008	SCALE AS SHOWN	NO.	DATE	REVISION

VEOLIA ES SEVEN MILE CREEK LANDFILL, LLC
KENOWSKI CLAY BORROW SITE EXPANSION
EAU CLAIRE, WISCONSIN

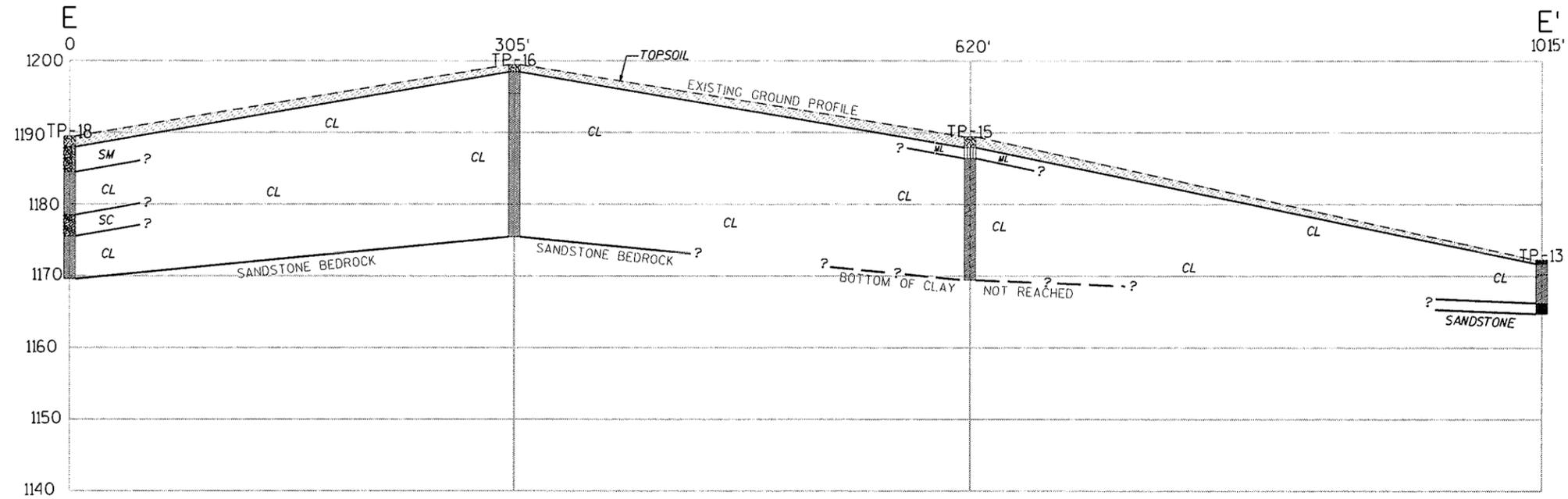


CROSS SECTION C-C' AND D-D'

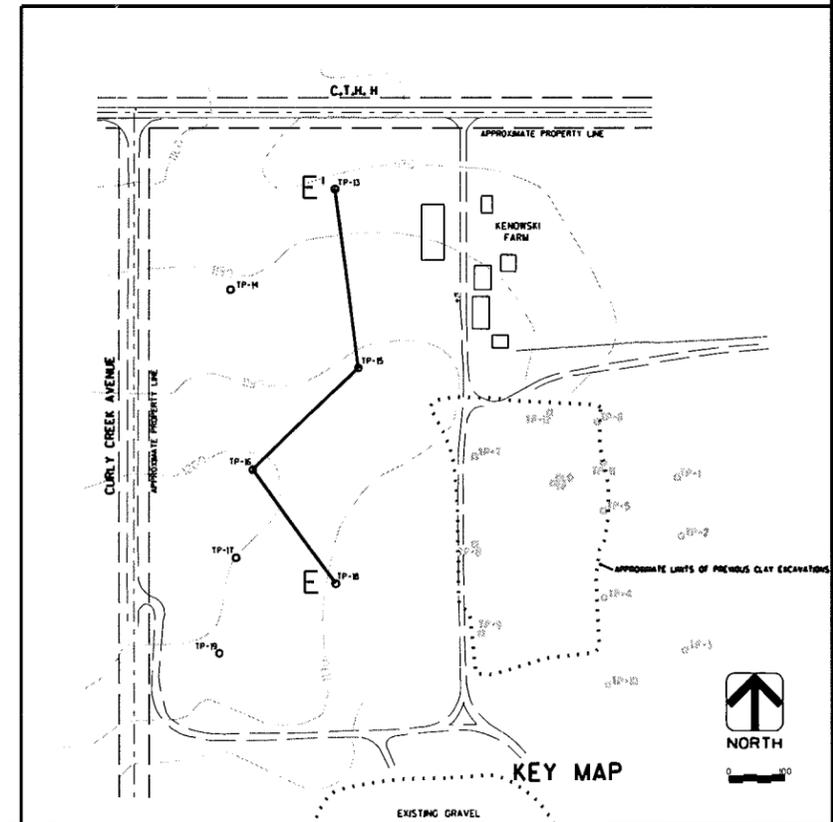
DRAWING REDUCED TO ONE-HALF ORIGINAL SCALE

DRAWING NO.

6



CROSS SECTION E-E'



2/5/2008
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K:\7MILE\KENOWSKI JAN08.X3.DGN	
DR. BY J.G. SCHMIDT	BOOK NO.
CHK. BY S.A. BISCHOFF	JOB NO. 24-0193.00
DATE FEB 2008	SCALE AS SHOWN
NO.	DATE
REVISION	

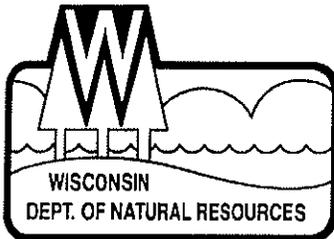
VEOLIA ES SEVEN MILE CREEK LANDFILL, LLC
 KENOWSKI CLAY BORROW SITE EXPANSION
 EAU CLAIRE, WISCONSIN



CROSS SECTION E-E'
 DRAWING REDUCED TO ONE-HALF ORIGINAL SCALE

DRAWING NO.
7

**WDNR Approval of Kenowski Clay Borrow Expansion
(4/14/2008)**



State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Jim Doyle, Governor
Matt Frank, Secretary
Scott Humrickhouse, Regional Director

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RECEIVED

April 14, 2008

APR 15 2008

Mr. Jim Davis, General Manager
Veolia ES Seven Mile Creek Landfill
8001 Olson Drive
Eau Claire, WI 54703

AYRES ASSOCIATES

FID # 618045450
Eau Claire Co.
SW/LIC. File

Subject: Conditional Plan of Operation Approval Modification for Expansion of the Kenowski Clay Borrow Site for the Veolia ES Seven Mile Creek Sector 2 Landfill, License # 3097, Eau Claire County.

Dear Mr. Davis:

On February 7, 2008 the Department received a cover letter and report titled "Plan Modification Addendum, Veolia ES Seven Mile Creek Landfill Kenowski Clay Borrow Site Expansion." The submittal was prepared by Ayres Associates and is requesting that the Kenowski Clay Borrow site be expanded as a clay borrow source for the Veolia ES Seven Mile Creek Sector 2 Landfill. We have completed our review of your request to use additional clay from the site and it is being conditionally approved at this time.

Conditions have been included for the observation, extent and documentation of the clay that is removed from the site. Additionally, only the clay delineated on the expanded isopach map on plan sheet four is being approved. This approval allows you to start placing the material.

This approval should be attached to your June 20, 1988, May 21, 2001 and April 19, 2005 Plan of Operation Approvals. Please note that this approval does not relieve you of any other state, county or local requirements. Because the Kenowski site is a commercial borrow site and has received a non-metallic mining permit from Clark County, they will be the lead to address site restoration. If you have any questions regarding this approval, please call Martin Herrick at (608) 789-5518

Sincerely,


David R. Lundberg
Waste Management Team Leader
West Central Region

cc: Steve Bischoff – Ayres Associates
Brian Kalvelage/ Marty Herrick – WDNR-La Crosse Service Center
Michael and Darlene Kenowski, W 4247 CTH H, Neillsville, WI 54456
Jay Shambeau, Clark County Zoning Administrator, 517 Court Street, Room 204A, Neillsville, WI 54456

BEFORE THE
STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

CONDITIONAL PLAN OF OPERATION APPROVAL MODIFICATION
FOR EXPANSION OF THE
KENOWSKI CLAY BORROW SITE
FOR THE
VEOLIA ES SEVEN MILE CREEK
SECTOR 2 LANDFILL
LICENSE #3097

FINDINGS OF FACT

The Department finds that:

1. Veolia ES Seven Mile Creek Landfill owns and operates a non-hazardous solid waste disposal facility located in the SE ¼ of Section 8 and SW ¼ of Section 9, T27N, R8W, City of Eau Claire, Eau Claire County, Wisconsin.
2. On June 20, 1988, May 21, 2001 and April 19, 2005 the Department issued Conditional Plan of Operation Approvals for the Veolia ES Seven Mile Creek Landfill.
3. On August 28, 2001 Clark County issued a non-metallic mining permit to Michael Kenowski for the Rolling Hill Farm with the location as noted below in 8a.
4. On June 6, 1999, a general discharge permit under the Wisconsin Pollution Discharge Elimination System for a non metallic mining operation was issued by the Department for the same facility.
5. On March 28, 2003 the Department issued a Conditional Plan of Operation Approval Modification for the Kenowski Clay Borrow Site. The approved area was delineated by an isopach on plan sheet three of the March 6, 2003 submittal which was prepared by Ayres Associates.
6. On February 5, 2008 Ayres Associates submitted a plan modification to expand the clay borrow area as depicted on an isopach drawing on plan sheet four of the submittal. The submittal included a narrative and five plan sheets.
7. On February 27, 2008 invoice No. 8583 for \$1650 was submitted to Veolia Seven Mile Creek Landfill, LLC for the proposed plan modification. Full payment was received on March 7, 2008.
8. Additional facts relevant to the review of the proposed plan modification include the following:
 - a. The Kenowski clay borrow site is located in the NE ½ of Section 17, Township 25N, Range 1 West, Township of York, Clark County, Wisconsin. The initial and expanded clay borrow site are 5 and 21 acres respectively, which is part of a 157.6 acre parcel owned by Michael and Darlene Kenowski.
 - b. The proposed plan modification does not alter the approved final cover design, the approved maximum site capacity, the requirements for documentation for closure, or the requirements for construction inspections and construction documentation.
 - c. The Department retains the right to modify this approval if conditions warrant.
9. If the conditions set forth below are complied with, the proposed modifications will not inhibit compliance with the standards set forth in the applicable portions of chs. NR 500-590, Wis. Adm. Code.

CONCLUSIONS OF LAW

1. The Department has authority under s. 289.30(6), Stats., to modify a plan of operation approval if the modification would not inhibit compliance with the applicable portions of chs. NR 500-590, Wis. Adm. Code.
2. The Department has authority to approve a plan of operation modification with special conditions if the conditions are needed to ensure compliance with the applicable portions of chs. NR 500-590, Wis. Adm. Code, the June 20, 1988, May 21, 2001 and April 19, 2005 Conditional Plan of Operation Approvals and subsequent modifications.
3. The conditions of approval set forth below are needed to ensure compliance with the applicable portions of chs. NR 500-590, Wis. Adm. Code.
4. In accordance with the foregoing, the Department has authority under s. 289.30, Stats., to issue the following conditional plan of operation approval modification.

CONDITIONAL PLAN OF OPERATION
APPROVAL MODIFICATION

The Department hereby approves the expansion of the Kenowski Clay Borrow Source and modifies the June 20, 1988, May 21, 2001 and April 19, 2005 Conditional Plan of Operation Approvals to include the expanded Kenowski Clay borrow source at the Veolia ES Seven Mile Creek, Sector 2 Landfill, subject to the following conditions:

1. The approved clay from the Kenowski Clay Borrow Site is limited to the area presented on the isopach map shown on Plan Sheet Four of the February 5, 2008 submittal. The isopach map also includes the initial approved area. Plan sheet four is dated February 2008.
2. Removal of the clay shall be observed by a soil technician under the supervision of an engineer or geologist familiar with the soils characteristics.
3. Documentation shall be provided on the areal and vertical extent of the clay removed from Kenowski Clay Borrow Site. The documentation shall be included as part of the construction documentation for liner or capping activities at the Veolia ES Seven Mile Creek Landfill.

The Department reserves the right to require the submittal of additional information and to modify this approval at any time, if in the Department's opinion, modifications are necessary. Unless specifically noted, the conditions of this approval do not supersede or replace any previous conditions of approval for this facility.

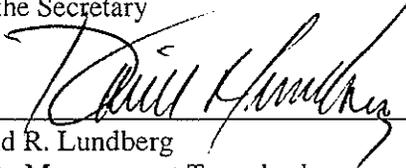
NOTICE OF APPEAL RIGHTS

If you believe that you have the right to challenge this decision, you should know that Wisconsin statutes, administrative codes and case law establish time periods and requirements for reviewing Department decisions.

To seek judicial review of the Department's decision, sections 227.52 and 227.53, Wis. Stats., establish criteria for filing a petition for judicial review. Such a petition shall be filed with the appropriate circuit court and shall be served on the Department. The petition shall name the Department of Natural Resources as the respondent.

Dated: April 14, 2008

DEPARTMENT OF NATURAL RESOURCES
For the Secretary



David R. Lundberg
Waste Management Team leader
West Central Region



Martin Herrick, P.E.
Environmental Engineer
West Central Region