Remedial Investigation Report of the Luzerne Road Site Queensbury, New York

Contract Number: D003493
Task Order No. 16

Volume II
Appendix A – F

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Prepared for:

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A

Photolog

Table A-1 Photographic Log of RI Activities at the Luzerne Road Landfill Site, Queensbury, New York

Camera: Kodak DC-240 Zoom Photographer: J. Nickerson (unless otherwise noted)		
Photo	**Date**	**Description**
LR-01	9/28/99	Main site entrance road showing PCB landfill cell in background. Note MW6 cluster located on left (western) side of road.
LR-02	8/19/99	Sign posted on PCB landfill cell eastern perimeter fence. Note black manhole cover on cell top. Photographed facing northeast from western area.
LR-03	8/4/99	Northern portion of Western Area as seen standing at southwest corner of landfill cell fence, facing northwest. Note survey grid stakes in field.
LR-04	8/4/99	Western cell fence and eastern portion of Western Area. Note topographic drop west of fence. Historical data indicates this is eastern border of area excavated during the 1979 remediation activities.
LR-05	8/4/99	Northern Area, as seen facing west when positioned northeast of PCB landfill Cell. Note fence along northern side of PCB cell and northern access road.
LR-06	8/5/99	Proximity of Glens Falls Landfill (treed area) to Western Area. Note western fence of PCB cell on right side of photo.
LR-07	5/6/99	Borrow pit now containing wetland vegetation; located north of Northern Area. Note steep embankments along wetland area perimeter. View adjacent to monitoring well MW101-5, at Glens Falls Landfill eastern toe.
LR-08	8/19/99	Geoprobe ®DPT drill unit set up in eastern area, along eastern PCB Cell perimeter fence. Note borehole locations are offset from staked locations due to insufficient operating space between fence and stakes.
LR-09	8/19/99	Geoprobe ® soil boring sleeve containing a thin (approx. 1") silt layer overlying the brown medium sand found throughout much of the site.
LR-10	8/26/99	Split spoon sample collected from the saturated zone of groundwater monitoring well boring MW1S. Note color variation within sand.
LR-11	8/17/99	Electrical insulator fragments found at ground surface in western side of southern area, approximately half way between the southern landfill cell fence and Luzerne Road.
LR-12	8/17/99	Capacitor found in woods, east of old foundation. Analysis of surface soil collected in the area of this unit revealed the presence of significant PCB concentrations.
LR-13	8/12/99	Soil core sleeve showing silt lens underlying the medium

Table A-1 Photographic Log of RI Activities at the Luzerne Road Landfill Site, Queensbury, New York

Camera: Kodak DC-240 Zoom Photographer: J. Nickerson (unless otherwise noted)		
Photo	**Date**	**Description**
		sands of the area.
LR-14	8/19/99	Groundwater elevation monitoring point PCB-E-1, located on west side of PCB landfill cell, within cell perimeter fence. View facing southeast from central eastern side of Western area.
LR-15	9/2/99	Air rotary drill rig and support truck operating at the MW6 cluster along west side of the main site access road.
LR-16	9/28/99	Monitoring well MW1 cluster; southwest corner of PCB landfill cell shown in background. Front-end loader was being used to transport drums of soil cuttings, development water, and purge water staging area located within the confines of the PCB landfill cell fence.
LR-17	9/27/99	Watera® pump developing intermediate groundwater monitoring well MW1I. The 55-gallon drums contain soil cuttings and development water.
LR-18	9/28/99	Drums containing soil cuttings, development water, and purge water staged at the southwest corner of the PCB landfill cell, south of the main cell fill area yet within the cell perimeter fence.
LR-19	10/6/99	Equipment set up to conduct step drawn tests (a type of aquifer testing) at the MW6 cluster.
LR-20	6/99	Cross section view at Hudson River bank east of site, showing sand overlying gray clay layer. Note clay-covered boulders in foreground. (Note: Photo by John Robinson, YEC Engineers)

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LR-1

LR-2

LR-3

LR-4

LR-5

LR-6

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LR-7

LR-8

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LR-9

LR-10

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LR-11

LR-12

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LR-13

LR-14

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LR-15

LR-16

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LR-17

LR-18

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LR-19

LR-20

B

Summary of Standard Penetration Test Data

Table B-1 Summary of Standard Penetration Tests from Monitoring Well Boreholes, Luzerne Road Landfill Site

Borehole Number	Split Spoon Number	Depth Interval (ft. bgs)	Number of Blows per Foot		Relative Density[a]
MW-1	1	.5-1.5	16	Brown silty loam over medium-grained brown sand with some organics	Medium
	2	2.5-3.5	21	Brown medium-grain sand grading to coarse sand/gravel	Medium
	3	4.5-5.5	20	Brown medium grained damp sand	Medium
	4	6.5-7.5	20	Brown fine-medium-grained varved, damp sand. Varves dark sand 1/8" thick about every 2"	Medium
	5	8.5-9.5	18	Brown, damp fine/medium-grained sand with garnet varves	Medium
	6	10.5-11.5	15	Brown fine/medium-grained sand	Medium
	7	12.5-13.5	14	Brown fine/medium-grained sand	Medium
	8	14.5-15.5	13	Brown fine-grained-sand grading into dark brown, moist silt	Medium
	9	16.5-17.5	15	Brown silt to fine-grained sand	Medium
	10	18.5-19.5	11	Brown fine-grained sand wet at 19' with minor amount of clay present (<5%)	Medium
	11	20.5-21.5	10	Intermittent fine-grained sand and silt with clay lens	Loose
MW-2	1	0.5-1.5	3	Brown organic silty loam turning to silty sand	Loose
	2	2.5-3.5	15	Silty sand grading to fine/medium-grained brown sand with varves at 1" intervals starting at 3'	Medium
	3	4.5-5.5	21	Brown fine/medium-grained sand with varves at 1" intervals	Medium
	4	6.5-7.5	18	Fine/medium-grained light brown, damp sand	Medium
	5	8.5-9.5	13	Fine/medium-grained light brown, damp sand	Medium
	6	10.5-11.5	11	Fine/medium-grained light brown, damp sand	Medium
	7	12.5-13.5	13	Fine/medium-grained light brown, damp sand with iron staining at 13.5'	Medium
	8	14.5-15.5	14	Fine/medium-grained light brown, damp sand	Medium
	9	16.5-17.5	11	Fine/medium-grained light brown, damp sand with water at 17.8'	Medium

Table B-1 Summary of Standard Penetration Tests from Monitoring Well Boreholes, Luzerne Road Landfill Site

Borehole Number	Split Spoon Number	Depth Interval (ft. bgs)	Number of Blows per Foot		Relative Density[a]
MW-2	10	18.5-19.5	10	Medium-grained sand grading to coarse sand at 19' and back to medium-grained gray sand	Loose
	11	20.5-21.5	4	Medium-grained, wet gray sand	Loose
MW-3	1	0.5-1.5	11	Dark brown organic sandy silt loam to red/brown fine-grained sand	Medium
	2	2.5-3.5	12	Fine/medium-grained damp sand with bands of iron staining	Medium
	3	4.5-5.5	18	Fine/medium-grained damp sand with bands of iron staining	Medium
	4	6.5-7.5	30	Light brown fine/medium-grained sand	Medium
	5	8.5-9.5	7	Brown fine/medium-grained damp sand with intermittent gravel	Loose
	6	10.5-11.5	8	Brown fine/medium-grained damp sand with intermittent gravel	Loose
	7	12.5-13.5	13	Brown fine/medium-grained damp sand grading to coarse sand	Medium
	8	14.5-15.5	17	Brown coarse-grained damp sand with intermittent gravel	Medium
	9	16.5-17.5	14	Brown medium-grained damp sand	Medium
	10	18.5-19.5	12	Medium/coarse-grained damp sand	Medium
	11	20.5-21.5	8	Medium/coarse-grained damp sand saturated at 21'	Loose
	12	22.5-23.5	14	Medium/coarse-grained saturated sand with gravel	Medium
	13	24.5-25.5	14	Brown medium-grained sand	Medium
MW-4	1	.5-1.5	12	Orangish brown coarse-grained sand	Medium
	2	2.5-3.5	11	Brown coarse-grained sand	Medium
	3	4.5-5.5	11	Medium/coarse-grained sand with some gravel	Medium
	4	6.5-7.5	11	Light-brown medium/coarse-grained sand with some gravel	Medium
	5	8.5-9.5	14	Light-brown medium-grained sand	Medium
	6	10.5-11.5	14	Light-brown medium-grained sand	Medium
	7	12.5-13.5	14	Brown fine-grained sand	Medium
	8	14.5-15.5	10	Light-brown fine-grained sand	Loose
	9	16.5-17.5	20	Brown fine-grained sand	Medium
	10	18.5-19.5	21	Brown fine-grained sand	Medium

Table B-1 Summary of Standard Penetration Tests from Monitoring Well Boreholes, Luzerne Road Landfill Site

Borehole Number	Split Spoon Number	Depth Interval (ft. bgs)	Number of Blows per Foot		Relative Density[a]
	11	20.5-21.5	16	Brown fine-grained sand	Medium
MW-6	1	0.5-1.5	23	Orange-brown coarse-grained sand	Medium
	2	2.5-3.5	8	Brown coarse-grained sand	Loose
	3	4.5-5.5	8	Medium/coarse-grained sand with some gravel	Loose
	4	6.5-7.5	12	Light-brown medium/coarse-grained sand with some gravel	Medium
	5	8.5-9.5	13	Light-brown medium grained sand	Medium
	6	10.5-11.5	11	Light-brown medium grained sand	Medium
	7	12.5-13.5	14	Brown fine-grained sand	Medium
	8	14.5-15.5	19	Light-brown fine-grained sand	Medium
	9	16.5-17.5	30	Brown fine-grained sand	Medium
	10	18.5-19.5	15	Brown fine-grained sand	Medium
	11	20.5-21.5	17	Brown fine-grained sand	Medium
	12	22.5-23.5	20	Brown fine-grained sand	Medium
	13	24.5-25.5	25	Brown fine-grained sand	Medium
	14	26.5-27.5	23	Brown fine-grained sand	Medium
	15	28.5-29.5	11	Brown fine-grained sand	Medium
	16	30.5-31.5	16	Brown fine-grained sand	Medium
MW7S	1	0.5 - 1.5	3	Brown topsoil with some medium/fine-grained sand	Loose
	2	2.5 - 3.5	12	Light-brown medium/fine-grained sand	Medium
	3	4.5 - 5.5	16	Light-brown medium/fine-grained sand	Medium
	4	6.5 - 7.5	14	Light-brown medium/fine-grained sand	Medium
	5	8.5 - 9.5	9	Light-brown medium/fine-grained sand	Loose
	6	10.5 - 11.5	9	Light-brown medium/fine-grained sand	Loose
	7	12.5 - 13.5	14	Light-brown medium/fine-grained sand	Medium
	8	14.5 - 15.5	13	Light-brown medium/fine-grained sand	Medium
	9	16.5 - 17.5	11	Light-brown medium/fine-grained sand	Medium
	10	18.5 - 19.5	11	Light-brown medium/fine-grained sand	Medium
	11	20.5 - 21.5	14	Light-brown medium/fine-grained sand	Medium

Table B-1 Summary of Standard Penetration Tests from Monitoring Well Boreholes, Luzerne Road Landfill Site

Borehole Number	Split Spoon Number	Depth Interval (ft. bgs)	Number of Blows per Foot		Relative Density[a]
MW-7	12	22.5 - 23.5	8	Light-brown medium/fine-grained sand	Loose
	13	24.5 - 25.5	14	Light-brown medium/fine-grained sand	Medium
	14	26.5 - 27.5	11	Brown medium/fine-grained sand	Medium
MW8S	1	0.5 - 1.5	3	Light-brown medium/fine-grained sand	Loose
	2	5.5 - 6.5	13	Light-brown medium/fine-grained sand	Medium
	3	10.5 - 11.5	10	Light-brown medium/fine-grained sand	Loose
	4	15.5 - 16.5	15	Light-brown medium/fine-grained sand	Medium
	5	20.5 - 21.5	24	Light-brown medium/fine-grained sand	Medium
	6	25.5 - 26.5	18	Brown topsoil with some medium/fine-grained sand	Medium
MW9S	1	0.5 - 1.5	4	Brown topsoil with little medium/fine-grained sand	Loose
	2	5.5 - 6.5	14	Light-brown medium/fine-grained sand	Medium
	3	10.5 - 11.5	15	Light-brown medium/fine-grained sand	Medium
	4	15.5 - 16.5	15	Light-brown medium/fine-grained sand	Medium
	5	20.5 - 21.5	11	Light-brown medium/fine-grained sand	Medium
	6	25.5 - 26.5	11	Light-brown medium/fine-grained sand	Medium
MW10S	1	0.5 - 1.5	8	Brown-black topsoil with few medium/fine-grained sand	Loose
	2	5.5 - 6.5	8	Light-brown medium/fine-grained sand	Loose
	3	10.5 - 11.5	12	Light-brown medium/fine-grained sand	Medium
	4	15.5 - 16.5	11	Light-brown medium/fine-grained sand	Medium
	5	20.5 - 21.5	11	Light-brown medium/fine-grained sand	Medium
	6	25.5 - 26.5	17	Light-brown medium/fine-grained sand	Medium

Table B-1 Summary of Standard Penetration Tests from Monitoring Well Boreholes, Luzerne Road Landfill Site

Borehole Number	Split Spoon Number	Depth Interval (ft. bgs)	Number of Blows per Foot		Relative Density[a]
MW10S	7	30.5 - 31.5	19	Light-brown medium/fine-grained sand	Medium
MW11S	1	0.5 - 1.5	20	Brown-gray topsoil with some rock fragments	Medium
	2	5.5 - 6.5	13	Light-brown medium/fine-grained sand	Medium
	3	10.5 - 11.5	16	Light-brown medium/fine-grained sand	Medium
	4	15.5 - 16.5	21	Light-brown medium/fine-grained sand	Medium
	5	20.5 - 21.5	19	Light-brown medium/fine-grained sand	Medium
	6	25.5 - 26.5	25	Light-brown medium/fine-grained sand	Medium

a Relative Density:
1-10 = Loose
11-30 = Medium
31-50 = Dense
>50 = Refusal

Key:

bgs = Below ground surface.
ft = Feet.
n.a. = Not available.
WH = Weight of hammer.

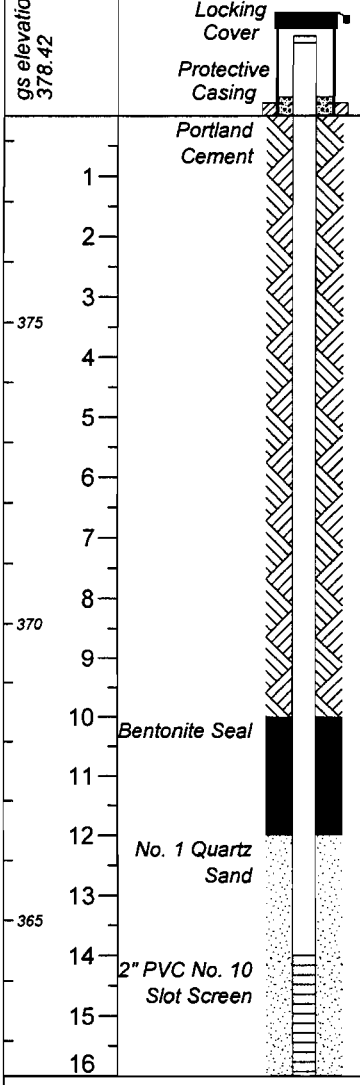
C

Groundwater Monitoring Well Boring Logs

DRILLING LOG OF WELL NO. MW-1S

Project/Location: Luzerne Road Landfill / Glens Falls, NY
Boring Location: West of cell
Northing/Easting: 5198.8819 / 4937.5925
Date Started - Finished: 8/26/99 - 8/27/99
Drilling Company: Applied Earth Tech
Driller/Geologist: P. Mandigo & T. Furnia / J. Nickerson

Total Depth of Hole (feet BGS): 24
Ground Elevation (feet AMSL): 378.42
Groundwater Depth After Drilling / Date: feet BGS ▽ /
Top of Inner Casing (feet AMSL): 380.14



DEPTH	SOIL/ROCK DESCRIPTION	RQD (%)	PENETRATION TIMES	BLOW COUNT	RECOVERY (feet)	OVA (ppm) SAMPLE / HOLE	COMMENTS
	ground surface (gs)						
0.2	TOPSOIL: Brown silty loam, dry, ~25% sand.			5			Well Construction
1	SAND: Medium grained brown sand, damp.			7	1.2	0	Bentonite Seal: 10 - 12 ft bgs
2.0				9			Sand Pack: 12 - 25 ft bgs
2				10			Screen: 14 - 24 ft bgs
	SAND: Fine-medium grained brown sand grading to a medium grained coarse sand, gravel <5%, damp.			10			
3				10	1.2	0	
4.0				11			
4				12			
	SAND: Medium grained brown sand, damp.			10			
5				10	1.2	0.2	
6.0				10			
6				11			
	SAND: Fine-medium varved sand, damp. Varves are dark bands, 1/8" thick with a frequency of 2 per inch.			7			
7				10	1.2	0.6	
8.0				10			
8				11			
9.0	SAND: Fine grained sand.			5			
9				8	1.5	0.4	
	SAND: Fine-medium grained brown sand. At 9'-10': Garnet varves.			10			
10				11			
11				9			
				8	1.8	0	
12				7			
13				10			
				7			
				7	1.9	0	
14				7			
				9			
15				6			
15.1				6			
15.4	SAND: Fine grained brown sand.			7	1.6		
16.0				8			
16							

DRILLING LOG OF WELL NO. MW-1S

Project/Location: Luzerne Road Landfill / Glens Falls, NY

Total Depth of Hole (feet BGS): 24

ELEVATION	DEPTH	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	RQD (%)	PENETRATION TIMES	BLOW COUNT	RECOVERY (feet)	OVA (ppm) SAMPLE / HOLE	COMMENTS
			16.5 SILT: Dark brown fine silt, moist.			7			
			SAND: Silty sand.			7			
	17		SAND: Very fine grained sand, brown.			8	1.8	0	
						10			
360	18					3			
						5			
	19		19.5			6	2	0	Wet at 19' bgs.
			19.8 SILT: Brown fine silt, tight, wet, minor (<5%) clay.			6			
	20					3			
			SILT: Intermittent fine grained sand, silt, and clay. Thin clay lens' at 21.0'. 21.6'; and 21.9'.			5			
	21					5	1.9	0	
						5			
	22		22.0						
			SAND						
355	23								
	24								Bottom of hole at 24' bgs.
			25.0						
	25								
	26								
	27								
	28								
350									
	29								
	30								
	31								
	32								
	33								
345									
	34								
	35								
	36								
	37								
	38								

DRILLING LOG OF WELL NO. MW-1I

Project/Location: Luzerne Road Landfill / Glens Falls, NY

Boring Location: West of cell

Northing/Easting: 5199.2162 / 4928.2863

Date Started - Finished: 09/13/2099 - 09/23/2099

Drilling Company: Michael Parsons Well Drilling

Driller/Geologist: M. Parson / J. Robinson

Total Depth of Hole (feet BGS): 65

Ground Elevation (feet AMSL): 378.39

Groundwater Depth After Drilling / Date: 18.92 feet BGS▽ / 9/20/99

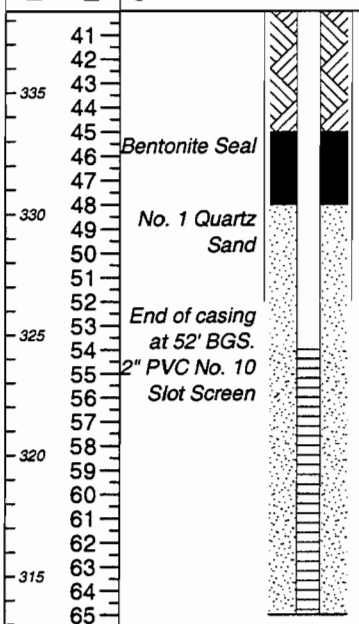
Top of Inner Casing (feet AMSL): 378.93

ELEVATION / DEPTH	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	RQD (%)	PENETRATION TIMES	BLOW COUNT	RECOVERY (feet)	OVA (ppm) SAMPLE / HOLE	COMMENTS
gs elevation 378.39	*Locking Cover*; *Protective Casing*	*ground surface (gs)*						
375 / 1–5	*Portland Cement*	Air hammer used to drive casing. Split spoon samples not taken.						Well Construction Bentonite Seal: 45 - 48 ft bgs Sand Pack: 48 - 64 ft bgs Screen: 54 - 64 ft bgs
370 / 6–10								
365 / 11–15								
360 / 16–20	▽							
355 / 21–25								
350 / 26–30								
345 / 31–35								
340 / 36–40								

DRILLING LOG OF WELL NO. MW-1I

Project/Location: Luzerne Road Landfill / Glens Falls, NY

Total Depth of Hole (feet BGS): 65



ELEVATION	DEPTH	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	RQD (%)	PENETRATION TIMES	BLOW COUNT	RECOVERY (feet)	OVA (ppm) SAMPLE / HOLE	COMMENTS
335	41–45								
330	46–50	Bentonite Seal							
325	51–55	No. 1 Quartz Sand							
320	56–60	End of casing at 52' BGS. 2" PVC No. 10 Slot Screen							
315	61–65								
310	66–70								
305	71–75								
300	76–80								Bottom of borehole at 80' bgs. Naturally backfilled to 65' bgs.
295	81–85								
290	86–90								
285	91–95								

DRILLING LOG OF WELL NO. MW-1D

Project/Location: Luzerne Road Landfill / Glens Falls, NY

Boring Location: West of cell

Northing/Easting: 5185.7399 / 4933.8183

Date Started - Finished: 09/14/2099 - 09/22/2099

Drilling Company: Michael Parsons Well Drilling

Driller/Geologist: M. Parson / J. Robinson

Total Depth of Hole (feet BGS): 82.5

Ground Elevation (feet AMSL): 378.15

Groundwater Depth After Drilling / Date: 17.13 feet BGS▽ / 9/20/99

Top of Inner Casing (feet AMSL): 379.4

ELEVATION	DEPTH	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	RQD (%)	PENETRATION TIMES	BLOW COUNT	RECOVERY (feet)	OVA (ppm) SAMPLE / HOLE	COMMENTS
gs elevation 378.15		Locking Cover; Protective Casing	ground surface (gs)						
375	1–5	Portland Cement	No split spoon samples collected. Air hammer used to drive casing. Sand down to ~81' bgs. At 81' bgs, gray clay cuttings.						Well Construction Bentonite Seal: 62 - 67 ft bgs Sand Pack: 67 - 90 ft bgs Screen: 72.5 - 82.5 ft bgs
370	6–10								
365	11–15								
360	16–20								
355	21–25								
350	26–30								
345	31–35								
340	36–40								
335	41–45								

DRILLING LOG OF WELL NO. MW-1D

Project/Location: Luzerne Road Landfill / Glens Falls, NY

Total Depth of Hole (feet BGS): 82.5

ELEVATION	DEPTH	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	RQD (%)	PENETRATION TIMES	BLOW COUNT	RECOVERY (feet)	OVA (ppm) SAMPLE / HOLE	COMMENTS
330	46–48								
325	49–53								
320	54–58								
315	59–63	Bentonite Seal							
310	64–68	No. 1 Quartz Sand							
305	69–73	End of casing at 70.5' BGS. 2" PVC No. 10 Slot Screen							
300	74–78								
295	79–83								
290	84–88								
285	89–93								
280	94–98								
275	99–103								
	104–108								Bottom of borehole at 90' bgs. Naturally backfilled to 82.5' bgs.

DRILLING LOG OF WELL NO. MW-2S

Project/Location: Luzerne Road Landfill / Glens Falls, NY
Boring Location: Glens Falls Landfill eastern toe
Northing/Easting: 5386.8427 / 4819.1278
Date Started - Finished: 8/27/99 - 8/27/99
Drilling Company: Applied Earth Tech
Driller/Geologist: P. Mandigo / J. Nickerson

Total Depth of Hole (feet BGS): 23
Ground Elevation (feet AMSL): 378.57
Groundwater Depth After Drilling / Date: feet BGS ▽ /
Top of Inner Casing (feet AMSL): 380.53

ELEVATION / DEPTH	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	RQD (%)	PENETRATION TIMES	BLOW COUNT	RECOVERY (feet)	OVA (ppm) SAMPLE / HOLE	COMMENTS
gs elevation 378.57	Locking Cover; Protective Casing	ground surface (gs)						
0	Portland Cement	TOPSOIL: Brown organic silty loam with ~20% sand, dry.			1 1 2 2	0.8	0.8	Well Construction Bentonite Seal: 9 - 11 ft bgs Sand Pack: 11 - 23 ft bgs Screen: 13 - 23 ft bgs
1.0		SAND: Silty sand, light, grading to fine-medium grained sand, varved at 1" intervals, dry becoming damp at 2'.			3 6 9 10	1	.2	
375 4					10 10 11 11	2	0	
6.0		SAND: Fine-medium grained light brown sand, no varving, no inclusions, damp becoming moist at 15'.			7 8 10 11	2	0	
370 9	Bentonite Seal				7 8 5 6	1.6	0	
11	No. 1 Quartz Sand				5 6 5 6	1.7	0	
13	2" PVC No. 10 Slot Screen	At 13.5'-14': Some iron staining.			5 6 7 8	1.5	0	
365 14					5 6 8 7	1.6	0	
15 16								

DRILLING LOG OF WELL NO. MW-2S

Project/Location: Luzerne Road Landfill / Glens Falls, NY

Total Depth of Hole (feet BGS): 23

ELEVATION	DEPTH	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	RQD (%)	PENETRATION TIMES	BLOW COUNT	RECOVERY (feet)	OVA (ppm) SAMPLE / HOLE	COMMENTS
	17		SAND: Fine-medium grained light brown sand, moist.			5 5 6 6	1.6	2	
	18		18.0						
360	19		SAND: Medium grained grading to coarse at 19', then grading to medium at 19.4, grades to gray at 19'-20'.			4 5 5 6	1.8	8	Wet at 18' bgs.
	20		20.0						
	21		SAND: Medium grained gray sand, wet. Running sands encountered.			1 1 3 5	1.2	7	
	22								
	23		23.0						Bottom of hole at 23' bgs.
355	24								
	25								
	26								
	27								
	28								
350	29								
	30								
	31								
	32								
	33								
345	34								
	35								
	36								
	37								
	38								

DRILLING LOG OF WELL NO. MW-3S

Project/Location: Luzerne Road Landfill / Glens Falls, NY
Boring Location: North of cell
Northing/Easting: 5440.3066 / 5015.3179
Date Started - Finished: 8/30/99 - 8/30/99
Drilling Company: Applied Earth Tech
Driller/Geologist: P. Mandigo & T. Furnia / J. Nickerson

Total Depth of Hole (feet BGS): 26
Ground Elevation (feet AMSL): 380.94
Groundwater Depth After Drilling / Date: feet BGS ▽ /
Top of Inner Casing (feet AMSL): 382.61

ELEVATION	DEPTH	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	RQD (%)	PENETRATION TIMES	BLOW COUNT	RECOVERY (feet)	OVA (ppm) SAMPLE / HOLE	COMMENTS
gs elevation 380.94		Locking Cover; Protective Casing	ground surface (gs)						
		Portland Cement	0.8 TOPSOIL: Organic dark brown sandy silt loam.			2 2 9 9	0.8	0	Well Construction Bentonite Seal: 11.5 - 14 ft bgs Sand Pack: 14 - 26 ft bgs Screen: 16 - 26 ft bgs
380	1		2.0 SAND: Dry reddish brown fine grained sand with medium sand 10-15%.						
	2		SAND: Fine-medium grained sand with bands of iron (rust) staining 0.2' thick at 2.2', 3.6', and 5.0'-5.5', damp.			5 5 7 10	1	0	
	3								
	4					7 8 10 15	1.2	0	
	5								
375	6		6.0 SAND: Fine-medium grained sand, no staining, light brown, damp.			10 15 15 15	1.2	0	
	7								
	8		8.0 SAND: Fine-medium grained medium brown damp sand, trace gravel.			5 3 4 5	1.4	0	
	9								
	10					4 4 4 7	1.4	0	
370	11								
	12	Bentonite Seal	12.5			6 7 6 7	1.2		
	13		SAND: Coarse grained sand with some fine grained sand, damp.						
	14	No. 1 Quartz Sand	14.0 SAND: Medium brown, coarse grained sand with rounded gravel, damp.			7 8 9 10	1.4	0	
	15								
	16		16.0						

DRILLING LOG OF WELL NO. MW-3S

Project/Location: Luzerne Road Landfill / Glens Falls, NY

Total Depth of Hole (feet BGS): 26

ELEVATION	DEPTH	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	RQD (%)	PENETRATION TIMES	BLOW COUNT	RECOVERY (feet)	OVA (ppm) SAMPLE / HOLE	COMMENTS
	17	2" PVC No. 10 Slot Screen	SAND: Medium grained sand, medium brown, damp becoming moist at 17'.			9 7 7 6	1.4	0	
	18		18.0						
	19		SAND: Medium-coarse grained sand, medium brown, moist becoming wet at 21'.			6 6 6 7	1.6	0	
	20								
360	21					5 4 4 3	1.4	0	Wet at 21' bgs.
	22		At 22'-24.5': Minor gravel (<5%).						
	23					5 7 7 8	1.5	0	
	24		24.5						
	25		SAND: Medium grained brown sand.			5 7 7 5	1.7	0	
355	26		26.0						
	27								Bottom of hole at 27' bgs.
	28								
	29								
	30								
350	31								
	32								
	33								
	34								
	35								
345	36								
	37								
	38								

DRILLING LOG OF WELL NO. MW-4S

Project/Location: Luzerne Road Landfill / Glens Falls, NY
Boring Location: East of cell
Northing/Easting: 5192.4231 / 5479.5404
Date Started - Finished: 9/3/99 - 9/3/99
Drilling Company: Applied Earth Tech
Driller/Geologist: P. Mandigo / J. Nickerson

Total Depth of Hole (feet BGS): 28
Ground Elevation (feet AMSL): 375.35
Groundwater Depth After Drilling / Date: feet BGS ▽ /
Top of Inner Casing (feet AMSL): 376.87

ELEVATION / DEPTH	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	RQD (%)	PENETRATION TIMES	BLOW COUNT	RECOVERY (feet)	OVA (ppm) SAMPLE / HOLE	COMMENTS
gs elevation 375.35	Locking Cover; Protective Casing	ground surface (gs)						
375 / 0	Portland Cement	TOPSOIL: Organic silty loam. 0.8			3 6 6 6	1	12	Well Construction Bentonite Seal: 12 - 14 ft bgs Sand Pack: 14 - 28 ft bgs Screen: 16 - 26 ft bgs
1		SAND: Silty fine grained yellow sand, dry. 2.0						
2		SAND: Fine grained yellow sand, changing to medium grained light brown sand with 5% coarse sand. 4.0			5 6 5 7	1.4	.8	
3		SAND: Fine-medium grained sand, light brown, damp, no inclusions.			5 6 5 6	1.8	0	
4					5 5 6 7	1.8	0	
5 / 370					6 7 7 6	1.9	0	
6					6 7 7 11	1.8	0	
7		At 12'-14': Becoming slightly coarser (coarse still <5%).			6 7 7 10	1.8	0	
8					4 4 6 7	1.96	0	
9								
10 / 365								
11								
12	Bentonite Seal							
13		At 14'-16': Becomes fine-medium grained with fine grained ~75%, light, tight, moist.						
14	No. 1 Quartz Sand							
15								
16 / 360		16.0						

DRILLING LOG OF WELL NO. MW-4S

Project/Location: Luzerne Road Landfill / Glens Falls, NY

Total Depth of Hole (feet BGS): 28

ELEVATION	DEPTH	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	RQD (%)	PENETRATION TIMES	BLOW COUNT	RECOVERY (feet)	OVA (ppm) SAMPLE / HOLE	COMMENTS
	17	2" PVC No. 10 Slot Screen	SAND: Fine grained sand with medium ~10%. At 17'-18': Bands of garnet sand 0.05' thick, moist.			7 10 10 12		0	
	18		18.0						
	19		SAND: Fine grained moist brown sand.			12 11 10	1.8	0	
355	20		20.0			12			
	21		SAND: Fine-very fine grained wet brown sand. Satuarated at 21' bgs, much pyrite in sands.			8 7 9	1.9		Wet at 21' bgs.
	22		22.0			11			
	23								
	24								
350	25								
	26								
	27								
	28								Bottom of hole at 28' bgs.
	29								
	30								
345	31								
	32								
	33								
	34								
	35								
340	36								
	37								
	38								

DRILLING LOG OF WELL NO. MW-5S

Project/Location: Luzerne Road Landfill / Glens Falls, NY
Boring Location: South of cell
Northing/Easting: 4951.8476 / 5308.5015
Date Started - Finished: 8/30/99 - 8/31/99
Drilling Company: Applied Earth Tech
Driller/Geologist: P. Mandigo / J. Nickerson

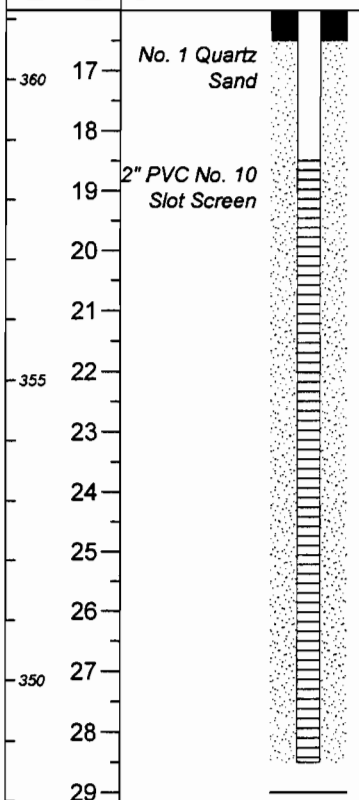
Total Depth of Hole (feet BGS): 29
Ground Elevation (feet AMSL): 377.15
Groundwater Depth After Drilling / Date: feet BGS ▽ /
Top of Inner Casing (feet AMSL): 378.75

ELEVATION / DEPTH	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	RQD (%)	PENETRATION TIMES	BLOW COUNT	RECOVERY (feet)	OVA (ppm) SAMPLE / HOLE	COMMENTS
gs elevation 377.15	Locking Cover; Protective Casing	ground surface (gs)						
375 / 1–2	Portland Cement	NOT SAMPLED, SEE LOG FROM GEOPROBE S-307.						0'-26' not sampled, see log from geoprobe S-307. Well Construction Bentonite Seal: 14.5 - 16.5 ft bgs Sand Pack: 16.5 - 28.5 ft bgs Screen: 18.5 - 28.5 ft bgs
3–4								
5–6								
370 / 7–8								
9–10								
11–12								
365 / 13–14								
15–16	Bentonite Seal							

DRILLING LOG OF WELL NO. MW-5S

Project/Location: Luzerne Road Landfill / Glens Falls, NY

Total Depth of Hole (feet BGS): 29



ELEVATION	DEPTH	SOIL/ROCK DESCRIPTION	RQD (%)	PENETRATION TIMES	BLOW COUNT	RECOVERY (feet)	OVA (ppm) SAMPLE / HOLE	COMMENTS
360	17							
	18							
	19							
	20							
	21							
355	22							
	23							Wet at 23' bgs.
	24							
	25							
	26	26.0						
		26.5 SAND: Fine-medium grained sand, brown.			8			26'-28': Split spoon sample.
		26.8 SILT: Dark brown sandy silt.			10			
350	27	SAND: Fine tapering to very fine			12	1.5	0.5	
	28	28.0 brown sand.			14			
	29							Bottom of hole at 29' bgs.
	30							
	31							
345	32							
	33							
	34							
	35							
	36							
340	37							
	38							

DRILLING LOG OF WELL NO. MW-5I

Project/Location: Luzerne Road Landfill / Glens Falls, NY
Boring Location: South of cell
Northing/Easting: 4957.6813 / 5300.341
Date Started - Finished: 09/02/2099 - 09/02/2099
Drilling Company: Applied Earth Tech
Driller/Geologist: P. Mandigo & T. Furnia / J. Robinson

Total Depth of Hole (feet BGS): 66
Ground Elevation (feet AMSL): 377.35
Groundwater Depth After Drilling / Date: 21.3 feet BGS ▽ / 9/20/99
Top of Inner Casing (feet AMSL): 379.55

ELEVATION / DEPTH	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	RQD (%)	PENETRATION TIMES	BLOW COUNT	RECOVERY (feet)	OVA (ppm) SAMPLE / HOLE	COMMENTS
gs elevation 377.35	*Locking Cover*, *Protective Casing*, *Portland Cement*	*ground surface (gs)*						
375 / 1–5		Not sampled, see log from geoprobe S-307. Drilled (augered) to 66', drove plug out, lead augered, sand into augers 15' from bottom (very fine running sand).						Well Construction Bentonite Seal: 47 - 53 ft bgs Sand Pack: 53 - 66 ft bgs Screen: 56 - 66 ft bgs
370 / 6–10								
365 / 11–15								
360 / 16–20								
355 / 21–25 ▽								
350 / 26–30								

DRILLING LOG OF WELL NO. MW-5I

Project/Location: Luzerne Road Landfill / Glens Falls, NY

Total Depth of Hole (feet BGS): 66

ELEVATION	DEPTH	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	RQD (%)	PENETRATION TIMES	BLOW COUNT	RECOVERY (feet)	OVA (ppm) SAMPLE / HOLE	COMMENTS
345	31–32								
	33–34								
	35–36								
340	37–38								
	39–40								
	41–42								
335	43–44								
	45–46								
	47	Bentonite Seal							
330	48–49								
	50–51								
	52								
325	53	No. 1 Quartz Sand							
	54–55								
	56	2" PVC No. 10 Slot Screen							
320	57–58								
	59–60								
	61–62								
315	63–64								
	65–66								
	67–68								Bottom of hole at 67' bgs. Naturally backfilled to 66' bgs.
310	69–70								
	71–72								

DRILLING LOG OF WELL NO. MW-5D

Project/Location: Luzerne Road Landfill / Glens Falls, NY

Boring Location: South of cell

Northing/Easting: 4961.7387 / 5305.8318

Date Started - Finished: 9/4/99 - 9/4/99

Drilling Company: Applied Earth Tech

Driller/Geologist: M. Pearson / J. Robinson

Total Depth of Hole (feet BGS): 89

Ground Elevation (feet AMSL): 376.71

Groundwater Depth After Drilling / Date: 19.92 feet BGS▽ / 9/20/99

Top of Inner Casing (feet AMSL): 377.46

ELEVATION	DEPTH	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	RQD (%)	PENETRATION TIMES	BLOW COUNT	RECOVERY (feet)	SAMPLE / HOLE	OVA (ppm)	COMMENTS
gs elevation 376.71		Locking Cover; Protective Casing	ground surface (gs)							
375	1	Portland Cement	Split spoon sampling not performed. Air hammer used to drive casing to 89' BGS. Clay encountered at 82' BGS.							Well Construction Bentonite Seal: 64 - 68 ft bgs Sand Pack: 68 - 89 ft bgs Screen: 74 - 84 ft bgs
	2									
	3									
	4									
	5									
370	6									
	7									
	8									
	9									
	10									
365	11									
	12									
	13									
	14									
	15									
360	16									
	17									
	18									
	19									
	20									
355	21									
	22									
	23									
	24									
	25									
350	26									
	27									
	28									
	29									
	30									
345	31									
	32									
	33									
	34									
	35									
340	36									
	37									
	38									
	39									
	40									
335	41									
	42									
	43									
	44									
	45									

DRILLING LOG OF WELL NO. MW-5D

Project/Location: Luzerne Road Landfill / Glens Falls, NY

Total Depth of Hole (feet BGS): 89

ELEVATION	DEPTH	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	RQD (%)	PENETRATION TIMES	BLOW COUNT	RECOVERY (feet)	OVA (ppm) SAMPLE / HOLE	COMMENTS
330	46 47 48 49 50 51								
325	52 53 54 55 56								
320	57 58 59 60 61								
315	62 63 64								
	65	*Bentonite Seal*							
310	66 67 68								
	69 70	*No. 1 Quartz Sand*							
	71	*End of casing at 70' BGS.*							
305	72 73 74								
	75	*2" PVC No. 10 Slot Screen*							
300	76 77 78 79 80								
295	81 82 83 84 85								
290	86 87 88 89 90								Bottom of borehole at 89' bgs.
285	91 92 93 94 95								
280	96 97 98 99 100								
275	101 102 103 104 105								
270	106 107 108								

DRILLING LOG OF WELL NO. MW-6S

Project/Location: Luzerne Road Landfill / Glens Falls, NY

Boring Location: South of southwest corner of cell

Northing/Easting: 4915.0748 / 4986.2587

Date Started - Finished: 8/23/99 - 8/24/99

Drilling Company: Applied Earth Tech

Driller/Geologist: T. Furnia / J. Nickerson

Total Depth of Hole (feet BGS): 28

Ground Elevation (feet AMSL): 380.68

Groundwater Depth After Drilling / Date: feet BGS ▽ /

Top of Inner Casing (feet AMSL): 382.08

ELEVATION	DEPTH	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	RQD (%)	PENETRATION TIMES	BLOW COUNT	RECOVERY (feet)	OVA (ppm) SAMPLE / HOLE	COMMENTS
gs elevation 380.68		Locking Cover; Protective Casing	ground surface (gs)						
380	1	Portland Cement	0.4 TOPSOIL: Silty brown organic loam, dry. 1.2 GRAVEL SAND: Brown silty fine sand, dry.			5 11 12 8	0.5	0	Well Construction Bentonite Seal: 12 - 14 ft bgs Sand Pack: 14 - 28 ft bgs Screen: 16 - 26 ft bgs
	2								
	3					5 4 4 4	1.8	0.2	
	4		4.0 SAND: Brown fine sand, damp with some pebbles at 5'-6'.						
375	5					5 4 4 5	1.8	0	
	6					6 6 6 7	1.5	0	
	7								
	8								
	9		9.0 SAND: Brown medium-coarse grained sand, damp.			6 6 7 7	1.4	0	
	10								
370	11		11.0 SAND: Brown fine-medium grained sand. At 11.5'-11.7': Red garnet sand layer, moist, minor coarse gravel (<10%). At 12'-15': Damp, no gravel.			4 5 6 6	1.5	0	
	12	Bentonite Seal				6 6 8 9	1.5	0	
	13								
	14	No. 1 Quartz Sand				7 8 11 16	1.3	0	
	15		At 15': Moist.						
365	16								

DRILLING LOG OF WELL NO. MW-6S

Project/Location: Luzerne Road Landfill / Glens Falls, NY

Total Depth of Hole (feet BGS): 28

ELEVATION	DEPTH	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	RQD (%)	PENETRATION TIMES	BLOW COUNT	RECOVERY (feet)	OVA (ppm) SAMPLE / HOLE	COMMENTS
		2" PVC No. 10 Slot Screen	SAND: Brown fine-medium grained sand (continued).			15 16 14 15	1.9	0	
	17		17.0 At 17': Grading to fine sand.						
	18		SAND: Dark brown fine to very fine sand, no inclusions, damp-moist, minor tight silt lens.			5 7 8 7	1.8	0	
	19								
	20		20.0						
360	21		SAND: Very fine grained dark brown sand. Water at 20.8'.			7 8 9 9	1.9	0	Wet at 20.8' bgs.
	22		22.0						
	23		SAND: Very fine grained brown sand, much pyrite, saturated.			7 10 10 7	1.9	0	
	24		24.0						
	25		SAND: Fine grained brown sand.			14 15 10 12	1.8	0	
355	26		25.6 26.0 SILT: Tight saturated silt.						
	27		SAND: Brown fine grained silty sand, wet. At 27.8'-28': Tight saturated silt.			7 8 15 16	1.8	0	
	28		28.0						
	29		SAND: Dark brown sand, no silt, saturated.			4 6 5 5	1.8	0	Bottom of hole at 28' bgs.
	30		29.5 30.0 SAND: Saturated fine sand.						
350	31					5 8 8 5	1.6	0.8	
	32								
	33								
	34								
	35								
345	36								
	37								
	38								

DRILLING LOG OF WELL NO. MW-6I

Project/Location: Luzerne Road Landfill / Glens Falls, NY
Boring Location: South of southwest corner of cell
Northing/Easting: 4909.9611 / 4984.2732
Date Started - Finished: 8/25/99 - 8/26/99
Drilling Company: Applied Earth Tech
Driller/Geologist: P. Mandigo & T. Furnia / J. Nickerson

Total Depth of Hole (feet BGS): 65
Ground Elevation (feet AMSL): 380.49
Groundwater Depth After Drilling / Date: 22.54 feet BGS▽ / 9/20/99
Top of Inner Casing (feet AMSL): 382.34

ELEVATION / DEPTH	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	RQD (%)	PENETRATION TIMES	BLOW COUNT	RECOVERY (feet)	OVA (ppm) SAMPLE / HOLE	COMMENTS
gs elevation 380.49	Locking Cover; Protective Casing	ground surface (gs)						
380 / 0	Portland Cement	Did not split spoon sample. Same lithology as in MW-6S. Encountered saturated fine grained brown sand to 85'. Set well at 65'-55', allowed natural sand cave in to 65'.						Well Construction Bentonite Seal: 46 - 49.7 ft bgs Sand Pack: 49.7 - 65 ft bgs Screen: 55 - 65 ft bgs
1								
2								
3								
4								
375 / 5								
6								
7								
8								
9								
370 / 10								
11								
12								
13								
14								
365 / 15								
16								

DRILLING LOG OF WELL NO. MW-6I

Project/Location: Luzerne Road Landfill / Glens Falls, NY

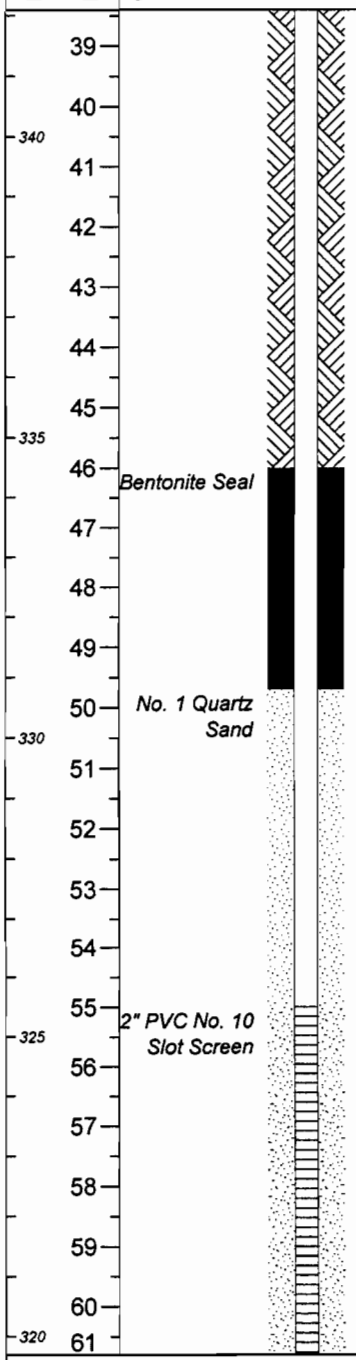
Total Depth of Hole (feet BGS): 65

ELEVATION	DEPTH	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	RQD (%)	PENETRATION TIMES	BLOW COUNT	RECOVERY (feet)	OVA (ppm) SAMPLE / HOLE	COMMENTS
	17								
	18								
	19								
	20								
360	21								
	22								
	23								
	24								
	25								
355	26								
	27								
	28								
	29								
	30								
350	31								
	32								
	33								
	34								
	35								
345	36								
	37								
	38								

DRILLING LOG OF WELL NO. MW-6I

Project/Location: Luzerne Road Landfill / Glens Falls, NY

Total Depth of Hole (feet BGS): 65



SOIL/ROCK DESCRIPTION	RQD (%)	PENETRATION TIMES	BLOW COUNT	RECOVERY (feet)	OVA (ppm) SAMPLE / HOLE	COMMENTS

DRILLING LOG OF WELL NO. MW-6I

Project/Location: Luzerne Road Landfill / Glens Falls, NY

Total Depth of Hole (feet BGS): 65

ELEVATION	DEPTH	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	RQD (%)	PENETRATION TIMES	BLOW COUNT	RECOVERY (feet)	OVA (ppm) SAMPLE / HOLE	COMMENTS
	61								
	62								
	63								
	64								
	65								Bottom of hole at 65' bgs.
315	66								
	67								
	68								
	69								
	70								
310	71								
	72								
	73								
	74								
	75								
305	76								
	77								
	78								
	79								
	80								
300	81								
	82								
	83								

DRILLING LOG OF WELL NO. MW-6D

Project/Location: Luzerne Road Landfill / Glens Falls, NY

Boring Location: South of southwest corner of cell

Northing/Easting: 4919.6922 / 4984.142

Date Started - Finished: 09/02/2099 - 09/02/2099

Drilling Company: Michael Parsons Well Drilling

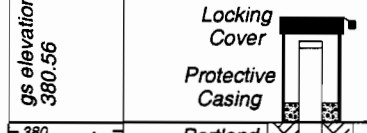
Driller/Geologist: M. Parson / J. Nickerson

Total Depth of Hole (feet BGS): 108

Ground Elevation (feet AMSL): 380.56

Groundwater Depth After Drilling / Date: 50.8 feet BGS ▽ / 9/20/99

Top of Inner Casing (feet AMSL): 381.84

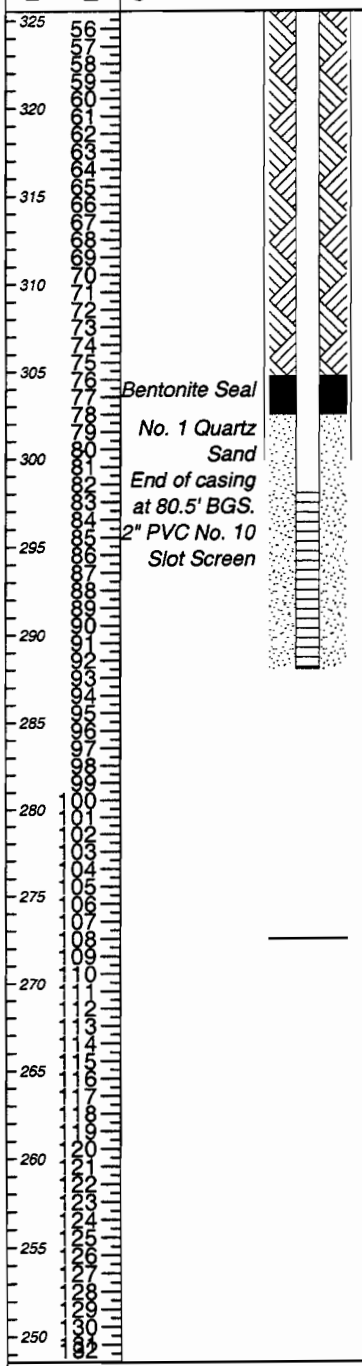


ELEVATION / DEPTH	SOIL/ROCK DESCRIPTION	RQD (%)	PENETRATION TIMES	BLOW COUNT	RECOVERY (feet)	OVA (ppm) SAMPLE / HOLE	COMMENTS
gs elevation 380.56	ground surface (gs)						
380 / 1	2.0 TOPSOIL						No records from cores or split spoon samples. Air hammer used to drive casing. Monitor drill cuttings only.
	SAND: Brown medium-fine sand.						Well Construction
375 / 5							Bentonite Seal: 75.8 - 78 ft bgs
							Sand Pack: 78 - 92.5 ft bgs
370 / 10							Screen: 82.5 - 92.5 ft bgs
	13.0						
	15.0 SAND: Darker sand, medium-fine grained.						
365 / 15	SAND: Dark brown sand, medium-coarse sand.						
360 / 20							
355 / 25							Wet at ~26'-27' bgs.
350 / 30	32.0						
	SAND: Tan sand, similar to uppermost sand, wet.						
345 / 35	36.0						
	SAND: Dark brown medium-coarse grained sand, wet.						
340 / 40							
335 / 45							
330 / 50	▽						
55	55.0						

DRILLING LOG OF WELL NO. MW-6D

Project/Location: Luzerne Road Landfill / Glens Falls, NY

Total Depth of Hole (feet BGS): 108



ELEVATION	DEPTH	SOIL/ROCK DESCRIPTION	RQD (%)	PENETRATION TIMES	BLOW COUNT	RECOVERY (feet)	OVA (ppm) SAMPLE / HOLE	COMMENTS
325	56	SAND: Gray fine to very fine grained sand, wet.						
320	61							
315	66							
310	71							
305	76							
300	81							
295	86							
290	91							
	92	93.0						
	93	SILTY CLAY: Silty clay with very fine grained sand.						Borehole filled with no. 1 sand to 92.5' bgs.
285	96	95.0 CLAY: Dark streaks on clay pumped from hole.						
	99	100.0						
280	101	CLAY: Tight gray clay.						
275	106							
	108							
	109	110.0						Bottom of hole at 108' bgs.
270	111							
265	116							
260	121							
255	126							
250	131							

DRILLING LOG OF WELL NO. MW-7S

Project/Location: Luzerne Road Landfill / Glens Falls, NY

Boring Location:

Northing/Easting: 4875.9708 / 5544.2616

Date Started - Finished: 10/30/2000 - 10/31/2000

Drilling Company: American Auger

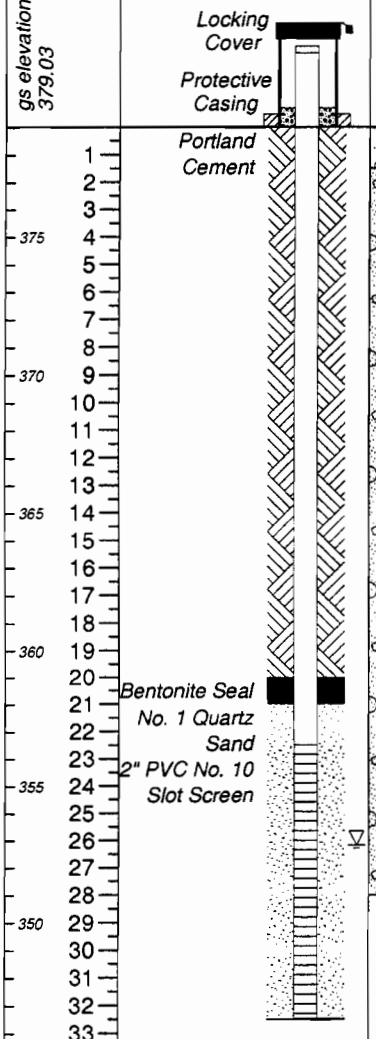
Driller/Geologist: Rocky Baye / Brian Cervi

Total Depth of Hole (feet BGS): 32.5

Ground Elevation (feet AMSL): 379.03

Groundwater Depth After Drilling / Date: 26.19 feet BGS▽ / 11/5/00

Top of Inner Casing (feet AMSL): 381.44



ELEVATION / DEPTH	SOIL/ROCK DESCRIPTION	RQD (%)	PENETRATION TIMES	BLOW COUNT	RECOVERY (feet)	OVA (ppm) SAMPLE / HOLE	COMMENTS
ground surface (gs)							
1.5	TOPSOIL: Dark brown topsoil, organic material with some medium to fine sand, moist.		1500	1 2 1 1	0.4	0	Well Construction Bentonite Seal: 20 - 21 ft bgs Sand Pack: 21 - 32.5 ft bgs Screen: 22.5 - 32.5 ft bgs
	SAND: Tan/brown medium to fine sand, massive. At 0-7' BGS: Trace silt, moist and becoming dry with depth.		1502	5 5 7 8	1	0	
			1504	6 8 8 10	1	0	
			1506	6 8 6 10	1	0	
	At 8'-22' BGS: Trace gravel, dry grading to moist.		1512	6 4 5 10	.8	0	
			1516	10 5 4 10	.8	0	
			1518	3 7 7 7	1	0	
			1520	4 6 7 7	1.2	0	
			1525	3 5 6 6	1.2	0	
			1545	3 5 6 6	1	0	
			1548	5 5 5 7	1.3	0	
	At 22'-24' BGS: Slightly moist. At 24'-26' BGS: Trace coarse sand, slightly moist. At 26'-28' BGS: Trace gravel, trace fines/silt, wet.		1554	2 4 4 5	1	0	
			1557	6 7 7 7	1	0	
28.0			1602	4 5 8 8	1.3	0	Wet at approximately 26' bgs.
							Bottom of hole at 32.5' bgs.

DRILLING LOG OF WELL NO. MW-7I

Project/Location: Luzerne Road Landfill / Glens Falls, NY

Boring Location:

Northing/Easting: 4885.8129 / 5543.602

Date Started - Finished: 10/31/2000 - 10/31/2000

Drilling Company: American Auger

Driller/Geologist: Rocky Baye / Brian Cervi

Total Depth of Hole (feet BGS): 59

Ground Elevation (feet AMSL): 379.43

Groundwater Depth After Drilling / Date: 25.03 feet BGS▽ / 11/6/00

Top of Inner Casing (feet AMSL): 381.83

ELEVATION / DEPTH	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	RQD (%)	PENETRATION TIMES	BLOW COUNT	RECOVERY (feet)	OVA (ppm) SAMPLE / HOLE	COMMENTS
gs elevation 379.43	Locking Cover; Protective Casing	ground surface (gs)						
375 / 370 / 365 / 360 / 355 / 350 / 345 / 340 / 335 / 330 / 325 / 320	Portland Cement; Bentonite Seal; No. 1 Quartz Sand; 2" PVC No. 10 Slot Screen; ▽	See borehole log of MW-7S for lithologic record from 0-28' BGS. 28.0						Well Construction Bentonite Seal: 42 - 45 ft bgs Sand Pack: 45 - 59 ft bgs Screen: 49 - 59 ft bgs Bottom of hole at 59.5' bgs.

DRILLING LOG OF WELL NO. MW-8S

Project/Location: Luzerne Road Landfill / Glens Falls, NY
Boring Location:
Northing/Easting: 4671.5477 / 5468.3266
Date Started - Finished: 11/01/2000 - 11/01/2000
Drilling Company: American Auger
Driller/Geologist: Rocky Baye / Brian Cervi

Total Depth of Hole (feet BGS): 33
Ground Elevation (feet AMSL): 378.66
Groundwater Depth After Drilling / Date: 25.96 feet BGS ▽ / 11/3/00
Top of Inner Casing (feet AMSL): 381.02

ELEVATION	DEPTH	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	RQD (%)	PENETRATION TIMES	BLOW COUNT	RECOVERY (feet)	OVA (ppm) SAMPLE / HOLE	COMMENTS
gs elevation 378.66		Locking Cover; Protective Casing	ground surface (gs)						
	1	Portland Cement	0.4 TOPSOIL: Dark brown topsoil, organic material, little sand, moist.		0741	1 2 3	.5		Well Construction
	2		SAND: Tan/brown medium to fine sand.						Bentonite Seal: 18 - 20 ft bgs
375	3		At 0.4'-0.6' BGS: Little organics, trace gravel, slightly moist.						Sand Pack: 20 - 33 ft bgs
	4								Screen: 23 - 33 ft bgs
	5								
	6		At 5'- 5.6' BGS: Little silt, trace coarse sand, massive, dry.		0746	3 3 3	.6		
	7								
	8								
370	9								
	10		At 10'-16.2' BGS: Trace silt, trace gravel, massive, slightly moist and becoming moist.		0749	4 3 4	1		
	11								
	12								
	13								
365	14								
	15								
	16				0753	3 3 3	1.2		
	17								
	18								
360	19	Bentonite Seal							
	20								
	21	No. 1 Quartz Sand	At 20'-21' BGS: Trace silt, trace coarse sand, massive, moist.		0758	10 12 14	1		
	22								
	23								
355	24	2" PVC No. 10 Slot Screen							
	25								
	26		At 25'-26.2' BGS: Trace silt, massive, moist to wet.		0803	4 7 11 17	1.2		Becoming wet at approximately 25' bgs.
	27		27.0						
	28								
350	29								
	30								
	31								
	32								
	33								Bottom of hole at 33' bgs.
345	34								
	35								

DRILLING LOG OF WELL NO. MW-8I

Project/Location: Luzerne Road Landfill / Glens Falls, NY

Boring Location:

Northing/Easting: 4661.3541 / 5479.7137

Date Started - Finished: 11/02/2000 - 11/02/2000

Drilling Company: American Auger

Driller/Geologist: Rocky Baye / Brian Cervi

Total Depth of Hole (feet BGS): 63

Ground Elevation (feet AMSL): 378.61

Groundwater Depth After Drilling / Date: 24.52 feet BGS▽ / 11/7/00

Top of Inner Casing (feet AMSL): 381.17

ELEVATION	DEPTH	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	RQD (%)	PENETRATION TIMES	BLOW COUNT	RECOVERY (feet)	SAMPLE / HOLE	OVA (ppm)	COMMENTS
gs elevation 378.61		Locking Cover; Protective Casing	ground surface (gs)							
375	1–5	Portland Cement	See borehole log of MW-8S for lithologic record from 0-26.2' BGS.							Well Construction Bentonite Seal: 46 - 49 ft bgs Sand Pack: 49 - 63 ft bgs Screen: 53 - 63 ft bgs
370	6–10									
365	11–15									
360	16–20									
355	21–25	▽	26.2							
350	26–30									
345	31–35									
340	36–40									
335	41–45									
330	46–50	Bentonite Seal; No. 1 Quartz Sand								
325	51–55	2" PVC No. 10 Slot Screen								
320	56–60									
	61–63									Bottom of hole at 63' bgs.

DRILLING LOG OF WELL NO. MW-9S

Project/Location: Luzerne Road Landfill / Glens Falls, NY

Boring Location:

Northing/Easting: 5437.0749 / 5476.557

Date Started - Finished: 11/01/2000 - 11/01/2000

Drilling Company: American Auger

Driller/Geologist: Rocky Baye / Brian Cervi

Total Depth of Hole (feet BGS): 29.5

Ground Elevation (feet AMSL): 379.64

Groundwater Depth After Drilling / Date: 23.05 feet BGS▽ / 11/2/00

Top of Inner Casing (feet AMSL): 381.78

ELEVATION / DEPTH	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	RQD (%)	PENETRATION TIMES	BLOW COUNT	RECOVERY (feet)	OVA (ppm) SAMPLE / HOLE	COMMENTS
gs elevation 379.64	Locking Cover; Protective Casing	ground surface (gs)						
1	Portland Cement	0.9 TOPSOIL: Black/dark brown topsoil/organic material, little sand, moist.		0953	3 3 2	1.2		Well Construction Bentonite Seal: 14 - 16 ft bgs Sand Pack: 16 - 29.5 ft bgs Screen: 19.5 - 29.5 ft bgs
2		SAND: Tan/brown medium to fine sand.						
3		At 0.9'-1.2' BGS: Little coarse sand, slightly moist.		0959	4 7 9	1.3		
4		At 5'-6.3' BGS: Trace gravel/coarse sand, massive, slightly moist.						
5								
375								
6								
7								
8								
9								
370								
10		At 10'-11.2' BGS: Trace coarse sand, massive, slightly moist.		1002	6 7 8	1.2		
11								
12								
13								
14								
365	Bentonite Seal							
15		At 15'-16.4' BGS: Massive, slightly moist.		1006	6 7 8 10	1.3		
16	No. 1 Quartz Sand							
17								
18								
19								
360								
20	2" PVC No. 10 Slot Screen	At 20'-21.2' BGS: Trace silt, massive, slightly moist.		1010	4 6 5 12	1.2		
21								
22								
23	▽							
24								
355								
25		At 25'-26.8' BGS: Little silt, trace coarse sand, wet.		1013	4 6 6 10	1.6		Becoming wet at approximately 25' bgs.
26		26.8						
27								
28								Bottom of hole at 30' bgs.
29								
350								
30								
31								
32								
33								
34								
345								
35								

DRILLING LOG OF WELL NO. MW-10S

Project/Location: Luzerne Road Landfill / Glens Falls, NY

Boring Location:

Northing/Easting: 4597.4054 / 5748.2071

Date Started - Finished: 11/01/2000 - 11/01/2000

Drilling Company: American Auger

Driller/Geologist: Rocky Baye / Brian Cervi

Total Depth of Hole (feet BGS): 35

Ground Elevation (feet AMSL): 378.58

Groundwater Depth After Drilling / Date: 22.0 feet BGS ▽ / 11/3/00

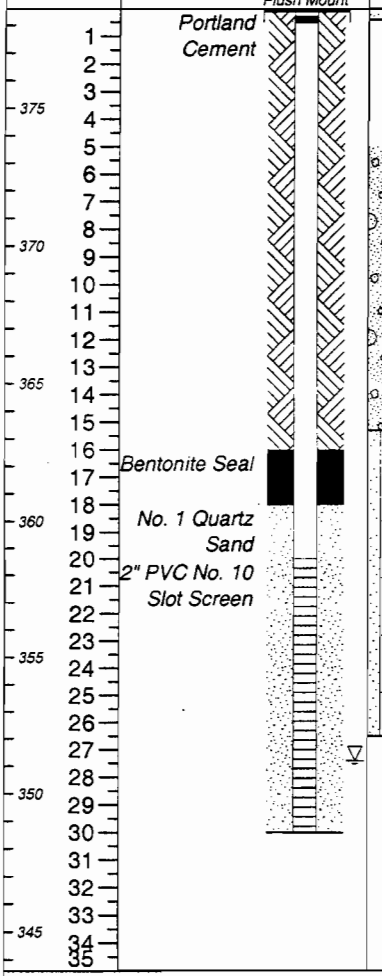
Top of Inner Casing (feet AMSL): 378.24

ELEVATION	DEPTH	GRAPHIC LOG	SOIL/ROCK DESCRIPTION	RQD (%)	PENETRATION TIMES	BLOW COUNT	RECOVERY (feet)	OVA (ppm) SAMPLE / HOLE	COMMENTS
gs elevation 378.58			*ground surface (gs)*						
		Flush Mount / Portland Cement	0.2 SAND: Tan/brown medium to fine sand, few organics, slightly moist.		1438	4 4 4 4	1.5		Well Construction Bentonite Seal: 20 - 23 ft bgs Sand Pack: 23 - 35 ft bgs Screen: 25 - 35 ft bgs
			0.6 TOPSOIL: Black/dark brown organic material/topsoil, few sand, slightly moist.						
			SAND: Brown/tan medium to fine sand, massive. At 0.6'-1.5' BGS: Trace gravel, slightly moist. At 5'-6' BGS: No fine sand, medium with few coarse and fine sand, slightly moist.		1443	2 3 4 4	1		
					1446	4 4 3 3	1.3		
			At 15-20.4' BGS: Moist.		1449	4 4 7 5	1.3		
		Bentonite Seal	At 20.4'-20.7' BGS: No medium sand, fine sand to silt, moist.		1453	4 4 5 5	1.2		
		No. 1 Quartz Sand / 2" PVC No. 10 Slot Screen	At 25'-26.2' BGS: Few silt, trace gravel, slightly moist.		1457	5 5 5 5	1.2		
			At 30'-31.5' BGS: Wet.						Becoming wet at approximately 29' bgs.
			31.5		1501	2 3 11 15	1.5		
									Bottom of hole at 35' bgs.

DRILLING LOG OF WELL NO. MW-11S

Project/Location: Luzerne Road Landfill / Glens Falls, NY
Boring Location:
Northing/Easting: 4723.9887 / 4972.0137
Date Started - Finished: 11/01/2000 - 11/01/2000
Drilling Company: American Auger
Driller/Geologist: Rocky Baye / Brian Cervi

Total Depth of Hole (feet BGS): 30
Ground Elevation (feet AMSL): 378.6
Groundwater Depth After Drilling / Date: 27.41 feet BGS▽ / 11/3/00
Top of Inner Casing (feet AMSL): 378.3



DEPTH	SOIL/ROCK DESCRIPTION	RQD (%)	PENETRATION TIMES	BLOW COUNT	RECOVERY (feet)	OVA (ppm) SAMPLE / HOLE	COMMENTS
	ground surface (gs)						
0.2	TOPSOIL: Black/brown topsoil,		1236	10 10 10 10	0.3		Well Construction
0.4	organic material, little sand, moist.						Bentonite Seal: 16 - 18 ft bgs
	SAND/GRAVEL: Brown/gray sand/gravel with some rock fragments, dry. Hit cobble.						Sand Pack: 18 - 30 ft bgs
5.0	NO RECOVERY						Screen: 20 - 30 ft bgs
	SAND: Brown/tan medium to fine sand.		1243	3 3 3 10	0.9		
	At 5'-6.1' BGS: Little coarse sand, trace gravel, massive, slightly moist.						
	At 10'-11.1' BGS: Few coarse sand, few gravel, massive, slightly moist.		1247	3 5 5 11	0.9		
15.3	At 15'-15.3' BGS: Few coarse sand, trace gravel, massive, slightly moist.		1251	10 10 15	1.5		
	SAND/SILT: Brown/tan fine sand/silt.						
	At 15.3-16.5' BGS: Thin (1-3 mm) bands of black banding sand/silt, occurring every inch at top of sample and every 1/4" at base of sample, slightly moist.		1255	10 11 17	1.7		
	At 25'-26.5' BGS: Few medium sand, massive, wet.						
26.5			1259	13 10 11	1.5		Becoming wet at approximately 25' bgs.
							Bottom of hole at 30' bgs.

D

Geotechnical Analytical Data

atl | *ATLANTIC TESTING LABORATORIES, Limited*

TRANSMITTAL

October 20, 1999

Ecology and Environment, Inc.
638 Pleasant View Drive
Lanchaster, NY 14088

Attn: Deb Jusiak

Re: Laboratory Testing
Luzerne Ro. Landfill RI
Glens Falls, NY
ATL Project No. AT269

Ladies/Gentlemen:

Enclosed are the Laboratory Test Results for the referenced project.

Please contact our office should you have any questions or if we may be of further assistance.

Respectfully,

Scott A. McRoberts /for

Judy A. Ames, S.E.T.
Assistant Manager

Encl.

sp:microsoffice\word\Albany/AT269Ct
10/19/99

Canton
P.O. Box 29
Canton, NY 13617
Telephone: (315) 386-4578
Facsimile: (315) 386-1012

Albany
12 Arrowhead Lane
Cohoes, NY 12047
Telephone: (518) 783-9073
Facsimile: (518) 783-6987

Watertown
P.O. Box 91
Felts Mills, NY 13638
Telephone: (315) 773-5390
Facsimile: (315) 773-0334

Plattsburgh
1080 Military Tnpk. Suite 7
Plattsburgh, NY 12901
Telephone: (518) 563-5878
Facsimile: (518) 562-1321

ATLANTIC TESTING LABORATORIES, *Limited*

CLIENT: Ecology and Environment, Inc.

REPORT NO.: AT269S-1-9-99

PROJECT: Luzerne Ro. Landfill RI, Glens Falls, NY

DATE: October 19, 1999

TABULATION OF LABORATORY TEST RESULTS

Sample ID	Moisture Content (%)	Humic Content (%)	Atterberg Limits			Particle Size Analysis (% Passing)					Dry Density (pcf)	Specific Gravity
			LL	PL	PI	½"	#4	#10	#40	#200		
LR-W307-BSS	4.6	0.2	NP	NP	NP	100	84	81	50	12	96.6	2.648
LR-W307-DSS	9.3	0.4	NP	NP	NP	100	99	97	43	2.2	105.5	2.647
LR-CGP2-GSS	6.2	1.5	NP	NP	NP		100	98	64	8.5	107.1	2.643
LR-CGP1-CSS	6.0	1.7	NP	NP	NP		100	99	62	12	106.1	2.656
LR-CGP1-ESS	4.1	1.6	NP	NP	NP		100	98	59	8.5	107.5	2.646

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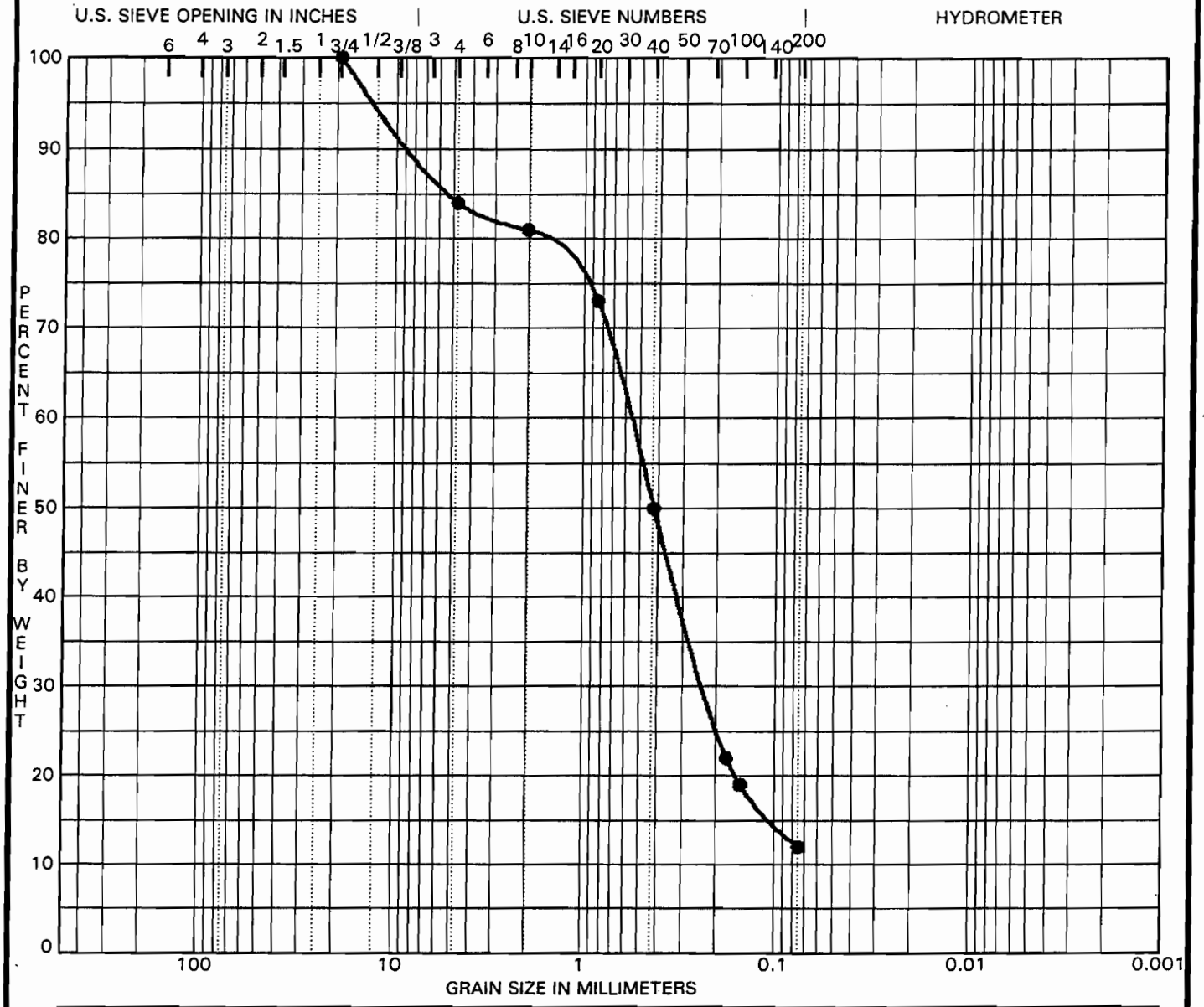
10/19/99

ATLANTIC TESTING LABORATORIES, Limited

PARTICLE SIZE ANALYSIS

PROJECT Luzerne Ro. Landfill RI
CLIENT Ecology and Environment, Inc.

REPORT NO. AT279S-1-9-99
DATE 09/07/99



COBBLES	GRAVEL			SAND			SILT OR CLAY
	coarse	medium	fine	coarse	medium	fine	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● W307BSS	Brown c-mf SAND; little mf GRAVEL; little SILT	4.6	NP	NP	NP	1.29	8.2

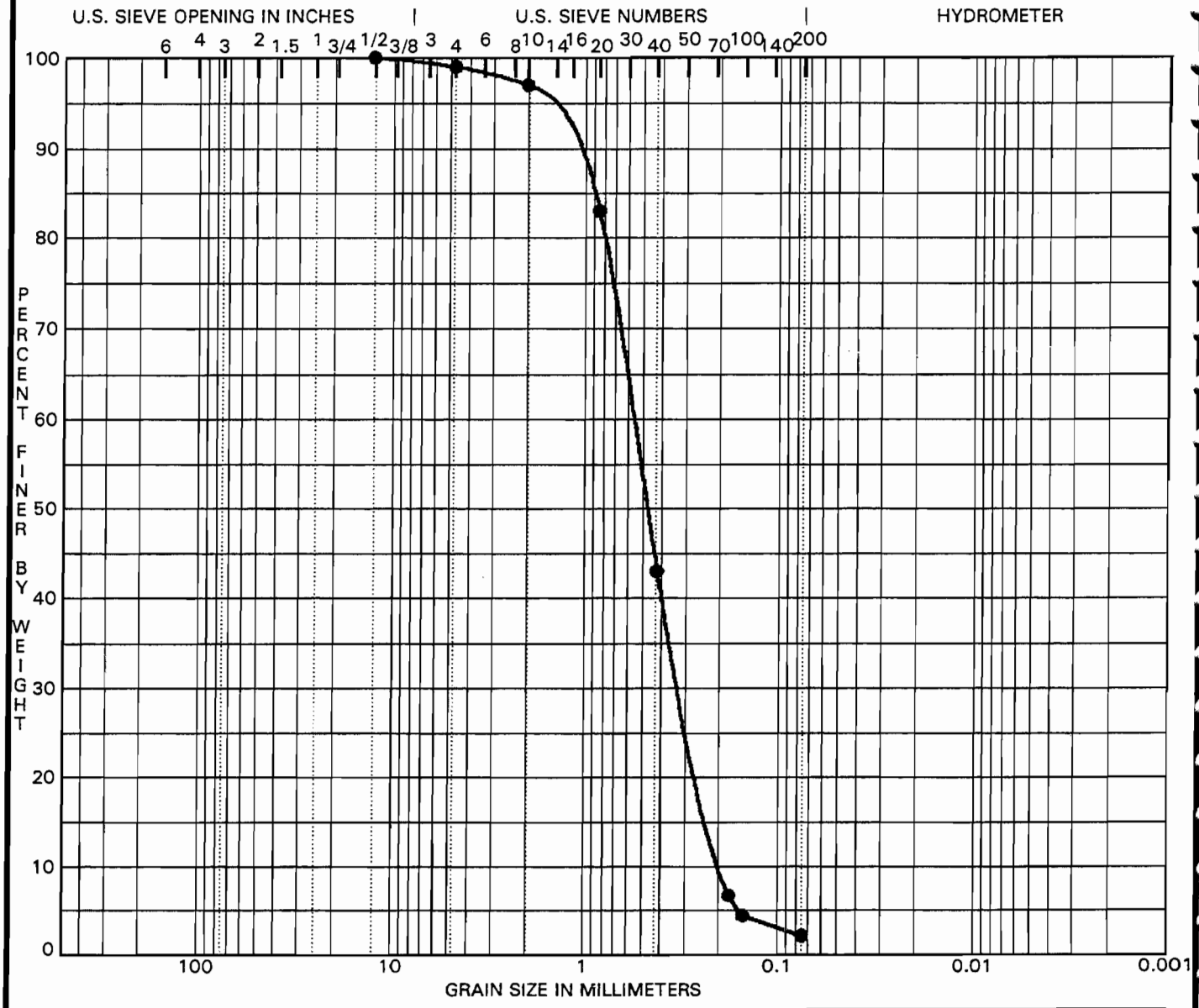
Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● W307BSS	19.00	0.57	0.227		16	72	12.0	

ATLANTIC TESTING LABORATORIES, Limited

PARTICLE SIZE ANALYSIS

PROJECT Luzerne Ro. Landfill RI
CLIENT Ecology and Environment, Inc.

REPORT NO. AT279S-1-9-99
DATE 09/07/99



COBBLES	GRAVEL			SAND			SILT OR CLAY
	coarse	medium	fine	coarse	medium	fine	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● W307DSS	Brown c-mf SAND; trace mf GRAVEL; trace	9.3	NP	NP	NP	0.88	3.0
	SILT						

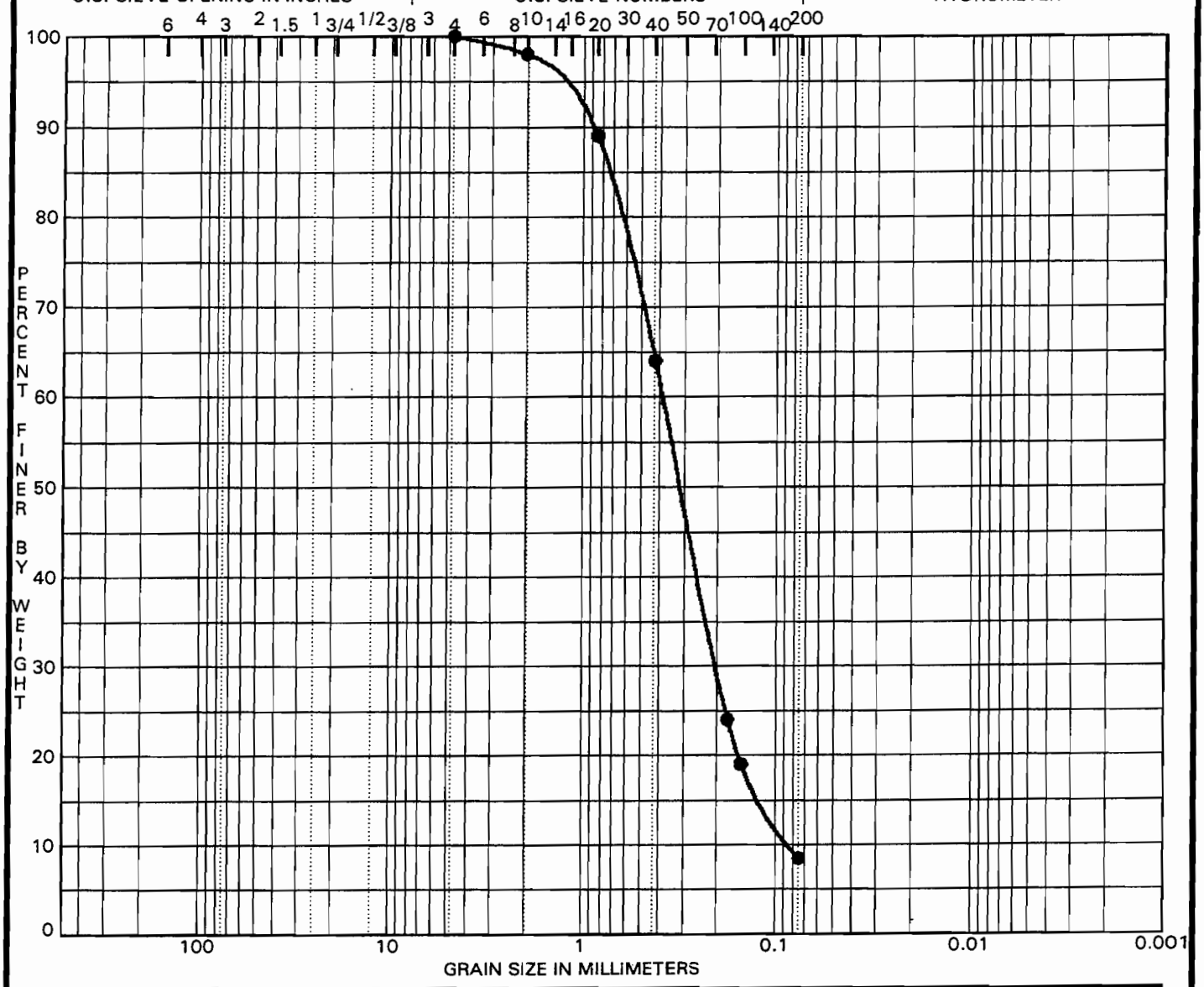
Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● W307DSS	12.50	0.57	0.310	0.1912	1	97	2.2	

ATLANTIC TESTING LABORATORIES, Limited

PARTICLE SIZE ANALYSIS

PROJECT **Luzerne Ro. Landfill RI** REPORT NO. **AT279S-1-9-99**

CLIENT **Ecology and Environment, Inc.** DATE **09/07/99**



COBBLES	GRAVEL			SAND			SILT OR CLAY
	coarse	medium	fine	coarse	medium	fine	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● CGP2GSS	Brown c-mf SAND; trace SILT	6.2	NP	NP	NP	1.26	4.7

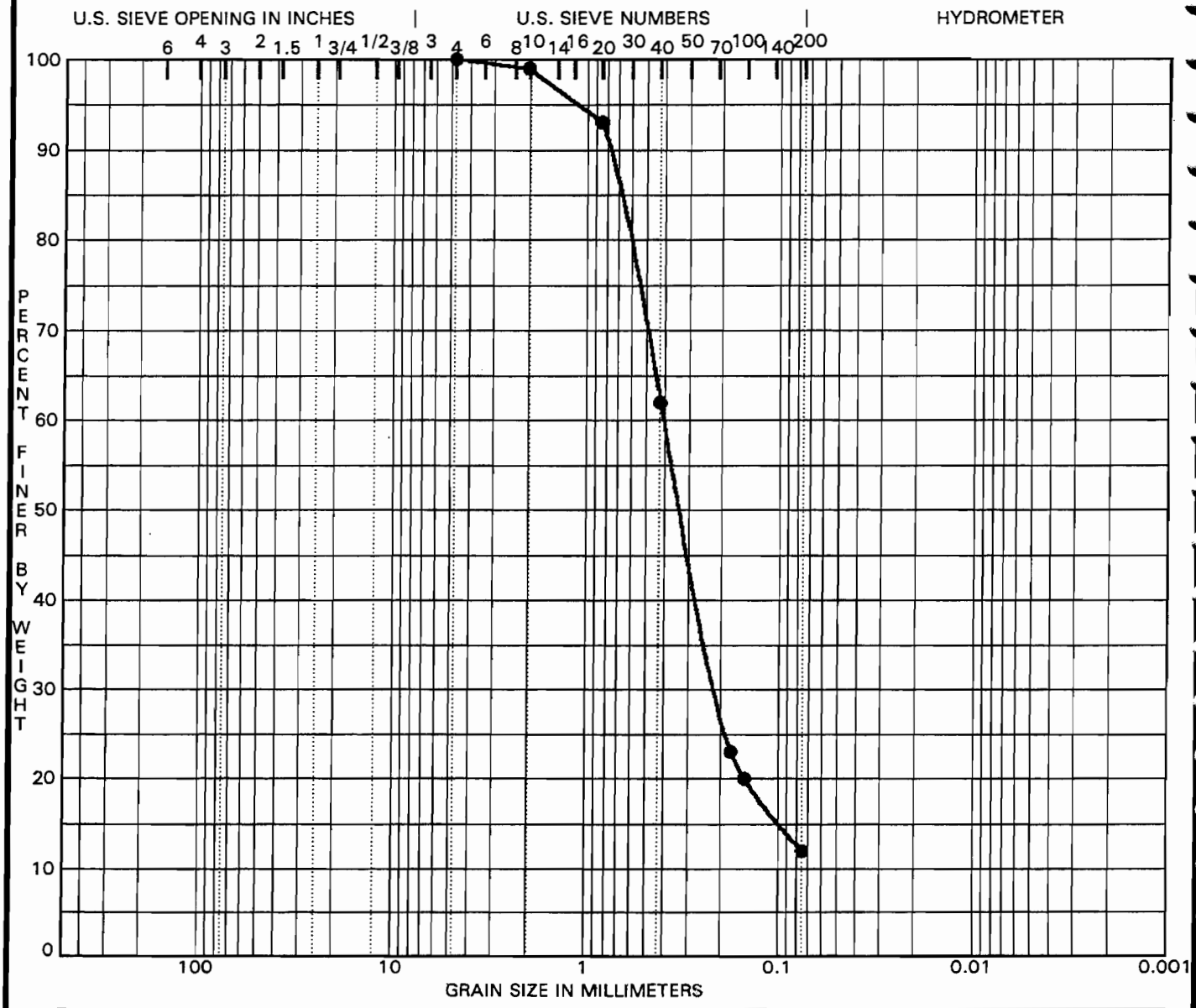
Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● CGP2GSS	4.75	0.39	0.202	0.0828	0	92	8.5	

ATLANTIC TESTING LABORATORIES, Limited

PARTICLE SIZE ANALYSIS

PROJECT Luzerne Ro. Landfill RI
CLIENT Ecology and Environment, Inc.

REPORT NO. AT279S-1-9-99
DATE 09/07/99



COBBLES	GRAVEL			SAND			SILT OR CLAY
	coarse	medium	fine	coarse	medium	fine	

	Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
●	CGP1CSS	Brown c-mf SAND; little SILT	6.0	NP	NP	NP	1.51	5.8

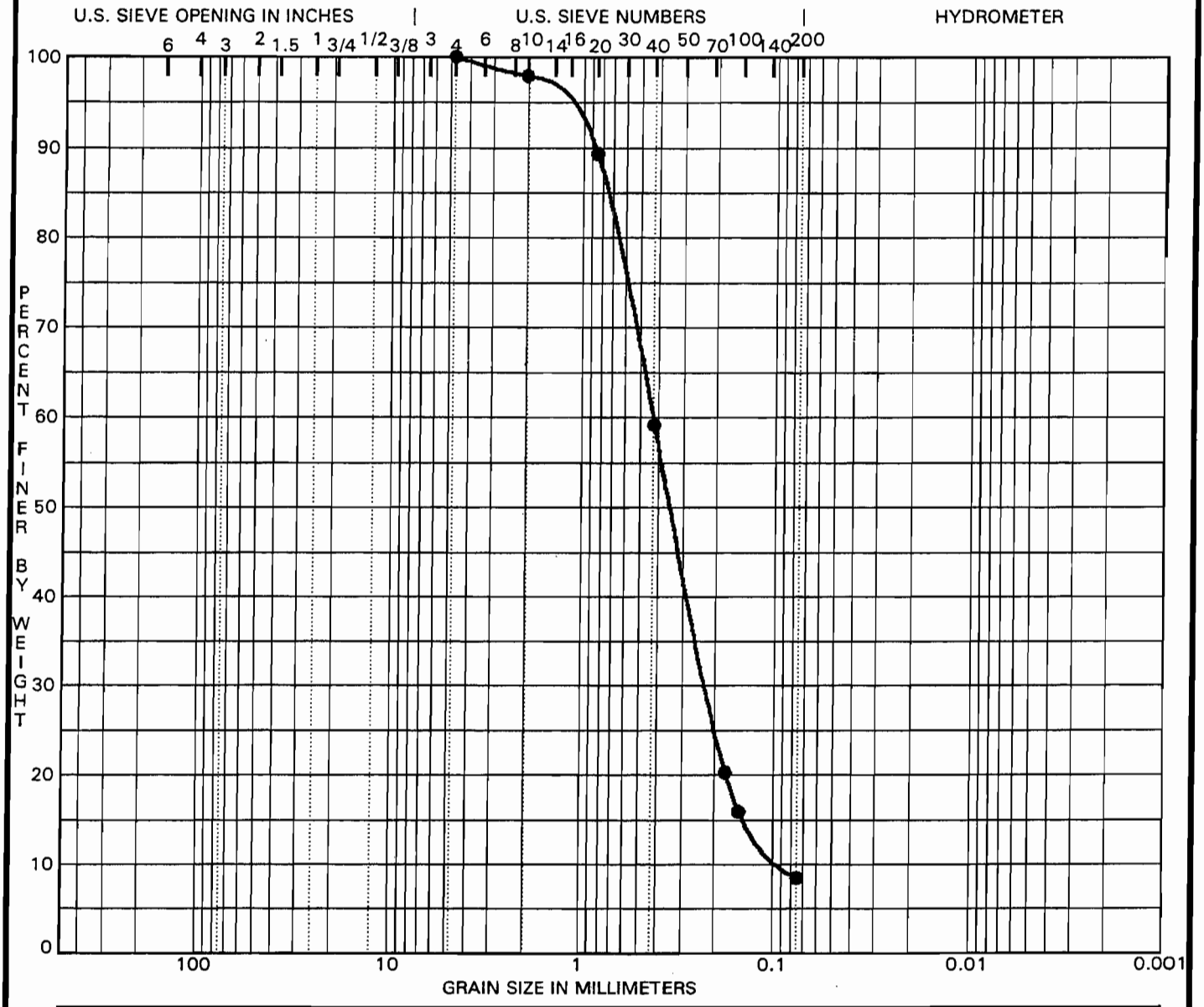
	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	CGP1CSS	4.75	0.41	0.207		0	88	12.0	

ATLANTIC TESTING LABORATORIES, Limited

PARTICLE SIZE ANALYSIS

PROJECT Luzerne Ro. Landfill RI
CLIENT Ecology and Environment, Inc.

REPORT NO. AT279S-1-9-99
DATE 09/07/99



COBBLES	GRAVEL			SAND			SILT OR CLAY
	coarse	medium	fine	coarse	medium	fine	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● CGP1ESS	Brown c-mf SAND; trace SILT	4.1	NP	NP	NP	1.30	5.0

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● CGP1ESS	4.75	0.43	0.220	0.0863	0	92	8.5	

E

Residential Surface Soil Sample Location Sketches

F0350793

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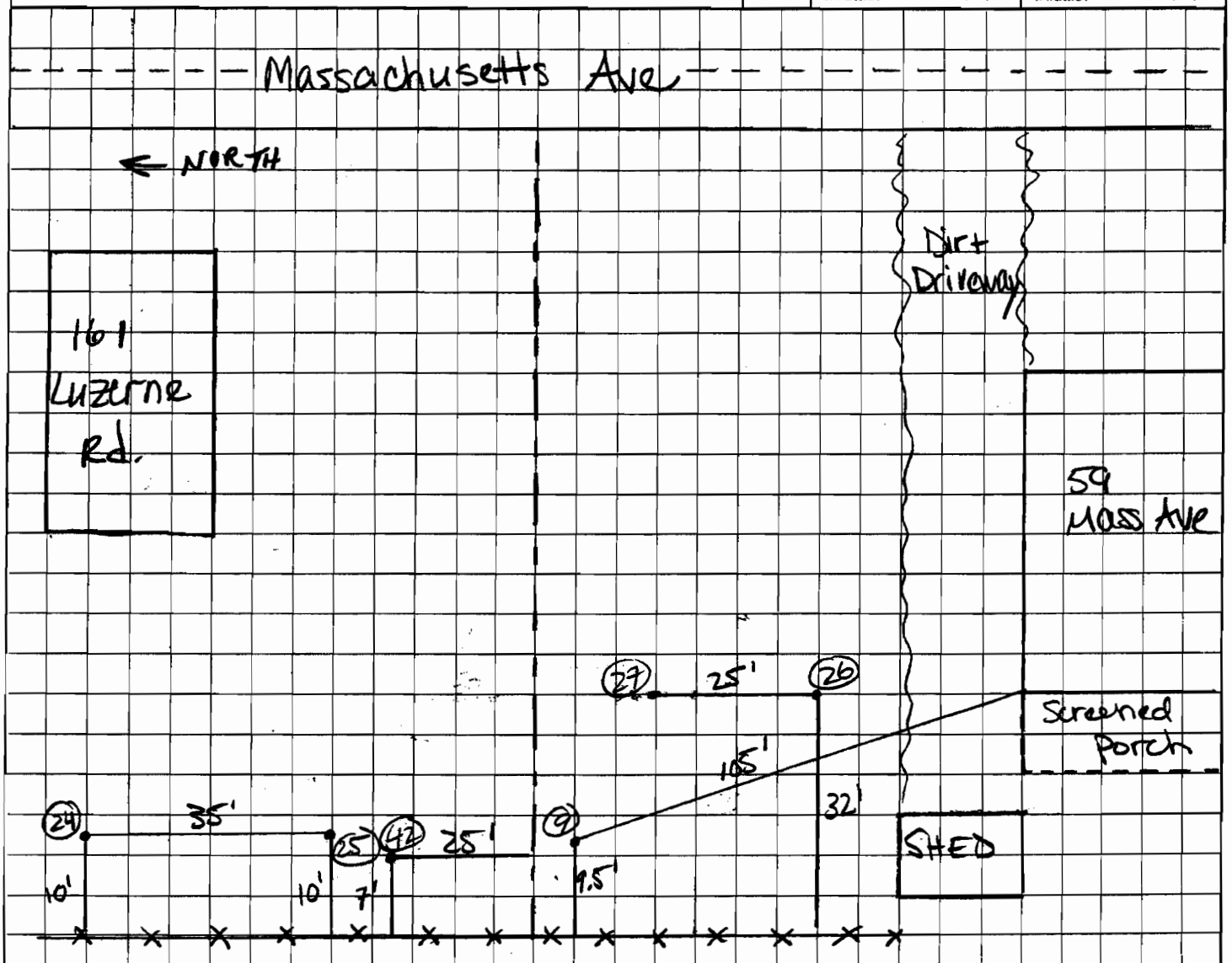
General Computation Sheet

Calculation Set No.	
Preliminary	☐
Final	☐
Void	☐
Sheet ____ of ____	Project No.

Name of Project Luzerne Rd. Landfill R.I. System 6/00

Subject 161 Luzerne Rd.

Rev.	Completed By	Checked By
☒	Initials: / /	Initials: / /
	Initials: / /	Initials: / /



Key: * * * = wooden fence

— — — = property line

(#) = sample

D = subsurface sample

*Notes: ① House + Street locations are approximate

② Drawing not to scale. Dimensions are field verified.

③ All samples taken at the surface unless otherwise noted.

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General Computation Sheet

Calculation Set No.	
Preliminary	☐
Final	☐
Void	☐
Sheet ___ of ___	Project No.

Name of Project Luzerne Rd. Landfill RI System 5/00

Subject 58 Rhode Island

Rev.	Completed By	Checked By
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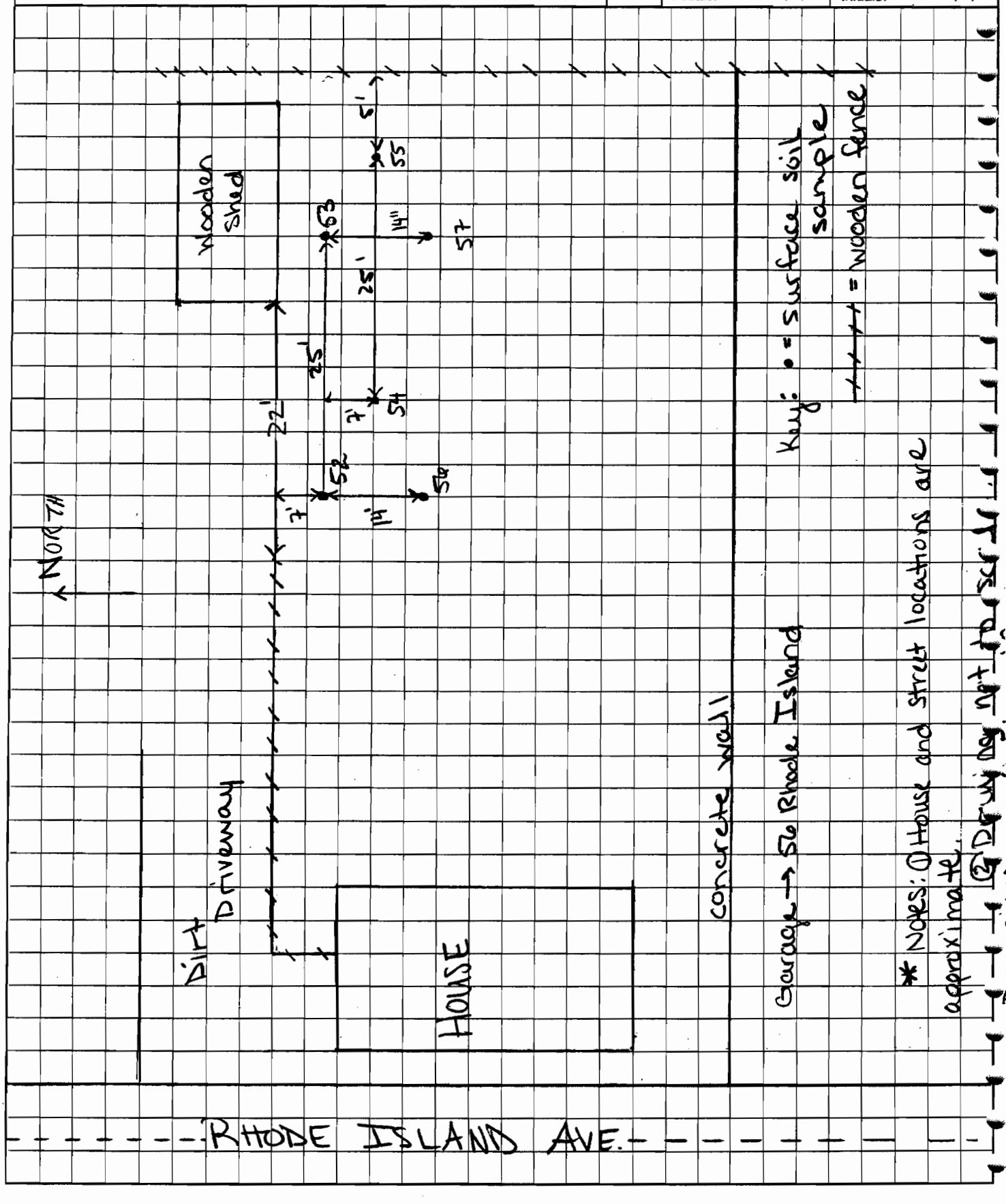
	Initials: / /	Initials: / /



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General Computation Sheet

Calculation Set No.	
Preliminary	☐
Final	☐
Void	☐
Sheet ____ of ____	Project No.

Name of Project Luzerne Rd. Landfill R.I. System 6/100

Subject 58 Rhode Island

Rev.	Completed By	Checked By
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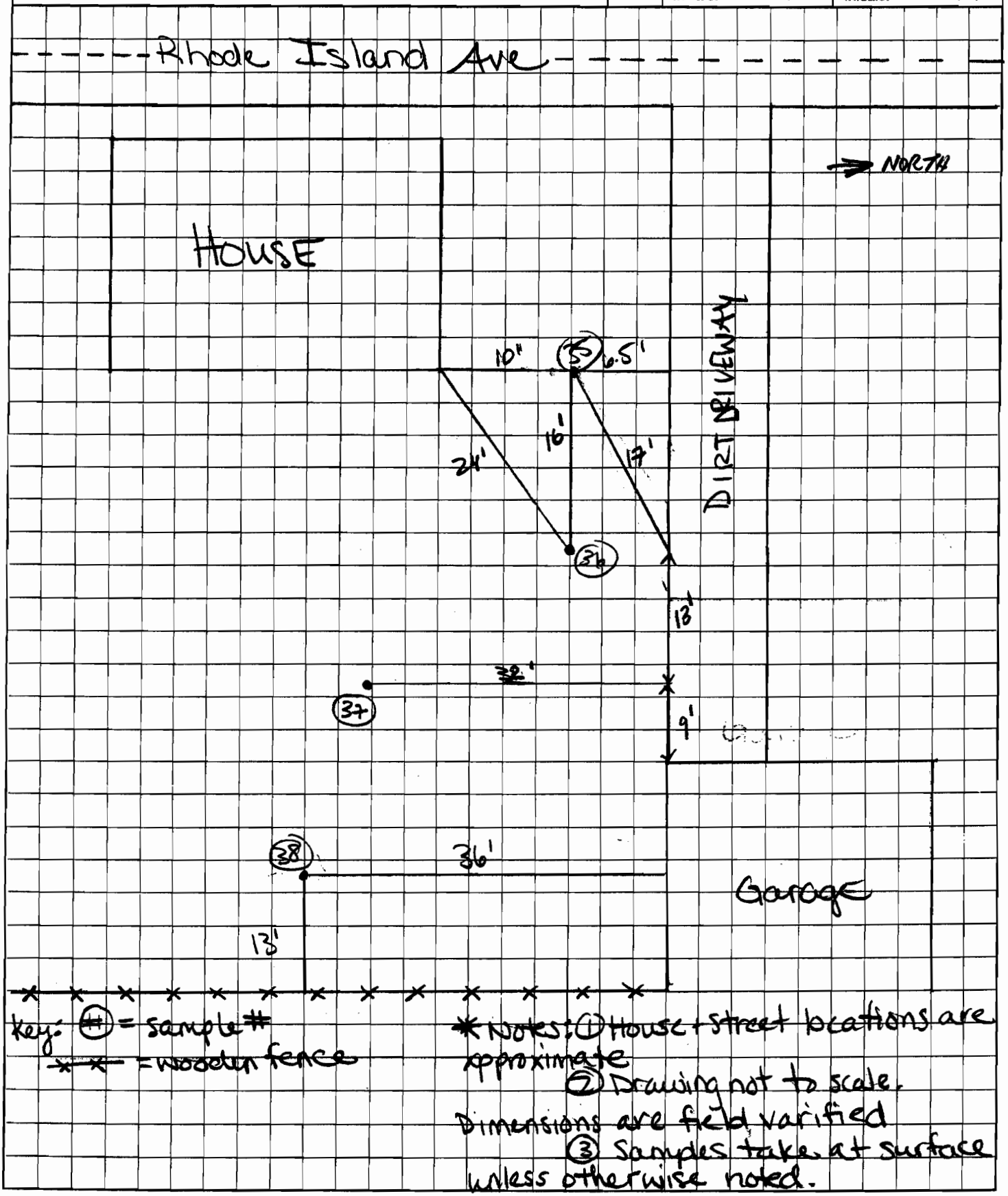
	Initials: / /	Initials: / /



key: (11) = sample #

x x = wooden fence

*Notes: ① House + street locations are approximate

② Drawing not to scale. Dimensions are field varified

③ Samples take at surface unless otherwise noted.

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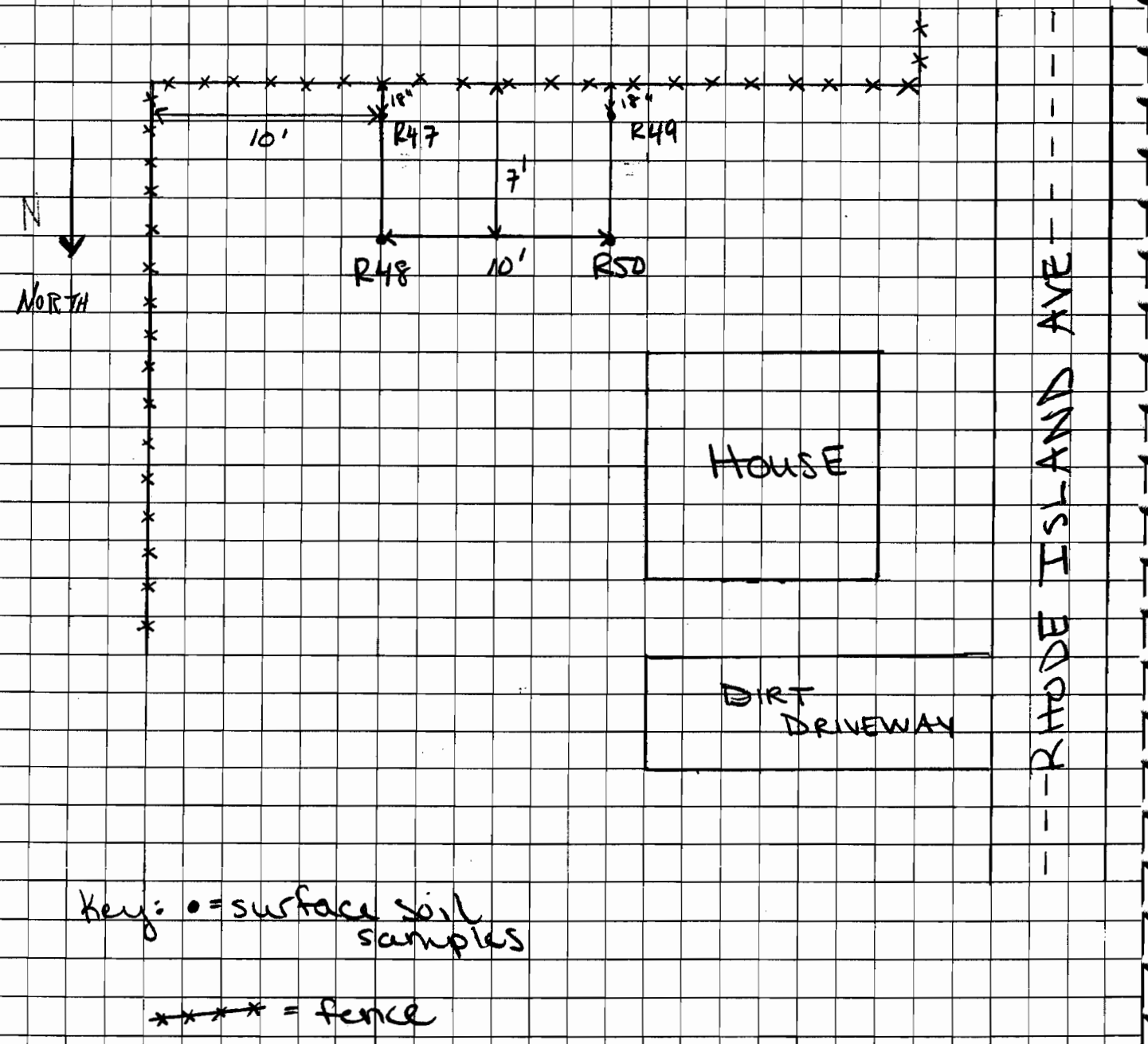
General Computation Sheet

Calculation Set No.	
Preliminary	☐
Final	☐
Void	☐
Sheet ___ of ___	Project No.

Name of Project Luzerne Rd. Landfill RI System 5/00

Subject 64 Rhode Island

Rev.	Completed By	Checked By
☒	Initials: / /	Initials: / /
	Initials: / /	Initials: / /



Key: • = surface soil samples

***** = fence

* Notes: ① House and street locations are approximate

② Drawing not to scale. Dimensions are field verified.

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General Computation Sheet

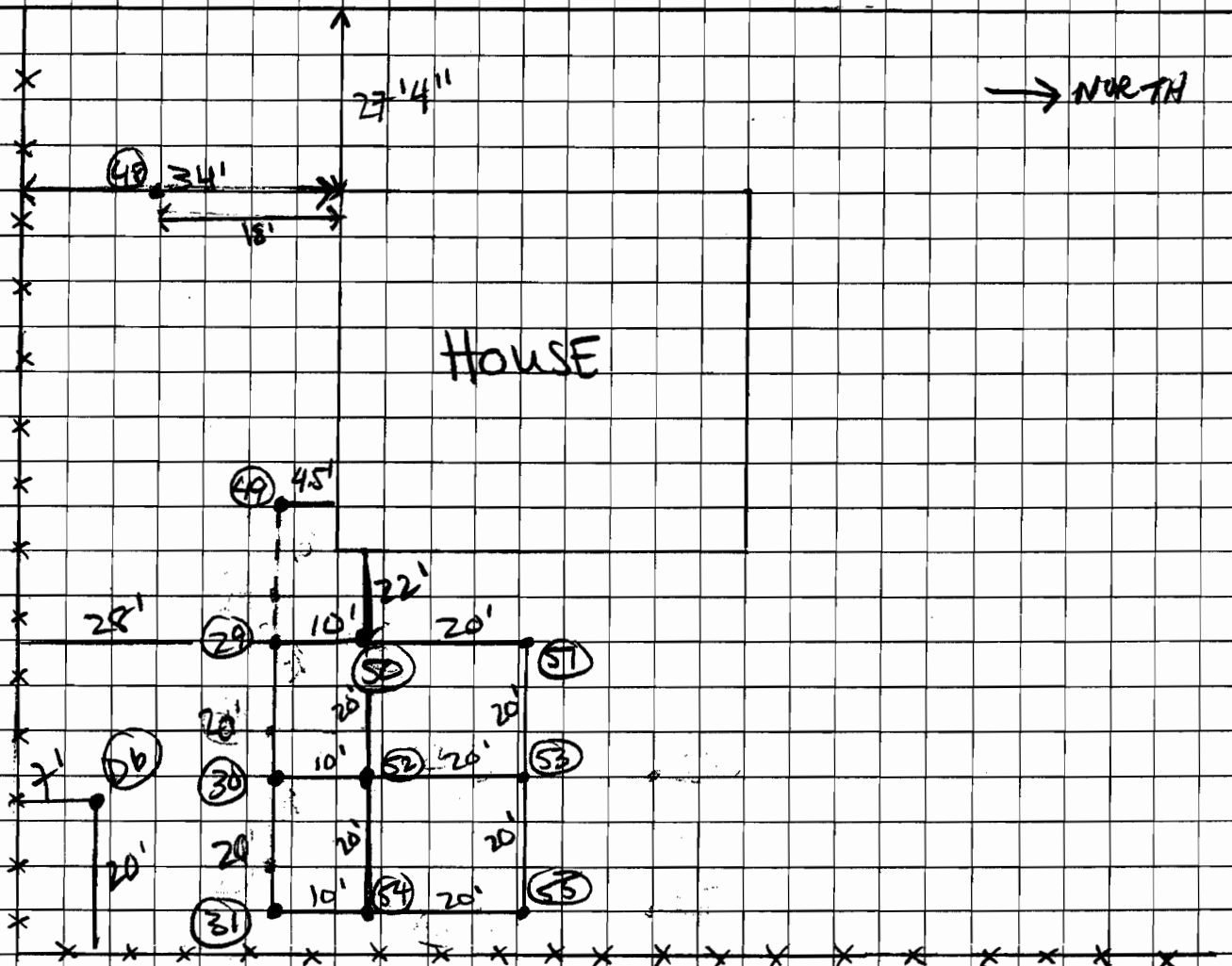
Calculation Set No.	
Preliminary	☐
Final	☐
Void	☐
Sheet ___ of ___	Project No.

Name of Project Luzerne Rd. Landfill R.I. System 6/00

Subject 64 Rhode Island

Rev.	Completed By	Checked By
☒	Initials: / /	Initials: / /
	Initials: / /	Initials: / /

Rhode Island



Key: ✕✕ = fence

D = subsurface sample

(#) = sample #

* Notes: ① House + street locations are approximate

② Drawing not to scale. Dimensions are field verified.

③ Samples taken at surface unless otherwise noted.

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General Computation Sheet

Calculation Set No.	
Preliminary	☐
Final	☐
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Sheet ___ of ___	Project No.

Name of Project Luzerne Rd. Landfill R.I. System 6/00

Subject 54 Massachusetts Ave.

Rev.	Completed By	Checked By
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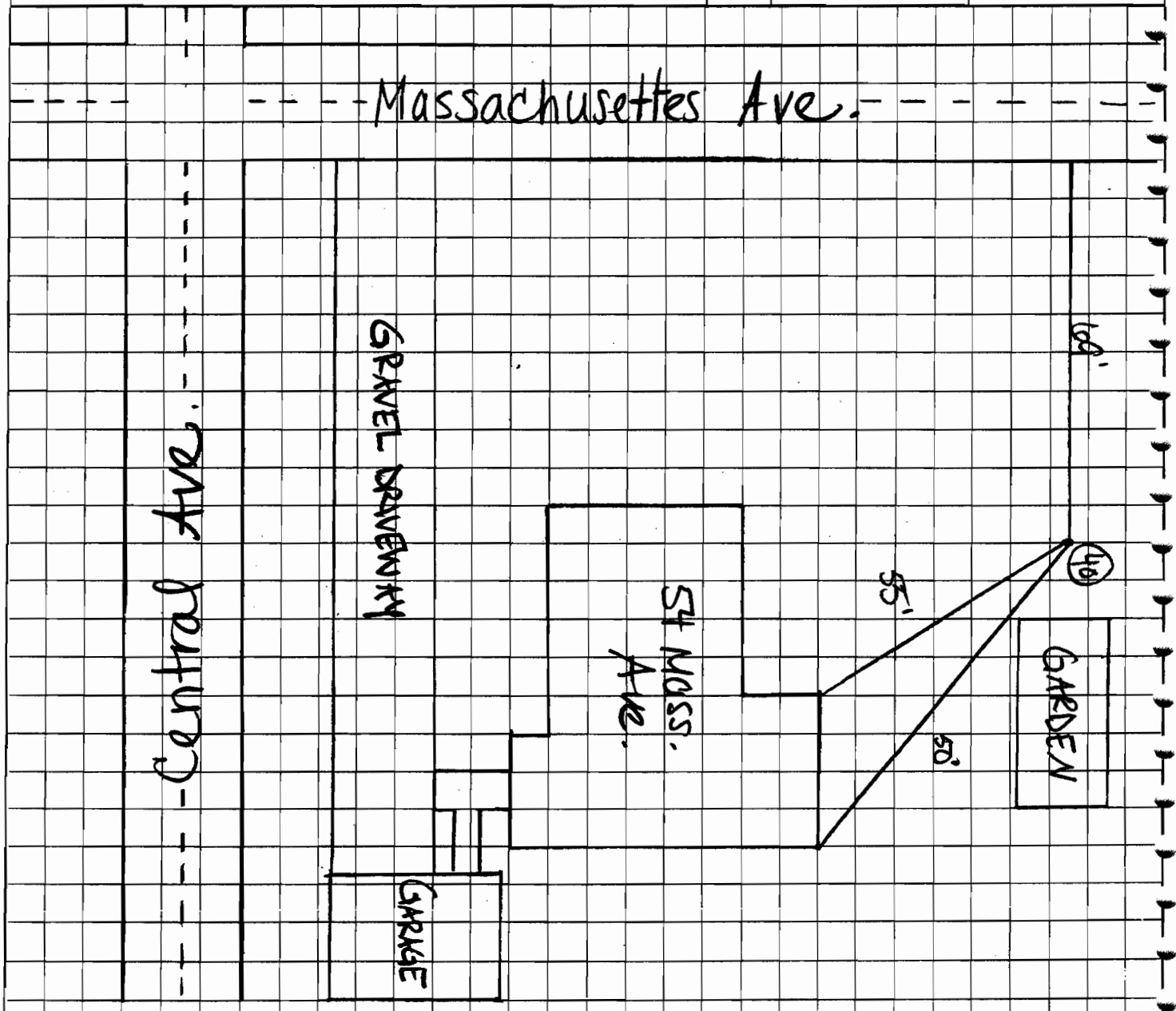

Key: (#) = sample #

→ NORTH

Notes: ① House + Street Locations are approximate.

② Drawing not to scale. All dimensions are field verified

③ All samples taken on the surface unless otherwise noted

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General Computation Sheet

Calculation Set No.	
Preliminary	☐
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Sheet ___ of ___	Project No.

Name of Project Luzerne Rd. Landfill RI System 6100 10

Subject 58 Massachusettes Ave.

Rev.	Completed By	Checked By
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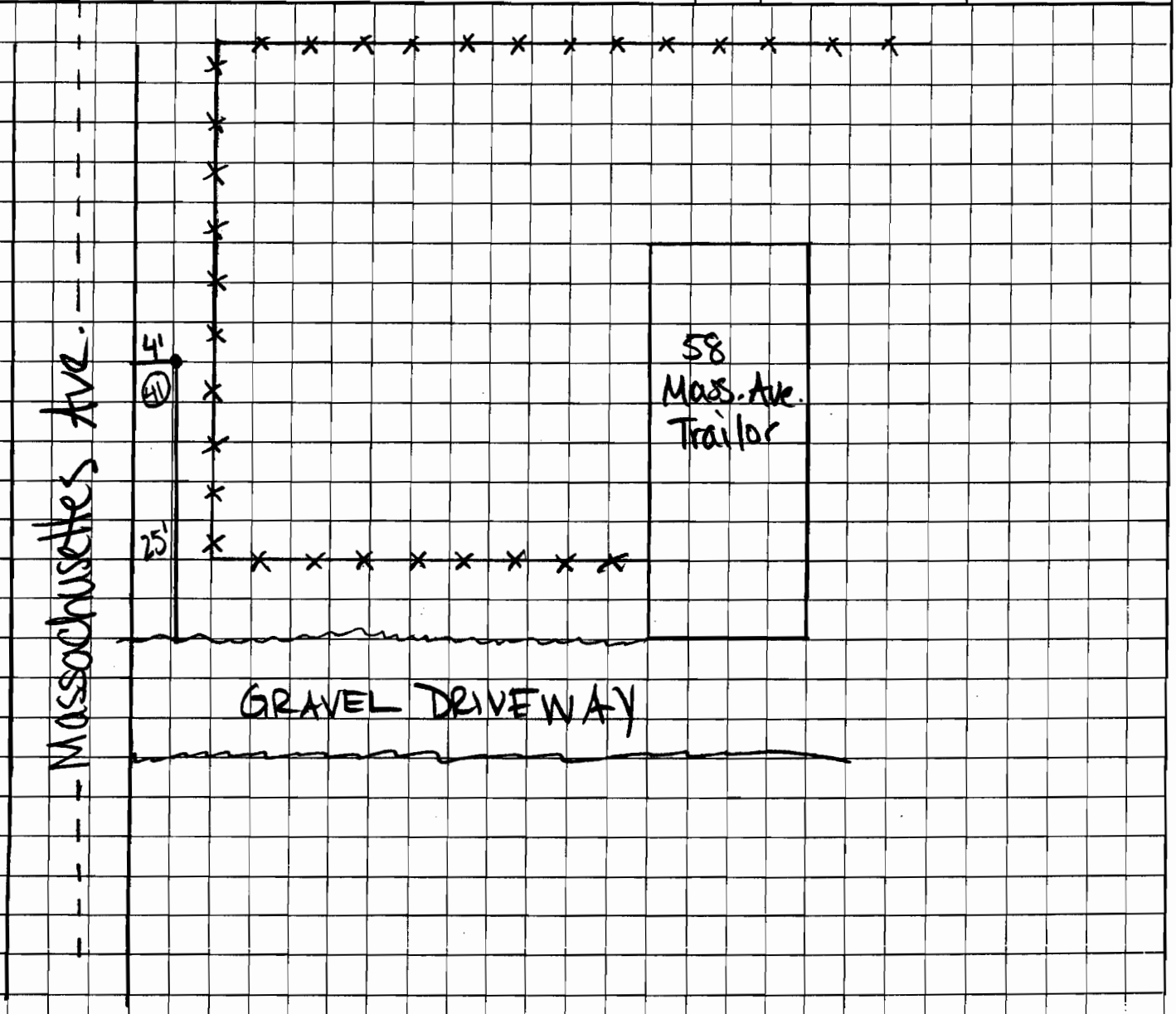
	Initials: / /	Initials: / /



key: (#) = sample #

** = fence

NORTH ↑

Notes: (1) House + Street locations are approximate.

(2) Drawing not to scale. All dimensions are field verified

(3) All samples taken at surface unless otherwise noted.

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General Computation Sheet

Calculation Set No.	
Preliminary	☐
Final	☐
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Sheet ___ of ___	Project No.

Name of Project Luzerne Rd. Landfill RI System 5/00

Subject 59 Massachusetts

Rev.	Completed By	Checked By
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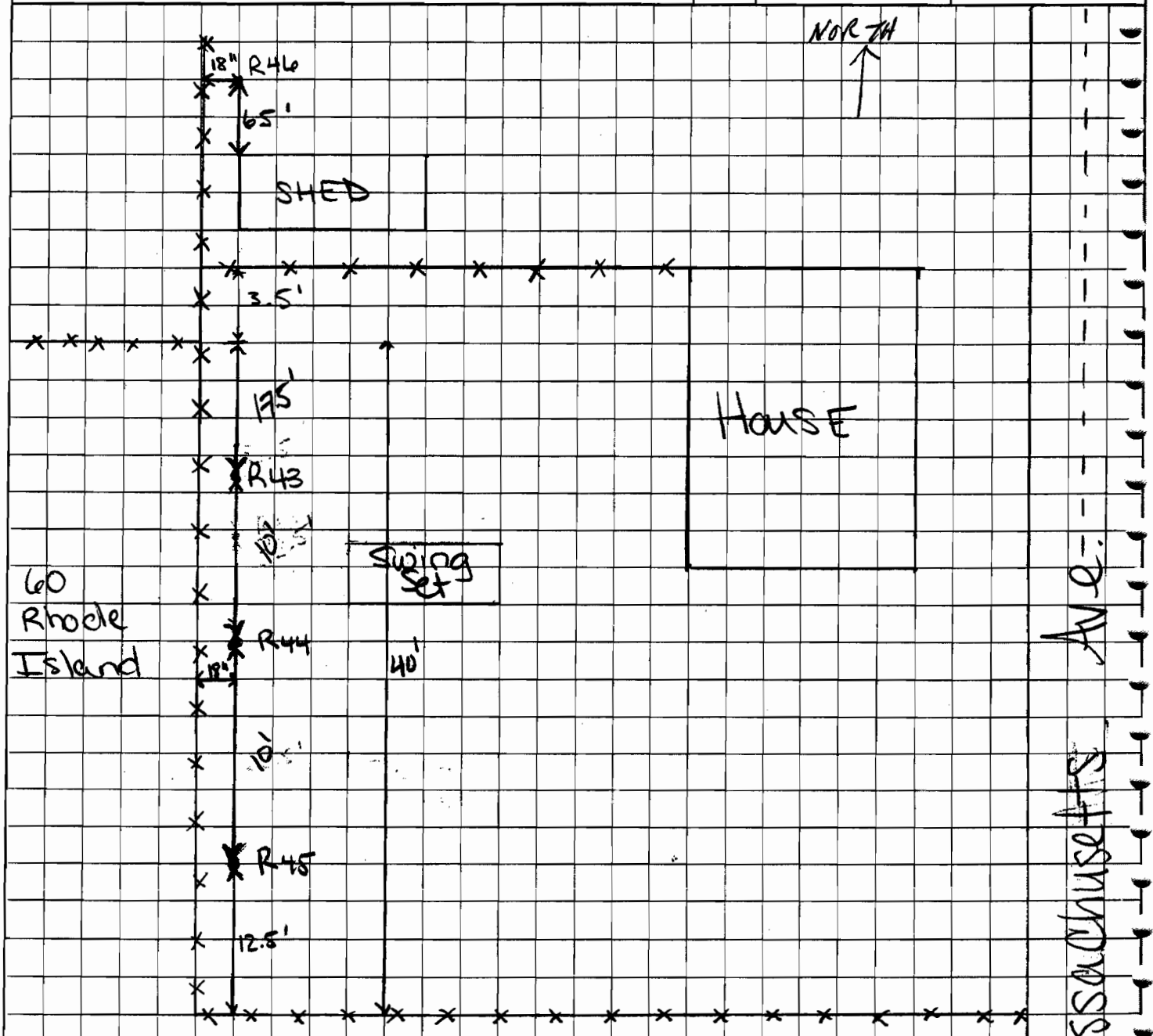
	Initials: / /	Initials: / /



Key: • = surface soil sample

× × × = fence

*Notes: ① House and Street locations are approximate ② Drawing not to scale. Dimensions are field varified.

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General Computation Sheet

Calculation Set No.		
Preliminary	☐	
Final	☐	
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Sheet ___ of ___	Project No.	

Name of Project Luzerne Rd Landfill R.I. System 6/00/00

Subject 593-597 Massachusettes Ave

Rev.	Completed By	Checked By
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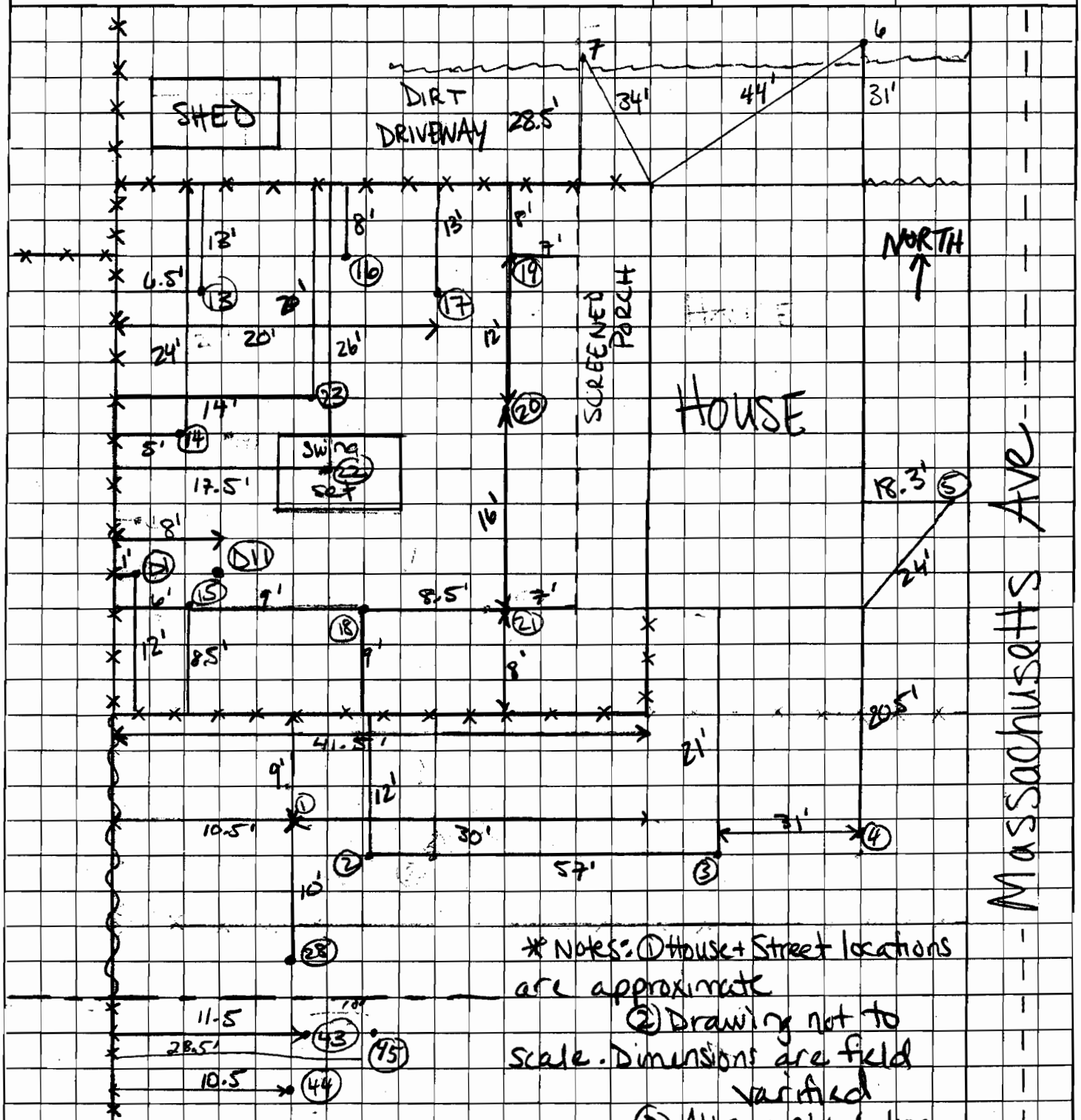
	Initials: / /	Initials: / /



* Notes: ① House + Street locations are approximate
② Drawing not to scale. Dimensions are field verified
③ All samples taken at surface unless otherwise noted.

Key: (#) = sample #
D = subsurface sample
x x x = wooden fence
~~~ = chain link fence
— — — = property line
~~~

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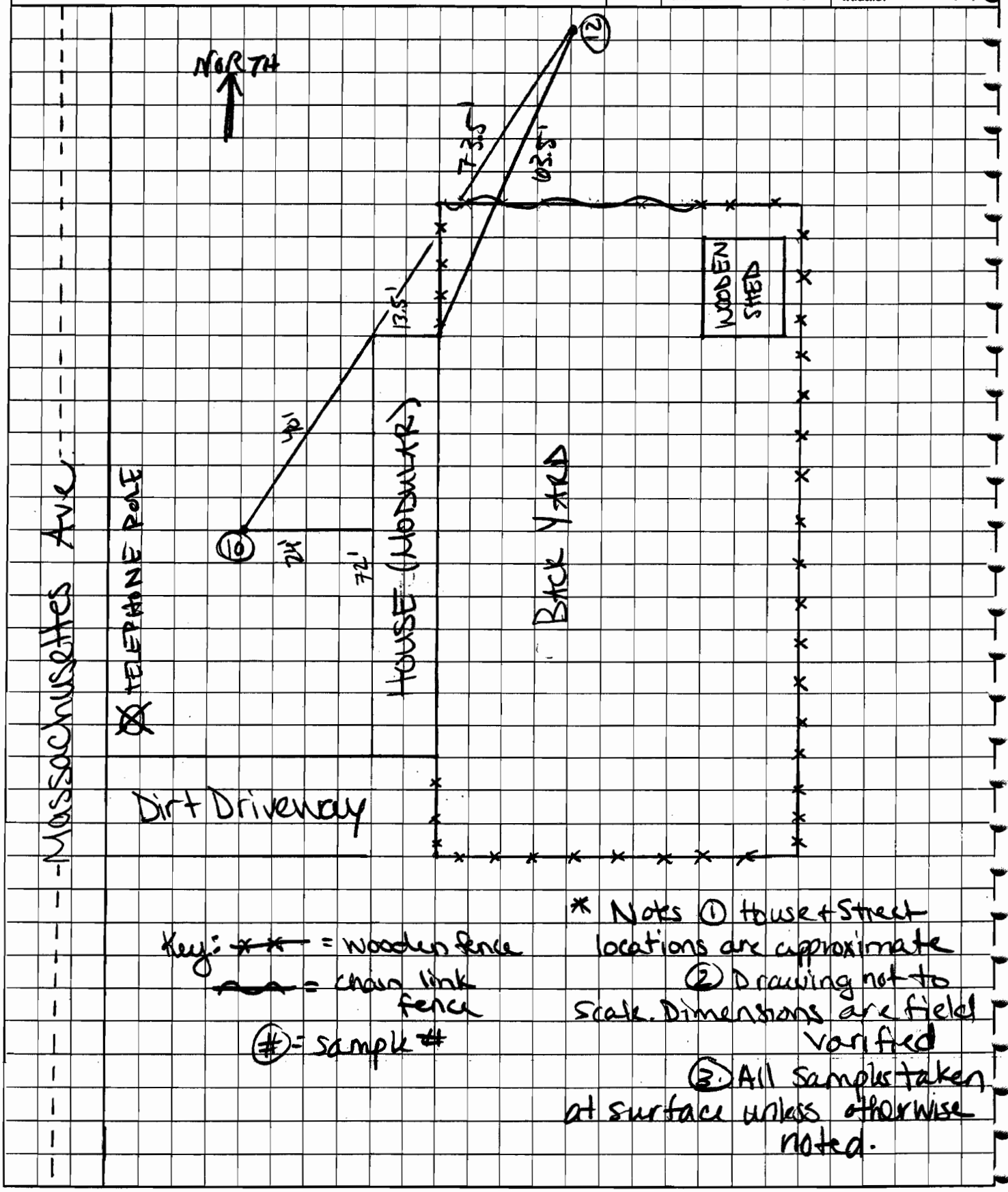
General Computation Sheet

Calculation Set No.		
Preliminary	☐	
Final	☐	
Void	☐	
Sheet ___ of ___	Project No.	

Name of Project Luzerne Rd. Landfill R.I. System 6/00/00

Subject 64 Massachusettes Ave.

Rev.	Completed By	Checked By
☒	Initials: / /	Initials: / /
	Initials: / /	Initials: / /



Key: ✕✕ = wooden fence

~~~ = chain link fence

(#) = sample #

* Notes ① house + Street locations are approximate

② Drawing not to scale. Dimensions are field varified

③ All samples taken at surface unless otherwise noted.
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General Computation Sheet

Calculation Set No.	
Preliminary	☐
Final	☐
Void	☐
Sheet ___ of ___	Project No.

Rev.	Completed By	Checked By
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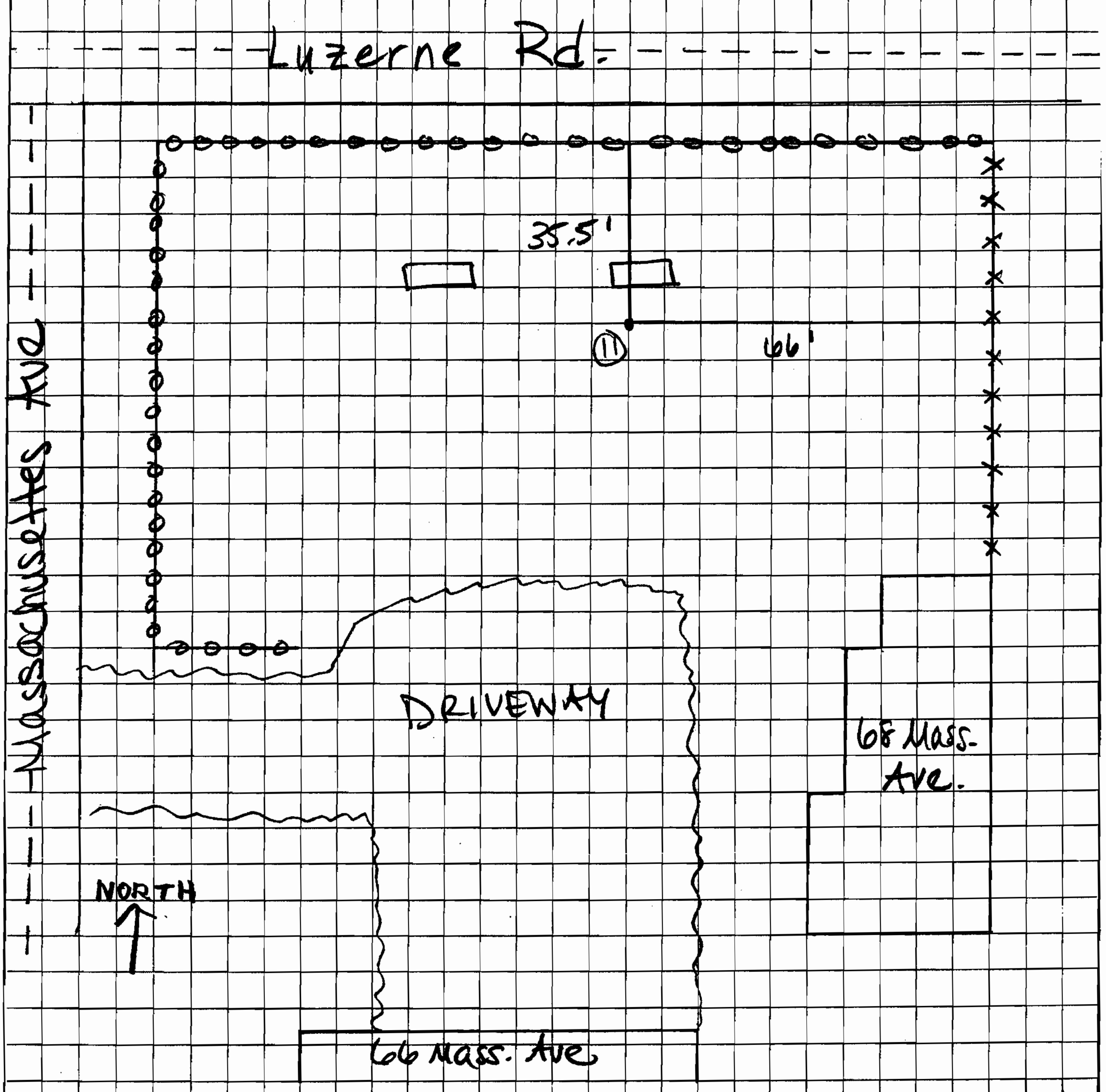
	Initials: / /	Initials: / /

Name of Project: Luzerne Rd. Landfill RI. System 6/00

Subject: 68 Mass. Ave



Key: ⓘ = sample #
x—x = wooden fence
o—o—o = split ball fence covered by wire fencing
▭ = jungle gym

*Notes: ① House + street locations are approximate. ② Drawing not to scale. Dimensions are field varified. ③ Samples taken at surface unless [illegible]

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General Computation Sheet

Calculation Set No.	
Preliminary	☐
Final	☐
Void	☐
Sheet ____ of ____	Project No.

Name of Project Luzerne Rd. Landfill RI System 12/99-5/00

Subject 694 Sherman Ave.

Rev.	Completed By	Checked By
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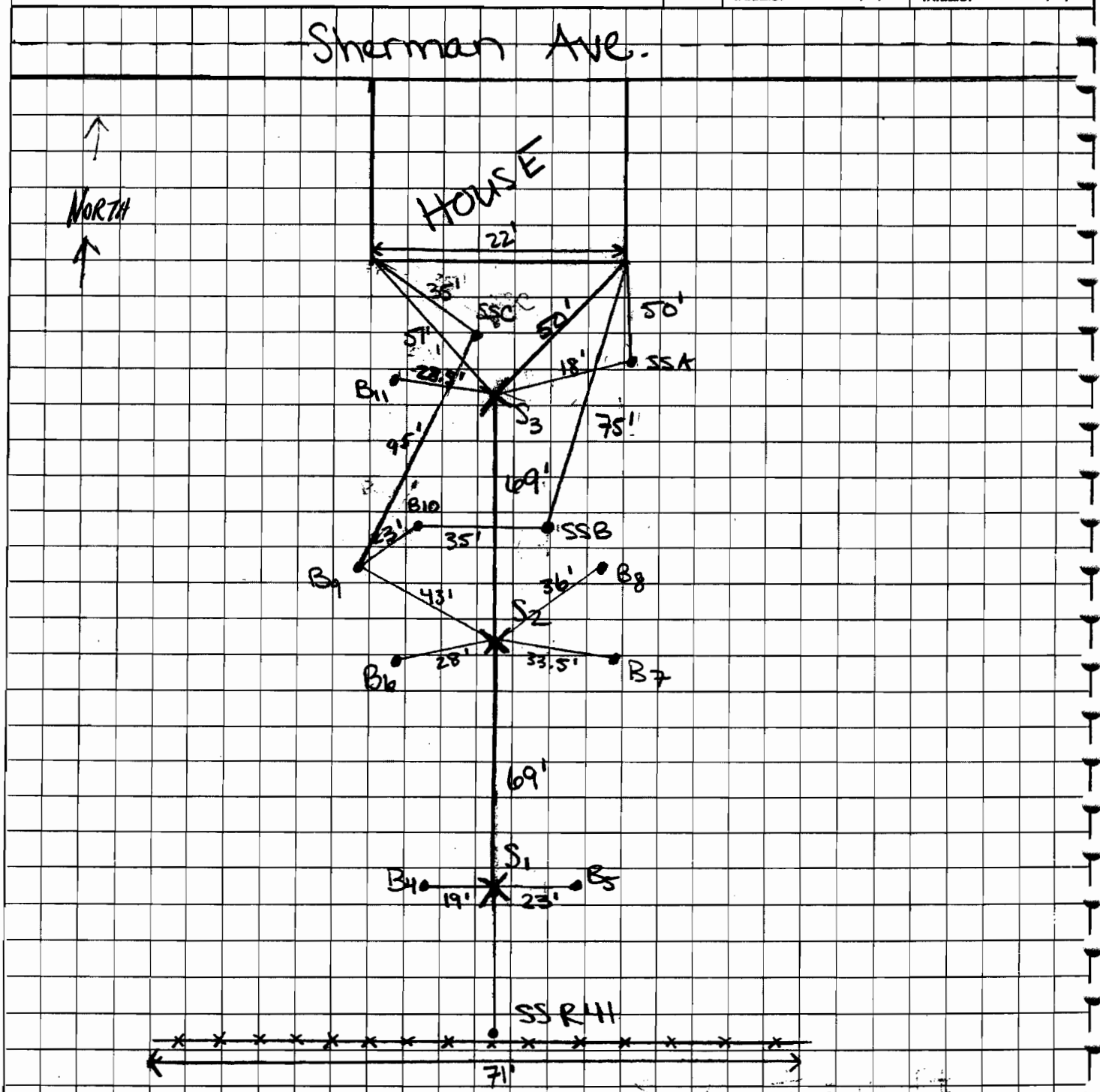
	Initials: / /	Initials: / /



Key: X = geoprobe point
● = surface soil sample
× × × × = fence

*Notes: ① House and street locations are approximate.
② Drawing not to scale. Dimensions are field verified.

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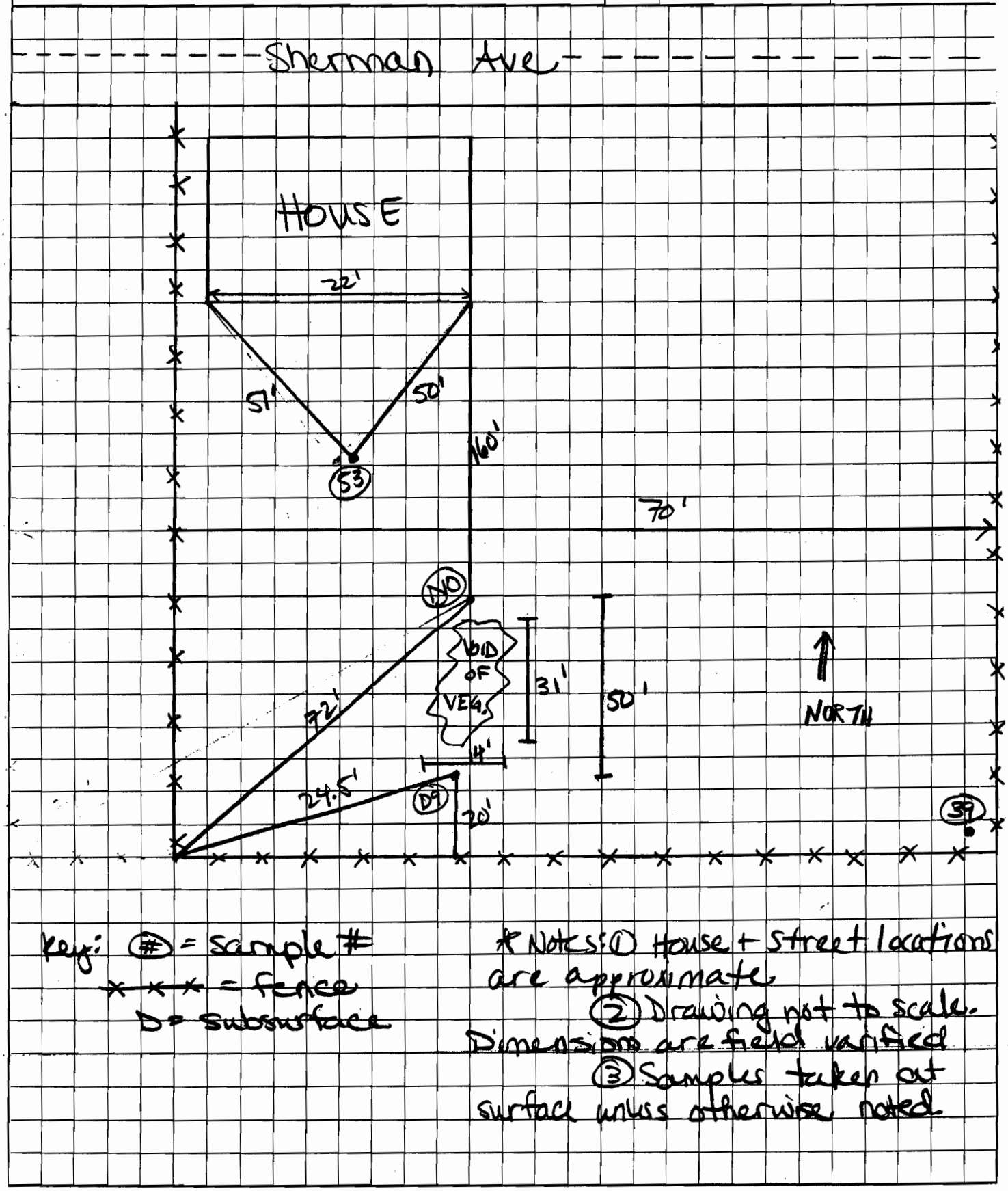
General Computation Sheet

Calculation Set No.	
Preliminary	☐
Final	☐
Void	☐
Sheet ____ of ____	Project No.

Name of Project Luzerne Rd. Landfill R.I. System 16/00

Subject 694 Sherman Ave.

Rev.	Completed By	Checked By
☒	Initials: / /	Initials: / /
	Initials: / /	Initials: / /



Key: (#) = sample #
× × × = fence
D = subsurface

*Notes: ① House + street locations are approximate.
② Drawing not to scale. Dimensions are field verified
③ Samples taken at surface unless otherwise noted

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General Computation Sheet

Calculation Set No.	
Preliminary	☐
Final	☐
Void	☐
Sheet ____ of ____	Project No.

Name of Project Luzerne Rd - Landfill R.I. System 1-6-00

Subject 72 Indiana Ave

Rev.	Completed By	Checked By
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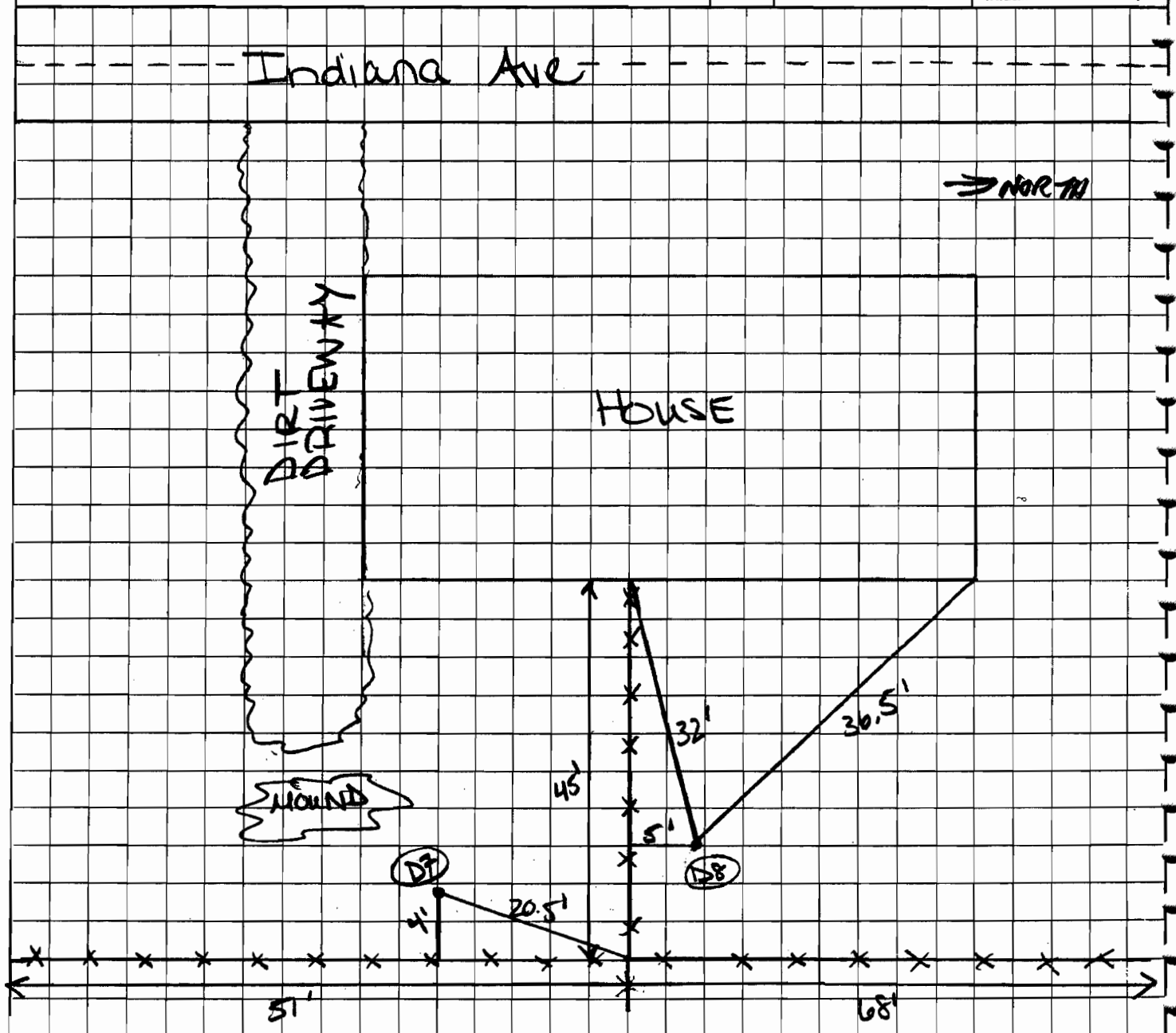
	Initials: / /	Initials: / /



Key: ** = fence
(#) = sample #
D = subsurface

* Notes: ① House + street locations are approximate
② Drawing not to scale. Dimensions are field verified.
③ Samples taken at surface unless otherwise noted.

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General Computation Sheet

Calculation Set No.	
Preliminary	☐
Final	☐
Void	☐
Sheet ____ of ____	Project No.

Name of Project Luzerne Rd. Landfill RI System 5/00

Subject 72 Indiana Ave.

Rev.	Completed By	Checked By
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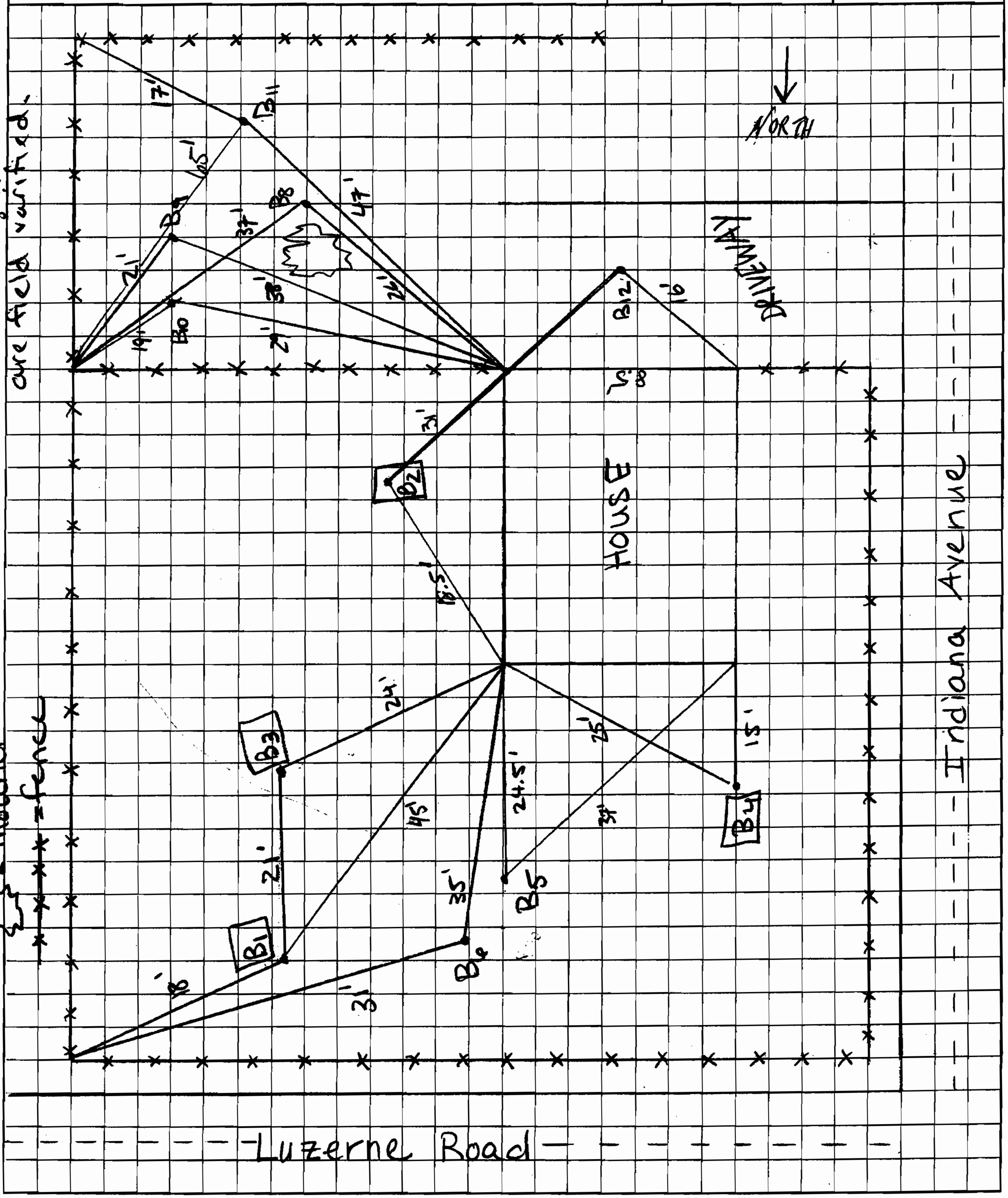
	Initials: / /	Initials: / /



* Notes: ① House and street locations are approximate. ② Drawing not to scale. Dimensions are field verified.

Key: • = surface soil samples
□ = Boring Drived in Dec. '99
= mound
-x-x- = fence

F

Data Usability Summary Forms

Data Validation Services

120 Cobble Creek Road P. O. Box 208
North Creek, N. Y. 12853
Phone 518-251-4429
Facsimile 518-251-4428

March 16, 2000

Jon Nickerson
Ecology and Environment, Inc.
368 Pleasantview Dr.
Lancaster, NY 14086

RE: **D**ata **U**sability **S**ummary **R**eport for the Luzerne Road Landfill Site Data Package
E&E Package Numbers 9908081, 9908104, 9908136, 9908141, 9908148, 9908166, 9908178, 9908216, 9908217, 9908230, 9908229, 9908245, 9908246, 9908260, 9908259, 9908269, 9908268, 9909001, 9909013, 9909012, 9909026, 9909042, 9909054, 9909072, 9909071, 9909091, 9909165, 9909184, 9909199, 9909205, 9909125, 9909240, 9912138, 9912142, 9912143, 9912159, and 9912160

Dear Mr Nickerson:

Review has been completed for the data packages generated by Ecology and Environment Laboratories, pertaining to samples collected 8/9/99 through 12/15/99 Luzerne Road Landfill site. Two hundred and eleven soil samples were analyzed for TCL PCBs by method USEPA 8082. Twenty one aqueous field samples were analyzed for the full TCL organics and TAL metals/cyanide. Four of these were processed for COD and Oil and Grease, which were subcontracted to Columbia Analytical Services (CAS). Thirty eight soil samples were analysed for TCL volatiles, and twenty seven soil samples were processed for Total Organic Carbon. Matrix spikes/duplicates, and trip blanks were also processed. Methodologies utilized for the TCL/TAL analytes are those of the 1995 NYSDEC ASP CLP for all analyses except pesticides and PCBs, which were performed by USEPA SW846 methods 8081A and 8082. Data relating to project samples processed for screening only, including correlations to EPA8082 results, were not reviewed for this DUSR.

The data packages submitted contained full deliverables for validation, but this usability report is generated from review of the summary form information, with review of sample raw data, and some review of associated QC raw data. Full validation has not been performed. However, the reported summary tables have been reviewed for application of USEPA Regional and National validation qualifiers, as affects the usability of the sample data. The following items were reviewed:

* Laboratory Narrative Discussion
* Custody Documentation
* Holding Times
* Surrogate and Internal Standard Recoveries
* Matrix Spike Recoveries/Duplicate Correlations
* Field Duplicate Correlations

* Preparation/Calibration Blanks
* Control Spike/Laboratory Control Samples
* Instrumental Tunes
* Calibration Standards
* Instrument IDLs
* Method Compliance

Those items listed above which show deficiency are discussed within the text of this narrative All other items were determined to be acceptable for this level of review.

In summary, with the exceptions discussed within this report, sample results are generally usable as reported, or with minor qualification as estimated. The exceptions include some rejected mercury and selenium reporting limits, and rejection of two Aroclor mixture reporting limits in one sample. Data packages were well compiled and complete, with the exception of the omission of internal custodies. Sample preparation/analysis logs with analyst initials are present.

The data qualifiers/edits determined from the DUSR review have been applied in red-ink to client results tables, and submitted with this narrative. Most of these involve qualification of Aroclor results due to weathering or presence of multiple mixtures. Those issues of particular concern are the following, which are discussed in detail in the subsequent text:

1. The PCB results for LRMW10101WO were incorrectly reported as nondetection, but should be detection of Aroclor 1242 at 18.8 ug/L.
2. Aroclor 1221 and 1232 reporting limits in sample LRMW609ISD are rejected and unusable.
3. Selenium or mercury reporting limits for some of the aqueous samples are rejected.
4. Several metals analyte values are estimated.
5. Some of the pesticide nondetected results are edited to detection, but qualified heavily due to intereference contribution.
6. Some low level methylene chloride, phthalate, acetone, and PCB detections are edited to nondetection.
7. Most Aroclor 1242 values are qualified as estimated, and many as tentative in identication.

Although the presence of Aroclor 1242 was indicated in most of the samples showing PCB detection, the pattern of the mixture was poor due to both weathering, and to the cross-contribution to quantitated values from other Aroclor mixtures present in the samples. In summary, all Aroclor 1242 detected values reported in samples *also reporting detection of other mixtures* are to be considered estimated, with a possible high bias. The weathering is particularly evident in the GRID and surface soil samples. Cases where the bias is extreme, or the identifications should also be considered tentative due to poor pattern, are noted specifically later in this text.

Similarly, detected results for Aroclor 1260 in samples reporting detection of other mixtures are also to be considered estimated. Results for Aroclor 1254, and for those samples where only one mixture is reported, are not qualified, unless noted below.

The following text discusses quality issues of concern. Copies of laboratory NYSDEC Sample Analytical Requirement Summary Forms are attached to this text. Minor errors in summary form entries not affecting sample reported results are not noted within this report.

Accuracy and Precision

Soil matrix spikes were performed as follows:

a) Volatile analytes on LRCGP2BSO, LRS103PSO, LRMW45ASO, LRW510RSO, LRE107ASO, LR590S01BSO, and on an associated trip blanks LRS301GWT, LRT107WT, and LRT108AWT
b) PCB analytes on LRW108LSD, LRW101ASD, LRW507ASD, LRS501LSD, LRE204FSD, LRN204LSO, LRW209HSD, LRW711HSD, LRW508KSD, LRSW09NSD, LRGRID10ASO, LRGRID22ASO, LRMW15FSD, LR721A4DSO, LRSS03ASO, and LRSS50ASO.

Aqueous matrix spikes were performed as follows:

a) All TCL/TAL analytes on LRMW10105-WO
b) All TCL/TAL analytes except PCB on LRMW10101-WO
c) Base/neutral analytes on LRMW1S-WO
d) Pesticide and PCB analytes on LR-MW2S-WO

All values were acceptable, were diluted beyond evaluation, or showed slightly outlying responses (i.e. elevated recoveries for components not detected in the samples), not indicating qualification of associated results. The exceptions, which primarily include metals, are listed in the sections below.

Field Duplicate Correlation

Field duplicate correlations for all TCL/TAL analytes were performed on samples LRMW10101-WO, LRMW5I-WO and LRMW5D-WO.

Field duplicates evaluated for PCB analytes were LRW612HSD, LRS406ESD, LRS503NSD, LR60RI3ESD, LR2104ASD, LRSS03ASO, LR72IA2, LRSS09R, LRSS44, LRGRID10, LRGRID20, and LRGRID30.

Field duplicate evaluations for volatile analytes were performed on RV-GP-02-SO, RV-GP-10-WO, RV-HP-02-WO, and RV-HP-04-WO.

Sample MW-6S-WO was evaluated for semivolatile analyte field duplicate correlations.

Most correlations were very good, with no qualification of data indicated. The exceptions are two metals parameters in one aqueous set, and one pesticide component in each of two others.

General

External custodies contained numerous uninitialed strikeovers and omitted collection and relinquish times. SDG 9909199 also shows erroneous relinquish date, collection times not entered, and there is no receipt data or time for one form. SDG 9912159 shows an erroneous release date or time on the custody form.

These discrepancies should have been resolved at sample receipt; a memorandum to the file would be appropriate. All edits, which should not be done as write/strikeovers, should be dated and initialed.

The trip blank associated with SDG 9909165 was not listed on the custody form. An extra aliquot of metals fraction of LRMW5S was received, but not logged on the custody. Other discrepancies between sample IDs on the custody forms and bottles were noted in the narrative; those of the custodies were used.

AQUEOUS SAMPLES

TCL Volatile Analyses by 95-1

Sample processing seems to have been performed in compliance with protocol requirements, and reported results are substantiated by the raw data.

Elevated responses observed in some calibration standards do not affect nondetected sample results.

TCL Semivolatile Analyses by 95-2

The initial analyses of LRMW10101WO and LRMW5IWO should be used preferentially over the reanalyses. All showed elevated recoveries of one internal standard not affecting associated reported results, which are nondetection.

The result for pentachlorophenol in LRMW4SWO is estimated, possibly biased high, due to slightly elevated recovery observed in the associated matrix spiked blank.

Due to low responses in the initial and/or continuing calibration standard, results for hexachlorocyclopentadiene in LRMW1DWO, LRMW1IWO, and LRMW1SWO should be considered estimated, possibly biased low.

Sample results qualified by the laboratory as "B", which were all below CRDL, are edited to reflect nondetection at the CRDL.

Although not detected in all associated method blanks, and therefore not always edited as such, low level detections of phthalates are suspect as contamination, and should be regarded with caution.

All Tentatively Identified Compounds (TICs) reported in the samples which are flagged as "A" or "B" are rejected, as they were detected in the associated method blanks or are extraction artifacts.

TCL Pesticide/PCB Analyses by 8081/8082

The Aroclor 1242 result for LRMW10101-WO should be 18.8 ug/L. The nondetected reported result is apparently a transcription error.

The data packages do not contain pesticide standard summaries or raw data for the alternate column, although that raw data was provided for the samples and used in their evaluation. No Forms 10 were provided.

Samples with PCB components produced interference in the pesticide analyses. The laboratory reported nondetection, but in some cases, based upon the sample quantitation report values, there were detections above CRDL on both analytical columns. Full validation would require resubmission of the omitted second column standard data to confirm those sample quantitation report values. The false negatives are listed below, with the applicable validation qualifiers, showing the tentative nature and estimated values indicated by the poor dual column correlations:

Sample ID	Analyte	Concentration	Qualifiers
LRMW2S-WO	heptachlor	0.087 ug/L	NJ
LRMW5SWO	heptachlor	0.11	U (edit to elevated CRDL)
LRMW10101WO	heptachlor	0.53	U "
	heptachlor epoxide	0.30	
LRMW10101WD	heptachlor	0.16	U "
	heptachlor epoxide	0.10	
	endosulfan II	0.065	NJ
LRMW10105WO	heptachlor	1.3	U "
	heptachlor epoxide	0.50	
LRMW5IWO	heptachlor	0.42	
LRMW4SWO	heptachlor	0.50	U "
LRMW3S	heptachlor	0.15	U "
LRMW10104WO	heptachlor	0.89	U "
	heptachlor epoxide	0.03	

As noted above, all Aroclor 1242 and 1260 detected values reported in samples also showing detection of other Aroclor mixtures, should be considered estimated, with a probable high bias.

The laboratory did perform some good review to eliminate cross contribution for some samples, but it was not done consistently, and most samples used common peaks for quantitation of the multiple Aroclor mixture results. In some cases weathering was evident, but the contribution of the other Aroclor congeners indicates an overall high bias; this is inherent in the situations where multiple Aroclor mixtures are present. No qualification is recommended for the Aroclor 1254 values because they showed good pattern match to the standards (with less cross contribution effect due to relative concentrations of the congeners). The exceptions to the qualification of the Aroclor 1242 results as discussed above, is sample LRMW1SWO, which was well reviewed by the laboratory and showed good pattern match.

In addition to those qualifications to Aroclor 1242 detections (when other mixtures are also present), the following sample results should also be qualified due to poor pattern match, weathering, or quantitation of only two congeners:

Sample ID	Analyte	Qualifiers
LRMW2SWO	Aroclor 1242	NJ
LRMW3SWO	Aroclor 1254	NJ
LRMWPCBE1	Aroclor 1242	J

Pesticide matrix spikes of LRMW10101WO could not be evaluated due to the intereference from PCB responses, and to the dilution used for analysis. Several other sets of matrix spikes were also diluted beyond evaluation due to sample constituency.

Some of the matrix spikes of samples containing Aroclor 1242 produced elevated recoveries for spike mixture Aroclor 1016, due to the similarity in the congener components, and lack of utilization of those responses in the calculation.

Analyte values flagged as "E" should be considered estimated due to response above instrument calibration range.

Due to poor field duplicate correlation (nondetection and detection above CRDL), results for heptachlor in LRMW5IWO and LRMW5IWD, and heptachlor epoxide in LRMW10101WO and LRMW10101WD, are qualified estimated.

Resolution and breakdown summaries are not present in the data packages. Raw data were reviewed and found acceptable.

TAL Metals/Cyanide by CLP-M

Two metals analyses were performed for sample ID LRMW5S, which was received with the other fractions in SDG 9909199, and also received without custody documentation in SDG 9909184.

Batch QC spike recovery (60%) of mercury indicates that the result for that analyte in LRMW2SWO is estimated, possibly biased low.

Matrix spikes of batch QC showed low recoveries for cadmium (73%) and lead (70%), and no recovery for mercury (0%). Results for associated samples LRMW11WO, LRMW1SWO, and LRMW1DWO are qualified estimated, with sample results showing no detection of mercury rejected.

Matrix spikes of LRMW10101-WO indicate qualification of mercury (51%), cyanide (73%), lead (>+-CRDL), selenium (>+-CRDL), and antimony detections (127%) results in all associated samples (SDG 9909199) as estimated.

Matrix spikes of batch QC showed outlying recovery of selenium (0%) and mercury (60%), and results for these analytes are qualified estimated (rejected for samples showing no detection of selenium) in LRMW6DWO, LRMW10104WO, LRMWOPCBE1, LRMW05DWO, and LRMW05DWD.

Matrix spikes of LRMW10105 showed elevated recoveries for silver and mercury (143% and 392%), and results for associated samples LRMW10105WO, LRMW6SWO, LRMW5IWO, LRMW5IWD, LRMW4SWO, LRMW3SWO, and LRMW5SWO are considered estimated.

Iron and zinc showed outlying correlations(72%RPD and >+-CRDL, respectively) in the field duplicates LRMW5D-WO and LRMW5D-WD. Results for those two analytes in those two samples are therefore considered estimated.

Due to outlying CRI recoveries, results for lead (53%) and selenium (134%) in LFMW2SWO, LRMW10105WO, LRMW6SWO, LRMW5IWO, LRMW5IWD, LRMW4SWO, LRMW3SWO, and LRMW5SWO are qualified estimated.

Due to outlying CRI recoveries, results for copper (63%) and selenium (69%) in LRMW1IWO, LRMW1SWO, and LRMW1DWO are qualified estimated.

The ICP serial dilution of batch QC associated with LRMW6DWO, LRMW10104WO, LRMWOPCBE1 showed that calcium (13%D) and potassium (12%D) should also be considered estimated in these samples.

The ICP serial dilution of batch QC showed elevated correlation for manganese (26%D), indicating that associated sample results for LRMW05DWO and LRMW)5DWD be considered estimated, possibly biased low. The serial dilutions of LRMW10101WO LRMW10105WO were acceptable.

The cyanide IDL is not listed on a Form 10.

COD/O&G

Raw data for the 9/22/99 analyses (pertaining to two samples and a duplicate) were not in the data package. These should be requested if full validation is to be performed. Other data was present and acceptable.

SOIL SAMPLES

TCL Volatile Analyses by 95-1

Samples LRMW2HSD, LRMW2SISO, LRMW2SJSO, LRW707JSO, and LRW708FSO were received at elevated cooler temperature (18 degrees C) three days after shipment. Results are considered estimated, with a possible low bias.

Samples LRCGP2HSO and LRCGP2ISO showed consistent low recovery of internal standard d5-chlorobenzene. The reanalyses are preferred, but results of analytes associated with that internal standard are qualified as estimated.

Tentatively Identified Compounds (TICs) which are siloxanes are usually analysis artifacts.

The identification for the TIC of LR65RI01FSO should be edited to "Unknown", and the CAS number and N flag removed.

Due to copresence in an associated blank, the detections of methylene chloride which are flagged as "B" by the laboratory, and for LR694S3ASO and LR72IA3ASO are considered contamination, and the results edited to nondetection. Other detections of this analyte, although not so qualified, should be regarded with caution.

Due to copresence in an associated blank, the detections of acetone in samples LRE208MSO, LRN208, LRW602J, LRW304LSO, LRW508KSO, and LRW504LSO are considered contamination, and the results edited to nondetection. Other detections of this analyte, although not so qualified, should be regarded with caution.

TCL PCBs by 8082

Results for samples LRW209HSD, LRW211HSD, LRW312KSD, and LRW412JSD are considered estimated due to outlying holding time for extraction (20 days from VTSR). The bias is not expected to be great due to PCB analyte persistance.

Samples LRW711HSD and LRW706CSD were received at elevated cooler temperature (18 degrees C) three days after shipment. Results are considered estimated, with a possible low bias. The bias is not expected to be great.

Due to low surrogate TCX recoveries, results for all PCB analytes in LRW612HSD, LRW612HSD-D, LRW410DSO, LRW609ISD, and LRMW15FSD are considered estimated. Those for Aroclor 1221 and 1232 are rejected in LRMW609ISD due to very poor recovery (8%). Surrogate DCB recoveries in those samples were acceptable.

Due to elevated surrogate DCB recoveries, detected values in LR72IA3ASO (206%) and LR72IA4ASO are qualified estimated.

Some of the surrogate DCB responses were elevated due to matrix/analyte interference. Many sample surrogate responses were diluted beyond detection due to high sample analyte concentrations.

Sample LRW306LSD showed unreported detection of Aroclor 1242 at 13 ug/kg. The result is edited to reflect this.

Due copresence in associated blanks at similar concentrations, results for the following samples are edited to nondetection at the originally reported values: LRW508KSD, LRW504LSD, and Aroclor 1242 in LRW104LSD.

Please see the discussion in the aqueous section regarding the quantitation of multiple Aroclor mixtures. The exceptions to the qualification of the Aroclor 1242 results as discussed above, are the following samples, which were well reviewed by the laboratory, or showed good pattern match: LRW108LSD, those samples with "LRCGP..." identifications, LRW208GSD, LRW205HSD, LR506ISD, LRW306LSD, and LRMW3SESD.

In addition to those qualifications (as estimated) to Aroclor 1242 detections (when other mixtures are also present, the following sample results should also be qualified due to poor pattern match, weathering, or quantitation of only two congeners:

Sample ID	Analyte	Qualifiers
LR463W1BSD	Aroclor 1242	J
LRS201NSO	Aroclor 1242	NJ
LRW305ASD	Aroclor 1242	NJ
LRW404GSD	Aroclor 1242	NJ
LRW507ASD	Aroclor 1242	NJ
LRW507ASD	Aroclor 1254	J
LRW509ASD	Aroclor 1254	NJ
LRS406ESD	All detected	J
LRS406ESD-D	All detected	J
LR303ASD	Aroclors 1254 and 1260	J
LRE303ISD	Aroclor 1242	NJ
LRES408NSD	Aroclor 1254	NJ
LRW311HSD	Aroclor 1242	NJ
LRMW1SFSD	Aroclor 1242	J
LRGRID21ASO	Aroclor 1254	J
LRGRID22ASO	Aroclor 1254	J
LR72IA4ASO	Aroclor 1254	NJ
LR694S1CSO	Aroclor 1254	NJ
LR694S3ASO	Aroclors 1254 and 1260	J
LR72IA1ASO	Aroclors 1254 and 1260	J
LRSE01NSD	Aroclor 1242	NJ
LRSE04OSD	Aroclor 1242	NJ
	Aroclor 1254	J
LRSS01ASO	Aroclor 1242	NJ
LRSS02ASO	Aroclor 1242	NJ
LRSS04ASO	Aroclor 1242	NJ
LRSS04DSO	Aroclor 1242	NJ
LRSS03RASO	Aroclor 1242	NJ
LRSS04RASO	Aroclor 1242	NJ
LRSS06RASO	Aroclor 1242	NJ
LRSS07ASO	Aroclor 1242	NJ
LRSS43ASO	Aroclor 1254	J
LRSS46ASO	Aroclor 1254	J
LRSS50ASO	Aroclor 1254	J
LRSS52ASO	Aroclor 1254	NJ
LRS403CSD	Aroclor 1242	NJ
LRS502CSD	Aroclor 1242	NJ

Results for Aroclor 1242 in LRSS01ASO and LRSS04ASO may be biased high by as much as an order of magnitude.

The reporting limit for Aroclor 1260 in LR165L4FSD is qualified estimated due to responses that may be due to matrix, which produce values for congeners just above the CRDL.

The samples in SDG 9908166 were received at elevated cooler temperatures, but the effect is likely minimal due to the persistence of the PCB analytes.

Matrix spikes associated with SDG 9909026 showed very poor correlation to one another as regards values and chromatographic response. They are batch QC, and associated samples are not affected.

Method Detection Limits are outdated (1998) and should be regenerated.

Total Organic Carbon

Samples LRW707JSO and LRMW2SJSO were received at elevated cooler temperature (18 degrees C) three days after a Friday shipment. Results are considered estimated, with a possible low bias.

Please do not hesitate to contact me if questions or comments arise during your review of this report.

Very truly yours,

Judy Harry

Att.

To be included with all lab data and with each workplan

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
LR-W101-ASD	9908081-01				8082		
LR-W105-GSD	02						
LR-W107-GSD	03						
LR-W208-GSD	04						
LR-W111-FSD	05						
LR-W204-FSD	06						
LR-W305-ASD	07						
LR-W309-JSD	08						
LR-W408-FSD	09						
LR-W404-GSD	10						

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
LR-W305-GSO	9908104-01	95-1					
LR-W309-GSO	1 02	1					
LR-W404-LSO	1 03						

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
LR-W507-ASD	9908136-01				8082		
LR-W509-ASD	02						
LR-S507-CSD	03						
LR-S406-ESD	04						
LR-S406-ESD-D	05						
LR-S301-NSD	06						
LR-S303-ASD	07						
LR-S101-FSD	08						
LR-S101-NSD	09						
LR-S101-HSD	10						
LR-S105-MSD	11						
LR-S105-OSD	12						

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
LR-5301-ASD	9908141-01	95-1					
LR-5301-GWT	9908141-02	95-1					

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
LR-5103-RSO	990B148-01	95-1					

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
LR-S501-LSD	9908166-01				8082		
LR-S503-NSD	02						
LR-S503-NSD-D	03						
LR-S107-FSD	04						
LR-S204-ASD	05						
LR-S604-NSD	06						
LR-S208-JSD	07						
LR-S706-BSD	08						

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
LR-E107-ASD	9908178-01	95-1					
LR-E204-FSD	02				8082		
LR-E206-KSD	03						
LR-E109-JSD	04						
LR-E303-ISD	05						
LR-E105-MSD	06						
LR-E208-MSD	08						
LR-S408-NSD	09				—		
LR-T102-AWT	07	95-1					

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
LR-N204-LSD	9908216-01				8082		
LR-N206-FSD	02						
LR-N208-MSD	03						
LR-W604-CSD	04						
LR-W608-J	05						
LR-MW1D-FSD	06						
LR-N101-LSD	07						
LR-N107-FSD	08						
LR-N202-SD	09						

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
LR-T103-AWT	9908217-01	95-1					
LR-T104-AWT	02						
LR-E208-MSD	03						
LR-N208-M	04						
LR-W602-J	05						

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
LR-W209-HSD	9908229-01				8082		
LR-W211-HSD	02						
LR-W312-KSD	03						
LR-W412-JSD	04						

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
LR-W311-HSD	9908246-01				8082		
LR-W612-HSD	02						
LR-W612-HSD-D	03						
LR-W410-DSD	04						
LR-W609-ISD	05						
LR-W511-HSD	06						
LR-MW15-FSD	07						

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
LR-W711-HSD	9908259-01				8082		
LR-W706-CSD	1 02				8082		

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
LR-W107-JSO	9908260-01	95-1					
LR-W-108-FSO	02						
LR-MW2S-HSD	03						
LR-MW2S-1SO	04						
LR-MW2S-JSO	05						
LR-TIOS-AWT	06						
LR-W107-JSO	07						TOC
LR-MW2S-JSO	08						TOC

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
LR-W205-HSD	9908268-01				8082		
LR-W506-LSD	02						
LR-W407-KSD	03						
LR-W308-KSD	04						
LR-W306-LSD	05						
LR-MW35-ESD	06						

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
LR-WSD6-ASO	9908269-01	95.1					
LR-WSD6-1SO	02	95.1					
MW-35-KSO	03						TOC

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
LR-W108-LSD	9504001-01				8082		
LR-S302-GSD	02	95-1					
LR-S102.030-SD	03				8082		TOC
LR-S201-NSD	04				8082		
LR-S203-OSD	05				8082		
LR-CGP2-BSD	06	95-1			8082		TOC, pH
LR-CGP2-DSD	07	95-1			8082		TOC, pH
LR-CGP2-FSD	08	95-1			8082		TOC, pH
LR-CGP2-HSD	09	95-1			8082		TOC, pH
LR-CGP2-ISD	10				8082		
LR-CGP2-JSD	11	95-1					
LR-CGP1-BSD	12	95-1					
LR-CGP1-DSD	13	95-1					
LR-CGP1-FSD	14	95-1					
LR-CGP1-FSD	15				8082		
LR-MW5S-NSD	16				8082		TOC

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
LR-TIOG-ANT	9909012-01	95-1					
LR-W5DB-KSO	02						
LR-W5D4-LSO	03						
LR-W3D4-LSO	04						

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SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
LR-W304-LSO	9909013-01						TOC
LR-W5DB-KSD	02				8082		
LR-W5D4-LSD	03						
LR-W104-ASD	04						
LR-W104-ASD-D	05						
LR-W104-LSD	06						
LR-W203-KSD	07						
LR-SS01-ASO	08						
LR-SS02-ASO	09						
LR-SS03-ASO	10						
LR-SS04-ASO	11						
LR-SS04-DSO	12						
LR-SS05-ASO	13						
LR-SS06-ASO	14						
LR-SS07-ASO	15						
LR-SS08-ASO	16						
LR-SS09-ASO	17						

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
LR-SE06-OSD	9909026-01				8082		
LR-SE04-ISD	02						
LR-SE04-OSD	03						
LR-SE03-NSD	04						
LR-SE02-NSD	05						
LR-SS10-ASD	06						
LR-SS05-MSD	07						
LR-SE01-NSD	08						

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
LR-MW4 S-ASD	9909042-01	95-1					
LR-MW4S-CSD	02						TOC
LR-T107-AMT	03	95-1					

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
LR-SW09-NSD	9909054-01				8082		
LR-N201-LSD	02						
LR-E301-MSD	03						

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
LR-T108-AWT	9909071-01	95-1					
LR-W510-150	1 02	95-1					

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
LR-E202-NSD	9409072-01				8082		
LR-W510-KSD	02						
LR-S504-ASD	03						
LR-W502-LSD	04						

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
LR-S403-CSD	9909091-01				8082		
LR-S502-ASD	↓ 02				8082		

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other CN
LR- MW2S	9909165-01	95-1	95-2		8081/8082	CLP-M	CLP-M
TRIP BLANK	9909165-02	95-1					

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SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
LR-MW10105	9909184-01	95-1	95.2	✓	8081/8082	CLP-M	CN
LR-MW6S-WO	02	95-1	95.2	✓	8081/8082		CN
LR-MW6S-WD	03		95-2	✓			
LR-MW5I-WD	04	95-1	95-2	✓	8081/8082	CLP-M	CN
LR-MW5I-WO	05	95-1	95-2	✓	8081/8082	CLP-M	CN
LR-MW4S	06	95-1	95-2	✓	8081/8082	CLP-M	CN
LR-MW3S	07	95-1	95-2	✓	8081/8082	CLP-M	CN
LR-65RI1-HSD	08				8082		
LR-65RI3-BSD	09				8082		
LR-60RI1-DSO	10				8082		
LR-60RI3-ESD	11				8082		
LR-60RI3-CSDD	12				8082		
LR-58RI1-ASD	13				8082		
LR-56RI1-ASD	14				8082		
LR-64RI1-CSD	15				8082		
LR-64RI2-ASD	16				8082		
LR-175L1-BSD	17				8082		
LR-59OS1-BSD	18				8082		
LR-463W1-BSD	19				8082		
LR-60RI02-HSD	21 ~~20~~						TOC
LR-59OS01-BSD	22						TOC
LR-64RI02-HSD	23						TOC
LR-65-RI-01-HSD	24						TOC
LR 175 L01 -BSD	25						TOC
LR-64RI-01 FSD	26						TOC
LR-463W01 CSD	27						TOC
LR-56-RI1-ASD	28						TOC
LR-175-L01-BSD	29	95-1					~~TOC~~
AR-60RI03-DSD	30	95-1					
LR-463W01-CSD	31	95-1					
LR-65RI01-FSD	32	95-1					
LR-59OS-01-ASD	33	95-1					
LR-TB09-ANT	9909184-34	95-1					
LR-MW55-WO	36					CLP-M	
LR-TB11-ANT	37	95-1					

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SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
LR-MW5S	9909199-01	95-1	95-2	✓	8081/8082	CLP-M	CN
LR-MW50-WD	02	95-1		✓	8081/8082		CN
LR-MW5D-WD	03	95-1	95-2	✓	8081/8082		CN
LR-MW6D-WD	04	95-1	95-2	✓	8081/8082		CN
LR-MW6I-WD	05	95-1	95-2	✓	8081/8082	CLP-M	CN
LR-MW10101-WD	06	95-1	95-2	✓	8081/8082	CLP-M	CN
LR-MW10101-DUP	07	95-1	95-2	✓		CLP.M	CN
LR-MW10103-WD	08	95-1	95-2	✓	8081/8082	CLP.M	CN
LR-MW10102-WD	09	95-1	95-2	✓	8081/8082	CLP.M	CN
LR-MW6S-WD	10			✓		CLP.M	
LR-W110-ASD	11						TOC
LR-W110-DSD	12						TOC
LR-5BI52-BSD	13						TOC
LR-165L3-BSD	14						TOC
LR-W110-HSD	15	95-1					
LR-5BI53-ASD	16	95-1					
LR-165L3-CSD	17	95-1					
LR-165L4-FSD	18	95-1					
LR-10GF2-BSD	19	95-1					TOC
LR-TB22-AWT	20	95-1					
LR-5BI51-BSD	21				8082		
LR-165L4-FSD	22				8082		
LR-165L4-LSD	23				8082		
LR-165L5-BSD	24				8082		
LR-10GF2-BSD	25				8082		
LR-165L4-BSD	26				8082		
LR-1063-BSD	27				8082		
LR-1063-DSD	28				8082		
LR-TB12-AWT	29	95-1					

To be included with all lab data and with each workplan

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
LR-MW6D-WD	9909205-01					CLP.M	
LR-MW10104-WD	02	95-1	95-2	✓	8081/8082	CLP.M	CN
LR-MW10101-WDDUP	03			✓	8081/8082		
LR-MW5D-WD	04		95-2	✓			
LR-MWPCB-E1	05		95-2	✓	8081/8082		
LR MWPCB-E1	06	95-1		✓		CLP.M	CN
LR-T2S-AWT	07	95-1					
LR-SED11-ADD	08				8082		TOC
LR-SSR5-ASD	09				8082		
LR-SS24-ASD	10				8082		

To be included with all lab data and with each workplan

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
LR-MW05D-WO	9909215-01					CLP.M	
LR-MW05D-WD	1 02					CLP.M	

To be included with all lab data and with each workplan

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
LR-MW11-WD	9909240-01	95-1	95-2		8081/8082	CLP-M	CN
LR-MW15-WD	02	95-1	95-2		8081/8082	CLP-M	CN
LR-MW1D-WD	03	95-1	95-2		8081/8082	CLP-M	CN
LR-T30-AWT	04	95-1					

To be included with all lab data and with each workplan

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
LR-GRID01-ASD	9912138-01				8082		
LR-GRID02-ASD	02						
LR-GRID03-ASD	03						
LR-GRID04-ASD	04						
LR-GRID05-ASD	05						
LR-GRID06-ASD	06						
LR-GRID07-ASD	07						
LR-GRID08-ASD	08						
LR-GRID09-ASD	09						
LR-GRID10-ASD	10						
LR-GRID11-ASD	11						
LR-GRID12-ASD	12						
LR-GRID13-ASD	13						
LR-GRID14-ASD	14						
LR-GRID15-ASD	15						
LR-GRID16-ASD	16						
LR-GRID17-ASD	17						
LR-GRID18-ASD	18						
LR-GRID19-ASD	19						
LR-GRID20-ASD	20						

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To be included with all lab data and with each workplan

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*~~Pest~~ PCBs Method #	*Metals	*Other
LR-GRID21-ASD	99/2142-01				8082		
LR-GRID22-ASD	02						
LR-GRID23-ASD	03						
LR-GRID24-ASD	04						
LR-GRID25-ASD	05						
LR-GRID26-ASD	06						
LR-GRID27-ASD	07						
LR-GRID28-ASD	08						
LR-GRID29-ASD	09						
LR-GRID30-ASD	10						
LR-GRID31-ASD	11						
LR-GRID32-ASD	12						
LR-GRID33-ASD	13						

To be included with all lab data and with each workplan

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
LR-6945I-ASO	9912143-01				8082		TOC
LR-6945I-CSD	02						
LR-6945Z-ASO	03						
LR-6945Z-CSO	04						
LR-6945S3-ASO	06	95-1					
LR-6945S3-CSD	07						
LR-6945S3-FSO	08						
LR-6945S3-GSD	09						
LR-6945S4-CSD	05						
LR-72IA1-ASO	10						TOC
LR-72IA1-CSD	11						
LR-72IA2-ASO	12						
LR-72IA2-BSO	13						
LR-72IA5-ASD	14						
LR-72IA3-ASD	15	95-1					
LR-72IA4-ASO	16						
LR-72IA4-DSO	17						
LR-72IA4-FSD	18						
LR-72IA4-HSD	19						
LR72IA4-ISO	20						
LR-SC11R-AWT	31	95-1					

To be included with all lab data and with each workplan

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
LR-SS01R-ASD	99/2159-01				8082		
LR-SS02R-ASD	02						
LR-SS03R-ASD	03						
LR-SS04R-ASD	04						
LR-SS05R-ASD	05						
LR-SS06R-ASD	06						
LR-SS07R-ASD	07						
LR-SS08R-ASD	08						
LR-SS09R-ASD	09						
LR-SS10R-ASD	10						

To be included with all lab data and with each workplan

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
LR-SS41-ASD	9912160-01				8082		
LR-SS42-ASD	02						
LR-SS43-ASD	03						
LR-SS44-ASD	04						
LR-SS45-ASD	05						
LR-SS46-ASD	06						
LR-SS47-ASD	07						
LR-SS48-ASD	08						
LR-SS49-ASD	09						
LR-SS50-ASD	10						
LR-SS51-ASD	11						
LR-SS52-ASD	12						
LR-SS53-ASD	13						

Data Validation Services

120 Cobble Creek Road P. O. Box 208
North Creek, N. Y. 12853
Phone 518-251-4429
Facsimile 518-251-4428

July 14, 2000

Steve Blair
Ecology and Environment, Inc.
368 Pleasantview Dr.
Lancaster, NY 14086

RE: Data Validation Report for the Luzerne Road Landfill Site Data Package
E&E Laboratory Package Numbers 0005045, 0005046, and 0005047

Dear Mr. Blair:

Review has been completed for the data packages generated by Ecology and Environment Laboratories, pertaining to samples collected 5/02/00 and 5/03/00 at the Luzerne Road sites. Forty four soil samples were analyzed for TCL PCBs by method USEPA SW846 method 8082. Matrix spikes/duplicates were also processed.

Data validation was performed in accordance with the NYSDEC RI/FS Validation Scope of Work, with guidance from the most current editions of the USEPA CLP National Functional Guidelines for Organic Data and the USEPA Region 2 Validation SOP HW-6. The following items were reviewed:

* Laboratory Narrative Discussion
* Custody Documentation
* Holding Times
* Surrogate Standard Recoveries
* Matrix Spike Recoveries/Duplicate Correlations
* Field Duplicate Correlations
* Preparation/Instrument Blanks
* Laboratory Control Samples
* Calibration Standards
* Instrument IDLs
* Method Compliance
* Sample Result Verification

Those items listed above which show deficiency are discussed within the text of this narrative All other items were determined to be acceptable for this level of review. All reported qualitiative and quantitative determinations were reviewed during validation.

In summary, sample results are usable as reported, or with some minor qualifications (as estimated) which are typical of this sample matrix and constituency. An Arcolor concentration for one sample has been edited in value.

The following text discusses quality issues of concern. Copies of laboratory NYSDEC Sample Analytical Requirement Summary Forms and case narratives are attached to this text. Also included with this submission are client results forms with validation qualifiers/edits applied in red ink.

Accuracy and Precision

Accuracy and precision determinations were acceptable:
Soil matrix spikes of Aroclors 1016 and 1260 were performed on LR-694-B6-ASO, LR-72I-AB8-ASO, and LR-SSR55-ASO. Recoveries of Aroclor 1260 fell within recommended ranges, as did Aroclor 1016 in LR-72I-AB8-ASO. The recoveries of Aroclor 1016 in the other two samples reflected intereference from the Aroclor 1242 in the samples. Duplicate correlation was acceptable. Laboratory Control Samples produced recoveries within required ranges.

Field Duplicate Correlation

Field duplicates were evaluated on samples LR-694-B5-ASO, LR-72I-AB7-ASO, and LR-72I-AB8-FSO. Correlations were good in all cases.

General

Although the laboratory performed correctly in the evaluation of the data, there is an inherent complexity in determining the most accurate concentrations for samples containing multiple Aroclor mixtures. This is due to the contribution to the calculated value of a given mixture from common or coeluting congeners from other mixtures, and generally results in a high bias. For most of these project samples, Aroclor 1242 and 1260 values will be usable as reported. The reported concentrations of Aroclor 1254 may be biased high for most samples, but those values are likely accurate within a factor of two. Due to the relative concentrations of the various mixtures in the samples, total Aroclor values are not greatly affected in most cases.

The Aroclor 1242 in the samples appears to be weathered (depletion of some of the congeners in the mixture). Those congeners showing weathering were not used for quantitation, and there is little effect on reported results.

TCL PCBs by 8082

The concentration of Aroclor 1242 in LR-SSR45-ASO should have been reported as 75,700 ug/L, rather than 101,000 ug/L. The total PCB result for the sample is therefore 100,500 ug/L. There is a manual calculation error in the original determination. Full validation reeview showed no other errors of this type for these project samples.

As discussed above, due to cross-contribution to quantitative values, all Aroclor 1254 reported results showing detection should be considered estimated ("J" qualifier), possibly biased high. The level of bias is dependent upon the relative concentrations of Aroclors 1242 and/or 1260 to the Aroclor 1254 in a given sample. Review of the relative responses in the project samples indicates that the variance in reported values from actual is unlikely to vary more than a factor of two in the worst cases.

The following additional reported detections should be considered estimated ("J") due to poor pattern match to the standard (based upon relative congener proportions):

Sample ID	Aroclor
LR-SSR52-ASO	1242
LR-SSR56-ASO	1242
LR-694-B8-ASO	1260

Some of the surrogate DCB responses were slightly elevated due to matrix/analyte interference. Many sample surrogate responses were diluted beyond detection due to high sample analyte concentrations. No qualification to reported results is indicated by the surrogate recoveries, with the exception of LR-694-B11-ASO (DCB and TCX recoveries of 567% and 219%), the detections of which are qualified estimated.

Method blanks showed no contamination. Calibration standard responses met protocol requirements, and no qualification is required.

Method Detection Limits are outdated (1998) and should be regenerated.

Data Package Completeness

Samples with the identification of LR-72I-B9-ASO through LR-72I-B12-ASO were reported by the laboratory with an additional "A" preceeding the "B."

The chain of custody associated with SDG 0005045, cooler 05-00-01, shows a relinquish date of 5/17/00. This should have been noted as 5/03/00, the date the samples were collected and shipped.

The actual identification of LR-694-B11-ASO was resolved at sample receipt.

Upon request, the laboratory forwarded a low level initial calibration standard chromatogram for Aroclor 1242 (attached) associated with data packages 0005045 and 0005046.

Please do not hesitate to contact me if questions or comments arise during your review of this report.

Very truly yours,

Judy Harry

To be included with all lab data and with each workplan

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*~~Pest~~ PCBs Method #	*Metals	*Other
LR-694B5-ASO	0005045-01				8082		
LR-694B5-ASD	02						
LR-694B5-CSO	03						
LR-694B4-ASO	04						
LR-694B4-DSO	05						
LR-694B7-ASO	06						
LR-694B6-ASO	07						
LR-694B8-ASO	08						
LR-694CB-CSO	09						
LR-694B11-ASO	10						

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
PESTICIDE/PCB
ANALYSES

Laboratory Sample ID	Matrix	Date Collected	Date Rec'd at Lab	Date Extracted	Date Analyzed
000 5045-01	Soil	5/3/00	5/4/00	5/8/00	6/2/00
02	"	"	"	"	6/2/00
03	"	"	"	"	6/3/00
04	"	"	"	"	"
05	"	"	"	"	"
06	"	"	"	"	6/2/00
07	"	"	"	"	6/2/00
08	"	"	"	"	6/3/00
09	"	"	"	"	"
10	"	"	"	"	"

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
LR-72IAB5-ASO	000504-01				8082		
LR-72IAB5-FSO	02						
LR-72IAB5-GSO	03						
LR-72IAB6-ASO	04						
LR-72IAB7-ASO	05						
LR-72IAB7-ASD	06						
LR-72IAB8-ASO	07						
LR-72IAB8-FSO	08						
LR-72IAB8-FSD	09						
LR-72IAB8-GSO	10						
LR-72IAB9-ASO	11						
LR-72IAB10-ASO	12						
LR-72IAB11-ASO	13						
LR-72IAB12-ASO	14						
LR-69467-ASO	15						
LR-69467-CSO	16						
LR-69470-ASO	17						

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
PESTICIDE/PCB
ANALYSES

Laboratory Sample ID	Matrix	Date Collected	Date Rec'd at Lab	Date Extracted	Date Analyzed
005046-01	SOIL	5/3/00	5/4/00	5/8/00	6/3/00
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					6/4/00
12					
13					
14					6/3/00
15					6/4/00
16					
17					

To be included with all lab data and with each workplan

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
LR-SSR41-ASO	0005047-01				8082		
LR-SSR42-ASO	02						
LR-SSR43-ASO	03						
LR-SSR44-ASO	04						
LR-SSR45-ASO	05						
LR-SSR46-ASO	06						
LR-SSR47-ASO	07						
LR-SSR48-ASO	08						
LR-SSR49-ASO	09						
LR-SSR50-ASO	10						
LR-SSR51-ASO	11						
LR-SSR52-ASO	12						
LR-SSR53-ASO	13						
LR-SSR54-ASO	14						
LR-SSR55-ASO	15						
LR-SSR56-ASO	16						
LR-SSR57-ASO	17						

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
PESTICIDE/PCB
ANALYSES

Laboratory Sample ID	Matrix	Date Collected	Date Rec'd at Lab	Date Extracted	Date Analyzed
0005047-01	SOIL	5/2/00	5/4/00	5/8/00	5/26/00
02	"	"	"	"	"
03	"	"	"	"	"
04	"	"	"	"	5/27/00
05	"	"	"	"	5/27/00
06	"	"	"	"	5/26/00
07	"	"	"	"	5/27/00
08	"	"	"	"	5/26/00
09	"	"	"	"	"
10	"	"	"	"	"
11	"	"	"	"	"
12	"	"	"	"	"
13	"	"	"	"	"
14	"	"	"	"	"
15	"	"	"	"	"
16	"	"	"	"	5/27/00
17	"	"	"	"	5/27/00

5/26/00

Ecology and Environment, Inc.
Analytical Services Center
Lancaster, New York 14086
Phone: (716) 685-8080

Laboratory Results

NYS ELAP ID#: 10486

CLIENT: E and E Buffalo Office
Project: Luzerne Road
Lab Order: 0005045

CASE NARRATIVE

GC SEMIVOLATILES
PCB

The column used for analysis was an RTX-35, 30 meters long and 0.53 mm in diameter with a 1.0 um film thickness.

Secondary dilutions were performed on all samples except LR-694B5-CSO, LR-694B4-DSO and LR-694B8-CSO based on the level of target compounds present in the native extracts. As a result of the secondary dilutions performed on samples LR-694B4-ASO, LR-694B5-ASO, LR-694B5-ASD, LR-694B6-ASO, LR-694B6-ASOMS, LR-694B6-ASOMSD, and LR-694B7-ASO, the surrogate and matrix spike compounds were diluted out, and a percent recovery could not be determined.

Recovery of the surrogate DCB fell outside QC limits in samples LR-694B8-ASO, LR-694B8-CSO, and method blank MB-200001179. Recovery of the surrogate TCMX was within acceptable limits for these samples. Recovery of both surrogate compounds exceeded QC limits in samples LR-694B11-ASO and LR-694B5-CSO.

Continuing calibration criteria was not met for Aroclor 1260 in continuing calibration standard AR1660M05 0601. The mean %D was within acceptable limits.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Barbara Krajewski
Project Manager
June 8, 2000

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Ecology and Environment, Inc.
Analytical Services Center
Lancaster, New York 14086
Phone: (716) 685-8080

Laboratory Results

NYS ELAP ID#: 10486

CLIENT: E and E Buffalo Office
Project: Luzerne Road
Lab Order: 0005046

CASE NARRATIVE

A sample identified as LR-694B10-ASO was received but was not listed on the chain of custody record. As per Jon Nickerson, the chain of custody record for sample LR-694B11-ASO collected 5/3/00 at 16:40 was corrected to read LR-694B10-ASO.

Results were submitted by facsimile on 6/6/00. Samples LR-694B9-ASO, LR-694B9-CSO, and LR-694B10-ASO were incorrectly identified as LR-72IAB9-ASO, LR72IAB9-CSO, and LR-72IAB10-ASO in the facsimile. The correct sample identifications are referenced in this hardcopy report.

GC SEMIVOLATILES (PCB)

The column used for analysis was an RTX-35, 30 meters long and 0.53 mm in diameter with a 1.0 um film thickness.

Secondary dilutions were performed on samples LR-72IAB6-ASO, LR-72IAB7-ASO, LR-72IAB7-ASD, LR-72IAB9-ASO, LR-721AB10-ASO, and LR-72IAB11-ASO, based on the level of target compounds present in the native extracts. As a result of the secondary dilutions performed on samples LR-72IAB9-ASO and LR-72IAB12-ASO, the surrogate compounds were diluted out, and a percent recovery could not be determined.

Recovery of the surrogate DCB fell outside QC limits in all samples except LR-72IAB5-ASO, LR-72IAB8-ASO, LR-72IAB8-ASOMS, LR-72IAB8-FSD, LR-72IAB8-GSO, LR-694B9-ASO, and LR-694B9-CSO. Recovery of the surrogate TCMX was within acceptable limits for all samples.

Continuing calibration criteria was not met for Aroclor 1260 in continuing calibration standard AR1660M05 0601. The mean %D was within acceptable limits.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Barbara Krajewski

Barbara Krajewski
Project Manager
June 8, 2000

Ecology and Environment, Inc.
Analytical Services Center
Lancaster, New York 14086
Phone: (716) 685-8080

Laboratory Results

NYS ELAP ID#: 10486

CLIENT: E and E Buffalo Office
Project: Luzerne Road
Lab Order: 0005047

CASE NARRATIVE

GC SEMIVOLATILES
PCB

The column used for analysis was an RTX-35, 30 meters long and 0.53 mm in diameter with a 1.0 um film thickness.

Secondary dilutions were performed on all samples except LR-SSR46-ASO, LR-SSR56-ASO, and LR-SSR57-ASO, based on the level of target compounds present in the native extracts. As a result of the secondary dilutions, surrogate compounds were diluted out of all samples except LR-SSR46-ASO, LR-SSR48-ASO, LR-SSR56-ASO, and LR-SSR57-ASO, and a percent recovery could not be determined.

As a result of the secondary dilution performed on the matrix spike/matrix spike duplicate of sample LR-SSR55-ASO, the spike compounds were diluted out and a percent recovery could not be determined. Recoveries were within acceptable limits in the associated LCS.

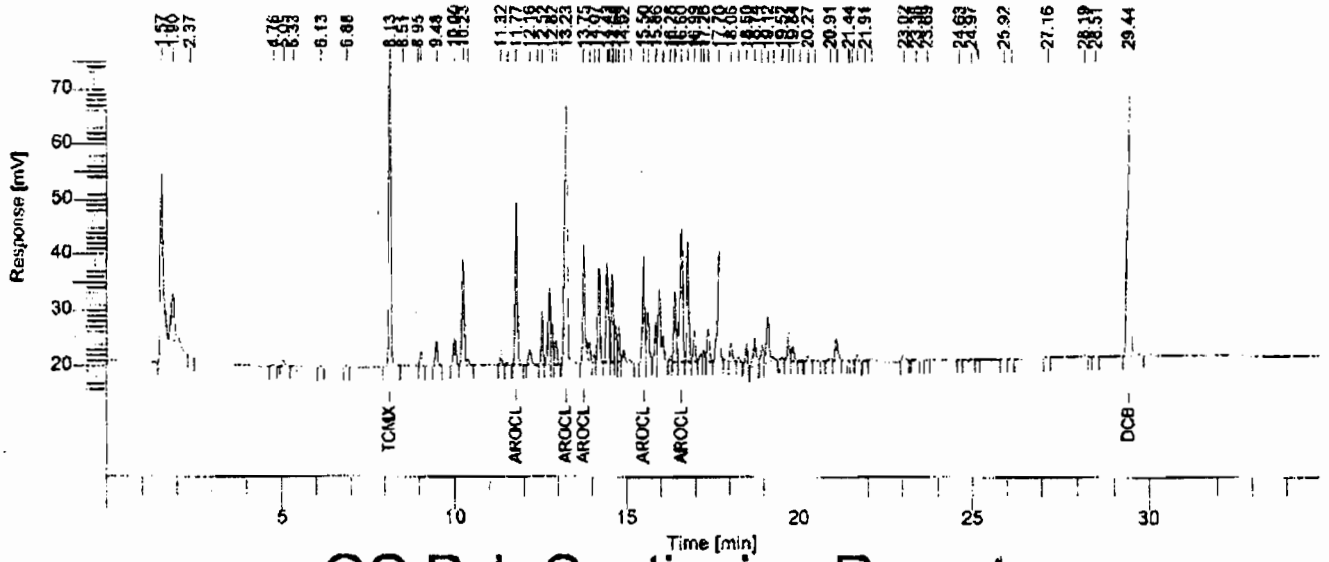
I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Barbara Krajewski

Barbara Krajewski
Project Manager
June 6, 2000

Software Version	: 6.1.1.0.0:K20	Date	: 6/15/00 2:05:43 PM
Operator	: NEARYR	Sample Name	: AR1242M01 0601
Sample Number	: 066	Study	: CCV
AutoSampler	: BUILT-IN	Rack/Vial	: 1/66
Instrument Name	: HP68901	Channel	: B
Instrument Serial #	: None	A/D mV Range	: 1000
Delay Time	: 0.00 min	End Time	: 34.98 min
Sampling Rate	: 5.0000 pts/s		
Volume Injected	: 1.000000 ul	Area Reject	: 100.000000
Sample Amount	: 1.0000	Dilution Factor	: 1.00
Data Acquisition Time	: 6/3/00 10:18:51 AM	Cycle	: 66

Raw Data File : \\gcsrv1\TCDATA2\hp68901\june\06-01\hp1B_000601321r_066.raw <Modified>
Result File : \\gcsrv1\TCDATA2\hp68901\june\06-01\hp1B_000601321r_066.rst
Inst Method : \\gcsrv1\TCDATA2\hp68901\methods\681_clp_acq from
\\gcsrv1\TCDATA2\hp68901\june\06-01\hp1B_000601321r_066.rst
Proc Method : \\gcsrv1\TCDATA2\hp68901\methods\june\06-01\681b_ar1242_0601.mth
Calib Method : \\gcsrv1\TCDATA2\hp68901\methods\june\06-01\681b_ar1242_0601.mth
Sequence File : \\gcsrv1\TCDATA2\HP68901\JUNE\06-01\681_0601R.seq



GC Pcb Continuing Report

HP6890 1B RTX-35 30m 0.53mm 2ul Inj Method 8082

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Expected Amt. (ug/mL)	% Difference
9	8.13	TCMX	282730	0.02059	0.02000	3.0
	13.23	AR1242	773770	0.23537	0.20000	17.7
83	29.44	DCB	288963	0.02519	0.02000	25.9
			1345463	0.28115		

6/15/00 2:05:43 PM Result:
\\gcsrv1\TCDATA2\hp68901\june\06-01\hp1B_000601321r_066.rst

Group Report For : AR1242

Peak #	Ret Time [min]	Component Name	Area [uV-sec]	Raw Amount	Expected Amt. (ug/mL)	% Difference
19	11.77	AROCLOR1242-1	156257	0.23094	0.20000	15.5
26	13.23	AROCLOR1242-2	283086	0.23797	0.20000	19.0
27	13.75	AROCLOR1242-3	106297	0.25736	0.20000	28.7
45	16.60	AROCLOR1242-5	127608	0.24716	0.20000	23.6
38	15.50	AROCLOR1242-4	100522	0.20432	0.20000	2.2
			773770	1.17776		

Data Validation Services

120 Cobble Creek Road P. O. Box 208
North Creek, N. Y. 12853
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November 30, 2000

Jon Nickerson
Ecology and Environment, Inc.
368 Pleasantview Dr.
Lancaster, NY 14086

RE: **D**ata **U**sability **S**ummary **R**eport for the Luzerne Road Landfill Site Data Package
E&E Package Numbers 0009120 and 0009160

Dear Mr Nickerson:

Review has been completed for the data packages generated by Ecology and Environment Laboratories, pertaining to samples collected 9/19/00 and 9/26/00 at the Luzerne Road Landfill site. Nineteen aqueous samples were analyzed for TCL PCBs by method USEPA SW846 8082. Matrix spikes were also processed.

The data packages submitted contained full deliverables for validation, but this usability report is generated from review of the summary form information, with review of sample raw data, and some review of associated QC raw data. Full validation has not been performed. However, the reported summary tables have been reviewed for application of USEPA Regional and National validation qualifiers, as affects the usability of the sample data. The following items were reviewed:

* Laboratory Narrative Discussion
* Custody Documentation
* Holding Times
* Surrogate Standard Recoveries
* Matrix Spike Recoveries/Duplicate Correlations
* Field Duplicate Correlations
* Preparation/Calibration Blanks
* Control Spike/Laboratory Control Samples
* Calibration Standards
* Instrument IDLs
* Method Compliance

Those items listed above which show deficiency are discussed within the text of this narrative All other items were determined to be acceptable for this level of review.

In summary, sample results are generally usable as reported, with minor qualification of two sample values as estimated. Data packages were well compiled and complete, with the exception of the omission of internal custodies. Sample preparation/analysis logs with analyst initials are present.

The following text discusses quality issues of concern. Copies of laboratory NYSDEC Sample Analytical Requirement Summary Forms and case narratives are attached to this text. Minor errors in summary form entries not affecting sample reported results are not noted within this report.

Accuracy and Precision

Aqueous matrix spikes of Aroclor 1016 and 1260 in sample GW2-MW101-5 produced one elevated recovery (184%) for Aroclor 1016, which is likely due to interferences from the Aroclor 1242 in the sample. Recoveries of Aroclor 1260 were acceptable. The duplicate correlations for the spikes were both elevated (39%RPD and 40%RPD; above 30%RPD recommended limit).

Spiked blanks showed acceptable recoveries.

Field Duplicate Correlation

Field duplicate correlations of samples GW2-MW101-5 and GW2-MW1I were acceptable.

AQUEOUS SAMPLES

TCL PCB Analyses by 8082

Due to matrix interferences, reported detected Aroclor 1242 results for samples GW2-MW2S and GW2-MS5S were derived using only two congener responses, and therefore the quantitative results for that mixture should be considered estimated ("J") in the two samples.

Sample G2-MW1I reported a low level concentration (below CRDL) of Aroclor 1242. Its field duplicate showed similar low level detection, but was reported as nondetection at the CRDL.

Holding times, surrogate recoveries, and blanks were acceptable. Calibration standard evaluation involved only Aroclors 1016, 1242, and 1260. The other mixtures should have been analysed/reported to allow for independent evaluation of pattern match.

Please do not hesitate to contact me if questions or comments arise during your review of this report.

Very truly yours,

Judy Harry

Att.

To be included with all lab data and with each workplan

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
GW2-MW-101-3	0009120 - 01				8082		
GW2-MW-101-2	02						
GW2-MW-101-1	03						
GW2-MW-101-4	04						
GW2-MW-101-5	05						
GW2-MW-101-5D	06						
GW2-MW1S	07						
GW2-MW2S	08						
GW2-MW3S	09						
GW2-MW4S	10						
GW2-MW5S	11						
GW2-MW51	12						
GW2-MW5D	13						
GW2-MW6S	14						

To be included with all lab data and with each workplan

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	~~*Pest~~ *PCBs Method #	*Metals	*Other
GW2-[redacted]	0009160-01				8082		
GW2-MW1A-D	02						
GW2-MW1D	03						
GW2-MW61	04						
GW2-MW6D	05						

Ecology and Environment, Inc.
Analytical Services Center
Lancaster, New York 14086
Phone: (716) 685-8080

Laboratory Results

NYS ELAP ID#: 10486

CLIENT: E and E Buffalo Office
Project: Luzerne Road
Lab Order: 0009120

CASE NARRATIVE

Two of the six containers received for sample GW2-MW101-5 were received broken. Sufficient sample volume was available for the requested analysis.

GC SEMIVOLATILES
PCB
The column used for analysis was an RTX-35, 30 meters long and 0.53 mm in diameter with a 1.0 um film thickness.

A secondary dilution was performed on sample GW2-MW2S based on the level of target compounds in the native extract.

Aroclor 1016 recovery for the matrix spike duplicate analysis of sample GW2-MW-101-5 was high. RPD values for both Aroclor 1016 and Aroclor 1260 were high. Matrix spike and laboratory control sample recoveries were within acceptable limits.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Barbara Krajewski
Project Manager
October 9, 2000

Ecology and Environment, Inc.
Analytical Services Center
Lancaster, New York 14086
Phone: (716) 685-8080

Laboratory Results

NYS ELAP ID#: 10486

CLIENT: E and E Buffalo Office
Project: Luzerne Road
Lab Order: 0009160

CASE NARRATIVE

GC SEMIVOLATILES
PCB

The column used for analysis was an RTX-35, 30 meters long and 0.53 mm in diameter with a 1.0 um film thickness.

No discrepancies were encountered during this analysis.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Barbara Krajewski

Barbara Krajewski
Project Manager
October 10, 2000

Data Validation Services

120 Cobble Creek Road P. O. Box 208
North Creek, N. Y. 12853
Phone 518-251-4429
Facsimile 518-251-4428

February 14, 2001

Jon Nickerson
Ecology and Environment, Inc.
368 Pleasantview Dr.
Lancaster, NY 14086

RE: **Data Usability Summary Report for the Luzerne Road Landfill Site Data Package**
E&E Package Numbers 0011056 and 0011056

Dear Mr Nickerson:

Review has been completed for the data packages generated by Ecology and Environment Laboratories, pertaining to samples collected 11/8/00 and 11/8/00 at the Luzerne Road Landfill site. Nine aqueous samples were analyzed for TCL PCBs by method USEPA SW846 8082. Matrix spikes were also processed.

The data packages submitted contained full deliverables for validation, but this usability report is generated from review of the summary form information, with review of sample raw data, and some review of associated QC raw data. Full validation has not been performed. However, the reported summary tables have been reviewed for application of USEPA Regional and National validation qualifiers, as affects the usability of the sample data. The following items were reviewed:

* Laboratory Narrative Discussion
* Custody Documentation
* Holding Times
* Surrogate Standard Recoveries
* Matrix Spike Recoveries/Duplicate Correlations
* Field Duplicate Correlations
* Preparation/Calibration Blanks
* Control Spike/Laboratory Control Samples
* Calibration Standards
* Instrument IDLs
* Method Compliance

Those items listed above which show deficiency are discussed within the text of this narrative All other items were determined to be acceptable for this level of review.

In summary, sample results are generally usable as reported, with qualification of three sample detected results as tentative in identification and estimated in value. Data packages were well compiled and complete, with the exception of the omission of internal custodies. Sample preparation/analysis logs with analyst initials are present.

The following text discusses quality issues of concern. Copies of laboratory NYSDEC Sample Analytical Requirement Summary Forms and case narratives are attached to this text. Minor errors in summary form entries not affecting sample reported results are not noted within this report.

Accuracy and Precision

Aqueous matrix spikes of Aroclor 1016 and 1260 in sample LR-MW10S-WO were acceptable. Spiked blanks showed acceptable recoveries.

Field Duplicate Correlation

Field duplicate correlations for sample sets LR-MW8I-WO/LR-MW8I-WD and LR-MW9S-WO/ LR-MW9S-WD were acceptable.

AQUEOUS SAMPLES

TCL PCB Analyses by 8082

Due to the poor pattern match to standards (congener proportions), the reported detected Aroclor 1242 results for samples LR-MW10S-WO, LR-MW7S-WO, and LR-MW8S-WO are to be qualified as tentative in nature and estimated in value ("NJ"). The poor matches are likely due to the low concentrations detected, matrix interferences, and possible weathering of the mixtures. Results should be used with caution.

Holding times, surrogate recoveries, and blanks were acceptable. Calibration standard evaluation involved only Aroclors 1016, 1242, and 1260. The other mixtures should have been analysed/reported to allow for independent evaluation of pattern match.

Please do not hesitate to contact me if questions or comments arise during your review of this report.

Very truly yours,

Judy Harry

Att.