

A Water & Soil Quality Report of 13145 Lundy's Lane

Prepared By:

Robert Teodorini

Prepared for:

Renee Delaney, Small Scale farms, Katie Altoft, and Niagara College

Executive Summary

A site visit to 13145 Lundy's Lane was conducted on March 3, 2021, in conjunction with the Phase One Site Assessment, to collect water and soil samples to for subsequent analysis. This is a supplemental report for the site assessment. Five water samples and six soil core samples were collected, and some field testing was completed. Two water samples were taken from the main building on the property, which gets potable water from the well on site, and the other three came from areas where spring melt water was flowing through. The soil samples were obtained from an open field on the eastern side of the property. The next day, tests on all of them were ran at in the E303 lab at the Niagara College NOTL campus and by Eurofins, which is located at 420 Vansickle Road in St. Catharines, ON. The tests that were completed at the site were re-done at the college. Turbidity and dissolved oxygen tests were also conducted on the water samples. For the soil samples, a full texture by feel test was ran to determine the soil type on site and the results came back as primarily silty clay.

Several days later, the samples were submitted to Eurofins to analyze all of them for heavy metal and nutrient pollution. The soil was also tested for conductivity and pH. Most of the water samples had one or two results that exceeded the standards but were largely okay. The soil samples had seven exceedances of heavy metals likely due to fertilizer and pesticide use and planting crops in the area will help to mitigate the problem. The lab results also showed that there's some nutrients in the soil, but no standard could be found inside or outside of Canada to determine if it's an unsafe amount. If the research were continued in the future, they may be able to find something to compare the results against.

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1.0 - Introduction

On March 3rd, 2021, water and soil samples were retrieved from the property at 13145 Lundy's Lane in Allanburg, ON to conduct a series of tests. Two water samples were taken from inside the main building and three more outside where the spring melt had partially flooded two dips (or valleys) in the land and at the rear of the property. The samples were taken, and tests were run at the behest of Renee Delaney, owner of Small Scall Farms, who rents land on this property. This report is a supplemental piece to the Phase One Site Assessment that was conducted concurrently. So, instead of copying portions of that report, it may just be referred to sometimes for detailed information. Tests on these samples were conducted in Room E303 at the Niagara College NOTL campus and by the Eurofins lab in St. Catharines, ON.

2.0 - Objectives

- To assess the quality of water that comes from the well on site and the main building has access to.
- To assess the quality of the spring melt runoff water that is flowing through the area and going west.
- To assess the soil quality of the site from one of the open fields.

3.0 - Limitations

Due to issues with the dissolved oxygen (DO) meter that was being used on site, DO results could not be retrieved while at the time. Some were obtained while running tests at the college, but they are in the percentage format. There was also no turbidity meter available for testing in-situ, so that was done at the college.

4.0 - Methods

All methods used for the sampling and testing were learned throughout the time spent in this program and the Environmental Technician program, except for the tests conducted by the Eurofins lab. For the tests that Eurofins ran, they used the EPA 200.8 method.

5.0 - Guidance Sources

The sources for the guidance values are as follows:

- Canadian Environmental Quality Guidelines (CEQG)
- Canadian Drinking Water Quality Guidelines (CDWG)
- Environmental Working Group's Tap Water Database (EWG)
- Provincial Water Quality Objectives (PWQO)
- Provincial Soil Quality Objectives (PSQO)
- Ontario Drinking Water Quality Standards (ODWQS)
- US Environmental Protection Agency Drinking Water Standards & Health Advisories (DWSHA)

6.0- Results

6.1 - Field Chemistry

The first two sets of results were taken from the sinks in the work area and the bathroom of the main hub building. As the water samples from the main building comes from the well, the results are compared against drinking water standards as the source provides potable water. There is no filter for the water to run through as it comes into the main building though, but as that water is only for washing hands, bins, etc., it's not really a problem for the employees.



Figure 1: The main hub building



Figure 2: Satellite image of the location of water samples 1 & 2

Table 1: Work Area Sink		CDWG	In Exceedance?
Sample Location	43.079729, -79.191741	 	
Conductivity	1737 $\mu\text{S}/\text{cm}$	N/A	N/A
Temperature	7.49°C	15°C	No
Total Dissolved Solids	1267 ppm	500 ppm	Yes

pH	6.7	7.0 – 10.5	Yes
Table 2: Bathroom Sink		CDWG	In Exceedance?
Sample Location	43.079729, -79.191741		
Conductivity	1741 μ S/cm	N/A	N/A
Temperature	12.1°C	15°C	No
Total Dissolved Solids	1265 ppm	500 ppm	Yes
pH	6.78	7.0 – 10.5	Yes

The next two were taken from the small valleys in the land that gets partially flooded during the late winter/early spring. The water flows from the east to the west.



Figure 3: Location of water sample #3



Figure 4: Satellite view of the location of water sample #3

Table 3: Valley #1		Guidance	Guidance Source	In Exceedance?
Sample Location	43.0787026, -79.1913106			
Conductivity	1683 μ S/cm	N/A	N/A	N/A
Temperature	6.71°C	10°C	PWQO	No
Total Dissolved Solids	1242 ppm	500 - 800 ppm	CCME	Yes
pH	6.66	6.5 – 8.5	PWQO	No



Figure 5: Location of water sample #4



Figure 6: Satellite view of the location of water sample #4

Table 4: Valley #2		Guidance	Guidance Source	In Exceedance?
Sample Location	43.0781506, -79.1917176	 	 	
Conductivity	274.7 μ S/cm	N/A	N/A	N/A
Temperature	3.38°C	10°C	PWQO	No
Total Dissolved Solids	188 ppm	500 – 800 ppm	CCME	No
pH	6.52	6.5 – 8.5	PWQO	No

The final in-situ water sample results were from a narrow course of water at the backlot area of the property. The water flows north from the southern property line into a ditch that is full of bullrushes, then goes west.



Figure 7: Location of water sample #5



Figure 8: Satellite view of the location of water sample #5

Table 5: Backlot area		Guidance	Guidance Source	In Exceedance?
Sample Location	43.0758334, -79.1907674			
Conductivity	88.97 μ S/cm	N/A	N/A	N/A
Temperature	2.37°C	10°C	PWQO	No
Total Dissolved Solids	60.74 ppm	500 – 800 ppm	CCME	No
pH	6.5	6.5 - 8.5	PWQO	No

A soil sample was also taken from an open field east of where the new barn is located to. No in-situ tests were done here, but measurements of the depths that each soil core was taken at were recorded.



Figure 9: Location of the soil sample



Figure 10: Satellite view of the location of the soil sample

Table 6: Field		
Diameter of hole	10.2 cm	
Cores	Depth of sample (cm)	Length of sample (cm)
Top soil	4.5	5
Sample #1	7.5	7
Sample #2	11	7
Sample #3	13.5	13.5
Sample #4	15	6
Sample #5	17	6.5
Sample #6	19.5	8

6.2 - Lab Analysis

During the site visit, water samples were taken from each site, in addition to the 6 soil samples. The day after the site visit, the samples were taken to the lab at E303 located at the Niagara College NOTL campus. The same in-situ tests were re-done, as well as a full texture by feel test to see what kind of soil was sampled. On March 5, 2021 the

samples were also taken to the Eurofins lab, which is located in the industrial mall at 360 Vansickle Rd in St. Catharines. They ran tests for heavy metals and nutrients in the water and soil samples. The soil was also tested for conductivity and pH.

Table 7: Work Area Sink		Guidance	Guidance Source	In Exceedance?	
Turbidity	0.23 NTU	0.3 NTU	CDWG	No	
Dissolved Oxygen	93.0%	N/A	N/A	N/A	
Conductivity	2008 μ S/cm	N/A	N/A	N/A	
Temperature	10.2°C	15 °C	CDWG	No	
TDS	1480 ppm	500 ppm	CDWG	Yes	
pH	6.70	7.0 – 10.5	CDWG	Yes	
Analyte	Guidance Source	Guidance levels	Unit	Sample	In Exceedance?
P04	EPADWS	0.0005	mg/L	0.11	Yes
N-NO3	DWQO	10.0	mg/L	0	No
Arsenic (As)	DWQO	0.01	mg/L	0	No
Cadmium (Cd)	DWQO	0.005	mg/L	0.0003	No
Cobalt (Co)	EWG	0.07	mg/L	0.0004	No
Chromium (Cr)	DWQO	0.05	mg/L	0	No
Copper (Cu)	CDWG	2	mg/L	1.25	No
Mercury (Hg)	DWQO	0.001	mg/L	0	No
Molybdenum (Mo)	EPADWS	0.02	mg/L	0	No
Nickel (Ni)	EPADWS	0.7	mg/L	0.079	No
Lead (Pb)	DWQO	0.01	mg/L	0.003	No
Selenium (Se)	DWQO	0.05	mg/L	0	No
Thallium (Tl)	CWDG	0.0005	mg/L	0	No
Zinc (Zn)	CDWG	5	mg/L	7.2	No

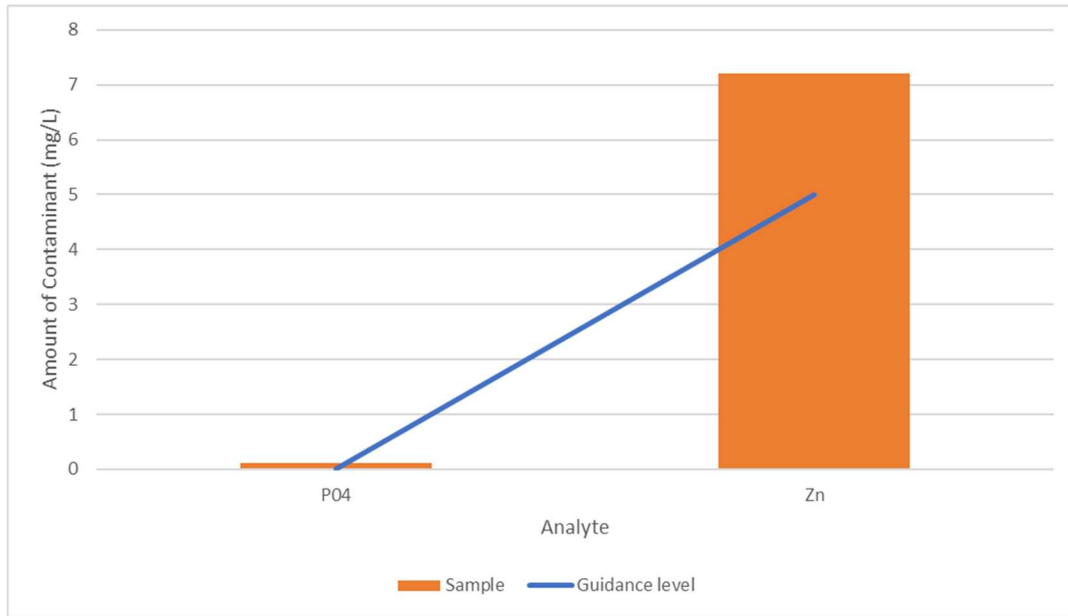


Figure 11: Results from the Work Area Sink Water Sample in Exceedance

Table 8: Bathroom Sink		Guidance	Guidance Source	In Exceedance?	
Turbidity	0.15 NTU	0.3 NTU	CDWG	Yes	
Dissolved Oxygen	83.8%	N/A	N/A	N/A	
Conductivity	1754 μ S/cm	N/A	N/A	N/A	
Temperature	10.5 °C	15 °C	CDWG	No	
TDS	1277 ppm	500 ppm	CDWG	Yes	
Ph	6.88	7.0 – 10.5	CDWG	Yes	
Analyte	Guidance Source	Guidance levels	Unit	Sample	In Exceedance?
Phosphates (P04)	DWSHA	0.0005	mg/L	<0.010	No
Nitrates (N-NO3)	DWQO	10.0	mg/L	0.14	No
Arsenic (As)	DWQO	0.01	mg/L	<0.001	No
Cadmium (Cd)	DWQO	0.005	mg/L	<0.0001	No
Cobalt (Co)	EWG	0.07	mg/L	<0.0002	No
Chromium (Cr)	DWQO	0.05	mg/L	<0.001	No
Copper (Cu)	CDWG	2	mg/L	0.268	No
Mercury (Hg)	DWQO	0.001	mg/L	<0.0001	No
Molybdenum (Mo)	DWSHA	0.02	mg/L	<0.005	No
Nickel (Ni)	DWSHA	0.7	mg/L	<0.005	No
Lead (Pb)	DWQO	0.01	mg/L	<0.001	No
Selenium (Se)	DWQO	0.05	mg/L	<0.001	No
Thallium (Tl)	CWDG	0.0005	mg/L	0.0001	No
Zinc (Zn)	CDWG	5	mg/L	0.25	No

Table 9: Valley #1		Guidance	Guidance Source	In Exceedance?	
Turbidity	54.3 NTU	N/A	N/A	N/A	
Dissolved Oxygen	95.0%	54%	PWQO	No	
Conductivity	1694 μ S/cm	N/A	N/A	N/A	
Temperature	10.6°C	10°C	PWQO	Yes	
TDS	1232 ppm	500 - 800 ppm	CCME	Yes	
pH	6.90	6.5 – 8.5	PWQO	No	
Analyte	Guidance Source	Guidance levels	Unit	Sample	In Exceedance?
Phosphates (P04)	PWQO	0.02	mg/L	1.36	Yes
Nitrates (N-NO3)	CCME	550	mg/L	0.053	No
Arsenic (As)	PWQO	0.005	mg/L	<0.001	No
Cadmium (Cd)	PWQO	0.0002	mg/L	<0.0001	No
Cobalt (Co)	PWQO	0.0009	mg/L	0.0004	No
Chromium (Cr)	PWQO	0.001	mg/L	<0.001	No
Copper (Cu)	PWQO	0.005	mg/L	0.014	Yes
Mercury (Hg)	PWQO	0.0002	mg/L	<0.0001	No
Molybdenum (Mo)	PWQO	0.04	mg/L	<0.005	No
Nickel (Ni)	PWQO	0.025	mg/L	<0.005	No
Lead (Pb)	PWQO	0.001	mg/L	0.001	No
Selenium (Se)	PWQO	0.1	mg/L	<0.001	No
Thallium (Tl)	PWQO	0.0003	mg/L	<0.0001	No
Zinc (Zn)	PWQO	0.02	mg/L	<0.01	No

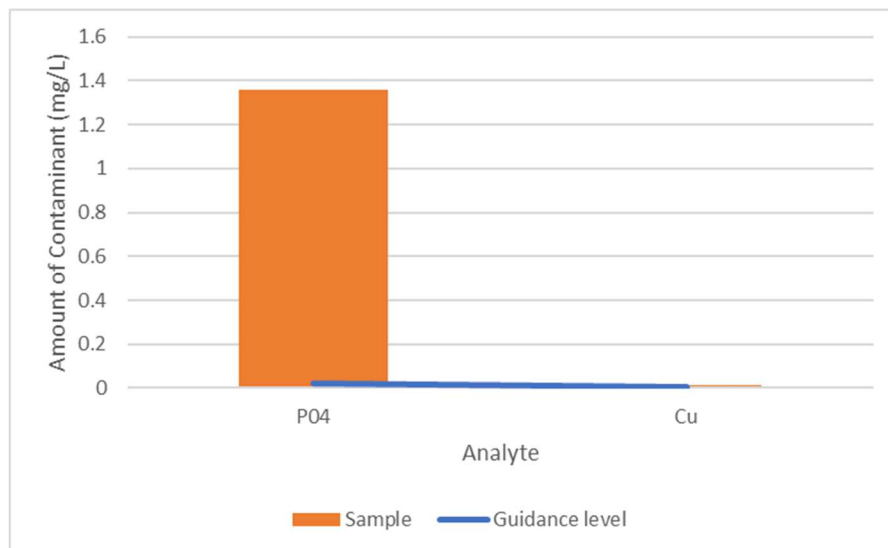


Figure 12: Results from the Valley #1 Water Sample in Exceedance

Table 10: Valley #2		Guidance	Guidance Source	In Exceedance?	
Turbidity	61.8 NTU	N/A	N/A	N/A	
Dissolved Oxygen	83.7%	54%	PWQO	No	
Conductivity	264.9 μ S/cm	N/A	N/A	N/A	
Temperature	11.8°C	10°C	PWQO	Yes	
TDS	178.5 ppm	500 - 800 ppm	CCME	Yes	
pH	6.60	6.5 – 8.5	PWQO	No	

Analyte	Guidance Source	Guidance levels	Unit	Sample	In Exceedance?
Phosphates (P04)	PWQO	0.02	mg/L	3.61	Yes
Nitrates (N-NO3)	CCME	550	mg/L	0.077	No
Arsenic (As)	PWQO	0.005	mg/L	<0.001	No
Cadmium (Cd)	PWQO	0.0002	mg/L	<0.0001	No
Cobalt (Co)	PWQO	0.0009	mg/L	0.0004	No
Chromium (Cr)	PWQO	0.001	mg/L	<0.001	No
Copper (Cu)	PWQO	0.005	mg/L	0.005	No
Mercury (Hg)	PWQO	0.0002	mg/L	<0.0001	No
Molybdenum (Mo)	PWQO	0.04	mg/L	<0.005	No
Nickel (Ni)	PWQO	0.025	mg/L	<0.005	No
Lead (Pb)	PWQO	0.001	mg/L	<0.001	No
Selenium (Se)	PWQO	0.1	mg/L	<0.001	No
Thallium (Tl)	PWQO	0.0003	mg/L	<0.0001	No
Zinc (Zn)	PWQO	0.02	mg/L	<0.01	No

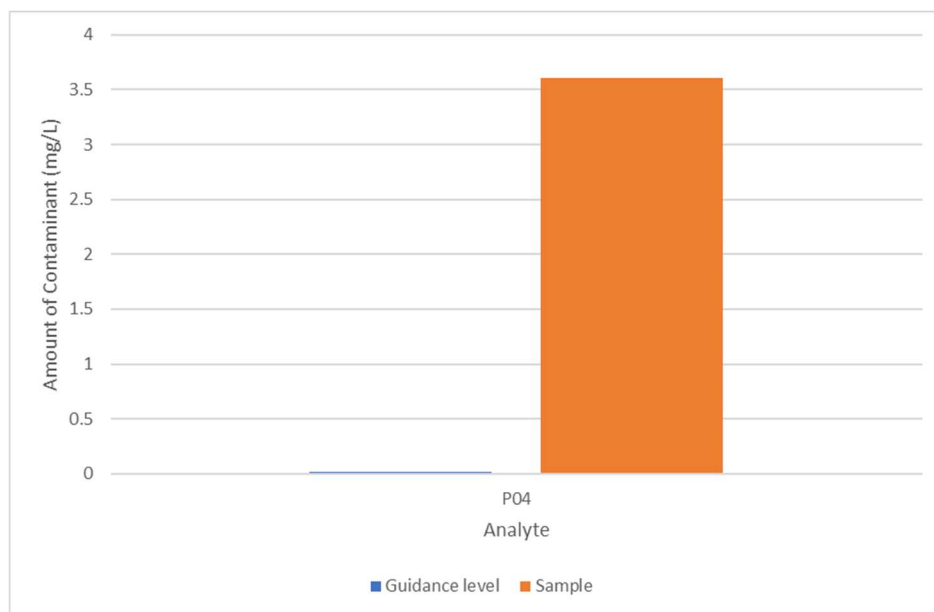


Figure 13: Results from the Valley #2 Water Sample in Exceedance

Table 11: Backlot		Guidance	Guidance Source	In Exceedance?	
Turbidity	39.4 NTU	N/A	N/A	N/A	
Dissolved Oxygen	97.3%	54%	PWQO	No	
Conductivity	98.63 μ S/cm	N/A	N/A	N/A	
Temperature	13.6°C	10°C	PWQO	Yes	
TDS	64.97 ppm	500 - 800 ppm	CCME	No	
pH	6.57	6.5 – 8.5	PWQO	No	

Analyte	Guidance Source	Guidance levels	Unit	Sample	In Exceedance?
Phosphates (P04)	PWQO	0.02	mg/L	0.046	Yes
Nitrates (N-NO3)	CCME	550	mg/L	0.13	No
Arsenic (As)	PWQO	0.005	mg/L	<0.001	No
Cadmium (Cd)	PWQO	0.0002	mg/L	<0.0001	No
Cobalt (Co)	PWQO	0.0009	mg/L	0.0004	No
Chromium (Cr)	PWQO	0.001	mg/L	<0.001	No
Copper (Cu)	PWQO	0.005	mg/L	0.008	Yes
Mercury (Hg)	PWQO	0.0002	mg/L	<0.0001	No
Molybdenum (Mo)	PWQO	0.04	mg/L	<0.005	No
Nickel (Ni)	PWQO	0.025	mg/L	<0.005	No
Lead (Pb)	PWQO	0.001	mg/L	0.001	No
Selenium (Se)	PWQO	0.1	mg/L	<0.001	No
Thallium (Tl)	PWQO	0.0003	mg/L	<0.0001	No
Zinc (Zn)	PWQO	0.02	mg/L	<0.01	No

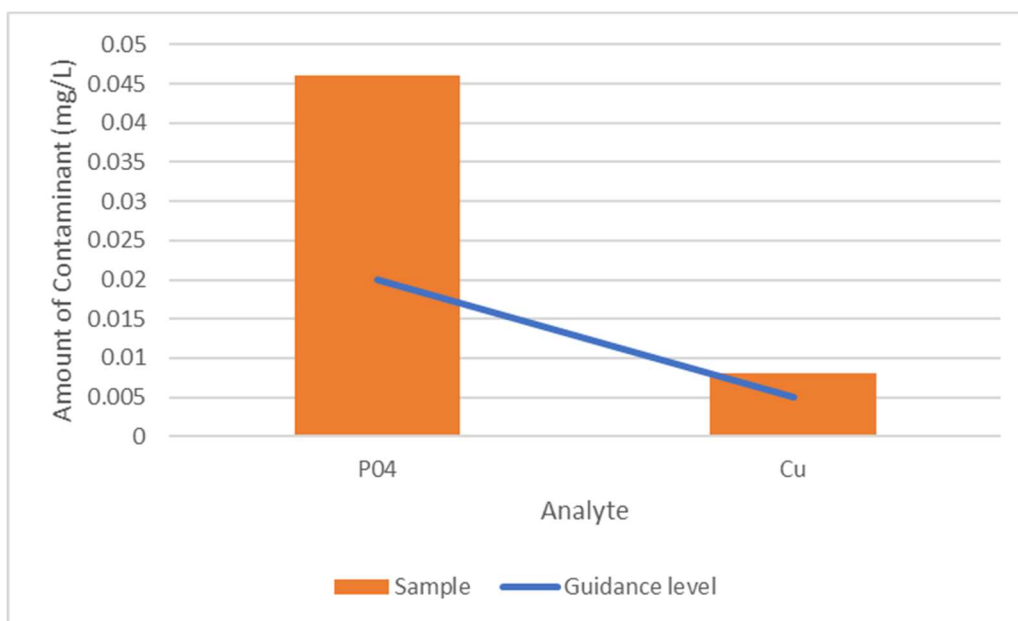


Figure 14: Results from the Backlot Water Sample in Exceedance

Table 12: Soil Sample #1	
Colour	Dark Brown
Munsell Value	7.5 yr 3/6
Mottle	Absent
Texture	Rough
Structure	Strong
Consistence	Moist
Length of Ribbon Formed	6 cm
Soil Type	Silty Clay

Table 13: Soil Sample #2	
Colour	Dark Brown
Munsell Value	5 yr 2/6
Mottle	Absent
Texture	Smooth
Structure	Weak
Consistence	Wet
Length of Ribbon Formed	4 cm
Soil Type	Silty Clay Loam

Table 14: Soil Sample #3	
Colour	Dark Brown
Munsell Value	7.5 yr 4/4
Mottle	Absent
Texture	Smooth
Structure	Strong
Consistence	Wet
Length of Ribbon Formed	5.5 cm
Soil Type	Silty Clay

Table 15: Soil Sample #4	
Colour	Dark Brown
Munsell Value	7.5 yr 2/4
Mottle	Absent
Texture	Smooth
Structure	Strong
Consistence	Moist
Length of Ribbon Formed	5.8 cm
Soil Type	Silty Clay

Table 16: Soil Sample #5	
Colour	Dark Brown
Munsell Value	7.5 yr 2/3
Mottle	Absent
Texture	Smooth
Structure	Strong
Consistence	Moist
Length of Ribbon Formed	6 cm
Soil Type	Silty Clay

Table 17: Soil Sample #6	
Colour	Dark Brown
Munsell Value	7.5 yr 2/3
Mottle	Absent
Texture	Smooth
Structure	Strong
Consistence	Wet
Length of Ribbon Formed	5.5 cm
Soil Type	Silty Clay

According to the Soils of Pelham-Thorold-Welland map in the *Soils of Niagara* booklet, silty clay dominates this site, which verifies this data. For more information on the soil in this area, please refer to section 4.3 of the Phase One Site Assessment.

Analyte	Guidance Source	Guidance	Unit	Sample	In Exceedance?
P (NaHCO ₃ Extractable)	n/a	n/a	mg/L	5	n/a
N-NO ₃ (KCl extractable)	n/a	n/a	mg/L	3	n/a
Conductivity	CCME	2	mS/cm	0.2	No
pH	CCME	6 to 8	mg/L	6.83	No
As	PSQO	0.047	mg/L	6	Yes
Cd	PSQO	0.0079	mg/L	<0.4	No
Co	PSQO	2.5	mg/L	14	Yes
Cr	PSQO	18	mg/L	26	Yes
Cu	PSQO	5.6	mg/L	24	Yes
Hg	PSQO	30	mg/L	<0.1	No
Mo	PSQO	1.2	mg/L	<1	No
Ni	PSQO	0.510	mg/L	25	Yes
Pb	PSQO	1	mg/L	19	Yes
Se	PSQO	1.2	mg/L	<1	No
Tl	PSQO	0.033	mg/L	<1	No
Zn	PSQO	24	mg/L	77	Yes

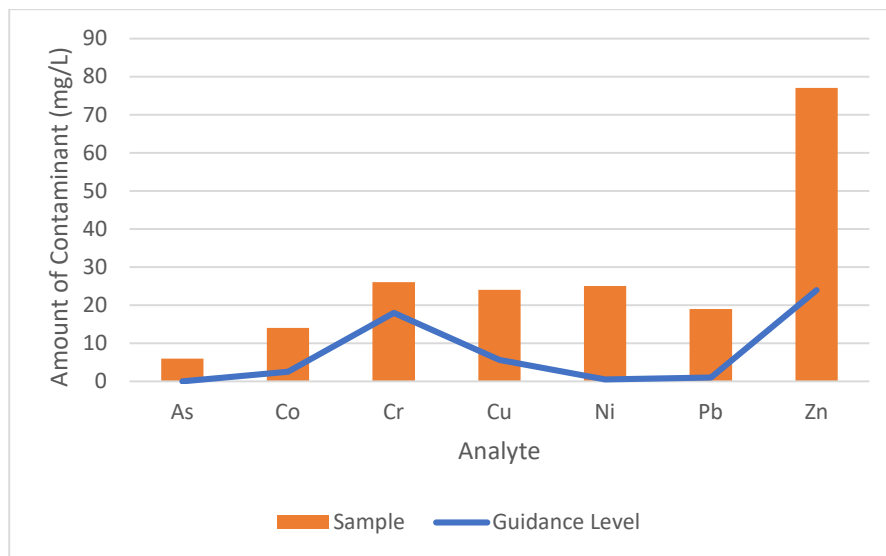


Figure 15: Results From Soil Sample in Exceedance

Heavy metal contamination can pose a major health risk to wildlife and humans (Wuana, & Okieimen, 2011). This problem is discussed in-depth in section 4.1 of the

Phase One Site Assessment. It is because of the risk that when the contamination exceeds the standards, the problem should be mitigated immediately, if possible.

7.0 - Conclusion

The water quality is fairly good. While the spring melt, water that goes through the area is somewhat contaminated, most of it just flows through the area and the grass would be absorbing some of the contaminants and nutrients. Also, the well water shows exceedingly high amount of zinc when going to the sink in the work area, but that's only because there is no filter on the water as it comes into the building. If one were added, the contaminants would be filtered out. Zinc toxicity can cause harmful affects, like nausea, vomiting, and abdominal pain, but as it only has dermal contact with humans, in this case, there is not much of a toxicological risk (Plum, Rink, & Haase, 2010).

The amount of contamination in the soil is more of a concern, but amount of heavy metals is probably because of the fertilizers and pesticides that are used in the area or nearby. Assuming crops are planted in the area this year, there shouldn't be a problem, as they would absorb these contaminants.

Finally, the nutrient level in the soil sample doesn't seem to be high, but no standard could be found to compare it against.

8.0 - Recommendations

To deal the issues cited above, the following solutions are recommended:

- plant crops in the field from where the soil sample was taken to absorb the contamination;
- if more information is needed about the level of nutrients in the soil, have an intern in a future term continue the research to discover if the levels are in exceedance or not.

9.0 - References

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9.0 - Appendix

9.1 - Soil Cores



Figure 16: Top Soil



Figure 17: Soil Core Sample #1



Figure 18: Soil Core Sample #2



Figure 19: Soil Core Sample #3



Figure 20: Soil Core Sample #4



Figure 21: Soil Core Sample #5



Figure 22: Soil Core Sample #6



Figure 23: Soil Sample Location Post Sampling

9.2 – Eurofins' Soil Soil Results

Soil sample results from Eurofins.



Environment Testing

Certificate of Analysis

Client: Small Scale Farms
13145 Lundy's Lane
Allanburg, ON
L0S 1A0
Attention: Mr Robert Teodorini
PO#:
Invoice to: Small Scale Farms


Report Number: 1948896
Date Submitted: 2021-03-05
Date Reported: 2021-03-11
Project: Small Scale Farms Testing
COC #: 212797

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Dear Robert Teodorini:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:


Addrine
Thomas
2021.03.11
15:41:43
-05'00'

APPROVAL:

Addrine Thomas, Inorganics Supervisor

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise indicated.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at: <http://www.cala.ca/scopes/2602.pdf>

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is licensed by the Ontario Ministry of the Environment, Conservation, and Parks (MECP) for specific tests in drinking water (license #2318). A copy of the license is available upon request.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by the Ontario Ministry of Agriculture, Food, and Rural Affairs for specific tests in agricultural soils.

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline values listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official provincial or federal guideline as required. Unless otherwise stated, measurement uncertainty is not taken into account when determining guideline or regulatory exceedances.



Environment Testing

Certificate of Analysis

Client: Small Scale Farms
 13145 Lundy's Lane
 Allanburg, ON
 L0S 1A0
 Attention: Mr Robert Teodorini
 PO#:
 Invoice to: Small Scale Farms

Report Number: 1948896
 Date Submitted: 2021-03-05
 Date Reported: 2021-03-11
 Project: Small Scale Farms Testing
 COC #: 212797

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
Extractable N	N-NO3 (KCl extractable)	1	ppm		1544967 Soil
General Chemistry	Electrical Conductivity	0.05	mS/cm		2021-03-05 Field
	pH	2.00			
Metals	As	1	ug/g		
	Cd	0.4	ug/g		
	Co	1	ug/g		
	Cr	1	ug/g		
	Cu	1	ug/g		
	Hg	0.1	ug/g		
	Mo	1	ug/g		
	Ni	1	ug/g		
	Pb	1	ug/g		
	Se	1	ug/g		
	Ti	1	ug/g		
	Zn	2	ug/g		
Soil - Extractable	P (NaHCO3 Extractable)	2	ppm		

Guideline = * = Guideline Exceedence
 Results relate only to the parameters tested on the samples submitted.
 Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWGO = Provincial Water Quality Guideline, IPWGO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range



Environment Testing

Certificate of Analysis

Client: Small Scale Farms
 13145 Lundy's Lane
 Allanburg, ON
 L0S 1A0
 Attention: Mr Robert Teodorini
 PO#:
 Invoice to: Small Scale Farms

Report Number: 1948896
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 COC #: 212797

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 397057 Analysis/Extraction Date 2021-03-09 Analyst SKH			
Method C 33-3 Methods of So			
N-NO3 (KCl extractable)	<1 ppm		75-125
Run No 397115 Analysis/Extraction Date 2021-03-10 Analyst R R			
Method Cond-Soil			
Electrical Conductivity	<0.05 mS/cm	95	90-110
pH	5.31	99	90-110
Run No 397134 Analysis/Extraction Date 2021-03-10 Analyst Z S			
Method EPA 200.8			
Arsenic	<1 ug/g	103	70-130
Cadmium	<0.4 ug/g	105	70-130
Cobalt	<1 ug/g	97	70-130
Chromium Total	<1 ug/g	97	70-130
Copper	<1 ug/g	108	70-130
Mercury	<0.1 ug/g	96	70-130
Molybdenum	<1 ug/g	93	70-130
Nickel	<1 ug/g	102	70-130
Lead	<1 ug/g	103	70-130

Guideline = * = **Guideline Exceedence**
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 Methods references and/or additional QA/QC information available on request.

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Environment Testing

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Date Submitted: 2021-03-05
Date Reported: 2021-03-11
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COC #: 212797

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Selenium	<1 ug/g	114	70-130
Thallium	<1 ug/g	102	70-130
Zinc	<2 ug/g	110	70-130
Run No 397161		Analysis/Extraction Date 2021-03-11	Analyst SKH
Method AG Soil			
P (NaHCO3 Extractable)	<2 ppm		

Guideline = * = **Guideline Exceedence**
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COC #: 212797

Sample Comment Summary

Sample ID: 1544967 Field No sample spike for metals.

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9.3 – Eurofins' Water Sample Results

Water sample results from Eurofins



Environment Testing

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Report Number: 1948894
Date Submitted: 2021-03-05
Date Reported: 2021-03-12
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COC #: 212797

Page 1 of 5

Dear Robert Teodorini:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:


Addrine
Thomas
2021.03.12
15:12:13 -05'00'

APPROVAL: _____
Addrine Thomas, Inorganics Supervisor

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise indicated.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at: <http://www.cala.ca/scopes/2602.pdf>

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is licensed by the Ontario Ministry of the Environment, Conservation, and Parks (MECP) for specific tests in drinking water (license #2318). A copy of the license is available upon request.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by the Ontario Ministry of Agriculture, Food, and Rural Affairs for specific tests in agricultural soils.

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline values listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official provincial or federal guideline as required. Unless otherwise stated, measurement uncertainty is not taken into account when determining guideline or regulatory exceedances.



Environment Testing

Certificate of Analysis

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 Allanburg, ON
 L0S 1A0
 Attention: Mr Robert Teodorini
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 Invoice to: Small Scale Farms

Report Number: 1948894
 Date Submitted: 2021-03-05
 Date Reported: 2021-03-12
 Project: Small Scale Farms Testing
 COC #: 212797

Group	Analyte	MRL	Units	Guideline	Lab I.D.	Sample Matrix	Sample Type	Sampling Date	Sample I.D.
					1544962	1544963	1544964	1544965	
					Water	Water	Water	Water	Water
					2021-03-05	2021-03-05	2021-03-05	2021-03-05	2021-03-05
					Work Area Sink	Bathroom Sink	Valley #1	Valley #2	
Metals	As	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	
	Cd	0.0001	mg/L		0.0003	<0.0001	<0.0001	<0.0001	
	Co	0.0002	mg/L		0.0004	<0.0002	0.0004	0.0004	
	Cr	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	
	Cu	0.001	mg/L			0.268	0.014	0.005	
		0.01	mg/L		1.25				
	Hg	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	
	Mo	0.005	mg/L		<0.005	<0.005	<0.005	<0.005	
	Ni	0.005	mg/L		0.079	<0.005	<0.005	<0.005	
	Pb	0.001	mg/L		0.003	<0.001	0.001	<0.001	
	Se	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	
	Tl	0.0001	mg/L		<0.0001	0.0001	<0.0001	<0.0001	
	Zn	0.01	mg/L			0.25	<0.01	<0.01	
		0.1	mg/L		7.2				
Nutrients	PO4	0.010	mg/L		<0.010	<0.010	0.053	0.077	
Others	N-NO3	0.10	mg/L		0.11	0.14	1.36	3.61	

Guideline = * = Guideline Exceedence
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 Date Reported: 2021-03-12
 Project: Small Scale Farms Testing
 COC #: 212797

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1544966 Water 2021-03-05 Backlot
Metals	As	0.001	mg/L		<0.001
	Cd	0.0001	mg/L		<0.0001
	Co	0.0002	mg/L		0.0004
	Cr	0.001	mg/L		<0.001
	Cu	0.001	mg/L		0.008
	Hg	0.0001	mg/L		<0.0001
	Mo	0.005	mg/L		<0.005
	Ni	0.005	mg/L		<0.005
	Pb	0.001	mg/L		0.001
	Se	0.001	mg/L		<0.001
	Tl	0.0001	mg/L		<0.0001
	Zn	0.01	mg/L		<0.01
Nutrients	PC4	0.010	mg/L		0.046
Others	N-NO3	0.10	mg/L		0.13

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 Project: Small Scale Farms Testing
 COC #: 212797

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 397121 Analysis/Extraction Date 2021-03-10 Analyst SKH			
Method C SM4500-NO3-F			
N-NO3	<0.10 mg/L	99	
Run No 397126 Analysis/Extraction Date 2021-03-10 Analyst SKH			
Method EPA 365.1			
PO4	<0.010 mg/L	88	80-120
Run No 397167 Analysis/Extraction Date 2021-03-11 Analyst H D			
Method EPA 200.8			
Arsenic	<0.001 mg/L	91	80-120
Cadmium	<0.0001 mg/L	93	80-120
Cobalt	<0.0002 mg/L	103	80-120
Chromium Total	<0.001 mg/L	100	80-120
Copper	<0.01 mg/L	110	80-120
Molybdenum	<0.005 mg/L	84	80-120
Nickel	<0.005 mg/L	108	80-120
Lead	<0.001 mg/L	102	80-120
Selenium	<0.001 mg/L	91	80-120
Thallium	<0.0001 mg/L	101	80-120

Guideline = * = **Guideline Exceedence**
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QC Summary


Analyte	Blank	QC % Rec	QC Limits
Zinc	<0.1 mg/L	105	80-120
Run No 397192 Analysis/Extraction Date 2021-03-12 Analyst H_D			
Method EPA 200.8			
Mercury	<0.0001 mg/L	98	80-120

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9.4 – Eurofins Chain of Custody Form

The Chain of Custody form from when the samples were submitted to Eurofins.



212797

STANDARD CHAIN-OF-CUSTODY

146 Colomade Road, Unit #8, Ottawa, ON, K2Z 7Y1 - Phone: 613-272-5852, Fax: 613-272-5222

Eurofins Workorder #: _____

CLIENT INFORMATION

Company: Small Scale Farms

Contact: 905 246 2740 (Ext) 844 769 7333 (Emergency)

Address: 3145 Windy's Lane Alliston, ON

Telephone: 844 769 7333 Cell: 905 246 2740

Email: #1: _____ #2: _____

Quote #: _____

Project: Small Scale Farms Testing

TURN-AROUND TIME (Business Days)

1 Day* (100%) 2 Day** (50%) 3-5 Days (25%) 5-7 Days (Standard)

Please contact Lab in advance to determine rush availability. *For results reported after rush due date, surcharges will apply: before 12:00 - 100%, after 12:00 - 50%. **For results reported after rush due date, surcharges will apply: before 12:00 - 50%, after 12:00 - 25%.

INVOICE INFORMATION (SAME AS CLIENT INFORMATION: YES NO)

Company: _____ Fax: _____

Contact: _____ Email: #1: _____

Address: _____ Email: #2: _____

Telephone: _____ PO #: _____

REGULATION/GUIDELINE REQUIRED

O. Reg 153 Sanitary Sewer, City: _____

O. Reg 406 Excess Soils Storm Sewer, City: _____

O. Reg 347/558 ODN/SOG PWQO

Other: _____

Table # _____, Coarse / Fine, Surface / subsurface.

Type: Com-Ind / Res-Park / Agri / GW / All Other / Sediment

Yes No

O. Reg 406 Excess Soils TCLP SPLP

Table # _____ Full depth/ Strat/ Ceiling/ Leachate Category: Surface / Subsurface

Sample Details

Field Filtered -> _____

of Containers _____

Sample Matrix _____

PHC RI - FA _____

PCBS _____

PAHS _____

VOCs _____

BTEX _____

O. Reg. 153 parameters _____

Metals only _____

Metals + Inorganic _____

Sample Analysis Required

Sample ID	Date/Time Collected	Temp (C)	DATE/TIME	COMMENTS:
Block area sink	11/10/11	11.3	11/10/11	
Bathroom sink	11/10/11	11.3	11/10/11	
Valley #1	11/10/11	11.3	11/10/11	
Valley #2	11/10/11	11.3	11/10/11	
Backlot	11/10/11	11.3	11/10/11	
Field	11/10/11	11.3	11/10/11	

PRINT

Sampled By: Robert Teodoro

Relinquished By: Robert Teodoro

Received By: M. D. ...

CUSTODY SEAL: YES NO

Lab packs submitted: YES NO

401 Magnetic Drive, Unit #1, North York, ON, M3J 3H9 - Telephone: 416-661-5287

380 Varnick Road, Unit #630, St. Catharines, ON, L2S 0B5 - Telephone: 905-680-8887

608 Norris Court, Kingston, ON, K7P 2R9 - Telephone: 613-634-9307

AFSTDCC06

Copies: White - Laboratory, Yellow - Sampler