

## Report Transmission Cover Page

Bill To: The Black Dirt Company 300 Saskatchewan Ave Spruce Grove, AB, Canada	Project ID: Project Name: Project Location:	Lot ID: <b>1418039</b>
Attn: Charlene Hinkel	LSD:	Control Number:
Sampled By: Charlene Hinkel	P.O.:	Date Received: Apr 14, 2020
Company: The Black Dirt Company	Proj. Acct. code:	Date Reported: Apr 20, 2020
		Report Number: 2506673

Contact	Company	Address
Accounts Payable	The Black Dirt Company	Box 3130 Spruce Grove, AB T7X 3A5 Phone: (780) 962-8220 Fax: (780) 962-8215 Email: info@blackdirtcompany.com

Delivery	Format	Deliverables
Post	PDF	Invoice

Contact	Company	Address
Charlene Hinkel	The Black Dirt Company	300 Saskatchewan Ave Spruce Grove, AB Phone: (780) 962-8220 Fax: (780) 962-8215 Email: charlene.hinkel@blackdirtcompany.com

Delivery	Format	Deliverables
Email - Merge Reports	PDF	COC / Test Report
Email - Single Report	PDF	COA
Email - Single Report	PDF	Invoice

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## Analytical Report

Bill To: The Black Dirt Company 300 Saskatchewan Ave Spruce Grove, AB, Canada	Project ID: Project Name: Project Location:	Lot ID: <b>1418039</b> Control Number: Date Received: Apr 14, 2020 Date Reported: Apr 20, 2020 Report Number: 2506673
Attn: Charlene Hinkel Sampled By: Charlene Hinkel Company: The Black Dirt Company	LSD: P.O.: Proj. Acct. code:	

		Reference Number	1418039-1	1418039-2	1418039-3	
		Sample Date	Apr 14, 2020	Apr 14, 2020	Apr 14, 2020	
		Sample Time	12:30	12:45	14:00	
		Sample Location				
		Sample Description	Campsite Road Topsoil	Campsite Road Garden Mix	Fenwyck Topsoil	
		Matrix	Soil	Soil	Soil	
Analyte	Units	Results	Results	Results	Nominal Detection Limit	
<b>Metals Strong Acid Digestion</b>						
Boron	Saturated Paste	mg/L	0.10	<0.5	0.34	0.05
Antimony	Strong Acid Extractable	mg/kg	<0.2	0.3	0.2	0.2
Arsenic	Strong Acid Extractable	mg/kg	3.8	3.8	6.7	0.2
Barium	Strong Acid Extractable	mg/kg	148	165	172	1
Beryllium	Strong Acid Extractable	mg/kg	0.3	0.3	0.5	0.1
Cadmium	Strong Acid Extractable	mg/kg	0.15	0.34	0.37	0.01
Chromium	Strong Acid Extractable	mg/kg	8.3	13.0	12.3	0.5
Cobalt	Strong Acid Extractable	mg/kg	6.2	6.0	8.2	0.1
Copper	Strong Acid Extractable	mg/kg	7.7	29.4	15.7	1
Lead	Strong Acid Extractable	mg/kg	6.3	8.5	8.8	0.1
Mercury	Strong Acid Extractable	mg/kg	<0.05	0.08	<0.05	0.05
Molybdenum	Strong Acid Extractable	mg/kg	<1.0	1.1	<1.0	1
Nickel	Strong Acid Extractable	mg/kg	10.2	11.0	20.0	0.5
Selenium	Strong Acid Extractable	mg/kg	<0.3	0.4	0.8	0.3
Silver	Strong Acid Extractable	mg/kg	<0.10	0.6	0.1	0.1
Thallium	Strong Acid Extractable	mg/kg	0.08	0.07	0.12	0.05
Tin	Strong Acid Extractable	mg/kg	<1.0	1.2	<1.0	1
Uranium	Strong Acid Extractable	mg/kg	0.5	0.8	2.0	0.5
Vanadium	Strong Acid Extractable	mg/kg	14.9	13.5	22.4	0.1
Zinc	Strong Acid Extractable	mg/kg	49	86	77	1
<b>Physical and Aggregate Properties</b>						
Texture			Sandy Loam	Sandy Loam	Clay Loam	
Sand	50 µm - 2 mm	% by weight	61	56	25	0.1
Silt	2 µm - 50 µm	% by weight	27	33	48	0.1
Clay	<2 µm	% by weight	12	11	27	0.1
<b>Salinity</b>						
Electrical Conductivity	Saturated Paste	dS/m	0.89	6.03	1.82	0.01
SAR	Saturated Paste		0.2	1.1	0.4	
% Saturation		%	52	65	65	
Calcium	Saturated Paste	mg/kg	74.2	702	240	
Magnesium	Saturated Paste	mg/kg	8.5	157	30.3	
Sodium	Saturated Paste	mg/kg	4	99	21	
Potassium	Saturated Paste	mg/kg	7	199	11	
Chloride	Saturated Paste	mg/L	11	268	18	2
Chloride	Saturated Paste	mg/kg	6	175	11	
Sulfate (SO4)	Saturated Paste	mg/kg	59.9	1130	466	
TGR	Saturated Paste	T/ac	<0.1	<0.1	<0.1	

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	Sample Date	Apr 14, 2020	Apr 14, 2020	Apr 14, 2020	
	Sample Time	12:30	12:45	14:00	
	Sample Location				
	Sample Description	Campsite Road Topsoil	Campsite Road Garden Mix	Fenwyck Topsoil	
	Matrix	Soil	Soil	Soil	
Analyte	Units	Results	Results	Results	Nominal Detection Limit
<b>Soil Acidity</b>					
pH	1:2 Soil:Water	pH	6.4	6.3	7.8
pH	1:2 Soil:CaCl2 sol.	pH	6.2	6.5	7.7
Electrical Conductivity	1:2 Soil:Water	dS/m at 25 °C	0.28	1.86	0.70
<b>Water Soluble Parameters</b>					
Chromium (VI)	Dry Weight	mg/kg	<0.05	<0.05	<0.05
<b>Clubroot Analysis</b>					
Plasmodiophora brassicae	Clubroot Pathogen	spores/g	<1000	<1000	<1000
Plasmodiophora brassicae	Detected/ Not Detected	spores/g	Not Detected	Not Detected	Not Detected

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Attn: Charlene Hinkel Sampled By: Charlene Hinkel Company: The Black Dirt Company	LSD: P.O.: Proj. Acct. code:	

**Reference Number** 1418039-4  
**Sample Date** Apr 14, 2020  
**Sample Time** 13:40  
**Sample Location**  
**Sample Description** Grove Drive East  
Topsoil  
**Matrix** Soil

Analyte	Units	Results	Results	Results	Nominal Detection Limit
<b>Metals Strong Acid Digestion</b>					
Boron	Saturated Paste	mg/L	0.21		0.05
Antimony	Strong Acid Extractable	mg/kg	0.2		0.2
Arsenic	Strong Acid Extractable	mg/kg	7.2		0.2
Barium	Strong Acid Extractable	mg/kg	154		1
Beryllium	Strong Acid Extractable	mg/kg	0.5		0.1
Cadmium	Strong Acid Extractable	mg/kg	0.21		0.01
Chromium	Strong Acid Extractable	mg/kg	15.0		0.5
Cobalt	Strong Acid Extractable	mg/kg	8.6		0.1
Copper	Strong Acid Extractable	mg/kg	14.6		1
Lead	Strong Acid Extractable	mg/kg	9.1		0.1
Mercury	Strong Acid Extractable	mg/kg	<0.05		0.05
Molybdenum	Strong Acid Extractable	mg/kg	<1.0		1
Nickel	Strong Acid Extractable	mg/kg	21.0		0.5
Selenium	Strong Acid Extractable	mg/kg	0.6		0.3
Silver	Strong Acid Extractable	mg/kg	<0.10		0.1
Thallium	Strong Acid Extractable	mg/kg	0.12		0.05
Tin	Strong Acid Extractable	mg/kg	<1.0		1
Uranium	Strong Acid Extractable	mg/kg	1.3		0.5
Vanadium	Strong Acid Extractable	mg/kg	22.5		0.1
Zinc	Strong Acid Extractable	mg/kg	70		1
<b>Physical and Aggregate Properties</b>					
Texture			Clay Loam		
Sand	50 µm - 2 mm	% by weight	24		0.1
Silt	2 µm - 50 µm	% by weight	49		0.1
Clay	<2 µm	% by weight	27		0.1
<b>Salinity</b>					
Electrical Conductivity	Saturated Paste	dS/m	0.33		0.01
SAR	Saturated Paste		0.4		
% Saturation		%	52		
Calcium	Saturated Paste	mg/kg	26.2		
Magnesium	Saturated Paste	mg/kg	4.4		
Sodium	Saturated Paste	mg/kg	7		
Potassium	Saturated Paste	mg/kg	2		
Chloride	Saturated Paste	mg/L	7		2
Chloride	Saturated Paste	mg/kg	4		
Sulfate (SO4)	Saturated Paste	mg/kg	25.4		
TGR	Saturated Paste	T/ac	<0.1		

**Analytical Report**

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**Sample Date** Apr 14, 2020  
**Sample Time** 13:40  
**Sample Location**  
**Sample Description** Grove Drive East  
 Topsoil  
**Matrix** Soil

Analyte	Units	Results	Results	Results	Nominal Detection Limit
<b>Soil Acidity</b>					
pH	1:2 Soil:Water	pH	7.4		
pH	1:2 Soil:CaCl2 sol.	pH	6.8		
Electrical Conductivity	1:2 Soil:Water	dS/m at 25 °C	0.22		0.01
<b>Water Soluble Parameters</b>					
Chromium (VI)	Dry Weight	mg/kg	<0.05		0.05
<b>Clubroot Analysis</b>					
Plasmodiophora brassicae	Clubroot Pathogen	spores/g	<1000		1000
Plasmodiophora brassicae	Detected/ Not Detected	spores/g	Not Detected		1000

Approved by:   
 Darlene Lintott, MSc  
 Consulting Scientist

## Methodology and Notes

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## Method of Analysis

Method Name	Reference	Method	Date Analysis Started	Location
1:5 Water Soluble Extraction	APHA	* Colorimetric Method, 3500-Cr B	Apr 15, 2020	Element Edmonton - Roper Road
1:5 Water Soluble Extraction	McKeague	* Soluble Salts in Extracts of 1:5 Soil:Water Mixtures, 3.23	Apr 15, 2020	Element Edmonton - Roper Road
Clubroot	Plant Path	* Wallenhammer et al 2011. In-Field distribution of Plasmodiophora brassicae measured using real-time PCR., Plant Pathology	Apr 16, 2020	Element Edmonton - Roper Road
Metals ICP (Hot Block) in soil	EPA	* Sample Preparation Procedure for Spectrochemical Determination of Total Recoverable Elements, October 1999, 200.2	Apr 15, 2020	Element Edmonton - Roper Road
Metals ICP (Hot Block) in soil	US EPA	* Determination of Trace Elements in Waters and Wastes by ICP-MS, 200.8	Apr 15, 2020	Element Edmonton - Roper Road
Particle Size Analysis - GS	Carter	* Hydrometer Method, 55.3	Apr 15, 2020	Element Edmonton - Roper Road
pH and Conductivity in general soil 1:2	McKeague	* 1:2 Soil:Water Ratio, 4.12	Apr 15, 2020	Element Edmonton - Roper Road
pH and Conductivity in general soil 1:2	Soil & Environ. Anal.	* Particle Size Analysis, Direct Method, Chapter 7	Apr 15, 2020	Element Edmonton - Roper Road
pH by CaCl <sub>2</sub> (1:2 ratio) in soil	McKeague	* pH in 0.01M Calcium Chloride, 3.11	Apr 15, 2020	Element Edmonton - Roper Road
Saturated Paste in General Soil	APHA	* Automated Ferricyanide Method, 4500-Cl-E	Apr 15, 2020	Element Edmonton - Roper Road
Saturated Paste in General Soil	Carter	* Electrical Conductivity and Soluble Ions, Chapter 15	Apr 15, 2020	Element Edmonton - Roper Road

\* Reference Method Modified

## References

APHA	Standard Methods for the Examination of Water and Wastewater
Carter	Soil Sampling and Methods of Analysis.
EPA	Environmental Protection Agency Test Methods - US
McKeague	Manual on Soil Sampling and Methods of Analysis
Plant Path	Plant Pathology
Soil & Environ. Anal.	Soil and Environmental Analysis: Physical Methods
US EPA	US Environmental Protection Agency Test Methods

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