Ontario

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Prospecting and Sampling

Black Swamp Muck

in Wark Township

NE Lot 7, Concession IV

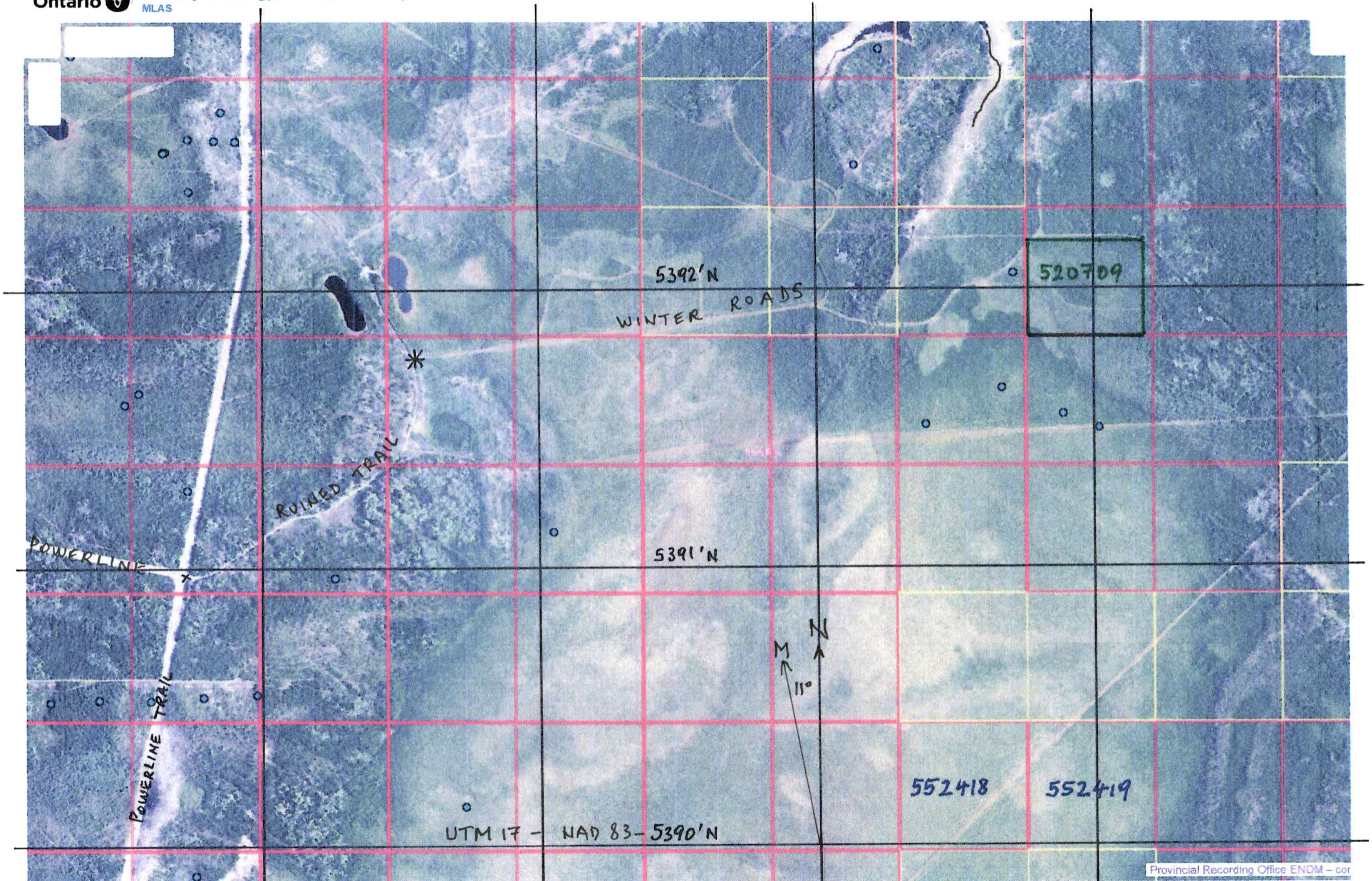
(8 km East of Kidd Creek Mine, Ontario)

on unpatented mining claim
520709

within respective cell
42A11K337

Report by Hermann Daxl, M.Sc.(Minex), Claim Holder

20 April 2020



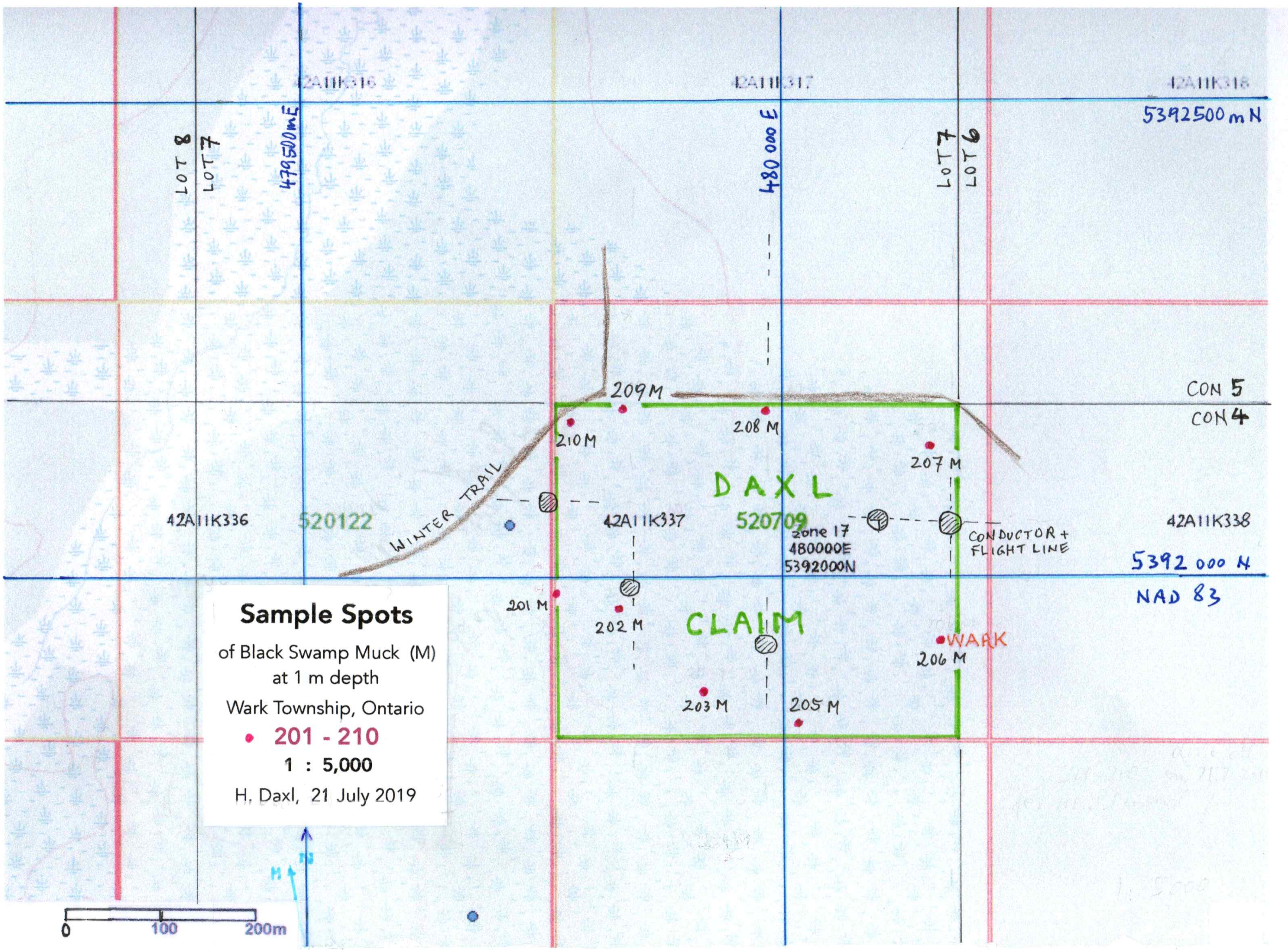
Scale: 1 : 20,000

0 0.15 0.3km

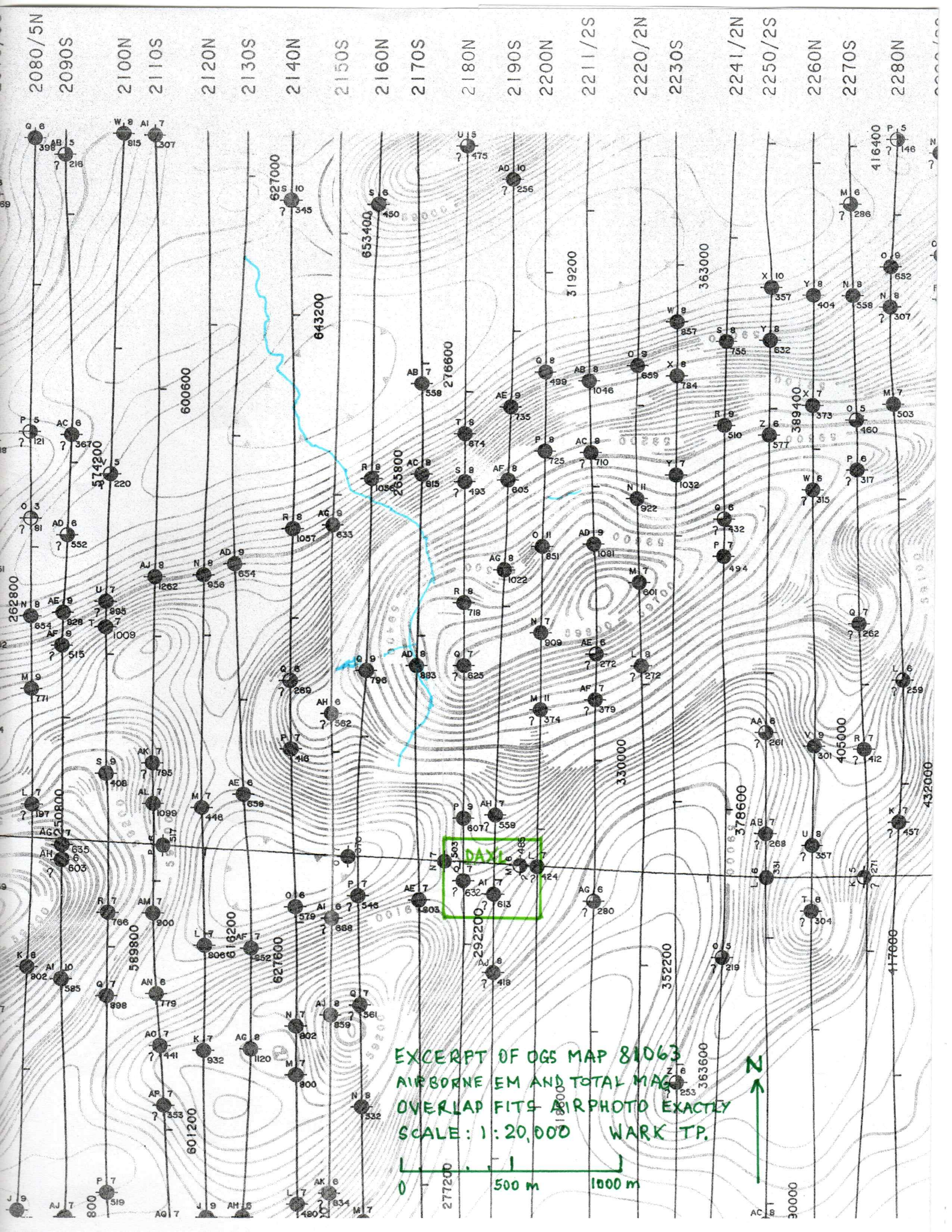
× PARK: 476733 E 5390972 N

✱ TURN: 477551 E 5391753 N

WARK Township
ONTARIO



42A11K316
42A11K317
42A11K318
5392500 m N
LOT 8
LOT 7
479500 mE
480 000 E
LOT 7
LOT 6
CON 5
CON 4
209 M
208 M
210 M
207 M
WINTER TRAIL
D A X L
42A11K336
520122
42A11K337
520709
zone 17
480000E
5392000N
CONDUCTOR + FLIGHT LINE
42A11K338
5392 000 N
NAD 83
201 M
202 M
CLAIM
WARK
206 M
203 M
205 M
Sample Spots
of Black Swamp Muck (M)
at 1 m depth
Wark Township, Ontario
201 - 210
1 : 5,000
H. Daxl, 21 July 2019
0
100
200m


2080/5N
2090S
2100N
2110S
2120N
2130S
2140N
2150S
2160N
2170S
2180N
2190S
2200N
2211/2S
2220/2N
2230S
2241/2N
2250/2S
2260N
2270S
2280N
DAXL
EXCERPT OF OGS MAP 81063
AIRBORNE EM AND TOTAL MAG
OVERLAP FITS AIRPHOTO EXACTLY
SCALE: 1:20,000 WARK TP.
0
500 m
1000 m
N

Introduction

As there seems to be no outcrop and all swamp, my field visit on 21 July 2019 was to establish what decayed vegetation could be sampled to qualify the strong airborne conductors on my unpatented mining claim 520709 within the northeast corner of Lot 7, Concession IV, of Wark Township. As such it covers most of cell 42A11K337, except strips in the north and east, as shown on the attached map. The surface rights are held by Kidd Creek Timber Limited, who I notified about my mining claim registration. Locally the trees had been harvested through winter trails and there is no other development.

When matching the airphoto on the OGS Map 81063 (excerpt attached) it is obvious that at least three of the strong conductors there occur on my claim, whereas only the conductors on the three claims adjacent south to west were drilled. Vertical overburden thickness there varied between 33 and 60m, indicating a moderate relief of bedrock, covered with very thick clay on a boulder pavement.

The variety of intersected rocks there suggests a sedimentary basin with volcanic activity, which actually could result in valuable zoned exhalite deposits. A bed with 30% semi-massive pyrite and 40% graphite at 91.70 - 91.80 m downhole in W4-82-02, at about 300 m south of my claim, was assumed to be a flow bottom, but could as well be an exhalite. 15 m further downhole, 45 cm contained <35 % pyrite. Element zoning could have lead to economic values on my claim. The 5 known holes were drilled towards 135/55 and resulted in only 509 m total core. Three MaxMin conductors there were explained by graphite and pyrite, with the highest values being 734 ppm zinc and another 550 ppm copper (Assessment files 42A11NW0540 - DD RPT 22 Wark of 1983 by Gulf Lead Mines Ltd. (T-1092), and 42A11NE 0557 - DD RPT 36 Wark of 1982 by Placer Development Ltd).

My whole claim lies within the northeast margin of the 5 km long mostly floating swamp trending southwest. The ground slopes very gently southward and is very humpy with thick moss and 40 cm deep watery holes throughout. Sparse conifers in the west become more numerous and <10 m high eastward. Alders are 2 m high in the northwest. There are no visible stumps nor fallen trees. As the favourable decayed vegetation on surface does not exist, I collected the 10 samples 201 - 210 of fairly dense black swamp muck (M) from about 1 m depth. Auger extensions will be necessary to reach the more suitable deeper black swamp muck about 50 cm above any clay-silt-sand top. Dispersion by too much water flow near the surface may have caused the monotonous values here. The expected 40 m thick clay should not block element ions from migrating to surface, as per my experience.

As shown on the attached air photo, access with SUV is from highway 655 about 19 km north of Timmins, across the Kidd Creek railway at NAD83 - 476116 m E - 5388132 m N, then north from Feldman Lake along the powerline to park at 476733 E - 5390972 N. Walking northeast on the damaged gravel trail, the turnoff eastward is at 477551 E - 5391753 N to cross the floating swamp on the winter road, for a total walk of 3.4 km. A previous attempt to access from the north via the Gowest Bradshaw Mine Road failed, as the yellow gate at 484483 E - 5399135 N was locked.

Present Work

Using a 1.1 m long Dutch auger, I collected 10 samples (201 - 210) of black swamp muck (M) where it was fairly dense and contained no apparent clay. Sample 208 is from 90 cm, to stay clear of the black clay top encountered at 1 m only there, the others are from 1 m depth without having reached a bottom. Prospecting I covered a wide area, but tried to retrieve the 5 cm thick x 10 cm long core samples at reasonable intervals and where practical, mostly from one auger hole after probing several, noting the UTM NAD 83 coordinates. Please refer to the sample map and the annotated list of analyses.

The dried raw samples 201 and 207 were somewhat grayish, indicating minor clay content, which explains the somewhat higher values of cerium (Ce) and lanthanum (La) in 207, as usual in clay. Sample 208 was affected less despite the nearby black clay. With the very low and monotonous values of all other elements throughout all samples, possibly flushed by water movement down the very gentle slope, I consider the results not usable to judge any bedrock. The somewhat higher copper values of the northeastern samples 206 - 208 may be due to thinner muck. Relating it to a distant copper occurrence would be farfetched.

During sample preparation I wrapped each in paper towels and squeezed out the water, followed by drying in the sun. The <250 micron sievings of the crumbled and rolled somewhat woody fibrous dry samples were enough for several analyses, yet the lab ran out of sievings 201 and 206 due to difficulties, and reported these separately later. Future samples should be composed from two holes, to suffice the 1g aliquots used this time for analyses ME-VEG41 - unashed - HNO_3/HCl - ICPAES/ICPMS by ALS Canada Ltd. Basically the sievings are condensed vegetation and therefore are suitable for this vegetation analyses with the necessary very low detection limits. Gold values are too low to warrant the usual further neutron activation analyses necessary for gold.

The exotic sample BL 7 was used as a near-blank for precious metals, and 204 to compare remote black muck from that swamp. Sample 211 is a duplicate of the sievings 208, and 205 and 209 were rerun by the lab. Sample 212 is the official standard OREAS 47, which also was run twice. All of these agreed closely and therefore validate all results. Such bottomless muck samples (M151 - M160) from that floating swamp on my claims 552418 - 419 at 1.5 km south had also all these monotonous very low values, which also confirms that it is not suitable (my Assessment Work Report 3068), but other M and K nearer to clay in dryer areas further south were useful there.

The theory and much practice about this low-cost and efficient prospecting method is further explained in my attached lecture handout, including the ideal decayed vegetation from 0 - 6 cm depth (K) into humus, and also dense lake sludge (L). Excessive metal ions from mineral deposits migrate to surface where they are concentrated in K by the plant cycle and by mere evaporation. K works better for many metals, but M works also for copper, which behaves differently also in other processes. In deeper swamp muck or lake sludge, there would be no concentration by the plant cycle, nor by evaporation, but in the absence of much water movement, the decayed organics seem to scavenge especially copper, possibly also sulfur. This is indicated by my assessment work (Report 1212) along the Splitrock River, and my earlier work on Jules Lake (2.54791, 2.56706/T-6901, 2.56857/T-6933, and Assessment Work Report 65), all in Fripp Township, about 35 km south of Timmins.

Conclusions and Recommendations

The present monotonous, very low values of the sampled bottomless black swamp muck from 1 m depth allow no judgement of the rock below. The reason is not the underlying very thick clay layer, which according to clay content of sample 207, and possibly 208, has somewhat higher values. Rather there is too much water movement near the top of the black muck in this swamp.

Deeper black swamp muck has to be reached, where water would hardly move, and clay should also be sampled separately occasionally. This can be done with auger extensions, and is quite feasible down to 10 m. Probably only 2 - 3 m would be necessary. The thickness of clay or sand hardly matters as per my assessment work around Timmins (Reports 2891 and 1775). Values may get spread out which allows sparser sampling, but a worthwhile deposit should still show. The poor values intersected on adjacent claims should not distract, because sedex deposits are often zoned. If positive, and especially if the metal suite hints at the nearby Kidd Creek Mine, the known strong conductors would certainly attract explorers to drill them.

Respectfully submitted,

Timmins, 20 April 2020 Hermann Daxl, M.Sc.(Minex), Claim Holder

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To: HERMANN DAXL
39-630 RIVERPARK RD
TIMMINS ON P4P 1B4

Finalized Date: 6-MAR-2020
Account: DAXHER

CERTIFICATE VA20026425

Project: PGE
P.O. No.: 27.1.2020 decayed sievings < 250µm
This report is for 41 Vegetation samples submitted to our lab in Vancouver, BC, Canada on 3-FEB-2020.

The following have access to data associated with this certificate:

HERMANN DAXL

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21g	Received Wet Sample Wt in grams
LOG-22	Sample login - Rcd w/o BarCode

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION
ME-VEG41	Vegetation - HNO3/HCl ICPAES-ICPMS – UNASHED – AS IS

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

***** See Appendix Page for comments regarding this certificate *****

Signature:
Saa Traxler, General Manager, North Vancouver

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To: HERMANN DAXL
39-630 RIVERPARK RD
TIMMINS ON P4P 1B4

BY ME-VEG41 – UNASHED – HNO_3/HCl
ICPAES – ICPMS – 1 g aliquots except 207 of ½ g

Project: PGE

Finalized Date: 6-MAR-2020
Account: DAXHER

BLACK SWAMP MUCK sieved < 250 μm, no inorganic content, as submitted.

CERTIFICATE OF ANALYSIS VA20026425

Sample Description	UTM NAD83 E N	ME-VEG41 Au ppm 0.0002	ME-VEG41 Ag ppm 0.001	ME-VEG41 Al % 0.01	ME-VEG41 As ppm 0.01	ME-VEG41 B ppm 1	ME-VEG41 Ba ppm 0.1	ME-VEG41 Be ppm 0.01	ME-VEG41 Bi ppm 0.001	ME-VEG41 Ca % 0.01	ME-VEG41 Cd ppm 0.001	ME-VEG41 Ce ppm 0.003	ME-VEG41 Co ppm 0.002	ME-VEG41 Cr ppm 0.01	ME-VEG41 Cs ppm 0.005
BL 7 TEST K0 ✓		0.0028	0.114	0.30	1.97	10	43.4	0.15	0.145	1.53	1.030	7.52	2.59	7.66	0.338
202	9830-1968	0.0004	0.018	0.22	1.28	5	28.9	0.13	0.018	2.03	0.220	4.01	0.519	3.42	0.215
203	9919-1880	0.0004	0.028	0.19	1.12	8	32.7	0.08	0.016	2.65	0.409	2.68	0.427	2.40	0.118
204 – EXOTIC TEST	9941-1704	0.0005	0.029	0.24	0.95	5	30.5	0.13	0.022	1.94	0.334	3.89	0.507	2.60	0.082
205	0016-1847	0.0002	0.014	0.15	1.21	9	31.7	0.07	0.012	2.94	0.429	1.930	0.426	2.20	0.059
206	0167-1930	NSS	NSS	NSS	NSS	NSS	NSS	NSS	NSS	NSS	NSS	NSS	NSS	NSS	NSS
207	0156-2138	0.0008	0.057	0.49	1.02	5	53.3	0.23	0.035	2.86	0.470	15.55	1.085	6.62	0.235
208	9986-2177	0.0002	0.040	0.34	1.20	8	46.6	0.17	0.028	3.27	0.654	6.09	1.045	4.53	0.117
209	9835-2176	<0.0002	0.018	0.16	1.33	13	40.0	0.08	0.016	3.55	0.184	2.43	0.688	2.44	0.076
210	9780-2163	<0.0002	0.025	0.16	1.06	8	29.7	0.10	0.017	2.54	0.262	2.82	0.553	2.03	0.108
211 = 208 ✓		<0.0002	0.038	0.33	1.06	8	45.1	0.18	0.027	3.14	0.645	5.91	1.000	4.29	0.126
212 OREAS 47 ✓		0.0374	0.085	0.72	8.16	1	55.8	0.16	0.098	0.50	0.387	40.9	50.5	27.1	1.110

Sample Description	ME-VEG41 Cu ppm 0.01	ME-VEG41 Fe ppm 1	ME-VEG41 Ga ppm 0.004	ME-VEG41 Ge ppm 0.005	ME-VEG41 Hf ppm 0.002	ME-VEG41 Hg ppm 0.001	ME-VEG41 In ppm 0.005	ME-VEG41 K % 0.01	ME-VEG41 La ppm 0.002	ME-VEG41 Li ppm 0.1	ME-VEG41 Mg % 0.001	ME-VEG41 Mn ppm 0.1	ME-VEG41 Mo ppm 0.01	ME-VEG41 Na % 0.001	ME-VEG41 Nb ppm 0.002
BL 7 TEST K0 ✓	48.9	4270	1.035	0.088	0.100	0.166	0.096	0.08	4.13	3.2	0.185	512	0.55	0.005	0.368
202	6.36	1310	0.552	0.049	0.098	0.088	<0.005	0.01	2.04	0.2	0.166	36.6	0.42	0.007	0.200
203	4.80	1730	0.416	0.052	0.076	0.094	<0.005	0.01	1.385	0.2	0.155	48.8	0.35	0.008	0.159
204 – EXOTIC TEST	6.64	1410	0.428	0.046	0.076	0.120	<0.005	0.01	2.01	0.1	0.119	22.7	0.51	0.006	0.169
205	4.82	1770	0.303	0.038	0.064	0.075	<0.005	<0.01	0.952	0.1	0.151	54.3	0.35	0.009	0.128
206	NSS	NSS	NSS	NSS	NSS	NSS	NSS	NSS	NSS	NSS	NSS	NSS	NSS	NSS	NSS
207	11.95	3660	0.959	0.021	0.144	0.162	0.012	0.02	7.85	0.8	0.163	120.0	0.48	0.012	0.441
208	10.80	3450	0.622	0.059	0.134	0.145	0.006	<0.01	3.31	0.3	0.175	87.0	0.49	0.010	0.282
209	5.32	3180	0.361	0.045	0.074	0.075	<0.005	<0.01	1.195	0.1	0.195	102.5	0.55	0.005	0.134
210	5.21	2260	0.322	0.042	0.058	0.099	<0.005	<0.01	1.495	0.1	0.141	68.8	0.49	0.009	0.127
211 = 208 ✓	10.35	3330	0.595	0.058	0.122	0.141	<0.005	<0.01	3.21	0.2	0.169	83.9	0.46	0.008	0.264
212 OREAS 47 ✓	146.5	12750	2.24	0.019	0.177	0.017	0.028	0.11	22.3	8.4	0.404	232	9.86	0.075	0.175

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To: HERMANN DAXL
39-630 RIVERPARK RD
TIMMINS ON P4P 1B4

Finalized Date: 6-MAR-2020
Account: DAXHER

Project: PGE

CERTIFICATE OF ANALYSIS VA20026425

Sample Description	Method / Analyte / Units / LOD	ME-VEG41 Ni ppm 0.04	ME-VEG41 P % 0.001	ME-VEG41 Pb ppm 0.01	ME-VEG41 Pd ppm 0.001	ME-VEG41 Pt ppm 0.001	ME-VEG41 Rb ppm 0.01	ME-VEG41 Re ppm 0.001	ME-VEG41 S % 0.01	ME-VEG41 Sb ppm 0.01	ME-VEG41 Sc ppm 0.01	ME-VEG41 Se ppm 0.005	ME-VEG41 Sn ppm 0.01	ME-VEG41 Sr ppm 0.02	ME-VEG41 Ta ppm 0.001	ME-VEG41 Te ppm 0.02
BL 7	TEST KØ ✓	5.59 ✓	0.083 ✓	8.91 ✓	<0.001	0.004 ✓	5.04 ✓	0.001	0.21 ✓	0.17	0.41	1.330 ✓	0.26 ✓	47.4 ✓	0.005	0.03
202		3.71	0.036	1.03	<0.001	0.001	0.58	0.001	0.20	0.09	0.41	1.325	0.07	68.4	0.010	<0.02
203		3.21	0.030	0.85	<0.001	0.001	0.35	0.001	0.20	0.06	0.42	1.425	0.06	92.1	0.009	<0.02
204	— EXOTIC TEST	3.27	0.045	1.01	<0.001	0.001	0.33	0.001	0.18	0.08	0.31	1.090	0.05	62.1	0.009	<0.02
205		3.54	0.029	0.66	<0.001	<0.001	0.19	0.001	0.20	0.07	0.33	1.420	0.04	94.7	0.007	<0.02
206		NSS	NSS	NSS	NSS	NSS	NSS	NSS	NSS	NSS	NSS	NSS	NSS	NSS	NSS	NSS
207		4.62	0.055	1.79	<0.001	0.002	1.58	0.002	0.26	0.12	0.69	1.775	0.08	95.0	0.009	<0.02
208		4.35	0.035	1.25	<0.001	<0.001	0.44	0.002	0.23	0.12	0.52	1.600	0.06	102.5	0.013	<0.02
209		4.04	0.019	0.77	<0.001	<0.001	0.21	0.001	0.17	0.09	0.33	1.225	0.04	118.0	0.007	<0.02
210		2.33	0.028	0.93	<0.001	<0.001	0.30	0.001	0.17	0.08	0.31	1.065	0.06	87.7	0.008	<0.02
211	= 208 ✓	4.25	0.034	1.20	<0.001	<0.001	0.42	0.003	0.22	0.12	0.50	1.490	0.04	98.8	0.011	0.02
212	OREAS 47 ✓	78.2 ✓	0.049	255 ✓	0.016 vs. 0.043	0.013 vs 0.026	6.91	<0.001	0.05 ✓	0.02	2.72	0.062	0.71	26.7	<0.001	<0.02

Sample Description	Method / Analyte / Units / LOD	ME-VEG41 Th ppm 0.002	ME-VEG41 Ti % 0.001	ME-VEG41 Tl ppm 0.002	ME-VEG41 U ppm 0.005	ME-VEG41 V ppm 0.05	ME-VEG41 W ppm 0.01	ME-VEG41 Y ppm 0.003	ME-VEG41 Zn ppm 0.1	ME-VEG41 Zr ppm 0.02	
BL 7	TEST KØ ✓	0.265 ✓	0.009	0.048	0.693 ✓	6.47 ✓	0.07	1.710 ✓	167.0 ✓	3.71 ✓	← Exotic decayed vegetation 0-6 cm
202		0.326	0.004	0.016	0.211	3.79	0.02	1.210	16.1	3.72	
203		0.320	0.004	0.018	0.162	2.70	0.02	0.903	15.5	2.60	
204	— EXOTIC TEST	0.114	0.004	0.011	0.185	5.88	0.03	1.320	12.5	3.08	
205		0.277	0.003	0.012	0.130	2.37	0.03	0.718	12.7	2.45	
206		NSS	NSS	NSS	NSS	NSS	NSS	NSS	NSS	NSS	= NOT SUFFICIENT SAMPLE
207		0.598	0.010	0.036	1.285	7.47	0.03	3.28	18.6	6.46	← bit grayish
208		0.603	0.006	0.020	0.781	7.38	0.02	2.15	16.9	5.63	← at 90 cm depth on black clay at 100 cm
209		0.351	0.004	0.014	0.265	3.23	0.02	0.911	16.4	3.07	(all others at 100 cm, no bottom at 110 cm)
210		0.232	0.003	0.014	0.171	2.67	0.02	0.893	13.0	2.30	
211	= 208 ✓	0.539	0.006	0.020	0.756	6.94	0.02	2.06	15.9	5.30	
212	OREAS 47 ✓	2.47	0.053	0.067	0.329	21.6 ✓	0.02	5.09	187.5 ✓ 213	5.92	← STANDARD

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To: HERMANN DAXL
39-630 RIVERPARK RD
TIMMINS ON P4P 1B4

Finalized Date: 13-APR-2020
Account: DAXHER

CERTIFICATE VA20074895

Project: PGE2
P.O. No.: 23.3.2020 Decayed, sieved < 250 micron, as submitted
This report is for 38 Vegetation samples submitted to our lab in Vancouver, BC, Canada on 31-MAR-2020.
The following have access to data associated with this certificate:

HERMANN DAXL		

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21g	Received Wet Sample Wt in grams
LOG-22	Sample login - Rcd w/o BarCode

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION
ME-VEG41	Vegetation - HNO3/HCl ICPAES-ICPMS – UNASHED – 1 g aliquots

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

***** See Appendix Page for comments regarding this certificate *****

Signature:
Saa Traxler, General Manager, North Vancouver

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To: HERMANN DAXL
39-630 RIVERPARK RD
TIMMINS ON P4P 1B4

Finalized Date: 13-APR-2020
Account: DAXHER

BY ME-VEG41 - UNASHED -
HNO_3 HCl, ICPAES - ICPMS - 1g aliquots

Project: PGE2

CERTIFICATE OF ANALYSIS VA20074895

Sample Description	UTM NAD83 E N	Au	Ag	Al	As	B	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs
Method		ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41
Units		ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
LOD		0.0002	0.001	0.01	0.01	1	0.1	0.01	0.001	0.01	0.001	0.003	0.002	0.01	0.005
201	9765-1989	0.0005	0.026	0.23	1.10	4	37.4	0.09	0.025	2.28	0.418	4.35	0.465	2.75	0.162
206	0167-1930	0.0004	0.023	0.24	1.23	8	48.0	0.12	0.016	3.12	0.328	3.66	0.727	3.01	0.057

Sample Description	Cu	Fe	Ga	Ge	Hf	Hg	In	K	La	Li	Mg	Mn	Mo	Na	Nb
Method	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm	ppm	%	ppm
LOD	0.01	1	0.004	0.005	0.002	0.001	0.005	0.01	0.002	0.1	0.001	0.1	0.01	0.001	0.002
201	5.22	1730	0.537	0.050	0.088	0.118	<0.005	0.01	2.12	0.2	0.168	58.0	0.38	0.012	0.190
206	12.35	2440	0.389	0.042	0.104	0.097	<0.005	<0.01	2.18	0.1	0.181	68.5	0.71	0.012	0.184

Sample Description	Ni	P	Pb	Pd	Pt	Rb	Re	S	Sb	Sc	Se	Sn	Sr	Ta	Te
Method	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41
Units	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
LOD	0.04	0.001	0.01	0.001	0.001	0.01	0.001	0.01	0.01	0.01	0.005	0.01	0.02	0.001	0.02
201	2.55	0.040	1.39	<0.001	0.002	0.50	0.001	0.24	0.09	0.47	1.285	0.06	82.1	0.011	0.04
206	6.56	0.029	0.52	<0.001	0.002	0.31	0.002	0.26	0.12	0.36	1.285	0.04	102.0	0.009	<0.02

Sample Description	Th	Ti	Tl	U	V	W	Y	Zn	Zr
Method	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41
Units	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
LOD	0.002	0.001	0.002	0.005	0.05	0.01	0.003	0.1	0.02
201	0.398	0.004	0.024	0.230	3.01	0.02	1.110	12.2	3.25
206	0.379	0.004	0.021	0.556	6.10	0.01	1.345	20.5	4.73

BLACK SWAMP MUCK FROM 1m DEPTH, sieved < 250 µm, as submitted, no inorganic content.

Grab some dirt - find a mine

Yes, you can find a mine on one claim unit in a few days work, if there is one !

You can also qualify and prioritize your drill targets.

This lecture is not about the vast science of soil sampling, but about the very specific method of **decayed vegetation sampling that works for gold and base metals in the Timmins region.** I would not completely rule out gold, if there is none in a sample, but if there really is, it can only be from rock within 50 m horizontally. Therefore 30 chosen samples can adequately cover a claim unit in just two days. I have tested the method, which I learned during my M.Sc. studies at Queen's University (Neil O'Brian), over six gold occurrences, also zinc and copper, and perfected it to work extremely well. However, to convince yourself, try it yourself over your known zones, gold or base metals, whereby you can also test your work. If it does not work for you, tell me.

The scientific name of the **decayed vegetation** I sample is mor, which I had never heard before. I call it the **decay horizon** or **K,** because that is were most decay of organics happens. It is quite apparent in the forests around Timmins, where the humus usually rests on fine sand. On clay it may be very thin, so greater care is necessary. **After brushing aside the loose debris, there is an interwoven carpet of rootlets, mold, fungi, decayed leaves and needles, from 0 to 6 cm depth, which you just grab and rip up** (`https://youtu.be/zHgkvo0wSI0`). One such small handful from each of 5 - 10 dry spots within a 10 - 20 m radius make a good-size sample. Avoid sand, silt, clay, charcoal, sticks, or greens. Seeds can stay in. There usually are no insects nor worms. Rings, watches, bracelets, or necklaces must never be worn when handling any samples.

This therefore is not a so-called humus sample, because humus has two more parts below it, moder and mull, and usually contains sand, silt, or clay. Also, I have never had high values in the usually underlying white leached sand nor the enriched brown B-horizon which other methods sample. So I am not surprised of their poor reputation.

It helps to envisage the hypothesis, that metal ions tend to migrate to surface, and also are taken up by rootlets and end up in leaves. This all fits my observations. Some metals (gold, zinc, copper, nickel, chromium, manganese, molybdenum, etc.) get therefore concentrated in these organics. I had repeated samples of <1500 ppb Au above a quartz-vein that ran 17000 ppb (17 g/t), which proves also direct migration. This and other veins had a halo of 25m, <100 ppb Au, which can be attributed only to fallen leaves and needles, because the underlying swamp muck had no gold. **I have proven this simple method for gold, copper, nickel, zinc, molybdenum, bismuth, cesium, arsenic. It even worked over 20 m thick clay or 60 m sand overburden.**

Favorable sample spots are where water can evaporate, even some 2m wide humps, or higher ground around trees. Possibly small valley floors may be better than ridges, however, flowing groundwater may intercept and dissipate the migrating metal ions, and not allow later concentration. The center of a sample is plotted with GPS, as selected sites are preferable to systematic sampling at line pickets. No statistical treatment is required; elements occur where you find them. Notes can be limited to peculiarities to remember the location, as discoveries need further work anyway.

Sample preparation requires special care and is best done in-house. Even if a lab listens, and follows special instructions, you will have to live with short-cuts. So here is my method. I spread the samples without delay on paper towels on 10-inch square paper plates, which I change whenever they are getting too damp. The lower towels can be dried and re-used. This takes two days, which is less than in open paper envelopes even in a car in the sun, as air circulation is necessary. An oven would have to be less than 50 degrees Celsius, and likely is too small. Then a sample needs to be rubbed or rolled with a glass bottle in a glass bowl to loosen enough fine organics for sieving <250 micron with a 1/4 mm plastic coffee filter. This work is fine-dusty and needs to be done outside or with a good exhaust fan. Any obvious sand or charcoal must not be crushed but removed before by swirling the bowl.

After sieving, if still some sand is visible, further dry swirling in a plastic gold pan will bring the organics to the top like scum which can be skimmed off clean. The rest can be panned with water, but is pretty useless. Bracket sieving to 125-250 micron may also help to remove silt or clay, but clay dries very hard and even finely crushed it may not release the wanted organics. Maceration by a lab also needs special attention, but then how do you get the details for further adjustment in evaluation. Also coarser organics have somewhat lower values due to dilution with wood. The homogenized sievings need to be checked with a hand lens to estimate final sand and also silt content. Clay may show only as color and weight. Careful collection can usually safe such extra work.

It is also very important to homogenize the sievings by rolling and overlapping using a bent sheet of paper, like labs used to do with pulps on a mat. Tightly packed samples stay homogenized. Keep left-overs in sachets, do not shake them. Collecting a heaped double-handful of such decayed vegetation, will yield the necessary 5 - 10 g of sievings.

The only reliable analysis for gold in such samples is by neutron activation, which however is not suitable for some base metal anomalies (e.g. nickel), and does not show copper. As samples are basically organics, I use Actlabs INAA, code 2B, vegetation, but fill their medium vials (7cm3 like a pinkie finger) myself to press as much as possible into them. I submit the varying tara (vial, stopper, label) for each, and weigh also each full vial so I can check for mix-up. They report the net weight (mass) from which one also can estimate roughly, whether a sample is diluted by silt or clay. The method is usually for 15-g briquettes, so that special double irradiation time has to be ordered for vials, for which they charge extra. Sandy samples or low inorganic standards are recognized and tolerated by the lab. They use organic standards. A lab order and shipment best include warnings, "very low-grade vegetation - keep away from rock pulps". Still contamination may happen, but all values >10 ppb Au need to be investigated further anyway. For other elements in such samples I send 3 - 5 g tightly packed in sachets to Actlabs in Ancaster for Ultratrace 2 - aqua regia ICP-OES/MS, or to ALS in North Vancouver for ME-VEG41-unashed-HNO3/HCl-ICP-AES/MS which includes also platinum-palladium.

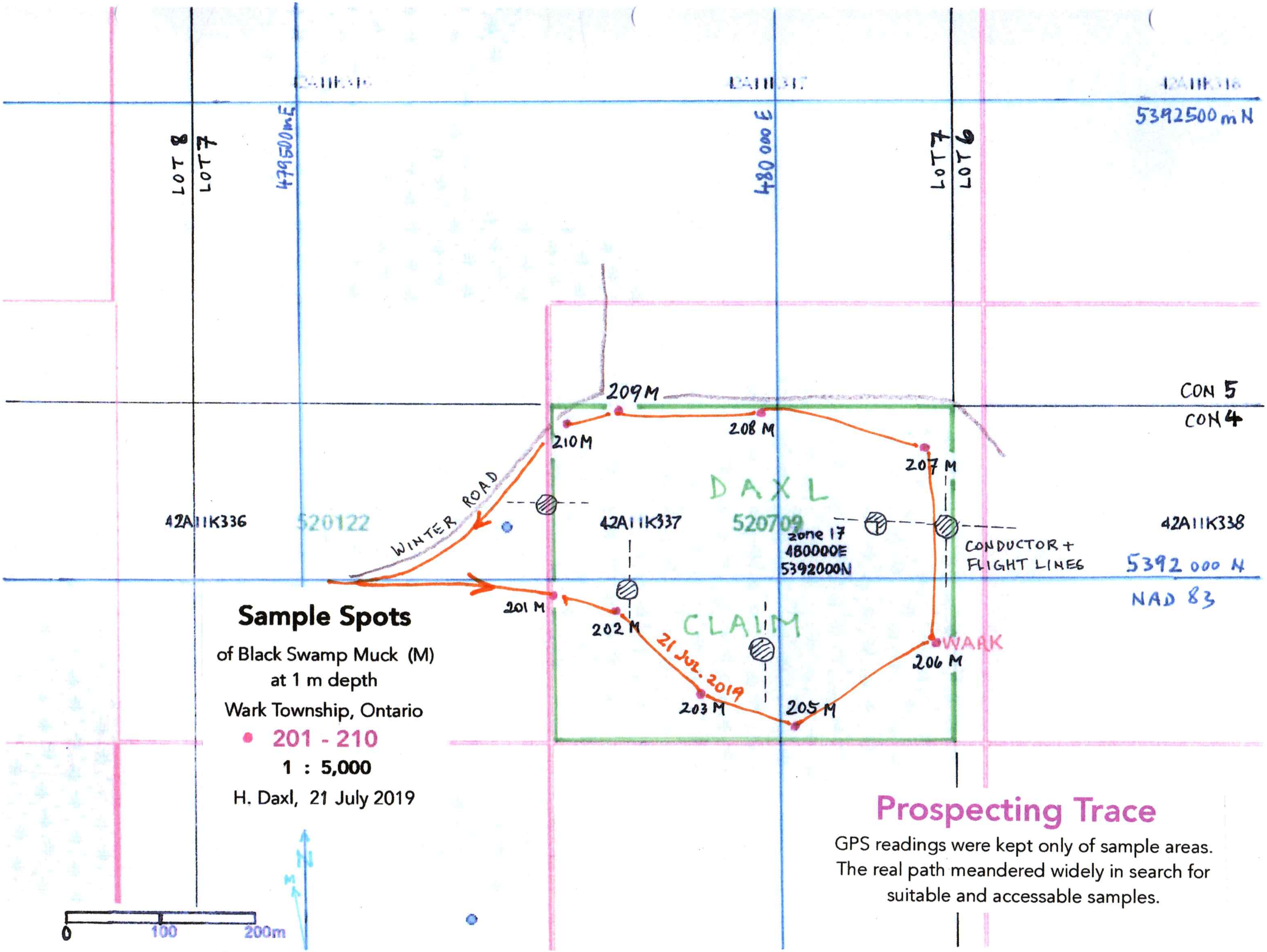
Prospecting must include swamps and swampy areas where the described decayed vegetation may not exist. I therefore bring a Dutch auger in the bush, also useful as a walking stick, a weapon against bears, and to at least occasionally probe the deeper overburden. Bedrock is sometimes near enough to be scanned with the Beep Mat.

I use the auger in swampy areas to sample the deeper dense black muck, which works well for copper, nickel, chromium, but not so well for gold, zinc, lead, manganese. Water movement may flush out elements, therefore I try for the deepest and densest muck, but stay clear above any inorganic bottom. A closed two-handful from one auger hole will do, noting the sample depth. I wrap this ball with paper towels and squeeze out the water, before letting it dry with the decay samples.

Sampling the lake bottom sludge may be the only way to explore lakes, from a canoe or best on the ice in late March - early April in just above freezing weather. A 16 cm (6 inch) diameter hand ice auger will do. A bomb will not reach the dense sludge which works well for sulfur and base metals, but I had no occasion to test it for gold yet. A soil auger with extensions may be necessary, but water is usually shallow, so a dry 5m wooden pole makes it easier with less than 4 m of water. Sludge can be 10 m thick, but I got similar values throughout. I use a strong plastic bottle with the bottom cut off and a strong insulated cable tied around near the bottom to pull on one side. I push it 1 m into the sludge, then remove the pole before pulling. The bottle will tilt and scoop up a good lump. I remove the stopper from the bottle to drain the water, then dump the lump on the snow to drain further and collect it on my return.

Decay, muck, and sludge, have different concentration levels, and must be plotted as such. I suggest to add K, M, L to the values. Sample preparation and analyses are the same for all three. Notes of consistency (woody, fibrous, grainy, sticky, smeary), crushablility, color, of M and L may be revealing.

So before you drill, do your shareholders a favor. Or before you lose a claim, grab some dirt. It takes a week to get a batch to the lab, then it takes at least 3-4 weeks to get the results for gold. A follow up again takes as much time, but a report for assessment credit is simple (see map). The best time to sample is May and October-November, like any work in the bush. In summer you raise clouds of flies from humus, and visibility for choosing sample spots may be difficult. Allow for some drying after a rain, but I doubt that seasons affects the metals. The gardening claw is in your hand now, but you can still phone me for help or advice, for set-up, organizing, or training, including field work.
Hermann Daxl, M.Sc. (Minex), 705-264-4929.



5392500 m N
479500 m E
480 000 E
LOT 8
LOT 7
LOT 7
LOT 6
CON 5
CON 4
209 M
208 M
210 M
207 M
WINTER ROAD
D A X L
C L A I M
42A11K336
520122
42A11K337
520709
zone 17
480000E
5392000N
42A11K338
CONDUCTOR + FLIGHT LINES
5392 000 N
NAD 83
201 M
202 M
21 JUL. 2019
203 M
205 M
206 M
WARK
Sample Spots
of Black Swamp Muck (M)
at 1 m depth
Wark Township, Ontario
201 - 210
1 : 5,000
H. Daxl, 21 July 2019
Prospecting Trace
GPS readings were kept only of sample areas.
The real path meandered widely in search for
suitable and accessable samples.
N
0
100
200m

Date	Field date	Lab Work	Logistics
2019			
20-Jul	Look for access to property		
21-Jul	Collect 201-210		
22-Jul		prep samples	plot on maps
23-Jul		prep sample, package samples	
2020			
07-Apr			evaluate results
08-Apr			report/maps
10-Apr			report/maps
11-Apr			report writing
12-Apr			Report writing
13-Apr			Re-evaluate result values
20-Apr			Finalize report/map
	2 days	2 days	7 days