Ontario

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Copper - Zinc - Indium

in Decayed Vegetation in

Wark Township Center

(8 km ESE of Kidd Creek Mine)

on unpatented mining claims
552422, 555676, 555679

in respective cells
42A11F058, 077, 097

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

17 February 2020

Ontario Ministry of Energy, Northern Development and Mines
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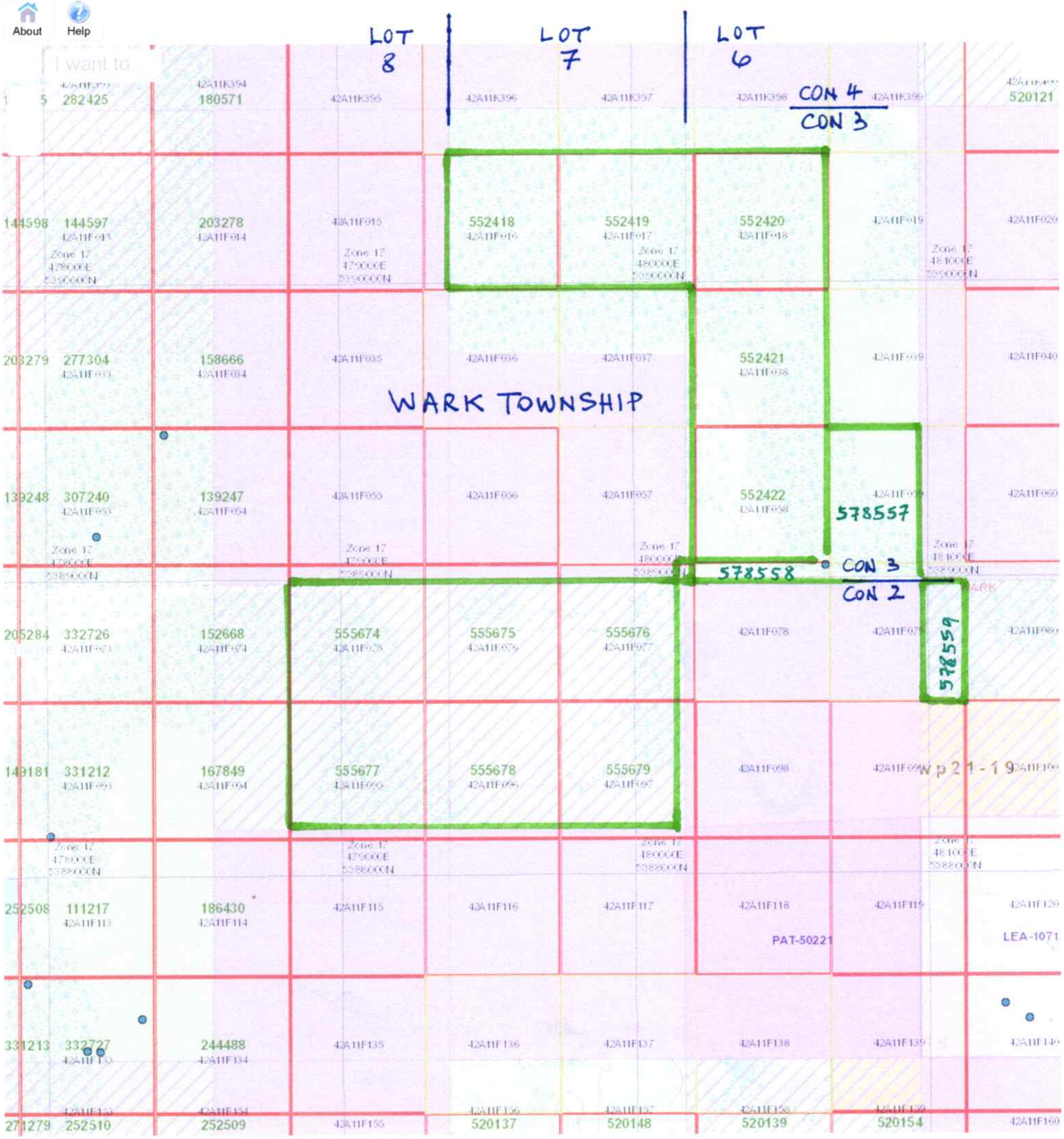

14 DAXL CLAIMS

UTM ▲ Zone: 17
Easting: 478017.24
Northing: 5390648.66

0 0.15 0.3km

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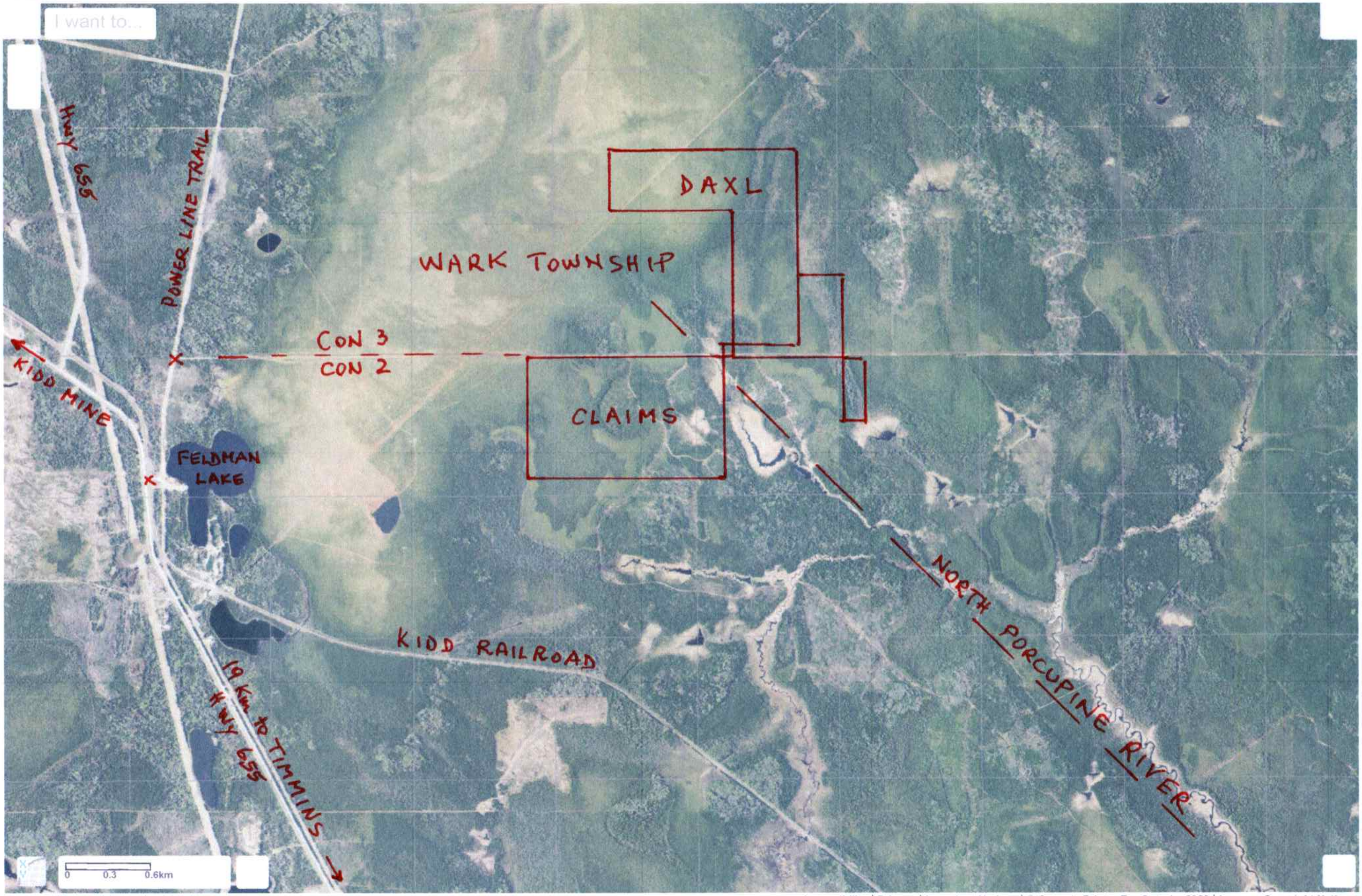

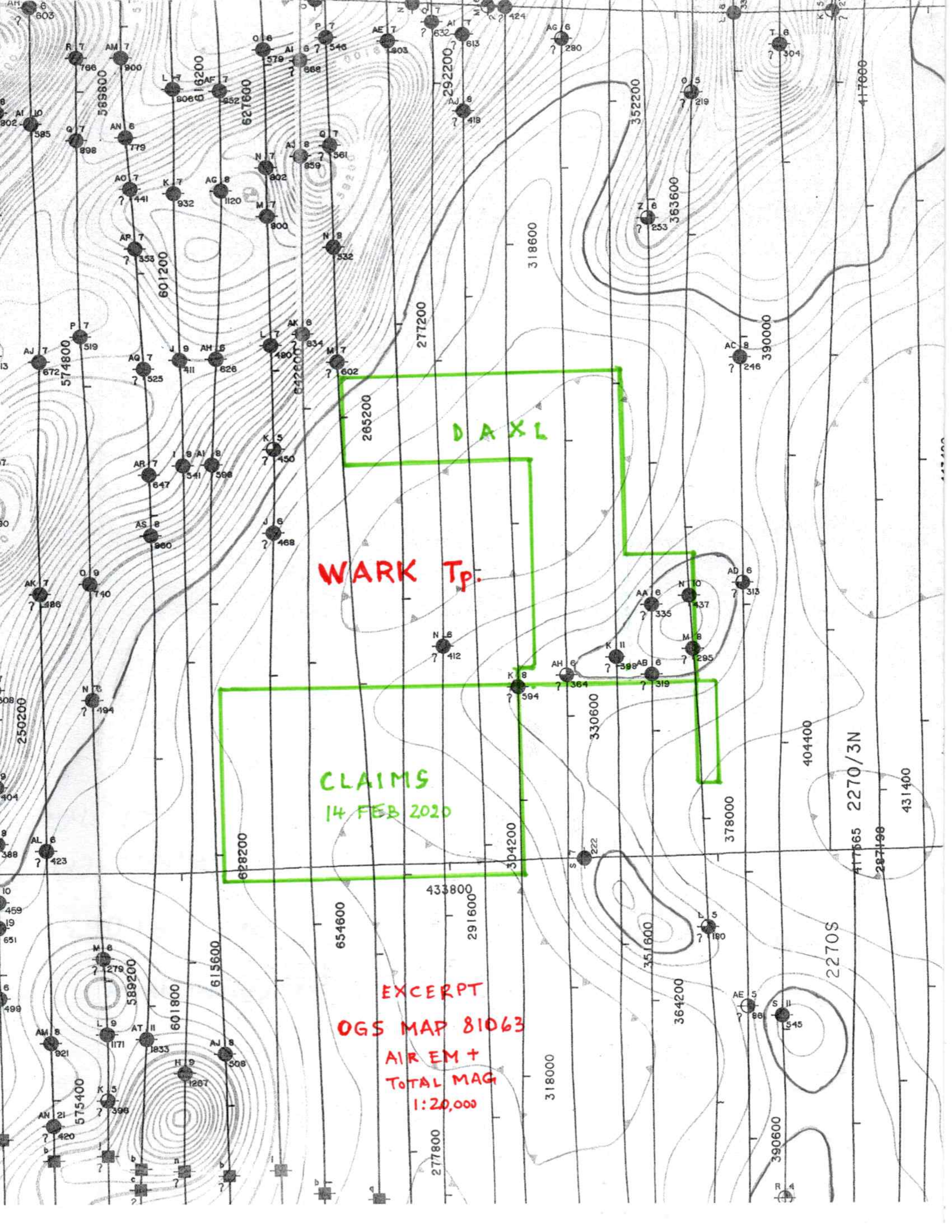
DAXL
WARK Tp.
CLAIMS
14 FEB 2020
EXCERPT
OGS MAP 81063
AIR EM +
TOTAL MAG
1:20,000
2270/3N
2270S

Introduction

The combination of copper - zinc - indium, all elevated in decayed vegetation from 0 - 6 cm depth (K) here, strongly resembles the ore of the Kidd Creek Mine only 8 km WNW. I got up to 122 ppm Cu, 241 ppm zinc, 250 ppb In, across the ESE lineament defined by the North Porcupine River effluent from the mostly floating swamp covering the center of Wark Township. Values must be from local bedrock, not from that swamp, and therefore qualify the strong conductor plotted here on the OGS map 81063. Gold <13 ppb and especially platinum <27 ppb appear also somewhat high. I attach annotated results and also 6 element maps, including for lead which however seems normal in comparison with other regions.

Where K was not developed I sampled black swamp muck (M), which did not work on my northern claims because I could not reach a dense depth without auger extensions and any elements from bedrock would have been too dissipated by water movement. On my southern claims clay was often within 1 m as annotated, providing a good medium for excessive bedrock ions to rise, and to accumulate in the decayed vegetation at 0 - 6 cm depth (K) if present. However, black swamp muck generally has lower values for Zn, Au, Pb, Mn, and here even for copper, and apparently for In, Pt, and others.

Please refer to the attached excerpt of OGS Map 81063 of 1987 which shows several good airborne EM conductors coinciding with a moderate magnetic high on my claims 552422 and 578557. The most WSW of these conductors falls on my elevated Cu-Zn-In between samples 316 and 178. The only drill hole on my claims is plotted in the SE corner of this claim 552422 on a further conductor. The rather poor drill logs mention only graywacke and their few analyses are quite barren. My nearby M-samples 182 with duplicate 183 are quite low. Like in the north, the bottomless muck from 1 m depth may not have been dense enough. My future work will qualify the four other strong conductors on my claim 578557.

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 E - 5388132 N, then north from Feldman Lake along the powerline to park at 476328 E - 5388969 N. Walking east on the wide cut 2 - 3 concession line through high forest, the clay trail changes after 500 m to 2.2 km of floating swamp with sparse small pine trees, whereafter the high forest on clay reappears. The present anomaly center at the creek is reached after a further 1 km E. The whole area is flat between 290 - 300 m above sea level, probably after a very shallow lake on very thick solid clay. Gravel was encountered only at samples 170 and 307, and coarse sand at 479284 E - 5389826 N.

Previous wider Exploration

The several exploration attempts including the wider area over 50 years were geophysics and diamond drilling but no soil or vegetation surveys. About ten conductors some 2 - 3 km west and southwest of my anomalies were drilled, still in the floating swamp with 30 to 60 m vertical overburden. Despite a variety of mafic volcanics and various kinds of breccia and sedimentary rock, with frequent even massive sulfides or graphite, values were too low and sparse.

Present Work

I collected 64 samples (K or M and 2 C), from 8 of my 14 claims, 552418 - 422, 555675, 676 and 679, between 7 July 2019 to 28 August 2019. Collecting the composite K-samples can be watched at https://youtu.be/zHgkvoOwSIO . M-samples are from single auger holes at the annotated depth (maximum 100 cm), about 20 cm above solid clay if reached, but above gravel at sample 170 and 307, and above the mucky silt interface at samples 303 and 304.

After drying, rubbing, and sieving to <250 micron, I homogenized them and checked for inorganic content, which here was insignificant. Swirling was not necessary nor possible. Please refer to the attached lecture handout describing details about the method.

Basically the resulting sievings are condensed vegetation and therefore are suitable for vegetation analyses with the necessary very low detection limits. Sample 200 (V) of fresh dried labrador tea leaves gives an idea of concentration, except for its high Mn. The analyses were done by Activation Laboratories Ltd., Ancaster, Ontario, with Code 2 G, or ALS Canada Ltd., North Vancouver, with ME-VEG41, both unashed MS methods with similar aqua regia digestion. I used these for the first time and therefore still hesitate to interprete the surprising Pt values of both. Many analyses were repeated for quality control.

Results

K and M values are plotted as such to be treated as separate populations, as values in black swamp muck usually are lower, here even for copper, although anomalies in the center and south still can be recognized in each K or M. The zinc and indium anomalies are spread between samples 178 to 310 (241-234-167 ppm Zn, 222-250-106-236 ppb In), whereas copper is more local around 316 and 310 (118 and 122 ppm Cu). Tin and selenium also correlate with copper, and cadmium with zinc as usual.

The equally elevated gold values in K or M samples 308 to 317 by the same lab need to be verified by a more reliable method for gold, like neutron activation, because in other projects gold is found in M only at stronger anomalies. Platinum is widespread in K or M here and also needs to be checked further.

Elevated Al, Ce, Cr, Fe, Ga, La, Li, Mg, Ni, Rb, Sc, Th, V, Y, Zr, indicate some clay (C) content as proven by the two clay samples 180 and 323, which are of very similar composition despite their 900-m separation. Notably Cu, Zn, In, Au, Pt, are not enriched in clay and therefore there can be no contamination by it. Conversely, samples with clay content can be recognized thereby, namely where muck was quite thin or sticky, or even where clay was noticed in sample preparation like in muck-clay (MC) sample 173 with 10% sand (D). Clay content would actually dilute the anomalies.

The colour of clay ranges from greenish to bluish to beige and even gray. It is similar per certain areas and seems to tend towards beige where its top is closer to surface. This does not help in defining anomalies, but details are annotated.

Conclusions and Recommendations

The combination of Cu-Zn-In discovered here in decayed vegetation resembles the ore at Kidd Creek Mine. Such anomalies are caused by excessive elements in rock below, migrating and accumulating on surface helped by the vegetation cycle. The coincidence with a strong airborne conductor and magnetic anomaly raises the interest. The several conductors eastnortheastward near the center of the magnetic high can therefore be qualified by such further sampling on my new claim 578557.

Black muck samples in floating swamp have to come from a more concentrated depth where water is stagnant. This was tested in Jules Lake where bottom sludge and black muck show a local copper-sulfur anomaly of <160 ppm Cu regardless depth, as water in it would stay stagnant because it could move freely in the lake above (T-6901, 2.56706; T-6933, 2.56857; and Assessment Report # 65). Future such samples here should be taken 30 cm above the sharp top of clay, which probably is within a few meters from surface, regardless of clay thickness which may only somewhat dissipate rising ions, as evidenced by the high values at sample 310 (Assessment Report # 2891).

Swamp and clay seem to be too thick for geophysics on my northern and southern claims judging by the diffused and flat magnetic profile and sudden absence of EM conductors. By comparison with the overburden at the drilled conductors, this overburden could be over 100 m deep here. Their sudden reappearance on claims 578557 - 58 would mean a bedrock high.

Respectfully submitted,

Timmins, 17 February 2020 Hermann Daxl, M.Sc.(Minex), Claim Holder

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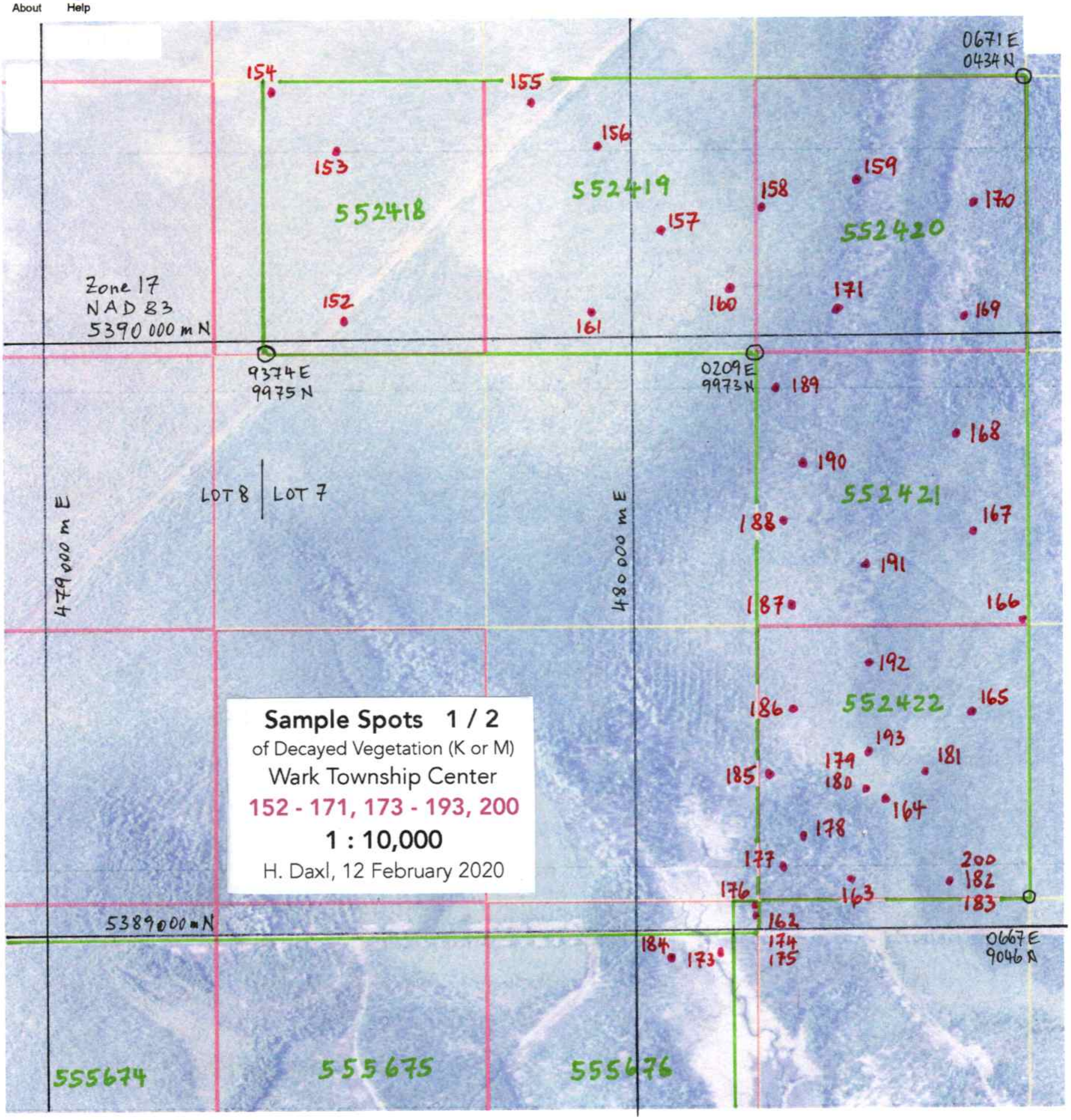

0 100 200m

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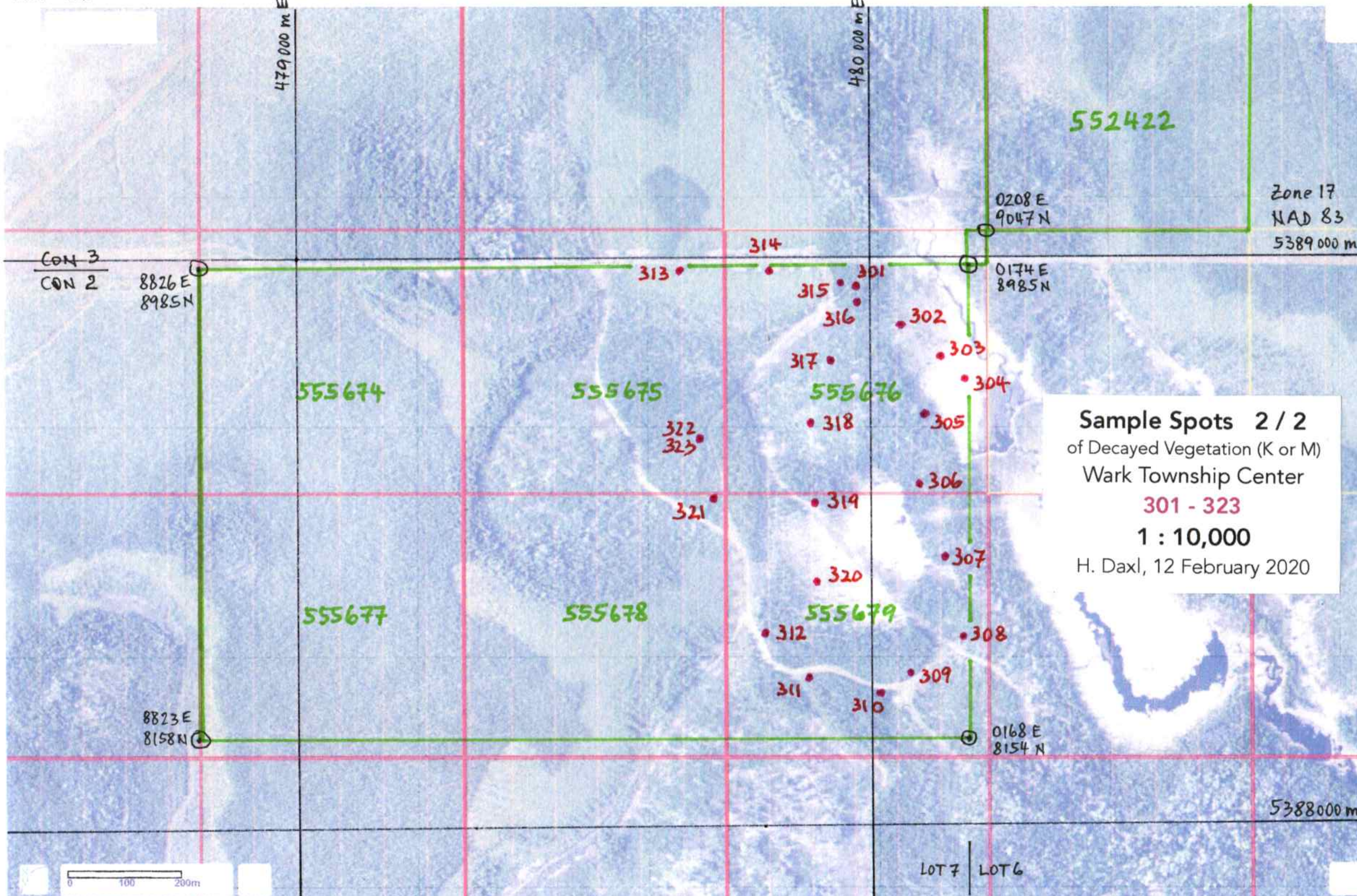

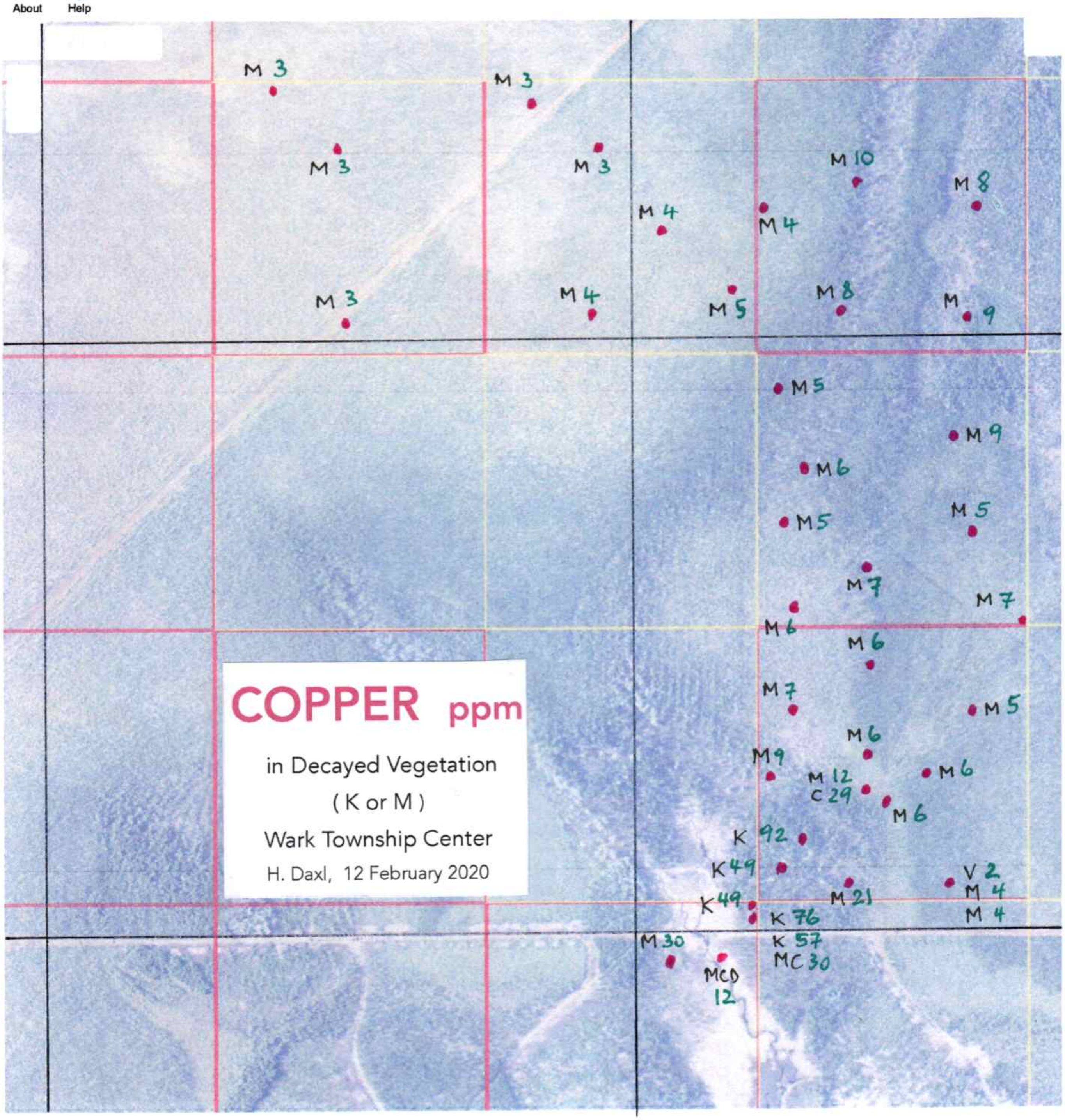
COPPER ppm
in Decayed Vegetation
(K or M)
Wark Township Center
H. Daxl, 12 February 2020
M 3
M 3
M 3
M 3
M 10
M 8
M 4
M 4
M 3
M 4
M 5
M 8
M 9
M 5
M 9
M 6
M 5
M 5
M 7
M 7
M 6
M 6
M 7
M 5
M 6
M 9
M 12
C 29
M 6
M 6
K 92
K 49
V 2
M 4
M 4
M 21
K 49
K 76
M 30
K 57
MC 30
MCD
12

0 100 200m

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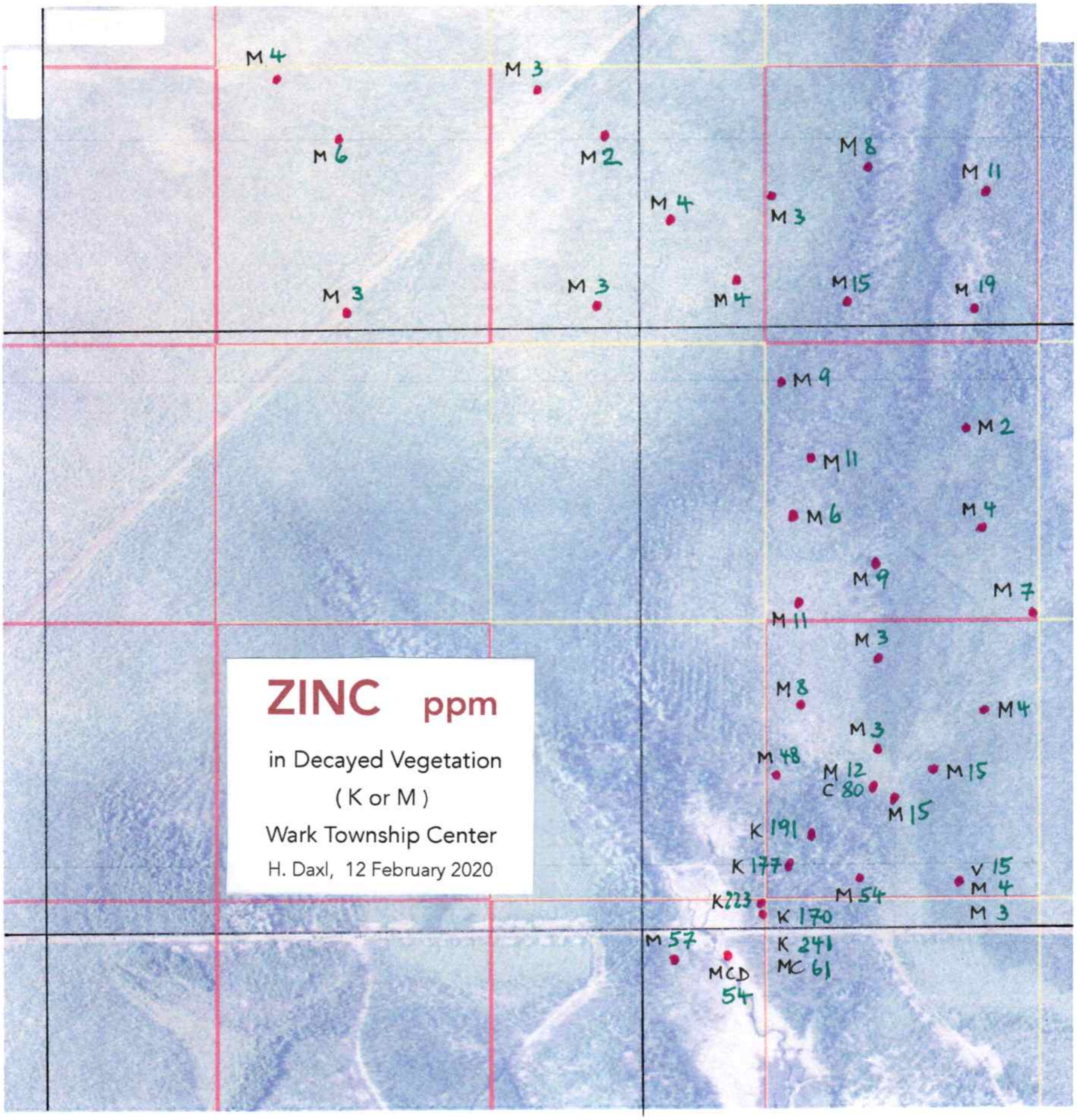

0 100 200m

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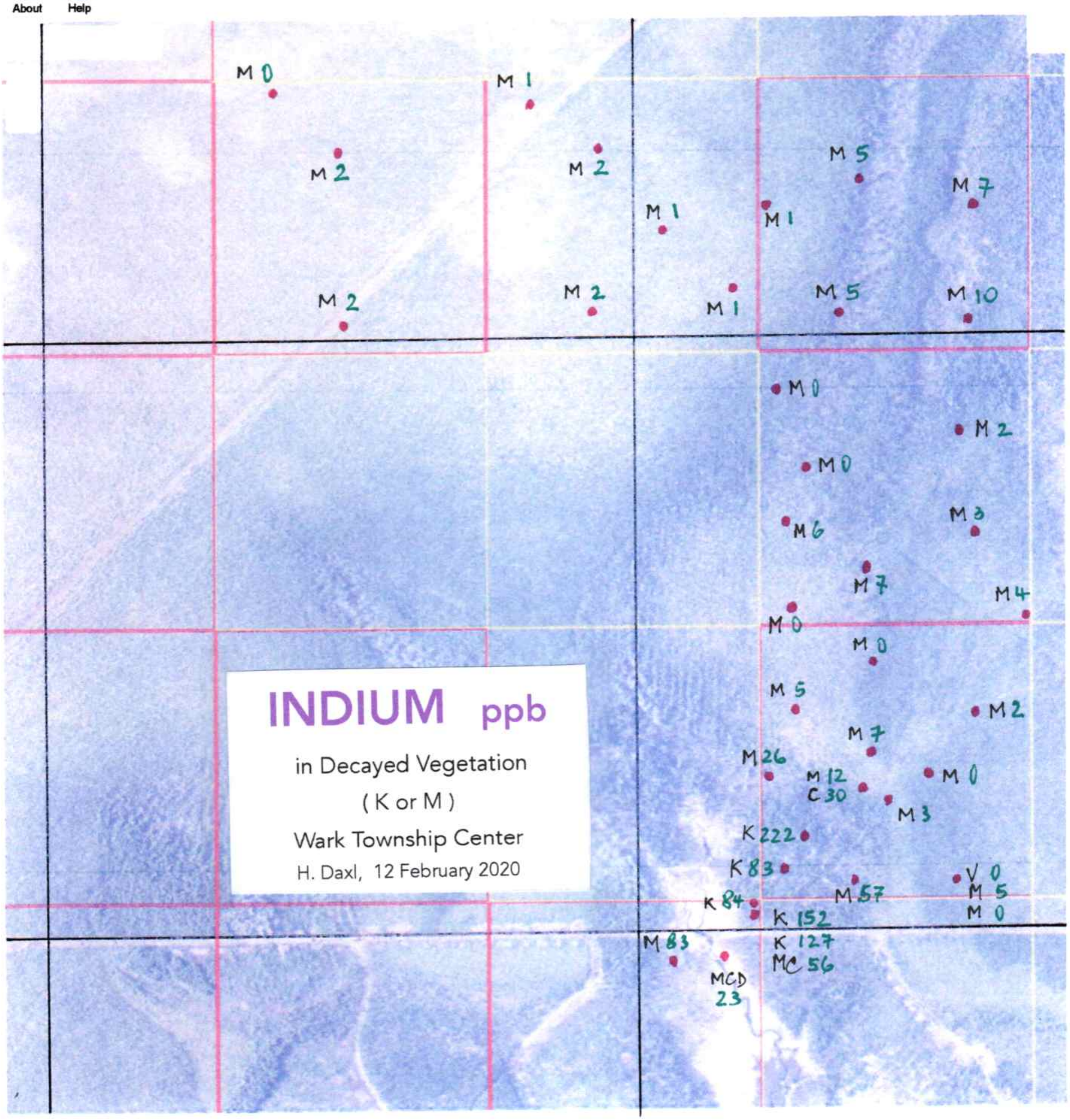

INDIUM ppb
in Decayed Vegetation
(K or M)
Wark Township Center
H. Daxl, 12 February 2020
M 0
M 1
M 2
M 2
M 2
M 2
M 1
M 1
M 1
M 5
M 7
M 5
M 10
M 0
M 2
M 0
M 6
M 3
M 7
M 4
M 0
M 0
M 5
M 2
M 7
M 26
M 12
C 30
M 0
M 3
K 222
K 83
V 0
M 5
M 0
M 57
K 84
K 152
K 127
MC 56
M 83
MCD 23

0 100 200m

[Français]

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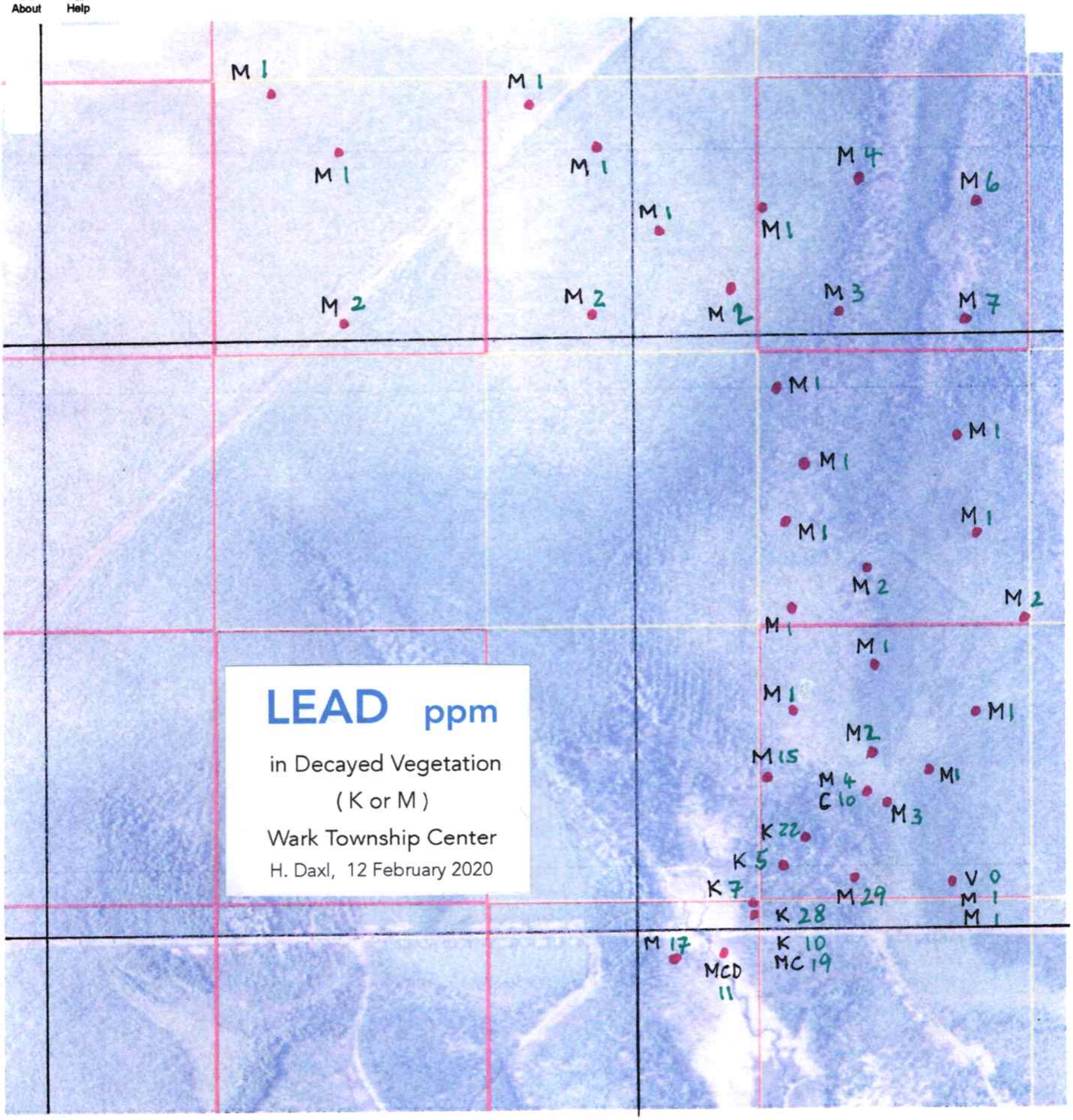

0 100 200m

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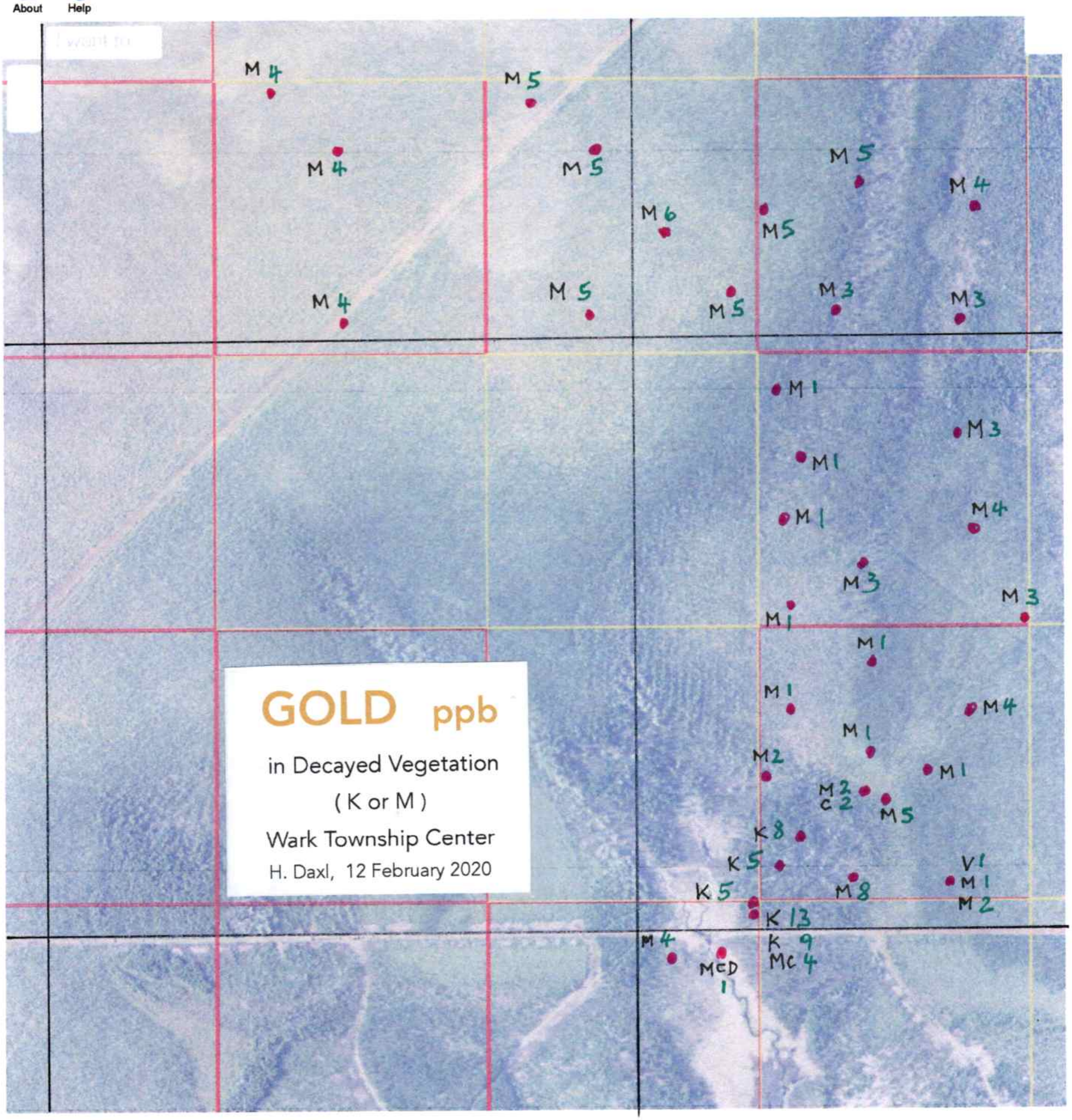
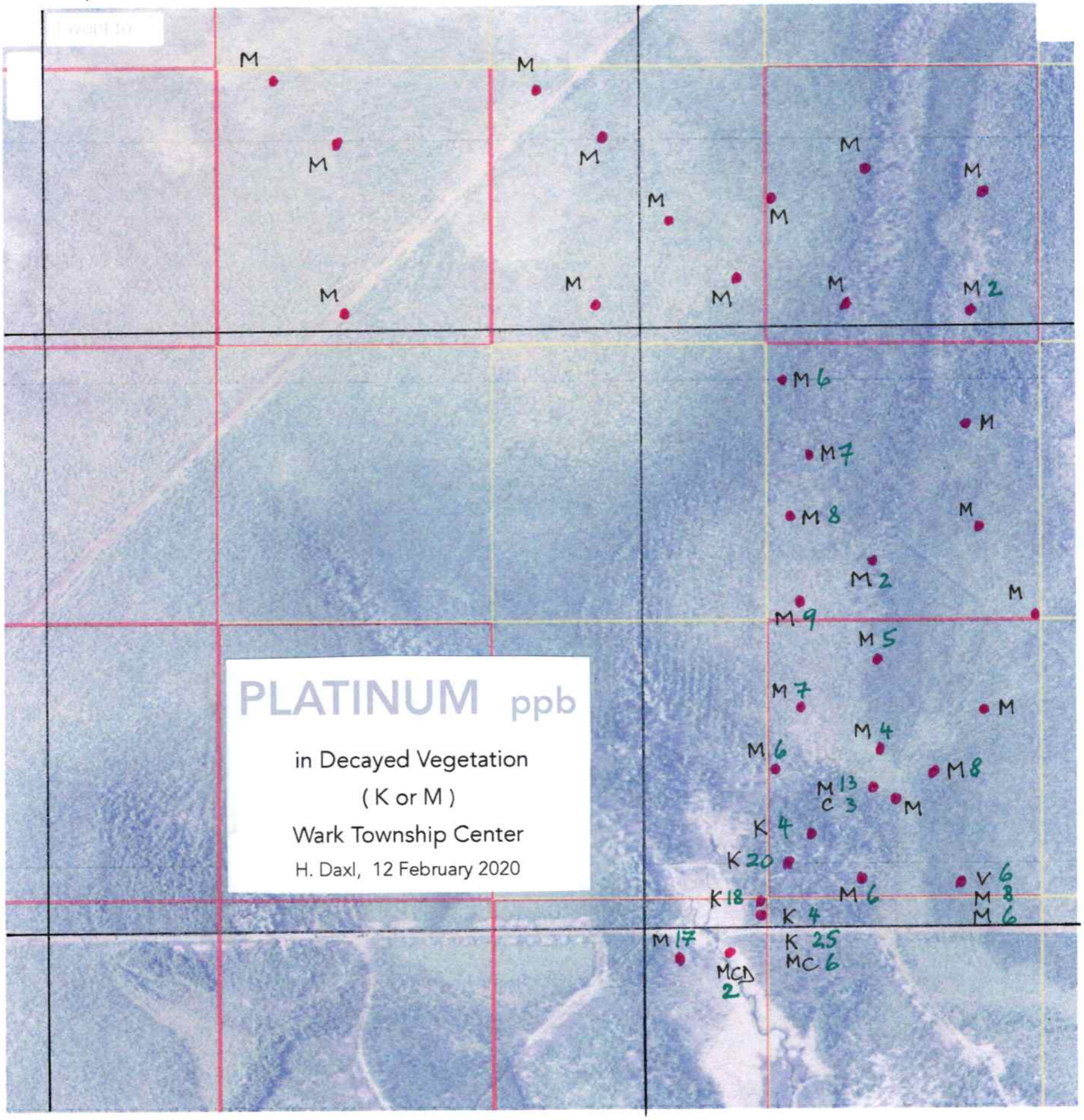

GOLD ppb
in Decayed Vegetation
(K or M)
Wark Township Center
H. Daxl, 12 February 2020
M 4
M 5
M 4
M 5
M 5
M 6
M5
M 4
M 4
M 5
M 5
M 3
M 3
M 1
M 3
M1
M 1
M4
M 3
M 3
M 1
M 1
M 1
M 4
M 1
M2
M 1
M 2
C 2
M 5
K 8
K 5
V 1
M 1
K 5
M 8
M 2
K 13
M 4
K 9
MCD
1
MC 4


PLATINUM ppb
in Decayed Vegetation
(K or M)
Wark Township Center
H. Daxl, 12 February 2020

0 100 200m

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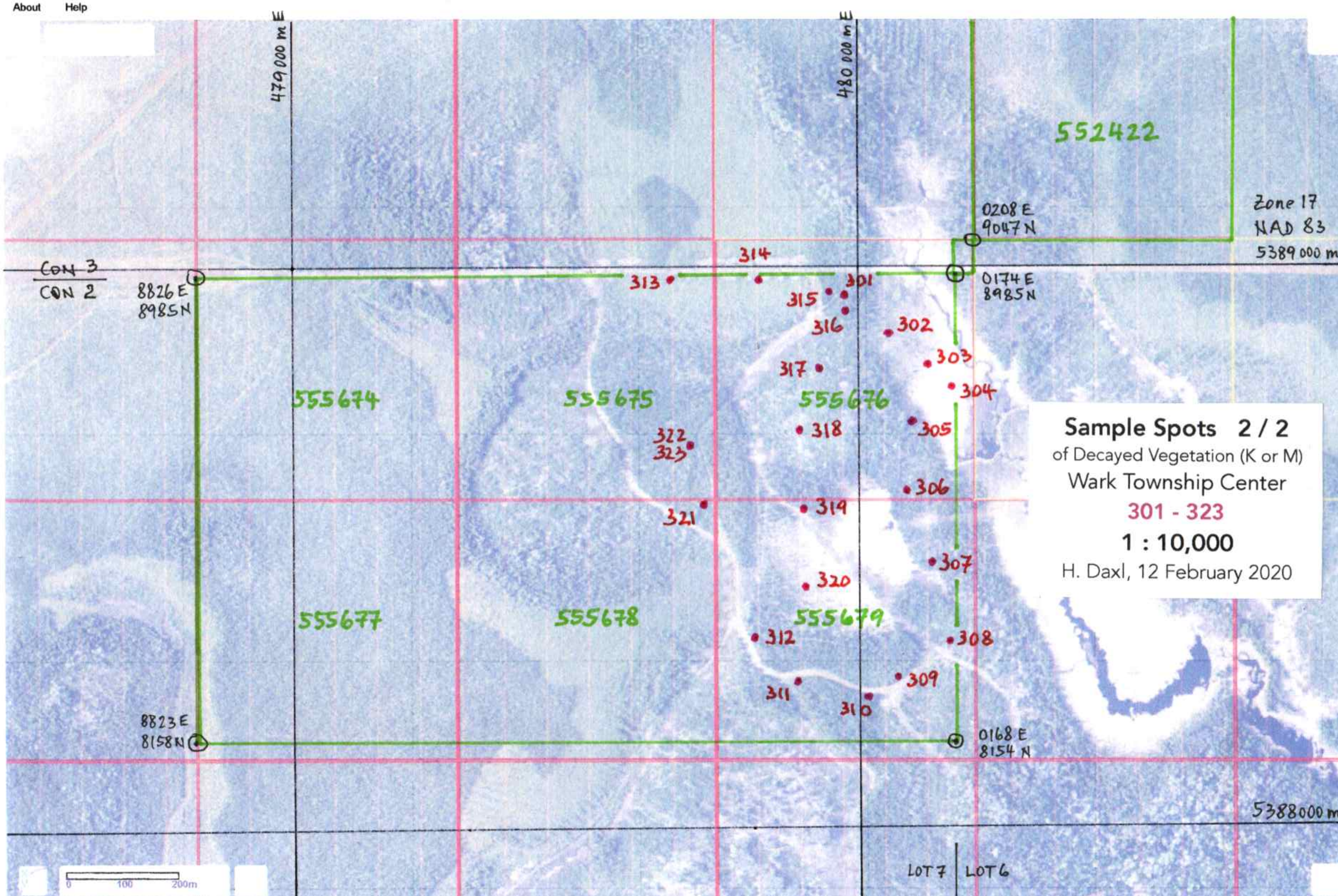

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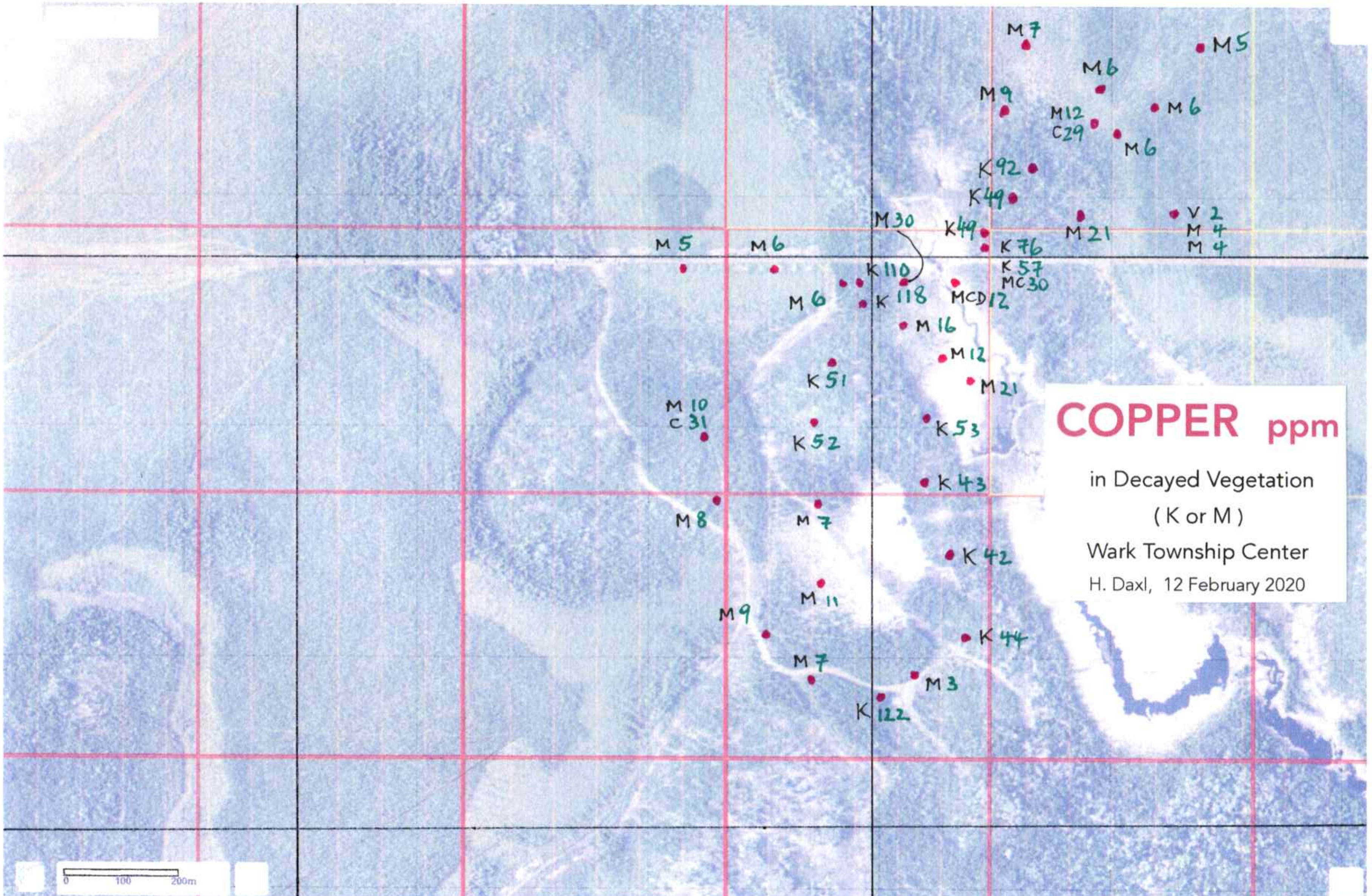

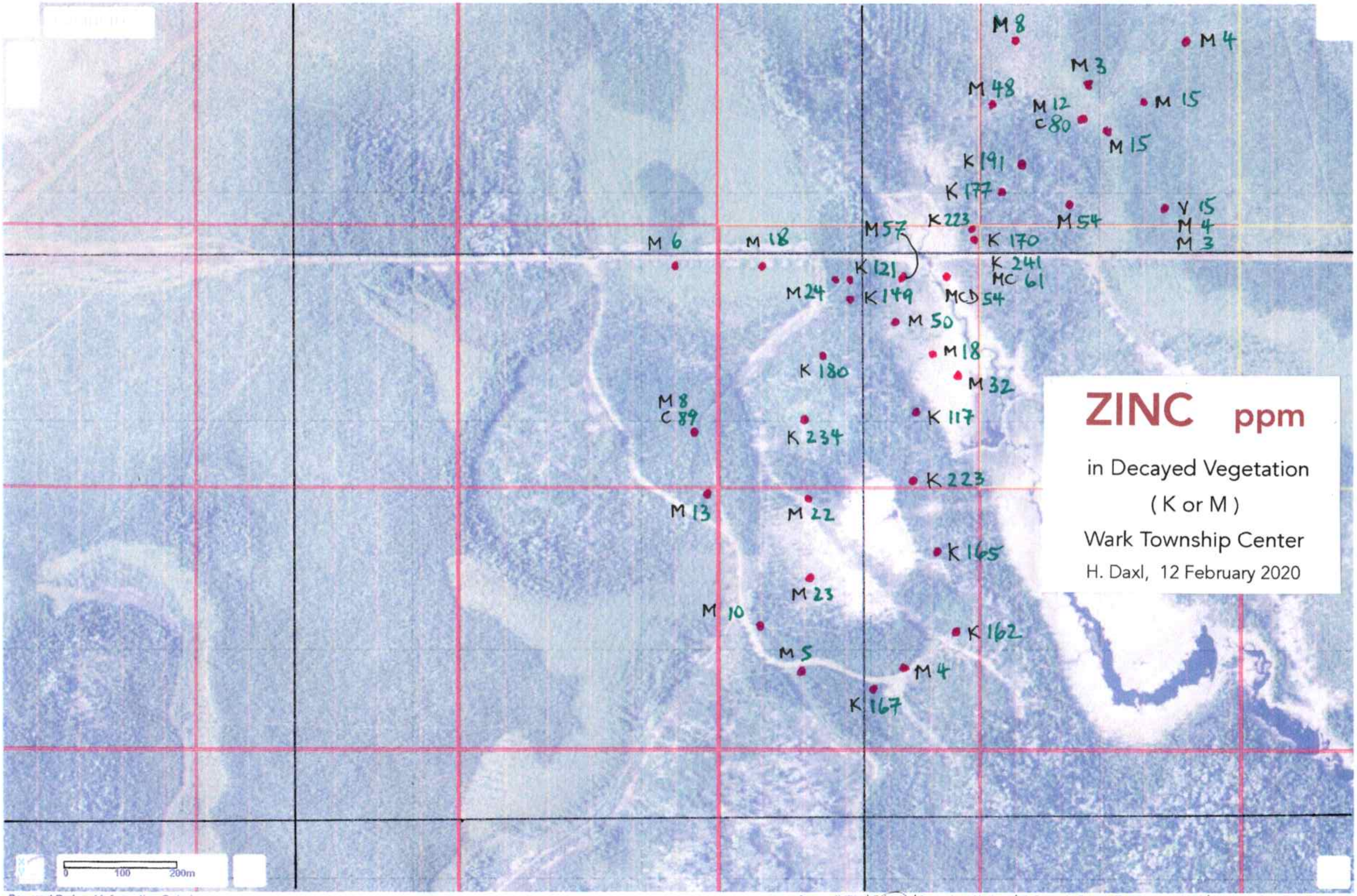
ZINC ppm
in Decayed Vegetation
(K or M)
Wark Township Center
H. Daxl, 12 February 2020
M 8
M 4
M 3
M 48
M 12
C 80
M 15
M 15
K 191
K 177
M 54
V 15
M 4
M 3
K 223
M 57
K 170
M 6
M 18
K 241
MC 61
K 121
M 24
K 149
MCD 54
M 50
M 18
K 180
M 32
M 8
C 89
K 117
K 234
K 223
M 13
M 22
K 165
M 23
M 10
K 162
M 5
M 4
K 167
0 100 200m

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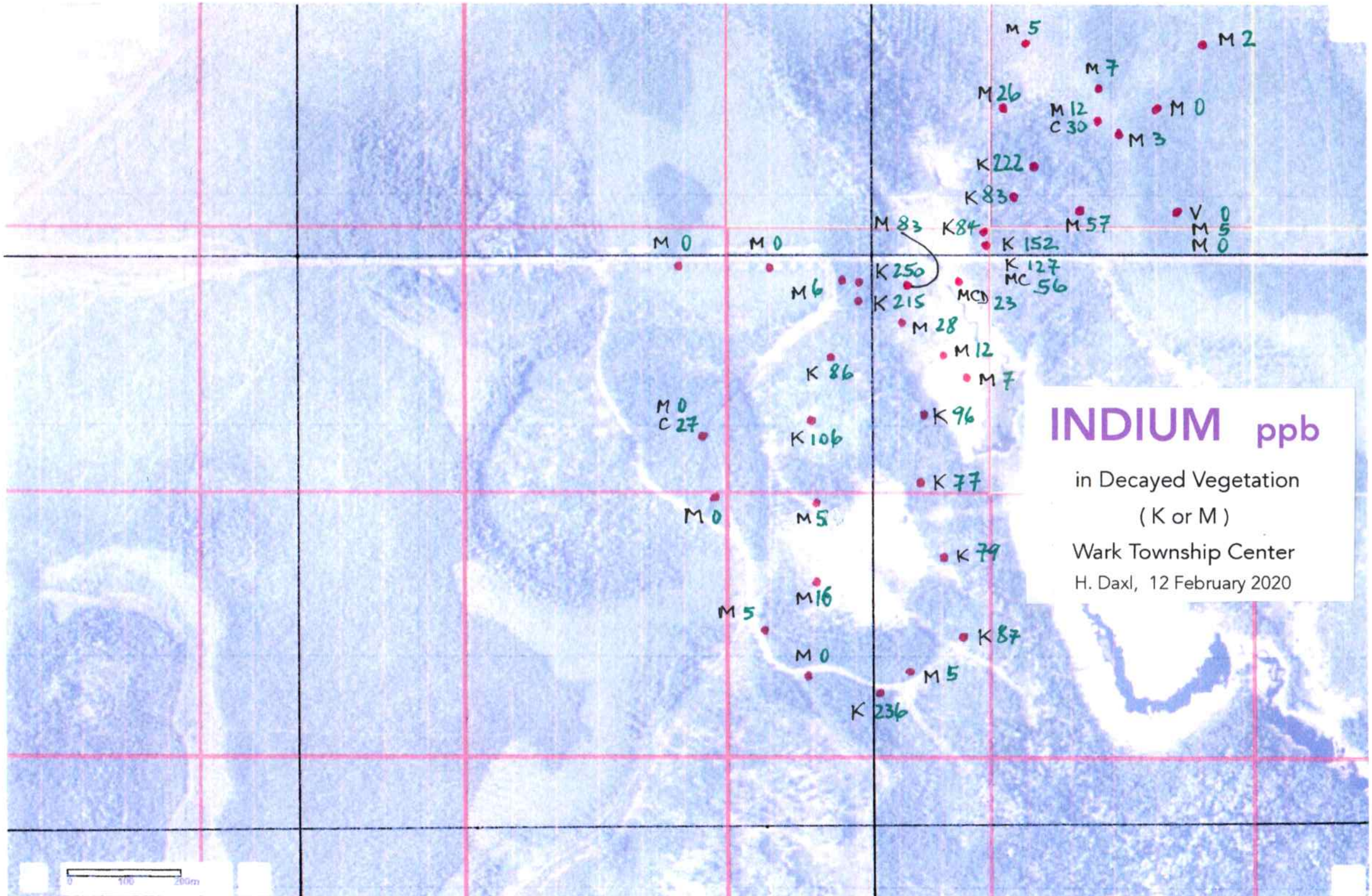

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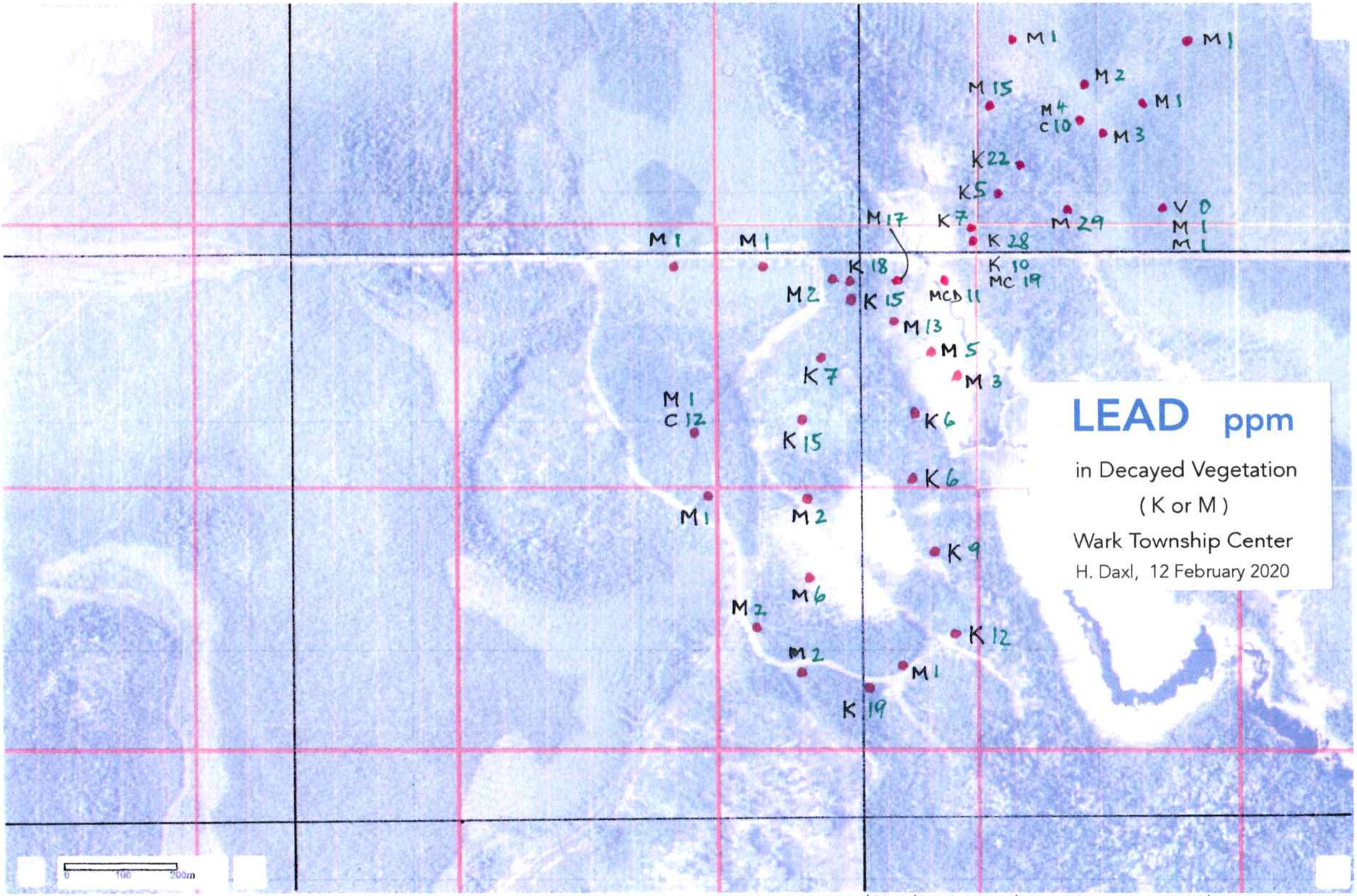
LEAD ppm
in Decayed Vegetation
(K or M)
Wark Township Center
H. Daxl, 12 February 2020
M 1
M 1
M 2
M 15
M 4
C 10
M 1
M 3
K 22
K 5
M 17
K 7
M 29
V 0
M 1
M 1
K 28
M 1
M 1
K 18
K 10
MC 19
M 2
K 15
MCD 11
M 13
M 5
K 7
M 3
M 1
C 12
K 15
K 6
K 6
M 1
M 2
K 9
M 6
M 2
K 12
M 2
M 1
K 19
0 100 200m

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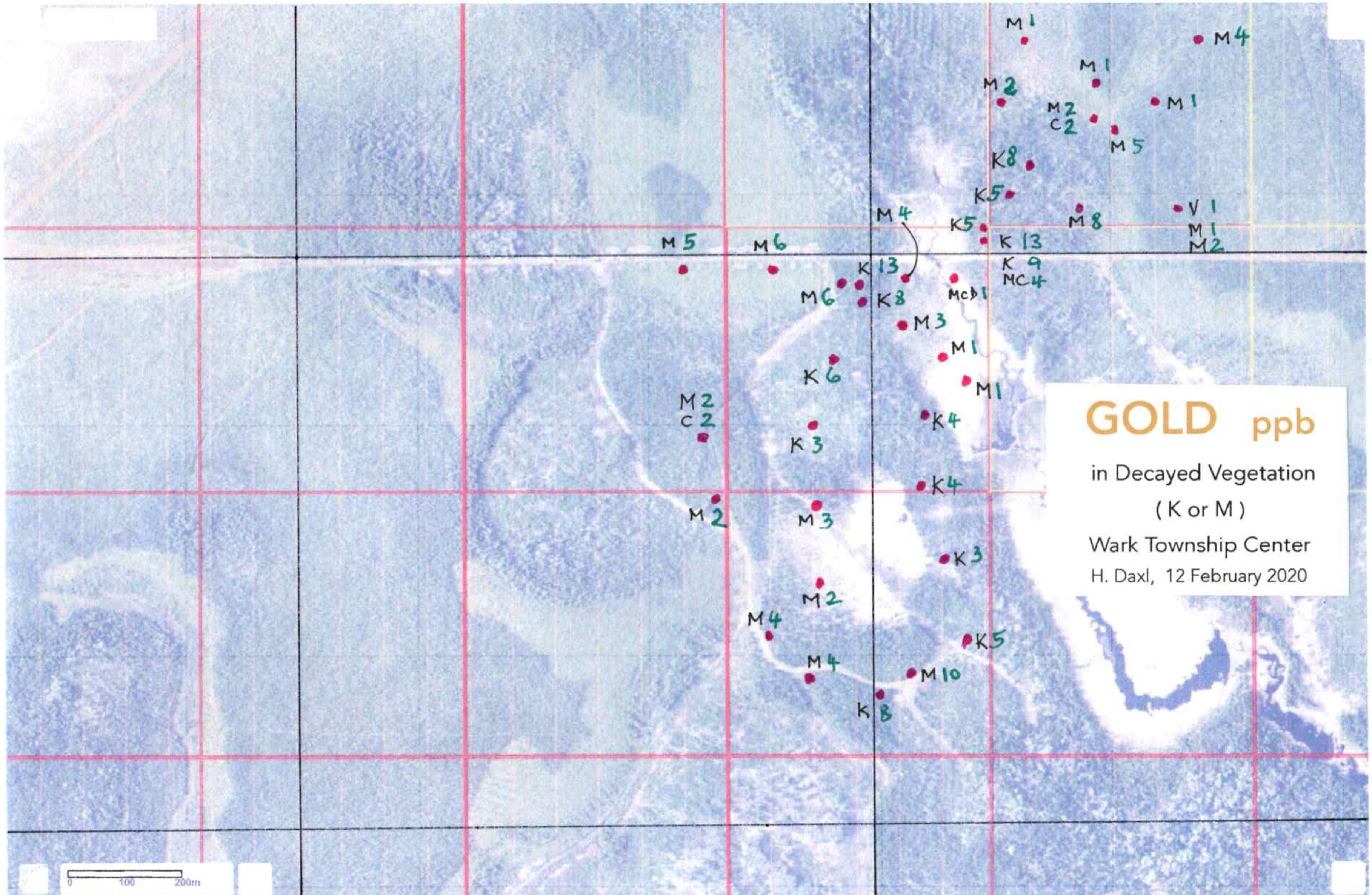

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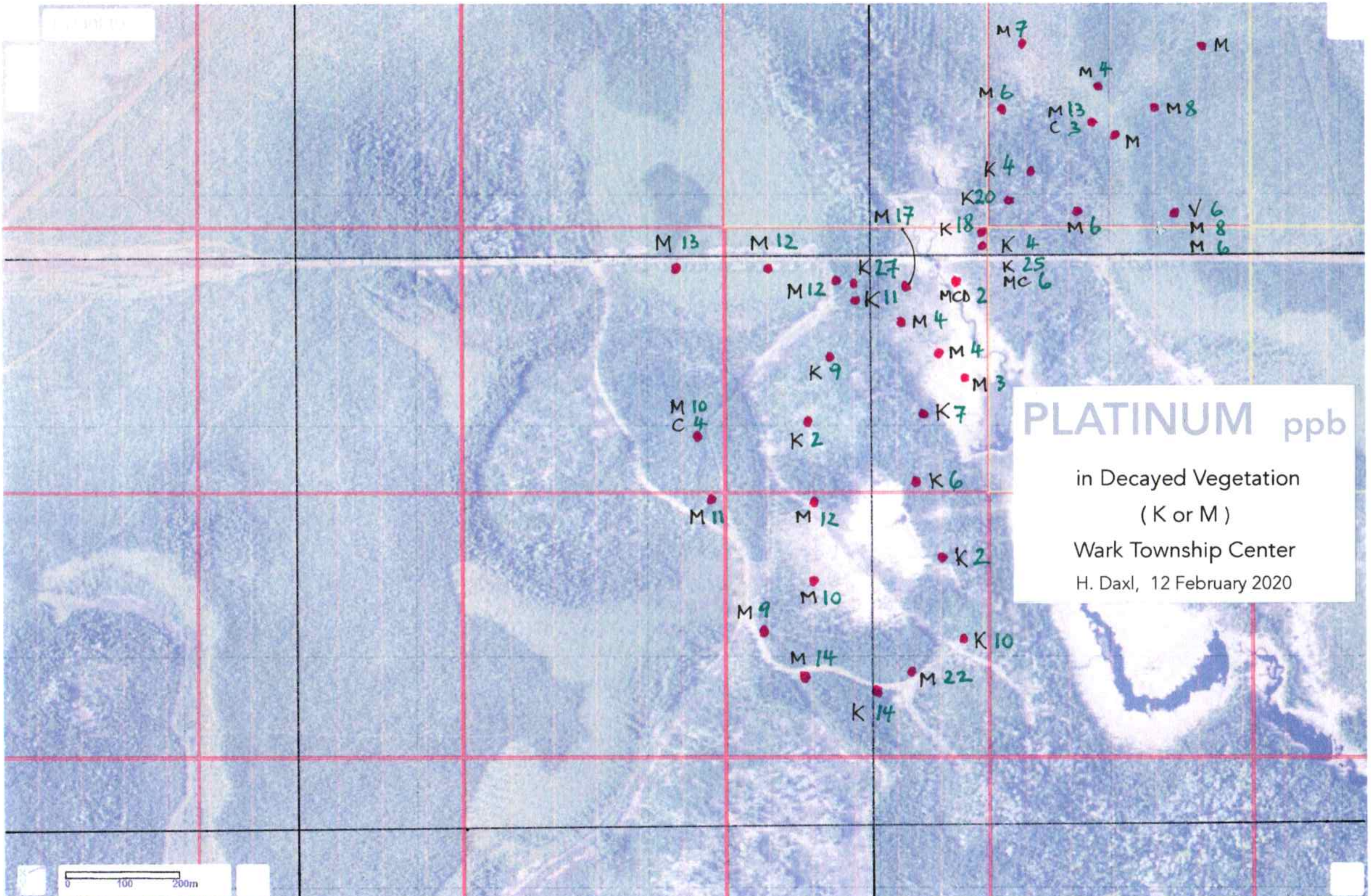

Quality Analysis ... **Actlabs** *Innovative Technologies*

Date Submitted:	22-Jul-19
Invoice No.:	A19-09423-Rev
Invoice Date:	30-Aug-19
Your Reference:	WAC5-2G-1

Hermann Daxl
39-630 Riverpark Road
Timmins Ontario P4P 1B4
Canada

ATTN: Hermann Daxl

CERTIFICATE OF ANALYSIS

151 - 172 decayed and sieved < 250 µm

22 Vegetation samples were submitted for analysis.

The following analytical package(s) were requested: Code 2G Unashed Vegetation ICP/MS - 1 g aliquots - - aqua regia - 95° C - 2 hrs.

REPORT **A19-09423-Rev**

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Notes:

CERTIFIED BY:

Emmanuel Eseme , Ph.D.
Quality Control

ACTIVATION LABORATORIES LTD.
41 Bittern Street, Ancaster, Ontario, Canada, L9G 4V5
TELEPHONE +905 648-9611 or +1.888.228.5227 FAX +1.905.648.9613
E-MAIL Ancaster@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com

Except 162 K all else black muck
all < 250 µm, no silt (DTC)

Results **Activation Laboratories Ltd.** **Report: A19-09423**

2 G - unashed vegetation - aqua regia - 95°C - 2 hrs.
1g aliquots

Analyte Symbol		Ag	Al	As	Au	B	Ba	Be	Bi	Ca	Cd	Ce
Unit Symbol		ppb	%	ppb	ppb	%	ppb	ppb	ppb	%	ppb	ppb
Detection Limit		10	0.004	10	0.2	0.001	10	50	0.5	0.025	10	1
Method Code		AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
151	M 100 REMOTE TEST	20	0.169	1250	2.7	< 0.001	15800	60	14.0	2.370	90	2510
152	M 100	20	0.175	1740	3.5	< 0.001	17900	70	13.3	1.910	100	2710
153	M 100	10	0.134	1650	3.6	< 0.001	21300	< 50	11.9	1.560	100	1650
154	M 100	10	0.129	1550	3.8	< 0.001	25100	< 50	9.8	1.960	100	1640
155	M 100	20	0.132	1110	5.2	< 0.001	20200	50	9.8	1.510	180	1620
156	M 100	20	0.209	1140	5.4	< 0.001	22000	60	8.8	2.410	50	2850
157	M 100	10	0.210	1140	5.7	< 0.001	16200	90	16.2	2.180	190	2910
158	M 100	20	0.276	1030	4.9	< 0.001	21700	120	13.3	1.910	210	2990
159	M 40	40	0.492	1140	5.4	< 0.001	35500	210	34.6	2.590	430	10700
160	M 100	30	0.242	1160	5.1	< 0.001	25200	100	12.6	2.550	330	4220
161	M 100	20	0.233	1000	5.0	< 0.001	16000	70	12.6	2.010	140	3330
162	K 0-6 cm	180 ✓	0.160 ✓	2310 2.73	13.3 6.8	< 0.001	39400	60	215.0 250	1.130 ✓	1250 1100	3750 ✓
163	M 30	110 102	1.140 0.85	2090 ✓	7.5 2.1	< 0.001	58800 64500	280 230	194.0 231	0.854	920 ✓	18200 21400
164	M 60	30	0.265	1450	4.8	< 0.001	35500	120	21.3	2.100	370	5300
165	M 60, 80, 100	20	0.231	1210	4.2	< 0.001	32200	90	12.5	2.180	220	3440
166	M 60, 100	20	0.412	1180	3.3	< 0.001	35100	170	24.5	2.630	450	6670
167	M 80, 100	20	0.320	770	3.9	< 0.001	28900	130	13.9	2.210	330	4370
168	M 60, 80	40	0.295	860	3.3	< 0.001	39700	120	15.4	4.290	520	3910
169	M 30	70 ✓	0.848	840	3.2 1.9	< 0.001	54600	280	37.2	2.880	320	15600
170	M 30 sticky	40	0.437	970	3.9	< 0.001	44400	180	36.4	2.650	330	10100
171	M 70, 100	30	0.316	1010	2.9	< 0.001	33700	130	27.5	2.120	430	7370
172	OREAS 47	100 ✓	1.130 0.81	8520 9530	~~18.8~~ 32.4	< 0.001	60600 ✓	210 ✓	120.0 ✓	0.785 0.547	510 ✓	47200 ✓

K = Decayed vegetation 0-6 cm depth
M 100 = Black swamp muck at 100 cm below surface (Limit of auger).
These samples contained no inorganics

Results **Activation Laboratories Ltd.** **Report: A19-09423**

Analyte Symbol	Co	Cr	Cs	Cu	Dy	Er	Eu	Fe	Ga	Gd	Ge
Unit Symbol	ppb	ppb	ppb	ppb	ppb	ppb	ppb	%	ppb	ppb	ppb
Detection Limit	2	20	2	10	0.5	1	1	0.003	4	4	1
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
151 M 100 REMOTE TEST	288	1270	127	3360	132.0	65	39	0.219	387	96	21
152 M 100	280	1480	94	3490	141.0	62	45	0.128	461	104	27
153 M 100	288	900	53	2920	86.2	40	27	0.161	319	64	18
154 M 100	302	750	61	2920	88.5	51	23	0.158	294	63	17
155 M 100	307	970	62	2600	83.7	33	27	0.138	319	64	17
156 M 100	352	1590	119	3320	144.0	68	45	0.231	461	112	23
157 M 100	451	1870	90	4260	168.0	86	50	0.145	453	130	25
158 M 100	488	2090	83	4270	182.0	86	50	0.137	496	141	27
159 M 40	1070	4920	231	9750	486.0	228	159	0.364	1410	366	61
160 M 100	614	2000	161	4950	203.0	90	64	0.272	569	151	27
161 M 100	335	1920	136	3930	167.0	82	53	0.139	548	124	29
162 K 0-6 cm	1280 ✓	3410 3170	174 141	75500 70600 ✓	158.0	70	51	0.211 ✓	553 ✓	126	63 149
163 M 30	1660 ✓	15400 14800	1590 1160	21000 19450 ✓	649.0 ✓	304 ✓	218	0.492 ✓	3630 ✓	524	84 ✓
164 M 60	684	2660	225	6420	255.0	125	73	0.323	694	200	34
165 M 60, 80, 100	534	1870	153	5100	181.0	87	60	0.203	556	137	30
166 M 60, 100	933	3820	220	7290	303.0	160	93	0.344	965	242	40
167 M 80, 100	684	2710	117	5320	225.0	110	65	0.140	741	178	31
168 M 60, 80	1380	2560	74	8910	239.0	117	65	0.546	636	174	35
169 M 30	1140 ✓	10200 ✓	870 704	8530 ✓	597.0	284	195	0.542 ✓	2450	474	72
170 M 30 sticky	1190	4640	220	7940	426.0	220	140	0.374	1190	334	52
171 M 70, 100	763	2880	174	7830	317.0	153	108	0.211	864	248	42
172 OREAS 47	47900 ✓	34000 30400	1280 ✓	155000 ✓	1330.0	651	644	1.810 1.65	4040 3280	1150 1920	189 75

Results **Activation Laboratories Ltd.** **Report: A19-09423**

Analyte Symbol	Hf	Hg	Ho	In	K	La	Li	Lu	Mg	Mo	Na
Unit Symbol	ppb	ppb	ppb	ppb	%	ppb	ppb	ppb	%	ppb	%
Detection Limit	3	10	0.4	0.2	0.01	3	10	0.4	0.002	10	0.005
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
151 M100 REMOTE TEST	42	70	25.0	1.8	< 0.01	1330	130	6.5	0.140	200	0.006
152 M100	58	70	24.0	2.3	< 0.01	1440	90	5.7	0.119	220	0.013
153 M100	27	30	15.4	1.6	< 0.01	883	10	4.0	0.076	250	0.006
154 M 100	24	20	16.8	0.4	< 0.01	876	10	5.6	0.100	290	0.005
155 M 100	21	20	14.5	0.6	< 0.01	858	30	3.1	0.065	280	< 0.005
156 M 100	67	30	27.1	2.3	< 0.01	1490	180	9.1	0.106	250	< 0.005
157 M 100	60	40	33.1	1.0	< 0.01	1590	100	10.5	0.128	230	0.007
158 M 100	69	70	33.3	1.3	< 0.01	1640	130	11.0	0.124	250	0.007
159 M 40	145	180	82.0	5.3	0.02	5570	1040	30.3	0.189	280	0.006
160 M 100	70	90	33.7	1.3	< 0.01	2250	370	10.8	0.179	350	0.006
161 M 100	69	70	31.3	1.6	< 0.01	1700	200	9.7	0.121	200	0.005
162 K 0-6 cm	37	220	31.0	152.0 ✓	0.10	1980 ✓	980 600	8.5	0.130	510 ✓	< 0.005
163 M 30	104	280	120.0	57.4 ✓	0.13	9400 10150	~~7350~~ 4100	34.3	0.160	640 ✓	0.007
164 M 60	78	140	44.8	3.4	0.01	2800	930	14.2	0.131	520	0.010
165 M 60, 80, 100	64	80	31.3	2.0	< 0.01	1860	780	9.5	0.133	470	0.013
166 M 60, 100	121	170	54.6	4.3	0.02	3530	1450	16.2	0.178	320	0.009
167 M 80, 100	112	100	41.4	3.3	< 0.01	2240	810	13.3	0.128	240	0.008
168 M 60, 80	103	120	42.0	1.5	< 0.01	2080	860	13.6	0.250	760	0.010
169 M 30	~~139~~ 260	110	106.0	9.9 ✓	0.08	8560 9190	~~6350~~ 4000	32.8	0.301	380 ✓	0.010
170 M 30 sticky	127	140	77.3	7.3	0.03	5370	1470	25.7	0.226	350	0.010
171 M 70, 100	69	110	60.5	5.0	0.01	3820	930	17.1	0.135	730	0.007
172 OREAS 47	196	< 10	238.0 ✓	41.7 ✓	0.14 ✓	26100 ✓	11000 8830	72.5 ✓	0.613 0.484	12300 ✓	0.101

Results **Activation Laboratories Ltd.** **Report: A19-09423**

Analyte Symbol		Nb	Nd	Ni	P	Pb	Pr	Rb	Re	INORGANIC TOP at cm
Unit Symbol		ppb	ppb	ppb	%	ppb	ppb	ppb	ppb	
Detection Limit		2	5	10	0.004	5	2	20	0.2	
Method Code		AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	
151	M 100 TEST	104	1230	1110	0.027	1470	288	330	0.5	>100
152	M 100	115	1260	960	0.027	1540	318	240	0.3	>100
153	M 100	71	839	900	0.034	1270	194	250	0.4	>100
154	M 100	56	762	810	0.028	1060	188	180	0.5	>100
155	M 100	58	814	1080	0.029	1050	186	270	0.3	>100
156	M 100	111	1410	1500	0.025	1120	342	390	0.4	>100
157	M 100	118	1480	1870	0.023	1250	351	320	1.2	>100
158	M 100	140	1600	2700	0.026	1100	381	320	1.2	>100
159	M 40	333	4860	4650	0.038	3850	1180	1560	1.1	60 gray sticky clay
160	M 100	140	2000	2220	0.034	1540	497	700	0.4	>100
161	M 100	133	1610	1300	0.025	1430	386	510	0.8	>100
162	K 0-6	128	1660	4730 3500	0.080	27900	426	3890 3210	0.5	20 beige clay
163	M 30	787	7910	5930 5200	0.065	29300	2030	~~13900~~ 8580	2.0	40 " "
164	M 60	192	2470	2200	0.032	3270	602	890	0.5	80 blue gray clay
165	M 60, 80, 100	131	1650	1800	0.033	1340	410	690	0.7	>100
166	M 60, 100	259	3100	3390	0.031	2130	747	1360	1.1	>100
167	M 80, 100	195	2090	3140	0.021	1440	521	590	1.2	>100
168	M 60, 80	188	2020	5540	0.013	1490	479	490	1.0	100 gray green clay
169	M 30	579	6910	5040	0.044	6570	1760	7830	1.7	50 " " "
170	M 30 sticky	281	4560	4010	0.046	6450	1130	1530	1.4	50 gravel
171	M 70, 100	188	3280	2610	0.044	2560	812	930	0.7	>100
172	OREAS 47	360	20600 17800	81800 ✓	0.051 ✓	338000 284000	5300 ✓	8770 7150	0.3 ✓	OREAS 47 is my standard

Results **Activation Laboratories Ltd.** **Report: A19-09423**

Analyte Symbol	Sb	Se	Sm	Sn	Sr	Ta	Tb	Te	Th	Ti	Tl
Unit Symbol	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	%	ppb
Detection Limit	5	10	2	30	50	1	2	5	1	0.15	0.5
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
151 M 100 REMOTE TEST	12	540	226	70	95600	21	22	10	323	< 0.15	25.8
152 M 100	13	1210	232	70	78400	22	24	12	350	< 0.15	19.9
153 M 100	10	520	150	< 30	79300	17	15	9	99	< 0.15	15.7
154 M 100	10	380	154	< 30	92900	15	15	15	58	< 0.15	10.1
155 M 100	10	770	138	30	68100	16	17	13	97	< 0.15	12.9
156 M 100	12	1040	246	40	90300	17	26	18	399	< 0.15	20.2
157 M 100	16	1220	270	40	84100	18	30	13	348	< 0.15	16.0
158 M 100	18	1250	300	40	71000	20	32	22	333	< 0.15	23.0
159 M 40	33	1410	796	140	93800	15	89	17	835	< 0.15	41.9
160 M 100	12	990	349	60	88300	14	35	15	423	< 0.15	31.6
161 M 100	13	1060	297	40	79500	19	32	12	446	< 0.15	26.1
162 K 0-6 cm	99	~~1600~~ 3260	270	~~880~~ 550	49600	10	30	23	214	< 0.15	33.9
163 M 30	74	~~2270~~ 1485	1230	~~860~~ 350	39100	8	122	51	1140	< 0.15	107.0
164 M 60	18	1060	438	100	78800	12	45	27	517	< 0.15	36.9
165 M 60,80,100	17	280	280	60	84800	15	32	21	253	< 0.15	24.6
166 M 60, 100	20	2120	553	110	103000	10	58	25	824	< 0.15	48.6
167 M 80,100	22	1150	361	90	98200	18	38	22	661	< 0.15	26.6
168 M 60, 80	34	1650	364	50	157000	14	38	18	658	< 0.15	23.3
169 M 30	27	1250 957	1100	300	112000 ✓	7	108	30	1820	< 0.15	59.1
170 M 30 sticky	46	1470	747	220	93900	10	75	30	968	< 0.15	46.5
171 M 70, 100	24	1010	558	70	75200	11	57	21	417	< 0.15	26.3
172 OREAS 47	26	1430	3000	2690 ✓	47300 ✓	< 1	252	26	3040	< 0.15	82.6 ✓

Results **Activation Laboratories Ltd.** **Report: A19-09423**

Analyte Symbol		Tm	U	V	W	Y	Yb	Zn	Zr
Unit Symbol		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
Detection Limit		0.1	0.5	20	5	4	3	100	20
Method Code		AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
151	M100 REMOTE TEST	6.9	113.0	1490	24	592	66	3200	1420
152	M100	8.4	154.0	1510	22	602	56	2600	1610
153	M100	5.8	69.9	1300	24	428	41	5500	840
154	M 100	6.8	56.7	1220	14	425	45	3800	690
155	M 100	4.3	63.9	1340	10	404	35	3200	810
156	M100	8.5	130.0	1830	18	684	60	2200	1860
157	M100	11.0	125.0	2690	14	862	79	4400	2030
158	M 100	12.1	157.0	3140	28	912	88	2600	2270
159	M 40	25.3	1040.0	5780	46	2290	216	8300	5200
160	M 100	11.3	233.0	2330	22	913	81	4300	2350
161	M100	10.9	130.0	2160	17	788	67	3000	1940
162	K 0-6 cm	9.5	285.0 ✓	2580 ✓	132	768 ✓	67	170000 ✓	1270 1380
163	M 30	39.3	1780.0 ✓	10900 ✓	125	2910 ✓	261	54000 ✓	4230 8920
164	M 60	14.5	511.0	3190	36	1210	111	14500	2930
165	M 60, 80, 100	10.1	172.0	2820	15	831	86	4200	2000
166	M 60, 100	17.2	563.0	5780	35	1540	138	7000	3950
167	M 80, 100	12.5	286.0	3640	29	1090	90	4300	3320
168	M 60, 80	15.9	1080.0	4150	66	1230	120	2200	3800
169	M 30	34.5	6880.0 ✓	7330 ✓	62	2750 ✓	248	19500 ✓	6590
170	M 30 sticky	26.7	1060.0	4910	43	2210	202	11100	4780
171	M 70, 100	19.9	500.0	4650	27	1590	143	14600	2840
172	OREAS 47	79.8	463.0 ✓	24000 ✓	61 110	6200 ✓	616 ✓	214000 ✓	~~4630~~ 6700

Decayed Vegetation (K) or **Black Swamp Muck** (M), sieved <250 micron, by 1-g Unashed Vegetation Analyses HNO3 and HCl, ALS Canada Ltd., VA19229922.

SAMPLE DESCRIPTION	Au	Ag	Al	As	B	Ba	Be	Bi	Ca	Cd	Ce
	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41	ME-VEG41
	ppb	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm
173 MC-D10%-15	1.2	0.056	1.62	1.79	6	81.1	0.53	0.125	0.59	0.276	39.300
174 K	8.6	0.115	0.06	1.16	10	49.2	0.02	0.153	1.30	1.215	1.625
175 M 20	4.0	0.201	1.35	2.75	8	100.5	0.59	0.205	1.78	0.977	47.400
176 K	5.4	0.108	0.05	1.02	9	51.5	0.01	0.130	1.13	1.090	1.400
177 K	4.7	0.105	0.05	0.94	8	34.4	0.02	0.113	1.08	0.831	1.315
178 K	7.9	0.180	0.09	2.21	6	37.5	0.03	0.282	0.93	1.250	1.605
179 M 60 very wet	1.9	0.040	0.30	1.52	5	34.1	0.18	0.058	2.41	0.343	10.700
180 C 75	2.4	0.068	2.56	2.78	11	140.5	0.92	0.184	2.60	0.105	74.700
181 M 95	1.3	0.019	0.20	1.28	7	39.1	0.08	0.024	3.05	0.462	3.110
182 M 80-100	1.0	0.011	0.21	1.17	7	29.5	0.07	0.016	2.63	0.147	2.620
183 dupl. sieving	1.5	0.008	0.18	1.00	6	24.9	0.06	0.012	2.22	0.122	2.180
184 M 15	4.3	0.172	0.22	3.51	3	24.5	0.05	0.176	0.44	0.496	4.680
185 M 20	2.1	0.060	0.93	1.87	8	56.9	0.21	0.113	0.98	0.605	16.450
186 M 70-95	0.8	0.025	0.27	1.15	5	39.8	0.12	0.026	2.43	0.356	6.070
187 M 70+100	1.2	0.020	0.27	1.10	4	42.5	0.13	0.028	2.11	0.318	6.800
188 M 80-100	1.2	0.018	0.25	1.07	4	32.4	0.11	0.026	1.89	0.312	5.540
189 M 80-100	1.1	0.018	0.22	1.17	5	32.4	0.09	0.029	2.07	0.265	4.660
190 M 80+90	0.7	0.020	0.25	1.32	5	38.7	0.12	0.026	2.45	0.410	5.390
191 M 70	3.4	0.040	0.36	1.23	7	37.4	0.14	0.030	3.26	0.499	6.800
192 M 70+90	0.6	0.022	0.20	1.61	7	23.6	0.06	0.020	2.91	0.367	3.590
193 M 60 sticky	0.8	0.026	0.33	0.99	3	27.6	0.10	0.026	2.19	0.110	8.600
194 = 162 K	6.8	0.181 ✓	0.14	2.73	8	43.5	0.05	0.250	1.16	1.100	3.620
195 = 163 M 30	2.1	0.102 ✓	0.85	2.06 ✓	7	64.5	0.23	0.231	0.89	0.896	21.400
196 = 169 M 30	1.9	0.074 ✓	0.70	0.84 ✓	9	60.5	0.24	0.052	3.03	0.293	17.350
199 OREAS 47	40.9 ✓	0.090 0.107	0.70	8.80 9.53	3	58.4	0.17	0.109	0.51	0.469 ✓	41.200
200 fresh Labrad. Tea	1.3	0.001	-0.01	0.03	16	50.7	-0.01	0.002	0.46	0.004	0.035
301 K	13.2	0.167	0.08	2.15	5	23.2	0.02	0.247	0.38	0.982	1.800
302 M 30	2.7	0.113	0.64	1.87	6	49.4	0.26	0.126	1.63	0.848	20.000
303 M 30	0.9	0.079	0.58	1.19	5	56.1	0.26	0.061	2.21	0.653	21.400
304 M 50	1.1	0.050	0.66	0.96	6	67.5	0.27	0.047	2.63	1.125	15.500
305 K	4.0	0.124	0.06	1.04	9	31.7	0.02	0.133	1.09	0.581	1.310
306 K	4.0	0.105	0.10	0.90	11	36.1	0.02	0.120	1.46	0.922	2.500
307 K	3.2	0.096	0.33	1.53	10	44.1	0.12	0.130	1.52	1.015	7.520
308 K	5.4	0.120	0.10	1.24	10	31.7	0.04	0.139	1.54	1.005	2.710
309 M 70+90	9.7	0.013	0.15	0.69	5	35.2	0.06	0.020	2.85	0.084	1.950
310 K	7.7	0.188	0.09	2.59	5	28.6	0.03	0.289	0.36	1.625	1.670
311 M 50+70	4.2	0.030	0.31	1.04	6	43.6	0.12	0.029	3.40	0.272	4.670
312 M 40-50	4.0	0.040	0.39	0.76	6	54.4	0.18	0.031	2.97	0.410	8.510
313 M 70-100	5.4	0.015	0.22	1.07	4	30.0	0.10	0.013	2.38	0.286	3.350
314 M 80-100	6.3	0.022	0.23	1.57	4	30.2	0.12	0.025	1.49	0.559	4.670
315 M 100 v. soft	6.1	0.017	0.15	1.52	3	27.5	0.05	0.035	0.84	0.224	2.950
316 K	7.5	0.182	0.08	2.79	5	21.7	0.02	0.255	0.40	1.370	1.520
317 K	5.6	0.138	0.07	1.05	11	22.9	0.02	0.116	1.79	0.953	3.130
318 K	2.9	0.150	0.12	1.37	9	52.8	0.05	0.180	1.48	1.590	5.400
319 M 30	2.6	0.038	0.27	0.83	5	40.5	0.10	0.023	2.45	0.268	6.100
320 M 30 sticky	1.9	0.058	0.84	0.82	5	63.8	0.27	0.059	1.89	0.424	19.750
321 M 50-90	1.8	0.021	0.22	0.97	8	39.0	0.09	0.021	2.86	0.344	4.450
322 M 60-90	1.8	0.040	0.21	0.92	11	40.1	0.09	0.016	3.54	0.534	3.520
323 C 100-110	2.1	0.047	2.86	2.23	14	166.0	0.85	0.174	1.42	0.069	55.800
328 OREAS 47	43.1 ✓	0.093	0.77	9.17 ✓	3	60.7	0.14	0.111	0.59	0.420	38.200

K = Decayed vegetation 0-6 cm depth.
C = Clay (MC = interface).

M 20 = Black swamp muck at 20 cm depth below surface.
D 10% = 10% fine sand by volume could not be removed.
Other K or M contained no inorganics.

SAMPLE DESCRIPTION		ME-VEG41 Co ppm	ME-VEG41 Cr ppm	ME-VEG41 Cs ppm	ME-VEG41 Cu ppm	ME-VEG41 Fe %	ME-VEG41 Ga ppm	ME-VEG41 Ge ppm	ME-VEG41 Hf ppm	ME-VEG41 Hg ppm	ME-VEG41 In ppm	ME-VEG41 K %
173	MC-D10%-15	7.44	37.30	1.640	12.25	1.710	6.300	0.015	0.310	0.066	0.023	0.18
174	K	0.94	2.04	0.095	57.40	0.108	0.228	0.048	0.019	0.148	0.127	0.09
175	M 20	3.71	25.20	1.070	30.00	1.020	4.660	0.042	0.344	0.268	0.056	0.13
176	K	0.57	1.76	0.068	48.90	0.092	0.185	0.037	0.015	0.131	0.084	0.07
177	K	0.68	1.65	0.080	48.90	0.090	0.186	0.035	0.015	0.133	0.083	0.08
178	K	0.93	2.49	0.106	92.50	0.151	0.343	0.080	0.026	0.255	0.222	0.08
179	M 60 very wet	0.80	3.78	0.190	12.25	0.267	0.899	0.075	0.129	0.177	0.012	0.01
180	C75	16.70	66.60	2.620	28.50	3.550	9.320	0.030	0.885	0.027	0.030	0.38
181	M 95	0.77	2.27	0.075	6.67	0.283	0.472	0.062	0.059	0.110	-0.005	-0.01
182	M 80-100	0.52	1.74	0.068	4.41	0.183	0.494	0.055	0.051	0.077	0.005	-0.01
183	dupl. sieving	0.41	1.45	0.063	3.59	0.154	0.392	0.036	0.049	0.055	-0.005	-0.01
184	M 15	0.89	3.61	0.273	29.70	0.400	0.919	0.122	0.071	0.155	0.083	0.05
185	M 20	1.43	20.20	3.130	8.68	0.447	4.580	0.029	0.272	0.179	0.026	0.12
186	M 70-95	0.78	2.97	0.184	7.23	0.227	0.764	0.051	0.106	0.181	0.005	0.01
187	M 70+100	0.61	2.87	0.153	5.67	0.195	0.713	0.051	0.093	0.131	-0.005	0.01
188	M 80-100	0.56	2.79	0.124	5.31	0.160	0.727	0.044	0.096	0.110	0.006	0.01
189	M 80-100	0.60	2.28	0.093	5.35	0.189	0.596	0.040	0.075	0.102	-0.005	-0.01
190	M 80+90	0.62	2.71	0.119	5.69	0.210	0.636	0.055	0.091	0.126	-0.005	-0.01
191	M 70	1.00	3.89	0.165	7.00	0.407	0.964	0.078	0.141	0.162	0.007	0.01
192	M 70+90	0.63	1.92	0.068	5.49	0.353	0.576	0.054	0.073	0.119	-0.005	-0.01
193	M 60 sticky	0.95	4.55	0.181	5.57	0.343	1.005	0.026	0.138	0.279	0.007	0.01
194	= 162 K	1.28	3.17	0.141	70.60	0.207	0.564	0.149	0.046	0.247	0.152	0.10
195	= 163 M 30	1.69	14.80	1.160	19.45	0.457	3.630	0.077	0.247	0.305	0.060	0.09
196	= 169 M 30	1.19	10.15	0.704	8.01	0.557	2.500	0.067	0.260	0.146	0.010	0.06
199	OREAS 47	~~49.50~~ ✓	~~27.70~~	~~1.160~~ ✓	~~148.00~~ 160	~~1.255~~	~~2.610~~	~~0.025~~	~~0.162~~	~~0.014~~	~~0.024~~ 0.037	~~0.11~~
200	fresh Labrad. Tea	0.02	0.12	0.103	2.41	0.003	0.006	-0.005	-0.002	0.004	-0.005	0.41
301	K	0.71	3.24	0.191	109.50	0.160	0.342	0.061	0.019	0.306	0.250	0.09
302	M 30	1.50	13.70	0.933	16.30	0.402	2.330	0.044	0.216	0.290	0.028	0.06
303	M 30	1.66	7.94	0.322	12.40	0.358	1.520	0.059	0.193	0.294	0.012	0.03
304	M 50	1.77	8.97	0.594	20.80	0.310	1.750	0.070	0.234	0.213	0.007	0.02
305	K	0.61	2.00	0.075	53.10	0.103	0.205	0.045	0.018	0.144	0.096	0.07
306	K	1.12	2.46	0.115	43.00	0.152	0.371	0.053	0.028	0.119	0.077	0.05
307	K	2.47	6.46	0.328	42.10	0.447	1.030	0.081	0.094	0.159	0.079	0.09
308	K	1.57	2.11	0.117	43.70	0.126	0.359	0.083	0.029	0.131	0.087	0.09
309	M 70+90	0.53	1.07	0.034	3.33	0.168	0.440	0.055	0.045	0.106	0.005	-0.01
310	K	0.79	3.54	0.183	122.00	0.151	0.363	0.077	0.024	0.316	0.236	0.10
311	M 50+70	1.03	2.55	0.077	7.26	0.611	0.837	0.034	0.089	0.147	-0.005	0.01
312	M 40-50	1.00	4.10	0.089	9.28	0.396	0.863	0.042	0.133	0.181	0.005	0.01
313	M 70-100	0.61	2.45	0.041	5.47	0.157	0.495	0.043	0.075	0.095	-0.005	-0.01
314	M 80-100	0.80	2.50	0.190	5.67	0.119	0.551	0.039	0.069	0.084	-0.005	0.01
315	M 100 v. soft	0.63	2.00	0.068	5.67	0.082	0.575	0.054	0.060	0.114	0.006	-0.01
316	K	0.78	3.32	0.173	117.50	0.148	0.302	0.054	0.019	0.292	0.215	0.10
317	K	1.38	2.06	0.075	51.40	0.115	0.249	0.046	0.021	0.117	0.086	0.07
318	K	4.06	2.22	0.110	52.40	0.205	0.327	0.090	0.027	0.148	0.106	0.09
319	M 30	0.65	4.05	0.233	6.83	0.258	0.756	0.044	0.122	0.193	0.005	0.02
320	M 30 sticky	1.34	15.50	1.105	11.10	0.434	3.050	0.030	0.250	0.265	0.016	0.07
321	M 50-90	0.74	2.50	0.051	7.55	0.313	0.566	0.054	0.083	0.107	-0.005	-0.01
322	M 60-90	1.12	2.28	0.042	10.45	0.480	0.527	0.062	0.079	0.149	-0.005	0.01
323	C100-110	16.40	73.00	2.800	31.40	3.440	8.960	0.025	0.756	0.030	0.027	0.46
328	OREAS 47	~~47.40~~ ✓	~~28.50~~ ✓	~~1.075~~	~~147.50~~	~~1.365~~	~~2.500~~	~~0.021~~	~~0.187~~	~~0.016~~	~~0.024~~	~~0.11~~

SAMPLE DESCRIPTION	ME-VEG41 La ppm	ME-VEG41 Li ppm	ME-VEG41 Mg %	ME-VEG41 Mn ppm	ME-VEG41 Mo ppm	ME-VEG41 Na %	ME-VEG41 Nb ppm	ME-VEG41 Ni ppm	ME-VEG41 P %	ME-VEG41 Pb ppm	ME-VEG41 Pd ppm
173 MC-D10%-15	17.15	21.6	0.519	203.0	0.14	0.005	1.075	17.25	0.051	10.90	-0.001
174 K	0.93	0.4	0.139	269.0	0.44	0.003	0.072	2.34	0.085	9.57	-0.001
175 M 20	25.10	9.6	0.343	159.5	0.50	0.005	1.290	13.90	0.103	19.15	-0.001
176 K	0.75	0.3	0.129	197.5	0.32	0.001	0.058	1.86	0.076	6.76	0.001
177 K	0.76	0.3	0.107	201.0	0.37	-0.001	0.062	1.99	0.075	4.93	0.001
178 K	0.78	0.4	0.057	493.0	0.38	0.012	0.095	3.12	0.077	21.70	0.001
[179 M60 v. wet	6.30	0.6	0.152	117.0	0.30	0.005	0.258	3.17	0.035	3.91	-0.001
180 C 75]	36.80	38.7	1.765	399.0	0.07	0.020	0.128	41.30	0.046	10.05	0.001
181 M 95	1.52	0.3	0.165	62.5	0.39	0.007	0.121	2.22	0.023	0.92	0.001
[182 M 80-100	1.30	0.1	0.123	43.5	0.23	0.004	0.113	1.94	0.023	0.68	-0.001
183 dupl. sieving]	1.07	0.1	0.105	35.8	0.19	-0.001	0.091	1.65	0.020	0.56	-0.001
184 M 15	2.41	0.8	0.060	26.0	0.55	-0.001	0.268	3.12	0.101	17.15	0.001
185 M 20	8.27	5.4	0.166	56.3	0.49	0.004	1.050	5.15	0.067	14.95	0.001
186 M 70-95	2.96	0.3	0.150	66.2	0.44	0.006	0.195	2.22	0.036	1.36	-0.001
187 M 70+100	3.38	0.3	0.154	53.5	0.45	0.012	0.187	3.01	0.042	1.35	0.001
188 M 80-100	2.75	0.2	0.114	40.3	0.39	-0.001	0.175	2.44	0.035	1.16	-0.001
189 M 80-100	2.27	0.2	0.122	48.2	0.40	-0.001	0.146	2.33	0.037	1.00	-0.001
190 M 80+90	2.72	0.2	0.147	57.5	0.47	0.008	0.168	2.54	0.032	1.06	-0.001
191 M 70	3.36	0.5	0.172	119.0	0.34	0.017	0.321	3.34	0.033	2.19	-0.001
192 M 70+90	1.77	0.2	0.149	63.1	0.30	0.007	0.142	1.90	0.022	1.07	-0.001
193 M 60 sticky	4.49	0.5	0.135	108.0	0.12	0.006	0.283	2.53	0.034	1.98	-0.001
194 =162 K	1.91	0.6	0.111	150.0	0.53 ✓	0.015	0.142	3.50	0.090	21.60	0.001
195 =163 M 30	10.15	4.1	0.124	81.2	0.64 ✓	0.007	0.866	5.20	0.076	21.30	-0.001
196 =169 M 30	9.19	4.0	0.255	36.5	0.36 ✓	0.016	0.706	4.79	0.053	5.24	-0.001
199 OREAS 47	~~24.40~~ ✓	~~8.4~~ ✓	~~0.433~~	~~238.0~~	~~10.35~~ 12.7	~~0.066~~	~~0.155~~	~~77.20~~ ✓	~~0.052~~	~~257.00~~ 284	~~0.035~~ 43
200 fresh Labr. Tea	0.02	-0.1	0.092	579.0	0.02	-0.001	0.003	0.41	0.075	0.14	-0.001
301 K	0.89	0.4	0.058	51.8	0.42	0.001	0.107	3.21	0.069	17.75	0.001
302 M 30	9.76	2.7	0.192	90.0	0.90	0.007	0.716	5.96	0.101	13.20	-0.001
303 M 30	10.75	1.0	0.171	65.0	0.41	0.005	0.494	4.64	0.075	5.40	-0.001
304 M 50	7.66	1.1	0.217	70.1	0.47	0.008	0.541	6.50	0.070	3.31	-0.001
305 K	0.71	0.3	0.115	246.0	0.45	0.005	0.063	2.00	0.084	5.60	-0.001
306 K	1.41	0.8	0.161	410.0	0.37	0.002	0.107	2.87	0.082	6.33	0.001
307 K	4.24	2.8	0.185	519.0	0.46	0.014	0.358	5.12	0.087	8.52	-0.001
308 K	1.49	0.6	0.148	164.0	0.42	0.003	0.109	3.11	0.088	12.15	-0.001
309 M 70+90	1.03	0.1	0.176	42.9	0.45	0.006	0.113	1.52	0.025	1.33	-0.001
310 K	0.83	0.4	0.057	148.5	0.45	0.002	0.109	3.64	0.072	19.45	0.001
311 M 50+70	2.42	0.4	0.169	87.8	0.21	0.007	0.227	3.91	0.028	1.61	-0.001
312 M 40-50	4.32	0.3	0.186	84.7	0.23	0.003	0.287	4.49	0.034	1.77	-0.001
313 M 70-100	1.72	0.1	0.142	28.9	0.24	0.009	0.155	2.73	0.024	0.88	0.001
314 M 80-100	2.41	0.2	0.083	17.5	0.48	0.008	0.167	2.98	0.043	0.87	-0.001
315 M 100 v. soft	1.44	0.1	0.057	10.0	0.49	0.006	0.150	2.26	0.035	2.24	-0.001
316 K	0.74	0.3	0.070	79.6	0.42	0.004	0.088	3.12	0.067	14.65	0.001
317 K	1.62	0.5	0.189	162.5	0.47	0.006	0.081	2.73	0.078	6.91	-0.001
318 K	2.25	0.5	0.132	615.0	0.55	0.014	0.102	3.63	0.096	15.30	-0.001
319 M 30	3.04	0.4	0.187	68.4	0.37	0.007	0.266	2.55	0.046	2.36	-0.001
320 M 30 sticky	9.80	3.4	0.171	68.1	0.29	0.004	0.958	5.48	0.059	5.90	-0.001
321 M 50-90	2.15	0.1	0.177	54.1	0.27	-0.001	0.183	3.36	0.020	1.04	-0.001
[322 M 60-90	1.92	0.2	0.188	102.5	0.67	0.008	0.167	4.94	0.020	0.99	-0.001
323 C 100-110]	27.30	35.9	1.705	316.0	0.08	0.020	0.112	41.80	0.048	11.50	-0.001
328 OREAS 47	~~22.50~~	~~6.7~~	~~0.470~~	~~253.0~~ ✓	~~10.05~~	~~0.075~~	~~0.187~~	~~71.60~~	~~0.052~~	~~262.00~~	~~0.034~~

SAMPLE DESCRIPTION	ME-VEG41 Pt ppm	ME-VEG41 Rb ppm	ME-VEG41 Re ppm	ME-VEG41 S %	ME-VEG41 Sb ppm	ME-VEG41 Sc ppm	ME-VEG41 Se ppm	ME-VEG41 Sn ppm	ME-VEG41 Sr ppm	ME-VEG41 Ta ppm	ME-VEG41 Te ppm
173 MC-D10%-15	0.002	21.10	-0.001	0.06	0.02	3.75	0.352	0.25	24.2	0.003	0.04
174 K	0.025	2.77	0.001	0.21	0.17	0.13	1.705	0.32	50.3	0.005	0.02
175 M20	0.006	12.15	0.003	0.24	0.16	1.81	2.140	0.35	71.1	0.005	0.11
176 K	0.018	1.60	-0.001	0.19	0.15	0.13	1.085	0.28	41.7	0.004	-0.02
177 K	0.020	2.08	0.001	0.22	0.17	0.13	1.135	0.29	39.8	0.005	-0.02
178 K	0.004	2.25	0.001	0.22	0.26	0.24	3.720	0.65	23.5	0.004	-0.02
179 M60 v.wet	0.013	0.87	0.001	0.19	0.12	0.74	1.125	0.19	70.9	0.011	0.04
180 C75	0.003	37.20	-0.001	-0.01	0.03	8.02	0.091	0.29	41.7	0.001	0.04
181 M95	0.008	0.27	0.001	0.21	0.09	0.34	1.115	0.07	102.5	0.010	-0.02
182 M 80-100	0.008	0.18	0.001	0.18	0.07	0.31	1.085	0.05	95.0	0.009	0.04
183 dupl.sieving	0.006	0.18	0.001	0.14	0.04	0.25	0.905	0.04	77.8	0.008	-0.02
184 M 15	0.017	2.36	0.001	0.22	0.19	0.50	1.305	0.42	17.6	0.005	-0.02
185 M 20	0.006	11.25	0.001	0.20	0.09	1.55	0.789	0.30	35.9	0.004	0.04
186 M 70-95	0.007	0.57	0.001	0.23	0.06	0.52	1.245	0.07	79.5	0.011	-0.02
187 M 70+100	0.009	0.51	0.001	0.20	0.07	0.42	1.005	0.07	72.1	0.010	0.02
188 M 80-100	0.008	0.43	0.001	0.18	0.09	0.40	1.085	0.07	65.6	0.010	-0.02
189 M 80-100	0.006	0.35	0.001	0.18	0.06	0.36	0.995	0.06	75.7	0.010	-0.02
190 M 80+90	0.007	0.39	0.001	0.20	0.09	0.40	1.110	0.05	85.9	0.010	-0.02
191 M 70	0.002	0.63	0.001	0.24	0.04	0.79	1.165	0.09	109.0	0.016	-0.02
192 M 70+90	0.005	0.23	0.001	0.18	0.08	0.44	1.115	0.05	98.5	0.010	-0.02
193 M 60 sticky	0.004	0.67	-0.001	0.17	0.07	0.88	1.480	0.09	64.1	0.011	-0.02
194 = 162 K	0.004	3.21	0.001	0.24	0.26	0.29	3.260	0.55	43.8	0.005	0.03
195 = 163 M30	0.006	8.58	0.003	0.31	0.21	1.29	1.485	0.35	35.2	0.005	0.05
196 = 169 M30	0.002	5.16	0.002	0.19	0.06	1.56	0.957	0.20	107.5	0.004	0.03
199 OREAS 47	0.020 26	7.22	-0.001	0.04	0.01	2.76	0.089	? 0.69 2.54	28.1	0.001	-0.02
200 fresh Labr. Tea	0.006	11.50	-0.001	0.05	0.01	0.03	0.055	0.01	5.6	0.001	-0.02
301 K	0.027	3.53	0.001	0.15	0.22	0.27	4.210	0.55	22.0	0.006	-0.02
302 M 30	0.004	4.89	0.001	0.28	0.13	1.00	1.250	0.24	59.0	0.007	0.05
303 M30	0.004	1.96	0.001	0.27	0.16	0.75	1.795	0.13	82.3	0.009	0.02
304 M 50	0.003	2.32	0.003	0.40	0.06	0.98	1.605	0.12	84.9	0.015	-0.02
305 K	0.007	1.22	0.001	0.25	0.18	0.14	0.949	0.31	32.9	0.004	-0.02
306 K	0.006	1.49	-0.001	0.24	0.15	0.22	0.959	0.31	39.8	0.005	-0.02
307 K	0.002	4.78	0.001	0.24	0.11	0.49	1.330	0.26	40.7	0.004	0.03
308 K	0.010	1.71	-0.001	0.22	0.17	0.24	1.280	0.35	39.5	0.005	0.04
309 M 70+90	0.022	0.16	0.001	0.14	0.06	0.28	1.130	0.07	83.1	0.020	0.03
310 K	0.014	4.03	0.001	0.16	0.29	0.34	5.340	0.71	15.4	0.005	0.02
311 M 50+70	0.014	0.54	0.001	0.19	0.07	0.62	1.725	0.09	106.0	0.017	0.02
312 M 40-50	0.009	0.83	0.001	0.20	0.10	0.74	1.605	0.08	90.8	0.017	0.03
313 M 70-100	0.013	0.19	0.001	0.21	0.08	0.42	1.355	0.05	75.3	0.014	-0.02
314 M 80-100	0.012	0.71	0.002	0.23	0.06	0.36	1.415	0.05	47.7	0.012	0.03
315 M 100 v.soft	0.012	0.22	0.002	0.21	0.08	0.31	1.360	0.08	29.8	0.012	-0.02
316 K	0.011	3.43	0.001	0.17	0.25	0.27	3.500	0.56	18.1	0.005	-0.02
317 K	0.009	1.25	0.001	0.21	0.15	0.15	1.110	0.30	48.5	0.003	-0.02
318 K	0.002	1.54	-0.001	0.24	0.17	0.18	1.315	0.36	48.0	0.003	0.03
319 M 30	0.012	1.11	0.001	0.20	0.09	0.74	1.245	0.09	78.9	0.009	-0.02
320 M 30 sticky	0.010	4.96	0.001	0.19	0.11	1.60	1.620	0.18	58.7	0.004	-0.02
321 M 50-90	0.011	0.20	0.001	0.18	0.10	0.44	1.230	0.05	99.1	0.009	0.02
322 M 60-90	0.010	0.29	0.002	0.24	0.09	0.42	1.430	0.05	120.5	0.009	-0.02
323 C100-110	0.004	43.90	-0.001	-0.01	0.02	8.32	0.108	0.26	38.9	0.001	-0.02
328 OREAS 47	0.015	6.84	-0.001	0.04	0.01	2.99	0.060	? 0.77	29.0	0.001	-0.02

SAMPLE	DESCRIPTION	ME-VEG41 Th ppm	ME-VEG41 Ti %	ME-VEG41 Tl ppm	ME-VEG41 U ppm	ME-VEG41 V ppm	ME-VEG41 W ppm	ME-VEG41 Y ppm	ME-VEG41 Zn ppm	ME-VEG41 Zr ppm	Inorganic Top at cm	
173	MC-D10%-15	4.300	0.041	0.119	1.360	31.90	0.05	6.07	54.0	14.90	15 blue-green	C
174	K	0.069	0.002	0.029	0.042	1.49	0.12	0.29	241.0	0.60	30 beige	C
175	M20	1.085	0.019	0.111	7.250	15.15	0.09	7.97	61.2	14.20	25 beige	C
176	K	0.078	0.001	0.020	0.046	1.27	0.07	0.27	223.0	0.49	15 beige	C
177	K	0.065	0.001	0.023	0.034	1.16	0.08	0.22	177.0	0.49	20 beige	C
178	K	0.130	0.003	0.045	0.051	1.99	0.14	0.34	191.0	0.80	15 beige	C
[179	M60 v.wet	0.642	0.006	0.034	2.230	7.43	0.04	2.33	12.6	4.77	[70 green	C
[180	C75	12.800	0.073	0.212	0.742	49.50	0.01	13.55	80.2	35.20	[same hole	
181	M95	0.347	0.004	0.014	0.140	3.28	0.07	1.00	15.0	1.98	> 100	
[182	M80-100	0.251	0.004	0.013	0.115	2.83	0.02	0.89	3.7	1.85	[> 100	
[183	dupl. sieving	0.195	0.003	0.010	0.094	2.38	0.01	0.71	3.1	1.46	[see 200	
184	M15	0.221	0.010	0.030	0.281	4.55	0.10	0.80	57.4	2.43	30	C
185	M20	0.809	0.010	0.118	0.887	10.60	0.06	2.41	48.1	9.67	30 blue-green	C
186	M70-95	0.477	0.005	0.029	0.325	4.12	0.03	1.47	8.0	3.64	> 100	
187	M70+100	0.324	0.006	0.023	0.289	4.26	0.02	1.62	11.4	3.34	100 blue-gray	C
188	M80-100	0.300	0.005	0.019	0.251	4.48	0.02	1.39	6.1	3.07	>100	
189	M80-100	0.262	0.005	0.016	0.252	4.16	0.02	1.21	8.7	2.70	> 100	
190	M80+90	0.355	0.005	0.015	0.241	4.77	0.02	1.45	10.6	2.94	> 100	
191	M70	0.733	0.009	0.031	0.658	4.69	0.03	1.70	9.3	4.51	100 blue-green	C
192	M70+90	0.445	0.005	0.017	0.179	2.66	0.02	1.05	2.7	2.52	> 100	
193	M60 sticky	0.866	0.005	0.048	0.975	3.91	0.03	1.77	3.0	4.56	70 blue-green-	C
194	=162 K	0.163	0.004	0.037	0.273	2.78 ✓	0.14	0.75	167.5 ✓	1.38	20 beige	C
195	=163 M30	0.500	0.014	0.081	1.805	10.45 ✓	0.09	3.23	52.4 ✓	8.92	40 beige	C
196	=169 M30	1.500	0.015	0.059	7.190	7.70 ✓	0.06	3.10	18.2 ✓	8.66	50 greengray	C
199	OREAS 47	3.060	0.049	0.078	0.423	22.20 247	0.02	5.45	201.0 ✓	5.75	STANDARD	
200	fresh Labr. Tea	0.005	-0.001	0.003	-0.005	0.06	0.01	0.001	14.5	0.03	from 182 area-macerated	
301	K	0.110	0.002	0.033	0.050	2.34	0.21	0.45	121.5	0.73		
302	M30	0.454	0.010	0.080	1.635	7.31	0.07	3.40	49.8	8.68	40 blue-green	C
303	M30	0.350	0.010	0.041	2.040	5.11	0.05	4.57	18.4	8.37	50 mucky	T
304	M50	0.655	0.014	0.048	1.205	8.87	0.05	3.52	31.9	9.53	60 mucky	T
305	K	0.063	0.002	0.021	0.038	1.30	0.09	0.26	116.5	0.57	15 green-beige	C
306	K	0.142	0.003	0.020	0.082	2.07	0.08	0.46	223.0	1.13	10 beige	C
307	K	0.300	0.010	0.050	0.677	5.49	0.13	1.55	165.0	3.56	30 gravel	
308	K	0.091	0.003	0.023	0.109	1.96	0.08	0.63	162.0	1.02	15 beige	C
309	M70+90	0.107	0.003	0.008	0.127	2.05	0.02	0.52	3.8	1.18	100 yellow-green	C
310	K	0.116	0.003	0.042	0.047	2.45	0.17	0.41	167.0	0.82	60 dark beige	C
311	M50+70	0.526	0.004	0.028	0.457	3.84	0.02	1.33	4.8	3.27	80 blue green	C
312	M40-50	0.683	0.008	0.027	0.789	4.79	0.03	2.36	10.0	5.32	60 blue green	C
313	M70-100	0.410	0.004	0.014	0.241	3.74	0.01	1.05	6.1	2.80	> 100	
314	M80-100	0.251	0.004	0.013	0.232	4.92	0.01	1.38	18.1	2.79	> 100	
315	M100 v. soft	0.232	0.004	0.011	0.216	3.82	0.02	0.81	23.7	2.37	> 100	
316	K	0.113	0.002	0.035	0.039	2.08	0.16	0.36	149.0	0.71		
317	K	0.062	0.002	0.019	0.101	1.81	0.08	0.63	180.0	0.81	20 dk. beige	C
318	K	0.093	0.003	0.045	0.153	3.05	0.09	0.92	234.0	0.99	10 dark beige	C
319	M30	0.606	0.005	0.028	0.654	3.20	0.03	1.48	21.5	4.52	50 blue-green	C
320	M30 sticky	1.110	0.012	0.087	2.220	7.79	0.06	3.60	22.8	10.60	50 gray, 60 beige	C
321	M50-90	0.488	0.005	0.013	0.381	4.11	0.01	1.31	13.0	3.53	110 blue-green	C
[322	M60-90	0.398	0.004	0.016	0.573	4.47	0.03	1.09	8.0	3.23	[100 blue-green	C
[323	C100-110	11.800	0.087	0.233	0.912	53.40	0.01	10.95	89.3	34.90	[NM, NF, pure <125 μm, fibrous!	
328	OREAS 47	2.660	0.059	0.068	0.372	22.40	0.02	5.29	205.0	6.56		

C = CLAY, T = SILT, NF = NO FIZZ, NM = NONMAGNETIC
Except 173 all K or M contained no inorganics.

	VA19229922 ME-VEG41 Au ppb		VA19229922 ME-VEG41 Pd ppb		VA19229922 ME-VEG41 Pt ppb		VA19229922 ME-VEG41 Ag ppm		VA19229922 ME-VEG41 As ppm		VA19229922 ME-VEG41 Ni ppm	
Sample	Original	Re-Run	Original	Re-Run	Original	Re-Run	Original	Re-Run	Original	Re-Run	Original	Re-Run
174	8.6	4.1	<1	1	25	5	0.115	0.133	1.16	1.33	2.34	2.38
175	4	3.5	<1	<1	6	2	0.201	0.258	2.75	2.85	13.9	15.1
179	1.9	1.3	<1	1	13	3	0.04	0.048	1.52	1.61	3.17	3.17
180	2.4	2.1	1	<1	3	7	0.068	0.059	2.78	3.14	41.3	49.3
184	4.3	2.9	1	<1	17	6	0.172	0.205	3.51	4.17	3.12	3.6
197	14.2	5.1	1	<1	3	1	0.312	0.281	1.99	1.66	6.26	5.07
198	35.3	17	1	1	31	3	0.376	0.384	3.88	3.63	9.33	8.48
199	40.9	36.9	35	35	20	15	0.09	0.093	8.8	8.52	77.2	73.3
301	13.2	7.4	1	<1	27	4	0.167	0.165	2.15	2.29	3.21	3.1
310	7.7	7.8	1	1	14	4	0.188	0.193	2.59	2.41	3.64	3.37
313	5.4	0.5	1	<1	13	3	0.015	0.017	1.07	1.28	2.73	3.01
319	2.6	0.6	<1	<1	12	2	0.038	0.042	0.83	1.03	2.55	2.73
326	14	NSS	1	NSS	5	NSS	0.147	NSS	3.09	NSS	5.71	NSS
327	5.6	NSS	1	NSS	6	NSS	0.07	NSS	1.91	NSS	10.1	NSS
328	43.1	37	34	34	15	14	0.093	0.094	9.17	8.54	71.6	73.5
329	2	NSS	<1	NSS	7	NSS	0.025	NSS	0.77	NSS	2.19	NSS
331	52.5	18.7	2	1	2	1	0.107	0.109	55.9	54	22.2	22.5

	VA19229922 ME-VEG41 Cu ppm		VA19229922 ME-VEG41 Pb ppm		VA19229922 ME-VEG41 Zn ppm		VA19229922 ME-VEG41 In ppm		VA19229922 ME-VEG41 Se ppm		VA19229922 ME-VEG41 Sn ppm	
Sample	Original	Re-Run	Original	Re-Run	Original	Re-Run	Original	Re-Run	Original	Re-Run	Original	Re-Run
174	57.4	57.4	9.57	11.1	241	227	0.127	0.116	1.705	1.405	0.32	0.3
175	30	32.1	19.15	22.9	61.2	65	0.056	0.054	2.14	1.93	0.35	0.36
179	12.25	12.55	3.91	4.5	12.6	12.9	0.012	0.01	1.125	1.245	0.19	0.17
180	28.5	32.5	10.05	13.1	80.2	89.6	0.03	0.032	0.091	0.09	0.29	0.43
184	29.7	31.9	17.15	22.2	57.4	63.3	0.083	0.088	1.305	1.345	0.42	0.46
197	53.7	43.2	31	24.9	289	273	0.125	0.106	2.64	2.37	0.33	0.29
198	84	76.7	55.4	51.9	153	146.5	0.238	0.242	7.31	7.12	0.89	0.84
199	148	148	257	271	201	202	0.024	0.027	0.089	0.082	0.69	0.86
301	109.5	97.2	17.75	18.05	121.5	113	0.25	0.233	4.21	4.03	0.55	0.56
310	122	112.5	19.45	21	167	158.5	0.236	0.245	5.34	4.69	0.71	0.65
313	5.47	5.8	0.88	0.99	6.1	6.6	<0.005	<0.005	1.355	1.44	0.05	0.06
319	6.83	6.96	2.36	2.68	21.5	22.7	0.005	0.006	1.245	1.155	0.09	0.1
326	44.9	NSS	21.3	NSS	176	NSS	0.088	NSS	1.48	NSS	0.47	NSS
327	25	NSS	10.9	NSS	283	NSS	0.026	NSS	0.501	NSS	0.22	NSS
328	147.5	148	262	277	205	205	0.024	0.028	0.06	0.071	0.77	0.86
329	6.1	NSS	0.59	NSS	24.6	NSS	<0.005	NSS	0.816	NSS	0.03	NSS
331	45.4	43.3	44.6	48.9	227	239	0.046	0.046	1.55	1.415	1.03	1.02

These 17 samples were chosen for high Au or Pt values to be rerun, so values would tend to vary the most. Despite values near their detection limits, anomalies still show.

RERUNS

Results **Activation Laboratories Ltd.** **Report: A19-15558** ULTRATRACE 2 - AQUA REGIA

Analyte Symbol	Li	Be	B	Na	Mg	Al	P	S	K	Ca	V	Cr	Ti	Mn	Fe	Co	Ni	Cu	Zn	Ga
Unit Symbol	ppm	ppm	ppm	%	%	%	%	%	%	%	ppm	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.1	0.1	1	0.001	0.01	0.01	0.001	0.001	0.01	0.01	1	1	0.01	1	0.01	0.1	0.1	0.2	0.1	0.02
Analysis Method	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-ICP	AR-ICP	AR-MS	AR-MS	AR-MS	AR-MS	AR-ICP	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
941 = 178	0.6	< 0.1	4	0.014	0.06	0.10	0.080	0.196	0.07	0.82	3	4	< 0.01	460	0.17	1.1	4.1	99.5	217.0	0.32
942 = 301	0.6	< 0.1	3	0.015	0.07	0.11	0.076	0.154	0.09	0.34	4	5	< 0.01	57	0.21	0.8	4.5	125.0	159.0	0.36
943 = 302	4.5	0.3	6	0.021	0.22	0.88	0.108	0.283	0.09	1.48	12	17	0.02	96	0.50	1.6	6.2	18.2	59.4	2.67
944 = 310	0.5	< 0.1	3	0.016	0.06	0.11	0.079	0.159	0.10	0.32	4	5	< 0.01	147	0.18	0.8	4.4	118.0	180.0	0.38

Analyte Symbol	Ge	As	Se	Rb	Sr	Y	Zr	Sc	Pr	Gd	Dy	Ho	Er	Tm	Nb	Mo	Ag	Cd	In	Sn
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.1	0.1	0.1	0.1	0.5	0.01	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.01	0.002	0.01	0.02	0.05
Analysis Method	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
941 = 178	< 0.1	2.2	1.0	2.3	25.4	0.40	0.3	0.2	0.2	0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	0.22	0.150	1.17	0.23	0.62
942 = 301	< 0.1	2.1	1.2	3.4	21.5	0.46	0.5	0.2	0.2	0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2	0.35	0.148	1.02	0.26	0.73
943 = 302	< 0.1	1.6	0.9	6.3	57.2	3.18	4.6	1.1	1.8	0.8	0.6	< 0.1	0.3	< 0.1	0.9	0.72	0.123	0.80	0.02	0.44
944 = 310	< 0.1	2.2	1.1	3.7	14.8	0.44	0.2	0.3	0.2	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.23	0.171	1.50	0.24	0.44

Analyte Symbol	Sb	Te	Cs	Ba	La	Ce	Nd	Sm	Eu	Tb	Yb	Lu	Hf	Ta	W	Re	Au	Tl	Pb	Bi
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm
Detection Limit	0.02	0.02	0.02	0.5	0.5	0.01	0.02	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.001	0.5	0.02	0.1	0.02
Analysis Method	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
941 = 178	0.57	< 0.02	0.10	45.5	0.8	1.52	0.77	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	0.2	< 0.001	1.2 7.9	0.06	23.2	0.34
942 = 301	0.69	0.03	0.19	33.8	1.0	2.02	0.94	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	0.2	< 0.001	7.3 14.2	0.05	19.4	0.32
943 = 302	0.41	< 0.02	0.92	63.0	9.2	16.20	6.83	1.1	0.2	0.1	0.3	< 0.1	0.1	< 0.05	< 0.1	< 0.001	< 0.5 1.4	0.09	16.0	0.15
944 = 310	0.48	0.03	0.17	36.6	0.9	1.73	0.82	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	0.2	< 0.001	4.0 4.7	0.05	21.9	0.32

Analyte Symbol	Th	U	Hg
Unit Symbol	ppm	ppm	ppb
Detection Limit	0.1	0.1	10
Analysis Method	AR-MS	AR-MS	AR-MS
941 = 178	< 0.1	< 0.1	190
942 = 301	< 0.1	< 0.1	250
943 = 302	0.3	1.6	220
944 = 310	< 0.1	< 0.1	230

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 base metals in such samples I send 2 - 4 g densely packed in a sachet to Actlabs for Ultratrace 2 - aqua regia ICP-OES/MS, but any values for gold thereby are admittedly not reliable for various reasons. Similar vegetation analyses include platinum, which may be worth a try.

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.

[redacted]

DAXL WARK LOG 2019 - 2020

7 July Sampled 152 - 161
8 " Drying
9 " Sieving, plot, label
12 " Sampled 162 - 171
17 " Sieving, shipped.
17 Aug Sampled 173 - 184
18 " Drying, Cleaning.
20 " Sieving, plot, label.
22 " Sampled 185 - 193
23 " Drying
24 " Sieving, plot
25 " Sampling 301 - 312
28 " - " - 313 - 323
29 " Drying, labels, envelopes.
31 " Dry + sieve
1 Sept Evaluate results + errors ACTL.
3 " Correspondence various lab errors ACTL.
4 " Sieve
10 " Lab order, procedures ALS, Ship.
17 OCT Checking ALS results + correspondence
3 Dec. Re-writing ALS list to be user-friendly
12 " Crosschecked results for reruns, etc.
15 " ALS evaluation

23 days FIELD WORK x 400 = $ 9,200

5-7 Feb. Annotating Lab results
8-10 " Replotting + making maps
11-17 " Writing Report, Scan, Finalize

13 days REPORT $ 5,200

LAB INVOICES: A19-09423 $ 890 ACTL. (64 samples x $40)
(excl. HST) 4889699 (48) " 1533 ALS $ 2,523
A19-15558 " 100 ACTL.
PERS. TRANSP. TO FIELD 6 x 40 = 240 Km at 50¢ $ 120
SHIP SAMPLES: $ 40
FIELD SUPPLIES: $ 117

GRAND TOTAL $ 17,200