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# SUPPLEMENTARY REPORT ACOMPANYING:

Heli-GT Three-Axis Magnetic Gradiometer Survey Oba Ontario, Canada Operations and Processing Report

By: SHA GEOPHYSICS LTD.

Dated: December 16, 2020

For: E2GOLD INC.

HAWKINS GOLD PROJECT DERRY, HAWKINS and WALLS TOWNSHIP'S ONTARIO

> By: Dr. Jim Renaud PGO London, Ontario

Robert Dillman PGO Mount Brydges, Ontario

September 28, 2021

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# Appendix

# Survey Maps

Digital Terrain Map Total Magnetic Intensity Total Magnetic Intensity Reduced To Pole Tilt Derivative Angle 1st Vertical Derivative Reduced To Pole 2<sup>nd</sup> Vertical Derivative Reduced To Pole Horizontal Gradient Analytic Signal

# Summary:

This report is a supplement report to provide technical data to accompany the report of a **Heli-GT Three-Axis Magnetic Gradiometer Survey** by SHA GEOPHYSICS LTD. with the purpose of fulfilling assessment requirements.

The helicopter-borne magnetometer survey was completed by SHA GEOPHYSICS LTD. in 7 days between November 24<sup>th</sup>, 2020 to November 30<sup>th</sup>, 2020 and summarized in a report dated December 16, 2020.

The survey was preformed on behalf of E2Gold Inc. over claims held by E2Gold Inc. and Pavey Ark Minerals Inc in Derry, Hawkins and Walls townships in the Oba area, Ontario. At the time of the survey and this report, E2Gold Inc. has an Option Agreement with Pavey Ark Minerals Inc.

The helicopter-borne magnetometer survey was focused on the Hawkins gold trend which follows the Puskuta Deformation Zone and includes the McKinnon Gold Deposit slated at 4.69 Mt @ 1.50 g/t Au. The Puskuta Deformation Zone trends roughly east-west and follows the contact between weakly magnetic tonalite rocks situated to the south and strongly magnetic mafic metavolcanic rocks and iron formation situated to the north. The magnetometer survey depicts the deformation zone as series of subtle east-west trending magnetic highs traceable across the entire survey area. The magnetometer survey also indicates the survey area is crossed by numerous diabase dikes striking northwest to northeast and faulting is prevalent.

A total of 1,139 km of magnetic data was compiled during the survey. The survey was completed on 354 flight lines orientated 0°- 180°, spaced 50 m apart and ranging up to 3.2 km long. Terrain clearance was 30 m. The survey covered a total area of 5,442.36 ha.

The aeromagnetic survey is bounded by UTM coordinates (NAD 83, Zone 16)

Northeast	720950mE, 5431950mN	Line 3540
Southeast	720950mE, 5428900mN	Line 3540
Southwest	703280mE, 5426525mN	Line 10
Northwest	703280mE, 5429550mN	Line 10



The survey area is located 83 km south of the town of Hearst, Ontario (Figure 1).

Figure 1: Survey Location Map

The E2Gold – Pavey Ark Minerals claim block and survey area can be directly accessed by truck by following route 583 and the Caithness logging road system that extends south from the Trans-Canada Highway 11 at Hearst, Ontario. To access the property, at Hearst, Ontario, turn south from highway 11 onto route 583. Approximately 10.5 km south of Hearst on route 583, turn left onto the Caithness Road. At approximately 70 km south on the Caithness Road turn right on the Oba Road for 26.1 km past the junction with Oba South branch road to the main intersection and continue right to the town of Oba.



**Figure 2**: Regional location map illustrating the location of the E2Gold Inc. McKinnon Zone which is approximately the center of the property holdings (modified from Puritch et al., 2020).



Figure 3: Operational claim cells representing the E2Gold Inc. claim holdings.

Claims covered by the aeromagnetic survey held by Pavey Ark Minerals Inc. and E2Gold Inc. are listed below in Table 1. The claims and cell numbers are depicted in Figure 4.

At the time of the survey and this report, E2Gold Inc. has an Option Agreement with Pavey Ark Minerals Inc.

### Table 1. Claim Ownership List

Pavey Ark Minerals Inc. 100 Broadleaf Crescent, Ancaster, Ontario, L9G 3R8

Single Cells 181

175057, 534372, 119637, 128519, 128518, 104365, 337457, 156306, 102324, 258344, 324948, 276375, 231744, 103453, 298415, 158410, 297432, 289229, 104182, 104007, 118469, 230473, 243873, 158320, 177838, 277547, 229799, 296420, 337458, 241982, 229144, 295736, 127859, 221162, 258345, 119091, 327034, 268464, 243960, 147572, 245858, 185344, 104183, 104518, 163714, 534365, 534366, 534367, 183888, 118998, 243874, 277548, 221837, 241983, 229800, 296421, 221163, 336802, 102325, 156307, 222501, 325733, 338112, 176584, 192589, 176179, 119427, 121841, 281139, 243167, 118470, 288422, 119494, 102333, 166359, 233126, 281097, 119375, 269826, 177839, 279182, 156415, 156414, 128476, 119583, 231723, 231722, 298390, 327015, 340738, 277690, 338113, 222502, 278476, 130877, 262340, 215125, 289230, 233162, 277700, 192604, 280536, 104079, 233062, 119317, 120579, 269118, 324955, 288424, 288423, 241312, 271044, 104149, 271043, 159736, 251932, 223696, 268377, 289017, 276989, 289016, 258958, 165001, 231725, 165000, 231724, 119350, 163699, 176585, 192591, 192590, 242285, 250292, 328402, 245859, 160312, 129190, 259653, 324394, 127803, 191194, 258302, 155754, 224441, 279132, 243323, 278367, 119495, 289195, 233127, 269827, 251933, 281072, 261026, 177840, 338837, 336750, 241251, 117577, 102275, 175174, 327675, 118610, 279133, 177269, 129838, 185304, 121299, 295675, 324395, 117578, 102276, 229082, 120580, 338780, 278368, 260953, 279134, 276969, 325046, 337407

Boundary Cells 4 297111, 176599, 278488, 222512

E2Gold Inc.

8 King Street East, Suite 1700 Toronto, Ontario M5C 1B5

Single Cells 10 594028, 594029, 594034, 594035, 594040, 594045, 594050, 593983, 593997, 593993

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# History

The McKinnon Property was initially staked by the late Mr. Donald McKinnon in 1997, based on having similar geological characteristics to the Hemlo gold deposits located 140 km to the southwest. Baltic Resources Inc. (Baltic) acquired the McKinnon Property in 2005 (Baltic Press Release dated July 27, 2005). In conjunction with the acquisition, Boissoneault (2004) completed an NI43-101 Technical Report on the Property known as the "Don McKinnon Property" for Baltic that was filed on SEDAR on February 9, 2005. Canadian Orebodies Inc. became the successor company to Baltic, as the result of the completion of an arrangement with Baltic approved by the Court of the Queen's Bench of Alberta on March 7, 2008. Although several claims have expired and been restaked, Pavey Ark's current McKinnon Property has a similar configuration to the property described by Boissoneault (2004).

The McKinnon Property has been sporadically explored for gold beginning with the discovery of the Taylor Prospect in 1923 in Hawkins Township close to the ACR tracks. A summary of exploration on the McKinnon Property based on the reports by Boissoneault (2004) and Rogers (1987) is provided in Table 2. This table is divided into 3 areas. These include: the eastern part of the McKinnon Property in the vicinity of the Taylor Prospect (on claim 4267268); the central part of the Property in the vicinity of the past-producing Shenango Mine (on claim 1229071); and the western part of the Property in the vicinity of the Goldfield's showing (on claim 4266187). Table 2:

SUMM	ARY OF EXPLORATIO	ON IN HAWKINS TOWNSHIP	
Date	Performed By	Work Performed	Results
Taylor S	Showing		
1925- 1929	G. Taylor	Stripping, trenching, sampling	Uncovered 3 quartz veins, gold panned
1929- 1935	Hawkins Mining Syndicate	Stripping, trenching, 2 x 2,000 lb bulk samples	Uncovered 7 quartz veins, bulk samples 0.16 oz/T and 0.48 oz/T (Rogers 1987)
1935	Hollinger Gold Mines	Prospecting, diamond drilling, 7 holes	Best intersection HO-02 with 4.80 g/t over 4.2 m (Rogers 1987)
1935- 1945	Mintor Gold Mines	Prospecting, channel sampling	No documentation
1960	International Nickel Co.	Diamond drilling	No documentation

SUMM	ARY OF EXPLORATION	ON IN HAWKINS TOWNSHIP	
Date	Performed By	Work Performed	Results
1972- 1974	Magi Gold Mines Ltd.	IP and magnetic surveys, 3 diamond drill holes (907 feet)	Large chargeability anomaly, minor finely disseminated sulphides
1979- 1980	St. Josephs Exploration Ltd.	Bedrock stripping, geological mapping, Magnetometer, VLF, HLEM surveys	5 VLF anomalies, very weak HLEM anomalies
1980- 1981	Sulpetro Minerals Ltd.	Geological mapping, surface sampling	Encouraging assay values, highest value 20.91 g/t Au (no width reported)
1983- 1986	Falconbridge Limited	Geochemical & geophysical surveys (IP, mag), trenching, diamond drilling (79 holes for 14,200 m)	Defined auriferous shear zone with values of 0.5 to 4.0 g/t Au over 4 to 30 m widths
1999- 2004	Don McKinnon, Baltic Resources	Trenching, stripping, ground geophysics, diamond drilling (1 hole, 217 m)	Exposed wide alteration zone
2017	Sunvest Minerals	Compile (reprocess?) historic IP data over the McKinnon deposit; 13 diamond drill holes for 1624 m	Verified typical historic grades for the Taylor showing of the McKinnon deposit (e.g. best result: hole HW-17-13 with 16.0 m grading 1.72 g/t Au)
Past Pro	oducing Shenango Mine		
1935- 1937	Shenango Mining Co.	Trenching (1,000 ft.), channel sampling, exploration shaft (52 ft. deep), adit (90 ft.), open cut mining, diamond drilling (2,500 ft.)	Assays average 0.140 oz./T over 5 ft. wide and 400 ft. of strike length
1937- 1941	Shenango Mining Co.	Diamond drilling (400 ft.), trenching, production shaft (135 ft.)	Reported underground assay results: 0.14 oz./T over 30 ft., 0.18 oz./T over 20 ft. 0.22 oz./T over 15 ft. 0.17 oz./ton over 8 ft.
1945	Shenango Mining Co.	Clean up operation at mill	Recovery of 35.87 oz of gold and 5 oz of silver
1979- 1981	St. Josephs Exploration Ltd.	Ground geophysics including I.P., geological mapping and sampling	Samples taken from muck pile returned assays of 7.54 g/t, 6.69 g/t, 52.4 g/t Au
1983- 1986	Falconbridge Limited	Geochemical and geophysical survey (IP), trenching, diamond drilling	Defined auriferous shear zone with values of 0.5 to 4.0 g/t Au over 4 to 30 m widths

2000- 2004	Don McKinnon	Ground geophysics, stripping, trenching, Diamond drilling (2 holes; 214 m)	Exposed wide alteration zone
Western	h Hawkins township		
1939	Johnstone and Barnes	Trenching, sampling	Gold showing discovered, assay of 0.24 oz./T over 35 ft. reported, no other documentation
1975	Rio Tinto Canadian	Ground geophysics, diamond drilling (2 holes; 902 ft.)	No available results
1986	Hawk Resources	Ground geophysics, geochemistry, diamond drilling (20 holes; 6151 ft.)	South of McKinnon Property, results discouraging
1986- 1989	Goldfields Canadian Mining Ltd.	Geology, sampling, diamond drilling (13 holes; 1,780 ft.)	Exploration continued and reported by Aurlot Exploration Ltd. below
1989	Aurlot Exploration Ltd.	Geology, sampling, geochemistry, airborne geophysics, stripping, trenching, IP	Channel samples of 1.31 oz./T over 3 ft., 0.74 oz./T over 5 ft., 0.42 oz./T over 2 ft., 0.40 oz./T over 2 ft., 0.21 oz./T over5 ft., 0.11 oz./T over 2 ft.
2004- 2007	Baltic Resources	Geological mapping, bedrock stripping, geophysics (mag, VLF), diamond drilling (13 holes, 1,624 m)	Identified occurrences of pyritic sericitic felsite in amphibolite; disappointing channel and drill core results
2013	Canadian Orebodies Inc.	Conducted gold plus trace element study of over 600 samples of Falconbridge core	Confirmed the presence of Au in the core; samples with hole information but lack meterage information

# **Regional Geology**

The Hawkins gold project is in the Kabinakagami greenstone belt of the Wawa subprovince, which consists primarily of mafic metavolcanic rocks with lesser amounts of felsic metavolcanic and metasedimentary rocks (Siragusa, 1977; Wilson, 1993; Williams et al., 1991, Figure 6). The project is situated about 40 km west of the Kapuskasing structural zone (KSZ). The KSZ is the west dipping thrust complex that exposes granulite facies metamorphic rocks and separates the Wawa and Abitibi subprovinces of the Archean Superior Province. The Kabinakagami greenstone belt (ca. 2.7 – 2.0 Ga) has a broad arcuate form, concave to the south, spans ca. 100 km east-west and 50 km north-south. The greenstone belt is limited to the south by intrusive suites of massive to foliated granodiorite to gneissic tonalite. Metasedimentary inclusions in gneisses to the north of the greenstone belt express the paragneissic character of felsic gneisses to the north. Younger massive to foliated, granodiorite to granite (2.69-2.6 Ga) intrude the greenstone belt, flanking gneisses and older intrusions, and include the Strickland pluton (OGS, 2011). The Hawkins gold project claims extend eastward over mainly Kabinakagami greenstone belt lithologies from the Strickland pluton and the north end of Kabinakagami Lake (Figure 6).





The Puskuta Deformation Zone is a steeply dipping dextral, transcurrent deformation zone that trends to the southeast through Walls, Minnipuka and Puskuta townships along the south side of the eastern Kabinakagami Lake greenstone belt (Leclair and Sullivan, 1991). Wilson (1993) linked west-trending strain and dextral motion at the historic Taylor showing in eastern Hawkins township to the Puskuta Deformation Zone. The belt of highly strained rocks continues west across the Shenango and Langdon showings and then to the west-southwest as the Langdon Lake shear zone (Wilson, 1993).

The combined Langdon Lake and Puskuta Deformation Zone is approximately 60 km long, is truncated by the KSZ and has been linked with the Porcupine-Destor shear zone in the Abitibi subprovince (Leclair et al., 1993). The historic Hiawatha mine and other gold showings in southern Kabinakagami Lake are within the broad (1-2 km) southwest-trending Bear Creek Deformation Zone that is a splay from the Langdon Lake Shear Zone (Wilson, 1993; Leclair et al., 1993). The similarly trending brittle Bear Creek fault zone (Siragusa, 1977) lies within the broader high strain zone. U-Pb titanite ages of 2,665 Ma and 2,642 Ma for mylonite in Minnipuka township indicate late Archean deformation in the Puskuta Deformation Zone (Leclair and Sullivan, 1991).

The Wawa and Abitibi subprovinces are intruded by Early Proterozoic Hearst-Matachewan diabase dikes (ca. 2.45 Ga; Heaman, 1988; Hanes et al., 1994; Halls et al., 1994). The widespread injections produce prominent km-long linear aeromagnetic highs that are mainly northwest trending, becoming slightly more north trending toward the east, across the Kapuskasing structural zone (KSZ) into the Abitibi subprovince. The Hearst-Matachewan dike swarm includes more widely spaced NE trending aeromagnetic anomalies. NE-trending anomalies are more continuous and evident where they coincide with the similar trending Kabinakagami greenstone belt.

In addition to NW and NE trending linear magnetic anomalies and mafic dikes, a very strong ENE-trending magnetic high anomaly roughly coincides with the Bear Creek shear zone and core of the Kabinakagami greenstone belt in the southwest. The magnetic anomaly swings to the east and is bulbous in form by the north end of the Kabinakagami Lake. A similarly strong and narrower linear magnetic anomaly trends from the margin of the Strickland pluton to the ESE in Derry township, apparently coincident with the north side of the Kabinakagami greenstone belt. The linear anomaly becomes east trending and parallels the continuation of the Kabinakagami Lake mag high to the east across Hawkins Township. The northern anomaly swings slightly to the south and the two anomalies

converge east of the McKinnon deposit along with a NE-trending linear anomaly. The Kabinakagami greenstone belt is cored in Minnipuka township by a strongly magnetic ovoid/granitoid intrusion with the now-merged single linear anomaly along the south edge. The narrow belt of greenstone and mag high end abruptly to the southeast of the ovoid. A similarly intense linear anomaly on the north side of the magnetic ovoid continues for 40 km to the southeast.

#### **Property Geology**

The Hawkins gold project covers the northern belt of Kabinakagami greenstone belt amphibolite (Figure 7). The greenstone belt is derived from metamorphosed mafic volcanic rocks, locally with pillow textures (Siragusa, 1977; Wilson, 1993; Pietrzak-Renaud and Renaud, 2020), includes a minor component of metasedimentary and felsic metavolcanic rocks and is broadly enclosed by felsic orthogneiss and paragneiss. These Archean lithologies are intruded by younger intermediate to felsic (porphyry, aplite, pegmatite) dikes and sills. Early Proterozoic diabase dikes cut the Archean rocks.

Northeast and ESE trending belts of amphibolite converge near the north end of Kabinakagami Lake and then diverge eastward into two parallel east trending amphibolite belts (ca. 1.5 km wide) across Hawkins township that are separated by the ca. 2 km wide lens of orthogneiss derived mainly from tonalite and granodiorite. Both amphibolite and felsic gneisses exhibit strong penetrative, eastwest trending metamorphic (gneissose to schistose) fabrics. Foliation parallel felsite (unseparated fine-grained to porphyritic felsic to intermediate dikes and sills) becomes increasingly common in tonalite northward across the amphibolite/tonalite contact zone. Decimeter-scale bands of felsite and tonalite occur in amphibolite northward of the contact. Similarly, decimeter wide green bands of amphibolite occur with deformed tonalite and felsite south of the contact. Medium- to coarse-grained tonalite becomes finer-grained northward and the metamorphic foliation becomes more closely spaced as the contact zone with amphibolite is approached from the south. Cleavage is typically weak in both amphibolite and tonalite except in narrow, schistose zones that parallel the dominant foliation in the contact zone. Metamorphic fabrics parallel lithologic contacts between amphibolite, tonalite and various felsite in the contact zone. The amphibolite/tonalite contact trends gradually toward to the southwest, westward across Hawkins township, before reversing direction to define the southern belt of amphibolite south of the tonalite.



The McKinnon deposit is hosted by highly strained felsic lithologies in the contact zone of the northern amphibolite belt against tonalitic gneisses to the south. The EW linear magnetic anomaly and northern belt of amphibolite are considered to lie within the Puskuta deformation zone (Wilson, 1993). The highly strained contact zone hosting the McKinnon deposit places the deposit and 2020 exploration by E2Gold in Hawkins township within the Puskuta deformation zone.

# **Specifications of Aeromagnetic Survey**

For detailed specifications on equipment, control and operational procedure refer to the accompanying report:

Heli-GT Three-Axis Magnetic Gradiometer Survey Oba, Ontario, Canada Operations and Processing Report By: SHA GEOPHYSICS LTD. Dated: December 16, 2020 For: E2GOLD INC.

In summary, the helicopter aeromagnetic survey was completed by SHA GEOPHYSICS LTD. in 7 days between November 24<sup>th</sup>, 2020 to November 30<sup>th</sup>, 2020 and summarized in a report dated December 16, 2020. This report accompanies the report by SHA GEOPHYSIS LTD. for this assessment submission.

The bulk of the area surveyed lies within Hawkins township. The surveyed area extends east into Walls township and west into Derry township.

A total of 1,139 km of magnetic data was compiled during the survey. Data was collected along 354 flight lines orientated 0<sup>o</sup>- 180<sup>o</sup>, spaced 50 m apart and ranging up to 3.2 km long. Terrain clearance was 30 m. The survey covered a total area of 5442.36 ha.

The survey was preformed on behalf of E2Gold Inc. over claims held by E2Gold Inc. and Pavey Ark Minerals Inc. Claims held by Pavey Ark Minerals Inc. account for 70.8% of the surveyed area and E2Gold claims account for 2.3% of the surveyed area. Claims held by others total 26.9% of the surveyed area. The survey is bounded by UTM coordinates (NAD 83, Zone 16n)

Northwest	703280mE, 5429550mN	Line 10
Southwest	703280mE, 5426525mN	Line 10
	708130mE, 5426630mN	Line 980
	709730mE, 5427740mN	Line 1300
	710900mE, 5428100mN	Line 1530
Southeast	720935mE, 5428900mN	Line 3540
Northeast	720950mE, 5431930mN	Line 3540
	710590mE, 5431130mN	Line 1470
	708340mE, 5430080mN	Line 1020
	706540mE, 5429630mN	Line 660

Data collected by the survey is presented at a scale of 1 : 20,000 on the following maps included with this submission:

Oba_GT_DTM	Digital Terrain Map
Oba_GT_TMI	Total Magnetic Intensity
Oba_GT_TMIRTP	Total Magnetic Intensity Reduced To Pole
Oba_GT_TDrv	Tilt Derivative Angle
Oba_GT_CVGRTP	1st Vertical Derivative Reduced To Pole
Oba_GT_2CVGRTP	2 <sup>nd</sup> Vertical Derivative Reduced To Pole
Oba_GT_HGrad	Horizontal Gradient
Oba_GT_ANS	Analytic Signal

#### **Survey Results**

The aeromagnetic survey was flown over mafic metavolcanic rocks consisting of amphibolite and felsic intrusive rocks consisting of tonalite. In this section of the property, the Puskuta Deformation Zone occurs near the amphibolite/tonalite contact. The gold occurrences in the vicinity of the McKinnon Gold Deposit are spatially associated with the shear zone and the amphibolite/ tonalite contact.

Total Magnetic Intensity data reveals a series of linear high intensity magnetic features trending on average, 80<sup>o</sup> across the north section of the survey area. These strong magnetic features, ranging +56,250 nT, are believed to be iron formation units within the mafic metavolcanic sequence. Previous interpretations suggest the Puskuta Deformation Zone cuts amphibolite rocks situated on the south side of these magnetic features. The recent magnetic survey shows the sheared amphibolite as a board area of moderate magnetic intensity ranging +56,900 nT which measures approximately 600 m wide in the central and east sections of the survey and widening significantly to the west. Recent geological work by E2Gold Inc. has found shearing along the amphibolite/tonalite contact. The tonalite unit situated in the south section of the area surveyed is represented by a broad area of low magnetics ranging less than 56,900 nT. The amphibolite/tonalite contact is evident by the abrupt change of low to moderate intensity magnetics. In the southwest section, the magnetics suggest the amphibolite/tonalite contact swings to the southwest and is possibly truncated by a NW trending fault. The Puskuta Deformation Zone in this area is believed to continue west and does not follow the amphibole/tonalite contact.

The entire survey area is crossed by numerous diabase dikes represented by strong magnetic linear features trending northwest and northeast. The magnetic survey suggests the NE-trending diabase dikes and some of the NW-trending dikes in the southwest section of the survey are displaced by faulting. Northeast trending dikes appear to be offset by E-W orientated breaks possibly associate with the Puskuta Deformation Zone. In addition to these faults, dikes in the southwest section where faulting appears more pervasive are offset by breaks orientated NE-SW and NW-SE. Faulting in the northeast direction maybe extensions of faults associated with the Bear Creek Deformation Zone which potentially merges with the Puskuta Deformation Zone in the southwest section of the area surveyed.



# **Conclusions and Recommendations**

The gold occurrences in the survey area are spatially associated with the Puskuta Deformation Zone and the contact between amphibolite and tonalite intrusive rocks. The magnetic survey has delineated this trend as an east – west striking zone of moderate magnetic intensity measuring at least 600 metres wide and possibly widens towards the west where it is believed to move away from the tonalite contact and is obscured by faults possibly associated with extensions of the Bear Creek Deformation Zone.

Based on the results of this survey, additional work is warranted. Prospecting along the trend between the known gold occurrences is recommended. Prospecting in the southwest section of the survey area to identify faults associated with the Bear Creek Deformation Zone is encouraged since these faults have the potential to be gold-bearing structures. Additional airborne geophysics such as mag and EM over areas west of this survey is recommended also with the purpose of further delineating the Puskuta Deformation Zone. The estimated cost of such work is estimated to be \$425,000.

Budget

Prospecting	\$175,000
Airborne geophysics	<u>\$250,000</u>
	\$425,000

Respectfully submitted,

PGO

Robert Dillman

and,



Jim Renaud PGO Dated: September 28, 2021

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#### Dr. Jim A. Renaud, P.Geo, Ph.D Renaud Geological Consulting Ltd. 21272 Denfield Rd, London, Ontario, Canada, N6H 5L2 renaudgeological@execulink.com

#### **CERIFICATE of AUTHOR**

I, Jim A. Renaud, Professional Geologist, do certify that:

1. I am the President and the holder of a Certificate of Authorization for:

#### Renaud Geological Consulting Ltd. 21272 Denfield Rd London, Ontario, Canada, N6H 5L2

- 2. I am President and CEO of Renaud Geological Consulting Ltd.;
- 3. That I have the degree of Bachelor of Science (Chemistry and Geology), 1999, from Western University; the degree of Honors Standing in Geology, 2000, from Western University; Masters of Science (Economic Geology), 2003, from Western University; and Doctor of Philosophy in Geology, 2014, from Western University;
- 4. I am an active member of: Association of Professional Geoscientists of Ontario, APGO, #2211
- 5. I have been a licensed Prospector in Ontario since 2000;
- 6. I have worked continuously as a Geologist for 18 years;
- 7. That I am a joint author of this report;
- 8. That I am jointly responsible for all sections of the Technical Report;
- 9. That I visited the property claims on the dates specified in this report;
- 10. That, as of the date of this certificate, to the best of my knowledge, information and belief, the report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading;
- 11. I hereby consent to the filing of the report
- Dated at London, Ontario, Canada This 28<sup>th</sup> day of September, 2021 Jim A. Renaud, Ph.D., P.Geo.

Date: September 28, 2021

#### Robert J. Dillman P.Geo, B.Sc. ARJADEE PROSPECTING 8901 Reily Drive, Mount Brydges, Ontario, Canada, N0L1W0 Phone/ fax (519) 264-9278

#### **CERIFICATE of AUTHOR**

I, Robert J. Dillman, Professional Geologist, do certify that:

1. I am the **President** and the holder of a **Certificate of Authorization** for:

ARJADEE PROSPECTING 8901 Reily Drive Mount Brydges, Ontario, Canada N0L1W0

- 2. I graduated in 1991 with a **Bachelor of Science Degree** in **Geology** at the **University of Western Ontario.**
- 3. I have worked continuously as a **Professional Geologist** for 30 years.
- 4. I have been a **licensed Prospector in Ontario** since 1985.
- 5. I am an active member of:

Association of Professional Geoscientists of Ontario, APGO Prospectors and Developers Association of Canada, PDAC

6. I am a joint author of this report titled:

SUPPLEMENTARY REPORT ACOMPANYING: Heli-GT Three-Axis Magnetic Gradiometer Survey Oba, Ontario, Canada Operations and Processing Report By: SHA GEOPHYSICS LTD. Dated: December 16, 2020 For: E2GOLD INC. HAWKINS GOLD PROJECT: DERRY, HAWKINS and WALLS TOWNSHIP'S, ONTARIO dated, September 28, 2021

7. I am jointly responsible for all sections of the Technical Report.

8. I am not aware of any material fact or material change with respect to the subject matter of the Assessment Report that is not contained in the Assessment Report and its omission to disclose makes the Assessment Report misleading.

Dated this 28th day of September, 2021

P.Geo

Robert James Dillman Arjadee Prospecting



# Appendix

# Survey Maps

Digital Terrain Map Total Magnetic Intensity Total Magnetic Intensity Reduced To Pole Tilt Derivative Angle 1st Vertical Derivative Reduced To Pole 2<sup>nd</sup> Vertical Derivative Reduced To Pole Horizontal Gradient Analytic Signal















# E2Gold Inc.

# Heli-GT Three-Axis Magnetic Gradiometer Survey

Oba Ontario, Canada

# **Operations and Processing Report**





# SHA GEOPHYSICS LTD

December 16 2020

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### **1 INTRODUCTION**

In November, 2020 E2Gold Inc. contracted SHA Geophysics Ltd. (SHA) to carry out a Heli-GT helicopter-towed, three-axis magnetic gradiometer survey over an area of interest near Oba, Ontario, Canada. Equipment and crew mobilized to the area on Tuesday, November 24<sup>th</sup>, 2020 and during the period November 26<sup>th</sup> to November 30<sup>th</sup>, 2020 a total of 1139 km of data was collected. Details of the airborne survey and compilation are documented in this report.

# 2 LOCATION

The survey block was located approximately eight kilometers south of the community of Oba, Ontario. See Figure 1 below.



Figure 1 - Location Map.

### **3 AIRBORNE SURVEY**

The survey was based out of a logging camp owned by Kenogami Lake Lumber Ltd. in the town of Oba, Ontario. The camp was located approximately 8km north of the survey block and was accessible by logging road from Hearst, Ontario, which is located approximately 77km to the north-northeast. Crew and equipment mobilized to the base of operations on Tuesday, November 24<sup>th</sup>, 2020. Surveying was conducted during the period November 26<sup>th</sup> to November 30<sup>th</sup>, 2020. The following table summarizes flight specifications of the two blocks.

#### 3.1 Flight Specifications

0° – 180°
50 m
Variable
~1300m
30m
1139km

#### 3.2 Helicopter

Helicopter Owner / Operator Helicopter Model Helicopter Registration

Expedition Helicopters, Cochrane, Ontario A-Star 350D C-GXIJ

#### 3.3 Personnel

The following personnel were involved in the survey:

#### Field

Technical Operations Manager Pilot Frazer Hogg Nick Greenfield

#### <u>Office</u>

Compilation and Reporting Project Management Steve Munro Scott Hogg

# 4 GEOPHYSICAL SYSTEM

The airborne geophysical Heli-GT system consists of a towed bird that contains all of the geophysical sensors as well as altimeter and GPS antennae. A computer based recording and navigation system is located in the helicopter.



Figure 2 – The Heli-GT bird is towed 25 m below the helicopter. The basic orthogonal magnetic gradients G1, G2 and G3 are measured on 3 metre baselines. A radar altimeter and 4 GPS antennae are mounted on the towed bird. In the helicopter a touch screen computer tablet logs the data and directs navigation.

#### 4.1 Bird

All of the geophysical and ancillary equipment is housed in a towed bird designed by SHA Geophysics Ltd. The bird is manufactured from non-magnetic FRP and breaks down for ease of transportation.

#### 4.2 Magnetic sensors

Four Scintrex CS-3 cesium sensors are arranged in an orthogonal array with 3 m sensor separation from the nose sensor to those at the end of each arm. The output from each sensor was processed by a KVS KMAG4 unit to resolve the magnetometer output to a resolution of about 0.005 nT at a rate of ten samples per second. The Heli-GT bird was flown at a nominal altitude of 30m.

#### 4.3 Radar Altimeter

A Terra TRA 3500 / TR 140 radar altimeter was used to measure bird height above ground. The range of operation was from 0 to 2500 ft.

#### 4.4 Fluxgate Magnetometer

A Billingsley TFM100G2 3-axis fluxgate magnetometer was used to record the orientation of the bird with respect to the earth's magnetic field. The range of each component of the fluxgate was +/- 100,000 nT.

#### 4.5 Analog to Digital ADC

The analog output of the radar altimeter and fluxgate magnetometer were digitized with a KVS KANA8 eight-channel differential ADC. The device provides 24 bit resolution and was operated at 10 Hz.

#### 4.6 GPS System

GPS positional information was recorded using an array of four 12-channel receivers mounted on the Heli-GT bird. In addition to the measurement of Latitude, Longitude and Altitude a calculation of bird pitch, roll and yaw was calculated from differences between antennae with an accuracy better than 1 degree.

#### 4.7 Navigation and Recording System

The navigation and recording system used was the DAQNAV, developed by SHA Geophysics. Both navigation and data recording are carried out using a tablet computer mounted in the helicopter cockpit. The tablet's touch screen provides an operator with an interface for monitoring the geophysical and ancillary instrumentation, as well as presenting graphic navigation information for the pilot.

The PPS pulse from the GPS system was recorded and tied to each of the sensors with an accuracy of about +/- 0.05 seconds.

Data recorded included the following:

Magnetic sensors:	10 Hz
Fluxgate sensors:	10 Hz
Radar Altimeter:	10 Hz
GPS X / Y / Z:	5 Hz
GPS Pitch / roll / yaw:	5 Hz

#### 4.8 Base Station

A magnetic and GPS base station was established at the base of operations. A GEM SSM19TW proton magnetometer recorded the diurnal magnetic variation at 1 Hz with a resolution of 0.1 nT. A Ublox EVK-M8 GPS receiver provided a GPS time reference and recorded a differential correction file.

# 5 DATA COMPILATION

#### 5.1 Basic Processing

The data collected during flight, in the air and from the base station, was aligned with reference to GPS time. Each of the four magnetometer channels was compensated to remove magnetic error associated with bird orientation. The basic magnetic gradients; G1, G2 and G3, measured from the nose sensor (mag4) to each of the radial sensors (mag1, mag2 and mag3) were calculated. Any noise spikes, if present, were identified and removed.

A low-pass filter was applied to the base station data to eliminate short wavelength artifacts. A median value was removed from the base station profile to create a diurnal correction profile, which was subtracted from the compensated mag4 profile. The base station corrected total field profile was stored as *mag\_diur*.

A short lag (0.075 seconds) was applied to the diurnally corrected data. The lagged profile was stored as *mag\_lag*.

### 5.2 Gradient Processing

The recorded pitch, roll and yaw of the bird were used to mathematically rotate the measured basic gradients to true G-north, G-east and G-down.

The GPS altitude of the bird was used to calculate a smooth drape surface. This is a smooth theoretical surface above the terrain that the bird would follow under ideal conditions. There would be only smooth altitude changes, line to line and along the flight line. The difference between the GPS altitude of this smooth drape surface and the actual GPS altitude of the bird was combined with the measured vertical gradient to calculate an altitude correction. The altitude correction was applied to mag\_lag and the resulting profile was stored as mag\_alt\_cor.

#### 5.3 Magnetic Levelling

The channel *mag\_alt\_cor* was used as input to the control line levelling process.

The intersections between traverse and control lines were calculated and the differences between the magnetic values were measured. Ignoring unreliable differences in locations of steep magnetic gradient, a correction was calculated to eliminate the measured differences at the intersections. This correction profile was a piecewise linear function between intersections. The control line leveled magnetic profile was stored as *mag\_TL\_lev*. A final microlevel correction was calculated and applied. The final data channel was stored as *mag\_fin*.

# 5.4 Gradient Tensor Gridding (GT-GRID)

GT-Grid is a proprietary gridding program developed by SHA Geophysics that uses total magnetic field data as well as the measured horizontal gradient data to produce a total magnetic field grid. The total magnetic field grid produced by GT-Grid is a fully conformal process that simultaneously honours the total field as well as the measured horizontal gradient profile data.

The final, leveled total field magnetic channel (m*ag\_fin*) and the G-east (*Ge*) and G-north (*Gn*) gradient channels, were used by the GT-GRID process to calculate a total field magnetic grid.

### 5.5 Pole Reduction

The anomaly shape associated with a vertically dipping magnetic source varies with the inclination of the earth's magnetic field. At the north and south magnetic pole, the inclination is vertical and the anomaly is positive, symmetrical and centered directly over the source. At the equator, with a horizontal inducing field, the anomaly is negative, symmetrical and centered directly over the source. Between 0 and 90 degrees of inclination the anomaly is asymmetric, with a positive and negative component, and is not centered over the source. The pole reduction process reshapes the anomaly measured at intermediate inclinations to resemble the shape that would have been measured at vertical inclination. Thus a steeply dipping source, without remanent magnetization, would be transformed to a simple positive peak above the source. A pole-reduced TMI grid was calculated.

### 5.6 First and Second Vertical Magnetic Gradient

The vertical gradient accentuates shorter wavelengths and attenuates longer wavelengths. As a result, the map enhances the anomalies associated with small nearsurface magnetic sources while suppressing large-scale regional variations. The vertical gradient presentation provides added visual detail, particularly for small anomalies superimposed on or adjacent to larger anomalies.

The measured or calculated vertical magnetic gradients are also sensitive to the inclination of the earth's magnetic field. In the same manner as the total field, the asymmetry and peak displacement, arising from an inclined field, is removed by the pole reduction process. The horizontal width of the vertical gradient anomaly is about one half of that of the total field anomaly. If the width of the magnetic source is significant, greater than the sensor height above the source, the zero contour of the pole reduced vertical gradient reflects the location of the magnetic contact and the response peak will lie directly above a steeply dipping source.

Using an FFT filter, a pole-reduced first and second vertical derivative grid was created.

#### 5.7 Horizontal Gradient

This is the scalar amplitude of the horizontal gradient vector, calculated from the total magnetic field GT-Grid. The horizontal gradient grid is useful for highlighting geological contacts.

 $HGrad = ((dB/dx)^{2} + (dB/dy)^{2})^{\frac{1}{2}}$ 

#### 5.8 Analytic Signal

The analytic signal grid presents the scalar magnitude of the full magnetic gradient vector. The analytic signal reflects proximity to the magnetic source, independent of source dip, magnetic field inclination or remanent magnetization.

ANS = 
$$((dB/dx)^2 + (dB/dy)^2 + (dB/dz)^2)^{\frac{1}{2}}$$

#### 5.9 Tilt Derivative Angle

The tilt angle of the magnetic derivative is calculated in radians.

TDR = tan-1  $[dB/dz / ( (dB/dx)^2 + (dB/dx)^2 )^{\frac{1}{2}}]$ 

The tilt angle is independent of magnetization and helps emphasize weak anomalies.

#### 5.10 Digital Terrain Model

The digital terrain model was calculated by subtracting the radar altimeter profile from the GPS altitude. Errors in GPS altitude were corrected by microlevelling. The digital terrain was gridded for each survey block using a bi-directional Akima interpolation.

# 6 DIGITAL DATA ARCHIVE

All of the maps, grids and profile data have been provided in digital form.

#### 6.1 Profile Data

The profile data for each survey block is provided in Geosoft "gdb" format, includign the following channels.

Channel	Units	Content	
gpstime seconds		GPS time	
Х	metres	UTM easting NAD83, Zone 16n	
Υ	metres	UTM northing NAD83, Zone 16n	
lon	degrees	GPS Longitude WGS84	
lat	degrees	GPS Latitude WGS84	
gpsalt	metres	GPS altitude NAD83	
radalt	metres	radar altimeter (bird height)	
DTM	Metres	levelled Digital Terrain elevation	
fx	nT	Fluxgate axis x (forward)	
fy	nT	Fluxgate axis y (port)	
fz	nT	Fluxgate axis z (up)	
heading	degrees	Bird heading	
pitch	degrees	Bird pitch	
roll	degrees	Bird roll	
basemag	nT	Filtered base station magnetometer	
mag1_raw	nT	Raw upper port magnetometer	
mag2_raw	nT	Raw down magnetometer	
mag3_raw	nT	Raw upper starboard magnetometer	
mag4_raw	nT	Raw nose magnetometer	
mag1_comp	nT	Compensated upper port magnetometer	
mag2_comp	nT	Compensated down magnetometer	
mag3_comp	nT	Compensated upper starboard magnetometer	
mag4_comp	nT	Compensated nose magnetometer	
G1	nT/m	Magnetic gradient: mag4 to mag1	
G2	nT/m	Magnetic gradient: mag4 to mag2	
G3	nT/m	Magnetic gradient: mag4 to mag3	
mag_diur	nT	Base station corrected mag (applied to mag4)	
mag_lag	nT	Lagged mag	
mag_alt_cor	nT	Altitude-corrected mag	
mag_TL_lev	nT	Tie line network leveled mag	
mag_fin	nT	Final microlevelled mag	
Ge	nT/m	Measured magnetic East gradient	
Gn	nT/m	Measured magnetic North gradient	
Gv	nT/m	Measured magnetic Vertical gradient	

#### 6.2 Gridded Data

The grids, projected in NAD83 UTM Zone 16n coordinates, are in Geosoft format. The cell size is 10 metres. The following is a description of the grid set provided.

Grid Name	Units	Description
Oba_DTM	metres	Levelled digital terrain model
Oba_GT-TMI	nT	Total magnetic field GT-Grid
Oba_GT-TMIRTP	nT	Total magnetic field GT-Grid, reduced to pole
Oba_GT-CVGRTP	nT/m	Calculated vertical derivative GT-Grid reduced to pole
Oba_GT-2VGRTP	nT/m <sup>2</sup>	Second vertical derivative GT-Grid reduced to pole
Oba_GT-HGrad	nT/m	Total horizontal magnetic gradient
Oba_GT-ANS	nT/m	Analytic Signal
Oba_GT-Tdr	radians	Tilt derivative angle.

GeoTIFF image files (with pixel size of 2m) are also included for each grid type.

#### 6.3 Map Files

Geosoft format maps for each of the grid types have been prepared. The maps are presented at a scale of 1:20,000, in a NAD83, UTM Zone 16n projection.

Map Name	Units	Description
Oba_DTM	metres	Levelled digital terrain model
Oba_GT-TMI	nT	Total magnetic field GT-Grid
Oba_GT-TMIRTP	nT	Total magnetic field GT-Grid, reduced to pole
Oba_GT-CVGRTP	nT/m	Calculated vertical derivative GT-Grid reduced to pole
Oba_GT-2VGRTP	nT/m <sup>2</sup>	Second vertical derivative GT-Grid reduced to pole
Oba_GT-HGrad	nT/m	Total horizontal magnetic gradient
Oba_GT-ANS	nT/m	Analytic Signal
Oba_GT-TDR	Radians	Tilt derivative angle.

Corresponding sets of JPEG and PDF images (at a resolution of 200 dpi) are also included.

Respectfully submitted,

Steve Munro, P.Geo (limited) Chief Geophysicist SHA Geophysics Ltd. Toronto, Canada December 16, 2020



Scott Hogg, P.Eng President SHA Geophysics Ltd. Toronto, Canada December 16, 2020