Pahtohavare Copper-Gold Strengths, Opportunities & Targets

JULY 2013

HANNANS

Hannans Reward Ltd
ASX: HNR
ABN: 52 099 862 129

Strengths, Opportunities & Targets

Strengths & Opportunities

- Proven high grade copper-gold mineralisation at surface and depth
- Underground development in place at Southern and South-Eastern
- Previously mined industrial site
- Area of National Interest for Mining
- Identification of significant quantity of high grade copper-gold mineralisation at depth at Central
- Potential to increase scope of oxide mineralisation at Central
- Potential to process high grade oxide copper mineralisation close to surface (from surface to ~100m)
- Confirmation of ore grade mineralisation beneath Southern
- Mining of existing copper-gold mineralisation at South-Eastern

Targets

Geophysical Targets

- Untested geophysical anomalies including fixed-loop EM and slingram anomalies
- Refer slide 19

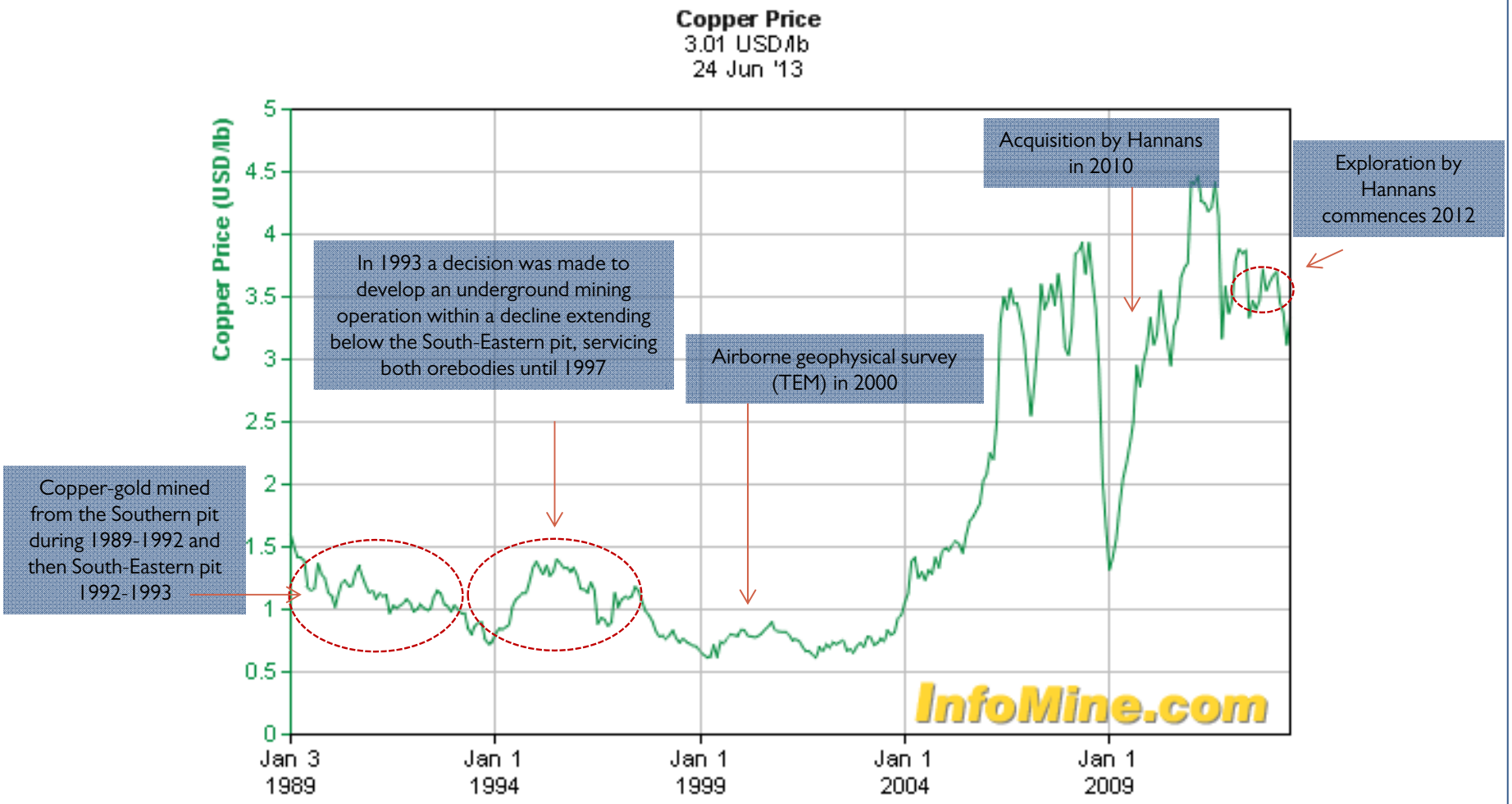
Geochemical Targets

- Untested geochemical anomalies; namely historic bottom-till anomalies
- Refer slide 20

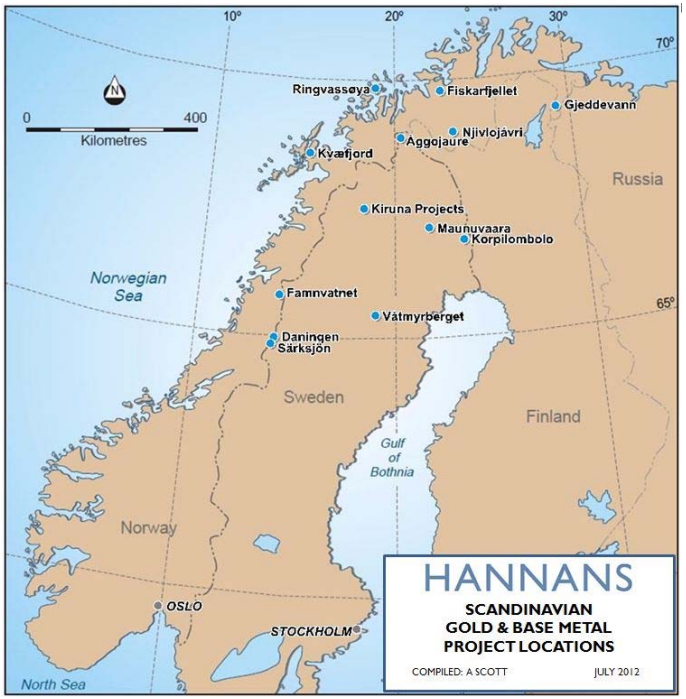
Geological Targets

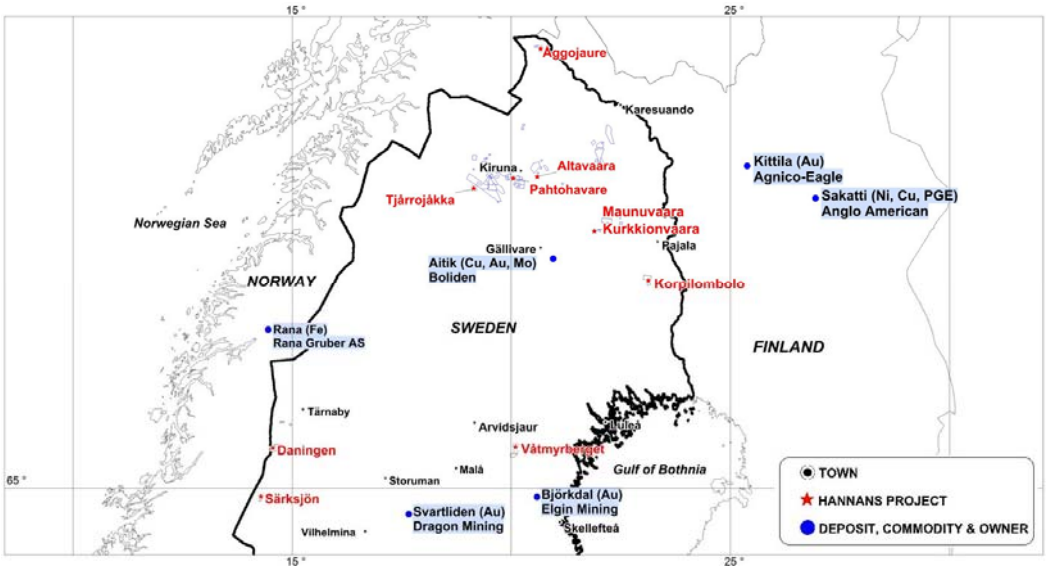
- Depth/strike extensions of all four existing orebodies
- Targeting two known styles of mineralisation - Type I / Central, Southern and South/Eastern & Type II / Eastern Zone
- Refer slides 21 - 23

Project History



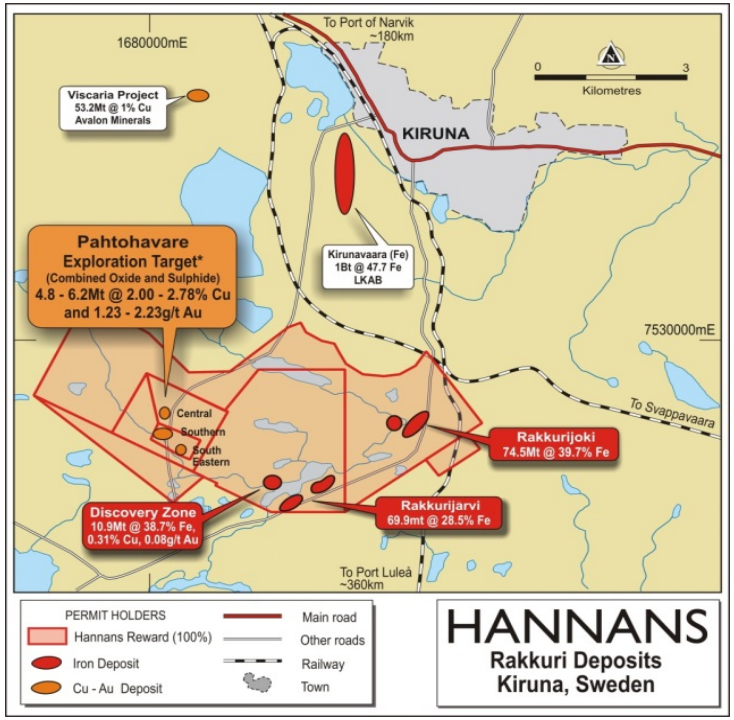
Location





- Pahtohavare is located 8kms south-west of Kiruna, a full service mining town in Norrbotten County, northern Sweden
- Kiruna is located 1,200kms north of Sweden's capital Stockholm

Tenure



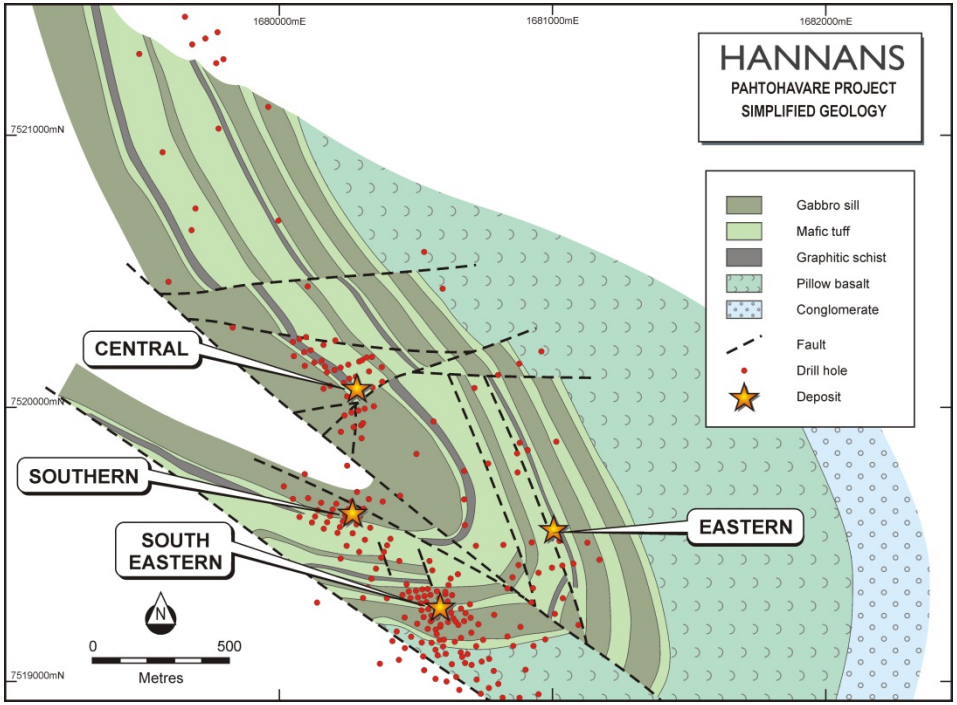
NAME	LICENCE ID	AREA	VALID FROM	VALID TO	MINERAL	COUNTY	MUNICIPALITY	OWNERS
Pahtohavare nr 2	2009:18	337.34	2009-01-20	2015-01-20	Copper	Norrbotten	Kiruna	Kiruna Iron AB
Pahtohavare nr 4	2009:103	58.50	2009-06-09	2015-06-09	Copper	Norrbotten	Kiruna	Kiruna Iron AB

Regional Geology

- The Pahtohavare, Viscaria, Aitik and Nautanen copper deposits as well as the Kiirunavaara, Svappavaara, Malmberget and Rakkuri iron deposits are hosted by Paleoproterozoic rocks, mainly Karelian (2.5-2.0 Ga) and Svecofennian (1.9-1.88 Ga). These suites, which extend into northern Finland and parts of northern Norway were deposited in environments interpreted as volcanic arc, back arc basin and rift environments in a supra-subduction setting over an Archaean basement (Skiöld et al., 1993).

- The Pahtohavare copper-gold ores are located within the Viscaria Formation of the Kiruna Greenstone Group. This group is composed of basic lavas and intrusions, basic tuffs and tuffites and acid volcanics. Locally there are graphite bearing schists, limestones and skarn iron ores.

- The Pahtohavare copper-gold ores are located within a first order open antiformal structure which dips to the south-east with the stratigraphy over turned so that the axial plane dips approximately 60° to the north-east. The structurally and lithologically controlled ore zones are bordered towards the south by a WNW-directed regional shear-zone.



- Scapolite-biotite occurrence is a regional alteration and occurs within all stratigraphic units at Pahtohavare enveloping an albite altered mineralised zone.

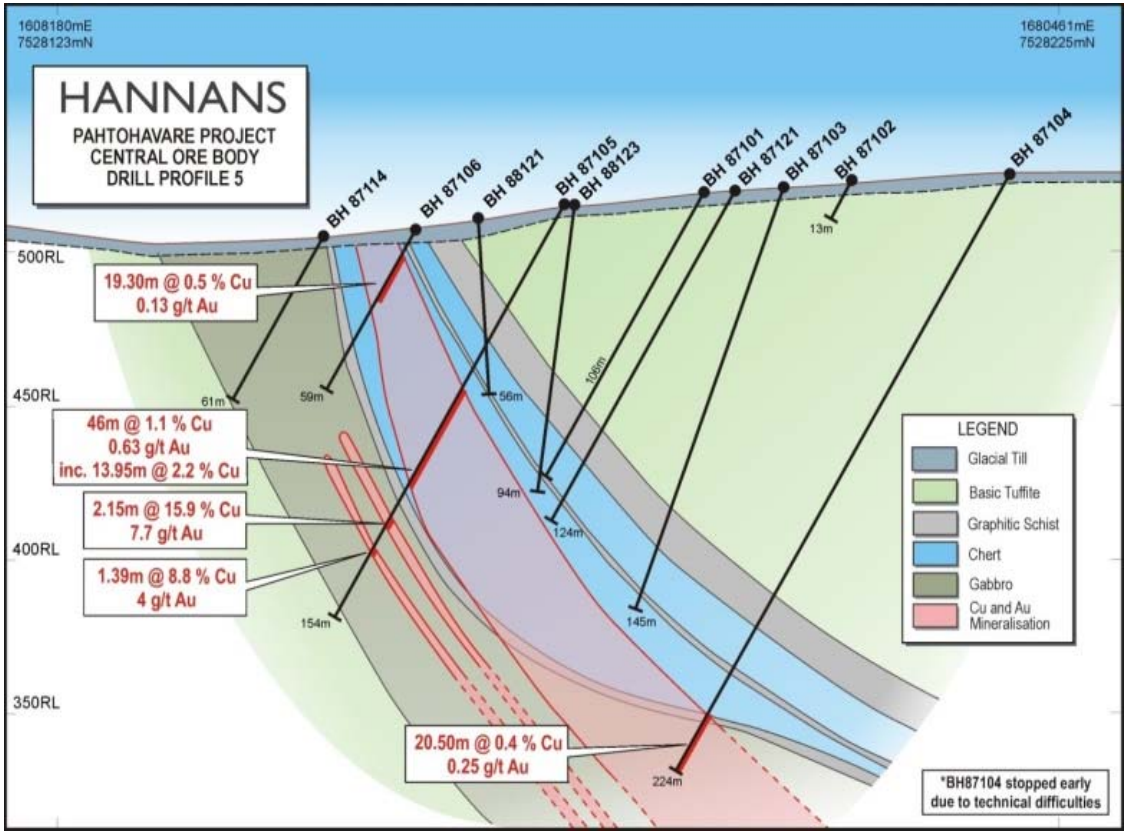
Deposit Geology

- The Central, Southern and South Eastern deposits are classified as *epigenetic* copper-gold deposits.
- The ore host rocks at these three deposits are highly altered and generally consist of a fine-grained albite felsite of granoblastic texture (precursor-tuffite) of between 10-45 metres thick with a graphitic shale sitting stratigraphically above the albite felsite with a mafic sill (gabbro) dominating the footwall.
- Two types of albite alteration occur at Pahtohavare, the albitisation of the tuffite during the intrusion of the footwall mafic sill and an additional ore-related albitisation. This ore-related alteration can be distinguished by the lack of spacial relationship to the mafic sill and the occurrence of disseminated ferro-dolomite. It appears the black graphitic schists have acted partly as a chemical trap for the mineralising fluids which has resulted in some decomposition of graphite within the schist proximal to mineralised zones. Course-grained carbonate (ferro dolomite), quartz and sulphides occur as the main vein minerals, as well as marialitic scapolite veins which are often strongly deformed by folding and shearing and occasionally displaying a strong mylonitic texture (Martinsson, 1997).
- The Eastern mineralisation is classified as a *syngenetic* stratiform copper deposit that forms intercalations in graphitic sediments and basic tuff. The Eastern mineralisation is found at a stratigraphic level of the Viscaria Formation interpreted to be corresponding to a position between the A and B ore zones of the nearby Viscaria copper deposit which has a current combined JORC resource of 49.2Mt @ 1.1% Cu (Avalon Minerals Ltd).

Deposit Geology

Ore Zone	Description	Historic Mining
South-Eastern, A-Zone	Chalcopyrite Cu disseminations with Au hosted by graphitic schist and chert.	Partial historic mining, mainly from the shallow A-zone to an approximate depth of 150m. Limited or no mining from B and C Zones, currently open at depth.
South-Eastern, B-Zone	Cu occurring as chalcopyrite disseminations within a basic tuff. Same stratigraphic unit as A-zone. This zone is immediately south of a fault separating it from the main SE zone.	
South-Eastern, C-Zone	Stratigraphically below the A and B zones. High-grade Cu+Au hosted within an albite felsite. Some disseminated chalcopyrite within mafic footwall.	
Eastern	Low-grade Cu occurring as chalcopyrite Cu disseminations of Viscaria- type within basic tuff. Minor Zn, Ba, Pb and Ag mineralisation.	No historic mining. Mineralisation is currently open over 1km strike length.
Central	Shallow, high-grade oxide ore within albite-silica-carbonate altered breccia. Ore minerals are native Cu, Cu oxides, Cu carbonates and Cu sulphides. Minor native gold.	No historic mining due to the metallurgical characteristics of the oxide and carbonate bound Cu. Fresh copper-sulphide ore is located at depth and is currently open.
Southern	Chalcopyrite Cu disseminations with Au hosted by albite-silica-carbonate altered breccia and graphitic shales.	Mined open-pit to 95m and underground to approximately 200m. Orebody is open at depth.

Central Orebody

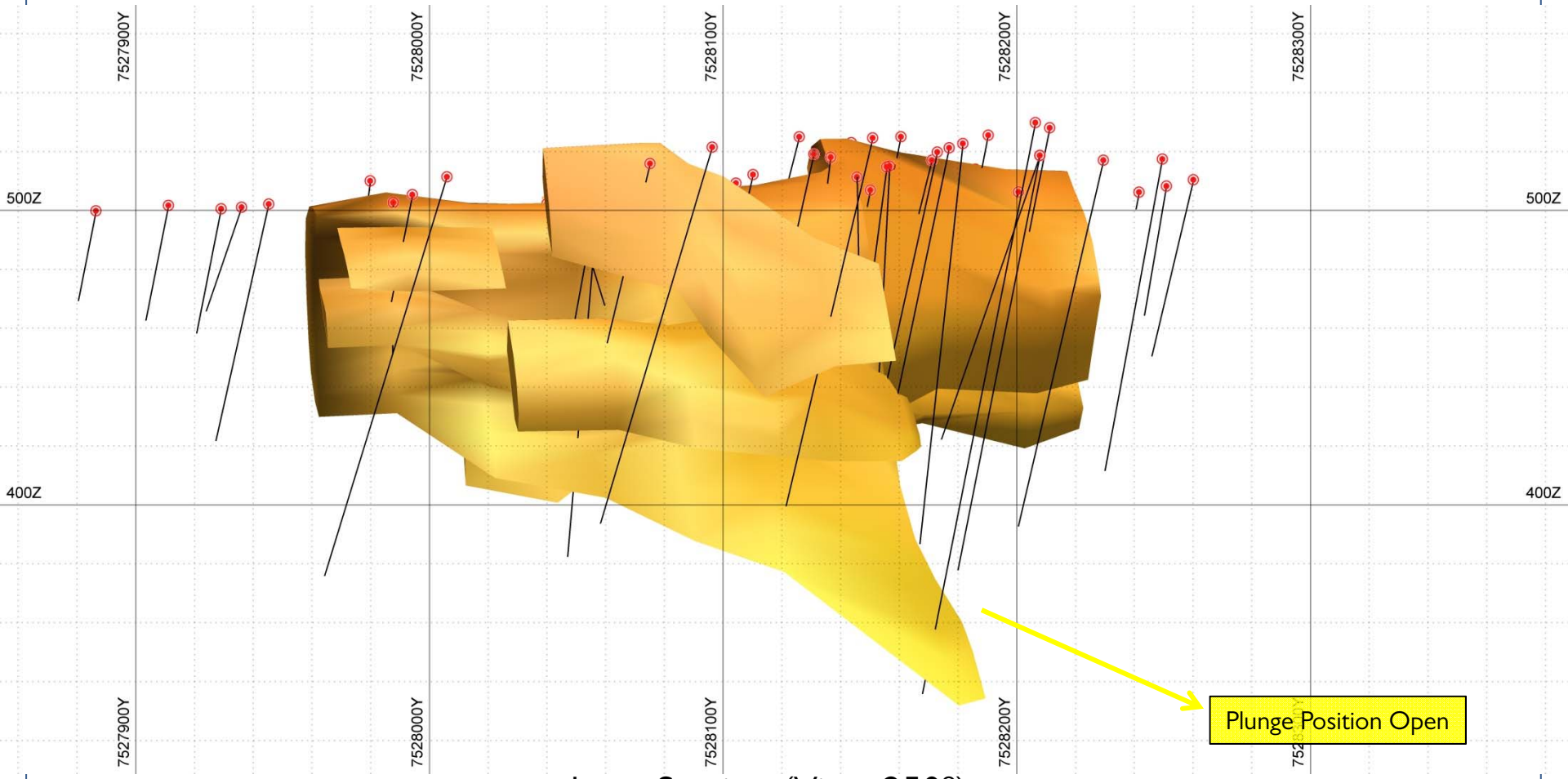


Refer Appendix I for additional profiles

- Copper-gold mineralisation is complex and controlled primarily by structure and secondly by lithology (silica-albite-carbonate alteration)
- Mineralisation contains oxide, carbonate and sulphide copper minerals including malachite, azurite, tenorite, cuprite and chalcopyrite, and minor native gold

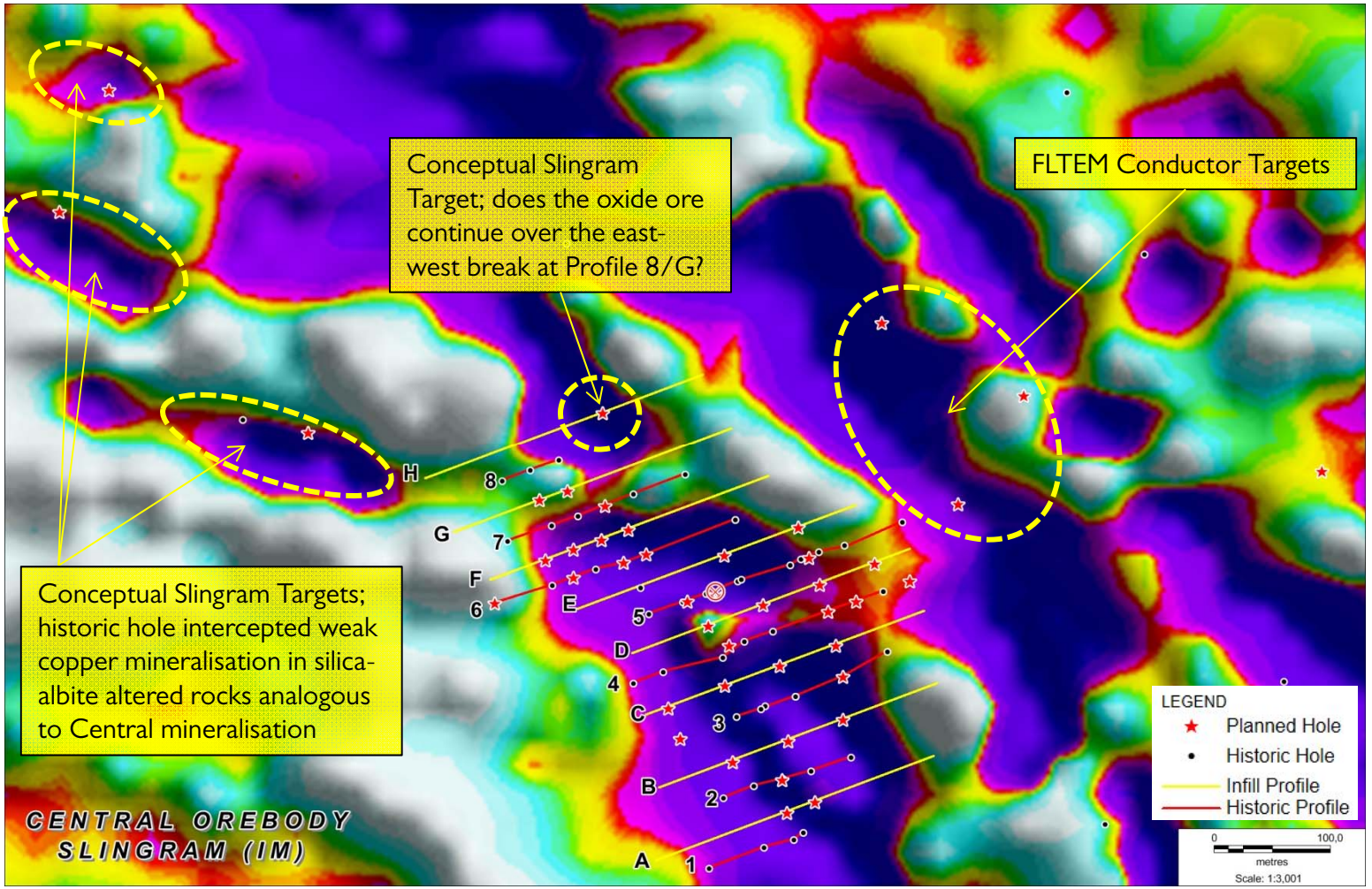
- Oxide mineralisation is dominant down to approximately 100m below surface, at which a transition zone becomes evident with disseminated sulphides
- Historic intercepts highlight broad shallow zones of copper-gold mineralisation within strongly weathered and tectonised unit of rocks
- Faulting and or folding may be responsible for the discontinuation of the ore at depth on a number of the historic profiles

Central Orebody- 3D Geology

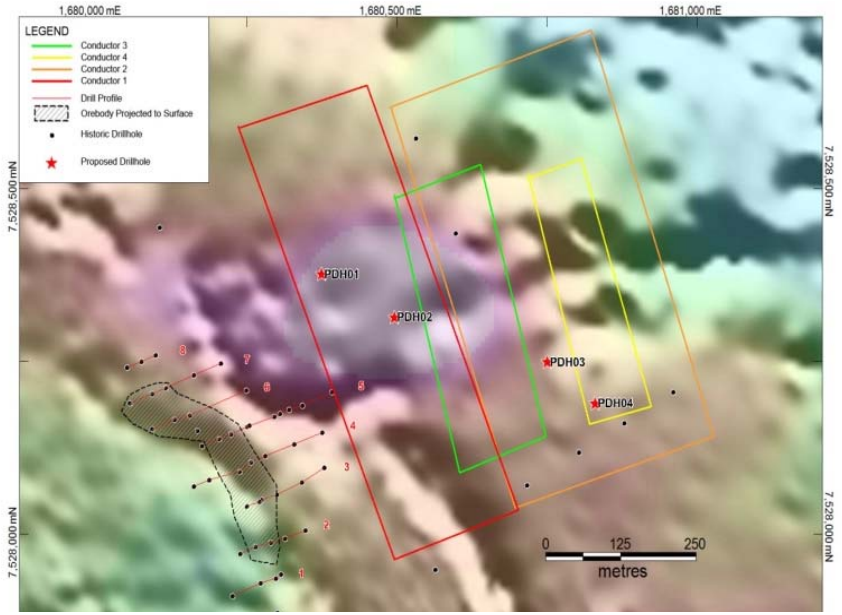


Long Section (View 250°)

Central Orebody-Geophysics

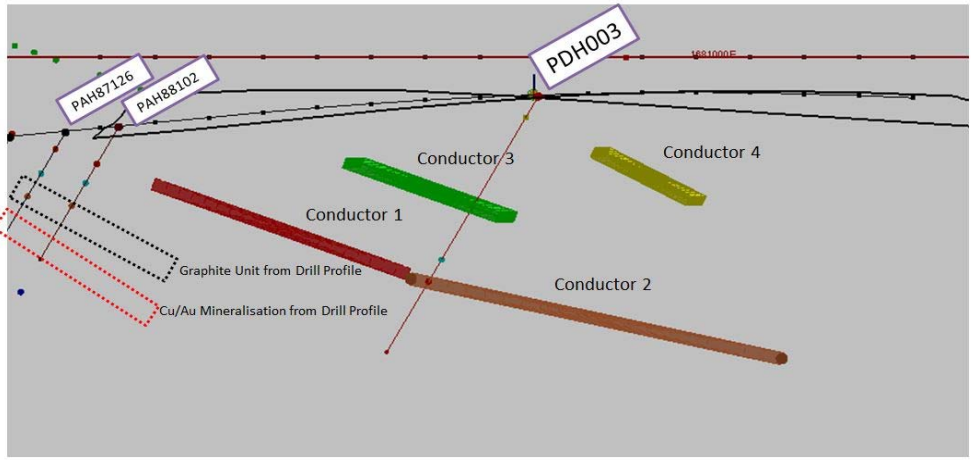


Central Orebody-FLTEM Geophysics



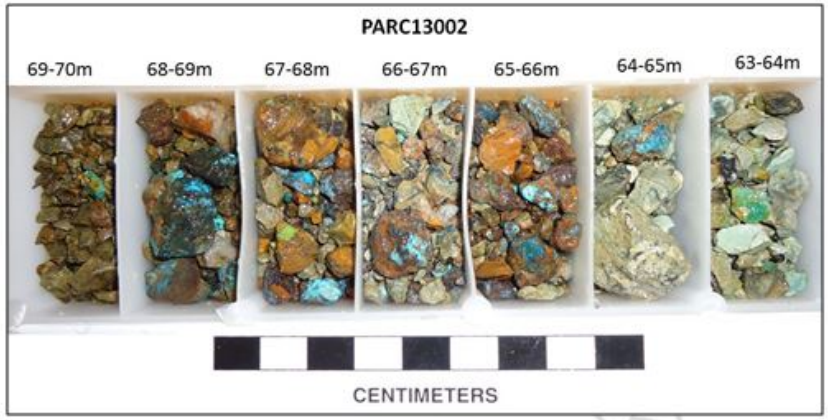
100 m

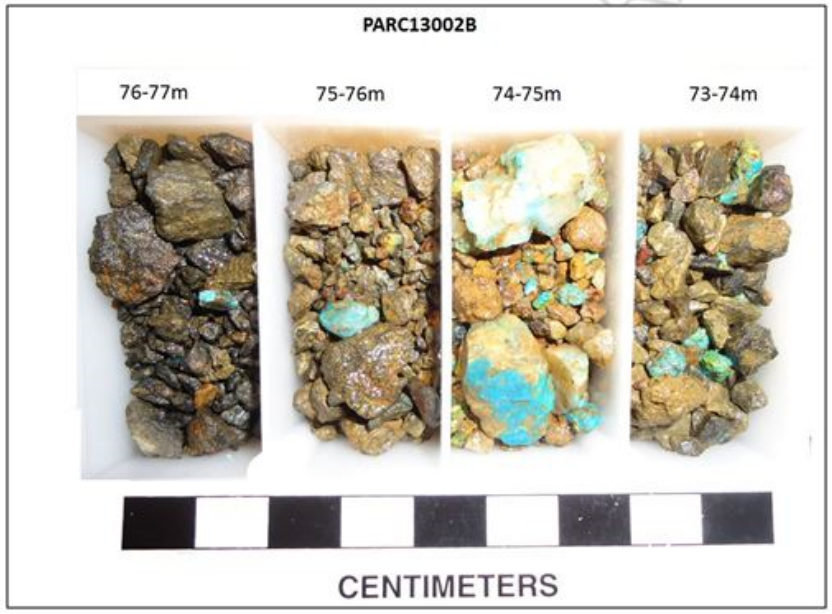
PAHTOHAVARE PROJECT
CENTRAL OREBODY
FLTEM Line 3/Drill Profile 4



- Conductors may represent 'new lodes' parallel to and deeper than the existing known mineralised lodes sitting in the largely untested footwall gabbro which is known to host high grade copper-gold mineralisation
- Conductors 1 & 2 are interpreted to be in the down-dip position of the existing copper-gold mineralisation and may represent a continuation at depth
- Conductors 3 & 4 may represent stratiform copper-zinc mineralisation.
- Down-hole geophysical surveys (DHEM) will be completed to improve the modeling of existing anomalies and to identify off-hole conductors
- Mineralisation is closely associated with rocks that are both conductive (graphite schist) and non-conductive (chert, basic tuff, gabbro)
- Mineralisation is closely associated with a variably altered graphitic schist unit which is strongly conductive; this may have the effect of masking lower strength conductors i.e. disseminated sulphides
- The ore and the stratigraphy are dipping in the same orientation which make sit challenging to distinguish between the two conductive units
- The shallow ore is oxidised and therefore not conductive and will not generate a geophysical response

Central Orebody-Current Drilling





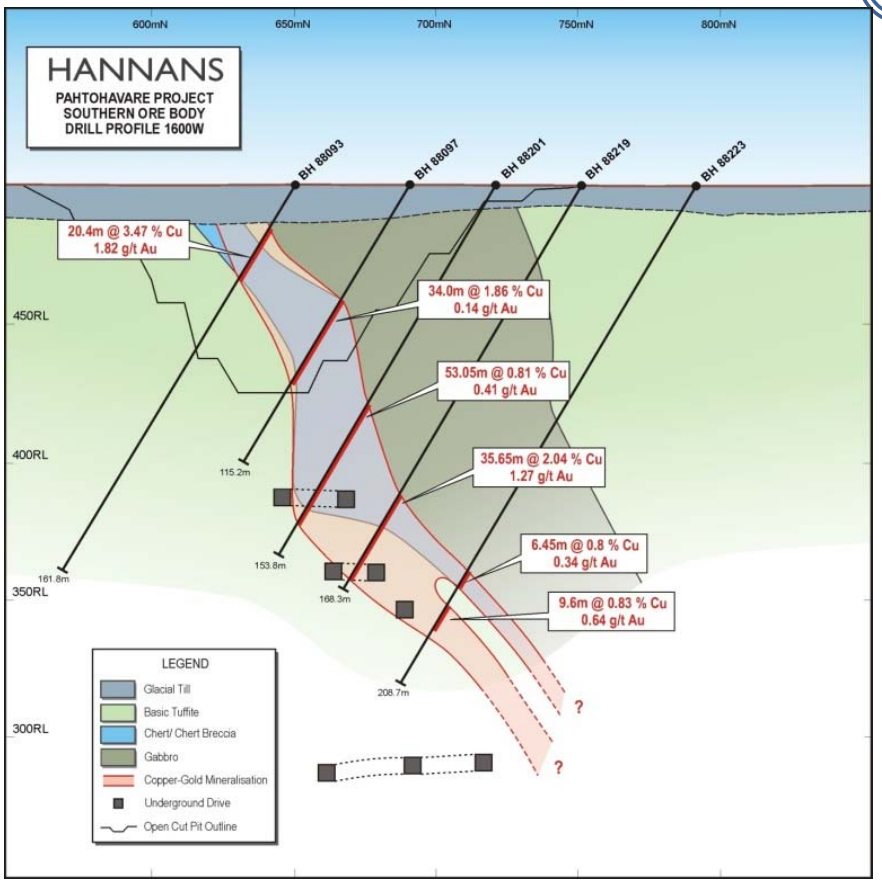
Reverse Circulation (RC):

- testing shallow (≤150m) oxide, high potential targets where historical drilling was in-effective
- testing a conceptual target along strike to the north of the current Central Orebody based on slingram geophysics
- infill historical drill profile spacing down to 25m from 50m

Diamond (DDH):

- test EM Conductors (see slide 12)
- test open plunge position
- test down-dip position
- test potential for additional high-grade lodes within the footwall gabbro
- confirm historical drill results with twin hole drilling

Southern Orebody

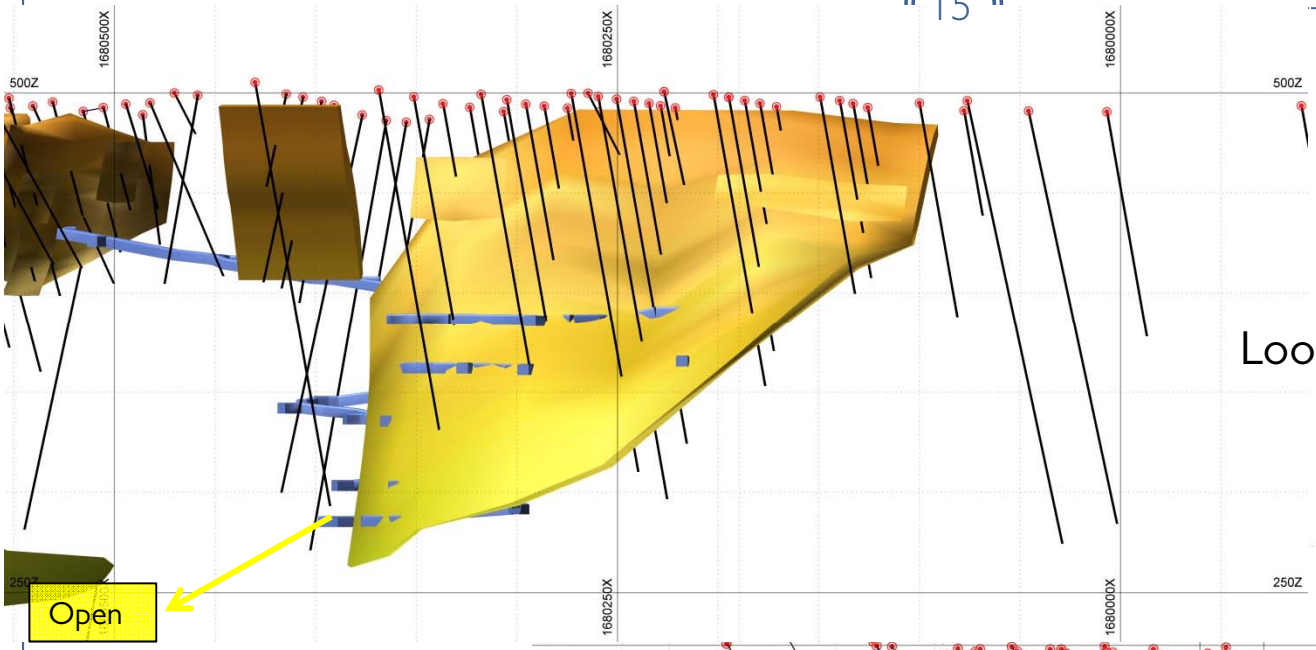


Drill profile 1600W from Southern Orebody showing the outline of the open pit, the location of the underground drives and the mineralised zones mined out by Outokumpu

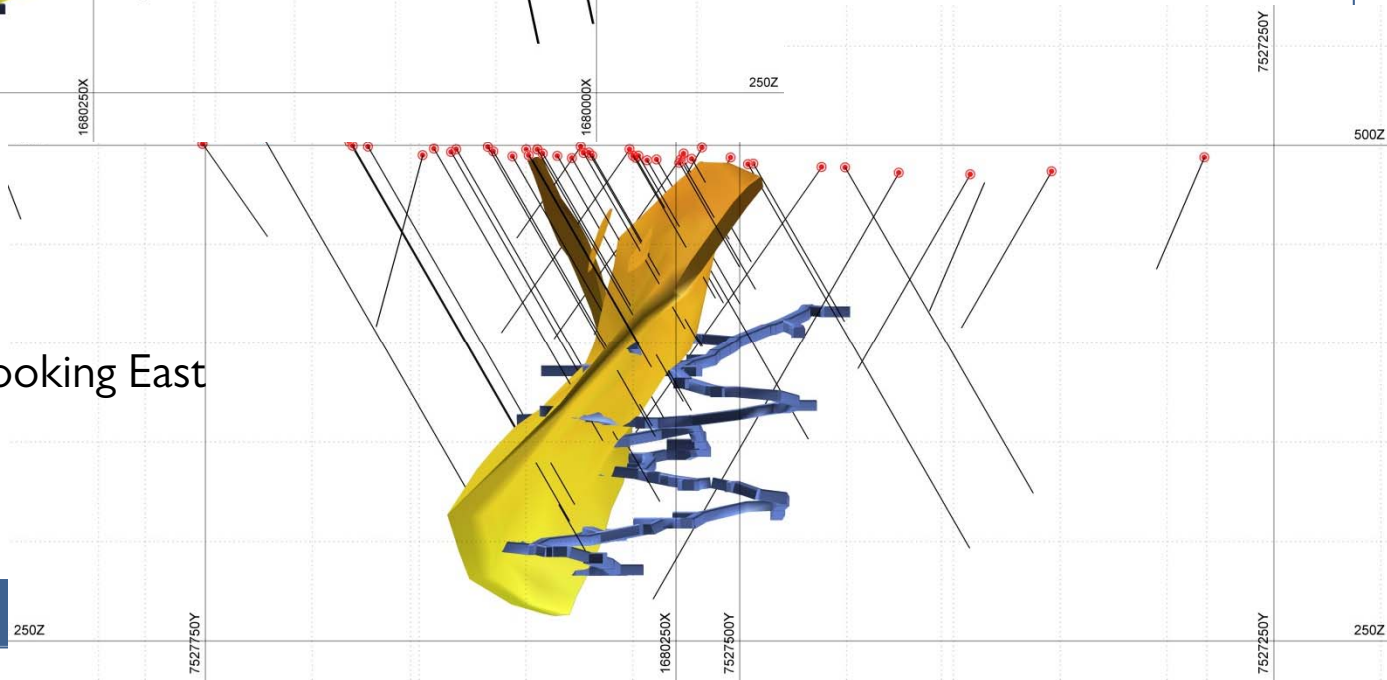
Refer Appendix I for additional profiles

- Copper-gold mineralisation hosted in silica-albite-carbonate altered breccia, graphite shale, mafic tuff and gabbro
- Strike length of 280m and a width of 5-50m (average 20m), uniform geometry
- Previously mined to a depth of 195m (vertical), via open pit and underground
- No evidence of drilling beneath the lowest mined level
- Current 3D modelling identifies an open plunge position

Southern Orebody-3D Geology

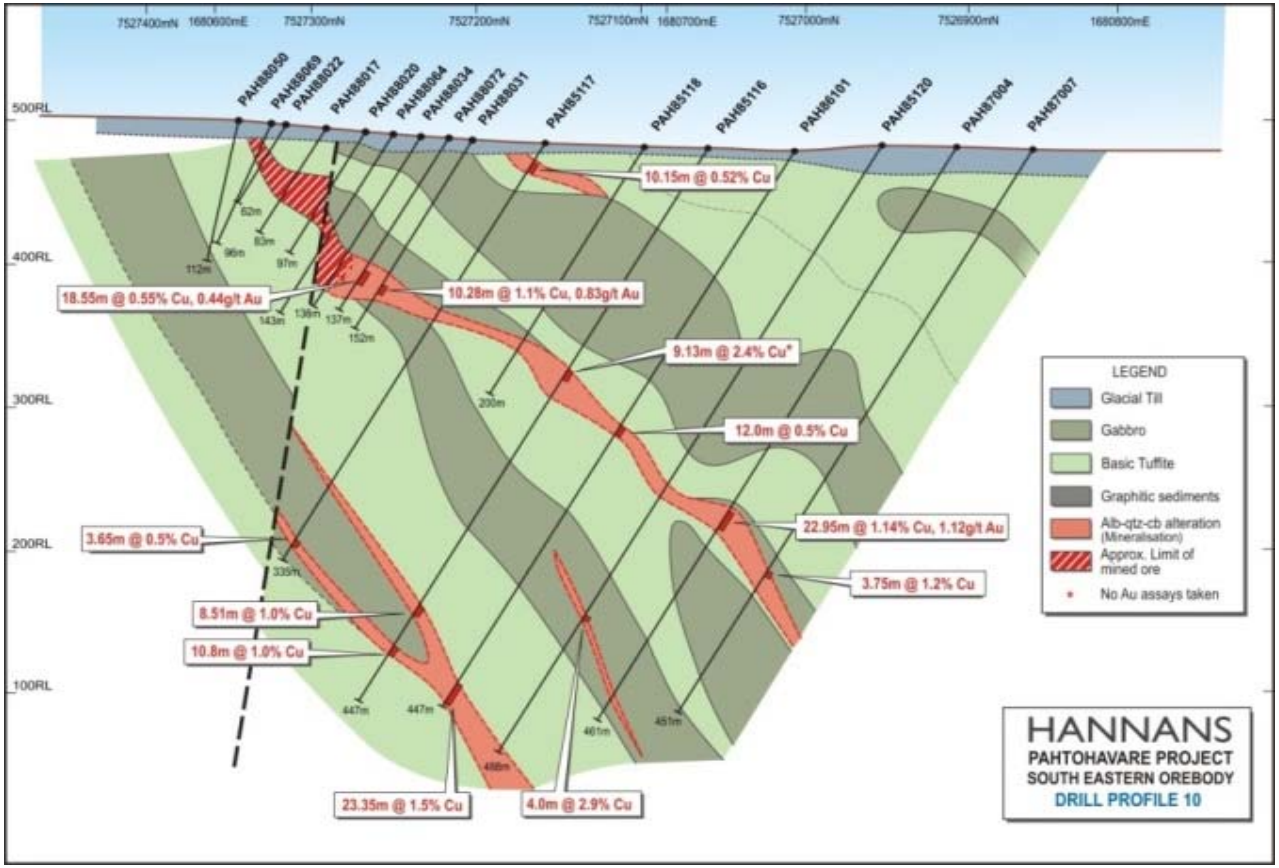


Looking South



Looking East

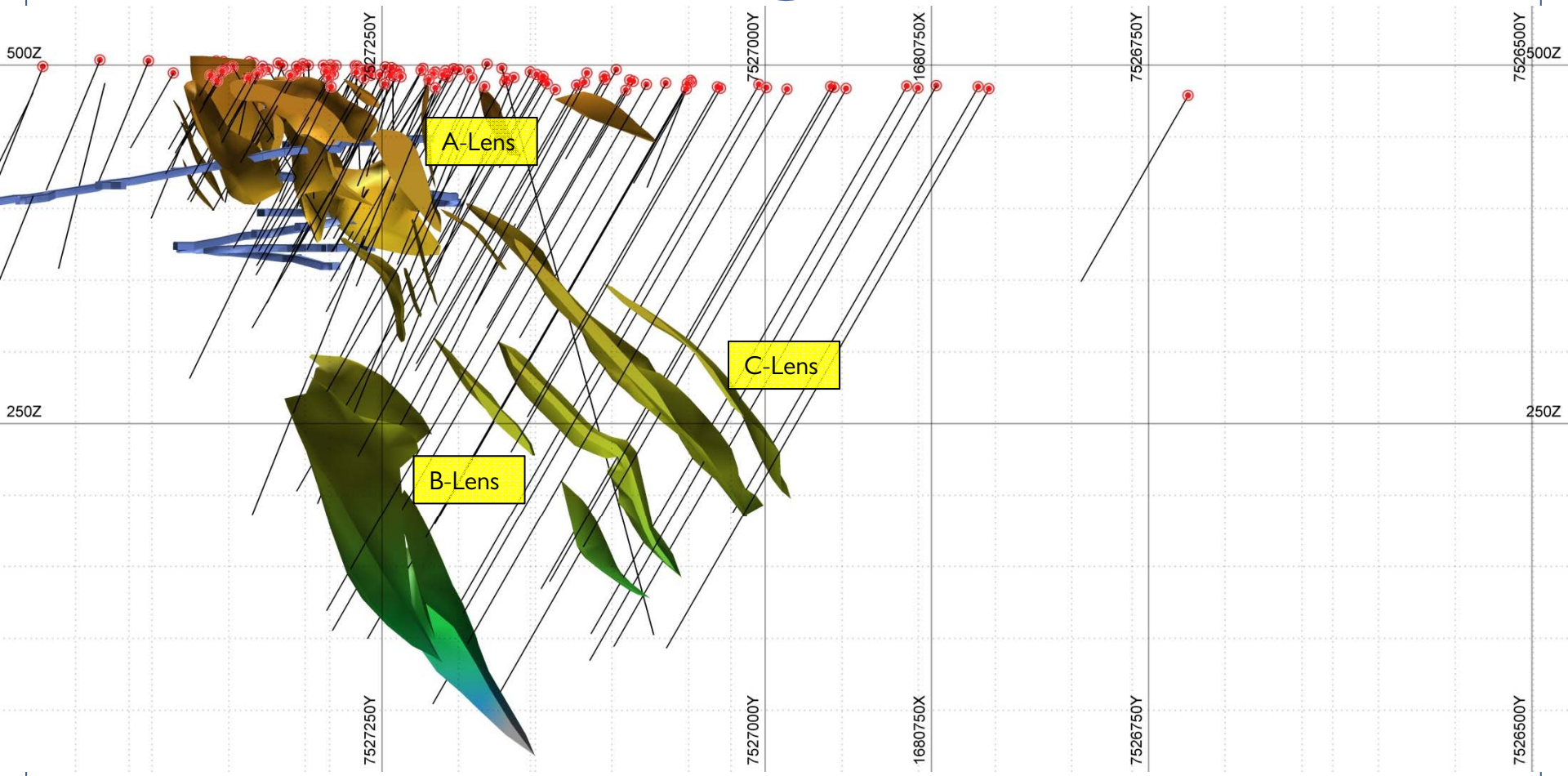
South Eastern Orebody



Refer Appendix I for additional profiles

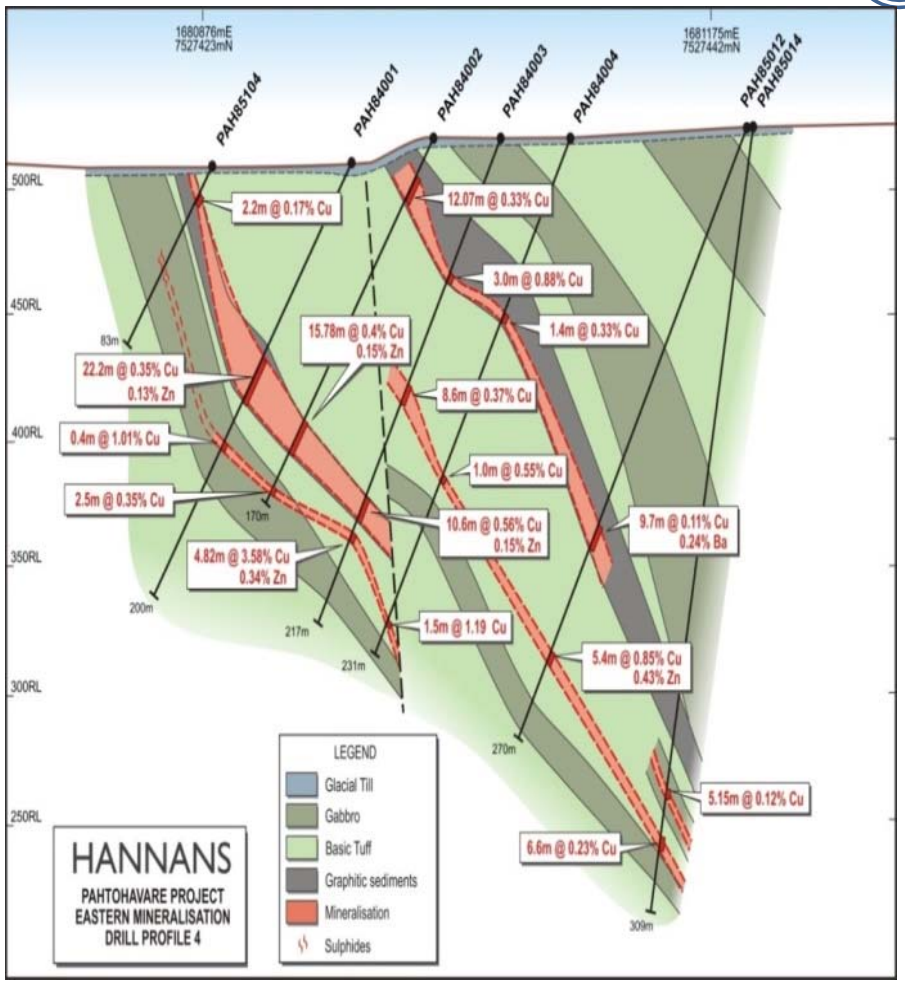
- Copper-gold ore hosted in silica-albite-carbonate altered breccia, graphite shale, mafic tuff and gabbro
- A-lens previously mined to a depth of 150m, via open pit and underground. B & C lenses have not been mined and remain open
- Orebody is highly complex (folding and faulting) due to location in hinge position of regional anticline. Drilling completed at several different orientations and 3D modelling is difficult
- Current 3D modelling confirms a weak open plunge position and potential at depth in lenses B & C

South-Eastern Orebody-3D Geology



View 070°

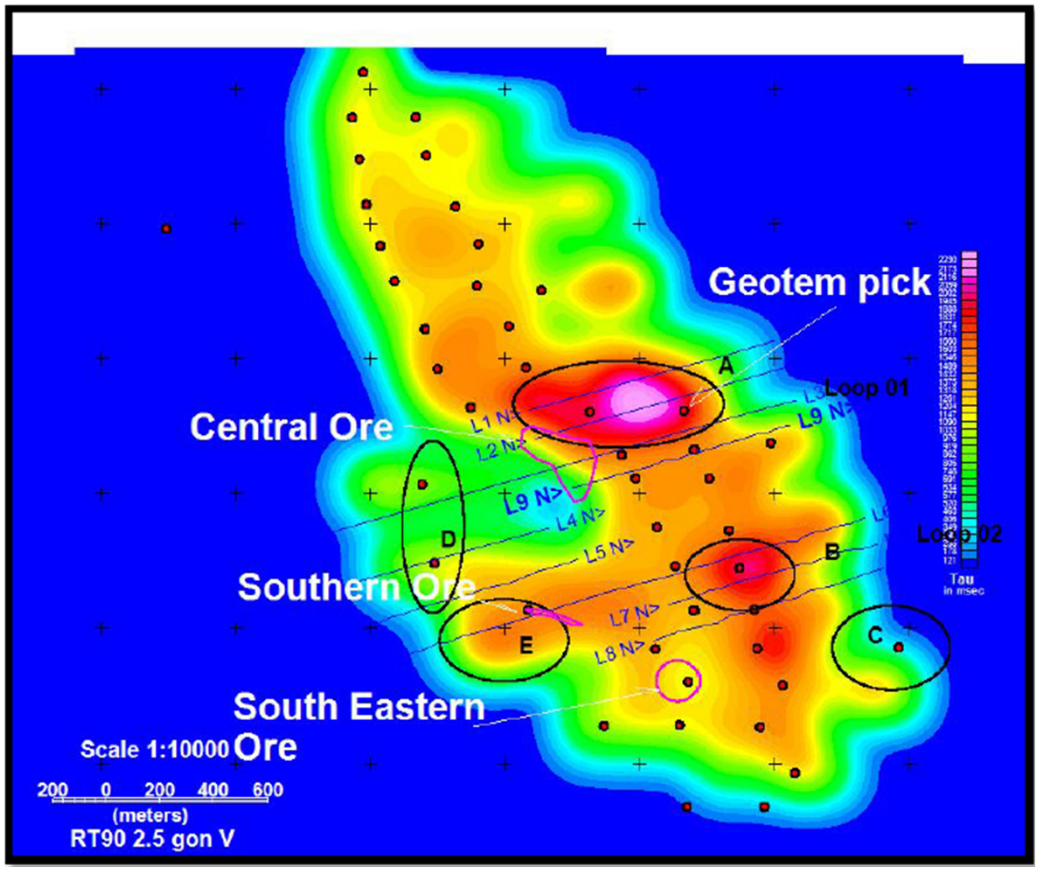
Eastern Orebody



Refer Appendix I for additional profiles

- Identified in 1984 through moraine sampling and diamond drilling
- Copper mineralization has been intercepted in 6 profiles covering a strike length of 1km; some profiles are more than 300m apart
- Significant scope to further define, and close off known mineralisation
- Mineralisation is distinctly different from that at Central, Southern and South Eastern; it is classified as syngenetic stratiform copper-zinc mineralisation within graphitic sediments and basic tuff.
- Mineralisation identified to date is typically thin and low grade although some narrow, high-grade intercepts have been recorded.

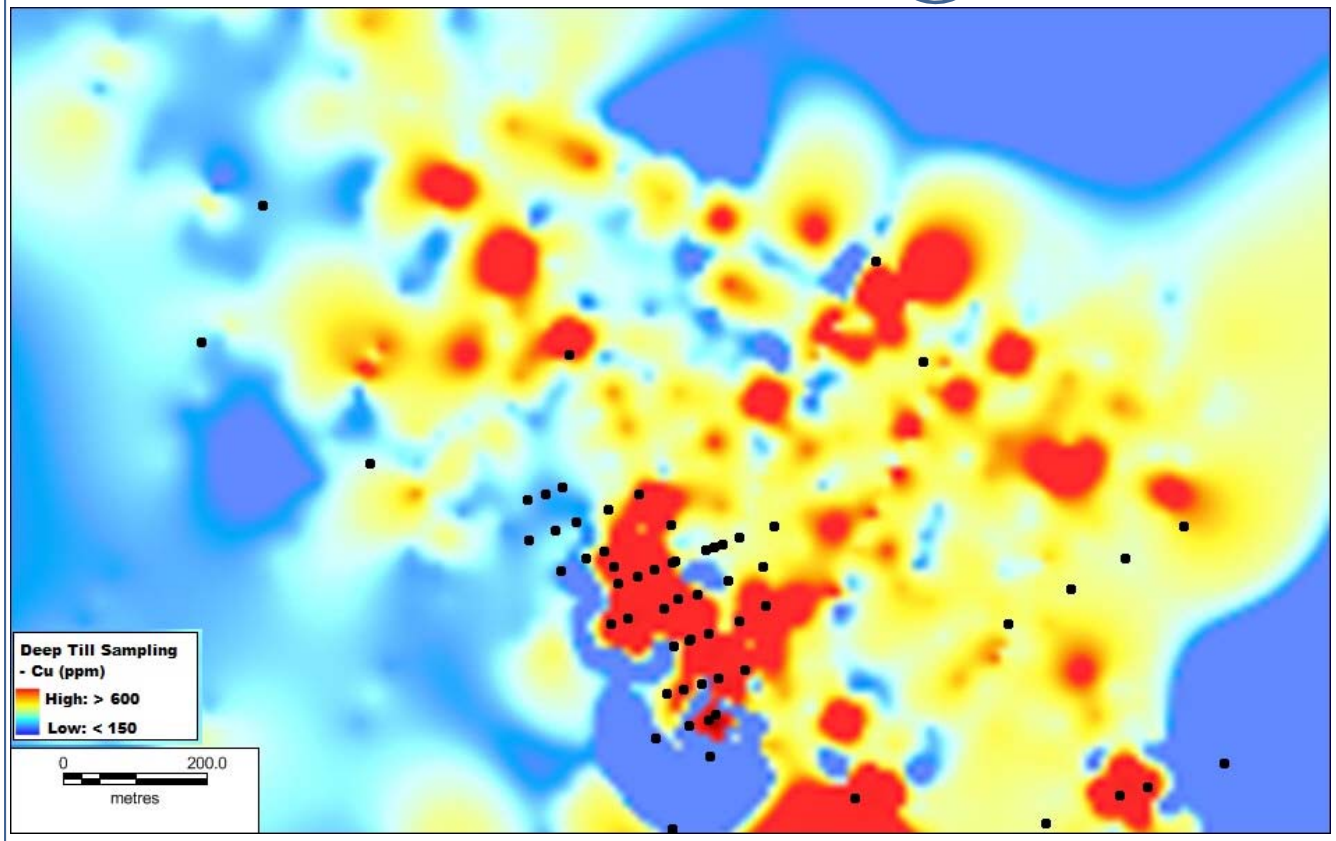
Exploration Opportunities



1. Untested geophysical anomalies including fixed-loop EM and slingram anomalies

- GEOTEM survey flown in 2000 by Anglo American identifies multiple EM anomalies at Pahtohavare
- Hannans completes a fixed-loop TEM survey in February 2013 testing GEOTEM anomalies A, B and D; Anomalies C & E to be tested at a later date)
- Substantial historic geophysical data set including IP, slingram, magnetics, gravity and TEM

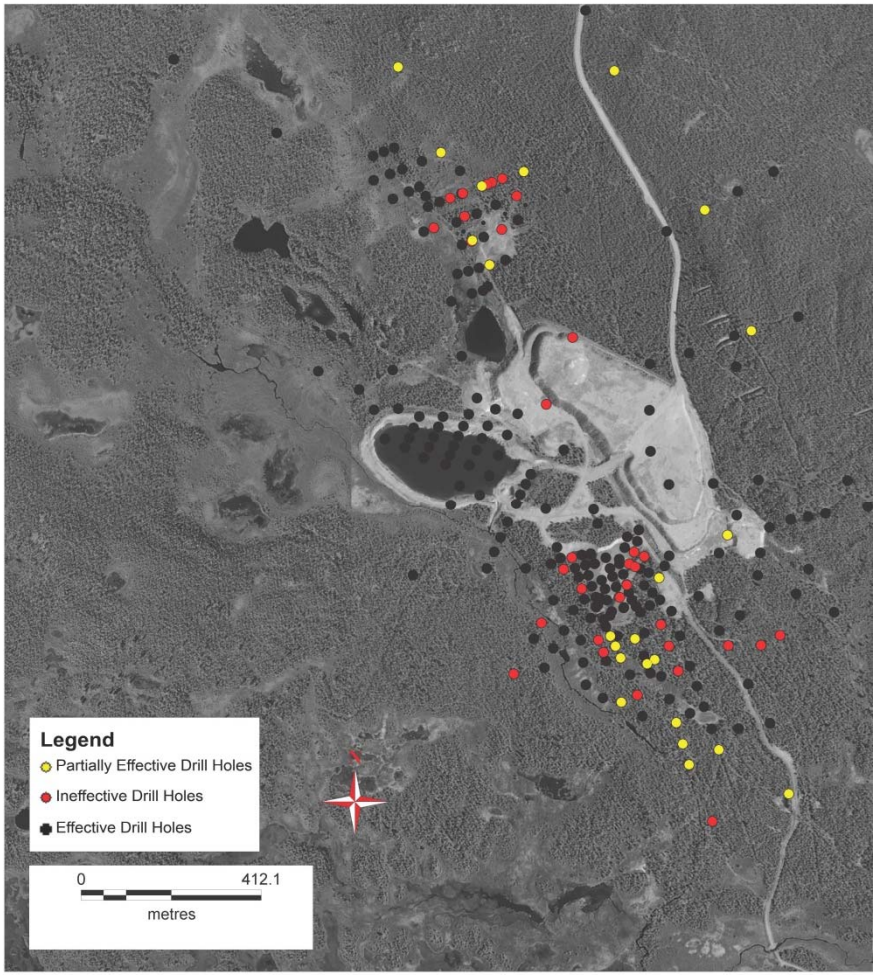
Exploration Opportunities



Bottom-till sampling at Central, Pahtohavare. Coloured by copper.

2. Untested geochemical anomalies; namely historic bottom-till anomalies

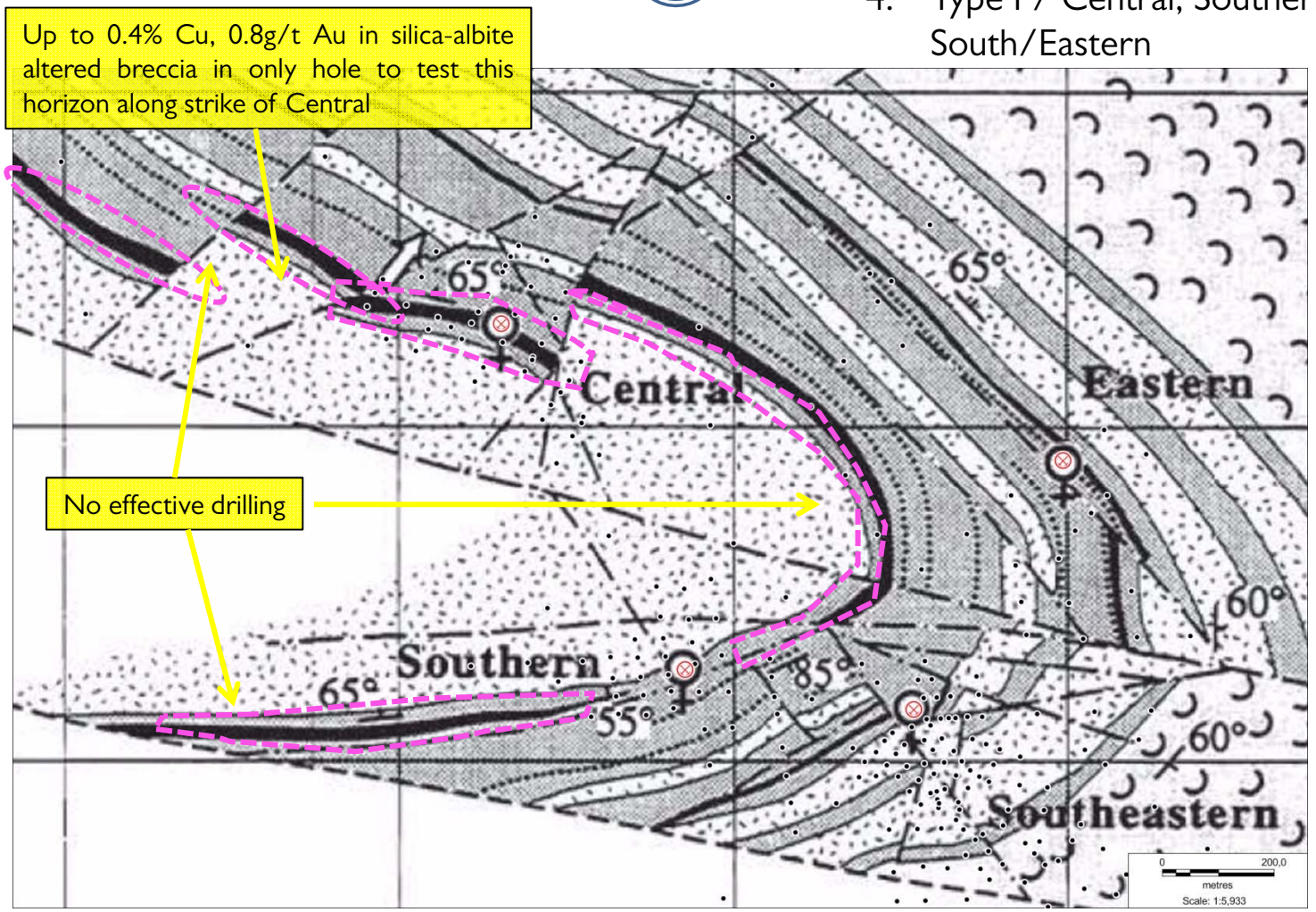
Exploration Opportunities



3. Depth/strike extensions of all four existing orebodies:
   - Significant number of completely and partially ineffective drillholes at Pahtohavare
   - Central, Southern and South Eastern Orebodies are currently open at depth; down dip and down plunge (see respective 3D images for each orebody above)
   - Eastern mineralisation is currently in excess of 1000m and is open

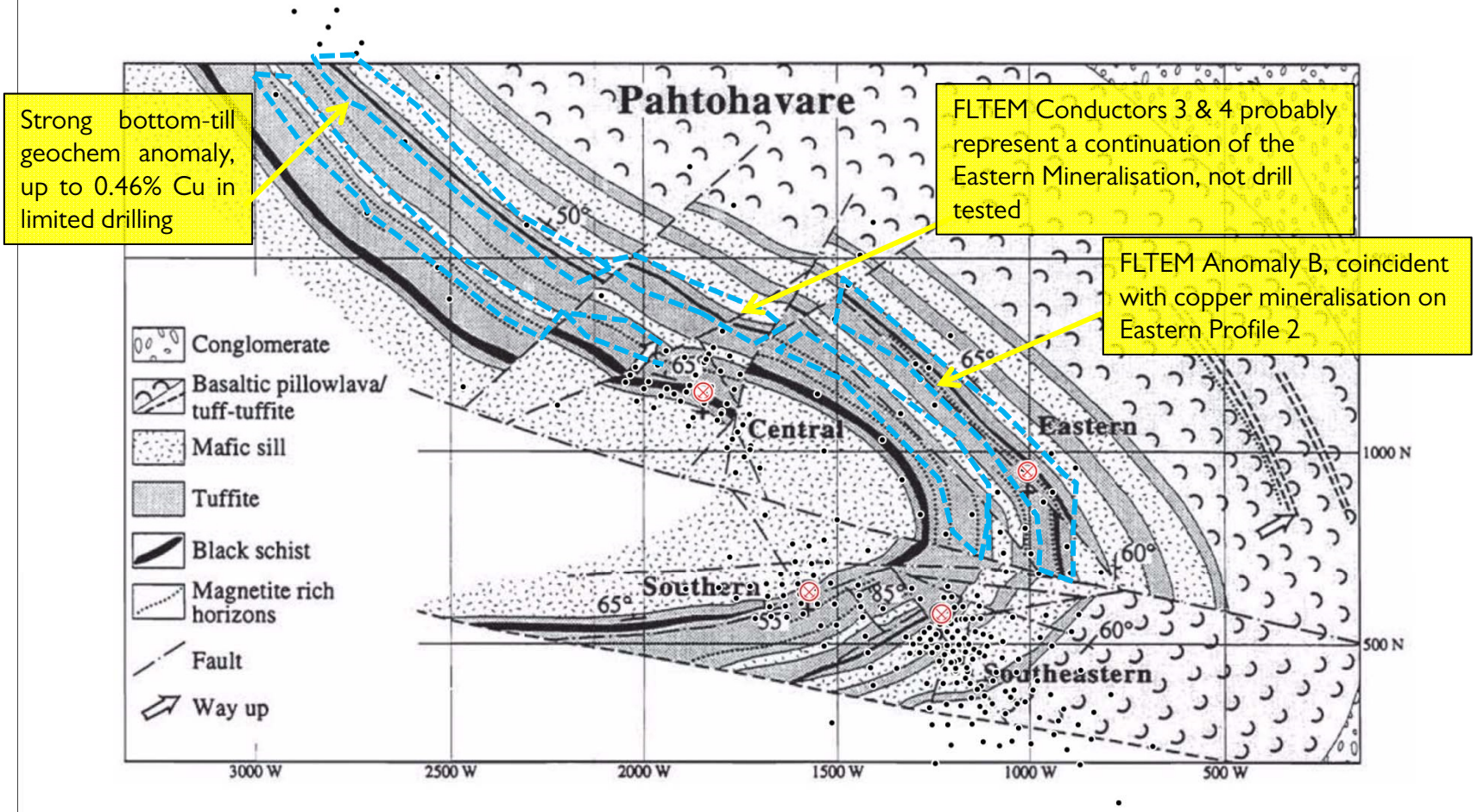
Exploration Opportunities

4. Type I / Central, Southern and South/Eastern



Exploration Opportunities

5. Type II / Eastern Zone



Current JORC Exploration Target

- Central (oxide, carbonate and sulphide ore)
- Southern (sulphide ore)
- South-Eastern (sulphide ore)
- Eastern (sulphide ore)

The combined JORC Exploration Target[1] for Pahtohavare (incorporating the Central, Southern, South-Eastern and Eastern Zone) is summarised below:

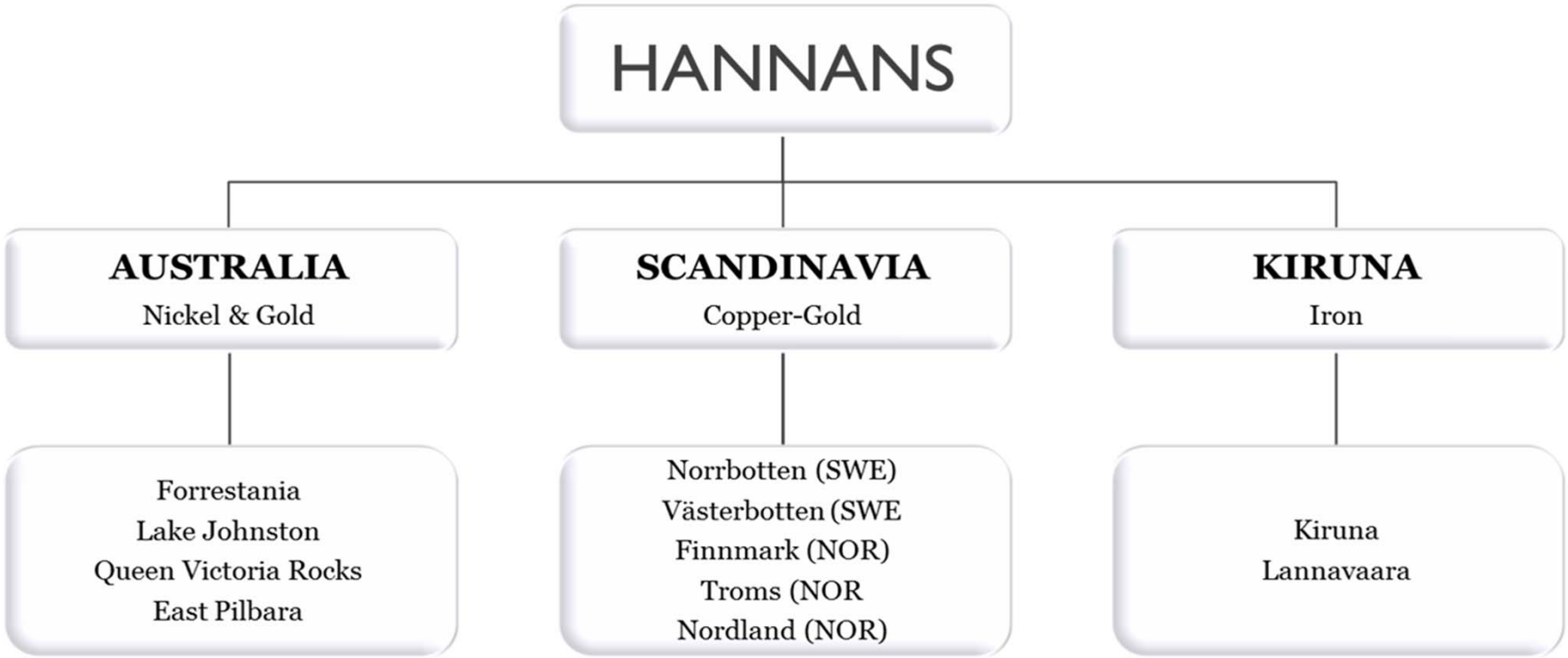
Ore	Mt	Cu (%)	Au (g/t)
Fresh	3.5-4.5	2.0-3.0	1.5-2.5
Oxide	1.3-1.7	2.0-2.2	0.5-1.5
Total (Oxide + Fresh)	4.8-6.2	2.00-2.78	1.23-2.23

[1] The JORC Exploration Targets have been subjected to diamond drill testing, ground geophysics and interpretation by the Geological Survey of Sweden, reviewed by Mr Thomas Lindholm, of GeoVista AB. The potential quantity and grade of the exploration targets is conceptual in nature, there has been insufficient interpretation to define a JORC Mineral Resource and it is uncertain if further interpretation will result in the determination of a JORC Mineral Resource.

Scandinavian Advantage

- 1,000 year mining history
  - Sweden is largest producer of iron ore in the EU
  - Sweden is leading producer of base metals (copper, zinc, lead) and precious metals (gold and silver)
- World-class database available in Sweden
- Excellent exploration potential
- Under-explored by modern standards
- Favourable minerals legislation
- Mining know-how and highly trained personnel
- Political and economic stability
- Excellent infrastructure

Organisational Structure



Summary & Contacts

Hannans Reward Ltd, through its subsidiary companies, holds a portfolio of mineral assets in Sweden, Norway and Australia. Hannans has a dual strategy focused on creating a pathway to production for the Kiruna Iron Project in Sweden, supplemented with precious and other base metals exploration in Sweden, Norway and Australia.

Sweden & Norway

- Flagship Kiruna Iron Project is 30km from the 2Bt Kiruna iron mine (owned by LKAB) – the world's largest and most modern underground iron mine
- Pipeline of projects covering gold, copper-gold and lead-zinc prospects in Sweden and Norway

Australia

- Forrestania – nickel & gold project 7km north of Western Area's Flying Fox nickel mine
- Lake Johnston – nickel & gold project located 25km south east of Norilsk's Maggie Hays nickel mine and 100kms west of Norseman, Western Australia.
- Queen Victoria Rocks – nickel and gold project located 30km south-west of Coolgardie, Western Australia.
- Jigalong – base metals project located 150km east of Newman, Western Australia

Contact details in relation to this presentation:

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Competant Persons Statement

Competent Persons Summary

The information in this document that relates to exploration results is based on information compiled by Ms Amanda Scott, Exploration Manager, Hannans Reward Ltd, who is a Member of the Australian Institute of Mining and Metallurgy. Ms Scott is a full-time employee of Hannans Reward Ltd. Ms Scott has sufficient experience, which is relevant to the style of mineralisation and types of deposits under consideration and to the activity which has been undertaken to qualify as a Competent Person as defined by the 2004 edition of the "Australian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves". Ms Scott consents to the inclusion in the report of the matters based on the information in the form and context in which it appears.

Competent Persons Statement – Rakkurijärvi, Rakkurijoki and Discovery Mineral Resources

The mineral resource estimate for Rakkurijärvi, Rakkurijoki and Discovery is effective from 13 January 2012 and has been prepared by Mr Thomas Lindholm, MSc of GeoVista AB, Luleå, Sweden acting as an independent "Competent Person". Mr Lindholm is a member of the Australasian Institute of Mining and Metallurgy (Member 230476). Mineral resources of the Rakkuri iron deposits have been prepared and categorised for reporting purposes by Mr Lindholm, following the guidelines of the JORC Code. Mr Lindholm is qualified to be a Competent Person as defined by the JORC Code on the basis of training and experience in the exploration, mining and estimation of mineral resources of gold, base metal and iron deposits.

Notes

Survey:

Historic drillhole collars from the Central orebody have been located in the field by Hannans and surveyed with an RTK GPS in the Swedish coordinate system RT 90 (2.5 Standard). Not all drillhole collars were located and these positions have been back-calculated through a grid transformation.

Drillhole elevation data has been collected for the holes found in the field via RTK GPS but elevation for the holes not found will be generated through a digital elevation model (DEM) derived from digital spot elevation data supplied by Metria as part of the process to convert the current JORC Exploration Target to a JORC Mineral Resource.

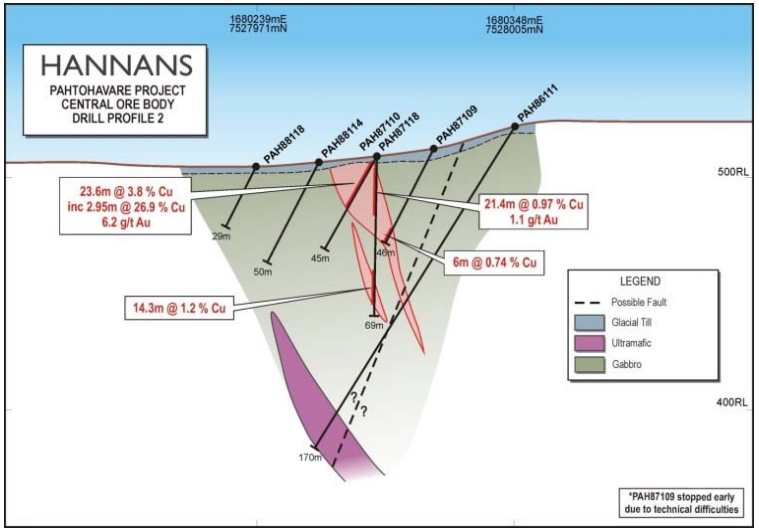
Assays:

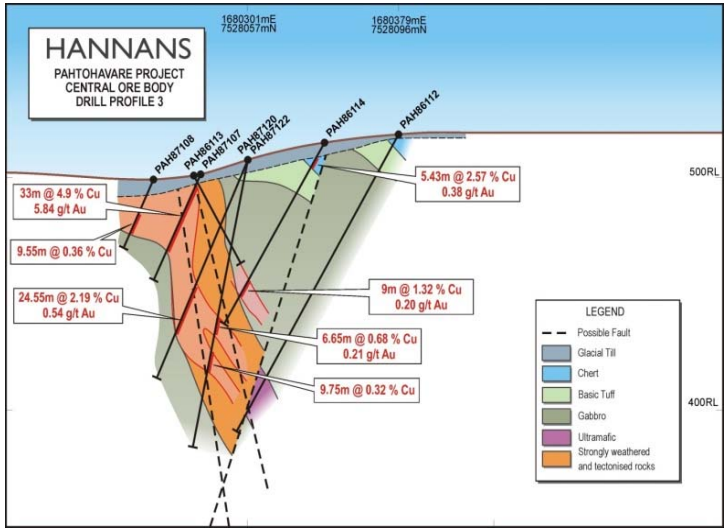
The historic drill assays quoted in this press release were undertaken by Swedish Geological AB and assayed at SGAB Analys in Luleå, Sweden via an acid digest and ICP for all elements except for gold which was via a fire assay. The majority of historic drillcore is 76mm and was sampled to geological boundaries and half-cored.

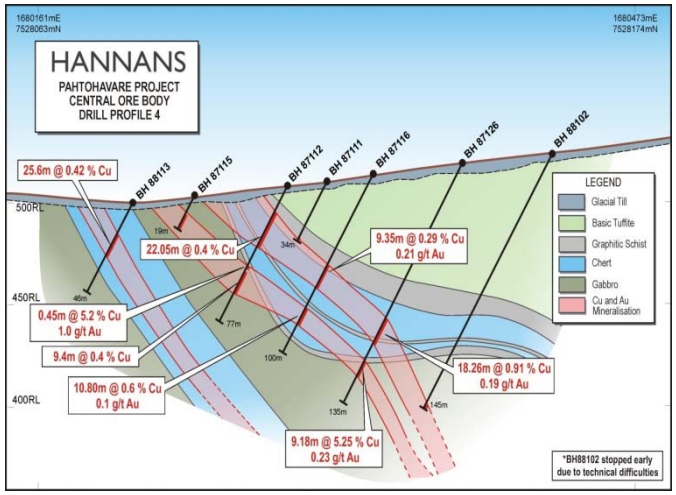
Check assaying of historic drill core from each of the four deposits has been completed by Hannans with excellent correlation. The historic sampling and assaying are considered to have been undertaken using standard industry practice and QA/QC procedures and this has been conformed with the recent check assay results.

Current intercepts are weighted averages calculated using a 0.1% Cu and 0.1g/t Au lower cut-off. Generally the assays were consistent through a mineralised interval but where a high value has been diluted by lower values they have been reported as such in Table 1.

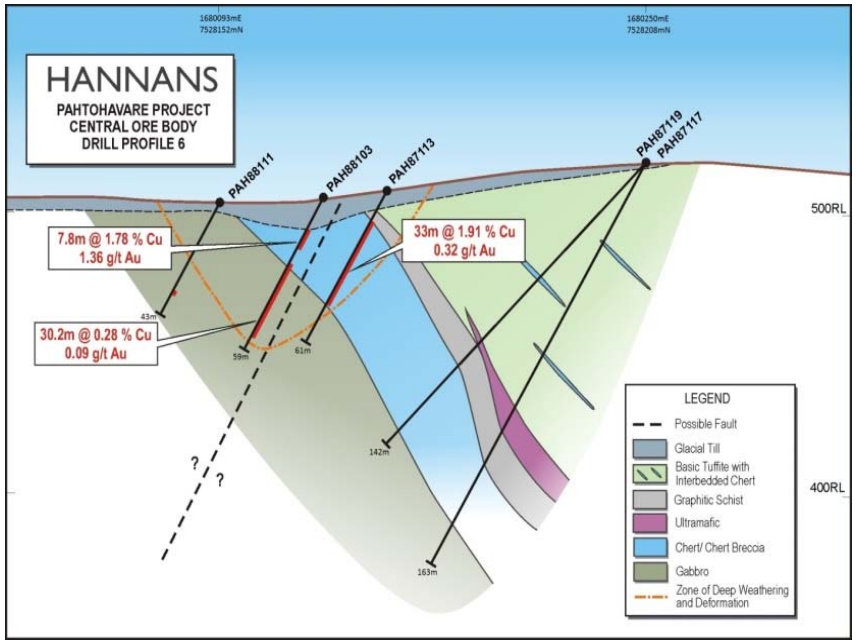
Appendix 1-Central Orebody

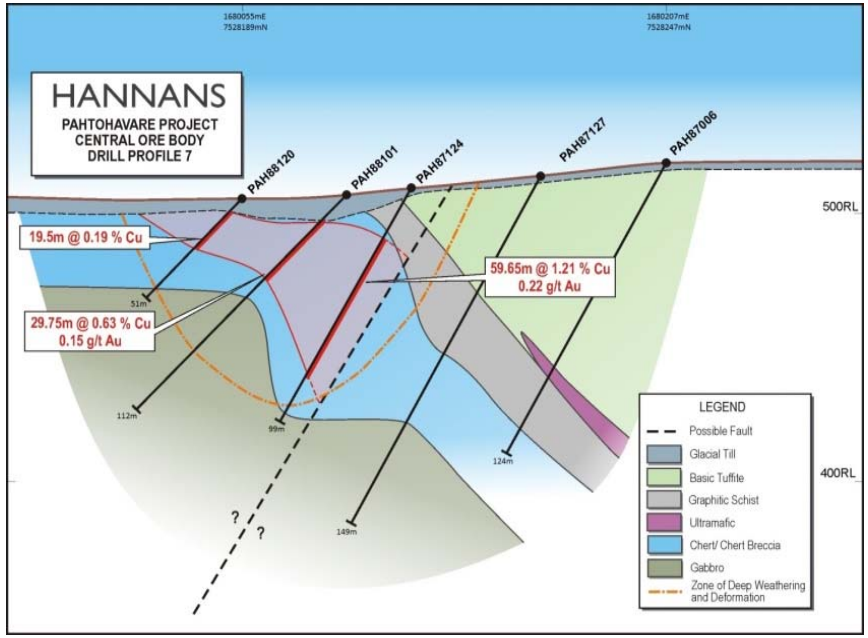




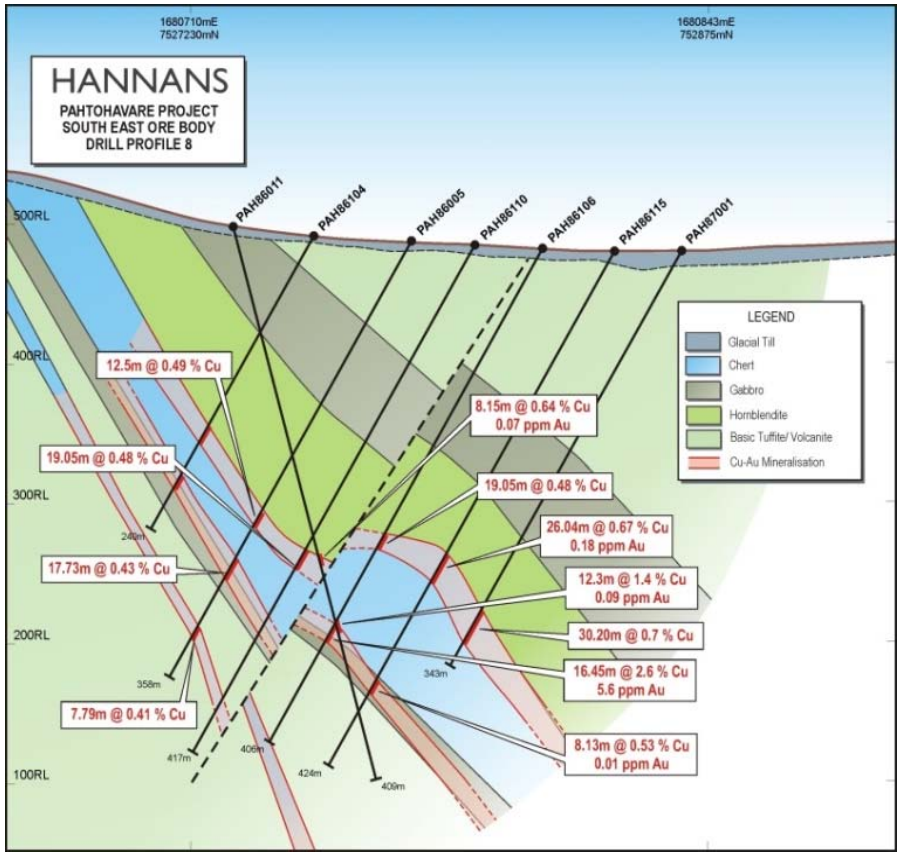


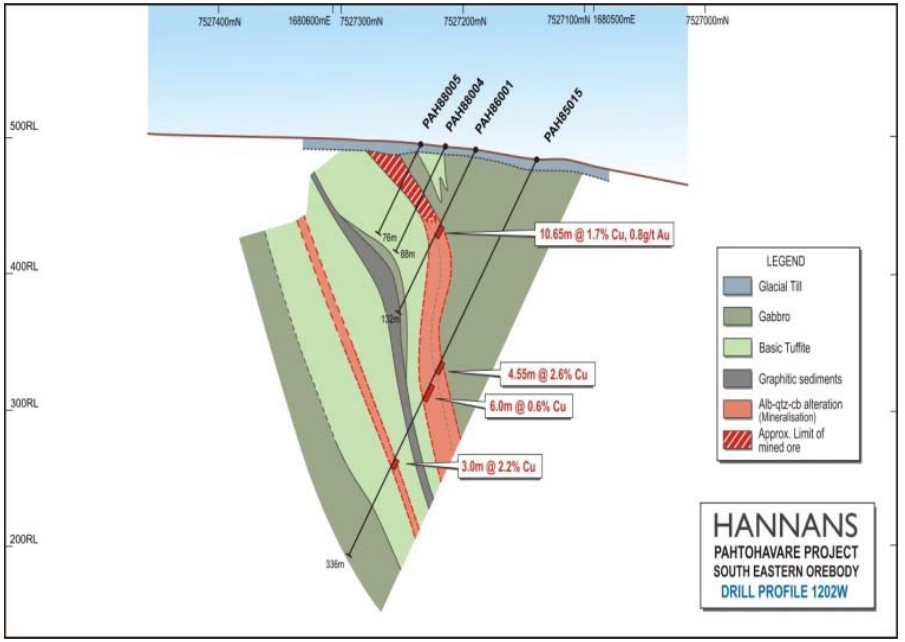
Appendix 1-Central Orebody



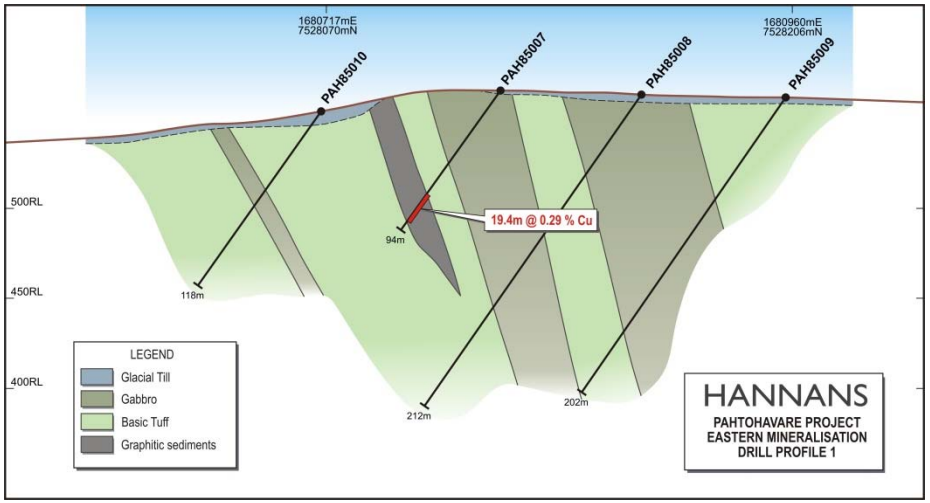


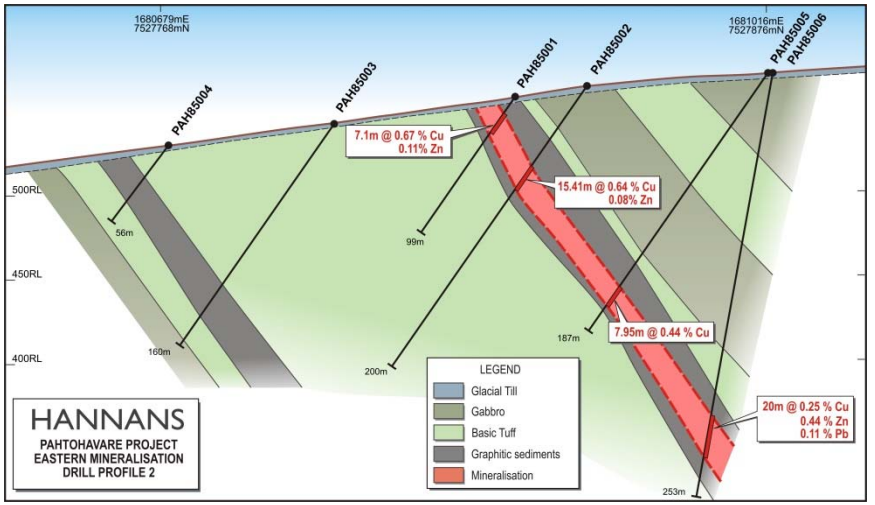
Appendix 1-South Eastern Orebody

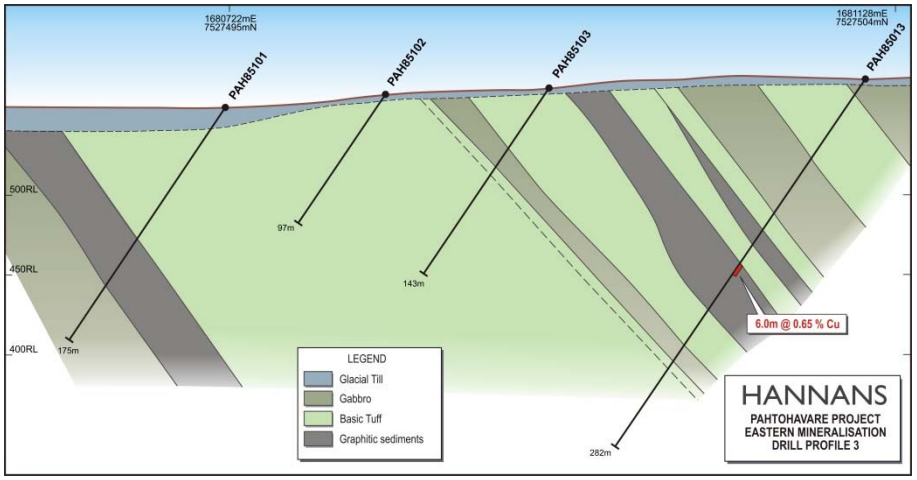




Appendix 1-Eastern Orebody







Appendix 1-Eastern Orebody