

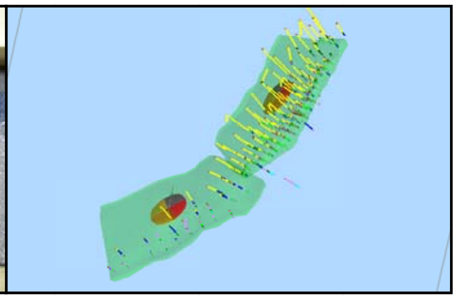

TECHNICAL REVIEW OF THE KAUNISVAARA IRON PROJECT SWEDEN. JUNE 2011.

Prepared Under National Instrument 43-101 and Accompanying Documents 43-101F1 and 43-101CP

Report Prepared for:

NORTHLAND RESOURCES AB

Datavagen 14
Luleå
Sweden 97754

Report Prepared by

SRK Consulting
Engineers and Scientists

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Summary

Introduction

This technical report has been prepared for Northland Resources AB (Northland) by SRK Consulting (UK) Ltd (SRK) in connection with the publication by Northland of the Kaunisvaara Feasibility Study and Northland's reporting requirements related to the Toronto Stock Exchange (TSX). Northland has been listed on the TSX since 2003 (as North American Gold) and is principally an iron exploration and development company with properties in northern Sweden and Finland. This report describes the results of an updated review of the Kaunisvaara Feasibility Study (the Feasibility Study) which comprises the exploitation of the Sahavaara and Tapuli iron ore projects in northern Sweden (the Mineral Assets). The original review had an effective date of 3 October 2010 while this update incorporates the results of amended concentrate logistics studies undertaken by Northland and reviewed by SRK, updated reserve estimates produced by SRK and an updated Technical Economic Model prepared by SRK which reflects all the changes made and revised iron ore price assumptions.

The Kaunisvaara project is a late stage exploration project which when constructed will comprise two conventional open pit mines and a magnetite processing operation producing a concentrate product. Associated infrastructure includes access, service and dumper roads, a waste water treatment plant, two process plant buildings, two stockpile buildings, an administration building, workshops and truck bays, stores building metallurgical laboratory, plant services building, two pump station buildings and an assay laboratory.

SRK prepared the Mineral Resource and Mineral Reserve estimates presented in the Feasibility Study and provided direct geotechnical, hydrological, waste rock management and Acid Rock Drainage inputs to the Tapuli and Sahavaara mine design assumed by this. In preparing this report, SRK has in addition reviewed those aspects of the Feasibility Study completed by Northland and its other contractors and consultants to a sufficient level to enable SRK to present its own opinions on the project and an audited NPV for this.

The Kaunisvaara project comprises two iron ore deposits: Tapuli and Sahavaara, located approximately 100 km north of the Arctic Circle in the municipality of Pajala and near the village of Kaunisvaara. The Sahavaara deposit is located close to the centre of the Kaunisvaara village. This has been historically been referred to as "Stora Sahavaara", but given the use of the name “Södra Sahavaara” for one of the mineralised lenses identified, Northland has now generalized the name to simply Sahavaara. The Tapuli deposit is located approximately 4 km to the north of Sahavaara. The Tapuli project comprises Palotieva to the north and Tapuli to the south, the latter comprising the majority of the contained resource.

Location/Licence

Both Sahavaara and Tapuli are located within the Sahavaara No. 2 exploration licence. Tapuli is also covered by the Tapuli No. 1 and 2 exploitation concessions. The Sahavaara No. 2 Exploration permit covers an area of some 16,456 hectares.

By road, the town of Pajala is located approximately 210 km north of the major city of Luleå, which has 70,000 inhabitants, and about 180 km from Rovaniemi in Finland which has 40,000 inhabitants. Access from Luleå is possible by following the E4 coastal road 55 km to Töre, turning north on E10 and following this for another 50 km to Överkalix and then turning right on road 392 north to Pajala for another 105 km. Access from Rovaniemi can be gained by driving on Route 79, turning off after 21 km on Route 83 at Sinetti to Pello, which is then 98 km from Rovaniemi and where the international border is crossed into Sweden. Taking Route 402 west for 5 km and then Route 99 north for a distance of 52 km the town of Pajala is reached.

History

Prospecting over an area to the northeast of Pajala in the province of Norbotten in 1918 resulted in five “ironstone” or magnetite deposits being discovered. From north to south these were Palotieva, Tapuli, and the Stora, Östra and Södra Sahavaara ironstone occurrences. During the 1940s, Boliden AB discovered the Ruutijärvi ironstone occurrence. The Swedish Geological Survey (SGU) is credited with subsequently discovering a faulted extension of Ruutijärvi called “Blind Ruutijärvi”. In 1958, the SGU, led by prospectors from the Johnson Company, discovered the Karhujärvi and Suksivuoma magnetite deposits, also located in the Kaunisvaara Iron Ore Field. In the 1960s the SGU, with funding and technical assistance from LKAB, began the Iron Ore Inventory Program in the province of Norbotten as part of which ground magnetic and gravity surveys were conducted over the northern portion of the Kaunisvaara Field focusing on Tapuli and Stora Sahavaara. Diamond drilling commenced in 1961 on the Sahavaara occurrences and throughout the early 1960s exploration of Stora Sahavaara progressed, leading to the delineation of a resource. During the latter part of the1960s exploration focused on the Tapuli deposit, leading to the delineation of an additional resource.

Initial resource delineation drilling commenced at Sahavaara in 1960 and continued for five years, during which time 46 drillholes were completed for 11,798 m. Drilling by the SGU in the 1970s increased the number of drillholes to 50 for a total of 12,018 m. The SGU commenced resource delineation drilling at Tapuli in 1965 and continued for five years, during which time 26 drillholes were completed for 6,280 m.

A Mineral Resource Estimate for the Sahavaara iron deposit was prepared by Dr Bart Stryhas in 2006 as an independent consultant to Northland. This was subsequently adopted by Chlumsky, Armbrust and Meyer, LLC (CAM) and presented in the “Technical Report, Sahavaara Project, Northern Sweden”, CAM, 29 June 2006 which was filed with the System for Electronic Document Analysis and Retrieval (SEDAR) on 4 July 2006. In total, CAM reported the Sahavaara project to contain 144.7 Mt of iron ore at a mean grade of 43.1% Fe Total.

A historic Mineral Resource Estimate for the Tapuli iron deposit was prepared by Thomas Lindholm and Dibya Kanti Mukhopadhyay in 2008 as independent consultants to Northland. This was subsequently adopted by GeoVista AB (GeoVista) and presented in the “Tapuli Resource Estimate” and filed with the System for Electronic Document Analysis and Retrieval (SEDAR) on 23 January 2009. In total, GeoVista reported the iron ore resource at Tapuli to be 103.9 Mt at a mean grade of 26.2% Fe.

Geology

Glacial till, gravel, and sand cover the entire Kaunisvaara project area and bedrock exposures are very rare, nearly nonexistent. Large parts of the area are furthermore covered with wetlands with variable thickness, from up to 8 to 10 m in the extremes. Much of the geological interpretation therefore relies on information from drill-core as well as from regional and local geophysical data.

The deposits of the Kaunisvaara project are located adjacent to the westernmost thrust fault of the Pajala Shear Zone (PSZ) along the margin of the Karelian craton. The supracrustal rocks of the area consist of Karelian (2.5-2.0 Ga) quartzites, dolomitic marbles, black schists, mica schists and mafic metavolcanic rocks along with minor Svecofennian (1.96-1.85 Ga) phyllites and quartzitic phyllites. The intrusives in the immediate area of the deposits are dominantly gabbro and diabase (1.89-1.77 Ga) with relatively late-orogenic granites (1.82-1.79 Ga) to the west. Metasomatic skarns occur in association with the magnetite deposits (Kaunisvaara PEA, 2009).

The Sahavaara deposit occurs as a continuous “seam” located between a hanging-wall quartzite and footwall graphitic schist. Minor remnants of skarn-altered dolomite occur within the deposit and likely reflect the original protolith. At Sahavaara, the mineralisation consists of one main lens and a smaller adjacent mineralised lens. The main mineralisation domain (Stora Sahavaara) has a NNE-SSW orientated strike length of 1300 m, dips at 50-70 degrees to the west, plunges to the north and is concordant with the host sedimentary rocks. The mineralisation is generally open down-dip below the limits of the resource model. The mineralisation comprises magnetite, serpentine, pyrrhotite, pyrite, and tremolite. Phlogopite, diopside, chlorite, talc, valleriite, chalcopyrite, graphite, scapolite, vesuvianite, and apatite also occur as minor constituent minerals.

The bedrock at Tapuli consists of Precambrian supracrustal sedimentary sequences. The deposit occurs as set of strata-bound, semi-continuous, tabular bodies. The mineralisation comprises magnetite with occasional trace amounts of chalcopyrite, pyrite, pyrrhotite, and tochinilite.

Recent Exploration

During 2005, Northland drilled 14 diamond core holes at Sahavaara for a total of 2,424 m and during 2007, a further 37 diamond core holes at Tapuli for a total of 5,695 m. There were three objectives to the drilling programs: to twin historic SGU drillholes; to collect fresh metallurgical samples; and to expand the current resource with both infill and step-out drilling.

At Sahavaara and as a result of the drilling, two mineralization wireframes were digitized using Datamine software; Stora Sahavaara and Södra Sahavaara. Stora is the larger and contains the most drillhole intercepts. It measures 1.2 km along strike (on a 015° azimuth), and 10 - 80 m across strike, being fairly consistent along the strike length. It was modelled to an elevation of -600 m (dipping 60-65° to the west), and contains 36.9 million m^3 of material.

Södra measures 1.2 m along strike (on a 050° azimuth), and 5 –65 m across strike. It was also modeled to a depth of -600 m (dipping 50-60° to the west), and contains 18.5 million m^3 of material.

At Tapuli, as a result of the drilling, two mineralization wireframes were digitized using Datamine software; Tapuli and Palotieva. Tapuli is by far larger and contains the most drillhole intercepts. It measures 2.7 km along strike (1.8 km on a 055° azimuth, and 0.9 km on a 025° azimuth), and 10 - 250 m across strike, with the northern and southern ends being thinner than the central portion. It was modeled to an elevation of -300 m (dipping 40-60° to the northwest), and contains 64.6 million m^3 of material.

Palotieva measures 360 m along strike (on a 70° azimuth), and 10 –30 m across strike. It was also modeled to a depth of -300 m (dipping 60° to the northwest), and contains 7.7 million m^3 of material.

It is reported that the SGU utilized a standard professional protocol for the sampling for all deposits in the Iron Ore Inventory project and indeed it is readily apparent that the sampling intervals commence and finish based on visual estimates of magnetite mineralisation. Irregular sample lengths were used within these intervals, ranging between 0.2 and 6.0 m at Sahavaara, the most commonly used being 1 or 2 m. The core size was 46 mm and the core was halved for the sampling. The selected sample sections were sawed in half at LKAB's facility in Kiruna, and drill cores were stored in an underground archive in Kiruna. A limited number of the holes are still held in storage at the SGU national core archive in Malå.

Northland sampled all the mineralised zones, along with a reasonable amount of altered skarn above the magnetite-bearing material and up to about 10 m of footwall rocks to ensure that the mineralisation was entirely captured. Sample intervals started and stopped slightly beyond the visual limits of the mineralised skarn zone. Within these boundaries, the standard sample interval was 1 m. Once the geologic and geotechnical logging was completed, the sample intervals were marked onto the core boxes and photographed.

SRK was not involved with any of the sampling procedures, so cannot comment on the security or handling along the sample chain.

Northland maintains its own QA/QC programme consisting of inserting blanks, duplicates and standards to the analytical process. It is the opinion of SRK, however, that an insufficient number of samples have been incorporated in to the sample stream to date. Given that some 17% of the database comprises historical data with no historic QAQC reporting possible, this makes such checks on the more recent drilling even more important. It is also the opinion of SRK that the chosen blank, being a diabase with an inherent Fe and S content, is not suitable for purpose and that grade deviations in the results of the blank samples could be attributed to either the poor homogeneity of the blank or laboratory contamination.

While the results of the laboratory duplicates show that a reasonable level of confidence can be attributed to the more recent drill samples used in the Mineral Resource Estimate, SRK has recommended that henceforth at least 10% of assays are check assayed and that this is supplemented by the use of certified standards, appropriate blank samples, laboratory duplicates and the addition of field duplicates to check the sample preparation processes.

Northland obtained the original hardcopies of drill logs and assays from the SGU. A verification exercise was conducted on the historic data, which included a review of drillhole logs and plot, the verification of the location of drill collars and a review of drillhole surveys and orientation data. In addition twin-hole programmes were set up for each project to check for lithology and assay reliability.

The twin-hole program at Sahavaara comprised three holes. While there is generally a good correlation between Northland's drilling and the historical drilling of SGU, the results from two of the twinned drillholes confirmed the significant short-range variability in both grade and thickness.

The first of the two holes twinned at Tapuli show very good correlation while the second exhibited somewhat less correlation. This is probably due to inaccurate collaring of the hole which resulted in it deviating some 15 degrees from the original SGU hole resulted in a large spatial difference between the samples.

Resource Estimation

The most up to date Mineral Resource and Reserve estimates for the Kaunisvaara project were produced by SRK in 2010 for inclusion in the Feasibility Study. The Mineral Resource estimates given in this report are presented inclusive of those transferred to Mineral Reserves and are therefore not additional to these.

The preliminary statistical review undertaken showed that magnetite, being the principal Fe source for the project, is present within the various logged skarn lithologies at Sahavaara and Tapuli. A review of the Magnasat data shows that with increasing %Fe Total content, an increasing magnetic signature with a linear relationship is observed. Additionally, through the visual inspection of the diamond drill core for the various logged lithologies, it is clear that magnetite is present within the lower grade skarn lithologies, although clearly disseminated.

Notwithstanding the above, SRK recognises that a portion of the %Fe Total, especially in the lower grade skarn lithologies, will be related to Fe silicates, though this is concentrated within material with a %Fe Total content of less than 10%. Whilst Fe silicates may be present within material with a Fe Total grade in excess of 10%, there is clearly a dominant magnetite content in this material and given this a lower boundary of 10%Fe Total was used to separate the mineralised from the none mineralised skarn units at both Sahavaara and Tapuli.

At Sahavaara an upper cut-off of 50%Fe Total was used to generate a continuous high grade domain and at both Sahavaara and Tapuli, internal zones of continuous un-mineralised skarn were also domained based on a 10%Fe Total grade. At Tapuli, additional domains were created that separated out high and low sulfur zones. The 10% Fe Total mineralisation domain created for Tapuli is also cross cut by vertical fault structures with the mineralisation domain abutting against the faults in places.

Directional experimental semi-variograms were produced for Fe Total, Al_2O_3, CaO, K_2O, MgO, Mn, P, S, SiO_2 and TiO_2. The semi-variograms were produced using a 4 m (composite length) lag in the downhole direction allowing the short-scale structures and nugget variance to be determined. At Sahavaara, along strike (022°) and down-dip (63° to the west) variograms were then produced with the nugget fixed from the downhole variogram, and using a lag spacing of 50 m with a 50% tolerance being applied to the lag spacing. This spacing was chosen to mirror the minimum drillhole spacing within the Sahavaara project. No plunge has been identified by Northland and none was evident from the variography.

At Tapuli, along strike (060°) and down-dip (45° to the northwest) variograms were produced with the nugget fixed from the downhole variogram, and using a lag spacing of 50 m with a 50% tolerance being applied to the lag spacing. This spacing was chosen to mirror the minimum drillhole spacing in the along strike direction. No plunge has been identified by Northland and none was evident from the variography.

In summary, robust variograms were produced for both Sahavaara and Tapuli and in the downhole, along-strike and down-dip directions and for all element fields. The results of the variography were used in the interpolation to assign the appropriate weighting to the samples pairs being utilised to calculate the block model grade. The total ranges modelled have also been used to help define the optimum search parameters and the search ellipse dimensions used in the interpolation. Ideally, sample pairs that fall within the range of the variogram where a strong covariance exists between the sample pairs should be utilised if the data allows. Applying a 2/3rd rule to the total range of the variograms in the search ellipse dimensions forces the interpolation to use samples where the covariance between samples exists.

As a result of the variography, ordinary kriging (OK) was deemed the most appropriate interpolation technique with a Quantitative Kriging Neighbourhood Analysis (QKNA) being undertaken prior to interpolation. QKNA provides a useful technique that uses mathematically sound tools to optimise a search area. It is an invaluable step in determining the correct search area for any estimation or simulation exercise.

A three dimensional block model was constructed for the resource region, covering all the interpreted mineralisation domains and including suitable additional waste material to allow pit optimisation studies.

At Sahavaara, an empty block model was generated using the mineralisation and host lithology wireframes with blocks of 25mY by 10mX by 12mZ dimension. A block width of 10m was chosen due to the overall dimensions of the mineralisation. At Tapuli, an empty block model was generated using the mineralisation and host lithology wireframes with blocks of 25mY by 25mX by 12mZ dimension. In both cases, the block dimensions approximate half the drillhole spacing along strike (25 m) and the assumed working bench height of the operating pit (12 m).

In the ore domains at Sahavaara, a total of 1,202 density samples are present from the post 1960s era drilling and at Tapuli, 1,605 density samples are present within the key domains. A strong correlation exists between %Fe Total and density and it was therefore deemed appropriate to interpolate the density values into the block model via a regression formula based on the %Fe Total grade. Each plot has been fitted with a second order polynomial trendline and the resultant equation was used to calculate a unique density for each block in the block model upon completion of the interpolation.

In addition, a total of 310 density measurements have been taken from the different waste domains at Sahavaara, and 764 at Tapuli. Average density values were calculated from these and were applied to the block model for the various waste domains identified.

Grades of Fe, Al_2O_3, CaO, K_2O, MgO, Mn, P, S, SiO_2, and TiO_2 were interpolated into the model using OK and the kriging parameters determined from the variography and QKNA study.

To classify the Sahavaara and Tapuli deposits, the following key indicators were used:

- geological complexity;
- quality of data used in the estimation:
  - QAQC, density analysis
- results of the geostatistical analysis
  - variography, and
  - QKNA results; and
- quality of the estimated block model.

To determine the final Mineral Resource Statement, and so as to comply with the CIM guidelines, the resulting blocks were subjected to a Whittle pit optimisation exercise to determine the proportion of the material defined that has a reasonable prospect of economic extraction. This exercise is not intended to generate a Mineral Reserve and was purely used to assist in determining at what depth to limit the reported resource.

The Mineral Resource Statement generated by SRK has been restricted to all classified material falling within a Whittle shell derived assuming a metal price of 110 US¢/dmtu per dry metric tonne unit (dmtu) for magnetite concentrate and represents the material which SRK considers has reasonable prospect for eventual economic extraction. Table 1 shows the resulting Mineral Resource Statement for Sahavaara and Table 2 shows the resulting Mineral Resource Statement for Tapuli.

The statement has been reported by Qualified Person Howard Baker (MAusIMM) in accordance with the CIM Standards on Mineral Resources and Reserves (the CIM Code) prepared by the Canadian Institute of Mining, Metallurgy and Petroleum and has an effective date of 26th March, 2010.

The quantity and grade of the reported inferred resource are uncertain in nature, there has been insufficient exploration to define these as an indicated or measured mineral resource; and it is uncertain if further exploration will result in upgrading them to an indicated or measured mineral resource category in due course.

In total, SRK has derived a combined Measured plus Indicated Mineral Resource for Södra Sahavaara and Stora Sahavaara of 86.8 Mt grading 39.82%Fe Total, 1.93%S, 18.26% SiO_2 and 14.63% MgO. Of this, 30.2 Mt grading 42.96%Fe Total and 2.66%S has been reported as Measured and 56.6 Mt grading 38.14%Fe Total and 1.55%S as Indicated. In addition some 34.7 Mt grading 37.28%Fe Total and 1.44; %S has been reported as an Inferred Mineral Resource. Some 13.8 Mt of the Measured plus Indicated Mineral Resource comprises “high grade” material and has a mean grade of 53.38%Fe Total and 3.03%S.

In addition SRK has derived a Measured plus Indicated Mineral Resource for Tapuli of 107.4Mt grading 26.01%Fe Total, 0.23 S%, 26.99% SiO_2 and 17.47% MgO. Of this, 52.8 Mt grading 27.02 %Fe Total and 0.23 %S has been reported as Measured and 54.6 Mt grading 25.04 %Fe Total and 0.24 %S as Indicated. An additional, 24.7 Mt grading 24.58 %Fe Total and 0.23 %S has been reported as an Inferred Mineral Resource.

Table 1: Sahavaara Mineral Resource Statement

Domain	Resource Category	Tonnes (Mt)	FE Total %	S %	SIO_2 %	MGO %	AL_2O_3 %	CAO %	P %	MN %
Södra	Measured	0	0	0	0	0	0	0	0	0
	Indicated	20.6	30.65	0.55	27.51	14.16	1.87	7.61	0.03	0.14
	Meas+Ind	20.6	30.65	0.55	27.51	14.16	1.87	7.61	0.03	0.14
	Inferred	12.6	30.12	0.65	27.89	13.97	1.84	7.89	0.03	0.14
Stora (low grade)	Measured	23.0	39.46	2.51	16.92	15.76	1.51	1.91	0.08	0.10
	Indicated	29.4	40.15	1.95	17.16	16.19	1.07	2.16	0.06	0.10
	Meas+Ind	52.4	39.85	2.19	17.06	16.00	1.26	2.05	0.07	0.10
	Inferred	20.6	40.37	1.83	17.80	16.48	0.84	2.04	0.05	0.10
Stora (high-grade)	Measured	7.2	54.09	3.16	8.27	10.18	0.73	0.64	0.06	0.10
	Indicated	6.6	52.59	2.89	9.81	10.02	0.75	1.07	0.05	0.10
	Meas+Ind	13.8	53.38	3.03	9.00	10.11	0.74	0.84	0.06	0.10
	Inferred	1.5	54.64	2.63	7.18	8.15	0.74	1.31	0.03	0.09
TOTAL	Measured	30.2	42.96	2.66	14.85	14.43	1.32	1.61	0.07	0.10
	Indicated	56.6	38.14	1.55	20.08	14.73	1.32	4.02	0.05	0.12
	Meas+Ind	86.8	39.82	1.93	18.26	14.63	1.32	3.18	0.06	0.11
	Inferred	34.7	37.28	1.44	20.99	15.21	1.20	4.13	0.04	0.11

Table 2: Tapuli Mineral Resource Statement

Domain	Resource Category	Tonnes (Mt)	Fe Total %	S %	SiO_2 %	MgO %	Al_2O_3 %	CaO %	P %	Mn %
Tapuli Low S	Measured	47.5	27.34	0.10	24.76	18.38	1.76	6.10	0.06	0.08
	Indicated	46.0	25.24	0.07	28.27	17.66	1.84	8.27	0.05	0.11
	Meas+Ind	93.4	26.31	0.08	26.49	18.02	1.80	7.17	0.06	0.10
	Inferred	20.5	24.82	0.07	27.76	18.63	1.77	7.05	0.06	0.11
Tapuli High S	Measured	5.4	24.15	1.36	30.12	13.71	5.16	8.12	0.09	0.07
	Indicated	2.7	22.97	1.36	31.54	13.99	5.56	9.48	0.10	0.07
	Meas+Ind	8.0	23.76	1.36	30.59	13.80	5.29	8.57	0.09	0.07
	Inferred	1.4	22.88	1.44	32.21	13.78	5.78	9.46	0.10	0.07
Palotieva Low S	Measured	0	0	0	0	0	0	0	0	0
	Indicated	1.6	22.52	0.12	38.52	12.79	1.40	14.96	0.03	0.08
	Meas+Ind	1.6	22.52	0.12	38.52	12.79	1.40	14.96	0.03	0.08
	Inferred	1.3	22.45	0.10	39.32	12.72	1.17	14.69	0.03	0.08
Palotieva High S	Measured	0	0	0	0	0	0	0	0	0
	Indicated	4.3	25.11	1.42	26.96	13.99	2.38	10.65	0.03	0.06
	Meas+Ind	4.3	25.11	1.42	26.96	13.99	2.38	10.65	0.03	0.06
	Inferred	1.5	24.61	1.49	26.44	13.82	2.19	10.56	0.04	0.06
TOTAL	Measured	52.8	27.02	0.23	25.31	17.90	2.10	6.31	0.07	0.08
	Indicated	54.6	25.04	0.24	28.63	17.05	2.05	8.72	0.05	0.11
	Meas+Ind	107.4	26.01	0.23	26.99	17.47	2.08	7.53	0.06	0.09
	Inferred	24.7	24.58	0.23	28.53	17.75	2.00	7.80	0.06	0.10

Reserve Estimation

The Feasibility Study reports a Mineral Reserve for the project as defined by the CIM Code and also derived by SRK which is based on the above Mineral Resource Estimate.

Specifically, SRK derived optimised pits for the Project based on the material reported as Measured and Indicated Mineral Resources. The operating costs assumed for the optimisation were agreed between SRK and Northland while the metallurgical recoveries were provided by Bo Arvidson Associates. Two separate designed pits were then developed from the optimised pits, Tapuli and Sahavaara. Table 3 below presents the Mineral Reserve estimate derived following this process.

These tonnages have been based on a long term price forecast of 150 US¢/dmtu. The tonnes and grades reported are undiluted and do not have a mining recovery factor applied. Given the relatively homogeneous nature of the ore lenses, SRK does not believe the application of such factors would be material in this case.

Table 3: Kaunisvaara Mineral Reserve Statement

Tapuli	Reserve Classification	Tonnes (Mt)	Fe (%)	S (%)	SiO_2 (%)	MgO (%)	Al_2O_3 (%)	CaO (%)	P (%)	Mn (%)	TiO_2 (%)	K_2O (%)
Measured	Proven	51.7	27.14	0.21	25.14	17.96	2.04	6.24	0.06	0.08	0.17	0.63
Indicated	Probable	42.8	25.32	0.23	28.33	16.89	2.02	8.78	0.05	0.11	0.15	0.46
TOTAL		94.5	26.31	0.22	26.59	17.47	2.03	7.39	0.06	0.09	0.16	0.55
Sahavaara	Reserve Classification	Tonnes (Mt)	Fe (%)	S (%)	SiO_2 (%)	MgO (%)	Al_2O_3 (%)	CaO (%)	P (%)	Mn (%)	TiO_2 (%)	K_2O (%)
Measured	Proven	30.2	42.96	2.66	14.85	14.43	1.32	1.61	0.07	0.10	0.09	0.28
Indicated	Probable	40.2	40.17	1.81	17.94	14.88	1.19	2.90	0.05	0.11	0.09	0.31
TOTAL		70.4	41.37	2.18	16.61	14.68	1.24	2.35	0.06	0.11	0.09	0.29
	Reserve Classification	Tonnes (Mt)	Fe (%)	S (%)	SiO_2 (%)	MgO (%)	Al_2O_3 (%)	CaO (%)	P (%)	Mn (%)	TiO_2 (%)	K_2O (%)
	Proven	81.9	32.98	1.11	21.34	16.66	1.78	4.53	0.07	0.09	0.14	0.50
	Probable	83.0	32.51	1.00	23.30	15.91	1.61	5.93	0.05	0.11	0.12	0.39
	Total	164.9	32.74	1.06	22.33	16.28	1.70	5.23	0.06	0.10	0.13	0.44

SRK is confident that sufficient geological work has been undertaken, and sufficient geological understanding gained, to enable the construction of an orebody model suitable for the derivation of Mineral Resource and Mineral Reserve estimates. SRK considers that both the modelling and the grade interpolation have been carried out in an unbiased manner and that the resulting grade and tonnage estimates should be reliable within the context of the classification applied. In addition, SRK is not aware of any metallurgical, infrastructural, environmental, legal, title, taxation, socio-economic or marketing issues that would impact on the mineral resource or reserve statements as presented.

Mine Design

Engineered pit designs have been completed for both deposits. The Sahavaara deposit is mined via a single pit, while the Tapuli deposit is composed of a large, elongated central pit and a small satellite pit to the north east. The Tapuli pit contains 333.9Mt of material comprised of 94.5Mt of ore at a grade of 26.3% Fe and 239.4Mt of waste. The Sahavaara pit contains 373.1Mt of material comprised of 70.4Mt of ore at a grade of 41.4% Fe and 302.8Mt of waste. Prior to production commencing at each cutback within both deposits, the overburden will need to be stripped. The schedule has been designed to ensure mine production is not affected by the overburden stripping operation. All cutbacks will be stripped prior to the commencement of mining operations.

The project requires 12Mt of crusher feed per annum (combined from both deposits). The maximum total annual material movement for the Tapuli deposit is 28Mtpa. The maximum total material movement for the Sahavaara deposit is 42Mtpa.

The pit design assumes a surface mine operation using drill and blasting operations, a mixed fleet of tracked and wheel loading equipment and conventional haul trucks.

Drilling and blasting will be performed on 12 m high benches, with blasted material excavated in a single pass. It has been assumed that all of the mined material will require blasting, except for the thin layer of overburden. Planned grade control measures include blast hole sampling. Northland has indicated that these measures will be reviewed after the commencement of ore production to determine if any additional grade control measures are required.

The haul roads have been designed to suit a Caterpillar 793D (228 t capacity) or equivalent dump truck with an operating width of 7.5m. A 30m wide dual lane ramp allows for a safe operating width of 2.5 truck widths plus windrows and drainage with single lane access for the last 36 vertical metres (3 benches) of depth in the pits. The ramp gradient has been designed at 10%.

A minimum mining width of 100m has been assumed where possible to suit an excavator and 228t rigid body off-highway truck. This mining width allows cutbacks to progress without effecting productivity by mining smaller tight cutbacks. There will be sections of each bench that are less than the designed minimum mining width, however these areas have been minimised.

A crushing station location has been designed close to the exit of each pit. Ore will be hauled by trucks to this crushing station and dumped. Material has been planned to be direct tipped into the crusher without the need for a large Run of Mine (ROM) stockpile. A conveyor system will feed the material from the respective crushing station to a processing facility located adjacent to the Tapuli deposit.

A small ROM stockpile has been planned adjacent to the crushing station at each pit to account for operational delays and minor crusher breakdowns. This stockpile will be utilised during the commissioning phase of the crushing and processing facility whilst the pit develops to a state that production can be maintained.

The mine is planned to operate for 365 working days per year, with mining being carried out on a rotating shift policy. A 5 panel shift pattern has been created that incorporates both 8 hour and 12 hour shifts. The mining aspects of the project will employ approximately 300 permanent employees.

Mineral Processing/Plant Design

Magnetite iron ore from the Tapuli and Sahavaara pits will be upgraded in a processing plant to be located at Kaunisvaara. The predominant economic mineral at both deposits is magnetite. The Sahavaara ore also contains pyrrhotite which is weakly magnetic and reports with the magnetite and has to be removed from the concentrate by flotation.

The 12 Mtpa processing plant will comprise two streams. Stream 1 on the northern side of the plant will treat ore from the Tapuli pit and Stream 2 on the southern side will treat ore from the Sahavaara pit. Each stream will be designed to treat 6 Mtpa of ore per year at a nominal processing rate of 761 tph. These streams will be similar and will operate independently of each other with the exception of the plant utility systems (such as water, reagents and compressed air), the final tailings pumping system, the final concentrate filtration system and the concentrate storage and truck load-out which will serve both streams.

Over the life of the mine, the total concentrate production will be similar from each pit. The average yield over project life will be approximately 35.9%. The overall grade of the magnetite concentrate produced will be approximately 69% Fe and it will contain < 0.05% S, < 1% SiO_2 and < 2 to 3% MgO. The MgO figure is high compared to other concentrates on the market (typically 0.02 to 0.48% MgO) and consequently the concentrate will have to form part of a blended feed to either direct reduction or blast furnace operations.

The testwork undertaken on the high and low sulfur ore types has demonstrated the metallurgy for both the Tapuli and Sahavaara deposits and the selected process route is considered by SRK to be appropriate for both.

Sufficient engineering has been performed to establish the plant capital cost assuming a contingency of 10% and the implementation schedule and while the potential effect of weather windows on the overall schedule should be reassessed if the project start date changes significantly, the construction and plant ramp up time for both Tapuli and Sahavaara streams is considered realistic.

Concentrate Transport

After reviewing various options of transporting and shipping of concentrates from Kaunisvaara, the route selected by Northland is through the port of Narvik in Norway. This entails trucking the concentrate to link up with existing rail facilities at Svappavaara. There the concentrates will be stockpiled and loaded onto side tipping wagons by front end loader and transported to the port of Fagernes in Narvik. In Narvik, the trains will be de-iced before being unloaded and the concentrates stockpiled in a covered shed before being conveyed to a radial shiploader on a quay to be constructed.

In SRK's opinion, the proposed method and route for the export of concentrates from Kaunisvaara to the port of Narvik has been established in principle and in sufficient detail to determine the feasibility of the selected route and associated capital and operating costs.

Northland is in negotiations to form a Joint Venture Company with interested parties involved in the development and running of the transport corridor from Kaunisvaara to Narvik for the export of concentrates. This Joint Venture Company will fund the development of the new facilities at Svappavaara and Narvik through a mix of equity and external financing. The road trucks and railway rolling stock will be leased to the Joint Venture Company for the duration of the venture.

The options selected have been developed to a reasonable degree of detail enabling an estimate to be produced that has a degree of confidence that is suitable for the DFS. The capital costs required for the infrastructure and the transportation of concentrates have been assessed in detail and where the designs are conceptual reasonable allowances have been made. The estimated cost is US$145m based on the Project exchange rate of SEK 8.125:US$1.00.

Tailings/Waste Rock Management

The Kaunisvaara Tailings Management Facility has been designed as a central thickened discharge facility to overcome the environmental constraints presented by the selected site for development. This design assumes the tailings will be discharged from the central portion of the facility towards the outer perimeter. No water will be stored within the tailings portion of facility, with slurry water conveyed directly to the clarification pond.

The central discharge scheme could however involve different types of operational risks associated with winter operation. Notably:

- Slumping may occur within particular sections of the tailings beach due to freeze/thaw cycles throughout the year. This process will affect the overall beach angle resulting in reduced capacity for tails storage. Additional drainage structures at the base of the perimeter embankment would negate this issue, as entrained water will be removed from the tailings during the operational phase, and if incorporated would have minimal impact upon the currently forecast capital and operating expenditures;
- There is a risk that the projected 4% tailings beach angle will not be achieved. If this is the case the forecast operating costs would increase as higher containment embankments would be required.
- There could be issues regarding water return to the clarification pond in winter months due to freezing of the area conveying the water (ditches around the facility). While provisions for winter water return will therefore need to be considered in more detail, SRK does not belive that this will have any material implications for the envisaged capital expenditure.

The primary waste rock dump storage facility comprises two dumps: one at Tapuli and one at Sahavaara. The engineering design and the preliminary capital cost estimate for the dumps has been derived by SRK following a geotechnical site investigation, laboratory testing and stability analyses.

The waste rock dump storage facility was designed as part of the October 2010 study and has not been updated with recent changes to the mining schedule. That said, the current plan mines less waste than the October 2010 study and as it stands the current waste rock dump design and capacity criteria are therefore still valid and robust. Notwithstanding this, it is recognised that the waste rock dump storage facility aspects of the study may benefit from an update to match the current mining schedule and that this may result in certain cost savings. These are unlikely, however, to be material to the project as a whole.

The total tonnage of the waste (soil and rock) to be stored, based on the October 2010 study was calculated at 300Mt and 400Mt for the Tapuli and Sahavaara pits respectively. The recent update to the mining schedule shows that the total tonnage of (soil and rock) to be stored is calculated at 240Mt and 303Mt for the Tapuli and Sahavaara pits, this being a reduction in 60Mt and 97Mt respectively.

The ongoing kinetic geochemical testing for the ARD potential of the waste rock will confirm the suitability of the Sahavaara closure encapsulation method. This data will be reviewed when available and incorporated at detailed design stage to ensure that the current design includes the latest testwork results.

The envisaged capital expenditure for dump development including peat stripping, excavation and placement will require confirmation upon completion of negotiations with the contractors. The present unit costs used in the model were derived by Northland and are supported by real quotes from local contractors but are relatively low when compared to other similar projects.

SRK has put forward specific monitoring measures to ensure peat deformation and slope failures are minimised throughout the operational phase of the dumps. These will need to be observed at all times to ensure that operations are not compromised by potential localised peat failures.

Environmental Management

Northland has undertaken a comprehensive environmental and social impact assessment process for both pits and the Kaunisvaara processing site and tailings storage facility. The ore transport option through the port of Narvik in Norway may require additional environmental and social impact assessments to be undertaken.

No environmental and social fatal flaws have been identified but a number of issues exist that will need to be evaluated proactively to ensure additional material costs are not incurred, in particular: the acid rock drainage potential associated with some of the Sahavaara mine waste rock and tailings disposal; the impacts on ecologically protected areas; resettlement and land acquisition; changes to the transport option; and the relationships with the local Sámi who are the Sameby concession holders.

The necessary permits have either been obtained or there is a strategy in place to obtain these. There is a risk of the Sahavaara environmental permit application submission being delayed due to requests by the Environmental Court for reformatting the application in line with changes in permitting practice subsequent to the submittal of the application.

Economic Modelling

SRK has constructed a pre-tax and pre-finance Technical Economic Model (TEM) to derive a Net Present Value (NPV) for the Kaunisvaara project based on the technical assumptions developed as part of the Feasibility Study. This model currency is the US Dollar (USD) and any Swedish Krona (SEK) or Euro (EUR) derived costs have been converted at a SEK:USD exchange rate of 8.125:1 for operating costs and 6.57 for capital costs. A EUR:USD exchange rate of 0.7813:1 has been used for both capital and operating costs. In addition the model is based on a base case discount rate of 8% which starts in Q1 2010 and is presented in real 2010 terms.

The forecast capital and operating costs incorporated into the TEM have been reviewed by SRK and accepted as being reasonable given the information currently available and in the context of the Feasibility Study. The forecast operating costs total USD 3,491 million, including a 5% contingency over the life of mine while the forecast capital costs total USD 899 million and include a 10% contingency.

The TEM currently assumes that the ore will be transported to the port of Narvik in Norway and that the capital costs associated with the development of the transport corridor involving road transport to Sappavaara and rail to the shiploading port at Narvik will be borne by a Joint Venture company involving Northland and two interested parties who are currenly negotiating their participation in the Joint Venture with Northland. It is anticipated that funding will come from JV equity of 30% and 70% from financing still to be arranged. The capital and operating costs have been estimated in detail. This detail has been included in the current TEM where the cost per tonne for transport and shiploading, inclusive of capital, has been calculated. The rate per tonne for transportation of concentrates from Kaunisvaara to the ship at the port in Narvik amounts to US$26.4, but this does not include any allowances for return on JV equity or JV profit as those are still subject to negotiation.

The resulting pre-tax, pre-finance NPV derived by SRKis USD 1 465 million, assuming an 8% discount rate. SRK notes that this valuation is significantly higher than the previous Project valuation of USD 770 million, as derived by SRK and presented in the technical report entitled "Technical Review of the Kaunisvaara iron project, Sweden", dated 3 October, 2010. The principal reason for this increased NPV can be attributed to substantially higher commodity price forecast data incorporated into the updated TEM. These price assumptions were developed by Northland on the basis of an independent third party report by Raw Materials Group and public domain dry bulk shipping cost forecast data.

SRK Qualifications

The work undertaken by SRK in compiling this report has been managed by Mr Howard Baker, a Principal Mining Geologist with SRK. Mr Baker is a Qualified Person (QP) as defined by the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) and outlined in National Instrument 43-101 of the Canadian Securities Administrators (NI 43-101). An appropriate certificate for Mr Baker accompanies this report. Mr Baker was also responsible for the Mineral Resource Estimates undertaken for the Sahavaara and Tapuli iron ore projects. As part of this work, SRK undertook a site visit and made first hand observations of the core, collection and core logging procedures employed and reviewed all data available for the Sahavaara and Tapuli deposits.

The Mineral Reserves and mine design work outlined in this report has been conducted by Mr Chris Reardon a Principal Mining Engineer with SRK. Mr Reardon is a Qualified Person (QP) as defined by the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) and outlined in National Instrument 43-101 of the Canadian Securities Administrators (NI 43-101). An appropriate certificate for Mr Reardon accompanies this report.

The Metallurgical testwork and plant design review work in this report has been conducted by Mr Dave Pattinson, a Principal Process Engineer with SRK. Mr Pattinson is a Qualified Person (QP) as defined by the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) and outlined in National Instrument 43-101 of the Canadian Securities Administrators (NI 43-101). An appropriate certificate for Mr Pattinson accompanies this report.

Additional technical input provided by SRK to the Feasibility Study was carried out by SRK's Mr Kris Czajewski and Mr Jamie Spiers who managed the Waste Rock Design aspects of the study, SRK's Mr Andrew Barnes and Mr Mathew Dey who managed the Acid Rock Drainage aspects of the study, SRK's Mr Phillip Mohr who managed the Geotechnical aspects of the study and SRK's Mr James Bellin and My Tony Rex who managed the Mine Water Management aspects of the study.

Review work of those aspects of the Feasibility Study not carried out by SRK was undertaken by SRK's Mr Kris Czajewski who reviewed the tailings aspects of the study, SRK's Mr Colin Healy who reviewed the infrastructure aspects of the study, SRK's Mrs Fiona Cessford who reviewed the environmental and permitting aspects of the study, and SRK's Mr Johan Bradley who reviewed financial modelling aspects of the study. All of these team members visited the site during 2009 and 2010 with Mr Colin Healy visiting the Northland logistics team in May 2011 and Mr Howard Baker and Mr Johan Bradley attending meetings with Northland personnel throughout 2011.

The work undertaken has all been reviewed by Dr Mike Armitage, the chairman of SRK.

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TECHNICAL REVIEW OF THE KAUNISVAARA IRON PROJECT, SWEDEN. JUNE 2011.

Prepared under National Instrument 43-101
and accompanying documents 43-101F1 and 43-101CP

1 INTRODUCTION

This technical report has been prepared for Northland Resources AB (Northland) by SRK Consulting (UK) Ltd (SRK) in connection with the publication by Northland of the Kaunisvaara Feasibility Study and Northland's reporting requirements related to the Toronto Stock Exchange (TSX). Northland has been listed on the TSX since 2003 (as North American Gold) and is principally an iron exploration and development company with properties in northern Sweden and Finland.

This report describes the results of an updated review of the Kaunisvaara Feasibility Study (the Feasibility Study) which comprises the exploitation of the Sahavaara and Tapuli iron ore projects in northern Sweden (the Mineral Assets). The original review had an effective date of 3 October 2010 while this update incorporates the results of amended concentrate logistics studies undertaken by Northland and reviewed by SRK, updated reserve estimates produced by SRK and an updated Technical Economic Model prepared by SRK which reflects all the changes made and revised iron ore price assumptions.

SRK prepared the Mineral Resource and Mineral Reserve estimates presented in the Feasibility Study and provided direct geotechnical, hydrological, waste rock management and Acid Rock Drainage inputs to the Tapuli and Sahavaara mine design assumed by this. In preparing this report, SRK has in addition reviewed those aspects of the Feasibility Study completed by Northland and its other contractors and consultants to a sufficient level to enable SRK to present its own opinions on the project and an audited NPV for this.

The Kaunisvaara project is a development stage project which when constructed will comprise two conventional open pit mines and a magnetite processing operation producing a concentrate product.

The work undertaken by SRK in compiling this report has been managed by Mr Howard Baker, a Principal Mining Geologist with SRK. Mr Baker is a Qualified Person (QP) as defined by the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) and outlined in National Instrument 43-101 of the Canadian Securities Administrators (NI 43-101). An appropriate certificate for Mr Baker accompanies this report. Mr Baker was also responsible for the Mineral Resource Estimates undertaken for the Sahavaara and Tapuli iron ore projects. As part of this work, SRK undertook a site visit and made first hand observations of the core collection and logging procedures employed and reviewed all data available for the Sahavaara and Tapuli deposits.

The Mineral Reserves and mine design work outlined in this report has been conducted by Mr Chris Reardon, a Principal Mining Engineer with SRK. Mr Reardon is a Qualified Person (QP) as defined by the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) and outlined in National Instrument 43-101 of the Canadian Securities Administrators (NI 43-101). An appropriate certificate for Mr Reardon accompanies this report.

The Metallurgical testwork and plant design review work in this report has been conducted by Dr David Pattinson, a Principal Metallurgist with SRK. Dr Pattinson is a Qualified Person (QP) as defined by the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) and outlined in National Instrument 43-101 of the Canadian Securities Administrators (NI 43-101). An appropriate certificate for Dr Pattinson accompanies this report.

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The work undertaken has all been reviewed by Dr Mike Armitage, the chairman of SRK.

2 RELIANCE ON OTHER EXPERTS

Sections 3 to 13 of this report are mainly extracts from the Northland report entitled Kaunisvaara Project – Preliminary Economic Assessment, dated 20 October 2009, which was prepared by the author Thomas Lindholm of GeoVista AB on behalf of Northland. The opinions and conclusions presented in the Northland PEA report are based largely on information and technical reports provided to the Author, Thomas Lindholm, by Northland and its consultants. Some of the data used in the report were not within the control of the Author or Northland. It is believed by the previous authors, that the information contained herein is reliable under the conditions and subject to the qualifications set forth in the report.

The additional information reviewed in preparing this report has largely been provided directly by Northland and its associated consultants. SRK conducted face to face meetings with those consultants responsible for the sections of the Feasibility Study not undertaken by SRK. This included the process plant design undertaken by Jacobs, the infrastructure and utilities undertaken by Pöyry and Jacobs, the metallurgy undertaken by Bo Arvidson Consulting, the tailings management undertaken by Pöyry, the onsite and offsite infrastructure undertaken by Pöyry and Jacobs, the concentrate transport and logistics undertaken by Pöyry, the environmental and social impact assessment undertaken by Northland and ERM and the economic evaluation undertaken by an international accounting firm.

SRK has confirmed that the mineral resources and mineral reserves reported herein are within the licence boundaries given below. SRK has not, however, conducted any legal due diligence on the ownership of the licences themselves.

3 PROPERTY DESCRIPTION AND LOCATION

The Kaunisvaara project comprises two iron ore deposits: Tapuli and Sahavaara, located approximately 100 km north of the Arctic Circle in the municipality of Pajala and near the village of Kaunisvaara. Two elongated clusters of magnetite deposits occur in the Pajala and Kolari Ore Districts, located in Sweden and Finland respectively (Figure 3-1). The two districts are located on either side of the Muoniojoki River, which marks the international boundary between the two countries. To date, as many as 30 magnetite deposits have been identified within an area of some 1,600 km^2 (40 by 40 km), all located within Northland's exploration permit areas. Some of the major deposits in the vicinity of Pajala are shown in Figure 3-2 while the area covered by Northland's Swedish exploration permits is shown in Figure 3-3.

The Sahavaara deposit is located close to the centre of the Kaunisvaara village. This has been historically been referred to as "Stora Sahavaara", but given the use of the name "Södra Sahavaara" for one of the mineralised lenses identified, Northland has now generalized the name to simply Sahavaara. The Tapuli deposit is located approximately 4 km to the north of Sahavaara. The Tapuli project comprises Palotieva at the northern extents, with Tapuli being the southern extents and the majority of contained resources.

Both Sahavaara and Tapuli are located within the Sahavaara No. 2 Exploration Permit. Tapuli is also covered by the Tapuli No. 1 and 2 Exploitation Concessions and Sahavaara is also covered by the Sahavaara No. 1 Exploitaion Concessions. The Sahavaara No. 2 Exploration Permit covers an area of some 16,456 hectares (Figure 3-3).

By road, the town of Pajala is located approximately 210 km north of the major city of Luleå which has 70,000 inhabitants, and about 180 km from Rovaniemi in Finland which has 40,000 inhabitants (see Figure 3-1). The project area can be located on topographic map Pajala 28M, 1:50,000 series.

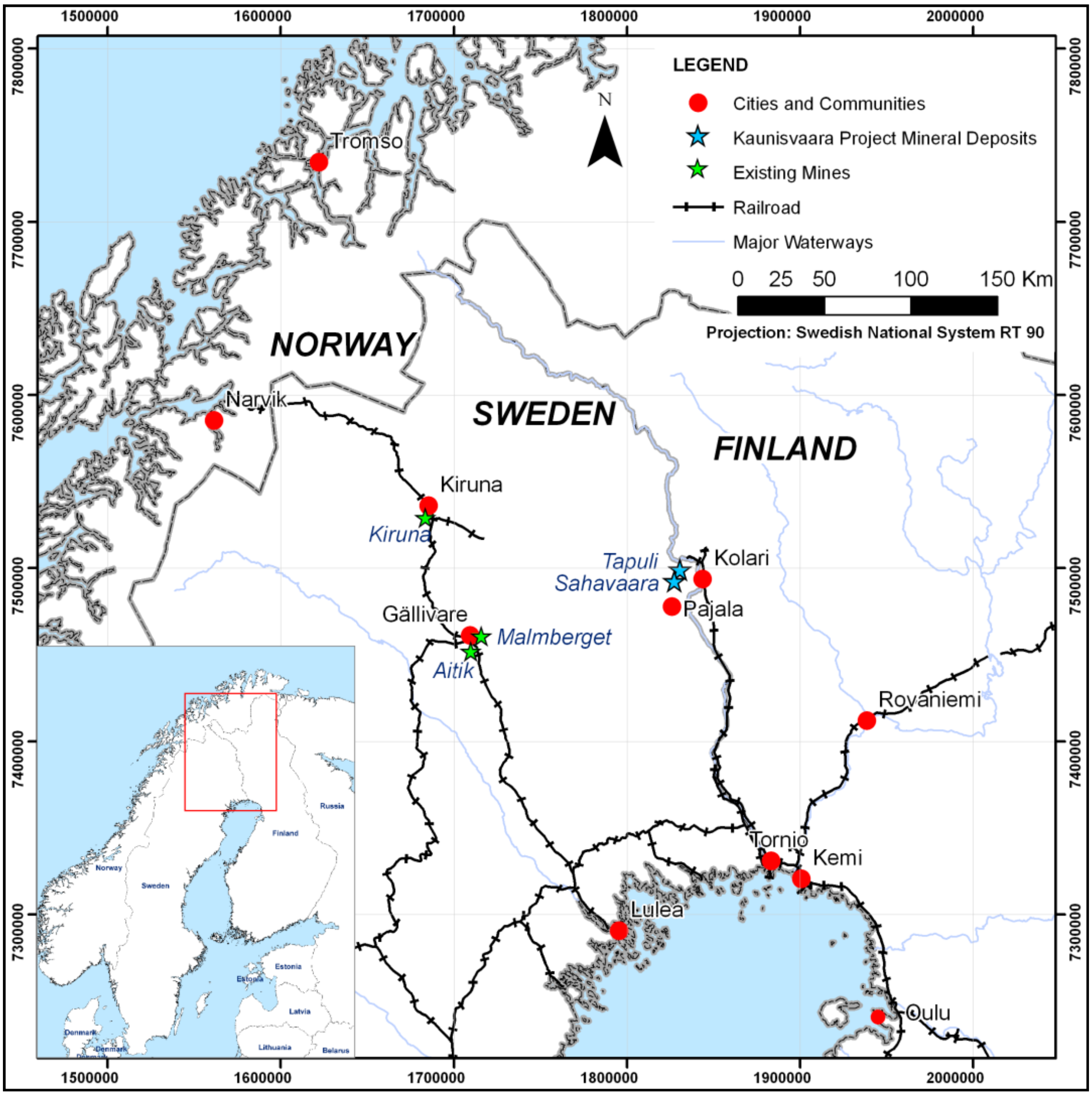

Figure 3-1: Kaunisvaara project location

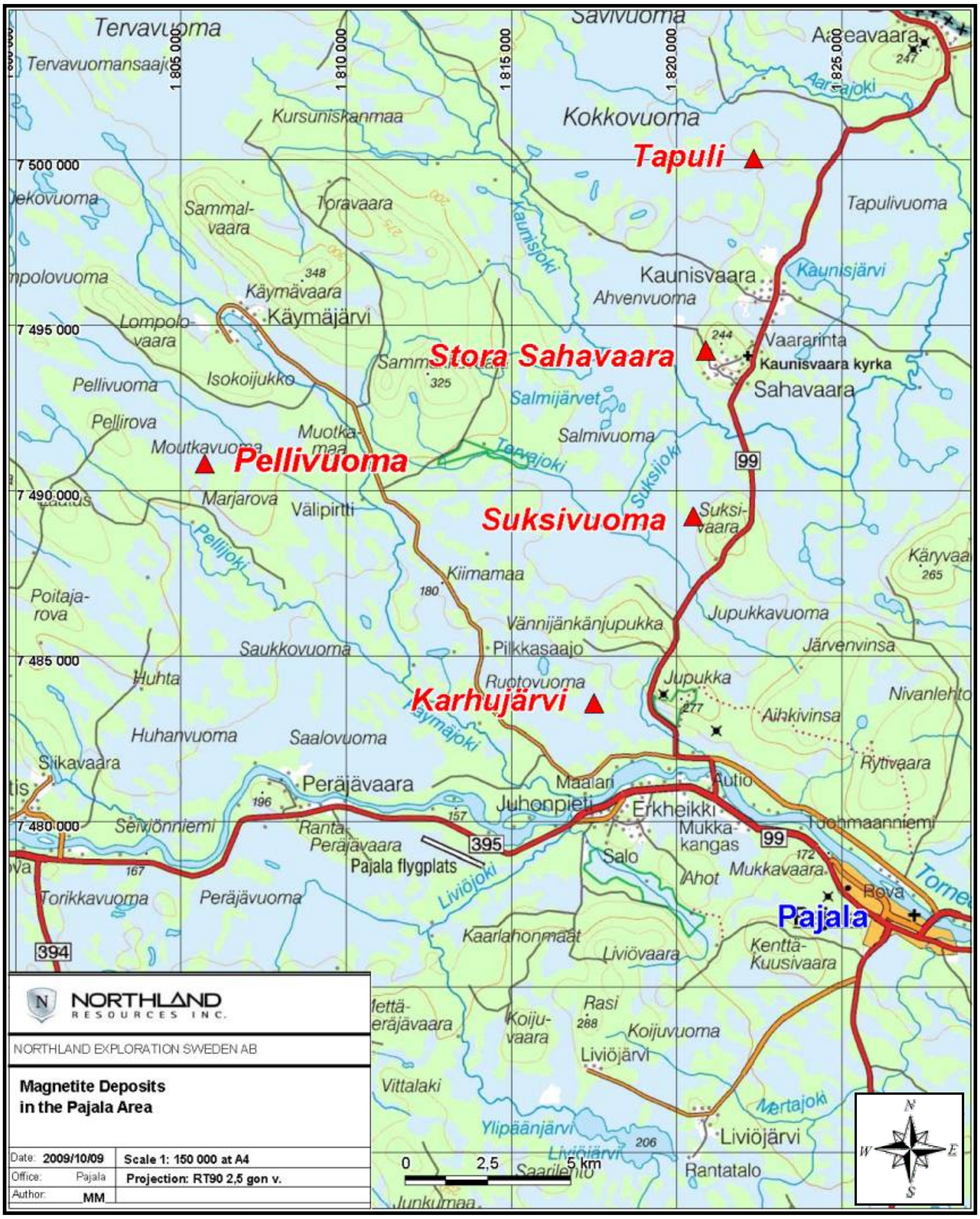

Figure 3-2: Magnetite deposits in the Pajala area

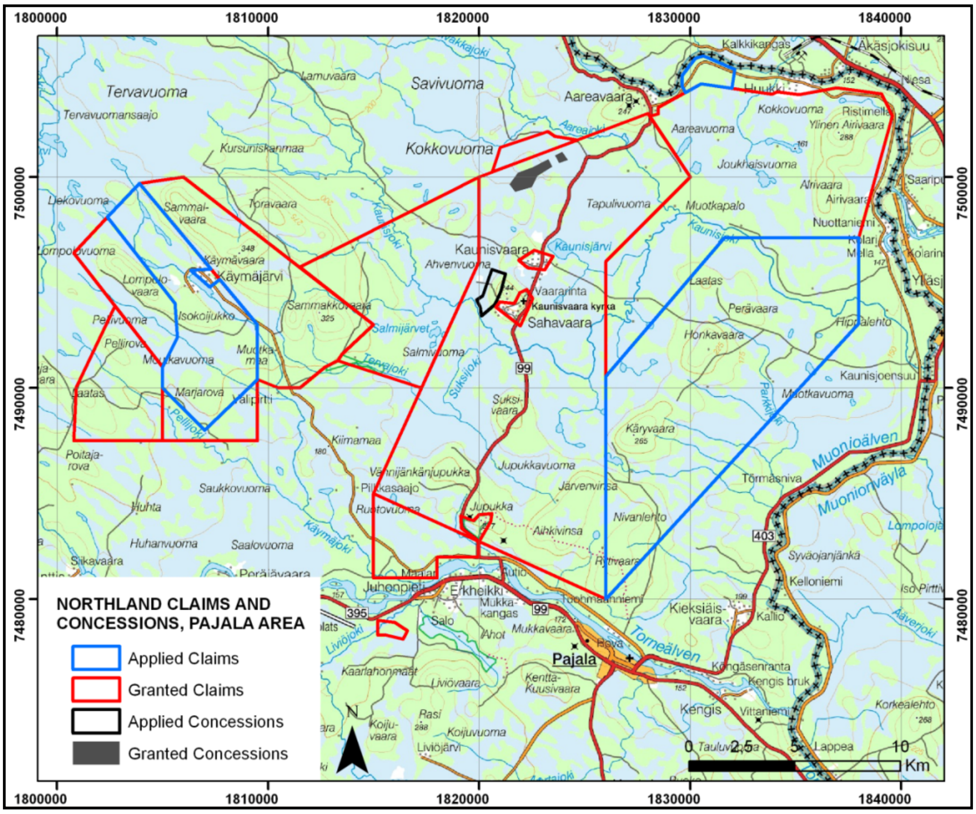

Figure 3-3: Valid exploration permits and exploitation concession areas in the Pajala area (data from the Mining Inspectorate of Sweden, 2009-09-30)

On December 8, 2004, Northland Resources Inc (formerly North American Gold Inc.) announced that it had entered into a Letter of Agreement with Anglo American Exploration B.V., Holland, Filial Sverige (Anglo), a wholly owned subsidiary of Anglo American Exploration plc, to acquire a 100 percent interest in the “Swedish Pajala Properties” also referred to as the “Pajala Project” which includes the Tapuli and Sahavaara magnetite deposits. This Agreement was amended and the terms of the original agreement restated in the “Option, Royalty and Back-In Agreement” (Agreement) dated April 5, 2005. During December of 2007, Northland exercised its option of cash payment for this agreement and entered into an Offer to Purchase Agreement which allowed the company to negotiate final terms of the Asset Purchase Agreement by January 31, 2008. The binding Asset Purchase Agreement has been executed by both parties.

There are four types of licence necessary to bring a mine from exploration to production in Sweden. These are: exploration permits, followed by mining concessions (or exploitation licences), environmental permits (for rights to water supply and waste management), and building permits (for building infrastructure).

The exploration permits and exploitation licences that cover the Kaunisvaara project area are 100% owned by Northland Exploration Sweden AB or Northland Resources AB, both being wholly-owned subsidiaries of Northland Resources Inc of Canada.

The exploration permit numbers, areas and grant and expiry dates are presented in Table 3-1. Also shown in Table 3-2 are the other permits Northland holds in the general Pajala area. Figure 3-3 shows the boundaries for the various permit areas near the Tapuli and Sahavaara project sites. SRK confirms the modelled mineralisation occurs within the permit boundaries.

The Exploitation Concession is the next step in mine permitting after the granting of an Exploration Permit. The Sahavaara Exploitation Concession is under consideration with the permitting authorities at the time of writing.

Table 3-1: Pajala exploration permits

Area Name	Area ID	Registered Owner	Grant Date	Expiry Date	Area [ha´s]
Sahavaara	NR 2	Northland Resources AB	21/12/2004	21/12/2010	16,456
Sahavaara	NR 3	Northland Resources AB	14/09/2005	14/9/2011	1,232
Kokkovuoma	NR 1	Northland Resources AB	6/11/2007	6/11/2013	8,796
Juhonpieti	NR 1	Northland Resources AB	25/08/2008	25/08/2011	84
Käymäjärvi	NR 10	Northland Resources AB	20/03/2007	20/03/2013	3.382
Käymäjärvi	NR 11	Northland Resources AB	16/10/2007	16/10/2013	1,455
Käymäjärvi*	NR 12	Northland Resources AB	12/12/2007	12/12/2010	3,839
Käymäjärvi	NR 13	Northland Exploration Sweden AB	23/01/2009	23/01/2012	725
Käymäjärvi	NR 14	Northland Resources AB	11/05/2010	11/05/2011	1,945
Total Area					34,535

Note: Data from Northland May 2011
*Applied permite / on renewal

Table 3-2: Pajala exploitation concessions

Area Name	Area ID	Registered Owner	Grant Date	Expiry Date	Area [ha´s]
Tapuli	Nr. 1	Northland Resources AB	20/11/2008	20/11/2033	129.6
Tapuli	Nr. 2	Northland Resources AB	20/11/2008	20/11/2033	17.9
Sahavaara	Nr. 1	Northland Resources AB	28/10/2010	28/10/2035	106.8
Total Area					254.3

Note: Data from Northland May 2011

There is no requirement to legally survey the boundaries of exploitation concessions in Sweden, instead they are assigned Swedish RT90 coordinates by the Inspector of Mines. Coordinates, in the Swedish RT90 system, for the exploitation concessions which comprise the Kaunisvaara Project are presented in Table 3-3.

Table 3-3: Northland Exploration Sweden AB, Exploitation Concession Data

Exploitation Concession	Vertex	Easting	Northing	Expiry Date
Tapuli Nr 1	1	1821428	7499661	20/11/2033
	2	1821828	7500210	
	3	1822551	7500468	
	4	1823272	7500845	
	5	1823459	7500488	
	6	1822759	7500052	
	7	1822494	7499519	
	8	1821708	7499298	
Tapuli Nr 2	1	1823597	7501014	20/11/2033
	2	1823930	7501188	
	3	1824211	7500819	
	4	1823786	7500652	
Sahavaara Nr 1	1	1821260	7495410	28/10/2035
	2	1821010	7494500	
	3	1820770	7494040	
	4	1820090	7493440	
	5	1819990	7493920	
	6	1820390	7494400	
	7	1820600	7495160	
	8	1820880	7495530	

Any work in the concession area that might damage or disturb nature and/or people needs to be described in a valid work plan. Northland has prepared extensive plans for each concession which cover most of the routine work. Off-road permits are also needed for use of ski-doos and other field vehicles.

If the mine is opened, the landowner and the state are entitled to a mineral compensation, which comprises 0.2% of the estimated value of the mined mineral over each year calculated based on the quantity of ore mined, the percentage of mineral in the ore and the average commodity price during the year. One quarter of this 0.2% goes to state and three quarters goes to the landowner.

SRK is not aware of any other royalties, back-in-rights, payments or any other agreements associated with the Kaunisvaara project. Any future payments will be negotiated at the commencement of mining activity. SRK is not aware of any environmental liabilities associated with the Kaunisvaara project.

4 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

The airport of Pajala has several scheduled daily domestic flights to and from Luleå, the nearest airport to provide daily flights from Stockholm. By road, the distance from Luleå to Pajala is 207 km and it takes just over two hours to drive by car. Pajala's airport is located 13 km west of the town and has a local commuter service.

Due to the proximity of the project to the international border with Finland, international access is also available through Helsinki. There are several daily scheduled flights from Helsinki to Rovaniemi and Kittilä. The town of Kolari is 167 km by road northwest of Rovaniemi and approximately 60 km west of Kittilä. The centre of the Kaunisvaara Project is located approximately 40 km west-southwest of Kolari. Furthermore, the project-area is 50 km southwest of the old iron ore mines of Rautuvaara (open pit and underground) and Hannukainen (two open-pits), (see Figure 3-1).

Access from Luleå is possible by following the E4 coastal road 55 km to Töre, turning north on the E10 and by following this for another 50 km to Överkalix before turning right on the 392 north to Pajala for another 105 km.

Access from Rovaniemi can be gained by driving on Route 79 for 21 km at which point there is a turn off on Route 83 at Sinetti to Pello, which is 98 km from Rovaniemi. At Pello, the international border is crossed into Sweden. Taking Route 402 west for 5 km and then Route 99 north for a distance of 52 km the town of Pajala is reached.

Access to Sahavaara is reached by following Route 99 north from Pajala, turning right after 8 km, crossing Torneälven (the Torne River) in the direction of Karesuando and then turning off some 22 km from the bridge onto a dirt road. This dirt road services the small settlement of Sahavaara (Kaunisvaara South) on the southern flank of the Sahavaara deposit. The magnetite deposit runs north-northeast along the eastern flank of the hill. Sahavaara is accessible all year since it is located on the slope of a hill, elevated above the wettest areas of the swamp.

Access to Tapuli is reached by following Route 99 further north from Sahavaara, some 3 km from Kaunisvaara and by turning left on the newly-constructed Tapuli Road at a point approximately 6 km south of the Finnish border. The magnetite deposits are situated near the end of this road, approximately 2.5 km west of the Route 99 highway. The road crosses the North Tapuli magnetite deposit and ends at partly wooded bog land just north of the main Central Tapuli deposit.

The landscape was sculpted by extensive glaciers to form shallow lakes and extensive boggy lowlands during the most recent ice age, spanning a period of between three and ten thousand years ago. Broad valleys were scoured out in the direction of glacial transport, flanking low-lying hills underlain by resistant rocks. The landscape is now dominated by low rolling hills and flat lowlands comprised of bogs and lakes. The hills are mostly covered by glacial moraine and sands and forest, primarily birch, pine, and spruce. The bedrock outcrops on the hills and along the riverbanks, but covers only some two percent or less of the project area. The magnetite bodies of the Kaunisvaara Field are located in a region of incised undulating terrain of low relief and the deposits are located at elevations between 175 and approximately 220 m above sea level. The terrain largely drains to the southeast, eventually draining into the Torne River.

Figure 4-1 to Figure 4-4 show images of the landscape at Sahavaara and Tapuli.

Figure 4-1: View looking North from the test-pit at Sahavaara

Figure 4-2: View looking South from the test-pit at Sahavaara

Figure 4-3: View looking west over Tapuli

Figure 4-4: View looking south over Tapuli

According to Köppen's climate classification, Northern Sweden belongs wholly to the temperate coniferous-mixed forest zone with cold, wet winters, where the mean temperature of the warmest month is no lower than 10°C and that of the coldest month no higher than minus 3°C, and where the rainfall is, on average, moderate in all seasons.

The climate is typical of Northern Fennoscandia with temperate summers and cold winters. During the summer months (June-August) temperatures are mostly between 10°C and 25°C, and during the winter months (November-April) between -5°C and -30°C. Snow covers the terrain for an average of 183 days in the year with a maximum snow thickness varying from 0.6 to 1.2 m in March. Bogs, lakes and rivers are frozen for four to five months of the year. Annual rainfall is around 530 mm with a monthly range between 72 mm and 189 mm falling as snow during the winter months and accumulating on the ground. The midnight sun can be seen from 6 June to 7 July.

Exploration work can be conducted during the winter by taking advantage of the frozen bogs for access. If the project goes into operation, it should be able to operate throughout the entire year.

The main influence on Northern Sweden's climate is its arctic location between the 60th and 70th northern parallels located in the Eurasian continent's coastal zone. This region has characteristics of both maritime and continental climate depending on the direction of airflow. When westerly winds prevail, the weather is warm and clear due to the airflows from the Atlantic Gulf Stream. When airflow is from the east, the Asian continental climate prevails resulting in severe cold in winter and extreme heat in summer. The mean temperature in Northern Sweden is several degrees higher than that of other areas in these latitudes such as Siberia and southern Greenland due to the moderating effect of the Atlantic Ocean and the Baltic Sea.

Weather patterns in the project area and in the general region can change quite rapidly, particularly in winter, because Northern Sweden is located in a zone of prevailing westerly winds where cooling sub tropical and polar air masses collide. The weather systems known to have the greatest influence on the climate are the low-pressure systems originating near Iceland and the high-pressure systems drifting in from Siberia and the Azores.

The Kaunisvaara project is located some 120 km east of the Kiruna-Malmberget iron-mining district, which is owned and operated by Luossavaara-Kiirunavaara Aktiebolag (LKAB), an international high-technology minerals group (Figure 4-5). The distances to the deep-water ports of Luleå in Sweden and Narvik in Norway are 210 and 270 km respectively and both service the shipment of iron ore from Kiruna and Malmberget. The closest major ports in Finland are Tornio and Kemi, some 180 and 200 km south of Pajala respectively.

The town of Rovaniemi in Finland is located 150 km southeast of Pajala. Rovaniemi has some 40,000 inhabitants and is the administrative centre of Finnish Lappland. A regional technical centre of the Geological Survey of Finland (GTK) and an analytical laboratory are located in Rovaniemi.

Northland has established a regional office in Luleå to facilitate the increasing number of professional staff now present preparing for mining production investigations.

The towns of Pajala in Sweden and Kolari in Finland provide most of the exploration support services for the Kaunisvaara Project. Pajala is a community with a population of 7,900, of which some 2,200 are living in the central community. Kolari is a town of similar size and has historically been a mining community serving the old iron mines at Hannukainen and Rautuvaara. The regional industrial base is now dominated by small businesses involved in forestry, agriculture and manufacturing. There are also several hotels, shops, and restaurants which accommodate a growing year-round influx of tourists into Lapland. A skilled work force is in place and the Swedish University System is represented in the town of Pajala. Northland maintains field offices in Pajala as well as in Kolari.

Hydroelectric power in the region is relatively inexpensive for commercial use. High-voltage electrical power is available from the main line located three km east of the project-area. A railhead is located 20 km northeast at Äkäsjokisuu, Finland. This rail line is designed for heavy commercial use and has been used to transport iron ore products and cement to the south of Finland. Currently the line is operational from Kolari southward connecting to the Finnish rail system. There is also a disused spur leading north from Kolari to a railhead at the Rautuvaara underground mine. Until the mid 1990s iron concentrates were transported 350 km by rail to Rautaruukki Oy's iron smelter at Raahe, which is 60 km southwest of Oulu. The copper concentrate from Rautuvaara was transported down to Harjavalta smelter at Pori some 750 km south of Kolari. The Outokumpu Oy stainless steel smelter is located 170 km by rail south of Kolari.

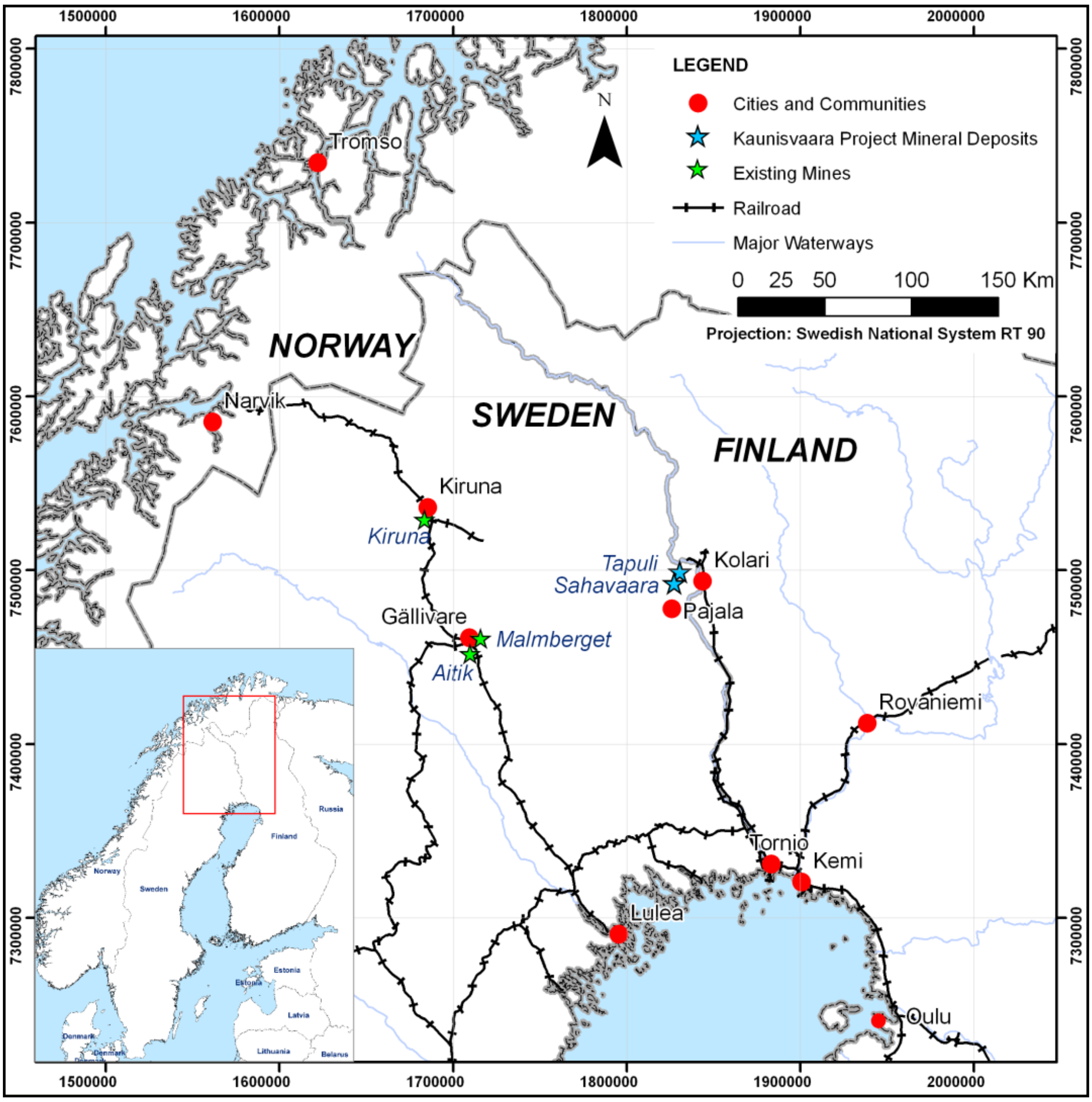

Figure 4-5: Regional Infrastructure

For the purposes of the Feasibility Study, all surface rights are covered by the exploration permit, Sahavaara nr 2, which is valid for the Sahavaara area. No additional licences are required. Northland has sufficient surface rights to accommodate mining and processing operations.

5 HISTORY

5.1 Overview

What has been more recently been referred to informally as the Pajala Ironstone Belt was historically referred to in geological literature as the Kaunisvaara Iron Ore Field. During the seventeenth century, iron ore from mines in Northern Sweden was used as feed for the Kengis foundry built in Pajala during 1641, which was the northernmost metallurgical centre at the time. A smelting-works and a helve hammer were located at Kengis operating under the name Kengisverken and subsequently played an integral role in development of the settlement over the following two centuries.

Prospecting over an area northeast of Pajala in the province of Norbotten in 1918, a geologist, V Tanner, discovered five “ironstone” or magnetite deposits using a dip needle along the northern end of the Kaunisvaara Iron Ore Field (Lundberg, 1967). From north to south these were termed the Palotieva, Tapuli, Stora, Östra and Södra Sahavaara ironstone occurrences (Figure 5-1).

During the 1940s, Boliden AB discovered the Ruutijärvi ironstone occurrence. The then Swedish Geological Survey (SGU) is later credited with discovering a faulted extension of Ruutijärvi called “Blind Ruutijärvi”. In 1958, the SGU, led by prospectors from the Johnson Company, discovered the Karhujärvi and Suksivuoma magnetite deposits, also located in the Kaunisvaara Iron Ore Field.

In the 1960s the SGU, with funding and technical assistance from LKAB, began the Iron Ore Inventory Program in the province of Norbotten as part of which ground magnetic and gravity surveys were conducted over the northern portion of the Kaunisvaara Field focusing on Tapuli and Stora Sahavaara. Diamond drilling commenced in 1961 on the Sahavaara occurrences and throughout the early 1960s exploration of Stora Sahavaara progressed, leading to the delineation of a resource. During the latter part of the1960s exploration focused on the Tapuli deposit, leading to the delineation of an additional resource. Table 5-1 summarises information relating to previous drilling of the Pajala iron occurrences.

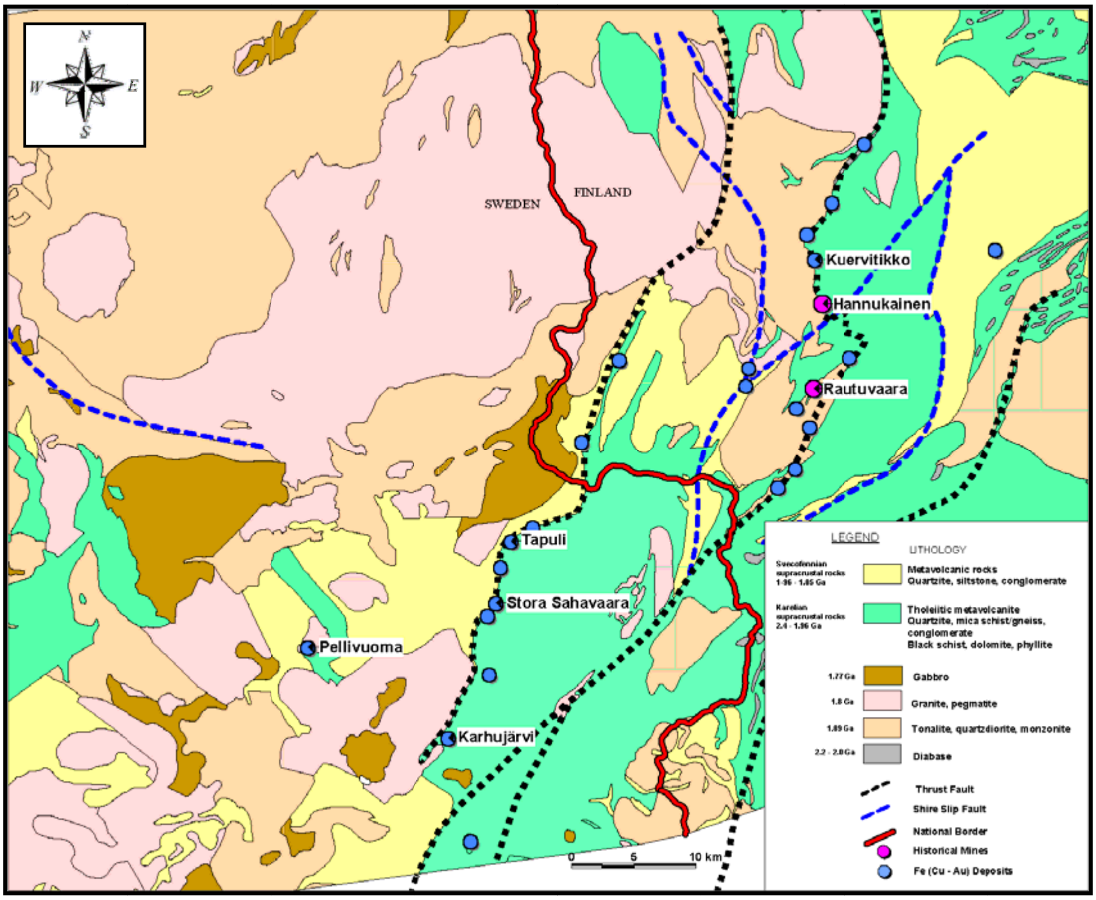

Figure 5-1: Regional geology

Table 5-1: Pajala Project Exploration History

Deposit	Discovery	Ground geophysics[3]	Drilling Period	Number of Drill Holes	Drilling (m)	Previous Production
Tapuli	1918_1	1963-65	1965-69	26	6,280	None
Palotieva	1918_1	1963-65	1969	1	208	None
Stora Sahavaara	1918_1	1960	1961-67 1970s	46 4	11,798 220	None
Södra Sahavaara				17		None
Östra Sahavaara				1		None
Pellivuoma	1919_1	1963-66	1969-71	13	2,493	None
Ruutijärvi	$1940s_2$	1963-65	1969	3	426	None
Karhujärvi	1958_2			5		None
Suksivuoma	1958_2			2		None

Reference: Frietsch (1997). 1 Discovered magnetically; 2 Discovered by airborne magnetic; 3 Measured by magnetometer and gravimeter supported to a greater or lesser extent with drilling

Past exploration by the SGU resulted in the delineation of several magnetite resources within the Sahavaara No. 2 permit area, shown in Figure 3-3. These historic resource estimates were produced several decades ago and therefore do not comply with more recent definitions and guidelines for the reporting and disclosure of resources. Furthermore the resources are uncategorized and unverifiable without further extensive work.

By 2006, in excess of 120 drillholes for a total amount of 28,000 m had been drilled to explore the various magnetite occurrences within the Kaunisvaara Field in Sweden. The current total after the completion of the 2009 drilling programme is 385 drillholes for a total of 66,283 m. The Ore Field hosts ten different magnetite occurrences with non-43-101 compliant historic resource estimates. SRK can not verifying these estimates or comment on their validity and has not therefore presented these in this report.

LKAB explored and conducted a limited drilling programme in the Liviövaara and Sahavaara Nr. 3 areas from 1984 to 1986 for iron oxide-copper-gold (IOCG) potential away from the known magnetite deposits. The Finnish mining company Outokumpu also explored and evaluated portions of the same area for IOCG potential in the mid-1990s.

Anglo American Exploration (Anglo) targeted the Pajala ironstone belt because its geophysical signature and tectonic setting were generally similar to other known IOCG occurrences in the world. Anglo started exploration in 2000 with a GeoTem survey flown over parts of the current licence areas. The results from this survey, together with the magnetic characteristics of the area, formed the basis for the exploration program conducted by Anglo during 2000 to 2004.

In 2004, Northland entered into an Agreement with Anglo previously described in detail in the Tapuli Resource Report by GeoVista AB and Micon International Co Ltd, 2009 and has been actively exploring since this time.

5.2 Previous Mapping and Surface Sampling

Fredrik Ros, former geologist at the SGU, produced thorough geologic maps of the area and described the general character of the stratigraphy, structure, geophysics and resources of the Pellivuoma magnetite deposit in detail (Ros 1980). The geologic mapping of the SGU has since then been updated by Witschard (1984, 1986) and this work forms the basis of the published SGU geologic map of the area.

After the initial discovery of the Kaunisvaara Ore Field in 1918, a magnetic-based geological map of the area was produced. The magnetite occurrences of the Kaunisvaara Ore Field have since been described and researched in numerous geologic investigations by the SGU (Eriksson 1955, Fredrikson 1986, Frietsch 1957, 1962, 1962, Hanson 1984).

5.3 Previous Geochemical Surveys

5.3.1 SGU/LKAB Geochemical Surveys

Bergström conducted a regional heavy-mineral stream-sediment sampling program during 1973 and 1974, resulting in published maps showing concentrations of W, Cr and P_2O_5 (Bergström 1975). Follow-up stream-sediment and peat sampling was done by Magnusson (1984) who created a statistical evaluation of the data from the Pajala area. Rönkkö (1985) created a map, compiling all of the previous peat and stream sampling at a scale of 1:50,000 displaying Cu-Mo, Pb-Zn, Co-Ni and Fe-Mn concentrations.

Boulder and base of till sampling on a regional-scale by Hanson (1984) focused on the Pajala district. Nilsson (1991) expanded this work with till sampling in the Pajala area and further south producing a set of maps showing concentrations of 20 different elements. During 1984-1986, peat and base of till surveys were conducted over the Liviövaara prospect by LKAB (van der Stijl 2005a).

The magnetite iron ores have been tested for specific elements in two different studies. Danielsson (1982) tested samples from Tapuli and Stora Sahavaara for cobalt but found no anomalous results. L. Carlson and his colleagues tested seven iron occurrences for gold and found that samples from Tapuli produced anomalous results (L. Carlson 1982).

5.3.2 *Anglo American Exploration Geochemical Surveys*

Detailed base of till sampling was carried out on six different grids during 2000 to 2004 (van der Stijl 2005b). Anglo American collected 1,669 base of till samples from the five grids at the Palotieva (three grids), Liviövaara, Jupukka and Suksivuoma prospects (Figure 5-1).

Inspection of the results of geochemical sampling (383 samples) at Palotieva identified a linear Cu anomaly of moderate intensity (up to 0.54% Cu and 176 ppb Au) over approximately 2,000 m of strike length. More recently a single line, 140 m in length of detailed samples (2.5 m spacing) were later assayed by Anglo American and found to contain a 20 m section averaging 4.6% Cu and 0.9 g/t Au in bedrock from below the base of till samples. The Palotieva grids are located approximately 1 km northeast of Tapuli.

The Suksivuoma grid is approximately 5 km south of Sahavaara where 510 base of till samples were collected at a spacing of 50 to 100 m. Geochemical results at Suksivuoma indicated a number of significant but dispersed copper-gold anomalies (up to 0.5% Cu and 1.6 ppm Au). At Jupukka, 10 km south, 506 samples were collected which outlined a geochemical anomaly of high copper and gold values in basal-till samples (up to 0.4% Cu and 105 ppb Au). The Liviövaara grid is located approximately 18 km south of Sahavaara. Geochemical results from 270 samples showed a significant, nearly 500 by 200 m wide basal till copper-gold-uranium geochemical anomaly (with up to 0.14% Cu, 92 ppb Au, and 83 ppm U).

5.4 Previous Geophysical Surveys

5.4.1 *SGU/LKAB Geophysical Surveys*

As a consequence of the lack of significant outcrops in the area, and the thick glacial till cover; magnetic surveys are generally a more effective means of locating magnetite occurrences than traditional prospecting. A typical approach taken in surveying has been to carry out an initial overview using airborne surveys followed up by more detailed ground-based surveying. Gravity measurements have been taken over some of the occurrences to form a basis for the down dip projection of the magnetite mineralisation.

Airborne magnetometer surveying in the late 1940s by Boliden AB detected mineralisation at Ruutijärvi. In 1958, Rederi AB Nordstjernan used the same method to discover the Suksivuoma mineralisation (Frietsch, 1997).

At Sahavaara, there has been no ground-based magnetic survey carried out since 1960 when a torsion magnetometer was used as an exploration tool. The grid covered 1.4 km^2 with 100 m line spacing and 20-40 m between stations. At this time, gravimetric surveys were also conducted along several cross lines to assess the strike of the magnetite body (Lundberg, 1965).

Between 1963 and 1965, ground-based magnetic and gravity surveys were conducted over the Pellivuoma, Tapuli, Palotieva, Suksivuoma, and Ruutijärvi, ironstone occurrences (Figure 5-1). Magnetic surveys using Askania Gfz magnetometers were taken at 20 by 80 m grid stations covering 42.2 km^2. Gravimetric surveys were undertaken using Worden, Pioneer and Prospector type gravimeters. This data was collected on 400 to 800 m line spacing on 40 m centres (Lindroos, 1972). In the published report (Tapuli och Palotieva Järnmalmsfyndighet, Hardy Lindroos, Björn Nylund, Kjell I Johansson, SGU 1972) it was concluded that interpretation of the combined magnetics and gravity indicated that the central iron deposit at Sahavaara may be continuous to a depth in excess of 2,000 m.

At Liviövaara, LKAB conducted magnetic and Slingram EM surveys during the period, 1984-1986 (van der Stijl, 2005a).

Lindberg (1990) used digital imaging to analyze airborne magnetic, Slingram and gravity data for the Pajala district which resulted in identification of 65 target-areas and recommendations for follow up ground-based magnetic surveys.

5.4.2 Anglo American Exploration Geophysical Surveys

Between 2000 and 2004 Anglo conducted geophysical surveys on six separate grids covering approximately a total of 22.25 km^2. Ground magnetometer (12.5 m stations) and TEM surveys were conducted on grids at Palotieva (7 km^2), Suksivuoma (6.25 km^2), Jupukka, (6 km^2) and Liviövaara, (3 km^2). At Liviövaara, five lines 100 m apart were surveyed by IP with 25 m dipole spacing. At Palotieva, a GEOTEM airborne survey was also competed. In each of these areas, the ground magnetometry surveys delineated strong to moderate, linear anomalies. The TEM surveys produced local anomalies on all of the grids surveyed except for Liviövaara. The GEOTEM survey at Palotieva highlighted the same anomalies as seen in the ground based TEM survey.

5.4.3 Northland Airborne Exploration Geophysical Survey

Under contract to Northland, the Geological Survey of Finland (GTK) performed a detailed airborne geophysical survey of the Pajala area in August, 2006. The GTK survey was conducted with a four frequency EM system, a total field magnetometer, and a gamma ray spectrometer. Hans Thunehed, GeoVista AB, prepared a report “Interpretation of geophysical data from the Pajala area” for Northland on 16 August 2007 to identify anomalous areas for further investigation and possible drill testing.

The geophysical signature of a few known deposits (for example, Sahavaara, Tapuli) in the area was first investigated. The magnetite deposits at Tapuli, Sahavaara, and Palotieva were shown to be reasonably good electric conductors, but were by far not as good conductors as the abundant graphite bearing rocks of the area. Not surprisingly, the magnetite deposits were also found to be strongly magnetic. The graphitic rocks were found in both low-magnetic and highly-magnetic formations. Potentially economic mineralisation is known to occur within or adjacent to the graphite bearing formations and local variations in the geophysical character of these rocks was part of the study; for example, to look for places with favourable structural/tectonic settings and for locations where the general pattern in conductive or magnetic rocks has been disrupted.

To that end, the investigation also included a regional tectonic interpretation because the structural/tectonic setting is a significant parameter in the definition of targets. A mosaic of magnetic data from the GTK survey, SGU airborne data from the Norbotten exploration package, and GTK data from the neighbouring map-sheets on the Finnish side was made. Structural trends and major lineaments were interpreted and several N-S to SW-NE trending shear zones were identified. A number of splays (and possibly Riedel-structures) to these zones were also identified. There is also a number of S-shaped fold structures. Both the interpreted splays and the folds indicate a sinistral (counter-clockwise) ductile to brittle-ductile shearing of the area.

5.5 Drilling by Previous Explorers

Initial resource delineation drilling commenced at Sahavaara in 1960 and continued for five years, during which time 46 drillholes were completed for 11,798 m. Drilling by the SGU in the 1970s increased the number of drillholes to 50 for a total of 12,018 m (Figure 5-2).

Northland’s historic drilling database has been compiled from two primary references, both relating to the drilling of the SGU at Sahavaara. Copies of the original drill logs and assay files from 63 drillholes, 50 from Stora Sahavaara and 13 from Södra (South) Sahavaara were obtained from the SGU regional office in Malå. The SGU report “Stora Sahavaara Iron Ore Occurrence” by Bo Lundberg (1965a) was obtained on loan from the SGU office in Malå. This report is in two volumes, the first is a written description of the deposit and the second is a large format book with reprints of the original map and drill profile cross-sections. A topographic map containing Stora Sahavaara drill collars, roads, local grid and UTM grid was also obtained from the SGU in Malå.

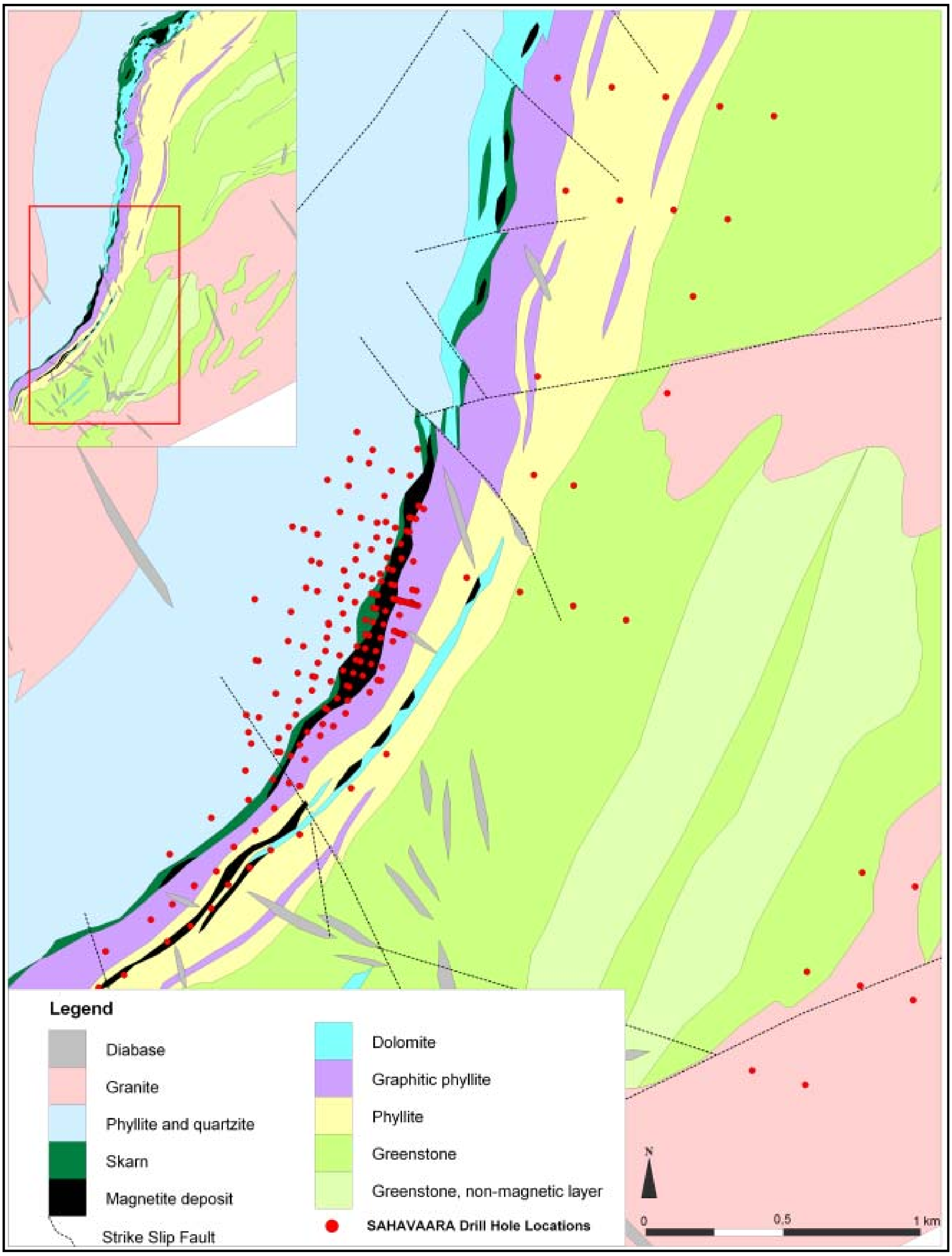

Figure 5-2: Sahavaara Drillhole collar locations – historical and recent

The SGU commenced resource delineation drilling at Tapuli in 1965 and continued for five years, during which time 26 drillholes were completed for 6,280 m (Figure 5-3). Northland's historic drilling database has been compiled from the SGU references relating to the drilling of the SGU at Tapuli. Copies of the original drill logs and assay files from the drillholes were obtained from the SGU regional office in Malå. The written description of the deposit in the SGU report "Tapuli and Palotieva Iron Ore Occurrence" by Hardy Lindroos (1972) was obtained as well as reprints of the original maps and drill profile cross-sections. A topographic map containing Tapuli drill collars, roads, local grid and UTM grid was also obtained from the SGU as well.

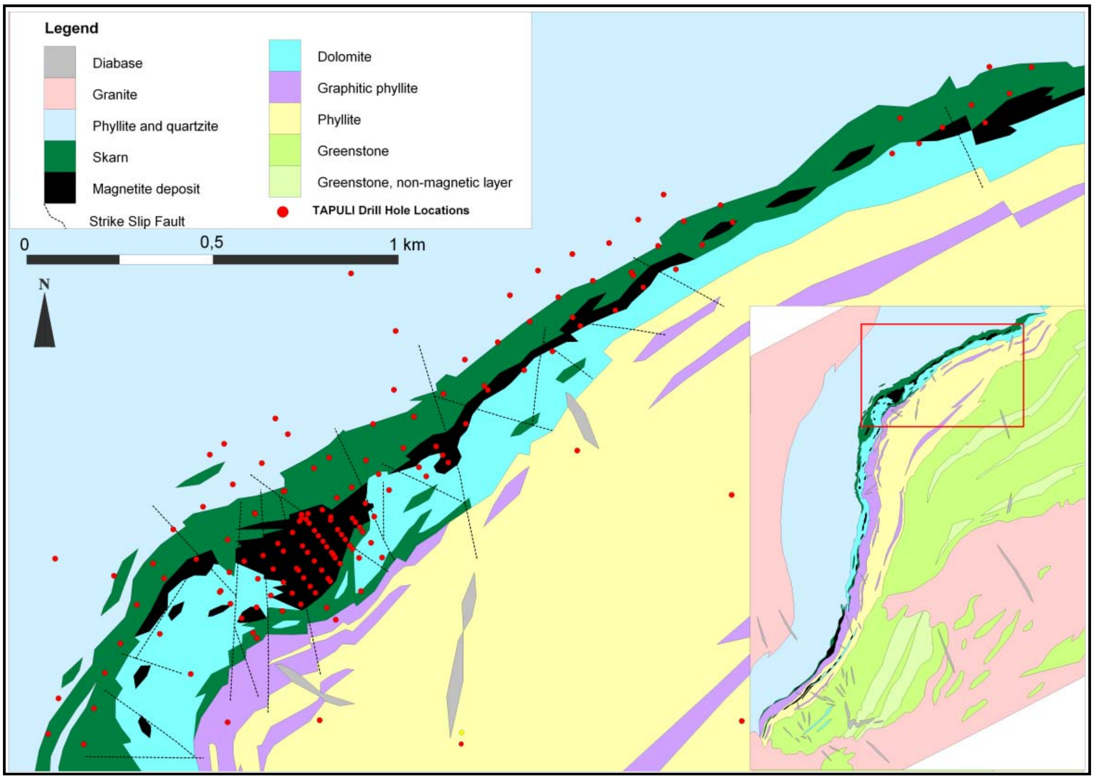

Figure 5-3: Tapuli Drillhole collar locations

5.6 2006 Sahavaara Historic Mineral Resource Estimate

A Mineral Resource Estimate for the Sahavaara iron deposit was prepared by Dr Bart Stryhas in 2006 as an independent consultant to Northland. This was subsequently adopted by Chlumsky, Armbrust and Meyer, LLC (CAM) and presented in the "Technical Report, Sahavaara Project, Northern Sweden", CAM, 29 June 2006 which was filed with the System for Electronic Document Analysis and Retrieval (SEDAR) on 4 July 2006. The estimate was based on 60 drillholes incorporating 46 historical holes and 16 holes drilled by Northland. In SRK's opinion this mineral resource, which was reported using the 43-101 guidelines, appears to be a valid and reliable estimate.

CAM, using MineSight® software, constructed a wireframe of the Sahavaara mineralisation units initially through cross section interpretations of lithological boundaries and a cut-off grade of 25% Fe. The use of a 25% Fe cut-off grade satisfied CAM in terms of grade distribution curves and on the operating grade which LKAB was applying at the geologically similar Malmberget Mine in September 2005.

At the southern end of the deposit, CAM modelled a small magnetite lens located in the footwall of the main body (Södra); both bodies have been used in the resource estimate.

The Sahavaara resources estimated by CAM are based on 60 drillholes totalling 14,222 m. Specific gravity values for each block within the model were calculated based on the grade-density relationships derived from historical density sample results.

The resources were classified as Measured, Indicated and Inferred and CAM reports the resources at 25% Fe cut-off grade. The classification criteria applied by CAM constrains Measured Resources to those blocks that are estimated within a 38 m search radius, whilst resource blocks estimated within a 75 m radius yet not falling into the Measured category were classed as Indicated. A search rectangle (70 x 200 x 150 m) was used to classify Inferred resources.

In total, CAM reported the Sahavaara project to contain 144.7 Mt of iron ore at a mean grade of 43.1% Fe Total.

Table 5-2: 2006 Sahavaara Mineral Resource Estimate

Category	Tonnage (Mt)	%Fe Total	%Cu
Measured	77.1	43.3	0.08
Indicated	44.6	43.3	0.08
Inferred	23.0	42.0	0.05
Total	144.7	43.1	0.08

Note: NI43-101 Compliant Resource, 25% Fe cut-off grade applied. Not constrained by a conceptual open-pit.

5.7 2009 Tapuli Historic Resource Estimate

A historic Mineral Resource Estimate for the Tapuli iron deposit was prepared by Thomas Lindholm and Dibya Kanti Mukhopadhyay in 2008 as independent consultants to Northland. This was subsequently adopted by GeoVista AB (GeoVista) and presented in the "Tapuli Resource Estimate" and filed with the System for Electronic Document Analysis and Retrieval (SEDAR) on 23 January 2009. This estimate was based on 130 drillholes incorporating 24 historical holes and 106 holes drilled by Northland. This estimate was reported according to NI 43-101 guidelines and definitions with the resources being classified into Measured, Indicated and Inferred categories. SRK considers this to be a valid and reliable estimate.

A cut-off grade (CoG) of 9% Fe was used for modelling, with the following zonal grade domains adopted:

- 101 - 8.8 to 23.0% Fe and low sulfur (< 0.6% S),
- 102 - 23.0 to 31.5% Fe and low sulfur (< 0.6%),
- 103 - 31.5 to 40.0% Fe and low sulfur (< 0.6% S),
- 104 - > 40.0% Fe and low sulfur (l< 0.6% S),
- 111 - 8.8 to 23.0% Fe and high sulfur (>0.6% S),
- 112 - 23.0 to 31.5% Fe and high sulfur (> 0.6% S),
- 113 - >31.5% Fe and high sulfur (> 0.6% S),
- 201 - waste rock (quartzitic phyllite),
- 202 - waste rock (phyllite),
- 203 - waste rock (skarn),
- 204 - waste rock (dolomitic marble),
- 205 - waste rock (dykes),

- 206 – till,
- 207 – peat.

The Tapuli Mineral Resource Estimate by GeoVista was based on 130 drillholes totalling 24,475 m. Specific gravity values for each block within the model were calculated based on the grade-density relationships derived from historical density sample results.

The resources were classified as Measured, Indicated and Inferred, and GeoVista reports the resources at a 15% Fe cut-off grade); see Table 5-3.

The classification criteria applied by GeoVista are listed below, they were reported in accordance with the 43-101 instrument.

Measured Mineral Resources were defined as those portions of the mineralised area which had been drilled generally on a grid of 50 X 50 m. The blocks were estimated with a minimum of 8 samples, utilising a maximum of six samples from one drillhole.

Indicated Mineral Resources were defined as those portions of the mineralised area which were generally drilled on a grid of 100 X 100 m. The blocks were estimated with a minimum of three samples, utilising a maximum of two samples from a drillhole.

Inferred Mineral Resources were defined as those portions of the mineralised area which were found outside of the indicated, but still within the interpreted mineralised envelopes, with drill spacing greater than 100 X 100 m.

In total, GeoVista reported the iron ore resource at Tapuli to be 103.9 Mt at a mean grade of 26.2% Fe.

Table 5-3: Tapuli Mineral Resource GeoVista (2009)

Category	Tonnage (Mt)	Fe Grade (%)	S Grade (%)
Measured	59.3	27.8	0.25
Indicated	34.9	24.1	0.48
Inferred	9.7	23.7	0.10
Total	**103.9**	**26.2**	**0.31**

Note: NI43-101 Compliant Resource, 15% Fe cut-off grade applied. Not constrained by a conceptual open-pit

6 GEOLOGICAL SETTING

6.1 Regional Geology and Tectonics

The Fennoscandian Shield is the largest exposed Precambrian crustal domain in Europe, covering most of Finland and Sweden as well as significant parts of Northwestern Russia. The bedrock of the northern part of the Fennoscandian shield consists of an Archaean granitoid-gneiss basement which is unconformably overlain by Paleoproterozoic supracrustal sequences. The latter consist of Karelian (2.5 -2.0 Ga) greenstones and related sedimentary rocks and Svecofennian (1.96-1.85 Ga) successions which together represent ancient rift, island arc, continental-margin and continent-continent tectono-magmatic systems. The Karelian sequence consists of komatiitic to tholeiitic metavolcanic rocks with terrestrial to shallow marine metasedimentary rock intercalations. Terrestrial sedimentary units with minor felsic volcanic rocks comprise the Svecofennian sequence in the east (Finland). In the west (Sweden) abundant felsic metavolcanic rocks accompany the sedimentary rocks of the Svecofennian sequence (Figure 6-1) (Kaunisvaara PEA, 2009).

The intrusives in the northern part of the Fennoscandian Shield consist of 2.5-2.44 Ga mafic layered intrusions, 2.2 to 2.05 Ga mafic dykes and sills, voluminous 1.88 to 1.86 Ga mafic to felsic calc-alkaline syn-orogenic intrusions, ca. 1.80 Ga late-orogenic granitoids, and post-orogenic ca. 1.77 Ga granitic intrusions (Kaunisvaara PEA, 2009).

The supracrustal sequences and all other rock-types, except the ca. 1.77 Ga granites, were multiply deformed and metamorphosed during the Svecofennian orogenic events between 1.98 and 1.79 Ga. Several crustal-scale structures are known in the area, one of which is the NNE-SSW striking Pajala Shear Zone (PSZ) which straddles the border between Finland and Sweden. The PSZ is up to 50 km wide and at least 150 km long and is a crustal-scale shear zone system that outlines the boundary between Norbotten craton in the west and Karelian craton in the East (for example, Lahtinen et al, 2005). This boundary can be followed by structural features in bedrock exposures and as an area of steep gravity gradient in geophysical maps. The structural lineaments that comprise the PSZ were initially formed during the continent-continent collision of the Norbotten and Karelian cratons in 1.89-1.86 Ga and were subsequently (re-)activated during later orogenic events between 1.83 and 1.79 Ga (for example, Lahtinen et al, 2005; Niiranen et al, 2006; Hölttä et al, 2007).

The peak metamorphic conditions in the northern Fennoscandian shield vary between greenschist and granulite facies conditions (Hölttä et al, 2007). Three different ductile deformation stages (D1-D3) and subsequent brittle stages have been detected in the region.

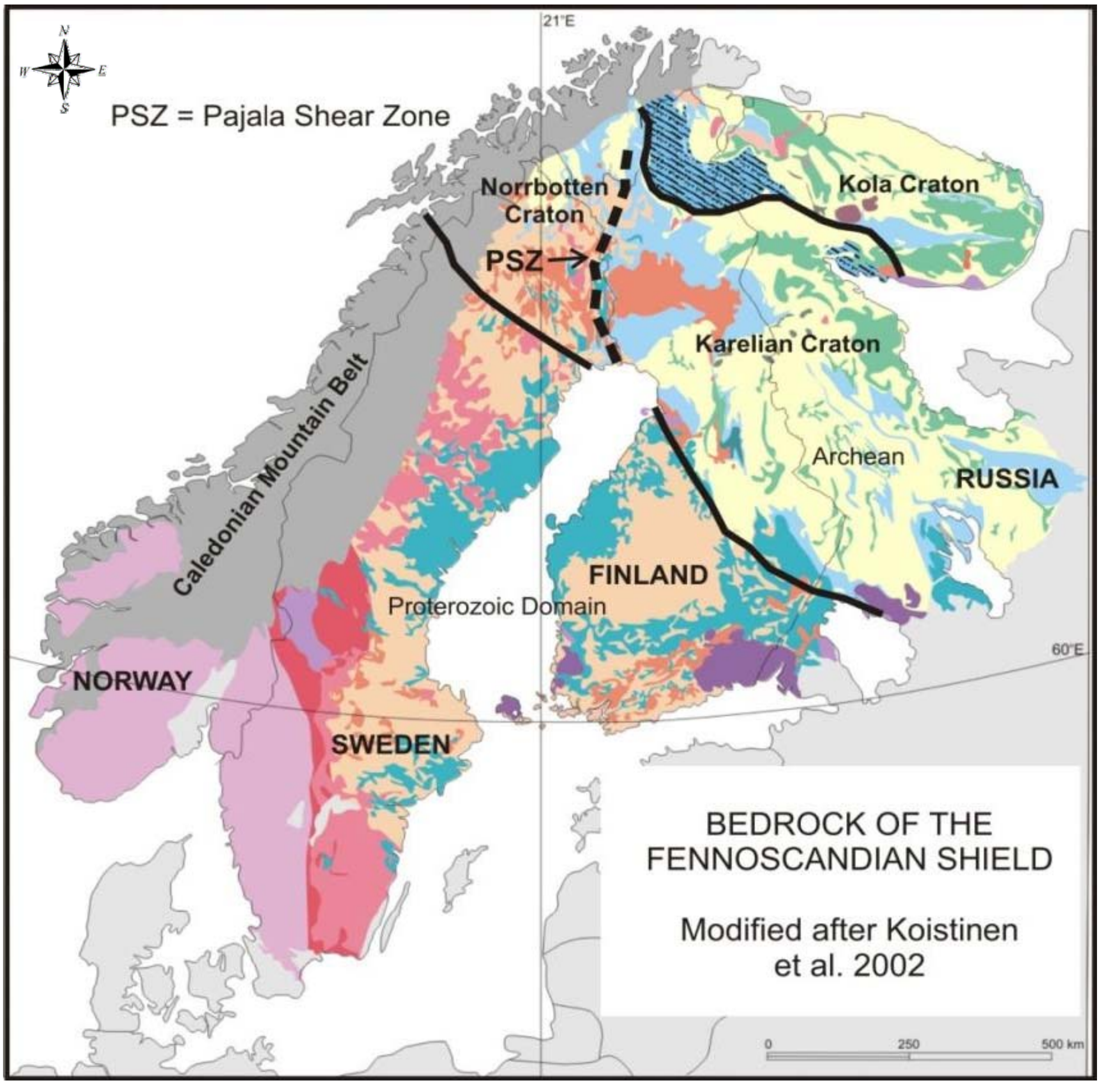

Figure 6-1: Fennoscandian shield

6.2 Local Geology

Glacial till, gravel, and sand cover the entire Kaunisvaara project area and bedrock exposures are very rare, nearly nonexistent. Large parts of the area are furthermore covered with wetlands with variable thickness, from up to 8 to 10 m in the extremes. Much of the geological interpretation therefore relies on information from drill-core as well as from regional and local geophysical data.

The deposits of the Kaunisvaara project are located adjacent to the westernmost thrust fault of the PSZ along the margin of the Karelian craton (see Figure 6-2 and Figure 6-3). The supracrustal rocks of the area consist of Karelian (2.5-2.0 Ga) quartzites, dolomitic marbles, black schists, mica schists and mafic metavolcanic rocks with minor Svecofennian (1.96-1.85 Ga) phyllites and quartzitic phyllites. The intrusives in the immediate area of the deposits are dominantly gabbro and diabase (1.89-1.77 Ga) with relatively late-orogenic granites (1.82-1.79 Ga) to the west. Metasomatic skarns occur in association with the magnetite deposits (Kaunisvaara PEA, 2009).

The PSZ hosts approximately 30 iron oxide deposits, a number of which contain economically significant Cu and Au concentrations (see Figure 6-2).

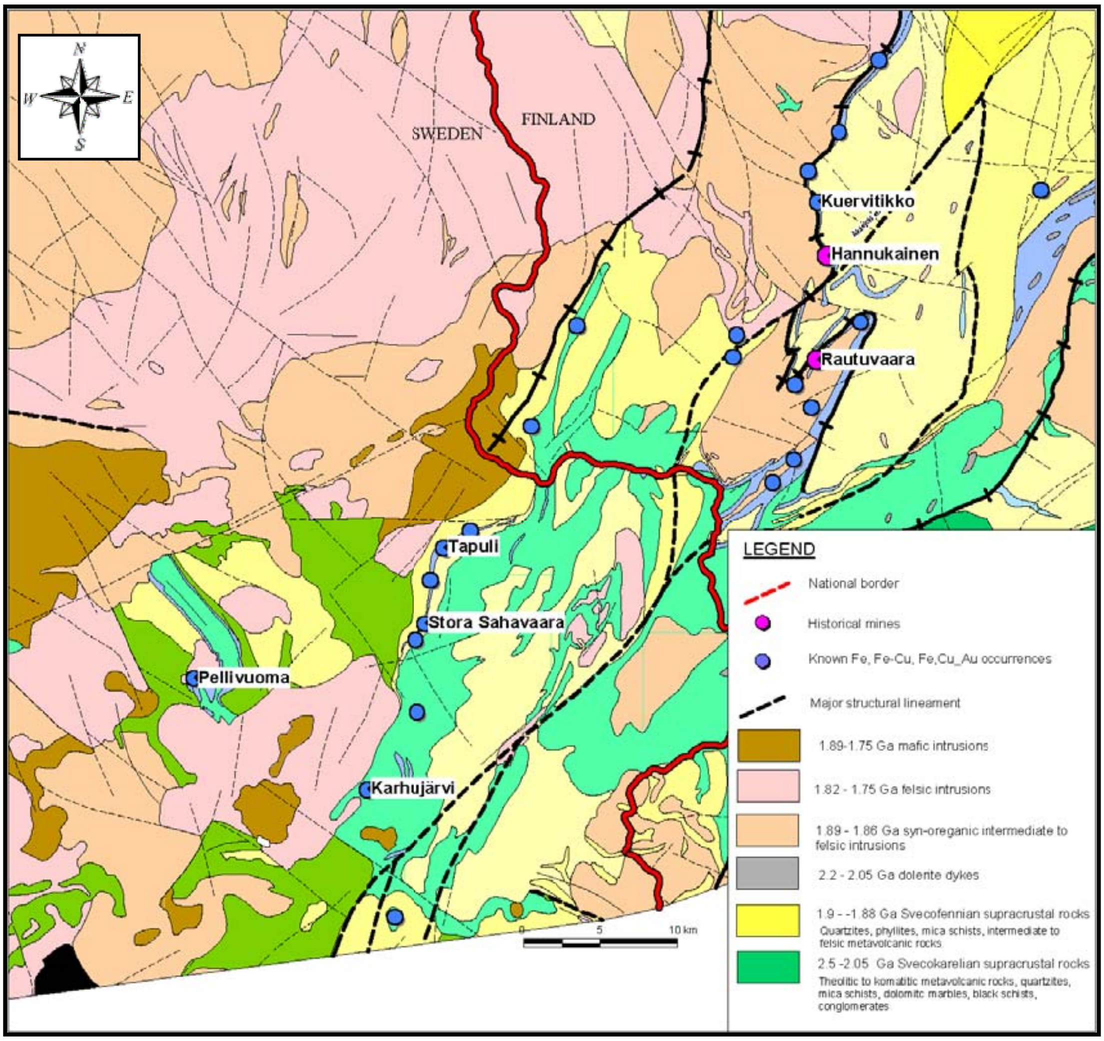

Figure 6-2: Mineral occurrences along the Pajala Shear Zone, generalized geology by Northland

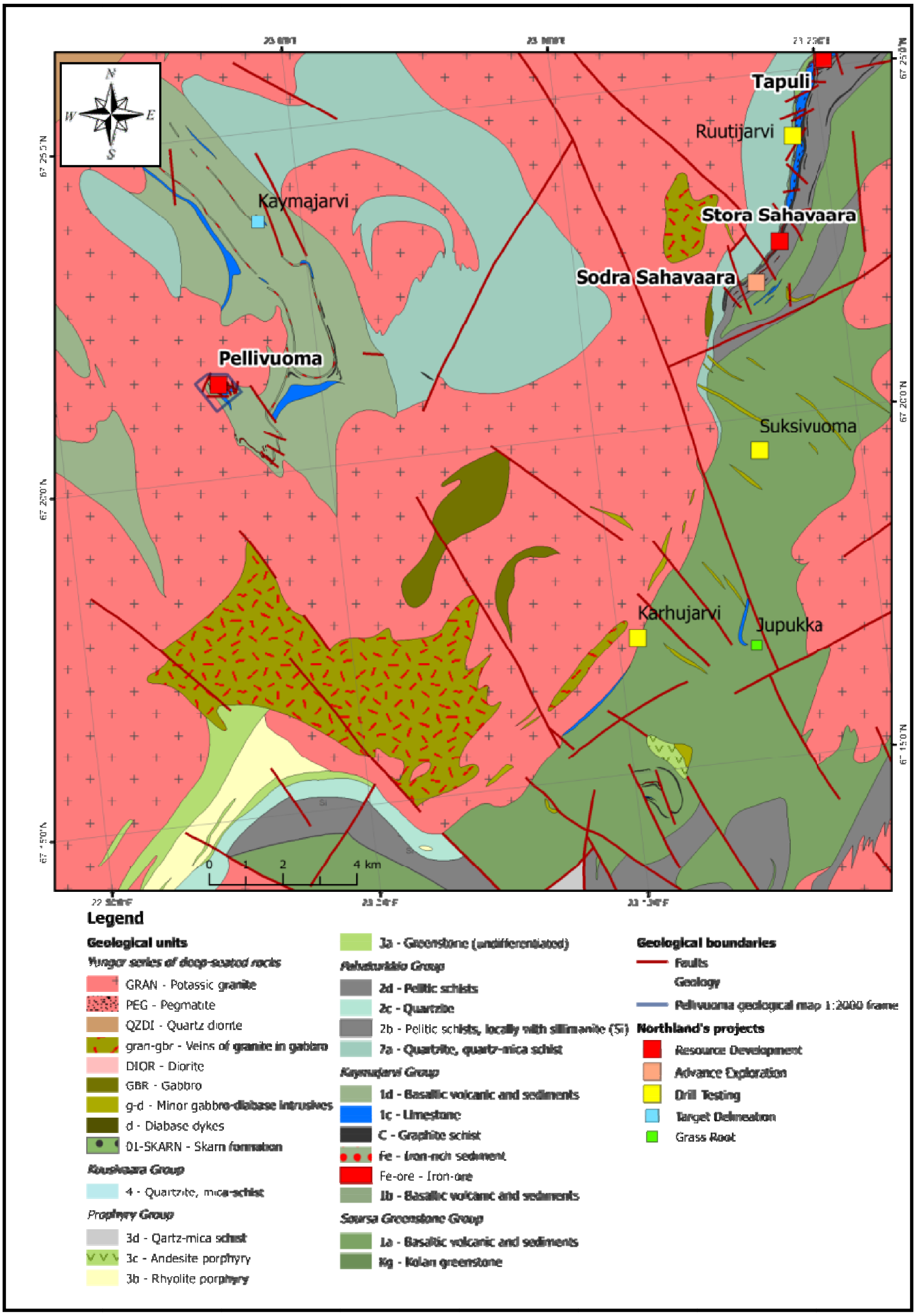

Figure 6-3: Local geology

6.3 Deposit Geology

The generalized bedrock geology of the Sahavaara and Tapuli deposits is shown in Figure 6-4. The mineralised zone and adjacent wall rocks contain abundant faults ranging in width from 1 to 20 m. Contacts between the host rocks, skarn and mineralisation are predominantly tectonic. There are two preferred fault orientations, the first parallel to the NNE-SSW striking metamorphic foliation and a second which strikes NW-SE with steep to moderate dips (Lindroos, 1974). The fault zone fabrics typically consist of clast-supported to matrix-supported breccias. Many of the faults in the skarn zone are associated with clay alteration including kaolin. Thin calcite veins are common throughout the deposit.

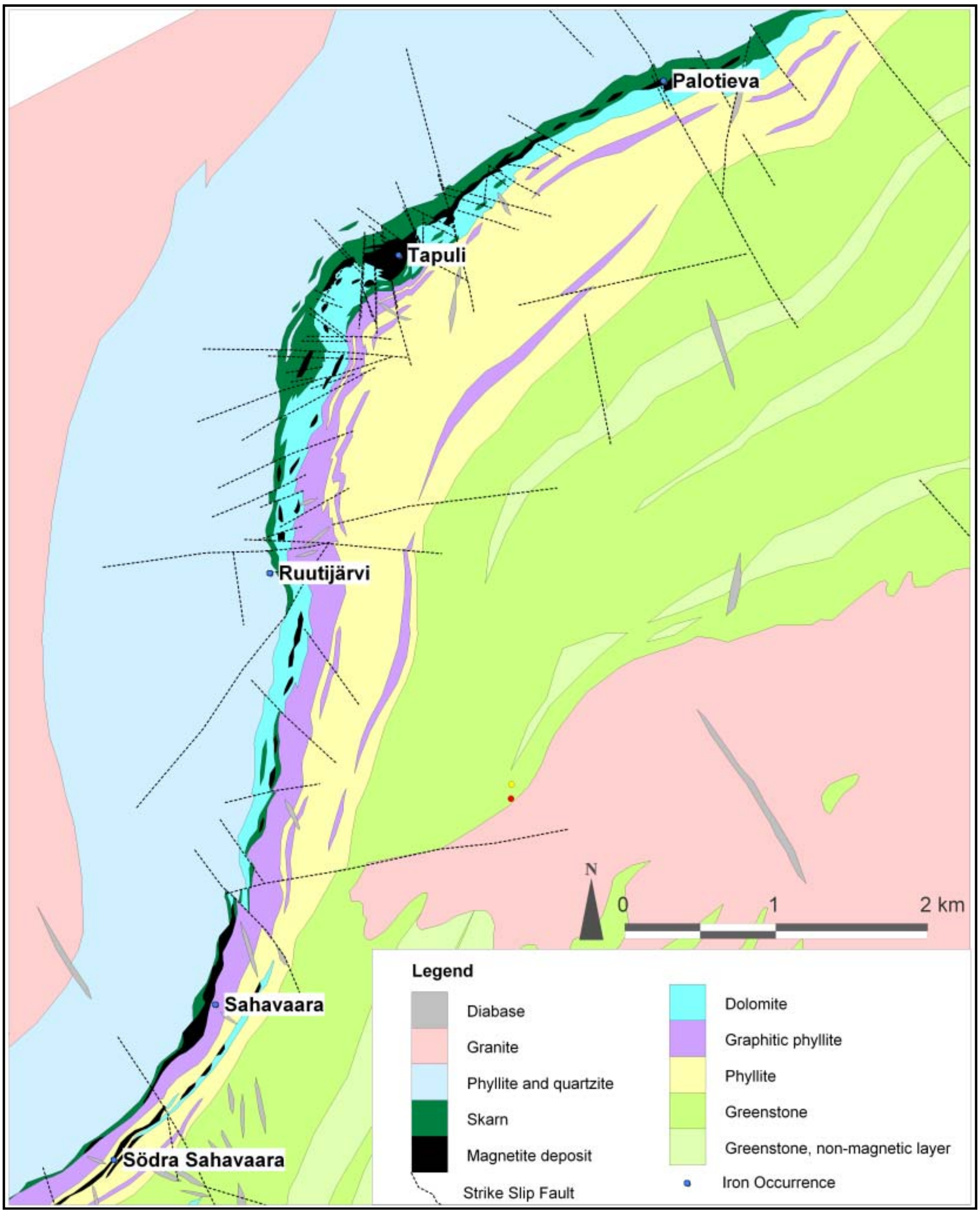

Figure 6-4: Sahavaara and Tapuli area Bedrock Geology

6.3.1 Sahavaara Deposit Geology

The Sahavaara deposit occurs as a continuous "seam" located between a hanging-wall quartzite and footwall graphitic schist. Minor remnants of skarn-altered dolomite occur within the deposit and likely reflect the original protolith. The bulk of the mineralisation consists of a magnetite body with elevated copper concentrations. The magnetite deposit has been delineated at surface over a strike of 1,300 m with an average true width of 52 m (Figure 6-5). Down dip at a distance of 250 m, the deposit has been traced for 1000 m along strike with an average true width of 48 m. At a down-dip distance of 550 m, the deposit has been traced for 600 m along strike with an average width of 43 m.

The Sahavaara mineralised zone is enveloped by three types of skarns. Serpentine skarns and clinopyroxene-amphibole and are the most abundant in comparison to a scapolite skarn, which has also developed. The clinopyroxene-amphibole skarn is composed mostly of equal proportions of tremolite and diopside with small amounts of scapolite, magnetite and garnet. Development of the clinopyroxene-amphibole skarn is mostly confined to the hanging wall of the magnetite body and is locally observed as intercalations within the core of the magnetite mineralisation. The serpentine skarn is common in both the hanging wall and footwall of the magnetite body and consists dominantly of very fine-grained serpentine with varying amounts of magnetite, chlorite, talc and calcite. The scapolite skarn occurs mainly in the footwall side of the magnetite body but can be locally observed in the hanging wall consisting dominantly of fine to medium-grained scapolite with varying amounts of diopside and tremolite. The hanging wall to the west of the mineralisation consists of a sedimentary unit consisting of graphitic phyllite, quartzitic-phyllite, and quartzite (Figure 6-5). Centimetre-scale, tight to isoclinal folding is typical in the hanging wall phyllite and footwall graphitic schist. Closer to the mineralisation the amount of quartz increases as feldspar and biotite decrease in abundance. The immediate wall rock next to the skarn-zone is typically a fine-grained quartzite with small amounts of biotite. The footwall rock, immediately below the skarn unit, is a graphitic schist consisting of fine-grained quartz, scapolite, graphite, biotite, and tremolite. This unit is rich in pyrrhotite and lesser amounts of pyrite with some local chalcopyrite mineralisation. East of the graphitic schist, a 150 to 200 m thick unit of phyllite contains a 30 to 40 m wide intercalation of dolomitic marble. The lowest unit in the stratigraphic sequence is a mafic metavolcanic rock. Meta-diabase dykes are abundant throughout the mineralised sequence. Typically, the dykes are less than a few metres thick but locally they can range up to 15 m thick. The dykes occur parallel to the NW-SE oriented faults and shears and they crosscut both the skarn and the magnetite mineralisation as well as the Lina Suite granites (1.82-1.79 Ga) peripheral to the deposit (Lindroos, 1974). The dykes are consistently altered forming scapolite- or K-feldspar (Lundberg, 1967).

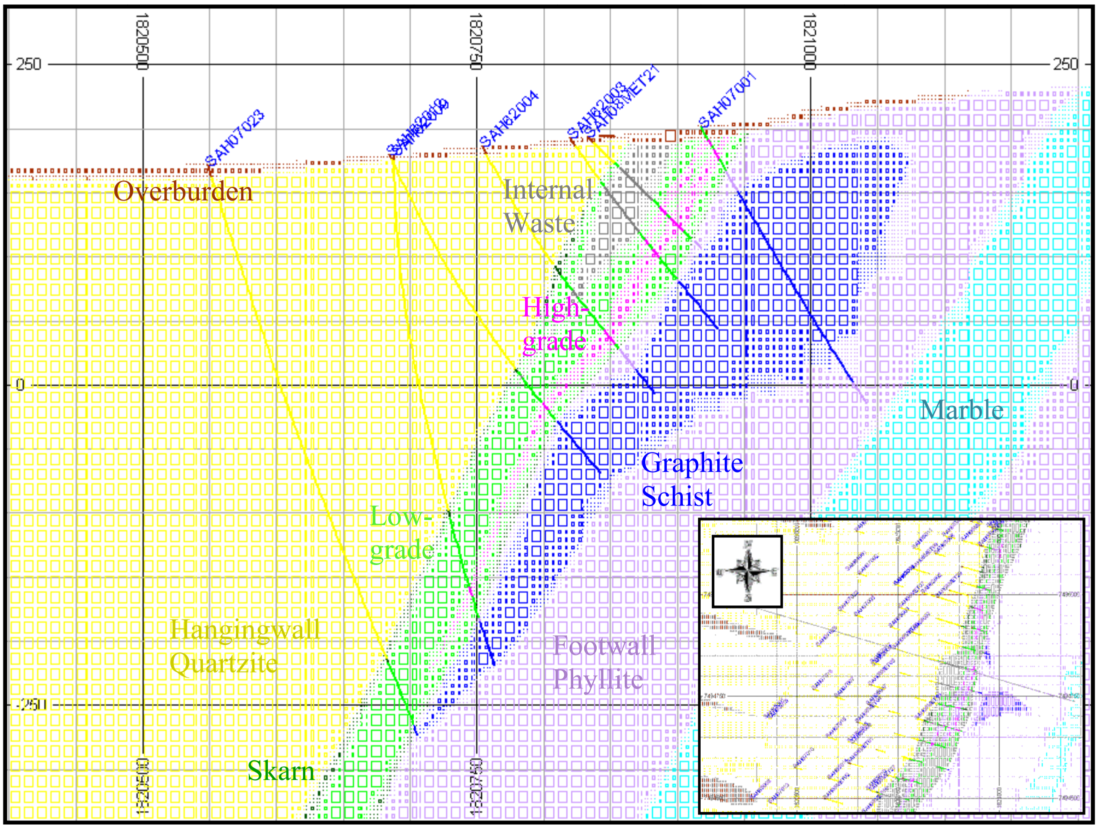

Figure 6-5: Sahavaara cross section

6.3.2 *Tapuli Deposit Geology*

The bedrock at Tapuli consists of Precambrian supracrustal sedimentary sequences. The generalized surface geology at Tapuli and cross section across the Central Tapuli deposit is shown in Figure 6-6 and Figure 6-7. The Tapuli mineralised lenses follow a stratigraphic corridor approximately 2 km long. The deposit occurs as set of strata-bound, semi-continuous, tabular bodies. The mineralisation in the central portion of the trend is by far the most economically important in terms of its size, grade, and continuity. This is shown in Figure 6-6.

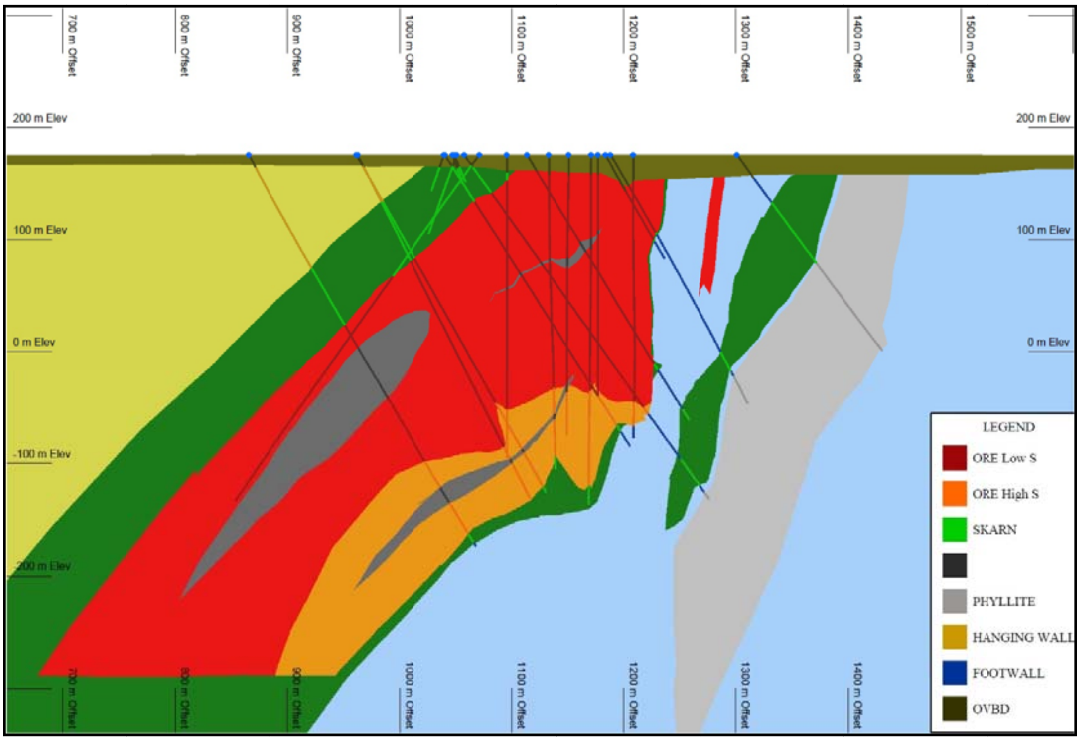

Figure 6-6: Typical geological section in the central portion of Tapuli

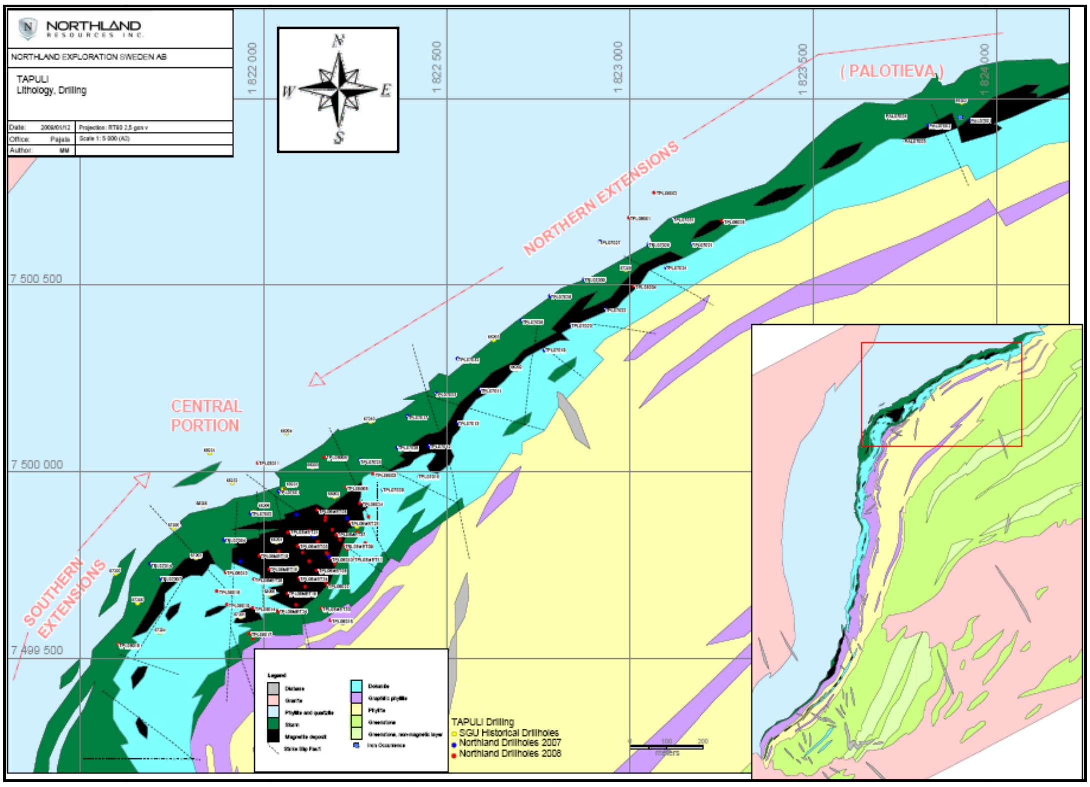

Figure 6-7: Tapuli Deposit area

The deposit has been outlined by drilling to depths ranging from the surface to 300 m below surface, with bands of contiguous magnetite mineralisation with variable iron grades ranging from 10 to 200 m in thickness. The mineralisation remains open down-dip below the limits of the resource and the vertical extent of the deposits is not delineated.

The dip of the mineralised lenses is concordant with the surrounding metasedimentary units and ranges from 45 to 60 degrees, the main dip direction varying between WNW to NW. The Tapuli magnetite deposit occurs as a relatively continuous mineralised trend, with occasional moderate displacements by crosscutting, sub-vertical faults. core breakage and crushing within the mineralised zones and wall rocks provide evidence of faulting. Interpretation of magnetic signatures and the close-spaced drillhole spacing has provided clear evidence of discontinuity offsets in most cases. Several north- and northwest-trending faults are apparent from the stratigraphic and mineralisation displacements.

The Tapuli deposit is situated within the northwestern limb of a major, NE-trending anticline within the supracrustal rocks and on the westernmost margin of the PSZ. Structurally, Tapuli is situated in the same NE-SW trending shear zone as at Sahavaara. The main central portion of the deposit, and thickest part of the deposit (up to 200 m), was formed along a significant NE-trending flexure in the major fold axis.

A phyllite unit with interbedded graphitic phyllite beds is located at the bottom of the Tapuli stratigraphy. Minor horizons of dolomite and skarn were also apparent within this unit in a few of the deeper SGU holes. A Karelian dolomitic marble is situated above the phyllites and the bulk of the mineralisation and skarn varieties overprint the dolomite. Occasional rafts of dolomitic marble, typically less than a few metres thick, are found surrounded by mineralisation. The phyllite usually is present as the footwall to the magnetite bodies and skarn horizons. The dolomite and mineralisation are consistently 250 to 350 m thick, and generally where the magnetite deposits are thick, the dolomite is thin and vice versa.

The hanging wall to the west of the mineralsation is a layered sedimentary unit of phyllite, quartzitic phyllite, and quartzite, or their metamorphic equivalents (mica schist and biotite gneiss). This unit is well-bedded, exhibiting sedimentary structures.

Mafic dykes or sills are common throughout the stratigraphy, and are typically less than a few metres thick. The mafic rocks are present in both the skarn and magnetite mineralisation as well as the country rocks and are variably scapolite-altered.

The magnetite mineralisation is enveloped by metasomatic skarns. The alteration is dominated by skarn assemblages that can be divided into following types:

- clinopyroxene-tremolite alteration;
- magnetite-actinolite alteration;
- serpentine alteration.

The clinopyroxene-tremolite skarns appear temporally to predate the magnetite-actinolite stage, and the serpentinisation stage is the youngest, post-dating the mineralisation event.

In the Fe-richest part of the deposit, serpentine is the dominant gangue mineral. At higher grades, the magnetite mineralisation is locally semi-massive. In some zones, a biotite- and albite-rich alteration assemblage is prevalent with associated elevated amounts of aluminium, indicating the protolith may have been an intercalated silicate-rich rock rather than the dolomite. A substantial percentage of the deposit is characterized by breccia-style mineralisation in which magnetite with actinolite ± biotite brecciate the host rock. Typically, the host is clinopyroxene-tremolite skarn, but in places the host rock is dolomitic marble.

The sole mineralisation mineral at Tapuli is magnetite, although small amounts of chalcopyrite have been detected in relatively sulfur-rich layers near the footwall at depth. Pyrite and pyrrhotite occur locally, usually in isolated, trace amounts in the upper, low-sulfur portion of the deposit. In the sulfur-richer parts of the deposit, these two minerals provide the primary sources of sulfur.

7 DEPOSIT TYPES

Historically, the deposits of the Kaunisvaara Iron Ore field have been interpreted as examples of a broad group of magnetite-dominated, Ca-Mg- and Mg-silicate skarn-hosted deposits, which occur throughout Northern Sweden. These deposits are located within a Karelian volcano-sedimentary domain and are generally referred to as “skarn iron ores” and as such may be metamorphosed banded iron formations or some other similar type of syngenetic iron formation (for example, Frietsch, 1997). The deposits are comprised of several bands, or lenses of magnetite skarn, concordant with the surrounding skarn and sedimentary host rocks.

Although little copper and gold mineralisation is apparent in these deposits, several features indicate that an IOCG model also has its merits, including:

- The brecciated textures commonly observed in the mineralised zones indicate that the magnetite is epigenetic in origin.
- Spatial correlation to the shear zone suggests the possibility that the mineralisation is structurally controlled. This is further supported by the fact that within the region, fairly similar magnetite ± Cu-Au occurrences are known through the stratigraphical sequence, such as at Northland’s Hannukainen deposit.
- Although syngenetic iron formations are known in the Karelian sequence further west of Pajala area, no examples are known in Pajala-Kolari district.
- Elevated concentrations of La and Ce have been detected from Sahavaara (Lindroos). These elements are atypical for syngenetic iron formations, indicating evidence that the iron mineralisation may be a hydrothermal replacement type. Also suggestive of epigenetic origins - chlorine is evident locally at values over 0.1%, suggesting involvement of highly saline fluids, and geochemically anomalous values are also detected in correlation with iron grades.
- Available isotopic dating of the mineralisation (from Hannukainen) suggest that mineralisation formed relatively "late", these ages thus being more consistent with epigenetic than syngenetic origin.

Although none of the three deposits contain any significant Cu or Au mineralisation, they display some other features of an IOCG-type of system. One typical feature for the known IOCG-belts (for example, Cloncurry in Australia) is that numerous epigenetic magnetite and/or hematite deposits occur amongst the Fe-Cu-Au deposits.

8 MINERALIZATION

8.1 Sahavaara

At Sahavaara, the mineralisation consists of one main lens and a smaller adjacent mineralised lens. The main mineralisation domain (Stora Sahavaara) has a NNE-SSW strike of 1300 m, dips 50-70 degrees west, plunges to the north and is concordant with the host sedimentary rocks. The mineralisation is generally open down-dip below the limits of the resource model. This is interpreted to be due to the northerly plunge of the mineralised body. On Section North-300, SGU drillhole 65001 intersected un-mineralised skarn at a vertical depth of 400 m and on Section 500-North, vertical drillhole 65001 targeting the down dip extension did not intersect mineralisation at a depth of 700 m from surface. The Stora Sahavaara magnetite body tapers at its northern and southern ends reaching a maximum of 90 m thick with an average thickness of about 45 m.

The adjacent lens, Södra (South) Sahavaara, is located to the south and en echelon to the main zone of mineralisation. Södra Sahavaara averages about 20 m in thickness and is discontinuous along strike for 1000 m. Lithology, mineralisation and attitude of the mineralised horizon are similar to those of the main Stora Sahavaara zone.

A number of smaller lenses of mineralisation occur in the skarn next to the main mineralised zone and there are places where small skarn intercalations, poor in magnetite, develop inside the main zone. A discontinuous zone of magnetite mineralisation, historically referred to as Östra (East) Sahavaara is several meters wide and located approximately 200 m east and parallel to the main zone.

The mineralisation comprises magnetite, serpentine, pyrrhotite, pyrite, and tremolite. Phlogopite, diopside, chlorite, talc, valleriite, chalcopyrite, graphite, scapolite, vesuvianite, and apatite also occur as minor constituent minerals. Magnetite is currently the main mineral of economic interest in the Sahavaara deposit, occurring as massive to semi-massive mineralisation, gradational to banded mineralisation near the footwall. The concentration of mineralisation is slightly higher toward the hanging wall compared to the footwall. Typically magnetite occurs as fine-grained (0.1-0.3 mm) disseminated mineralisation; however coarser-grained (0.8-1.0 mm) mineralisation occurs locally and is relatively common.

Pyrrhotite, pyrite, valleriite, and chalcopyrite occur locally and sporadically within the magnetite deposit as clots or patches of disseminated mineralisation and also as narrow veins from less than 1 mm up to 10 mm in width. The average sulfur content of the main mineralisation domain is 2.8%S with little variation. The main sulphide mineral is pyrrhotite (4.9% by volume) followed by pyrite (1.1% by volume). The southern part of the mineralisation contains almost no pyrite at all but increases along trend to the north with a consequent systematic change in the pyrite-pyrrhotite ratio along strike with the former highest and the latter lowest in the northern part of the mineralisation (Lundberg, 1965).

Valleriite and chalcopyrite occurs throughout the mineralised body as sporadic disseminations and as narrow veins. In general the amount of these Cu-minerals is low; the average Cu concentration in the mineralised zone is 0.08% and at such concentrations does not currently contribute to the economics of the deposit.

8.2 Tapuli

The iron mineral at Tapuli is magnetite, with occasional trace amounts of chalcopyrite. Pyrite, pyrrhotite, and tochinilite occur in trace amounts throughout the deposit. Higher percentages are present within the lowermost layers near the footwall at the central portion of the deposit (Figure 8-1) and within the lens at Palotieva (Figure 8-2). Although copper grades are quite low in the sulphide bearing zones, they still contain up to a few hundred ppm Cu. With the exception of these lenses and occasional isolated pockets within the low-sulphide zones, the mineralisation is generally low in sulphide content.

The majority of the mineralisation is a breccia-style where irregular bands, veins and blebs of magnetite, along with variable actinolite ± biotite brecciate the host clinopyroxene-tremolite skarn rocks. Higher grade bands of semi-massive magnetite skarns (over 30 volume-% magnetite), varying in thickness from one to over 100 m, are intercalated throughout the enveloping mineralised breccia zones. The magnetite skarns may contain as high as 80 volume-% of magnetite, however these zones appear erratic between sections, and so may represent a patchy distribution.

Various skarn minerals comprise the gangue. The main gangue minerals are clinopyroxene (diopside) and amphiboles (tremolite, actinolite, ferritshermacite). Locally, especially within the richest magnetite skarns, serpentine is the dominant gangue mineral. Minor to trace amounts of biotite, chlorite, calcite, and apatite occur locally.

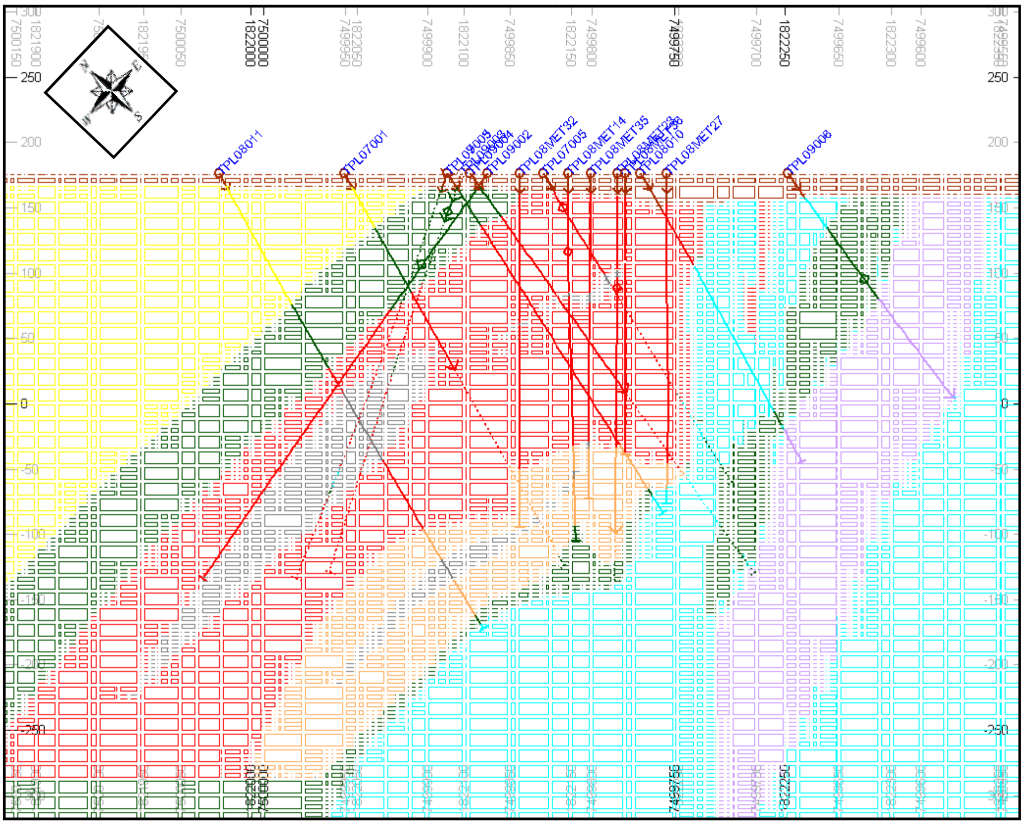

Figure 8-1: Central Tapuli iron and sulfur distribution. Orange = high-sulfur (>0.5% S); red = low-sulfur (<0.5% S)

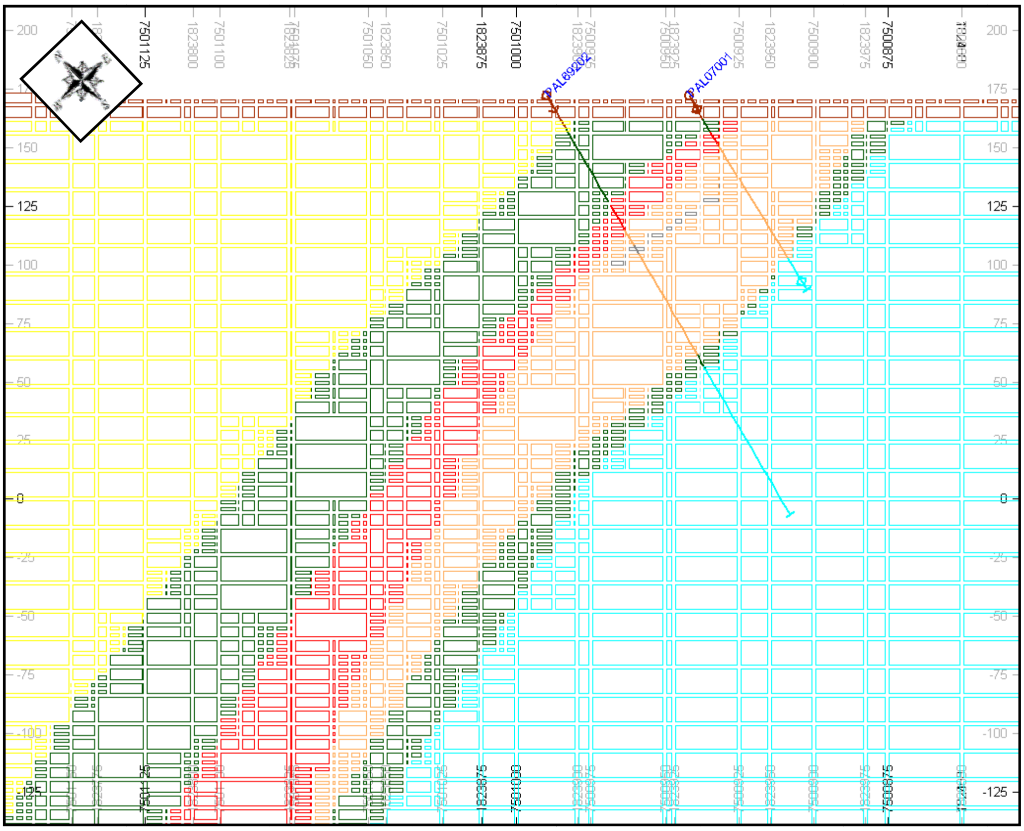

Figure 8-2: Palotieva iron and sulfur distribution. Orange = high-sulfur (>0.5%); red = low-sulfur

9 EXPLORATION

Northland has compiled an extensive database of available historical exploration information for the Sahavaara and Tapuli deposits. In addition, the data for a number of other deposits in the immediate vicinity have been incorporated into the current exploration programs.

Due to the advanced stage of exploration and evaluation of the Sahavaara and Tapuli magnetite deposits, Northland moved directly to drilling (described in detail below) and did not undertake any significant mapping or surface sampling, or any additional detailed geochemical and geophysical surveys.

10 DRILLING

10.1 Sahavaara

During 2005, Northland drilled 14 diamond core holes at Sahavaara for a total of 2,424 m. There were three objectives to the drilling program: to twin historic SGU drillholes; to collect fresh metallurgical samples; and to expand the current resource with both infill and step-out drilling.

The drillholes are located along cross sections spaced 50 to 100 m apart and were oriented at an azimuth of 105°E with an inclination of about 60 degrees. The drillhole locations and downhole surveys used in the resource model are all based on the Swedish RT90 coordinate system.

The drilling program occurred in two phases, both completed by Kati Oy from Rautio, Finland. The first phase involved the completion of four large diameter (103 mm) core holes for metallurgical samples. The drill-program completed during June and July 2005 was managed by Frank van der Stijl, an experienced consultant geologist retained by Northland and assisted by Åsa Corin. The second consisted of 10 additional drillholes (75 mm diameter) completed during August and September 2005. The second phase of the program was managed by Art Glover, a consultant geologist retained by Northland and assisted by Eric Yurko and Elin Siggberg. Vance V Thornsberry, PGeo, former Vice-President of Exploration for Northland, is the Qualified Person as defined in National Instrument 43-101 responsible for supervising the design and execution of the Sahavaara drilling programs.

Northland re-established the SGU local drill-grid at Sahavaara and Northland's drill- collars were duly referenced to the old grid. The SGU grid was re-established by locating old drill casings and then hand brushing the original survey lines. Conveniently, in many instances, the old grid stakes were located in the field. Once the grid lines had been brushed and grid stations flagged, they were used to set foresights and back-sights to line-up stakes for the drilling. A magnetic compass is not accurate in this terrain due to the strong influence of the magnetite mineralisation. The line-up stakes were preserved throughout the drilling operation to facilitate subsequent surveying of all drill collars grid lines by a licensed surveyor.

Down-hole deviation surveys were completed on all of Northland's drillholes. These were conducted by Kati personnel using a Maxibor down-hole deviation tool. The deviation results were used to correct the original inclination and azimuth of the hole.

Sample lengths of 1m were generally taken from the modern era drilling, and 2m from the historical drilling in order to account for sections of thin mineralisation. The deposit is generally 10m or thicker, with few areas pinching-out to <5m.

10.2 Tapuli

Assays and geological logs were retrieved by Northland for the 26 historical (SGU) diamond boreholes on the property. The core measured 46 mm in diameter and the program Totalled 6,280 m. The position of the drillholes was measured with a theodolite in a local grid system tied to the Swedish national grid. Down-hole deviation (dip only) was routinely surveyed as well. On drillhole completion, the casing was left in the ground and capped. All SGU holes were found in the field in 2007. Core from four of the holes from the 800 section within the Central Tapuli deposit is currently stored at the SGU drill-core archive at Malå in northern Sweden. SRK could not view this core, and is not aware of any assaying technique information or QAQC data for these holes.

During 2007, Northland drilled 37 diamond core holes at Tapuli for a total of 5,695 m. The drilling was contracted to Kati Oy (25 holes) and SMOY (12 holes), both using a WL-76 equipment, producing core with a diameter of 57.5 mm. There were principally three objectives to the drilling program: 1) to twin historic SGU drillholes, 2) to collect fresh metallurgical samples for test work, and 3) to expand the current resource with infill and step out drilling.

The 2007 drillholes were drilled at angles ranging between 60 and 65 degrees and directed on an azimuth of 142.5°. The holes were drilled on a nominal 100 m grid, utilizing the same profile system as the SGU. The parallel profiles are spaced (with two exceptions) 100 m apart (see Figure 5-3).

Beginning in September 2007 and continuing through April 2008, Northland drilled an additional 69 core holes for a total of 13,184 m. The drilling was contracted to Kati Oy (25 holes), Lapin Asbesti OY (16 holes), Taiga Drilling AB (25 holes), and SMOY (3 holes). Both Kati and Lapin Asbesti used WL-76 equipment, producing core with a diameter of 57.5 mm. Taiga used HQ equipment, producing a core with a diameter of 63.5 mm, and SMOY used WL-103 equipment, producing core with a diameter of 80.0 mm. There were three objectives to the drilling program: 1) increase the drillhole sample density to advance modelled tonnes into measured and indicated resource categories; 2) to collect sufficient volume of core in the main central deposit to produce a bulk sample for pilot plant testing; and 3) to expand and more precisely delineate the current resource with infill and step out drilling.

Holes outside of and on the main central deposit periphery were drilled at 60° and directed on an azimuth of 142.5°. Most of the holes within the central portion had a two-fold objective: 1) fill-in sample spacing to a nominal 50-m grid; and 2) provide a volume of core to produce a 25 t bulk sample for pilot plant testing. These holes were drilled at a 90° vertical angle.

All the drillholes were integrated into the database, containing 130 holes for 24,475 m of drilling and a total of 15,941 iron analyses used in the estimation of the Tapuli mineral resource. The drillhole locations and down-hole surveys used in this model are all located in the Swedish national grid, RT90 coordinates.

Northland's drillholes have all had the location surveyed by a qualified surveyor from PICAB BYGGPLANERING, using a Real-Time Kinematic GPS equipment. Deviation surveys were conducted on all but 8 holes in 2008, utilizing standard MAXIBOR and Deviflex systems. A few holes in 2008 were not available to survey as hole conditions would not allow or ice conditions indicated timely evacuation of the drill site for safety reasons was advisable before surveys could be conducted. All historical drillholes were also relocated by PICAB surveyors as well as by Northland.

Sample lengths of 1m were generally taken from the modern era drilling, and 2m from the historical drilling in order to account for sections of thin mineralisation. The deposit is generally 20m or thicker, with few areas pinching-out to <10m.

10.3 Geological and Geotechnical Logging

10.3.1 Previous Explorers - Geological and Geotechnical Logging of the SGU holes

The following information is summarized from personal communication with Hardy Lindroos, SGU project geologist for the historical exploration program:

The geological logging was conducted by the SGU geologists at LKAB´s core archive in Kiruna, using a standard protocol, similar to current practice, utilizing the geologist's observation of the rocks, and other tests conducted on the cores such as their reaction to magnets, and the data from magnetic susceptibility logs conducted on the core. In addition, microscopic studies were conducted on a significant amount of thin sections, with many studied as polished sections. The thin section studies were important for SGU and LKAB to understand the mineral assemblages related to the mineralisation.

The original geological logs obtained from the historical drilling conducted by the SGU were translated from Swedish to English by Northland. The drill-hole logs conventionally describe the various lithologies and relevant geological and structural attributes, with qualitative descriptions of zones of strong fracturing or broken rock. No quantitative geotechnical measurements, such as RQD, were discovered. Mineralised core intervals were selected and recorded for assaying from all magnetite-bearing horizons. The translated lithological descriptions were standardized to rock types synonymous with Northland's descriptors. A database was created by tabulating drillhole information and lithological intervals were coded according to rock type. Cross sections were then generated to facilitate interpretations of geological cross sections.

10.3.2 Northland's Geological and Geotechnical Logging

All of Northland's drill cores were logged to capture all relevant geological, geophysical (susceptibility logs) and geotechnical information by Northland geologists. In addition to this, photos were taken of each core box, with both wet and dry core. The geologic logging intervals were based on lithological variations in the rock. Geological and geotechnical observations were entered directly into a Microsoft Access database and after June 2008 transferred into a Century Systems database called FUSION. Standard RQD measurements were made on the core and tabulated by hand. This data was then entered into a Microsoft

Excel spreadsheet that was later imported into a Microsoft Access table and later to FUSION.

Major problems have been found with the FUSION database software, with the tracking of batch numbers, assay method, assay type and other data. The use of FUSION has been seen to decrease database integrity and may result in inaccurate data being transferred between users of the data. This system should be replaced by a more robust databasing system, in order to prevent future problems with data capture and storage.

During the spring of 2008 all data was transferred into Century Systems FUSION database to improve data integrity. All data acquisition done after the implementation of Fusion was done directly into DHLogger. The geologists first log the Collar, major and minor geology, than the details tabs (alteration, colour, structure, oxides, sulphides and texture) into DHLogger. The RQD, magnetic susceptibility, and rock mechanics data are entered into a csv format template and imported into the Local database. The data validation is completed during the import.

The downhole survey and surveyed coordinates for individual drillholes are imported after completion of the hole into Fusion Remote by the database administrator.

When the drillhole is created on the user’s local PC database it is created into the Fusion Remote, utilizing the Fusion Client tool. Fusion Client is a data management tool that runs on a user PC and is used to facilitate the movement of data between a Remote database and a Local database. The same tool is used to ensure the synchronization between Fusion Remote database located at Northland's office in Pajala, Sweden, and the central database located at the Northland's office in Luleå, Sweden. A Check In / Check Out system within Fusion Client always ensures that users have access to the latest data. This allows users to continue logging data that was previously started, out in the field and at the source of the data.

10.4 Interpretation of Results

10.4.1 Sahavaara

As a result of the drilling, two mineralization wireframes were digitized using Datamine software; Stora Sahavaara and Södra Sahavaara. Stora is the larger and contains the most drillhole intercepts. It measures 1.2 km along strike (on a 015° azimuth), and 10 - 80 m across strike, being fairly consistent along the strike length. It was modeled to an elevation of -600 m (dipping 60-65° to the west), and contains 36.9 million m^3 of material.

Södra measures 1.2 m along strike (on a 050° azimuth), and 5 –65 m across strike. It was also modeled to a depth of -600 m (dipping 50-60° to the west), and contains 18.5 million m^3 of material.

10.4.2 Tapuli

As a result of the drilling, two mineralization wireframes were digitized using Datamine software; Tapuli and Palotieva. Tapuli is by far larger and contains the most drillhole intercepts. It measures 2.7 km along strike (1.8 km on a 055° azimuth, and 0.9 km on a 025° azimuth), and 10 - 250 m across strike, with the northern and southern ends being thinner than the central portion. It was modeled to an elevation of -300 m (dipping 40-60° to the northwest), and contains 64.6 million m^3 of material.

Palotieva measures 360 m along strike (on a 70° azimuth), and 10 –30 m across strike. It was also modeled to a depth of -300 m (dipping 60° to the northwest), and contains 7.7 million m^3 of material.

11 SAMPLING METHOD AND APPROACH

11.1 Historical Sampling Methods and Approaches

According to Hardy Lindroos (personal communication), the Geological Survey of Sweden, SGU, utilized a standard professional protocol for the sampling for all deposits in the Iron Ore Inventory project. It is readily apparent that sampling intervals commence and finish based on visual estimates of magnetite mineralisation. Irregular sample lengths were used within these intervals, ranging between 0.2 to 6.0 m at Sahavaara, most commonly found are 1 and 2 m sample lengths. Core size was 46 mm and core halves were utilized for the sampling. The selected sample sections were sawed in half at LKAB's facility in Kiruna, and drill cores were stored in an underground archive in Kiruna. A limited number of the holes are still held in storage at the SGU national core archive in Malå.

11.2 Northland's Recent Sampling Methods and Approaches

All the mineralised zones of the core were sampled, along with a reasonable amount of altered skarn above the magnetite-bearing material and up to about 10 m of footwall rocks to ensure that the mineralisation was entirely captured. Sample intervals started and stopped slightly beyond the visual limits of the mineralised skarn zone. Within these boundaries, the standard sample interval was 1 m. Once the geologic and geotechnical logging was completed, the sample intervals were marked onto the core boxes and photographed. The sample intervals and numbers were entered directly into a Microsoft Excel spreadsheet which was later imported into a Microsoft Access database. After the change in the database management system, the sampling information is now logged directly into DHLogger with sample number, amount of sample etc. During this process, standards, blanks and duplicates are included to allow for the QA/QC checks of geochemical data.

When the drillhole logging process is completed, the hole is "Checked In" into Fusion Remote using the Fusion Client tool. When assays become available from the laboratory (ALS Chemex) they are imported directly into Fusion remote by the database administrator. The lab (ALS Chemex) will typically return the CSV import file using the required lab import file format.

The Lab Import function within Century Systems conducts validation on the assays prior to and during the import process. In particular it checks;

- that the sample numbers have been entered into the database;
- that the structure of the file supplied by the lab is correct;
- that all the necessary columns are present in the file; and
- that the field and lab standards are assessed against the defined tolerances.

The mineralisation was sampled in an unbiased fashion, with all mineralised zones sampled using the same technique, with up to 10m of waste rock sampled either side of the mineralised zone to ensure the entire mineralised is analysed. The drill core observed during the site visit to the Pajala core shed showed very good recovery and a good quality core, with no obvious impact on the quality of the Resource Estimate.

12 SAMPLE PREPARATION, ANALYSES AND SECURITY

The sample preparation was partly conducted by the issuer, and partly by an independent company to the issuer. SRK was not involved with any of the sampling procedures, so cannot comment on the security or handling along the sample chain. The structure of the preparation is highlighted below.

12.1 Historical Chain of Custody, Sample Preparation and Analyses

No information is currently available on the specific sampling procedures used in each of the various historical drilling campaigns. In the past, sampling intervals appear to commence and finish based on visual estimates of magnetite mineralisation. Regular sample lengths were used within these intervals. According to Hardy Lindroos (personal communication), SGU and LKAB utilized a standard protocol for the assaying, conducted at LKAB's laboratory in Kiruna which specialized in iron assays and the main sulphides. Fe, P, and elements with higher atomic numbers were analyzed by neutron activation. All assay results were signed by the laboratory chief.

Northland's technicians and/or geologists picked up cores at the drill site on a daily basis when drills were operating. From there, the core was transported to Northland's logging and core handling facility at Äkäsjokisuu for the earlier 2008 drilling, and later to the Pajala core logging facilities, by pick-up trucks and/or trailers.

During the logging stage, the core is measured and core recovery calculated, marking down each 1 m interval on the box and on the core with a green felt tip pen. The intervals selected by the geologist for sample analyses are also marked on the box and the core with a red felt tip pen. The sample number and its respective sample interval in down-hole metres are also written on the box.

The core intervals selected for analysis are generally cut in half. Northland technicians at both the Äkäsjokisuu and the Pajala facilities cut down the long axis of the core utilizing a circular diamond saw. Both halves of the sawn core are then returned to their respective position in the core box. Drill core intended for resource delineation as well as for metallurgical testwork has been treated differently. Generally, half the core has been assayed and a quarter has been used for testwork. In case of a large diameter core, it has been split so that a quarter has gone to an assay laboratory and half has gone to metallurgical testwork.

The samples from each individual hole were palletized as batches and transported by Northland personnel to the BUSSGODS shipping facility in Pajala, Sweden, and the transportation company completed the shipment to the Piteå facility. The ALS Chemex staff then confirms receiving the shipment on the ALS Chemex webtrieve www-page. All shipments were received within 24 to 48 hours.

After sample preparation is completed, the batches of pulp in 100 g containers were shipped from the Piteå facility to the ALS Chemex Laboratory, Vancouver, Canada. ALS Chemex Vancouver has attained ISO 9001:2001 accreditation. In addition, the ALS Chemex Vancouver laboratory is accredited to ISO 17025 by the Standards Council of Canada for a number of specific test procedures including fire assay Au by AA, ICP and gravimetric finish, multi-element ICP and AA Assays for Ag, Cu, Fe, Pb, and Zn.

The sample preparation procedure is described below:

1. individual samples are weighed;
2. samples are electronically bar coded and logged in a tracking system;
3. samples are oven-dried;
4. samples crushed with Cr-steel jaw crusher to 70% passing 2 mm size classification;
5. riffle split and bag and retain coarse reject half – approximately 2 kg;
6. other sample half pulverized in LM5 pulveriser to 85% passing 75 micron classification;
7. cleanse pulveriser with barren material between each sample; and
8. one ampoule (100 g) of sample pulp bagged for shipment for analytical procedures at laboratory. Of each pulverized sample, Northland stores one ampoule (about 100 g) material (plus QC spares, see below). Additionally, the remaining excess pulp material (about 1.8 kg), as well as the coarse rejects, are bagged and retained.

Gold was assayed using a lead fire assay and ICP-AES method with a 30 g charge size. Analytical range for Au is 0.001-10 ppm with this method. Base metals, iron, and potential ore contaminants were assayed with ICP-AES method after a sodium peroxide fusion. The elements assayed by this method are listed in Table 12-1 below, along with detection limits. In addition, four other elements – Ag, Mo, Sb and V, were analyzed with ICP-AES using a four acid digestion method.

Table 12-1 Assay specification for Northland's samples

Element	Symbol	Lower limit [%]	Upper limit [%]	Method
Aluminium	Al	0.01	50	ME-ICP81
Antimony	Sb	0.002	100	ME-OG62
Arsenic	As	0.01	10	ME-ICP81
Calcium	Ca	0.05	50	ME-ICP81
Cobalt	Co	0.002	30	ME-ICP81
Chromium	Cr	0.01	30	ME-ICP81
Copper	Cu	0.005	30	ME-ICP81
Gold	Au	0.001 ppm	10 ppm	Au-ICP21
Iron	Fe	0.05	100	ME-ICP81
Potassium	K	0.1	30	ME-ICP81
Magnesium	Mg	0.01	30	ME-ICP81
Manganese	Mn	0.01	50	ME-ICP81
Molybdenum	Mo	0.001	10	ME-OG62
Nickel	Ni	0.005	30	ME-ICP81
Phosphorus	P	0.01	30	ME-ICP81
Lead	Pb	0.01	30	ME-ICP81
Silver	Ag	0.0001	0.15	ME-OG62
Sulfur	S	0.01	60	ME-ICP81
Silicon	Si	0.01	50	ME-ICP81
Titanium	Ti	0.01	30	ME-ICP81
Vanadium	V	0.01	30	ME-OG62
Zinc	Zn	0.01	30	ME-ICP81

12.2 Magnasat Measurements

Magnasat readings are used to determine the proportion of a tested sample that is magnetic. The original Satmagan method (precursor to Magnasat) was developed as an instrument to quickly analyze magnetite mineralisation process streams in order to provide information to control the process performance. The measurement is based on the pull of a sample inserted in a magnetic field, which causes the ferromagnetic components to be magnetically saturated.

The Magnasat method is different in that the sample is passed through a funnel that has instrumentation to determine a change in the magnetic field at different settings of field strength. In other words, the amount of material identified as magnetic at selected susceptibility levels can be measured. Hence, not only magnetite (and other ferromagnetic components such as monoclinic pyrrhotite) can be analyzed, other less susceptible materials such as ilmenite and leucoxene can be analyzed. Unfortunately, there is no distinction between highly magnetic materials, such as magnetite and magnetic pyrrhotite. Also, there is a potential for interference due to eddy-currents caused by electrically conductive materials, such as sulphides and graphite.

At high magnetite content levels, the precision is fairly poor for both types of methods. Satmagan can have up to 2.2% error. The Magnasat error level is not known presently.

Northland provided 1,457 Magnasat readings from Sahavaara and 14,546 Magnasat readings from Tapuli and Palotieva for the resource estimate, using the same pulps sent to ALS Chemex for assaying for the readings.

12.3 Bulk Density Determination

12.3.1 Historical Measurements and Estimations

The SGU and Northland both used the Archimedes' method of weighing the specimens dry and immersed in water, also taking into account the porosity, to determine the density. Northland's samples vary in weight from approx 750 g to a maximum of 1,500 g. The scale is connected to the computer for automatic registration of weights to avoid later errors in data registration. The scale is considered to be accurate to 0.01 g.

The SGU and Northland performed density determinations on a regular basis, for Sahavaara, 665 historical (1960s-1970s) determinations and 1,202 post 1970s determinations were available, mostly from what is considered to be within the mineralisation envelopes and for Tapuli, 2,359 samples were measured, mostly from what is considered to be within the mineralisation envelopes. The iron content was determined as described in the assay section and the specific gravity was determined using the following method:

Wet specimens were placed in a basket and then submerged in a vessel containing water. The mass of each specimen in water was then recorded. Samples were wiped dry and the mass of each specimen was recorded. A balance was used for mass determination, the accuracy of which is not known. Based on the recorded readings it is, however, believed to be accurate to 0.1 g and was especially equipped with a hook and basket for weighing in water.

The density of the samples was calculated using the following formula:

$$\text{Density} = \text{mass (air)} / (\text{mass (air)} - \text{mass (water)})$$

12.4 Data Verification

Northland maintains its own QA/QC program consisting of inserting blanks, duplicates and standards to the analytical process.

12.4.1 Field Blank

The field blank is used to monitor cleaning of the sample preparation equipment (jaw crusher, pulveriser mill). Northland uses commercial, very low S, Cu-Au free sauna stove rock (diabase) as field blank.

12.4.2 Standards

A total of four internal standards were prepared from the Stora Sahavaara magnetite mineralisation in 2007. Of these, three standards were made to represent high, medium, and low iron grades from core samples. The core samples were selected from the 2005 drilling by Northland geologist, Dr Tero Niiranen. A fourth, very-high iron grade standard was selected from a metallurgical test work concentrate made by SGS, Lakefield. The sample preparation and standards were performed by SGS, Lakefield.

The standards were prepared from the coarse rejects of the drill samples. Each of the samples weighed between 1.5 and 2.0 kg depending on the sample length and lithology. The objective was to prepare approximately 25 kg of material for each sample for shipment to SGS. The acronyms used in standard names stand for Northland Exploration Sweden. Samples were collected from several drillholes throughout the mineralisation to provide a representative composite of the mineralisation. The standards were designed for the following iron grades:

- NES-1 ~ 60% Fe High grade iron
- NES-2 ~ 40% Fe Medium grade iron
- NES-3 ~ 25% Fe Low grade iron

When received by SGS the samples were milled to 95% passing 200 meshes. The +200 mesh material was discarded and the remaining -200 mesh material was dried and tumble homogenized. Ten samples were obtained for homogeneity testing and the homogeneity data was forwarded Northland for approval. A rotary splitter was then used to separate the sample into approximately 1 kg lots. Approximately 50 g aliquots were hand sampled from the rotary split samples and packaged in paper sample bags. The sample bags were then vacuum sealed in foil over-packs. Thirty 50 g samples were randomly selected and were labelled for characterization testing. Five of these samples were submitted to each of the following laboratories: ALS Chemex, Vancouver; ACME Laboratory, Vancouver; International Plasma Laboratories, Richmond, Canada; Genalysis, Perth, Australia; GTK, Rovaniemi, Finland; and OMAC, Ireland. 545 packets were labelled and shipped to Northland and were used for the late 2008 and 2009 Stora Sahavaara, Tapuli and Pellivuoma standard checks.

NES-1 and NES-2 have Cu grades that are sufficient for a Cu standard. Contained Cu in NES-3 is too close to detection limits of some assay methods for this purpose. The samples do not have sufficient Au grades, but gold checks are not necessary, as it is found in occasional, negligible amounts in the Kaunisvaara project. Standards were instructed to be inserted into the sample train to have at least one in every 61 samples, with alternating samples each time. Blanks were instructed to have been inserted one in 81 samples, so that one out of 27 samples to the laboratory should have been a quality control check.

- NES – 1 - This company internal standard has recommended Fe grade of 59.8% ± 4% (2 stdv), and a recommended Cu grade of 1,300± 400 ppm (2 stdv).

- NES – 2 - This company internal standard has recommended Fe grade of 44.1% ± 4% (2 stdv), and a recommended Cu grade of 1,900± 400 ppm (2 stdv).
- NES – 3 - This company internal standard has recommended Fe grade of 25.71% ± 2% (2 stdv).

12.4.3 Laboratory Duplicates

The laboratory was instructed to produce a split duplicate ampoule of pulverized sample material from one out of 27 samples, for cross checking the laboratory quality. The laboratory duplicates are then sent to a different laboratory to be analyzed with the same methods. The QC-spares from the late 2008 and 2009 drilling at the Kaunisvaara projects' deposits were sent to Labtium Ltd OY/AB (Labtium) laboratories (formerly the geolaboratory of the Geological Survey of Finland) in Espoo, Finland for duplicate assaying. Labtium is accredited by FINAS, signatory of the EA (European co-operation for Accreditation), ILAC (International Laboratory Accreditation Cooperation) and IAF (International Accreditation Forum Inc.), achieving global acceptance and recognition of the accreditation and quality system of Labtium.

Summarized, one out of 27 samples assayed during the 2008 and 2009 drilling should have been the field blank, NES-1, NES-2, or the NES-3 standard. In addition a laboratory duplicate should have been analyzed in one out of 27 assays for the purpose of cross checking at a different laboratory.

12.5 QAQC Summary

It is the opinion of SRK that Northland has not followed the sound QAQC practices which were proposed by Northland. It is the opinion of SRK that an insufficient number of samples have been incorporated in to the sample stream. Whilst SRK recognises that 17% of the database comprises historical data with no historic QAQC reporting possible, the more recent drilling is not sufficiently supported with modern QAQC checks. It is also the opinion of SRK that the chosen blank, being a diabase with an inherent Fe and S content is not suitable for purpose and that grade deviations in the results of the blank samples could be attributed to either the poor homogeneity of the blank or laboratory contamination. The umpire laboratory checks showed a strong correlation between assay grades and SRK is therefore confident in the repeatability of the sample preparation process.

It is the recommendation of SRK that at least 10% of future assaying is supported with regular QAQC comprising the use of certified standards, appropriate blank samples, laboratory duplicates and the addition of field duplicates to check the sample preparation processes. That said, it is the opinion of SRK that the results of the limited number of certified standards used and the results of the laboratory duplicates show that a reasonable level of confidence can be attributed to the more recent drill samples used in the Mineral Resource Estimate.

12.6 Northland Verification of Historical Drilling Results

Northland obtained the original hardcopies of drill logs and assays from the SGU. A verification exercise was conducted on the historic data, which included: review of drillhole logs and plots; location and verifying the location of drill collars and a review of drillhole surveys and orientation data. In addition twin-hole programmes were set up for each project to check for lithology and assay reliability.

The twin-hole program at Sahavaara comprises three holes and there is generally a good correlation between Northland's drilling and the historical drilling of SGU, however two of the three twinned drillholes indicate that locally there is significant short-range variability in both grade and thickness.

The first of the two holes twinned at Tapuli show very good correlation while the second exhibited somewhat less correlation. This is probably due to inaccurate collaring of the hole so that it deviated 15 degrees from the original SGU hole resulting in a large spatial difference between the samples.

13 ADJACENT PROPERTIES

13.1 Most significant Fe and Cu deposits in Northern Fennoscandia

The economically most important iron deposits in northern Fennoscandia are the Kiruna and Malmberget magnetite-apatite deposits, both currently operated by LKAB. The Kiruna deposit, located 150 km northwest from the Pajala area and discovered in 1696, has been mined on a regular basis since 1900. The ore is currently mined underground.

The Kiruna iron deposit is approximately 5 km long, up to 100 m thick, steeply dipping with the sole mineral of economic interest being magnetite. The ore body is hosted by felsic volcanic rocks within a Svecofennian supracrustal sequence known as the Kiruna Porphyry Group (Offerberg et al, 1967). A recent genetic model of the Kiruna deposit suggests that the magnetite was crystallized directly from an iron-phosphorus rich magma (Nyström & Henriques, 1994). It has been proposed that the Kiruna-type magnetite-apatite deposits would have been formed as an end-member of the IOCG class of iron ores (Hintzman et al, 1992).

Another currently operating iron mine is the Malmberget magnetite-apatite deposit located at Gällivare in Sweden, about 100 km NW from Pajala. The Malmberget deposit consists of some 20 ore bodies over an underground area about 5 by 2.5 km. The mineralisation type is the same as found at Kiruna. The Malmberget deposit is hosted by highly metamorphosed felsic volcanic rocks which are considered to be metamorphosed equivalents of the Kiruna Porphyry Group rocks that host the Kiruna deposit. Seven of the known ore bodies are currently being mined by LKAB.

The currently largest copper deposit in production in Europe, Aitik, is located some 18 km away from Malmberget. Aitik was discovered in 1930 and has been in production since 1960s.

The bulk of the ore at Aitik is hosted in rocks of the Svecofennian Porphyry Group and specifically altered intermediate to felsic metavolcanic and subvolcanic intrusions next to a quartz monzodioritic of which the latter is also weakly mineralised. The deposit has been interpreted as a metamorphosed porphyry deposit (for example, Wanhainen et al., 2003).

13.2 Deposits in the Pajala-Kolari region

Over 30 historical Fe and Fe-Cu-Au deposits and occurrences are known within 50 km distance of the Pajala project area (Figure 3-2). Of these, the Rautuvaara and Hannukainen deposits were mined by Rautaruukki during the period 1974-1990.

14 MINERAL PROCESSING AND METALLURGICAL TESTING

A significant amount of metallurgical testwork has now been undertaken as part of the feasibility study work completed on the Project. This is described and commented upon in Section 16 below.

15 MINERAL RESOURCE AND MINERAL RESERVE ESTIMATES

15.1 Introduction

The most up to date Mineral Resource and Reserve estimates for the Kaunisvaara project were produced by SRK in 2010 for inclusion in the Feasibility Study. The comments below summarise the methodology used to derive and classify these Mineral Resource and Reserve estimates. The Mineral Resource estimates given in this report are presented inclusive of those transferred to Mineral Reserves and are therefore not additional to these.

15.2 Geological Modelling

The preliminary statistical review undertaken showed that magnetite, being the principal Fe source for the project, is present within all of the logged skarn lithologies at Sahavaara and Tapuli. A review of the Magnasat data shows that with increasing %Fe Total content, an increasing magnetic signature with a linear relationship is observed. Additionally, through the visual inspection of the diamond drill core for the various logged lithologies, it is clear that magnetite is present within the lower grade skarn lithologies, although clearly disseminated.

Notwithstanding the above, SRK recognises that a portion of the %Fe Total, especially in the lower grade skarn lithologies, will be related to Fe silicates, though this is concentrated within material with a %Fe Total content of less than 10%. Whilst Fe silicates may be present within material with a Fe Total grade in excess of 10%, there is clearly a dominant magnetite content in this material and given this a lower boundary of 10%Fe Total was used to separate the mineralised from none mineralised skarn units at both Sahavaara and Tapuli.

At Sahavaara an upper cut-off of 50%Fe Total was used to generate a continuous high grade domain and at both Sahavaara and Tapuli, internal zones of continuous un-mineralised skarn were also domained based on a 10%Fe Total grade. At Tapuli, additional domains were created that separated out high and low sulfur zones. The 10 %Fe Total mineralisation domain created for Tapuli is also cross cut by vertical fault structures with the mineralisation domain abutting against the faults in places.

Figure 15-1 and Figure 15-2 show the mineralisation wireframes, based on a 10 %Fe Total cut off for Sahavaara and Tapuli.

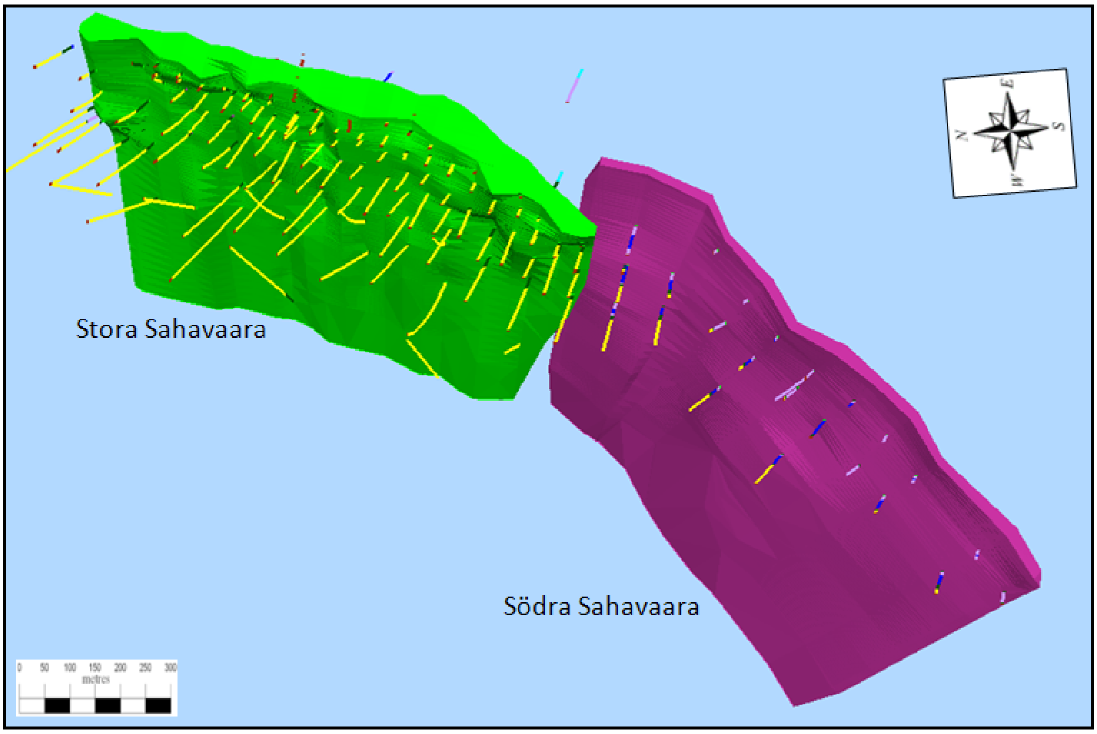

Figure 15-1: Sahavaara Mineralisation Model

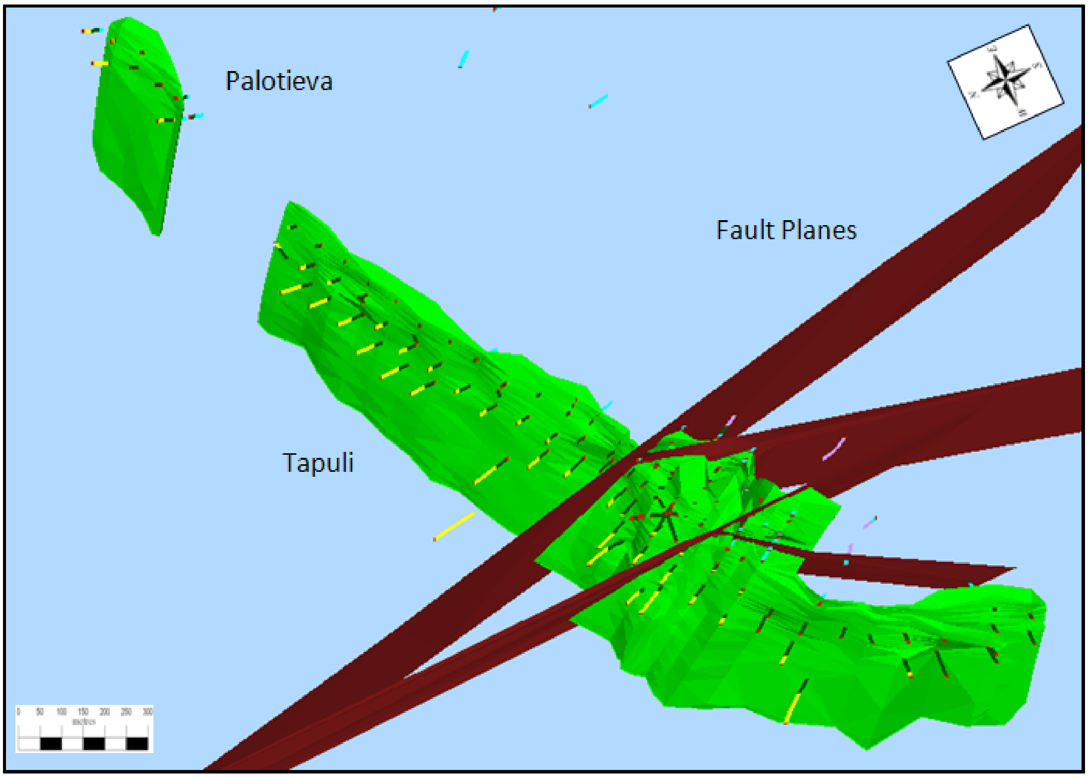

Figure 15-2: Tapuli Mineralisation Model

15.3 Mineralisation and Lithological Modelling

The deposit modelling was conducted in Datamine Studio 3 software. The modelling process comprised:

- importing the collar, survey, assay, geology, Magnasat and magnetic susceptibility data into Datamine to create a desurveyed drillhole file (Figure 5-2);
- importing the topography data file covering the project area;
- the creation of mineralisation wireframes for Stora Sahavaara, Södra Sahavaara, Tapuli and Palotieva based on the domain guidelines generated from the statistical review; and
- the creation of an empty block model coded by zone to distinguish the different geological domains identified.

Table 15-1 shows the mineralised and un- mineralised domain codes created for Sahavaara and Tapuli.

Table 15-1: Domain codes created for the Kaunisvaara Project

DEPOSIT	DOMAIN	CODE
SAHAVAARA	Södra	130
	Stora	140
	Stora high-grade	141
	Overburden	201
	Footwall	202
	Hangingwall	203
	Internal waste	204
	Skarn	205
	Footwall marble	207
	Graphite schist	208
TAPULI	Tapuli low-sulfur mineralisation	110
	Tapuli high-sulfur mineralisation	111
	Palotieva low-Sulfur mineralisation	120
	Palotieva high-Sulfur mineralisation	121
	Overburden	201
	Footwall	202
	Hangingwall	203
	Internal waste	204
	Skarn	205
	Footwall phyllite	206

15.4 Statistical Review

At Sahavaara, Domain 130, Södra, shows mean grades of 30.2%Fe Total and 0.64%S; Domain 140, Stora, shows a mean grade of 39.7%Fe Total and 2.25%S; and Domain 141, Stora high grade, shows a mean grade of 53.6%Fe Total and 3.00%S.

At Tapuli, Domain 110, Tapuli low sulfur, shows mean grades of 27.05 %Fe Total and 0.11 %S; Domain 111, Tapuli high sulfur, shows a mean grade of 24.66 %Fe Total and 1.47 %S; Domain 120, Palotieva low sulfur, shows a mean grade of 23.83 %Fe Total and 0.09 %S; and Domain 121, Palotieva high sulfur shows a mean grade of 26.11 %Fe Total and 1.49 %S.

The Coefficient of Variation (CoV) can be used to describe the shape of the distribution and is defined as the ratio of the standard deviation to the mean. A CoV greater than 1 indicates the presence of some erratic high values that may have a significant impact on the final estimation. Within the mineralisation zones at Sahavaara, CoV values greater than 1 are restricted to minor elements with the exception of %S in Zone 130 and at Tapuli CoV values greater than 1 are restricted to minor elements with the exception of %S in Zones 110 and 120, the low sulfur domains, where isolated high sulfur assays are present .

In general, the grade distribution noted for the domain subsets are near normal to negatively skewed due to the inclusion of low grade samples that cannot be separately domained. The majority of the sulfur domains are however positively skewed corresponding with the high CoV observed.

15.5 Geostatistical Review

Directional experimental semi-variograms were produced for Fe Total, Al_2O_3, CaO, K_2O, MgO, Mn, P, S, SiO_2 and TiO_2. The semi-variograms were produced using a 4 m (composite length) lag in the downhole direction allowing the short-scale structures and nugget variance to be determined. At Sahavaara, along strike (022°) and down-dip (63° to the west) variograms were then produced with the nugget fixed from the downhole variogram, and using a lag spacing of 50 m with a 50% tolerance being applied to the lag spacing. This spacing was chosen to mirror the minimum drillhole spacing within the Sahavaara project. No plunge has been identified by Northland and none was evident from the variography.

At Tapuli, along strike (060°) and down-dip (45° to the northwest) variograms were then produced with the nugget fixed from the downhole variogram, and using a lag spacing of 50 m with a 50% tolerance being applied to the lag spacing. This spacing was chosen to mirror the minimum drillhole spacing in the along strike direction. No plunge has been identified by Northland and none was evident from the variography.

The variograms produced for Sahavaara and Tapuli allowed the generation of very robust variograms in the downhole, along-strike and down-dip directions for all element fields.

The %Fe total downhole, along strike and down-dip variograms for Tapuli and Sahavaara are shown in Figure 15-3 to Figure 15-8.

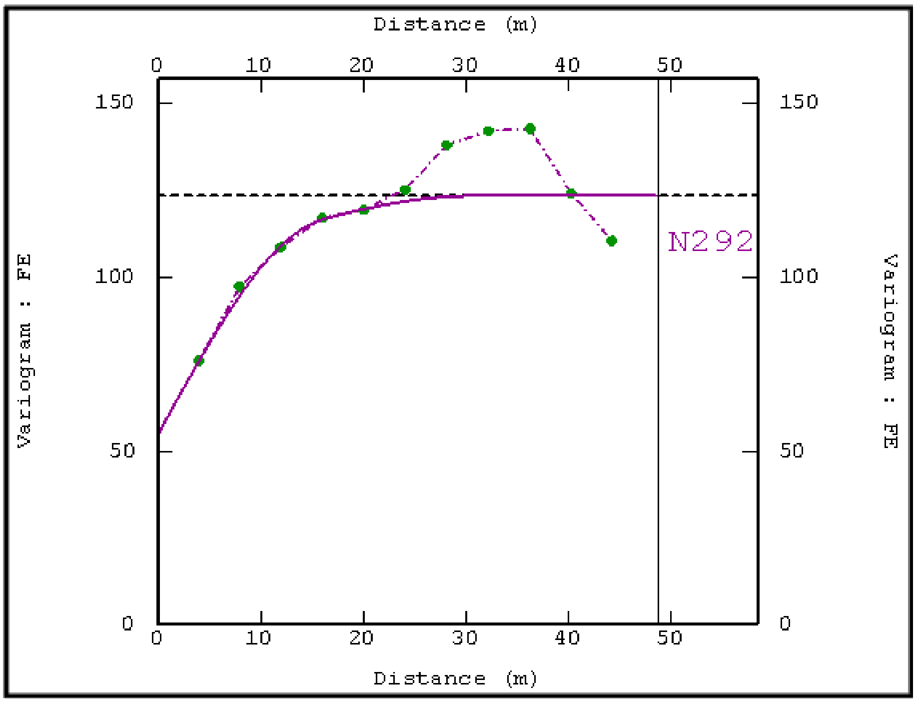

Figure 15-3: Sahavaara %Fe total downhole semi-variogram

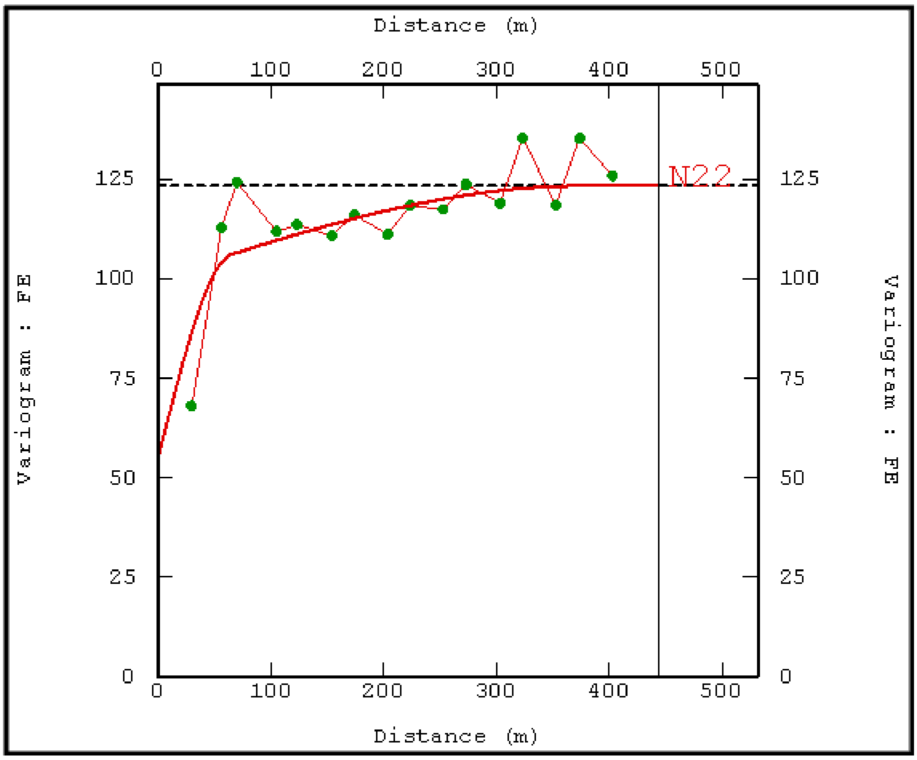

Figure 15-4: Sahavaara %Fe total along-strike semi-variogram (022º)

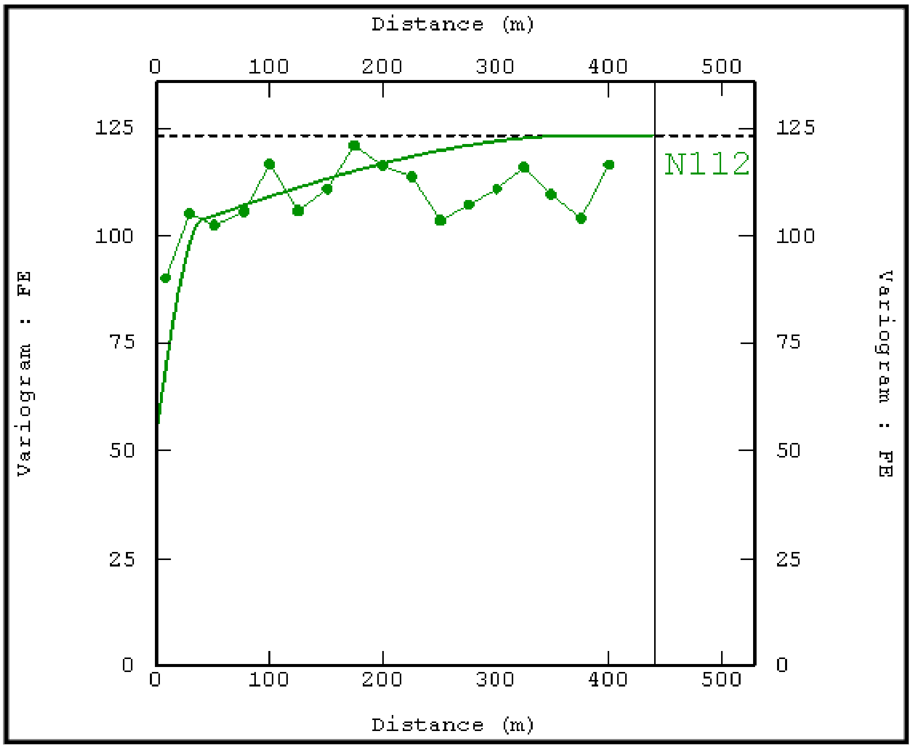

Figure 15-5: Sahavaara % Fe total down-dip semi-variogram (63° to the west)

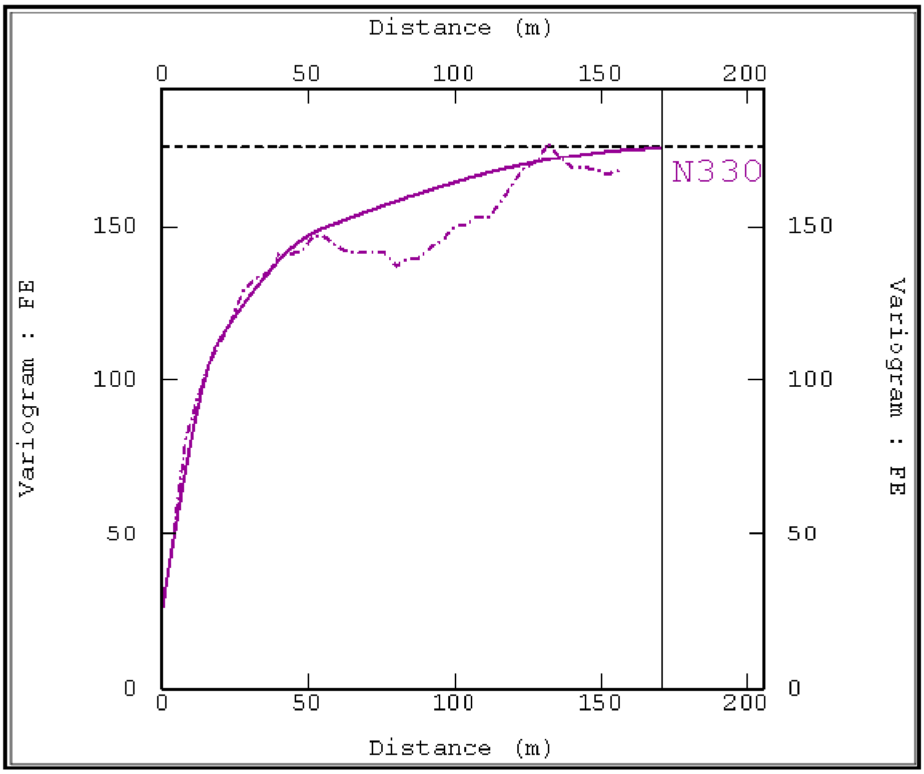

Figure 15-6: Tapuli %Fe Total downhole semi-variogram

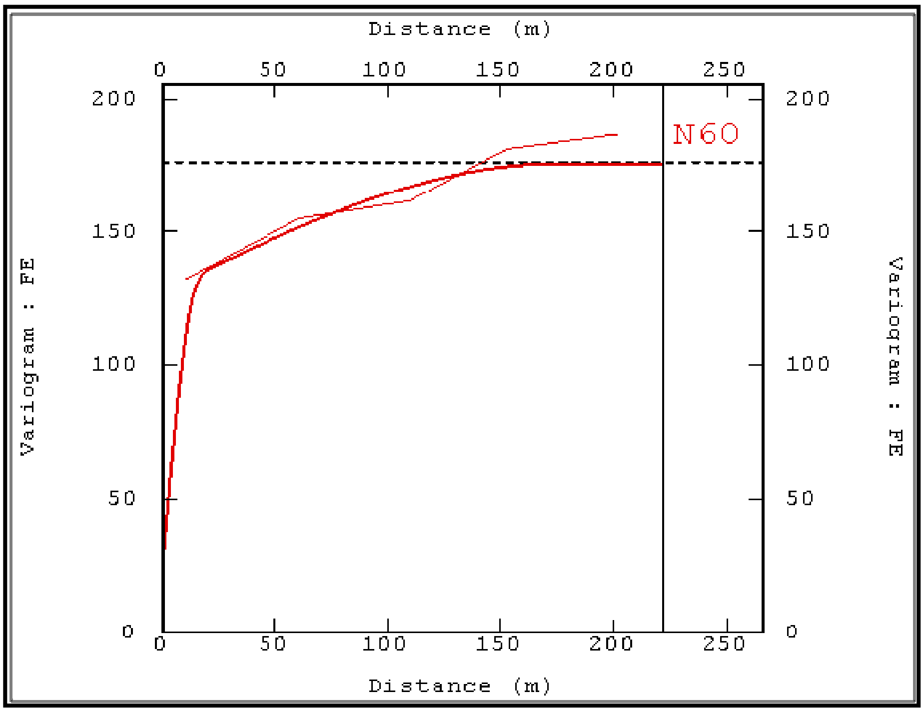

Figure 15-7: %Fe Total along-strike semi-variogram (060º azimuth)

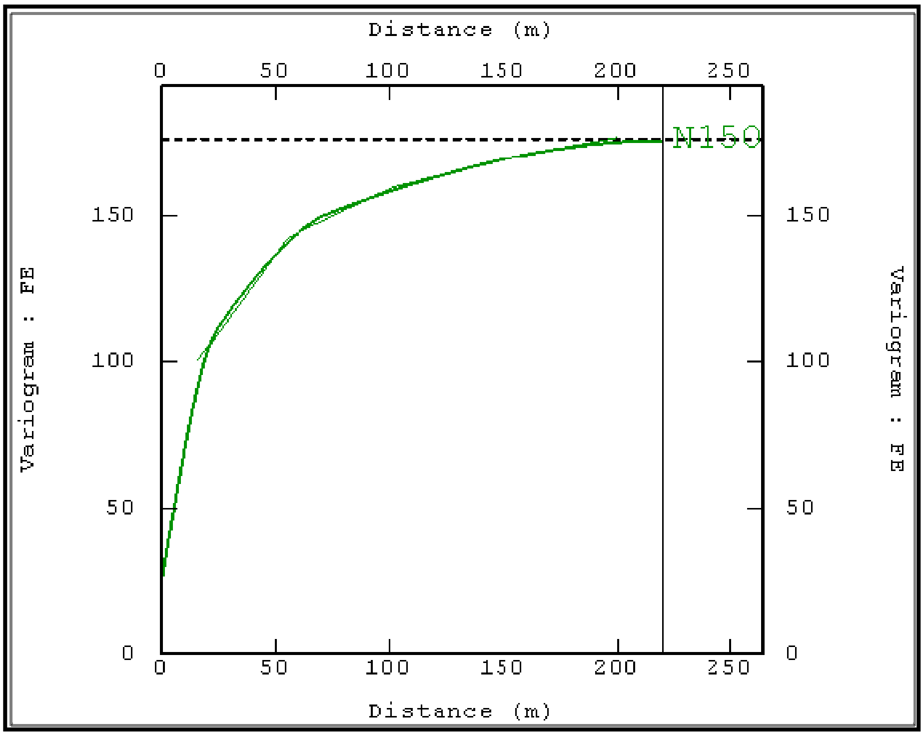

Figure 15-8: %Fe Total down-dip semi-variogram (45º dip to the northwest)

The results of the variography were used in the interpolation to assign the appropriate weighting to the samples pairs being utilised to calculate the block model grade. The total ranges modelled have also been used to help define the optimum search parameters and the search ellipse dimensions used in the interpolation. Ideally, sample pairs that fall within the range of the variogram where a strong covariance exists between the sample pairs should be utilised if the data allows. Applying a 2/3rd rule to the total range of the variograms in the search ellipse dimensions forces the interpolation to use samples where the covariance between samples exists.

As a result of the variography, Ordinary Kriging (OK) was deemed the most appropriate interpolation technique with a Quantitative Kriging Neighbourhood Analysis (QKNA) being undertaken prior to interpolation. QKNA provides a useful technique that uses mathematically sound tools to optimise a search area. It is an invaluable step in determining the correct search area for any estimation or simulation exercise.

15.6 Topographic Data

A topographic survey was conducted to produce an accurate topographic surface, which was used use to cut mineralisation wireframes in order to report volume and tonnes accurately. The helicopter airborne topographic surveys were performed on 30th May2008 for Sahavaara and Tapuli at an altitude of 750 m by Pöyry Environment Ltd, who have verified the laser data and images produced. Laser scanning data were transformed from ellipsoidal height system (ETRS/GRS80) to orthometric system by using national geoid models. Reference height point sets were field surveyed by measuring 5 x 5 size grids or height profiles on hard flat surfaces with 1-2 m grid spacing. Six sets were measured from both study areas. Survey points were compared to classified laser data ground point and set based average differences were calculated. Expected values were achieved for vertical and planar accuracies. SRK has verified that this data is viable for use in a Mineral Resource Estimate.

15.7 Density Modelling

In the ore domains, at Sahavaara, a total of 1,202 density samples are present from the post 1960s era drilling and at Tapuli, 1,605 density samples are present within Zones 110 and 111. A strong correlation existing between %Fe Total and density and was therefore deemed appropriate to interpolate the density values into the block model via a regression formula based on the %Fe Total grade. Each plot has been fitted with a second order polynomial trendline and the resultant equation that has been used to calculate density into the block model upon completion of the interpolation.

In addition, at Sahavaara, a total of 310 density measurements have been taken from the different waste domains and at Tapuli, 764. Average density values have been applied to the block model for the various waste domains identified at Sahavaara and Tapuli.

15.8 Block Grade Interpolation

A three dimensional block model was constructed for the resource region, covering all the interpreted mineralisation domains and including suitable additional waste material to allow pit optimisation studies.

At Sahavaara, an empty block model was generated using the mineralisation and host lithology wireframes with blocks of 25mY by 10mX by 12mZ dimension. These block dimensions approximate half the drillhole spacing along strike (25m) and the assumed working bench height of the operating pit (12m). A block width of 10m was chosen due to the overall dimensions of the mineralisation. At Tapuli, an empty block model was generated using the mineralisation and host lithology wireframes with blocks of 25mY by 25mX by 12mZ dimension. These block dimensions approximate half the drillhole spacing along strike (25 m) and the assumed working bench height of the operating pit (12 m).

Table 15-2 summarizes the block model parameters.

Table 15-2: Block Model Framework

Deposit	Axis	Origin	Number of Blocks	Block Size (m)
Sahavaara	X	1819250	265	10
	Y	7493250	110	25
	Z	-700	100	12
Tapuli	X	1820500	170	25
	Y	7498750	110	25
	Z	-396	55	12

Grades of Fe, Al_2O_3, CaO, K_2O, MgO, Mn, P, S, SiO_2, and TiO_2 were interpolated into the model using OK and using the kriging parameters determined from the variography and QKNA study.

15.9 Classification

To classify the Sahavaara and Tapuli deposits, the following key indicators were used:

- geological complexity;
- quality of data used in the estimation:
    - QAQC, density analysis
- results of the geostatistical analysis
    - variography, and
    - QKNA results; and
- quality of the estimated block model.

The resulting blocks were classified into the Measured, Indicated and Inferred Resource categories. Measured Resources have been limited to the areas which have been subjected to close spaced drilling. SRK is confident in the accuracy of the estimates in these areas due to the:

- low geological complexity;
- drillhole spacing of much less than the 2/3rd geostatistical range along strike;
- all blocks were estimated in search volume one, using the optimum search parameters determined; and
- slope of regression values dominantly greater than 0.8.

Indicated Resources at Sahavaara were delineated on the basis of all the information above, except with a slope of regression dominantly greater than 0.5.

Inferred Resources at Sahavaara were delineated by extending the Indicated boundary 50m down-dip and ensuring that the deeper drillhole intercepts are encapsulated.

At Tapuli the Measured Resource was limited to the central area on the basis of the following criteria:

- reasonably low geological complexity;
- drillhole spacing of much less than the 2/3rd geostatistical range along strike;
- all blocks were estimated in search volume one, using the optimum search parameters determined; and
- slope of regression values dominantly greater than 0.8.

Indicated Resources at Tapuli were delineated on the basis of all the information above, except with a slope of regression dominantly greater than 0.5.

Inferred Resources at Tapuli were delineated by extending the Indicated boundary 50 m down-dip and ensuring that the deeper drillhole intercepts are encapsulated.

Finally, a pit optimisation exercise was then undertaken so as to limit the resource statement to the material that SRK considers has a reasonable prospect of economic extraction. This exercise was not undertaken to generate a Mineral Reserve and was purely used to assist in determining at what depth to limit the reported resource. Notably it assumed an Fe dmtu Price of USD110 (higher than that used to define Mineral Reserves as commented upon below).

15.10 Mineral Resource Statement

As commented above the Mineral Resource Statement generated by SRK has been restricted to all classified material falling within the Whittle shell representing a metal price of 110 US¢/dmtu for magnetite concentrate. This represents the material which SRK considers has reasonable prospect for eventual economic extraction. Table 15-3 shows the resulting Mineral Resource Statement for Sahavaara and Table 15-4 shows the resulting Mineral Resource Statement for Tapuli.

The statement has been reported by Qualified Person Howard Baker (MAusIMM) in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Standards on Mineral Resources and Reserves (the CIM Code) and has an effective date of 26th March, 2010.

The quantity and grade of the reported inferred resource are uncertain in nature, there has been insufficient exploration to define these as an indicated or measured mineral resource; and it is uncertain if further exploration will result in upgrading them to an indicated or measured mineral resource category in due course.

In total, SRK has derived a combined Measured plus Indicated Mineral Resource for Södra Sahavaara and Stora Sahavaara of 86.8 Mt grading 39.82%Fe Total, 1.93%S, 18.26% SiO2 and 14.63% MgO. Of this, 30.2 Mt grading 42.96%Fe Total and 2.66%S has been reported as Measured and 56.6 Mt grading 38.14%Fe Total and 1.55%S as Indicated. In addition some 34.7 Mt grading 37.28%Fe Total and 1.44; %S has been reported as an Inferred Mineral Resource. Some 13.8 Mt of the Measured plus Indicated Mineral Resource comprises “high grade” material and has a mean grade of 53.38%Fe Total and 3.03%S.

In addition SRK has derived a Measured plus Indicated Mineral Resource for Tapuli of 107.4Mt grading 26.01%Fe Total, 0.23 S%, 26.99% SiO2 and 17.47% MgO. Of this, 52.8 Mt grading 27.02 %Fe Total and 0.23 %S has been reported as Measured and 54.6 Mt grading 25.04 %Fe Total and 0.24 %S as Indicated. An additional, 24.7 Mt grading 24.58 %Fe Total and 0.23 %S has been reported as an Inferred Mineral Resource.

Figure 15-9 shows the Whittle pit shell used to limit the Mineral Resource for Sahavaara and Figure 15-10 shows the Whittle pit shell used to limit the Mineral Resource for Tapuli.

Table 15-3: Sahavaara Mineral Resource Statement

Domain	Resource Category	Tonnes (Mt)	FE Total %	S %	SIO_2 %	MGO %	AL_2O_3 %	CAO %	P %	MN %
Södra	Measured	0	0	0	0	0	0	0	0	0
	Indicated	20.6	30.65	0.55	27.51	14.16	1.87	7.61	0.03	0.14
	Meas+Ind	20.6	30.65	0.55	27.51	14.16	1.87	7.61	0.03	0.14
	Inferred	12.6	30.12	0.65	27.89	13.97	1.84	7.89	0.03	0.14
Stora (low grade)	Measured	23.0	39.46	2.51	16.92	15.76	1.51	1.91	0.08	0.10
	Indicated	29.4	40.15	1.95	17.16	16.19	1.07	2.16	0.06	0.10
	Meas+Ind	52.4	39.85	2.19	17.06	16.00	1.26	2.05	0.07	0.10
	Inferred	20.6	40.37	1.83	17.80	16.48	0.84	2.04	0.05	0.10
Stora (high-grade)	Measured	7.2	54.09	3.16	8.27	10.18	0.73	0.64	0.06	0.10
	Indicated	6.6	52.59	2.89	9.81	10.02	0.75	1.07	0.05	0.10
	Meas+Ind	13.8	53.38	3.03	9.00	10.11	0.74	0.84	0.06	0.10
	Inferred	1.5	54.64	2.63	7.18	8.15	0.74	1.31	0.03	0.09
TOTAL	Measured	30.2	42.96	2.66	14.85	14.43	1.32	1.61	0.07	0.10
	Indicated	56.6	38.14	1.55	20.08	14.73	1.32	4.02	0.05	0.12
	Meas+Ind	86.8	39.82	1.93	18.26	14.63	1.32	3.18	0.06	0.11
	Inferred	34.7	37.28	1.44	20.99	15.21	1.20	4.13	0.04	0.11

Table 15-4: Tapuli Mineral Resource Statement

Domain	Resource Category	Tonnes (Mt)	Fe Total %	S %	SIO_2 %	MGO %	AL_2O_3 %	CAO %	P %	MN %
Tapuli Low S	Measured	47.5	27.34	0.10	24.76	18.38	1.76	6.10	0.06	0.08
	Indicated	46.0	25.24	0.07	28.27	17.66	1.84	8.27	0.05	0.11
	Meas+Ind	93.4	26.31	0.08	26.49	18.02	1.80	7.17	0.06	0.10
	Inferred	20.5	24.82	0.07	27.76	18.63	1.77	7.05	0.06	0.11
Tapuli High S	Measured	5.4	24.15	1.36	30.12	13.71	5.16	8.12	0.09	0.07
	Indicated	2.7	22.97	1.36	31.54	13.99	5.56	9.48	0.10	0.07
	Meas+Ind	8.0	23.76	1.36	30.59	13.80	5.29	8.57	0.09	0.07
	Inferred	1.4	22.88	1.44	32.21	13.78	5.78	9.46	0.10	0.07
Palotieva Low S	Measured	0	0	0	0	0	0	0	0	0
	Indicated	1.6	22.52	0.12	38.52	12.79	1.40	14.96	0.03	0.08
	Meas+Ind	1.6	22.52	0.12	38.52	12.79	1.40	14.96	0.03	0.08
	Inferred	1.3	22.45	0.10	39.32	12.72	1.17	14.69	0.03	0.08
Palotieva High S	Measured	0	0	0	0	0	0	0	0	0
	Indicated	4.3	25.11	1.42	26.96	13.99	2.38	10.65	0.03	0.06
	Meas+Ind	4.3	25.11	1.42	26.96	13.99	2.38	10.65	0.03	0.06
	Inferred	1.5	24.61	1.49	26.44	13.82	2.19	10.56	0.04	0.06
TOTAL	Measured	52.8	27.02	0.23	25.31	17.90	2.10	6.31	0.07	0.08
	Indicated	54.6	25.04	0.24	28.63	17.05	2.05	8.72	0.05	0.11
	Meas+Ind	107.4	26.01	0.23	26.99	17.47	2.08	7.53	0.06	0.09
	Inferred	24.7	24.58	0.23	28.53	17.75	2.00	7.80	0.06	0.10

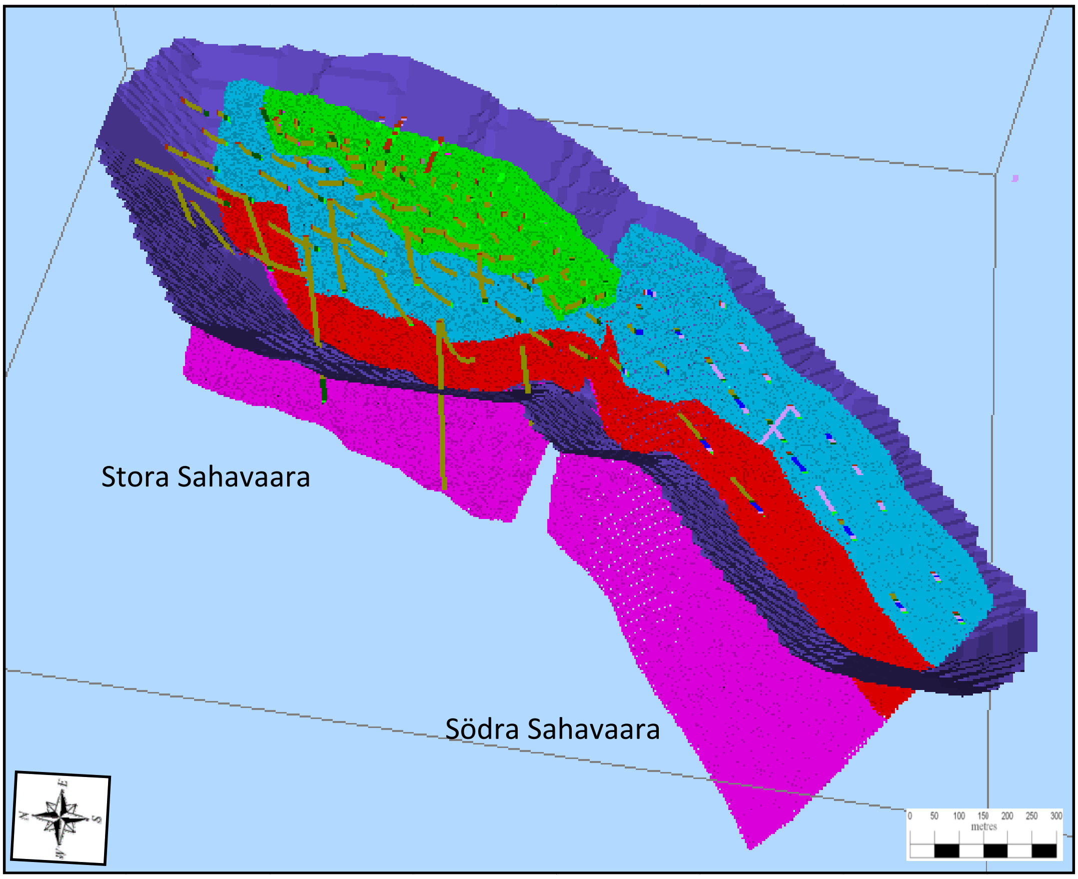

Figure 15-9: Sahavaara Whittle pit shell (based on a metal price of 110 US¢/dmtu) Green = measured; blue = indicated; red = inferred; pink = potential

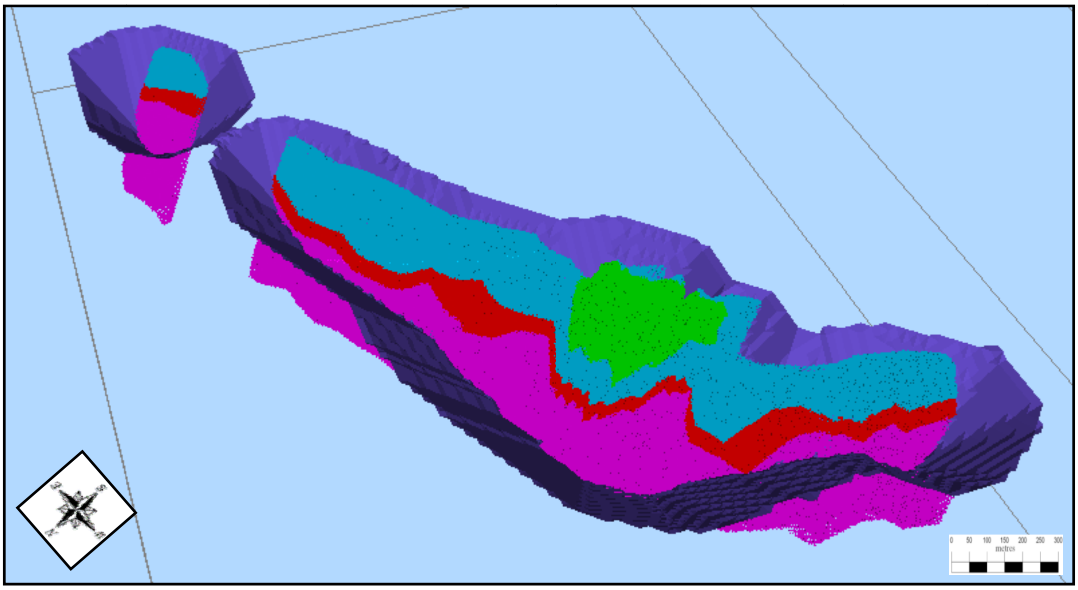

Figure 15-10: Tapuli Whittle pit shell (based on a metal price of 110 US¢/dmtu) Green = measured; blue = indicated; red = inferred; pink = potential

15.11 Mineral Reserve Statement

The Feasibility Study reports a Mineral Reserve for the project which based on the above Mineral Resource Estimate. As is the case with the Mineral Resource, this has been reported using the CIM Code and is dated 18th May, 2011.

Specifically, SRK derived optimised pits for the Project based on the material reported as Measured and Indicated Mineral Resources. The operating costs assumed for the optimisation were agreed between SRK and Northland while the metallurgical recoveries were provided by Bo Avidson Associates. Two separate designed pits were then developed from the optimised pits, Tapuli and Sahavaara. Table 15-5 below presents the Mineral Reserve estimate derived following this process.

These tonnages have been based on a long term price forecast of 150c/dmtu. The tonnes and grades reported are undiluted and do not have a mining recovery factor applied. Given the geometry of the ore lenses, SRK does not believe these to be material factors in this case.

Table 15-5: Kaunisvaara Mineral Reserve Statement

Tapuli	Reserve Classification	Tonnes (Mt)	Fe (%)	S (%)	SiO_2 (%)	MgO (%)	Al_2O_3 (%)	CaO (%)	P (%)	Mn (%)	TiO_2 (%)	K_2O (%)
Measured	Proven	51.7	27.14	0.21	25.14	17.96	2.04	6.24	0.06	0.08	0.17	0.63
Indicated	Probable	42.8	25.32	0.23	28.33	16.89	2.02	8.78	0.05	0.11	0.15	0.46
TOTAL		94.5	26.31	0.22	26.59	17.47	2.03	7.39	0.06	0.09	0.16	0.55
Sahavaara	Reserve Classification	Tonnes (Mt)	Fe (%)	S (%)	SiO_2 (%)	MgO (%)	Al_2O_3 (%)	CaO (%)	P (%)	Mn (%)	TiO_2 (%)	K_2O (%)
Measured	Proven	30.2	42.96	2.66	14.85	14.43	1.32	1.61	0.07	0.10	0.09	0.28
Indicated	Probable	40.2	40.17	1.81	17.94	14.88	1.19	2.90	0.05	0.11	0.09	0.31
TOTAL		70.4	41.37	2.18	16.61	14.68	1.24	2.35	0.06	0.11	0.09	0.29
	Reserve Classification	Tonnes (Mt)	Fe (%)	S (%)	SiO_2 (%)	MgO (%)	Al_2O_3 (%)	CaO (%)	P (%)	Mn (%)	TiO_2 (%)	K_2O (%)
	Proven	81.9	32.98	1.11	21.34	16.66	1.78	4.53	0.07	0.09	0.14	0.50
	Probable	83.0	32.51	1.00	23.30	15.91	1.61	5.93	0.05	0.11	0.12	0.39
	Total	164.9	32.74	1.06	22.33	16.28	1.70	5.23	0.06	0.10	0.13	0.44

SRK has reported a Proved Mineral Reserve of 82Mt grading 32.98 %Fe Total and a probable Mineral Reserve of 83Mt grading 32.51 %Fe Total.

15.11.1 SRK Comments

SRK is confident that sufficient geological work has been undertaken, and sufficient geological understanding gained, to enable the construction of an orebody model suitable for the derivation of Mineral Resource and Mineral Reserve estimates. SRK considers that both the modelling and the grade interpolation have been carried out in an unbiased manner and that the resulting grade and tonnage estimates should be reliable within the context of the classification applied. In addition, SRK is not aware of any metallurgical, infrastructural, environmental, legal, title, taxation, socio-economic or marketing issues that would impact on the mineral resource or reserve statements as presented.

16 ADDITIONAL REQUIREMENTS FOR TECHNICAL REPORTS ON DEVELOPMENT PROPERTIES AND PRODUCTION PROPERTIES

16.1 Introduction

This section presents the main conclusions given in the Feasibility Study, SRK's comments on these and also a Technical Economic Model (TEM) for the project. The latter is based primarily on the Feasibility Study but has been updated to reflect the current Business Plan developed by Northland in May 2011 which in turn reflects the most up to date estimates of capital costs and the construction status of the Project at that time.

16.2 Mine Design and Operation

16.2.1 Pit Optimisation

Optimised pit shells were first generated in early 2010 using the Whittle Four-X software. A series of re-optimisations have been completed with several assumptions being revised by Northland. The revised input assumptions are:

- Measured and Indicated Mineral Resources were used for the optimization. No inferred material was included.
- A flat iron price of 150 US¢ per dry metric tonne unit (dmtu) was used, increased from an initial price of 85 US¢ per dmtu.
- Mining costs based on initial discussions between Northland and SRK. These consisted of a base mining cost at a specified RL, and incremental costs to reflect the cost of hauling material up from below this level, or in some cases down to this level. Using this method, the average mining cost for Tapuli was $1.55/t while the average mining cost for Sahavaara was $2.02/t.
- Metallurgical recoveries provided by Bo Arvidson Consulting LLC were applied directly to the geological model.
- The project general and administration cost (G&A) of 0.3 USD per ore tonne was retained.
- The original 2% royalty was corrected to 0.2%.
- An overall pit wall slope angle of 49° for Tapuli based on the geotechnical review of the Vattenfall report (Geotechnical Pit Slope Stability Analysis for the Tapuli Open Pit Mine – Phase 4: Slope Design) undertaken by SRK as part of its 2009 Geotechnical review.
- Overall pit wall slope angles of 48° (footwall) and 52° (hanging wall) for Sahavaara based on the geotechnical assessment undertaken by SRK as part of its 2009 Geotechnical review.

Common practice when choosing optimized shells is to choose the shell with the highest cash flow. Typically this is the shell with a Revenue Factor of 1. However, it is also possible to choose a shell based on other factors, such as physical size, strip ratio or tonnage output.

In this instance, the optimum shell has been based on a combination of factors including relative change in strip ratio, and ore content. The chosen pit for the Sahavaara deposit is pit shell 25 with a Revenue Factor of 0.78. For Tapuli, pit shell 31 with a Revenue Factor of 0.9 was chosen as the optimum shell. Figure 16-1 shows the nested pit shell statistics for Sahavaara, while Figure 16-2 shows the same statistics for Tapuli.

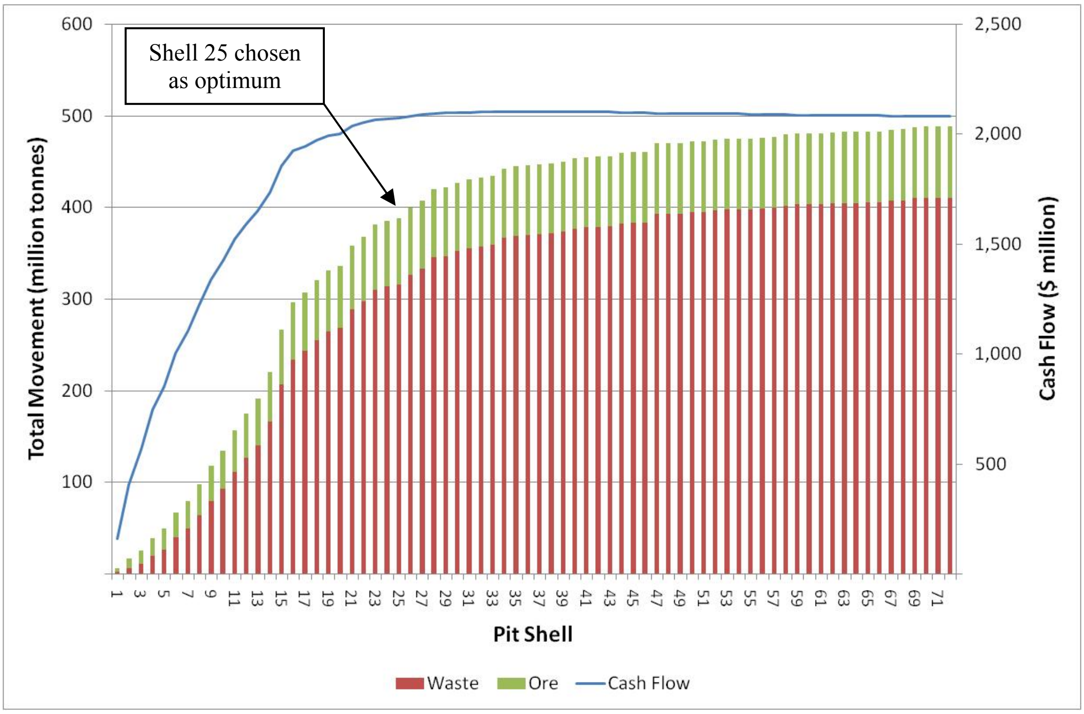

Figure 16-1: Sahavaara Nested Pit Shell Statistics

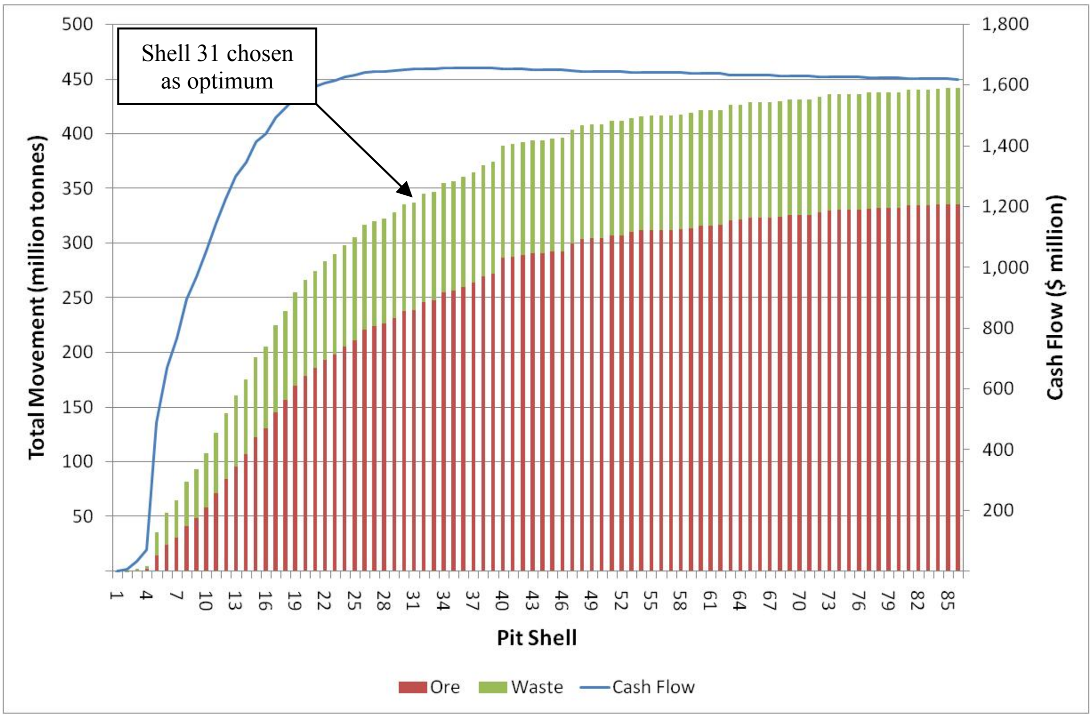

Figure 16-2: Tapuli Nested Pit Shell Statistics

16.2.2 Mine Design

The optimisation resulted in two open pits. Each pit was engineered for access and refined geotechnical parameters. The Tapuli pit contains 333.9Mt of material comprised of 94.5Mt of ore at a grade of 26.3% Fe and 239.4Mt of waste. The Sahavaara pit contains 373.1Mt of material comprised of 70.3Mt of ore at a grade of 41.4% Fe and 302.8Mt of waste.

Table 16-1 summarises the differences in tonnages between the optimised pit shells and the engineered put designs. SRK considers it typical for these values to be within 10% of each other.

Table 16-1: Summary Optimised Shells compared to Engineered Pits

Pit		Waste (Mt)	Ore (Mt)	Total (Mt)	Strip Ratio	Fe (%)	S (%)
Tapuli	Whittle Shell (RF=0.9)	238.0	98.0	336.1	2.43	26.3	0.22
Sahavaara	Whittle Shell	315.2	72.4	387.6	4.35	41.3	2.15
	Total	553.3	170.4	723.7	3.25	32.7	1.04

Pit		Waste (Mt)	Ore (Mt)	Total (Mt)	Strip Ratio	Fe (%)	S (%)
Tapuli	Engineered Pit	239.4	94.5	333.9	2.53	26.3	0.22
Sahavaara	Engineered Pit	302.8	70.3	373.1	4.31	41.4	2.18
Combined	Engineered Pit	542.2	164.8	707.0	3.29	32.7	1.06

Pit	Waste tonnes % difference	Ore tonnes % difference	Total tonnes % difference
Tapuli	0.6	-3.6	-0.7
Sahavaara	-3.9	-3.0	-3.7
All Pits	-1.9	-3.3	-2.3

The Sahavaara optimal shell produced a single engineered pit, while the Tapuli shell produced a larger main pit with a small satellite pit to the north east. Each pit was designed with a standard bench height of 12m and both primary pits were large enough to warrant a starter pit and a series of cutbacks.

Figure 16-3 to Figure 16-9 show the development of the Tapuli ultimate engineered pit, with the satellite pit to the northeast.

Figure 16-10 to Figure 16-13 show the development of the Sahavaara engineered pit. This pit design allows for the possibility of in-pit dumping of waste after Stage 3 is complete. This has the effect of reducing trucking requirements.

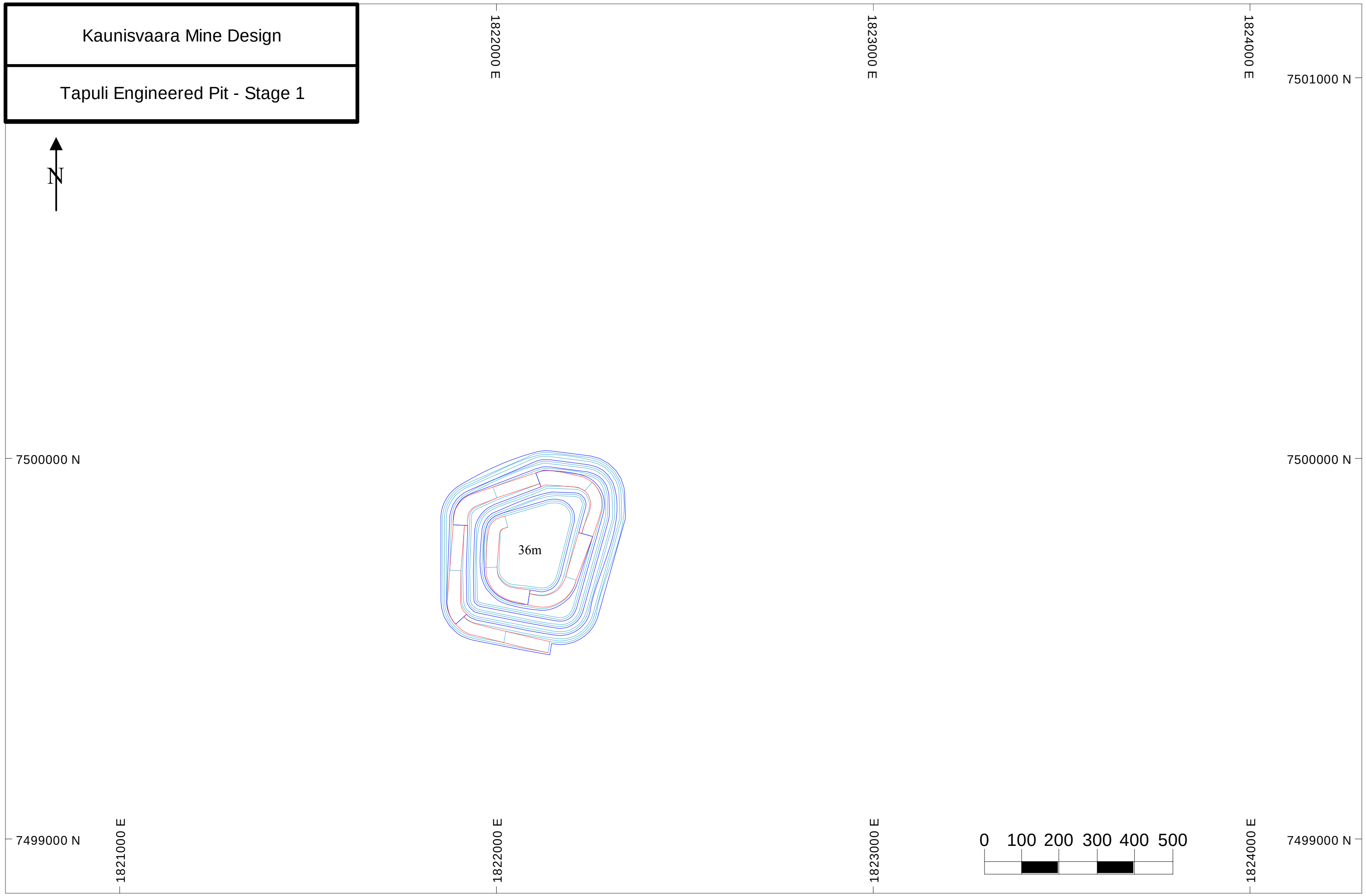

Figure 16-3: Tapuli Engineered Pit – Stage 1

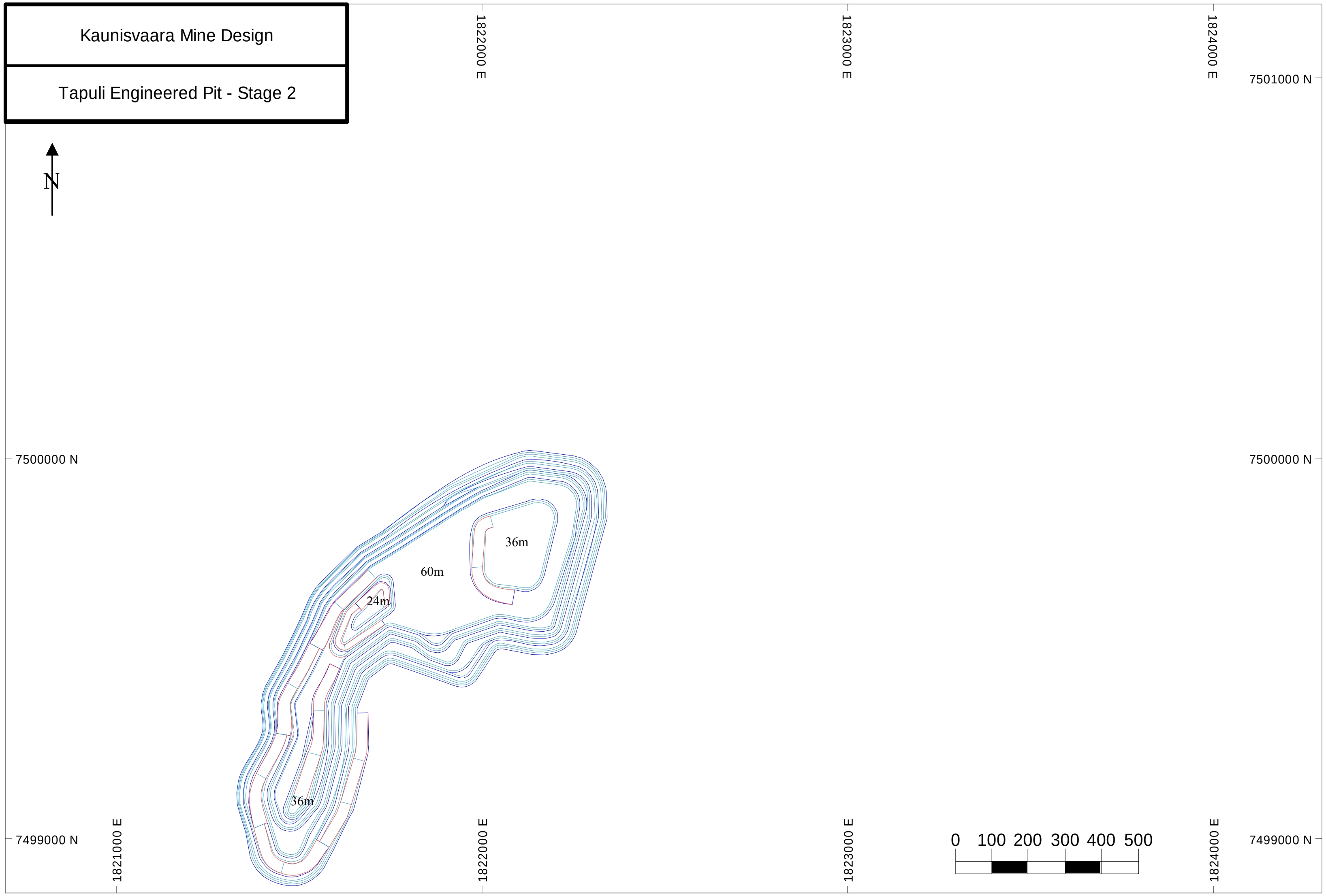

Figure 16-4: Tapuli Engineered Pit Design – Stage 2

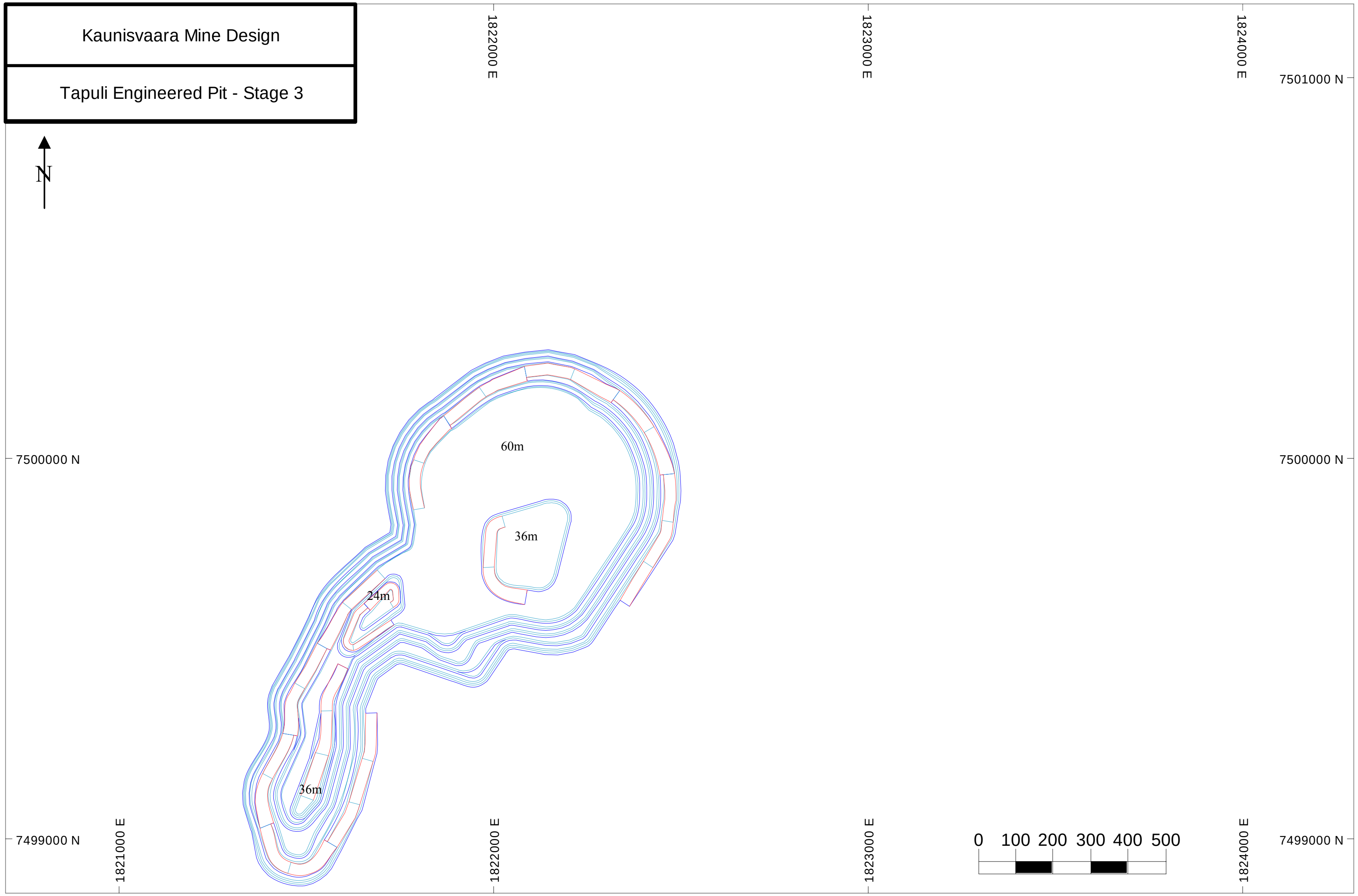

Figure 16-5: Tapuli Engineered Pit Design – Stage 3

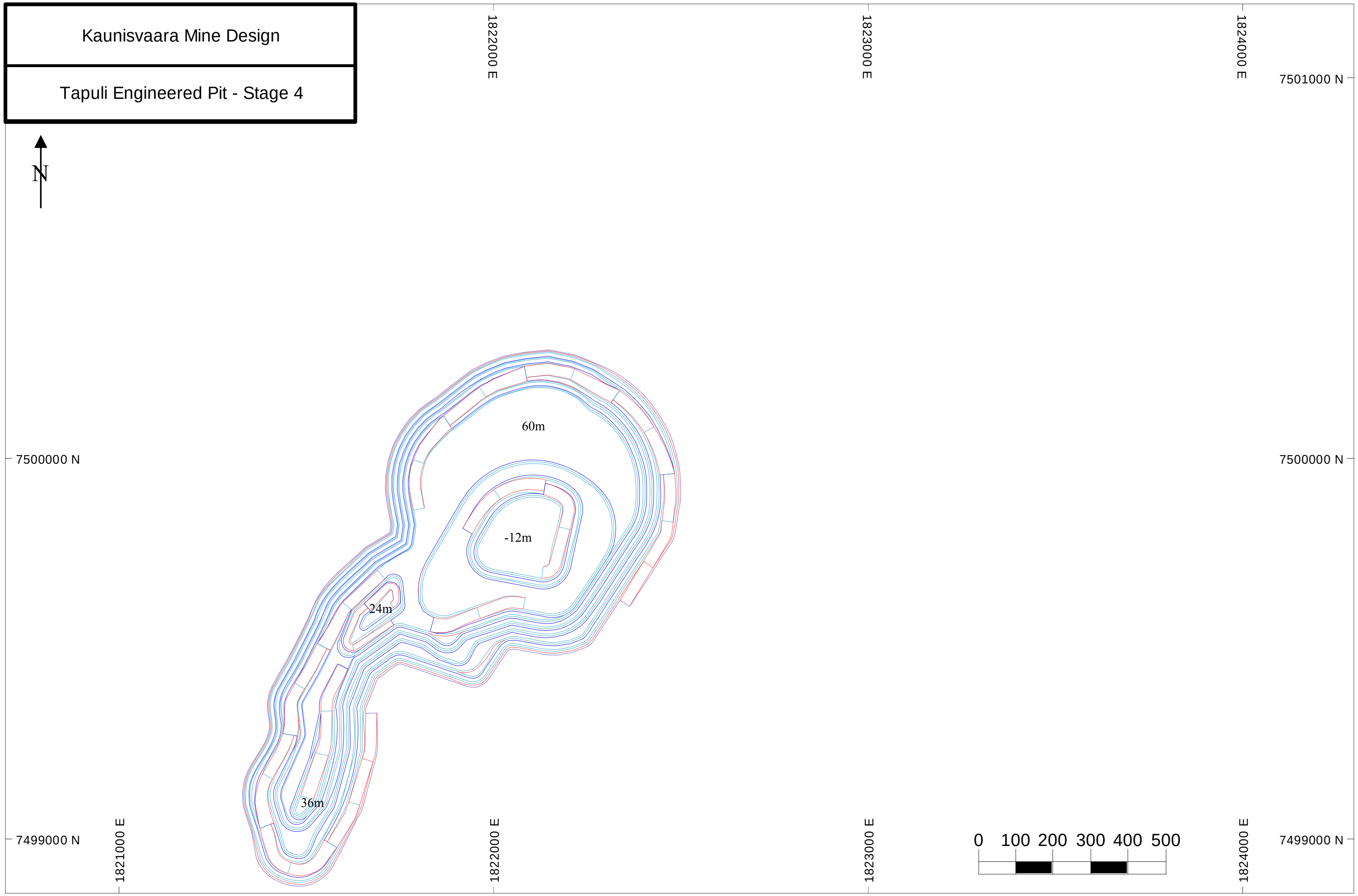

Figure 16-6: Tapuli Engineered Pit Design – Stage 4

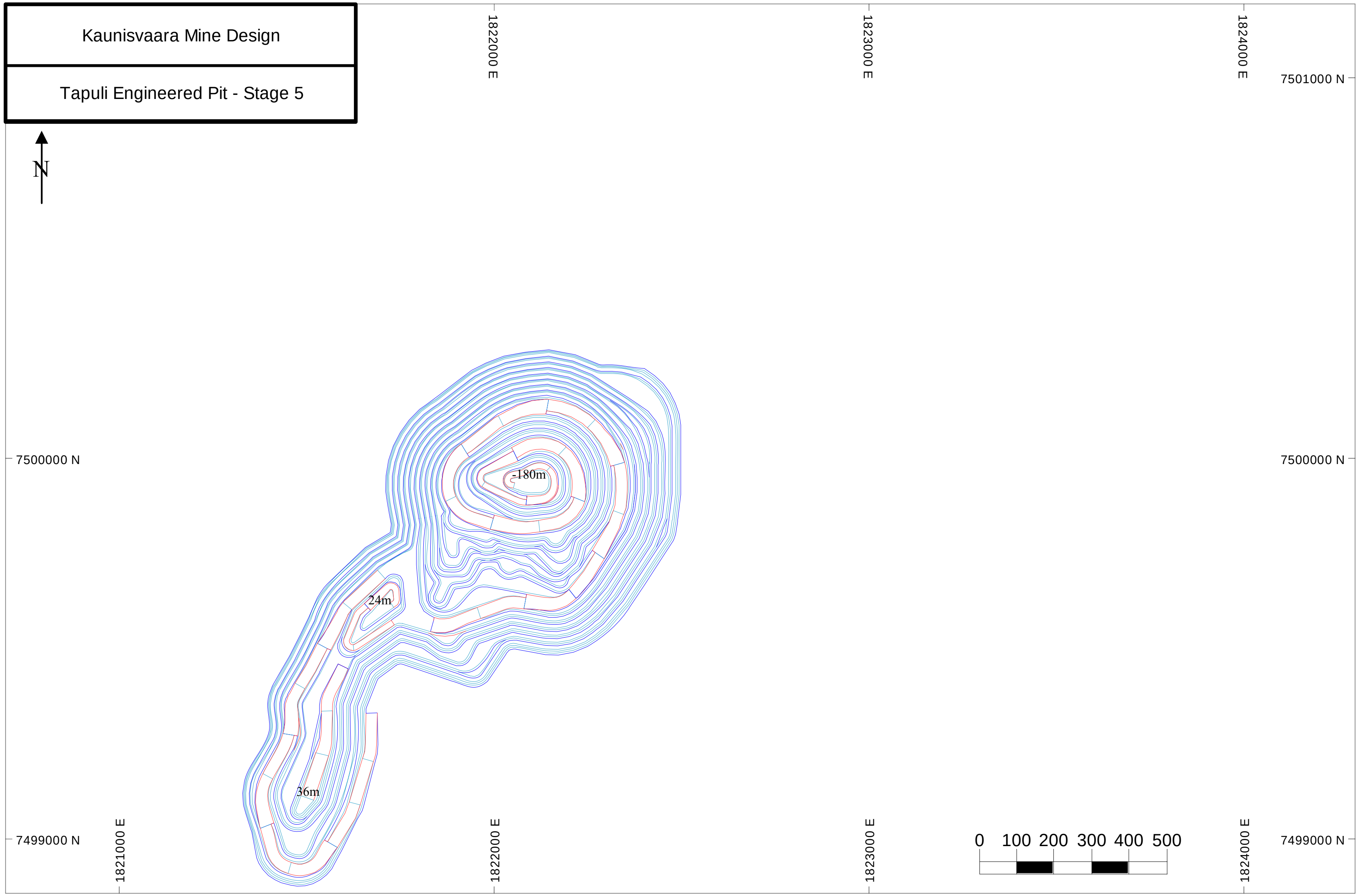

Figure 16-7: Tapuli Engineered Pit Design – Stage 5

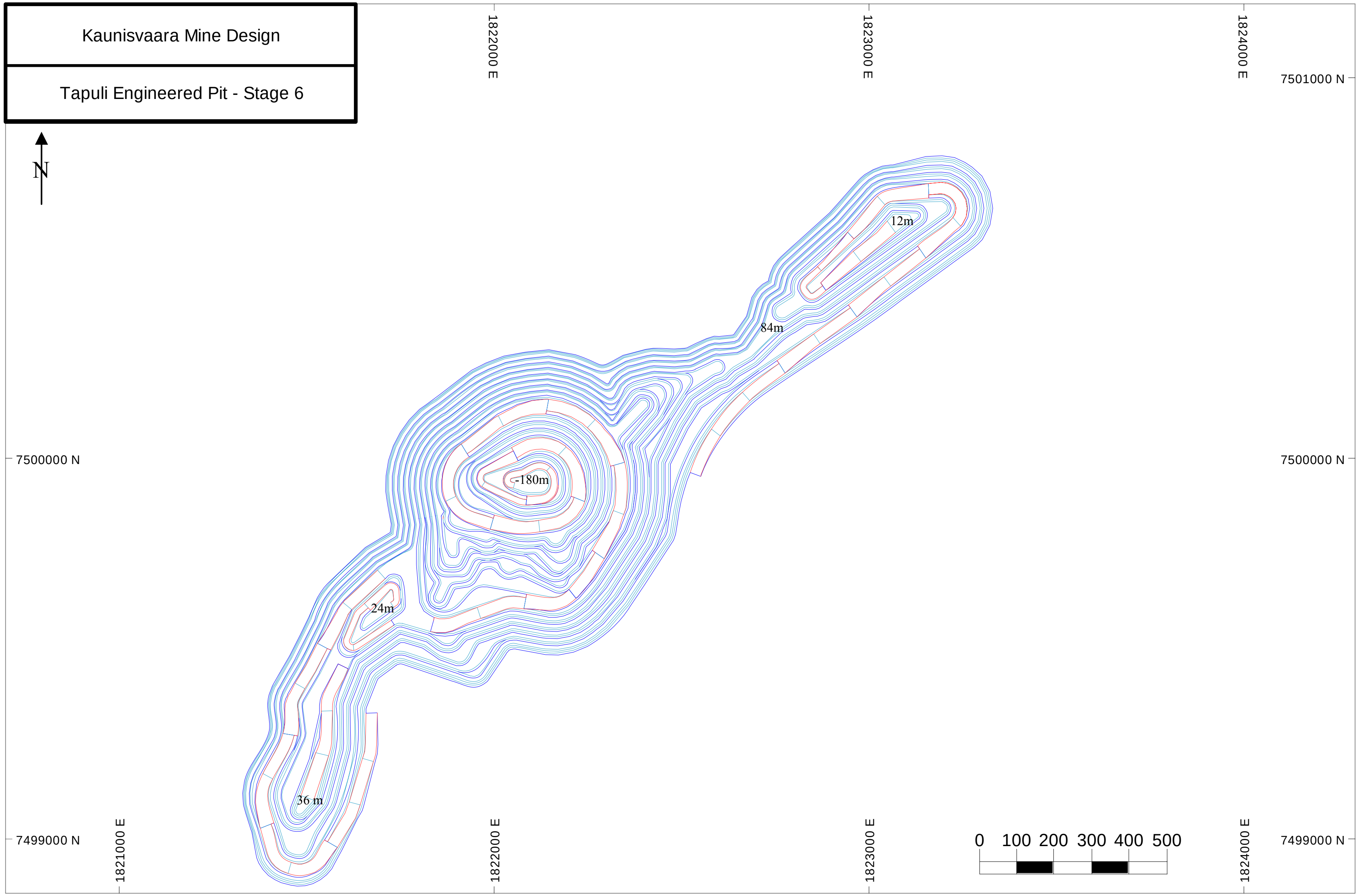

Figure 16-8: Tapuli Engineered Pit Design – Stage 6

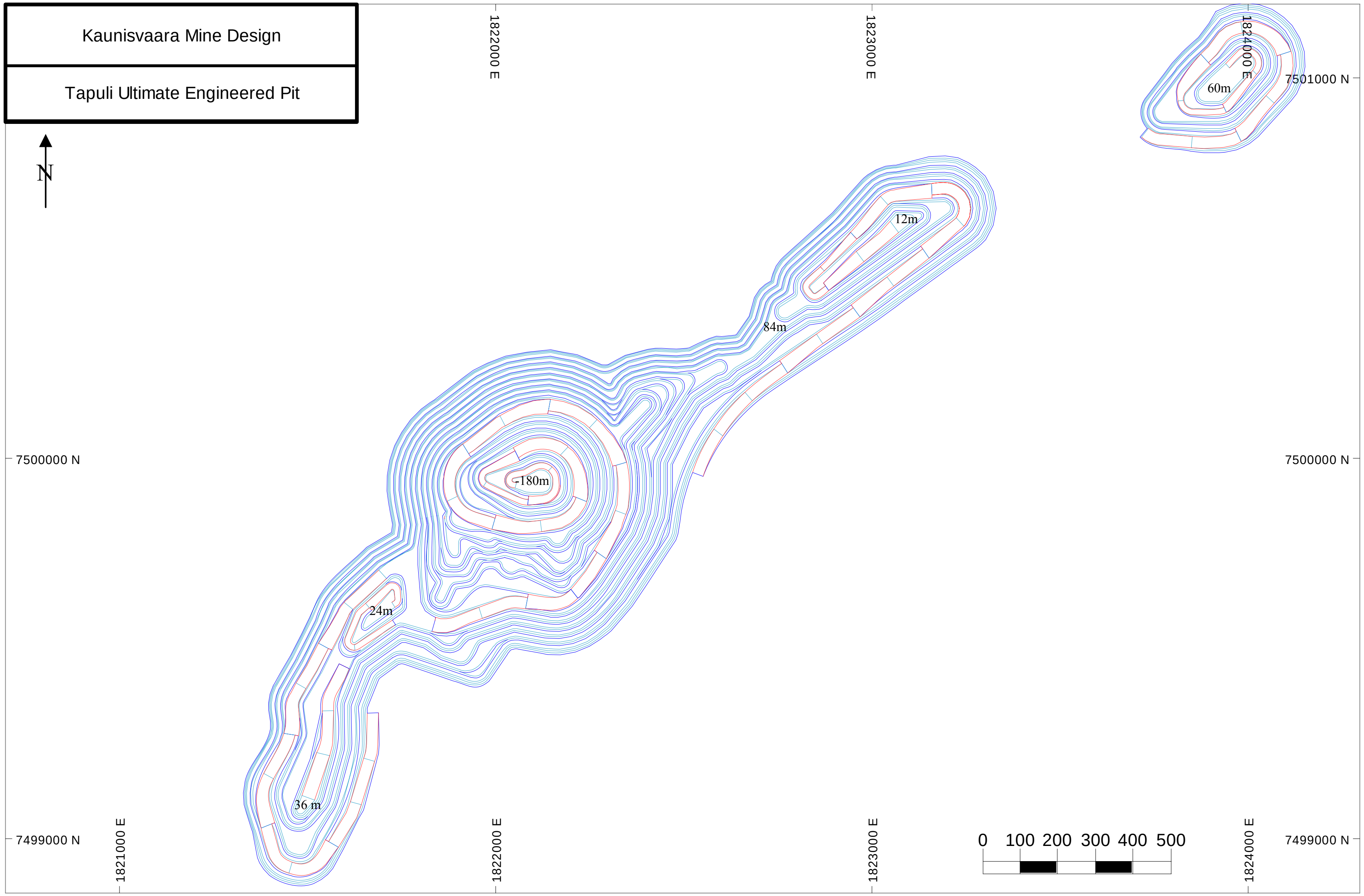

Figure 16-9: Tapuli Ultimate Engineered Pit

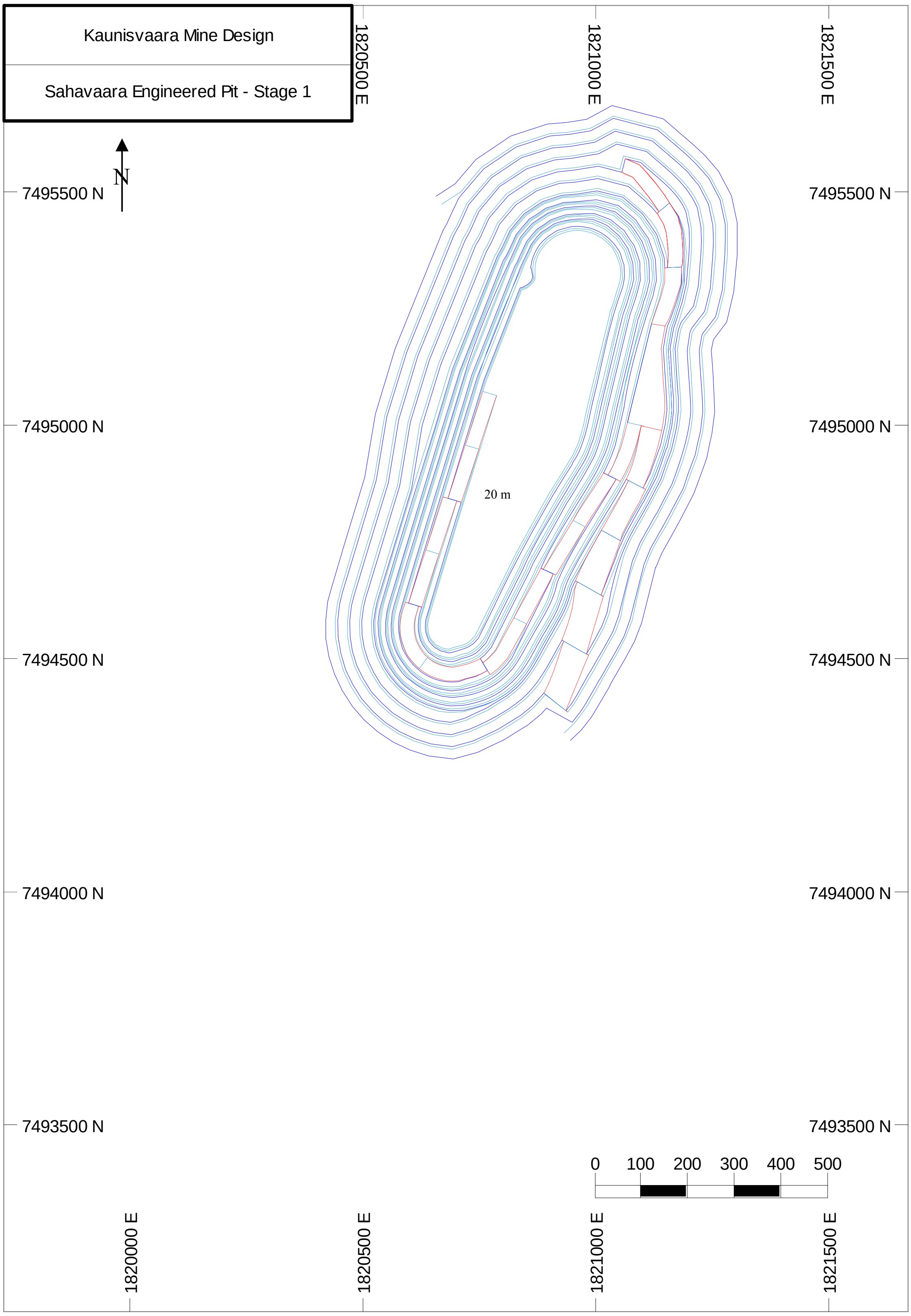

Figure 16-10: Sahavaara Engineered Pit – Stage 1

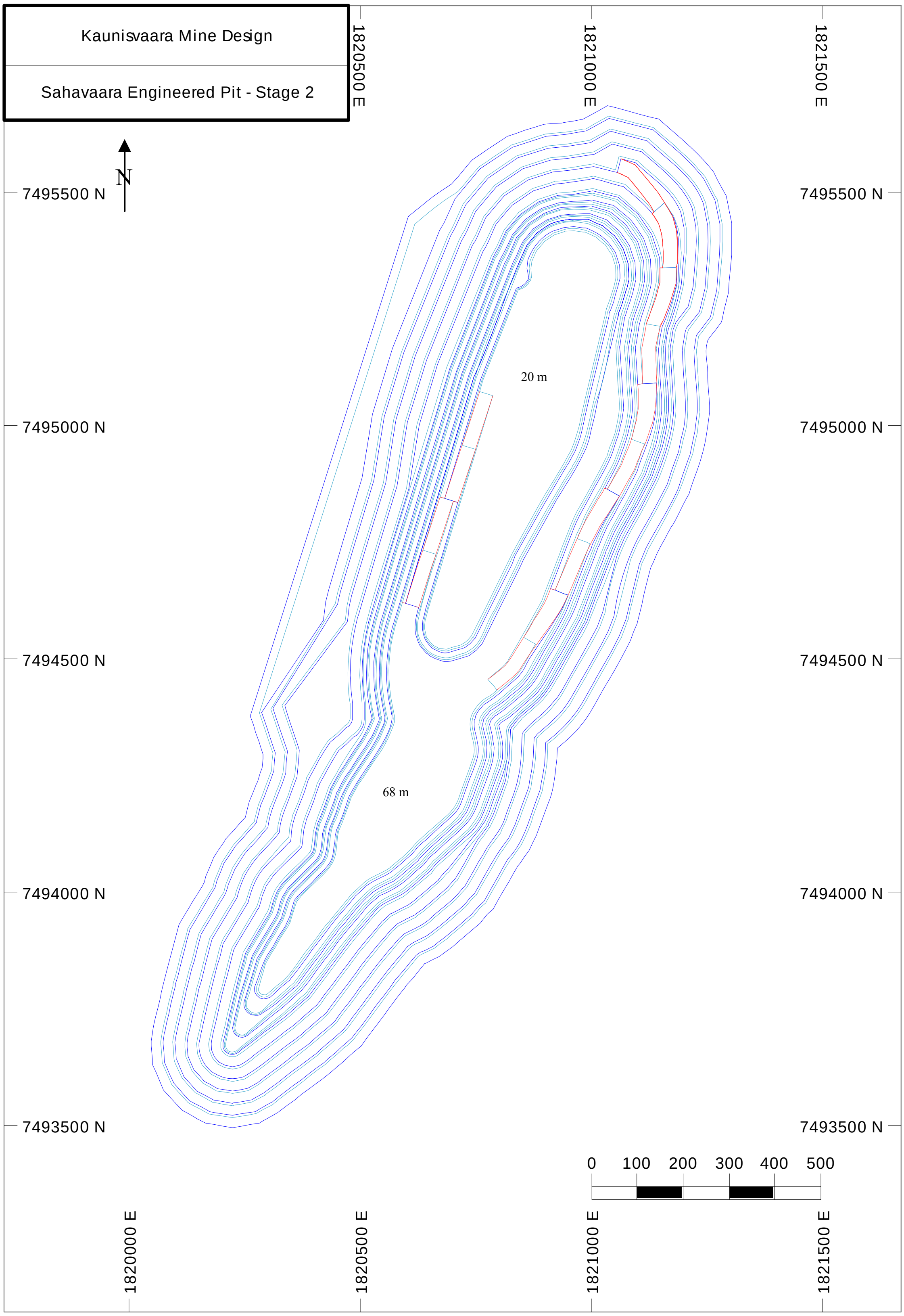

Figure 16-11: Sahavaara Engineered Pit – Stage 2

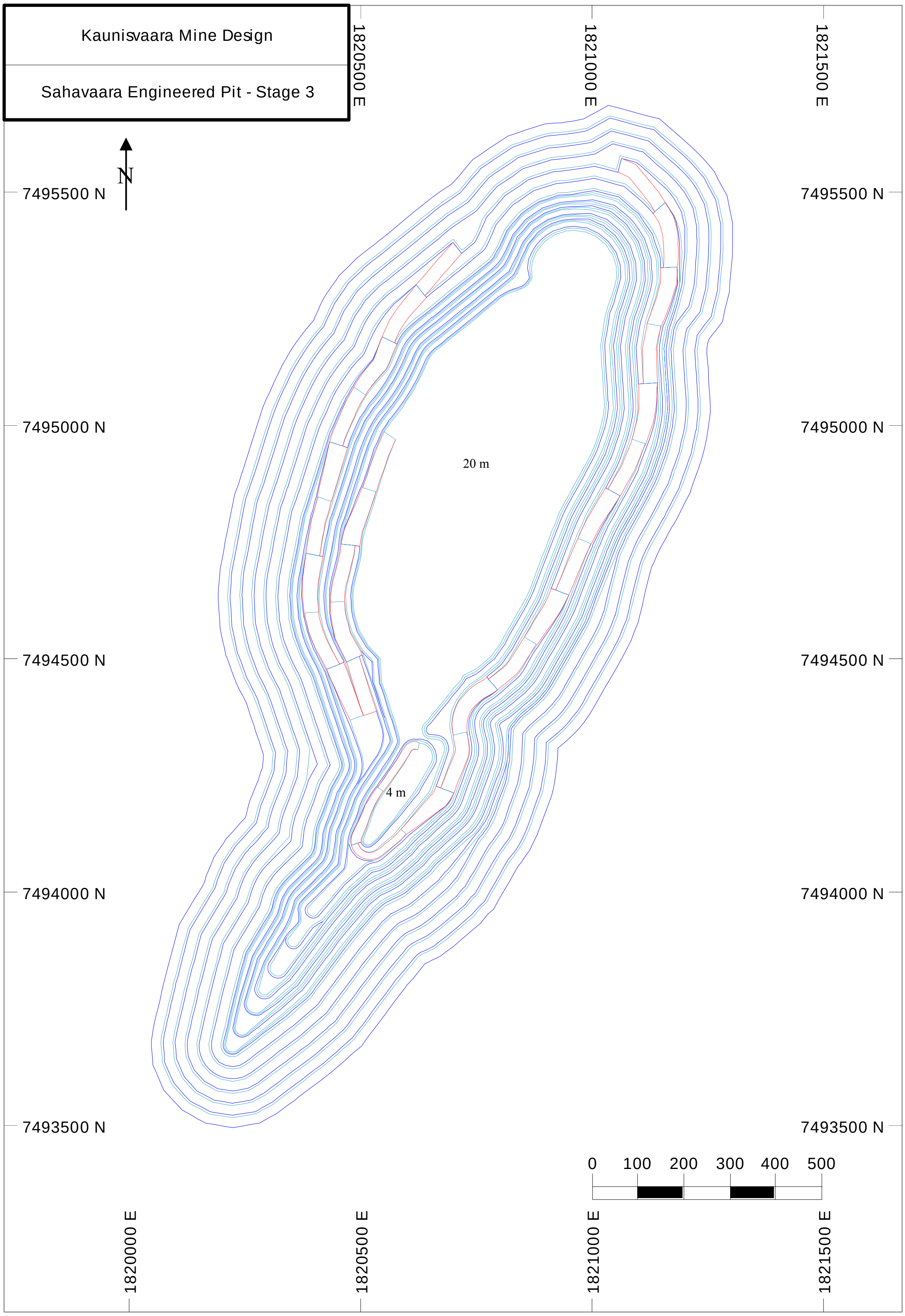

Figure 16-12: Sahavaara Engineered Pit – Stage 3

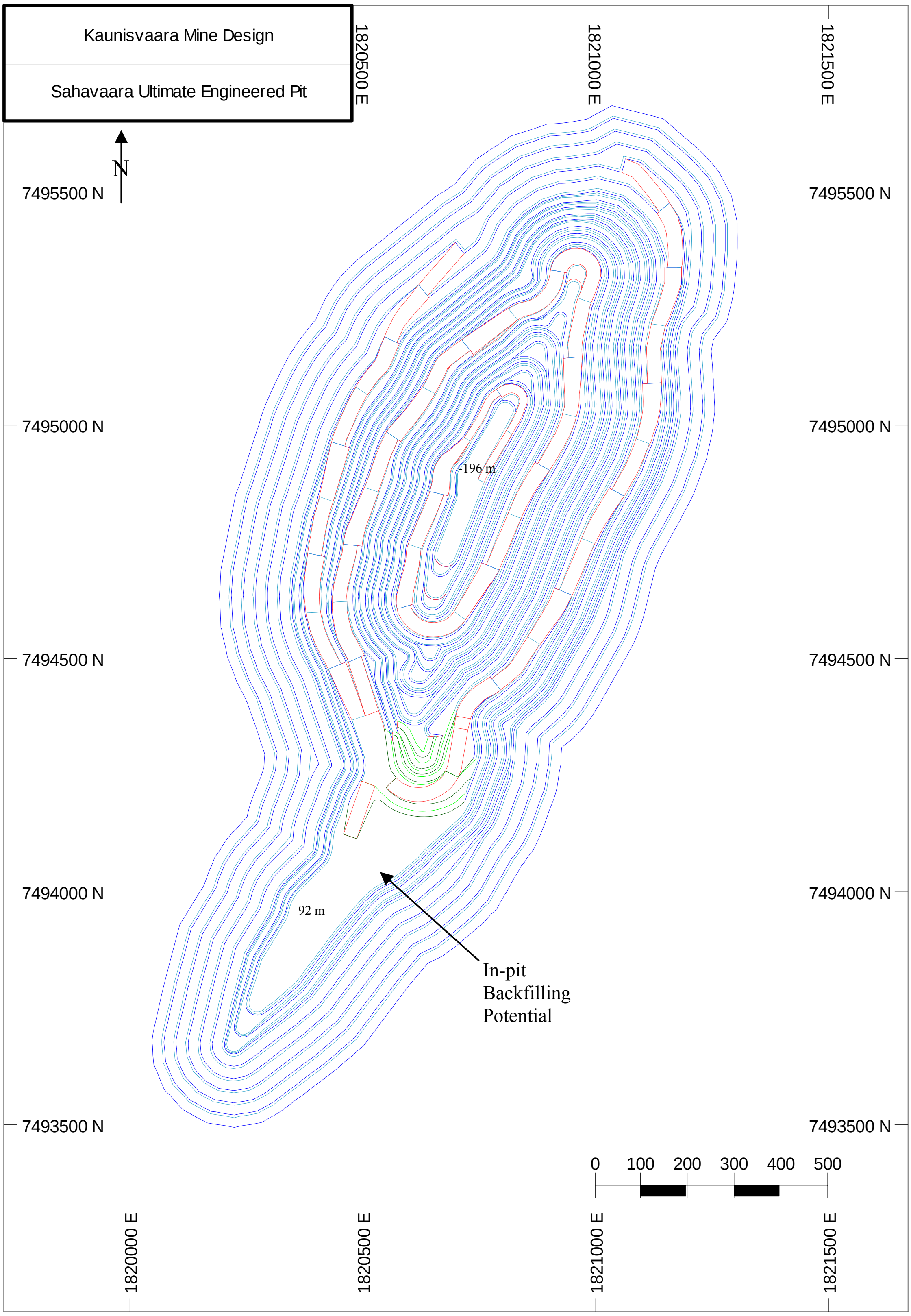

Figure 16-13: Sahavaara Ultimate Engineered Pit

Mine production scheduling was carried out on a bench by bench basis for all pit stages and was constrained by an ore mining rate of 6 Mtpa at each deposit and a maximum total movement of 70 Mtpa.

Prior to production commencing at each cutback within both deposits, the overburden will need to be stripped. The schedule has been designed to ensure mine production is not affected by the overburden stripping operation. All cutbacks will be stripped prior to the commencement of mining operations.

The project requires 12Mt of crusher feed per annum (combined from both deposits). The maximum total annual material movement for the Tapuli deposit is 28Mtpa. The maximum total material movement for the Sahavaara deposit is 42Mtpa.

Figure 16-14 and Figure 16-15 below summarise the mine production schedule that has been developed.

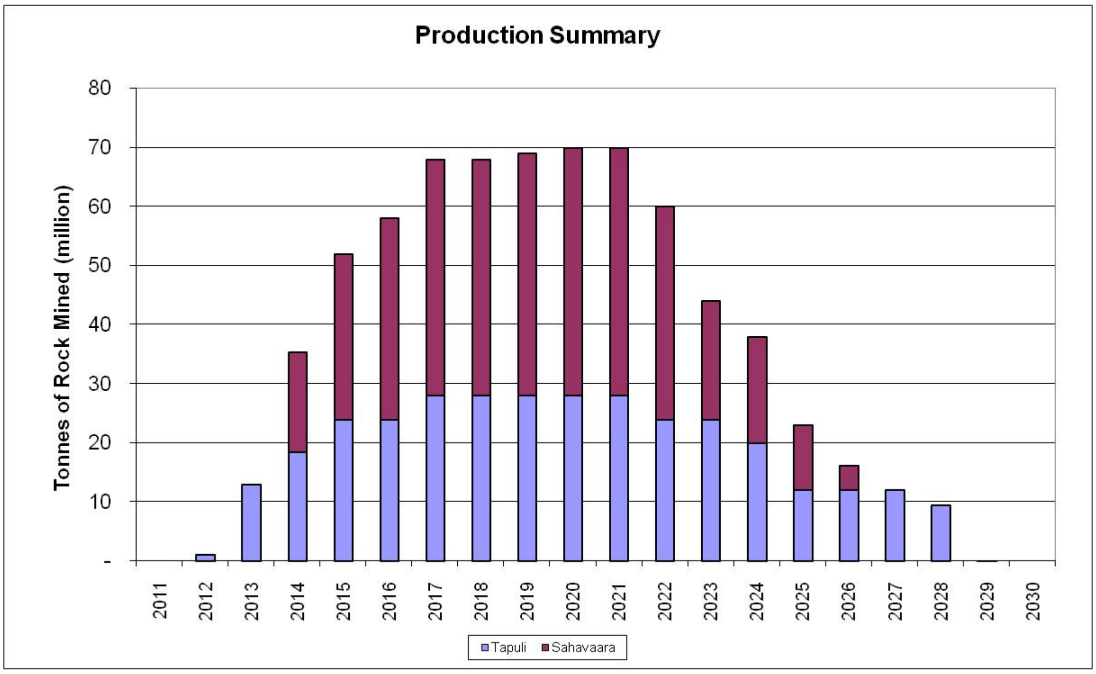

Figure 16-14: Total mine production summary

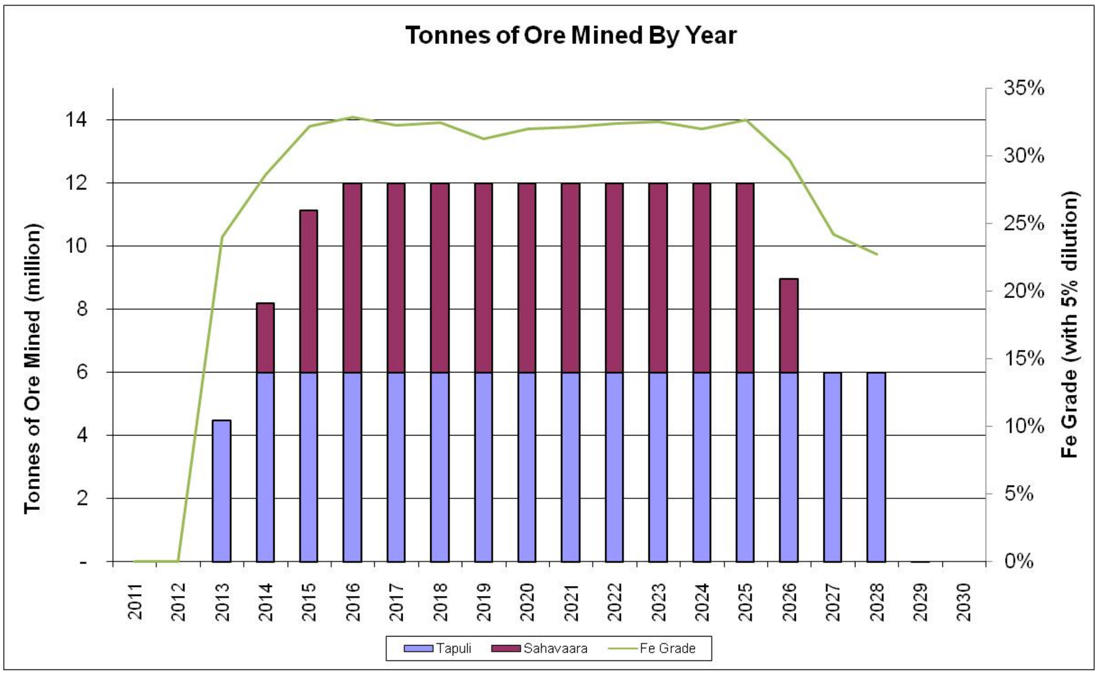

Figure 16-15: Ore production summary

16.2.3 Geotechnical Design Parameters

Tapuli

Tapuli was analysed for slope stability by Vattenfall Power Consultant AB. SRK was requested by Northland to review this report and determine appropriate geotechnical design parameters for the Feasibility Study. Table 16-2 summarises the geotechnical parameters recommended by SRK and used in generating the engineered pit.

Table 16-2: Tapuli pit – slope configuration

Slope	Vattenfall Geotechnical Domains	Applicable Depth Range (m)	Inter-Ramp Angle (degrees)	Bench Height (m)	Bench Face Angle (degrees)	Berm Width (m)
Footwall	6,7,8,9,10,11	0m - final depth	52	24	68	9
Hangingwall	1,2,3,4,5	0 - 50m	52	24	68	9
		50m - final depth	58	24	78	9.5

The overall wall angle achieved for the engineered pit was degrees 48º.

Sahavaara

Sahavaara was geotechnically analysed by SRK. Figure 16-16 summarises the geotechnical parameters used for the feasibility study. An overall slope angle of 52º was used for the hanging wall (West wall), and an overall slope angle of 48º was used for the footwall (East wall) for the optimisation process.

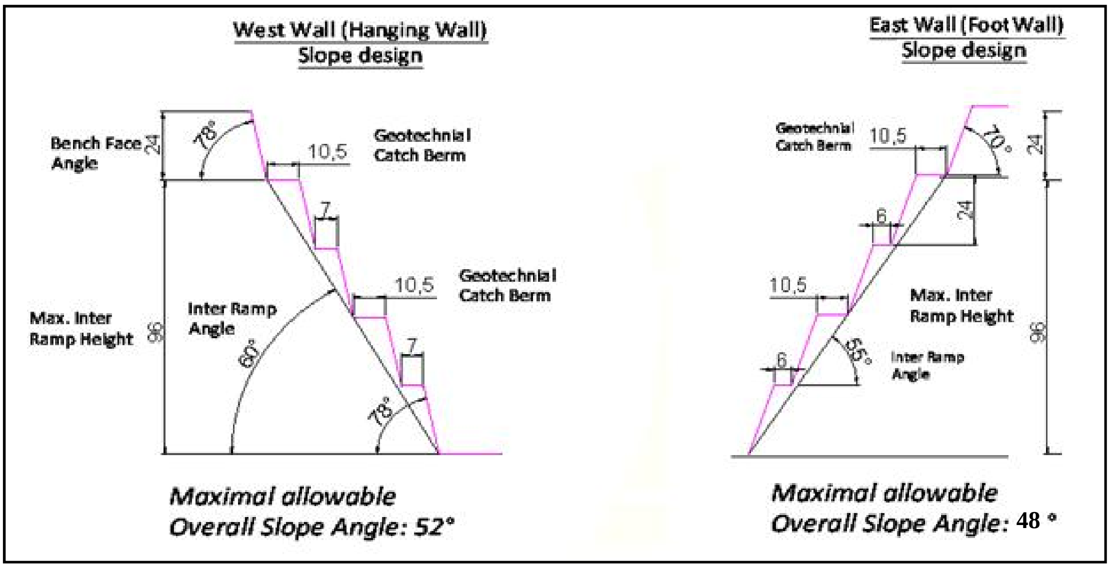

Figure 16-16: Sahavaara geotechnical parametrs

As part of the engineered pit design, the overall slope angle achieved for the hanging wall was 53º and 46.5º for the footwall.

16.2.4 Mining Operations

The pit design assumes a surface mine operation using drill and blasting operations, a mixed fleet of tracked and wheel loading equipment and conventional haul trucks.

Drilling and blasting will be performed on 12m high benches, with blasted material excavated in a single pass. All of the mined material is planned to requiring blasting, except for the thin layer of overburden. Planned grade control measures include blast hole sampling. Northland has indicated that these measures will be reviewed after the commencement of ore production to determine if any additional grade control measures are required.

The haul roads have been designed to suit a Caterpillar 793D (228 t capacity) or equivalent dump truck with an operating width of 7.5m. A 30m wide dual lane ramp allows for a safe operating width of 2.5 truck widths plus windrows and drainage with single lane access for the last 36 vertical metres (3 benches) of depth in the pits. The ramp gradient has been designed at 10%.

A minimum mining width of 100m has been assumed where possible to suit an excavator and 228t rigid body off-highway truck. This mining width allows cutbacks to progress without effecting productivity by mining smaller tight cutbacks. There will be sections of each bench that are less than the designed minimum mining width, however these areas have been minimised.

A crushing station location has been designed close to the exit of each pit. Ore will be hauled by trucks to this crushing station and dumped. Material has been planned to be direct tipped into the crusher without the need for a large Run of Mine (ROM) stockpile. A conveyor system will feed the material from the respective crushing station to a processing facility located adjacent to the Tapuli deposit.

A small ROM stockpile has been planned adjacent to the crushing station at each pit to account for operational delays and minor crusher breakdowns. This stockpile will be utilised during the commissioning phase of the crushing and processing facility whilst the pit develops to a stage at which production can be maintained.

16.2.5 *Labour*

The mine is planned to operate for 365 working days per year, with mining being carried out on a rotating shift policy. A 5 panel shift pattern has been created that incorporates both 8 hour and 12 hour shifts.

As part of each shift, Swedish labour laws indicate set times are required for meal and fatigue breaks. These include:

- Within an 8 hour shift, a minimum of 30 minutes must be set aside for meal break.
- Within a 12 hour shift, a minimum of two, 30 minute periods must be set aside for meal breaks.

Table 16-3 summarises the shift schedule planned for the operation

Table 16-3: Shift schedule for open pit operators

	Week 1		Week 2		Week 3		Week 4		Week 5	
	Mon - Fri	Sat - Sun	Mon - Fri	Sat - Sun	Mon - Fri	Sat - Sun	Mon - Fri	Sat - Sun	Mon - Fri	Sat - Sun
	3 x 8 hrs	2 x 12 hrs	3 x 8 hrs	2 x 12 hrs	3 x 8 hrs	2 x 12 hrs	3 x 8 hrs	2 x 12 hrs	3 x 8 hrs	2 x 12 hrs
Crew #1	Day shift	Day shift	Off	Off	Swing Shift	Off	Night Shift	Night Shift	Off	Off
Crew #2	Off	Off	Day shift	Day shift	Off	Off	Swing Shift	Off	Night Shift	Night Shift
Crew #3	Night Shift	Night Shift	Off	Off	Day shift	Day shift	Off	Off	Swing Shift	Off
Crew #4	Swing Shift	Off	Night Shift	Night Shift	Off	Off	Day shift	Day shift	Off	Off
Crew #5	Off	Off	Swing Shift	Off	Night Shift	Night Shift	Off	Off	Day shift	Day shift

The mining aspects of the project will employ approximately 300 permanent employees.

The company will be bound by the Swedish health and safety regulations and will operate the mining activities to accepted health and safety standards.

16.3 Metallurgical Testwork and Plant Design

16.3.1 *Background*

Magnetite iron ore from the Tapuli and Sahavaara mines will be upgraded in a processing plant to be located at Kaunisvaara. Typically the Tapuli ore contains an average 26% Fe and 0.22% S and the Sahavaara ore approximately 41% Fe and 2.2% S. The predominant economic mineral in both deposits is magnetite. The Sahavaara ore also contains pyrrhotite which is weakly magnetic and reports with the magnetite and has to be removed from the concentrate by flotation.

The 12 Mtpa processing plant will comprise two streams. Stream 1 on the northern side of the plant will treat ore from the Tapuli mine and stream 2 on the southern side will treat ore from the Sahavaara mine. Each stream will be designed to treat 6 Mtpa of ore per year at a nominal processing rate of 761 tph. These streams will be similar and will operate independently of each other with the exception of the plant utility systems (such as water, reagents and compressed air), the final tailings pumping system, the final concentrate filtration system and the concentrate storage and truck load-out which will serve both streams.

Over the LoM the total concentrate production will be similar from each open pit. The average yield over LoM will be approximately 35.9%. The overall grade of the magnetite concentrate produced is approximately 69% Fe and will contain < 0.05% S, < 1% SiO_2 and < 2 to 3% MgO. The MgO figure is high compared to other concentrates on the market (typically 0.02 to 0.48% MgO) and consequently the concentrate will likely have to form part of a blended feed to either direct reduction or blast furnace operations.

16.3.2 Sahavaara Metallurgical Testwork

Samples

Mineralogical studies have shown that most of the sulfur is present as monoclinic pyrrhotite and that relatively high levels of MgO are present in solid solution in the magnetite grains. The former could be removed by flotation whilst the latter cannot be removed by conventional beneficiation techniques. Concentrate produced from Sahavaara will therefore have to be blended with low MgO containing concentrates in downstream processing.

Metallurgical Testwork

Significant bench scale testwork and pilot scale testwork was performed on a number of large bulk samples of Sahavaara ore between 2005 and 2007. The results were positive but the process required significant amounts of reagents in flotation, specifically sulfuric acid, which made the flowsheet unattractive. Alternative grinding circuits were therefore considered.

In 2008 a metallurgical drilling campaign produced 15 tonnes of material for definitive testwork on the Sahavaara deposit. The objectives of the testwork were to reduce acid requirements, to establish the expected MgO content in the final concentrate from a more representative sample, and to simplify the flowsheet. The variability testing and the pilot scale testing established the primary and secondary grind size and a flotation circuit that did not require high acid additions. Sulfur levels in final concentrate were acceptable and the MgO content was reduced considerably. The results formed the basis for the Feasibility Study.

16.3.3 Tapuli Metallurgical Testwork

Samples

The metallurgical samples used for the testwork have been collected from drillholes and from throughout the orebody. Pilot plant samples were made up from drill core selected by geologists to make a representative sample for testing.

Iron is present predominantly in magnetite with a small amount contained in pyrrhotite.

Metallurgical Testwork

Testwork on drill core samples from the Tapuli deposit was first performed in 2007. The results were inconclusive and the proposed flowsheet was considered unrealistic.

In 2008, bench scale testing was performed on drill core samples followed by pilot testing on 24 tonnes of drill core selected to make a representative sample of the Tapuli resource model available at that time. The testwork demonstrated that an acceptable product could be achieved using three stage crushing, ball milling and low intensity magnetic separation (LIMS).

In 2009, a 4 tonne sample was composited from drill core for further variability and pilot plant testing. The sample contained material from high sulfur areas which was subsequently eliminated from the resource. The variability testing demonstrated that the high sulfur material was detrimental and that if it were eliminated from the feed an acceptable concentrate could be produced using LIMS only without flotation. The pilot results confirmed the fine grind of 80% passing 32 microns was required to achieve an acceptable concentrate quality. The metallurgical results were used for the Feasibility Study.

Primary Grinding Testwork

JKTech Drop Weight Testing (DWT), SAG Power Index testing, MacPherson grinding testwork and Bond tests were performed on Sahavaara ore during the initial testing of Sahavaara material in 2007.

Further DWT was performed on a sample of Sahavaara ore composited from seven drill holes taken across the orebody. The sample is considered to be harder than the average ore that will be fed to the grinding circuit. The test programme and the results were discussed with the potential mill suppliers and the model developed was used for the primary mill design.

DWT was performed on a sample of Tapuli ore. The results were discussed with the potential mill suppliers and used for the primary mill design.

Secondary Grinding testwork

10 kg samples of both Tapuli and Sahavaara wet cobbing concentrate were tested by Metso to determine the Vertimill specific grinding energy requirements. Grinding from 80% passing 300microns to 80% passing 32 microns the specific energy requirements (Vertimill) were 17.31kWh/t for Tapuli and 16.71kWh/t for Sahavaara.

16.3.4 Metallurgical Recovery Functions

The recovery function developed for the Tapuli ore body is based on the variability testwork results and is shown in Figure 16-17. Following the pilot testing a correction factor of 0.9643 was used to adjust the calculated recoveries to match those achieved on the pilot plant. The range of % Fe and % S in the Tapuli ROM feed from the mining plan fall within the envelope of the recovery function data and consequently SRK considers that the predicted recoveries for Tapuli used in the financial modelling, based on the applied recovery function with adjustment, are a good representation of the performance that should be achieved on the plant.

The recovery function developed for the Sahavaara ore body is more complicated. Areas within the orebody will be mined which contain mineralisation with relatively high levels of sulfur. The testwork indicated that this material has a detrimental effect on iron recovery and yield. Regression of the testwork results gave a relatively poor fit. However, these problematic ore zones constitute a relatively small portion of the Sahavaara ore body, which means that on an average quarterly basis, the RoM head grades of both Fe% and S% will fall within a reasonably narrow range, for which a realistic function can be developed. This situation is further improved by RoM blending prior to the concentrator. The regression of testwork data that falls within this envelope of these RoM feed grades is more satisfactory and is shown in Figure 16-18. SRK considers that, based on a blended feed, the predicted recoveries for Sahavaara used in the financial modelling using this applied recovery function, are a good representation of the likely results that should be achieved.

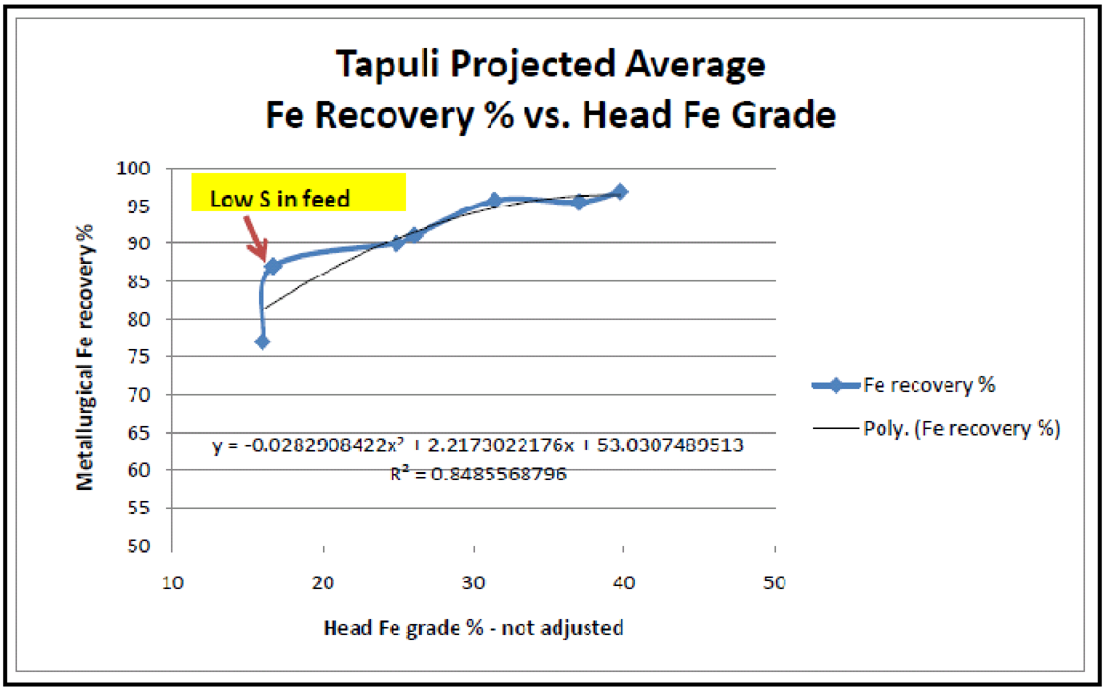

Figure 16-17: Tapuli RoM feed Fe recovery function

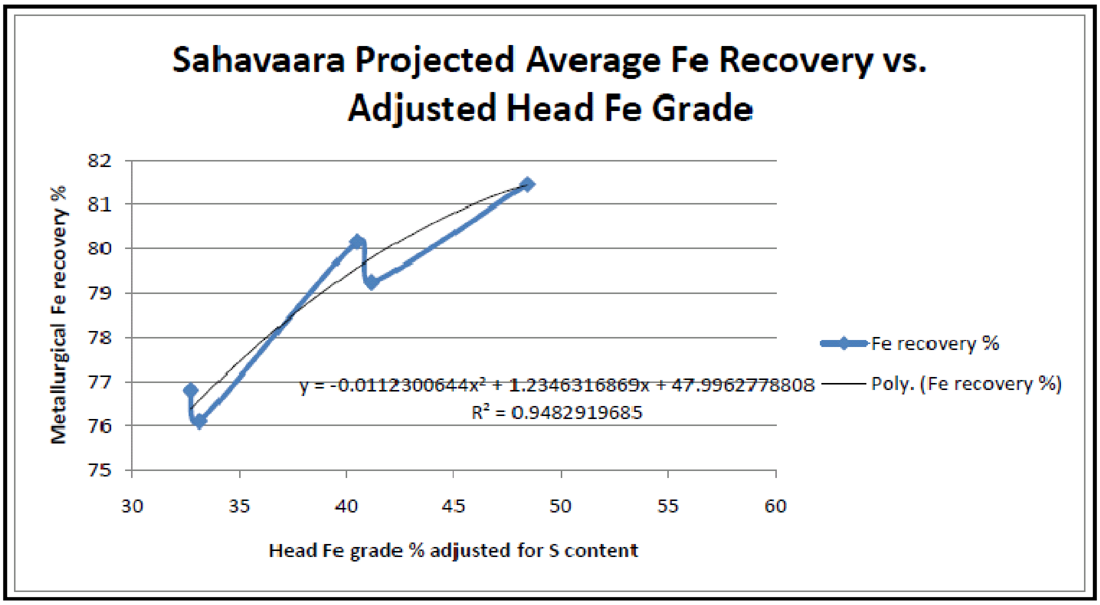

Figure 16-18: Sahavaara RoM feed Fe recovery function using constrained testwork results

16.3.5 Miscellaneous Tests

Magnetic separation testwork has been performed for the cobbing magnetic separation and the secondary LIMS circuit design.

Fine tailings thickener settling testwork has been completed by three separate equipment suppliers and has been used in the feasibility study.

Concentrate filtration testing has been undertaken by three equipment suppliers and has been used in the feasibility study.

16.3.6 Pelletizing Tests

Laboratory pelletizing tests were performed by Studiengesellschaft fur Eisenerzaufbereitung (SGA) in June 2010 on a concentrate sample produced by Northland. The general conclusions were:

- In all cases the green ball strengths were satisfactory;
- The average pellet crush strength according to ISO 4700 was well above the acceptable standards of 300 dN/P;
- The pellets all fulfilled the requirements of the tumble test (ISO 3271);
- The reduction under load test (ISO7992) was acceptable;
- The swelling index (ISO 4698) was acceptable with a volume increase of 13.7 to 16.0%;
- The results of the low temperature dynamic test (ISO 13930) were mixed, a low disintegration strength with favourable metallurgical properties;
- The reducibility was highly favourable for all pellets (ISO 7992).

SGA states that the challenging property of the Northland pellets is disintegration strength but this slight deficiency is compensated by the good physical and chemical properties and by the perfect results for reduction under load. Overall SGA concludes that the study proved that pellets produced from Northland concentrate should be well accepted by the market.

16.3.7 Transportable Moisture Limit (TML)

The TML for both Tapuli and Sahavaara concentrates have been determined by Boliden Minerals AB using a standard Proctor test and are achievable by the proposed filtration plant.

16.3.8 Process Route

The processing facilities have been sized to treat 12 Mtpa of ore from two open pits, Tapuli and Sahavaara. The concentrator is split in to two streams each designed to treat 6Mtpa ore and produce a magnetite concentrate with nominally 69% Fe content. Stream 1, which will come on line first, has been designed based on the Tapuli metallurgy. Stream 2 will treat ore from Sahavaara which involves metallurgy that is slightly more complicated due to the presence of weakly magnetic pyrrhotite which has to be removed from the magnetite concentrate.

The target marketable concentrate grades are approximately 69% Fe and less than 0.05% S.

The selected process route for both the Tapuli and Sahavaara ore bodies includes the following unit processes:

- Primary crushing (at each pit)
- Blending stockpiles
- Primary milling

- Primary magnetic separation (cobbing)
- Secondary grinding
- Secondary magnetic separation (LIMS)
- Reverse flotation of sulphides (Sahavaara only)
- Magnetite concentrate dewatering (LIMS) – Sahavaara only
- Magnetite concentrate filtration (common to both streams)
- Final concentrate storage and truck loadout (common to both streams)
- Coarse tailings classification
- Fine tailings thickening

The selected process route generally reflects the testwork findings for both Tapuli and Sahavaara ores. The design basis for the plant is reasonable and results in a realistic plant design.

Process design and equipment sizing incorporates satisfactory design margins to accommodate likely feed variations.

The stockpiles have a live capacity of 2 days and a total capacity of 7 to 8 days. This will allow sufficient feed blending prior to the concentrator.

The stockpile feed conveying systems includes cross over conveyors which would allow crushed ore from either pit to be fed in to either of the process streams. This would allow any high sulfur feed from Tapuli to be processed in the Sahavaara process stream which incorporates flotation for removal of sulphides from the magnetite concentrate.

Separation of coarse lumps or ore for use as AG mill charge has been incorporated in to the stockpile design and is satisfactory.

The primary mill circuit design and mill design allows the mills to operate in either fully autogenous or semi-autogenous modes. The mills are geared with a dual pinion and have been selected after an evaluation of gearless versus geared drives. Drop Weight Testing has been performed and the data has been used by recognised mill suppliers to size the primary grinding equipment. The mills are identical for each stream and the mill shell and drive train have been sized for the worst case scenario (in terms of power draw) for operating as a SAG mill with 10% steel charge. Since it is anticipated that the mills should be able to operate in autogenous mode the installed power represents about 30% margin above the anticipated power draw required. In addition the grinding circuit layout incorporates space for retrofitting pebble recirculation and crushing should this prove necessary.

Magnetic separator sizing for the cobbing duty and the secondary separation is based on Low Intensity Magnetic Separation (LIMS) testwork performed by vendors.

The final grind required is 80% passing 32 microns and vertical stirred mills have been incorporated in to the circuit design. The mill sizing has been based on industry accepted testwork. The proposed mills would be the largest manufactured, installed power 3,000HP or 2,250 kW. The first project that will use mills of this size is reported to start-up by the end of 2010. This is not considered a significant risk but it would be prudent to monitor any start-up and operational issues prior to placing any orders.

Flotation has been incorporated in to the Sahavaara flowsheet due to magnetic sulphides reporting with the magnetite and the design is considered to be conservative. Space has been left in the concentrator for installation of similar flotation equipment in the Tapuli circuit at a later date if required.

Product filtration is common for both streams. Filter sizing is based on vendor testwork and requires six filters operating at maximum production. The vendors have identified a potential problem with the lower temperatures that may be experienced in which case an additional filter may be required. The production ramp up and the staged stream 1 and 2 start-up will allow the filtration circuit capacity to be assessed and if required an additional filter ordered before full production capacity is achieved. The layout incorporates space for an additional filter should this prove necessary.

Filtered concentrate will be stored in the covered concentrate load out area and will be loaded in to 124 tonne road trains by large front end loaders. Loading will operate 24 hours per day, 7 days per week and a satisfactory traffic management system will be required to safely control the large number of trucks entering and leaving the site.

The proposed plant design incorporates adequate process control, metallurgical on-stream analysis and sampling equipment.

16.3.9 Production Ramp-up

The Tapuli process stream will come on line 18months before the Sahavaara stream. The mine plan allows approximately 6 months ramp-up to full production tonnage for each stream. SRK considers the assumed ramp-up schedule to be reasonable.

16.3.10 Capital Costs

The capital cost for the dual stream concentrator has been estimated by Jacobs using normal engineering and estimating methods. The estimate has been built up in multiple currencies, predominantly USD and EUR for imported equipment and SEK for locally supplied equipment or services. The latter represents 51% of the total costs. The estimate accuracy is quoted as +/- 15%. The estimated capital cost, excluding any contingency is 379.9 million USD and the detail is presented in Table 16-4.

Table 16-4: Process Plant Capital Cost

Description	Total (USD)
MATERIALS	
Equipment	151 580 358
Pipework	5 327 030
Electrical	13 602 695
Instruments & Control	2 671 908
Laboratory Equipment	1 351 942
Workshop Equipment	607 674
Spares (Commissioning)	388 235
Spares (Operating 2 Year)	3 174 922
First Fills	4 568
Delivery, Packing & FOB (Where Not Included Above)	4 236 608
Sub-total	182 945 941
CONSTRUCTION SUB-CONTRACTORS	
Civil Supply & Install	62 967 309
Steelwork Supply & Install	54 227 956
Painting	506 646
Insulation	225 002
Equipment Installer	14 634 667
Pipework Installer	10 473 437
Electrical Installer	13 140 215
Instruments & Control Installer	2 013 604
Sub-total	158 188 837
OTHER DIRECT COSTS	
Scaffold / Access	3 711 443
Craneage / Heavy Lifts	6 185 748
Construction Plant (Where Not Included in Construction Works)	1 055 211
Vendor Assistance - During Construction	857 459
Vendor Assistance - During Commissioning	775 798
Consultants	125 000
Sub-total	12 710 659
EPCM SERVICES	
Engineering, Projects & Procurement	18 559 688
Construction Management	21 656 268
Commissioning Support	excluded
Expenses	1 900 981
Sub-total	54 952 596
Contingency	excluded
GRAND TOTAL	408 798 033

Equipment costs have been based on multiple quotations from international suppliers. Where appropriate, costs for minor items of equipment have been based on in-house prices. The mechanical equipment cost assumed by the Feasibility Study incorporates a 5% discount, for good buying of equipment.

Detailed material take-offs have been prepared for all bulk items such as concrete, piping and valves, electrics etc and have been costed using market rates obtained by multiple quotations. The unit rates have been reviewed against the contractor's in-house database and are considered reasonable.

Similarly, installation costs have been based on quotations from multiple in country contractors using the estimated quantities and work scope prepared by the engineer.

EPCM costs have been estimated by the contractor from first principles based on in-house experience. Commissioning costs have been excluded as the two streams will be brought on line at separate times and the client approach, in terms of owner's team versus contractor assistance for commissioning, has not been finalised.

SRK considers that the amount of engineering performed for estimation of the work required is acceptable, and the capital cost developed is realistic. A 10% contingency has been included by SRK in its financial analysis presented later in this section.

16.3.11 Process Plant Implementation Schedule

The implementation schedule prepared by Jacobs reflects the phased development of the Tapuli process stream followed by the Sahavaara stream. Both streams will be housed in the same building. The Tapuli plant will be mechanically complete 26 months after contract award and plant commissioning and ramp up will be completed after an additional 6 months. The Sahavaara processing stream will be fully operational 18 months after the Tapuli stream. A detailed implementation plan for engineering, procurement and construction will be required to reflect phased procurement and delivery of equipment and materials for stream 1 and 2 and to identify the safe methodology to be used to enable the Tapuli plant to operate as a production unit while the Sahavaara plant is being constructed.

Site works for the process plant construction are due to start in Q2 of 2011.

SRK considers that the schedule as presented for the implementation of the processing facilities at Kaunisvaara to be achievable.

16.3.12 Conclusions and Recommendations

The testwork has demonstrated the metallurgy for both the Tapuli and Sahavaara deposits and the selected process route is considered by SRK to be appropriate for the two ore bodies.

Sufficient engineering has been performed to establish the plant capital cost assuming a contingency of 10%.

The implementation schedule and the plant ramp up time for both Tapuli and Sahavaara streams is considered realistic. The potential effect of weather windows on the overall schedule should be reassessed if the project start date changes significantly.

16.4 Infrastructure

16.4.1 Power

The initial power requirement will be 33MW when Tapuli comes on stream during September 2013 but this will increase to 63MW when Sahavaara comes on stream during October 2014.

Power for the operation will be supplied from the Swedish national grid. It is assumed that the supply to Kaunisvaara will be undertaken by the Swedish electrical supply commission at no capital cost to Northland. The incoming supply is 130kV and is stepped down to 10 kV for site distribution with two 50MVA transformers. This will enable all essential equipment and one production stream to operate during unplanned outages of one transformer. The installation of a third transformer could be considered to give full standby in the event of one transformer being out of service.

Power for the Muonio River pump station will have a separate supply from existing infrastructure.

The power supply for the project has been developed in some detail and although adequate for the operation does not take into consideration future expansion needs. While this is not considered to be an impediment to the current proposed operation it may impact adversely on the viability of future expansions. Agreements regarding installations, possible capital costs and operating costs are being negotiated with the Swedish electrical supply commission.

16.4.2 Potable Water Supply

It is proposed that potable water supply to Kaunisvaara and Tapuli mine will be provided by boreholes to be drilled in the vicinity. The required depth of the boreholes to be drilled at Kaunisvaara is still the subject of investigation but the depth at Tapuli is assumed to be between 20 and 50 m. A storage tank will be constructed at ground level from where it will be pumped to the distribution system. Potable water at the Sahavaara mine will be supplied from the Sahavaara village’s water works via a pipeline of approximately 2.8 km.

16.4.3 Sewage and Waste Water Disposal

Waste water at the Kaunisvaara and Tapuli operations will be treated at a waste water treatment plant. This will consist of a septic tank and filtration and purification systems. There is also the possibility to add chlorine to the purified water if considered necessary. The purified waste water will then be pumped to the process water plant. The waste water from the Sahavaara operation does not contain sewage as it is proposed to use dry latrines and dispose of the grey water into the soil.

16.4.4 Roads

The construction of the roads has to consider the ground conditions in the area, which have not as yet been fully investigated and so are currently conceptual in nature. The ground conditions in the area are known to have fairly deep peat layers and this could impact on the estimated design and costs of the construction of the roads, although this has been considered in the proposed road designs and reasonable assumptions have been made in this determination. The designs of the roads are substantial with the sub structure varying from 4m to 2m deep. The access road will be sealed with asphalt and the others sealed with compacted crushed rock.

The roads included in the project are:-

- Access road (~2km)
- Service roads
- Dumper roads

16.4.5 Buildings

Due to the cold winter conditions most of the facilities will be housed in appropriate heated buildings. The site selected for the process plant is in an elevated position, in the vicinity of Kaunisvaara, to avoid building in marshy conditions. Preliminary geotechnical studies have been carried in this area and it is believed that the ground conditions in this area will not require piling.

The buildings will consist of the following.

- Two process plant buildings
- Two stockpile buildings
- Administration building
- Workshops and truck bays
- Stores building
- Metallurgical laboratory
- Plant services building
- Two pump station buildings
- Assay laboratory

The total floor space estimated for the buildings amounts to 23,790m^2. The buildings will be insulated and heated where considered necessary. The method of heating the process building would be to utilize the heat from air compressors and other operational plant, with an electric boiler for use in times of non operation of the plant. The information reviewed indicates that the heating aspect is still conceptual; however the proposed extent of buildings and the structure appear adequate for the operation of the mine.

The process plant building will be built in two phases with a partition between to enable the first phase to commence operation while the second phase is under construction. This partition will be removed once the second phase is completed.

16.4.6 Communications

Communications in the area are reported to be fairly well developed and a sophisticated system of communications for the operation is planned. A data network using fibre optic cable distribution is planned together with radio communication for mobile equipment operations. The proposed communication systems are considered to be adequate for the operation.

16.4.7 Security

Provision has been made for the installation of perimeter fencing, security lighting, access control and a gatehouse at the site access point. Access points are monitored with CCTV. The provisions for security are considered adequate and suitable for the operation.

16.4.8 Concentrate Logistics

It is proposed that the process plant will be built in two phases. The first will cater for ore from the Tapuli open pit mine and the second phase will treat ore from Sahavaara, which will come on stream 18 months later. This will not have a major bearing on development and construction of the logistics facilities for the concentrates as the concept and route will have to be established for the total maximum production of 5.0MTPA.

It was initially proposed to transport the concentrate to the port of Kemi in Finland. This was considered to be more expensive to operate as the port can handle vessels up to approximately 50,000 tonnes against the Narvik port capacity to handle vessels of 300,000 tonnes.

A decision has now been taken to export concentrates through the port of Narvik in Norway. This will entail road transport from Kaunisvaara to Svappavaara and from there by existing rail to the port of Narvik. A study has been carried out by Norconsult on the practicalities of using this route which encompassed alternative solutions for terminal constructions, cost assessments, time estimations for constructions, risk assessments, schedule for planning, designing and permitting processes.No major impediments have been highlightedregarding this aspect of the project, which is crucial to the viability of the project. Northland intends to establish a Joint Venture company with interested parties to develop and manage the logistics infrastructure for the transportation of concentrates. Although further negotiations are required to establish the Joint Venture company, this approach will eliminate from the project budget the capital required for a fleet of road trucks, railway wagons, train engines and the capital required to develop the load out station at Svappavaara and the port infrastructure at Narvik. The development of those facilities will be undertaken by the joint venture. It is also proposed that the Joint Venture will enter into lease agreements for the supply of trucks and railway wagons. The joint venture will fund this development with a mixture of equity from within the Joint Venture and external financing.

16.4.9 Load out Station

It is proposed to load out from storage buildings, each with a capacity of 1400 tons, on either side of the filter building of the process plant on to road trains consisting of a truck and two trailers with a haul capacity of 104 tonnes and an overall length of 37 meters. This will be done using front end loaders possibly Volvo L350F or equivalent, with a bucket capacity of 15 tonnes. The loading will take place in a drive through loading bay. Loading will be required to reach an hourly rate of 600tonnes. This will require a reliable operation and adequate machines to maintain the required load out rate and ensure that a suitable maintenance schedule can be accommodated.

16.4.10 Road Transport

It is currently envisaged that trucks will be required to transport the concentrate from Kaunisvaara to Svappavaara, a distance of 150km, on existing 9 meter wide road infrastructure. Several road routes from Kaunisvaara to Sahavaara have been investigated in detail and the option UA5 has been selected as the the most suitable route for the transportation of concentrates from Kaunisvaara to Svappavaara.

There are several restrictions identified at this stage and possible solutions considered. Generally they are related to tight bends, built – up areas and bridges. The road trains will have a capacity of 104 tonnes and a length of 37 metersand have a capacity of 70 tons of concentrate. There is the long term future possibility of using trucks with a loaded weight of 170 tons, however a permit from the Swedish Transport Authorities is required for this operation and the size of vehicles utilised will depend on the outcome of those negotiations. No permit is required for 60 ton trucks, but this is not favourable to the Swedish Transport Association or to Northland and it is probable that a consession to use larger vehicles will be given. The route does go through some built up areas and there is a possibility that there will need to be some road upgrades and deviations to avoid the bottlenecks that have been identified. The condition of the road between Kaunisvaara and Svappavaara has been assessed by Roadscanners, a specialist company who have established that the road will need to be upgraded to handle the iron ore trucks transporting the concentrates and initial estimations are that this will cost in the region of US$50m. The road falls under the Roadex Project which is an EU sponsored Project to upgrade the Northern Periphery road networks of Finland, Scotland, Norway and Sweden.

The round trip for one truck is estimated to take 5 hours 8 minutes and the loading time of 13 minutes.

16.4.11 Rail Transport

The existing Malmbanan railway runs from Svappavaara to the port of Narvik in Norway. The distance is approximately 226kms. A study has been carried out for Northland by Vectura which reports that there is capacity at current traffic rates to transport the initial loading from Svappavaara to the port of Narvik, without upgrading the railway infrastructure although there would need to be some rescheduling of the current traffic to meet Northland's needs. Future expansion of the railway is being considered by both the Swedish and Norwegian railway authorities to cater for increased future demands.The road transport will discharge the concentrate onto stockpiles from where it will be loaded onto the railway wagons by front end loaders. The wagons and railway engines will be managed by the Joint Venture Company who will enter into a lease agreement with the suppliers.

16.4.12 Port Facilities and ship loading

A review of the port relative to Northland's project needs was carried out by Norconsult. A new port terminal will be needed to support the full production of the Project. This will take longer to construct than the time it will take to complete the mining and process facilities. It is therefore apparent that a temporary facility will be needed until the new facility is available. The temporary facility ,which is situated at an under utilised container terminal at Fagernes in the port area of Narvik, will have a permit for 10 years and thereafter the port authority will either allocate a new area at Grundstadsvik where a new load out facility will be constructed utilising existing material handling equipment or renew the permit for the existing facility.

The port facility which will need to be established for the temporary site at Fagernes has been designed to the extent that a definitive capital estimate has been produced. Various options were considered for the port arrangement and the decision has been made to build a jetty capable of handling vessels up to 180,000 tons and loaded with a radial shiploader. Although the geotechnical investigations have not yet been completed the design allows for piles to be driven to a depth of 40 meters. SRK considers this to be a reasonable assumption. A de-icing plant will be required to thaw the railway wagons on arrival.

16.4.13 Conclusions – Concentrate Transport

Northland has investigated several possibilities for the transportation of the iron ore concentrates and selected the most favourable options for further investigation. The options selected have been developed to a reasonable degree of detail enabling an estimate to be produced that has a degree of confidence that is suitable for the DFS. There are still some areas of risk that have been identified and are being investigated further. These are:

1. The timing of the road upgrade from Kaunisvaara to Svappavaara.
2. The successful testing of the offloading of the rail wagons.
3. The ground conditions for the construction of the quay at Fagernes.
4. A satisfactory conclusion to the negotiations to form a Joint Venture Company and lease agreements for trucks and rolling stock.

16.5 Tailings Management

Pöyry Pöyry Finland Oy has been commissioned by Northland to prepare the feasibility level design and cost estimate for the Kaunisvaara Tailings Management Facility (TMF). This work on was initiated in December 2009, with final design work to feasibility level accuracy being completed in September 2010.

To achieve a safe and environmentally sound TMF configuration, a primary TMF structure has been designed, which includes a central thickened discharge (CTD) system and water clarification pond. This design was based upon the principles of conceptual and PFS design work carried out by Knight Piesold (2008), Vattenfall (2008), Sweco (2009) and Scott Wilson (2009). The list of references used to compile this review includes:

- Erikkson, 2010. Feasibility Study Tailings and tailings water characterisation Kaunisvaara Iron Ore project, Sweden. August 2010.
- Erikkson, 2009. Disposal of tailings from the Sahavaara Kaunisvaara Project. Nils Erikson. Contained within SRK internal memorandum dated 4th June 2010. File location P:\U4067 Northland 43-101\Project\Reps\Tailings and Waste rock review memo\Tailings and waste rock review_V2.docx;
- Hifab, 2010. Closure Plan for Tapuli, Sahavaara and Pellivouma. 28 June 2010;
- Pöyry Pöyry 2010. Waste and Water Management, Kaunisvaara Feasibility Study. Report prepared for Northland Resources, September 2010 (partial document);
- Pöyry Pöyry 2010b. Presentation “Kaunisvaara TMF Review”, July 2010;
- Pöyry Pöyry 2010c. Drawings 1 to 10, by Pöyry Pöyry, July 2010;
- Pöyry Pöyry 2010c. Capital cost estimate “TMF_BQ3.xls”, by Pöyry Pöyry, July 2010; and
- WSP 2010. Site Investigation Geotechnical Report, Kaunisvaara Sweden, July 2010.

16.5.1 TMF Location and description

The facility will be located on Tapulivuoma, immediately east of regional road 99, some 2.7 km from the plant (Figure 16-19).

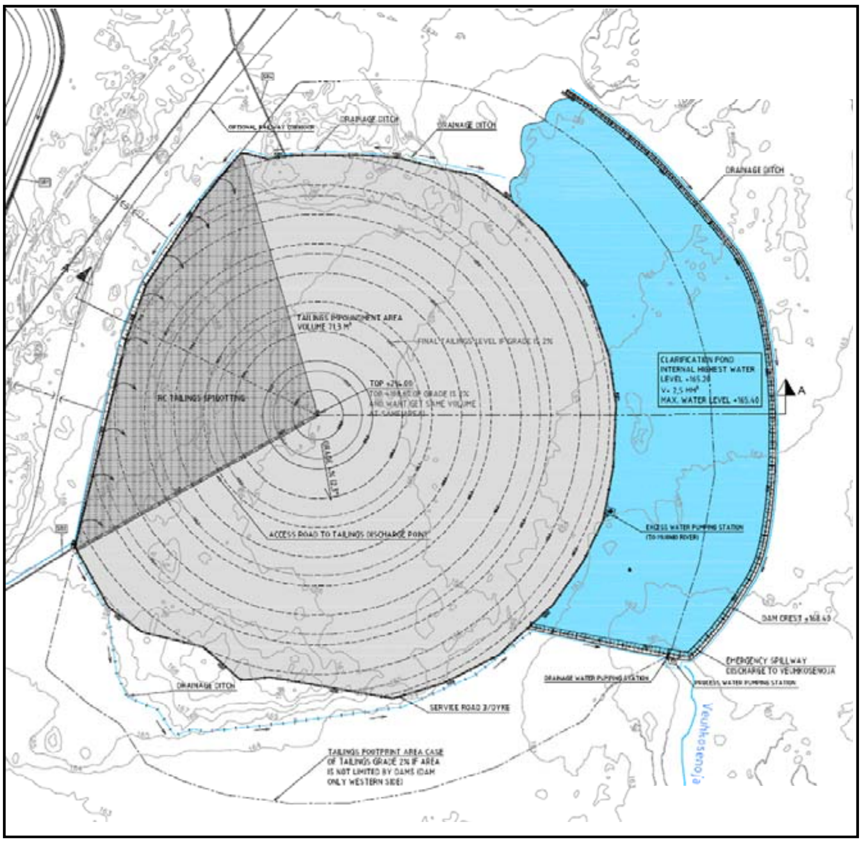

Figure 16-19: TMF dyke location and clarification pond at Kaunisvaara, Poyry 2010.

The main tailings pond is designed as a central tailings discharge facility with an adjacent clarification pond as shown in Figure 16-10 above Tailings, Sahavaara and Tapuli blended, will be pumped from the process plant to the TMF in two tailings pipelines and one additional in reserve. The pipelines are placed on a supporting structure of crushed rock next to the industrial road. Tailings discharge takes place in the center of the facility using a spigotting arrangement of four pipes which alternate two and two, allowing flexible discharge all around the facility.

The perimeter containment structure of the TMF will consist of a till embankment, overlain by a layer of crushed aggregate, which will act as the service road (Figure 16-20). Around the water clarification pond, the embankment will be composed of a moraine upstream core, surrounded by blasted rock material for erosion protection.

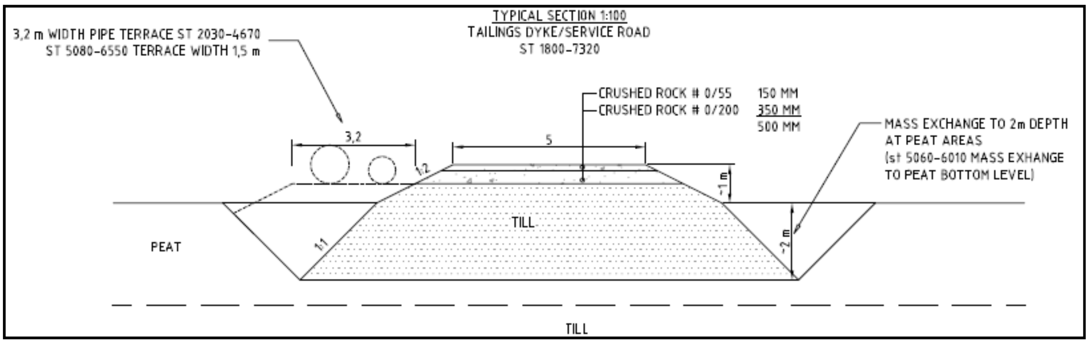

Figure 16-20: Tailings perimeter dyke/service road cross section. Poyry, 2010.

16.5.2 Geotechnical Site investigation

Geotechnical drilling at the site was completed by WSP from January to March 2010. The investigation included borehole ram sounding at 50 points with collection of 45 samples. In addition, the site investigation included 16 km of Ground Penetration Radar, which was performed by MRM. Due to changes of the footprint of the TMF, the site investigation has not covered the entire subject area. Sufficient area has been covered in the site investigation to accurately characterise the site for feasibility level investigation.

The results from the site investigation showed that the subject area is covered by a peat layer, which varies in thickness from 0 to 4 meters. Beneath this horizon, the substrate consists predominantly of glacial till and sand deposits.

16.5.3 TMF and clarification pond capacity

The total storage capacity of the TMF is estimated at 117 Mt, consisting of 65 Mt of tailings waste from Tapuli, 41 Mt of waste from Sahavaara, plus a contingency capacity of 11 Mt. The total footprint of the CTD facility will be 4.1 km^2 with the adjacent clarification pond amounting to 1.53 km^2. The total volume of the clarification pond will be 2 500,000 m^3.

16.5.4 TMF design criteria

Tailings will be thickened to a solids content of 50 % by weight and deposited from the centre of the TMF. It is expected that the tailings beach will be deposited above the water line at all times and it will form a slope varying from 2 to 4 %. Depending on the deposition angles, the final elevation of the TMF could vary between +198 and +214 m above sea level.

A series of possible designs for co-disposal of these tailings streams was initially based on preliminary geochemical tests identified (Eriksson, 2009). Sahavaara tailings have a significantly higher sulfur content (2.95 % in the wet cobbing / low intensity magnetic separation tailings and 10.3 % in the cleaning flotation tailings), than the Tapuli tailings (0.33%). Sahavaara tailings are therefore potentially acid generating.

The base case placement strategy will consist of depositing non acid generating Tapuli tailings at the base, then blending all tailings (Tapuli and Sahavaara) as a mixture (average 1.79% sulfur). Should additional geochemical testing prove that this configuration remains potential acid generating, Poyry have prepared and alternative deposition strategy which allows for selective deposition of the flotation tailings in one section of the TMF, before continuously overlapping with a blend of Sahavaara and Tapuli tailings, then finally Tapuli tailings.

Tapuli tailings at the base of the structure will function as an acid buffer zone. The attenuation capacity of this zone, combined with that of the residual peat substrate will ensure that no acidic fluids interact with the local groundwater regime. In addition, the TMF is situated on a wetland zone which functions as a “flow out area” towards the clarification pond. For these reasons and the TMF will not be lined at the base.

The TMF footprint has been determined based on 4 % beach slope and unit density of 1.64 t/m^3 (combined tailings, volume 71.3 Mm^3). The overall beach slope has also studied for 2 % beach slope as a possible case with consequences to the embankment structures and relating costs. Should the beach slope angle be lower than the 4% included in the preferred design, this will incur additional costs as the overall capacity of the facility will have to be higher.

In order to ensure a sufficiently high factor of safety is achieved for foundations stability. the peat horizon from below the service road will be excavated to a maximum depth of 2 m.

To enable relocation of the tailings discharge point to the centre of the TMF, a spigot access road is required. The road will be initially built of blasted rock. As the tailings level rises, the spigot road will also be raised accordingly. Subsequent raises will be composed of tailings material, assuming sufficient drainage has occurred. Otherwise run of mine waste rock shall be utilized. Tailings discharge pipelines will run alongside the service road and will be gradually raised in tandem.

16.5.5 Design of Clarification Pond

Residual water from the deposited tailings will drain into the clarification pond. There will be an interim embankment separating the pond and the CDT areas, which prevents tailings from flowing into the pond. This will consist of a fine moraine core with rockfill protection layers on both the upstream and downstream sides (See Figure 16-2 below) Final embankment crest width will be 5m.

16.5.6 Embankment Design

The clarification pond embankment will consist of a zoned earthfill dam with a moraine core. Between the blasted rock and moraine core a 500 mm thick filter zone will be installed (Figure 16-12). This will consist of aggregate fill (0 to 100 mm dia). The filter zone has been designed to prevent internal erosion. In addition a filter cloth will be installed between the moraine core and filter zone. The upper end of the cloth will extend to the high water level.

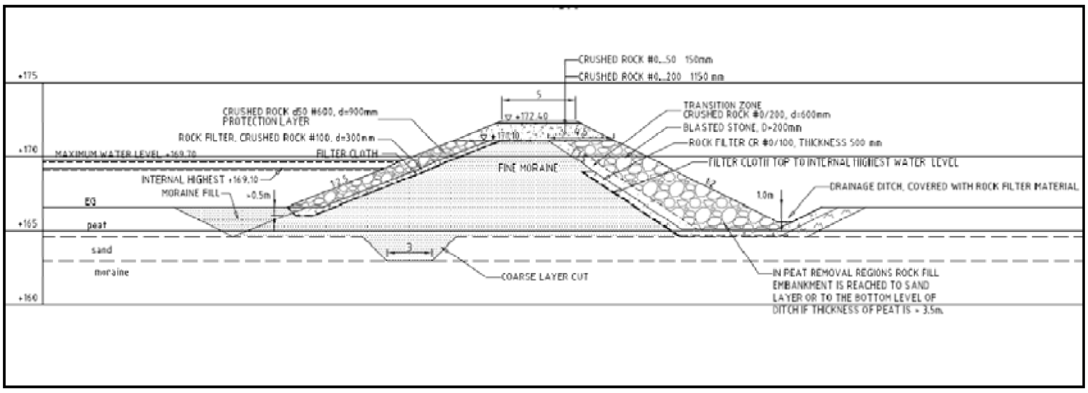

Figure 16-21: Typical section of process water pond dam

The length of the clarification pond dam is approximately 3 500m with a maximum height of 5.1m. An emergency spillway has also been installed to facilitate drainage from the pond.

Slope inclination on the downstream slope will be 1V:2H and on the upstream slope will be 1V:2.5H. The designed slope of the upstream face has been stipulated to ensure adequate stability is achieved in case of rapid water table drawdown from the HW-level.

The western embankments around the tailings area will consist of upstream raised waste rock and till embankments as per Figure 16-22 below:

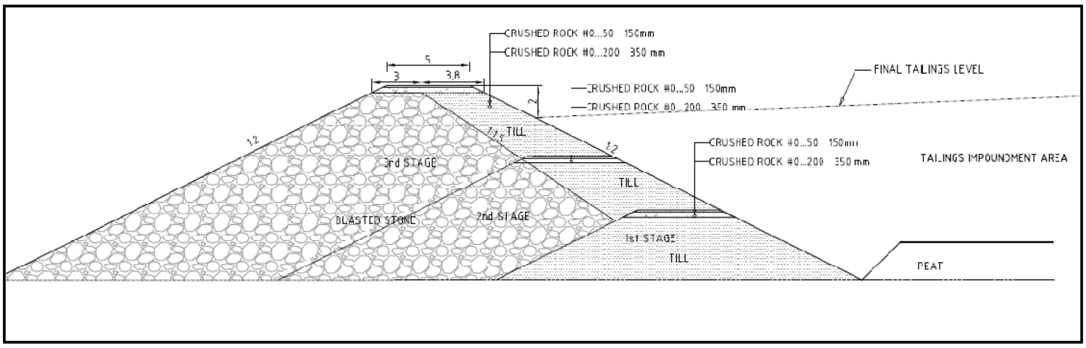

Figure 16-22: Typical section and sequential raises of western tailings embankment

16.5.7 *Stability calculations*

The dam stability of the clarification pond has been calculated for three cases:

1. Rapid drawdown;
2. Steady state seepage;
3. Extreme situation: phreatic line is determined assuming the dam is homogenous.

Stability calculations have been performed using the Slide software; Bishop Janbu circle shaped sliding surfaces. Results of stability analyses have confirmed that the factor of safety is adequate in all circumstances.

16.5.8 Seepage Calculations

Seepage calculations have been made in 2D cross sections, calculated with FEM software using average soil layer thicknesses and hydraulic conductivities. No liner installation has been considered at the base of the TMF.

There are thick, high permeability sand layers under the TMF that cannot be completely sealed. Thereby seepage through the sand layer is anticipated, which under normal circumstances would lead to internal erosion at the base of the TMF. A nominal layer of moraine has been included at the base of the TMF to prevent this occurrence.

16.5.9 TMF Closure Concept

A number of guiding closure principles have been worked out for the TMF as listed below:

- There will be no significant, physical off-site impacts.
- Baseline surface water quality in recipients will be maintained (unless directly physically affected).
- The established vegetative cover within the site shall be self-sustaining and with time show progression towards the surrounding undisturbed vegetation in terms of species diversity and plant density.
- The post-mining landforms will be stable and respond to erosive forces in a similar manner to equivalent landforms occurring naturally within the area (e.g. slopes, undulating hills).
- There will remain no unsafe areas where members of the public (or wildlife) could inadvartedly, or at least not without exceptional effort, gain access.
- Final landform designs will be similar to the existing regional landforms, within the constraints imposed by the physical nature of the materials and the additional cost necessary.

The end land uses for the areas are to be determined in consultation with stakeholders, and signed off with the administering authority during the life of the operations. Based on these assumptions a number of preferred alternatives have been established, which are outlined in the closure plan (Golder, 2010). The preferred alternative assumes that Tapuli tailings are deposited initially to form a base layer in the TMF. This is followed by combined tailings discharge for the duration of the life of Sahavaara operation. During the final years of the TMF only Tapuli tailings would be deposited. In this way the potentially acid forming Sahavaara tailings would be encapsulated (refer to Section 16.7.4 for more information on the geochemical characterisation of the tailings material).

16.5.10 Conclusions and Recommendations

The Kaunisvaara TMF has been designed as a CTD facility to overcome the environmental constraints presented by the selected site for development. This design assumes the tailings will be discharged from the central portion of the facility towards the outer perimeter. No water will be stored within the tailings portion of facility, with slurry water conveyed directly to the clarification pond.

The central discharge scheme could however involve different types of operational risks associated with winter operation. These risks are summarized as follows:

1. Slumping may occur within particular sections of the tailings beach due to freeze/thaw cycles throughout the year. This process will affect the overall beach angle, thus resulting in reduced capacity for tails storage. Higher containment embankments may be required as result of these local failures within the facility;
2. There may be difficulties in achieving the design beach angles, which could result in additional operational costs due to higher raises of TMF containment. The central discharge scheme may create problems with direction control of beach deposition. More dozer and other operational work may be required to control beach areas;
3. There could be issues regarding water return to the clarification pond in winter months due to freezing of the area conveying the water (ditches around the facility). A winter water return system should be designed to alleviate this issue.

The capital costs of the TMF were calculated assuming an optimum 4 % beach slope angle for capacity calculations. Should the tailings slope angle prove to be lower once production commences, then these costs could increase. This issue should therefore be examined further during detailed design.

The TMF should operate effectively as planned providing the overall design is further improved and field-fitted where necessary. In addition, a detailed construction management plan must be prepared for the commissioning and operational phase works of the project.

16.6 Waste Rock Dump

The primary waste rock dump storage facility at the Kaunisvaara mining operation includes two dumps: Tapuli and Sahavaara. The engineering design, including preliminary capital cost estimate (CAPEX) for the dumps has been performed by SRK Consulting (UK).

The waste rock dump storage facility was designed as part of the October 2010 study and has not been updated with recent changes to the mining schedule. That said, the current plan mines less waste than the October 2010 study and as it stands the current waste rock dump design and capacity criteria are therefore still valid and robust. Notwithstanding this, it is recognised that the waste rock dump storage facility aspects of the study may benefit from an update to match the current mining schedule and that this may result in certain cost savings. These are unlikely, however, to be material to the project as a whole.

The list of references used to obtain the information on the dump design is as follows:

- Arundon Mining Solutions. 2009. Tapuli Mine Pre-Operational Development and Life of Mine Dewatering Project. Report prepared for Northland Resources AB.
- EPA, 2002. Landfill Directive Regulatory Guidance Note 6.0 (Version 3.0 June 2002).Interpretation of The Engineering Requirements of Annex 1 of The Landfill Directive, UK Environmental Agency.

- Knight Piesold, 2008. Northland Resources Incorporated, Tapuli Mine Tailing and Waste Rock Management Facilities Conceptual Design Report.
- Lapin Vesitutkimus Oy (LVT), 2008. Stora Sahavaaran, Tapulin, Hannukaisen, Hautuvaaran Ja Äkäsjokisuun Alueiden Vesistöjen Perustilaselvity, for Northland Resources.
- SRK, 2009a. Mine Site Water Management Phase 1 Report – Stora Sahavaara Iron Ore Deposit, Sweden.
- SRK, 2009. Kaunisvaara Iron Ore Project Feasibility Study Waste Rock Dump Design, Phase 1 Report. Report Prepared for Northland Resources AB, December 2009.
- SRK, 2010a. Kaunisvaara Iron Ore Project, Interim ARDML Report. Prepared for Northland Resources AB.
- SRK, 2010b Kaunisvaara Iron Ore Project Feasibility Study Waste Rock Dump Design, Phase 3 Report. Report Prepared for Northland Resources AB, April 2010.
- SRK 2010c. Open Pit Water Management Feasibility Study for the Sahavaara Iron Ore Project, Sweden. Report prepared by SRK for Northland Resources AB, March 2010.
- SRK 2010d Tapuli and Sahavaara Mining Study. Report Prepared for Northland Resources AB, April 2010.
- SRK 2010e, Kaunisvaara Iron Ore Project Feasibility Study, Sweden Waste Rock Dump Design Phase 4 Report: Waste Rock Management Plan, June 2010.
- SRK 2010f, Kaunisvaara iron ore project feasibility study, Sweden waste rock dump design, Addendum Report. Report Prepared for Northland Resources AB. September 2010.

16.6.1 Waste Rock Dump Capacities

The total tonnage of the waste (soil and rock) to be stored, as based on the October 2010 study was calculated at 300Mt and 400Mt for the Tapuli and Sahavaara pits respectively. The recent update to the mining schedule shows that the total tonnage of (soil and rock) to be stored is calculated at 240Mt and 303Mt for the Tapuli and Sahavaara pits respectively, this being a reduction in 60Mt and 97Mt respectively. Table 16-5 shows the waste storage requirements for Tapuli and Sahavaara based on the updated mining schedule. As shown the current dump capacity is well in excess of the current requirements.

Table 16-5: Waste Storage Requirements for the Tapuli and Sahavaara Deposits.

Deposit	In-situ Waste Volume (m^3)	Weight (t)	Total Placed Volume (m^3)	Dump Capacity (75m high)
Tapuli	88,666,000	239,400,000	106,399,200	162,000,000
Sahavaara (~40% PAF and ~60% NAG)	112,148,000	302,800,000	134,577,600	179,000,000

These capacity calculations are based on a swell factor of 1.2, which represents the minimum acceptable bulking factor for placement of waste rock. As the waste rock dumps will be constructed on a greenfield site, it is not currently known what the exact bulking factor will be. SRK has estimated as a worst case scenario this could be as high as 1.32. Based on the updated mining schedule, both waste dumps have capacity to store the potential volume increase with no deficit being calculated for both dumps.SRK recommends that operating costs are adjusted according to the measured bulking factor as soon as the data is available.

16.6.2 Dump Design Criteria

The following waste dump design criteria is based on the October 2010 study. It is recommended that the design criteria be updated to match the current mining schedule.

The general dump parameters are as follows:

Tapuli WRD

- 2.69km^2 footprint surface area;
- 2,650m length;
- 1,515m width;
- two 7m lifts, two 10m lifts, one 20m lift and one 21m lift to a maximum height of 75m;
- overall slope angle of 18.4º (1V:3H) from toe to crest;
- operational bench slope angle of 33º (1V:1.5H);
- closure bench slope angle of 26.8º (1V:2H);

Sahavaara WRD

- 3.11 km2 footprint surface area;
- 2,830 m length;
- 1775 m width (maximum);

- two 7m lifts, two 10m lifts, one 20m lift and one 21m lift to a maximum height of 75m;
- overall slope angle of 18.4º (1V:3H) from toe to crest;
- operational bench slope angle of 33º (1V:1.5H);
- closure bench slope angle of 26º (1V:2H);

16.6.3 Geotechnical Site investigation

Details of the geotechnical site investigation are contained within the Phase 3 WRD report (SRK, 2010). This consisted of the following:

- Ground penetrating radar surveys were carried out in both the WRD areas, across a total of four transects totaling 7.4km length.
- Trial pitting was carried out at 40 locations (19 at Sahavaara and 21 at Tapuli). Pits were excavated to 5.0m depth or refusal using a 16T caterpillar excavator.
- Auger drilling was carried out at 18 locations using a three tonne track-mounted drill rig with 8.0cm diameter solid stem auger.

The site investigation also included an extensive laboratory program, which included peat and till strength and consolidation testing.

The results from the site investigation infer that both sites are predominantly underlain by Quaternary age decomposed, amorphous peat, which covers the majority of the low lying areas at both Sahavaara and Tapuli. This material is generally saturated year round and remains unfrozen during the winter months. During loading of the peat material by waste rock, the consolidation of the peat was noted to be high, being in the order of 30%.

16.6.4 Design of Dumps

Based upon observations of the behaviour of the peat substrate at similar operations in the region, Northland has requested SRK to devise adump development strategy that does not involve peat stripping around the specified zones, as outlined in the Kaunisvaara WRD Feasibility Report (SRK, 2010). Utilisation of this method, as outlined in the WRD Addendum Report (SRK, 2010f) will result in significant reduction of earthworks CAPEX during the early stages of the project.

Using a risk based approach, the consequences of small scale dump failures at the toe of the dumps have been considered and appropriate mitigation measures installed. SRK anticipates that without installation of the shear keys put forward in the original design (SRK, 2010), deformation and failure of the substrate immediately in front of the dump toes is likely to occur at Kaunisvaara where peat depths exceed 2.0m. It is therefore necessary to install appropriate design features at strategic positions to mitigate the risk of damage to structures immediately adjacent to the WRDs, such as the Tapuli clarification pond.

A further key design consideration will be the positioning of the perimeter drainage ditches and prevention of ditch collapse due to deformation of the peat horizon at the toe of the dumps. SRK anticipates that peat heave will occur around significant portions of the dump where peat depths exceed 2.0m. Without the peat stripping and shear key installation, measures outlined in the Phase 4 report, additional monitoring and foundation preparation measures shall have to be instigated to ensure the original design requirements for safe operation are achieved (these are summarised below). A minimum offset of 10m should be applied between the toe of the dumps and the edge of the perimeter ditch.

WRD Perimeter Berm

During mining operations and concurrent with the advancing lifts in the centre of the dumps, waste rock will be used to construct an end-dumped, 3m high berm around and on the inside of the dump perimeters. This berm will protect the drainage ditch from spreading peat deformation, which might result in a breach of the ditch construction. The perimeter berm will be constructed to allow for traffic of light and heavy duty machinery and permit access to the peripheral areas of the WRD. The positioning of berm installations shall be decided by the resident geotechnical engineer.

Dump Construction Sequence

After deposition of the 3m waste rock horizon around particular sections of both dump perimeters, the first entire lift will be built up to 7m. Rock dump construction shall progress from a central core, with waste rock being progressively dumped outwards from a number of active fronts. This method relies upon the inherent strength of the existing waste rock pile to prevent rotational failure of material through the foundations at the toe of the dump. A constant supply of good quality solid rock waste is therefore necessary.

This will commence at Tapuli after 9 months of operations when sufficient volumes of waste rock are available for construction. Following on from this, one 7m lift and two subsequent 10m lifts of waste rock will be deposited as per Figure 16-23. These lifts will be built as part of the normal WRD progression. A 10m wide catch bench will be constructed and left at the toe of each level. Haul road construction will be required across zones of marshland previously identified (SRK, 2010), however run-of-mine waste rock will be utilized for this process, which will be included in the operational expenditure.

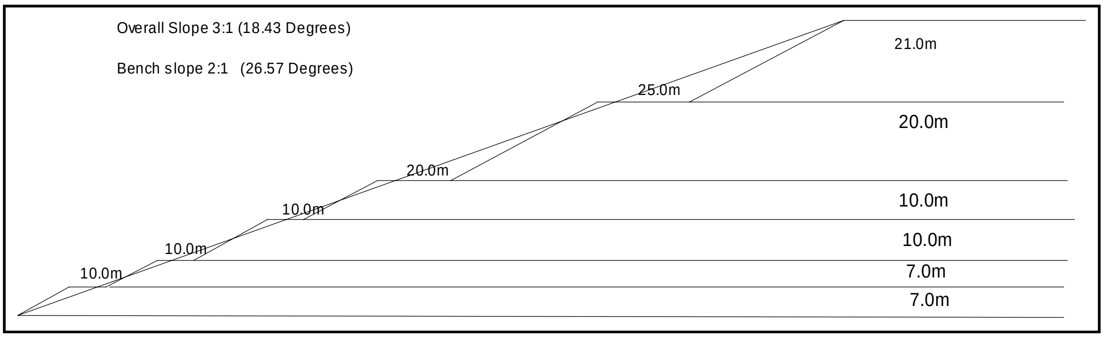

Figure 16-23: Final dump landform geometry – Tapuli and Sahavaara WRDs

At completion of the first 4 lifts, reaching a total height of approximately 34m, two additional lifts will be constructed, one 20m in height and the final 21m in height. A 20m and a 25m wide catch bench will be constructed at the toe of each level as per Figure 16-23 above.

The final two lifts will be constructed to accept the remaining waste rock volumes and therefore the height may be variable. SRK recommends the final run of mine waste rock is dumped towards the centre of the dump to promote shedding from the centre.

PAF Pad Construction

The waste rock produced in Sahavaara during the planned life of mine will be 400Mt in total, of which 154Mt is potentially acid forming based on geochemical characterisation undertaken by SRK. To prevent contact between the PAF material and the underlying substrate within the WRD area, the PAF material will not be placed directly on peat. Instead, this material will be buffered from the ground surface by a minimum 3m lift of benign waste rock. The material will be segregated into two cells in the middle of the dump, separated by the Sahavaara ramp road and located immediately to north and to the south of the rock-fill road, respectively. This 3m base of non acid forming waste rock will diminish contact with a fluctuating water table at the base of the dump. The PAF-material encountered before the ramp road has been completed into the central parts of the dump will be temporarily stored inside the pit area.

The storage method will be the blended core option, schematically illustrated in Figure 16-24. This method, which includes synchronous dumping of non-acid forming material, will prevent concentration of PAF material in the core, also maximises neutralisation of acidic fluids and attenuation of mobilised metals. Simultaneously as the core rises, the sides of it will be covered with moraine to prevent air intrusion and the subsequent oxidation of metals.

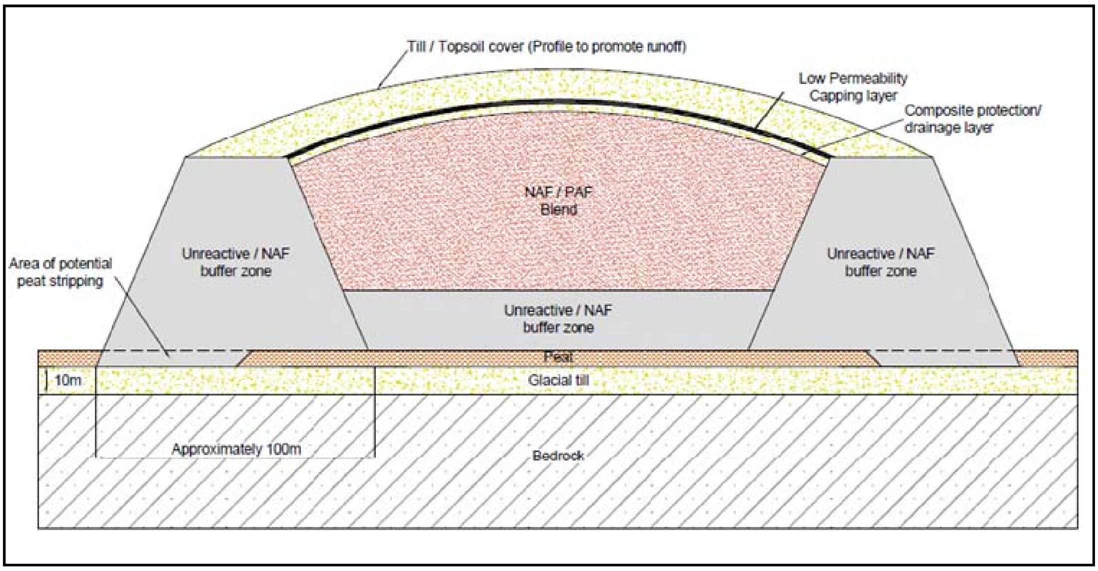

Figure 16-24: Blended Core Storage Method – Sahavaara PAF cell, schematic outline

16.6.5 Conclusions and Recommendations

- The geotechnical site investigation and laboratory testing for both dumps was adequate for feasibility level of foundation characterization; data from these was used to for stability analysis of the dumps under a variety of lift height and slope angle scenarios.
- The dump configuration outlined in Figure 16-23 above is reasonable and has been determined based upon stability analysis using (SlopeW) software.
- The ongoing kinetic geochemical testing for the ARD potential of the waste rock may lead to the requirement for an alternative encapsulation strategy at Sahavaara (Section 16.7.4). This data should be reviewed when available and incorporated at detailed design stage.
- The Sahavaara dump may require additional raises depending on the final volumes of the waste rock. This raise is likely to be insignificant and can potentially be accommodated by surplus capacity at the Tapuli WRD. Alternatively, the final dump height could be raised to safely accommodate this material.
- There is a likelihood of increased operational costs for the maintenance of the perimeter ditches and drainage around the toe of the dumps. Removal of peat stripping measures and shear keys from the original feasibility design has resulted in an increased likelihood of peat failure at the toe of the dumps, which could encroach upon the excavated ditches. Increased OPEX may occur associated with remediation of the drainage ditches in these zones. Northland has accepted these cost implications which will be covered by the OPEX contingency budget.
- SRK has put forward specific monitoring measures to ensure peat deformation and slope failures are minimised throughout the operational phase of the dumps (SRK, 2010e), these should be observed at all times to ensure that operations are not compromised by potential localised peat failures and the OPEX remains within the cost model contingency.

16.7 Environmental Management

This section highlights the key issues identified in the Environmental and Social Impact Assessment (ESIA) chapter of the Feasibility Study, which was prepared by ERM. SRK's comment on the status of these issues is given along with an indication of whether any of the issues are considered material to the project and how the issues are being managed.

A number of studies have been undertaken by various organizations to characterize and understand the environmental and social setting of the project and evaluate the impacts likely to arise from project activities. A full list of the studies undertaken and who undertook them is given at the start of the ESIA Feasibility Study chapter, with the key studies being:

- Environmental Impact Assessment (in Swedish: Miljökonsekvensbeskrivning or MKB) for Tapuli environmental permit application;
- MKB for the Sahavaara exploitation concession application (ECA);

- MKB for the Sahavaara environmental permit application;
- Social Impact Assessment (Socialkonsekvensbeskrivning or SKB) for Muonio Village;
- SKB for Sahavaara Village;
- Land and Water Access Plan relating to resettlement and land acquisition (September 2010, latest update May 2011);
- External Communication Procedure including grievance mechanism (September 2010); and
- Closure Plan for Tapuli and Sahavaara (August 2010).

16.7.1 Swedish regulatory requirements

Environmental approval is granted in accordance with the Environmental Code (1998:808). The Code regulates areas of national interest (this includes reindeer herding and mineral deposits, both of which have relevance to this project), stipulates general requirements for environmental impact assessments and enables European Directives to be incorporated into Swedish law. The ESIA chapter summarizes the legal requirements and provides information on the status of the various environmental and mining permits. A summary of the permit status is given in Table 16-6.

Swedish law currently requires the project proponent to undertake environmental (and social) assessment at two different stages of the project development. The first MKB is produced when applying for an exploitation concession under the terms of the Minerals Act (1194:45) from the Mining Inspectorate of Sweden (Bergsstaten). Although the exploitation concession follows the Minerals Act, the accompanying MKB is performed according to the requirements of the Environmental Code (1998:808). The emphasis of this MKB is on showing there is no obvious conflict with the surrounding land uses and the assessment is based on early project design information. Stakeholder consultation is required and the Länstyrelsen (local environmental authority) will provide comment on the MKB. Approval of the exploitation concession is required prior to submitting an application for the environmental permit to mine to the Environmental Court (Miljödomstol).

The environmental permit application, under the terms of the Environment Code (1998:808), also requires an MKB, which is based on a more defined project description than the MKB prepared for the exploitation concession application. The Environment Code indicates such applications would normally be evaluated by the Swedish Environmental Court with input from various regulatory authorities, most notably Länstyrelsen. Stakeholder consultation is required during the application process.

In the case of the Tapuli application, the Environmental Court determined the application should be processed by the Swedish-Finnish Border River Commission (Finsk-svenska gränsälvskommissionen or GÄK) because of potential impacts on the Muonio River, which forms the border between Sweden and Finland. The Environmental Court considered the scale of potential impacts to the Muonio River from the Project such that the GÄK was the appropriate regulatory authority. However, subsequently the border river agreement has changed, and in the future GÄK, upon request from the Environmental Court, will assess impacts to the river and produce a statement that will be considered by the Environmental Court when evaluating the Sahavaara application.

In February 2011, to expedite the permit process the Environmental Court requested the Sahavaara application be separated into two parts: 1) aspects concering the mine, WRD, associated infrastructure and the transport corridor to the Kaunisvaara Mill. 2) changes to Kaunisvaara mill, such as the flotation process line, to the TMF, water balance, etc. Northland complied, submitting the amended permit application in mid Mar, 2011.

Following changes in Best Practice for mine permitting in Sweden during March 2011 and following discussions with the County Administration Board, Northland developed a single permit application covering all operations at Tapuli, Kaunisvaara Mill and Sahavaara. A single application will encapsulate all aspects, impacts and effects of the whole operations, and is more likely to be accepted by the Swedish EPA and/or CAB. The result will be a single permit for Northland’s operations at or around Kaunisvaara.

The existing permit for Tapuli Mine & Kaunisvaara Mill remains valid during this process.

Both the environmental permit to mine and the relevant construction permits have to be obtained prior to construction. Construction of buildings requires a Construction Permit (Bygglov) from the relevant municipality under the terms of the Planning and Building Act 1987:10). A proponent applies for a Construction Permit from the Municipality, and for mining activities the environmental permit to mine, granted by the Environmental Court, must accompany the application. Site preparation, such as roads, clearing, etc, can start upon granting of the environmental permit and do not need additional permitting.

Table 16-6: Permit status as of September 2010

Permit status	Tapuli	Sahavaara
Exploitation concession application	• March 2008 to the Mining Inspectorate of Sweden (Bergsstaten) • Granted on the 20th November 2008 by Bergsstaten	• November 2009 to the Bergsstaten • Q1 2010 Northland requested to undertake a Social Impact Assessment (SKB) for Kaunisvaara and Sahavaara villages, the Muonio Sameby (Sami reindeer reserve) and a regional macro-economic assessment • Granted on 28th October 2010 (subject to appeal)
Environmental permit application	• April 2009 the environmental impact assessment (MKB) is submitted to the Environmental Court (Miljödomstol or MD) • May 2009 decision made by MD that the Swedish-Finnish Border River Commission (Finsk-svenska gränsälvskommissionen or GÄK) will act as the relevant authority for approval of the Mine Permit rather than Lanstyrelsen (Local Authority) • June 2009 the MKB is submitted to GÄK • October 2009 an amendment to the MKB is submitted to GÄK for the pipeline dewatering and rail load out station • Public Hearing took place on 25 May 2010 • Granted on the 20th August 2010 by GÄK	• Submitted 4Q 2010 (Water rights secured) • Expected 1Q 2012 (12-18 months from submission. Requests for reformatting of application by authorities may delay process)
Construction permit	• Building permits submitted to the local authority January 2011. • Building permits granted end 1Q 2011 • Revised Tapuli detailed plan (Pajala municipality) expected to be approved 3Q 2011	• Not applicable as no major buildings at Sahavaara
Submitted		
Granted		

A detailed plan covering the proposed activity and the socio-geographic area in which the activity takes place needs to be developed by the Municipality to ensure the activity, in this case mining, is suitable for the proposed location. This provides the legal basis for activities and developments to occur in specific areas. An MKB of limited scope is prepared by the municipality for the detailed plan and submitted to Länstyrelsen. The project proponent may be requested to submit information in support the development of the detailed plan.

16.7.2 Status of land and water access rights

Critical to obtaining approval to mine is confirmation of right of access to water and land. Water rights for those areas directly impacted by drawdown of water from the pits must be obtained prior to submission of the environmental permit application, whilst land access rights must be obtained before construction commences.

Northland has developed and documented a Land and Water Access Plan (LWAP) to document the process by which land and water rights will be obtained. This is being regularly updated with the latest version available for review dated September 2010 (the latest update to the LWAP was May 2011, though this has not been reviewed by SRK). The plan includes budget estimates for purchase and or lease of the relevant land. There are no permanent or temporary residences in the Tapuli area but a significant part of the Sahavaara village will be affected. The LWAP indicates the status of the five key areas where land negotiations are required; these are summarised below. In addition, Northland is considering:

- community compensation (in the form of community development) for Sahavaara as others in the community will be indirectly affected by mining activities; and
- compensation to the reindeer herders for disturbance to herding practices, grazing areas and migration routes.
- Tapuli central area (includes mine pit, waste rock dump, Kaunsivaara industrial area and tailings management facility). All water and land agreements are in place.
- Tapuli buffer zone (1 km zone around the central area designated to facilitate community health and safety protection – land owners may have limited access for certain activities). Negotiations have commenced with the land owners and most of the land in question is owned by the same landowners as the Central area so the owners will be familiar with the negotiation process. Affected areas have been identified and preliminary budget estimates for land acquisition prepared. Agreements are in place for most of the land, mostly to the west of the pit. Some agreements remain to be finalised, mostly for land to the north of the pit.
- Sahavaara central zone (includes mine pit and waste rock dump). Northland has a strategy in place to obtain both water and land access to these areas (refer to the LWAP). Landowners have been consulted and negotiations initiated. Water rights were obtained prior to submission of the environmental permit application. Land rights are only required before construction commences, which is scheduled for 2013.
- Sahavaara buffer zone (1 km zone around the central area designated to facilitate community health and safety protection – land owners may have limited access for

certain activities). The land portions required and the current land uses have been identified in the LWAP and the landowners consulted. Northland has identified three levels of compensation for these properties depending on whether there are: permanently occupied dwellings; temporarily occupied dwellings (holiday homes); and/or land/forest. The compensation strategy's aim is to compensate affected parties in such a way that they will be able to acquire similar properties in a radius that extends to and includes Pajala town. Although agreements are not required until at least 2013, the resettlement process is likely to take a significant amount of time so needs to be formally initiated as soon as practicable, with written records kept of each meeting/discussion (including telephone communications). Northland has concluded three home purchase agreements, out of a required fifteen permanent residents. There is a moderate risk that the scale and significance of relocation required may lead to delays in obtaining both regulatory approval to commence construction, as well as the project's 'social licence to operate' from the community (discussed further below).

- Servitudes for supporting infrastructures such as pipelines, roads and the water supply/discharge pump station. As pipelines will be buried, significant disturbance is not expected and Northland has indicated that only a once off servitude payment is likely be required. The pump station may require land purchase of approximately 1 ha. Landowners along the route have been consulted but as the route has not yet been finalised, formal negotiations have not yet been initiated. Budget estimates for these servitudes have been prepared.

16.7.3 Comparison with international guidelines and standards

Although a detailed review of the MKBs was not undertaken by SRK as the main report and supporting documents were in Swedish (an English language is now available, though SRK has not reviewed this), an English translation of the Tapuli MKB was reviewed along with other documents available in English. This review indicates the environmental and social assessment process undertaken is broadly compliant with the Equator Principles that are applicable to projects in high income OECD countries (Table 16-7).

Table 16-7: Equator Principle compliance

Principle	Status of Kaunisvaara Project
EP1: Review and categorisation - Categorise the risk of a project based on the environmental and social screening criteria of the International Finance Corporation (IFC)	According to the IFC criteria, the project would be Category A as it has potentially significant adverse social or environmental impacts that are diverse, irreversible or unprecedented. Under the European Union EIA Directive, which underlies Swedish legislation, the project fall under Annex I and as such also requires the completion of detailed impact assessment.
EP2: Social and environmental assessment - For Category A projects, complete a social and environmental assessment process to address relevant impacts and risks of the project. Propose mitigation and management measures relevant and appropriate to the nature and scale of the project.	Impacts have been identified in the MKBs prepared for Tapuli and Sahavaara. Mitigation measures for negative impacts have been proposed. The MKB's include a brief project description, a description of the pre-mining project setting, an evaluation of alternatives, identification of impacts and proposal of mitigation measures. Stakeholder consultation was a fundamental part of the process.
EP 3: Applicable social and environmental standards – the assessment will be in compliance with local law as the project is located in a high income OECD country.	For high income OECD countries this Principles states that compliance with host country legal and regulatory requirements is considered sufficient to indicate compliance. The Tapuli environmental permit has been approved so the host country requirements are assumed to be satisfied. Sahavaara's exploitation concession application is still pending however, based on the documentation reviewed and discussions with Northland personnel, SRK has no reason to believe the permits will be not be granted subject to reasonable conditions.
EP 7: Independent Review - An independent social and/or environmental expert not directly associated with the borrower will review the project to assess for Equator Principles compliance.	As funding is being sought from an Equator Principles financial institution, independent review is currently underway.
EP 8: Covenants - The borrower will covenant in financing documentation: a) to comply with all relevant host country social and environmental laws, regulations and permits in all material respects; b) not yet applicable; c) not yet applicable; and d) to decommission the facilities, where applicable and appropriate, in accordance with an agreed decommissioning plan.	Northland has made commitments in its policy statement to comply with or exceed host country legal requirements and to close the mine in a responsible manner. A closure plan has been prepared and costs estimated for inclusion in the financial model (Section 16.8).
EP 9: Independent Monitoring and Reporting - Independent monitoring of compliance during the life of the project	Not yet applicable.

16.7.4 *Key environmental and social issues*

The ESIA Feasibility Chapter identified the key issues for the project. These are summarized below with the exception of mine closure and rehabilitation, which is discussed in Section 16.8. SRK's review of available documentation has not identified any further issues likely to be material to the project.

Water management

Extensive hydrological, hydrogeological and geochemical studies have been undertaken to characterize the baseline environment and predict likely impacts. It is predicted that during the first eight years, water may be required from the Muonio river system, with the demand representing less than 1% of the river's natural flow. For the majority of the mine life, a discharge is likely to be required, particularly during the annual snowmelt period. The discharge is expected to represent 0.1% of the rivers flow and the effluent will be treated to meet agreed quality standards. With the commitments made by Northland (and imposed on it in the environmental permit), these impacts are not expected to pose a significant risk to the project.

Geochemical tests indicate that some of the material taken from the Sahavaara pit has the potential to generate acid. This material will report to both the waste rock dump and the tailings storage facility (following processing), as well as remain in the pit wall. Northland proposes to manage these risks by:

- developing the waste rock dump in such a way that the potential acid generating waste rock is encapsulated within buffer material also taken from the pit; and
- constructing the tailings storage facility so that Tapuli tailings are deposited first, followed by blended Tapuli and Sahavaara tailings, and finally an overlay of at least 2 to 3 meters Tapuli tailings, which contain high levels of buffering material.

SRK has undertaken the geochemical characterization of the waste rock (SRK, 2010a) some of which is still ongoing and designed the waste rock dump. SRK has also undertaken numerical modeling to predict seepage water quality for the waste rock dumps. In addition, it reviewed the geochemical characterization of the tailings test work undertaken by Eriksson, (2010), which is also ongoing.

The current status of the waste rock characterization test work and source term modeling is described here. The Tapuli waste rock has bulk non-acid forming characteristics and shows only minor potential to leach potentially problematic elements. The Sahavaara waste rock has bulk potentially acid forming characteristics and has some potential to leach potentially problematic elements. Although these predictions have been provisionally quantified through numerical modeling of initial humidity cell testwork results, humidity cell testing is ongoing and revisions to the modeling will be made on completion of this work. It is anticipated that the testwork will be complete by the end of June 2011. The following is a summary of ongoing work:

- humidity cell testing of samples of potentially acid forming and non-acid forming waste rock material from the Sahavaara and Tapuli pits;
- attenuation testwork to determine the potential of peat and till material underlying the Sahavaara and Tapuli waste rock dumps to remove potential contaminates from solution; and
- revision of source term seepage water quality predictions on completion of ongoing testwork.

The current status of the tailings characterization test work indicates:

- Tapuli combined pilot tailings are not acid forming and the humidity cell test has been terminated after reaching steady state conditions at 40 weeks;
- humidity cell testing of the potentially acid forming Sahavaara tails and the composite tailings (Tapuli and Sahavaara) is ongoing - of these only the high sulfur Sahavaara tails had produced acidic leachates after 23 weeks and is therefore confirmed as potentially acid forming;
- the Sahavaara low sulfur and Sahavaara and Tapuli composite tailings samples were producing near neutral pH leachates after 23 to 25 weeks, respectively (Eriksson, 2010), and these test are ongoing to confirm their acid generating potential;
- additional testwork is planned when mill production starts. This will include lab and site tests focusing on the combined Tapuli + Sahavaara as well as the high sulfur tailings to confirm their acid generating capacity and to confirm the future deposition strategy for these materials. .

SRK considers the current predictions regarding the tailings facility sound, based on the available information.

Natural mitigation of any seepage from the waste rock dump and tailings storage facility is provided by the adsorption properties of the underlying peat and the low hydraulic conductivity of the peat and till. During operation the pit will act as a groundwater discharge zone drawing any affected seepage towards it. At closure, groundwater levels are expected to be close to the surface so potentially acid generating lithologies in the pit wall will be covered thus reducing the likelihood of oxidation and acid generation.

Geochemical test work has a moderate level of uncertainty and as such there is a potential the impacts could be worse than currently predicted. This results in a risk that more expensive closure options will need to be considered. If a top or bottom cover with a synthetic liner or long term treatment of leachate is required, these could result in potentially material costs either as upfront capital or at closure. To manage these risks, Northland has committed to confirmatory geochemical studies and monitoring throughout construction and into operation to enable it to determine if the initial predictions are accurate. The closure plan (Section 16.8) may need to be revised based on the results of these investigations.

Nature conservation and biodiversity

The MKB's have identified a number of impacts on nature conservation and biodiversity. Although much of the project land (dominated by marshland or forestry) has undergone modification due to anthropogenic actions over a long period of time (notably forestry, draining and ditching, and small-scale agriculture), the scale and nature of the human impacts to the area do not adversely affect the lands ability to continue to support natural biodiversity, with the possible exception of the eutrophicated Kaunisvaara Lake.

The project is located within 10 km of five Natura 2000 sites (protected in terms of EU and Swedish legislation), though only the Torne/Kalix/Muonio river system is likely to be indirectly affected by the project (discharge of effluent into the Muonio). None of the qualifying species of these Natura 2000 sites were identified within project affected footprints, though otter spoor was recorded along the Kaunisjoki River just south of the project area.

Identified impacts include: direct loss of habitat (some marshland hosting small populations of protected species such as orchids); habitat fragmentation (fences blocking movement of large terrestrial mammals – see impact on reindeer herding below); changes to aquatic ecosystems such as reduction in flow from loss of catchment and the risk of changes in quality due to direct and indirect discharges not meeting stipulated standards; disturbance from noise, vibration and air quality; and road kills. The pre-disturbance environment has been well characterized and the impacts clearly identified, with management plans in place where necessary.

Changes to the socio-economic setting of the project area

The project will bring clear economic benefits to the area, including direct and indirect employment opportunities, taxes and revenue for the public sector (ideally resulting in improved services), increased availability of goods and services, and a reversal of the demographic decline and trend for young people to move away in search of employment. These benefits will be felt mainly by the Pajala municipality and local people and businesses. However, these benefits are partially offset by a number of negative impacts, which will be felt predominantly by the local villages of Kaunsivaara and Sahavaara.

Stakeholder consultation showed that attachment to the land and emotional connections to the community is strong, therefore resettlement in Sahavaara village is likely to have a significant impact. As well as the use of land for forestry and hunting, residents emphasized the importance of recreational activities including berry picking, fishing, sledding and small scale hunting. The close sense of community currently held by the residents of Sahavaara will change as a result of:

- some community members being obliged to move away from the area to find suitable alternative accommodation;
- new residents coming into the community as a result of increase job opportunities; and
- the industrial nature of mining in comparison to the current agricultural and forestry lifestyle.

Northland has recognised that these negative impacts need to be managed sensitively to ensure it receives its ‘social licence to operate’ and it is proposing a number of measures to minimize the negative impacts and optimize the positive impacts, notably including:

- communication, grievance and land acquisition plans are already in place and being utilized;

- dedicated environmental and social teams have been appointed to manage identified impacts and communicate with local communities; and
- identifying responsible and appropriate corporate social investment opportunities to bolster local social activities and networking opportunities.

Sameby reindeer herders

The Sámi are internationally recognised as Indigenous People and are spread across northern Europe and into Russia. The Reindeer Herding Act of 1971 organised the Sami into groups called Samebys. The project lies within the Muonio Concession Sameby, which has eight active reindeer herders with reindeer owned by both Sami and non-Sami (the latter being herded by the Sámi in the Sameby. The concession is permitted to have 3,900 reindeer (at the start of 2010 there were 2840 reindeer in the concession) and is managed by a board that meets annually. The current concession expires at the end of 2010 and negotiations for a new concession are underway. It is understood that no sites of significant cultural importance to the Sámi will be directly affected by the project.

The project will reduce land available to the Sameby by approximately 1%, with the majority of land take affecting grazing areas, though Tapuli pit and part of the industrial zone lie on the eastern edge of the an important comfort zone used for spring grazing and calving area. In addition, the Sámi have expressed concern over the location of the Sahavaara waste rock dump, which lies adjacent to an area of good grazing.

Negative impacts on reindeer associated with noise, vibration and dust are poorly understood. Northland is actively engaging with the Sameby and a number of mitigation and/or compensation measures are being considered. To date the Muonio Sameby has expressed support for the project, albeit with some reservations as noted above. Although, no objections have yet been raised by the Sameby, other mining projects in Sweden have been subject to delays caused by objections from the Sámi population. Therefore moderate project risks exist relating to possible delays arising from appeals to the Sahavaara permit application or poor public relations.

Transport options

The Tapuli permit application reflects the original transport option using rail to transport the concentrate to a port in Finland. The current preferred option is now a combined road/rail transport route to a port in Norway. The implications of this recent change in the project description will need to be discussed with the relevant regulatory authorities. No additional permits are reportedly required. However, Northland is engaged with Trafikverket to get dispensation to use a truck size larger than that currently allowed on the road. The reason for this is to lower transport costs per unit of concentrate, and reduce the environmental and social impacts by reducing the number of trucks required to transport the magnetite concentrate.

It is understood that the road between Kaunsivaara and Svappavaara is an existing high capacity road and approximately 240 truck trips per day will be required (approximately 10 trucks per hour). This results in an increase of between 10% and 60% of existing traffic movements. The current road passes through a number of small villages where impacts associated with noise, vibrations, dust and the physical occupation of road constituting obstacles for other traffic. It is understood that the predicted truck frequency is based on the use of 'road trains' (truck with two trailers attached). If such trucks are not approved by the Swedish road authorities then the frequency of truck movements would increase due the use of smaller trucks.

This recent change in project description gives rise to the following project risks relating to environmental and social issues:

- delay in project implementation due to the need for additional studies and truck dispensation process; and
- schedule delays and additional costs associated stakeholder objections to any bypasses or if unacceptably significant impacts are identified for a specific receptor (it is understood that Trafikverket remain solely responsible for any road upgrades, by-passes, etc. so direct costs and delays are unlikely).

Northland is undertaking the additional studies needed to characterize the likely impacts and associated mitigation measures required to implement this transport option. The evaluation will reportedly focus on road transport as the impacts associated with the use of trucks is expected to be significantly higher than those associated with rail and the use of the port.

16.7.5 Conclusion

- Northland has undertaken a comprehensive environmental and social impact assessment process for both mines and the Kaunisvaara processing site and tailings storage facility. The recent change in the preferred ore transport option requires additional environmental and social impact assessments to be undertaken.
- No environmental and social fatal flaws have been identified but a number of issues exist that will need to be evaluated proactively to ensure material costs are not realized, in particular: acid rock drainage potential associated with some of the Sahavaara mine waste rock and tailings; disposal; impacts on ecologically protected areas; resettlement and land acquisition; changes to the transport option; and relationships with the local Sámi who are the Sameby concession holders.
- Northland has appointed a suitably qualified team to manage identified impacts and is in the process of developing environmental, social and health and safety management systems to facilitate the implementation of identified management measures.
- The necessary permits have either been obtained or there is a strategy in place to obtain these. There is a risk of the Sahavaara environmental permit application submission being delayed due to requests by the Environmental Court for reformatting the application in line with changes in permitting practice subsequent to the submittal of the application.

16.8 Mine Closure

Implementation of the EU Directive relating to wastes from extractive industries (Directive 2006/21/EC) into Swedish law has resulted in the requirement for mine operators to submit a preliminary plan for closure with the environmental permit application (Section 16.7.1). This closure plan and the associated costs will be approved by the Environmental Court. The operator must then make provision for a financial guarantee to cover the reclamation costs should it not be able to fulfil its duties. The guarantee is required for the actual area of land affected and is linked to the mine schedule. During operation, the actual disturbance will be reported to the authorities and the increase in the closure provision will be determined accordingly. If progressive rehabilitation is undertaken, the cost for this can be withdrawn from the bond upon acceptance by the regulatory authority appointed by the Environmental Court. The closure costs and associated bond will be reviewed when the closure plan is reviewed i.e. at least once every three years.

A closure plan has been prepared by Hifab and updated by Golder Associates for Tapuli and Sahavaara mining operations, the Kaunisvaara industrial area and the tailings management facility. The plan indicates: the general closure objectives and guidelines relevant to the project; the natural setting and pre-mining conditions; the alternative closure options for each type of facility; and the preferred closure strategy for each facility. Risk and uncertainties have also been identified, along with a schedule for closure implementation. SRK considers that the closure plan is appropriate for this stage in the project development. As committed to by Northland, this will need to be reviewed as the project is implemented and additional monitoring information becomes available.

Closure costs were derived based on the preferred closure plan and known costs from previous mine reclamation calculations. Northland has committed to reviewing these regularly (at least every three years). SRK considers that the closure costs, summarised below, are adequate subject to ongoing review, in particular with respect to the risk items discussed in Section 16.7.4.

Table 16-8: Summary of closure costs

Project area	Facility	Total closure provision in SEK (as of end of life of mine)
Tapuli	Pit	67 073 350
	WRD	
	Primary crusher	
	Conveyor	
	Road	
	Till and peat storage	
	Post closure care and monitoring	
Sahavaara	Pit	95 139 276
	WRD – non- acid generating	
	WRD – potentially acid generating	
	Crushers	
	Conveyor	
	Road	
	Till and peat storage	
	Post closure care and monitoring	
Kaunisvaara	Industrial area	33 338 750
	Process water pond	
Tailings management facility	Tailings facility	26 520 000
	Clarification pond	
Total		222 071 376

16.9 Economic Analysis

16.9.1 *Introduction*

SRK has constructed a Technical Economic Model (TEM) to derive a Net Present Value (NPV) for the Kaunisvaara project. The TEM is based on the technical assumptions developed as part of the Feasibility Study, as commented on in the previous sections of this report.

16.9.2 *Valuation Process*

General Assumptions

The model is based on production from two open pit mines (Tapuli and Shavaara), feeding two process streams with a combined maximum annual throughput of 12Mtpa and housed within a single processing plant. The plant produces a magnetite concentrate of 69% Fe, which is transported by a road and rail from the Kaunisvaara site to the port of Narvik, Norway.

SRK has constructed a pre-tax and pre-finance TEM. The valuation currency is USD, with any SEK or EUR derived costs being converted as follows:

- SEK:USD exchange rate of 8.125:1 for operating costs;
- SEK:USD exchange rate of 6.57:1 for capital costs; and
- EUR:USD exchange rate of 0.7813:1.

The model assumes a base case discount rate of 8% and has been produced in Real Terms.

Commodity Price Assumptions

Table 16-9 below presents the iron ore price forecast for the life of mine. Commodity price forecast data was provided to SRK by Northland. Northland developed this forecast internally, based on an independent third party report by Raw Materials Group (RMG) and public domain dry bulk shipping cost forecast data.

Table 16-9: Iron Ore Price Forecast over the life of mine, as provided by Northland

Description	Units	Total
Year		
2010	(US c / dmtu)	284
2011	(US c / dmtu)	261
2012	(US c / dmtu)	244
2013	(US c / dmtu)	229
2014	(US c / dmtu)	213
2015	(US c / dmtu)	206
2025	(US c / dmtu)	198
2030	(US c / dmtu)	191

Mining Physical Assumptions

A summary of the mass movement of material from each pit is presented in Table 16-10 below. Figure 16-25 illustrates combined ore and waste tonnages mined and strip ratios over the life of mine.

Table 16-10: Kaunisvaara RoM Ore and Waste

Description	Units	Life Of Mine Totals
Tapuli		
Mass Ore Mined	(Tonnes)	94 517 000
Grade Ore (insitu)	(% Fe)	26.31%
Grade Ore (insitu)	(% S)	0.22%
Grade Ore (diluted)	(% Fe)	94 517 000
Mass Waste Mined	(Tonnes)	239 385 000
Total Mass Mined	(Tonnes)	333 902 000
Strip Ratio	(W:O)	2.53
Overburden Volume	Bank M3	12 740 000
Sahavaara		
Mass Ore Mined	(Tonnes)	70 322 000
Grade Ore (insitu)	(% Fe)	41.38%
Grade Ore (insitu)	(% S)	2.18%
Grade Ore (diluted)	(% Fe)	39.31%
Mass Waste Mined	(Tonnes)	302 788 000
Total Mass Mined	(Tonnes)	373 110 000
Strip Ratio	(W:O)	4.31
Overburden Volume	Bank M3	7 728 000
Combined		
Mass Ore Mined	(Tonnes)	164 839 000
Grade Ore (insitu)	(% Fe)	32.74%
Grade Ore (insitu)	(% S)	1.06%
Grade Ore (diluted)	(% Fe)	
Mass Waste Mined	(Tonnes)	31.10%
Total Mass Mined	(Tonnes)	542 173 000
Strip Ratio	(W:O)	707 012 000
Overburden Volume	Bank M3	3.29

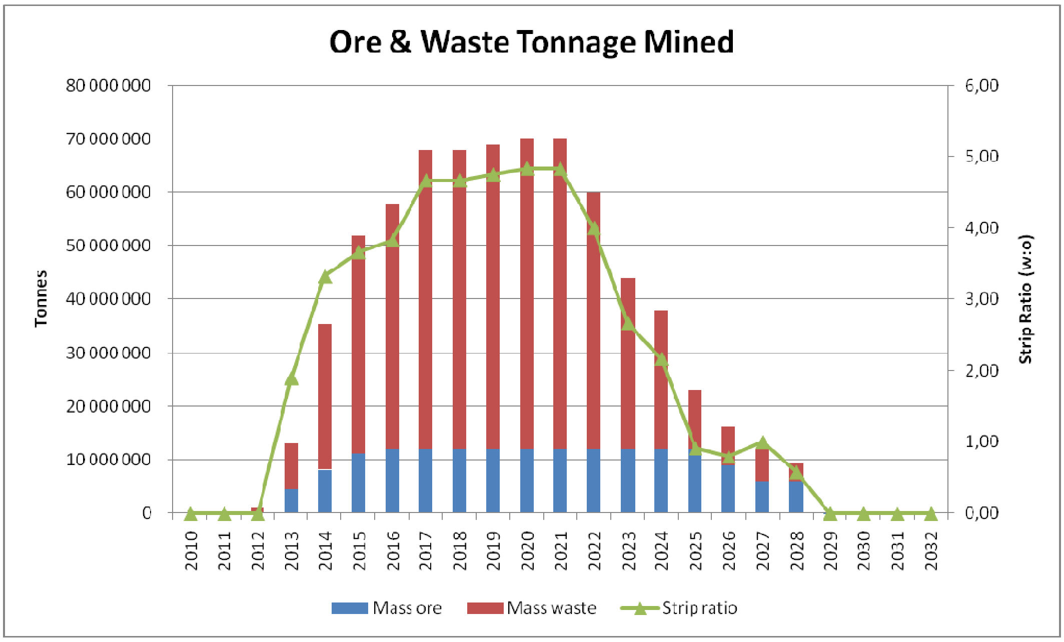

Figure 16-25: Kaunisvaara RoM Ore and Waste and stripping ratio

During the ramp-up period of mining and processing of Sahavaara ore between Q3 2014 and Q4 2014, a stockpile of 846 kt is built up. It is assumed that this stockpile will be deapleated during 2015, when the process plant reaches full capacity.

Process Physical Assumptions

Table 16-11 summarises recoveries, concentrate grades and concentrate tonnages from each process stream. Figure 16-26 below illustrates the contribution of each process stream to the total concentrate tonnages over the life of mine.

Table 16-11: Process Physical Assumptions

Description	Units	Tapuli	Sahavaara
Contained recoverable Fe	(tonnes)	23 628 506	25 863 818
Fe grade of final concentrate	(% Fe)	69.0%	69.0%
Iron recovery	(%)	87.5%	77.8%
Total iron in concentrate	(tonnes)	20 666 138	20 133 398
Concentrate tonnage	(tonnes)	29 950 924	29 178 838

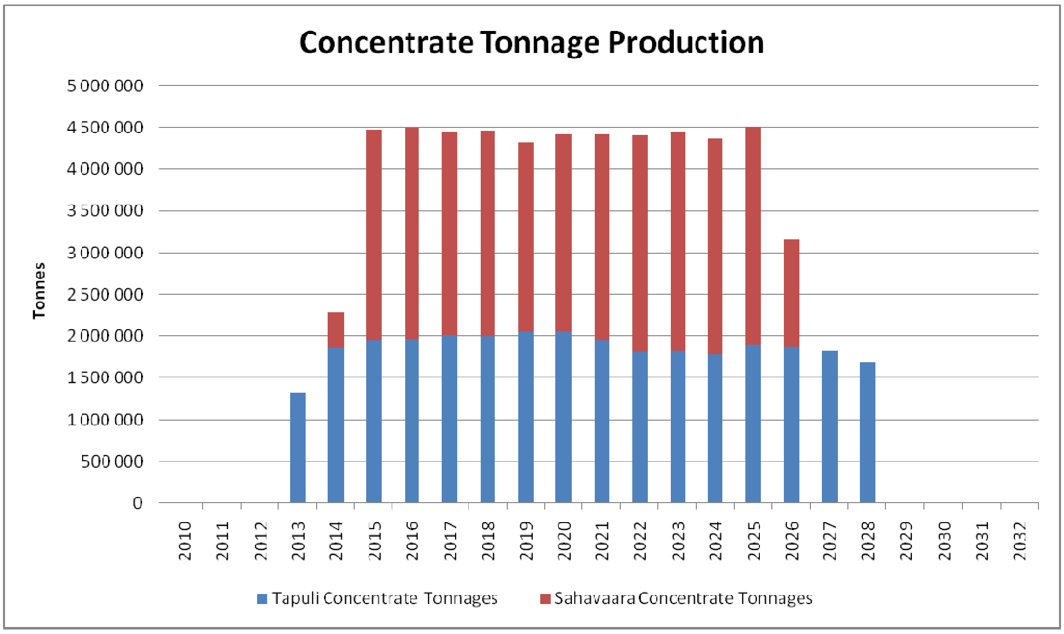

Figure 16-26: Concentrate Tonnage Production

Operating Costs

The operating costs estimated as part of the Feasibility Study have been incorporated into the TEM. SRK has reviewed these costs as part of the NI 43-101 process and considers them to be reasonable for the Project, in the context of the Feasibility Study. Figure 16-27 illustrates a breakdown of the operating expenditure over the life of mine, split between the three major cost centers, excluding contingency. An overall contingency of 5% has been assumed for operating costs.

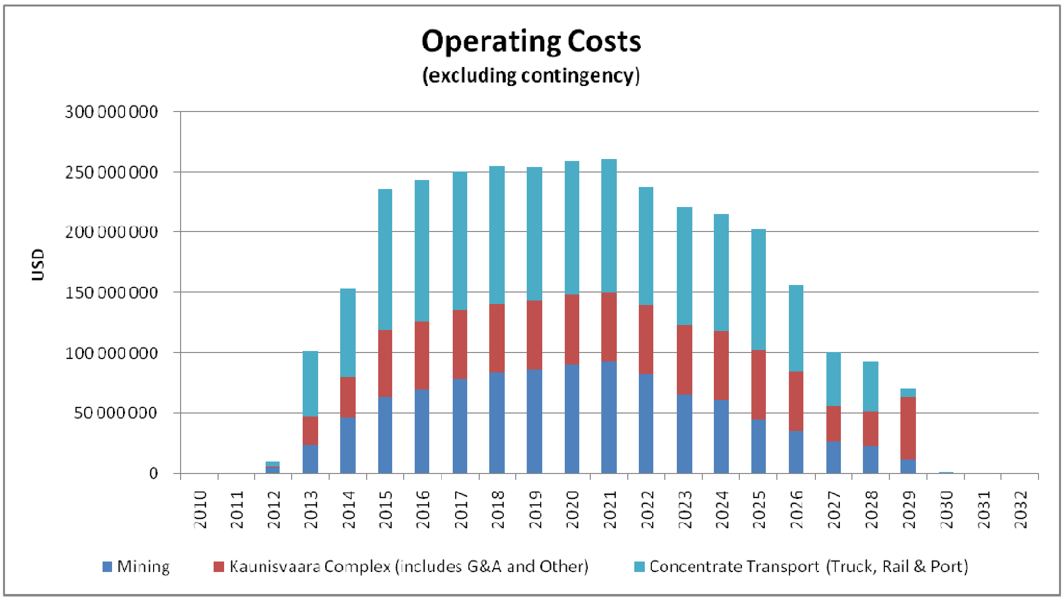

Figure 16-27: Breakdown of operating costs

Mining Operating Costs

Table 16-12 presents the unit mining costs per tonne of total material mined and ore tonne mined, derived from detailed cost data developed as part of the Feasibility Study and discussed previously in this report. A diesel price of SEK 5.64 / litre (USD 0.69 / litre) and an electricity price of SEK 0.45 / kWh (USD 0.06 / kWh) has been assumed.

Table 16-12: Mining operating unit costs

Description	Units	Total
USD / t Total material mined		
Labour	**(USD / t)**	0.37
Drilling	**(USD / t)**	0.05
Blasting	**(USD / t)**	0.23
Loading	**(USD / t)**	0.19
Haulage	**(USD / t)**	0.39
Auxiliary Mining Equipment	**(USD / t)**	0.16
Other Mining Costs	**(USD / t)**	0.01
Total mining cost USD / t total material mined	**(USD / t)**	1.40
USD / t Ore		
Labour	**(USD / t)**	1.59
Drilling	**(USD / t)**	0.23
Blasting	**(USD / t)**	1.01
Loading	**(USD / t)**	0.81
Haulage	**(USD / t)**	1.66
Auxiliary Mining Equipment	**(USD / t)**	0.71
Other Mining Costs	**(USD / t)**	0.02
Total mining cost USD / t ore	**(USD / t)**	6.02

Process Plant (Kaunisvaara Complex) & Tailings Operating Costs

Table 16-13 presents the unit processing costs per ore tonne mined, derived from detailed cost data developed as part of the Feasibility Study and discussed previously in this report.

Table 16-13: Unit processing costs

Description	Units	Total
Labour	(USD / t)	0.56
Power	(USD / t)	1.79
Consumables – Variable	(USD / t)	1.52
Consumables – Fixed	(USD / t)	0.03
Operating Spares	(USD / t)	0.36
Tailings	(USD / t)	0.02
Total processing op costs USD equivalent / t Ore	(USD / t)	4.27

Concentrate Transport Operating Costs

The TEM currently assumes that the ore will be transported to the port of Narvik in Norway and that the capital costs associated with the development of the transport corridor involving road transport to Sappavaara and rail to the shiploading port at Narvik will be borne by a Joint Venture company involving Northland and two interested parties who are currenly negotiating their participation in the Joint Venture with Northland. It is anticipated that funding will come from JV equity of 30% and 70% from financing still to be arranged. The capital and operating costs have been estimated in detail. This detail has been included in the current TEM where the cost per tonne for transport and shiploading, inclusive of capital, has been calculated. The rate per tonne for transportation of concentrates from Kaunisvaara to the ship at the port in Narvik amounts to US$26.4, but this does not include any allowances for return on JV equity or JV profit as those are still subject to negotiation.

Other Operating Costs

Table 16-5 presents the total mineral royalty, G&A and “Other” operating costs with respect to the total ore tonnes mined. “Other” includes total closure costs of USD 27 million.

Table 16-14: Other operating costs

Description	**Units**	**Total**
G&A	**(USD / t ore)**	0.50
Other (including closure)	**(USD / t ore)**	0.25
Royalty	**(%)**	0.20

Capital Costs

The capital costs estimated as part of the Feasibility Study have been incorporated in to the TEM. These costs total USD 899 million and include a 10% contingency.Overall SRK considers these costs to be reasonable for the Project in the context of the Feasibility Study undertaken.

Figure 16-28 gives a breakdown of the envisaged capital expenditure over the life of mine and split between the major cost centers, excluding contingency.

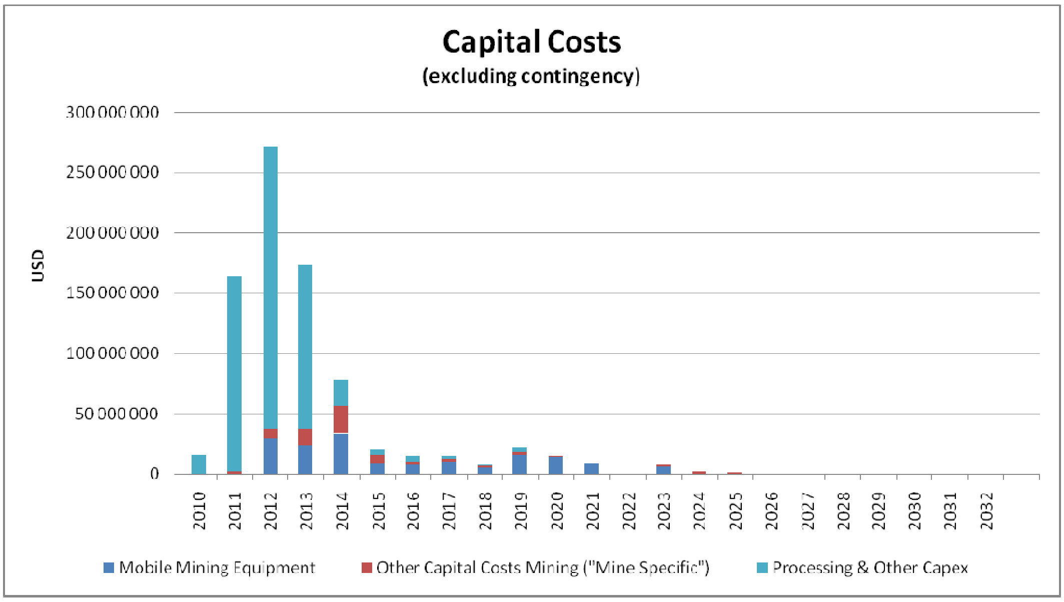

Figure 16-28: Capital cost breakdown

16.9.3 Cash Flow Projections

A valuation of the Kaunisvaara Project has been derived based on the application of Discounted Cash Flow (DCF) techniques to the pre-tax, pre-finance cash flow developed for Kaunisvaara based on the inputs and assumptions presented in this and previous sections of this report. All figures are presented in real terms.

In summary, at an 8% discount rate the project has an NPV of USD 1 465 million. SRK notes that this valuation is significantly higher than the previous Project valuation of USD 770 million, as derived by SRK and presented in the technical report entitled “Technical Review of the Kaunisvaara iron project, Sweden”, dated 3 October, 2010. The principal reason for this difference can be attributed to substantially higher price assumptions for the Kaunisvaara magnetite product, as presented in Table 16-9 above.

A summary of the results of the cash flow modelling and valuation are presented below in Table 16-15.

Table 16-15: DCF modelling and valuation breakdown

Description	Units	Total
Mass ore mined	(Mt)	164.8
Grade ore	(% Fe)	32.74%
Mass waste mined	(Mt)	542.2
Total mass mined	(Mt)	707.0
Strip ratio	(w:o)	3.29
Concentrate grade	(% Fe)	69.00%
Total iron in concentrate	(Mt)	40.8
Concentrate tonnage	(Mt)	59.1
Gross Revenue	(USD million)	8 375
Operating costs	(USD million)	3 491
Capital costs	(USD million)	891
Net cashflow	(USD million)	3 977
NPV (8%)	(USD million)	1 465
IRR	(%)	33.3%
LOM	(Years)	17.00

Project Sensitivities

For illustrative purposes the following analysis presents the sensitivity of the Project valuation for various different capital costs, operating costs, revenue and discount rate scenarios.

Single Parameter

Figure 16-29 shows the varying NPV for varying single parameter sensitivities at an 8% discount rate for revenue, operating costs and capital costs.

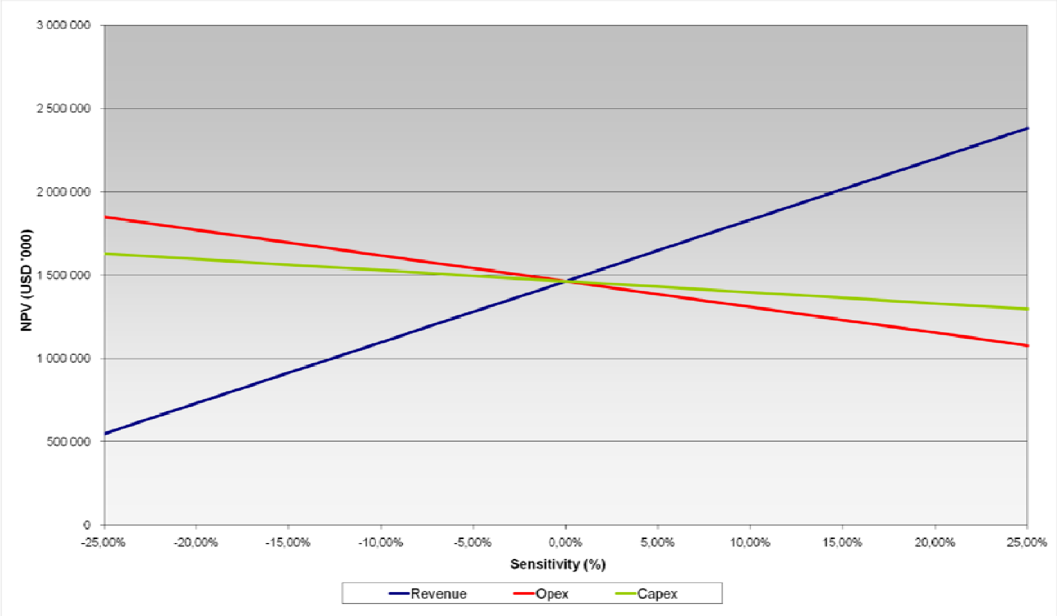

Figure 16-29: Single parameter sensitivities against NPV

The Project demonstrates a positive NPV under conditions considered in Figure 16-29 above.

Twin Parameter

Table 16-16 shows the sensitivity of the project to simultaneous changes in two parameters for revenue and discount rate, operating cost and discount rate and operating costs and discount rate respectively.

Table 16-16: Twin Parameter Project Sensitivities - Variable Discount Rates

NPV		Revenue Sensitivity				
(USD '000)		-20%	-10%	0%	10%	20%
Discount Rate	0%	2 304 939	3 140 760	3 976 580	4 812 401	5 648 221
	4%	1 308 423	1 851 511	2 394 600	2 937 688	3 480 777
	8%	730 780	1 097 664	1 464 548	1 831 432	2 198 316
	12%	387 107	643 629	900 151	1 156 674	1 413 196
	16%	178 343	363 197	548 051	732 905	917 760
NPV		Operating Cost Sensitivity				
(USD '000)		-20%	-10%	0%	10%	20%
Discount Rate	0%	4 674 801	4 325 690	3 976 580	3 627 470	3 278 360
	4%	2 849 258	2 621 929	2 394 600	2 167 271	1 939 942
	8%	1 772 907	1 618 727	1 464 548	1 310 368	1 156 189
	12%	1 116 864	1 008 508	900 151	791 795	683 439
	16%	705 139	626 595	548 051	469 507	390 964
NPV		Capital Cost Sensitivity				
(USD '000)		-20%	-10%	0%	10%	20%
Discount Rate	0%	4 154 684	4 065 632	3 976 580	3 887 528	3 798 476
	4%	2 547 199	2 470 900	2 394 600	2 318 300	2 242 001
	8%	1 597 047	1 530 797	1 464 548	1 398 298	1 332 049
	12%	1 016 453	958 302	900 151	842 001	783 850
	16%	651 061	599 556	548 051	496 546	445 041

Table 16-17 shows the sensitivity of the Project, using a base case discount rate of 8%, to simultaneous changes in two parameters for revenue and operating costs, revenue and capital costs and operating costs and capital costs respectively.

Table 16-17: Twin Parameter Project Sensitivities - Fixed Discount Rate (8%)

NPV		Revenue Sensitivity				
(USD '000)		-20%	-10%	0%	10%	20%
Operating Cost Sensitivity	-20%	1 039 139	1 406 023	1 772 907	2 139 791	2 506 675
	-10%	884 960	1 251 844	1 618 727	1 985 611	2 352 495
	0%	730 780	1 097 664	1 464 548	1 831 432	2 198 316
	10%	576 600	943 484	1 310 368	1 677 252	2 044 136
	20%	422 421	789 305	1 156 189	1 523 072	1 889 956
NPV		Revenue Sensitivity				
(USD '000)		-20%	-10%	0%	10%	20%
Capital Cost Sensitivity	-20%	863 279	1 230 163	1 597 047	1 963 931	2 330 814
	-10%	797 030	1 163 913	1 530 797	1 897 681	2 264 565
	0%	730 780	1 097 664	1 464 548	1 831 432	2 198 316
	10%	664 531	1 031 414	1 398 298	1 765 182	2 132 066
	20%	598 281	965 165	1 332 049	1 698 933	2 065 817
NPV		Operating Cost Sensitivity				
(USD '000)		-20%	-10%	0%	10%	20%
Capital Cost Sensitivity	-20%	1 905 406	1 751 226	1 597 047	1 442 867	1 288 688
	-10%	1 839 156	1 684 977	1 530 797	1 376 618	1 222 438
	0%	1 772 907	1 618 727	1 464 548	1 310 368	1 156 189
	10%	1 706 658	1 552 478	1 398 298	1 244 119	1 089 939
	20%	1 640 408	1 486 228	1 332 049	1 177 869	1 023 690

17 OTHER RELEVANT DATA AND INFORMATION

SRK is also aware that the Pellivouma iron project, being of similar geological characteristics to the Tapuli and Sahavaara iron projects, and containing both Measured and Indicated Resources could be incorporated into the Kaunisvaara project at a later date.

18 INTERPRETATION AND CONCLUSIONS

The primary aim of this report was to comment on the status of the Kaunisvaara Feasibility Study being carried out by Northland Resources AB. This involved a technical review by SRK of all sections of the Feasibility Study that were not conducted by SRK in addition to the compilation of the results of latest Mineral Resource and Mineral Reserve estimates undertaken by SRK.

In total, SRK has derived a combined Measured plus Indicated Mineral Resource for Södra Sahavaara and Stora Sahavaara of 86.8 Mt grading 39.82%Fe Total, 1.93%S, 18.26% SiO2 and 14.63% MgO. Of this, 30.2 Mt grading 42.96%Fe Total and 2.66%S has been reported as Measured and 56.6 Mt grading 38.14%Fe Total and 1.55%S as Indicated. In addition some 34.7 Mt grading 37.28%Fe Total and 1.44; %S has been reported as an Inferred Mineral Resource. Some 13.8 Mt of the Measured plus Indicated Mineral Resource comprises “high grade” material and has a mean grade of 53.38%Fe Total and 3.03%S.

In addition SRK has derived a Measured plus Indicated Mineral Resource for Tapuli of 107.4Mt grading 26.01%Fe Total, 0.23 S%, 26.99% SiO2 and 17.47% MgO. Of this, 52.8 Mt grading 27.02 %Fe Total and 0.23 %S has been reported as Measured and 54.6 Mt grading 25.04 %Fe Total and 0.24 %S as Indicated. An additional, 24.7 Mt grading 24.58 %Fe Total and 0.23 %S has been reported as an Inferred Mineral Resource.

SRK has reported a Proved Mineral Reserve of 82Mt grading 32.98 %Fe Total and a probable Mineral Reserve of 83Mt grading 32.51 %Fe Total.

SRK is confident that sufficient geological work has been undertaken, and sufficient geological understanding gained, to enable the construction of an orebody model suitable for the derivation of Mineral Resource and Mineral Reserve estimates. SRK considers that both the modelling and the grade interpolation have been carried out in an unbiased manner and that the resulting grade and tonnage estimates should be reliable within the context of the classification applied. In addition, SRK is not aware of any metallurgical, infrastructural, environmental, legal, title, taxation, socio-economic or marketing issues that would impact on the Mineral Resource or Reserve statements as presented.

The forecast capital and operating costs incorporated into the TEM have been reviewed by SRK and accepted as being reasonable given the information currently available and in the context of the Feasibility Study. The forecast operating costs total USD 3,491 million, including a 5% contingency over the life of mine while the forecast capital costs total USD 899 million and include a 10% contingency.

A valuation of the Kaunisvaara Project has been derived based on the application of Discounted Cash Flow (DCF) techniques to the pre-tax, pre-finance cash flow developed for Kaunisvaara.

In summary, at an 8% discount rate the project has an NPV of USD 1 465 million. SRK notes that this valuation is significantly higher than the previous Project valuation of USD 770 million, as derived by SRK and presented in the technical report entitled "Technical Review of the Kaunisvaara iron project, Sweden", dated 3 October, 2010. The principal reason for this difference can be attributed to substantially higher price assumptions for the Kaunisvaara magnetite product.

19 RECOMMENDATIONS

It is the recommendation of SRK that the waste rock dump storage facility aspects of the study are updated to match the current mining schedule which may result in certain cost savings, although these are not considered to be material to the project as a whole.

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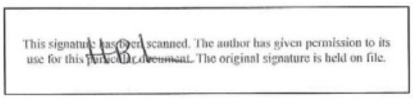
21 CERTIFICATES

To accompany the report dated June 2011 entitled “Technical Review of the Kaunisvaara Iron Project, Sweden. June 2011”

I, **Howard Baker**, MSc, AusIMM hereby certify that:

1. I am a Principal Mining Geologist with SRK Consulting (UK) Ltd, 5th Floor, Churchill House, Churchill Way, Cardiff CF10 3HH;
2. I graduated with a degree in Applied Geology from Oxford Brookes University in 1994. In addition, I have obtained a Masters degree (MSc) in Mineral Resources from Cardiff University, UK in 1995;
3. I am a Member of the Australasian Institute of Mining and Metallurgy (AusIMM);
4. I have worked as a geologist for a total of 13 years since my graduation from university;
5. I have not received, nor do I expect to receive, any interest, directly or indirectly, in the Sahavaara project or securities in Northland Resources AB.;
6. I have read National Instrument 43-101 and Form 43-101F1 and, by reason of my education and past relevant work experience, I fulfil the requirements to be a “Qualified Person” for the purposes of National Instrument 43-101. This technical report has been prepared in compliance with National Instrument 43-101 and Form 43-101F1;
7. I, as a Qualified Person, am independent of the issuer as defined in Section 1.4 of National Instrument 43-101
8. I am author and take overall responsibility for the accompanying technical report;
9. I took part in the site visit of the Project site at Kaunisvaara in September 2009 as part of this report;
10. As of the date of this certificate, to the best of my knowledge, information and belief, this Independent Technical Report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading;
11. SRK was retained by Northland Resources AB., to prepare an Independent Technical Report for the Kaunisvaara Project in accordance with National Instrument 43-101. The preceding report is based on our review of project files and information provided by Northland Resources AB., and discussion with personnel of Northland Resources AB;
12. I consent to the use of this report and our name for public filing any Provincial regulatory authority.

Dated this 1st day of June, 2011.



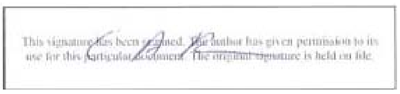
Howard Baker, MSc, MAusIMM

To accompany the report dated June 2011 entitled "Technical Review of the Kaunisvaara Iron Project, Sweden. June 2011"

I, **Chris Reardon**, BSc, AusIMM hereby certify that:

1. I am a Principal Mining Engineer with SRK Consulting (UK) Ltd, 5th Floor, Churchill House, Churchill Way, Cardiff CF10 3HH;
2. I graduated with a degree in Geology from University of Queensland in 1994.
3. I am a Member of the Australasian Institute of Mining and Metallurgy (AusIMM);
4. I have worked as a mining engineer for a total of 10 years since my graduation from university;
5. I have not received, nor do I expect to receive, any interest, directly or indirectly, in the Kaunisvaara project or securities in Northland Resources AB.;
6. I have read National Instrument 43-101 and Form 43-101F1 and, by reason of my education and past relevant work experience, I fulfil the requirements to be a "Qualified Person" for the purposes of National Instrument 43-101. This technical report has been prepared in compliance with National Instrument 43-101 and Form 43-101F1;
7. I, as a Qualified Person, am independent of the issuer as defined in Section 1.4 of National Instrument 43-101
8. I am author and take overall responsibility for the mining aspects of the accompanying technical report;
9. As of the date of this certificate, to the best of my knowledge, information and belief, this Independent Technical Report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading;
10. SRK was retained by Northland Resources AB., to prepare an Independent Technical Report for the Kaunisvaara Project in accordance with National Instrument 43-101. The preceding report is based on our review of project files and information provided by Northland Resources AB., and discussion with personnel of Northland Resources AB;
11. I consent to the use of this report and our name for public filing any Provincial regulatory authority.

Dated this 1st day of June, 2011.



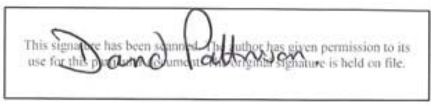
Chris Reardon, BSc, MAusIMM

To accompany the report dated May 2011 entitled “Technical Review of the Kaunisvaara Iron Project, Sweden. May 2011”

I, **Dr David Pattinson**, BSc, PhD, CEng, MIMMM hereby certify that:

1. I am a Principal Metallurgist with SRK Consulting (UK) Ltd, 5th Floor, Churchill House, Churchill Way, Cardiff CF10 3HH;
2. I graduated with a degree in Minerals Engineering from Birmingham University, UK, in 1978. In addition, I have obtained a Doctorate (PhD) from Birmingham University in 1982;
3. I am a Member of the UK Institute of Materials, Minerals and Mining (MIMMM);
4. I have worked as a metallurgist and process engineer for a total of 29 years since my graduation from university;
5. I have not received, nor do I expect to receive, any interest, directly or indirectly, in the Sahavaara project or securities in Northland Resources AB.;
6. I have read National Instrument 43-101 and Form 43-101F1 and, by reason of my education and past relevant work experience, I fulfil the requirements to be a “Qualified Person” for the purposes of National Instrument 43-101. This technical report has been prepared in compliance with National Instrument 43-101 and Form 43-101F1;
7. I, as a Qualified Person, am independent of the issuer as defined in Section 1.4 of National Instrument 43-101
8. I am author and take overall responsibility for the metallurgy and processing aspects of the accompanying technical report;
9. As of the date of this certificate, to the best of my knowledge, information and belief, this Independent Technical Report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading;
10. SRK was retained by Northland Resources AB., to prepare an Independent Technical Report for the Kaunisvaara Project in accordance with National Instrument 43-101. The preceding report is based on our review of project files and information provided by Northland Resources AB., and discussion with personnel of Northland Resources AB;
11. I consent to the use of this report and our name for public filing any Provincial regulatory authority.

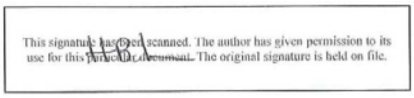
Dated this 1st day of June, 2011.



Dr David Pattinson, Bsc, PhD, CEng, MIMMM

Signed on 1st June 2011

For and on behalf of SRK Consulting (UK) Ltd



Mr Howard Baker
Principal Mining Geologist

22 ILLUSTRATIONS

These have been included within the main body of the report as considered appropriate.

SRK Consulting (UK) Ltd Report Distribution Record

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Report No. U4464

Copy No. Final

Name/Title	Company	Copy	Date	Authorised by
Mr Shane Williams	Northland Resources	1	1st June 2011	Howard Baker

Approval Signature: