



**AVALON**

MINERALS LTD

## LITHIUM PORTFOLIO IN SCANDINAVIA

DRILL READY AND RESOURCE DEFINITION  
DRILLING TO COMMENCE IN 2016

COMPLEMENTARY TO AVALON'S COPPER BUSINESS



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# KEY POINTS

- ✓ Avalon has built a portfolio of lithium projects in Sweden and Finland
- ✓ The projects include advanced projects ready for commencement of Resource definition drilling in Q3 2016, and less advanced highly prospective opportunities over known lithium occurrences
- ✓ Avalon has entered into a JV over claims including the Kietyönmäki lithium pegmatite and surrounding area. Exploration was undertaken in 1985-88 by the Geological Survey of Finland (GTK) and **diamond drilling returned 24.25m at 1.3% Li<sub>2</sub>O, including 11m at 2% Li<sub>2</sub>O. Peak assays up to 3m at 4.35% Li<sub>2</sub>O**
- ✓ Finland is host to some of Europe's most significant and advanced lithium projects
- ✓ Avalon has an established presence in the region and is capable of advancing the exploration programs rapidly

# LITHIUM PORTFOLIO - SCANDINAVIA

- Builds on Avalon's expertise and presence in Scandinavia
- Low cash cost entry to opportunities
- All projects have known lithium pegmatite occurrences, and some have seen minor previous drilling
- The Kietyönmäki deposit is ready for accelerated work programs to deliver mineral resource estimates
- All opportunities are supported by high quality infrastructure in a low sovereign risk country
- Proximity to growing European lithium downstream market – Europe consumes ~25% of global lithium production
- Finland has become a significant area of interest for lithium following the advancement of the Keliber Lithium Project held by private company Keliber Oy
- Complements Avalon's high quality advanced stage Viscaria Copper development opportunity in Sweden which is undergoing permitting to target a decision to mine in 2018

# AVALON'S LITHIUM PORTFOLIO



Ladum Project, Sweden

Kaustinen Project, Finland

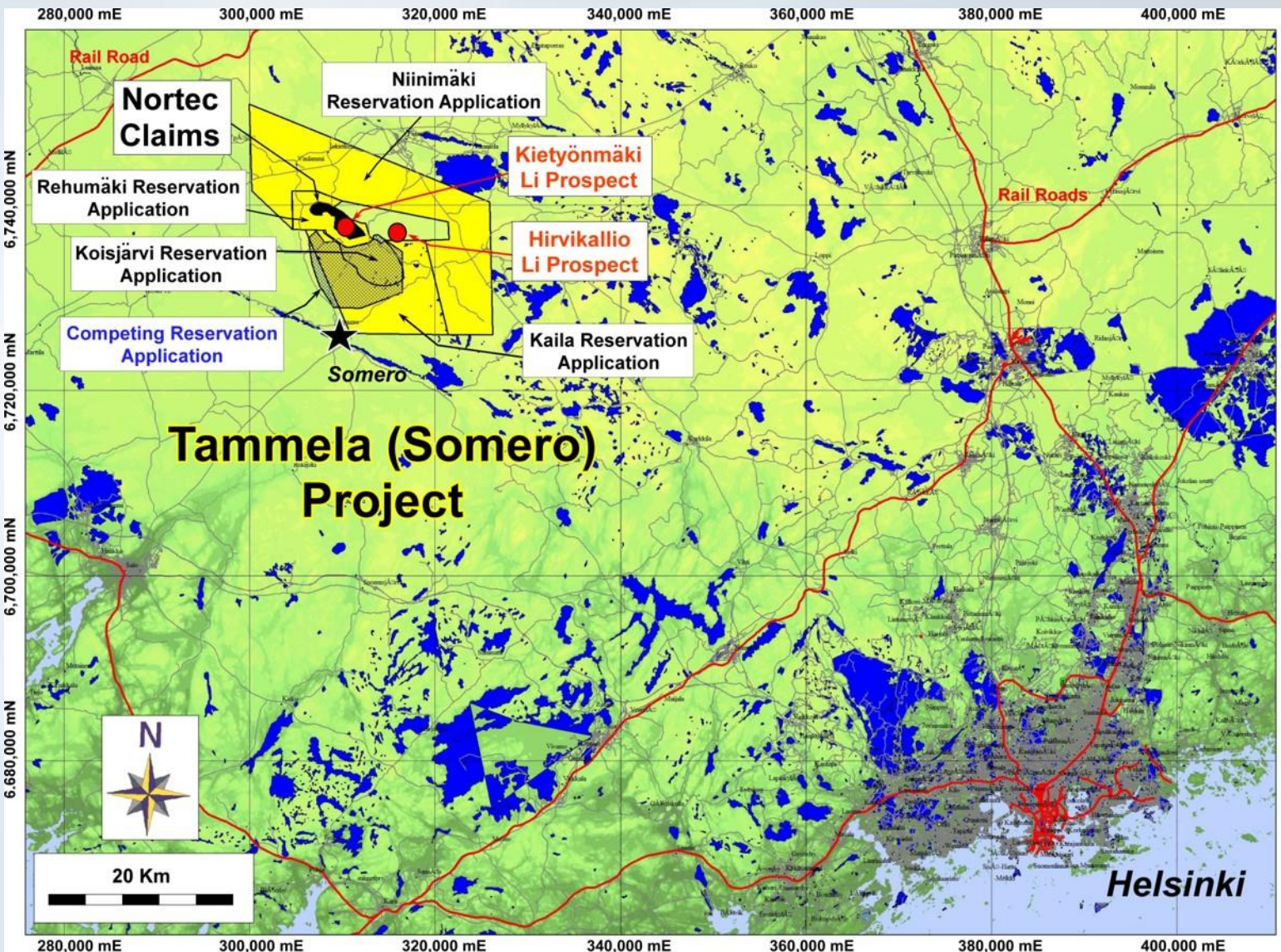
Seinäjäki Project, Finland

Tammela (Somero) Project, Finland –  
ADVANCED, RESOURCE DRILLING  
PLANNED

# TAMMELA (SOMERO) LITHIUM PROJECT

- “The Somero-Tammela area is one of the most potentially economic lithium pegmatite provinces in Finland” (Levaniemi, 2013)
- The pegmatite dykes occur in groups and swarms
- The area contains many known pegmatite and lithium occurrences, and 2 drilled deposits at Kietyönmäki and Hirvikallio
- Exploration in the area has been predominantly undertaken by the Geological Survey of Finland (GTK) in several phases
- Avalon has secured an earn-in Joint Venture with Canadian company Nortec Minerals Corp. over the Kietyönmäki deposit and surrounding areas, held under secure claims and one Exploration Reservation application
- Avalon has also applied for 3 other Exploration Reservation areas which cover known pegmatites and prospective areas. A part of those areas is subject to competing applications by other parties
- GTK undertook prospectivity modelling to define targets for further work. This will form an important basis for ongoing exploration by Avalon

# TAMMELA LITHIUM PROJECT



Avalon has a dominant position in the Somero province

Avalon holds, through JV, the known Kietyönmäki lithium deposit which is ready for resource definition drilling

Close to rail, road and other infrastructure

# TAMMELA LITHIUM PROJECT

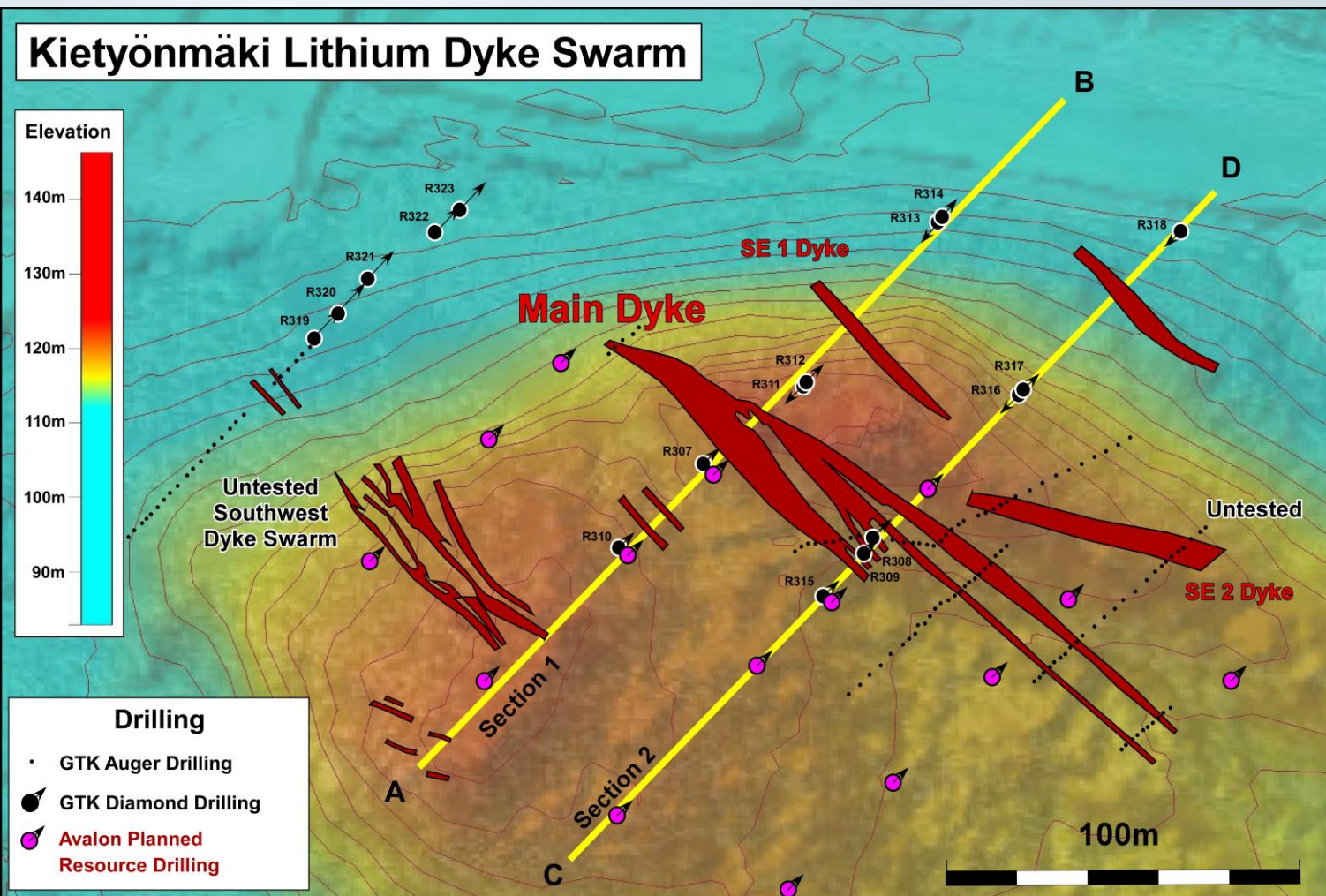
## KIETYÖNMÄKI DEPOSIT

- The Nortec JV area includes the Kietyönmäki deposit which was drilled by GTK in 1987-88. 17 diamond drill holes, on 3 traverses, were completed on the Kietyönmäki Main Dyke (or "KMD"), a large spodumene-rich pegmatite dyke that can be traced for over 400m. GTK drilling defined the dyke along ~120 metres of strike – but is still open to the south-east and north-west, with an average width of 12m, and to a depth of 75 metres and still open at depth
- Assays from GTK, and follow-up check assays by Nortec have delivered results of up to **24m at 1.3% Li<sub>2</sub>O, including 11m at 2% Li<sub>2</sub>O**
- The best intersection was **3m at 4.35% Li<sub>2</sub>O**
- Of the 17 diamond drill holes, 5 were ineffective (shallow) and 10 of the remaining 12 intersected lithium pegmatites
- The mineralisation at Kietyönmäki is considered good quality with low Fe and Mn
- Other lithium pegmatites have been mapped in the broader 1km radius area, and not drill tested, so significant potential upside exists

\* See drill table from Nortec in Appendix 2 slide 27



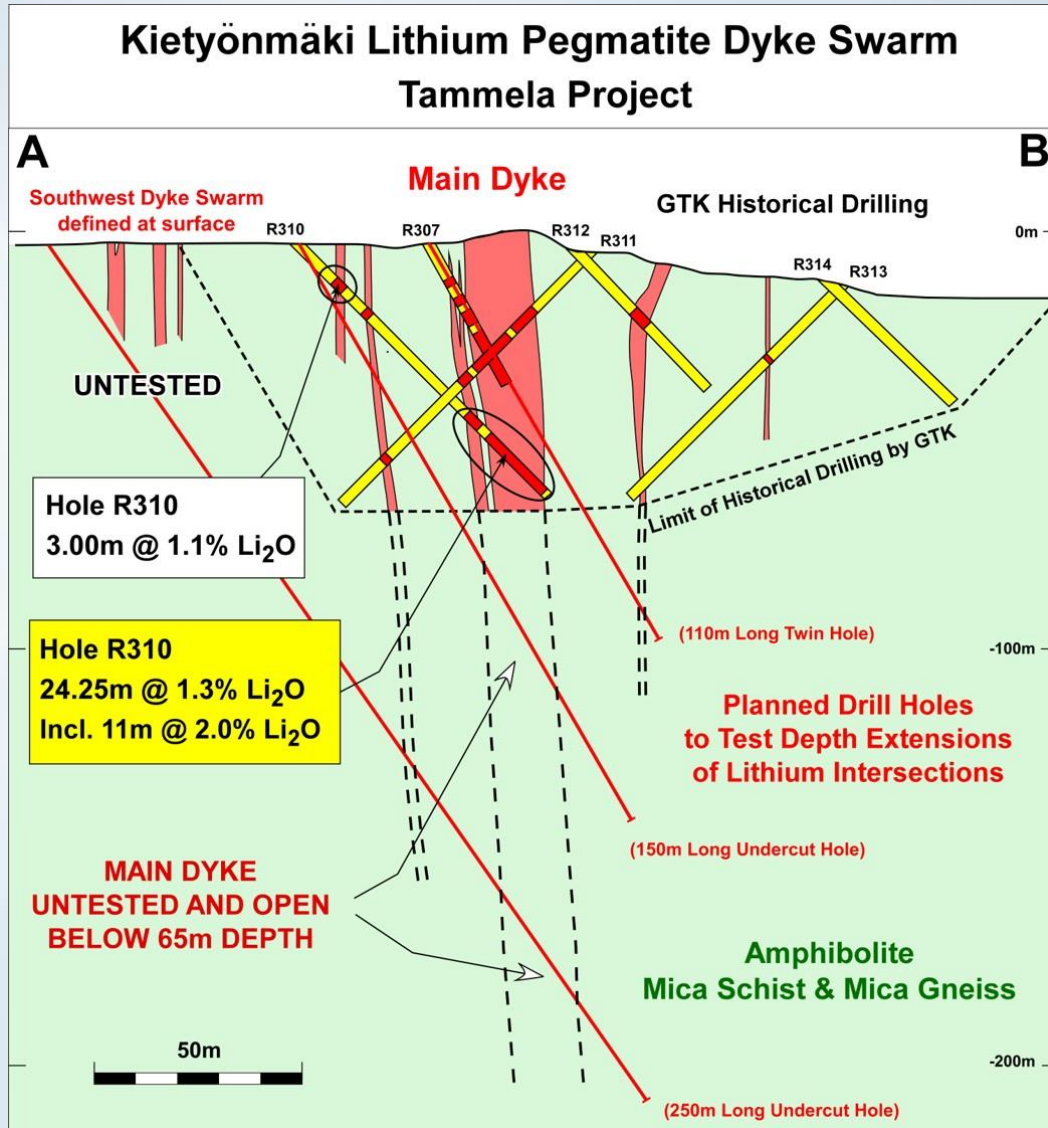
# TAMMELA LITHIUM PROJECT KIETYÖNMÄKI DEPOSIT



Resource drilling planned – shown here in pink

- 15 holes,
- 3,000 meters,
- 2 months work

# TAMMELA LITHIUM PROJECT KIETYÖNMÄKI DEPOSIT



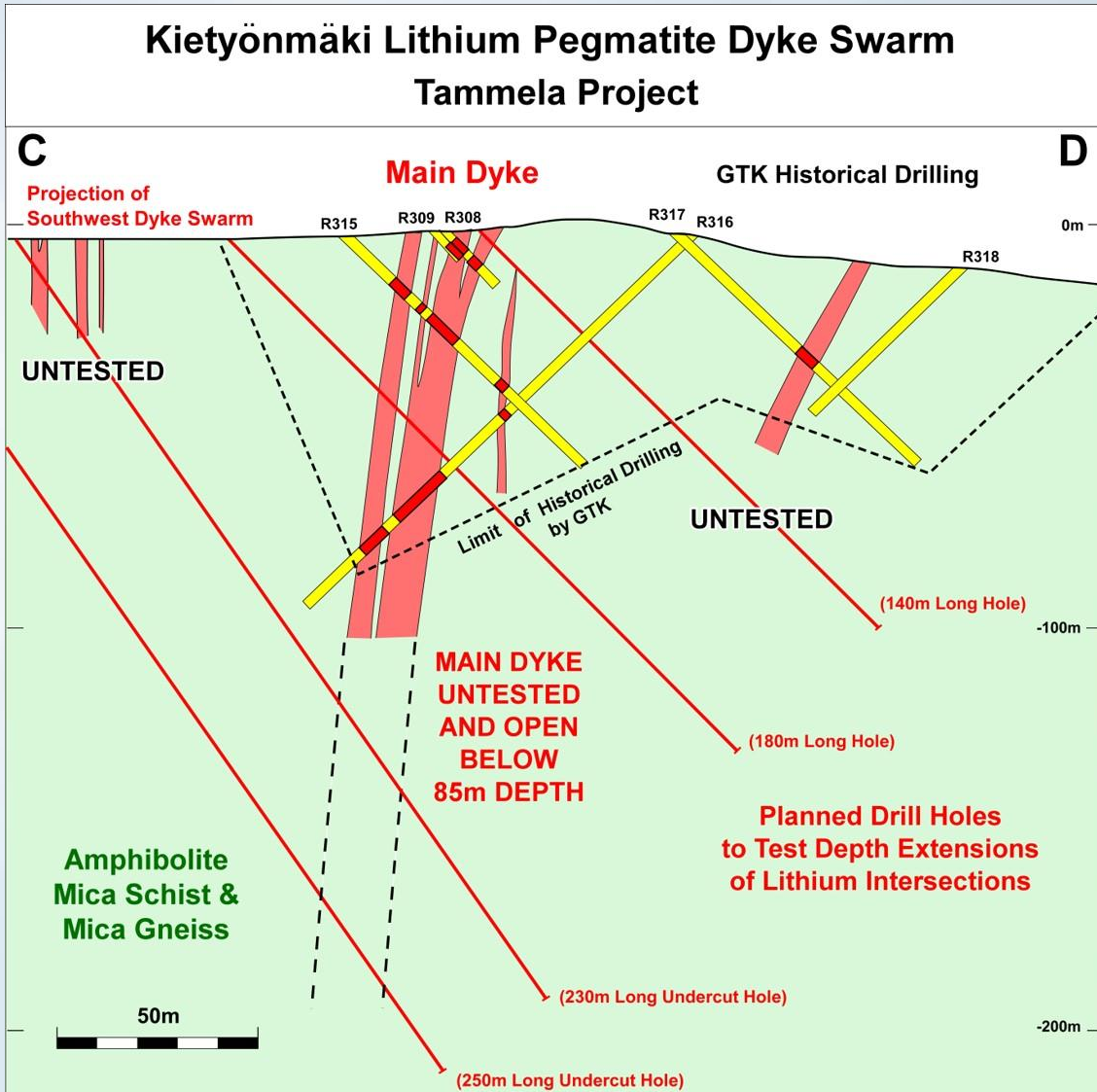
## GTK assay results; holes R 307 and R310

Hole ID	From (m)	To (m)	Interval (m)	Li <sub>2</sub> O %
R307	14.1	37.1	23.0	1.53
R310	11.7	14.7	3.0	1.23
R310	65.0	83.0	<b>18.0</b>	<b>1.79</b>
<i>including</i>	68.0	77.0	<b>9.0</b>	<b>2.60</b>
<i>including</i>	70.0	73.0	<b>3.0</b>	<b>4.35</b>

## Drill hole R 310 (from Nortec re-sampling)

Hole ID	From (m)	To (m)	Interval (m)	Li <sub>2</sub> O %
R310	11.75	14.75	3.00	1.10
R310	20.40	25.30	4.90	0.22
R310	58.75	83.00	<b>24.25</b>	<b>1.31</b>
<i>including</i>	68.00	77.00	<b>9.00</b>	<b>2.22</b>
<i>and</i>	70.00	73.00	<b>3.00</b>	<b>3.60</b>

# TAMMELA LITHIUM PROJECT KIETYÖNMÄKI DEPOSIT



**GTK assay results; holes R 308, 309, 315 and R316**

Hole ID	From (m)	To (m)	Interval (m)	Li <sub>2</sub> O %
R308	3.7	11.3	7.6	1.37
R309	3.0	10.5	7.5	1.49
R315	24.1	36.8	<b>12.7</b>	<b>1.10</b>
R316	86.0	99.0	<b>13.0</b>	<b>1.66</b>
<i>including</i>	86.0	95.0	<b>9.0</b>	<b>1.88</b>
<i>and</i>	98.0	99.0	<b>1.0</b>	<b>3.9</b>
R317	41.4	45.3	<b>3.9</b>	<b>1.28</b>

# TAMMELA LITHIUM PROJECT

## KIETYÖNMÄKI DEPOSIT

- An Exploration Target of 8 – 15 Mt at 1.4 – 1.8% Li<sub>2</sub>O has been estimated
- The potential quantity and grade is conceptual in nature. There has to date been insufficient exploration to estimate a Mineral Resource and it is uncertain if further exploration will result in the estimation of a Mineral Resource.
- The Exploration Target is comprised of:
  - 4 - 6Mt at the Main dyke drilled to a depth of 300m below surface. Existing drilling has tested the dyke to 65m below surface
  - 2 - 5Mt from outcropping and lithium bearing pegmatite dykes immediately south-west of the Main Dyke, where there has not been previous drilling
  - 2 - 5Mt from lithium pegmatite dykes, partially drill tested, to the north-east of the Main Dyke
  - 2 – 3Mt from mapped dykes within a 1km radius, and primarily along strike, of the Main dyke, where there has not been previous drilling
- The proposed Q3 2016 drilling will be planned to provide the best opportunity for conversion of parts of this Exploration Target into a Mineral Resource estimate

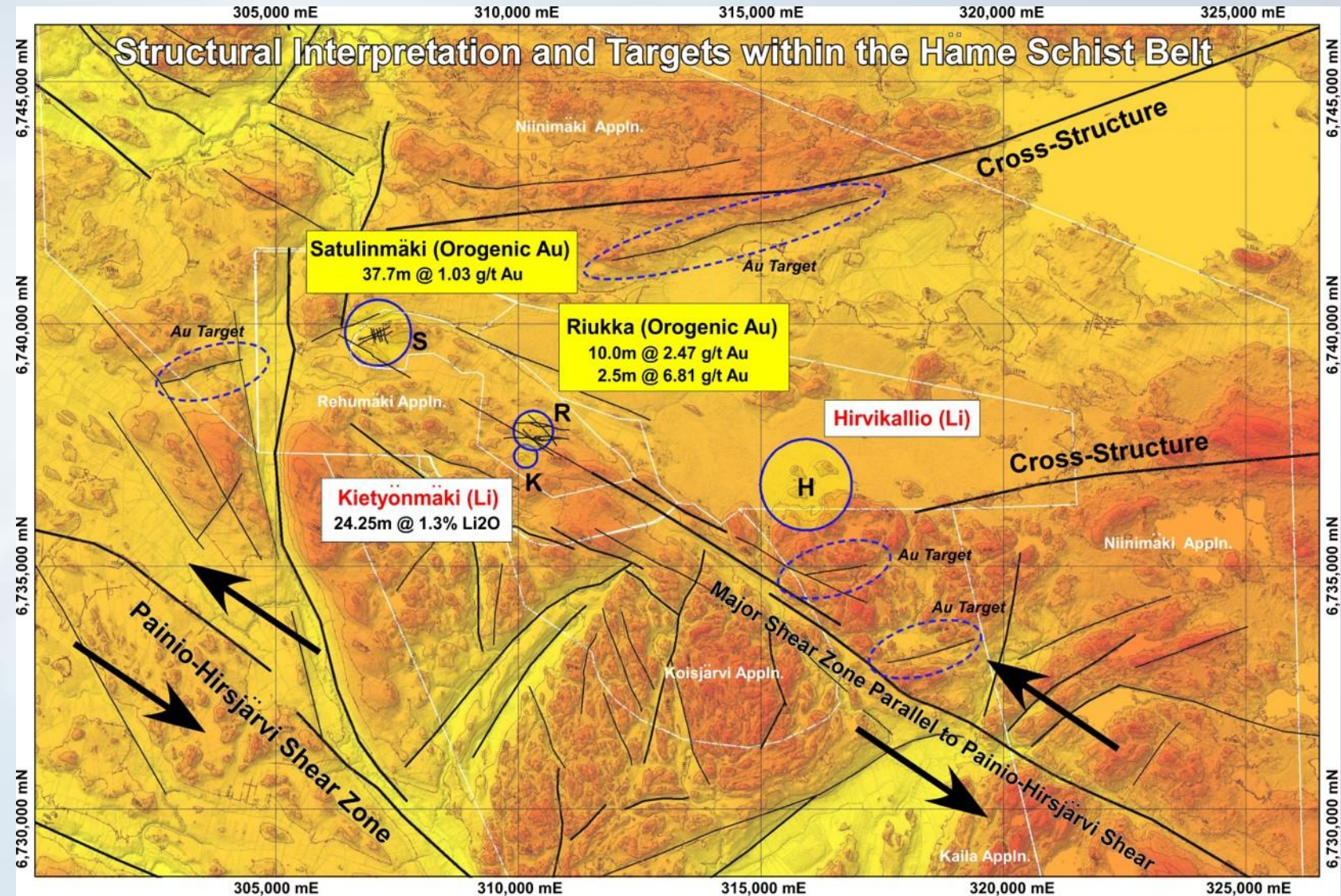
# TAMMELA GOLD OPPORTUNITY RIUKKA AND SATULINMÄKI PROSPECTS

- The Nortec JV also includes gold opportunities held within the claim areas
- Two defined opportunities exist and further exploration will be undertaken to assess these areas
- Re-sampling by Nortec geologists of the core drilled by GTK on both Satulinmäki and Riukka gold zones returned significant gold values, including:
  - **37.7 metres @ 1.03 g/t Gold** from 51 metres (hole 330), at the Satulinmäki Prospect,
  - **10.0 metres @ 2.47 g/t Gold** from 20 metres (hole R356) and 2.50 metres @ 6.81 g/t Gold from 61.35 metres (hole R357) at the Riukka Prospect
- Historical assays by GTK included **22m @ 3.6g/t from 50 metres** (hole 391) at Satulinmäki
- All drilling is shallow and has only tested to ~70m below surface
- Prospects are open in all directions

*See Appendix 4 slide 30 for more detail on prospects and drill intersections*

# TAMMELA GOLD OPPORTUNITY

## RIUKKA AND SATULINMÄKI PROSPECTS

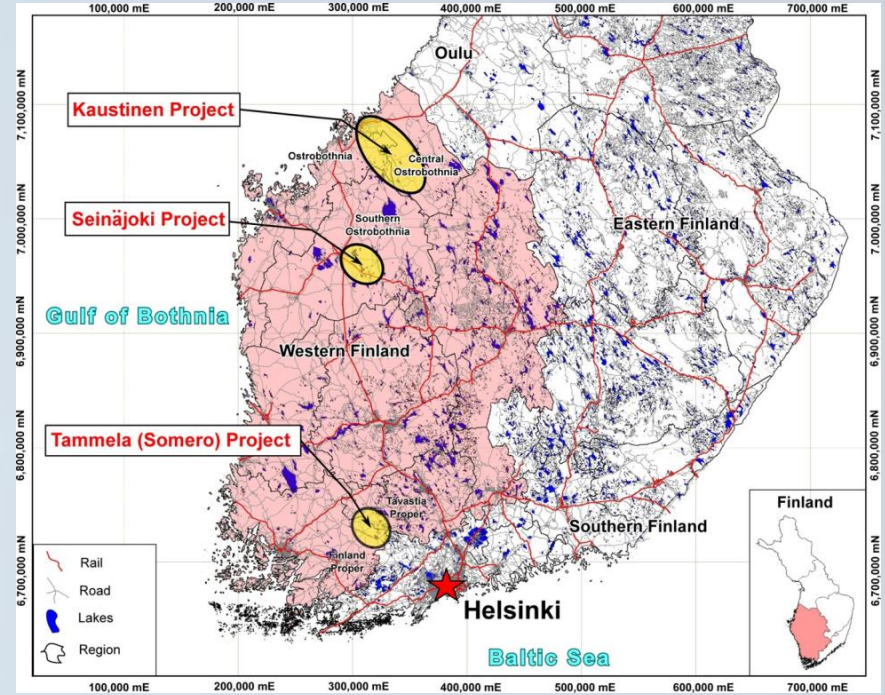
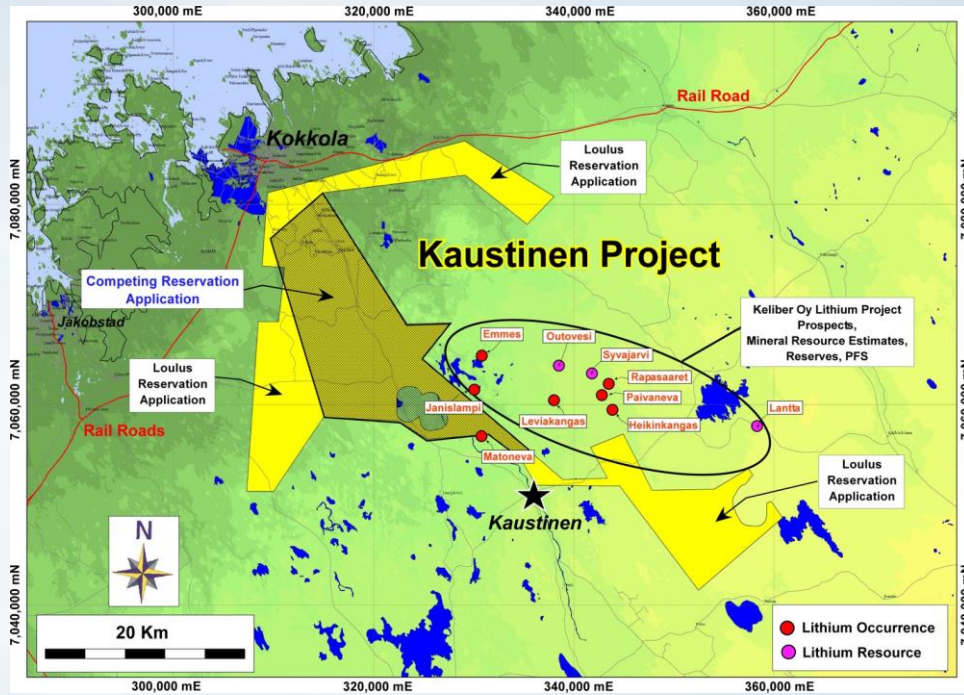


# KAUSTINEN LITHIUM PROJECT

- The Kaustinen area is one of the most significant lithium pegmatite domains in Finland
- It contains many known lithium deposits, several of which are moving towards development by Finnish company Keliber Oy
- The deposits are hosted in pegmatite dyke swarms
- Exploration in the area was initially undertaken by the Geological Survey of Finland (GTK) in several phases commencing in the 1970's. A significant program was undertaken in the period 2004 – 2012 which included some drilling
- Keliber Oy (and previous related companies) had been active in the area since 1999, and secured several additional lithium areas in 2012 after a government managed tender process. These areas have been very successfully explored by Keliber Oy and now have estimated mineral resources and a recently completed PFS\*.

*\*Appendix 1, slide 26 has details of Keliber lithium project Mineral Resource estimates and Reserve estimates*

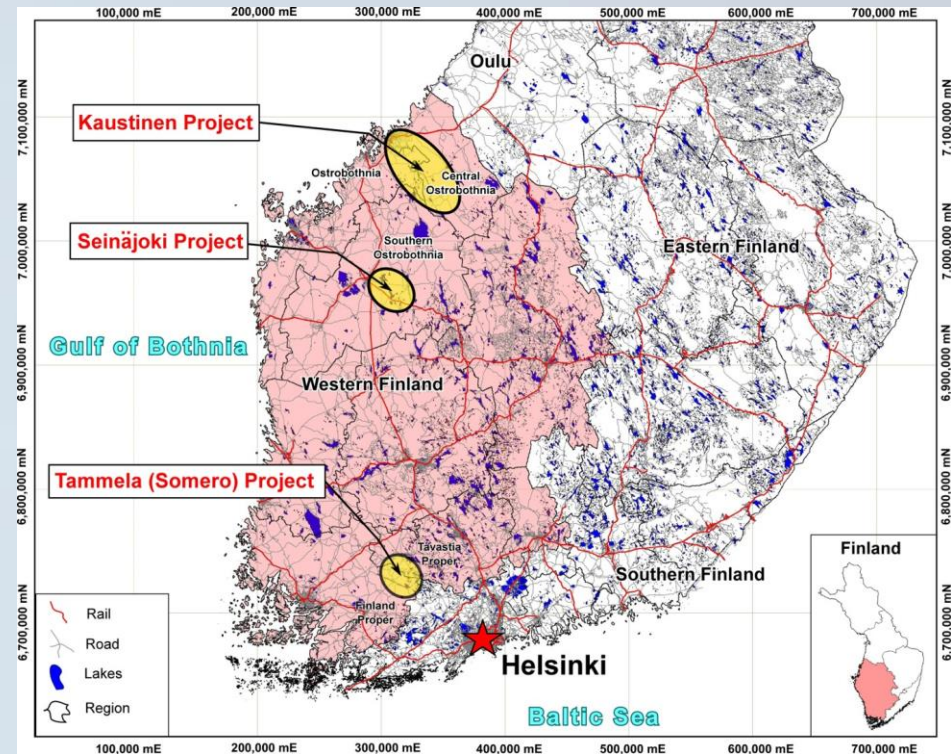
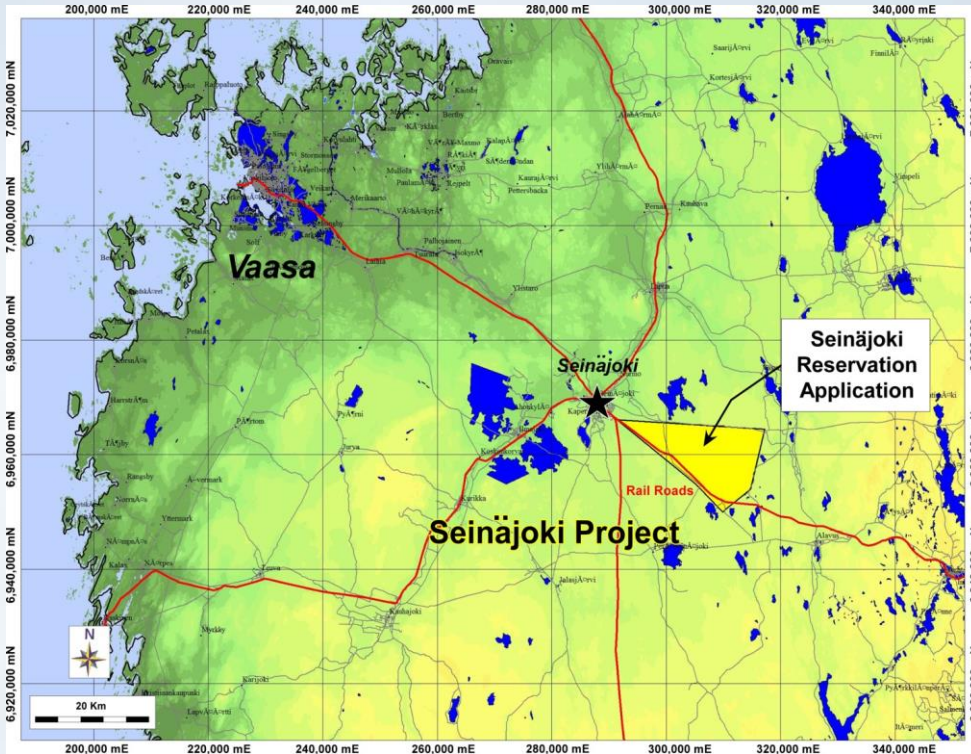
# KAUSTINEN LITHIUM PROJECT



- Avalon has lodged an application for an Exploration Reservation covering up to 500km<sup>2</sup> but is subject to overlapping and competing claims by other parties
- Avalon has also applied for smaller Exploration permit applications directly adjacent to known deposits
- The areas are adjacent to defined lithium deposits and cover areas of anomalous lithium in glacial till samples

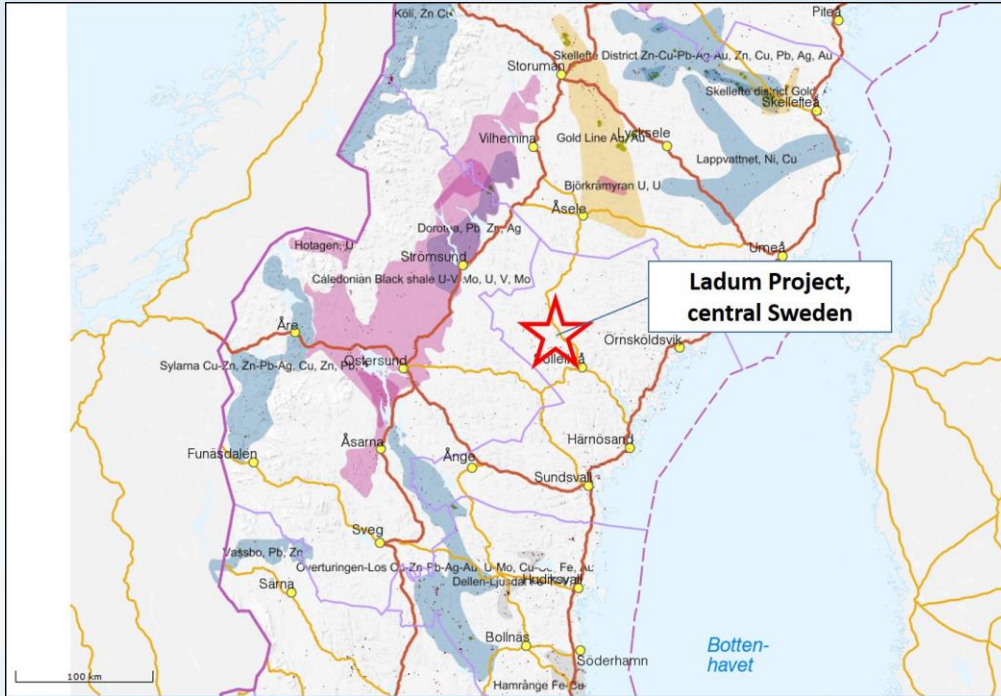


# SEINÄJOKI LITHIUM PROJECT



- One Exploration Reservation application has been lodged over an area of 207 km<sup>2</sup> covering a documented lithium pegmatite occurrence, and at the southern end of the regional geological province that includes the Kaustinen district in the north
- Reconnaissance exploration will commence upon approval of the Exploration Reservation

# LADUM LITHIUM PROJECT, SWEDEN



The Ladum Project covers areas within a regional pegmatite district that has seen minor historical exploration primarily for tin.

Most of this exploration was undertaken by LKAB in the 1980's. The exploration included geophysics, till-sampling, and general geological mapping and investigations. This work resulted in a number of tin, niobium, tantalum and lithium bearing pegmatites being defined.

The main prospect secured under approved Exploration Concession consists of a NE trending lithium pegmatite dyke swarm.

- Avalon, through agreements with Swedish company Orezone AB and Australian private interests, including those of respected geologist and analyst David Ransom, has secured 2 exploration concessions and 1 application for an exploration concession over documented lithium bearing pegmatites
- The area is supported by good quality infrastructure

# LITHIUM PORTFOLIO – NEXT STEPS

- Complete compilation of all historical data. Significant open file data is available through GTK for the Finnish opportunities and this is already under compilation and review
- Data compilation and an initial field program on the Ladum Project, Sweden is scheduled for July
- Accelerated review and re-logging of historical drill core from Kietyönmäki is scheduled to occur in mid July
- **Focus initial program on Kietyönmäki, and move to a Resource definition drilling program in Q3, 2016**

# VISCARIA COPPER PROJECT



PROJECT SITE



KIRUNA TOWN



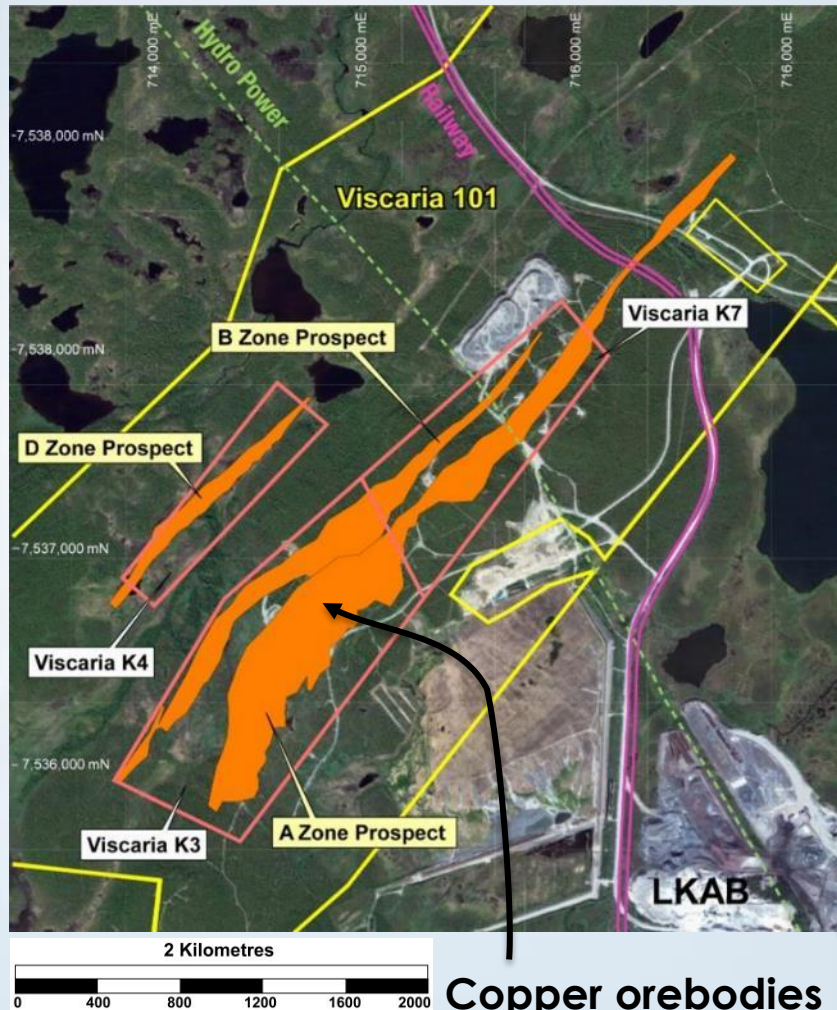
PUBLIC ACCESS ELECTRIC RAIL



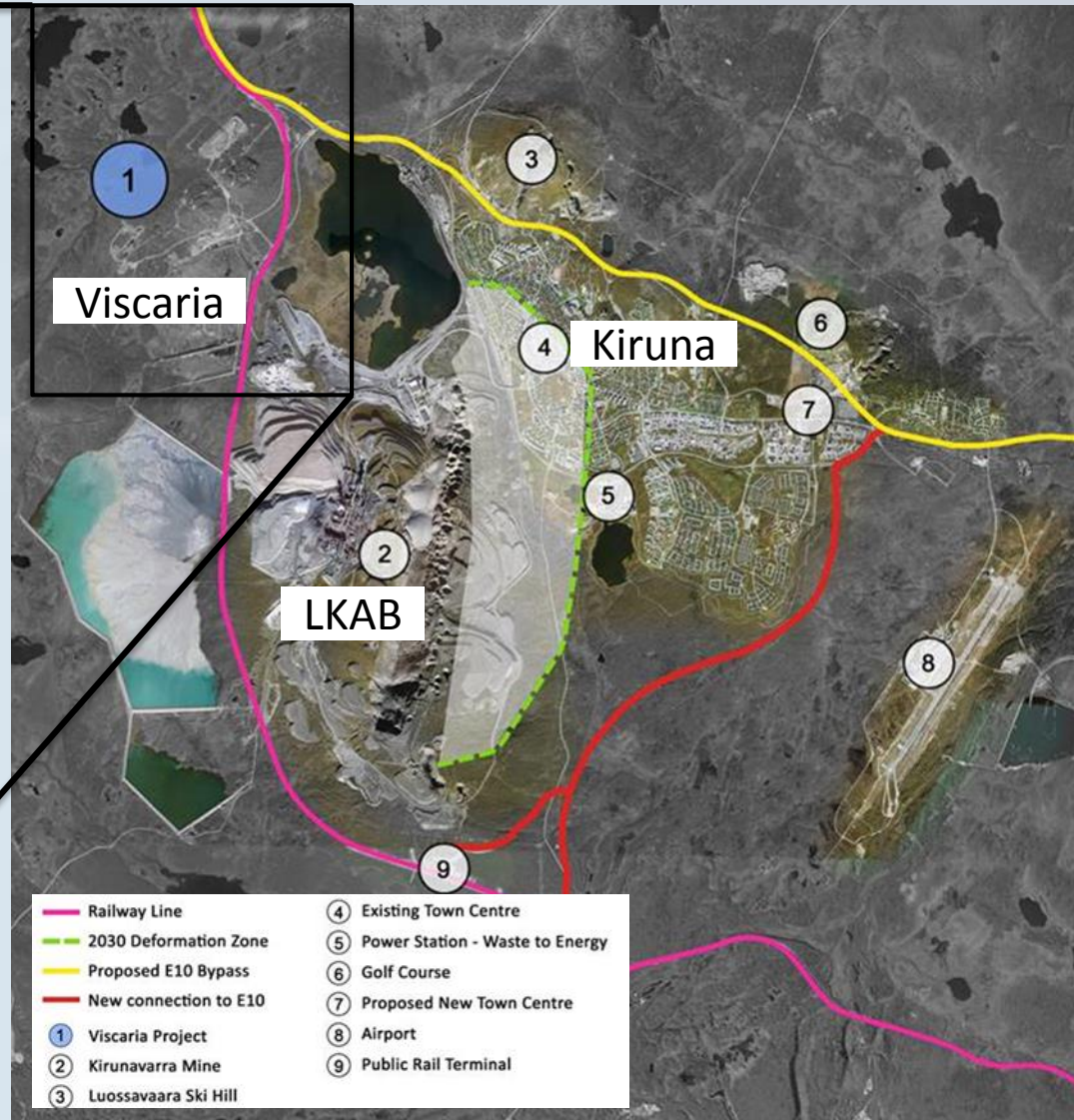
LOW COST HYDRO POWER



# KIRUNA AND VISCARIA LOCATION MAP



Copper orebodies shown in orange

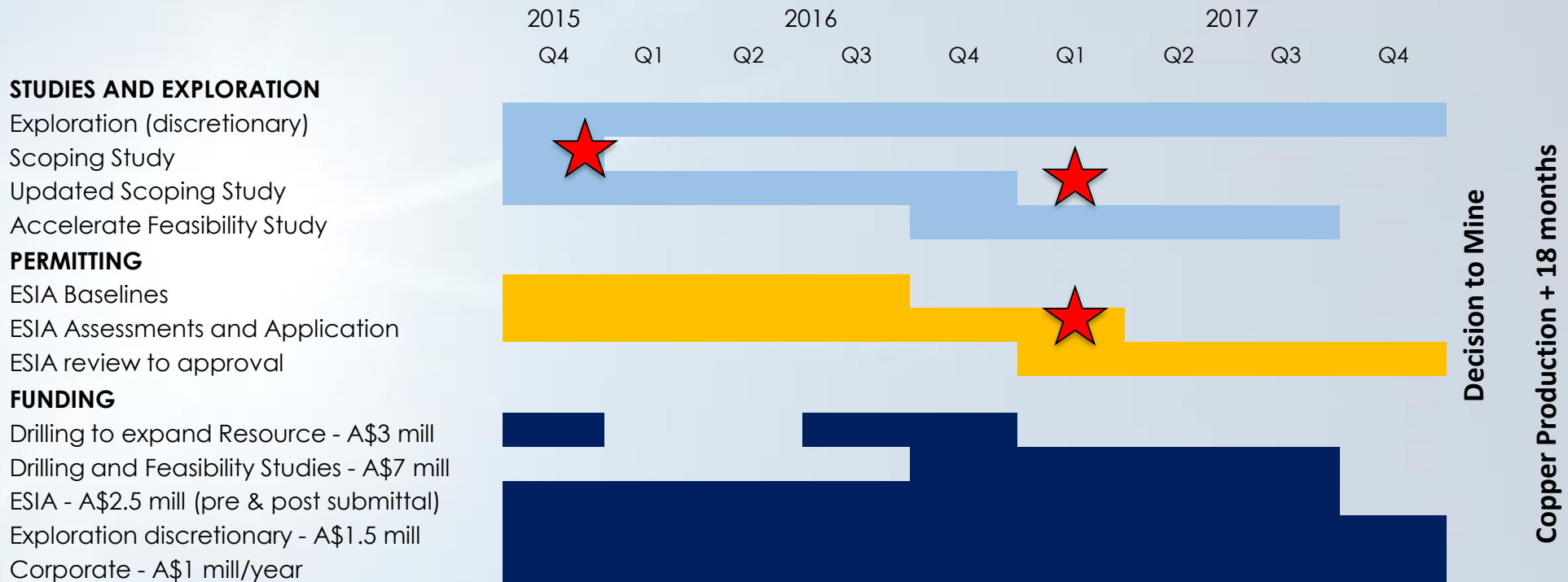


# VISCARIA COPPER: UPDATES TO 2015 SCOPING STUDY

The 2015 Scoping Study confirmed the project description to begin ESIA process (Refer ASX Announcement 14 December 2015)

	2015 Scoping Study	Target Case A and Expanded Case	
<b>Process plant size</b>	<b>1.2Mtpa scenario</b>	<b>2.0Mtpa scenario</b>	<b>3.0Mtpa scenario</b>
<b>Strip ratio (LOM)</b>	5.8	6.0	8.4
<b>Process</b>	Crush, grind and copper flotation plant		
<b>Recovery rates</b>	90.2%	90.2%	90.2%
<b>Copper Production</b>			
LOM	107kt	200kt	260kt
Average per annum	12kt	21kt	30kt
<b>Mine life</b>	Minimum eight years, open	<b>Minimum nine years, open</b>	Minimum nine years
<b>Development capital</b>			
Site Infrastructure	US\$87m (A\$119m)	<b>US\$115m</b>	US\$145m
Underground	US\$15m (A\$20m)	<b>US\$15m</b>	US\$15m
<b>Sustaining capital (LOM)</b>			
Site Infrastructure	US\$10.6m (A\$14m)	US\$14m	US\$18m
Underground	US\$20.0m (A\$27m)	US\$35m	US\$35m
<b>Cash operating cost</b>		<b>Targeting &lt;US\$2.00/lb</b>	
LOM C1	US\$1.86/lb (A\$2.54/lb)		
LOM AISC	US\$2.10/lb (A\$2.87/lb)		
<b>Copper price</b>	US\$3.25/lb (A\$4.45/lb)	<b>US\$3.00</b>	US\$3.00
<b>Exchange rate</b>			
AUD : USD	0.73	0.73	0.73
<b>NPV pre-tax (7%)</b>	US\$74m (A\$102m)	<b>Targeting &gt;US\$150 mill</b>	
<b>IRR pre-tax (%)</b>	22%	<b>Targeting &gt;28%</b>	
<b>Payback period</b>	3.7 years	<b>&lt;4 years</b>	<4 years
<b>Capital intensity</b>	US\$7,335/t cu p.a.	~US\$5,750	~US\$5,100

# VISCARIA - TIMETABLE



## TARGET TIME FRAMES

- ✓ Scoping Study Copper Project - December 2015
- Updated Scoping Study - Q4, 2016
- Decision to Build and construction start in late 2017/early 2018
- Copper production 2019 – correspond with increase in copper price

# CORPORATE

<b>TICKER</b>	<b>ASX:AVI Frankfurt:AL9</b>
<b>SHARE PRICE*</b>	<b>A\$0.019</b>
<b>SHARES ON ISSUE</b>	<b>383,101,935</b>
<b>MARKET CAP</b>	<b>A\$7.3M</b>
<b>CASH#</b>	<b>A\$1.0M</b>
<b>52 WEEK TRADING</b>	<b>A\$0.010 - \$0.035</b>

As at 31.05.16 - 30 day VWAP \*

As at 31.05.16 - unaudited #

Top 10 shareholders hold 70% of shares on issue

Board and management hold 3.5% and have participated in recent placements

European and UK shareholders total 50%

## SUBSTANTIAL SHAREHOLDERS

<b>NAME</b>	<b>%</b>
Valbonne II	17.1%
Marilei International	9.9%
Tan Sri Abu Sahid Bin Mohamed	8.9%
Potezna Gromadka	8.5%
Wyntorc SA	5.5%





# COMPETENT PERSONS STATEMENT

## **Competent Persons Statement**

The information in this report that relates to exploration targets and results is based upon information reviewed by Mr Malcolm Norris who is a Fellow of the Australasian Institute of Mining and Metallurgy. Mr Norris is a full-time employee of Avalon Minerals Ltd and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the “Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves”. Mr Norris consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

# APPENDIX 1 - KELIBER OY (Finland) PFS March 2016

The Mineral Resources have been estimated using 0.5% Li<sub>2</sub>O cut-off grade. Ore Reserves are included in the Mineral Resources.

Mineral Resource and Ore Reserve summary of the estimated deposits						
Deposit	Resource class	Tonnage Mt	Li <sub>2</sub> O %	Reserve class	Tonnage Mt	Li <sub>2</sub> O %
<b>Syväjärvi</b>	Indicated	1.53	1.35	Probable	1.48	1.19
	Inferred	0.19	1.32			
<b>Rapasaari</b>	Indicated	1.81	1.25	Probable	1.75	1.09
	Inferred	0.16	1.30			
<b>Länttä</b>	Measured	0.44	1.10	Proven	0.47	0.95
	Indicated	0.91	1.04	Probable	0.54	0.93
	Meas. + Ind.	1.35	1.06	Prov. + Prob.	1.01	0.94
<b>Outovesi</b>	Indicated	0.28	1.40	Probable	0.25	1.20

Source: <http://keliber.fi/pfs>

# APPENDIX 2 – KIETYÖNMÄKI (from www.nortecminerals.com)

A relogging and resampling program was carried out in late November 2012 on the drill core stored at the Geological Survey of Finland ("GTK") core storage facility in Loppi, southern Finland. Select intervals of the drill core were taken from drill hole R310 that was drilled on the Kietyönmäki prospect, situated in the western part of the Tammela Project. The best drill intercepts are tabled below:

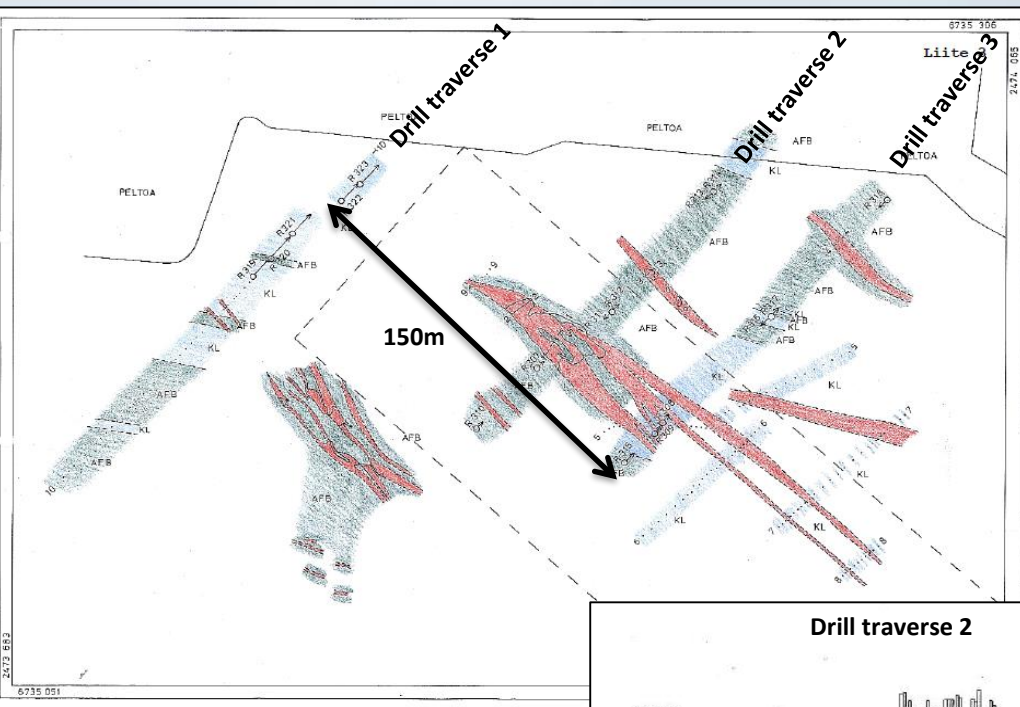
Hole ID	From (m)	To (m)	Interval (m)	Lithium %	Li <sub>2</sub> O %	Sn g/t	Ta g/t	Nb g/t	Be g/t	Cs g/t	Rb g/t
R310	11.75	14.75	3.00	0.51	1.1	70	100	115	181	67	1096
R310	20.40	25.30	4.90	0.10	0.2	42	59	64	95	99	618
<b>R310</b>	58.75	83.00	24.25	0.61	1.3	66	59	51	130	60	520
<b>including</b>	<b>68.00</b>	<b>77.00</b>	<b>9.00</b>	<b>1.03</b>	<b>2.2</b>	<b>72</b>	<b>57</b>	<b>49</b>	<b>113</b>	<b>45</b>	<b>500</b>
<b>with</b>	<b>70.00</b>	<b>73.00</b>	<b>3.00</b>	<b>1.67</b>	<b>3.6</b>	<b>85</b>	<b>52</b>	<b>29</b>	<b>81</b>	<b>24</b>	<b>222</b>

Sn = Tin; Ta = Tantalum; Nb = Niobium; Be = Beryllium; Cs = Caesium; Rb = Rubidium

## Results Not Compliant with 43-101 Guidelines

Samples were submitted to ALS Chemex in Outokumpu for 48 element ICP-MS finish. Ore grade results for lithium were analysed using a 4-acid digest method and an AAS finish. These results re-confirm the presence of significant lithium mineralisation at Kietyönmäki that was documented by the GTK in 1985.

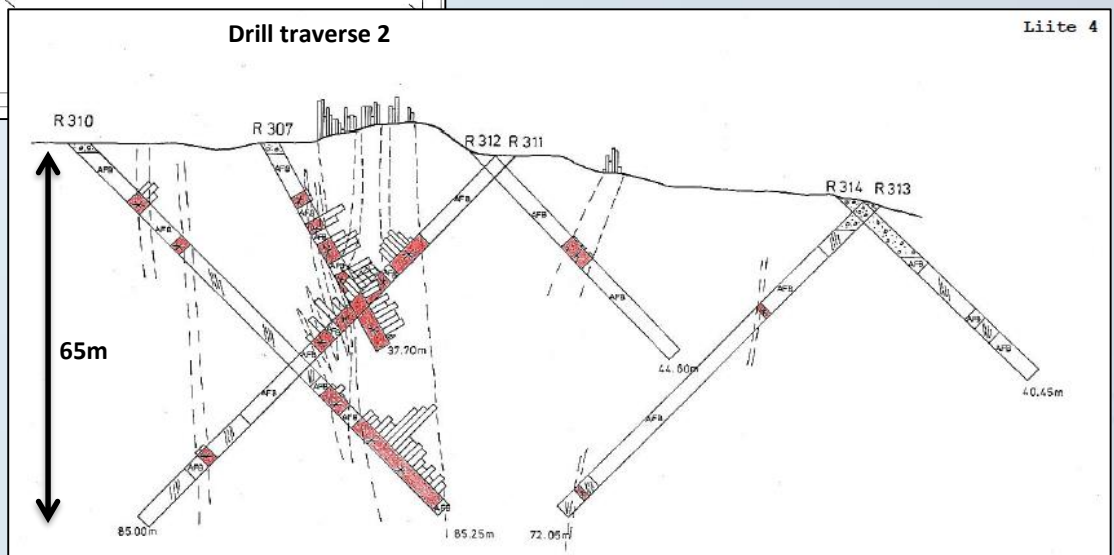
# KIETYÖNMÄKI DEPOSIT – HISTORICAL EXPLORATION BY GTK (Finnish Geological Survey)



- Drill Traverse 1** – shallow holes, poor test of area (30m deep holes, 12m of cover)
  - Drill Traverse 2** – defined Main Dyke, but only to a depth of 65m below surface
  - Drill Traverse 3** – added strike extent to Main Dyke and tested to 70m below surface
- Other lithium pegmatite dykes mapped, sampled to confirm lithium, but not drilled

Graphics from 1985 GTK report on first and only diamond drilling program

Pegmatite distribution, in red, defined by 143 RAB holes, 1-4m deep, on 6 traverses

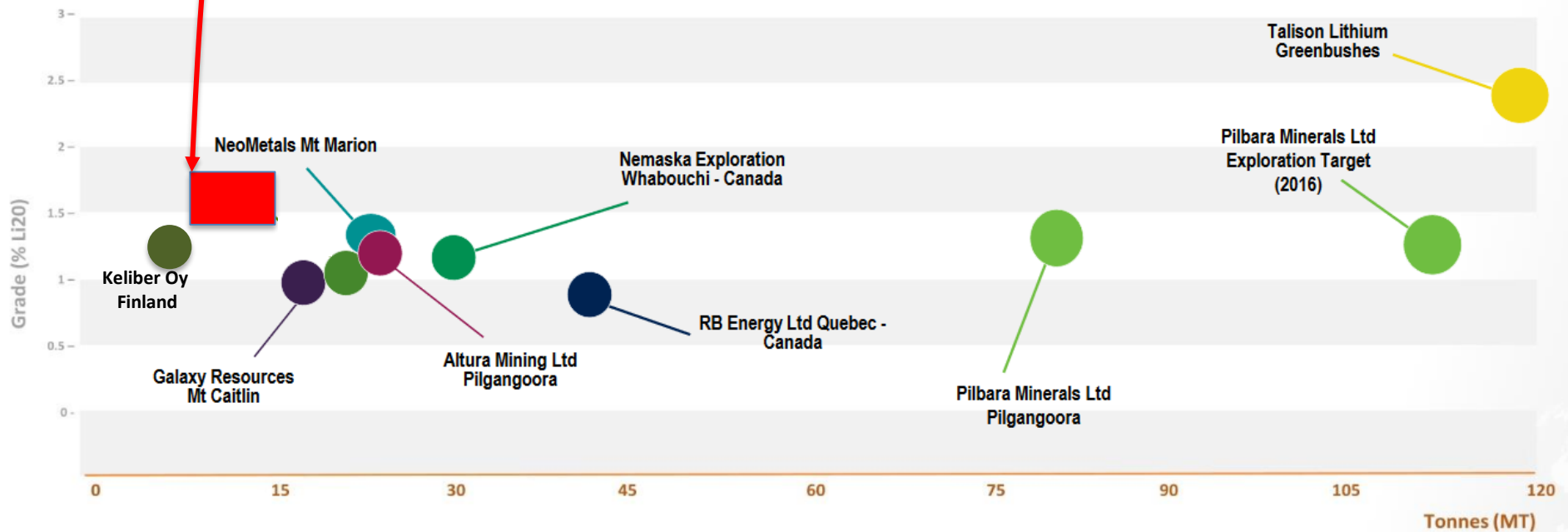


# APPENDIX 3 - OTHER LITHIUM DEPOSITS

## KIETYÖNMÄKI DEPOSIT INITIAL EXPLORATION TARGET JUNE 2016

The potential quantity and grade is conceptual in nature. There has to date been insufficient exploration to estimate a Mineral Resource and it is uncertain if further exploration will result in the estimation of a Mineral Resource

### Peer Comparison – Resource Tonnage and Grade



**Source -**

<http://www.pilbaraminerals.com.au/sites/pilbaraminerals.com.au/files/institutionalinvestor%20presentation%2007042016.pdf>



# APPENDIX 4 – TAMMELA GOLD (from [www.nortecminerals.com](http://www.nortecminerals.com))

During the 1990's, the Geological Survey of Finland (GTK) drilled 39 holes at the Riukka prospect and 57 holes in the Satulinmäki prospect targeting geochemical anomalies with elevated gold. Nortec inspected 9 holes from Riukka and 6 from Satulinmäki from the GTK core library. The drill core was re-logged to identify the styles and controls of gold mineralization. Samples were selected from 13 of the 15 holes logged for a total of 414 samples (141 samples from Riukka and 273 from Satulinmäki). The best assay intervals from the samples taken by Nortec are shown in the table below.

Hole_ID	From (m)	To (m)	Interval (m)	Gold g/t	Prospect
R329	13.4	20.5	7.1	1.67	Satulinmäki
R330	51	88.7	37.7	1.03	Satulinmäki
<i>including</i>	58.5	61.5	3	3.85	Satulinmäki
<i>including</i>	84.2	88.7	4.5	3.37	Satulinmäki
R334	29.2	34.2	5	1.6	Satulinmäki
R340	20.8	31.8	11	0.48	Satulinmäki
R385	13	15	2	1.57	Satulinmäki
R386	40	43	3	0.56	Satulinmäki
R332	19.6	20.6	1	1.16	Riukka
R333	NSI	NSI	NSI	NSR	Riukka
R356	20	30	10	2.47	Riukka
<i>including</i>	21	24	3	7.37	Riukka
R357	61.35	63.85	2.5	6.81	Riukka
R358	NSI	NSI	NSI	NSR	Riukka
R366	NSI	NSI	NSI	NSR	Riukka
R374	53	56	3	0.66	Riukka