Superior Resources | ASX Announcement

6 March 2020

Drilling results upgrade Nicholson Project potential

HIGHLIGHTS:

- **Nicholson Project's base metal potential upgraded following recent drilling program**
- **Four diamond core holes, totalling 3,175m, drilled at three of eight targets; drilling at other targets pending**
- **Drilling confirmed presence of SEDEX-style mineralisation system at Nicholson West, contained within a thick (up to 340m) Mount Les Siltstone rock unit**
- **Superior planning 2020 drilling program at the Greenvale Project, targeting high grade copper core at the large Bottletree Copper Prospect, nickel-copper at the new Big Mag Prospect and evaluating mining potential at the Steam Engine Gold Deposit**
- **Nicholson JV partner South32 not proceeding to stage two after fully funding initial $1.7m of drilling; Superior to progress talks with other parties concerning potential joint arrangements**

Superior Resources Limited (ASX:SPQ) announced today a boost for its wholly owned Nicholson Project, with recent drilling results and data reviews resulting in the Company upgrading the north-west Queensland project's base metals potential, including a potentially large SEDEX-style system at Nicholson West.

The Nicholson Project is located within the globally attractive Carpentaria Zinc Province, which contains an estimated 20% of the world's zinc inventory. In 2019, Superior signed an earn-in and joint venture agreement with global miner South32 to advance exploration of the project, under which it agreed to fully fund an initial $2 million or 4,000m of drilling within the first 12 months of operations (stage one), with the option of sole funding a further $4 million on exploration within the following four years (stage two) (refer ASX announcement 29 May 2019).

Commenting on the latest results, Superior's Managing Director, Peter Hwang said: "*We are very encouraged by the overall results of the 2019 drilling program, particularly considering that only three of the initial eight targets have been drilled. Although we are yet to complete our analysis, we have already identified a potentially large base metal-mineralised SEDEX system at Nicholson West near the major Nicholson River Fault Zone.*

Excitement has also been generated from further data analysis of the Walford South target, one of the 2019 program targets that is yet to be drilled and which is located only six kilometres away from Aeon Metals' Walford Creek deposit.

The results at Nicholson have boosted our confidence in our 2020 outlook, adding to our prospective targets this year including at Bottletree, Big Mag and Steam Engine, with the potential to deliver world-class discoveries."

He added: "*We have also just been notified of South32's decision to withdraw from the joint venture agreement at Nicholson. While regrettable, we consider the initial results have been encouraging and we aim to advance the project's various targets to determine their full potential.*

Looking forward, we are pleased that Superior retains 100% unfettered rights to the project and the benefit of substantially reduced future drilling costs as a result of the extensive project infrastructure that has been established by South32. In addition, we will be following up on expressions of interest from other third parties regarding potential joint arrangements."

T +61 7 3847 2887
E manager@superiorresources.com.au
A Unit 8, 61 Holdsworth Street, Coorparoo, QLD 4151
PO Box 189, Coorparoo, QLD 4151

DRILLING SUMMARY:

- **Stage 1 drilling program under the Hedleys Joint Venture between South32 and Superior Resources Limited commenced on 23 July 2019, targeting up to eight large (Tier-1 size potential) geophysical conductivity anomalies having potential to be caused by large SEDEX (McArthur River style) base metal deposits.**
- **Four diamond core holes, totalling 3,175.7m (of a planned eleven hole program), drilled at three of the targets were completed by late October 2019 (the end of the 2019 field season).**
- **Initial drilling at five other targets yet to be completed.**
- **Recently received assay results from selective drill intercepts confirms mineralisation visually observed within the core and enables the commencement of an interpretative review of all data sets. This review is incomplete, but ongoing.**
- **Drilling confirmed the presence of a SEDEX mineralisation system at Nicholson West, which is developed within a thick (up to 340m) Mount Les Siltstone rock unit.**
- **Drilling so far has been focussed on the Nicholson West target area (including Nicholson River target).**
- **Nicholson West target area:**
  - **two drill holes at Nicholson West (NWDD001 and NWDD002) intersected multiple thin horizons of visible stratiform sulphide mineralisation, including pyrite and sphalerite (zinc sulphide) within thick Mount Les Siltstone;**
  - **encouraging levels of zinc and lead mineralisation were returned within interpreted outer edges of a SEDEX system, indicating that a main body of mineralisation may be developed closer to the potential mineralising feeder structure located about 3 kilometres to the south at the Nicholson River Fault Zone.**
  - **anomalous lead and zinc values of up to 1840 ppm are scattered but concentrated near the top and base of the Mount Les Siltstone, which is consistent with the visually observed multiple thin bands of visible mineralisation in the core; and**
  - **considered to represent the outer zones of a potentially mineralised apron of a large SEDEX system.**
- **Nicholson River target:**
  - **large, high order conductivity anomaly located 3.5 kms south of the Nicholson West drill holes and within the Nicholson River Fault Zone (NRFZ) (the first of several highest priority targets planned to be drilled);**
  - **the NRFZ is considered to be the likely major fault conduit and the potential source of mineralised fluids for the deposition of zinc-lead-silver SEDEX ore deposits within the area between the NRFZ and the Nicholson West drill holes;**
  - **current analysis of drill hole NWDD003 (which targeted the Nicholson River anomaly) together with geophysical data indicates that the anomaly was not intersected as a result of:**
    - **NWDD003 drilled at a -55^0 angle due to difficulties accessing the location for a vertical hole; and**
    - **probable incorrect anomaly depth estimates produced from the Aarhus geophysical modelling at this location.**

- **$1.7 million has been spent to date. Due to the difficult terrain and remoteness of the project, together with the substantial initial infrastructure establishment costs, the per-metre drilling costs have been high. Fortunately, future drilling costs will be substantially lower.**

HEDLEYS JV – STAGE 1 DRILLING PROGRAM

Drilling during 2019 progressed under Stage 1 of the Hedleys Joint Venture (**JV**) between Superior and South32 Group Operations Pty Ltd (**South32**) with the aim of systematically drill-testing the Nicholson Project for the presence of large SEDEX (McArthur River style) base metal deposits. Completion of Stage 1 requires South32 to fully fund $2 million or 4,000 metres of drilling (whichever comes first) within 12 months of the commencement of the first drill hole (first hole commenced 27 July 2019). Superior is appointed the Operator.

The Stage 1 program targeted a total of eight large geophysical conductivity anomalies with up to eleven diamond core holes. To date, a total of four holes (totaling 3,175.7m) have been drilled at three of the target areas (refer Table 1; Figures 1 and 2). One of the holes drilled at a highest priority target at Nicholson River did not intersect the target horizon and requires follow-up drilling.

The targeting was based on the interpretation of Aarhus-modelled airborne VTEM (Versatile Time Domain Electromagnetic) survey data, originally commissioned by Superior. The Mount Les Siltstone is the prospective rock unit in which stratiform sedimentary-exhalative (**SEDEX**) style base metal deposits are developed.

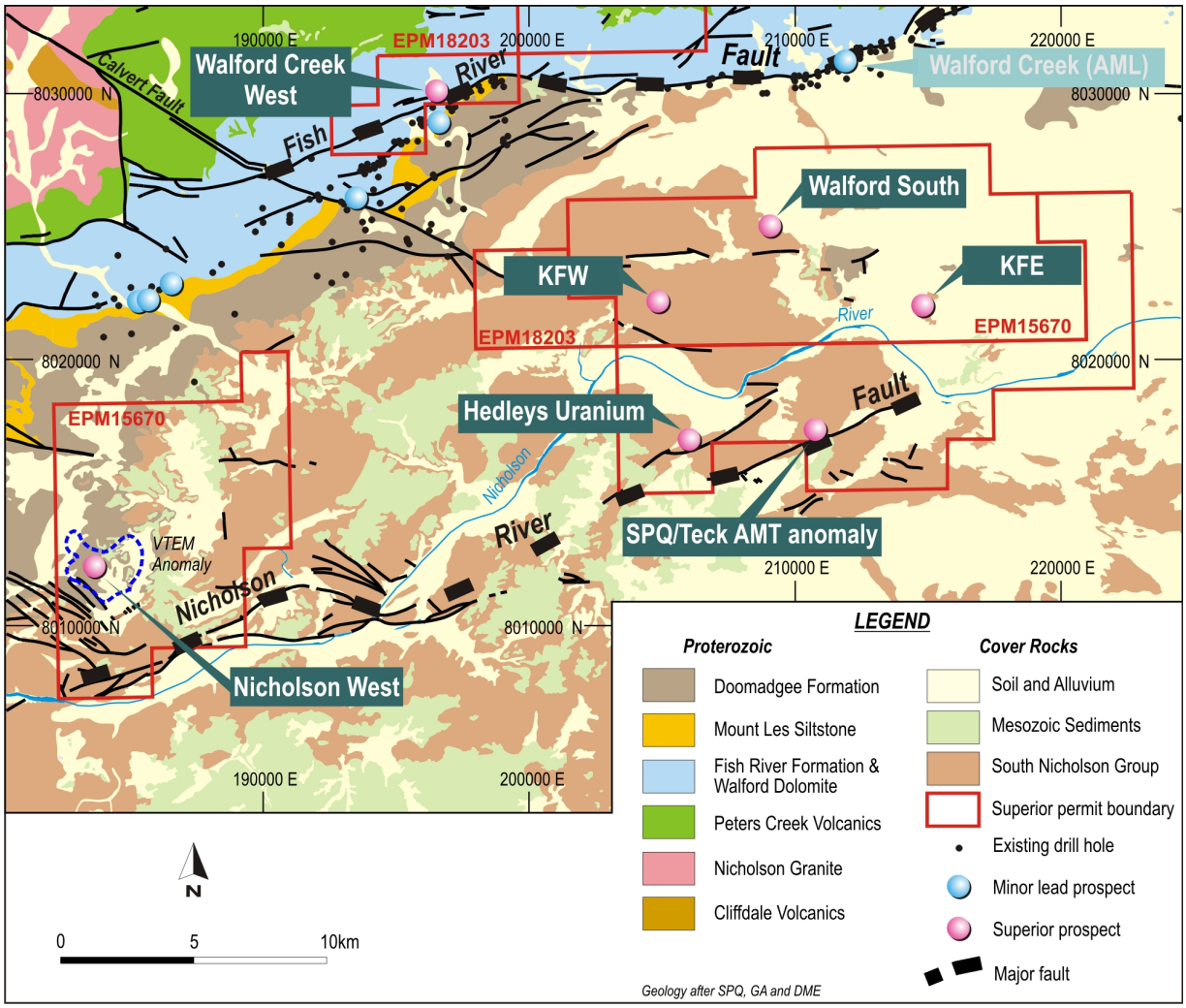

Figure 1. Nicholson Project tenements and key prospect locations, with regional geology in the background.

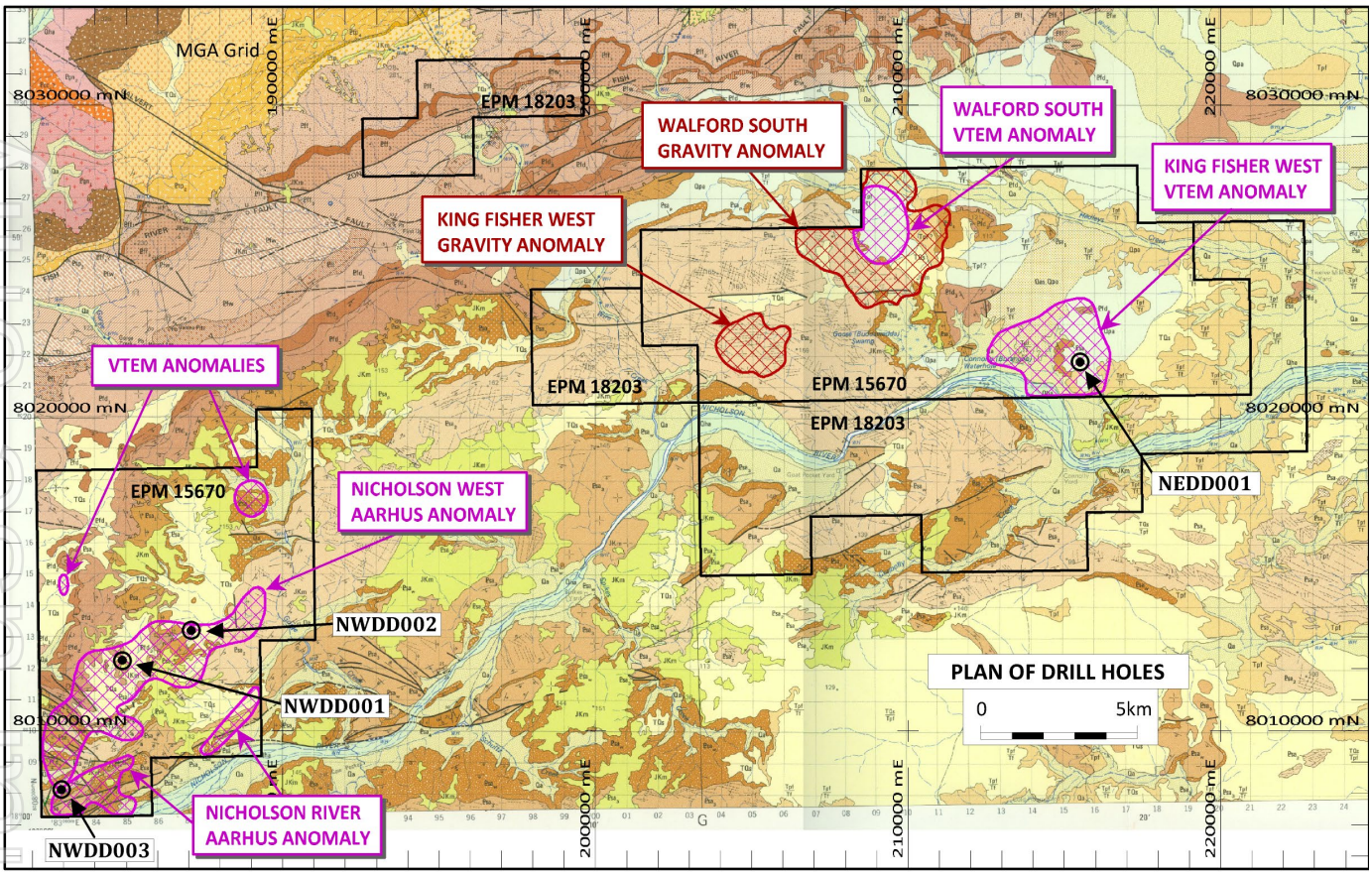

Figure 2. Plan of key Nicholson Project targets, showing 2019 drill hole locations.

Table 1. Nicholson Project – Initial Drilling Program summary

Target (approximate size)	Drill Hole reference	Assays Received	Preliminary Comments
Nicholson West (10 km²)	**NWDD001** (vertical hole)	Yes	Intersected thick Mount Les Siltstone. Multiple thin horizons of visible stratiform sulphide mineralisation within the Mount Les Siltstone. Possible outer apron of a more substantial zone of mineralisation. Any more substantial mineralisation potentially located closer to the Nicholson River (Nicholson River Fault Zone).
	NWDD002 (vertical hole)	Yes	
Nicholson West (River)	**NWDD003** (-55⁰ angle hole)	Yes	Highest priority hole. Adjacent to Nicholson River Fault Zone. Conductivity anomaly not visually explained in the core – target not intersected. Geophysical review and vertical follow-up hole required.
	Proposed Hole 2 (Not yet drilled)	N/A	Highest priority hole. Adjacent to Nicholson River Fault Zone.
	Proposed Hole 3 (Not yet drilled)	N/A	High priority hole. Adjacent to Nicholson River Fault Zone.
	Proposed Hole 4 (Not yet drilled)	N/A	High priority hole. Adjacent to Nicholson River Fault Zone.

Hedleys South (15 km2)	**Proposed Hole 1** (Not yet drilled)	N/A	Highest priority hole
Teck/SPQ AMT Target	**Proposed Hole 1** (Not yet drilled)	N/A	High priority hole
Kingfisher East (15 km²)	**NEDD001** (vertical hole)	Yes	Intersected thick Mount Les Siltstone. Multiple thin horizons of visible stratiform sulphide mineralisation within the Mount Les Siltstone.
Nicholson West (North West)	**Proposed Hole 1** (Not yet drilled)	N/A	High priority hole
Nicholson West (North East)	**Proposed Hole 1** (Not yet drilled)	N/A	High priority hole

RESULTS

Nicholson West – NWDD001 and NWDD002

The Nicholson West target is a large Aarhus-modelled conductivity anomaly, elongated adjacent to a significant northeast-trending fault structure and covers about 8 kms by 2 kms.

Holes NWDD001 and NWDD002 were drilled 2.3 kms apart into the peak modelled conductivity zones of the anomaly. Core from each of the holes exhibited a consistent stratigraphic sequence. The thickness of the targeted Mount Les Siltstone varies from 310m thick (from 245m depth) in NWDD001 and 297m thick (from 378m depth) in NWDD002. Together with the geophysical modelling, the Nicholson West holes indicate that the stratigraphy is generally flat lying with a gentle dip towards the southeast.

MINERALISATION

Mineralisation encountered within the Mount Les Siltstone is predominantly in the form of multiple flat lying stratiform pyritic shales with variable thicknesses of up to eight centimetres with occasional visible sphalerite (zinc sulphide) (Figures 3 and 4). The mineralised parts of the Mount Les Siltstone are concentrated at the upper and lower zones of the unit (Figures 6 and 7).

Figure 3. NWWD001 at 286.6m. Stratiform bedded sulfide layer in the upper pyritic black shale unit of the Mount Les Siltstone.

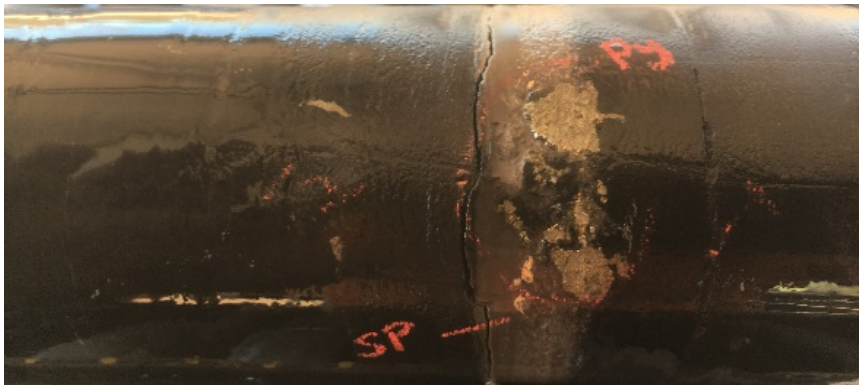

Figure 4. NWWD001 at 247.7m. Pyrite and Sphalerite layering in Mount Les Siltstone.

Mineralisation is also observed in younger rock units overlying the Mount Les Siltstone (Doomadgee Formation, which is overlain by the Pandanus Siltstone). More discrete lead and zinc mineralisation exhibiting characteristics that are similar to Mississippi Valley Type (**MVT**) deposits are particularly developed within the Pandanus Siltstone, which overlies the Doomadgee Formation (Figure 5).

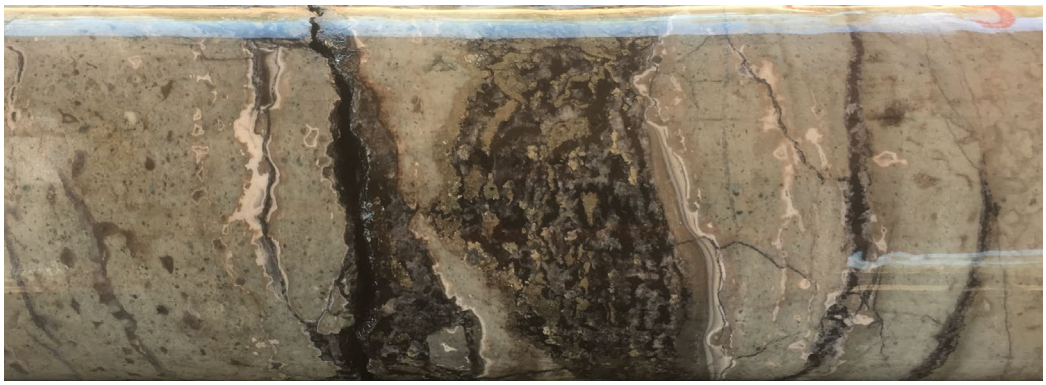

Figure 5. NWWD002 at 241.3m. Pyrite and Sphalerite cavity infill within the Doomadgee Formation.

Sampling and assaying of the pre-collar and drill core was focused only on the Mount Les Siltstone and other intervals that display sulphide mineralisation. Some anomalous intervals include:

- NWDD001: 2 metres @ 0.19% Zn, 330ppm Pb, 0.9ppm Ag from 97 metres down hole; and
- NWDD002: 1 metre @ 0.18% Zn, 269ppm Pb from 378 metres down hole.

A full list of mineralised intercepts is set out in Appendix 1.

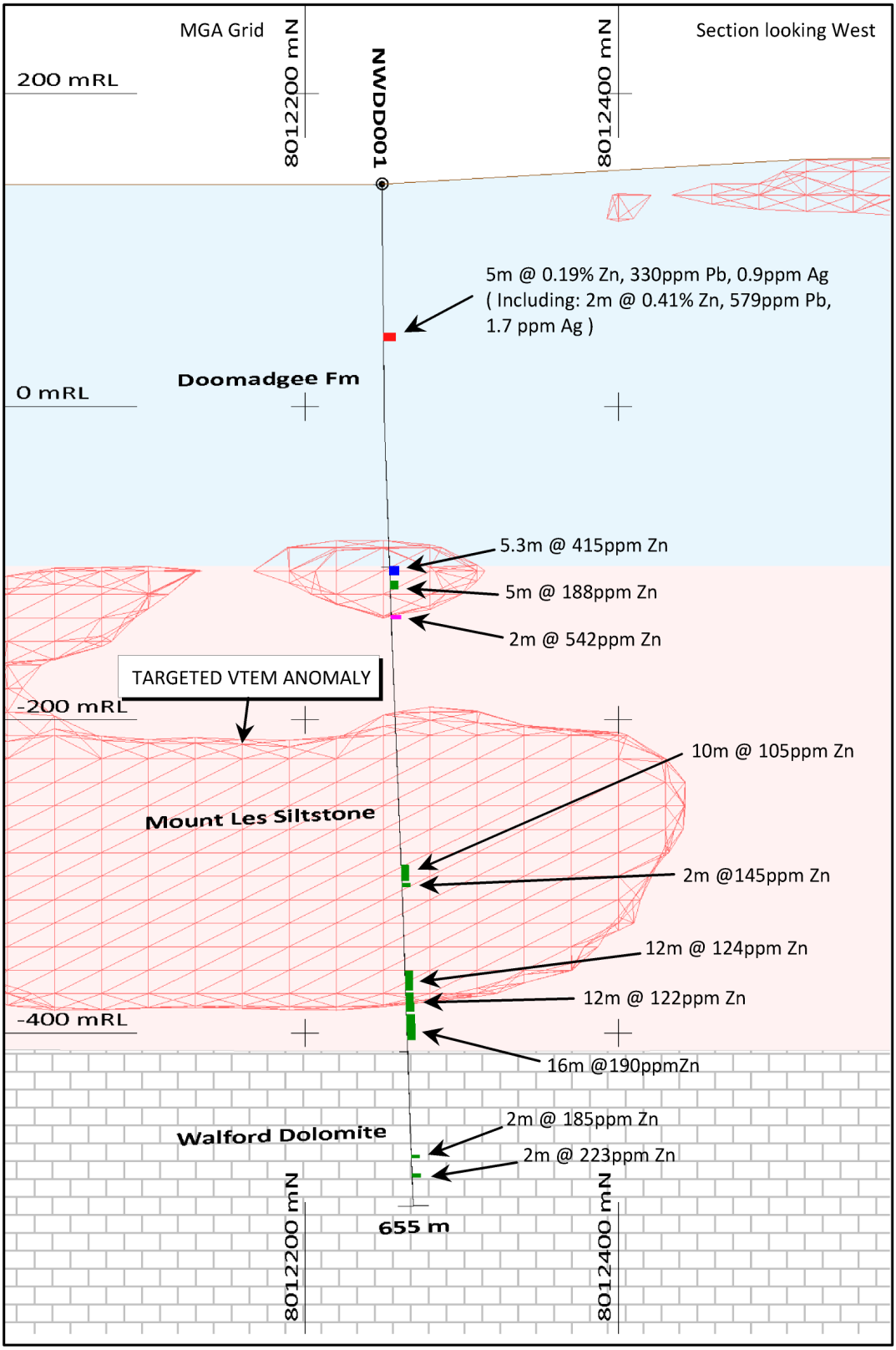

Figure 6. NWDD001 drill section showing select mineralised intervals (note that the hole was only selectively assayed), the local flat lying geological stratigraphy and Aarhus-modelled VTEM anomaly conductivity shells.

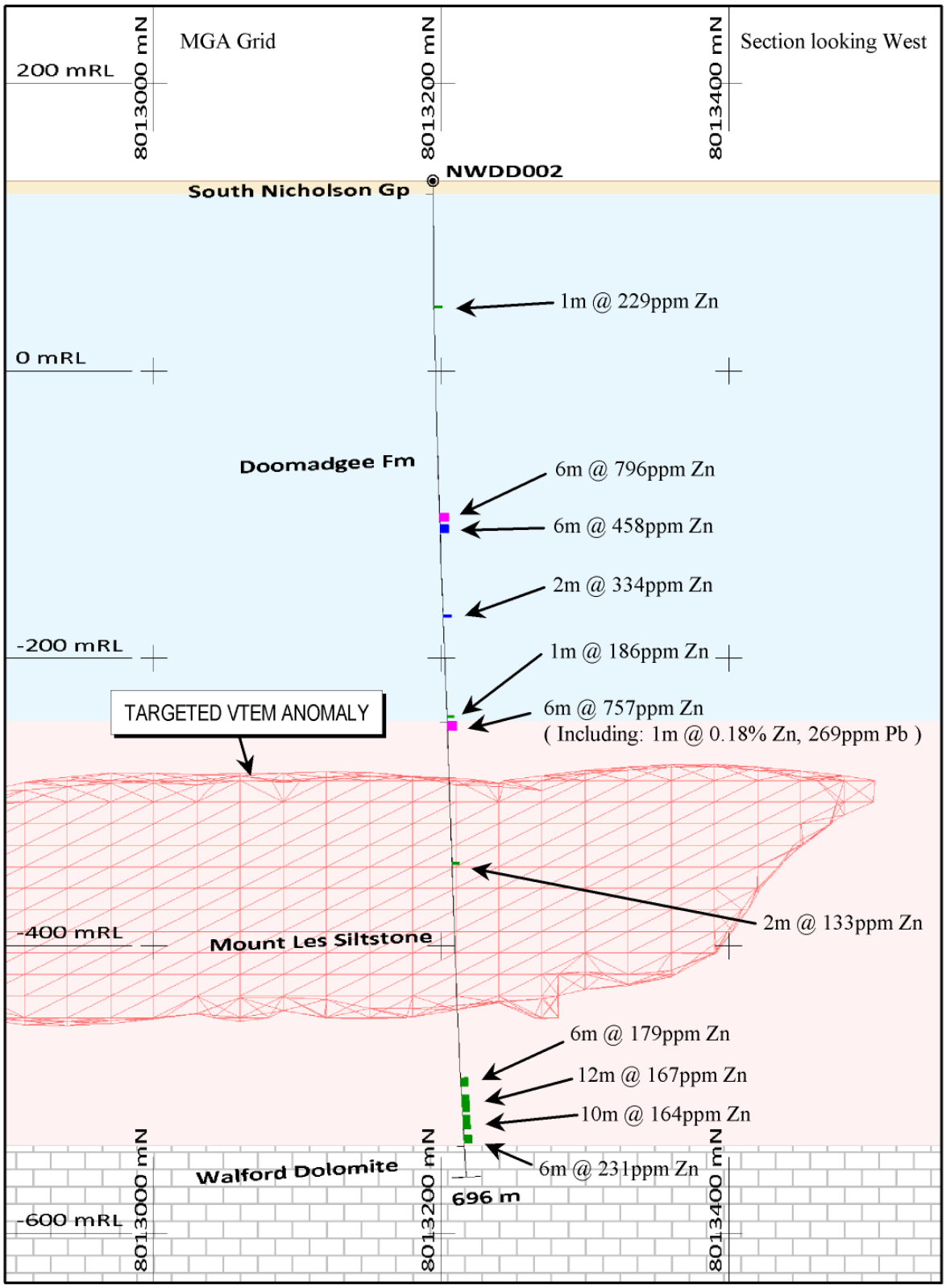

Figure 7. NWDD002 drill section showing select mineralised intervals (note that the hole was only selectively assayed), the local flat lying geological stratigraphy and Aarhus-modelled VTEM anomaly conductivity shell.

SEDEX SYSTEM

Drill holes NWDD001 and NWDD002 are positioned 2.3kms apart and equidistant at between 2.5kms and 3.5kms north of significant fault structures related to the Nicholson River Fault Zone. The stratiform mineralisation observed within the pyritic shales of the Mount Les Siltstone possibly represent the outer mineralised apron of a large base metal-mineralised SEDEX system (Figure 8).

Further follow-up drilling will be required within the zone between the current holes and the Nicholson River Fault Zone in order to test for the presence of a SEDEX ore deposit.

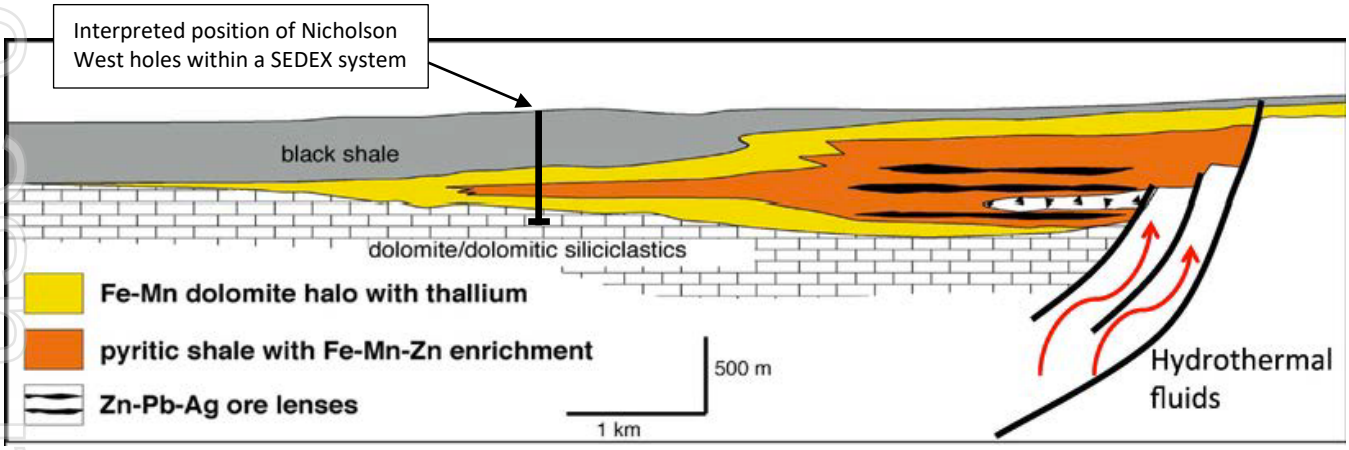

Figure 8. Schematic cross section of a typical northern Australian stratiform zinc-lead-silver deposit showing multiple ore lens horizons at or near the source of hydrothermal mineralising fluids and an apron of diminishing stratiform sulphide mineralisation away from the fluid source zone (Large et al., 2005). The interpreted position of the Nicholson West holes (NWDD001 and NWDD002) relative to the schematic representation of a SEDEX deposit system is also shown.

Nicholson River – NWDD003

The Nicholson River target is a large, very high order Aarhus-modelled conductivity anomaly located within the Nicholson River Fault Zone. The conductivity target was modelled to be at a vertical depth of 280 metres.

Due to difficult terrain, drill hole NWDD003 could not be sited directly above the target to enable the drilling of a vertical hole. As a result, NWDD003 was collared some distance away and was drilled as a -55^0 angle hole designed to intersect the anomaly at a greater down-hole depth (Figure 9).

NWDD003 failed to intersect any obvious zone of conductivity and also failed to intersect the Mount Les Siltstone.

Anomalous base metal mineralisation was returned from most of the hole with 2 metres @ 0.11% Pb returned at the bottom of the hole (from 913m), which reflects the observations from the core.

Detailed examination of the core together with structural and geophysical data, indicate the possibility of a localised sub-basin developed within and adjacent to the Nicholson River Fault Zone.

Further analysis of the drill core and associated data is currently progressing.

The current interpretation of NWDD003 is that the Aarhus modelled depth to target at this location is incorrect, which resulted in the failure of the angled hole to intersect the conductive cause of the anomaly.

The Nicholson River target remains a highest priority target and a follow-up hole will be required in the next field campaign.

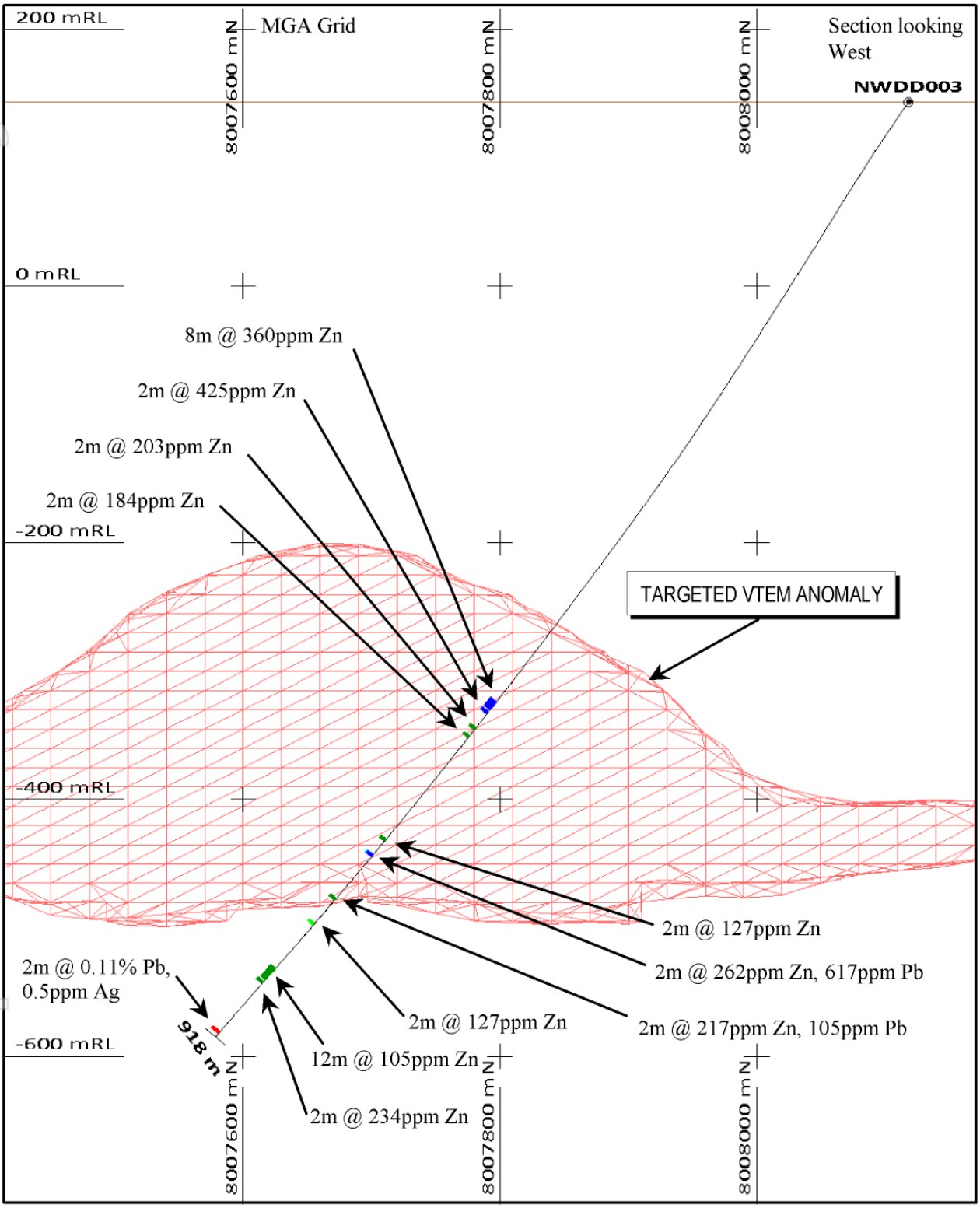

Figure 9. NWDD003 drill section showing select mineralised intervals (note that the hole was only selectively assayed), and the highest priority Aarhus-modelled VTEM anomaly conductivity shell. The cause of the Aarhus anomaly was not intersected or otherwise explained in the core samples from NWDD003. A re-examination and interpretation exercise of the Aarhus geophysical model and of the geological stratigraphy is currently being conducted. Current conclusion is that a conductor source is located below the drill hole column.

Kingfisher East – NEDD001

The Kingfisher East Aarhus conductivity anomaly is a very large and broad zone of relatively high conductivity located adjacent to a major east-west aligned fault.

A single hole drilled into one of the peak modelled conductivity zones intersected the Mount Les Siltstone for a total thickness of 342 metres, from 546 metres depth (Figure 10).

Only anomalous levels of zinc with a peak value of 398ppm Zn was returned from within the Mount Les Siltstone.

Further analysis of the drill core and geophysics is progressing.

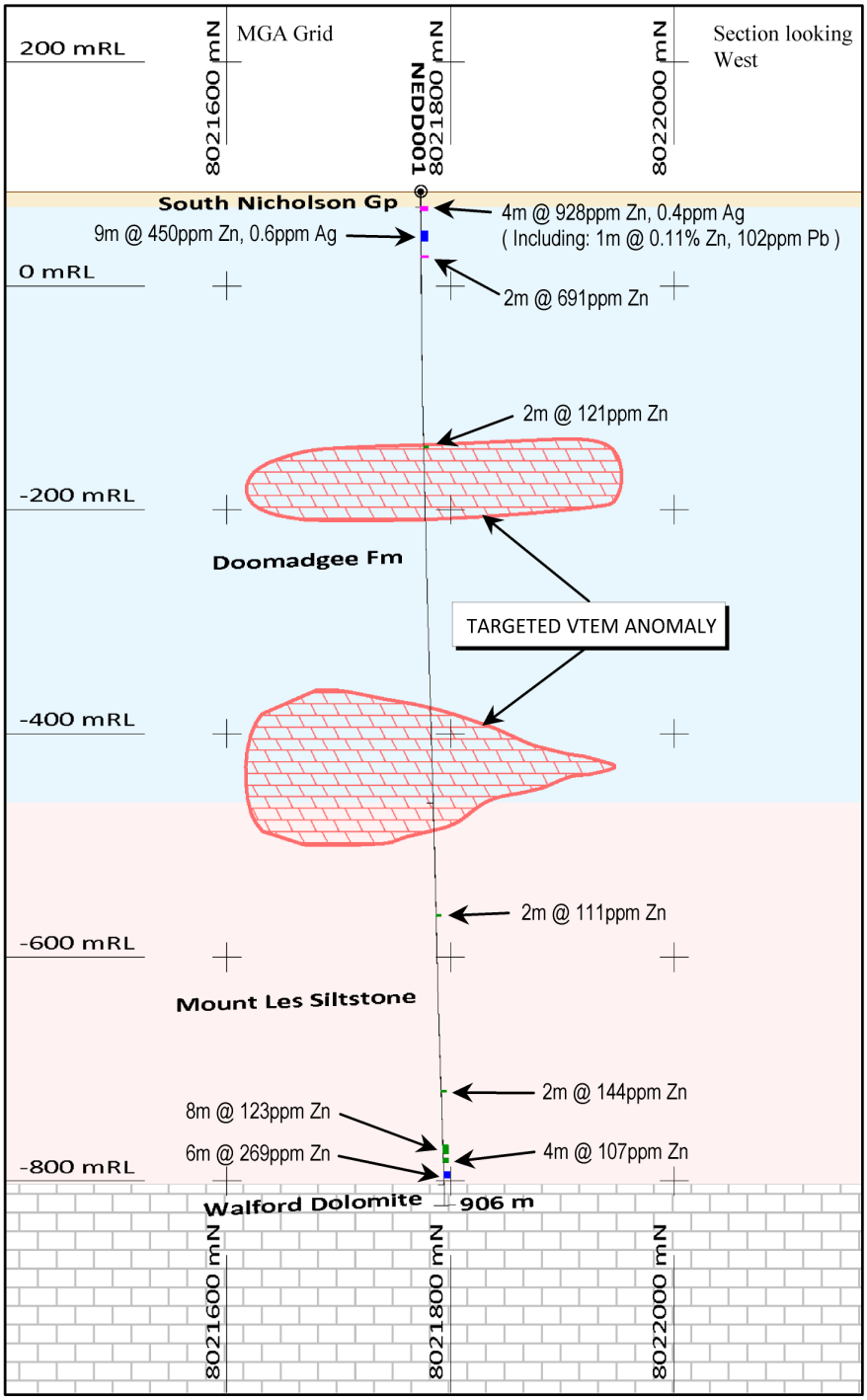

Figure 10. NEDD001 drill section showing select mineralised intervals (note that the hole was only selectively assayed), the local flat lying geological stratigraphy and Aarhus-modelled VTEM anomaly conductivity shells.

WALFORD SOUTH TARGET – YET TO BE DRILLED

The Walford South target is a coincident VTEM and gravity anomaly with an associated audio-magnetotelluric conductivity anomaly (**AMT**) (Figures 12 and 13). The anomalies are located adjacent to at least two significant fault structures that trend east-west and northwest-southeast.

Previous historical drilling of three vertical diamond core holes by Superior intersected well-developed stratiform pyritic shale within the Mount Les Siltstone (Figure 11).

Figure 11. Well-developed stratiform pyritic shale intersected within Mount Les Siltstone from historical drilling of the Walford South VTEM anomaly by Superior Resources Limited.

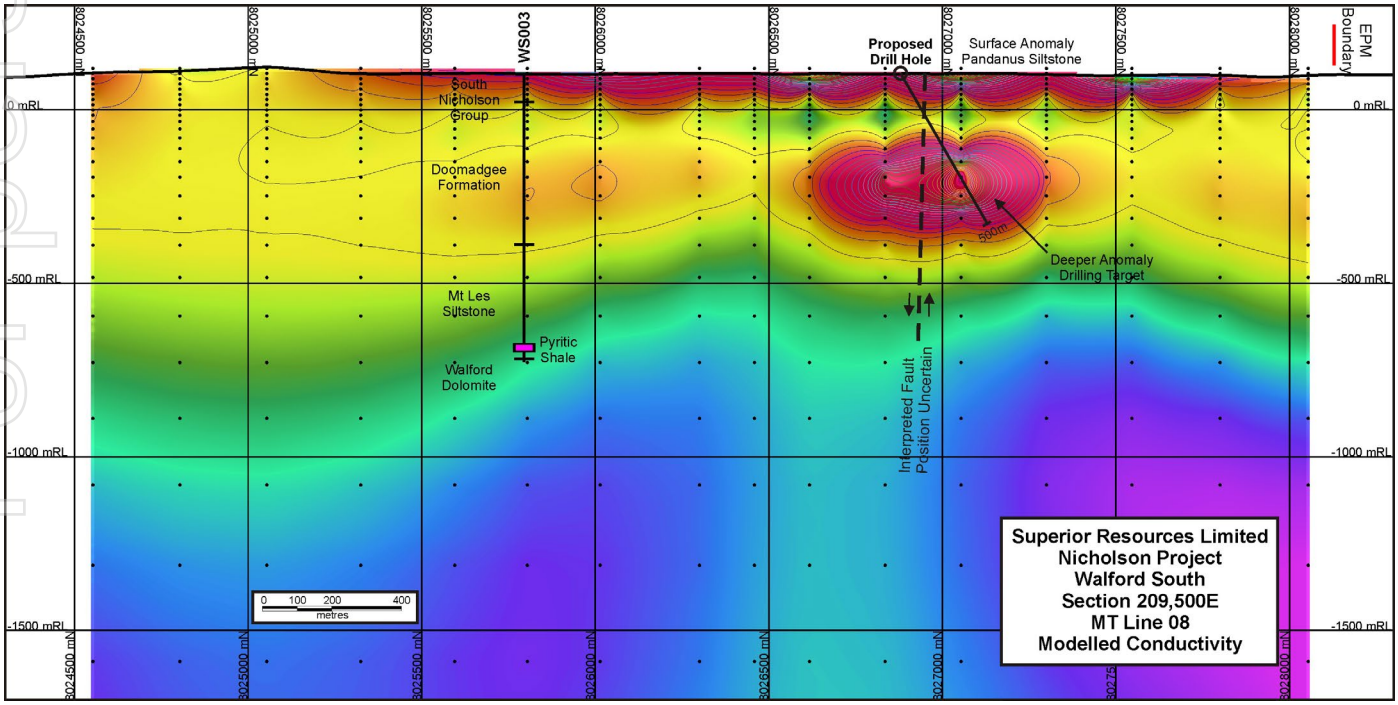

Figure 12. Walford South audio-magnetotelluric conductivity anomaly, showing a proposed 500m diamond drill hole designed to test the anomaly and the interpreted fault structure.

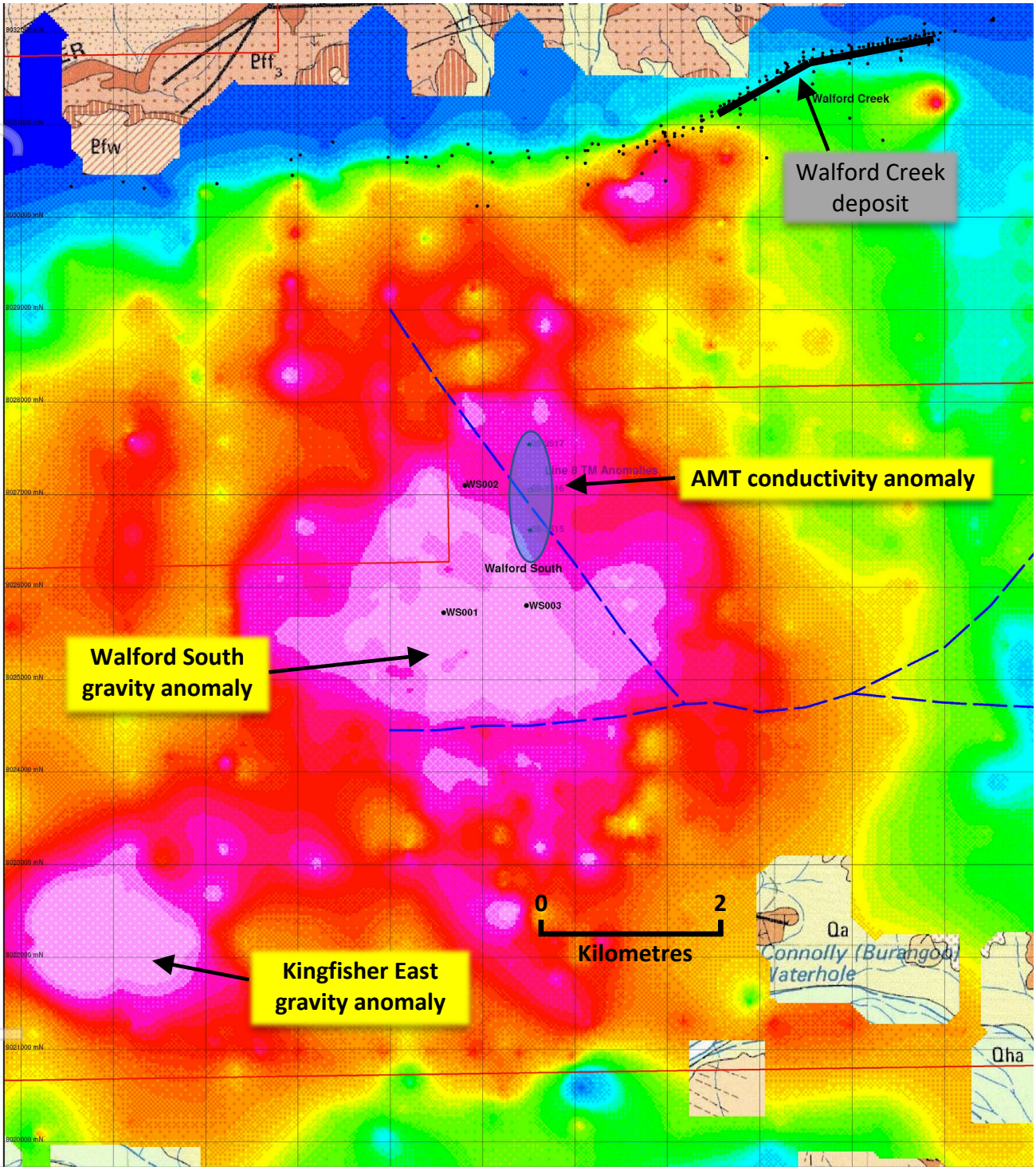

Figure 13. Walford South gravity anomaly and AMT anomalies. Significant northwest and east-west trending interpreted fault structures are delineated with dashed blue lines.

Superior's current review of all geophysical data sets covering the Walford South prospect area indicates that a high order AMT conductivity anomaly may be associated with the significant northwest-trending fault (Figures 12 and 13). Aarhus VTEM and AMT modelling indicates that there has been downwards displacement of stratigraphy on the southwestern side of the fault.

Superior's interpretation is that the northwest trending fault may have been a conduit that was feeding hydrothermal mineralising fluids that formed the stratiform sulphide mineralisation at Walford South. In this scenario, the AMT conductivity anomaly may represent a zone of copper-zinc-lead mineralisation, as occurs at

the nearby Walford Creek deposit (held by Aeon Metals Limited), which is developed within and adjacent to the Fish River Fault (Figure 13).

As a result of the further review, the priority status of the Walford South AMT target has been substantially elevated.

A diamond drill hole is being planned to test the AMT anomaly and northwest trending fault structure during the next drilling program.

FURTHER WORK

In relation to the Nicholson Project, Superior is currently:

- Continuing an interpretive review of the results of 2019 Nicholson Project Drilling Program together with existing geophysical datasets;
- Planning the next exploration program, which is currently envisaged to comprise:
    - Nicholson West / Nicholson River target area – drilling of a vertical hole to test the high priority Nicholson River target and drilling of one hole adjacent to the Nicholson River Fault Zone to test the zone for zinc-lead and copper mineralisation;
    - Walford South target area – drilling of the high order AMT conductivity anomaly to test for zinc-lead and copper mineralisation; and
    - The drilling of additional holes at the above target areas or at additional targets, depending on the outcomes of the review work; and
- Commencing discussions with third-party expressions of interest for joint arrangements.

Superior's Mr Hwang added: "*Superior has assembled an exciting portfolio of projects, each with real potential to deliver substantial value for shareholders. We look forward to advancing our drilling programs in 2020 and unlocking the value potential of the projects in these highly prospective regions of Australia*."

<ENDS>

For more information:
Peter Hwang
Managing Director
Tel: +61 7 3847 2887
www.superiorresources.com.au
manager@superiorresources.com.au

About Superior Resources

Superior Resources Limited (ASX:SPQ) is an Australian public company exploring for large lead-zinc-silver, copper, gold and nickel-copper-cobalt deposits in northern Queensland which have the potential to return maximum value growth for shareholders. The Company has a dominant exploration position within the Carpentaria Zinc Province, one of the world's richest mineral producing regions and is focused on multiple Tier-1 equivalent exploration targets.

About Nicholson Project

The Nicholson Project is a "Tier 1" zinc-lead exploration project that provides the Company with industry-leading opportunities to discover a world-class Mount Isa Style Lead-Zinc-Silver deposit. The project is located in the Carpentaria Zinc Province, which contains 20% of the world's zinc resource inventory. In the region immediately surrounding Mount Isa, rocks prospective for Mount Isa Style deposits are exposed at or close to surface and as a consequence, have been intensely explored. In contrast, the Nicholson Project is in an equally prospective region that is relatively unexplored. In this region the prospective rock sequences are covered by varying depths of younger sediments. This is the most likely area within Queensland to make the next Mount Isa discovery.

Reporting of Exploration Results: *Information contained in this report that relate to Exploration Results is based on information evaluated by Mr Peter Hwang, an executive director and shareholder of Superior Resources Limited and a Member of the Australian Institute of Geoscientists. Mr Hwang has sufficient experience which is relevant to this style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person under the 2012 edition of the "Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Hwang consents to the inclusion in this report of the matters based on the information in the form and context in which it appears.*

Forward looking statements: *This document may contain forward looking statements. Forward looking statements are often, but not always, identified by the use of words such as "seek", "indicate", "target", "anticipate", "forecast", "believe", "plan", "estimate", "expect" and "intend" and statements that an event or result "may", "will", "should", "could" or "might" occur or be achieved and other similar expressions. Indications of, and interpretations on, future expected exploration results or technical outcomes, production, earnings, financial position and performance are also forward-looking statements. The forward-looking statements in this presentation are based on current interpretations, expectations, estimates, assumptions, forecasts and projections about Superior, Superior's projects and assets and the industry in which it operates as well as other factors that management believes to be relevant and reasonable in the circumstances at the date that such statements are made. The forward-looking statements are subject to technical, business, economic, competitive, political and social uncertainties and contingencies and may involve known and unknown risks and uncertainties. The forward-looking statements may prove to be incorrect. Many known and unknown factors could cause actual events or results to differ materially from the estimated or anticipated events or results expressed or implied by any forward-looking statements. All forward-looking statements made in this presentation are qualified by the foregoing cautionary statements.*

Disclaimer: *Superior and its related bodies corporate, any of their directors, officers, employees, agents or contractors do not make any representation or warranty (either express or implied) as to the accuracy, correctness, completeness, adequacy, reliability or likelihood of fulfilment of any forward-looking statement, or any events or results expressed or implied in any forward looking statement, except to the extent required by law. Superior and its related bodies corporate and each of their respective directors, officers, employees, agents and contractors disclaims, to the maximum extent permitted by law, all liability and responsibility for any direct or indirect loss or damage which may be suffered by any person (including because of fault or negligence or otherwise) through use or reliance on anything contained in or omitted from this presentation. Other than as required by law and the ASX Listing Rules, Superior disclaims any duty to update forward looking statements to reflect new developments.*

APPENDIX 1 – DRILL INTERSECTIONS

Hole No.	Easting	Northing	RL	Dip	Azimuth	Total Depth (m)	Assays (Zn>100ppm Pb>100ppm)	From (m)	To (m)
NWDD001	184864	8012249	142	-90	360	654.5	**5m @ 0.19% Zn, 330ppm Pb, 0.9ppm Ag**	**95**	**100**
							Including: 2m @ 0.41% Zn, 579ppm Pb, 1.7 ppm Ag	**97**	**99**
							5.3m @ 415ppm Zn	244.7	250
							5m @ 188ppm Zn	254	259
							2m @ 542ppm Zn	276	278
							10m @ 105ppm Zn	436	446
							2m @ 145ppm Zn	448	450
							12m @ 124ppm Zn	504	516
							12m @ 122ppm Zn	518	530
							16m @ 190ppmZn	532	548
							2m @ 185ppm Zn	622	624
							2m @ 223ppm Zn	634	636
NWDD002	187074	8013194	132	-90	360	696.4	1m @ 229ppm Zn	87	88
							6m @ 796ppm Zn	232	238
							6m @ 458ppm Zn	240	246
							2m @ 334ppm Zn	303	305
							1m @ 186ppm Zn	374	375
							6m @ 757ppm Zn	378	384
							Including: 1m @ 0.18% Zn, 269ppm Pb	**378**	**379**
							2m @ 133ppm Zn	476	478
							6m @ 179ppm Zn	627	633
							12m @ 167ppm Zn	639	651
							10m @ 164ppm Zn	653	663
							6m @ 231ppm Zn	667	673
NWDD003	182909	8008118	143	-55	170	918.4	8m @ 360ppm Zn	574	582
							2m @ 425ppm Zn	584	586
							2m @ 203ppm Zn	600	602
							2m @ 184ppm Zn	608	610
							2m @ 127ppm Zn	713	715
							2m @ 262ppm Zn, 617ppm Pb	729	731
							2m @ 217ppm Zn, 105ppm Pb	774	776
							2m @ 314ppm Pb	800	802
							12m @ 105ppm Zn	847	859
							2m @ 234ppm Zn	861	863
							2m @ 0.11% Pb, 0.5ppm Ag	**913**	**915**
NEDD001	215490	8021773	84	-90	360	906.4	4m @ 928ppm Zn, 0.4ppm Ag	13	17
							Including: 1m @ 0.11% Zn, 102ppm Pb	**14**	**15**

Hole No.	Easting	Northing	RL	Dip	Azimuth	Total Depth (m)	Assays (Zn>100ppm Pb>100ppm)	From (m)	To (m)
							9m @ 450ppm Zn, 0.6ppm Ag	35	44
							2m @ 691ppm Zn	57	59
							2m @ 121ppm Zn	227	229
							2m @ 111ppm Zn	646	648
							2m @ 144ppm Zn	803	805
							8m @ 123ppm Zn	852	860
							4m @ 107ppm Zn	864	868
							6m @ 269ppm Zn	876	882

APPENDIX 2

JORC Code, 2012 Edition – Table 1

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.*	• Drilling from surface comprised reverse circulation (**RC**) drilling of pre-collars followed by diamond core drilling to end of hole. • Samples are obtained from reverse circulation drilling (**RC**) at selected mineralised intervals for each hole. Samples are obtained from diamond core drilling (**DD**) at selected mineralised intervals to the end of hole for each hole. • RC samples are collected as 1m riffle split samples. All samples were passed through a cyclone and then through a 3 tier riffle splitter. Bulk 1m samples were collected from the splitter and separately bagged. Analytical sample size was in the order of 1kg to 3kg. • All RC holes were drilled using a standard face sampling hammer. • DD samples were obtained by splitting core in half using core saw. • The magnetic susceptibility of all samples were measured in the field. • Sample preparation at ALS laboratories in Mount Isa for all samples is considered to be of industry standard procedure.
Drilling techniques	• *Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).*	• Drilling from surface comprised reverse circulation (**RC**) drilling of pre-collars followed by diamond core drilling to end of hole. • Drilling was performed using standard RC and DD drilling techniques. • Drilling was conducted by Tulla Drilling Pty Ltd using a Sandvik D840 Multipurpose drill rig mounted on an 8x8 truck with on-board compressor. An auxiliary compressor rated at 1350cfm @ 350psi and a booster rated at 1150cfm @ 500psi was also utilised. • All RC drilling utilised a standard face sampling hammer with bit size of 5 ½'.

Criteria	JORC Code explanation	Commentary
		• All DD drilling utilised standard NQ2 rods. • All holes were surveyed using a Reflex Eztrac Electronic Multishot camera. Most of the diamond drill core was oriented to allow structural logging of the core.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	• Sample recovery was performed and monitored by Superior Resources' geologists. • RC recoveries were excellent. RC samples were all dry. • The volume of RC sample collected for assay is considered to be representative of each 1m interval. • Diamond drill core recovery was logged. Recovery overall was close to 100%. • There is no apparent relationship between sample recovery and grade of mineralisation.
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.* • *The total length and percentage of the relevant intersections logged.*	• Geological logging was conducted on site during the drilling of each hole by Superior Resources' geologists having sufficient qualification and experience for the mineralisation style expected and observed at each hole. • Geological logging data was entered via a well-developed logging system designed to capture descriptive geology, coded geology and quantifiable geology. All logs were checked for consistency by Superior's geologist. Data was captured through Excel spread sheets. • All holes were logged in their entirety at 1m intervals. • The level of logging detail is considered appropriate for resource drilling. • Magnetic susceptibility data for each 1m sample interval was collected in the field. • The entire length of all drill holes has been geologically logged. • All core was logged for structure.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.*	• The sample collection methodology is considered appropriate for RC and diamond drilling and was conducted in accordance with best industry practice. • Samples were collected as dry samples. • Diamond drill core was split in half using a diamond saw with half of the sample being sent for assay and the remainder retained for reference. Core halving was conducted at the Cannington Mine site by Cannington mine personnel. • Quality Assurance (**QA**)/Quality Control (**QC**) protocols were instigated such that they conform to mineral industry standards and are compliant with the JORC code. • The 2-3kg sample size is appropriate for the rock being sampled. The sample sizes are considered to be appropriate to represent the style of the mineralisation, the thickness and consistency of the intersections.

Criteria	JORC Code explanation	Commentary
	• *Whether sample sizes are appropriate to the grain size of the material being sampled.*	
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* • *Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.*	• All samples were submitted to ALS laboratories in Mount Isa for multi-element analysis. • Samples were crushed, pulverised to ensure a minimum of 85% pulp material passing through 75 microns. • All samples were subject to multi-element analysis using hydrofluoric acid digest and ICP atomic emission spectrometry technique for 33-element analysis (ALS code ME-ICP61). • Magnetic susceptibility measurements utilising Exploranium KT10 instrument, zeroed between each measurement. • Certified geochemical standards and blank samples were inserted into the assay sample sequence. Laboratory assay results for these quality control samples are within 5% of accepted values.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• No adjustments to assay data were undertaken. • All drill hole logging and sampling data were uploaded and validated by Superior staff. Validation is checked by comparing assay results with logged mineralogy e.g. percent of metallic sulphides minerals in comparison to metal assays. • Data is collected by qualified geologists and experienced field assistants and entered into excel spreadsheets. • Data is stored on a server in Superior's head offices, with regular backups and archival copies of the database made.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• Drill hole collars have been recorded in the field using handheld GPS with three metre or better accuracy. • The area is located within UTM Zone 54, GDA94 datum.
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	• Not relevant.

Criteria	JORC Code explanation	Commentary
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	• The majority of holes have been designed to drill normal to interpreted local stratigraphy. • No orientation sample bias has been identified at this stage.
Sample security	• *The measures taken to ensure sample security.*	• Chain of custody was managed by Superior and South32. Samples were transferred by them to ALS.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• No audits or reviews of the sampling techniques and data have been undertaken at this time.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	• The areas reported on lie within Exploration Permits for Minerals 15670 and 18203, which are held 100% by Superior. • The exploration work reported within this document was conducted in accordance with an Earn-in and Joint Venture Agreement between Superior Resources Limited and South32 Group Operations Pty Ltd, dated 28 May 2019. Under the agreement, South32 can earn up to 70% interest in the EPMs by sole-funding up to $6 million of exploration in two stages. The exploration work referred to in this document was conducted under Stage 1, completion of which, does not entitle South32 to any interest in the tenements. • Superior has agreements or other appropriate arrangements in place with landholders and native title parties with respect to work in the area. • No regulatory impediments affect the relevant tenements or the ability of Superior to operate on the tenements.

Criteria	JORC Code explanation	Commentary
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• No prior exploration work has been undertaken at the prospects that were drilled during Superior's 2019 drilling program.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The main exploration target model relevant to the Nicholson Project is based on a SEDEX (sedimentary-exhalative) stratiform base metal deposit style, similar to the McArthur River and Mount Isa ore deposits. • The Nicholson Project is located within a sequence of prospective Proterozoic sediments within the east northeast trending Hedleys Graben. This graben is bounded by the Fish River Fault on its northern side and the Nicholson River Fault on its southern side. The sediments of the Fickling Group within the Hedleys Graben are equivalent in age to sediments that host large base metal mineral deposits at Mount Isa and Macarthur River. In particular, the Mount Les Siltstone has potential for large stratiform base metal deposits. The Doomadgee Formation which unconformably overlies the Mount Les Siltstone is also thought to be of similar age to the part of the Lawn Hill Formation which contains the large stratiform Century lead-zinc-silver deposit. Low-grade disseminated copper and lead-zinc mineralisation also occurs within the Walford Dolomite which underlies the Mount Les Siltstone. All of these formations are target horizons in the Nicholson Project area.
Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:* ○ *easting and northing of the drill hole collar* ○ *elevation or RL (Reduced Level) of the drill hole collar* ○ *dip and azimuth of the hole* ○ *down hole length and interception depth* ○ *hole length.* • *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	• A drill hole collar table is included. • Significant mineralised intersections are included in Appendix 1. These tables include information relevant to an understanding of the results reported.
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material*	• Compositing of continuously mineralised intervals by standard weighted averages. • No metal equivalent values are reported.

Criteria	JORC Code explanation	Commentary
	and should be stated. • *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').*	• The stratigraphic units that were drilled have a sub-horizonal dip. • The widths of reported mineralised intervals approximately represent the true width of the mineralised intervals. • Detailed drill sections are not available at this stage. Summary sections are included. • Only significant intercepts (on a relative basis) are reported.
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	• Detailed drill sections not available at this stage. • Summary sections are included to assist with the understanding of the mineralisation being reported.
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	• Only significant mineralised intervals (on a relative basis) are reported.
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	• Images from Aarhus-interpreted data from an airborne VTEM survey are included in the sections to allow an appreciation of the relationship of the mineralised intervals with the geophysical modelling results.

Criteria	JORC Code explanation	Commentary
Further work	• *The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• Further drilling is required to confirm the existence of economic Zn-Pb-Ag ore lenses. • Proposed further work is outlined in the report and includes proposed further drilling.