COMBINED ANNUAL MINERAL EXPLORATION REPORT GR563

South32 Limited | ACN 093 732 597

Carrara Project

Barkly Tableland Northern Territory

For the Period 27 October 2023 – 26 October 2024

October 2024

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South32 Greenfields Exploration

Encounter Resources

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Introduction

This Combined Annual Mineral Exploration Report (GR563) describes all exploration work carried out by South32 Ltd and Baudin Resources Pty Ltd on the Carrara Project for the reporting period 27th October 2023 – 26th October 2024.

The Carrara Project is located in the Barkly Tablelands approximately 340km east northeast of Tennant Creek, 730km southeast of Katherine and 630km northeast of Alice Springs (Figure 1) and consists of four (4) Exploration Licences (EL's): EL32476, EL32477, EL 32701 and EL32813; covering a total area of approximately 2,435 square kilometers.

Carrara is located at an interpreted structural offset of the western margin of the Carrara Sub-basin where the prospective Isa Superbasin units are modelled closer to surface and is prospective for sediment-hosted Zn - Pb mineralization within the Lawn Hill Formation.

Exploration work carried out during the reporting period included completion of a three hole diamond drill program.

Figure 1. Carrara Project Location Map (Courtesy of Northern Territory Government STRIKE).

Location and Tenure

The Carrara Project is located in the Barkly Tablelands, approximately 340km ENE of Tennant Creek, 730km Southeast of Katherine and 630km Northeast of Alice Springs (Figure 1).

Access to the project area is via the Stuart Highway from Alice Springs north to the Three ways Roadhouse, then via Barkly Highway east to the Barkly Homestead Roadhouse, then north via the Tablelands Highway.

Topographically, the project area is flat and is typified by open black soil seasonally grassy plains and low rocky outcrops (Figure 2). Pastoral fence lines and bore field tracks provide a network of unsealed tracks. The area is inaccessible during the wet season with travel only possible by helicopter.

The Carrara Project comprises four (4) tenements with a total area of 2,435km2 (Figure 3). EL332476 and EL32477 were the first two to be granted on 20th September 2020, followed by EL32701 granted on 27th October 2021 and EL32813 granted on the 17th February 2022. All Carrara tenements were granted to Baudin resources Pty Ltd a wholly owned subsidiary of Encounter Resources Ltd (Encounter) for a period of 6 years. On the 23rd June 2022, South32 and Encounter entered into a Farm-in Agreement covering the Carrara Copper - Zinc Project (see ASX:ENR announcement on the 23rd of June 2022). During the 10-year farm in period South32 will be the operator for all work programmes and will propose annual budgets.

Tenement details for the Carrara Project are shown in Table 1.

Table 1. Carrara Project Tenement Details

Title	Reporting Period	Year	Title Holder	Expiry Date
EL32476	27 October 2023 to 26 October 2024	3	Baudin Resources Pty Ltd	19/09/2027
EL32477	27 October 2023 to 26 October 2024	3	Baudin Resources Pty Ltd	19/09/2027
EL32701	27 October 2023 to 26 October 2024	3	Baudin Resources Pty Ltd	26/10/2027
EL32813	27 October 2023 to 18 October 2024	3	Baudin Resources Pty Ltd	Surrendered

Figure 2. Barkly Tablelands Landscape (Photo courtesy of Geoscience Australia.)

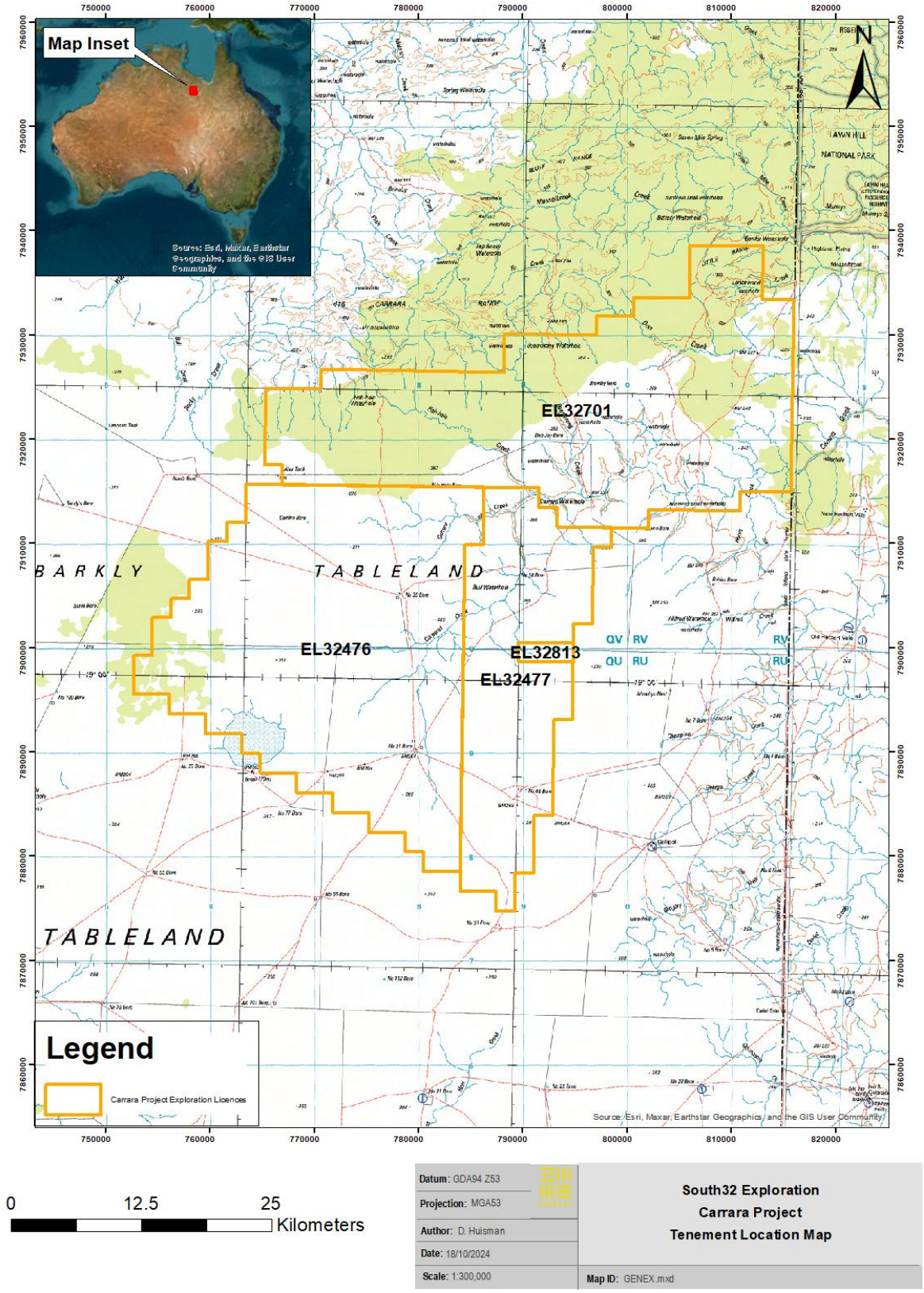


Figure 3. Carrara Project - Tenement Location Map.

Geology

The Carrara Project tenure sits on the Neoproterozoic-Palaeozoic Georgina Basin and encompasses three major Proterozoic Geological Regions; the South Nicholson Basin, Lawn Hill Platform and the Mount Isa Province (Figure 4). Recent Investigations undertaken by Geoscience Australia have also highlighted a large sedimentary depocenter termed the Carrara Sub-basin below the Georgina Basin.

Georgina Basin

The Georgina Basin comprises of rocks ranging in age from Neoproterozoic to Devonian and covers an area of approximately 330,000km^2 in the central-eastern NT and extends into western Queensland (Ahmad et al., 2013). The sedimentary succession of the Georgina Basin comprises: Neoproterozoic to Early Cambrian glacial, siliciclastic sediments overlain by marine or continental siliciclastic sediments; Middle Cambrian to Ordovician mainly carbonate sequences; Ordovician to Devonian predominantly siliciclastic rocks developed mainly in the southern part of the Basin.

Deposition in the Georgina Basin was initiated in the Neoproterozoic in grabens formed during regional northeast-southwest directed extension. Tholeiitic basalts (Kalkarindji Province) volcanic rocks were emplaced in the center and north of the basin during the middle Cambrian. Elsewhere, the basal units of the Georgina Basin comprise conglomerates, sandstones, shales and glacial and fluvial sediments.

The Barkly Tableland area, where the Carrara Project sits, coincides closely with the north-central and northern parts of the Georgina Basin. Exposures of the Basin's sediments in the area are rare, but where present, are typically composed of middle Cambrian carbonate sedimentary rocks. Locally overlying the Palaeozoic rocks of the Georgina Basin are thin deposits of flat lying late Palaeogene limestone.

South Nicholson Basin

The South Nicholson Basin represents a succession of predominantly sandstone and siltstone in an area up to 50km wide and 200km long, east trending belt outcropping to the south of the Murphy Inlier (Ahmad et al., 2013). The Basin is Mesoproterozoic in age, and is composed of the siliciclastic, dominantly fluvial and shallow-marine South Nicholson Group (equivalent to the Roper Group of the McArthur Basin, using the superbasin nomenclature of Sweet et al., 1999; Abbott and Sweet, 2000).

The South Nicholson Group unconformably overlies late Paleoproterozoic volcanic rocks, mixed carbonates and siliciclastic rocks of the Benmara, McNamara and Fickling groups.

Parts of the South Nicholson Basin (including the Carrara Project area) are unconformably overlain by the Neoproterozoic–Devonian northern Georgina Basin, the Mesozoic Carpentaria Basin and a thin Cenozoic cover (Rawlings et al., 2008; Sweet, 2017). The South Nicholson Basin crops out to the east of the Carrara Project Area.

Mount Isa Province, McArthur Basin and Lawn Hill Platform

There have been broad approaches to subdividing the successions of the McArthur Basin and correlative terranes (Mount Isa Province and Murphy Province) as proposed by Rawlings (1999) and Jackson et al. (1999, 2000) which is shown in Figure 5.

Interpretation of recent seismic and drilling data collected through Geoscience Australia's Exploring for the Future Program (EFTF) highlights the correlation of prospective stratigraphic units from the Isa Superbasin into the Carrara Sub-basin and eastern extents of the Carrara Project area that extend from the Mount Isa Province. The NDI Carrara 1 drillhole also confirmed the correlation of Proterozoic Core with the middle to upper Lawn Hill Formation with that of the upper McArthure Group and Nathan Group in the McArthur Basin (Carson et al, 2022).

The Palaeoproterozoic sedimentary rocks in NDI Carrara 1 drillhole from the EFTF have been interpreted by Carson et al (2022) to represent the stratigraphic equivalents of the host rocks relating to the world class Century Pb-Zn deposit, as well as to units with potential unconvetional hydrocarbon systems, identified elsewhere n the Lawn Hill Platform (Lawn Petroleum Supersystem) shown in Figure 6. The drillhole also confirmed the potential for energy and sediment hosted base metals in the Carrara Sub-basin.

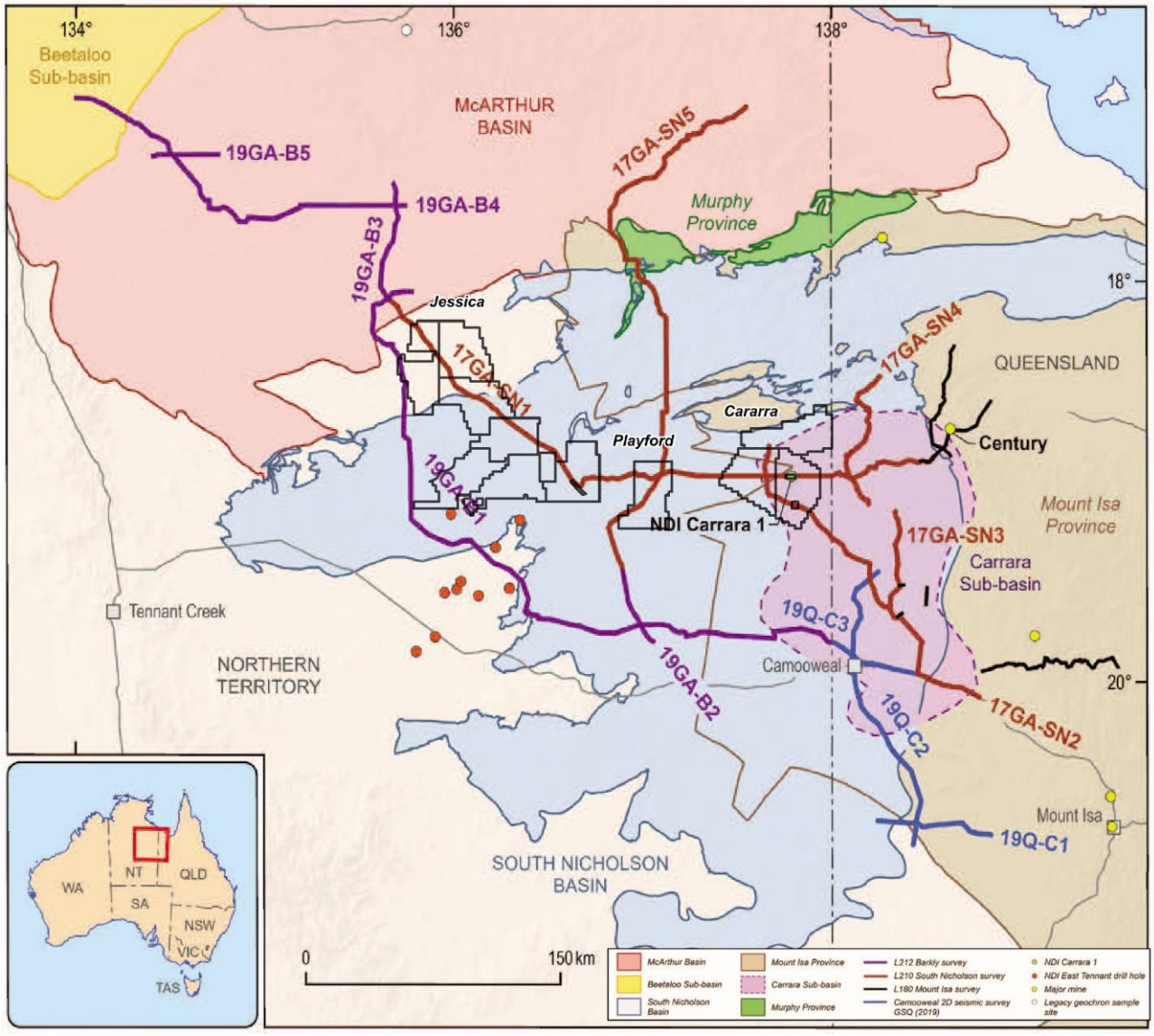


Figure 4. Map showing the province outlines of the South Nicholson Basin, the Mount Isa Province, Murphy Province and the Carrara Sub-basin overlayed with seismic survey line and the Jessica, Playford and Carrara Tenements (Carson et al, 2022).

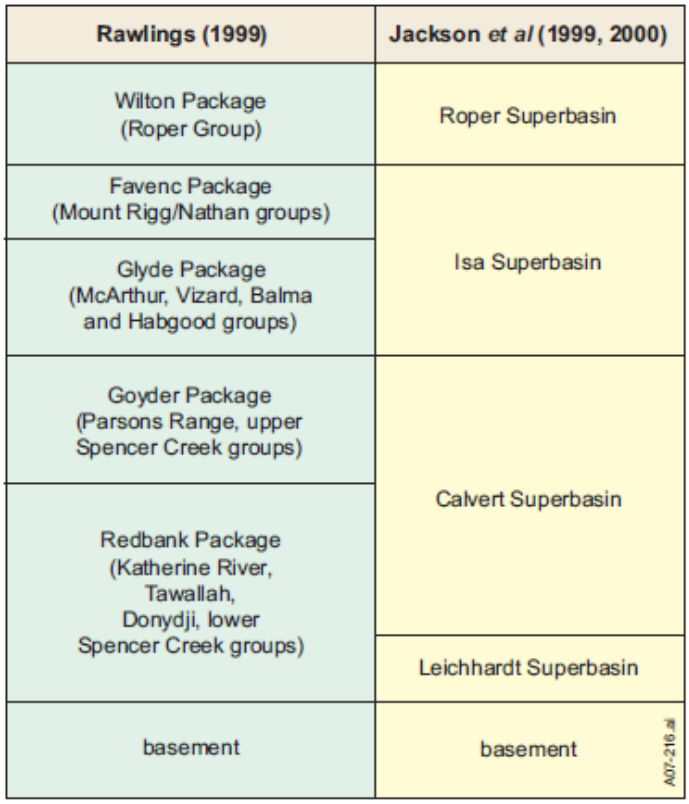


Figure 5. Subdivisions of the McArthur Basin and Mount Isa Province by Rawlings (1999) and Jackson et al (1999, 2000).

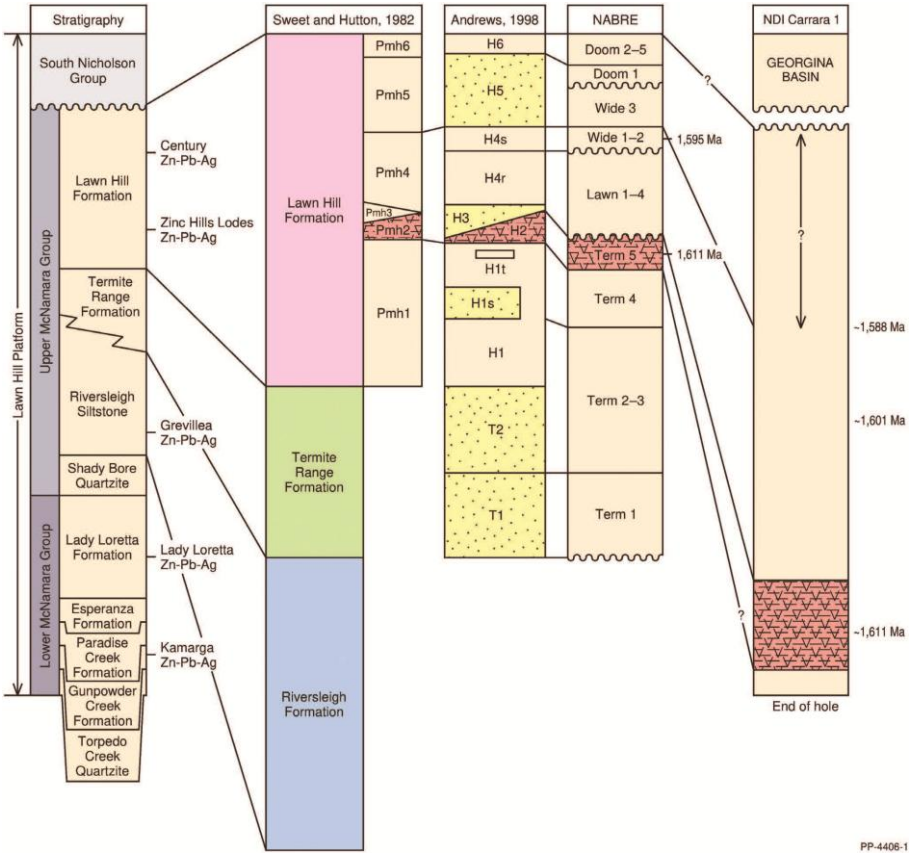


Figure 6. Map showing the interpreted surface geology and stratigraphy in the Carrara Tenement from Drillhole NDI Carrara 1 (Carson et al, 2022).

Exploration History

Previous minerals exploration over the Carrara Project region dates back to the early 1980s. The target commodities were predominantly diamonds, uranium, base metals, phosphate and minor gold. No systematic exploration for sediment hosted base metals and iron oxide copper mineralisation has been conducted within the project area. A list of open file companies' reports is provided in Table 2 below.

Table 2. List of Open File Company Reports.

Historical Title	Report Number
AP1776	CR1969-0025
AP1788	CR1968-0030; CR1968-0057
AP2159	CR1969-0022; CR1970-0038; CR1970-0083
AP3392	CR1972-0050
AP983	CR1963-0004; CR1977-0020
EL10373	CR2004-0231
EL1125	CR1977-0039

Historical Title	Report Number
EL2112	CR1980-0096; CR1980-0209; CR1981-0093
EL22162	CR2003-0283; CR2004-0232
EL22971; EL22977	CR2004-0044
EL23634	CR2004-0233
EL24840	CR2007-0084; CR2008-0395; CR2008-0419; CR2009-0085
EL26019	CR2008-0916; CR2009-1059; CR2010-0921; CR2010-1124; CR2011-1118; CR2011-1201; CR2012-1057
EL26308	CR1995-0447; CR1996-0508; CR1997-0437; CR2009-0435; CR2010-0192; CR2011-0157; CR2011-0332; CR2012-0283, CR2012-0431, CR2013-0098, CR2013-0458
EL26309	CR2009-0435, CR2010-0192, CR2011-0157, CR2012-0283, CR2013-0098, CR2013-0459
EL27035	CR2010-0268, CR2010-0921, CR2011-0416, CR2011-1118, CR2012-1054
EL27037	CR2010-0921, CR2011-0973, CR2011-1118, CR2012-1055
EL27038	CR2010-0692, CR2011-0802, CR2012-0584, CR2012-0951
EL27075	CR1996-0493, CR2010-0886, CR2011-0853, CR2012-0791
EL27269	CR2011-0801, CR2012-0584, CR2012-0951
EL27653	CR2011-0270, CR2012-0461, CR2012-0762, CR2013-0202
EL27659	CR1995-0619, CR1996-0642, CR2011-0270, CR2012-0461, CR2012-0761, CR2013-0202
EL28524	CR2012-0686
EL28793	CR1993-0262, CR2011-0332, CR2013-0404, CR2014-0309
EL28829	CR1992-0370, CR2011-0270, CR2012-1181, CR2012-1249, CR2014-0199
EL29393	CR1992-0264, CR1996-0652, CR1997-0523, CR2011-0157, CR2013-0405, CR2014-0164
EL29560	CR1993-0337, CR1994-0319, CR2004-0231, CR2004-0500, CR2007-0084, CR2014-0063, CR2015-0075, CR2017-0047, CR2018-0043, CR2019-0066, CR2019-0504, CR1993-0336, CR1997-0438, CR1997-0578, CR2011-0333, CR2014-0063, CR2014-0675,
EL29761	CR2014-0676
EL29791	CR2014-0677
EL29792	CR2014-0678
EL29793	CR1993-0336, CR1993-0337, CR1994-0433, CR1994-0452, CR1995-0323, CR2003-0410, CR2004-0233, CR2008-0419, CR2010-0268, CR2012-0430, CR2013-0999, CR2014-0063, CR2014-0063, CR2014-0199, CR2015-0075, CR2015-0620, CR2016-0075, CR2017-0047, CR2018-0043, CR2019-0066, CR2020-0051, CR2020-0193
EL29794	CR1993-0262, CR1993-0337, CR1994-0432, CR1994-0452, CR2003-0283, CR2004-0232, CR2008-0395, CR2009-0085, CR2013-0204, CR2014-0063, CR2015-0075, CR2015-0621, CR2016-0075, CR2017-0047, CR2018-0043, CR2019-0066, CR2020-0051, CR2020-0193
EL30891	CR2017-0067, CR2018-0027
EL32176	CR1994-0452, CR2010-0692, CR2014-0674, CR2020-0246
EL4084	CR1983-0304

Historical Title	Report Number
EL4085	CR1986-0097, CR1987-0037
EL4373	CR1985-0026, CR1985-0246, CR1988-0224
EL4374	CR1985-0027, CR1986-0013, CR1989-0160, CR1989-0288, CR1989-0289
EL4491	CR1985-0091, CR1985-0276, CR1987-0031
EL4531	CR1986-0113
EL4533	CR1986-0115
EL5107	CR2000-0282, CR2001-0179
EL6571	CR1991-0179, CR1991-0180, CR1992-0156, CR1992-0264, CR1993-0337, CR1994-0452, CR1995-0316, CR1995-0323, CR1996-0149
EL6575	CR1990-0605
EL6577	CR1991-0168, CR1992-0164, CR1992-0370, CR1993-0262, CR1993-0337, CR1994-0452, CR1995-0316, CR1995-0323
EL7714	CR1995-0316, CR1995-0323, CR1996-0149
EL8101	CR1994-0432, CR1995-0447, CR1995-0619, CR1996-0508, CR1996-0652, CR1997-0437, CR1997-0523, CR1998-0496
EL8102	CR1994-0433, CR1995-0446, CR1995-0618, CR1996-0493, CR1996-0642, CR1997-0438, CR1997-0578, CR1998-0310
SEL8035	CR1995-0316, CR1995-0323, CR1996-0149

In 2016 Geoscience Australia launched the Exploration for the Future Program (EFTF), a multi-million-dollar exploration initiative funded by the Australian Government. Under the Program Geoscience Australia, in collaboration with key State and Territory partners, acquired a diverse range of pre-competitive geoscience datasets across northern Australia, focusing on frontier or 'greenfield' regions in Northern Australia. As a part of the EFTF program the South Nicholson 2D Deep Crustal Reflection Seismic Survey was acquired in 2017, followed by the Barkly 2D Deep Crustal Reflection Seismic Survey in 2019. The seismic data was acquired across the underexplored and (mostly) undercover South Nicholson and Barkly Tablelands regions in the north-eastern Northern Territory. Lines from both Seismic surveys run across and at immediate vicinity of the Carrara Project area. Geoscience Australia's current interpretation of line 17GA – SN1 which runs through the center of the Carrara Project is shown in Figure 7.

The EFTF datasets also include data from the Australian Airborne Electro-Magnetic (AusAEM) survey, and the Australian Lithospheric Architecture Magneto-telluric Project (AusLAMP).

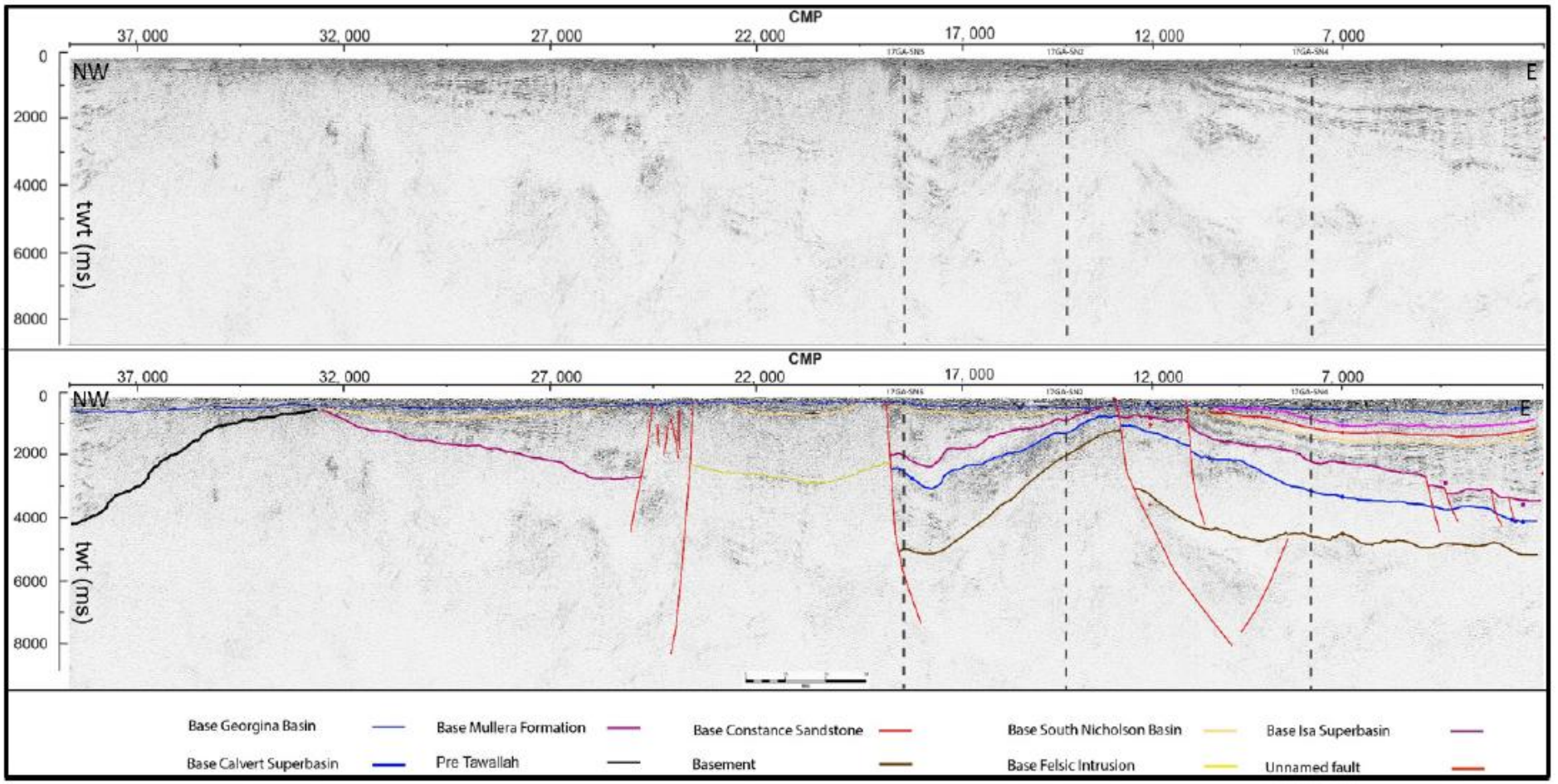
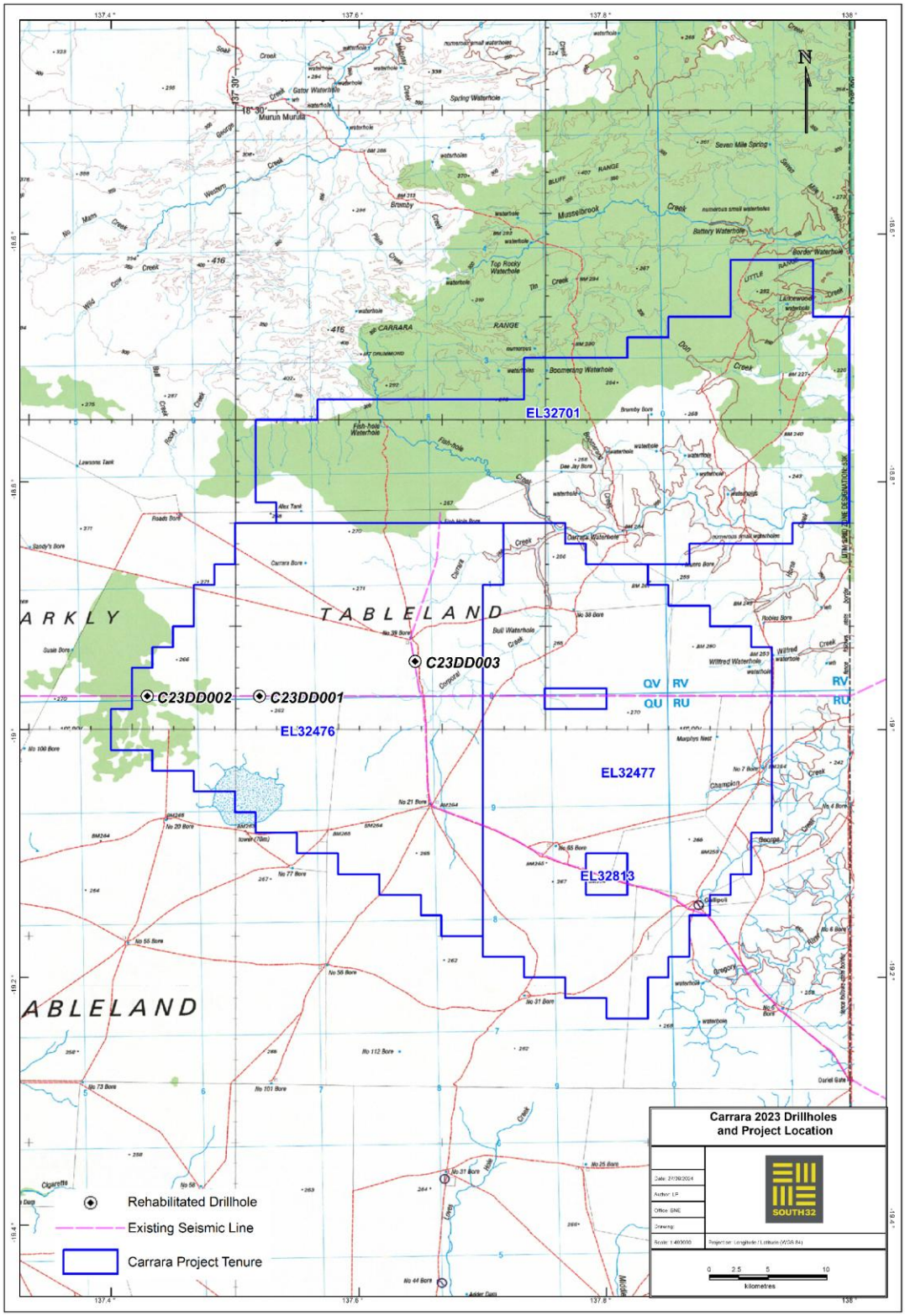


Figure 7. Seismic line 17GA – SN1 with interpreted horizons and major structures. Dashed lines represent the intersections of South Nicholson Survey lines SN5, SN4 and SN2.

Exploration work conducted over the EPM between 27th October 2023 to 26th October 2024 consisted of:

- Completion of the drilling programme started in October 2023, which consisted of three drillholes for a total of 2803m;
- Drilling geochemistry completed by Intertek Genalysis on C23DD001, C23DD002 and C23DD003 core;
- Mason Geoscience (Doug Mason) provided petrographic and mineragraphic description on 12 polished thin sections from C23DD001, C23DD002 and C23DD003.;
- Pyrite trace element analysis and evaluation on three (3) samples from C23DD001, two (2) samples from C23DD002 and three (3) samples from C23DD003 was completed by Professor Ross Large, with Pyrite samples from across the three drillholes returning favourable results with three samples from C23DD001 & C23DD002 indicative of the distal halo of a stratiform Zn-Pb-Ag deposit;
- 12 samples from C23DD001, C23DD002 and C23DD003 were sent to JCU for age dating with results returned and evaluated;
- A petrophysical review and analysis of the 2023 drillhole data was completed by HiSeis.


EL32701
EL32476
EL32477
EL32813
C23DD003
C23DD002
C23DD001
QV RV
QU RU
RV
RU
TABLELAND
Carrara 2023 Drillholes and Project Location
Rehabilitated Drillhole
Existing Seismic Line
Carrara Project Tenure
SOUTH32
kilometres

Drilling

Exploration drilling at the Carrara Project commenced on the 10th October. Drilling of three drillholes, C23DD001, C23DD002 and C23DD003, was completed to a total of 2803m, over the Project area. Following is a summary of the 2023 drillholes with the full logging data provided in Appendix A.

C23DD001

This drill hole was designed to test an AVO (Amplitude versus Offset) anomaly and as a stratigraphy test. The hole was drilled to a total of 1000.8m. The lithology encountered (Figure 8) consisted of:

- Georgina Basin Sediments to 604.4m depth at which point basement rocks were encountered; and
- The basement rocks consisted of significant accumulations of carbonaceous shales with fine grained laminated and disseminated pyrite to end of hole with numerous tuff layers up to 5cm thick. Of interest was an interpreted turbiditic mass flow unit with volcanic clasts from 846.1m to 891.6m;

C23DD002

The second Carrara hole was designed to test an AVO anomaly and stratigraphy associated with an interpreted anticline adjacent to a revers fault. It was terminated at 802.2m. The lithology encountered (Figure 9) consists of:

- Georgina Basin sediments to 594.5m; and
- Basement rocks consisted of massive, laminated grey-green-brown siltstones with minor interbedded tuff layers (<5cm) and sandstone beds up to 30cm.

C23DD003

The third Carrara hole was designed to test mineralisation and stratigraphy on the northern margin of the interpreted sub-basin adjacent to a south dipping fault and evidence of syn-rift thickening and post rift inversion. The hole was drilled to a total depth of 1000m. The intersected lithology (Figure 10) consists of:

- Georgina Basin sediments to 633.4m; and
- Basement lithologies similar to C23DD001, consisting of significant accumulations of carbonaceous shales with fine grained laminated and disseminated pyrite to end of hole, with numerous tuff layers up to 5cm thick. The hole is interpreted as a turbiditic mass flow unit with volcanic clasts from 920m to 939.22m

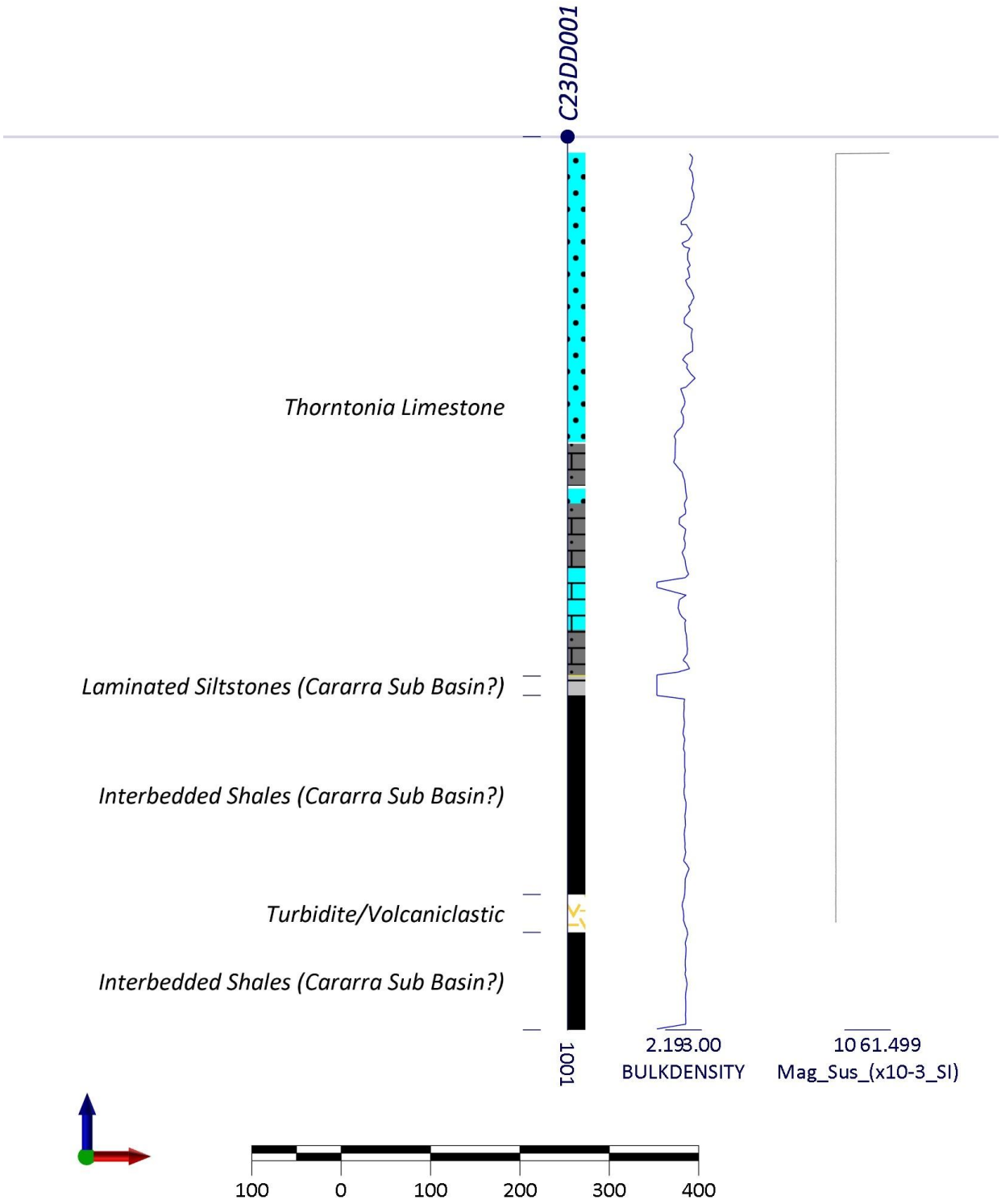


Figure 8. Cross-section of C23DD001 showing Magnetic Susceptibility, Lithology and Bulk Density.

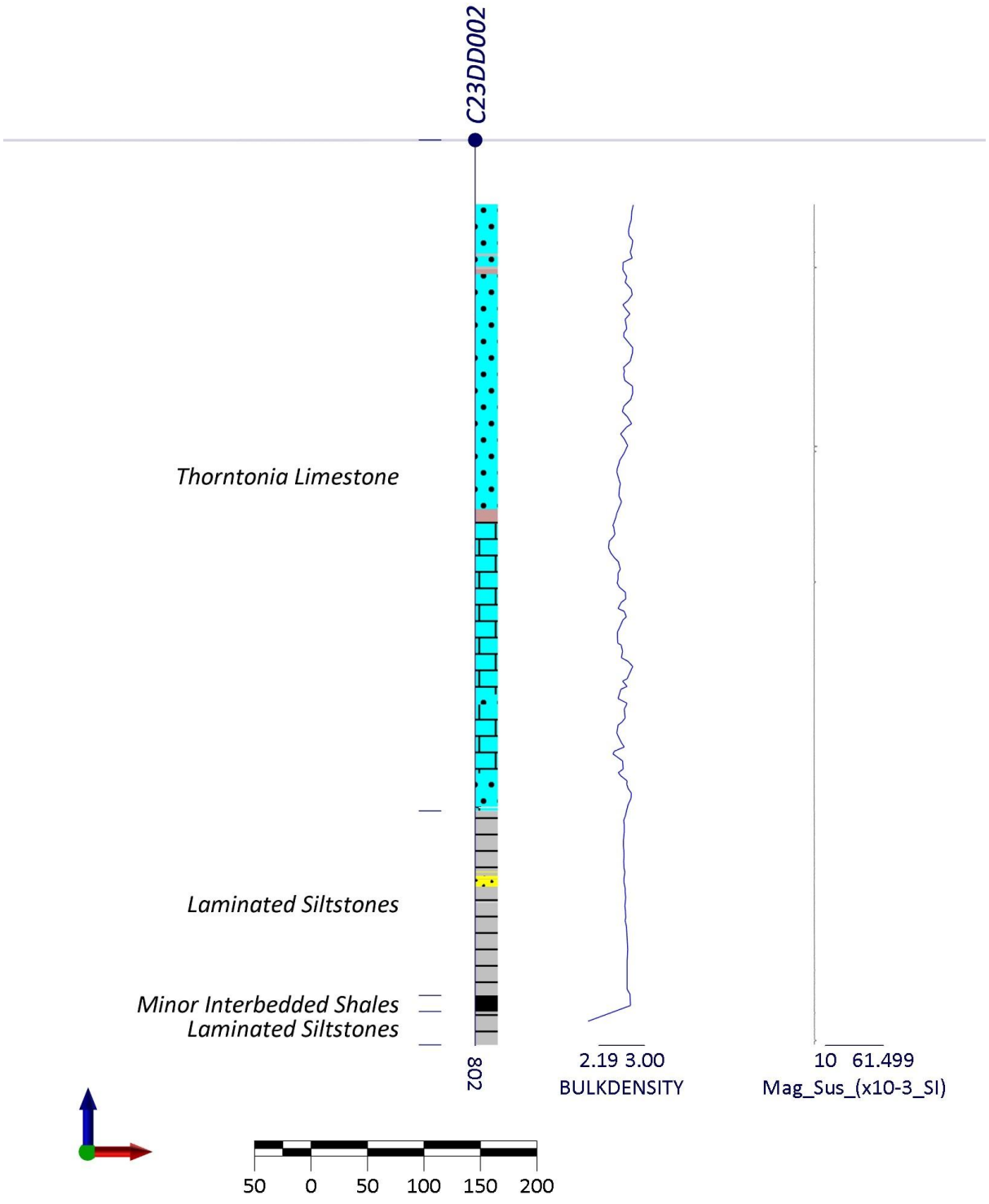


Figure 9. Cross-section of C23DD002 showing Magnetic Susceptibility, Lithology and Bulk Density.

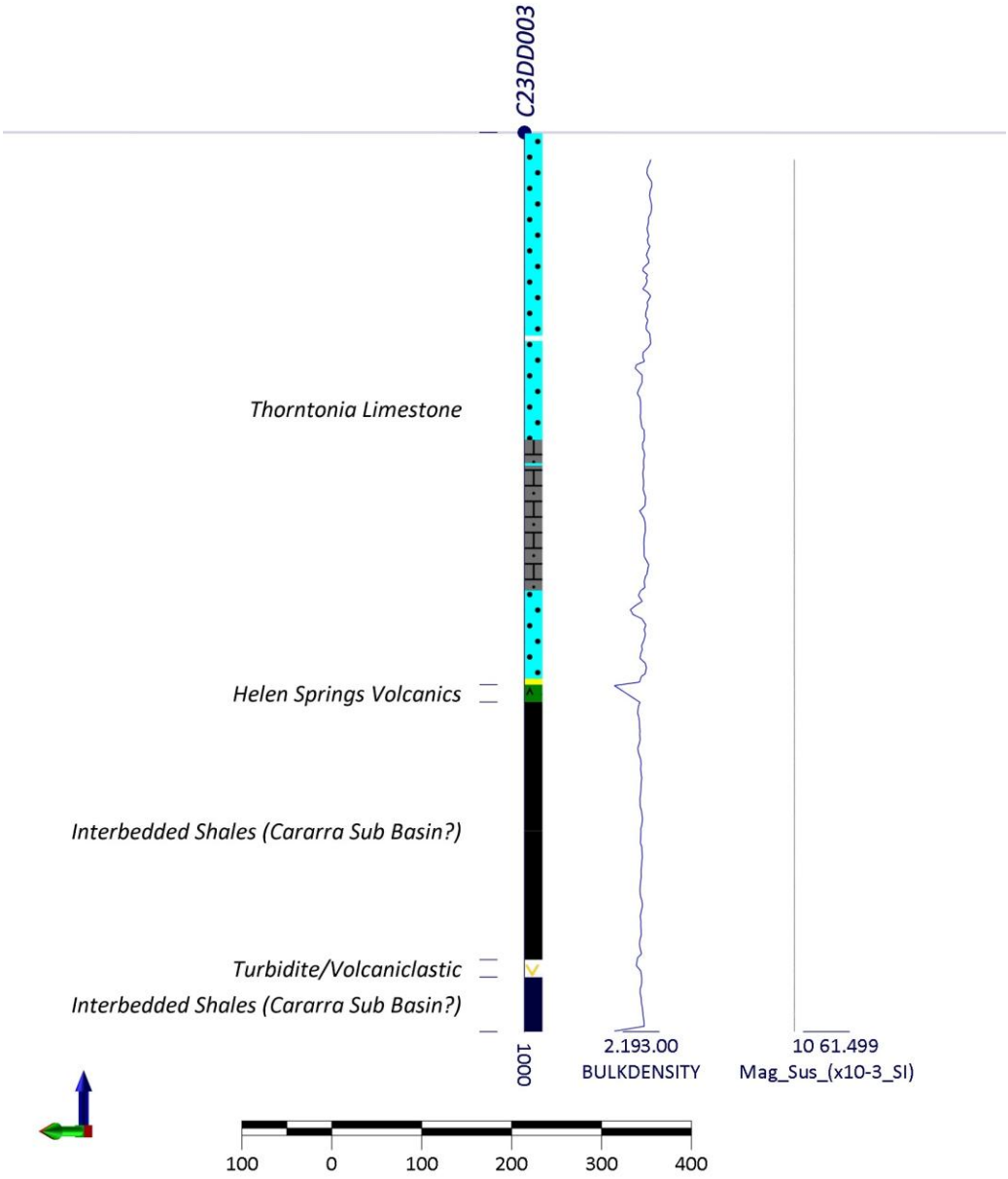


Figure 10. Cross-Section of C23DD003 showing Magnetic Susceptibility, Lithology and Bulk Density.

Multi-element Geochemistry

Core from C23DD001, C23DD002 and C23DD003 was selected and sent to Intertek Genalysis in Townsville for geochemical sampling and analysis. The drill core samples were cut and filleted at the South32 Greenfields core processing facility in Townsville after the completion of the drilling program in late 2023. Composite samples of 3 metres were the standard cut intervals, however sampling to key lithological contacts were also done where it is thought necessary.

No significant intercepts were identified in the Carrara Drillholes, however, C23DD001 returned results of up to 2.7% S

and C23DD0003 returned results of up to 4.28% S in the carbonaceous shales. The full results are located in Appendix A.

Petrography and Minerographic Analysis

A total of twelve (12) petrographic samples, made up of thin sections and section off cuts core samples were submitted to Mason Geoscience Pty Ltd on April 2024 and studied using optical petrographic and minerographic methods. Below is a summary of the results, with the full report in Appendix B.

Layered sediments from the Carrara Project were identified as carbonaceous shales, siltstone and carbonate sediments. The carbonaceous shales were deposited with a moderate proportion of clastic grains in a fine grained matrix. The feldspathic siltstone was deposited with clast-supported grains with the sediments being altered at low P-T diagenetic conditions. The redbed siltstone found in C23DD002_626.1m was deposited in an oxidized aeolian environment in a thin muddy laminae with fine grained clay and hematite between the clasts.

The carbonate sediments were deposited as chemical sedimentary limestones with tee-pee structures. Recrystalisation of the primary carbonate, caused by diagenesis, produced an even-grained granular mosaic of new carbonate with disseminated pyrite.

C23DD001_857.3m was a tuff that was deposited with non-welded ash particles, minor lithic fragments and minor small quartz crystal fragments in a fine grained matrix. New alteration clay with minor quartz, albite and trace pyrite was produced through diagenesis.

Pyrite Trace Element Analysis

A total of 11 samples of pyritic black to grey shales from the Carrara drill holes were provided to Professor Ross Large for geochemical and isotopic study of the pyrite. Only eight (8) samples had pyrite suitable for analysis. Pyrite samples from across the three drillholes returned favourable results with three indicative of the distal halo of a stratiform Zn-Pb-Ag deposit. The full report is provided in Appendix C.

Uranium-Lead (u-Pb) Age Dating

To complement the drilling results and help interpret the stratigraphy intersected in the 2023 drilling program a total of nine (9) samples were collected from selected holes of the Carrara Project drilling and submitted for Uranium-Lead (U-Pb) zircon radiometric dating at James Cook University, Townsville. The main results and interpreted stratigraphy are summarised below, with the full sample list, concordia diagrams and results available in Appendix D.

A series of tuff samples from C23DD001, C23DD002 and C23DD003 returned a series of Paleoproterozoic ages. The age dating reveals that most of the sedimentary package intersected in the Carrara Drilling is the age equivalent of the Esperanza and Fish River Formations of the Gun Super-Sequence. These results were unexpected and indicates that the stratigraphy is significantly older than the Lawn Hill Formation Lithologies intersected in NDI-Carrara 1 (Carson et. al., 2022)

Seismic Reprocessing and Interpretation

HiSeis completed a petrophysical review from the 2023 drill holes to evaluate against previous seismic data and interpretations. The final HiSeis petrophysics report is attached in Appendix E.

Future Work Planned

South32 intend to evaluate the results from the 2023 drilling and use this information to further evaluate the Carrara Project during the next reporting period.

Conclusion

South32 is encouraged by the results of the drilling and associated technical reviews of samples taken from the drilling and the seismic interpretations; and observations to date indicate that the potential remains for a substantial mineral discovery within the Carrara Project area. The economic constraint is the depth to Proterozoic basement in the project area.

References

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Appendix A – Drillhole Data

Appendix B – Petrographic and Minerographic Analysis

Appendix C – Pyrite Trace Element Analysis

Appendix D – Uranium-Lead (U-Pb) Age Dating

Appendix E – Petrophysical Analysis