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Technical Report for NI 43-101

Macpass Project, Yukon, Canada

Fireweed Metals Corp.

Prepared by:

SLR Consulting (Canada) Ltd.

SLR Project No.: 205.030126.00001

Effective Date:

October 17, 2024

Signature Date:

October 17, 2024

Revision: 1

Qualified Persons: Pierre Landry, P.Geo. Chelsea Hamilton, P.Eng. Kelly S. McLeod, P.Eng.

Making Sustainability Happen

Technical Report for NI 43-101 for the Macpass Project, Yukon, Canada SLR Project No.: 205.030126.00001

Prepared by

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Effective Date - October 17, 2024 Signature Date - October 17, 2024

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1.0 Summary

1.1 Executive Summary

SLR Consulting (Canada) Ltd. (SLR) was retained by Fireweed Metals Corp. (Fireweed) to prepare an independent Technical Report on the Macpass Project (Macpass, or the Project, previously known as the Macmillan Pass Project), located in Yukon, Canada. The purpose of this Technical Report is to support the disclosure of the Mineral Resource estimate as of September 4, 2024. This Technical Report has been prepared in accordance with NI 43-101 Standards of Disclosure for Mineral Projects. An SLR Qualified Person (QP) visited the Project on September 15-17, 2022.

Fireweed is a publicly traded mineral exploration company focused on advancing critical mineral projects in Canada. The company is developing three key projects: the 100%-owned Macpass Project in Yukon; the 100%-owned Mactung Project located on the Yukon-Northwest Territories border; and the Gayna Property in the Northwest Territories, staked by Fireweed in 2022.

Fireweed is part of the Lundin Group of Companies. It is listed on the TSX Venture Exchange (TSXV: FWZ) in Canada, the OTCQB Venture Market (FWEDF) in the U.S., and trades on the Frankfurt Stock Exchange in Europe (FSE: M0G).

The Macpass Project is located in eastern Yukon near the Northwest Territories border. Covering 940 km², it includes several key zinc-lead-silver deposits: Tom, Jason, End Zone and Boundary Zone. The Project is at an advanced exploration stage, though historical underground exploration drilling and bulk sampling have been carried out at Tom.

The Tom and Jason deposits are notable for their high-grade, sediment-hosted zinc-lead-silver mineralization, where layers of pyrite, sphalerite, and galena transition into semi-massive and massive sulphide zones. The Tom deposit also serves as the Project's logistical center, benefiting from road access and a nearby airstrip. Boundary Zone, which has become a focus of the Project due to promising recent exploration results, features similar stratiform mineralization, along with replacement and vein-style deposits that further enhance its zinc potential. The End Zone, located 3.5 km northwest of Jason, also contains high-grade mineralization, further contributing to the overall resource potential of the Macpass Project.

[Table 1-1](#page-16-2) summarizes Fireweed's Mineral Resource estimates for Zn, Pb, and Ag, effective as of September 4, 2024.

Table 1-1: Open Pit and Underground Mineral Resource Estimate, September 4, 2024

Notes:

1. Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves (CIM (2014) definitions) were used for Mineral Resource classification.

2. g/t: grams per tonne; Mlb: million pounds; Moz: million troy ounces; Mt: million metric tonnes.

3. Mineral Resources are reported within conceptual open pit (OP) shells and underground (UG) mining volumes to demonstrate Reasonable Prospects for Eventual Economic Extraction (RPEEE), as required under NI 43-101; mineralization lying outside of the OP shell or UG volumes is not reported as a Mineral Resource. Note the conceptual OP shell and UG volumes are used for Mineral Resource reporting purposes only and are not indicative of the proposed mining method; future mining studies may consider UG mining, OP mining, or a combination of both. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability.

4. All quantities are rounded to the appropriate number of significant figures; consequently, sums may not add up due to rounding.

- 6. Open pit Mineral Resources are reported at a pit wall angle of 45°, Revenue Factors of 0.8 (Tom, End Zone), 0.6 (Jason), 1.0 (Boundary Zone), and net smelter return (NSR) cut-off of C\$30/tonne (t).
- 7. Underground Mineral Resources are constrained within reporting panels with heights (H) of 20 m, lengths (L) of 10 m, with 10 m H and 5 m L sub-shapes and minimum widths of 2 m at Tom, Jason, and End Zone; and 20 m H by 20 m L with 10 m sub-shapes and a minimum width of 5 m at Boundary Zone, using an average panel NSR cut-off of C\$112/t.
- 8. NSR block values and zinc equivalency are based on metal prices of US\$1.40/lb Zn, US\$1.10/lb Pb, and US\$25/oz Ag, C\$:US\$ exchange rate of 1.32, and a number of operating cost and recovery assumptions specific to each deposit or mineralization domain.
- 9. ZnEq has been calculated on a block-by-block basis using the NSR calculation and input parameters related to each deposit or mineralization domain. For reporting subtotals and totals, ZnEq values have been calculated using the mass weighted average of the ZnEq block values of each respective domain for its respective classification category within OP and UG reporting volumes.
- 10. The effective date of the MRE is September 4, 2024, and the MRE is based on all drilling data up to and including holes drilled in 2023 with a final database cut-off date of June 23, 2024. The MRE does not include any data from holes drilled in 2024.
- 11. Inferred Mineral Resources are considered too speculative geologically to have economic considerations applied to them that would enable them to be categorized as Mineral Reserves. There is also no certainty that these Inferred Mineral Resources will be converted to the Measured and Indicated categories through further drilling, or into Mineral Reserves, once economic considerations are applied. The Inferred Mineral Resource in this estimate has a lower level of confidence than that applied to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of the Inferred Mineral Resource could be upgraded to an Indicated Mineral Resource with continued exploration.

This Technical Report also supports the disclosure of a Mineral Resource estimate as of October 17, 2024 for the by-product minerals, gallium and germanium.

The SLR QP is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Resource estimate.

^{5.} The densities for each deposit were estimated using collected density measurements. When density measurements were unavailable but analytical results were present, a regression method was applied.

1.1.1 Conclusions

1.1.1.1 Geology and Mineral Resources

- The Mineral Resources for the Macpass Project comprise four distinct deposits: Tom, Jason, End Zone, and Boundary Zone.
- The deposit type at the Macpass Project can be broadly described as stratiform, stratabound, sediment-hosted zinc-lead-silver-barite deposits.
- The current Mineral Resource estimate includes the initial disclosure of technical supporting information for the Boundary Zone deposit Resources.
- The current Mineral Resource estimate also includes Fireweed's first-time disclosure of technical supporting information for the End Zone deposit Resources.
- The total combined Mineral Resources of the four deposits comprising the Macpass Project are estimated to total approximately 55.98 Mt at 7.27% Zinc Equivalent (ZnEq) (5.50% zinc, 1.58% lead, and 24.2 g/t silver) in the Indicated Mineral Resource category and approximately 48.46 Mt at 7.48% ZnEq (5.15% zinc, 2.08% lead, and 25.3 g/t silver) in the Inferred Mineral Resource category.

1.1.1.2 Mineral Processing and Metallurgical Testing

- The most recent metallurgical test program on Tom and Jason was completed in 2018. The 2018 test program was carried out at Base Metallurgical Laboratories Ltd. (Base Met) in Kamloops, British Columbia (Project No. BL0236) and evaluated both the Tom and Jason deposits. An earlier test program, conducted in 2012 by G&T Metallurgical Services in Kamloops, British Columbia focused solely on Tom.
- In 2022, an initial investigation was completed on Boundary Zone (BL0755) and in 2023 on Boundary Zone Massive Sulphides (BL1140). The test programs included comminution, mineralogy, and flotation. Open circuit tests were completed on all of the samples with a focus on producing zinc concentrates.
- Tom and Jason and Boundary Zone material follows a similar flowsheet that includes comminution and sequential flotation to produce saleable concentrates. The Tom and Jason flowsheet includes a primary grind targeting 80% passing (P_{80}) 50 microns, lead flotation to produce a concentrate followed by zinc flotation to produce a zinc concentrate. Boundary Zone will utilize the same flowsheet with a coarser primary grind P_{80} of 75 microns with either lead flotation to produce a lead concentrate or pre-float utilizing the lead rougher circuit to reduce the carbon in the feed to the zinc flotation circuit. The target regrind for lead and zinc for all zones was targeted at P_{80} of 15 microns and 25 microns, respectively.
- The inductively coupled plasma (ICP) analysis of the concentrates indicated that silica may be a potential penalty element at Tom and Jason. The Boundary Zone samples had elevated levels of cadmium, mercury, and antimony that may incur penalties and may require blending to reduce the amounts in the zinc concentrate.
- To reflect a conceptual mine plan, a ratio of 65% Tom composite and 35% Jason composite were used to create the Tom & Jason (T&J) composite. The results from the T&J composite locked cycle tests (LCTs) reported a lead grade of 61.5% Pb with a recovery of 75%. The zinc concentrate graded 58.4% Zn with an 89% recovery.

• An average of the open circuit flotation tests completed on Boundary Zone material produced a lead concentrate grade of 41.8% Pb recovering 52% (only two samples had lead head grades high enough to produce a concentrate) and 81% Zn was recovered to the zinc concentrate with a grade of 54.8%. A lead concentrate was produced for Boundary Zone massive sulphide domain for sample NB21-001-MS-001 which produced a lead grade of 41.6% Pb at a recovery of 30.4%. The average of the Boundary Zone massive sulphide open circuit zinc flotation tests completed on the two composites reported a grade and recovery of 51.0% Zn and 84%, respectively.

1.1.2 Recommendations

1.1.2.1 Geology and Mineral Resources

- 1. Continue to adopt a balanced approach to evaluating resource expansion targets, weighing the costs and benefits of near-surface opportunities at Boundary Zone while considering the deeper potential at Tom and Jason.
- 2. Continue to explore fault offsets at Boundary Zone to better quantify the shape and extent of massive to semi-massive sulphide mineralization in the BZUZ and BZPZ zones.
- 3. Drill strike extensions to the northwest and at depth at Boundary Zone, focusing on followups to holes NB21-003, NB21-004, NB23-029, and NB20-009.
- 4. Consider drilling deeper holes at Tom West and Tom Southeast to explore the potential for mineralization expansion at depth.
- 5. Consider conducting additional drilling at Jason South, targeting down-dip extensions and target faulted areas within the Jason South deposit to improve the understanding of fault positions and mineralization offsets.
- 6. Consider twinning historical drill holes in mineralized areas where zinc, lead, or silver assays were not previously conducted, or where core loss occurred due to soft sulphides, to enhance data quality and improve confidence in local grade estimates.
- 7. Continuously review slope angles as new data is collected to ensure that parameters reflect any changes in geological and geotechnical conditions. This review should incorporate rock quality designation (RQD) data from new drilling, insights from geological modelling that identify new faults, and findings from completed geotechnical drilling or studies.
- 8. Continue assaying potential penalty elements alongside primary payable elements to enable their future integration into the resource estimation workflow. This will support ongoing metallurgical test work and enhance understanding of the various mineralization styles at the Macpass Project.
- 9. Ensure sufficient sample drying time prior to conducting density measurements to maintain the accuracy of the results.

The SLR QP notes that as of the effective date of this Technical Report, many of the exploration recommendations have been addressed during the summer 2024 drill program at the Macpass Project, which included over 16,013 m of drilling across 49 holes. The drilling targeted step-out areas at known zones, including Tom, Jason, and Boundary Zone, as well as new regional targets. In addition to drilling, the 2024 budget supported a comprehensive regional exploration program, involving ground gravity surveys, prospecting, soil sampling, and airborne geophysical surveys utilizing LiDAR and VTEM-magnetics. Data from these activities will be analyzed in the coming months to guide future exploration efforts and establish the detailed 2025 budget.

Fireweed anticipates that the 2025 drilling campaign will be approximately 20,000 m of diamond drilling with a preliminary budget of \$22M. Fireweed has also initiated a geometallurgical test program to better characterize the metallurgical variability of the mineralized domains at the Tom, Jason, End Zone, and Boundary Zone deposits with all results currently pending.

1.1.2.2 Mineral Processing and Metallurgical Testing

- 1. Conduct chemical analysis and mineral textural review of variability samples selected from Tom, Jason, End Zone, and Boundary Zone. The samples are to be discrete continuous intervals of drill core that are spatially representative based on the areas to be mined and provide variability in grade.
- 2. Create global composites from the variability samples for flowsheet validation and optimization.
- 3. Run the variability samples through the optimized flowsheet to provide additional confidence in the metallurgical response of the mineralized zones. The samples will be subjected to mineralogy, comminution test work, and flotation tests including LCTs.
- 4. Include dewatering tests to assess settling and filtration properties as well as tailings generation for physical and chemical evaluation.

1.2 Technical Summary

1.2.1 Property Description and Location

The Macpass Project is located in eastern Yukon, Canada, near the Northwest Territories border at latitude 63°10'N and longitude 130°09'W on NTS map sheet 105O. The property is approximately 200 km northeast of Ross River, the nearest community, and 400 km northeast of Whitehorse, Yukon's capital city, which serves as a regional supply and service centre and has an international airport.

1.2.2 Land Tenure

The Macpass Project property comprises 4,708 mineral (quartz) claims and 144 mining leases, covering 940 km2 within the Mayo and Watson Lake Mining Districts. The claims and leases were historically organized into various claim groups (i.e., properties once owned by different operators), which are now 100% owned by Fireweed and make up the current Macpass Project property.

1.2.3 Existing Infrastructure

A Yukon Government-maintained 780 m long gravel airstrip, the Macmillan Pass aerodrome, is located on the property 2.5 km north-northwest of the Tom deposit and supports exploration activities in the region.

Fireweed operates two 49 person camps on the Macpass Project property; Tom Camp and Sekie Camp. The camps serve as the operational hub for exploration work on the property, and include accommodation, offices, core logging facilities, helipad, and various pieces of heavy equipment and ATVs. The Sekie Camp is permitted for gradual expansion to accommodate up to 150 people as the Tom Camp is decommissioned.

There are no services available at the Project site. Electricity is generated locally by diesel generators and supported by a solar array.

An adit and underground workings, totalling 3,423 m, were excavated by Hudbay in stages between 1969 and 1982 to access the Tom West zone for bulk sampling and underground drilling.

1.2.4 History

Since the discovery of Zn-Pb-Ag mineralization at Tom in 1951, multiple owners and operators have explored different parts of the Macpass property area.

The former Tom property, which includes the Tom deposit, was held by Hudson Bay Mining and Smelting since its discovery and staking in 1951. The Jason claims were originally staked by the Ogilvie Joint Venture (Ogilvie JV) in 1974 prior to the first drilling at the Jason deposit a year later.

The present day Macpass Project property was acquired by Fireweed through option and purchase agreements from multiple owners and operators, beginning with the Tom and Jason properties claim groups optioned in 2016, and adding the surrounding claim groups between 2017 and 2022. These other claim groups include the Ben, BR, Jerry, MAC, MC, MP, NC, Nidd, NS, Oro, Sol, and Stump claims.

1.2.5 Geology and Mineralization

The Macpass Project covers three distinct deposits of sedimentary rock-hosted, stratiform zinclead-silver (Zn-Pb-Ag) mineralization including Tom, Jason, and End Zone, and one deposit containing brecciated, stratiform, and vein-hosted zinc-lead-silver mineralization at Boundary Zone. Sedimentary exhalative deposits (SEDEX), was first used in a report describing the stratiform Zn-Pb-Ag deposits of the Selwyn Basin by Carne and Cathro (1982) and for a period of time the term was used to describe these deposits worldwide, however, the term SEDEX is no longer used in favour of more descriptive and less genetic terminology.

Historically these deposits were considered to have formed strictly at the sediment-seawater interface at seafloor vents within extensional environments. The genetic model for early stratiform mineralization at Tom, Jason, End Zone, and Boundary Zone has subsequently been reinterpreted as a process involving sub-seafloor replacement of diagenetic barite and replacement of porous, poorly consolidated muddy to silty sediment (Magnall, 2020). At Boundary, this early mineralization has been overprinted by various phases of mineralization occurring as veins, breccias, and replacement features. These deposits represent structurally and stratigraphically controlled feeder-fault systems that occur on splays of the Macmillan-Hess fault system.

The sediment-hosted Zn-Pb-Ag (± Ga-Ge) deposits occur predominantly within the Portrait Lake Formation at or near the contact between the Fuller Lake Member and the Macmillan Pass Member, while mineralization at Boundary Zone occurs throughout a wide stratigraphic interval spanning sections of the Road River Group, the Portrait Lake Formation of the Earn Group, and intercalated Macmillan Pass Volcanics. The Fuller Lake Member consists of massive to thinly laminated, carbonaceous to siliceous, pyrite-rich mudstone, while the Macmillan Pass Member generally consists of interbedded black mudstone with grey siltstone and sandstone ("pinstripe mudstone") with coarse sandstone and conglomerate intervals. Carbonate-altered mafic volcanic and volcaniclastic rocks occur at several stratigraphic intervals, including within the Macmillan Pass Member, below the Niddery Lake member, and deeper, within the Road River Group.

1.2.6 Exploration Status

The Macpass Project hosts four known deposits, Tom, Jason, End Zone, and Boundary Zone. Fireweed continues to explore at and around these deposits, as well as carrying out regional exploration to identify and develop targets to drill-ready stage.

Prior to Fireweed ownership, various owners and operators completed 85,484 m of drilling in 403 historical drill holes across the property between 1952 and 2013. From this historical drilling, 80,117 m was completed in 370 historical drill holes in proximity to the Tom, Jason, End Zone, and Boundary Zone deposits that are the subject of this Technical Report.

Between the 2018 Mineral Resource Estimate (MRE) and end of the 2023 drill season, Fireweed completed an additional 43,902 m of drilling in 174 drill holes. Of this, 42,311 m were in 160 holes in deposit areas and used to inform the present MRE. The remaining drilling totalling 1,590 m in 14 drill holes tested regional targets away from deposits.

Since acquiring the Macpass Project in 2017, Fireweed has continued to explore at and around known deposit areas, as well as across the broader property. A particular focus has been along a northwest-trending "prospective corridor" based on favourable geology as well as geophysical and geochemical anomalies. Exploration work has included surficial and bedrock mapping, prospecting, rock and soil geochemistry, ground gravity surveying, and airborne geophysical surveying and LiDAR topographic mapping. This work builds on historical exploration work completed by previous owners and operators and provincial and federal government geological surveys.

During the 2020 drill season, Fireweed discovered stratiform laminated mineralization at Boundary Zone in Cambrian-Ordovician Road River host rocks. Prior to this discovery, Zn-Pb-Ag mineralization had only been observed in younger Devonian-Mississippian Earn Group host rocks at Macpass. The discovery has expanded the search space for Zn-Pb-Ag mineralization across the property, as areas of Road River sedimentary rocks had not previously been considered prospective.

Fireweed continues to interpret and integrate exploration datasets to identify new targets and evaluate existing targets to advance them to drill-ready prospects while working towards new discoveries.

1.2.7 Mineral Resources

The Mineral Resource estimates for the Macpass Project include updates of the previous Mineral Resource estimates for the Tom and Jason deposits. The current Mineral Resource estimate includes, for the first time, the methods used to prepare the Mineral Resource estimate for the End Zone and the newly discovered Boundary Zone deposits. The End Zone deposit is located approximately 3.5 km northwest of the Jason Deposit, and the Boundary Zone deposit is located approximately 15 km northwest of the Jason Deposit.

The Mineral Resource estimate for the Macpass Project is supported by a comprehensive set of data inputs, including drilling data, assay results, bulk density measurements, geological modelling, estimation parameters, and net smelter return (NSR) calculations. The drilling data includes results from both historical campaigns and recent drilling efforts up to June 23, 2024.

CIM (2014) definitions have been used for classification of Mineral Resources and the Mineral Resource estimate has been independently validated by SLR. Pierre Landry, P.Geo., of SLR, a Qualified Person as defined by NI 43-101, is responsible for the Macpass Mineral Resource Estimate and maintains independence from Fireweed.

The total combined Mineral Resources of the four deposits comprising the Macpass Project are estimated to be approximately 55.98 Mt at 7.27% zinc equivalent (5.50% zinc, 1.58% lead, and 24.2 g/t silver) in the Indicated Mineral Resource category, and approximately 48.46 Mt at 7.48% zinc equivalent (5.15% zinc, 2.08% lead, and 25.3 g/t silver) in the Inferred Mineral Resource category. Open pit Mineral Resources are calculated with a pit wall angle of 45°, revenue factors between 0.6 and 1.0, and a NSR cut-off of C\$30/tonne, while underground Mineral Resources use specific reporting panel dimensions and a C\$112/t average NSR cut-off. NSR values and zinc equivalency consider a US\$1.40/lb zinc price, a US\$1.10/lb lead price, a US\$25/oz silver price, and a CAD exchange rate of 1.32, with other assumptions detailed in Table 1-1. Prices are in Canadian dollars unless specified otherwise.

By-product elements germanium and gallium have also been estimated for the Macpass Project. The total combined germanium and gallium Mineral Resources of the Macpass Project are estimated to be approximately 55.98 Mt at 10.98 g/t germanium, 7.38 g/t gallium in the Indicated Mineral Resource category, and approximately 48.46 Mt at 8.14 g/t germanium, 5.82 g/t gallium in the Inferred Mineral Resource category. Gallium and germanium do not contribute any value as payable metals or smelter credits in the NSR calculations used to define the zinc, lead, and silver Mineral Resource, as shown in [Table 1-1.](#page-16-2) Accordingly, they do not contribute to the RPEEE associated with resource category classification

The technical disclosure related to the four deposits described herein – the Tom, Jason, End Zone, and Boundary Zone deposits — have a variety of dates supporting the disclosure of Mineral Resources. A summary of these dates is provided below.

- Technical Report:
	- o Effective date: October 17, 2024
- Tom, Jason, End Zone and Boundary Zone:
	- \circ Drill hole database date: June 23, 2024 (The MRE does not include any data from holes drilled in 2024.)
	- o Mineral Resource Estimate reporting date (zinc, lead, and silver) September 4, 2024.
	- \circ By-product elements estimate reporting date (germanium and gallium) October 17, 2024.

1.2.8 Mineral Processing and Metallurgical Testing

The most recent metallurgical test program on Tom and Jason was completed in 2018. The 2018 test program was carried out at Base Metallurgical Laboratories Ltd. (Base Met) in Kamloops, British Columbia (Project No. BL0236). An earlier test program, conducted in 2012 by G&T Metallurgical Services in Kamloops, British Columbia focused solely on Tom.

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carbon in the feed to the zinc flotation circuit. The target regrind for lead and zinc for all zones was targeted at P_{80} of 15 microns and 25 microns, respectively.

The inductively coupled plasma (ICP) analysis of the concentrates indicated that silica may be a potential penalty element in Tom and Jason. The Boundary Zone samples had elevated levels of cadmium, mercury, and antimony that may incur penalties and may require blending to reduce the amounts in the zinc concentrate.

To reflect a conceptual mine plan, a ratio of 65% Tom composite and 35% Jason composite were used to create the Tom & Jason (T&J) composite. The results from the T&J composite locked cycle tests (LCTs) reported a lead grade of 61.5% Pb with a recovery of 75%. The zinc concentrate graded 58.4% Zn with an 89% recovery.

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2.0 Introduction

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2.1 Sources of Information

SLR's site visit to the Macpass Project was conducted by Pierre Landry, P.Geo., from September 15 to 17, 2022. During this visit, Mr. Landry inspected key facilities, including the core shack and core scanning workspace, and reviewed the procedures for logging, sampling, and data collection. He also examined core samples from Tom, Jason, End Zone, and Boundary Zone, verified drill collar locations using a handheld GPS, and compared the observed mineralization with the interpreted drilling sections. During the site visit, Mr. Landry was accompanied by Dr. Jack Milton, Fireweed's Vice President, Geology.

Chelsea Hamilton, P.Eng. contributed to the cut-off grade inputs for net smelter return (NSR) and zinc equivalent (ZnEq) calculations. She was also responsible for both open pit and underground mine optimization and sensitivity analysis.

Kelly McLeod, P.Eng. managed and supervised the metallurgical test work programs.

During preparation of the Mineral Resource estimate, discussions were held with the following personnel from Fireweed.

- Jack Milton, P.Geo., Vice President of Geology, Fireweed
- Kelly Bateman, P.Geo., Director of Studies, Fireweed
- Moira Cruickshanks, P.Geo., Director, Technical Services, Fireweed
- Ian Carr, P.Geo., Senior Geologist, Fireweed
- Stéphane Poitras, P.Geo., Project Geologist, Fireweed
- Kaitie Purdue, GIT, Project Geologist, Fireweed
- Quinton Willms, GIT, Project Geologist, Fireweed
- Greg Ashcroft, GIT, Data Manager, Fireweed

This Technical Report was prepared by Qualified Persons (QPs) Pierre Landry, P.Geo., Chelsea Hamilton, P.Eng., and Kelly S. McLeod, P.Eng. Additionally, contributions were made by Logan Behuniak, P.Geo., Volker Moeller, P.Geo., Humbert Sin, P.Eng., and Maria Campos, P.Geo.. The specific responsibilities of the Qualified Persons are outlined in [Table 2-1](#page-26-0) of the report.

The documentation reviewed, and other sources of information, are listed at the end of this Technical Report in Section 27 References.

2.2 List of Abbreviations

Units of measurement used in this Technical Report conform to the metric system. All currency in this Technical Report is Canadian dollars (C\$) unless otherwise noted.

3.0 Reliance on Other Experts

This Technical Report has been prepared by SLR for Fireweed. The information, conclusions, opinions, and estimates contained herein are based on:

- Information available to SLR at the time of preparation of this Technical Report.
- Assumptions, conditions, and qualifications as set forth in this Technical Report.

For the purpose of this Technical Report, the SLR QP has relied on a list of claims and ownership and royalty information provided by Fireweed. The SLR QP considers it reasonable to rely on Fireweed who is responsible for maintaining this information. The SLR QP conducted a review of the quartz claims held by Fireweed that encompass the MacPass Project [\(Table 4-1\)](#page-33-1) using the Yukon government's mining claims online database and found all claims to be active and in good standing.

The SLR QP has taken all appropriate steps, in their professional opinion, to ensure that the above information from Fireweed is sound.

4.0 Property Description and Location

4.1 Location

The Macpass Project is located in eastern Yukon, Canada, near the Northwest Territories border [\(Figure 4-1\)](#page-30-0) at latitude 63°10'N and longitude 130°09'W on NTS map sheet 105O. The property is approximately 200 km northeast of Ross River, the nearest community, and 400 km northeast of Whitehorse, Yukon's capital city, which serves as a regional supply and service centre and has an international airport.

4.2 Land Tenure

The Macpass Project property comprises 4,708 mineral (quartz) claims and 144 mining leases, covering 940 km2 and spans the Mayo and Watson Lake Mining Districts [\(Figure 4-2,](#page-32-0) Appendix 1). The claims and leases were historically organized into various claim groups (i.e., properties once owned by different operators), which are now 100% owned by Fireweed and make up the current Macpass Project property. Historical claim groups within the Macpass Project property are listed in [Table 4-1,](#page-33-1) along with current expiry dates. All claims and leases can be extended.

Claims can be extended by carrying out work such as drilling, mapping, or surveying as described under the *Yukon Quartz Mining Act* or by paying \$100 per claim per year in lieu of such work. Work must be performed on every claim unless groupings are filed. An application can be made to group adjoining claims; the maximum number of claims per group is 750. Grouping allows work to be performed on one or more claims and can be distributed to any or all other claims in the group. In recent years, these work requirements and fees have been waived by the Yukon Government as the property is within an area withdrawn from staking, and good-to dates are automatically extended each year by one to two years. Fireweed has elected to continue filing work to extend claim expiry dates and ensure claims remain in good standing well into the future.

Figure 4-2: Property Map

Historical Claim Group	Type	Count	Earliest Good To	Latest Good To	Deposit
Tom	Leases	144	2039-10-12	2039-10-12	Tom
Total Leases		144			
Ben	Claims	80	2032-04-15	2032-04-15	
BR	Claims	326	2032-12-03	2032-12-03	
Jason	Claims	283	2038-12-31	2042-12-03	Jason, End Zone
Jerry	Claims	217	2028-04-07	2030-04-07	
MAC	Claims	820	2041-12-03	2042-12-03	
МC	Claims	333	2034-12-03	2036-12-03	
MP	Claims	74	2037-12-03	2039-12-03	
NC	Claims	$\overline{7}$	2031-06-06	2031-06-06	
Nidd	Claims	373	2041-12-03	2044-12-03	Boundary Zone
NS	Claims	333	2036-12-03	2036-12-03	
Oro	Claims	1582	2033-12-03	2044-12-03	
Sol	Claims	209	2027-12-03	2039-12-03	
Stump	Claims	71	2028-04-06	2028-04-13	
Total Claims		4,708			

Table 4-1: Historical Claim Groups of the Macpass Property

4.3 Property Agreements and Royalties

All of the Macpass Project claims and Tom mining leases are 100% owned by Fireweed. Royalty, right of first refusal, and payment agreements for distinct claim blocks acquired from previous owners between 2016 and 2022 are described below and summarized in [Figure 4-3.](#page-35-0)

4.3.1 Tom and Jason Claim Groups

Fireweed holds 100% interest in the 144 leases and 283 claims of the Tom and Jason claim groups. The Jason claim group has a third party underlying 3% NSR royalty that can be bought out at any time for C\$5,250,000. There are no underlying royalties on the Tom claim group. The Tom deposit is hosted within the Tom claim group and the Jason and End Zone deposits are hosted within the Jason claim group. The Jason deposit is located approximately five kilometres west of the Tom deposit and the End Zone deposit is located approximately 3.5 km northwest of the Jason Deposit.

4.3.2 Nidd Claim Group

Fireweed holds 100% interest in the 373 claims of the Nidd claim group, where the Boundary Zone deposit is located. Teck Resources Limited (Teck) retained a 1% NSR royalty and a right of first offer to purchase future production concentrates from the Nidd claims. The Boundary Zone deposit is hosted within the Nidd claim group. The Boundary Zone deposit is located approximately 15 km northwest of the Jason Deposit.

4.3.3 MC, MP, and Jerry Claim Groups

Fireweed holds 100% interest in the 333 MC, 74 MP, and 217 Jerry claims. Vendors Epica Gold Inc. (Epica) and Carlin Gold Corporation (Carlin) together retained production royalties of 0.5% NSR on base metals and silver, and 2% NSR on all other metals including gold produced from the MC, MP, and Jerry claims, and are entitled to one additional payment of C\$750,000 or equivalent in, as Fireweed elects, upon receiving a resource calculation of at least two million tonnes of Indicated (or better) Resource on any part of the MC, MP, or Jerry claim groups. Fireweed maintains a right of first refusal on the sale of any NSR royalty from these claims by Epica and/or Carlin. As of September 2022, Epica became a subsidiary company of Onyx Gold Corp.

4.3.4 NS and BR Claim Groups

Fireweed holds 100% interest in the 326 claims in the BR claim group and 333 claims in the NS claim group. Vendor Golden Ridge Resources Ltd. (Golden Ridge) retained production royalties of 0.5% NSR on base metals and silver, and 2% NSR on all other metals including gold produced from the BR and NS claim groups, and is entitled to one additional payment of C\$750,000 or equivalent in Fireweed shares at Fireweed's option, upon receiving a resource calculation of at least two million tonnes of Indicated (or better) Resource on any part of the BR or NS claim groups. Fireweed has the right to purchase one half of these NSR royalties for C\$2,000,000 at any time prior to the commencement of commercial production. Fireweed maintains a right of first refusal on the sale of any NSR royalty from these claims by Golden Ridge. There is also a pre-existing third party 3% NSR royalty on any future cobalt production from the BR and NS claim groups.

4.3.5 MAC Claim Group

Fireweed holds 100% interest in the 820 claims of the MAC claim group. Triple Flag Precious Metals Corp. holds production royalties of 0.25% NSR on base metals and other non-precious minerals, 1% NSR on silver and other precious metals excluding gold, and 3% NSR on gold produced from the MAC claims.

4.3.6 Sol, Stump, Ben, and NC Claim Groups

Fireweed holds 100% interest in the 367 claims from the Sol claim group and several small nearby separate claim groups (Ben, NC, Stump). Vendor QuestEx Gold & Copper Ltd (QuestEx) retained production royalties of 0.5% NSR on all base metals and silver, and 2% NSR on all other metals including gold, which may be mined from these claims. There is an additional third party royalty consisting of a 2% NSR on production from the Sol and Stump claims of which 1% may be extinguished for C\$2,000,000. On June 1, 2022, QuestEx was acquired by and became a subsidiary company of Skeena Resources Ltd.

4.3.7 Oro Claim Group

Fireweed holds 100% interest in the 1,582 claims in the Oro claim group that form the western extension of the Macpass property. Vendors Cathro Resources Corporation (Cathro Resources) and Cazador Resources Ltd. together retained a 0.5% NSR production royalty on all base metals and silver, and 2% NSR on all other metals including gold, which may be mined from the Oro claims.

4.4 Environmental Liabilities

Hudson Bay Mining and Smelting (Hudbay) excavated an adit and underground workings between 1969 and 1982 to access the Tom West zone, a part of the Tom deposit, for bulk sampling and underground drilling. The adit was partially plugged in 2010 to flood the workings and reduce flow of acid rock drainage (ARD) formed by oxidation of sulphides exposed to air underground. A waste pile from the underground development at Tom West was also covered with an impermeable barrier to reduce ARD from the site. The adit continues to make water as designed and metal contents and other parameters of the discharge water are monitored as per the requirements of the current Type B water use licence (see Permitting Considerations below).

Routine water quality monitoring has been conducted around the Tom deposit since 2001 by Ensero Solutions Canada Inc. (Ensero), (formerly Alexco Environmental Group (AEG)), and has occurred under Water Licences QZ99-046, QZ13-034, QZ15-060, and QZ19-058. The monitoring program has subsequently been expanded to include stations around the Jason and Boundary Zone deposits as well as connecting access roads. Numerous tributaries that drain into the South Macmillan River on the property are subject to naturally occurring ARD that results in naturally elevated metal concentrations and depressed (acidic) pH (Ensero 2023 2024; Kwong and Whitley 1992; Mackie et al. 2015). In 2022-2023, pH at stations around the Tom and Jason deposit areas ranged between 2.81 and 6.86; stations around Boundary Zone ranged 7.08-7.35. Stations on the South Macmillan River three kilometres and 23 km downstream also ranged pH 4.56 to 4.85. Overall, these pH values were within the historical range of pH values observed at these stations in the past (Ensero 2024).

The 2018 PEA on Tom and Jason (Makarenko et al. 2018) addressed the contribution from the Tom adit to acidity and metal loading at downstream locations. The 2018 PEA concluded that the ARD potential from any possible future mining operation is probably high (to be confirmed by detailed acid base counting (ABA) and other studies still to be completed) and despite discharge into streams with natural high acidity and elevated metal values, the Project will likely require appropriate ARD mitigation measures during and after potential future mining operations.

While no formal ARD studies have been completed, a geochemical characterization program has been initiated by Lorax Environmental Services consultants for Fireweed to provide information on the intrinsic metal leaching and acid rock drainage (ML/ARD) potential of the various lithologies which may be encountered during open pit and/or underground mining of the deposits. This static geochemical work will inform future kinetic geochemical studies and development of an ARD management plan.

A preliminary environmental investigation of the former Jason property in 2006 by Gartner Lee Ltd noted that several historical exploration boreholes below an elevation of 1,250 m were discharging water. Water samples from one of these boreholes and four samples of surface water exceeded the Canadian Council of Ministers of the Environment (CCME) Aquatic Life guidelines for several metals, including cadmium and zinc. As noted in annual water quality monitoring reports and regional studies, elevated metal concentrations and low pH levels reflect natural groundwater discharge from the site, as the Earn Group sediments that host the mineral deposits are regionally elevated with respect to several metals, including zinc, cadmium, lead, and silver (Ensero 2023, 2024; Mackie et al 2015).

In 2015, drill pads and collars at the former Jason property were rehabilitated and holes plugged with cement when ground conditions allowed. Remaining holes have been rehabilitated by Fireweed, along with several historical holes on the Tom leases that were also discharging

water. New drill holes are capped wherever possible, and in the case of holes making water, first plugged and grouted to prevent continued flow of water to surface. Holes that require plugging will be inspected periodically for signs of seepage. Ongoing remediation and reclamation efforts are documented in annual reporting submitted under the Tom-Jason Class 4 and Boundary Zone Class 3 permit requirements.

4.5 Permitting Considerations

For exploration programs (over specific activity thresholds) and mine development in the Yukon, a project proposal must be assessed in accordance with the *Yukon Environmental and Socioeconomic Assessment Act* (YESAA) by the Yukon Environmental and Socioeconomic Assessment Board (YESAB) prior to seeking project licences, authorizations, or permits. The assessment includes a public comment period and consultations with affected First Nations. A project proposal includes plans for development, operations, environmental monitoring and mitigations, and decommissioning.

Any future development of the Tom, Jason, End Zone, or Boundary Zone deposits will require an environmental assessment under YESAA and a Yukon Mining Licence and Lease issued by the Yukon Government. Additional permits will be required from the territorial and federal governments to further develop the deposits. For example, development of mining activities in the Yukon requires the issuance of a Type A water license by the Yukon Water Board.

4.5.1 Tom and Jason Deposits

Annual exploration program activities are permitted at the Tom and Jason deposits under a Yukon Class 4 Quartz Mining Land Use Approval (LQ00490b) in accordance with the *Quartz Mining Act* and Quartz Mining Land Use Regulation. This permit expires on October 15, 2028. Approved activities include diamond drilling, surveying, soil sampling, environmental studies, camp operation, use of heavy equipment, new road and trail construction, use of existing roads, water use, clearing, waste management, fuel storage, and reclamation. Reclamation and/or decommissioning of roads and trails is to be progressively completed when they are no longer needed to support activities.

Water use and discharge of water from the Tom adit are governed by a Type B Water Licence (QZ19-058) that is valid until December 31, 2030. The discharge from the lower Tom adit has naturally elevated metals levels and has been the subject of periodic water quality monitoring, water sampling, and reporting since 2001.

A second Type B Water Licence (MS20-074) is active over an area of the Jason Road, 400 m off the North Canol Road and governs recently completed bridge replacement work over the South Macmillan River. The licence is valid until November 30, 2028. Periodic field monitoring and submission of an annual report is required.

Several additional permits are in place related to operation of Fireweed's Tom and Sekie camps that accommodate field crews and are the operational hub of exploration activities at Macpass. These include a Commercial Dump Permit (#81-029) valid until December 31, 2026, a Storage Tank System Permit (2022-17) valid until July 11, 2027, a Storage Tank System Permit (2023-35) valid until September 20, 2028, a Sewage Disposal System Permit (#6040) currently under review. *Water Act* Schedule 3 Notifications governing water use related to drilling are also required to be submitted on an annual basis.

4.5.2 Boundary Zone Deposit

Annual exploration program activities are permitted on a portion of the Nidd claim group, where the Boundary Zone deposit is located, under a Yukon Class 3 Quartz Mining Land Use Approval (LQ00575). This permit expires on December 12, 2025. Approved activities include helicoptersupported diamond drilling, surveying and soil sampling, clearing, fuel storage, and reclamation.

As at Tom and Jason, *Water Act* Schedule 3 Notifications governing water use related to drilling are also required to be submitted on an annual basis ahead of the start of each field season.

4.5.3 Regional Exploration

Seasonal exploration programs across other parts of the Macpass property are permitted under Yukon Class 1 Quartz Mining Land Use Notifications. Typical approved activities include helicopter-supported drilling, geochemical sampling, geological mapping/prospecting, geophysical surveys (air/ground), fuel storage, and temporary camps.

A *Water Act* Schedule 3 Notification must be submitted in advance of each field season.

4.6 First Nations

The Macpass property lies within the within Traditional Territories of the Kaska Nation and First Nation of Na-Cho Nyäk Dun.

The Yukon has constitutionally protected modern treaties, known as Final Agreements, that describe how the federal, territorial, and First Nations governments interact with each other and define First Nations ownership of and decision making powers on Settlement Land. The Final Agreements address heritage, fish, wildlife, natural resources, water, forestry, taxation, financial compensation, economic development, and land management. The Umbrella Final Agreement is the framework for negotiating the individual Final Agreements.

The First Nation of Na-Cho Nyäk Dun is a self-governing First Nation with land-use rights within the Project area and land management rights on settlement lands as detailed in their Final Agreement and the Umbrella Final Agreement.

The Kaska Nation hold constitutionally protected rights throughout their Traditional Territory, which the Macpass Project lies within. The Ross River Dena Council and the Liard First Nation, the two Yukon Kaska First Nation communities, remain unsettled and have not signed a Final Agreement under the Umbrella Final Agreement.

The property is within the Ross River Area of Kaska Traditional Territory that is subject to a mineral claim staking ban (Ross River Area (OIC) 2013/224) pending settlement of land claims. The moratorium has been in place since 2013 and has been extended several times to facilitate continuing Yukon government consultation with the Ross River Dena Council. The moratorium does not prevent exploration or development work on existing claims, and does not prevent engagement and consultation between operators, government, and First Nations in Yukon related to permit applications for mineral exploration and development work.

Fireweed is committed to working collaboratively with First Nations as exploration advances at the Macpass property to ensure that their rights, interests and concerns are meaningfully addressed, and their input informs Fireweed's current and future Project planning.

4.7 Significant Factors and Risks

The SLR QP is not aware of any other significant factors and risks that may affect access, title, or the right or ability to perform the proposed work program on the property.

5.0 Accessibility, Climate, Local Resources, Infrastructure and Physiography

5.1 Topography, Elevation, and Vegetation

The Macpass Project is in the Hess Mountains region of the Selwyn Mountains, part of the North American Cordillera. Mountains and ridges separate broad valleys through which numerous creeks and rivers flow [\(Figure 5-1\)](#page-41-0). Elevations in the Project area range from 1,100 MASL in valley bottoms to 2,100 MASL at mountain peaks around the Tom deposit. There is a gain in elevation of over 650 m along the North Canol Road between Ross River and the Project property (200 km distance).

Vegetation is dependent on elevation and host rock, with diversity of plant species varying throughout the region due to differences in microtopography, microclimate, and bedrock lithology (Smith et al. 2004). Typical species include various lichen, grass, and dwarf shrub communities, shrub birch-willow communities, and subalpine fir. The treeline is at approximately 1,350 MASL.

Vegetation is more developed in the valley bottoms, consisting primarily of grasses, small shrubs, moss and lichen. Black spruce and white spruce forests, sometimes mixed with subalpine fir, lodgepole pine, shrub birch and willow, are found on valley slopes and in river and creek valleys (Smith et al. 2004). A large area of scree, boulders, and hard rock characterizes the area around the Tom deposit, with little to no vegetation.

Figure 5-1: Macmillan Pass Aerodrome and North Canol Road in Typical Property Topography

Note: Looking northeast. Typical of the Macpass property and the broader Selwyn Mountains region, the landscape features broad valleys flanked by mountain peaks. Source: Fireweed 2024.

5.2 Accessibility

The property can be accessed by road from Whitehorse, which is the capital of Yukon and has an international airport. The first 400 km from Whitehorse are on the sealed Klondike Highway (Hwy 2) and Robert Campbell Highway (Hwy 4) to the town of Ross River, followed by approximately 200 km on the seasonal North Canol Road, a government maintained gravel road (Hwy 6). The North Canol Road is accessible only in the summer and fall while a barge at Ross River is in operation.

The Tom deposit is accessible directly from the North Canol Road. The Jason deposit is accessible from the North Canol Road by a newly replaced bridge across the South Macmillan River. Exploration roads and trails built by Fireweed and previous owners provide access to various parts of the Tom, Jason, and End Zone deposits and surrounding claims.

The Boundary Zone, on the Nidd claim group, also has a network of historical trails and roads, and is connected to the Jason claim group by the Nidd Road, which in its current condition is only passable by ATV. Exploration at Boundary Zone and across the broader Macpass property has been helicopter-supported based out of Fireweed's main camp, Tom Camp, located on the

Tom leases, which is the logistical hub of the property. Fireweed is assessing potential for future use of the road.

A Yukon Government-maintained 780 m long gravel airstrip, the Macmillan Pass aerodrome, is located on the property 2.5 km north-northwest of the Tom deposit and supports exploration activities in the region [\(Figure 4-2](#page-32-0) and [Figure 5-1\)](#page-41-0).

5.3 Climate

The climate of the region is sub-arctic. Weather data collected by a government weather station at the Macmillan Pass aerodrome averages approximately -20°C in the winter to +18°C in the summer. The mean summer air temperature is typically between 5°C and 10°C, with daily maximums at approximately 15°C and minimums at approximately 5°C. Mean winter temperatures have more day-to-day variation, but are typically between -10°C and -20°C. During the winter season, air temperatures rarely rise above freezing.

Precipitation data are not available for Macmillan Pass aerodrome, however, at Fireweed's adjacent Mactung project to the north, average annual precipitation is 672 mm, with approximately half falling as snow. Midwinter snowpack varies from thin discontinuous on windswept sites to greater than two metres in drifted areas.

The effective exploration field season runs from late May to late October. This shortened field season is primarily due to avalanche dangers in the Tom deposit area, water supply issues, and road access that is dependent on the operating season of the barge crossing at Ross River.

5.4 Local Resources

Labour and business suppliers and services are available from the local Yukon communities of Ross River, Faro, Mayo, and Watson Lake, as well as Whitehorse [\(Figure 4-1\)](#page-30-0). Fireweed continues to hire and train local employees and retain qualified local businesses whenever possible to support site activities.

The city of Whitehorse, 600 km via road from the Project, is the major center of supplies and communications in the Yukon and is a source of skilled labor for exploration diamond drilling, construction, and mining operations. There is daily commercial airplane service from Whitehorse to Vancouver, British Columbia and other points south.

Ross River (population 400 (Yukon Bureau of Statistics 2024)) is 200 km by road from the Macpass Project. It is located at the start of the North Canol Road and has a general store, Yukon Government Health Centre, and fuel services available.

Bureau Veritas Laboratories Ltd. (Bureau Veritas) and ALS Minerals Laboratory have sample preparation facilities in Whitehorse.

5.5 Infrastructure

5.5.1 Exploration Support

There are no services available at the Project site. Electricity is generated locally by diesel generators and supported by a solar array.

Tom Camp is a 49 person trailer camp, first installed as a 20 person camp in 2011 and expanded in 2018-2020, and has served as the operational hub for exploration work on the property. Due to its location in an avalanche prone area, the camp's operational window is limited to summer and fall months when snowpack is low and the avalanche risk has subsided.

In 2023, a 49 person Weatherhaven camp, Sekie Camp, was installed halfway between Tom Camp and the Macmillan Pass aerodrome, away from the avalanche hazard zone. The location of Sekie Camp will protect camp infrastructure and extend the potential operational season to accommodate staff for environmental monitoring, drilling, and related activities year-round should the need arise.

The new camp includes accommodation, offices, core logging facilities, helipad, and various pieces of heavy equipment and ATVs. The camp is permitted for gradual expansion to accommodate up to 150 people as Tom Camp is decommissioned.

5.5.2 Mine Development

Hudbay, now named Hudbay Minerals Inc. (Hudbay Minerals), excavated an adit and underground workings in stages between 1969 and 1982 to access the Tom West zone for bulk sampling and underground drilling, for a total of 3,423 m of underground workings. The adit was partially plugged in 2010 to flood existing workings and reduce the flow of AMD from the opening. An upper level decline into the deposit was developed in 1982, also for exploration purposes, however, was subsequently backfilled.

Preliminary infrastructure studies related to the Tom and Jason deposits have identified areas suitable for mine processing, operations, and waste and tailings storage (Makarenko et al. 2018). These will be reviewed further in future economic and feasibility studies prior to any development applications. No such studies have been carried out relating to Boundary Zone or in the Boundary Zone area.

Potential power sources include diesel or liquid natural gas (LNG) generators at site, with studies underway (including a current solar trial) to assess the extent to which renewable energy sources can provide power at Sekie Camp. Water is readily available, subject to permitting by the Yukon Water Board.

For road transport, the North Canol Road requires upgrades and has been marked for improvement under the Federal and Yukon Government Yukon Resource Gateway Project. Proposed upgrades include bridge replacement and safety improvements and resurfacing 60 km of the Robert Campbell Highway. On the property, Fireweed has recently replaced a derelict bridge across the South Macmillan River to restore access to the Jason area. The existing road beyond Jason to Boundary Zone would require repair and upgrading to establish road access to that part of the property.

The nearest year-round ice-free port facilities are in Skagway, Alaska [\(Figure 4-1\)](#page-30-0). Rail connections are from Whitehorse, Yukon and Fort Nelson, British Columbia.

5.6 Indigenous Group Engagement

The Macpass Project is located within the Traditional Territories of the Kaska Nation and First Nation of Na-Cho Nyäk Dun. Fireweed is committed to conducting exploration and mine development activities that are informed by the aspirations and interests of Indigenous peoples and local communities. Fireweed meaningfully engages on project-related activities and provisions to meet current and future regulatory requirements and local agreements. Fireweed maintains regular communication with First Nations potentially affected by the Macpass Project.

During any future project and potential mine development planning processes, Fireweed is committed to collaboratively working with Indigenous groups and local communities to achieve a high standard of environmental stewardship, and to undertake studies and implement measures to address local concerns and interests.

6.0 History

6.1 Prior Ownership

The present day Macpass Project property was acquired by Fireweed through option and purchase agreements from multiple owners and operators, beginning with the Tom and Jason claim groups optioned in 2016, and adding the surrounding claim groups between 2017 and 2022. Previous claim group outlines are shown in [Figure 4-2.](#page-32-0) In 2022, Fireweed changed its name from Fireweed Zinc Ltd. to Fireweed Metals Corp. to reflect its transition from a zinc exploration company to a critical minerals company after acquiring additional projects (Fireweed 2018).

6.1.1 Tom and Jason Claim Groups

The former Tom property, which included the Tom deposit (the original sedimentary exhalative deposit (SEDEX) discovery in the district), was held by Hudbay since its discovery and staking in 1951, although it was temporarily optioned to Cominco Ltd (Cominco) between 1988 and 1992.

The Jason claims were originally staked by the Ogilvie Joint Venture (Ogilvie JV) in 1974 prior to the first drilling at the Jason deposit a year later. An interest in the property was obtained by Pan Ocean Oil Ltd (Pan Ocean) in 1979 before being acquired by Aberford Resources Ltd. (Aberford) in 1981. Aberford's interest in the property was transferred to Abermin Corporation in 1985 and subsequently to CSA Gold Corporation. All parties transferred their interests to MacPass Resources Ltd before Hudbay, now named Hudbay Minerals Inc. (Hudbay Minerals), purchased the Jason property in 2007 to consolidate the Tom and Jason claims.

In December 2016, Hudbay Minerals signed an option agreement with Fireweed for the Tom and Jason properties that was fully exercised in February 2018, giving Fireweed 100% ownership of the Tom and Jason claims.

6.1.2 MAC Claim Group

The MAC claims were staked in 2011 by Newmont Mining Corp (Newmont), which explored for gold in 2011, 2012, and 2013. Newmont optioned the MAC claims to Fireweed in 2017 and subsequently sold the option agreement to Maverix Metals (Maverix) in 2018. Fireweed exercised its option with Maverix in October 2020 to acquire 100% ownership of the MAC claims.

6.1.3 MC, MP, and Jerry Claim Groups

The MC, MP, and Jerry claims were staked in 2010 by the Carlin Gold Corp (Carlin)- Constantine Metal Resources Ltd (Constantine) Joint Venture (CCJV), which explored the district for Carlin-style gold mineralization until the property was optioned to Fireweed in 2018. Constantine transferred their interest to Epica Gold Inc. (Epica) (a wholly owned subsidiary, later spun off to HighGold Mining, that subsequently became a subsidiary of Onyx Gold Corp.) in July 2019. Fireweed exercised the option with Carlin and Epica to become 100% owners in September 2020.

6.1.4 NS and BR Claim Groups

The NS and BR claims were staked in 2011 by Golden Ridge Resources Ltd (Golden Ridge), which explored for cobalt and zinc before optioning the ground, known as their North Canol Property, to Fireweed in 2018. Fireweed exercised the option with Golden Ridge to become 100% owners in September 2020.

6.1.5 Nidd Claim Group

The Nidd claims, where the Boundary Zone deposit is located, were staked in 1976 by Cominco (later Teck Cominco Ltd. in 2001, then Teck Resources Ltd in 2008). Fireweed acquired the claim group in 2018 in a purchase agreement with Teck Metals Ltd., a subsidiary of Teck Resources Ltd., to acquire the Nidd claim group and extend the Macpass Project to the west.

6.1.6 Oro, Sol, Stump, NC, and Ben Claim Groups

The latest additions to Fireweed's Macpass Project property were the Oro, Sol, and Stump claims to the west, the NC claims on the south of the property, and Ben claims to the southeast. The Oro claims were staked as the Brick-Neve claims in 1979 by AGIP Canada Ltd (AGIP), which worked the property until 1989. The claims were transferred to Cameco Resources Ltd (later Cameco Corporation), in 1994 and were allowed to lapse in 2000. The claims were restaked as the Oro claims in 2010 by Cathro Resources. Colorado Resources Ltd (Colorado Resources) optioned the property later that year and staked additional claims in early 2011, exploring for gold in 2011 and 2012. In 2013, Colorado Resources optioned the Oro property to Gold Fields Selwyn Exploration Corporation, a wholly owned subsidiary of Gold Fields Ltd, that explored for gold and terminated its option that year. In 2020, Fireweed entered an agreement with Cathro Resources and Cazador Resources Ltd., joint owners of the claim group, to purchase the Oro claims. The transaction was completed in January 2022.

The area now covered by the Sol claims to the west of Nidd were originally staked in smaller blocks and explored between 1977 and 1984 by Hudbay and Cominco. Colorado Resources restaked the area as the Sol claims in 2010 along with the adjacent Oro claims, exploring for gold in 2011 and 2012 before optioning both the Sol and Oro claims to Gold Fields in 2013. The option was terminated and Colorado Resources remained the owner until becoming QuestEx Gold & Copper Ltd. (QuestEx) in 2020. Fireweed purchased the Sol claims along with the Stump, NC, and Ben claims from QuestEx in November 2020.

6.2 Exploration and Development History

The area became more accessible for mineral exploration in the early 1940s when the Canol ("Canadian Oil") road and pipeline were built in 1942-1944 under the direction of the US Army Corps of Engineers. The pipeline was constructed to deliver oil from fields at Norman Wells, Northwest Territories, to Fairbanks, Alaska in support of the war effort against Japan. The Tom zinc-lead-silver (Zn-Pb-Ag) deposit is located two kilometres from the Canol Road and was discovered in 1951 by prospectors working for Hudbay Exploration and Development, a subsidiary of Hudson Bay Mining and Smelting Co., Limited.

Since the discovery of Zn-Pb-Ag mineralization at Tom in 1951, multiple owners and operators have explored different parts of the Macpass property. The section below focuses on Zn-Pb-Ag exploration on the property. Most of the base metal exploration on the Macpass property has occurred on the Tom, Jason, and Nidd claims where the Tom, Jason, and Boundary Zone deposits are located. Between 1952 and 2023, a total of 277 holes were drilled in proximity to the Tom deposit totalling 45,909 m; 136 holes were drilled in proximity to the Jason deposit

totalling 38,950 m; 19 were drilling at End Zone totalling 4,158 m. On the Nidd claims at and around Boundary Zone, 112 holes totalling 35,615 m were drilled. Drilling is described in detail in Section 10.

Gold exploration has also taken place across the property, mainly on the MAC, MC, MP, Jerry, BR, NC, Oro, and Sol claim groups in the 1980s and 1990s and again between 2009 and 2013, leading to the discovery of several sediment-hosted prospects, as well as intrusion-related vein and stockwork prospects.

6.2.1 1950s-1960s (Hudbay)

The Tom deposit was discovered in 1951 by prospectors working for Hudbay who identified Zn-Pb-Ag mineralization at surface where the Tom West deposit crops out. Sixty-five holes were drilled from surface between 1952 and 1968 totalling 10,291 m.

Hudbay excavated an adit and underground workings in stages between 1969 and 1982 to access the Tom West and later Tom East zones of the Tom deposit for bulk sampling and underground drilling, for a total of 3,423 m of underground workings. The workings were eventually decommissioned, and ultimately plugged in 2010.

Hudbay also carried out extensive soil sampling over the Tom claims in 1969. Lead-in-soil anomalies have been useful in identifying potential Zn-Pb-Ag targets across the Macpass property, in addition to zinc-, silver-, and barium in soil.

6.2.2 1970s (Hudbay, Ogilvie JV, Cominco)

At Tom West and Tom East, Hudbay drilled 65 underground holes totalling 3,868 m and 20 surface holes totalling 2,882 m.

The Jason claims were staked in 1974 by the Ogilvie JV after identifying similar geology to that of the Tom deposit. Exploration consisted primarily of mapping, prospecting, and soil sampling before the first holes were drilled in 1975. Between 1975 and 1979, Ogilvie JV drilled 55 holes totalling 9,279 m into what are now Jason Main and Jason South zones.

The Nidd claims were staked by Cominco between 1976 and 1981 to cover the western extension of the stratigraphy that hosts the Tom and Jason deposits. Exploration primarily involved geological mapping, soil and rock geochemistry, geophysics, diamond drilling, road building, and trenching, and lead to the drilling of several holes at Boundary Zone in the 1980s.

Cominco and Hudbay also staked and completed small soil grids on what are now the Sol claims further to the west between 1977 and 1984. AGIP staked the Brick-Neve claims (now Oro claims) in 1979, also focused initially on Zn-Pb-Ag exploration, however, shifted to gold exploration after identifying realgar-orpiment +/- stibnite veining during preliminary geological mapping.

6.2.3 1980s (Cominco, Pan Ocean, Aberford)

Hudbay continued drilling at Tom from 1980-1982, completing 15 underground holes totalling 1,366 m and 12 surface holes totalling 1,408 m. From 1988-1991, Cominco optioned the property and drilled 23 holes totalling 11,684 m.

Ogilvie JV completed 20 drill holes totalling 5,858 m at Jason before optioning the property to Pan Ocean and subsequently Aberford. Pan Ocean completed a large drill program in 1981, drilling 28 holes, including two at End Zone, totalling 14,368 m.

At Nidd, Cominco completed 26 drill holes totalling 7,786 m, of which six holes were drilled in what is now called the Boundary Zone. Fourteen of the 26 holes intersected zinc mineralization.

Over the northern part of the property, Amax Exploration Ltd carried out a large soil sampling program in 1981-1982 on what became the MC and MAC claims.

Further west, AGIP shifted focus from Zn-Pb-Ag exploration to gold exploration on the Brick-Neve claims and carried out mapping, soil and stream sediment sampling, and trenching programs. At prospective gold target locations, 18 holes were drilled totalling 2,365 m in 1985 and 1988.

6.2.4 1990s-2000s (Cominco, Phelps Dodge Corporation)

In 1990 to 1992, Cominco continued drilling at Tom and Nidd, including holes into what is now Boundary Zone, and Phelps drilled 20 holes totalling 5,221 m at Jason.

Very little work was done at what is now the Macpass Project site between 1992 and 2010, with the exception of a soil sampling and hand trenching program by Expatriate Resources in 1998 on what later became the MC claims on the north of the property.

6.2.5 2010-2017 (Hudbay, Teck Resources Limited, Newmont, CCJV, Colorado Resources, Golden Ridge)

In 2011, Hudbay carried out a 1,831 m, 11 hole diamond drill program at Tom to obtain sample material for metallurgical testing and complete infill drilling on the Tom West zone. Approximately 1,133 kg of mineralized sample material was collected for metallurgical testing using half core samples. A 20 person camp at the current Tom Camp location was also established at this time.

Prompted by the discovery of sediment-hosted (Carlin style) gold northwest of the Macpass Project site at ATAC Resources' Rackla project (now owned by Hecla Mining), efforts in the area shifted from Zn-Pb-Ag to gold exploration.

Between 2011 and 2013, various operators, including Newmont, CCJV, Colorado Resources, and Golden Ridge carried out extensive soil sampling, mapping, and stream sediment sampling across the northern and western parts of the property on the MC, MAC, MP, NS, BR, Oro and Sol claims, as well as the Jerry claims east of Tom. Although not focused on base metals, these programs generated large geochemical datasets that have provided useful information for more recent Zn-Pb-Ag exploration.

Some Zn-Pb-Ag exploration was completed in the Boundary Zone area, when Teck carried out a small soil sampling and mapping program in 2012.

Airborne geophysical surveys were flown across parts of the property. In 2011, Golden Ridge completed an 84.6 line kilometre DIGHEM airborne electromagnetic/magnetic survey flown by Fugro Airborne Surveys (Fugro) on the southern part of the Macpass property. In 2013, the Yukon Geological Survey (YGS) published a regional Z-axis tripper electromagnetic (ZTEM) survey flown in 2008 that included the Macpass Project area.

6.2.6 2017-Present (Fireweed)

Fireweed has continued to explore the property and expand deposits using a combination of geological mapping, prospecting, soil sampling, and geophysical surveying methods. Ground gravity in particular has informed target development and led to the discovery of Boundary West in 2020. Details of Fireweed's exploration and drilling efforts are provided in Section 9 and Section 10.

The Tom Camp facilities have been expanded to accommodate 49 people, and a second 49 person camp, Sekie Camp, has been established with capacity to expand to up to 150 people.

6.3 Historical Resource Estimates

In 2018, Fireweed engaged CSA Global Consultants (CSA Global) to prepare an independent Mineral Resource Estimate (MRE) and accompanying report *NI43-101 Technical Report on the Macmillan Pass Zinc-Lead-Silver Project, Watson Lake and Mayo Mining Districts, Yukon Territory, Canada* with an effective date of January 10, 2018 (Arne and McGarry 2018). The 2018 MRE included estimates for the Tom and Jason deposits only and the 2018 MRE was not constrained by mining volumes. Base Case estimates are summarized in [Table 6-1.](#page-48-0) This estimate superseded a 2007 MRE for the Tom and Jason deposits completed by Scott Wilson Roscoe Postle Associates (RPA) that is summarized in [Table 6-2.](#page-49-0) Twenty-five holes totalling 4,033 m were drilled into the Tom and Jason deposits between the preparation of the 2007 and 2018 MREs.

The current Mineral Resource described in this Technical Report supersedes any historical resources. The 2007 and 2018 estimates are considered to be historical in nature and should not be relied upon, however, are included to give an indication of mineralization and of resource growth on the property. The SLR QP notes that the 2007 and 2018 historical resource estimates were not constrained by mining shape volumes such as open pit shells or underground stope shapes and were reported as unconstrained estimates.

*Estimates by Leon McGarry, P.Geo of CSA Global (Arne and McGarry 2018). The in-ground NSR values were calculated using estimated metallurgical recoveries, assumed metal prices and smelter terms including payable factors, treatment charges, and refining charges. No penalties were included. Metal price assumptions were US\$1.17lb/Zn, US\$0.99/lb Pb, and \$US16.95/oz Ag and an exchange rate of US\$1 = C\$1.24. Metal recovery assumptions were: 79% Zn, 82% Pb, and 85% Ag (12% to Zn concentrate and 73% to Pb concentrate). Based on these assumptions the NSR on each block was calculated as: NSR \$C/t = \$16.16 * Zn(%) + \$16.08 * Pb(%) + \$0.05853 * Ag(g/t) - \$61.46 * Zn(%) + \$0.4470 * Ag(g/t) - \$36.07 * Pb(%). The ZnEq calculation was performed as ZnEq = NSR/C\$16.16. Resources were estimated by ordinary kriging (OK).

Since the 2018 MRE, Fireweed has drilled 2,097 m in 10 holes at Jason and 11,642 m in 59 holes at Tom, including several step-out holes and new zone discovery holes. The results from these holes are incorporated with 2017 and older data to inform the 2024 MRE.

There is no historical resource for End Zone or Boundary Zone. Since 2018, Fireweed has drilled 743 m in five holes at End Zone and 27,830 m in 86 holes at Boundary Zone.

6.4 Past Production

There is no known production from the Macpass property. An exploration adit and decline were excavated for underground bulk sampling and exploration purposes at the Tom West zone in stages between 1969 and 1982.

7.0 Geological Setting and Mineralization

7.1 Regional Geology

The Macpass property lies within the late Neoproterozoic to Palaeozoic Selwyn Basin, a deep-water marine basin off the passive margin of ancestral North America (Rennie, 2007; Goodfellow, 2007) [\(Figure 7-1\)](#page-51-0). This basin consists of a thick package of sedimentary rocks beginning with the late Proterozoic to Cambrian Windermere Supergroup, a thick sequence of continentally derived sediments. These are in turn overlain by the late Cambrian to Ordovician carbonate rocks of the Rabbit Kettle Formation and then by the deep-water cherts and shales of the Ordovician to early Devonian Road River Group. The Road River Group is overlain by chert, black shales, and turbidite sediments of the Devonian to Mississippian Earn Group that hosts the Tom and Jason deposits, as well as other lead-zinc and barite mineralization in the Macpass property and surrounding area.

The stratigraphy of the Selwyn Basin and the adjacent Mackenzie carbonate platform that existed to the north and east of the basin [\(Figure 7-1\)](#page-51-0) is shown in [Figure 7-2.](#page-52-0) A detailed stratigraphic description of the Macpass area is available in Abbott and Turner (1991).

The Selwyn Basin underwent regional magmatism in the mid to late Cretaceous, culminating in the emplacement of numerous stocks, plugs, and associated dike/sill swarms throughout the basin intruding the ancient North American continental margin of the northern Canadian Cordillera (Hart, 2004). Many of these Cretaceous intrusions crop out on the Macpass property, and these intrusions form a belt of intrusion-related gold and tungsten deposits known as the Tombstone-Tungsten Belt (TTB). These TTB deposits and occurrences are preferentially associated with the plutonic suites that form an 800 km long belt of several hundred stocks, dykes, and sills.

Figure 7-2: Stratigraphy of the Selwyn Basin and Belt Purcell Group

7.2 Property Geology

The following is a brief description of the geology of the Macpass Project deposits. For a detailed description of the deposit geology the reader is referred to Abbott and Turner (1991), Goodfellow (1991), and Rennie (2007). The Macpass Project covers three distinct deposits of sedimentary rock-hosted, stratiform zinc-lead-silver (Zn-Pb-Ag) mineralization including Tom, Jason, and End Zone, and one deposit containing brecciated, stratiform, and vein-hosted leadzinc-silver mineralization at Boundary Zone. These deposits represent structurally and stratigraphically controlled feeder-fault systems that occur on splays of the Macmillan-Hess fault system.

The sediment-hosted Zn-Pb-Ag (+/- Ga-Ge) deposits occur predominantly within the Portrait Lake Formation at or near the contact between the Fuller Lake Member and the Macmillan Pass Member, while mineralization at Boundary occurs throughout a wide stratigraphic interval spanning sections of the Road River Group, the Portrait Lake Formation of the Earn Group and intercalated Macmillan Pass Volcanics [\(Figure 7-3](#page-54-0) and [Figure 7-4\)](#page-55-0). The Fuller Lake Member consists of massive to thinly laminated, carbonaceous to siliceous, pyrite-rich mudstone, while the Macmillan Pass Member generally consists of interbedded black mudstone with grey siltstone and sandstone ("pinstripe mudstone") with coarse sandstone and conglomerate intervals. Carbonate-altered mafic volcanic and volcaniclastic rocks occur at several stratigraphic intervals, including within the Macmillan Pass Member, below the Niddery Lake member, and deeper, within the Road River Group.

Other critical elements of potential economic interest are often associated with these deposits. Germanium is often found associated with zinc deposits, particularly in sphalerite (ZnS), the primary zinc bearing mineral. Germanium substitutes for zinc within the sphalerite crystal lattice due to its similar ionic radius. Gallium can also substitute for zinc in sphalerite, as well as occurring in association with aluminosilicate minerals, where it substitutes for aluminum. Gallium (Ga) and germanium (Ge) are both present within mineralized zones at the Tom, Jason, End Zone, and Boundary Zone deposits.

Deposit geology is described in the following sections, and includes an overview of bedrock geology as well as geological and mineralization domains, which were determined using a combination of mapping and logging observations, assay data, supervised machine learning, and detailed reviews of these products alongside core photos. Initial geological and mineralization domains were provided by Fireweed and refined by SLR. These are described in further detail in Section 14.

Figure 7-3: Geological Map of the Macpass Property (Bedrock Geology from YGS Regional Mapping)

Figure 7-4: Detailed Stratigraphy of the Tom, Jason, and Boundary Zone Deposits

7.2.1 Tom Deposit

The Tom deposit consists of several stratiform Zn-Pb-Ag-Ba bodies of mineralization which crop out at surface and are located around an open, north-south trending, doubly-plunging anticline [\(Figure 7-5\)](#page-57-0). Tom West sits on the western limb of the fold, and Tom East sits on the eastern limb. Tom South and Tom Southeast are located around the southern nose of the fold. Mineralization transitions from well-laminated and thinly bedded to zones of massive sulphide and semi-massive sulphide brecciation proximal to the feeder fault. The following section focuses on descriptions of mineralization styles, extent, and geology. For cross-sections of mineralized zones of the Tom deposit, see Section 14.

Figure 7-5: Tom Deposit Geology and Domains Map

7.2.1.1 Tom East

Tom East occurs near the hinge of an intensely deformed northward-plunging syncline. Mineralization is often remobilized and coarser grained, consisting of interbedded semi-massive sulphide sphalerite, galena, barite, and chert. This zone is thought either to have formed within the same stratigraphic level as Tom West (McClay and Bidwell 1986), or at a slightly lower stratigraphic interval, within the Macmillan Pass member (Large 1981). Mineralization is typically very high grade in this area.

7.2.1.2 Tom South and Tom Southeast

Tom South and Tom Southeast are contiguous and are both included within Tom South for resource reporting purposes. Mineralization at Tom South includes four facies: an upper section of Grey Facies (delicately striped barite, sphalerite black carbonaceous mudstones), followed by Black Facies (very strongly sphalerite laminated black carbonaceous mudstones), Pink Facies (barite rock with sphalerite and galena disseminated preferentially in laminae and bands), and Massive Sulphide Facies (massive sphalerite, galena and disseminated pyrite).

Tom Southeast is not exposed at surface and consists of a tabular stratiform body 0.5 m to 6.0 m in thickness with a strike length of approximately 400 m, and a down-dip extension of at least 350 m dipping steeply to the east. It is located near the nose of the southeast plunging Tom anticline on its eastern limb. Mineralization consists of finely laminated sphalerite, galena, pyrite, and black cherty mudstone (Goodfellow 1991).

7.2.1.3 Tom West

Tom West consists of similar geology as Tom South, from which it is offset by the Tom Fault. The Tom West surface exposure measures at least 10 m thick and can be traced over one kilometre on surface, with mineralization extending at least 800 m from surface down the plunge of the Tom antiform. The true thickness of the mineralized zone varies from less than 10 m on the margins to up to 60 m in the thickest sections.

7.2.1.4 Tom Deposit Mineralized Facies

Mineralization at Tom has been segregated into distinct facies along vertical and lateral transitions from darker to lighter sphalerite colours and progressively lower lead to zinc ratios, interpreted as increasing distance to the feeder zone (Goodfellow 1991; 2007). These facies consist of:

- Massive Sulphide Feeder Facies: Massive pyrite, pyrrhotite, galena, sphalerite, with minor chalcopyrite, arsenopyrite and tetrahedrite with ferroan carbonates, quartz and barite, typically grading 15% to 30% Pb+Zn and a high Pb:Zn Ratio [\(Figure 7-6\)](#page-59-0).
- Pink Facies: Interlaminated cream-coloured to pink sphalerite, galena, barite, chert, pyrite, and barium carbonates (witherite). Locally high grades range from 10% to 30% combined Pb and Zn, including greater than 1% Pb [\(Figure 7-7\)](#page-59-1).
- Grey Facies: Interlaminated cream to white coloured sphalerite, pyrite, minor galena, white to pale grey barite, pale grey chert and grey to white barium carbonate (witherite) and dark grey barium feldspar (hyalophane and celsian). Typically, with grades in the range of 4% to 5% Pb+Zn and Pb less than 1% [\(Figure 7-8\)](#page-59-2).
- Black Facies: Black mudstone and chert interbedded with sections of interlaminated barite, witherite, and fine-grained white sphalerite, galena and pyrite. Typically, with grades in the 4% to 10% Pb+Zn range and a low Pb:Zn ratio [\(Figure 7-9\)](#page-59-3).

Figure 7-6: Massive Sulphide Feeder Facies from TS23-009

Source: Fireweed Metals 2024.

Figure 7-7: Pink Facies from TS23-006

Source: Fireweed Metals 2024.

Figure 7-8: Grey Facies from TS23-007

Source: Fireweed Metals 2024.

Figure 7-9: Black Facies from TS23-003

Source: Fireweed Metals 2024.

7.2.2 Jason Deposit

The Jason deposit is hosted by a Devonian sequence of sediments disrupted by synsedimentary faulting and fault scarp material [\(Figure 7-10\)](#page-61-0). Bounded to the south by the regional Hess fault, mineralization consists of two stratiform Ba-Zn-Pb-Ag bodies on opposite limbs of the Jason syncline. The Jason syncline is a steeply dipping, upright, west-trending syncline that plunges east, with the Jason Main zone located on the northern limb and Jason South zone occurring on the southern limb. Hosted within the lower Portrait Lake Formation of the Earn Group at the contact with the Macmillan Pass member, the carbonaceous sediments commonly contain mud-hosted diamictite breccias related to fault scarps that thicken towards the Hess Fault. For detailed cross sections of mineralized zones of the Jason deposit, see Section 14.

7.2.2.1 Jason Main

Jason Main is located on the steeply dipping northern limb of the Jason syncline in a singular tabular body. Within the syncline, a laterally discontinuous lens of turbiditic diamictites, conglomerates and interbedded sandstones, and siltstones overlay the carbonaceous mudstone and barite-hosted mineralization.

7.2.2.2 Jason South

Jason South sits on the southern limb of the Jason syncline with multiple stacked tabular bodies of mineralization. The southern limb is more geologically complex than the northern limb due to: a relative abundance of diamictites; interfingering, laterally discontinuous units; and the presence of syn-sedimentary and cross-cutting faults.

7.2.2.3 Jason Deposit Mineralized Facies

Mineralization is spatially related with proximity to the feeder fault where diamictite facies, barite lenses, and metal content increase; These horizons can be divided into several distinct mineralization zones or facies, including (after Turner 1991):

- Pb-Zn-Fe Sulphide Facies: Massive, banded sphalerite-galena and galena-pyrite overlain by debris flow deposits [\(Figure 7-11\)](#page-62-0).
- Barite-sulphide Facies: Interbedded fine-grained sphalerite, galena, barite, chert and ferroan carbonate forming the bulk of the mineralization at Jason [\(Figure 7-12\)](#page-63-0).
- Quartz-sulphide Facies: Interbedded sphalerite, pyrite, quartz and carbonaceous chert with quartz-celsian (barium feldspar) bands in the lower lens [\(Figure 7-13\)](#page-63-1).
- Massive Pyrite Facies: Massive pyrite beds interbedded with sphalerite, galena, chalcopyrite, pyrrhotite, and quartz located near the Jason Fault [\(Figure 7-14\)](#page-63-2).
- Ferroan Carbonate Facies: Massive beds of siderite and ankerite up to several metres across with irregularly distributed galena, sphalerite, pyrrhotite, pyrite, quartz, muscovite, and pyrobitumen; spatially associated with a breccia pipe [\(Figure 7-15\)](#page-63-3).

Figure 7-11: Pb-Zn-Fe Sulphide Facies from JS80-059

Source: Fireweed Metals 2024.

Figure 7-12: Barite-Sulphide Facies from JS23-001D1

Source: Fireweed Metals 2024.

Source: Fireweed Metals 2024.

Source: Fireweed Metals 2024.

Source: Fireweed Metals 2024.

7.2.3 End Zone Deposit

End Zone is a small, fault bound block of MacMillan Pass Member (and Fuller Lake Member) in fault contact with older Road River Group mudstones and carbonates [\(Figure 7-16\)](#page-65-0). This fault block contains high-grade, massive sulphide mineralization (dominantly galena, pyrite, pyrrhotite, and sphalerite), interpreted to be feeder-proximal mineralization similar to the feeder proximal mineralization at Tom [\(Figure 7-17\)](#page-66-0). Like the feeder-proximal mineralization at Tom, End Zone also has a high lead to zinc ratio compared to other mineralization styles.

Figure 7-17: Feeder-Proximal Facies from EZ18-001

Source: Fireweed Metals 2024.

7.2.4 Boundary Zone Deposit

The Boundary Zone area is part of a distinct sub-basin that contains significant volumes of strongly siderite altered basaltic volcaniclastics within and below the Earn Group. Boundary Zone is located adjacent to a major syn-sedimentary fault and also contains large volumes of boulder diamictites indicating that the area underwent active tectonic extension during the formation of the basin, a similar setting to the Tom and Jason areas. The presence of synsedimentary faulting, a distinct sub-basin, volcaniclastic inputs rocks, abundant zinc mineralization, and strong alteration indicate the area is host to a robust mineralized system.

At Boundary Zone, where the stratigraphy is more complex, a sequence stratigraphic approach has provided a new framework for understanding and interpreting the spatial and temporal distribution of various lithologies and stratiform mineralized zones. Units have been classified using their lithological and geochemical characteristics and allow identification of key sequences and associated mineralization [\(Figure 7-18\)](#page-67-0). Known mineralization at Boundary Zone occurs over an area two kilometres long and 200 to 800 m wide. The highest concentration of mineralization occurs within portions of a central area, approximately 750 m in strike, approximately 250 m to 300 m wide, reaching from surface to at least 400 m down-dip, and open at depth.

Boundary Zone mineralization encompasses a variety of textural styles that can be broadly subdivided into two stages: early stratiform fine-grained sphalerite-galena-pyrite mineralization with local zones of massive sulphide; and late coarse vein, breccia, and replacement sphalerite. Zinc-lead-silver mineralization contained within early laminated to massive stratiform sulphide is present in three distinct stratigraphic intervals: Fuller Lake (BZFL), the Upper Zone (BZUZ); and the Prime Zone (BZPZ). Later stage mineralization crosscuts the early laminated stratiform mineralization and occurs along with abundant siderite as: sphalerite-siderite-pyrite and minor galena in veins, breccias, stockworks, massive stratabound sulphides, interstitial disseminations, and as replacement of matrix and clasts within diamictites, chert pebble conglomerates, and coarse carbonate-altered mafic volcaniclastic rocks. For a detailed explanation of Boundary Zone paragenesis see Grema et al. (in review, Economic Geology). For detailed cross-sections of mineralized zones of the Boundary Zone deposit, see Section 14.

7.2.4.1 Boundary Zone Fuller Lake (BZFL)

BZFL comprises stratiform laminated to semi-massive sulphide mineralization and dips moderately to the north. BZFL shows good local continuity and is located stratigraphically within the informal Fuller Lake member of the Portrait Lake Formation. This zone is zinc dominant, however, also contains significant amounts of lead and silver [\(Figure 7-19\)](#page-69-0).

7.2.4.2 Boundary Zone Upper Zone (BZUZ)

BZUZ is primarily hosted in the immediate footwall of the Boundary Main fault and is characterized by laminated sphalerite-galena-pyrite mineralization (similar in style to Tom and Jason) and semi-massive sulphides [\(Figure 7-20\)](#page-69-1). This unit is interpreted to be part of the Niddery Lake member, Portrait Lake Formation, and Earn Group.

7.2.4.3 Boundary Zone Prime Zone (BZPZ)

The Boundary Zone Prime Zone is a stratiform layer of zinc mineralization comprising massive sulphide, laminated sulphide, and interbedded mudstone and barite [\(Figure 7-21\)](#page-69-2). The BZPZ is zoned; higher zinc grades are associated with pink laminated sphalerite and zones of sphalerite-rich massive pyrite with minor galena. The massive sulphides transition to more pyrite-rich areas with grey laminated sphalerite laterally, interpreted as more distal to the highergrade feeder zone. The original sedimentary host rock protoliths were organic rich black mudstones with diagenetic barite layers and barite-rich sequences. Barite commonly occurs as rosettes or "snowflakes" that have been later pseudomorphed by sphalerite, pyrite, or quartz. The barite rich sequence is interpreted as having been replaced by early stratiform sphalerite in the subsurface and then overprinted by later vein mineralization.

The BZPZ forms a significant, continuous body of steeply-dipping, high-grade mineralization at Boundary Zone. It has been traced for approximately one kilometre in strike, at least 400 m in down-dip extent, and varies in true thickness from a few metres to as much as 50 m.

7.2.4.4 Boundary Zone Vein Mineralization

Extensive vein and associated breccia mineralization at Boundary Zone occurs both stratigraphically above and below the stratiform laminated massive sulphide zones described above [\(Figure 7-22\)](#page-69-3). This mineralization forms a halo approximately 100 m to 150 m wide on both sides of the stratiform laminated zones and is interpreted as a stockwork of randomly oriented veins and breccia zones that are contained within broadly stratiform bodies. It is not restricted to one stratigraphic horizon or lithology; Boundary Zone Vein Mineralization occurs within mudstones, siltstones, diamictites, conglomerates, and volcaniclastics. This vein mineralization accounts for a significant volume of mineralization at Boundary Zone.

There are multiple generations of mineralized veins containing coarse-grained sphalerite±pyrite±siderite±quartz±galena. The coarse vein minerals can also form the cement of hydrothermal breccias, and flood coarse clastic rocks, replacing clasts and matrix. Veins are a wide range of morphologies and sizes, from millimetre-scale erratic stringers to metre-scale zoned veins containing multiple pulses of mineralization. Vein mineralization at Boundary crosscuts the early stratiform mineralization and post dates the formation of steeply dipping, tectonic stylolites. Evidence from drill core shows that these stylolites were commonly exploited as conduits by mineralizing fluids [\(Figure 7-23\)](#page-70-0).

Figure 7-19: Boundary Zone Fuller Lake NB23-035 Core Photo

Source: Fireweed Metals 2024.

Figure 7-20: Boundary Zone Upper Zone NB23-013 Core Photo

Source: Fireweed Metals 2024.

Figure 7-21: Boundary Zone Prime Zone NB23-028 Core Photo

Source: Fireweed Metals 2024.

Figure 7-22: Boundary Zone Vein Mineralization NB23-029 Core Photo

Source: Fireweed Metals 2024.

Figure 7-23: Hydrothermal Sphalerite Breccia Developed Along a Stylolite, Boundary Zone

Source: Fireweed Metals 2024.

8.0 Deposit Types

The Tom, Jason, End Zone, and Boundary Zone deposits are examples of stratiform, stratabound sediment hosted zinc-lead-silver-barite deposits. Historically the term SEDEX was first used in a report describing the Zn-Pb-Ag deposits of the Selwyn Basin by Carne and Cathro (1982) and subsequently for a period of time, the term was used to describe these deposits worldwide. The term SEDEX has been replaced, however, in favour of more descriptive and less genetic terminology. The stratiform sediment hosted zinc deposit type (also known as clastic dominated (CD) deposits) includes notable examples such as Red Dog (Alaska, USA), Sullivan (British Columbia, Canada), Faro and Howard's Pass (Yukon, Canada), Meggen and Rammelsberg (Germany), Rampura Agucha (India), Garpenberg and Zinkgruvan (Sweden), Tara (Navan, Ireland), and HYC and Century (Australia).

Historically these deposits were considered to have formed strictly at the sediment-seawater interface at seafloor vents within extensional environments. The genetic model for early stratiform mineralization at Tom, Jason, End Zone, and Boundary Zone has subsequently been reinterpreted as a process involving sub-seafloor replacement of diagenetic barite and replacement of porous, poorly consolidated muddy to silty sediment (Magnall 2020).

Mineralization is interpreted to have formed in the sub-surface, below the sediment-water interface either proximal or distal to feeder zones localized along syn-sedimentary (growth) faults [\(Figure 8-1\)](#page-72-0). These systems contain what was formerly known as vent complexes, now known as feeder complexes. Macpass is one of the rare localities where these feeder complexes are well preserved (Magnall 2020). Distal deposits are largely stratiform in nature in that the mineralized zones are concordant with sedimentary layering, whereas proximal deposits show more complex metal zonation and widespread replacement textures. Proximal deposits show a close spatial correlation with syn-sedimentary feeder faults. A clear understanding of structural geology and stratigraphy are therefore important aspects of exploration for sediment hosted stratiform Zn-Pb-Ag mineralization. Metal ratios, such as Ag/Pb, Pb/(Pb+Zn), Cu/(Zn+Pb), Zn/Fe, and Zn/Ba typically increase towards the feeder zones providing a vector towards the central and potentially higher grade parts of the hydrothermal system. The Tom, Jason, End Zone, and Boundary Zone deposits contain examples of both proximal and distal deposits.

Other important guides to exploration for sediment hosted stratiform Zn-Pb-Ag include (after Goodfellow 2007):

- The presence of footwall feeder zones involving the silicification of the footwall sedimentary package, brecciation, veining, and trace element enrichments (copper (Cu), cobalt (Co), nickel (Ni), molybdenum (Mo), arsenic (As), antimony (Sb), Zn, cadmium (Cd), Pb, and mercury (Hg)).
- Laterally extensive stratigraphic horizons equivalent to the main deposit lens with elevated Zn, Cd, As, and Hg.
- Hanging wall alteration characterized by elevated barium (Ba), Zn, and pyrite enriched in Co, Ni, and Cu.
- The presence of pyrite and/or pyrrhotite in feeder zones that may be detectable by electrical and/or electromagnetic geophysical exploration methods.
- Positive gravity anomalies that may be directly indicative of massive sulphide concentrations and or barite at depth.
Many of the exploration guides described above were developed through extensive research into the Tom and Jason deposits, as well as into other sediment hosted deposits found within the Selwyn Basin. Much of this research was performed by the Geological Survey of Canada (GSC) prior to 1991. Since then, several master's and doctoral theses, as well as research projects have been conducted, leading to a reinterpretation of the genetic model from a strictly exhalative system to one of sub-seafloor replacement.

The current model for formation of replacement-style CD sediment-hosted Zn-Pb-Ag deposits from Magnall et al. (2020) has been successfully applied in discovery of Boundary West in 2020 to 2023 exploration campaigns.

Figure 8-1: Contrasting Models for CD-type Mineralization in the Selwyn Basin

A. The former SEDEX model, modified from Goodfellow et al. (1993). B. The brine pool model, modified from Sangster (2002). C and D. A two-stage model for diagenetic barite formation (C), followed by sub-seafloor hydrothermal replacement (D) from Magnall et al. (2020).

Germanium (Ge) is often found associated with zinc deposits, particularly in sphalerite (ZnS), the primary zinc mineral. Germanium substitutes for zinc within the sphalerite crystal lattice due to its similar ionic radius. Gallium (Ga) can also substitute for zinc in sphalerite but also occurs in association with aluminosilicate minerals, where it substitutes for aluminum.

9.0 Exploration

Since 2017, Fireweed has continued to explore at and around the known deposit areas of Tom, Jason, End Zone, and Boundary Zone, as well as carrying out regional programs across the broader property. A particular focus has been along a northwest-trending "prospective corridor" based on favourable geology as well as geophysical and geochemical anomalies. Exploration work has included surficial and bedrock mapping, prospecting, rock and soil geochemistry, ground gravity surveying, and airborne versatile time domain electromagnetic (VTEM) surveying and LiDAR topographic mapping. This work builds on historical exploration work completed by previous owners and operators and provincial and federal government geological surveys.

Between 2017 and 2023 (inclusive), Fireweed also completed 47,910 m of drilling in 188 holes for exploration, resource expansion, metallurgical, and historical data verification purposes. Drilling is described further in Section 10.

9.1 Surficial Mapping

Since 2018, Fireweed has engaged Dr. Derek Turner, P.Geo., to map the surficial geology of the property. This mapping work has improved interpretation of surficial geochemistry by constraining the movement of rock and soil by surficial processes, particularly ice flow during recent periods of glaciation. Surficial mapping data includes near surface permafrost distribution and helps inform geotechnical studies, including potential camp and infrastructure locations. [Figure 9-1](#page-74-0) shows the extent of surficial mapping completed at the Macpass Project at 1:5,000 to 1:15,000 based on interpretation of high resolution orthophotos, aerial photos, and digital elevation model (DEM) topography from LiDAR surveys, followed by extensive ground truthing during field mapping campaigns in 2018, 2019, 2021, and 2023.

9.2 Bedrock Mapping and Prospecting

Fireweed geologists have carried out mapping and prospecting programs across the property, including 472 km² at 1:50,000 and 149 km² at 1:10,000 or 1:5,000 over and around deposit areas as well as at targets identified based on prospective stratigraphy and soil geochemistry and geophysical anomalies. Rock sampling has allowed development of a lithogeochemical database that assists geological interpretation and targeting. Rock sample locations and results are shown in [Figure 9-2.](#page-76-0) In 2023, samples were collected primarily from gold exploration targets, however, they generated lithogeochemical data that further informs geological interpretation.

9.3 Soil Geochemistry

The property has extensive historical soil geochemistry data generated primarily in the 1970s, 1980s, and 2010s. Fireweed has completed several soil sampling campaigns in areas of prospective stratigraphy, including two orientation grids across the Tom and Jason deposits. [Figure 9-3](#page-78-0) shows the sampling locations and Pb-in-soil results, which have been useful in target development. Pb is less mobile than Zn, and has thus been a more reliable indicator of potential buried Zn-Pb-Ag mineralization. Anomalies have been interpreted incorporating ice flow information from surficial mapping work.

Between 2018 and 2021, Fireweed, assisted by Coast Mountain Geological Ltd. (CMG) crews, has collected over 4,600 B and C horizon soil samples in grids of typically 100 m to 200 m spaced lines and 25 m to 50 m spaced samples. In 2018, soil samples for hydrocarbon (SGH) and mobile metal ions (MMI) analysis were also collected over Tom, Jason, and End Zone. B and C soil horizon samples were submitted to Bureau Veritas in Whitehorse for preparation (SS230), aqua regia digestion and inductively coupled plasma mass spectrometry (ICP-MS) analysis (AQ250). SGH samples were submitted to ActLabs for soil gas hydrocarbon analysis, and Mobile Metal Ions (MMI) samples were submitted to SGS Laboratories for MMI analysis. Duplicate samples were routinely collected and glacial till certified reference materials (CRMs) inserted, accounting for approximately 5% of total samples. No significant quality assurance and quality control (QAQC) issues were identified.

Pb-in-soil anomalies coincide spatially with known deposits at Tom, Jason, End Zone, and Boundary Zone. Several anomalies northeast and northwest of Boundary Zone and on the northern and western parts of the properly have not yet been fully explored or drill tested.

9.4 Ground Gravity Surveying

Aurora Geosciences have completed 67 km^2 and 9.649 stations of ground geophysical surveys planned by Fireweed geologists since 2018. Surveys have typically been carried out with 50 m station separation on lines 200 m apart, with localized shortened infill lines 50 m apart. Surveys have been completed over and around the Tom, Jason, End Zone, and Boundary Zone deposits. Surveys were designed to test deposit signatures and cover areas of prospective stratigraphy that coincide with soil geochemistry anomalies, primarily along the northwesttrending mineralized corridor.

Ground gravity surveys have successfully defined targets based on density contrast and contributed to the discovery of massive sulphides at Boundary West in 2020. Other gravity anomalies along the mineralized corridor remain untested.

Figure 9-4: 2018-2021 Ground Gravity Surveys

9.5 Electromagnetic (EM) and Magnetic Surveys

In 2017 and 2021, Geotech consultants completed airborne VTEM and magnetic surveys over the Tom, Jason, End Zone, and Boundary Zone deposits. Fireweed has used the results of this survey to map subsurface geology, particularly faults, to improve understanding of property and deposit geology and identify new drill targets and potential extensions of known mineralization.

[Figure 9-5](#page-82-0) shows the extent of EM surveys to date, covering 205 km². Surveys were flown at 100 m spacing on a north-northeast bearing, covering approximately 2,300 line km total. A ZTEM survey was also completed in 2011 by Colorado Resources over the western half of the property (the Sol and Oro claims at the time). In 2022, Condor Consulting, Inc (Condor) merged and levelled existing EM datasets to provide a single working dataset for the whole Macpass Project property.

[Figure 9-6](#page-83-0) shows results of Fireweed's 2017 and 2021 magnetic surveys, Colorado Resources' 2011 survey, and a 2008 regional Yukon Government survey. Datasets were also merged and levelled by Condor in 2022 to provide a property-wide magnetic dataset.

Figure 9-6: Macpass Airborne Magnetic Surveys

9.6 LiDAR Topographic Mapping

Since 2017, Fireweed has contracted McElhanney Ltd. to complete 545 km² of LiDAR surveys over the property. LiDAR produces a one metre cell-size resolution, centimetre-scale accuracy DEM that serves as robust topographic map to inform geological and engineering mapping and planning work. High definition 20 cm resolution orthophotos were captured at the same time. [Figure 9-7](#page-85-0) shows the extent of LiDAR coverage to date.

Figure 9-7: LiDAR Surveys Completed by Fireweed

9.7 Exploration Potential

During the 2020 drill season, Fireweed discovered stratiform laminated mineralization at Boundary Zone in Cambrian-Ordovician Road River host rocks. Prior to this discovery, Zn-Pb-Ag mineralization had only been observed in younger Devonian-Mississippian Earn Group host rocks at Macpass. The discovery has expanded the search space for Zn-Pb-Ag mineralization across the property, as areas of Road River sedimentary rocks had not previously been considered prospective.

The western half of the property remains underexplored for Zn-Pb-Ag mineralization, and contains prospective stratigraphy continuing beyond Boundary Zone along a northwest trend, or prospective corridor, that includes Tom and Jason. Combining airborne and ground-based geophysical interpretations with soil geochemical results generated by extensive property-wide soil sampling programs has generated multiple targets across western and northern parts of the property.

The Macpass Project lies within the Cretaceous Tombstone-Tungsten Belt (TTB), known to host reduced intrusion related gold systems (RIRGS) and tungsten-copper-gold (W-Cu-Au) skarn occurrences and deposits nearby (see Section 23). Several mid Cretaceous intrusions crop out on the property [\(Figure 7-3\)](#page-54-0), and the presence of buried intrusions is inferred based on characteristic responses in airborne magnetic surveys. Rock and soil geochemistry anomalies are also used to guide RIRGS and W-Cu-Au skarn exploration.

The recently completed 2024 exploration program at Macpass included airborne LiDAR and VTEM-magnetic surveys covering all remaining unsurveyed parts of the property (Figure 9-8), as well as ground gravity surveys on both local (7,700 stations) and regional (400 stations) scale grids, collection of 7,800 soil samples, and widespread prospecting and mapping. The primary focus has been on sediment hosted Zn-Pb-Ag targets, however, programs are designed to explore the property in a commodity agnostic manner, recognizing the potential for RIRGS and W skarn deposits.

Fireweed also completed over 16,000 m of diamond drilling in 2024 that did not inform this MRE but did include drilling at known deposits as well as several exploration targets. This included drilling and a new discovery at Popcorn, 600 m northeast of Boundary Zone (Fireweed News Release dated October 8, 2024).

As datasets are received from the 2024 field program, data will be integrated alongside extensive historical datasets to identify new targets and evaluate existing targets to advance them to drill-ready prospects while working towards new discoveries [\(Figure 9-8\)](#page-87-0).

Figure 9-8: Macpass Target Development and 2024 Exploration Plans

The Tom, Jason, and Boundary Zone deposits all offer potential for resource expansion, along with opportunities to identify new targets.

Tom Deposit: The mineralization at Tom West remains open at depth, with several drill holes from 2023 extending the mineralization down dip, showing true thicknesses exceeding 25 m. Similarly, Tom Southeast has shown potential for deeper mineralization, with thickness increasing toward the Tom Fault. Due to the depth of these targets, drill holes exceeding 700 m will be required.

Jason Deposit: The mineralization at Jason Main remains open at depth, with the central fault block showing the most potential among the three faulted portions of the deposit. Mineralization in the central fault block has a true thickness of approximately 3.7 m. Jason South also shows potential for down-dip expansion, with mineralization thicknesses exceeding 20 m in the central fault block. Drilling in 2023 focused on expanding to the southeast, with positive results at depth, however, additional drilling at depths of over 600 m will be necessary to explore the eastward strike and depth extensions. Further drilling in areas intersected by faults at Jason South may help refine the understanding of fault positions and the distances of mineralization offsets.

Boundary Zone: This zone remains an active discovery with expansion potential both along strike and at depth. Faulting has displaced some of the higher-grade mineralization in the BZUZ and BZPZ zones. The SLR QP recommends targeting these fault offsets to better define the shape and extent of the massive to semi-massive sulphide mineralization. Additionally, drilling should focus on strike extensions to the northwest and at depth, following up on previous holes NB21-003, NB21-004, NB23-029, and NB20-009.

The SLR QP recommends that Fireweed continue to adopt a balanced approach to evaluating resource expansion targets, weighing the costs and benefits of near-surface opportunities at Boundary Zone while considering the deeper potential at Tom and Jason.

10.0 Drilling

Prior to Fireweed ownership, various owners and operators (primarily Hudbay, Cominco, Ogilvie JV, Pan Ocean, Phelps, AGIP, and Colorado Resources) completed 85,484 m of drilling in 403 historical drill holes across the property between 1952 and 2013. From this historical drilling, 80,117 m was completed in 370 historical drill holes in proximity to the Tom, Jason, End Zone, and Boundary Zone deposits that are the subject of this Technical Report. [Table 10-1](#page-90-0) summarizes drilling by deposit area, year, and operator. Figures 10-1 to 10-4 illustrate historical drilling. In 2017, Fireweed completed a further 2,203 m drilling in 14 drill holes that, combined with historical drilling, was used to inform the 2018 Tom and Jason MRE.

Between publication of the 2018 MRE and end of the 2023 drill season, Fireweed completed an additional 43,902 m of drilling in 174 drill holes. Of this, 42,311 m were in 160 holes in deposit areas and used to inform the present MRE. The remaining drilling totalling 1,590 m in 14 drill holes tested regional targets away from deposits. Fireweed drilling is summarized in [Table 10-1](#page-90-0) and highlighted in Figures 10-1 to 10-4. Core processing and sampling procedures are described in Section 11.

Drilling between 1952 and 2011 was predominantly diamond drilling in HQ, NQ, BQ, BX, or AX size. Fireweed has completed all diamond drilling since 2017 in HQ, HQ3, NQ, or NQ2 size. In 2019 and 2020, Fireweed also completed 622 m of reverse circulation (RC) drilling at Tom, Jason, and several regional targets.

Recovery is typically greater than 85%. This is captured by routine geotechnical logging for every hole top to bottom on a run-run basis. Five historical holes with significant low recovery intervals were successfully twinned by Fireweed to verify geological observations and assay results. These twin holes were completed with much improved recovery at greater than 85%.

Table 10-1: Summary of Drilling on the Macpass Property

10.1 Core Storage

In 2015, Hudbay carried out an inventory at the former core processing and storage location in the valley below the Tom West zone of the Tom deposit and reported 79 historical drill holes comprising approximately 4,000 boxes and 11,500 m of core. Some pallets were covered by thick vinyl covers.

Most Tom, Jason, and End Zone core has since been moved to Fireweed's new core processing facility at the Sekie Camp, where core from Fireweed's drill programs (2017-present) is also stored. Core boxes are stored outside and cross-piled on pallets, with lidded top boxes for holes drilled by Fireweed. Historical drill core from Boundary Zone is stored in racks at the site of the former Cominco Nidd camp.

Some historical core has been donated to the Yukon Geological Survey H.S. Bostock Core Library in Whitehorse where it is accessible for viewing, and with permission, for sampling. This donated core includes 70 drill holes from the Tom deposit, primarily from underground, and 20 drill holes from Jason (including two End Zone holes). Some Tom core drilled from surface prior to 1975 was dumped in with mine waste and covered during rehabilitation of the site in 2010.

11.0 Sample Preparation, Analyses, and Security

Fireweed has carried out exploration activities, including drilling, at Macpass every year between 2017 and 2023. All other data are historical in nature. Drilling can be divided into three distinct phases of drilling and sampling: historical drilling prior to 2011, drilling by Hudbay in 2011, and 2017-2023 drilling by Fireweed.

11.1 Pre-2011 Sample Preparation and Analyses

11.1.1 Pre-2011 Sample Preparation and Analyses

Sampling procedures, core handling, sample security, and analytical methodology are not available for all historical drill holes. Historical core from Tom, Jason, and End Zone is stored at Tom and Sekie camps. It was previously stored either inside a metal shed at Tom Camp or cross stacked outside in the surrounding area. Jason and End Zone core was moved from a shed on the east bank of the South Macmillan River to the Tom Camp storage location by Hudbay between 2011 and 2015. The Tom camp metal shed was previously nailed shut when the site was unoccupied and was not locked. Fireweed is currently relocating historical core from Tom Camp core storage to Sekie Camp core storage to minimize the risk of damage by avalanche at the Tom Camp core storage location. Historical core from Boundary Zone is stored in racks just south of a tributary of the Hess River south of the Boundary Zone deposit at the former Cominco Nidd Camp location. Seventy Tom holes and 20 Jason holes (including two End Zone holes) are stored in a secure government warehouse at the H.S. Bostock (Yukon Government) Core Library in Whitehorse.

Pre-2011 core samples were collected using a diamond saw or blade splitter. Previous laboratories used include Bondar Clegg and Company Ltd, Chemex Labs Ltd., Cominco's Exploration Research laboratory, and the Hudbay laboratory, all of which are independent of Fireweed. The Cominco Exploration Research laboratory and Hudbay laboratory were not independent of Cominco and Hudbay when they operated their respective drill programs.

Assay certificates for some historical analyses are available for the Tom deposit from the 1980s and the Boundary Zone deposit from the 1980s and 1990s. Fireweed carried out a full database validation exercise in 2023-2024, described in Section 12.

11.1.2 Pre-2011 Sample Security

There are no records of historical sample security procedures. Samples were transported from Macpass to various independent and company-operated laboratories.

11.1.3 Pre-2011 Quality Assurance and Quality Control

There are few records available for historical drilling, core-handling, QAQC, or analytical methodologies. Despite incomplete documentation for historical assays, in 2018, it was CSA Global's opinion that historical sample preparation and analysis were carried out using industry standard procedures for that time by reputable laboratories. The SLR QP concurs with CSA Global. Additionally, CSA Global found no reason to suspect that analytical results contained in the historical Tom and Jason drill database are not representative of in situ mineralization and considered the data adequate for the purposes of the 2018 MRE and Technical Report (Arne and McGarry 2018). The SLR QP shares this view and finds no reason to question the reliability of the analytical results in the historical Tom and Jason drill database used for the current Mineral Resource.

A subset of available drill holes from Tom, Jason, and Boundary Zone have been resampled by Fireweed to verify historical results. Further details are provided in Section 12. The resampling program provided additional confidence to validate the historical assay data as adequate.

11.2 2011 Sample Preparation, Analyses and Security

An 11 hole, 1,831 m drill program was carried out at Tom by Revelation Geosciences (Revelation) on behalf of Hudbay (Wells, 2012). The following details on 2011 sample preparation, analyses, security, and QAQC are included below from the 2018 Mineral Resource Technical Report (Arne and McGarry 2018).

11.2.1 2011 Sample Preparation and Analyses

Drill core was halved for sampling using a diamond saw at Tom Camp. Quarter core was sampled for assay where the half core was required for metallurgical testing. Samples for analysis were collected into polypropylene bags.

11.2.2 2011 Sample Security

Security of samples prior to dispatch to the analytical laboratory was maintained by limiting access of unauthorized persons to the site. Samples were stored in a secure storage area at Tom Camp. Detailed records of sample numbers and sample descriptions provided integrity to the sampling process. Labelled sample bags were packed into polypropylene rice bags and sealed for shipping. Samples remained under the supervision of Revelation personnel while on site at the project and during delivery to ACME Labs (ACME, now Bureau Veritas) preparation facility in Whitehorse. ACME completed sample preparation in Whitehorse and employed bar code and scanning technologies that provided complete chain of custody records for every sample. Master pulps were then shipped by ACME to their Vancouver laboratory for analysis.

The ACME Whitehorse preparation facility is certified to standards within ISO 9001:2008. The Vancouver analytical facility was certified to standards within ISO2 9001:2008 and, at the time of the 2011 program, was in the process of accreditation to ISO/IEC 17025:2005 from the Standards Council of Canada (SCC). ISO/IEC 17025:2005 accreditation conforming to requirements of CAN-P-1579 and CAN-P-4E was received in October 2011 for methods including the determination of Ag, Cu, Pb, and Zn by multi-acid digestion with an atomic absorption spectrometry (AAS) finish. It is the SLR QP's opinion that ACME sample preparation procedures and analytical methods are routine and follow industry best practices and procedures. CSA Global noted that ACME's ISO/IEC 17025:2005 accredited analytical methods do not include those utilized for the analysis of 2011 drill core samples.

ACME (Bureau Veritas) and its employees are independent from Fireweed, CSA Global, Hudbay, and 2011 consultants Revelation. Hudbay and Revelation personnel, consultants, and contractors were not involved in the 2011 laboratory sample preparation or analysis.

Drill core samples from the Tom deposit were analyzed by ACME following crushing and pulverization of the samples to greater than 85% less than 75 microns. The pulps were analysed for a suite of 24 elements using inductively-couple plasma optical emission spectroscopy (ICP-OES), including base metals, following a hot modified aqua regia digestion consisting of a 1:1:1: ratio of HCl:HNO3:H2O (ACME group 7AR, Bureau Veritas equivalent code AQ270). Samples with greater than 4% Pb or 20 % Zn were re-digested using a dilution to obtain data within range for the ICP-OES. Two samples with greater than 300 ppm Ag were also re-analysed by fire assay. Barium was determined by fused disc X-ray fluorescence (XRF) (ACME group 8X-Ba, Bureau Veritas equivalent LF725). Gold was determined by aqua regia

digestion of a 15 g charge (ACME group 3A01) as a preliminary check of gold levels, there being few previous analyses. It was not intended to provide rigorous gold assay data.

11.2.3 2011 Quality Assurance and Quality Control

Several in-house CRMs manufactured from Flin Flon, Manitoba area base metal material and supplied by Hudbay were included with the core sample submissions. These were A5 (seven samples), B5 (seven samples), E5 (seven samples), and the base metal blank F6 (42 samples). As the samples are not matrix-matched to the sediment-hosted base metal mineralization at Tom, two additional Pb-Zn-Ag CRMs manufactured from base metal material from the Mount Isa district in Australia were purchased from Ore Research & Exploration and included in the sample submission – OREAS 133a (six samples) and 134a (nine samples). In addition, data for two ACME internal CRMs, OREAS 131b (27 analyses) and Geostats GBM997-6 (19 analyses) were also assessed. OREAS 131b is a low-grade Pb-Zn-Ag CRM made from the same material as OREAS 133a and 134a, and GBM997-6 is a high-grade Pb-Zn CRM.

A summary of CRM performance is provided in [Table 11-1.](#page-99-0) Samples with a bias and no failures lie mainly within two standard deviations of the calculated mean for the CRMs (i.e., the expected value). A failure is considered to be any analysis that lies more than three standard deviations away from the expected value, or two consecutive analyses with the same bias (positive or negative) more than two standard deviations from the expected value.

CRM	No.	Pb	Zn	Cu	Ba	Ag
HBMS A5	7	NA	Positive bias	Negative bias	NA	NA
HBMS B5	7	NA	Positive bias	Negative bias	NA	NA
HBMS E5	7	Acceptable	Positive bias	Excellent	NA	Positive bias
HBMS F6	42	No failures	1 failure	No failures	NA	No failures
OREAS 133a	6	Negative bias	Acceptable	Negative bias	2 failures	6 failures; positive bias
OREAS 134a	9	1 failure	3 failures	2 failures; positive bias	3 failures	1 failure; positive bias
OREAS 131b	27	6 failures; negative bias	Acceptable but with drift	Not assessed	Not assessed	9 failures; positive bias
GBM997-6	19	1 failure; negative bias	Negative bias	NA	NA	NA
Note: $NA = not$ applicable						

Table 11-1: Summary of CRM Performance for 2011 Assays

The Hudbay CRM F6 is not an ideal blank material because the material is already pulverized and thus does not pass through the crushing and pulverizing stream at the laboratory. Therefore, the blank tests only for laboratory contamination during digestion and analysis. Aside from a single instance of probable Zn cross-contamination, the SLR QP is of the opinion that the results are acceptable when the data are filtered to remove all results within an order of magnitude of the lower limit of detection.

It is the SLR QP's opinion that the evaluation of precision was limited after an assessment of pulp duplicate analyses provided by ACME. This estimate of laboratory precision does not include any variance introduced during the sample preparation stages and assessed only the combined effects of subsampling the final pulp, sample digestion, and instrumental uncertainties. The analysis used the square root of the average relative variances for individual duplicate pairs, known as the relative standard deviation (RSD), following the root mean square (RMS) method of Stanley and Lawie (2007). The data were filtered to remove any values within an order of magnitude of the lower limit of detection, as these data are inherently imprecise. The results of this analysis for the main commodity elements are summarized in [Table 11-2.](#page-101-0) There were insufficient silver data for pulp duplicates greater than an order of magnitude above the detection limit to allow an assessment of laboratory precision for silver. The results for lead, zinc, and barium are all less than 5% and considered to be best practice for base metals assays (Abzalov 2008). In general, the RSD for pulp duplicate pairs decreases with increasing grade.

11.2.3.1 2011 Check Assays

Pulp splits from 38 samples processed by ACME were obtained and submitted to ALS Minerals of North Vancouver (ALS North Vancouver) with OREAS 133a and 134a for check assays. The ALS North Vancouver analytical facility is individually certified to standards ISO 9001:2008 and has received accreditation to ISO/IEC 17025:2005 from the SCC for methods including: fire assay Au by AAS; fire assay Au and Ag by gravimetric finish; aqua regia Ag, Cu, Pb, Zn, and Mo by atomic absorption (AA); and aqua regia multi-element analysis by ICP-OES and ICP-MS. It is the SLR QP's opinion that ALS North Vancouver sample preparation procedures and analytical methods are routine and follow industry best practices and procedures.

ALS and its employees are independent from Fireweed, CSA Global, Hudbay, and 2011 consultants Revelation. Hudbay and Revelation personnel, consultants, and contractors were not involved in the 2011 laboratory sample preparation or analysis.

The analytical methods used by ALS North Vancouver were similar to those used by ACME: Lead, zinc, silver, sulphur (S), and iron were analyzed by ICP-OES following an aqua regia digestion (ALS method ME-OG46); Barium was analyzed by fused disc XRF (ALS method Ba-XRFc); Gold was analyzed by 30 g fire assay to check the validity of the aqua regia Au data from ACME (ALS method Au-ICP21). The data for the two CRMs submitted with the check assays are acceptable. While gold values by fire assay are systematically higher than those obtained by aqua regia, the values are all typically only an order of magnitude above background levels and are not considered economically significant.

Aside from barium, the other main commodity elements show a negative bias in the check assay results compared to the original assays [\(Table 11-2\)](#page-101-0), indicating that the original ACME data are slightly higher, on average, relative to the check assays from ALS North Vancouver. In the case of zinc, this bias occurs at all grades and is consistent with the positive bias shown by some of the CRMs submitted to ACME [\(Table 11-2\)](#page-101-0). By contrast, the negative bias is strongest at lower grades in the case of lead and may even give way to a positive bias at higher grades, consistent with the bias observed from the CRMs [\(Table 11-2\)](#page-101-0). The negative bias in the silver check assays is also supported by a positive bias in the ACME silver data for the CRMs [\(Table 11-2\)](#page-101-0). These biases appear to account for most of the variation between the two datasets.

Table 11-2: Summary of Laboratory Precision and Bias from Check Assays for 2011

Fireweed verified 2011 assay certificate values against values in the current drill database and found no discrepancies between certificates and the database (further validation details are included in Section 12).

11.3 2017-2023 Sample Preparation and Analyses

Fireweed's 2017 drill program was managed and executed by Equity Exploration Consultants (Equity) and the 2018-2023 drill program was executed by Fireweed, with support from CMG. Sample preparation, analytical procedures, security, and QAQC are described below. QAQC results have been reviewed annually by Dennis Arne, P.Geo., a consultant of CSA Global (2017 to 2019 programs) and Telemark Geosciences (2020 to 2023 programs).

11.3.1 2017-2023 Sample Preparation and Analyses

Fireweed 2017-2023 diamond drill core logging and sampling programs were carried out under rigorous QAQC programs using industry best practices. Diamond drill holes were HQ, HQ3, NQ, or NQ2 size core with recoveries typically greater than 85%. After drilling, core was cleaned, logged for geology, structure, and geotechnical characteristics, and then marked for sampling and photographed on site. Certain cores were selected for scanning with a core scanning technology from GeologicAI. Data captured by core scanning includes dry and wet highresolution images, RGB, LiDAR, and hyperspectral (very near infrared (VNIR) and short-wave infrared (SWIR)) data, mineralogical and alteration assemblage identification, and XRF elemental data, which are all used to inform geological logging and interpretation.

The cores for analyses were marked for sampling based on geological intervals with individual samples two metres or less in length, with one metre samples within mineralized zones. Drill core was cut lengthwise in half with a core saw; half of the core was sent for assay and the other half was stored on site for reference. Some drill holes were selected for metallurgical test work and for these holes, quarter core was sent for assay, with half core sent for metallurgical testing, and quarter being returned to the core box for future reference.

Bulk density was determined on-site for the entire length of each assay sample using the Archimedean method, which involves measuring the dry mass in air and the mass in water (water displacement). Due to the very fine- to fine-grained nature of mineralization and host rocks, void space and porosity were extremely low, and wax wrapping was deemed unnecessary. A subset of samples was also measured at Bureau Veritas using gas pycnometer method on pulps (code SPG04); field measured and lab measured bulk densities showed very good agreement, indicating the current field method is appropriate.

Fireweed uses OHaus Ranger Count 7000 scales that report a bulk density reading in addition to measured dry and wet sample masses. To validate bulk density, scale readings and calculated readings were compared. Any reading that fell outside of 10% of the calculated reading was investigated and flagged as invalid. Bulk density readings that reported less than 2 g/cm³ or greater than 7 g/cm³ were also investigated. Sample duplicate bulk density determinations and in-house bulk density standard determinations were each made at a rate of

5%, at approximately every 20 samples. Since 2017, four in-house bulk density standards (mineralized drill core from the Tom deposit that span a range of densities) have been used and show an acceptable long term precision (see Section 11.3.4 below). Certified standard masses are used to calibrate the scale balance at the start of every season.

A total of 26 holes in 2019 and 2020 were drilled by a RC drill, producing RC cuttings that were sampled using a riffle splitter at the drill rig. A small split was archived in trays and logged for geological characteristics. Samples were sent to Bureau Veritas for preparation and assays, being pulverized and analyzed in the same way as diamond drill core detailed below. Specific gravity (SG) was measured on RC pulp samples using the gas pycnometer at Bureau Veritas (noted as LAB-SPG04 in the database).

A total of 5% assay standards or blanks and 5% core duplicates were included in the sample stream as a quality control measure and were reviewed after analyses are received. Standards and blanks in 2017-2023 drill results have been approved as acceptable. Duplicate data add to the long term estimates of precision for assay data on the Project and precision for drill results reported was reviewed by the SLR QP and deemed to be within acceptable levels.

With the exception of samples from NB23-030 and NB23-031, 2017-2023 samples were sent to Bureau Veritas in Whitehorse, Yukon, where the samples were crushed and a 500 g split was sent to the Bureau Veritas laboratory in Vancouver, British Columbia to be pulverized to 85% passing 200 mesh size pulps. Clean crush material was passed through the crusher and clean silica was pulverized between each sample. The pulps were analyzed by 1:1:1 aqua regia digestion followed by inductively-coupled plasma emission spectroscopy/mass spectrometry (ICP-ES/ICP-MS) multi-element analyses (BV Code AQ270). All 2018-2023 samples were also analyzed for multiple elements by lithium borate fusion and XRF finish (BV Code LF725); overlimit lead (>25%) and zinc (>24%) were analyzed by lithium borate fusion with XRF finish (BV Code LF726). For the 2017 drill program, samples with AQ270 elevated values of lead (>4%) and zinc (>8%) were further analyzed by multi acid digestion with AAS finish (BV Code MA404) and barium was analyzed on a separate pulp split at MS Analytical in Langley, British Columbia, using lithium borate fusion with acid digestion and ICP-ES finish (MS Code WRA-3Ba). Historical Tom and Jason core resampled in 2017 were analyzed using AQ370, another aqua regia digestion with ICP-ES finish with higher detection limits for some elements than AQ270. Samples from 2017-2023 that contained greater than or equal to 1,500 ppm Zn were further analyzed for gallium (germanium using hydrofluoric acid (HF) + aqua regia closed vessel digestion and ICP-MS finish (BV Code GC204). For Fireweed's Bureau Veritas samples, silver is reported in this database by method AQ270, and zinc and lead are reported by LF725 or LF726, or for 2017 samples by AQ270 up to 4% Pb or 8% Zn, or MA404 for over-limit samples. Gallium and germanium are reported by method GC204. Any 2017 samples with higher overlimit lead (>20% in MA404) or zinc (>30% in MA404) are reported by classical titration methods GC817 or GC816 respectively. Samples from NB23-030 and NB23-031 were sent to AGAT Laboratories (AGAT) in Calgary, Alberta. Samples were crushed, and then a 500 g split was pulverized to 90% passing 75 microns. Clean crush material was passed through the crusher and clean silica was pulverized between each sample. The pulps were analyzed by aqua regia digestion followed by ICP-ES/ICP-MS multi-element analyses (AGAT Code 201-074). All samples were also analyzed for multiple elements by lithium borate fusion and XRF finish (AGAT code 11-323). For AGAT samples, silver is reported in this database by method 201- 074, and zinc and lead are reported by 11-323. AGAT samples containing greater than or equal to 1,500 ppm Zn were also analyzed for gallium and germanium at Bureau Veritas and are reported by method GC204. Bureau Veritas (Vancouver) and AGAT (Calgary) are independent, international ISO/IEC 17025:2017 accredited laboratories.

Samples from NB23-030 and NB23-031 were sent to AGAT, in Calgary, Alberta. Samples were crushed, and then a 500 g split was pulverized to 90% passing 75 microns. Clean crush material was passed through the crusher and clean silica was pulverized between each sample. The pulps were analyzed by aqua regia digestion followed by ICP-ES/ICP-MS multi-element analyses (AGAT Code 201-074). All samples were also analyzed for multiple elements by lithium borate fusion and XRF finish (AGAT code 11-323). For AGAT samples, silver is reported in this database by method 201-074, and zinc and lead are reported by method 11-323.

Assays acquired by Fireweed drilling since 2017 were not checked by Fireweed during their comprehensive database validation in 2023-2024 because since 2017, results have been directly imported from certificates generated by the laboratory. Further details on validation can be found in Section 12.

11.3.2 2017-2023 Sample Security

Samples were individually bagged in polypropylene bags and closed with zip ties. Multiple bagged samples were placed in polypropylene rice bags that were sealed with security tags and duct tape. Shipments consist of multiple rice bags marked with different coloured flagging to distinguish shipments being transported at the same time.

Shipments were either flown directly to Whitehorse from Tom Camp by charter aircraft using Tintina Air [\(Figure 11-1\)](#page-104-0) or transported by road. Road transport was by Tu-lidlini Petroleum truck to Ross River where they were stored in a secure compound before being driven by Small's Expediting to the Bureau Veritas preparation laboratory in Whitehorse, or by Mercer truck from Tom Camp directly to the Bureau Veritas preparation laboratory. Flown shipments were collected by Bureau Veritas personnel from Tintina Air in Whitehorse.

A chain of custody form accompanied each shipment to document handover points and personnel. To date, all shipments have been received intact by Bureau Veritas.

Figure 11-1: Sample Security

Source Fireweed 2024

11.3.3 2017-2023 Quality Assurance and Quality Control

A total of 5% assay standards or blanks and 5% core duplicates are routinely included in the sample stream as a quality control measure and are reviewed after analyses are received. The SLR QP has reviewed the 2017-2023 assay results for the standards and blanks and is of the opinion that they are acceptable. Duplicate data add to the long term estimates of precision for assay data on the Project and precision for drill results reported is deemed to be within acceptable levels.

The quality control data for certified reference materials (CRM) submitted to Bureau Veritas from the 2017-2023 drill programs are consistent between drill seasons, which used similar QAQC protocols and analytical methods. Further details on the 2017 QAQC program can also be found in Arne and McGarry (2018). Example CRM plots are shown for OREAS-131b, assessed as a lab internal CRM in 2011 and by Fireweed 2017-2023 [\(Figure 11-1\)](#page-104-0), and OREAS-316, used in 2022-2023 [\(Figure 11-2\)](#page-106-0).

Other CRMs in use included HBMS A5 and HBMS B5 (2018 only), OREAS-132a, OREAS-133a, OREAS-134b; and starting in 2022, OREAS-135, OREAS 135a, OREAS-137; and from 2023, OREAS-315, OREAS-316 and OREAS-317. These CRMs are all commercially available CRMs made from material from Zn-Pb-Ag deposits in the Mount Isa district. A summary of 2017-2023 CRM performance is provided in Table 11-3.

The accuracy of the zinc data is good in the opinion of the SLR QP, generally with slightly positive relative biases less than 2% across a range of grades. Negative and positive biases for lead and silver, respectively, using OREAS-131b and OREAS-132a are evident in data from these CRMs (see 2011 QAQC section above for further discussion), however, they are less pronounced in data from OREAS-135 and OREAS-135a. There are no consistent biases evident in a newer range of base metal CRMs, OREAS-315, 316, and 317, and those relative biases that are present are generally less than 2%. This suggests that biases vary with the individual CRM and may reflect variations in certification of the different CRM. Future programs will limit CRMs to the newer OREAS-300 range, and preparation of a custom Macpass CRM is being considered. In the SLR QP's opinion, the overall accuracy of the data is acceptable.

For Ga and Ge analysis, carried out on 2017-2023 pulps in 2023 using a hydrofluoric-aqua regia hot closed vessel digestion at Bureau Veritas (GC204), two CRMs were included with the samples, OREAS-315 and ORES-465. While the CRMs are not certified for GC204, both underreport the amount of Ga and Ge present. The certified level of Ga and Ge in OREAS 315 is close to the lower limit of detection (LLD), whereas the data for ORES 465 were higher but erratic, suggesting a problem with analysis of this CRM. The use of OREAS 465 at the Project has been discontinued, and use of OREAS 315 continues until a better matched CRM is available.

Note: OREAS 131b performance in order of sampling for 2018-2023 programs. OREAS 131b was in use in 2017, however, method LF725 was not used to analyze Zn and Pb. As a result, data points from that year are not shown. There were no failures of CRM in the 2017 program.

Blank samples are routinely inserted into the sample stream to identify potential contamination. Blank material has included quartz and granitoid landscape rock and coarse silica blank samples. These materials pass through sample preparation equipment and indicate cross contamination during crushing and grinding. To minimize cross contamination between samples, clean silica wash material is passed through the jaw crusher and pulverizer between samples. There has been no significant contamination in samples.

Results of blank analysis for Zn, Pb, and Ag are shown in [Figure 11-4](#page-109-0) and summarized in [Table 11-4.](#page-110-0) A large number of blanks in the 2017 program showed signs of carryover from highgrade Zn and Pb samples, but not Ag, with values well over ten times the LLD, used as a threshold for indication of cross contamination. In assessment of QAQC data for the 2018 MRE, CSA Global concluded that carryover from high-grade samples was likely a small percentage of the base metals contained in the sample preceding each 2017 coarse blank and did not

consider the carryover to be significant (i.e. carryover less than 1%). A number of 2017 samples were resampled in 2018 using LF725 and additional blanks and CRMs, as well as addition of a silica wash between samples during preparation; results showed excellent repeatability between 2017 and 2018 resampling, further supporting the assessment that carryover in 2017 was not significant.

Blanks from 2018-2023 performed much better, with only 3% of blank samples returning Zn, Pb, and Ag values above LLD; none of these exceeded ten times LLD, and typically were less than three times LLD, indicating no identifiable contamination.

In 2023, 48 pulverized granite blanks were also submitted (CDN Resources BL-9). While these also showed no evidence of contamination, pulverized blanks only test for laboratory contamination during digestion and analysis, not during collection or preparation. The use of these has been discontinued for subsequent drill programs at Macpass.

Figure 11-4: Blank Sample Results, Zinc, Lead, Silver, 2018-2023

Note: Blank performance in order of sampling for 2018-2023 programs. Method LF725 was not used to analyze Zn and Pb in 2017 so data points from that year are not shown. There were no failures of blanks in the 2017 program. LF725 lower limit of detection is 0.01% for Zn and Pb; AQ270 lower liming of detection for Ag is 0.5 ppm. Below LLD reported values are stored as half detection limit in the Fireweed drill database

Field duplicate quarter core samples have been used to assess analytical precision, with average RSDs calculated following the RMS method of Stanley and Lawie (2007). Duplicate data were filtered to remove values within an order of magnitude of the LLD as those low value data are inherently imprecise. A summary of data is provided in Table 11-4 for Zn, Pb, and Ag. Field duplicate RSD values lie within acceptable range. Laboratory preparation coarse crush and pulp duplicates were also assessed and found to have much lower RSD values (typically less than 5%). Data precisions estimated from field duplicate quarter core, coarse crush, and pulp duplicates are acceptable when compared with published data for stratiform base metal deposits (Abzalov, 2008).

different depending on element and analytical method. Below this threshold data are inherently imprecise. The relatively small number of duplicates in 2018 is the result of limited sampling that year.

11.3.3.1 2017-2023 Check Assays

Pulps from 804 samples representing 3.3% of assay samples generated during Fireweed 2017- 2023 drilling were selected as check assays. The majority were sent to ALS Geochemistry, Vancouver (ALS Geochemistry) in North Vancouver for independent verification of results. A small number of samples analyzed originally by AGAT in 2023 were re-analyzed by Bureau Veritas as a check on 2023 AGAT assay data. Samples were selected across a wide range of base metal grades from Tom, Jason, End Zone, and Boundary Zone deposits.

Analyses were completed at ALS Geochemistry using the same sample digestions and instrumental finishes as used at Bureau Veritas. Silver was determined by ME-ICP41a with overlimit ME-OG46; zinc and lead by ME-ICP41a with overlimit ME-XRFb and ME-XRFc; barium was determined by XRFb with overlimit ME-XRFc but limited to a subset of 65 samples with fully quantitative results. There is excellent agreement in data from the two laboratories for lead and zinc, aside from three samples that reached the upper limit of detection for lead at ALS Geochemistry [\(Figure 11-5\)](#page-111-0). Silver has an average relative bias of -3.3% at ALS Geochemistry, whereas initial barium analyses at ALS Geochemistry had a slight positive bias in the higher grade samples.

A total of 172 samples analyzed by GC204 at Bureau Veritas were also analyzed by ME-MS89L at ALS Geochemistry. The latter is a total fusion digestion compared to a 4-acid digestion used for GC204. The gallium results are in good agreement from the two methods, however, germanium under reports using GC204 compared to ME-MS89L, suggesting the presence of some germanium in a mineral phase not digested in a 4-acid digestion.

Figure 11-5: Check Assay Plots for 2017-2023 Samples – Zinc, Lead, Silver, Barium

11.3.4 2017-2023 Bulk Density Quality Assurance and Quality Control

Fireweed measures bulk density of each cut sample prior to shipping offsite for assay. Sample duplicate bulk density determinations and in-house bulk density standard determinations are made at a rate of 5%, approximately every 20 samples.

Since 2017, four in-house bulk density standards (mineralized drill core from the Tom deposit that span a range of densities) have been used and show an acceptable long term precision [\(Figure 11-6\)](#page-112-0). Certified standard masses are used to calibrate the scale balance at the start of every season. Analyses of the standards have typically been close to the expected value, within one or two standard deviations.

Bulk densities of field duplicate quarter core samples are also measured and indicate the relative precision of the analyses. Variability is consistent with that observed in assay data for each field duplicate pair. Repeat bulk density measurements were also taken to evaluate uncertainties associated with bulk density measurement in the field. The amount of scatter between bulk density repeat measurements is significantly less than between field duplicate quarter core samples, indicating good reproducibility using the bulk density measurement equipment and procedure used on site [\(Figure 11-7\)](#page-113-0).

Figure 11-6: Example Bulk Density SRM Performance

11.4 Quality Assurance and Quality Control

The SLR QP is of the opinion that the sample preparation, analysis, and security procedures at the Macpass Project are sufficient for estimating Mineral Resources. Additionally, the SLR QP is of the opinion that the QAQC program designed and implemented by Fireweed is adequate, and the assay results in the database are suitable for use in the MRE.

12.0 Data Verification

12.1 Fireweed Data Verification

Fireweed carried out database validation for all drill data up to and including 2023 drill holes prior to handover to SLR for Mineral Resource estimation.

12.1.1 Collars

To confirm collar locations, historical drill holes were surveyed using differential GPS where collars could be confidently located in the field; 40 of 300 collars were not located, and locations were estimated within ground disturbances related to drill pads. The collars of Tom underground drill holes were not accessible and coordinates were taken from historical survey records and drill logs. Historical survey records and drill logs were compared against database values to ensure database accuracy.

12.1.2 Surveys

Downhole surveys were validated by re-digitizing records in historical logs and drill records to ensure there were no discrepancies or transcription errors in the current Fireweed database. Several Tom and Jason holes were resurveyed using gyro surveying equipment and were found to be within very good agreement with historical survey data. Attempts were made to carry out downhole resurveys in 2020 at Boundary Zone, however, none of the historical holes could be re-entered past casing depth so no reliable data were collected.

12.1.3 Geological and Geotechnical Data

Geological data were reviewed for completeness (missing or incomplete interval or point data), geological and geotechnical viability (e.g., recovery and rock quality designation (RQD) within plausible range of values), and errors using built-in validation reporting within MX Deposit and within Leapfrog (e.g., overlapping intervals, intervals that cross lithological boundaries, intervals that exceed hole depth, and null fields that require data). Recovery data were recorded for the majority of historical drill holes, and following transcription were used without further validation. Any errors identified were then reviewed and corrected in the MX Deposit database.

12.1.4 Bulk Density

Historical bulk density and recovery were transcribed from drill logs where available. Bulk density was not routinely recorded for all historical drill holes.

During a relogging program in 2018-2019, Fireweed measured bulk density on historical drill core from Tom, Jason, and Boundary Zone holes and it was confirmed that original recorded values can be relied upon. For approximately 20% of samples, bulk density measurements were not available for drill core, or only small (10 cm to 20 cm) spot samples have been measured. Regressions were developed by SLR for the Tom and Jason deposits using measured bulk density values against assay values to approximate bulk density for the samples with no measured bulk density values. Fireweed developed a regression formula to estimate bulk density for unmeasured samples at Boundary Zone. The SLR QP reviewed the regression methodology and determined that the regressed values were appropriate for use in supporting the Mineral Resource estimate. Bulk density regression is described in detail in Section 14. Field-measured (MEAS) or regressed (REG) bulk density values are indicated in the database, or LAB-SPG04 where measured on RC pulp samples using a gas pycnometer at Bureau

Veritas' laboratory. A subset of samples were also measured at Bureau Veritas using gas pycnometer method on pulps (code SPG04); field-measured and lab-measured bulk densities showed very good agreement, indicating the current field method is appropriate.

To validate bulk density, measured and calculated readings were compared. Fireweed uses OHaus Ranger Count 7000 scales that report a bulk density reading in addition to measured dry and wet sample masses. Any reading that was outside of 10% of the calculated reading was investigated and flagged as invalid. Bulk density readings reported less than 2 t/m³ or greater than 7 $t/m³$ were also investigated, commented on, flagged as invalid, and then recalculated using regression.

12.1.5 Assays

To validate database assay data, all historical drill holes at Tom (211 holes), Jason (119 holes) and Boundary Zone (26 holes) were re-digitized by manual transcription from scanned PDF drill logs and assay reports/certificates into MSExcel. A structured query language (SQL) script was run against the database to identify samples that were missing, had inconsistent from and to intervals, had missing analytes (e.g., Zn, Pb, Ag, etc.) or non-matching results between the current database and the digitized values. Less than 2% of the dataset had inconsistent values (mainly typos, rounding errors; corrected), less than 1% of samples were missing from the database (added), less than 1% were missing Zn values (added where available), less than 0.5% were missing Pb values (added where available), and less than 6% were missing Ag values (added where available). Fireweed has recorded any historical trace "tr" amounts as half detection limit in the drill database.

Assays acquired by Fireweed drilling since 2017 were not checked because results are directly imported from certificates generated by the lab.

12.2 Re-sampling

A Tom-Jason resampling program was conducted by Fireweed in 2017 to confirm historical assay data. Fireweed re-sampled and assayed historical drill core due to a lack of assay certificates and historical quality control data for some drill holes. Intervals were selected to include various historical drill campaigns by different operators and to assess core from both the Tom and Jason deposits. A total of 111 core samples were collected from Tom and 108 collected from Jason. No appreciable bias was found in historical Zn and Ag data, however, historical Pb assays appear to be underreported by an average of 6% (Arne and McGarry 2018).

A Boundary Zone resampling program was carried out by Fireweed in 2022-2023. A selection of core drilled by Cominco at Boundary Zone between 1982 and 1991 was resampled to validate historical assays. A total of 174 core samples representing 10% of historical samples were collected from four holes, drilled in 1983, 1984, 1989, and 1990. The resampling program verified historical assay values and detected no significant bias, with some scatter attributed to the poor condition of core boxes and markings that resulted in slight mismatches between original and re-assayed depth intervals. While there are few records available for the Cominco drilling, core-handling, QA/QC procedures, or analytical methodologies, it is the opinion of the SLR QP that the resampling program provided sufficient confidence to validate the historical assay data as adequate.

12.3 SLR Data Verification

An independent data verification process was undertaken by SLR to ensure the accuracy, reliability, and completeness of the geological, survey, density, and assay data supporting the Mineral Resource estimation. This section outlines the steps taken by SLR to validate the key datasets used in the resource model.

12.3.1 Site Visit

Pierre Landry, P.Geo., of SLR, conducted a site visit to Macpass and related facilities from September 15-17, 2022. During this visit, Mr. Landry inspected the core shack, core scanning workspace, and reviewed the logging environment and procedures for data collection and sampling. He also examined core samples from the Tom, Jason, End Zone, and Boundary Zone deposits, interviewed Fireweed personnel, and gathered other information necessary for completing the MRE and accompanying Technical Report. Additionally, Mr. Landry inspected drill collars and drill hole cores relevant to the Mineral Resource estimation, including checking collar locations with a handheld GPS and visually comparing mineralization with interpreted drilling sections. Fireweed provided full access to all facilities and personnel during the site visit. During the visit Mr. Landry was accompanied by Dr. Jack Milton, Vice‑President, Geology for Fireweed.

12.3.2 Collars

SLR reviewed the collar locations in relation to the digital topographic surface or the underground excavation digital model, as applicable. During this process, SLR identified a small number of collars for further investigation and requested that Fireweed conduct additional verification. Fireweed responded by performing supplemental collar surveys using a real-time kinematic (RTK) GPS and providing photographic documentation of the hole locations, casing positions, and measurement methodology. Following this comprehensive review, the SLR QP found no issues with the collar locations.

During Mr. Landry's site visit, seven drill holes at the Tom deposit were spot checked using a handheld GPS and compared to the collar locations in the drill hole database. All checked holes were found to be within a reasonable tolerance, considering the precision of the handheld GPS relative to the RTK GPS used for the database collar measurements. Additionally, Mr. Landry visited active drilling sites for holes TS22-005 and TS22-004, where he observed the drilling procedures. All observed procedures were consistent with industry standard practices.

[Figure 12-1](#page-117-0) provides an image of a field check for the collar location of hole TS17-003. The database coordinates for this hole are Easting: 442,021.79, Northing: 7,003,825.11, and Elevation: 1,535.656. These compare well with the handheld GPS readings, which recorded coordinates of Easting: 442,021, Northing: 7,003,824, and Elevation: 1,538.

Figure 12-1: Collar Location Field Check (TS17-003)

Source: SLR 2022.

12.3.3 Survey

SLR reviewed the drill hole traces to identify any unusual dip and azimuth orientations. During this review, SLR observed an unexpected interaction between wedge hole NB23-029D1 and its parent hole NB23-029. Fireweed conducted an investigation into the survey measurements for the wedge holes at Boundary and identified discrepancies between the multiple methods used by their drilling contractors for downhole surveys. After determining the source of the issue, Fireweed corrected the erroneous measurements and provided SLR with an updated database.

12.3.4 Geological Data

The SLR QP has reviewed Fireweed's acquisition of geological data and found the practices to be of high quality, consistent with industry standards. During the site visit, the SLR QP observed both the core scanning performed by GeologicAI and the traditional core logging carried out by Fireweed personnel.

The raw data generated from core scanning, including core photographs, XRF, VNIR, and SWIR spectra, as well as the interpretations produced by GeologicAI regarding lithologies, alterations, and mineral compositions, are maintained separately from the traditional core logging completed by Fireweed staff.

Fireweed's traditional logging of structure, lithology, alteration, mineralization, and weathering was also observed to be in accordance with standard industry practices. Sampling procedures, including the selection of sampling intervals, consistently respected geological contacts.

Final interpretations of mineralization domains and sub-domains integrate data from both the core scanning and traditional logging approaches. The SLR QP is of the opinion that Fireweed has effectively utilized these datasets, applying machine learning techniques to support and enhance mineralization interpretation. In cases where discrepancies arise between machine

learning categorizations and traditional logging interpretations, high-resolution core photographs are reviewed prior to making a decision on which data source to prioritize.

The SLR QP is of the opinion that the geological data acquired by Fireweed, along with the methods used for its acquisition, are reliable and confidently define mineralization domains and support Mineral Resource estimation in areas where sufficient data coverage is available.

An independent check sample was not collected during the site visit due to the visually distinctive nature of the mineralization styles and Fireweed's actively monitored QA/QC program, which includes regular use of duplicates, blanks, and CRMs. Additionally, recent thirdparty check sampling has provided sufficient verification of the assay data for the elements of economic interest.

12.3.5 Bulk Density

During the site visit, the SLR QP observed the density measurement procedures employed by Fireweed. As detailed in Section 11, Fireweed utilizes the Archimedean method (water displacement) for measuring density. These measurements are conducted after the drill core has been split. Upon delivery to the core shack, which is the location for density testing, the samples are placed in a staging area to dry.

Fireweed staff measure bulk density on the entire length of each assay sample. The weights of the samples, both in air and in water, are recorded on a tablet. A sensor is placed in the water to monitor the temperature, facilitating a small correction factor for water density. The SLR QP observed the use of standards, the calibration of the scale, and the frequency with which the water was replaced.

The SLR QP noted that Fireweed does not employ wax or heat-sealed cellophane in their density testing process, a technique commonly applied to deposits where void spaces in core samples may be an issue. During the core review, the SLR QP did not identify any porous units within the mineralized zones and considers the risk of overstated density measurements to be minimal. Furthermore, Fireweed's own comparison between field-measured and laboratorymeasured bulk densities demonstrated strong agreement, supporting the validity of current field methodology.

The SLR QP observed that in cases where a backlog of split core occurs, the drying times could be shorter than optimal, potentially resulting in overstated dry weights. This could lead to slightly lower density measurements compared to ideal conditions. The SLR QP recommends that where possible, efforts should be made to ensure sufficient sample drying time prior to conducting density measurements to maintain the accuracy of the results.

12.3.6 Assays

The data verification process completed by SLR was supervised and reviewed by the SLR QP. SLR reviewed the assay database for the Macpass Project, specifically the file 'Logging_Best_NoQAQC.csv' dated February 27, 2024, which contains 32,982 assay samples from 439 drill holes. The database includes a combination of both historical and recent assay data from the 2017–2023 drill programs. For the historical campaigns, which encompass sampled 263 drill holes and 8,179 samples, scanned paper certificates were provided by Fireweed. Meanwhile, for the 2017–2023 drill programs, covering 181 drill holes and 24,765 samples, digital certificates were provided by Fireweed.

SLR validated the elements Zn, Pb, Ag, Ba, As, Bi, Sb, Ga, and Ge for the 2017–2023 assay campaigns by cross-referencing the database with the digital assay certificates. For the historical assay campaigns, SLR validated the elements Zn, Pb, and Ag against the scanned paper assay certificates.

SLR compared 22,664 of the 24,739 samples from 164 drill holes to the digital laboratory certificates, covering 92% of the assay database for the 2017–2023 campaigns. The remaining 8% of samples were not compared due to the digital certificate formats requiring more timeintensive manipulation. This process involved data from 378 digital assay certificates from laboratories including ACME, AGAT, ALS, and Bureau Veritas. SLR adhered to the analytical hierarchy protocols, including the re-analysis sequence, established by Fireweed. In total, SLR detected a small number of discrepancies which represent 0.05% of the cross-checked assays.

SLR conducted systematic spot checks on 858 of the 8,243 samples from historical drilling campaigns, covering 10.4% of the historical samples from 38 drill holes. These samples were compared to their corresponding scanned assay and logging certificates, with only Zn, Pb, and Ag being validated. In this process, SLR identified a small number of discrepancies representing 2.6% of the records compared.

The SLR QP reviewed the findings with Fireweed personnel and Fireweed made the necessary corrections and conducted additional internal verification prior to re-issuing an updated database to SLR to support Mineral Resource estimation.

Based on the results of SLR's assay validation, the SLR QP is of the opinion that the assay data is reliable and sufficient to support the MREs presented in this Technical Report. No material discrepancies were identified that would affect the accuracy of the resource model. The SLR QP concludes that the data verification procedures are consistent with accepted industry practices, and the data is appropriate for use in Mineral Resource estimation.

13.0 Mineral Processing and Metallurgical Testing

13.1 Introduction

Several metallurgical test work programs have been undertaken to quantify metallurgical performance for the Macpass Project. There are historical test programs dating from 1982, however, only test programs itemized in the list below are summarized in this report.

- 2018: Tom and Jason Deposits (Base Metallurgical Laboratories Ltd (Base Met) BL0236)
- 2022: Boundary Zone Deposit (Base Metallurgical Laboratories Ltd BL0755)
- 2023: Boundary Zone Deposit (Massive Sulphides) (Base Metallurgical Laboratories Ltd $-$ BL1140)

The test work programs carried out to support the development of the Macpass Project have been summarized by Kelly McLeod, P.Eng., K-Met Consultants Inc. (K-Met). Programs BL-0236 and BL-1140 were managed and supervised by Kelly McLeod. A 2024 metallurgical test program has been initiated for Tom, Jason, and Boundary Zone. All results are pending.

Based on the assimilation of results from all modern metallurgical programs identified above, the proposed process flowsheet has been designed to include primary crushing followed by a semi-autogenous grinding (SAG) mill / ball mill grinding circuit. The material will be ground to a target P_{80} of 50 µm and fed to sequential Pb and Zn flotation. The Pb and Zn regrind circuits will be designed to produce P_{80} grind sizes of 15 μ m and 25 μ m, respectively. Test results indicated that no significant benefit was observed for regrind sizes below these values.

The Boundary Zone material will require a few modifications to the flowsheet described above due to the hardness of the mineralized material. The primary grind for the Boundary Zone material was set at P_{80} 75 µm, which is coarser than Tom and Jason.

Preliminary estimates of Pb and Zn recoveries and concentrate grades are summarized in [Table 13-1.](#page-121-0) The results presented for Tom and Jason are from locked cycle testing on the Tom and Jason (T&J) Composite (Test 45 - weighted average of cycles D and E). The Boundary Zone results presented are an average of all the open circuit cleaner tests. Some areas in Boundary Zone may not support the inclusion of a separate lead circuit, which may necessitate the need to campaign treat the Boundary Zone feed in a Zn only flotation configuration.

This section discusses all modern metallurgical testing and mineral processing aspects of the Project. In the sections below, when nomenclature T0X is used, it is referring to Test number X from the individual programs.

13.2 2018 Test Program (Tom and Jason)

In May 2018, a metallurgical test program was completed at Base Metallurgical Laboratories Ltd. (Base Met) in Kamloops, British Columbia in support of the NI 43-101 Technical Report, Macmillan Pass Project, Yukon Territory, Canada, with an effective date of May 23, 2018, for Fireweed Zinc Ltd. The work evaluated both the Tom and Jason deposits using quarter core samples from the 2017 drill program. Test work included mineralogy, comminution, dense media separation (DMS), settling, and rougher/cleaner Pb and Zn sequential flotation. Five composite samples, representing the Tom and Jason zones, were tested to develop a preliminary recovery flowsheet for producing saleable Pb and Zn concentrates. Once the flowsheet was developed, global composites were created and LCT was carried out to project recoveries for the economic analysis in the Preliminary Economic Assessment (PEA).

Saleable Pb and Zn concentrates were produced using Pb and Zn sequential flotation with a primary P_{80} grind size of 50 μ m.

The T&J Composite was created with a blend using a ratio of 65% Tom Composite and 35% Jason Composite to reflect the anticipated 2018 mine plan. The LCT results for the Pb and Zn concentrates are summarized in [Table 13-2](#page-122-0) and [Table 13-3.](#page-122-1)

Table 13-2: LCT Summary Lead Concentrate Tests

Table 13-3: LCT Summary Zinc Concentrate Tests

13.2.1 Sample Selection

Five composites representing Tom West, Tom East, and Jason Main were generated covering sections of the zones and containing representative samples based on mineralogy, grade, and location in the deposit. Hanging wall and footwall dilution was included with each composite to represent actual mined material. A high-grade sub-sample of Tom East that contained mercury, designated Composite 3B, was also created and blended with Composite 3A.

13.2.2 Head Assays

Head assays for the five composites are summarized in [Table 13-4.](#page-123-0) Total organic carbon (TOC) assays were performed, and results indicated a significant portion of the carbon in the sample was present as organic carbon, measuring between 0.3% and 0.9%. Organic carbon is naturally hydrophobic and can contaminate concentrates if it is not adequately controlled. High ratios of organic carbon to Pb in the feed may indicate samples or zones which require control of organic carbon.

13.2.3 Mineralogy

Feed samples from each composite were submitted for bulk mineral analysis (BMA) using QEMSCAN to determine mineral composition. The Pb mineralization consists mainly of galena, while sphalerite is the main Zn mineral of interest.

Mineral liberation analysis was also carried out on each composite. At a P₈₀ grind size of 66 μ to 76 µm, sphalerite has a higher degree of liberation than galena, however, both have adequate liberation from gangue material. Composite 2 shows a high degree of galena – sphalerite interlocking which can sometimes make it more difficult to achieve a clean separation of lead and zinc for this type of mineralized material.

Using the mineral liberation data collected, release curves for the five composites were generated to evaluate galena and sphalerite liberation as grind size decreased. The results are presented in [Figure 13-1](#page-124-0) and [Figure 13-2,](#page-124-1) respectively. The curves show that adequate liberation is achievable at a P_{80} primary grind size of 50 μ m except for the finer grained material in Composite 1. Mineralogy indicated a finer regrinding would be required at the cleaning stage to achieve the desired final concentrate grades and recoveries.

Figure 13-1: Release Curve for Galena Liberation

Source: Base Met (2018)

Source: Base Met (2018)

13.2.4 Comminution

Comminution test work was carried out to determine the grinding energy required to liberate Pb and Zn minerals prior to flotation. Bond ball mill work index (BWi) tests at a sieve size of 106 μ m were completed on all five composites. The results are summarized in [Table 13-5.](#page-125-0) The Tom East composite (Composite 3A) was found to be the hardest sample, with a BWi of 14 kWh/t. Overall, the Tom and Jason material can be ranked as moderately soft to moderately hard compared with a data set of other mineralized materials.

Due to sample size suitability, SAG mill comminution (SMC) testing was only completed on Composite 1 and Composite 3A. The results are shown in [Table 13-6](#page-125-1) and indicate that the samples are soft to moderately hard.

Table 13-6: SMC Data for Composites 1 and 3A

Composite ID	Dwi (kWh/m ³)	Mia (kWh/t)	Mih (kWh/t)	Mic (kWh/t)	Axb	$t_{\rm a}$
Composite 1 TOM WEST	4.2	10.7	7.2	3.7	80.8	0.61
Composite 3A TOM EAST	5.7	14.5 10.4		5.4	55.8	0.46
Source: Base Met (2018)						

Bond abrasion tests were conducted on composites 1 and 3A to determine potential wear rates for the crushing and grinding equipment. The results are summarized in [Table 13-7.](#page-125-2) At an average Bond abrasion index of 0.335, the samples are considered moderately abrasive. A weighted average of 0.27 was used for predicting wear rates and estimating annual operating costs in previous study work.

13.2.5 Dense Media Separation

DMS is a technique for pre-concentration of minerals that utilizes the density difference between the ore and gangue with the purpose of rejecting gangue from the feed material prior to grinding. DMS testing was carried out on composites 1 and 3A to evaluate the potential to preconcentrate the sulphide minerals prior to flotation. Twenty kilogram samples were crushed and screened at three size fractions, 0.75 in., 0.5 in., and 0.25 in. The -0.25 in. fines were put aside as these fine particles are not effectively separated by DMS. The three coarse samples were subjected to heavy liquid separation at SGs of 2.85 and 3.00.

The DMS results are summarized in [Table 13-8](#page-126-0) and the mass rejection versus recovery curves are shown in [Figure 13-3](#page-127-0) and [Figure 13-4.](#page-127-1) At a separation SG of 2.85, DMS would be able to reject 15% to 25% of the material while losing approximately 4% Pb and 3% Zn. The mass rejection was quite limited, likely a function of barite content in the samples, which would be concentrated to the sinks along with the sulphide minerals. Since the low mass rejection did not justify the corresponding metal losses, DMS was not considered in the flowsheet for the remainder of the test program.

Table 13-8: DMS Results for Composites 1 and 3A

Figure 13-3: DMS Composite 1 Mass Rejection Versus Recovery Curves

Source: Base Met (2018)

Figure 13-4: DMS Composite 3A Mass Rejection Versus Recovery Curves

Source: Base Met (2018)

13.2.6 Flotation

13.2.6.1 Flotation Variability Results

Sequential Pb and Zn flotation test work was carried out using the flowsheet presented in [Figure](#page-128-0) [13-5.](#page-128-0) All five composites were subjected to both rougher and cleaner flotation testing to determine the appropriate conditions required to achieve saleable Pb and Zn concentrates. The key parameters investigated in rougher flotation were primary grind, Pb selectivity over Zn (Composite 2), and carbon depression with CarboxyMethyl Cellulose (CMC). The CMC used was marketed under the product name PE26.

After completing flowsheet development, composites were created for LCT. The results from the LCTs were used for the recovery projections summarized in Section 13.1.

Figure 13-5: Flotation Test Work Flowsheet

Source: Base Met (2018)

A summary of the cleaner flotation results for each composite is presented in [Table 13-9.](#page-129-0) The tests operated at a target P_{80} grind size of 50 µm were chosen as the optimal results due to the positive results observed in the Zn circuit. These overall batch cleaner flotation tests confirm that based on the material tested, high Pb and Zn final concentrate grades can be achieved.

The recoveries from these tests are not representative of the overall combined circuit performance for the selected flowsheet. To determine overall recovery estimates, LCTs were completed later in the test program.

Table 13-9: Summary of Cleaner Flotation Results

13.2.6.2 Tom & Jason Composite Flotation Results

After developing flowsheet conditions through variability testing, composites for the Tom and Jason deposits were created using the ratios shown [Table 13-10.](#page-129-1) Jason is a blend of drill core from Jason Main. Drill core from Jason South was not available for the test program. The T&J Composite represents the estimated life of mine (LOM) proportions of Tom and Jason based on the mine schedule developed for the 2018 PEA.

Initial rougher flotation tests were completed on all three composites, T37, T38 and T39, to assess Pb and Zn recoveries at two minute intervals.

Cleaner flotation tests, T40, T41 and T42, were performed on all three composites to determine if high concentrate grades could be achieved at high overall Pb and Zn recoveries. Test 41 results for the Jason composite showed much lower overall recovery, and this may be attributed to the low Pb head grade. Variability test work is required to determine the relationship between Pb recovery and head grade.

Two additional cleaner tests were completed on the blend T&J Composite to determine how Zn regrind size affected Zn concentrate grade. The Zn grade versus recovery curves are shown in [Figure 13-6.](#page-131-0) A Zn regrind size of 17 µm produced slightly better results compared to the tests with coarser regrind sizes (T42, T48) with a recovery of 73.5% Zn and concentrate grade of 63.8% Zn. Since there was no significant improvement in the grade versus recovery curve, the lower Zn regrind size does not warrant the additional regrinding cost. Based on the results from T42, T47, and T48 the regrind target chosen for design was 25 µm.

Source: Base Met (2018)

Locked cycle flotation testing was initially carried out on the three samples. Composite 1 was subsequently tested to include a sample at a lower Pb feed grade. An example of the test flowsheet used by Base Met is presented in [Figure 13-7.](#page-131-1)

Figure 13-7: Locked Cycle Test Flowsheet

Source: Base Met (2018)

To investigate how silica content in the Zn concentrate is affected by Zn regrind size, an additional locked cycle test (T49) was carried out on the blend T&J Composite at a slightly lower Zn regrind size of 20 µm. Although the silica content was lower, further optimization at different

regrind sizes is required to determine what correlations exist. The results did show a relationship developing between zinc grade and silica grade in the final concentrate. The trend is shown below in [Figure 13-8.](#page-132-0) The results indicate that a target grade of 58% and above has silica content below the levels that could result in smelter penalties.

Figure 13-8: Locked Cycle Testing – Zinc and Silica Grades in the Final Concentrate

Source: Base Met (2018)

The results from all locked cycle tests are summarized in [Table 13-11.](#page-132-1)

Reagent dosages were higher than some typical Pb-Zn ore benchmarks, possibly due to the carbon absorbing a portion of the reagents. Overall, the reagents dosages were still generally towards the higher end but not outside the range of industry norms. There may be room for additional reagent and grind size optimization to reduce operating cost while achieving high metal recoveries in future programs.

13.2.7 Settling

Flocculant screening tests and settling rate tests were conducted on the flotation tailings from locked cycle testing. Magnafloc 1011, a high molecular weight anionic flocculent, was chosen for testing, providing the fastest settling rate with very clear overflow water.

The samples had very fast settling rates with very clear overflow, ranging from 128 mm/min to 977 mm/min at 10 g/t to 30 g/t of flocculant. Final densities of the thickened solids ranged from approximately 51% to 64% solids for tests with flocculant added, with decreasing density at higher flocculant dosages.

13.3 2022 Test Program (Boundary Zone)

In 2022, Base Met received drill core from two holes from the new discovery area Boundary Zone and, under the supervision of Fireweed, completed test program BL0755. The test work included comminution, mineralogy, flotation, and ore sorting using XRF (X-ray fluorescence element measurement) and XRT (X-ray transmission density measurement).

The flotation included Pb followed by Zn rougher and cleaner circuits. Two samples included a lead flotation followed by zinc flotation. The other three samples only assessed zinc flotation due to very low Pb head grades. Zinc recovery was between 68% and 97% with concentrate grades between 53% and 63% Zn. The recovery to the lead circuit for Clastic 5 and Volcanic 7 was 38% and 55%, respectively. The lead grades ranged from 44% to 46%. The zinc concentrates were assayed for deleterious elements and mercury ranged from 457 g/t to 1,358 g/t. Typically, a mercury content exceeding 100 g/t will attract penalties. The concentrate payables and penalty terms should be confirmed by a concentrate broker.

Ore sorting using XRT and XRF was investigated as a potential preconcentration process at Steinert Magnetic + Sensor Solutions in Germany (Steinert 2021). Both resulted in low mass rejection with high metal recovery. Further investigation is required to determine if sorting is economical by lowering the cut-off grade and increasing the amount of mineralized material.

13.3.1 Sample Selection

Test Program BL0755 evaluated drill core intervals from nine samples, Volcanic 1, Clastic 2, High Grade 3, Waste 4, Clastic 5, Clastic 6, Volcanic 7, Mudstone 8, and Waste 9, derived from two drill holes NB19-001 and NB19-002. Selected intervals from each hole with similar mineralogy were blended to make the seven composites.

13.3.2 Head Assays

[Table 13-12](#page-134-0) lists the head assays for the seven composites. The zinc grade ranged from 0.62% to 16.7% Zn. Clastic 5 and Clastic 7 had sufficiently high lead grades to run a lead circuit before zinc flotation. The remaining composites focused on a zinc concentrate only in this program.

Table 13-12: Head Assays

13.3.3 Mineralogy

BMA was conducted on the composites. The results indicated that pyrite was the main sulphur mineral (3% to 36%) followed by sphalerite (0.8% to 27%) with minor amounts of galena (0.02% to 2.5%). Pyrophyllite was present between 0.8% to 4.8% and like organic carbon, can dilute the concentrates if not rejected using depressants (high pH or starch-based reagents such as CMC) or potentially a pre-flotation prior to the Pb/Zn circuits.

13.3.4 Comminution

The comminution testing indicated that the samples tested were moderate to moderately hard at the coarser and finer size range with an average Axb value of 42.9 and BWi of 16.1 kWh/t at a closing screen of 106 µm.

SMC, at a size fraction of 22.4 mm x 19 mm, and BWi tests were performed on all seven composites. The Axb values ranged from 38.7 to 52.1. The BWi values were between 13.2 kWh/t to 18.3 kWh/t and averaged 16.1 kWh/t at a closing screen size of 106 µm. The results indicate that the samples tested were moderate to moderately hard. The results are listed in [Table 13-13.](#page-134-1)

Table 13-13: Comminution Results

13.3.5 Flotation

Initially, rougher flotation tests were completed at a target grind size P_{80} of 75 μ m. The rougher flowsheet included a lead rougher for Clastic 5 and Volcanic 7 followed by a zinc rougher. The other composites were tested using a zinc only flowsheet. The zinc rougher recovery ranged from 84.7% to 99.3%. The lead recovery for Clastic 5 was low at 10.9% and 77.5% for Volcanic 7.

With the rougher conditions set, the open cleaner tests, T02, T08, T09, T16, T17, and T21, were completed at a primary grind targeting P_{80} 75 microns. The zinc recovery was between 68% to 97% Zn with grades between 53% and 63% Zn. Lead recovery measured 38% and 55% Pb for Clastic 5 and Volcanic 7, respectively. The lead grades were 44.3% and 45.8% Pb. The recovery curves are shown in [Figure 13-9](#page-135-0) and [Figure 13-10,](#page-136-0) and the results listed in [Table 13-14.](#page-136-1)

Figure 13-9: Open Circuit Lead Recovery Curves

Source: Base Met (2022)

Source: Base Met (2022)

Table 13-14: Open Circuit Cleaner Tests – Boundary Zone

Optimization tests were completed on Volcanic 7 with a focus on lead performance. The test included CMCm to reduce the carbon flotation increased collector, as well as the use of sodium cyanide and zinc sulphate to depress zinc and pyrite in the lead circuit. A range of regrind sizes were investigated, however, there was not a significant improvement at finer grinds, and no further tests were completed.

13.4 2023 Test Program (Boundary Zone)

In 2023 another program was completed by Base Met (BL1140) to evaluate metallurgical performance of two massive sulphide composites, NB21-001-MS-01 and NB20-004-MS-02 from Boundary Zone. A preliminary investigation of the two composites included mineral abundance, comminution, and flotation.

The flotation for BL1140 focused on a flowsheet with and without pre-float to reduce carbon prior to the Zn recovery at a target primary grind of P80 75 µm and regrind of P80 25 µm. Flotation results for the two Boundary Zone massive sulphide composites measured Zn recoveries in the mid to high 80 percentile with grades from 43% to 54.6% Zn.

13.4.1 Sample Selection

Two samples from the Boundary Zone massive sulphide domain were evaluated to assess their metallurgical performance. Drill core intervals were collected from holes NB21-001 and NB20- 004 (drilled in 2021 and 2020, respectively) to make up massive sulphide composites and sent to Base Met in Kamloops, BC.

13.4.2 Head Assays

[Table 13-15](#page-137-0) shows the head grade for each of the composites created for the BL1140 test program. A zinc head grade in the same range as the LOM average for Tom and Jason was targeted to enable comparison across different zones. For comparison, the zinc head grade of the Tom and Jason composites from program BL0236 ranged from 4.71% to 8.70%.

Table 13-15: Composite Head Grades

13.4.3 Mineralogy

The mineralogy of the massive sulphide composites indicated the samples tested have a very high pyrite content (47.6% and 69.9%). The higher pyrite samples will require more selective flotation parameters to produce a high-grade zinc concentrate. In these samples the clay content is lower than the samples tested in BL0755. Sphalerite was the next highest sulphur mineral present in the samples. Galena was low, which is consistent with other samples across the Macpass Project.

13.4.4 Comminution

The comminution test work included JKDrop Weight and BWi. The BWi tests were completed at a closing screen size of 106 microns to achieve results close to the primary grind P_{80} of 75 microns. The results indicate the material is moderate to moderately hard. [Table 13-16](#page-138-0) summarizes the comminution results.

The Boundary Zone massive sulphide samples had similar or softer Axb values and the BWi was in the same range as the Boundary Zone samples in the 2022 program.

Compared to the Boundary Zone samples tested in 2022, the massive sulphide material tested in 2023 is slightly softer for the Axb value and the BWi is slightly harder. The BWi for the Tom and Jason samples ranged from 8.8 kWh/t to 14.0 kWh/t, indicating the material tested is softer than Boundary Zone. This data set is very small, and more information is required to thoroughly evaluate the hardness and properly size the comminution circuit.

13.4.5 Flotation

To evaluate the flotation performance rougher and cleaner tests were completed. BL0755 flowsheet and test work parameters were used for the initial assessment to enable a direct comparison. Very little lead was present in the massive sulphide samples and therefore sequential Pb/Zn tests 11 and 12 were conducted on NB21-001-MS-01 and NB20-004-MS-02, respectively.

Flotation results for T11 resulted in a lead concentrate with a grade of 41.6% and recovery of 30.1% Pb for NB21-001-MS-01. NB20-004-MS-02 T12 recovered 2.6% Pb with a grade of 22.4% to a lead concentrate. The poor lead metallurgical performance may be attributed to the low head grade of these composites. The zinc concentrates produced in both tests were in the same range as previous cleaner tests completed on two massive sulphide composites.

13.4.5.1 Rougher Flotation

Two rougher flowsheets were considered: with and without pre-float. The BL0755 primary grind of 80% passing (P_{80}) 75 microns was used for the flotation tests. Sodium Isopropyl Xanthate (SIPX) was used as the collector and CMC (PE26) was used to suppress carbon for the flowsheet without pre-float. The pre-float flowsheet is shown below in [Figure 13-11.](#page-139-0) The prefloat flowsheet required less collector (SIPX) and no CMC was required resulting in lower reagent consumption and cost. The overall results are displayed in [Table 13-17.](#page-139-1)

Figure 13-11: Pre-Float Flowsheet

The pre-float flowsheet tests had lower mass pulls and lower recoveries to the zinc concentrate, which could relate to zinc losses in the pre-float concentrate. The reagent dosage was lower than the pre-float tests, and no CMC was added to the zinc rougher. The increased operating costs due to the higher reagent dosages in the flowsheet without pre-float exceeded the value of the increase in recovered metals. The NB21-001-MS-01 rougher test Ro-01 without pre-float had a much higher mass pull and recovery compared to the pre-float test Ro-03. The zinc recovery without pre-float was in the same range as that observed with BL0755 results at 94.8% Zn.

The results for NB20-004-MS-02, Ro-02 and Ro-04, were similar with and without the pre-float flowsheets.

13.4.5.2 Cleaner Flotation

Open circuit cleaner tests were carried out using both flowsheets (with and without pre-float). [Figure 13-12](#page-140-0) illustrates the pre-float flowsheet. After the zinc rougher, the product was reground to target P_{80} 22 microns to 25 microns.

Figure 13-12: Cleaner Pre-Float Flowsheet

Six cleaner tests were completed with and without pre-float prior to zinc rougher flotation. Two tests were run on NB21-001-MS-01. Performance was similar whether there was or was not a pre-float in the flowsheet. The results are listed in [Table 13-18.](#page-140-1)

Four cleaner tests were completed on composite NB20-004-MS-02. Two of the tests were completed at a regrind size of 30 microns and 39 microns. Tests with a coarse regrind had grades that were lower with similar recoveries compared to the finer regrind tests. Target regrind of 25 microns was chosen to optimize the concentrate grade and recovery. The test results for the cleaner tests for NB20-004-MS-02 are shown in [Table 13-19.](#page-141-0)

[Figure 13-13](#page-141-1) compares the zinc concentrate grade versus recovery. Tests T05 and T07 were completed on NB21-001-MS-01 and tests T06, T08, T09 and T10 on NB20-004-MS-02. The grade recovery curves demonstrate that the two tests completed on NB21-001-MS-01 follow the same grade recovery curve (T05 and T07).

There would be a slightly higher reagent cost without pre-float due to the addition of CMC and higher SIPX requirement, however, that cost would be offset by the increase in recovered metal. A coarser regrind size for NB20-004-MS-02 tests did not perform as well with or without prefloat. A regrind size of P_{80} 25 microns provided the best results.

Figure 13-13: Zinc Grade Versus Recovery Curve

Source: Base Met (2023)

NB21-001-MS-01 had a higher zinc head grade and performed better than NB20-004-MS-02. The results were in the same range as the 2022 Boundary Zone samples tested in BL0755 with zinc recoveries ranging from 82.7% to 88.9% and grades from mid 40% to mid 50%.

One sequential open circuit cleaner test was completed on each of the composites to produce lead and zinc concentrates. NB21-001-MS-01 (T11) produced a lead concentrate with a grade of 41.6% recovering 30.4% Pb. The zinc concentrate graded 58.4% with a recovery of 80.5% Zn. Although the zinc recovery was lower than previous cleaner tests without a lead circuit, the results follow a similar recovery curve compared to T05 and T07. The cleaner test on NB20- 004-MS-02 recovered only 2.6% Pb to the lead concentrate. The zinc concentrate had lower recovery to the rougher concentrate and final concentrate than observed previously. This result could be due to zinc losses to the lead circuit and will be investigated in subsequent test work.

13.5 Concentrate Quality

13.5.1 Tom and Jason

The Pb and Zn concentrates from the LCTs, as well as concentrates from the composites 1 through 5 cleaner tests, were analyzed for minor elements. Impurity levels were generally low and any occurrences are anticipated to be managed via blending strategies. Elevated silica levels can affect some lead and zinc smelters if above 5% in concentrate. Silica content in the Pb and Zn concentrates were well below the 5% threshold for all samples except Composite 1 where it measured 5.4% and 7.6% in the Pb and Zn concentrates, respectively. Silica content was measured using sodium peroxide fusion - ICP analysis.

13.5.2 Boundary Zone

The quality of the Boundary Zone zinc concentrate was generally acceptable; however, cadmium, mercury, and antimony were elevated based on preliminary test results. These levels of impurities in the zinc concentrate may incur penalties and should be verified with the receiving smelter. Further optimization work is required to determine whether these elements can be further reduced in the final concentrate or mitigated through blending.

Element	Units	Method	↽ Volcanic	\sim Clastic	က Grade 들	ທ Clastic	r Volcanic	∞ Mudstone	NB21-001-MS-01	NB20-004-MS-02	
			T17 Zn Con	T08 Zn Con	T02 Zn Con	T21 Zn Con	T16 Zn Con	T09 Zn Con	BL1140-05 Zn Con	BL1140-09 Zn Con	
Cd	ppm	FUS-MS-Na2O2	1620	2770	3380	2860	1980	1570	2210	3000	
Hg	ppm	AR-ICP/LF-ICP	666	680	457	1358	956	728	669	884	
Sb	ppm	FUS-MS-Na2O2	136	279	604	229	158	250	579	4260	
Source: Base Met (2022, 2023)											

Table 13-20: Zinc Concentrate Minor Element Results for BL0755 and BL1140

13.5.3 Gallium and Germanium Concentrations

The Macpass zinc concentrate from the Boundary Zone material shows elevated levels of gallium and germanium. The indications on germanium levels in Boundary zinc concentrate range from 85 ppm to 285 ppm, with gallium levels ranging from 17 ppm to 56 ppm, which may be material to a smelter with the capability to recover these elements.

There is currently no precedence for payment of germanium or gallium in zinc concentrates. It is likely that other favorable contract terms may be obtained in the sale of the Macpass zinc concentrates to smelters which recover these elements. These would be terms such as lower treatment charges, freight benefits, or beneficial penalties.

The Tom-Jason concentrates were not assayed for gallium and germanium in the 2018 test programs, so levels in these concentrates is undetermined.
14.0 Mineral Resource Estimates

14.1 Summary

Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves (CIM (2014) definitions) were used for Mineral Resource classification.

SLR's engineering optimization considered both open pit (OP) and underground (UG) conceptual operating scenarios, based on a block by block NSR calculation. [Table 14-1](#page-144-0) summarizes Fireweed's Mineral Resource estimates for Zn, Pb, and Ag, effective as of September 4, 2024. [Table 14-2](#page-145-0) provides the Mineral Resource estimates for Zn, Pb, and Ag within the open pit scenario, while [Table 14-3](#page-146-0) presents the underground Mineral Resources for Zn, Pb, and Ag located below the open pit, both effective as of September 4, 2024.

The reported Mineral Resources use an open pit NSR cut-off of C\$30/t and an underground NSR cut-off of C\$112/t for Tom, Jason, End Zone, and Boundary deposits. Mining sensitivities were performed using various NSR cut-off grades and are presented in Section 14.6.2 of this Technical Report.

The QP is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Resource estimates.

Table 14-1: Open Pit and Underground Mineral Resource Estimate, September 4, 2024

Notes:

1. Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves (CIM (2014) definitions) were used for Mineral Resource classification.

2. g/t: grams per tonne; Mlb: million pounds; Moz: million troy ounces; Mt: million metric tonnes.

3. Mineral Resources are reported within conceptual open pit (OP) shells and underground (UG) mining volumes to demonstrate Reasonable Prospects for Eventual Economic Extraction (RPEEE), as required under NI 43-101; mineralization lying outside of the OP shell or UG volumes is not reported as a Mineral Resource. Note the conceptual OP shell and UG volumes are used for Mineral Resource reporting purposes only and are not indicative of the proposed

Table 14-2: Open Pit Mineral Resource Estimate, September 4, 2024

Class	Area	Mass			Grade			Metal		
		(Mt)	ZnEq (%)	Zn $(\%)$	Pb $(\%)$	Ag (g/t)	Zn (MIb)	Pb (MIb)	Ag (Moz)	
Indicated	Tom	3.90	14.46	7.93	5.85	63.9	681	502	8.00	
	Jason	2.17	9.43	8.12	1.67	1.5	388	80	0.10	
	End Zone	0.02	11.43	2.16	9.07	68.1	1	4	0.42	
	Boundary	0.84	12.46	10.55	1.31	51.0	196	24	1.38	
Total Indicated		6.92	12.64	8.29	4.00	42.8	1,266	610	9.52	
Inferred	Tom	14.74	8.80	6.61	2.03	21.1	2,148	660	10.00	
	Jason	10.59	10.78	5.46	4.65	52.9	1,274	1,085	18.01	
	End Zone	0.20	7.83	1.40	6.38	45.9	6	29	0.30	
	Boundary	0.56	7.35	6.29	0.84	26.6	77	10	0.47	
Total Inferred		26.09	9.56	6.09	3.10	34.3	3,505	1,784	28.79	
	Note: See Table 14-1 footpotes									

Table 14-3: Underground Mineral Resource Estimate, September 4, 2024

Note: Se[e Table 14-1](#page-144-0) footnotes.

14.2 Resource Database

The drilling database is maintained in Seequent's MX Deposit, with drill hole location information in NAD83 datum, UTM Zone 9N projection. Drill hole azimuths are recorded in True North and converted to a Grid Azimuth by applying a grid convergence correction. Measurements are in metric units.

At Tom, drilling includes seven RC drill holes, 190 diamond drill holes from surface, and 80 diamond drill holes from underground workings. At Jason, there are two RC drill holes and 134 diamond drill holes from surface. End Zone has 19 diamond drill holes from surface, and Boundary Zone has 112 diamond drill holes from surface.

The data was exported from Fireweed's MX Deposit database and imported into Leapfrog Geo 2023.2.1 for analysis, wireframe building, block modelling, and resource estimation. Three Leapfrog projects were created for the four deposits (Tom, Jason and End Zone, and Boundary Zone), all sharing the same MX Deposit export.

There have been 74 holes (14,482 m) drilled at Tom, Jason, and End Zone since the previous MRE was completed in 2018. Fifty-nine of these new drill holes were drilled at Tom, ten drill holes were drilled at Jason, and five drill holes were drilled at End Zone. At Jason and Boundary all holes have been drilled from surface.

Since the previous MRE was completed, a thorough review of assay certificates found many silver assay intervals were recorded as 'tr' representing trace values. These were previously treated as null values and have now been assigned half detection limit values.

Poor recovery of mineralized horizons during historical drilling led to missing assays which are believed to be mineralized material based on more recent drilling from nearby locations and the hole to hole consistency of the mineralization width in most areas where samples are missing. As such, missing assays have been evaluated on a case by case basis at Tom, Jason, and End Zone. In some instances, unsampled intervals are treated as null and in others they are treated as half the detection limit for that commodity.

At Jason and End Zone, 1.0% of the intercepted intervals are unsampled for zinc, 0.1% are unsampled for lead, 11.2% are unsampled for silver, and 1.7% are unsampled for barium. For Tom, 9.4% of the intercepted intervals are unsampled for zinc, 9.2% are unsampled for lead, 9.1% are unsampled for silver, and 15.1% are unsampled for barium.

[Figure 14-1](#page-148-0) provides an example of the unsampled intervals within the mineralized domains at the Tom deposit. Hole TU039, drilled in 1970, has an unsampled interval from 48.25 m to 53.95 m. The drill logs for this hole describe the presence of soft sulphides that were washed out during drilling. Hole TS18-005 was drilled in 2018, 12 m away from the missing intercept, and was able to confirm the interpreted mineralization continuity. There are multiple other instances at Tom where newer drilling, drilled within 30 m of the historical drill holes, is able to confirm the interpreted mineralization continuity.

SLR recommends that Fireweed consider twinning historical drill holes in mineralized areas where zinc, lead, or silver assays were not previously conducted, or where core loss occurred due to soft sulphides, to enhance data quality and improve confidence in local grade estimates.

At Boundary, 99% of the intercepted intervals for the mineralized domains are sampled for zinc, lead and silver, and 91% are sampled for barium. At Boundary, all unsampled Zn, Pb and Ag intervals were assigned half the detection limit; missing Ba samples were ignored.

Compared to the intercepted intervals for zinc, only a limited amount of germanium and gallium samples exist across each deposit. For Tom, there are only 1,498 germanium and 1,615 gallium samples compared to 4,263 zinc samples. For Jason and End Zone, 370 germanium and 312 gallium samples exist compared to 1,822 zinc samples. Boundary also has a limited set of germanium and gallium data with 10,281 germanium and 20,004 gallium samples compared to 22,317 zinc samples (sample coverage for the mineralized domains, however, is 91% and 82% for Ga and Ge, respectively). Due to this limited assay coverage, regressions with zinc or zinc and aluminum (where possible) were used where no gallium or germanium assay data was available. Gallium and germanium were not considered as payables or credits within the NSR calculations used to define the mineral resource.

14.3 Tom Deposit

14.3.1 Geological Interpretation

The Tom deposit estimate is based on three separate zones: Tom West (previously referred to as Tom Main), Tom Southeast, and Tom East. Tom North, drilled in 2019, is located north of Tom West and has now been found to be contiguous with Tom West. All three zones contain Zn-Pb-Ag-Ba mineralization which varies from well laminated and stratiform through to a brecciated stockwork zone. The Tom deposit is separated into three zones based on two interpreted deposit scale faults. The Tom fault is oriented north-south, providing a natural limit to the eastward extension of Tom West mineralization. The Tom Fault also provides a natural limit to the westward extension of the Tom Southeast mineralization. A second east-northeast trending fault named TWZ is truncated to the west by the Tom fault and serves to separate the north-northwest striking, west dipping Tom East mineralization from the east-northeast striking, south dipping, Tom Southeast mineralization. The Tom geological model and interpreted faults were provided by Fireweed and further refined by SLR.

An overburden wireframe was created to cover all three zones. The thickness of the overburden horizon ranges between no overburden to 65 m locally. The overburden surface was thinned in some areas where there was mapped outcrops and clear topographic highs (i.e., cliffs). These mapped outcrops were measured with differential GPS and were used to guide the mineralization wireframes to surface.

Underground geological maps and underground sampling were also used to define the mineralization domains below surface. These samples were only used for refining the geological model and were not used for grade estimation.

[Figure 14-2](#page-150-0) presents the mineralized domains for the Tom deposit in plan view.

Figure 14-2: Oblique View Looking Down on Mineralized Domains at Tom

14.3.1.1 Tom West

Mineralization domains were determined using a combination of logging observations, assay data, supervised machine learning, and detailed reviews of these products alongside core photos.

Drill core was logged in the field using traditional observational methods by a team of experienced geologists familiar with the geology and styles of mineralization present at the deposit. A training dataset was selected from logging and assay data to train models (using the random forest algorithm) to predict mineralization style from assay and bulk density data. Several iterations of the models were run based on the suite of elements available within different generations of drilling. Results of the model predictions were reviewed in spatial context against original logs, re-logs, and core photos for every mineralized interval where sufficient assay data and core photos were available by Fireweed's Vice President, Geology, Jack Milton. Interval selections were made based on this holistic review.

The units defined include footwall mineralization (TSFM), massive sulphide (TSSX), pink facies (TSPF), grey facies (TSGF), and black facies (TSBF), collectively the Tom West sub-domains. Section 7 of this Technical Report provides further information on the nature of these geological units. The wireframing used in the previous Mineral Resource estimate combined the different sub-domains into a single mineralized wireframe, excluding the footwall mineralization. Defining the lithologic units by their geochemical signature is an improvement to the geological interpretation and has allowed the generation of well defined and robust estimation domains.

The geological model for Tom West was created in Leapfrog Geo 2023.2.1 and constrained to the western block defined by the Tom fault. A vein model was used to capture the mineralized envelope, and the midpoint reference surface of the envelope was used as the reference surface to guide the creation of the Tom West sub-domains using a series of offset deposit/erosional surfaces. There are no additional sub-domains that have been defined to reflect the stratigraphy of the unmineralized wall rock outside of the mineralized envelope.

Tom West mineralization has a strike length of 1,645 m, down dip extension between 280 m and 670 m and a thickness between two metres and 70 m. The mineralization has a minimum thickness of two metres.

[Figure 14-3](#page-152-0) show the Tom West mineralization domains in plan view and cross section, respectively. [Figure 14-4](#page-153-0) show the Tom west mineralization domains in longitudinal section and plan view, respectively.

14.3.1.2 Tom Southeast

Tom Southeast is modelled as a single mineralized zone due to its thin nature and the inability to model congruent domains based on the internal facies interpretation. A vein model was used to create the wireframes.

The Tom Southeast mineralization has a strike length of approximately 550 m, down dip extension of up to 750 m, and varies in thickness from approximately 12 m to 40 m.

14.3.1.3 Tom East

Tom East contains one main mineralized unit with two internal facies: massive and laminated sulphides. There is a thin stratiform unit located to the east of the main mineralized unit and two smaller en-echelon domains further to the east. The geological model created using a vein modelling approach to create the final estimation domains.

Tom East mineralization has a strike length of approximately 450 m, down dip extension of up to 250 m, and varies in thickness from two metres to 45 m.

[Figure 14-5](#page-155-0) shows a plan view and cross section through the Tom East mineralized domains.

14.3.2 Estimation Domains

Once the geological model was complete, raw assays within each mineralized domain were reviewed using basic statistics, histograms, box plots, and contact plots to further refine the estimation domains. Grade contouring within each mineralized domain was also completed.

When Tom estimation domains are constrained by unmineralized drill holes, the interpretation is terminated at half the distance to the nearest unmineralized drill hole. In areas where mineralization remains open, the interpretation is extended a reasonable distance beyond the last mineralized interval, typically based on the local drill hole spacing for that area.

14.3.2.1 Tom West

When statistics and contact plots demonstrated that a single population exists across multiple horizons in Tom West, those wireframes were merged for the final estimation domain. [Table 14-4](#page-156-0) lists the estimation domains across the various estimation variables.

Variable	Estimation Domain	Variable	Estimation Domain
Zn	TSBF ₂	Ge	TSBF2
	TSBF, TSGF, TSPF combined		TSBF, TSGF, TSPF combined
	TSSX		TSSX
	TSFM		TSFM
Pb	TSBF ₂	Ga	TSBF2
	TSBF, TSGF combined		TSBF, TSGF, TSPF combined
	TSPF		TSSX
	TSSX		TSFM
	TSFM	Density	TSBF2
Ag	TSBF2		TSBF
	TSBF, TSGF combined		TSGF
	TSPF		TSPF
	TSSX		TSSX
	TSFM		TSFM
Ba	TSBF ₂		
	TSBF		
	TSGF, TSPF combined		
	TSSX		
	TSFM		

Table 14-4: Tom West Estimation Domains

Trend analysis through grade contouring shows two differing trends within the estimation domains at Tom West. As such, each estimation domain was further split into a sub-horizontal and sub-vertical section. This allowed for appropriate plunges for the anisotropy to be assigned during estimation. A soft boundary was used between each estimation domain's sub-horizontal and sub-vertical sections. [Figure 14-6](#page-158-0) shows the grade contouring of Zn in Tom West for the TSBF, TSGF and TSPG domains. [Figure 14-7](#page-159-0) shows the sub-horizontal and sub-vertical estimations domains used for Tom West.

14.3.2.2 Tom Southeast

A single domain was modelled for Tom Southeast and as such this was used as the estimation domain with a hard boundary for all variables [\(Table 14-5\)](#page-160-0).

Table 14-5: Tom Southeast Estimation Domains

Variable	Estimation Domain
Zn, Pb, Ag, Ba, Ge, Ga	I min combined
Density	

14.3.2.3 Tom East

Review of the raw statistics and contact plots between the different horizons at Tom East support each modelled wireframe to remain as an estimation domain with hard boundaries for all variables [\(Table 14-6\)](#page-160-1).

14.3.3 Assay Statistics and Capping

SLR applied high-grade capping for some zinc, lead, and silver assays to limit the influence of a small number of extreme values located in the upper tail of the metal distributions. Raw assays were reviewed using basic statistics, histograms, log probability plots, and decile analysis to determine whether to cap various elements for each estimation domain independently. SLR notes that some domains exhibited low metal risk and were not capped.

Examples of the capping analysis are shown in [Figure 14-8](#page-161-0) to [Figure 14-11](#page-163-0) for various mineralized domains for Tom.

[Table 14-7](#page-164-0) to Table 14-12 summarize the uncapped and capped assay statistics for the Tom deposit.

Figure 14-8: Log Probability Plot for Lead in Tom East, TELW. Capped at 22% Pb

Figure 14-9: Histogram for Lead in Tom East, TELW. Capped at 22% Pb

Figure 14-10: Log Probability Plot for Silver in Tom West, TSPF. Capped at 400 ppm Ag, High-Grade Search Restriction at 240 ppm Ag

1. Coefficient of variation

Area	Domain	Count	Cap (% Pb)	Number Capped	Mean (%Pb)	Capped Mean (%Pb)	Max. $(\%$ Pb)	Capped Max. $(\%$ Pb)	CV	Capped CV	Metal Loss $(\%)$
Tom West	TSBF2	21	N/A	N/A	0.87	N/A	2.4	N/A	0.93	N/A	N/A
	TSBF TSGF	1658	12		1.13	1.11	43	12	1.39	1.1	1.7
	TSGF	694	22	4	4.28	4.17	65.4	22	1.12	0.95	2.5
	TSSX	352	34	6	10.34	10.26	41.7	34	0.76	0.74	0.7
	TSFM	481	12	3	1.44	1.44	18.48	12	1.52	1.44	1.7
Tom East	TELA	13	12 ₁	4	13.88	6.19	49.6	12	1.19	0.8	55.4
	TELB	20	14	6	12.05	8.34	38.1	14	0.89	0.59	30.8
	TESE	24	25		8.37	7.92	35.8	25	1.11	1.03	5.4
	TELW	428	22	11	5.14	4.97	37	22	1.14	1.04	3.3
	TEMW	367	45	4	11.13	11.04	64.6	45	1.06	1.04	0.8
Tom Southeast	min_combined	167	25	3	4.47	4.23	41.1	25	1.6	1.46	5.3

Table 14-8: Tom, Capped Lead Assay Statistics

Area	Domain	Count	Cap (Ag g/t)	Number Capped	Mean (Ag g/t)	Capped Mean (Ag g/t)	Max. (Ag g/t)	Capped Max. (Ag g/t)	c_{V}	Capped CV	Metal Loss $(\%)$
Tom West	TSBF2	21	N/A	N/A	0.87	N/A	2.4	N/A	0.93	N/A	N/A
	TSBF TSGF	1640	100	2	2.93	2.8	219.43	100	3.17	2.41	4.6
	TSPF	694	400	$\overline{2}$	42.19	41.64	650.3	400	1.7	1.63	1.3
	TSSX	351	450	4	144.77	142.68	810.8	450	0.82	0.78	1.4
	TSFM	481	110	$\overline{2}$	12.77	12.62	150.2	110	155	1.5	1.2
Tom East	TELA	13	N/A	N/A	155.58	N/A	530.7	N/A	1.14	N/A	N/A
	TELB	20	N/A	N/A	215.18	N/A	566.5	N/A	0.77	N/A	N/A
	TESE	24	280	2	108.08	98.72	453.9	280	1.14	1.03	8.7
	TELW	430	285	11	63.35	59.61	596.9	285	1.4	1.24	5.9
	TEMW	368	600	4	153.02	152.13	754.29	600	1.06	1.05	0.6
Tom Southeast	min combined	167	380	4	64.18	59.16	673	380	1.78	1.58	7.8

Table 14-9: Tom, Capped Silver Assay Statistics

Table 14-10: Tom, Capped Barium Assay Statistics

Area	Domain	Count	Cap (Ge g/t)	Number Capped	Mean (Ge g/t)	Capped Mean (Ge g/t)	Max. (Ge g/t)	Capped Max. (Ge g/t)	c _v	Capped CV	Metal Loss
Tom West	TSBF TSGF	821	40	32	8.34	7.68	113.00	40	1.19	0.85	8.0
	TSPF										
	TSSX	140	36	26	15.50	13.70	62.00	36	0.82	0.61	15.5
	TSFM	106	10	3	3.94	3.79	18.00	10	0.77	0.66	3.8
Tom East	TELB	16	N/A	N/A	14.50	N/A	32.00	N/A	0.45	N/A	N/A
	TELW	250	40	13	10.78	10.35	58.00	40	0.76	0.65	4
	TEMW	89	38	22	15.66	12.53	70.00	38	1.01	0.77	20.0
Tom Southeast	min combined	60	32	11	16.55	13.35	79.00	32	0.86	0.49	19.3

Table 14-11: Tom, Capped Germanium Assay Statistics

Area	Domain	Count	Cap (Ga g/t)	Number Capped	Mean (Ga g/t)	Capped Mean (Ga g/t)	Max. (Ga g/t)	Capped Max. (Ga g/t)	CV	Capped CV	Metal Loss (%)
Tom West	TSBF TSGF TSPF	854	20	19	7.05	6.95	32.00	20	0.65	0.61	1.4
	TSSX	145	27	15	10.34	9.66	40.00	20	0.74	0.62	6.6
	TSFM	142	17	5	8.33	8.26	20.00	17	0.55	0.54	0.8
Tom East	TELB	20	N/A	N/A	13.15	N/A	29.00	N/A	0.59	N/A	N/A
	TELW	263	21	12	7.58	7.39	35.00	21	0.64	0.57	2.5
	TEMW	102	18	17	9.37	8.58	32.00	18	0.72	0.6	17
Tom Southeast	min combined	72	20	6	9.36	8.6	32.00	20	0.67	0.5	8.1

Table 14-12: Tom, Capped Gallium Assay Statistics

In general, many of the larger metal loss percentages are the result of capping a small number of relatively high values within a domain containing few samples, such as TELA or TELB. Capping levels should be continually reviewed for all commodities as new drilling information becomes available and more robust populations are developed for a given sub-domain.

14.3.4 Density

A total of 2,560 density measurements were collected within the mineralized domains at Tom with densities ranging from 1.61 g/cm 3 to 6.42 g/cm 3 . Multiple regression calculations were analyzed; for all the data combined, by area and by the individual domains per area. When the data was split by individual domains, lower errors were calculated, therefore, a separate regression was used for each domain.

The regressions use the sum of Zn, Pb, Fe, and Ba compared to measured density as they had the lowest mean squared error. Outliers were removed from the data to prevent skewed results, and when required, the regression equations were split to capture multiple populations. When available, including data for sulphur significantly improved the regression analysis results, however, limited sulphur assays prevented its use in the regression equation.

A lower limit for regressed values at Tom was applied at 2.58 g/cm $^3\!$.

An example scatter plot for Tom West used to calculate the regression equation is shown in [Figure 14-12](#page-171-0) and the regression equations per domain are outlined in [Table 14-13.](#page-171-1) [Table 14-14](#page-172-0) shows the mean measured density values for each domain at the Tom deposit.

The regressed density values were validated against measured density by performing random checks using low-, medium-, and high-grade samples to ensure the regressed formulas were calculating density appropriately.

Table 14-13: Tom Density Regression Equations

Area	Domains	Mean Density (g/cm ³)
Tom West	TSBF2	2.82
	TSBF	2.89
	TSGF	3.41
	TSPF	3.56
	TSSX	3.49
	TSFM	2.95
Tom Southeast	min combined	3.15
Tom East	TELW	3.09
	TEMW	3.48
	TESE	3.74
	TELA	4.03
	TELB	3.41

Table 14-14: Tom Mean Measured Density Values

For the final density variables in Tom, measured values were prioritized, followed by regressed values [\(Table 14-13\)](#page-171-1). The values reported in [Table 14-14](#page-172-0) were used for all remaining intervals that did not have the required assays to calculate a regressed value.

In total, 608 density values were regressed and 1,501 density values were assigned mean values within the mineralized domains at Tom.

14.3.5 Germanium and Gallium

A total of 1,490 germanium and 1,624 gallium samples were collected within the mineralized domains at the Tom deposit where germanium values range from 0.5 g/t to 113 g/t and gallium values range from 0.5 g/t to 40 g/t. Due to this limited assay coverage for germanium and gallium, regressions with zinc or zinc and aluminum (where possible) were used where no gallium or germanium assay data were available. Multiple regression calculations were analyzed by combined and by individual domains. The regressions for germanium compare against zinc only whereas the regressions for gallium compare against the sum of zinc and aluminum.

An example germanium scatterplot for Tom West used to calculate the regression equation is shown in [Figure 14-13.](#page-173-0) The regression equations per domain for both germanium and gallium are outlined in [Table 14-15.](#page-173-1) [Table 14-16](#page-174-0) and [Table 14-17](#page-174-1) show the assay statistics of the regressed germanium and gallium values, respectively, for each domain at the Tom deposit.

The regressed germanium and gallium values were validated against measured germanium and gallium by performing random checks using low-, medium- and high-grade samples to ensure the regressed formulas were calculating germanium and gallium appropriately.

For the final germanium and gallium variables used to create composites for the Tom deposit, measured values [\(Table 14-11](#page-168-0) and [Table 14-12\)](#page-169-0) were prioritized, followed by regressed values. The values reported in [Table 14-16](#page-174-0) and [Table 14-17](#page-174-1) provide the assay statistics for regressed germanium and gallium, respectively, excluding measured values.

Zn(%) vs Ge (g/t), Tom West [TSBF, TSGF, TSPF]

Table 14-15: Tom Germanium and Gallium Regression Equations

Area	Element	Domains	Regression Equation	R-squared Value
Tom West	Ge	TSBF_TSGF_TSPF	$y = 1.52x$	0.7421
		TSSX	$y = 1.328x$	0.7881
		TSFM	$y = 0.811x$	0.461
	Ga	TSBF_TSGF_TSPF	$y = 0.892x$	0.7964
		TSSX	$y = 0.825x$	0.8355
		TSFM	$y = 1.529x$	0.7161
Tom Southeast	Ge	min_combined	$y = 1.543x$	0.8344
	Ga	min combined	$y = 0.776x$	0.7763
Tom East	Ge	TELW	$y = 1.184x$	0.7497
		TEMW	$y = 1.694x$	0.8429
	Ga	TELW	$y = 0.687x$	0.6355
		TEMW	$y = 0.754x$	0.6221

14.3.6 Compositing

The dominant sampling length at Tom was found to be bimodal with most samples being at one metre and 1.53 m [\(Figure 14-14\)](#page-175-0). The compositing approach was to use the smallest composite possible that also resulted in splitting less than 5% of the samples. As such, the capped assay samples at Tom were composited to 1.53 m and broken at domain boundaries. Further cumulative frequency analysis supported using a 1.53 m composite value with an average frequency of 93% for Tom. Any composites that were less than 0.25 m in length were added to the previous interval. Zn, Pb, Ag, and Ba composites were density weighted.

Raw interval length statistics versus composite length statistics by area are presented in [Table 14-18.](#page-175-1) The statistical values indicate that there is a less than 5% difference between the total raw interval lengths versus the composited lengths for each area. [Table 14-19](#page-176-0) to [Table 14-24](#page-181-0) present the capped composite statistics for zinc, lead, silver, barium, germanium and gallium respectively, by individual domain. zinc, lead, silver, barium, germanium and gallium composites were density weighted for estimation.

Table 14-23: Tom Germanium Composite Statistics

14.3.7 Trend Analysis

14.3.7.1 Variography

In addition to the trend analysis and contouring described in Section 14.3.1.1, SLR prepared variograms for Zn, Pb, and Ag across selected domains at Tom. Variograms for Ge and Ga were investigated, however, the analysis did not yield meaningful results due to a lack of data density. The domains selected represent the best supported mineralization based on drill hole spacing and continuity. These include the sub-vertical sections through Tom West for each estimation domain and Tom East's massive sulphide and laminated sulphide domains. Examples of the modelled variograms for Tom are provided in [Figure 14-15](#page-183-0) to [Figure 14-17.](#page-185-0)

All variables were estimated using inverse distance squared (ID²), and as such, variogram ranges and anisotropy were not applied during estimation as they would be applied for other estimation methods such as ordinary kriging. Variogram ranges were used to provide a guide for search ellipse dimensions and ranges. Variogram ranges were also considered as one of the resource classification criteria.

[Table 14-25](#page-186-0) and [Table 14-26](#page-189-0) summarize the variograms for Tom West and Tom East.

Table 14-25: Tom West Zn, Pb, and Ag Variograms

Table 14-26: Tom East Zn, Pb, and Ag Variograms

14.3.7.2 Grade Contouring

Grade contouring within each domain was carried out in Tom. This allowed customization of the directional anisotropy of the mineralization on a per domain basis. Averaged trends between the different elements and density were used to assign a single trend across all variables to prevent contrasting anisotropies being applied to density.

The outputs of the grade contouring were used to aid initial variogram and search ellipse orientations and to help validate the block model.

14.3.8 Search Strategy and Grade Interpolation Parameters

Grades and density were estimated into parent blocks using a multi-pass ID^2 approach and composite selection plans with high-grade restrictions as outlined in [Table 14-27](#page-190-0) to Table 14-29, and [Table 14-30](#page-191-0) to Table 14-32 for Tom East. Search ellipses for grade and density interpolation were oriented using dynamic anisotropy with the longest axis parallel to the mineralization.

The same search strategy and interpolation parameters were applied for Zn, Pb, Ag, Ba, and density. Germanium used the same search strategy and interpolation parameters as zinc due to the strong correlation observed between these two elements. SLR applied a similar search strategy for gallium but used an isotropic search ellipse due to the poor correlation observed between gallium and zinc.

Post-estimation calculations were used to determine the final grades for all elements: Zn, Pb, Ag, Ba, Ge, and Ga.

High-grade outlier restrictions were applied when over-extrapolation was observed at the block model validation stage. The high-grade outlier restriction clamps composites to an assigned value when they are found beyond the first pass search distance and are to be used in the estimate (Table 14-29 Tom West and Southeast and Table 14-32 for Tom East).

14.3.8.1 Tom West and Southeast

Domain	Method	$1st$ Pass (m)			2 nd Pass (m)			$3rd$ Pass (m)			$4th$ Pass (m)		
		x-axis y-axis z-axis x-axis y-axis y-axis z-axis x-axis y-axis z-axis x-axis y-axis z-axis $\frac{1}{2}$											
'All	ID ²	60	40	10	120	80	20	240	160	40	480	320	80

Table 14-27: Tom West and Southeast Search Ellipse Ranges

Table 14-29: Tom West and Southeast High-Grade Search Restriction

14.3.8.2 Tom East

Table 14-30: Tom East Search Ellipse Ranges

14.3.9 Block Models

A single block model was created for the Tom West, Tom Southeast, and Tom East. Block model construction and estimation were completed using Leapfrog Edge 2023.2 software and the dimensions are presented in [Table 14-33.](#page-192-0)

For Tom, the block models all have parent block sizes of 5 m x 5 m x 5 m and are not rotated. The models are each sub-blocked at wireframe contacts including mineralization, overburden, topography, and classification wireframes. The SLR QP considers the block model sizes to be appropriate for the deposit geometry and proposed mining methods.

SLR regularized each block model to a 5 m x 5 m x 5 m block size for pit optimization and mining sensitivity analysis. For final open pit resource reporting for Tom, the sub-blocked version of the model was used. The SLR QP considers the sub-blocked model more appropriate for reporting due to the deposit type and style of mineralization.

Table 14-33: Tom Block Model

14.3.10 Classification

Definitions for resource categories used are consistent with those defined by CIM (2014) and adopted by NI 43-101. In the CIM classification, a Mineral Resource is defined as "a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction". Mineral Resources are classified into Measured, Indicated, and Inferred categories.

At Tom West, Indicated and Inferred Mineral Resources have been defined where drill hole spacings of up to approximately 90 m (100% of averaged variogram ranges across the Tom West estimation domains) and 180 m (200% of averaged variogram ranges) were achieved, respectively. The areas were modified to consider geological and grade continuity, mineralization thickness (approximately 10 m to 50 m thick for Indicated material) and the creation of cohesive class boundaries. [Figure 14-18](#page-193-0) shows the classification wireframes with the drill holes coloured by classification.

The SLR QP notes that due to the reduction in the thickness of mineralization (down to two metres thick in areas) north of 7,004,136N, tighter drill hole spacing should be considered to support Indicated Resources as drilling is carried out.

Figure 14-18: Indicated and Inferred Material at Tom West

At Tom Southeast, only Inferred Mineral Resources have been defined due to the variability in thickness (between two metres and eight metres) of the grade variance observed between drill holes.

At Tom East, Indicated and Inferred Mineral Resources have been defined where drill hole spacings of up to approximately 65 m and 130 m were achieved, respectively. The areas were modified to consider geological and grade continuity, mineralization thickness (approximately seven metres to 30 m for Indicated), and the creation of cohesive class boundaries. [Figure 14-19](#page-195-0) shows the classification wireframes with the drill holes coloured by classification for Tom East.

Figure 14-19: Indicated and Inferred Material at Tom East

14.3.11 Block Model Validation

Blocks were validated using various techniques, including:

- Statistical comparison of assay, composite, and block statistics.
- Visual inspection of composite versus block grades.
- Wireframe to block model volume confirmation.
- Swath plots comparing ID^2 to nearest neighbour (NN) values.

[Table 14-34](#page-196-0) summarizes the assay, composite, and block comparisons for each Tom estimation domain.

Evaluation of the accuracy of the estimate was also carried out by visually comparing the composites against the estimated block grades in plan and cross-sectional views. Examples are presented in [Figure 14-20,](#page-199-0) [Figure 14-21,](#page-200-0) and [Figure 14-22](#page-201-0) for Tom.

Example swath plots are presented in [Figure 14-23,](#page-202-0) [Figure 14-24](#page-203-0) and [Figure 14-25.](#page-204-0)

Area	Domain	Capped Assay Count	Capped Assays	Composite Count	Composites	Parent Block Count	NN	ID ²
Zn %								
Tom West	TSBF ₂	25	5.44	17	5.44	201,788	1.18	1.07
	TSBF, TSGF, TSPF	2,347	5.98	1756	6.02	9,335,501	4.93	5.01
	TSSX	352	9.94	270	9.93	690,796	109.94	123.48
	TSFM	481	1.80	383	1.83	2,131,804	5.11	5.25
Tom Southeast	min combined	167	6.82	110	6.86	2,600,880	7.15	6.80
Tom East	TELA	13	2.66	12	2.74	36,061	3.89	4.43
	TELB	20	13.89	14	13.96	63,849	14.98	33.98
	TELW	431	7.45	311	7.49	285,291	7.41	5.98
	TEMW	363	8.65	251	8.68	275,194	9.66	13.77
	TESE	24	3.02	17	3.03	39,130	2.65	0.69
Pb%								
Tom West	TSBF2	25	0.14	17	0.14	201,788	0.13	0.12
	TSBF, TSGF	1,657	1.12	1255	1.14	7,789,518	0.60	0.62
	TSPF	694	4.14	523	4.15	1,545,961	3.43	3.73
	TSSX	352	10.39	270	10.45	690,796	7.66	8.46
	TSFM	481	1.36	383	1.38	690,796	7.66	8.46
Tom Southeast	min combined	167	3.34	110	3.41	2,600,880	3.25	2.97

Table 14-34: Tom Assay, Composite, and Block Comparisons

Figure 14-20: Tom West Zinc Blocks Versus Composites

Figure 14-23: Example Swath Plots for Zinc ID2 and Zinc NN, in Tom West

Figure 14-24: Example Swath Plots for Lead ID2 and Lead NN, in Tom West

Figure 14-25: Example Swath Plots for Silver ID2 and Silver NN, in Tom East

14.4 Jason and End Zone Deposits

14.4.1 Geological Interpretation

The Jason and End Zone deposit estimates are based on three separate zones, built into a single geological model: Jason Main, Jason South, and End Zone. All three areas contain Zn-Pb-Ag-Ba mineralization which varies from massive, banded sulphide to interbedded sulphides with cherts and carbonates, and irregularly distributed sulphides thought to be associated with a brecciated stockwork pipe. Three faults have been incorporated into the model, two of which pass through the mineralization at Jason Main and Jason South, offsetting the mineralization. The Jason and End Zone geological model was provided by Fireweed and further refined by SLR. Similar to Tom, the geological model was initially modelled using a series of offset surfaces to define each layered horizon. The model was later revised using a vein modelling approach to refine the final mineralization domains and to create a simplistic workflow. [Figure 14-26](#page-206-0) presents a plan view of the mineralized domains for Jason and End Zone.

Figure 14-26: Plan View of Mineralized Domains at Jason and End Zone

14.4.1.1 Jason Main

Jason Main is modelled as a single mineralized zone using a vein model with the surrounding framework using a series of offset surfaces. Jason Main is located on the northern limb of the east-plunging Jason syncline. The mineralization has a strike length of up to 1,200 m, down dip extension up to 800 m, and varies in thickness from two metres to 20 m.

14.4.1.2 Jason South

Jason South is located on the southern limb of the east-plunging Jason syncline and consists of two mineralized zones. Within the mineralized zones a high-grade lead and silver core has been modelled, thought to represent the feeder zone of mineralization.

The mineralization model was also created using a vein system with the surrounding framework being constructed using a series of offset surfaces. The Jason South mineralization has a strike length of up to 750 m, down dip extension up to 650 m, and varies in thickness from two metres to 55 m (for each mineralized horizon). [Figure 14-27](#page-208-0) shows a plan view and cross section of the mineralized domains for Jason Main and Jason South.

14.4.1.3 End Zone

End Zone consists of three narrow, stratigraphically controlled mineralized zones that are interbedded with sediments.

End Zone mineralized zones have strike lengths between 90 m and 550 m, down dip extension up to 185 m, and varies in thickness from 2 m to 12 m.

[Figure 14-28](#page-209-0) shows a plan view and cross section through the End Zone mineralized domains.

Figure 14-28: Plan View and Cross Section Through End Zone Mineralized Domains

An overburden wireframe was created to cover all three areas. The thickness of the overburden horizon ranges between no overburden and 65 m locally.

14.4.2 Estimation Domains

Once the geological model was complete, raw assays within each mineralized domain were reviewed using basic statistics, histograms, box plots, and contact plots to further refine the estimation domains. Grade contouring within each mineralized domain was also completed.

[Figure 14-29](#page-211-0) to [Figure 14-31](#page-213-0) show the histograms for raw zinc, lead, and silver assays for the Tom and Jason deposits.

Figure 14-29: Histogram of Raw Zinc Assays for the Jason (right) and End Zone (left) Deposits

Figure 14-30: Histogram of Raw Lead Assays for the Jason (right) and End Zone (left) Deposits

Figure 14-31: Histogram of Raw Silver Assays for the Jason (right) and End Zone (left) Deposits

14.4.2.1 Jason Main

A single domain was modelled for Jason Main and as such this was used as the estimation domain with a hard boundary for all variables [\(Table 14-35\)](#page-214-0).

Table 14-35: Jason Main Estimation Domains

SLR used the same estimation domains as zinc for germanium and gallium due to the observed correlation between germanium and zinc. [Figure 14-32](#page-215-0) shows the correlation between zinc and germanium for Jason Main.

14.4.2.2 Jason South

The updated interpretation of Jason South includes the upper and lower mineralized zones, which both contain a high-grade lead and silver core, as illustrated in [Figure 14-33.](#page-216-0) The distributions of the different elements were reviewed and demonstrated that the internal highgrade domains should be used for lead and silver, as supported by both raw statistics and contact plot analysis shown in [Figure 14-34.](#page-217-0) Zinc and barium did not demonstrate separate populations across the boundaries, therefore, the high-grade domains were only used for lead and silver. The estimation domains for Jason South are summarized in [Table 14-36.](#page-217-1)

Figure 14-34: Contact Plot Analysis Between Jason South JSLL Domain and Internal High-Grade

Table 14-36: Jason South Estimation Domains

Variable	Estimation Domain
Zn, Ba, Ge, Ga	JSUL
	JSUL FW
	JSLL
Zn, Pb, Ag, Ba, Ge, Ga	JSLL ₂
Pb, Ag	JSUL LG
Density	JSUL HG
	JSUL FW
	JSLL LG
	JSLL HG

14.4.2.3 End Zone

Review of the raw statistics and contact plots between the different zones at End Zone support maintaining each wireframe as an estimation domain with hard boundaries for all variables. The estimation domains for End Zone are summarized in [Table 14-37.](#page-218-0)

Table 14-37: End Zone Estimation Domains

Element	Estimation Domain
Zn, Pb, Ag, Ba, Ge, Ga	I EZUL
Density	EZML
	FZLL

Jason and End Zone estimation domain extents are limited by unmineralized drill holes or at approximately half the local drill hole spacing distance.

14.4.3 Assay Statistics and Capping

SLR applied high-grade capping for some zinc, lead, and silver assays to limit the influence of a small number of extreme values located in the upper tail of the metal distributions. Raw assays were reviewed using basic statistics, histograms, log probability plots, and decile analysis to determine whether to cap various elements for each estimation domain independently. SLR notes that some domains exhibited low metal risk and were not capped.

Examples of the capping analysis are shown in [Figure 14-35](#page-219-0) and [Figure 14-36](#page-219-1) for the Jason Main domain.

[Table 14-38](#page-220-0) to Table 14-49 summarize the uncapped and capped assay statistics for Jason and End Zone.

Figure 14-36: Histogram for Zinc in Jason Main, JSMZ. No cap applied

Table 14-38: Jason, Capped Zn Assay Statistics

Table 14-39: Jason, Capped Pb Assay Statistics

Table 14-40: Jason, Capped Ag Assay Statistics

Table 14-41: Jason, Capped Ba Assay Statistics

Area	Domain	Count	Cap (Ba %)	Number Capped	Mean (Ba %)	Capped Mean (Ba %)	Max. (Ba %)	Capped Max. (Ba %)	CV	Capped CV	Metal Loss
Jason Main	JSMZ	678	N/A	N/A	10	N/A	55.75	N/A	1.78	N/A	N/A
Jason South	JSUL JSUL FW	376	N/A	N/A	13.83	N/A	70.00	N/A	1.05	N/A	N/A
	JSLL JSLL2	513	N/A	N/A	14.7	N/A	47.11	N/A	0.99	N/A	N/A

Table 14-42: Jason, Capped Ge Assay Statistics

Table 14-43: Jason, Capped Ga Assay Statistics

Area	Domain	Count	Cap (Ga g/t)	Number Capped	Mean (Ga g/t)	Capped Mean (Ga g/t)	Max. (Ga g/t)	Capped Max. (Ga g/t)	CV	Capped CV	Metal Loss
Jason Main	JSMZ	211	N/A	N/A	6.35	N/A	21.00	N/A	0.72	N/A	N/A
Jason South	JSUL JSUL FW		N/A	N/A	0.00	N/A	0.00	N/A	0	N/A	N/A
	JSLL JSLL2	38	N/A	N/A	7.92	N/A	16.0	N/A	0.57	N/A	N/A

Table 14-44: End Zone, Capped Zn Assay Statistics

Table 14-46: End Zone, Capped Ag Assay Statistics

Table 14-47: End Zone, Capped Ba Assay Statistics

Table 14-49: End Zone, Capped Ga Assay Statistics

14.4.4 Density

A total of 1,335 density measurements were collected at Jason and End Zone within the mineralized domains with densities ranging from 2.01 g/cm 3 to 5.17 g/cm 3 . Multiple regression calculations were analyzed for all of the data within the mineralized domains and then split by Jason Main, Jason South, and End Zone.

The regression calculations use the sum of Zn, Pb, Fe, and Ba versus measured density as they had the lowest mean squared error compared to measured density values. Outliers were removed from the data to prevent skewed results. At Jason Main, the regression equation was split to capture multiple populations. Sulphur aids the regressions significantly, however, it was not well sampled historically and as such was not used in the regression calculation.

A basement for regressed values was applied at 2.60 g/cm³ for all intervals.

An example scatterplot for Jason Main that was used to calculate the regression equation is shown in [Figure 14-37](#page-225-0) and the regression equations per domain are outlined in [Table 14-50.](#page-226-0)

For the final density variables in Jason, measured values were prioritized, followed by regressed values [\(Table 14-50\)](#page-226-0). The values reported in [Table 14-51](#page-226-1) were used for all remaining intervals that did not have the required assays to calculate a regressed value.

In total, 362 density values were regressed and 46 density values were assigned mean values within the mineralized domains at Jason and End Zone.

The regressed density values were validated against measured density by performing random checks using low-, medium-, and high-grade samples to ensure the regressed formulas were calculating density appropriately.

Zn+Pb+Fe+Ba vs Bulk Density, Jason Main 5 4.5 \sim \sim 0.02 80 $\overline{4}$ 3.5 Bulk Density (g/cm³) $y = 0.0401x + 2.0535$ 3 R^2 = 0.6737 2.5 $y = 0.0142x + 2.5919$ $\overline{2}$ $R^2 = 0.2209$ 1.5 $\mathbf{1}$ 0.5 $\mathbf{0}$ 20 70 $\mathbf 0$ 10 30 40 50 60 Zn+Pb+Fe+Ba(%)

Figure 14-37: Example Scatterplot of Zn + Pb + Fe + Ba Compared to Density Within the Jason Main Mineralization

Table 14-50: Jason and End Zone Density Regression Equations

Table 14-51: Jason and End Zone Mean Measured Density Values

14.4.5 Germanium and Gallium

A total of 297 germanium and 339 gallium samples were collected within the mineralized domains at the Jason and End Zone deposits where germanium values range from 0.5 g/t to 92 g/t and gallium values range from 0.5 g/t to 28 g/t. Due to this limited assay coverage for germanium and gallium, regressions with zinc or zinc and aluminum (where possible) were used where no gallium or germanium assay data was available. Multiple regression calculations were analyzed by combined and by individual domains. The regressions for germanium compare against zinc only whereas the regressions for gallium compare against the sum of zinc and aluminum.

An example germanium scatterplot for Jason Main used to calculate the regression equation is shown in [Figure 14-38.](#page-227-0) The regression equations per domain for both germanium and gallium are outlined in [Table 14-52.](#page-227-1) [Table 14-53](#page-228-0) and [Table 14-54](#page-228-1) show the assay statistics of the regressed germanium and gallium values, respectively, for each domain at the Jason and End Zone deposits.

The regressed germanium and gallium values were validated against measured germanium and gallium by performing random checks using low-, medium-, and high-grade samples to ensure the regressed formulas were calculating germanium and gallium appropriately.

For the final germanium and gallium variables used to create composites for Jason and End Zone, measured values [\(Table 14-42](#page-222-0) and [Table 14-43\)](#page-222-1) were prioritized, followed by regressed values. The values reported in [Table 14-53](#page-228-0) and [Table 14-54](#page-228-1) provide the regressed assay statistics for germanium and gallium, respectively, excluding measured values.

Figure 14-38: Scatterplot of Zinc Compared to Germanium Within the Jason Main Domain

Table 14-52: Jason and End Zone Germanium and Gallium Regression Equations

Area	Element	Domains	Regression Equation	R-squared Value
Jason	Ge	JSMZ	$y = 1.144x$	0.6268
		JSLL, JSLL2	$y = 1.131x$	0.6252
	Ga	JSMZ	$y = 0.533x$	0.5507
		JSLL, JSLL2	$y = 0.585$	0.5574
End Zone	Ge	EZLL, EZUL, EZML	$y = 1.048x$	0.656
	Ga	EZLL, EZUL, EZML	$y = 1.161x$	0.6974

Table 14-53: Jason and End Zone, Regressed Germanium Assay Statistics

14.4.6 Compositing

The dominant sampling length for Jason and End zones is also bimodal, with most samples at one metre and 1.53 m [\(Figure 14-39\)](#page-229-0). The compositing approach was to use the smallest composite possible that also split less than 5% of the samples. When a composite length of two metres is selected, 55 of 1,725 samples (3.19 %) are split; when a composite length of 1.53 m is selected, then 208 of the 1,725 samples (12.06%) are split. The capped assay samples at Jason and End zones were therefore composited to two metres, supported by a multiple of one of the dominant sampling lengths, and broken at domain boundaries. Any composites that were less than 0.5 m in length were added to the previous interval. Zn, Pb, Ag, and Ba composites were density weighted.

Raw interval length statistics versus composite length statistics by area are presented in [Table 14-55.](#page-230-0) The statistical values indicate that there is a less than 1% difference between the total raw interval lengths versus the composited lengths for each area. [Table 14-56](#page-230-1) to Table 14-62 present the capped composite statistics in Jason by individual domain for zinc, lead, silver, barium, germanium, and gallium, respectively. [Table 14-62](#page-234-0) through Table 14-67 present the capped composite statistics in End Zone by individual domain for zinc, lead, silver, barium, germanium, and gallium, respectively.

Area	Total Raw Assay Length (m)	Total Composite Length (m)	% Difference
Jason Main	766	766	0.0
Jason South	921	928	0.7
End Zone	148	18	0.0

Table 14-56: Jason Two Metre Zinc Composite Statistics

Table 14-57: Jason Two Metre Lead Composite Statistics

Area	Domain	Count	Length (m)	Mean Grade Ag (g/t)	c _V	Min (g/t)	Q ₁ (g/t)	Median (g/t)	Q ₃ (g/t)	Max (g/t)
Jason Main	JSMZ	395	766.6	1.22	1.16	0.25	0.25	0.74	1.60	10.00
Jason South	JSUL_LG	133	249.0	12.55	1.43	0.25	1.89	6.42	16.24	99.79
	JSUL_HG	57	109.8	186.73	0.72	4.36	71.68	145.40	280.47	500.00
	JSUL HG2	3	6.3	155.15	0.96	45.77	45.77	110.21	328.00	328.00
	JSUL HG3	13	24.2	101.23	0.78	13.42	36.03	62.48	169.10	219.95
	JSUL FW	9	15.4	5.69	1.23	0.25	0.25	0.25	11.18	19.00
	JSLL_LG	202	388.0	8.20	0.99	0.25	2.65	5.81	10.51	40.00
	JSLL HG	29	54.9	70.51	0.88	22.20	27.30	37.85	108.21	226.91
	JSLL HG2	18	35.9	69.18	0.57	13.48	37.34	66.22	99.16	143.61

Table 14-58: Jason Two Metre Silver Composite Statistics

Table 14-59: Jason Two Metre Barium Composite Statistics

Area	Domain	Count	Length (m)	Mean Grade Ba $(\%)$	CV	Min $(\%)$	Q1 $(\%)$	Median $(\%)$	Q ₃ $(\%)$	Max (%)
Jason Main	373	724.9	10.36	ا 70.،	0.00	0.04	0.32	9.12	53.50	373
Jason South	196	382.9	13.45	0.99	0.01	1.34	9.99	24.10	49.05	196
	238	465.4	15.43	0.92	0.02	0.32	12.19	28.99	45.63	238
	22	44.6	12.62	0.99	0.10	1.08	9.19	27.21	35.52	221

Table 14-60: Jason Two Metre Germanium Composite Statistics

Table 14-61: Jason Two Metre Gallium Composite Statistics

Area	Domain	Count	Length (m)	Mean Grade Ga (g/t)	CV	Min (g/t)	Q1 (g/t)	Median (g/t)	Q ₃ (g/t)	Max (g/t)
Jason Main	JSMZ	396	769	3.72	0.81	0.01	1.51	2.79	5.23	17.23
Jason South	JSUL	199	389	3.12	1.11	0.00	1.10	2.17	4.14	26.65
	JSUL FW	9	15	0.18	1.25	0.01	0.07	0.10	0.28	0.68
	JSLL	245	479	1.09	0.74	0.01	0.45	1.04	1.60	4.66
	JSLL2	22	45	8.72	0.47	3.02	4.70	8.44	12.07	15.25

Area	Domain	Count	Length (m)	Mean Grade Zn $(%)$	CV	Min (%)	Q ₁ (%)	Median $(\%)$	Q ₃ (%)	Max (%)
End Zone EZUL		14	26.5	1.13	1.28	0.06	0.09	0.59	1.86	4.34
	EZML	17	31.5	0.19	1.45	0.00	0.01	0.08	0.30	0.95
	EZLL	49	90.1	2.53	0.92	0.01	0.17	2.01	4.34	7.34

Table 14-62: End Zone Two Metre Zinc Composite Statistics

Table 14-63: End Zone Two Metre Lead Composite Statistics

Area	Domain	Count	Length (m)	Mean Grade Pb (%)	CV	Min $(\%)$	Q1 $(\%)$	Median (%)	Q ₃ (%)	Max $(\%)$
End	EZUL	14	26.5	0.01	0.67	0.01	0.01	0.01	0.01	0.02
Zone	EZML	17	31.5	0.19	2.11	0.00	0.03	0.06	0.08	.55
	EZLL	49	90.1	8.57	0.80	0.02	2.55	8.31	12.87	25.77

Table 14-64: End Zone Two Metre Silver Composite Statistics

Table 14-65: End Zone Two Metre Barium Composite Statistics

Table 14-66: End Zone Two Metre Germanium Composite Statistics

Area	Domain	Count	Length (m)	Mean Grade Ge (g/t)	CV	Min (g/t)	Q ₁ (g/t)	Median (g/t)	Q ₃ (g/t)	Max (g/t)
End Zone EZUL		14	26	1.85	1.66	0.06	0.09	0.34	3.49	10.76
	EZML	17	32	0.39	1.60	0.00	0.01	0.08	0.88	2.00 ₁
	EZLL	49	90 ₁	3.18	0.92	0.01	0.39	2.48	5.35	11.11

Table 14-67: End Zone Two Metre Gallium Composite Statistics

14.4.7 Trend Analysis

14.4.7.1 Variography

SLR prepared variograms for Zn, Pb, and Ag across selected domains at Jason. Jason Main was selected as it represented the best supported mineralization based on drill hole spacing and continuity. Examples of the modelled variograms for Jason Main are shown in [Figure 14-40.](#page-237-0) Jason South and End Zone did not produce robust variograms.

All variables were estimated using ID², and as such, variogram ranges and anisotropy were not applied during estimation as they would be applied for other estimation methods such as ordinary kriging. Variogram ranges were used to provide a guide for search ellipse dimensions and ranges. Variogram ranges were also considered as one of the resource classification criteria.

[Table 14-68](#page-238-0) summarizes the variograms for Jason Main.

Figure 14-40: Modelled Variogram for Zinc in the Jason Main Domain

Table 14-68: Jason Main Zinc, Lead, and Silver Variograms

14.4.7.2 Grade Contouring

Grade contouring within each domain was carried out in Jason and End Zone. This allowed customization of the directional anisotropy of the mineralization on a per domain basis. Averaged trends between the different elements and density were used to assign a single trend across all variables to prevent contrasting anisotropies being applied to density.

The outputs of the grade contouring were used to aid initial variogram and search ellipse orientations and to help validate the block model.

14.4.8 Search Strategy and Grade Interpolation Parameters

Grades and density were estimated into parent blocks using a multi-pass $ID²$ approach and composite selection plans as outlined in [Table 14-69](#page-239-0) and [Table 14-70](#page-239-1) for Jason and End Zone. Search ellipses for grade and density interpolation were oriented using dynamic anisotropy with the longest axis parallel to the mineralization.

The same search strategy and interpolation parameters were applied for Zn, Pb, Ag, Ba and density. Germanium used the same search strategy and interpolation parameters as zinc due to the strong correlation observed between these two elements. SLR applied a similar search strategy for gallium but used an isotropic search ellipse due to the poor correlation observed between gallium and zinc.

Post-estimation calculations were used to determine the final grades for all elements: Zn, Pb, Ag, Ba, Ge, and Ga.

High-grade outlier restrictions were applied when over-extrapolation was observed at the block model validation stage. The high-grade outlier restriction clamps composites to an assigned value when they are found beyond the first pass search distance and are to be used in the estimate. These restrictions are described in [Table 14-71](#page-239-2) for Jason.

Domain	Method	$1st$ Pass (m)			2 nd Pass (m)			3 rd Pass (m)			$4th$ Pass (m)		
		x-axis y-axis z-axis x-axis y-axis z-axis x-axis y-axis z-axis x-axis y-axis z-axis											
All	ID ²	60	60	15	120	120	30	240	240	60	480	480	120

Table 14-69: Jason and End Zone Search Strategy Parameters

14.4.9 Block Models

Separate block models were created for Jason and End Zone. Block model construction and estimation were completed using Leapfrog Edge 2023.2 software and the dimensions are presented in [Table 14-72](#page-240-0) for Jason and [Table 14-73](#page-240-1) for End Zone.

SLR regularized each block model to a 5 m x 5 m x 5 m block size for pit optimization and mining sensitivity analysis. For final open pit resource reporting for Jason and End Zone, the sub-blocked versions of each model were used. The SLR QP considers the sub-blocked models more appropriate for reporting due to the deposit type and style of mineralization.

Table 14-72: Jason Block Model

Table 14-73: End Zone Block Model

14.4.10 Classification

Definitions for resource categories used are consistent with those defined by CIM (2014) and adopted by NI 43-101. In the CIM classification, a Mineral Resource is defined as "a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction". Mineral Resources are classified into Measured, Indicated, and Inferred categories.

14.4.10.1 Jason Deposit

At Jason Main, Indicated and Inferred Mineral Resources have been defined where drill hole spacings of up to approximately 85 m (100% of variogram range) and 170 m (200% variogram range) were achieved, respectively. The areas were modified to consider geological and grade continuity, mineralization thickness (approximately two metres to 15 m for Indicated), and the creation of cohesive class boundaries. [Figure 14-41](#page-241-0) shows the Indicated and Inferred material at Jason Main.

Only Inferred Resources have been defined at Jason South, despite some areas where drill hole spacing is tighter than 85 m. Two main factors have prevented Indicated Resources from being defined at Jason South, including (i) the uncertain placement of the faults and resultant offset in the mineralized horizons, thereby reducing confidence in the interpretation, and (ii) the inability to model robust variograms. [Figure 14-42](#page-242-0) shows the Inferred material at Jason South.

Figure 14-41: Indicated and Inferred Material at Jason Main

Figure 14-42: Inferred Material at Jason South

14.4.10.2 End Zone Deposit

At End Zone, Indicated and Inferred Mineral Resources have been defined primarily by geological and grade continuity for the creation of cohesive class boundaries [\(Figure 14-43\)](#page-244-0). The drill spacing is approximately 45 m within the Indicated Material and 90 m within the Inferred Material.

Figure 14-43: Indicated and Inferred Material at End Zone

14.4.11 Block Model Validation

Blocks were validated using various techniques, including:

- Statistical comparison of assay, composite, and block statistics.
- Visual inspection of composite versus block grades.
- Wireframe to block model volume confirmation.
- Swath plots comparing ID^2 to NN values.

[Table 14-74](#page-245-0) and [Table 14-75](#page-253-0) summarize the assay, composite, and block comparisons for Jason and End Zone.

Evaluation of the accuracy of the estimate was also carried out by visually comparing the composites against the estimated block grades in plan and cross-sectional views. Examples are presented in [Figure 14-44,](#page-247-0) [Figure 14-45,](#page-248-0) and [Figure 14-46](#page-249-0) for Jason with example swath plots presented in [Figure 14-47,](#page-250-0) [Figure 14-48,](#page-251-0) and [Figure 14-49.](#page-252-0)

[Figure 14-50,](#page-254-0) [Figure 14-51,](#page-255-0) and [Figure 14-52](#page-256-0) present the composites against the estimated block grades for End Zone. Example swath plots for End Zone are shown in [Figure 14-53,](#page-257-0) [Figure 14-54,](#page-258-0) and [Figure 14-55.](#page-259-0)

Area	Domain	Capped Assay Count	Capped Assay Mean	Composite Assay Count	Composite Assay Mean	Parent Block Count	NN	ID ²
Zn %								
Jason Main	JSMZ	697	6.09	395	6.10	3,266,559	5.03	4.94
Jason South	JSUL	376	4.97	199	5.20	2,138,030	5.06	4.94
	JSUL_FW	13	0.29	9	0.30	347,877	0.26	0.25
	JSLL	454	1.85	245	1.86	2,701,722	2.03	2.01
	JSLL2	47	4.50	22	4.50	141,977	4.28	4.85
Pb %								
Jason Main	JSMZ	698	1.26	395	1.27	3,266,559	0.92	0.92
Jason South	JSUL LG	238	1.58	133	1.68	1,705,183	1.55	1.58
	JSUL HG1	109	11.33	57	11.63	245,142	12.62	12.07
	JSUL HG2	$\overline{7}$	11.16	3	11.47	62,397	12.44	12.04
	JSUL HG3	25	5.76	13	6.15	125,308	6.67	6.14
	JSUL FW	13	0.75	9	0.78	347.877	0.63	0.77
	JSLL LG	369	1.03	202	1.04	2,528,338	1.02	1.05
	JSLL_HG1	54	9.75	29	10.03	87,278	9.13	10.03
	JSLL HG2	31	9.74	18	10.04	86,106	10.30	11.05

Table 14-74: Jason Deposit Assay, Composite, and Block Comparisons

Figure 14-44: Jason Main Zinc Blocks Versus Composites

Figure 14-45: Jason South – JSUL – Lead Blocks Versus Composites

Figure 14-46: Jason South – JSUL and JSLL – Silver Blocks Versus Composites

Figure 14-47: Example Swath Plots for Zinc ID2 and Zinc NN, in Jason Main

Figure 14-48: Example Swath Plots for Lead ID2 and Lead NN, in Jason South - JSUL

Figure 14-49: Example Swath Plots for Silver ID2 and Silver NN, in Jason South - JSUL

Table 14-75: End Zone Assay, Composite, and Block Comparisons

Figure 14-50: End Zone Zinc Blocks Versus Composites

Figure 14-52: End Zone Silver Blocks Versus Composites

Figure 14-53: Example Swath Plots for Zinc ID2 and Zinc NN, in EZLL

Figure 14-55: Example Swath Plots for Silver ID2 and Silver NN, in EZLL

14.5 Boundary Zone Deposit

14.5.1 Geological Interpretation

Based on Fireweed's interpretation of the lithological logging, SLR constructed a 3D lithological model for the Boundary Zone deposit that was separated into four blocks by the Boundary Zone-Eastside, Ramp, and Horseshoe faults [\(Figure 14-56](#page-261-0) and [Figure 14-57\)](#page-262-0).

Figure 14-56: Plan View of the Lithological Model for Boundary Zone

A total of 15 lithological units were defined [\(Table 14-76\)](#page-263-0). In collaboration with Fireweed staff, SLR developed these units based on primary and secondary lithology logging codes. In several cases, Fireweed's multi-element analytical data was utilized to delineate marker units characterized by distinct geochemical signatures and lithological combinations, allowing correlation across drill holes. Key marker units include conglomerates, potassium-rich mudstones, as well as the Fuller Lake and Dolomitic Mudstone formations.

14.5.2 Estimation Domains

A total of 17 mineralization domains were constructed by SLR with input from Fireweed staff, using the same geological framework as the Boundary Zone lithological model [\(Figure 14-58,](#page-265-0) [Figure 14-59\)](#page-266-0). These domains (also used as estimation domains) were divided into four blocks by the Eastside, Ramp, and Horseshoe faults [\(Figure 14-58\)](#page-265-0). The estimation domains encompass all three styles of mineralization identified at Boundary Zone: (i) massive sulphide and laminated mineralization, (ii) vein-style mineralization, and (iii) halo-style mineralization.

The massive sulphide and laminated mineralization are represented by three key domains: Boundary Zone Fuller Lake (BZFL), Boundary Zone Upper Zone (BZUZ), and Boundary Zone Prime Zone (BZPZ). These mineralization styles are visually distinct and relatively easy to identify during core logging. BZFL exhibits near-surface stratiform to semi-massive sulphide mineralization within the hanging wall of the Boundary Eastside Fault [\(Figure 14-58\)](#page-265-0). The BZUZ, located along the intersection of the three modeled faults contains laminated sphalerite, galena, and pyrite. The BZPZ is the thickest and most continuous of the three domains, with varying proportions of pyrite, sphalerite, and galena, increasing in sphalerite and galena concentrations near a feeder structure. It is offset by the Ramp and Horseshoe faults and truncated by the Eastside Fault in the northeast [\(Figure 14-58\)](#page-265-0).

The vein-style mineralization is divided into 13 domains. There are nine vein-type domains in the hanging wall of the Eastside Fault (upper sequence) and four vein-type domains in the footwall (lower sequence). This style of mineralization is characterized by multiple generations of sphalerite-pyrite-siderite-quartz-galena veins, which generally follow the strike and dip of the stratigraphic units in which they occur. The size of these vein-type domains ranges from 150 m to 900 m in strike length, 150 m to 600 m in down-dip projection, and one metre to 30 m across strike.

Efforts were made to ensure a minimum domain thickness within the domains defining the massive sulphide, laminated, and vein-style mineralization to maintain robust domain modelling for resource estimation.

SLR constructed a Halo domain, which surrounds the most densely mineralized vein-style domains and massive sulphide mineralization, with the core of this domain located just southeast of the intersection of the Eastside, Ramp, and Horseshoe faults. This structural intersection likely plays a critical role in focusing mineralizing fluids, resulting in the higher concentration of both vein and massive sulphide mineralization in this area. The Halo Domain is designed to capture lower grade (0.50% to 1.00% ZnEq, averaging 0.75%) disseminated mineralization and veinlets that occur between the higher grade vein and massive sulphide zones. In some cases, the Halo Domain is also used to account for isolated mineralized drill hole intercepts where there are few nearby holes for correlation. In these instances, the domain serves as a volumetric control to prevent grade smearing during estimation. These areas also represent significant exploration targets, as they remain open along strike and down dip. In addition, grades were estimated in a 150 m buffer around the mineralized domains to populate the block model.

Figure 14-58: Oblique View of the Mineralized Domains of Boundary Zone

Figure 14-59: Cross Section Showing the Mineralized Domains

14.5.3 Assay Statistics and Capping

The Zn, Pb, and Ag assays cover most of the drill holes completely; exceptions are historical holes (1980s, 1990s) with selective sampling and lost core. Missing Zn, Pb, and Ag assays were set to half of the detection limit (Zn, Pb: 0.005%, Ag: 0.25 g/t). Missing Ba assays were ignored; missing Ga and Ge assays were treated as detailed in Section 14.5.5. A small number of unsampled intervals were ignored for compositing, including segments with core loss, unsampled portions of wedge holes, and unsampled abandoned holes.

Appropriate high outlier capping levels for the Boundary Zone deposit were determined for each domain via analysis of assay population histograms, log probability plots, coefficient of variation (CV), and visual inspection of outliers in 3D [\(Table 14-77\)](#page-267-0). Statistics for the original and capped assays by domain are compiled in [Table 14-78](#page-268-0) to [Table 14-83](#page-273-0)

[Table 14-83.](#page-272-0) Capping was performed prior to compositing.

Domain	Capping Level								
	Zn $(\%)$	Pb $(\%)$	Ag (g/t)	Ba (%)	Ga (g/t)	Ge (g/t)			
BZFL	\blacksquare	5	45	۰	30	25			
BZPZ	40	\blacksquare	265	÷,	55	105			
BZUZ	40	10	155	-	$\overline{}$	40			
Min01	$\qquad \qquad \blacksquare$	10	85	۰	30	35			
Min02	45	$\sqrt{5}$	80	-	30	65			
Min03	35	$\overline{}$	70	5	30	35			
Min04	30	$\overline{}$	55	1	25	30			
Min05	\blacksquare	\blacksquare	$\qquad \qquad \blacksquare$	1	\blacksquare	25			
Min06	$\qquad \qquad \blacksquare$	10	115	۰	25	30			
Min07	$\overline{}$	$\overline{}$	60	-	25	30			
Min08	-	$\overline{}$	30	-	20	25			
Min09	\blacksquare	\blacksquare	$\frac{1}{2}$	٠	\blacksquare	$\qquad \qquad \blacksquare$			
Min10	-	10	60	5	25	30			
Min11	40	$\overline{}$	75	-	25	60			
Min12	15	$\overline{}$	40	-	$\qquad \qquad \blacksquare$	$\frac{1}{2}$			
Min13	\blacksquare	\blacksquare	$\qquad \qquad \blacksquare$	۰	\blacksquare	\overline{a}			
Halo	15	10	40	15	25	30			
Buffer	15	$\overline{2}$	30		30	30			

Table 14-77: Capping Levels for Boundary Zone

Table 14-78: Boundary Zone, Uncapped and Capped Zinc Assay Statistics

Domain	Count	Cap $(% \mathbf{A})$ (% Pb)	Number Capped	Mean $(% \mathbf{A})$ (% Pb)	Capped Mean $(% \mathbf{A})$ (% Pb)	Max. $(% \mathbf{A})$ (% Pb)	Capped Max. (% Pb)	CV	Capped CV	Metal Loss
BZFL	84	5	$\mathbf 1$	0.30	0.26	10.24	5.00	3.38	2.55	$-13.3%$
BZPZ	2,174	\blacksquare	$\mathbf 0$	1.10	1.10	21.42	21.42	1.84	1.84	0.0%
BZUZ	259	10	4	1.19	1.17	12.86	10.00	1.64	1.59	$-1.4%$
Min01	534	10	6	0.39	0.35	16.73	10.00	3.93	3.38	$-9.8%$
Min ₀₂	883	5	4	0.11	0.10	11.40	5.00	5.28	4.63	$-7.7%$
Min ₀₃	598	\blacksquare	0	0.04	0.04	3.09	3.09	4.15	4.15	0.0%
Min04	447	\blacksquare	$\mathbf 0$	0.05	0.05	3.53	3.53	3.92	3.92	0.0%
Min05	324	\blacksquare	$\mathbf 0$	0.04	0.04	2.41	2.41	4.39	4.39	0.0%
Min06	433	10	5	0.82	0.77	20.16	10.00	2.42	2.10	$-5.8%$
Min07	284	\blacksquare	$\mathbf 0$	0.19	0.19	5.44	5.44	2.70	2.70	0.0%
Min08	239	\blacksquare	$\mathbf 0$	0.03	0.03	0.22	0.22	0.95	0.95	0.0%
Min09	26	Ξ.	$\mathbf 0$	0.05	0.05	0.12	0.12	0.51	0.51	0.0%
Min10	453	10	$\mathbf 1$	0.31	0.30	15.49	10.00	3.07	2.82	$-2.2%$
Min11	429	\blacksquare	0	0.07	0.07	4.09	4.09	4.54	4.54	0.0%
Min12	82	\blacksquare	Ω	0.09	0.09	2.04	2.04	3.55	3.55	0.0%
Min13	29	Ξ.	$\mathbf 0$	0.04	0.04	0.09	0.09	0.61	0.61	0.0%
Halo	3,598	10	1	0.06	0.06	17.61	2.00	4.01	2.70	$-5.4%$

Table 14-79: Boundary Zone, Uncapped and Capped Lead Assay Statistics

Table 14-80: Boundary Zone, Uncapped and Capped Silver Assay Statistics

Table 14-81: Boundary Zone, Uncapped and Capped Barium Assay Statistics

Table 14-82: Boundary Zone, Uncapped and Capped Germanium Assay Statistics

Table 14-83: Boundary Zone, Uncapped and Capped Gallium Assay Statistics

14.5.4 Density

The drill hole database for Boundary Zone provides comprehensive spatial coverage of measured density values, with more recent drilling (from 2019) contributing the majority of the data. In contrast, many of the historical drillholes (1983-1991) at Boundary Zone lack measured density values.

To address gaps in the dataset, Fireweed developed a regression formula to estimate bulk density for unmeasured samples. This formula was based on a correlation between bulk density and assay data from zinc, lead, barium, iron, and copper concentrations in samples collected between 2019 and 2023. The following regression equation was derived from this analysis:

*Bulk Density = 0.0342 * (Fe + Zn + Pb + Ba + Cu) + 2.54*

The SLR QP reviewed the regression methodology and determined that the regressed values were appropriate for use in supporting the Mineral Resource estimate.

A total of 10,794 density measurements were collected at Boundary Zone within the mineralized domains with densities ranging from 1.67 g/cm 3 to 6.92 g/cm 3 . A total of 10,513 density measurements were collected at Boundary Zone within the lithological domains (exclusive of mineralized domains and overburden) with densities ranging from 1.65 g/cm 3 to 6.31 g/cm 3 .

In total, approximately 92% of the density values within the geological and mineralization domain wireframes were measured. For any instances where measured or regressed density values were unavailable because samples were unassayed, a default value of 2.89 t/m³, representing the global mean for unmineralized rock, was assigned. Density was interpolated within each mineralized domain using an $ID²$ method, with the same search parameters applied as for grade interpolation. For wall rock, density was interpolated using the same method and search parameters, with missing values assigned the mean density for each lithology. The density of the overburden was set to 1.80 t/m 3 . The mean measured density values for the estimation domains and lithology domains are presented in [Table 14-84](#page-274-0) and [Table 14-85,](#page-275-0) respectively.

Table 14-84: Boundary Zone Estimation Domains Mean Measured Density Values

As new drilling data become available and additional density measurements are incorporated into the Boundary Zone dataset, the SLR QP recommends periodically reviewing the regression formula for potential improvements to enhance the accuracy of local density estimates.

14.5.5 Germanium and Gallium

For gallium and germanium, the assay data are incomplete. Based on correlation analyses for the mineralized domains, trace amounts of gallium may substitute for zinc in the sphalerite structure, and for aluminum in various aluminosilicate minerals. Germanium is mainly hosted as a trace element in sphalerite. In order to allow grade interpolation of the same volumes as for zinc, lead, and barium, prior to capping and compositing, missing values were calculated for the three mineralization styles (massive sulfide, vein, disseminated) based on regressions of gallium and germanium with zinc plus aluminum and zinc, respectively.

An example germanium scatterplot for Boundary Zone used to calculate the regression equation for the massive sulphide domain mineralization type is shown in [Figure 14-60.](#page-276-0) The regression equations per mineralization type for both germanium and gallium are outlined in [Table 14-86.](#page-276-1) [Table 14-87](#page-277-0) and Table 14-88 show the assay statistics of the regressed germanium and gallium values, respectively, for each domain at the Boundary Zone deposit.

For the final germanium and gallium variables used to create composites for the Boundary Zone deposit, measured values [\(Table 14-82](#page-272-1) and [Table 14-83\)](#page-273-0) were prioritized, followed by regressed values. The values reported in [Table 14-87](#page-277-0) and Table 14-88 provide the assay statistics for regressed germanium and gallium, respectively, excluding measured values.

Figure 14-60: Scatterplot of Zinc Compared to Germanium Within Boundary Zone

Table 14-86: Boundary Zone Germanium and Gallium Regression Equations

Mineralization Type	Element	Domain	Regression Equation	R-squared Value
Boundary	Ge	Massive Sulphide	$y = 2.584x$	0.8466
		$y = 0.0232x^2 + 2.3762x$ Vein		0.7393
		Disseminated	$y = 0.0004x^{3} + 0.0042x^{2} +$ 2.0974x	0.7169
	Ga	Massive Sulphide $y = 0.967x$		0.7733
		Vein	$y = 0.0009x^{3} + 0.0775x^{2} +$ 2.0187x	0.5177
		Disseminated	$y = 2.312x$	0.899

Table 14-88: Table Boundary Zone Regressed Gallium Assay Statistics by Mineralization Type

14.5.6 Compositing

The most common sample lengths in the mineralized domains are one metre (32%) and 1.5 m (22%) [\(Figure 14-61\)](#page-278-0). A composite length of 1.5 m was chosen, allowing automatic adjustments to length to avoid short intervals at the end of compositing intervals. The composite lengths are thus variable, but approximate 1.5 m. The composites were weighted by length and density. The composites were created within the entire mineralized domains (across fault blocks) to allow the use of soft boundaries in some cases and for the entire intercept length for each domain. Statistics for the composites by element and domain are provided in [Table 14-89](#page-279-0) to [Table 14-94.](#page-284-0) The composites were validated globally against the length-weighted means and the total length of the capped assays for each domain.

[Table 14-95](#page-285-0) shows the difference in length between composites and capped assays.

Figure 14-61: Histogram of the Assay Interval Lengths Within the Mineralization Domains for Boundary Zone

Table 14-89: Boundary Zone Zinc Composite Statistics

Domain	Count	Length (m)	Mean (%)	c_{V} $(\%)$	Min $(\%)$	Q ₁ $(\%)$	Median (%)	Q ₃ (%)	Max $(\%)$
BZFL	63	94.80	0.26	2.05	0.02	0.04	0.06	0.11	3.15
BZPZ	1,471	2,195.10	1.11	1.70	0.01	0.14	0.43	1.22	18.09
BZUZ	183	275.68	1.20	1.43	0.02	0.22	0.58	1.36	10.00
Min01	399	596.97	0.36	2.80	0.01	0.04	0.08	0.19	8.88
Min02	717	1,070.35	0.10	4.22	0.00	0.01	0.01	0.05	4.95
Min03	456	682.58	0.04	3.91	0.00	0.01	0.02	0.03	3.09
Min04	377	563.84	0.05	3.20	0.00	0.01	0.01	0.02	1.76
Min05	260	384.10	0.04	4.35	0.00	0.01	0.02	0.03	2.41
Min06	329	496.12	0.79	1.89	0.01	0.06	0.14	0.78	8.50
Min07	215	321.57	0.19	2.31	0.01	0.03	0.06	0.15	3.73
Min08	185	281.43	0.03	0.90	0.01	0.01	0.02	0.04	0.19
Min09	23	34.19	0.05	0.50	0.01	0.03	0.04	0.06	0.12
Min10	356	533.30	0.30	2.55	0.01	0.05	0.08	0.22	9.70
Min11	328	492.28	0.07	4.03	0.00	0.01	0.01	0.03	3.27
Min12	70	103.45	0.09	3.10	0.00	0.01	0.01	0.04	2.04
Min13	26	38.45	0.04	0.60	0.01	0.02	0.03	0.05	0.07
Halo	3,105	4,659.25	0.06	2.47	0.00	0.01	0.02	0.05	2.00

Table 14-90: Boundary Zone Lead Composite Statistics

Domain	Count	Length (m)	Mean (g/t)	CV (g/t)	Min (g/t)	Q ₁ (g/t)	Median (g/t)	Q ₃ (g/t)	Max (g/t)
BZFL	63	94.80	12.2	0.7	1.9	5.5	10.4	16.3	33.5
BZPZ	1,471	2,195.10	41.2	1.0	0.9	12.4	26.5	54.1	265.0
BZUZ	183	275.68	37.5	0.9	2.2	12.7	28.0	44.7	155.0
Min01	399	596.97	11.1	1.1	0.3	4.3	7.3	12.4	85.0
Min02	717	1,070.35	9.9	1.4	0.3	2.2	4.7	10.5	80.0
Min03	456	682.58	8.2	1.0	0.2	2.8	5.7	10.5	60.9
Min04	377	563.84	6.1	1.2	0.2	2.0	3.6	6.6	55.0
Min05	260	384.10	5.9	1.0	0.3	2.6	3.9	6.7	37.7
Min06	329	496.12	16.8	1.2	1.5	5.3	8.8	18.0	104.1
Min07	215	321.57	7.5	1.0	0.9	3.2	5.5	8.7	50.3
Min08	185	281.43	6.0	0.7	0.3	3.1	5.1	8.0	21.5
Min09	23	34.19	6.1	0.4	2.0	4.2	5.8	7.7	11.5
Min10	356	533.30	9.8	0.8	1.0	5.0	7.1	11.7	60.0
Min11	328	492.28	9.4	1.4	0.3	1.8	3.7	9.8	75.0
Min12	70	103.45	5.9	1.2	0.3	1.6	3.5	6.5	35.7
Min13	26	38.45	6.7	0.5	1.7	3.7	5.9	9.3	12.5
Halo	3,105	4,659.25	3.5	1.1	0.2	1.2	2.2	4.2	39.7

Table 14-91: Boundary Zone Silver Composite Statistics

Table 14-92: Boundary Zone Barium Composite Statistics

Table 14-93: Boundary Zone Gallium Composite Statistics

Table 14-94: Boundary Zone Germanium Composite Statistics

Domain	Length difference (m)									
	Zn	Pb	Ag	Ba	Ga	Ge				
BZFL	0.0	0.0	0.0	0.0	0.0	0.0				
BZPZ	0.0	0.0	0.0	0.0	0.0	0.0				
BZUZ	0.0	0.0	0.0	0.0	0.0	0.0				
Min01	0.0	0.0	0.0	1.5	0.0	0.0				
Min ₀₂	0.0	0.0	0.0	5.0	0.0	0.0				
Min03	0.3	0.3	0.3	0.6	0.0	0.0				
Min04	0.6	0.6	0.6	2.0	0.0	0.0				
Min05	0.0	0.0	0.0	1.6	0.0	0.0				
Min06	0.0	0.0	0.0	2.6	0.0	0.0				
Min07	0.0	0.0	0.0	0.7	0.0	0.0				
Min08	1.0	1.0	1.0	1.0	0.0	0.0				
Min09	0.0	0.0	0.0	1.3	0.0	0.0				
Min10	0.0	0.0	0.0	0.0	0.0	0.0				
Min11	0.0	0.0	0.0	1.4	0.0	0.0				
Min12	0.0	0.0	0.0	0.0	0.0	0.0				
Min13	0.0	0.0	0.0	0.0	0.0	0.0				
Halo	0.0	0.0	0.0	10.7	0.0	0.0				

Table 14-95: Boundary Zone Length Difference Between Composites and Capped Assays

14.5.7 Trend Analysis

14.5.7.1 Variography

Variography was performed by domain for each element to inform the dimensions and directions of the anisotropic search ellipses used in the ID2 interpolations. Examples for modelled variograms and the corresponding composite data are presented in [Figure 14-62](#page-286-0) to [Figure 14-65.](#page-287-0)

Figure 14-62: Zinc Downhole Semi-Variogram for the BZPZ Domain

Figure 14-63: Zinc Major Direction Semi-Variogram for the BZPZ Domain

Figure 14-64: Zinc Semi-Major Direction Semi-Variogram for the BZPZ Domain

Figure 14-65: Zinc Minor Direction Semi-Variogram for the BZPZ Domain

14.5.7.2 Grade Contouring

Grade contouring within each domain was carried out for the Boundary Zone. This allowed customization of the directional anisotropy of the mineralization for each domain. The outputs of the grade contouring were used to aid initial variogram and search ellipse orientations and to help validate the block model.

14.5.8 Search Strategy and Grade Interpolation Parameters

Grades were interpolated on parent blocks using $ID²$ and variable anisotropy based on the domain wireframes within each mineralized domain in three passes. Where smaller offsets between fault blocks were observed, a 50 m soft boundary across fault blocks was used. The wall rock grades were interpolated within a 150 m buffer around the mineralized domains with a variable anisotropy grid guided by the stratigraphic surfaces.

The search ellipse dimensions are provided in [Table 14-96](#page-289-0) and the number of composites used for interpolation in each pass are listed in [Table 14-97.](#page-289-1) The maximum number of composites per drill hole was set to four.

Spatial outlier restrictions were applied in Passes 2 and 3 for the halo and buffer domains as follows:

- Halo
	- \circ Pass 2: Apply cap levels for samples $> 2/3$ of the search distance (Zn: 10%, Pb: 5%, Ag: 25 g/t)
	- \circ Pass 3: Apply cap levels for samples $> 1/4$ of the search distance (Zn: 10%, Pb: 5%, Ag: 25 g/t)
- **Buffer**
	- \circ Pass 2: Apply cap levels for samples $> 2/3$ of the search distance (Zn: 5%, Ag: 12.5 g/t)
	- \circ Pass 3: Apply cap levels for samples $> 1/4$ of the search distance (Zn: 5%, Ag: 12.5 g/t)

Domain	Fault	Search Ellipse Dimensions (m)								Soft	
Block(s)		Pass 1			Pass ₂			Pass 3			boundary across fault
		Major	Semi- major	Minor	Major	Semi- major	Minor	Major	Semi- major	Minor	blocks
BZFL	1	40	40	10	60	60	15	160	160	40	$\overline{}$
BZPZ	2, 3, 4	65	40	10	100	60	15	255	160	40	Υ
BZUZ	1, 2, 3, 4	40	40	10	60	60	15	160	160	40	${\sf N}$
Min01	2, 3, 4	40	40	10	60	60	15	160	160	40	Y
Min ₀₂	1	40	40	10	60	60	15	160	160	40	$\qquad \qquad \blacksquare$
Min03	1	40	40	10	60	60	15	160	160	40	$\qquad \qquad \blacksquare$
Min04	1	40	40	10	60	60	15	160	160	40	$\overline{}$
Min05	1	40	40	10	60	60	15	160	160	40	\blacksquare
Min06	2, 4	40	40	10	60	60	15	160	160	40	Y
Min07	2, 4	40	40	10	60	60	15	160	160	40	${\sf N}$
Min08	1	40	40	10	60	60	15	160	160	40	$\qquad \qquad \blacksquare$
Min09	1	40	40	10	60	60	15	160	160	40	\blacksquare
Min10	2, 3, 4	40	40	10	60	60	15	160	160	40	Y
Min11	$\mathbf{1}$	40	40	10	60	60	15	160	160	40	$\qquad \qquad \blacksquare$
Min12	1	40	40	10	60	60	15	160	160	40	\overline{a}
Min13		40	40	10	60	60	15	160	160	40	$\overline{}$
Halo		40	40	10	60	60	15	200	200	50	

Table 14-96: Search Ellipse Dimensions

Table 14-97: Number of Composites Used in Interpolation

14.5.9 Block Models

A single block model was created for the Boundary Zone estimate. Block model construction and estimation were completed using Leapfrog Edge 2023.2 software and the dimensions are presented in [Table 14-98.](#page-290-0)

For Boundary Zone, the block models all have parent block sizes of 5 m x 5 m x 5 m and are not rotated. The models are each sub-blocked at wireframe contacts including mineralization, overburden, topography, and classification wireframes. The SLR QP considers the block model sizes to be appropriate for the deposit geometry and proposed mining methods.

SLR regularized each block model to a 5 m x 5 m x 5 m block size for pit optimization and mining sensitivity analysis. For final open pit resource reporting for Boundary Zone, the regularized version of the model was used. The SLR QP considers the regularized model more appropriate for open pit reporting due to the deposit type and style of mineralization. For final underground reporting the sub-blocked model was used.

Table 14-98: Boundary Zone Block Model

The block model was set up with a parent block size of five metres, allowing sub-blocking to one metre along the contacts of the lithological and mineralized domain wireframes. No rotation was applied. The block model parameters are provided in [Table 14-99.](#page-290-1)

Table 14-99: Block Model Parameters

14.5.10 Classification

Blocks were assigned confidence classifications using manually digitized shapes for each mineralized domain that were based on drill hole spacing criteria. The drill hole spacing criteria were based on inspection of geological, thickness and grade continuity, as well as geostatistical analysis. For the BZPZ and BZFL domains, Indicated and Inferred Mineral Resources have been defined where drill hole spacings of up to approximately 70 m and 140 m were achieved, respectively. For the BZUZ and the remaining vein style domains, Indicated and Inferred Mineral Resources have been defined where drill hole spacings of up to approximately 60 m and 120 m were achieved, respectively. The drill hole spacing of 120 m was applied to the entire Halo domain.

14.5.11 Block Model Validation

The validation of the block model included a volume check [\(Table 14-100\)](#page-294-0), visual inspection of the interpolated grades in comparison to the composites [\(Figure 14-66](#page-292-0) and [Figure 14-67\)](#page-293-0), comparison of global means of composite and declustered composites versus block grades by domain [\(Table 14-101\)](#page-295-0), comparison of the global means of NN assignments against grades interpolated using ID² [\(Table 14-102\)](#page-297-0), and swath plots for Zn, Pb, and Ag [\(Figure 14-68,](#page-298-0) [Figure 14-69,](#page-301-0) and [Figure 14-70,](#page-304-0) respectively.

Figure 14-66: Block Versus Drill Hole Composite ZnEq Grades, Section 422,200 E

Figure 14-67: Block Versus Drill Hole Composite ZnEq Grades, Section 422,250 E

Table 14-100: Verification of Block Volumes Against Wireframe Volumes by Domain

Table 14-101: Comparison of Global Means of Composite and Block Grades by Domain

Table 14-102: Comparison Between Zinc (%) Grade Interpolated Using ID2 and NN

Figure 14-68: Swath Plots for Zinc (%)

Figure 14-69: Swath Plots for Lead (%)

Figure 14-70: Swath Plots for Silver (g/t)

14.6 Cut-off Grade Inputs Supporting NSR and ZnEq Calculations

14.6.1 NSR Calculation

A unit NSR has been calculated considering a two concentrate (zinc concentrate and lead concentrate) scenario. The NSR values used for both open pit and underground Mineral Resources were calculated on a block-by-block basis using zinc, lead, and silver block grades with the input parameters listed in [Table 14-103](#page-307-0) to [Table 14-107.](#page-310-0)

Metal prices used for Reserves are commonly based on consensus, long term forecasts from banks, financial institutions, and other sources. For Resources, metal prices used are slightly higher than those for used for Reserves. NSR block values and zinc equivalency are based on a price of US\$1.40/lb Zn, US\$1.10/lb Pb, US\$25/oz Ag, and a CAD:USD exchange rate of 1.32.

Metallurgical recoveries used in the NSR calculation are based on test work (where possible) and where data was not available, recoveries were estimated. [Table 14-104](#page-308-0) provides a list of deposit-specific metallurgical assumptions for NSR and ZnEq calculations.

Category	Unit	Tom, Jason, & End Zone	Boundary Zone Massive Sulphide	Boundary Zone Vein	Boundary Zone Halo
Recovery Zn, Zn Conc	$\%$	89%	85%	88%	80%
Recovery Ag, Zn Conc	$\%$	22%	30%	22%	22%
Recovery Pb, Pb Conc	$\%$	75%	55%	55%	38%
Recovery Ag, Pb Conc	%	59%	40%	30%	20%
Zn Concentrate Grade Zn	$\%$	58%	49%	56%	58%
Zn Concentrate Grade Hg	g/t	155	777	693	922
Hg Penalty	USD\$/dmt	\$0.00	\$14.11	\$11.63	\$21.63
Pb Concentrate Grade Pb	$\%$	62%	45%	46%	44%
Zn Conc Payable Zn	$\%$	85%	84%	85%	85%
Pb Conc Payable Pb	$\%$	95%	93%	93%	93%

Table 14-103: Metallurgical Assumptions for NSR and ZnEq Calculations

For NSR and ZnEq calculations, fixed values are applied to all blocks within each domain for: metallurgical recoveries; grades of Zn, Pb, and Hg in Zn and Pb concentrates; mercury penalties; and payability of Zn and Pb. Silver grades and payability in zinc and lead concentrates were calculated on a block-by-block basis. For silver grades in lead concentrates less than 620.0 g/t, a minimum deduction was applied of 31 g/t silver with a maximum payability of 95% for silver in lead concentrates. For silver grades in zinc concentrates less than 311.0 g/t, a minimum deduction of 93 g/t silver was applied with a maximum payability of 70% for silver in zinc concentrates.

The SLR QP recommends the continued assaying of potential penalty elements alongside the primary payable elements to facilitate their future integration into the resource estimation workflow. The assaying of potential penalty elements will support ongoing metallurgical test work and improve the understanding of the various mineralization styles at the Macpass Project.

14.6.2 Cut-Off Grades

Cut-off grades were calculated for underground and open pit conceptual operating scenarios. NSR values were used as the basis for the cut-off grades, pit shell optimizations, and underground resource constraints.

[Table 14-104](#page-308-0) provides the unit mining, processing, general and administration (G&A), and sustaining capital expenditure (capex) costs that support the determination of the NSR cut-off grades for underground and open pit conceptual operating scenarios.

Blocks were constrained by open pit shells and underground mining shapes at a base case mining scenario to demonstrate RPEEE at an NSR cut-off of C\$30/t open pit and C\$112/t underground. The cut-off grades were selected using cost estimates listed in [Table 14-104](#page-308-0) that assume: a mill throughput rate of 10,000 tpd; open pit mining rates of 10,000 tpd; and underground mining rates of 5,000 tpd per deposit.

Resources were reported for Inferred or Indicated blocks that are above the stated cut-off within the open pit shells, and for all Inferred or Indicated blocks within underground reporting panels that meet the average panel cut-off including all "must-take" internal dilution material within those panels.

14.6.3 Open Pit Optimization

SLR generated optimized pit shells for Tom, Jason, and End zones separately, using the Lerchs Grossman optimization method in Whittle, to be used as constraints for the preparation of Mineral Resource estimates. The optimized pit shells for Boundary were generated in Whittle using the Pseudoflow algorithm to better accommodate the large model size. The pit shells were

all run on a regularized models, with blocks measuring 5.0 m x 5.0 m x 5.0 m. Once regularized, the NSR was recalculated on a per block basis. The optimization used pit slope angles of 45°. Inputs for the Whittle optimization are summarized in [Table 14-105.](#page-309-0)

Inputs	Units	Value		
Slope Angles	\circ	45°		
Mining Costs	C\$/t moved	4.67		
Processing Cost	C\$/t milled	22.00		
G&A	C\$/t milled	8.00		
Discard COG Pit	NSR C\$/t	30.00		

Table 14-105: Open Pit Optimization Inputs

Different revenue factors between 0.6 and 1.0 were selected for each deposit during the open pit optimization process. The revenue factor is a scaling parameter applied to the metal prices (or commodity prices) used in the economic evaluation of pit shells. It is expressed as a percentage or factor of the base case (or expected) metal price. For example, a revenue factor of 1.0 corresponds to using the full base case metal prices in the optimization process, while a revenue factor of 0.8 means that the prices used are 80% of the base case prices. This approach was used to optimize the strip ratio, maximize net resource, minimize waste production, limit environmental impacts, and provide a resource suitable for optimizing economics in any future studies (revenue factors and strip ratios are listed in [Table 14-106\)](#page-309-1).

Table 14-106: Revenue Factors and Strip Ratios

The SLR QP recommends that slope angles be continuously reviewed as new data is collected, to ensure that the parameters reflect any new changes in geological and geotechnical conditions. This review should take into account RQD data from new drilling, insights from geological modelling that identify new faults, and findings from completed geotechnical drilling or studies.

14.6.4 Underground Optimization

SLR generated mineable shapes on the sub-blocked model using Deswik Stope Optimizer (DSO) to limit Mineral Resources to contiguous mineralization zones. The mineable shapes are optimized to capture the least amount of waste dilution while respecting the shapes' input parameters. The input parameters used in DSO are presented in [Table 14-107.](#page-310-0)

Table 14-107: Underground Optimization Inputs

14.6.5 Sensitivity Analysis (Open Pit and Underground Optimization)

Cut-off grade (CoG) sensitivity analyses were run on each deposit at increments of 20% NSR cut-off, starting at a -20% scenario and ending with a +80% scenario to determine continuity of mineralization and resiliency of the resource to changes in cost environment or metal pricing as shown in [Table 14-108.](#page-311-0) A robust method was used to perform the sensitivity analysis: new open pit shells and underground mining shapes were generated based on each of the revised cut-off values for each sensitivity scenario at each deposit to most accurately reflect Mineral Resources that would be reported at cut-off values that deviate from the base case scenario. Results show strong continuity of mineralization within both open pit and underground environments across the range of scenarios tested, with contiguous underground reporting panels generating very few isolated outlying reporting panels. Visual representations of these scenarios are presented in [Figure 14-71](#page-313-0) to [Figure 14-73.](#page-315-0)

For spatial reference in [Figure 14-71,](#page-313-0) the highest point where the base case conceptual open pit intersects the topography at the Tom deposit is at 1,861 metres above sea level (MASL), while the base of the lowest block in the Tom Southeast underground area is at 820 MASL. For spatial reference in [Figure 14-72,](#page-314-0) the highest point where the base case conceptual open pit intersects the topography at the Jason deposit is at 1,365 MASL, while the base of the lowest block in the Jason South underground area is at 417.5 MASL. For spatial reference in [Figure 14-73,](#page-315-0) the highest point where the base case conceptual open pit intersects the topography at the Boundary Zone deposit is at 1,365 MASL, while the base of the lowest block in the Boundary Zone underground area is at 695 MASL.

[Table 14-108](#page-311-0) illustrates the resiliency of the Mineral Resource to decreases in metal pricing. Keeping cost assumptions fixed at the base case, non-unique example combinations of breakeven prices would be approximately: at +20% NSR cut-off USD\$1.24/lb Zn, USD\$0.97/lb Pb, and USD\$22.10/oz Ag; at +40% NSR cut-off USD\$1.12/lb Zn, USD\$0.88/lb Pb, and USD\$20.05/oz Ag; at +60% NSR cut-off USD\$1.03/lb Zn, USD\$0.81/lb Pb, and USD\$18.48/oz Ag; and at +80% NSR cut-off USD\$0.97/lb Zn, USD\$0.76/lb Pb, and USD\$17.28/oz Ag.

Table 14-108: Mineral Resource Sensitivity to Metal Pricing

Notes:

1. Tonnes have been reported in millions, rounded to the nearest 10,000.

2. NSR values were calculated on a block-by-block basis and reported as mass-weighted averages for each scenario.

3. Zinc equivalency in this table for non-base case scenarios was approximated using a simplified formula: NSR(\$/t)/20.62 = ZnEq(%).

4. All scenarios presented in this table are deemed to meet the requirements for RPEEE.

5. Base case scenarios are presented as i[n Table 14-2](#page-145-0) an[d Table 14-3.](#page-146-0)

Figure 14-71: Tom Sensitivity

Figure 14-72: Jason Sensitivity

14.7 Mineral Resource Reporting

14.7.1 Tom

Mineral Resources for Tom are reported as the Mineral Resource estimation methodologies and classification criteria detailed in this Technical Report. [Table 14-109](#page-316-0) summarizes the Tom Mineral Resource estimates by domain for Zn, Pb, and Ag, effective September 4, 2024. [Table 14-110](#page-317-0) and [Table 14-111](#page-317-1) provide the Tom Mineral Resource estimates for Zn, Pb, and Ag within the open pit and underground scenarios, respectively.

Combined Indicated Mineral Resources total 17.52 Mt, at an average grade of 6.30% Zn, 3.34% Pb, and 32.9 g/t Ag, for a total of 2,435 Mlb Zn, 1,291 Mlb Pb, and 18.56 Moz Ag, respectively. Combined Inferred Mineral Resources total 18.94 Mt, at an average grade of 6.56% Zn, 2.30% Pb, and 25.2 g/t Ag, for a total of 2,738 Mlb Zn, 960 Mlb Pb, and 15.37 Moz Ag, respectively.

[Figure 14-74](#page-318-0) and [Figure 14-75](#page-319-0) display a block model cross section and plan view of the Tom deposit, highlighting the open pit and underground mining constraints, classification boundaries, and zinc equivalent grades.

The SLR QP is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Resource estimates.

Table 14-109: Tom Open Pit and Underground Mineral Resource Estimate, September 4, 2024

Table 14-111: Tom Underground Mineral Resource Estimate, September 4, 2024

14.7.1.1 Tonnage and Grade Distribution by Elevation

The following figures [\(Figure 14-76](#page-321-0) to [Figure 14-80\)](#page-325-0) present the open pit and underground mineral resources by tonnes and grade per vertical increment for the Tom deposit.

Figure 14-76: Tom Tonnage per Vertical Increment

Tom - Total Tonnes Per Vertical Increment

Figure 14-78: Tom Lead Grade per Vertical Increment

Open Pit - Inferred (contribution)

Tom - Average Grade Pb Per Vertical Increment

Undergound - Inferred (contribution)
Figure 14-79: Tom Silver Grade per Vertical Increment

Figure 14-80: Tom C\$NSR/t per Vertical Increment

Open Pit - Inferred (contribution)

Tom - NSR \$/Tonne Per Vertical Increment

Undergound - Inferred (contribution)

14.7.1.2 Comparison with Previous Mineral Resource Estimates

A comparison of Mineral Resources from 2018 to 2024 is presented in [Table 14-112.](#page-326-0) Comparing Mineral Resources at September 4, 2024 versus January 10, 2018, the SLR QP notes the following principal changes:

- Improvements to the geological interpretation that have allowed for the generation of well defined and robust estimation domains. The updated interpretation has allowed for improved sub-domaining and the inclusion of the additional zones including the unit on the footwall and the sulphide and laminated zones.
- Eleven new drill holes added since the previous 2018 MRE supporting interpretation and classification changes for Tom West.
- In 2018, metal price assumptions were: US\$1.17/lb Zn, US\$0.99/lb Pb, and US\$16.95/oz Ag and an exchange rate of US\$1 = C\$1.24.
	- \circ Based on these metal prices and associated metallurgical inputs at the time, the Mineral Resources were reported at a \$65 C\$NSR/t block cut-off using no constraining volumes.
- Metal recovery assumptions in 2018 were: 79% Zn, 82% Pb, and 85% Ag (12% to Zn concentrate and 73% to Pb concentrate).
- In 2024, metal price assumptions are: US\$1.40/lb Zn, US\$1.10/lb Pb, and US\$25/oz Ag, and an exchange rate of US\$1 = C\$1.32.
	- \circ Based on these metal prices and associated metallurgical inputs described in Section 14.6.1, the updated Mineral Resources are reported in conceptual open pit shells at a \$30 C\$NSR/t cut-off and a \$112 C\$NSR/t cut-off within underground mining volumes.
- Metal recovery assumptions in 2024 were: 89% Zn, 75% Pb, and 82% Ag (net to Zn and Pb concentrates)

Table 14-112: Tom 2024 Mineral Resources Versus 2018 Mineral Resources for Tom

14.7.2 Jason and End Zone

Mineral Resources for Jason and End Zone are reported as the Mineral Resource estimation methodologies and classification criteria detailed in this Technical Report. [Table 14-113](#page-327-0) summarizes the Jason and End Zone Mineral Resource estimates by domain for Zn, Pb, and Ag, effective September 4, 2024. [Table 14-114](#page-327-1) and [Table 14-115](#page-328-0) provide the Jason and End Zone Mineral Resource estimates for Zn, Pb, and Ag within the open pit and underground scenarios, respectively.

Combined Indicated Mineral Resources total 4.14 Mt, at an average grade of 7.31% Zn, 2.72% Pb, and 8.7 g/t Ag, for a total of 667 Mlb Zn, 248 Mlb Pb, and 1.16 Moz Ag, respectively. Combined Inferred Mineral Resources total 12.09 Mt, at an average grade of 5.35% Zn, 4.43% Pb, and 48.2 g/t Ag, for a total of 1,425 Mlb Zn, 1,179 Mlb Pb, and 18.73 Moz Ag, respectively.

[Figure 14-81](#page-329-0) and [Figure 14-82](#page-330-0) show a block model cross-section and plan view of the Jason deposit, highlighting the open pit and underground mining constraints, classification boundaries, and zinc equivalent grades. Similarly, [Figure 14-83](#page-331-0) and [Figure 14-84](#page-332-0) present the same information for the End Zone deposit.

The SLR QP is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Resource estimates.

Table 14-114: Jason Open Pit Mineral Resource Estimate, September 4, 2024

Table 14-115: Jason Underground Mineral Resource Estimate, September 4, 2024

Figure 14-81: Jason Resource – ZnEq% [1,120 MASL]

Figure 14-82: Jason Resource – ZnEq%

Figure 14-83: End Zone Resource – ZnEq% [1,350 MASL]

Figure 14-84: End Zone Resource – ZnEq%

14.7.2.1 Tonnage and Grade Distribution by Elevation

The following figures [\(Figure 14-85](#page-334-0) to [Figure 14-94\)](#page-343-0) present the open pit and underground mineral resources by tonnes and grade per vertical increment for the Jason and End Zone deposits.

Figure 14-85: Jason Tonnage per Vertical Increment

Jason - Total Tonnes Per Vertical Increment

Figure 14-86: Jason Zinc Grade per Vertical Increment

Figure 14-87: Jason Lead Grade per Vertical Increment

Figure 14-88: Jason Silver Grade per Vertical Increment

Figure 14-89: Jason C\$NSR/t per Vertical Increment

Jason - Total Tonnes Per Vertical Increment

Figure 14-90: End Zone Tonnage per Vertical Increment)

Figure 14-91: End Zone Zinc Grade per Vertical Increment

■ Open Pit - Indicated (contribution) ■ Open Pit - Inferred (contribution) ■ Underground - Indicated (contribution) ■ Undergound - Inferred (contribution)

End - Average Grade Pb Per Vertical Increment

■ Open Pit - Indicated (contribution) ■ Open Pit - Inferred (contribution) ■ Underground - Indicated (contribution) ■ Undergound - Inferred (contribution)

End - Average Grade Ag Per Vertical Increment

Figure 14-93: End Zone Silver Grade per Vertical Increment

■ Open Pit - Indicated (contribution) ■ Open Pit - Inferred (contribution) ■ Underground - Indicated (contribution) ■ Undergound - Inferred (contribution)

Figure 14-94: End Zone C\$NSR/t per Vertical Increment

14.7.2.2 Comparison with Previous Mineral Resource Estimates

A comparison of Mineral Resources from 2018 to 2024 is presented in [Table 14-116](#page-344-0) (excluding End Zone). Comparing Mineral Resources at September 4, 2024 versus January 10, 2018, the SLR QP notes the following principal changes:

- First time disclosure of Mineral Resources for End Zone.
- Improvements to the geological interpretation that have allowed for the generation of well defined and robust estimation domains. Notable changes for Jason South where new drilling resulted in orientation changes for JSUL and JSLL.
- Two new drill holes added since the previous 2018 MRE supporting interpretation changes.
- New drilling also resulted in the identification of higher silver and lead grades in Jason South.
- Extensions at Jason Main included lower grade intercepts at depth resulting in a decrease in Zn grade for the Inferred material.
- In 2018, metal price assumptions were: US\$1.17/lb Zn, US\$0.99/lb Pb, and US\$16.95/oz Ag and an exchange rate of US\$1 = C\$1.24.
	- \circ Based on these metal prices and associated metallurgical inputs at the time, the Mineral Resources were reported at a \$65 C\$NSR/t block cut-off using no constraining volumes.
- Metal recovery assumptions in 2018 were: 79% Zn, 82% Pb, and 85% Ag (12% to Zn concentrate and 73% to Pb concentrate).
- In 2024, metal price assumptions are: US\$1.40/lb Zn, US\$1.10/lb Pb, and US\$25/oz Ag, and an exchange rate of US\$1 = C\$1.32.
	- \circ Based on these metal prices and associated metallurgical inputs described in Section 14.6.1, the updated Mineral Resources are reported in conceptual open pit shells at a \$30 C\$NSR/t cut-off and a \$112 C\$NSR/t cut-off within underground (UG) mining volumes.
- Metal recovery assumptions in 2024 were: 89% Zn, 75% Pb, and 82% Ag (net to Zn and Pb concentrates)

Area	Year	Class	Mass (Mt)	Grade				Metal		
				ZnEq (%)	Zn (%)	Pb (%)	Ag (g/t)	Zn (Mlb)	Pb (MIb)	Ag (Moz)
Jason Zone	2018	Indicated	2.49	10.04	8.25	1.76	2.2	454	97	0.18
		Inferred	16.21	9.72	5.23	3.39	40.6	1,868	1,211	1.65
	2024	Indicated	3.80	9.09	7.62	1.86	1.7	638	156	0.21
		Inferred	11.65	10.40	5.48	4.33	48.2	1,407	1,112	18.05
	Change	Indicated	34%	$-10%$	$-8%$	5%	$-29%$	29%	38%	16%
		Inferred	$-39%$	6%	5%	22%	16%	$-33%$	$-9%$	91%

Table 14-116: Jason 2024 Mineral Resources Versus 2018 Mineral Resources

14.7.3 Boundary Zone

Mineral Resources for Boundary Zone are reported as the Mineral Resource estimation methodologies and classification criteria detailed in this Technical Report. [Table 14-117](#page-345-0) summarizes the Boundary Zone Mineral Resource estimates by domain for Zn, Pb, and Ag, effective September 4, 2024. [Table 14-118](#page-346-0) and [Table 14-119](#page-346-1) provide the Boundary Zone Mineral Resource estimates for Zn, Pb, and Ag within the open pit and underground scenarios, respectively.

Combined Indicated Mineral Resources total 34.32 Mt, at an average grade of 4.87% Zn, 0.55% Pb, and 21.6 g/t Ag, for a total of 3,682 Mlb Zn, 413 Mlb Pb, and 23.83 Moz Ag, respectively. Combined Inferred Mineral Resources total 17.43 Mt, at an average grade of 3.48% Zn, 0.23% Pb, and 9.5 g/t Ag, for a total of 1,337 Mlb Zn, 87 Mlb Pb, and 5.32 Moz Ag, respectively.

[Figure 14-95](#page-347-0) and [Figure 14-96](#page-348-0) display a block model cross-section and plan view of the Boundary Zone deposit, highlighting the open pit and underground mining constraints, classification boundaries, and zinc equivalent grades.

The SLR QP is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Resource estimates.

Table 14-117: Boundary Zone Summary of Combined (Open Pit and Underground) Mineral Resources, September 4, 2024

Table 14-118: Boundary Zone Summary of Open Pit Mineral Resources, September 4, 2024

Table 14-119: Boundary Zone Summary of Underground Mineral Resources, September 4, 2024

Figure 14-95: Boundary Zone Resource – ZnEq% [1,080 MASL]

14.7.3.1 Tonnage and Grade Distribution by Elevation

The following figures [\(Figure 14-97](#page-350-0) to [Figure 14-101\)](#page-354-0) present the open pit and underground mineral resources by tonnes and grade per vertical increment for the Boundary deposit.

Figure 14-97: Boundary Zone Tonnage per Vertical Increment

Figure 14-98: Boundary Zone Zinc Grade per Vertical Increment

Boundary - Average Grade Zn Per Vertical Increment

Figure 14-99: Boundary Zone Lead grade per Vertical Increment

Boundary - Average Grade Ag Per Vertical Increment

Boundary - Average NSR \$/Tonne Per Vertical Increment

14.7.4 Factors Affecting the Mineral Resource

Mineral Resources, which are not Mineral Reserves, do not have demonstrated economic viability. At the present time, the SLR QP is not aware of any environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues that may have a material impact on the Macpass Project Mineral Resource estimates other than those discussed below.

Factors that may affect the Macpass Project Mineral Resource estimates include:

- Metal price and exchange rate assumptions.
- Changes to the assumptions used to generate the NSR and cut-off grade used for construction of the mineralized wireframe domains.
- Changes to geological and mineralization shape and geological and grade continuity assumptions and interpretations.
- Due to the natural variability inherent with sediment hosted stratiform Zn-Pb-Ag deposits, the presence, location, size, shape, and grade of the actual mineralization located between the existing sample points may differ from the current interpretation. The level of uncertainty in these items is lowest for the Measured Mineral Resource category and is highest for the Inferred Mineral Resource category.
- Changes to the understanding of the current geological and mineralization shapes and geological and grade continuity resulting from acquisition of additional geological and assay information from future drilling or sampling programs.
- Changes in the treatment of high grade zinc, lead or silver values.
- Changes due to the assignment of density values.
- Changes to the input and design parameter assumptions that pertain to the assumptions for creation of underground constraining volumes.
- Changes to the assumed metallurgical recoveries.

14.8 Additional Information

14.8.1 Germanium and Gallium Summary

Gallium and germanium are critical mineral by-products reported alongside the metals of economic interest, zinc, lead, and silver. Fireweed carried out a re-assay program using samples from 2017–2023 drilling and selected historical intervals using a specialized assay method that can quantify gallium and germanium—a closed vessel assay (Bureau Veritas method GC204). Gallium and germanium have lower data density than zinc, lead, and silver even after the re-assay program. As a result, regressions with zinc or zinc and aluminum were used where gallium or germanium assay data was unavailable.

Gallium and germanium do not contribute any value as payable metals or smelter credits in the NSR calculations used to define the Mineral Resource, as shown in [Table 14-1](#page-144-0) to [Table 14-3.](#page-146-0) Accordingly, they do not contribute to the RPEEE associated with resource category classification. As noted in Section 13.5.3, there is currently no precedence for payment of germanium or gallium in zinc concentrates, however, favourable treatment charges may be negotiated with smelters that recover one or both of these elements.

[Table 14-120](#page-356-0) summarizes Fireweed's Mineral Resource estimates for gallium and germanium, effective as of October 17, 2024. [Table 14-121](#page-358-0) provides the Mineral Resource estimates for gallium and germanium within the open pit scenario, while [Table 14-122](#page-358-1) presents the underground Mineral Resources for gallium and germanium located below the open pit, both effective as of October 17, 2024.

Table 14-120: Summary of Combined (Open Pit and Underground) Mineral Resources, Germanium and Gallium, October 17, 2024

Notes:

1. Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves (CIM (2014) definitions) were used for Mineral Resource classification.

2. g/t: grams per tonne; Mlb: million pounds; Moz: million troy ounces; Mt: million metric tonnes.

3. Mineral Resources are reported within conceptual open pit (OP) shells and underground (UG) mining volumes to demonstrate Reasonable Prospects for Eventual Economic Extraction (RPEEE), as

Table 14-121: Summary of Open Pit Mineral Resources, Germanium and Gallium, October 17, 2024

Table 14-122: Summary of Underground Mineral Resources, Germanium and Gallium, October 17, 2024

The SLR QP is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Resource estimates.

14.8.1.1 Tom

[Table 14-123](#page-359-0) summarizes the Tom Mineral Resource estimates by domain for Ge and Ga, effective October 17, 2024. [Table 14-124](#page-359-1) and [Table 14-125](#page-360-0) provide the Tom Mineral Resource estimates for Ge and Ga within the open pit and underground scenarios, respectively.

Combined Indicated Mineral Resources total 17.53 Mt, at an average grade of 9.22 g/t Ge and 5.71 g/t Ga, for a total of 161,500 kg and 100,000 kg, respectively. Combined Inferred Mineral Resources for germanium and gallium total 18.94 Mt, at an average grade of 9.39 g/t Ge and 5.94 g/t Ga, for a total of 177,800 kg and 112,500 kg, respectively.

Table 14-123: Tom Summary of Combined (Open Pit and Underground) Mineral Resources, Germanium and Gallium, October 17, 2024

Table 14-124: Tom Summary of Open Pit Mineral Resources, Germanium and Gallium, October 17, 2024

Table 14-125: Tom Summary of Underground Mineral Resources, Germanium and Gallium, October 17, 2024

14.8.1.2 Jason and End Zone

[Table 14-126](#page-360-0) summarizes the Jason and End Zone Mineral Resource estimates by domain for Ge and Ga, effective October 17, 2024. [Table 14-127](#page-361-0) and [Table 14-128](#page-361-1) provide the Jason and End Zone Mineral Resource estimates for Ge and Ga within the open pit and underground scenarios, respectively.

Combined Indicated Mineral Resources total 4.14 Mt, at an average grade of 8.42 g/t Ge and 4.90 g/t Ga, for a total of 34,900 kg and 20,300 kg, respectively. Combined Inferred Mineral Resources for germanium and gallium total 12.09 Mt, at an average grade of 6.19 g/t Ge and 3.37 g/t Ga, for a total of 74,700 kg and 40,700 kg, respectively.

Class	Area	Mass (Mt)	Grade		Metal	
			Ge (g/t)	Gа (g/t)	Ge (kg)	Ga (kg)
Indicated	Jason Main	3.80	8.74	4.76	33,200	18,100
	Jason South					
	End Zone	0.34	4.81	6.42	1,600	2,200
Total Indicated		4.14	8.42	4.90	34,900	20,300
Inferred	Jason Main	4.06	7.45	3.72	30,200	15,100
	Jason South	7.59	5.71	3.17	43,300	24,100
	End Zone	0.44	2.68	3.56	1,200	1,600
Total Inferred		12.09	6.19	3.37	74,700	40,700
Note: See Table 14-120 footnotes.						

Table 14-126: Jason and End Zone Summary of Combined (Open Pit and Underground) Mineral Resources, Germanium and Gallium, October 17, 2024

Table 14-127: Jason and End Zone Summary of Open Pit Mineral Resources, Germanium and Gallium, October 17, 2024

Table 14-128: Jason and End Zone Summary of Underground Mineral Resources, Germanium and Gallium, October 17, 2024

14.8.1.3 Boundary Zone

[Table 14-129](#page-362-0) summarizes the Boundary Zone Mineral Resource estimates by domain for Ge and Ga, effective October 17, 2024. [Table 14-130](#page-362-1) and [Table 14-131](#page-363-0) provide the Boundary Zone Mineral Resource estimates for Ge and Ga within the open pit and underground scenarios, respectively.

Combined Indicated Mineral Resources total 34.32 Mt, at an average grade of 12.19 g/t Ge and 8.53 g/t Ga, for a total of 418,400 kg and 292,600 kg, respectively. Combined Inferred Mineral Resources for germanium and gallium total 17.43 Mt, at an average grade of 8.14 g/t Ge and 7.39 g/t Ga, for a total of 141,900 kg and 128,800 kg, respectively.

Table 14-129: Boundary Zone Summary of Combined (Open Pit and Underground) Mineral Resources, Germanium and Gallium, October 17, 2024

Table 14-130: Boundary Zone Summary of Open Pit Mineral Resources, Germanium and Gallium, October 17, 2024

Table 14-131: Boundary Zone Summary of Underground Mineral Resources, Germanium and Gallium, October 17, 2024

15.0 Mineral Reserve Estimates

16.0 Mining Methods

17.0 Recovery Methods

18.0 Project Infrastructure

19.0 Market Studies and Contracts

20.0 Environmental Studies, Permitting, and Social or Community Impact

21.0 Capital and Operating Costs

22.0 Economic Analysis

23.0 Adjacent Properties

The Macpass property lies within the Selwyn Basin, which hosts numerous sediment-hosted zinc-lead-silver deposits and occurrences. The Property is also within the Tombstone-Tungsten Belt, a belt of Cretaceous intrusions that are in some cases associated with reduced intrusionrelated gold systems, orogenic gold, gold skarn, and/or tungsten skarn occurrences. Two nearby properties, Fireweed's Mactung Property and Snowline Gold Corp.'s (Snowline) Rogue Property, have recent MREs and ongoing exploration and development work.

The SLR QP has not independently verified the information below, and this information is not necessarily indicative of the mineralization at the Mactung and Rogue projects.

23.1 Mactung Property (Mactung Deposit)

The 37 km² Mactung property is immediately north of the Macpass claims [\(Figure 23-1\)](#page-374-0). It is an advanced stage tungsten project with extensive historical drilling, engineering, metallurgy, geotechnical, and environmental baseline data collected by previous operators. The property is located in the traditional territories of the Kaska Nation and First Nation of Na-Cho Nyäk Dun, and the Sahtú Settlement Area.

Fireweed acquired the Mactung property from the Government of the Northwest Territories (GNWT) in 2022. The Mactung tungsten deposit has a Mineral Resource of 41.5 Mt Indicated at 0.73% WO₃ and 12.2 Mt Inferred at 0.59% WO₃, making it the largest high-grade tungsten deposit in the world at the time of writing. The MRE and accompanying technical report were prepared by Garth Kirkham, P.Geo of Kirkham Geosystems Ltd (Kirkham 2023).

Access to Mactung is via the same Macmillan Pass aerodrome and an 11 km access road off the North Canol Road. Infrastructure includes an extensive exploration road and trail network, clearing around the historical camp and core processing area and adit, and 1,200 m lateral underground development that facilitated underground exploration drilling and bulk sampling in the 1970s and 1980s.

Tungsten skarn mineralization at Mactung is mostly scheelite (CaWO4) and is dominated by calcic mineral assemblages associated with abundant pyrrhotite that developed within permeable limestone units of the Cambrian-Ordovician host rocks near the contract with a Cretaceous-age granite intrusion. Historical work by previous operators included 38,000 m of drilling. Ongoing work includes a metallurgical test program, and environmental and field studies to bolster understanding of the project.

In mid-2014, the Yukon Environmental and Socio-economic Assessment Board issued a positive screening report for the mine project and recommended it proceed without review, subject to terms and conditions. The federal and Yukon governments subsequently varied certain terms and conditions, as documented in each Decision Document, which provided direction to advance licence applications.

23.2 Rogue Property (Valley Deposit)

Snowline's 1,125 km2 Rogue Property is approximately 15 km northwest of the Macpass property [\(Figure 23-1\)](#page-374-0). At its centre lies the Valley gold deposit, approximately 60 km northwest of Boundary Zone. The property is located in the traditional territories of the First Nation of Na-Cho Nyäk Dun.

Access to the Rogue Property is by air to local airstrips from the closest town of Mayo, with helicopter and float plane access to different parts of the project area. The locally overgrown

110 km Plata Winter Access Road, built to access the past producing Plata silver mine, connects the southernmost part of the property to the North Canol Road.

The Rogue Project lies in the Tombstone Gold Belt of the Tintina Gold Province, a large metallogenic region that extends approximately 2,000 km from southeast Yukon to southeast Alaska. Gold mineralization at the Valley deposit is typical of reduced intrusion-related gold systems, hosted in quartz veins associated with Cretaceous plutons that intruded Ordovician-Devonian host rocks, commonly producing hornfels halos. Other styles of mineralization on the property include skarns and orogenic gold.

Snowline acquired the Rogue Property in 2021. Ongoing work includes regional exploration and diamond drilling, as well as preliminary metallurgical studies. An inaugural Mineral Resource Estimate for the Valley Deposit includes 75.8 Mt Indicated at 1.66 g/t Au and 81.0 Mt Inferred at 1.25 g/t Au (Burrel et al. 2024).

24.0 Other Relevant Data and Information

No additional information or explanation is necessary to make this Technical Report understandable and not misleading.

25.0 Interpretation and Conclusions

25.1 Geology and Mineral Resources

- The Mineral Resources for the Macpass Project comprise four distinct deposits: Tom, Jason, End Zone, and Boundary Zone.
- The deposit type at the Macpass Project can be broadly described as stratiform, stratabound, sediment-hosted zinc-lead-silver-barite deposits.
- The current Mineral Resource estimate includes the initial disclosure of technical supporting information for the Boundary Zone deposit Resources.
- The current Mineral Resource estimate also includes Fireweed's first-time disclosure of technical supporting information for the End Zone deposit Resources.
- The total combined Mineral Resources of the four deposits comprising the Macpass Project are estimated to total approximately 55.98 Mt at 7.27% Zinc Equivalent (ZnEq) (5.50% zinc, 1.58% lead, and 24.2 g/t silver) in the Indicated Mineral Resource category and approximately 48.46 Mt at 7.48% ZnEq (5.15% zinc, 2.08% lead, and 25.3 g/t silver) in the Inferred Mineral Resource category.

25.2 Mineral Processing and Metallurgical Testing

- The most recent metallurgical test program on Tom and Jason was completed in 2018. The 2018 test program was carried out at Base Metallurgical Laboratories Ltd. (Base Met) in Kamloops, British Columbia (Project No. BL0236) and evaluated both the Tom and Jason deposits. An earlier test program, conducted in 2012 by G&T Metallurgical Services in Kamloops, British Columbia focused solely on Tom.
- In 2022, an initial investigation was completed on Boundary Zone (BL0755) and in 2023 on Boundary Zone Massive Sulphides (BL1140). The test programs included comminution, mineralogy, and flotation. Open circuit tests were completed on all of the samples with a focus on producing zinc concentrates.
- Tom and Jason and Boundary Zone material follows a similar flowsheet that includes comminution and sequential flotation to produce saleable concentrates. The Tom and Jason flowsheet includes a primary grind targeting 80% passing (P_{80}) 50 microns, lead flotation to produce a concentrate followed by zinc flotation to produce a zinc concentrate. Boundary Zone will utilize the same flowsheet with a coarser primary grind P_{80} of 75 microns with either lead flotation to produce a lead concentrate or pre-float utilizing the lead rougher circuit to reduce the carbon in the feed to the zinc flotation circuit. The target regrind for lead and zinc for all zones was targeted at P_{80} of 15 microns and 25 microns, respectively.
- The inductively coupled plasma (ICP) analysis of the concentrates indicated that silica may be a potential penalty element at Tom and Jason. The Boundary Zone samples had elevated levels of cadmium, mercury, and antimony that may incur penalties and may require blending to reduce the amounts in the zinc concentrate.
- To reflect a conceptual mine plan, a ratio of 65% Tom composite and 35% Jason composite were used to create the Tom & Jason (T&J) composite. The results from the T&J composite locked cycle tests (LCTs) reported a lead grade of 61.5% Pb with a recovery of 75%. The zinc concentrate graded 58.4% Zn with an 89% recovery.

• An average of the open circuit flotation tests completed on Boundary Zone material produced a lead concentrate grade of 41.8% Pb recovering 52% (only two samples had lead head grades high enough to produce a concentrate) and 81% Zn was recovered to the zinc concentrate with a grade of 54.8%. A lead concentrate was produced for Boundary Zone massive sulphide domain for sample NB21-001-MS-001 which produced a lead grade of 41.6% Pb at a recovery of 30.4%. The average of the Boundary Zone massive sulphide open circuit zinc flotation tests completed on the two composites reported a grade and recovery of 51.0% Zn and 84%, respectively.

26.0 Recommendations

26.1 Geology and Mineral Resources

- 1. Continue to adopt a balanced approach to evaluating resource expansion targets, weighing the costs and benefits of near-surface opportunities at Boundary Zone while considering the deeper potential at Tom and Jason.
- 2. Continue to explore fault offsets at Boundary Zone to better quantify the shape and extent of massive to semi-massive sulphide mineralization in the BZUZ and BZPZ zones.
- 3. Drill strike extensions to the northwest and at depth at Boundary Zone, focusing on followups to holes NB21-003, NB21-004, NB23-029, and NB20-009.
- 4. Consider drilling deeper holes at Tom West and Tom Southeast to explore the potential for mineralization expansion at depth.
- 5. Consider conducting additional drilling at Jason South, targeting down-dip extensions and target faulted areas within the Jason South deposit to improve the understanding of fault positions and mineralization offsets.
- 6. Consider twinning historical drill holes in mineralized areas where zinc, lead, or silver assays were not previously conducted, or where core loss occurred due to soft sulphides, to enhance data quality and improve confidence in local grade estimates.
- 7. Continuously review slope angles as new data is collected to ensure that parameters reflect any changes in geological and geotechnical conditions. This review should incorporate rock quality designation (RQD) data from new drilling, insights from geological modelling that identify new faults, and findings from completed geotechnical drilling or studies.
- 8. Continue assaying potential penalty elements alongside primary payable elements to enable their future integration into the resource estimation workflow. This will support ongoing metallurgical test work and enhance understanding of the various mineralization styles at the Macpass Project.
- 9. Ensure sufficient sample drying time prior to conducting density measurements to maintain the accuracy of the results.

The SLR QP notes that as of the effective date of this Technical Report, many of the exploration recommendations have been addressed during the summer 2024 drill program at the Macpass Project, which included over 16,013 m of drilling across 49 holes. The drilling targeted step-out areas at known zones, including Tom, Jason, and Boundary Zone, as well as new regional targets. In addition to drilling, the 2024 budget supported a comprehensive regional exploration program, involving ground gravity surveys, prospecting, soil sampling, and airborne geophysical surveys utilizing LiDAR and VTEM-magnetics. Data from these activities will be analyzed in the coming months to guide future exploration efforts and establish the detailed 2025 budget. Fireweed anticipates that the 2025 drilling campaign will be approximately 20,000 m of diamond drilling with a preliminary budget of \$22M. Fireweed has also initiated a geometallurgical test program to better characterize the metallurgical variability of the mineralized domains at the Tom, Jason, End Zone, and Boundary Zone deposits with all results currently pending.

26.2 Mineral Processing and Metallurgical Testing

- 1. Conduct chemical analysis and mineral textural review of variability samples selected from Tom, Jason, End Zone, and Boundary Zone. The samples are to be discrete continuous intervals of drill core that are spatially representative based on the areas to be mined and provide variability in grade.
- 2. Create global composites from the variability samples for flowsheet validation and optimization.
- 3. Run the variability samples through the optimized flowsheet to provide additional confidence in the metallurgical response of the mineralized zones. The samples will be subjected to mineralogy, comminution test work, and flotation tests including LCTs.
- 4. Include dewatering tests to assess settling and filtration properties as well as tailings generation for physical and chemical evaluation.

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28.0 Date and Signature Date

This report titled "Technical Report for NI 43-101 for the Macpass Project in Yukon, Canada" with an effective date of October 17, 2024 was prepared and signed by the following authors:

 (Signed & Sealed) *Pierre Landry*

October 17, 2024

Dated at Victoria, BC Pierre Landry, P.Geo.

 (Signed & Sealed) *Chelsea Hamilton*

Dated at Whitehorse, YT Chelsea Hamilton, P.Eng. October 17, 2024

 (Signed & Sealed) *Kelly S. McLeod*

Dated at Lake Country, BC Kelly S. McLeod, P.Eng October 17, 2024

29.0 Certificate of Qualified Person

29.1 Pierre Landry

I, Pierre Landry, P.Geo., as an author of this report entitled "NI 43-101 Technical Report for the Macpass Project, Yukon, Canada" with an effective date of October 17, 2024 prepared for Fireweed Metals Corp., do hereby certify that:

- 1. I am Managing Principal Resource Geologist, Valuations Lead and Team Lead Resource Geology of SLR Consulting (Canada) Ltd, of 3960 Quadra Street, Unit 303, Victoria, BC V8X 4A3.
- 2. I am a graduate of Queen's University, Kingston, Ontario, in 2006 with a Bachelor of Science (Honours) degree in Geological Science (Major) and Economics (Minor).
- 3. I am registered as a Professional Geologist in the Province of British Columbia (Reg.# 47339), and in the Province of Newfoundland and Labrador (Reg. # 10431). I have been working as a professional geologist for a total of 11 years. My relevant experience for the purpose of the Technical Report is:
	- Review and creation of block models as part of NI 43-101 Mineral Resource estimates, audits, and due diligence reports.
	- Mine Exploration Geologist and Grade Control Geologist at operations and mine development projects in Canada, Africa, and South America.
	- Created wireframes and block models for the NI 43-101 Mineral Resource estimate and Preliminary Economic Assessment of Zazu Metals Corporation's Lik Deposit in Alaska (Zinc-Lead-Silver). This report, dated April 23, 2014, with an effective date of March 3, 2014, was completed under the supervision of Neil Gow, P.Geo., at Roscoe Postle Associates, Inc., where I was also employed at the time.
- 4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43- 101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
- 5. I visited the Macpass Project on September 15-17, 2022.
- 6. I am responsible for overall preparation and all sections exclusive of 13 and 14.6, and related subsections in 1, 25, and 26 of the Technical Report.
- 7. I am independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.
- 8. I have had no prior involvement with the property that is the subject of the Technical Report.
- 9. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.
- 10. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 17th day of October, 2024

(Signed) Pierre Landry

Pierre Landry, P.Geo.

29.2 Chelsea Hamilton

I, Chelsea Hamilton, P.Eng., as an author of this report entitled "NI 43-101 Technical Report for the Macpass Project, Yukon, Canada" with an effective date of October 17, 2024 prepared for Fireweed Metals Corp., do hereby certify that:

I am a Senior Mining Engineer with SLR Consulting (Canada) Ltd, of 6131 6th Avenue, Whitehorse, YT Y1A 1N2.

- 1. I am a graduate of the University of Toronto, Ontario in 2007 with a Bachelor of Applied Science degree in Mineral Engineering.
- 2. I am registered as a Professional Engineer in the Province of Ontario (Licence No. 100127897), the Yukon Territory (License No. 3578) and Nunavut and Northwest Territories (NAPEG, License No. L4793). I have worked as a mining engineer for a total of 10 years since my graduation. My relevant experience for the purpose of the Technical Report is:
	- Mine planning, underground mine design and scheduling, and ventilation design and implementation for numerous projects in Canada and USA.
	- Mining engineer for an underground gold mine in Ontario, Canada and an underground gold mine in Nevada, USA for a total of 3.5 years.
	- Precious Metals Equity Research Associate/Analyst in Toronto for a total of 2.5 years.
	- Mineral reserve estimation and preparation of NI 43-101 Technical Reports.
	- Experienced user of Deswik mine planning software.
- 3. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43- 101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
- 4. I did not visit the Macpass Project.
- 5. I am responsible for Section 14.6 and related content in subsections 1.1.1.1, 1.1.2.1, 1.2.7, 25.1, and 26.1 of the Technical Report.
- 6. I am independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.
- 7. I have had no prior involvement with the property that is the subject of the Technical Report.
- 8. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.
- 9. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the Section Nos. in the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 17th day of October, 2024

(Signed) Chelsea Hamilton

Chelsea Hamilton, P.Eng.

29.3 Kelly McLeod

I, Kelly S. McLeod, P.Eng., as an author of this report entitled "Technical Report on the Macpass Project, Yukon, Canada", with an effective date of October 17, 2024 prepared for Fireweed Metals Corp., do hereby certify that:

- 1. I am currently employed as President with K-Met Consultants Inc., with an office at 14650 Oyama Road, Lake Country, B.C., V4V 2C7.
- 2. I am a graduate of McMaster University in 1984 with a Bachelor of Engineering Metallurgy.

I am registered as a Professional Engineer in the Yukon Territory, permit number 2673. I have worked as a metallurgical engineer for over 20 years since my graduation. My relevant experience for the purpose of the Technical Report is Metallurgy and I have recently worked on the following projects: MacMillan Pass Project PEA, Mactung Project, Madsen Gold Project Feasibility Study, Independent Technical Report for PureGold Mine, Premier Gold Project, Macassa Mill Expansion EPCM Project, Valentine Gold Project, Springpole Feasibility Study, Curraghinalt Gold Project, and Spanish Mountain Project.

- 3. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43- 101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
- 4. I have not visited the Macpass Project site.
- 5. I am responsible for Section 13 and subsections 1.1.1.2, 1.1.2.2, 1.2.8, 25.2, and 26.2 of this Technical Report.
- 6. I am independent of the Issuer and related companies applying all the test set out in Section 1.5 of NI 43-101.
- 7. I have not had any involvement with the property that is the subject of the Technical Report.
- 8. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.
- 9. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the Technical Report contains Section 13 in the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated 17th day of October, 2024

(Signed) Kelly S. McLeod

Kelly S. McLeod, P.Eng.

30.0 Appendix 1 - Macpass Project Claims and Leases

Contiguous Macpass Claims

Grant Claim Expiry Date YD105654 Sol 202 2037-12-03 YD105655 Sol 203 2037-12-03 YD105656 Sol 204 2037-12-03

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