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TECHNICAL REPORT AND PRELIMINARY ECONOMIC ASSESSMENT ON THE NASH CREEK AND SUPERJACK PROJECT NEW BRUNSWICK FOR CALLINEX MINES INC.

NI 43-101 & 43-101F1
TECHNICAL REPORT

NASH CREEK PROPERTY
RESTIGOUCHE COUNTY
Latitude 47°53' N and Longitude 66°06' W
BATHURST MINING DISTRICT
NEW BRUNSWICK

SUPERJACK PROPERTY
NORTHUMBERLAND COUNTY
Latitude 47°23' N and Longitude 66°05' W
BATHURST MINING DISTRICT
NEW BRUNSWICK

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P&E Mining Consultants Inc.
Report 338

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1.0 SUMMARY

This Preliminary Economic Assessment ("PEA") and Technical Report was prepared by P&E Mining Consultants Inc. ("P&E") at the request of Max Porterfield, President of Callinex Mines Inc ("Callinex" or "the Company"). The purpose of this report is to provide a National Instrument 43-101 ("NI 43-101") Technical Report and Preliminary Economic Assessment for open pit mining operations on the Nash Creek and Superjack Properties. Together these properties are referred to as the "Project".

The Project includes the Nash Creek mineral deposit located approximately 50 km by road northwest of the town of Bathurst, NB and the Superjack mineral deposit located approximately 45 km by road southwest of Bathurst, NB. The Nash Creek and Superjack Properties which comprise the Project, are 100% owned by Callinex. Bathurst is a local business hub for northeastern New Brunswick and the Bathurst Mining Camp ("BMC"). The BMC has a well-established mining infrastructure and a skilled workforce, related to the development of several large lead-zinc deposits that have produced over 130 million tonnes ("Mt") (Brown, 2007).

This Technical Report was prepared in accordance with NI 43-101 to provide public disclosure summarizing the results of independent Mineral Resource estimation and a PEA of the zinc-lead-silver mineralization contained in the Nash Creek Property and the zinc-lead-copper-silver mineralization contained in the Superjack Property.

1.1 MINERAL RESOURCES

The Mineral Resource Estimates referred to in this Technical Report were previously disclosed in two separate Technical Reports. The Mineral Resource Estimate for the Nash Creek Property was disclosed on June 3, 2018 in a Technical Report titled "Technical Report and Updated Mineral Resource Estimate on the Nash Creek Project, New Brunswick, Canada and the Superjack Mineral Resource Estimate was disclosed on July 15, 2016 in a Technical Report titled "Updated Technical Report on The Superjack Project, New Brunswick, Canada".

The Mineral Resource Estimates for the Nash Creek and Superjack Properties are summarized in Table 1.1.

TABLE 1.1
NASH CREEK AND SUPERJACK MINERAL RESOURCE ESTIMATES(1-6)

Zone	Category	ZnEq Cut-off	Tonnes (k)	Zn (%)	Pb (%)	Ag (g/t)	ZnEq (%)
Hickey	Indicated	1.50%	6,601	2.37	0.57	16.8	2.90
Hickey	Inferred	1.50%	4,343	2.69	0.45	13.8	3.11
Hayes	Indicated	1.50%	6,991	2.96	0.58	18.9	3.51
Hayes	Inferred	1.50%	1,586	2.63	0.53	14.3	3.12
Superjack	Inferred	2.00%	3,211	3.01	0.78	29.4	4.63
Total	**Indicated**		**13,592**	**2.68**	**0.58**	**17.9**	**3.21**
Total	**Inferred**		**9,140**	**2.79**	**0.58**	**19.4**	**3.65**

Source: *Tetra Technical Reports on the Nash Creek and Superjack Properties.*

1) *Superjack Mineral Resource Cu grade was 0.23%*
2) *Nash Creek: ZnEq calculated using 3-year trailing average US metal price trends of $1.25 /lb Zn, $1.05 /lb Pb, and $17.00 /oz Ag. Respective process recoveries were applied as 90% Zn, 80% Pb, and 50% Ag k, using the formula for ZnEq = Zn% + 0.747*Pb% + 0.011*Ag g/t.*
   *Superjack: ZnEq calculated with US metal price trends of $1.12 /lb Zn, $1.06 /lb Pb, $2.97/lb Cu and $20.38/oz Ag. Respective process recoveries were applied as 90% Zn, 72% Pb, 86% Cu and 70% Ag using the formula for ZnEq = Zn% + 0.757*Pb% + 0.021*Ag g/t.*
3) *A cut-off value of 1.50% ZnEq was used as the base case for reporting Mineral Resources that are subject to open pit potential. The Mineral Resource block model is not constrained by a conceptual open pit shell. Mineral Resource classification adheres to CIM Definition Standards;*
4) *The Inferred Mineral Resource in this estimate has a lower level of confidence that 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.*
5) *Bulk density is calculated for the Nash Creek Property by block and is based on metal grades using regression formula: Bulk Density = 2.74 + 0.028*(Zn%+Pb%).*
6) *All values are rounded.*

1.2 CONCEPTUAL MINING PLAN

The mineralized deposits of the Nash Creek and Superjack Properties are located near surface under a relatively shallow cover of overburden and barren in-situ waste rock. This PEA is based on using conventional truck and shovel open pit methods at both Nash Creek and Superjack to extract this Mineral Resource. The extracted Mineral Resource will be processed at a Dense Media Separation ("DMS") and flotation plant at Nash Creek. No underground mining is envisaged in this assessment. The mining operation would be carried out by Callinex owner operated equipment as opposed to contractors due to the expected 10-year life-of-mine ("LOM") that could be expanded further with additional exploration.

The mining methods and production capacity have been chosen to match a potential ultimate processing throughput rate of 3,900 tonnes per day ("tpd"), which is anticipated as being an optimal feed rate for an on-site processing plant operated by Callinex. The conceptual open pit depths for the Nash Creek Property were optimized to a point where the incremental stripping ratio and mining costs begin to exceed the potential revenue generated by the process plant feed generated from mining ("the break-even cut-off grade"). Open pit mining would proceed as successive pre-strip and hard rock mining operations and follow the down-dip trend of the mineralized deposits.

An open pit optimization was carried out to conceptualize an optimal open pit mining operation. The base case scenario ("Base Case") that was selected, assumed a cut-off grade of 1.50% Zinc Equivalent ("ZnEq") for the Nash Creek Property and 2.00% ZnEq for the Superjack Property, due to the additional highway transport costs that are required. All mineralized material grading less than these ZnEq cut-off grades were treated as waste rock for the purposes of this PEA. (A stockpile management system was not included in this PEA analysis, however, would be considered in the Pre-Feasibility Study)

The open pit mining dilution was estimated to be 10% at the Nash Creek Property, with diluting grades of 0.96% ZnEq for Hickey North pit material, 0.91% ZnEq for Hickey South pit material and 0.78% ZnEq for Hayes pit material. At the Superjack Property, dilution was estimated to be 15% due to narrower mineralized domains, along with a diluting grade of 0.60% ZnEq.

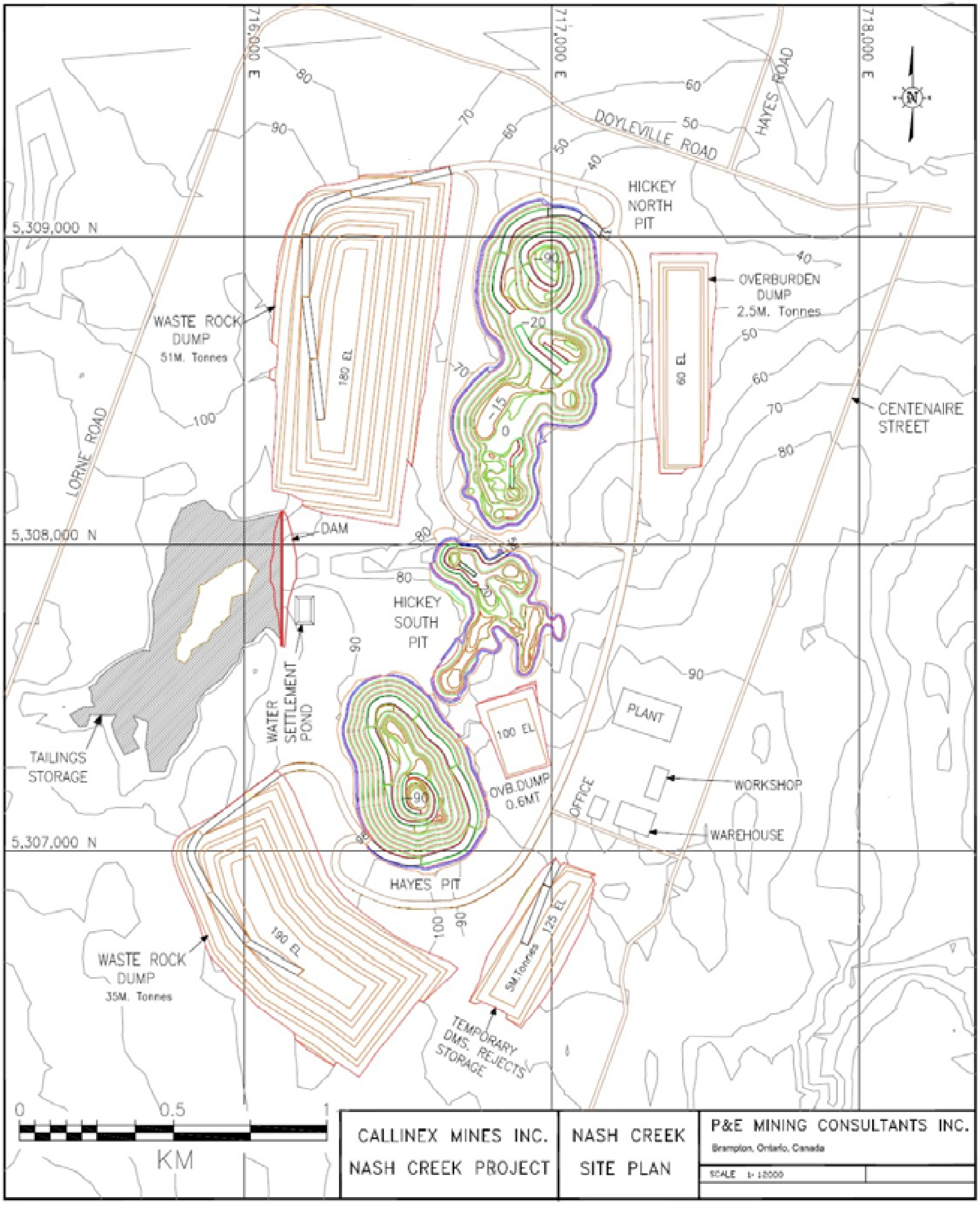
The mineralized material extraction rate in all open pits in the PEA was estimated to be 97%.

No geotechnical or hydrogeological studies were available due to the early stage of study.

The target process plant throughput rate is 1,425,000 tonnes per year. Daily mining rates of mineralized material and waste rock combined will range from 15,000 tpd to 40,000 tpd depending upon the scheduled mine production for an average strip ratio of 6.4:1.0 over the LOM. An initial pre-strip operation of approximately 4,300,000 tonnes of overburden and waste rock at Nash Creek and Superjack will be required before commercial process plant feed production commences.

The proposed site plan at Nash Creek is illustrated in Figure 1.1.

FIGURE 1.1 NASH CREEK PROPERTY SITE PLAN



The open pit mining schedule is presented in Table 1.2.

TABLE 1.2 MINE PRODUCTION SCHEDULE NASH CREEK AND SUPERJACK PROJECT														
Description	**Units**	**Mineralized Material Production by Year**												
		-1	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**Total**
Nash Creek DMS Plant Feed	tpy (000s)	0	138	1,424	1,425	1,424	1,425	1,424	1,425	1,424	1,424	1,425	174	13,132
Superjack DMS Plant Feed	tpy (000s)	0	1,295	0	0	0	0	0	0	0	0	0	0	1,295
Total DMS Plant Feed	tpy (000s)	0	1,433	1,424	1,425	1,424	1,425	1,424	1,425	1,424	1,424	1,425	174	14,427
DMS Plant Feed Grade - Zn	%	0	3.68	2.27	2.75	2.83	2.67	2.76	3.08	2.78	2.49	3.08	6.38	2.88
DMS Plant Feed Grade - Pb	%	0	1.02	0.56	0.87	0.72	0.60	0.54	0.57	0.43	0.48	0.41	0.43	0.62
DMS Plant Feed Grade - Ag	g/t	0	38.7	16.4	24.2	23.7	18.4	17.0	18.7	15.6	17.2	14.5	5.2	20.26
Overburden	tpy (000s)	292		722	1,036	437	21	876	53		189			3,625
Waste	tpy (000s)	4,000	4,479	5,901	8,386	9,066	9,402	8,618	9,469	9,164	10,578	9,999	238	89,300
Total Material Mined	tpy (000s)	4,292	5,912	8,047	10,847	10,927	10,847	10,918	10,947	10,588	12,191	11,424	412	107,352

Note:*Some values have been rounded. The totals are accurate summations of the columns and rows of data.*

1.3 CONCEPTUAL MINERAL PROCESSING PLAN

Scoping level mineralogical and metallurgical testwork investigating the recovery of zinc and lead concentrates has been carried out by Research & Productivity Council ("RPC"), Fredericton, New Brunswick. Based on these tests, RPC wrote in the metallurgical report dated November 26, 2007 indicating the recovery of lead, zinc and silver is assumed to be by flotation alone. Dense Media Separation may prove to be an effective technique for the early rejection of gangue but additional testwork will be required to confirm this. The process flow sheet includes a DMS circuit where the selected process recoveries for this study are assumed to be 90% for zinc and 80% for lead. Silver is assumed at 25% process recovery to the lead concentrate and 25% process recovery to the zinc concentrate.

As part of this PEA, P&E investigated an alternative scenario based on off-site processing of the DMS plant product at a conceptual toll processing facility. For the purposes of this investigation, the toll processing facility was assumed to be located 100 km away from Nash Creek since there are several potential process plant sites within this distance.

1.4 SITE INFRASTRUCTURE

The Nash Creek Property does not currently have any on-site infrastructure in place, however, it will have access to the substantial required supporting infrastructure, services and skilled labour from nearby localities. For this reason and due to the projects' close proximity to Hwy 11, there will be reduced infrastructure cost requirements.

The Nash Creek Property has excellent infrastructure with the northern extent of the deposit located approximately 1 km from Provincial Highway 11 and high-voltage (230 Kv) transmission lines that lead to the Port of Belledune, located 18 km to the east. The Port of Belledune hosts a deep-water port, 450 megawatt power plant and Glencore's Brunswick Lead Smelter. The regional labour force includes experienced mining equipment and concentrator operators, mine workers, technical personnel and consumable and equipment suppliers.

The Nash Creek Property is approximately 50 km by road northwest of the historic base metal producing mining town of Bathurst, NB. The Superjack Property is located approximately 45 km by road southwest of Bathurst, NB.

The services and ancillary facilities required for the Project will include the following:

At Nash Creek:

- Access road from Centenaire Street (approximately 200 m). Site access roads will accommodate highway transport trucks in the construction phase as well as concentrate shipments during production;
- New site service roads and haul roads;
- Power supply connection to the NB Power grid, which passes within 3 km of the proposed process plant site and site transformer station;

- Backup emergency power generating facilities for lighting and to maintain critical process plant operations;
- Buildings, including an administration/engineering building, a change house, a warehouse facility and a heavy equipment maintenance and repair shop;
- Site water management; and
- Surface mobile equipment, including a road grader, water truck, service truck, ambulance, fire/ rescue truck and pickup trucks.

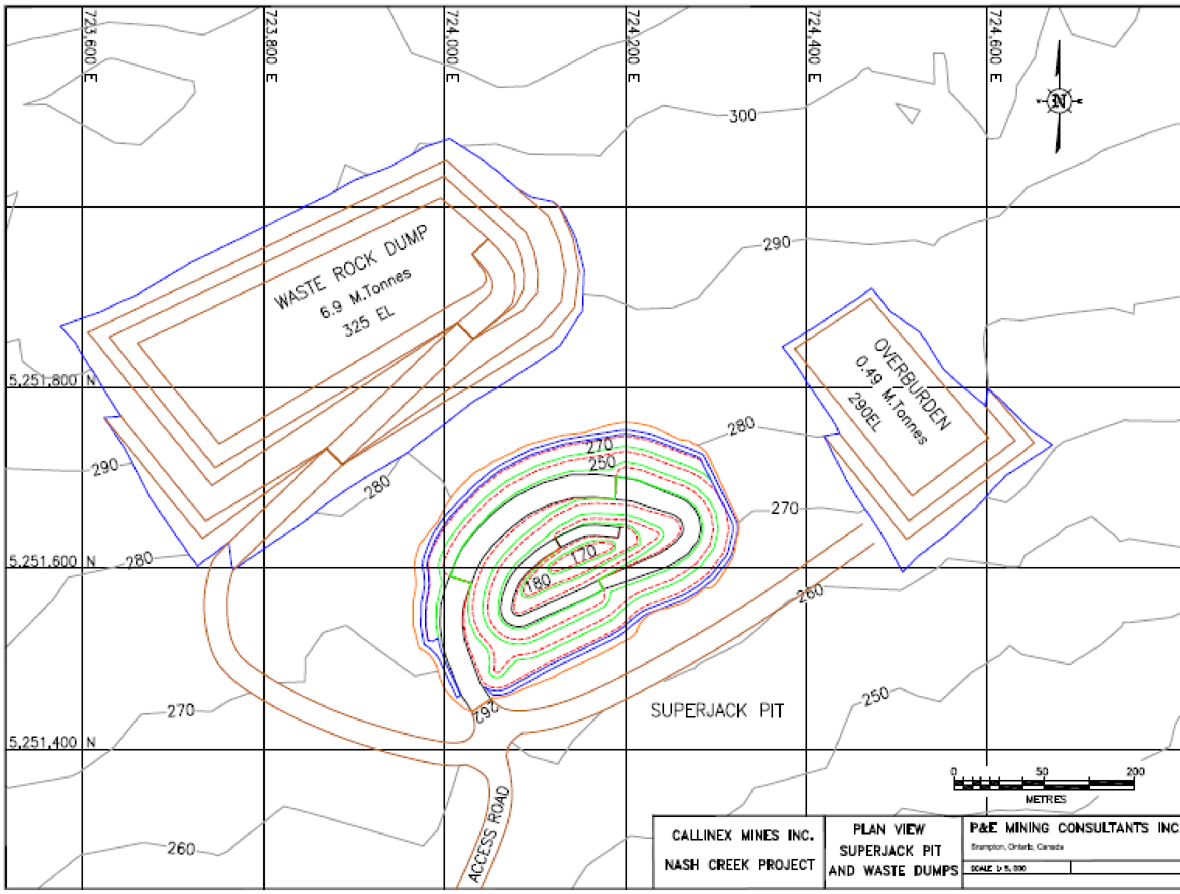
For more details refer to Figure 1.1, Nash Creek Property Site Plan.

At Superjack: (A small satellite mine feeding into the Nash Creek process plant)

- Access Road from NB430 (approximately 300 m from project);
- New site service roads and haul roads;
- Temporary portable power supply generator and power distribution for office and dry trailers and temporary shop facility until connected to electrical grid;
- Office and dry trailers, a temporary containerized warehouse facility and a temporary heavy equipment maintenance and repair shop;
- Site water management systems; and
- Surface mobile equipment, including a road grader, water truck and pickup trucks.

For more details refer to Figure 1.2, Superjack Property Site Plan

FIGURE 1.2 SUPERJACK PROPERTY SITE PLAN



1.5 ENVIRONMENTAL IMPACT AND REHABILITATION

The Nash Creek and Superjack Project sites can be classified as green-field sites with minimal historical disturbance of land and forest and would be subject to a federal-provincial coordinated Environmental Impact Assessment ("EIA"). Significant additional base-line studies and public consultations are anticipated to be needed to complete an EIA and to obtain official and public consent for the Project to proceed. Previous environment related studies carried out at the Nash Creek Property have been limited and include a bird study and a domestic well water survey which were conducted in May and August of 2008. No known environmental related studies have been carried out at the Superjack Property; however, the project is located within an area with extensive historic mining and logging activities. A major component of the EIA studies will be hydrological studies at the Nash Creek site to provide confidence in protecting ground water quality and the avoidance of ground water level depression to neighbouring communities and agricultural land as a result of mine development dewatering operations.

No initiation of the Project approvals process has yet been triggered, however, the Company has been in discussions with environmental consulting firms with respect to an EIA submission. Final approval of an application for a mining lease would be expected after the Mine and Reclamation Plan is approved. The Mineral Resources contained within the Nash Creek Property are located on private land while the Mineral Resource contained within the Superjack Property is on Crown Land. The Approval to Operate for the Project would set out water and air quality, noise limits, as well as monitoring and reporting requirements.

The Project, as currently envisaged would make use of best management practices and engineered controls to minimize or mitigate potential environmental impacts during project development and operations and will be designed to meet specific Nash Creek and Superjack Property closure and reclamation objectives.

P&E assumes that for the first four years the process plant Tailings Management Facility ("TMF") will be contained in a High Density Polyethylene ("HDPE") lined facility, operated submerged under water during operations and covered with a multi-zone soil cover upon closure. Disposal of tailings in the Hickey South pit will account for the tailings volume from year five onwards. Potentially acid-generating waste rock would be disposed in the Hayes pit at the end of mining and will be submerged under water as the pit naturally fills with water. This is an accepted technique for the prevention of acid water generation and metal leaching.

It is expected that approximately 90% of the mined waste rock will be classified as Non-Acid Generating ("NAG"). Furthermore, the remaining 10% of waste rock and mineralized zones are anticipated to have relatively low acid-generating potential due to low iron and sulphur levels. Additionally, there is a significant amount of contained carbonate material that has the potential to neutralize any acid-generating potential that remains.

Environmentally related costs for the pre-production period, operations and on closure are summarized below. These cost estimates are based on P&E's experience in these matters and each cost considered to be within an accuracy of +/- 50%.

- Pre-operation environmental costs - $16.2 M;
- Environmental costs during operations - $0.5 M plus a $1.44 cost per processed tonne for environmental services including PAG waste rock separation, water collection and treatment, effluent treatment, environmental monitoring and on-going social consultations; and
- Site reclamation following closure - $15.8 M.

1.6 FINANCIAL EVALUATION

The Nash Creek and Superjack Project financial results are summarized in Table 1.3 and indicate an after-tax undiscounted net cash flow of $292.5 M, an internal rate of return ("IRR") of 25.2% and a 2.8-year payback. The project generates a Net Present Value ("NPV") of $127.6 M based on a discount rate of 8.0%. The initial capital expenditure would be $168.3M with a life-of-mine capital cost of $226.2 M. All currency values are expressed in Canadian dollars unless otherwise noted.

TABLE 1.3 FINANCIAL RESULTS SUMMARY	
NPV (0%) (After-tax)	$292.5 M
NPV (5%) (After-tax)	$175.7 M
NPV (8%) (After-tax)	$127.6 M
IRR (After-tax)	25.2%
Payback (Years)	2.8
Total LOM Capital	$226.2 M

The financial results are based the approximate two-year trailing average US$ metal prices of $1.25/lb zinc, $1.10/lb lead and $17.00/oz silver and exchange rate of US$ 0.77 = C$ 1.00 as of April 30, 2018.

The Project is most leveraged to the price of zinc at +/- 20%. Figures 1.3 and 1.4 show the NPV and IRR sensitivity to metal prices, capital and operating expenses.

This toll processing concept generated a pre-tax Internal Rate of Return ("IRR") of 46.9% (32.3% after-tax) and a pre-tax NPV of $125 M ($69 M after-tax) based on an 8% discount rate. The pre-production cost was estimated to be $62 M. The reduced capital requirements were examined together with the higher toll processing and transport costs. There may be an opportunity to further increase the financial potential of the toll processing concept by using a higher cut-off grade than was used in the Base Case scenario to off-set higher processing and transportation costs. While the toll processing results were positive, the base case DMS process plant was shown to be more attractive and achievable along with the potential to leverage the considerable exploration upside of Callinex's district-scale land package.

FIGURE 1.3 NPV SENSITIVITY TO METAL PRICES, CAPEX AND OPEX

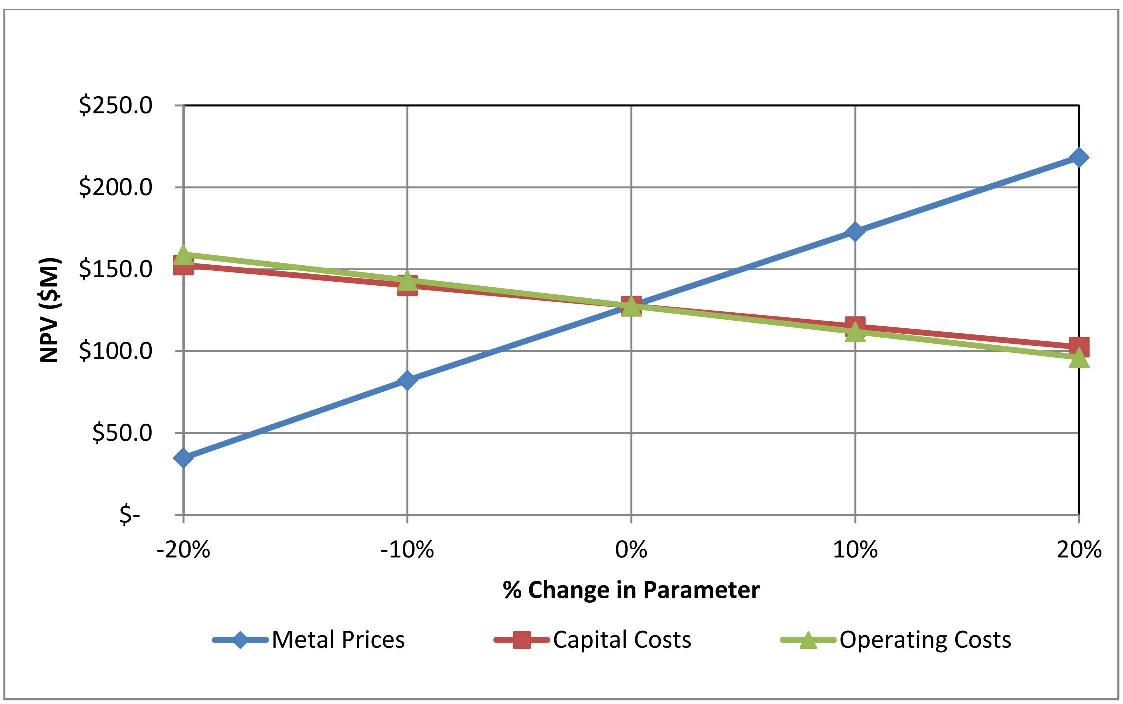
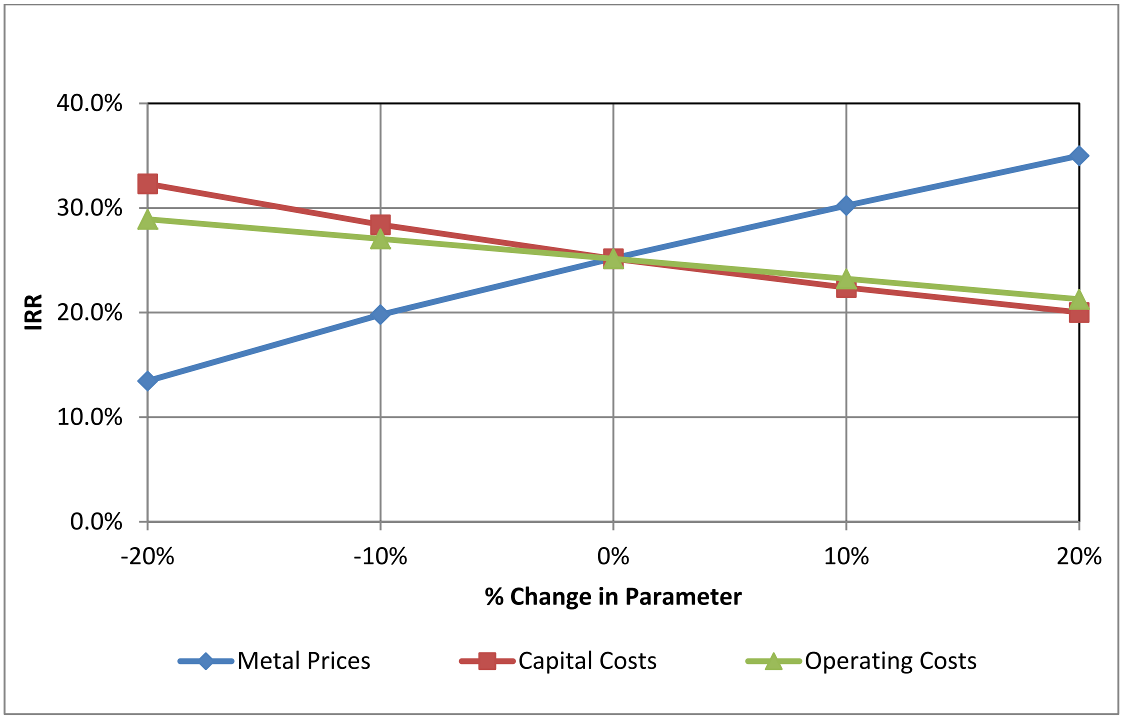


FIGURE 1.4 IRR SENSITIVITY TO METAL PRICES, CAPEX AND OPEX



The Nash Creek and Superjack Projects are more sensitive to varying zinc and lead prices than capital and operating costs. The after-tax IRR of the project drops to approximately 18% if zinc and lead prices fall to US$1.05/lb and US$1.00/lb respectively for each metal. However, an increase in prices to US$1.45/lb and US$1.20/lb, respectively for zinc and lead, would result in a higher after-tax IRR of 32%. There is also potential to include significant Mineral Resources located beneath the open pits at higher metal prices that were not included within the conceptual mine plan.

A cash flow model of the Base Case scenario is available in Appendix A.

1.7 CONCLUSIONS AND RECOMMENDATIONS

The Nash Creek and Superjack mineral deposits have demonstrated strong potential to become economically viable conventional open pits using standard hard rock mining methods producing an average of 3,900 tpd over a LOM of 10 years when combined into a single project. The mine product could potentially be processed in a DMS pre-concentration plant followed by a flotation operation to generate saleable zinc and lead concentrates. Initial estimates indicate that the waste products from the operation (tailings, waste rock and DMS rejects) could be disposed of safely in the mined out and shut down production open pits or in an approved TMF.

P&E investigated the potential of off-site processing of the DMS plant product at a conceptual off-site toll processing facility. Initial results suggest that whereas this option is viable and financially attractive, the option of processing the material on site is shown to be more attractive and achievable along with the potential to leverage the considerable exploration upside of Callinex's district-scale land package.

P&E recommends that based on the favourable economics the Nash Creek and Superjack Project, it is of merit and should be advanced to a Pre-Feasibility Study level.

Specifically, it is recommended that Callinex under take the following actions to develop the Project to a Pre-Feasibility Study level:

- Continue metallurgical testwork on larger scale to confirm and improve the process design with the goal of proving the DMS recovery concept and improving metal recoveries;
- Continue to examine the off-site processing options;
- Characterize the acid generation / acid consuming and metal leaching potential of the mine waste materials likely to be produced from the Project;
- Develop a more detailed mine waste and site water management plan at the next technical assessment stage of the Project;
- Carry out preliminary geotechnical investigations in the area of the proposed open pit and waste storage areas;
- Carry out a preliminary hydrogeological investigation and modelling study for the Project;
- Investigate and negotiate preliminary commercial parameters of key project components such as power supply, fuel and grinding media and key reagents;
- Review the envisaged Project with regulatory authorities including possible environmental and social impact assessment study requirements and related public consultation aspects, timelines, etc. and consider proactively commencing studies that are likely to be required or that may require an extended time to complete; and
- Determine the environmental assessment requirements that are established as an initial part of the environmental impact assessment process.

P&E also recommends that other base metal exploration targets in the area continue to be identified and investigated to provide additional economic process plant feed in the future. It is anticipated that additional process plant feed could have a favourable impact on the economic potential of the Project.

The reader should be aware that this PEA is preliminary in nature and its potentially mineable tonnage includes Inferred Mineral Resources that are considered too speculative geologically to apply economic considerations that would enable them to be categorized as Mineral Reserves.

2.0 INTRODUCTION AND TERMS OF REFERENCE

2.1 TERMS OF REFERENCE

This Preliminary Economic Assessment ("PEA") and Technical Report was prepared by P&E Mining Consultants Inc. ("P&E") at the request of Callinex Mines Inc ("Callinex" or "the Company") and incorporates Mineral Resource Estimates for the Nash Creek and Superjack properties which were prepared by Tetra Tech Canada Inc (Tetra Tech). The purpose of this report is to provide a National Instrument 43-101 ("NI 43-101") Technical Report and Preliminary Economic Assessment on the Nash Creek and Superjack properties. The Nash Creek Property is located approximately 50 km by road to the northwest of the town of Bathurst, NB and the Superjack Property is located approximately 45 km by road southwest of Bathurst, NB. The Nash Creek and Superjack properties ("the Project") are 100% held by Callinex.

Callinex is a public, TSX Venture Exchange listed, zinc exploration and development company trading under the symbol "CNX", with its head office located at:

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Vancouver, BC
Canada
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Tel: 604-605-0885

This Technical Report has an effective date of May 14, 2018.

Eugene Puritch, P.Eng., FEC, CET of P&E conducted a site visit to the Nash Creek and Superjack properties on June 19, 2018. James Barr, P.Geo. conducted a site visit to the Nash Creek Property on February 14-15, 2018. Cameron Bartsch, P.Geo. conducted a site visit to the Nash Creek Property on July 13, 2016 and the Superjack Property on October 14, 2016. Messrs. Puritch, Barr and Bartsch are Qualified Persons ("QP's") under the terms of NI 43-101.

In addition to the site visit, P&E carried out a study of relevant parts of the available literature and documented results concerning the Project. P&E also held discussions with technical personnel from the company regarding pertinent aspects of the Project. The reader is referred to these data sources that are outlined in the References section of this report for further details on the Project.

The purpose of the current report is to provide an independent Technical Report and Preliminary Economic Assessment of the base metal and precious metal mineralization present at the Project in conformance with the standards required by NI 43-101 and Form 43-101F.

2.2 SOURCES OF INFORMATION

The Project consists of mineral deposits located on the Nash Creek and Superjack Properties. The Mineral Resource on the Nash Creek Property referred to in this Technical Report were prepared previously by Tetra Tech. Mineral Resource Estimate disclosed in the June 3, 2018 Technical Report titled "Technical Report and Updated Mineral Resource Estimate on the Nash

Creek Project, New Brunswick, Canada" with an effective date of March 21, 2018 ("the 2018 Tetra Tech Report on the Nash Creek Deposit").

The Mineral Resource Estimate for the Superjack Property was disclosed in the October 28, 2016 Technical Report titled "Updated Technical Report on the Superjack Project, New Brunswick, Canada", with an effective date of July 15, 2016 ("the 2016 Tetra Tech Report on the Superjack Deposit").

James Barr, P.Geo. of Tetra Tech is responsible for the 2018 Technical Report on the Nash Creek Property and is a co-author with Cameron Bartsch, P.Geo. of the 2016 Technical Report on the Superjack Property. Mr. Barr is also responsible for Sections 4 through 12.1, 14, and 23.1, excluding section 10.2.5, of this Technical Report, which have been taken from the 2018 Tetra Tech Report on the Nash Creek Deposit and the 2016 Tetra Tech Report on the Superjack Project. The Nepisiguit A, B and C Zones have been subsequently renamed the Superjack A, B and C Zones. (Note that some terms and abbreviations used in these previous Technical Reports were left unchanged in this report, even though they did not all match the defined terms and abbreviations in this report. However, it is expected that the understanding of the content of those sections should still be clear to the reader.)

This Technical Report is based in part on internal company technical reports and maps, published government technical reports, published scientific papers, company letters and memoranda, and public information listed in Section 27.0 "References" at the conclusion of this Technical Report. Several sections from reports authored by other consultants have been directly quoted or summarized in this report and indicated as such in the appropriate sections. P&E held discussions with technical personnel from the company regarding pertinent aspects of the Project. P&E has not conducted detailed land status evaluations, and has relied on previous qualified reports, public documents and statements by Callinex management regarding the status and legal title to the Project.

2.3 EFFECTIVE DATE

The Effective Date of May 14, 2018 listed for this Technical Report reflects the cut-off date by which all scientific and technical information was received and used for its preparation.

2.4 GRADE REPORTING

Zinc equivalent ("ZnEq") grades are used to assess the cut-off grade and contained value of the polymetallic (Zn, Pb and Ag) mineralized materials in the deposits.

2.5 UNITS AND CURRENCY

Unless otherwise stated, all units used in this Technical Report are metric. Terms and abbreviations are summarized in Table 2.1. In some cases, where the historic context dictates, the use of Imperial units is used without conversion. Tonnages are shown as tonnes ("t"), equivalent to 1,000 kg, and linear measurements are metres ("m"), or kilometres ("km"). Canadian currency ("$", C$ or "Dollars") is used throughout this report unless the United States currency ("US$") is specifically stated. For the purpose of calculating potential revenue from the operation, an exchange rate between the US$ and C$ is 0.77 US$ per C$.

TABLE 2.1
TERMINOLOGY AND ABBREVIATIONS

Abbreviation	Meaning
"AAS"	atomic absorption spectrometry
"Ag"	silver
"AMEX"	American Metal Company
"ARD"	acid rock drainage
"asl"	above sea level
"Au"	gold
"BHPEM"	borehole pulse electromagnetic
"BMC"	Bathurst Mining Camp
"°C"	degree Celsius
"CB"	Chaleur Bay Synclinorium
"Cd"	cadmium
"CDE"	Canadian development expense
"CEE"	Canadian exploration expense
"CIM"	Canadian Institute of Mining, Metallurgy, and Petroleum
"cm"	centimetre(s)
"CRM"	certified reference material
"Cu"	copper
"CV"	coefficient of variation
"DGPS"	differential global positioning system
"DMS"	Dense Media Separation
"Dome"	Dome Exploration Ltd.
"$"	dollars, Canadian currency
"US$"	dollars, United States currency
"$M"	dollars, millions
"EIA"	environmental impact assessment
"EDA"	exploratory data analysis
"EM"	electromagnetic
"EPCM"	engineering, procurement, construction and management
"Fe"	iron
"ft"	foot
"G&A"	general and administration
"g/t"	grams per tonne
"GRAV"	gravimetry
"ha"	hectare(s)
"HDPE"	high density polyethylene
"ICP-AES"	inductively coupled plasma-atomic emission spectrometry
"ICP-OES"	inductively coupled plasma-optical emission spectrometry
"ID"	inverse distance
"IP"	induced polarization
"IRR"	internal rate of return

TABLE 2.1
TERMINOLOGY AND ABBREVIATIONS

Abbreviation	Meaning
"ISO"	International Organization for Standardization
"JRS"	Jacquet River Syncline
"k"	thousand(s)
"KE"	kriging efficiencies
"km"	kilometre(s)
"kW"	Kilowatt
"l"	litre(s)
"lb"	pound (weight)
"l/s"	litres per second
"LOM"	life of mine
"m"	metre(s)
"m^3"	cubic metre(s)
"Ma"	millions of years
"ML"	metal leaching
"mm"	millimetre
"MMA"	New Brunswick Metallic Minerals Act
"Mt"	mega tonne or million tonnes
"Mo"	molybdenum
"Mn"	manganese
"MW"	megawatts
"NAD"	North American Datum
"NAG"	non-acid generating
"NBDNR"	New Brunswick Department of Natural Resources
"MERD"	New Brunswick Ministry of Energy and Resource Development
"Ni"	nickel
"NI"	National Instrument
"NN"	nearest neighbour
"Noranda"	Noranda Exploration Mining
"NSR"	Net Smelter Return
"NW"	northwest
"NPV"	net present value
"OK"	ordinary kriging
"oz"	ounce
"P_{80}"	80% percent passing
"P&E"	P&E Mining Consultants Inc.
"PAG"	potentially acid producing
"Pb"	lead
"PEA"	preliminary economic assessment
"P.Eng."	Professional Engineer
"P.Geo."	Professional Geoscientist
"ppm"	parts per million
"QA/QC"	quality assurance/quality control

Table 2.1 **Terminology and Abbreviations**	
Abbreviation	**Meaning**
"QP"	qualified person
"QQ"	quantile-quantile
"ROM"	run of mine
"RPC"	Research & Productivity Council
"RPD"	relative percent difference
"RQD"	rock quality determination
"Sb"	antimony
"SCME"	Standing Committee on Mining and the Environment
"SE"	southeast
"SLAM"	SLAM Exploration Ltd
"SW"	Southwest
"t"	metric tonne(s), 1,000 kg
"TAG"	Trans-Atlantic Geotraverse
"Texasgulf"	Texasgulf Canada Ltd.
"the Project"	Nash Creek and Superjack properties
"Trevali"	Trevali Mining Corporation
"tpd"	tonnes per day
"TMF"	tailings management facility
"TSF"	tailings storage facility
"US$"	United States dollar(s)
"UT"	University of Toronto
"UTM"	Universal Transverse Mercator grid system
"VLF"	very low frequency
"VMS"	volcanogenic massive sulphide
"VSHMS"	volcanic-sediment hosted massive sulphide
"WSF"	waste rock storage facility
"wt.%"	weight percent
"Zn"	zinc
"ZnEq"	zinc equivalent
"y"	year

3.0 RELIANCE ON OTHER EXPERTS

P&E has assumed that all of the information and technical documents listed in the References section of this report are accurate and complete in all material aspects. While the Authors of this document have carefully reviewed all of the information provided by Callinex and others, they cannot guarantee its accuracy and completeness. P&E reserves the right, but will not be obligated, to revise this Technical Report and its conclusions if additional information becomes known to P&E subsequent to the date of this Technical Report.

Copies of the tenure documents, land titles, mineral rights, operating licenses, permits, and work contracts were not reviewed by the Authors of this Technical Report. P&E has not verified the legality of any underlying agreement(s) that may exist concerning the licenses or other agreement(s) between Callinex and other parties, but has relied on, and believes it has a reasonable basis to rely upon Callinex to have conducted the proper legal due diligence.

Select technical data, as noted in this Technical Report, were provided by Callinex and P&E has relied on the integrity of such data.

A draft copy of the Technical Report has been reviewed for factual errors by Callinex and P&E has relied on Callinex's knowledge of the Project in this regard. All statements and opinions expressed in this document are given in good faith and in the belief that such statements and opinions are not false and misleading, as of the date of this Technical Report.

4.0 PROPERTY DESCRIPTION AND LOCATION

4.1 NASH CREEK PROPERTY

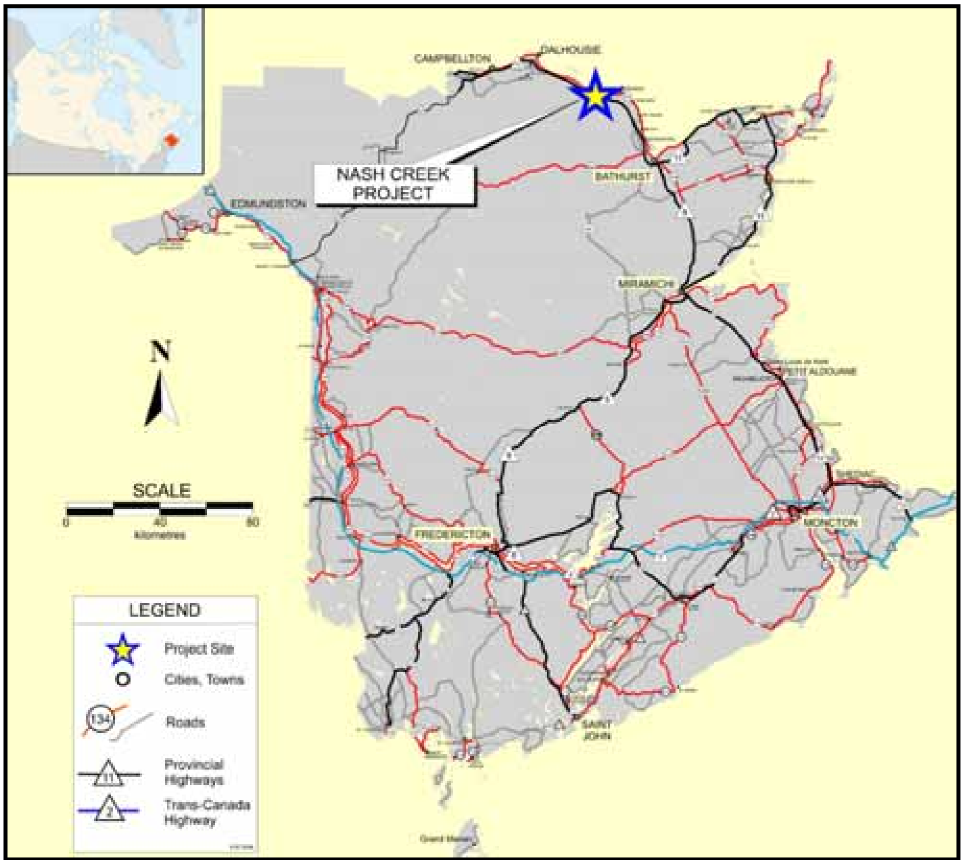
4.1.1 Location

The Nash Creek Property is located:

- Within National Topographic System (“NTS”) map sheets 21O/16 and 21P/13;
- At approximately 47° 53’ north (“N”) and 66° 06’ west (“W”) in northeast New Brunswick, in eastern Canada;
- Approximately 215 km north of Fredericton, the provincial capital city of New Brunswick;
- Approximately 18 km east from the Port of Belledune and 45 km northwest from Bathurst, New Brunswick;
- In the County of Restigouche; and
- Approximately 30 km north-northwest from the Caribou Zine Mine (Trevali Mining Corporation) site.

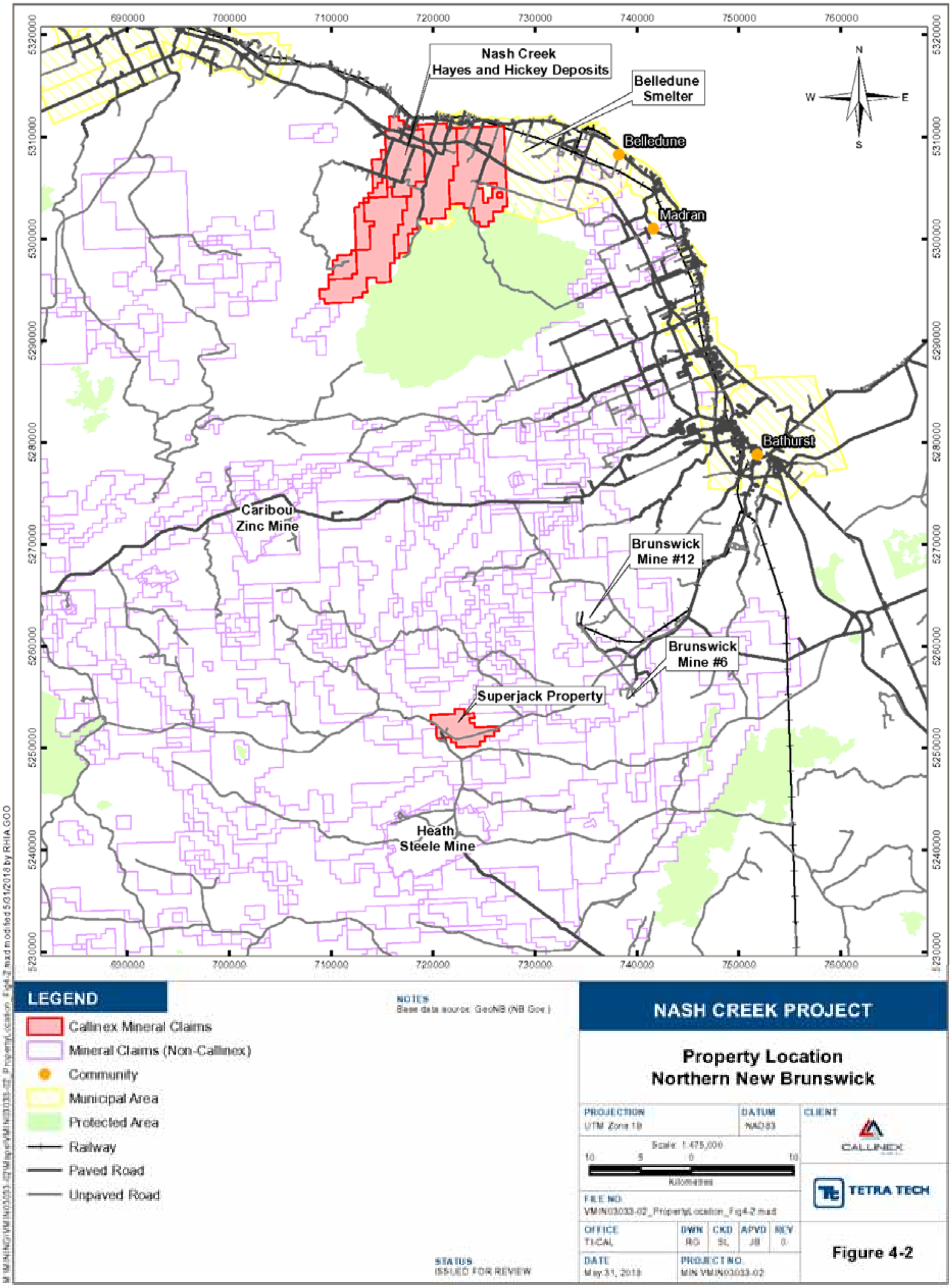
The Nash Creek Property and the Hickey and Hayes deposits (collectively referred to as the “Nash Creek Deposit”) are presented in Figures 4.1 and 4.2 respectively.

FIGURE 4.1 LOCATION MAP



Source: *2018 Tetra Tech Report on the Nash Creek Property.*

FIGURE 4.2 NASH CREEK PROPERTY LOCATION MAP



Source: *2018 Tetra Tech Report on the Nash Creek Property.*

4.1.2 Purchase Agreement

Callinex acquired the Nash Creek Property and existing data from SLAM Exploration Ltd. ("SLAM") through a joint property purchase agreement dated May 13, 2016. Under the term of the Agreement, Callinex agreed to purchase a 100% interest in both the Nash Creek and Superjack properties for a total of $450,000, and data for both properties at a sum of $300,000.

SLAM has retained a 1.0% Net Smelter Return ("NSR") royalty over an area that covers the current Nash Creek Mineral Resource and is payable upon commercial production. The royalty is subject to adjustment based on zinc price, increasing by 0.25% if the price of zinc is above US$1.25/lb and an additional 0.25% if above US$1.50/lb. Callinex has the option to purchase 50% of the NSR royalty on both the Nash Creek and Superjack properties for $500,000.

4.1.3 Mineral Rights

Mineral rights to the Nash Creek Property are 100% owned by Callinex and are currently comprised of seven contiguous mineral claims, totalling 15,542.31 hectares. All mineral claims comprising the Nash Creek Property are shown in good standing as of the effective date of this Technical Report (see Table 4.1). The mineral claims for the Nash Creek Property are shown in Figure 4.3.

TABLE 4.1
NASH CREEK PROPERTY MINERAL CLAIM BLOCKS

Right Number	Mineral Claim Name	NTS Sheet	Original Effective Date	Expiry Date	Status	Surface Area (ha)
8736	Nash Creek Buffer	21 O/16	5/4/2018	5/4/2019	Active	368.32
4010*	Nash Creek	21 O/16	2/1/2002	2/1/2019	Active	2,404.52
8712	Mitchell Settlement	21 O/16 21 P/13	4/16/2018	4/16/2019	Active	4,073.99
8391	Nash Creek East	21 O/16	9/21/2017	9/21/2018	Active	3,727.68
8614	Nash Creek West	21 O/16	2/14/2018	2/14/2019	Active	802.27
8711	Nash SW Extension	21 O/16	4/16/2018	4/16/2019	Active	542.50
8303	Nash Creek South	21 O/16	7/20/2017	7/20/2019	Active	3,623.03
Total						**15,542.31**

Source: *2018 Tetra Tech Report on the Nash Creek Property.*
***** *Hosts the Nash Creek Deposit, with Hickey and Hayes Mineral Resource Estimates*
Source: *New Brunswick e-Claims*

4.1.4 Surface Rights and Property Access Agreements

The Nash Creek Property consists of mineral rights to a district-scale land package that spans more than 150 km². Surface rights to the lands underlying the Nash Creek Property are a combination of private and public land. The current Mineral Resources are located beneath private land. Callinex has purchased 126 acres of land which underlies a significant portion of the Nash Creek Deposit. The land purchase is wholly located within the Nash Creek Property boundary and also provides direct road access to the Nash Creek Deposit.

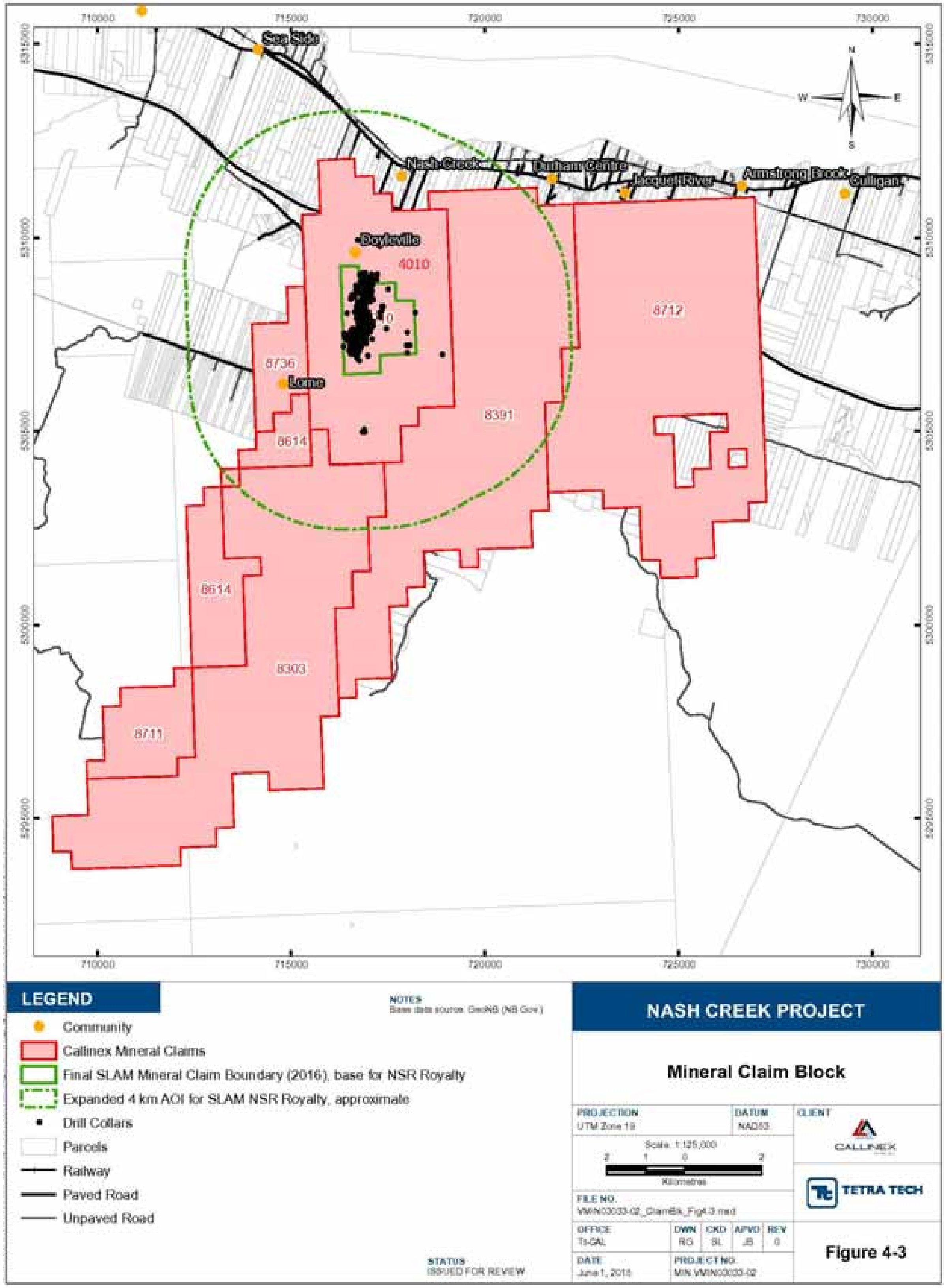
Callinex has been successful in negotiating exploration agreements with all private landowners located on and adjacent to the Nash Creek Deposit that it has approached. These exploration agreements provide compensation to private landowners for drill holes completed, new drill road construction, and entitle the landowners to any fallen timber. The exploration agreements automatically renew on an annual basis unless otherwise notified.

Additionally, the New Brunswick ("NB") Mining Act provides a mechanism to permit continued exploration on private lands provided a modest environmental reclamation bond is provided.

4.1.5 Liabilities and Encumbrances

The QP is not aware of any political, legal or environmental liabilities or other significant factors or risks that may affect access, title, or the right or ability to perform work on the property.

FIGURE 4.3 NASH CREEK PROPERTY MINERAL CLAIM MAP



Source: 2018 Tetra Tech Report on the Nash Creek Property.

4.2 SUPERJACK PROPERTY

The Superjack Property was formerly known as the Nepisiguit Property.

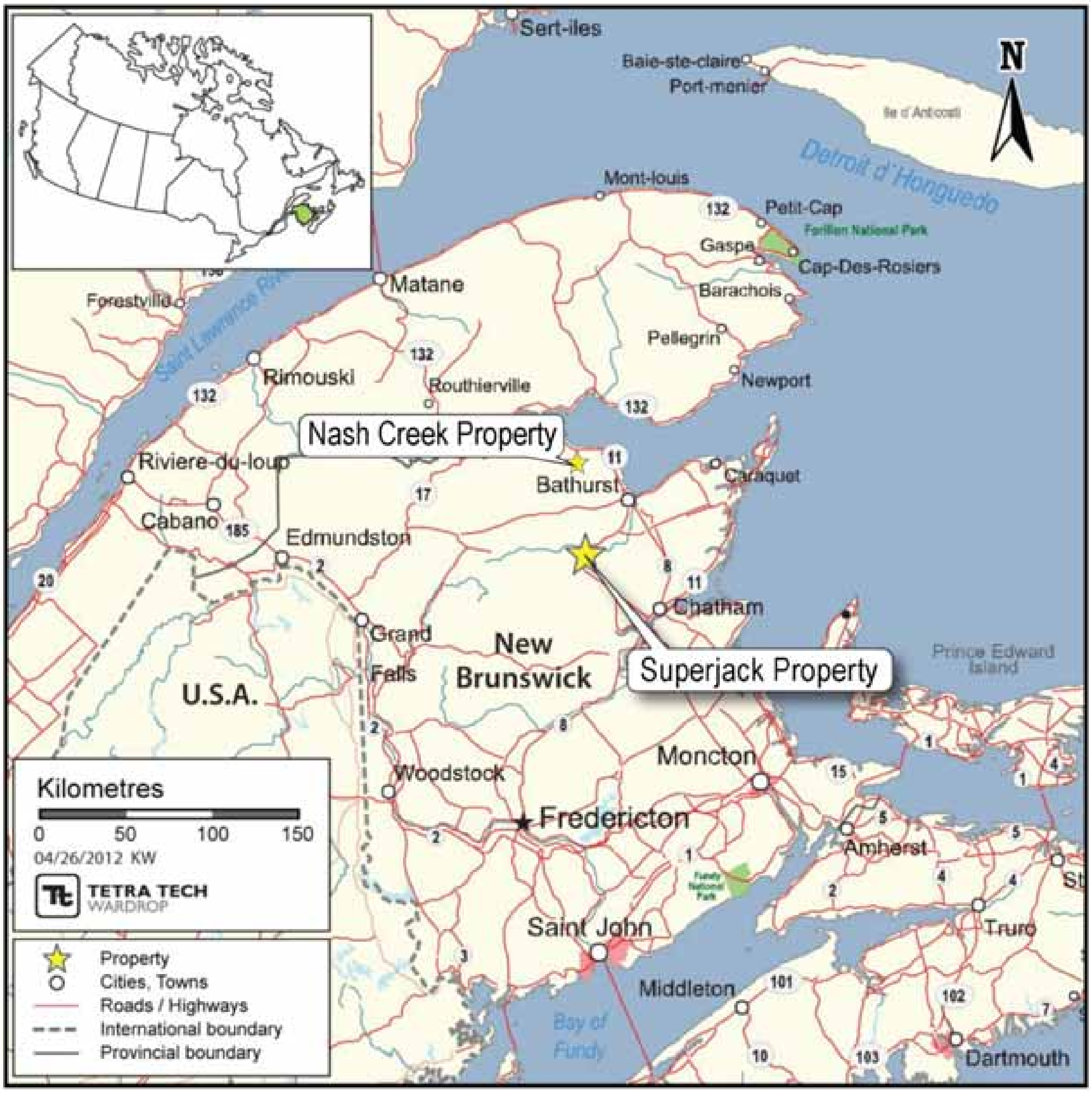
4.2.1 Location

The Superjack Property is located:

- partially in Bathurst Parish, Gloucester County and partially in Northesk Parish, Northumberland County, New Brunswick;
- at approximately 47° 23' 00" N latitude, 66° 05' 00" W longitude on NTS map 21O/8 and 21P/5;
- Universal Transverse Mercator (“UTM”), North American Datum (“NAD”) 83 (Zone 19 N) location is 720142E and 5251890N at an elevation of approximately 300 m asl;
- 34 km southwest of Bathurst, New Brunswick along Highway 430;
- 50 km northwest of Miramichi; and
- in the central/southern area of the Bathurst Mining Camp.

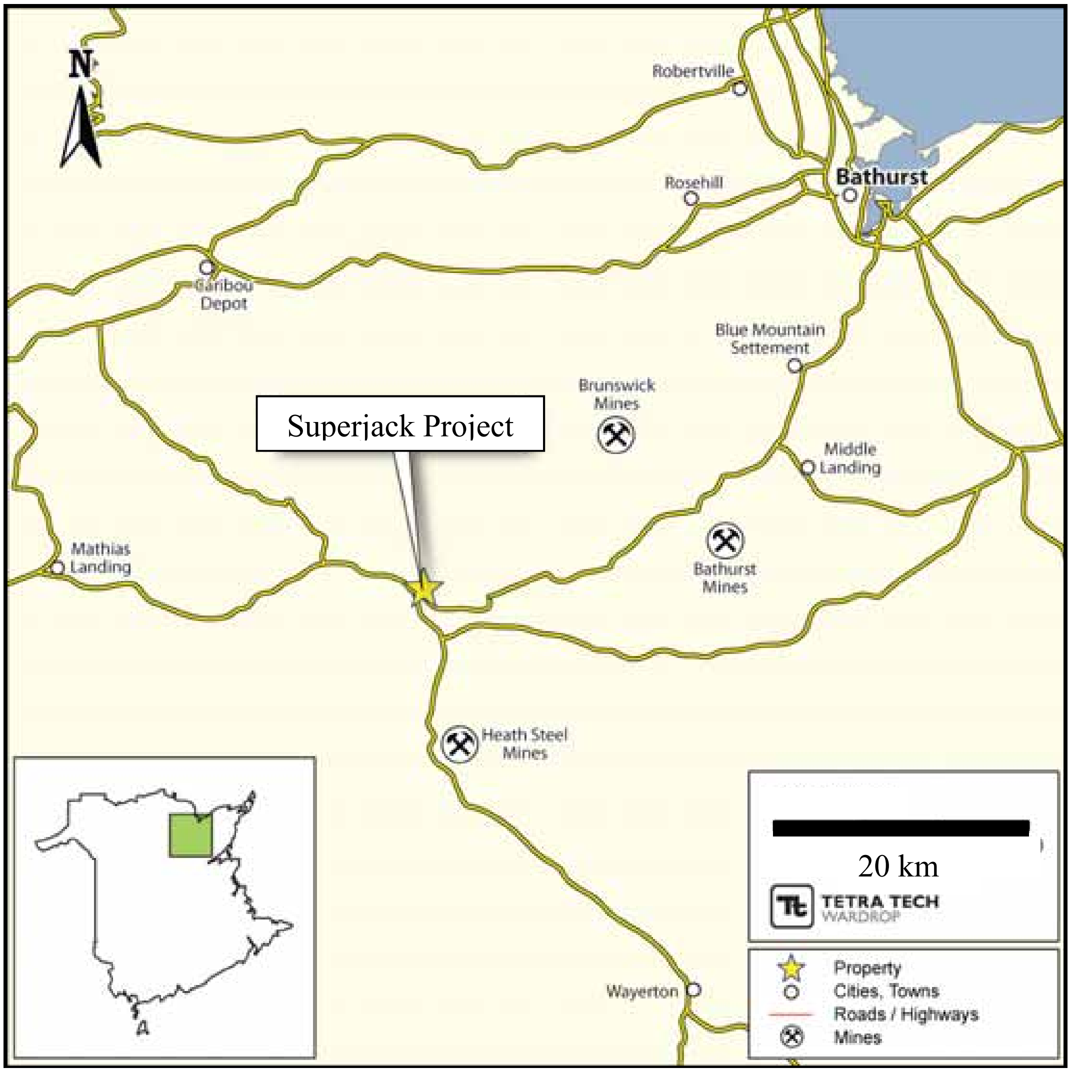
The Superjack Property is situated as shown in Figures 4.4 and 4.5.

FIGURE 4.4 MAP OF NEW BRUNSWICK WITH THE SUPERJACK PROPERTY LOCATION



Source: *2016 Tetra Tech Report on the Superjack Property*

FIGURE 4.5 MAP OF THE BATHURST MINING CAMP WITH THE SUPERJACK PROPERTY LOCATION



Source: *2016 Tetra Tech Report on the Superjack Property.*

4.2.2 Purchase Agreement

Callinex acquired the Superjack Property and existing data from SLAM through a multiple property purchase agreement dated May 13, 2016. Under the term of the Agreement, Callinex agreed to purchase a 100% interest in both the Nash Creek and Superjack properties for a total of up to $450,000, and data for both properties at a sum of $300,000.

SLAM has retained a 1.0% NSR royalty over an area that covers the current mineral resource and is payable upon commercial production. The royalty is subject to adjustment based on zinc price, increasing by 0.25% if the price of zinc is above US$1.25/lb and an additional 0.25% if above US$1.50/lb. Callinex has the option to purchase 50% of the NSR royalty on both the Nash Creek and Superjack properties for $500,000.

4.2.3 Superjack Property Description and Tenure

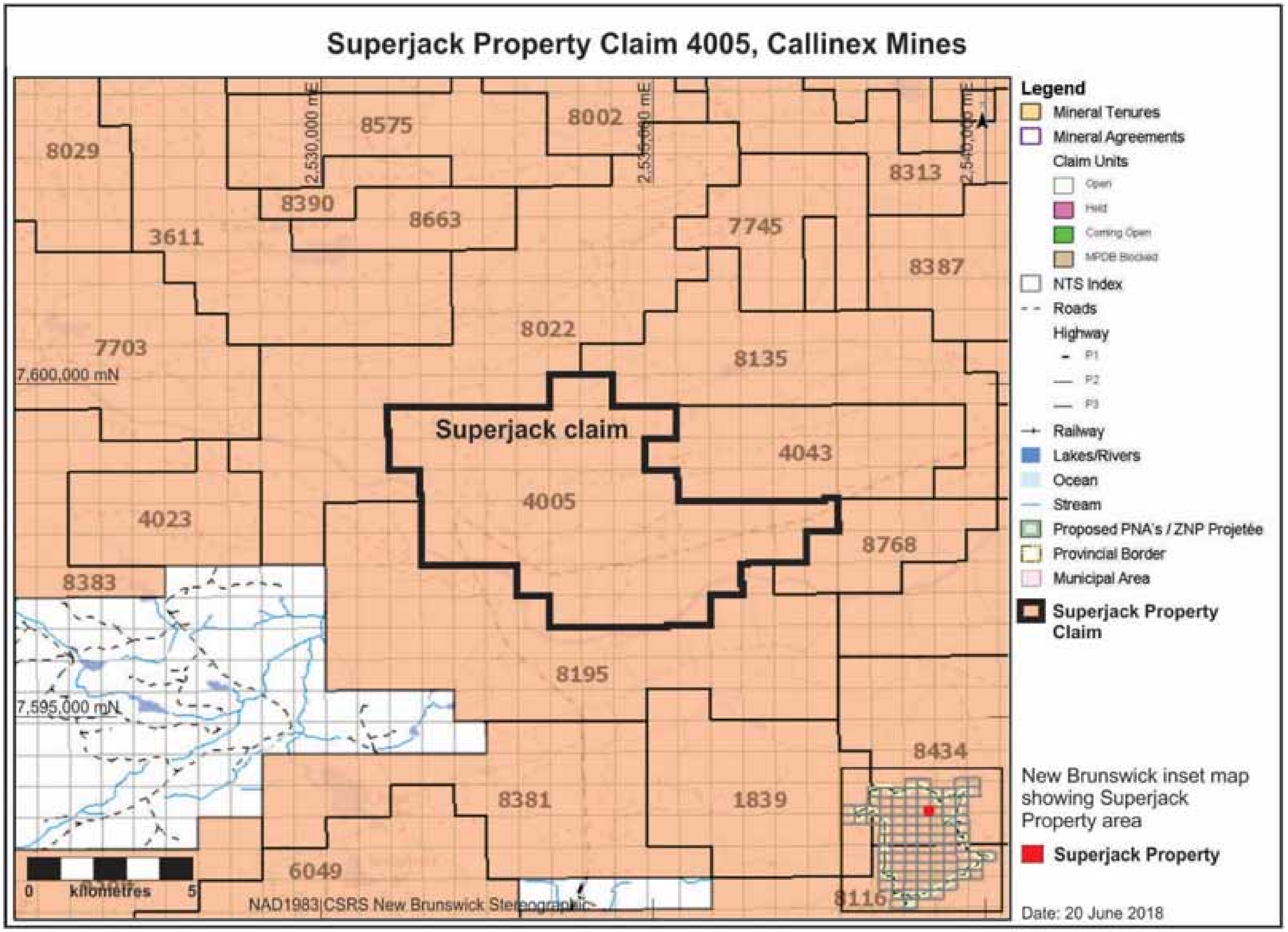
The Superjack Property is comprised of a single contiguous claim block covering approximately 1,399 ha. Table 4.2 lists the Superjack Property mineral claims. The mineral claim is illustrated in Figure 4.6. The subject of this report is the Superjack A, B, and C zones as previously identified, located within the central portion of the Superjack Property mineral claim named "Mud Lake".

TABLE 4.2
SUPERJACK PROPERTY CLAIM RIGHTS

Right Number	Mineral Claim Name	NTS Sheet	Issue Date	Expiry Date	Status	Area (ha)
4005	Mud Lake	21 O/08	2002/01/03	2019/01/03	Active	1,399.15

Source: *New Brunswick e-Claims*

FIGURE 4.6 SUPERJACK PROPERTY CLAIM MAP



Note: *Superjack A, B, and C zones lie within mineral claim 4005 (claim name "Mud Lake")*
Source: *New Brunswick e-Claims*

5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 NASH CREEK PROPERTY

5.1.1 Access

The Nash Creek Property is situated approximately 45 km northwest from the city of Bathurst, the business hub for northeastern New Brunswick.

From Fredericton the Nash Creek Property can be accessed by following:

- Lincoln Road west for approximately 12 km to join;
- Highway 8 north and northeast for approximately 190 km to Miramichi and an additional 70 km to Bathurst to join;
- Highway 11 northwest for approximately 70 km to the turn off for Doyleville and Nash Creek to join;
- Hayes Road southwest towards Doyleville and to several secondary roads and logging roads that allows access to various parts of the Nash Creek Property (Figure 5.1).

From Moncton the Nash Creek Property can be accessed by following:

- Highway 15 northeast for approximately 13 km to Shediac to join;
- Highway 11 northwest for approximately 120 km northwest to Miramichi where the highway intersects with Highway 8 from Fredericton and continues to the Nash Creek Property as described above.

The drive from Bathurst to the Property is approximately half an hour. The drive from either Fredericton or Moncton to the Nash Creek Property is typically three hours.

FIGURE 5.1 TYPICAL ACCESS ROAD ON THE NASH CREEK PROPERTY

(photograph taken July 2016)
Source: *2018 Tetra Tech Report on the Nash Creek Property.*

5.1.2 Climate

The following section on Climate is adapted from Cullen and Barr, 2005.

Northeastern New Brunswick lies in the northern temperate zone, characterized by large seasonal variations. Winter consists of freezing temperatures with substantial snowfall expected from late November through late March and warm summer conditions prevail from late June through early September. Shoulder seasons are typically cool and rainy. Environment Canada records for the 1971 to 2000 period for nearby Bathurst show modest rainfall and daily mean temperatures in the 13°C to 19°C range during the summer months with an average extreme summer maximum daily temperature of 36°C. Average winter temperatures range from -3°C to -16°C.

Average yearly precipitation for the period is 1,059 millimetres with an average of 314 centimetres of average snowfall accumulation.

5.1.3 Local Resources

The Nash Creek Property is located approximately 45 km northwest of Bathurst, which is a local business hub for northeastern New Brunswick and the Bathurst Mining Camp (“BMC”). The BMC is one of the largest volcanogenic massive sulphide (“VMS”) belts in the world with 45 deposits and more than 130 million tonnes of historic production. The BMC has well-established mining infrastructure and a skilled workforce, related to the development of several large lead-zinc deposits (Brown, 2007).

The Nash Creek Property is situated approximately 50 km northwest of the past producing Brunswick #12, owned and operated by Xstrata (now Glencore) until April 2013, when it was officially closed. The facility operated at 10,000 tonnes of ore per day from underground operations.

The Caribou Zinc Mine, located 40 km south-southwest of the Nash Creek Property, achieved commercial production on July 1, 2016. The mine is currently owned by Trevali Mining Corporation. A process plant at the Nash Creek Property may provide additional support for any potential future mining operations on the Project. Trevali currently hauls concentrates to the Port of Belledune (Figure 5.2) where the lead concentrate is processed at Glencore's Brunswick Lead Smelter and the zinc concentrate is transported via rail to the Glencore's Canadian Electrolytic Zinc complex located in Valleyfield, QC.

FIGURE 5.2 AERIAL VIEW OF THE PORT FACILITY AT BELLEDUNE

Source: 2018 Tetra Tech Report on the Nash Creek Property.

5.1.4 Infrastructure

The Nash Creek Property has excellent infrastructure with the northern extent of the deposit located approximately 1 km from Provincial Highway 11 and high-voltage (230 Kv) transmission lines that lead to the Port of Belledune, located 18 km to the east. The Port of Belledune hosts a deep-water port, 450-megawatt power plant and Glencore's Brunswick Lead Smelter. A zinc railway concentrate load out with access to Glencore's Canadian Electrolytic Zinc complex located in Valleyfield, QC.

The area has a well-developed network of paved highways and secondary roads. The Nash Creek Property also has several unpaved access and logging roads that allow access to several areas. The railway passes through the north end of the Nash Creek Property and has rail yards located in Belledune and Bathurst. There are abundant sources of water both within and adjacent to the Nash Creek Property.

Bathurst has a regional airport with service to several major hubs within the maritime region and has daily flights from Montreal, QC.

5.1.5 Physiography

The description of physiography has been described previously by Cullen and Barr (2005) as a forested upland occurring at an average elevation of 100 m above mean sea level. The well-developed and moderately incised main drainage pattern is characterized by a dominant north-northeast trending system with northeast and northwest trending subsidiary systems. Geological interpretations indicate that this pattern may reflect bedrock structural trends in some areas of relatively shallow glacial overburden.

Undulating topography found on the Nash Creek Property is seen as local variation of approximately 5m to 15m around incised creek valleys, with overall decreasing elevation from the southwest to northeast.

Vegetation consists of mixed boreal, deciduous and coniferous tree cover that accounts for 75% of the surface area in this region. The remaining area is characterized by cleared land associated with a few either active or inactive small hobby farms and scattered residential properties

Local wetlands and small creeks cross-cut and partially overlie the deposits found at the Hickey and Hayes Zones. A small lake named Hayes Lake is located approximately 200 m to the southwest of the Hayes Zone.

5.2 SUPERJACK PROPERTY

5.2.1 Access

The Superjack Property is situated approximately 45 km southwest from the city of Bathurst, the business hub for northeastern New Brunswick, and is easily accessible by daily scheduled commercial regular flights and excellent road access.

There are regular scheduled commercial flights to Bathurst from Montreal and several daily flights to Moncton and to Fredericton from several major cities in Canada.

From Fredericton International Airport the Superjack Property can be accessed by following:

- Lincoln Road west for approximately 12 km to join;
- Highway 8 north and northeast for approximately 190 km to Miramichi and an additional 70 km to Bathurst to join;
- Highway 11 northwest for approximately 2.5 km to join; and

- Highway 430 southwest for approximately 35 km to access several secondary and logging roads that allow access to various parts of the Superjack Property.

From Greater Moncton International Airport the Superjack Property can be accessed by following:

- Highway 15 northeast for approximately 13 km to Shediac to join; and

- Highway 11 northwest for approximately 120 km northwest to Miramichi where the highway intersects with Highway 8 from Fredericton and continues to the Superjack Property as described above.

The drive from Bathurst to the Superjack Property is approximately 45 minutes. The drive from either Fredericton or Moncton to the Superjack Property is typically three hours.

5.2.2 Climate

The following section on Climate is adapted from Cullen and Barr, 2005.

Northeastern New Brunswick lies in the northern temperate zone, characterized by large seasonal variations. Winter consists of freezing temperatures with substantial snowfall expected from late November through late March and warm summer conditions prevail from late June through early September. Shoulder seasons are typically cool and rainy. Environment Canada records for the 1971 to 2000 period for nearby Bathurst show modest rainfall and daily mean temperatures in the 13°C to 19°C range during the summer months with an average extreme summer maximum daily temperature of 36°C. Average winter temperatures range -3°C to -16°C.

Average yearly precipitation for the period is 1,059 millimetres with an average of 314 centimetres of average snowfall accumulation.

5.2.3 Local Resources

Bathurst has well-developed mining infrastructure and a skilled workforce, since the development of large lead-zinc deposits in the area in the mid-1950s (Brown, 2008).

The Superjack Property is situated approximately 20 km northwest of the past producing Brunswick #12, owned and operated by Xstrata (now Glencore) until 2013. The facility operated at 10,000 tonnes of ore per day from underground operations.

Glencore also owns Brunswick Mining and Smelting Limited, which operates a lead-silver smelting facility at the port of Belledune located 50 km north of the Superjack Property.

5.2.4 Infrastructure

The area has a well-developed network of paved highways and secondary roads. There are also several unpaved access and logging roads that allow access to the Superjack Property.

There are regular scheduled commercial flights to Bathurst from Montreal and several daily flights to Moncton and to Fredericton from several major cities in Canada. (Refer to 5.2.1.)

Electricity is available from the electrical generating station located in Belledune. The Belledune station is coal powered and has a capacity of 450 megawatts. Surface and groundwater water sources are abundant on and adjacent to the Superjack Property.

5.2.5 Physiography

The Superjack Property lies in a terrain of steep to gently rolling hills, roughly parallel to the flow direction of the Nepisiguit River. The terrain has a general gentle dip towards the south until it meets the north bank of the river. The vegetation is predominately a mixed boreal forest, which has been clear-cut in large plantation blocks (Brown, 2008).

6.0 HISTORY

6.1 NASH CREEK PROPERTY

The history of the Nash Creek Property was previously described in detail by Brown (2007). Mineral exploration has been going on in the Nash Creek Property area since at least the 1930s. However, a staking rush began in the early 1950's with the discovery of Heath Steele Mines in the Bathurst-Miramichi area. Anomalous stream geochemical anomalies outlined by Hawkes, Riddell and Bloom sparked an increase in prospecting and claim staking in the immediate area of the Nash Creek Property (Olshefsky, 1989). Six areas within the nearby area have received periodic mineral exploration. These are Nash Creek, Mitchell Settlement, Knowles Vein, Jack Burns Lake, Falls Brook and McNeil Brook. The following discussion is a summary of the various work programs for the above mentioned projects.

6.1.1 Early Work 1950 – 1960

1953: Hawkes staked 10 claims for the Atwater Syndicate that were optioned by the American Metal Company ("AMEX"). At the same time, Malartic Gold Fields Ltd. optioned a group of claims held by J.B. Anderson.

1954: AMEX conducted geological mapping, magnetometer, and geochemical surveys. This preliminary exploration work was followed-up by 3,530 m of diamond drilling in 32 holes. Nine of these drill holes were located 1.4 to 3.2 km southwest of the deposit area and possibly west of the western Jacquet River Graben boundary. The drill logs filed for assessment do not include assay reports. Of the 23 holes drilled on the deposit several are described as having galena, sphalerite and pyrite associated with stringers and breccia fillings in conjunction with varying amounts of carbonate flooding. Pyrite also occurs as moderately heavy impregnations of altered rock. Mineralization occurs within altered flows, altered tuff and interflow 5 breccias. The most intense mineralization appears to be associated with breccias within the banded rhyolite.

1954/1955: Malartic Gold Fields Ltd., undertook a geological mapping program, magnetometer and self-potential geophysical surveys, a soil geochemistry survey and drilled eight holes totalling 1,559.1 m. All drill holes were in the vicinity of what has become known as the MacMillan Zone mineralization and these drill holes intersected the first higher-grade mineralization. One drill hole tested an electromagnetic anomaly while the remainder evaluated soil geochemistry anomalies with corresponding magnetic highs. The best intersection reported 5.02% Pb and 2.15% Zn over 1.31 m. Lack of follow-up caused the claims to lapse.

6.1.2 Work Completed Between 1960 – 1970

Early 1960s: Dome Exploration Ltd. ("Dome") made option agreements for three properties between Mitchell Settlement and Belledune River on the eastern side of the Nash Creek Property. The area of main interest was the Knowles Vein that lies within limestone sediment intruded by mafic dykes and in close proximity to a granitic intrusive.

Exploration consisted of 1,800 soil geochemistry samples, magnetometer and electromagnetic surveys, and 27 drill holes.

Two of well mineralized samples from drilling are; hole NB-10 2.16% Zn, 2.45% Cu, 0.69% Pb and 15.28 ounces per tonne Ag over 1.52 m, and hole NB-1 14.25% Zn, 3.23% Cu, 11.32% Pb and 19.42 ounces per tonne Ag over 2.8 m. Some narrow higher-grade intervals have up to 39 ounces per tonne Ag (GEOSCAN numbers 470492, 470493, 470494 and 470495).

Encouraged by the results in this area, what is now the Nash Creek Deposit was staked with the results of exploration reported in 1962. The work reported consisted of a compilation map showing the location of the 23 AMEX drill holes with assay intervals, trenching and pitting, soil and silt (wetland) geochemistry and geophysical surveys.

1965 - 1970: B.J. Cheriton held the ground overlying the Nash Creek Deposit. A geological mapping program and a geophysical EM survey were six followed by a five hole, 602.5 m diamond drill program. The first reported drill hole intersection from the McMillan Zone came from hole CM6702 with an intersection from 35 ft. to 111.5 ft. of mineralized rock containing 2.53% Zn, 2.28% Pb and 0.46 ounces per tonne Ag. In 1970, C.G. Cheriton produced a geological map of the property.

1967: Ryanor Mining Company Ltd. reported soil geochemistry, prospecting and trenching near Jack Bums Lake. Because the area is locally swampy the trenching was not successful in detecting the source of the soil anomalies. This area is of interest due the proximity with the Jacquet River Fault that forms the western margin of the Jacquet River half graben.

1967 - 1968: Noranda Exploration Mining and Exploration Ltd. ("Noranda") staked a property in the McNeil Brook area.

Six hundred soil samples, 44 silt samples and line cutting were reported in the first year. Only copper results were reported for soil data.

Three trenches, four drill holes for a total of 383.7 m and property scale geological mapping were reported in the second year. The mineralization consists of semi-massive to disseminated chalcopyrite, bornite, sphalerite, galena and pyrite in an andesite breccia along the Devonian mafic and felsic volcanic contact. The rock samples from the trenches produced the best assay results with a 2.7 m section having 2.09% Cu, 0.61% Pb and 0.43 ounces per tonne Ag. A lower grade stringer zone intersected in drilling yielded 0.05% Cu, 0.58% Pb and 1.45% Zn over 6.1 m (Irrinki, 1990 p43). Individual prospectors have held the ground since this reporting period and through their work have verified the results.

6.1.3 Work Completed Between 1973 – 1979

1973: World Wide Explorations Ltd. undertook a preliminary resource calculation on the resources located in the Knowles Vein ("East Zone") and the West Zone. Both of these zones were drilled earlier by Dome. The results of this NI 43-101 non-compliant historical calculation are as follows (Alcott, 1973) shown in Table 6.1.

TABLE 6.1 NASH CREEK KNOWLES VEIN AND WEST ZONE HISTORICAL RESOURCE ESTIMATE 1973						
Resource	**Category**	**Tonne**	**Cu%**	**Zn%**	**Pb%**	**Ag oz./t**
Knowles Vein ("East Zone")	Probable	2,100	3.45	7.5	8.68	15.07
West Zone	Possible	548	1.95	5.8	5.18	10.32

Source: *2018 Tetra Tech Report on the Nash Creek Property.*

No methodology was shown for the calculation; however, the assays reported by Dome could support these results. These estimates are historical in nature and should not be relied upon. Callinex is not treating them as the current resources for the Nash Creek Property.

1976: A barite occurrence was reported east of Jacquet River by Noranda in a report. The property was known as the Hickey Option.

The work was comprised of 13.4 km of line cutting, soil geochemistry (300 samples), geological mapping and trenching. The mineralization occurs in a structural shear with a 0.61 m barite core. There are several copper-pyrite occurrences reported in the vicinity. In 1989 M. McCombe reported drilling two holes and intersecting weak copper and barite mineralization.

1977: Texasgulf Canada Ltd. ("Texasgulf") staked 86 claims and completed an exploration program consisting of 120 km of cut grid lines, geological mapping, soil geochemistry, 16 km of VLF and 110 km of magnetometer surveys.

In 1978, additional soil geochemistry and geophysical surveys were conducted. Geophysical surveys included; 15 km of Dipole-Dipole Induced Polarization ("I.P."), 20 km of horizontal loop electromagnetic ("HLEM"), 7 km of Very Low Frequency ("VLF") EM and 2 km of gravity.

In 1979: This company carried out follow-up Dipole-Dipole I.P. surveys and diamond drilling. A total of 588.3 m of NQ core in 10 vertical holes, tested a broad I.P. target associated with the Hickey Zone originally intersected by AMEX in 1954. Drilling delineated a series of discontinuous sulphide lenses in holes NC7902 and NC7907 that range in grade from 3.17% Zn, 1.19% Pb and 29.7 g/t Ag over 4.95 m to 7.32% Zn, 2.26% Pb and 41.9 g/t Ag over 3.7 m.

6.1.4 Work Completed Between 1987 – 1991

1987: Donald Burton completed a metal mineral potential study on the Silurian and Devonian rocks west of the Jacquet River fault. During this survey he analyzed rock from a mineralized quartz vein on Big Hole Brook. The analytical results on this sample yielded 0.15% Cu, 2.10% Pb, 9.00% Zn, 21 parts per million ("ppm") Au and 5 ppm Ag. Burton stated "certain areas considered worthy of further investigation on the basis of encouraging trace-element associations.

Recent gold discoveries in the Upsaiquitch Forks area and at Rocky Brook are known to be associated with Hg-Sb-Ag-As-Bi. A number of samples were collected in the northern part of the belt, along tributaries of the Jacquet River known to be highly anomalous in their silt geochemistry. This area shows distinctive enrichments in some trace elements, particularly in Hg and Sb, that may represent alteration haloes associated with blind mineral deposits".

1988 - 1990: Falconbridge Limited began taking a serious look at the mineral potential of the project. The initial exploration programs included geological mapping, 93 km line cutting, lithogeochemical sampling, 70 km of Gradient I.P., 18 km of Schlumberger Array I.P., 4 km of Pole-Dipole and 1 km of Dipole-Dipole Array I.P., diamond drilling (8,831.9 m of NQ core in 36 holes) and flew an airborne VLF, EM and Magnetometer survey over the entire claim block.

In 1991 Falconbridge completed 14 drill holes on three areas for a total 2,265.6 m. Seven of the holes were drilled on soil geochemistry and geophysical targets in the Mitchell Settlement area west of the Knowles vein. The remaining holes have tested targets near the Nash Creek mineralized horizons and along what is believed to be their southern extension. During this same year regional geological mapping and lithogeochemical (344 samples) surveys were undertaken to examine the mineral potential for the area believed to encompass the Jacquet River half graben that hosts the Nash Creek mineral deposits.

Falconbridge was the first company to begin to outline the Hayes Zone. It was identified over a 300 m strike length and reached 100 m at the maximum width. A company reported a calculated tonnage shown in Table 6.2 (Olshefsky, 1990).

TABLE 6.2
NASH CREEK HAYES ZONE HISTORICAL RESOURCE ESTIMATE 1990

Resource Category	Tonnes	Zn %	Pb %	Ag (g/t)
Probable	940,000	4.58	0.85	26.23
Possible	1,340,000	4.75	0.89	27.94

Source: *2018 Tetra Tech Report on the Nash Creek Property.*

These estimates are historical in nature and should not be relied upon. Callinex is not treating them as the current resource for the Nash Creek Property.

1989 - 1990: Novagold Resources Inc. filed three assessment reports covering work completed on the Falls Gulch property in 1989 and 1990. The first reported 50 km of line cutting, 40 km of gradient and total field magnetometer and VLF EM surveys and a 936-sample soil geochemical survey. This was followed-up in 1990 by a 16 km gradient I.P. survey and the six diamond drill holes for a total of 1056.6 m.

Drilling completed by Novagold targeted I.P. and soil geochemistry anomalies outlined in the earlier surveys. The best silver results occurred in an altered mafic flow from 03-88-05 at 196.2 m to 201.3 m. The average grade was 15.1 ppm silver. The best lead-zinc interval came from hole 03-88-0 1 from 66.78 to 67.0 m that intersected sericitic lapilli tuffs and flows. The sample yielded 2.23% Zn and 1.10% Pb over 0.22 m. The geology is comprised of felsic flow banded to massive flows and mafic pillow to amygdaloidal to vesicular to massive flows.

6.1.5 Work Completed Between 2002 – 2011

2002 - 2005: SLAM Exploration Ltd. acquired the Nash Creek Property by staking in January 2002. The company expanded the claim group as more was learned about the mineral potential and geological environment of the Nash Creek Property. The mineral exploration program commenced with a preliminary compilation of the geoscientific database available from the New Brunswick Department of Natural Resources.

In the winter of 2004 two airborne surveys were completed. The first, an Airborne Gravity survey, then followed by the MegaTEM II airborne time domain EM survey. The electromagnetic airborne survey indicated a broad flat lying to shallow east dipping conductive horizon that extended to the east from the deposit.

In the fall of 2004 and winter of 2005, eight drill holes were completed at the Nash Creek Deposit over the Hayes Zone. As part of this program one hole was collared on a coincident soil anomaly over the conductive horizon and intersected what became known as the Central Zone 1,600 m to the east of the main Hayes-Hickey trend. The drilling program on the Hayes Zone expanded the high-grade zone. In the fall of 2005 an additional six holes were drilled.

In the spring of 2005 Mercator Geological Services Limited was contracted to undertake a NI 43-101 Mineral Resource Estimate for the Nash Creek Deposit (Cullen and Barr, 2005) shown in Table 6.3.

TABLE 6.3
NASH CREEK HISTORICAL MINERAL RESOURCE ESTIMATE 2005 (CULLEN AND BARR)

Resource Category	Tonnes	Zn %	Pb %	Ag (g/t)
Indicated	3,400,000	5.01	0.89	30.95
Inferred	1,700,000	3.68	0.66	19.20

Source: *2018 Tetra Tech Report on the Nash Creek Property.*

This estimate is historical in nature and should not be relied upon. Callinex is not treating it as the current Mineral Resource for the Nash Creek Property.

Following the historic Mineral Resource calculation SLAM continued drilling with six more holes completed in the fall of 2005. Four holes continued to explore the Hayes Zone while two holes drilled soil anomalies to the North of the Hickey Zone and East of the MacMillan Zone.

Also in the fall of 2005 a Mobile Metal Ion test survey consisting of 443 samples was completed. These samples defined the previously known soil anomalies and line 7200 North was extended to the east across the conductive horizon.

2006: During 2006 the University of Toronto (“UT”) began doing a research project on the Nash Creek Deposit where the physical rock properties of the core were measured and found to be suitable for field testing of a new style down hole and surface electromagnetic and resistivity measurement system. This research was conducted to characterize the deposit using gravity, specific gravity and electromagnetics for mineral occurrence targeting.

In the winter of 2006 a 367 line km VTEM survey was flown over the Nash Creek Property area. This added coverage expanded the conductive horizon and indicated the conductive horizon may be controlled in part by the half graben structure.

In the summer of 2006 another 16 drill holes were completed. Although most of the holes were in and around the Hayes Zone, hole NC06-16 expanded the Central Zone and hole NC06-31 tested a MegaTEM anomaly shown from the airborne on a Conductivity Depth Transform inversion. Hole NC06-31 intersected a barren alteration zone. UT was requested to re-evaluate the airborne data and provided a levelled magnetic survey that was calibrated for the surveys with the re-interpretation from drill results field mapping that was undertaken in the summer of 2007.

SLAM also completed a detailed and regional gravity survey that has been used to help define drill targets from both the soil geochemistry and airborne conductivity surveys. Research work undertaken by UT included re-interpretation of the airborne data which has the potential to identify deeper electromagnetic anomalies for drill testing.

2007: SLAM undertook a preliminary metallurgical testwork program to evaluate mineralogy, grinding performance and recovery by flotation in composite mineralized samples collected from the Nash Creek Property, results are discussed in Section 13.0.

SLAM undertook a resource calculation on the Nash Creek Deposit (Brown, 2007). The results of the estimate are historical in nature and should not be relied upon. Callinex is not treating them as the current resources for the Nash Creek Property.

2008 - 2009: SLAM carried out additional drilling and commissioned Wardrop Engineering Inc. (now Tetra Tech) to produce a resource estimate for the Hickey and Hayes zones which represent the most significant Mineral Resources on the Nash Creek Property. The remaining two zones, MacMillan and Central zones, were intercepted with a small number of drill holes and are not included in the estimate.

Wardrop used ordinary kriging for grade estimation on the Nash Creek Property. The resource estimate was completed using a 2.0% zinc equivalent (ZnEq) cut-off grade for both the Northern Hickey Zone and the Southern Hayes Zone.

In order to create the most representative resource estimate of the different zones, a ZnEq value was calculated from the composited assay values. Metallurgical values were incorporated in this formula, based on a 2007 metallurgical report completed for SLAM.

The following formula was used to calculate ZnEq:

*ZnEq = ((([Zn%]*1.11*0.905*22.04622) + ([Cu%]*2.75*0.5*22.04622) + ([Pb%]*0.78*0.815*22.04622) + ([Ag g/t]*11.70/34.2857*0.5)/(1.11)))/22.04622*

The results of the 2009 estimate are shown in Table 6.4.

Mineral Resource Summary 2016:

TABLE 6.4 NASH CREEK MINERAL RESOURCE SUMMARY 2009 (JANKOVIC AND MORETON)					
Resource Type	**Tonnes**	**ZnEq % ***	**Zinc (Zn) %**	**Lead (Pb) %**	**Silver (Ag) g/t**
Northern Hickey Zone					
Indicated	3,044,300	3.00	2.50	0.56	17.83
Inferred	198,100	2.67	2.19	0.55	16.78
Southern Hayes Zone					
Indicated	4,763,000	3.36	2.86	0.55	18.53
Inferred	1,013,600	3.23	2.75	0.52	18.25
Total					
Indicated	7,807,900	3.22	2.72	0.55	18.26
Inferred	1,211,700	3.14	2.66	0.52	18.00

***** *ZnEq = Zinc Equivalency*
Source: *2018 Tetra Tech Report on the Nash Creek Property.*

These estimates are historical in nature and should not be relied upon. All historical estimates herein are superseded by the updated Mineral Resources for the Nash Creek Property presented in Section 14.0.

2011: SLAM drilled two holes totalling 1,165 m on the Nash Creek Property in January 2011. Drill hole NC11220 was drilled as a metallurgical test hole, specifically to examining the amenability to pre-concentration by Dense Media Separation. Results are discussed in Section 13.0. Hole NC11221 was an exploration hole drilled 300 m east of the southeastern corner of the Hayes Zone.

2016: Callinex acquired the Nash Creek Property and existing data from SLAM through a purchase agreement dated May 13, 2016.

6.2 SUPERJACK PROPERTY

6.2.1 Exploration History

6.2.1.1 Work Completed Between 1954 - 1996

Exploration has taken place intermittently on the property since being staked by Cabanga in 1954. The early history of exploration on the property is summarized in Table 6.5, modified after Mitton (1994).

TABLE 6.5 SUMMARY OF SUPERJACK PROPERTY HISTORY (1954–1996)					
Year	**Company (Property)**	**Drilling**	**Other Activities**	**Comments**	**Source**
1954 to 1955	Cabanga (Palliser) (Mosher)	3 diamond drill holes (M1 to M3)	sharp electromagnetic (EM) (vertical loop)	-	New Brunswick Assessment 471411
1955	Kennco (Mosher)	3 diamond drill holes (M1 to M3)	magnetometer	-	New Brunswick Assessment 471411
1956	Kennco (Mosher)	15 diamond drill holes (M4 to M18) and three packsack holes (PM1 to PM3)	dual frequency slingram (horizontal loop) magnetometer stream and soil geochemistry	intersected massive sulphides	New Brunswick Assessment 471650
1956	Cominco (Nepisiguit)	-	geological mapping McPhar EM (vertical loop)	located gossan associated with B Zone	Cominco 1957 report
1957	Cominco (Nepisiguit-Mosher)	2 diamond drill holes (MO-1 and MO-2)	gravity Boliden EM (horizontal loop) Turam EM limited doolimeter	significant grade and width intersected in MO-1 Mosher option began July 1957	New Brunswick Assessment 472338
1958	Cominco (Nepisiguit-Mosher)	6 diamond drill holes (MO-3 to MO-8)	geologic mapping Turam EM	geophysical surveys outlined A and B zones	New Brunswick Assessment 470970
1958	Cominco (Nepisiguit)	15 diamond drill holes (NI-1 to NI-11, and NI-14 to NI-17)	-	B Zone increasing in grade with depth	New Brunswick Assessment 470972
1959	Cominco	-	gravity (over C Zone)	0.6 Mgal anomaly	Cominco Internal Report September 15, 1959
1959	Cominco	-	Turam EM	-	New Brunswick

TABLE 6.5
SUMMARY OF SUPERJACK PROPERTY HISTORY (1954–1996)

Year	Company (Property)	Drilling	Other Activities	Comments	Source
					Assessment 472400
1959	Cominco	-	reinterpretation of 1957 gravity	enhanced A and B zones	Cominco Internal Report Feb. 26/59
1960	Cominco	2 diamond drill holes (MO-9 and MO-10)	-	-	NB Assessment 472397
1961	Cominco	-	compilation of previous work	claim group transferred to mining license in 1960	Cominco Internal Report March 30, 1961
1961 to 1965	Cominco	-	soil geochemistry	anomalies correspond to A, B, and C zones	Cominco Internal Report 1976
1962	Cominco	2 diamond drill holes (MO-11 and NI-18)	-	-	New Brunswick Assessment 471381
1966	Cominco	5 diamond drill holes (NI-19 to NI-23)	-	-	New Brunswick Assessment 471402
1976 to 1977	Cominco	-	18 miles line cutting detailed geology 18 line miles magnetometer 7 line miles gravity	-	New Brunswick Assessment 471357 and 472123
1982	Cominco	-	14.2 line miles UTEM III survey	-	New Brunswick Assessment 472890
1990	Cominco	-	13.3 km line cutting 11.2 km magnetometer 23.52 km UTEM survey	several EM conductors identified	New Brunswick Assessment 473937

TABLE 6.5 **SUMMARY OF SUPERJACK PROPERTY HISTORY (1954–1996)**					
Year	**Company (Property)**	**Drilling**	**Other Activities**	**Comments**	**Source**
1991	Cominco	1 diamond drill hole (NI-91-1)	-	intersected graphite conductors	-
1993 to 1994	Brunswick Mining and Smelting Limited	-	work compilation soil geochemistry magnetometer/very-low frequency electromagnetic (VLFEM) horizontal loop electromagnetic (HLEM) gravity survey geological mapping trenching (seven trenches totalling 429.6 m) lithogeochemistry	optioned Property from Cominco extensive exploration program further delineated three sulphide zones	New Brunswick Assessment 474505
1994	Brunswick Mining and Smelting Limited	4 diamond drill holes (94-1 to 94-4)	-	-	New Brunswick Assessment 474505
1995	Brunswick Mining and Smelting Limited	3 diamond drill holes (15-133-95-5, 15-133-95-6, and 15-133-95-6A)	3D Borehole Pulse EM structural mapping lithogeochemistry	identified fold closure to west of B Zone	New Brunswick Assessment 474689
1996	Noranda Inc.	3 diamond drill holes (15133-96-7 to 15133-96-9)	3D Borehole Pulse EM lithogeochemistry	identified east-west trending exhalative zone	New Brunswick Assessment 474853

Source: *2016 Tetra Tech Report on the Superjack Property.*

6.2.1.2 Work Completed Between 2004-2015 by SLAM

SLAM actively explored the Superjack Property between 2004–2015 in the form of several exploration programs. The following is a summary of activities performed during each program.

2004 Exploration Program

MEGATEM® II EM Survey

In 2004, Fugro Airborne Surveys was contracted to fly a MEGATEM® II time domain airborne EM survey over the Superjack Property area, as part of a larger survey conducted over the entirety of the BMC. This survey comprised 190 line km completed at 200 m line spacing. At the time, this survey was a new technology and it was hypothesized that it could help delineate targets along strike and down dip of known mineralization (Brown, 2007).

Airborne Full Tensor Gravity

In 2004, Bell Geospace was contracted to operate an airborne Full Tensor Gravity (Air-FTG) survey over the Superjack Property area, as part of a larger survey conducted over the entirety of the BMC. This survey was flown on north-south lines with 200 m line spacing. Results were disappointing as they were inconsistent when compared to ground gravity (Taylor, 2008).

VTEM

In 2004 Geotech Ltd. was contracted to fly a VTEM survey over the Superjack Property area, as part of a larger survey conducted over the entirety of the BMC. The survey over the Superjack Property (Target 318) was comprised of 14.5 line km completed at 50 m line spacing flown at 16° west of north (Geotech, 2004).

2006 Exploration Program

Drilling

Three diamond drill holes were drilled in 2006 and are discussed in Section 10.0.

2007 Exploration Program

Trenching

In August 2007, eight trenches were completed with a total length of 1,946.2 m. The trench lengths are summarized in Table 6.6. The maximum depth excavated in the attempt to expose bedrock was approximately 4.0 m. The average depth of the trenches was approximately 1.0 m and the average width was 1.0 to 1.5 m. The trenches were geologically mapped and 18 rock chip samples were collected for analysis. The trenches did not expose known zones of mineralization.

TABLE 6.6 **2007 TRENCHING**	
Trench Number	**Length (m)**
TR-20	211.0
TR-29	190.0
TR-30	188.0
TR-31	197.0
TR-32	557.5
TR-33	270.0
TR-48	112.7
TR-49	220.0
Total Length	**1,946.2**

Source: *2016 Tetra Tech Report on the Superjack Property.*

Drilling

Twelve diamond drill holes were drilled in 2007 and are discussed in Section 10.0.

2011 Exploration Program

Trenching

In August and September 2011, six trenches were completed with a total length of approximately 870.0 m. The trench lengths are summarized in Table 6.7. The trenches were geologically mapped, 17 rock chip samples were collected, and four were sent for analysis. The trenches did not expose the known zones of mineralization.

TABLE 6.7 **2011 SUMMER TRENCHING**	
Trench Number	**Length (m)**
Unknown	870.0
Total Length	**870.0**

Source: *2016 Tetra Tech Report on the Superjack Property.*

Trenching resumed in November 2011, when three trenches totalling approximately 140.0 m were dug over the A Zone. These trenches all contained significant intervals of massive sulphides. The trenches were neither mapped nor sampled in any detail due to weather conditions. The trench lengths are summarized in Table 6.8.

Table 6.8 2011 Fall Trenching	
Trench Number	**Length (m)**
NPA-TR-1	54.0
NPA-TR-2	41.0
NPA-TR-3	45.0
Total Length	**140.0**

Source: *2016 Tetra Tech Report on the Superjack Property.*

Drilling

Seventy diamond drill holes were drilled in 2011 and are discussed in Section 10.0.

Borehole Pulse EM Surveys

Eastern Geophysics was contracted to perform borehole pulse electromagnetic ("BHPEM") surveys on some of the deeper holes during the 2011 drilling campaign. These surveys were utilized to guide drill planning.

2015 Exploration Program

Drilling

A single hole was drilled in February of 2015, as discussed in Section 10.0.

6.2.2 Mineral Resource Estimate

Tetra Tech estimated a Mineral Resource of the zinc-lead-copper-silver sulphide deposits of both the Superjack A Zone and C Zone in 2012. The B Zone requires further drilling to warrant a resource estimate.

7.0 GEOLOGICAL SETTING AND MINERALIZATION

7.1 NASH CREEK PROPERTY

7.1.1 Regional Geology

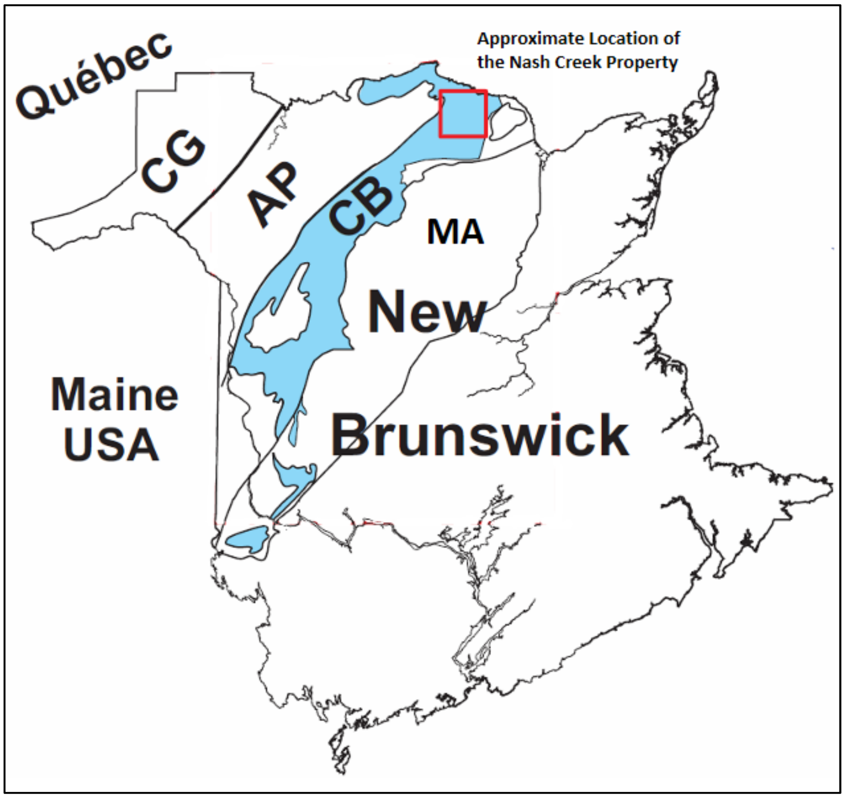
Bedrock architecture of New Brunswick follows a series of interrelated and complex tectonic events which occurred during the Paleozoic with closure of the Iapetus Ocean between Laurentia and Gondwana (incl. Ganderia), and subsequent closure of the Acadian Seaway (Fyffe et al., 2011). Northern New Brunswick and the adjacent Gaspé Peninsula in Québec are divided into four north to northeasterly trending tectonostratigraphic belts of Palaeozoic age, in part forming the Laurentian margin and peri-Laurentian/Iapetan accreted terrains of the Silurian to early Devonian Appalachians. From northwest to southeast these include: 1) Connecticut Valley-Gaspé Synclinorium ("CG"); 2) Aroostock Percé Anticlinorium ("AP"); 3) Chaleur Bay Synclinorium ("CB"); and 4) Miramichi Anticlinorium ("MA") (Walker and McCutcheon, 1995; Walker, 2010).

The youngest of these tectonostratigraphic belts is the CB, which has recorded complex marine transgression-regression cycles, unconformities, and at least two phases of deformation and widespread volcanism (Wilson, 2017). The regional, approximately east-west trending, Rocky Brook-Mill Stream Fault divides the CB into the southern part dominated by the Lower Devonian sedimentary and volcanic rocks of the Tobique Group, and the northern part is dominated by the Silurian sedimentary and volcanic rocks of the Chaleur and Lower Devonian sedimentary and volcanic rocks of the Dalhousie Groups. The Nash Creek Property is hosted by the Dalhousie Group rocks within the northern CB near the Bay of Chaleur (Figure 7.1).

The Chaleurs and Dalhousie Group rocks are interpreted to have formed in a within extensional regime (Walker 2010, ref. Dostal et al., 1989) generated by transpression during the oblique accretion of Ganderia (MA) and Avalonia onto the Laurentian margin during the Early Silurian to Early Devonian (Walker, 2010, ref. Dostal et al. 1989; van Staal and de Roo 1995).

The CB is in disconformable or in faulted contact with the older Miramichi Anticlinorium ("MA"), which lies to the present day southeast. The northeastern extent of the New Brunswick part in the Miramichi Anticlinorium is known as the "Bathurst Mining Camp", host to the Brunswick #12 (past producer) and the Caribou Zinc Mine, both VMS related deposits.

FIGURE 7.1 SIMPLIFIED GEOLOGICAL TERRANE MAP OF NEW BATHURST



Source: *2018 Tetra Tech Report on the Nash Creek Property.*

Figure 7.1 shows the northern tectonostratigraphic belts: 1) Connecticut Valley-Gaspé Synclinorium (CG); 2) Aroostock Percé Anticlinorium (AP); 3) Chaleur Bay Synclinorium (CB); and 4) Miramichi Anticlinorium (MA).

7.1.2 Property Geology

The Jacquet River Syncline ("JRS") is one of many sub-basins within the CB and is located on the northern exposed portion of the CB. The JRS has been described as a generally north trending, doubly plunging, regional-scale fold containing the Chaleurs and Dalhousie Group Rocks (Walker, 2010). The Nash Creek deposit is mainly hosted within the Lower Devonian sequence of the Dalhousie Group rocks, bounded to the west by the north-south trending Black Point-Arleau Brook Fault (Figure 7.2) which divides the JRS into a northeastern and southwestern portion. West of this fault lie formations from the older Silurian Chaleur Group.

7.1.2.1 Stratigraphy

The main focus of mineral exploration at Nash Creek has been within the formations that comprise the Dalhousie Group. Generally, the lowermost formation represents a short-lived regression which was then overlain by rocks deposited within a successive transgression cycle. These formations include (from oldest to youngest):

- Mitchell Settlement Formation: massive to amygdaloidal subaerial flows with interbedded with olive-grey micaceous finely laminated sandstone, siltstone and minor red siltstone. Near the base of the type section there is mafic volcanic peperitic breccias occurs within greyish red siltstone ("redbeds") and a 30 m bed of mafic tuff. The center part of the section is dominated by dark green-grey micaceous sandstone. The upper part of the section is orange weathered mafic flows with inter flow sediments.

- Jacquet River Formation: conformable on the Mitchell Settlement Formation and is the dominant formation for the Dalhousie Group. The formation comprises green-grey marine sedimentary rocks, micaceous sandstone and siltstone with minor interbedded limestone and mafic flows. The sediments are typically fossiliferous. Mafic flows occur near the top in several locations. The Jacquet River sediments, or similar rocks, are observed to be located between the Archibald and Sunnyside Formations, which is suggested by Wilson (2017b) that the volcanic units form lenticular bodies that are enveloped by these sedimentary rocks.

- Archibald Settlement Formation: conformably overlain by the Sunnyside Formation and disconformably overlies, or is possibly enveloped by, the Jacquet River Formation. The formation outcrops in the northeastern part of the JRS and comprises flow banded rhyolite at the base of the section that is overlain with a sequence of pyroclastic and epiclastic with distinctive red rhyolite clasts and minor siltstone. The upper part of the section is made up of intermediate of felsic green-grey flows. Age 415.6+/-0.4 Ma (U-Pb, Wilson and Kamo, 2008).

- Sunnyside Formation: Conformably overlain by the Big Hole Brook Formation and overlies the Archibald Settlement Formation. The base of the section comprises vesicular mafic flows with inter flow sediments. The upper part is intercalated massive and reworked hyaloclastite with minor lenses of massive lava. Locally the formation contains interbedded mafic tuff and pillow basalt. Age 415+/-0.4 Ma (U-Pb, Wilson and Kamo, 2008).

- Big Hole Brook Formation: Unconformably overlain by the Carboniferous Bonaventure Formation in the north and conformably overlies the Sunnyside Formation. This formation constitutes the top of the Dalhousie Group. The unit comprises green-grey, micaceous, locally calcareous fine-grained sandstone and siltstone. It is typically thin to thick bedded with parallel laminations and cross bedding occurs near the upper contact.

Gabbro and diorite mafic intrusive rocks are in contact with most of the Dalhousie Group rocks but do not have a common contact with the Carboniferous cover. It is believed that the Carboniferous rocks are the youngest in the stratigraphic column.

The Nash Creek Deposit is hosted mainly within the bimodal volcanism of the Archibald Settlement and Sunnyside Formations with some overlap into the Jacquet River Formation sediments. In the deposit area, the formations are generally flat lying to gently east dipping, and the volcanics form lenticular masses (Wilson, 2010) within the volcanic sequences of the Archibald and Sunnyside Formations.

7.1.3 Structure

The Nash Creek Deposit is interpreted to lie within a half graben formed along the eastern boundary of the roughly north-south trending Black Point-Arleau Brook Fault. Although the northern extension of the half graben strikes unconformably under Carboniferous Bonaventure Formation, sufficient exposure remains to identify its nature. The furthest inland part of the graben runs 22 km east northeast before rotating northward for 25 km to Chaleur Bay. Along the Nash Creek deposit, influence from the fault can be seen across a 500 m thick shear zone, with high resolution digital elevation model ("HRDEM") available through Service New Brunswick and collected as part of the CanElevation Series created in support to the National Elevation Strategy implemented by NRCan. Numerous smaller internal grabens exist within the Black Point-Arleau Brook Fault zone that appear to act as lateral bounds to the Hayes Zone and the Hickey Zone.

Structural evolution of the host bedrock, which influenced the mineralizing events associated with the Nash Creek Deposit, are related to the mid-late Appalachian orogeny during the late Salinic (Silurian) and Acadian (early Devonian) orogenic phases. Detailed study of the structural regime in this area has not been conducted. The following series of events is suggested by the QP based on site observations and information contained within Wilson (2017b), however, further work is required to confirm and improve upon this model.

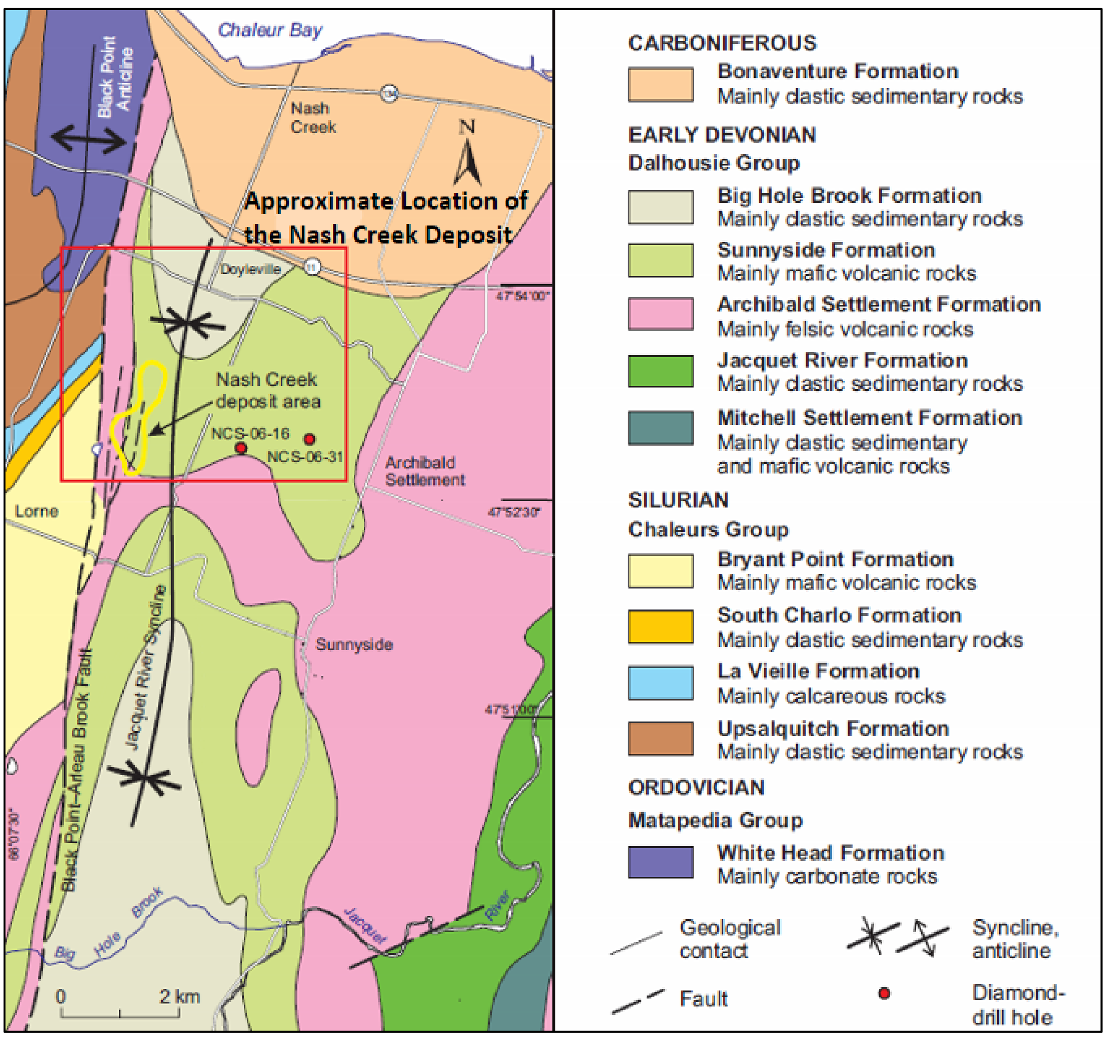
- Late Ordovician to Early Devonian (Salinic orogenic phase):
    - Major northwest-southeast (present day) directed folding and formation of JRS and deposition of Jacquet River Formation sediments.
- Mid-Late Devonian (Acadian orogenic phase):
    - Rifting or Extension, resulting in east directed down dropping normal fault bisecting the JRS, early stage development of the Black Point-Arleau Brook Fault and the Nash Creek half graben.
    - Erosion of volcanic uplands continued deposition as polymict conglomerates as the Jacquet River Formation, and later the Big Hole Brook Formation.
    - Bimodal volcanism depositing the Archibald and Sunnyside formations from various volcanic vents along the Black Point-Arleau Brook Fault.
    - Contemporaneous and followed by north-south directed sinistral transpressional strike-slip faulting and NW-SE directed tension along the Black Point-Arleau Brook Fault, resulting in NW-SE directed structures related to hydrothermal or metasomatic Zn-Pb mineralization, most prominently in the Hayes Zone and also seen in the Hickey Zone to cross cut volcanics.

Much of the mineralization is located within the upper portions of the more felsic Archibald Settlement Formation at the Hayes Zone and in the Sunnyside Formation at the Hickey Zone. Brecciation straddles the contact between the overlying Sunnyside Formation mafic flows and the Archibald Settlement Felsic flows and tuffs. Analytical results from core taken from the deposit indicate the highest-grade mineralization, notably in the Hayes Zone, occurs within these brecciated felsic rocks.

The geology of the east side of the Nash Creek Property has some dispute over the age of the felsic volcanic and limestone sediments. Irrinki (1990b) suggest a lower Devonian age while the Map NR-1 indicated an early to late Silurian age. The units are comprised of felsic volcanic flows and tuff while the sedimentary bands are limestone (see Figure 7.2). The limestone beds are proximal to a lower Devonian granite intrusive (Antinouri Lake).

Locally mineralized quartz-carbonate veins within these limestones locally contain significant amounts of base metal sulphides and silver. The Knowles vein near Mitchell Settlement is the best example of this discovered thus far (Alcott, 1973). This environment may have the potential to host skarn type mineral deposits.

FIGURE 7.2 SIMPLIFIED GEOLOGICAL OF THE NASH CREEK DEPOSIT AREA, NORTHERN NEW BRUNSWICK



Source: *2018 Tetra Tech Report on the Nash Creek Property.*
(extracted from Walker, 2010)

7.1.4 Mineralization

7.1.4.1 General

Sulphide mineralization at Nash Creek includes pyrite, sphalerite, galena and minor chalcopyrite. Silver consistently accompanies the sulphides, possibly the result of argentiferous galena or presence of a silver rich sulphosalt. Sulphide concentrations of potential economic interest occur as: 1) stratabound and/or laterally continuous zones of matrix filling or replacement style mineralization within coarse to fine grained pyroclastic deposits of both mafic and felsic affinity; 2) fracture filling, stringer or vein arrays mainly within competent flow units or flow breccia; and 3) discrete breccia zones (e.g., flow breccia, autobrecciation, etc.). Strong intraclast chlorite mineralization is associated with concentrations of zinc and lead in the brecciated mafic rocks.

Moderate to intense clay alteration and silicification are common in the mineralized zones and broader zones of strong carbonate, hematite and potassium alteration occur in footwall, and occasionally hangingwall, to mineralized host rocks. Mineralization occurs as multiple stacked zones of laterally extensive pyroclastic units and flow top rubble zones which are cross cut locally by north, northeast and northwest trending structures that may have acted as pathways for mineralized hydrothermal fluids (Cullen and Barr, 2005).

Four zones hosting stratabound mineralization have been identified on the Nash Creek Property by previous workers. These four zones are, roughly from north to south, the MacMillan, Hickey and Hayes zones and to the east, the Central Zone (Refer to Figure 10.1). Drilling completed by Callinex in 2017 has extended the Hickey Zone to the north.

Mineral resource estimates have been stated for the Hickey and Hayes zones.

7.1.4.2 MacMillan Zone

This zone is located to the west of the Hickey Zone and is defined by 12 diamond drill holes, including 8 completed during the 1955 to 1967 period. As described by Olshefsky (1989) stratigraphy in this area differs somewhat from the Hickey Zone and is dominated by felsic flows and associated volcaniclastic intervals and is interpreted to be separate from the Hickey Zone by an east dropping normal fault. These host rocks may be associated with those seen within the Hayes Zone, to the south. The only hole in the area to intersect any significant amount of mineralization was CM-2, intersecting 76.5 feet at an average grade of 0.46% Cu, 2.28% Pb, 2.53% Zn. Falconbridge drilled eight holes in the vicinity of the MacMillan Zone with overall poor results. SLAM drilled one hole (NCO51O) 200 m east of CM-2 and intersected 3.9 m with an average grade of 4.77% Zn, 0.56% Pb and 44.9 g/t Ag.

7.1.4.3 Hickey Zone

The Hickey Zone is defined by 286 modern era holes, with 26 completed by Texasgulf/Falconbridge, 191 completed by SLAM, and 59 completed by Callinex. Three to four distinct and somewhat discontinuous flat lying horizons have been identified, which have been discretized in to 40 separate lenses, or domains. Mineralization is interrupted along strike from the Hayes Zone, and appears to be hosted in mafic dominated rocks, unlike the Hayes Zone. The mafic rocks are underlain, and overlain, by sedimentary rocks which are commonly calcareous, and is most prominent in the northern extent of the zone. Mineralized zones generally contain lower metal grades than those in the Hayes Zone. Despite the discontinuity of the lenses the soil geochemistry and gravity data indicate that there is potential to expand to the north and west of the known trends.

Drilling completed by Callinex in 2017 has extended the zone by more than 750 m along strike, to a total of approximately 1.6 km, and an average overall width of approximately 200 m.

Previously, the only hole in the area to intersect any significant amount of mineralization was CM-65-02, which was reported to intersect 76.5 feet (approximately 23.3 m) at an average grade of 0.46% Cu, 2.28% Pb, 2.53% Zn (this data is unverified and is not currently included in the database). Falconbridge drilled eight holes in the vicinity of what was referred to as the MacMillan Zone with overall poor results. SLAM drilled one hole (NC05-10) 200 m east of CM-65-02 and intersected 3.9 m with an average grade of 4.77% Zn, 0.56% Pb and 44.9 grams per tonne Ag; no anomalous copper was detected. The mineralized intersection from hole NC05-10 was confirmed by Callinex drilling to extend laterally at least 120 m in hole NC17-235 which assayed 4.96% Zn, 0.72% Pb, and 0.08 g/t Ag over 8.6 m, and along strike 125 m in drill hole NC17-232 which assayed 4.11% Zn, 0.45% Pb and 14.83 g/t Ag over 7 m.

7.1.4.4 Hayes Zone

Sixty-eight modern era drill holes have been completed in and around the Hayes Zone, with 43 completed by Texasgulf/Falconbridge, and 24 completed by SLAM. Results suggest that at least three stacked zinc-lead-silver mineralized horizons, divided in to 19 separate lenses, or domains. These horizons extend in a northerly to slightly north-westerly direction for a 500 m strike length, and have a slight plunge to the south-southeast. Locally, the zones reach horizontal widths of 50 to 200 m. Olshefsky (1989) describes the mineralization as (1) matrix material in "auto-brecciated and hydro-brecciated portions of flows or flow margins, (2) discrete stringers and (3) as disseminations within flows and/or amygdule infillings. Cullen and Barr (2005) reported the coarse pyroclastic lithology also carries matrix phase sulphides, with several of these mineralized horizons traceable over lateral extents of up to 200 m.

The lowest stratigraphic interval in the Hayes Zone area is a massive flow section of indeterminate thickness, termed the "Lower Rhyolite" Olchevsky (1989). The Lower Rhyolite is overlain by a mix of locally hematized mafic and felsic fragmental rocks, followed by a series of mafic flows and flow breccias that are host to the deepest matrix sulphide mineralization noted to date. The mineralized interval is overlain by a mix of mafic and felsic fragmental rocks followed by porphyritic andesite that locally carry stratabound matrix sulphide mineralization in flow breccia zones. Hematized basaltic flows overlie the andesites, also locally hosting sulphide mineralization in breccia. An upper flow banded rhyolite occurs above the basalt and is host much of the higher-grade sulphide of the Hayes Zone. Non-mineralized, massive porphyritic mafic flows overlie the rhyolite and are subsequently overlain by a distinctive calcareous conglomerate and volcaniclastic units grading to silty fossiliferous limestone.

7.1.4.5 Central Zone

The Central Zone was discovered by SLAM in 2005 when hole NC05-05 was drilled to test a soil geochemical anomaly and associated airborne EM anomaly. The hole was drilled approximately 1.6 km east of the Hayes Zone. The discovery was followed-up in 2006 with hole NC06-16 approximately 230 m to the north of hole NC05-05.

The stratigraphy at the Central Zone is like the Nash Creek Deposit. To a depth of 60 m from surface a sequence of conglomerates, calcareous siltstones and fossiliferous limestone are interbedded with mafic tuffs and flows. This is underlain to a depth of 275 m by rhyolite flows and fragmental units with interbedded conglomerates, calcareous siltstones and fossiliferous limestone similar to the above units. The conglomerates are derived from the underlying flows and sediments. Narrow (<2 m) fine grained, medium green-grey weakly magnetic mafic dykes occur with minor calcite veinlets.

Both the rhyolite and basalt are locally altered with carbonate, sericite and/or hematite although more extensive rhyolite. The rhyolite varies from pale buff or orange, to maroon or to lime-green depending on the intensity and type of hydrothermal alteration.

Hole NC0505 intersected a 2.5 m zone of sulphide mineralization associated with brecciated and silicified rhyolite at a depth of 133.5 m. The mineralization consists of locally 5-10% very fine grained dark grey pyrite plus galena and sphalerite within the breccia matrix. The 2.5 m interval averages 3.9% Zn, 0.4% Pb and 15.5 g/t Ag.

This zone correlates with a 4.2 m interval in hole NC0616 that averages 2.61% Zn, 0.27% Pb and 11.59 g/t Ag at a depth of 113.8 m near the top of a rhyolite 21 unit. This interval includes a 1.0 m section grading 6.46% Zn, 0.42% Pb and 21.3 g/t Ag.

Both holes intersected a shallow zone of anomalous base metal and silver mineralization associated with brecciated and altered basalt. Hole NC0505 intersected 2 m grading 0.15% Zn, 1.26% Pb and 6.5 g/t Ag flanked by a semi-massive galena vein assaying 21.4% Pb over 0.30 m at a depth of 50 m. Hole NC0616 intersected 11.4 m of anomalous zinc (0.32%), lead (0.06%) and silver (3.51 g/t) at a depth of 33.6 m.

7.2 SUPERJACK PROPERTY

7.2.1 Regional Geology

The following discussion on the geology of the Bathurst Region is adapted from Walker, 2006.

The geology of the Bathurst Mining Camp consists of Middle Ordovician bimodal volcanic and intercalated sedimentary rocks known collectively as the Bathurst Supergroup. The rocks were deposited in the Tetagouche–Exploits back-arc basin (van Staal and Fyffe 1991) and overlay an assortment of Cambro–Ordovician siliciclastic sedimentary rocks of the Miramichi Group. During closure of the back-arc basin in the Late Ordovician to Early Silurian, rocks of the

Bathurst Supergroup were deformed in a subduction setting, resulting in polyphase deformation and highly convoluted tectonostratigraphic relationships.

The major stratigraphic divisions of the Bathurst Supergroup are the Sheephouse Brook, Tetagouche, California Lake, and Fournier groups, each of which represents a major thrust nappe and contains numerous internal stratigraphic cut-outs and/or repetitions related to subsidiary thrust faults (van Staal et al. 2002, 2003). The Sheephouse Brook, Tetagouche, and California Lake groups all contain felsic and mafic volcanic and sedimentary rocks, whereas the Fournier Group is dominated by ocean-floor mafic volcanic and minor sedimentary rocks (McCutcheon et al. 1993; van Staal et al. 2002, 2003).

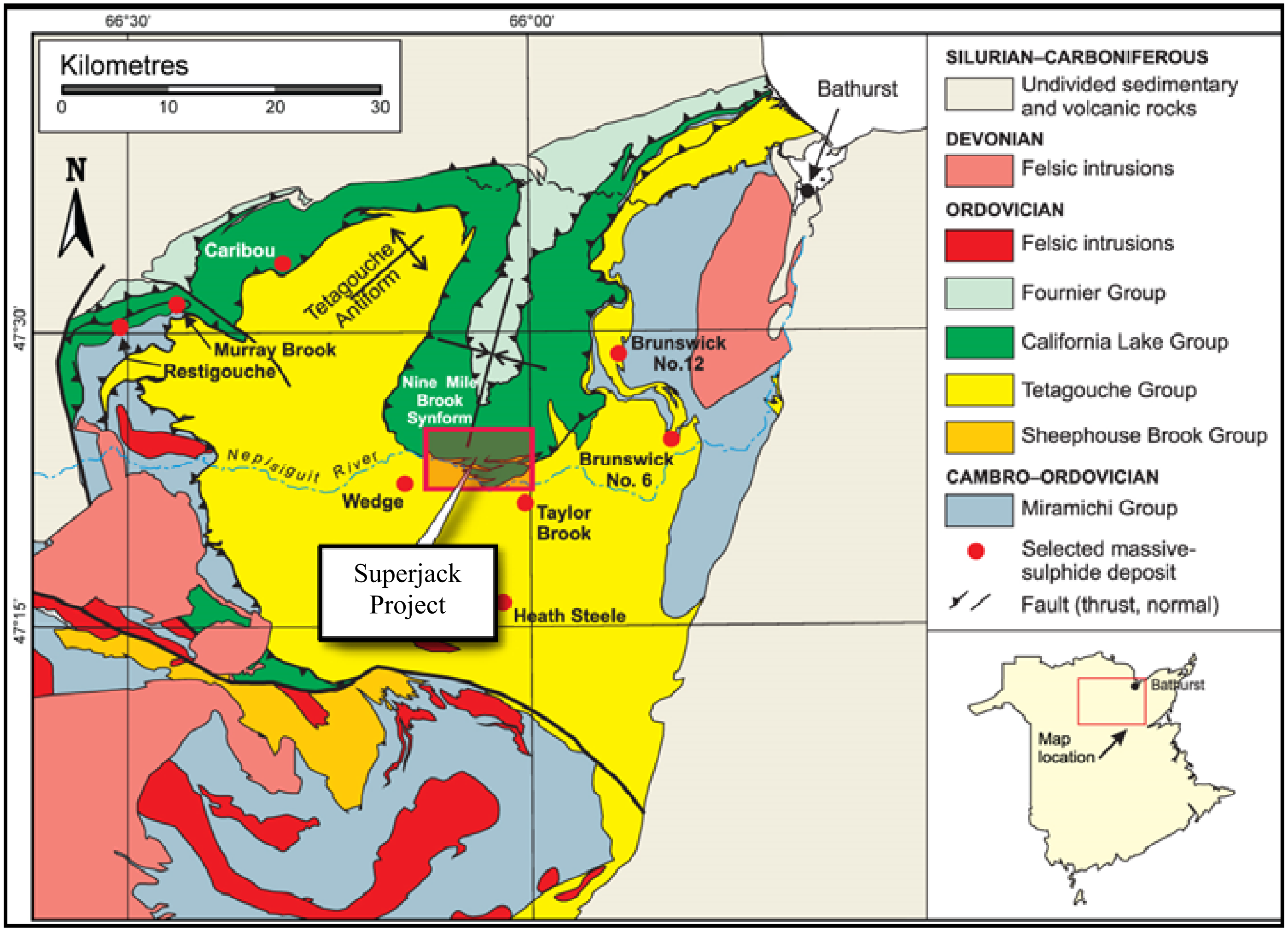
The Superjack A, B, and C zones are situated along the closure of the Nine Mile Brook Synform, located to the north of the faulted contact between the California Lake and Tetagouche nappies. The Tetagouche Group in this part of the BMC comprises: 1) the Nepisiguit Falls Formation that consists mainly of quartz-crystal tuffs; 2) the Flat Landing Brook Formation that comprises aphyric felsic volcanic rocks and minor basalt (Forty Mile Brook tholeiite); and 3) the Little River Formation that contains an interlayered sequence of basalts (Brunswick Mines alkali basalts) and sedimentary rocks (van Staal et al. 2002, 2003; Rogers and van Staal 2003).

The California Lake Group in the area is divided into the Spruce Lake, Boucher Brook, and Canoe Landing Lake formations. The Spruce Lake Formation is composed mainly of alkali feldspar-phyric felsic lava and tuff and minor tholeiitic basalt and sedimentary rocks. The Boucher Brook Formation conformably overlies the Spruce Lake Formation and comprises a sequence of sedimentary rocks interlayered with Camel Back Mountain alkali basalt (van Staal et al. 2002, 2003; Rogers and van Staal 2003). The Canoe Landing Lake Formation consists largely of alkali and tholeiitic basalt (the Nine Mile Brook tholeiite and Orvan Brook tholeiite).

The footwall contact of the largely felsic sequence of the Spruce Lake Formation is a thrust fault that separates the lower part of the California Lake Group from the structurally underlying sedimentary and mafic volcanic sequence in the upper part of the Tetagouche Group. Likewise, a thrust contact represents the boundary separating the dominantly mafic volcanic sequence of the Canoe Landing Lake Formation from the sedimentary and mafic volcanic sequence of the Boucher Brook Formation. Tholeiitic basalts of the Spruce Lake Formation and the Nine Mile Brook tholeiite of the Canoe Landing Lake Formation are interpreted to be coeval on the basis of their similar trace-element chemistry.

The regional geology of the Bathurst Mining Camp and the Superjack Property are shown in Figure 7.3.

FIGURE 7.3 BATHURST MINING CAMP GEOLOGY



Modified after Walker, 2006
Source: *2016 Tetra Tech Report on the Superjack Property.*

7.2.2 Property Geology

The following discussion on the geology underlying the Superjack Property is adapted from Walker, 2006.

Regional mapping projects conducted in the immediate area of the Superjack A, B, and C zones were carried out by Davies 1979; Wilson 1993; van Staal et al. 2002. Van Staal et al. (2002) interprets the thrust nappe hosting the Superjack A Zone is composed solely of rocks from the California Lake Group. Rocks comprise felsic and minor mafic volcanic and sedimentary rocks, all of which van Staal et al. (2002) assigns to the Spruce Lake Formation.

Geological interpretation in the area is hampered by polyphase deformation that includes intense shearing and folding. In addition, the relatively narrow units and juxtaposition of geophysically similar units, such as magnetic basalt, massive sulphides, and conductive graphitic sedimentary rocks, make it challenging to map using geophysics alone.

Relative positions of the massive sulphides and stringer sulphides indicate a younging direction towards the north. The lower part of the stratigraphic section consists of strongly deformed footwall sedimentary rocks dominated by black shale interlayered with thin (<10 cm) beds of fine-grained wacke. A thin (<4.0 m) carbonate-altered mafic volcanic unit occurs within the footwall sedimentary rocks at depth in the western part of the Superjack A Zone. A thicker section of footwall mafic volcanic rocks occurs at depth in the eastern part of the deposit.

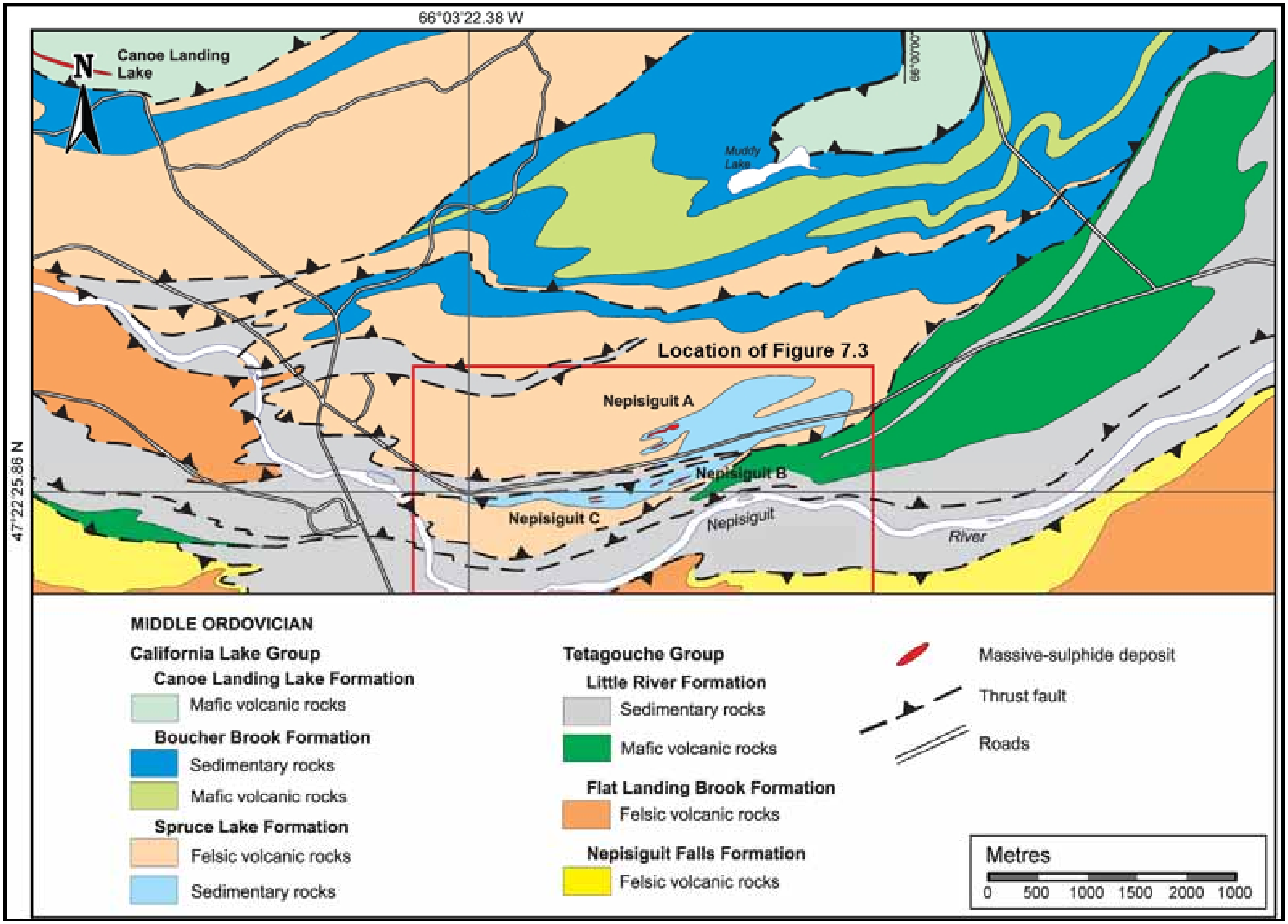
Mafic volcanic rocks are exposed at surface on the hanging wall of the sulphide lenses on the northern limb of a tight F1 antiform. This mafic horizon consists of about 25 m of greyish green pillow basalt. The upper 6.0 m to 8.0 m of the basalt are brownish. Epidote veins are locally abundant, as are zoned quartz-carbonate veins.

Felsic volcanic rocks of the Spruce Lake Formation in the hanging wall of the sulphide deposit range in texture from feldspar-phyric (crystal tuff) to aphyric (ash tuff). These volcanic rocks are interlayered with tuffaceous sedimentary rocks. The crystal tuffs range from 10.0 m to 16.0 m thick, whereas the tuffaceous sedimentary units range from 3.0 m to 11.0 m thick. Fragmental rocks are locally interlayered with the crystal tuff and tuffaceous sedimentary units and are heterolithic, consisting of matrix-supported, sub-rounded to angular clasts of black shale, wacke, feldspar-phyric rhyolite, and minor massive sulphides. Fragments range from less than 1 cm to greater than 8 cm in size. A thin interval of quartz-crystal-lithic tuff occurs near the bottom of the hanging-wall sequence close to the contact with the Spruce Lake mafic flows.

The relationship between the Superjack A Zone and the Superjack B and C zones is not well understood. Interpretation is hampered by the lack of surviving drill core from the Superjack B and C deposits and by increasing deformation intensity toward the south. Drill logs and sections from Superjack B and C zones suggest that both deposits occur within a belt of locally graphitic sedimentary rocks. However, mafic rocks at the Superjack B Zone occur in the immediate hanging wall and the footwall, whereas at the Superjack C Zone they apparently occur only in the footwall.

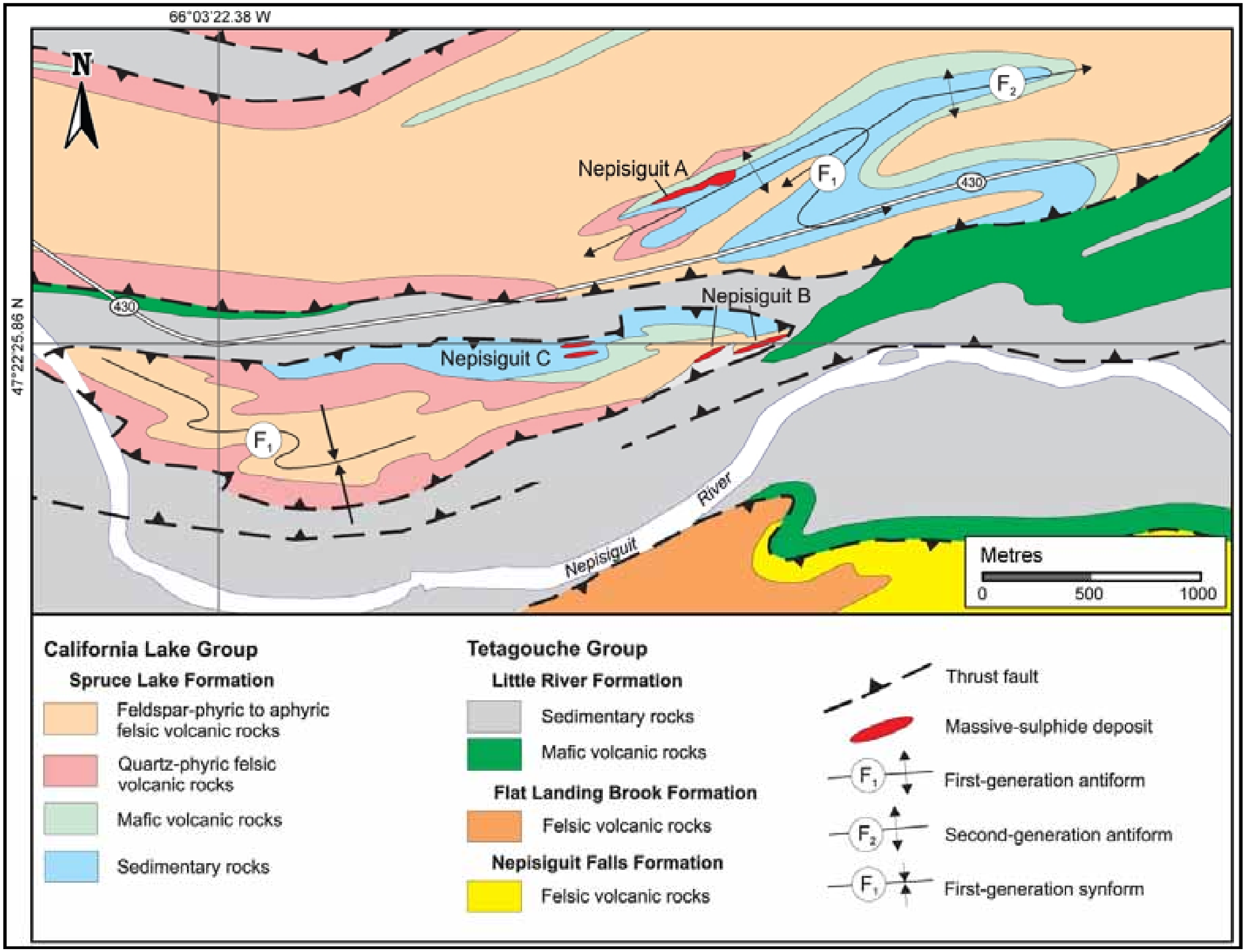
Superjack Property geology, general and in detail, are shown in Figures 7.4 and 7.5.

FIGURE 7.4 SUPERJACK PROPERTY GEOLOGY



Modified after Walker, 2006
Source *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 7.5 SUPERJACK PROPERTY GEOLOGY – DETAIL



Source: Modified after Walker, 2006
Source: *2016 Tetra Tech Report on the Superjack Property.*

7.2.3 Mineralization

Walker, 2006 describes the Superjack A Zone as two subparallel, easterly thickening, massive-sulphide lenses that strike approximately east-northeast and dip about 80°N. The southern lens was not intersected by any drill cores examined during this study and will not be discussed further. The larger, northern lens has a strike length of approximately 380 m and extends downdip for about 280 m, where intersections of 8.93% Zn over 9.75 m have been reported (McAllister 1960; Mitton 1994). Sulphide intersections in the western end of the deposit are between 0.3 m and 3 m in thickness. Massive sulphides in the deposit are dominated by pyrite but include subordinate pyrrhotite, sphalerite, galena, and chalcopyrite.

In the western part of the Superjack A Zone, massive sulphides are immediately overlain by basalt and are underlain by an appriximate 20 m thick sericite- or chlorite-altered zone of tuffaceous sedimentary rocks cute by quartz-sulphide veins. This altered, mineralized zone is interpreted to represent a feeder/stockwork zone, a feature that commonly underlies massive sulphide bodies in volcanic massive-sulphide systems. Drill logs and sections from assessment reports suggest a similar relationship in the eastern part of the deposit, where massive sulphides reportedly are underlain by zones of disseminated and/or stringer sulphides.

In drill logs, the massive sulphides at the A Zone are described as fine-grained, containing predominantly pyrite with intermittent bands of sphalerite and galena throughout, as well as intermittent disseminated sphalerite and galena throughout (7.6). The massive zones occasionally contain quartz-chloritic flooding (<1%). Medium-grained blebby chalcopyrite can frequently be observed at both the upper and lower contacts of the massive zones. The sulphides are locally magnetic due to disseminated pyrrhotite.

Stringer sulphides, interpreted as stockwork zones, occur mainly on the footwall, but occasionally on the hanging wall as well; this repeating is likely due to local fold patterns. They are hosted by banded argillite and/or sericite schist.

Mineralization at the B and C zones is described very similarly to that in the A Zone, the main differences being that B Zone mineralization appears in a much thinner horizon, whereas the C Zone is more clearly repeated due to folding and faulting. Both contain pyrite-dominated massive sulphides with intermittent sphalerite-galena banding/disseminations. The B Zone contains fewer and thinner stringer sulphide zones than both the A and C zones.

FIGURE 7.6 SUPERJACK A ZONE MASSIVE SULPHIDES FROM HOLE NP11-23

Source: *2016 Tetra Tech Report on the Superjack Property.*

8.0 DEPOSIT TYPES

8.1 NASH CREEK PROPERTY

Sulphide mineralization identified at Nash Creek is hosted within the bimodal volcanic sedimentary succession of the Dalhousie Group. Sulphides occur mainly as: (1) matrix filling and/or replacement in brecciated rhyolite and basalt flows and flow top breccia; (2) disseminations and replacements along rhyolite flow banding; and (3) locally as quartz and carbonate in veinlet and stringer arrays hosted by fractured and altered bedrock mainly massive mafic flows. Footwall alteration observed from recent Callinex drilling in the Hickey Zone exhibits moderate to strong chlorite alteration in mafics with moderated to sericitization and silicification in the felsics.

Predominance of zinc and lead mineralization with low iron and sulphur associations, paucity of gold and copper mineralization, geochemical indicators such as low Ba/Sr and high Y/Ho suggest the Nash Creek Deposit was formed in a lower temperature hydrothermal environment distal to a volcanic edifice or core black smoker. Bimodal volcanism, with dominant felsic flows and tuffaceous units overlain by dominant mafic flows and tuffaceous units are characterized by multi-episodic volcanic pulses. Mineralization is related to zones of hydrothermal focus and sulphide accumulation is found along, or in association with, areas of faulting or fracturing, as might be expected along a crustal weakness zone such as a graben boundary fault and/or related subsidiary structure. Development of local volcanic edifice or caldera structures can also be expected along such major weakness zones and related radial and ring system faults and fracture corridors could provide focus for sulphide mineralization of the styles recorded at Nash Creek.

Intercalated calcareous sediments with localized fossiliferous calcareous mudstone which underlay and overlay the main mafic hosted mineralized sequence identify shallow marine, or possible near shore deposition.

The white smoker deposit model is proposed for the Nash Creek deposit, in contract to a traditional black smoker deposit. These deposits types are described further in the section found below.

8.1.1 Background

Known seafloor ore deposit types include volcanogenic massive sulphide deposits (“VMS”), volcanogenic hosted massive sulphide deposits (“VHMS”), epithermal, porphyry, metalliferous mud, manganese nodules, placer gold, and placer diamonds, that have geochemical associations controlled by tectonic setting, volcanic substrates, and temperature-dependent solubility controls (Gemmell and Piercy, 2016). VMS deposits in particular form on, or below, the ocean floor and are typically associated with volcanic and/or sedimentary rocks. The deposits often have a strong metal zonation, seen as the segregation of various metal-bearing sulphides throughout a deposit. In general, copper sulphide (chalcopyrite) forms in the central (or higher temperature) parts of the deposit, such as in the stockwork and vent-proximal sulphide lenses. Gold concentrations can often be highest in these copper-rich zones. The massive or semi-massive accumulations of sulphide minerals form lens-like or tabular bodies parallel to stratigraphy or bedding (Foran Mining, 2015).

VMS deposits result from chimneys formed from black, grey, and white smokers that exhaled metal-rich brines into the ocean when hot hydrothermal fluids mix with near-freezing seawater, and subsequently have characteristic deposit types primarily dependent on temperature and oxygen fugacity. A central black smoker complex can have a sulfide talus that circumferences the central system, with white smokers at the periphery. Black (sulfides) and white (sulphates) smokers have unique characteristics.

Black smokers result from hot (~350 C) temperatures with lower oxygen fugacity, and produce 'black ore' deposits concentrated in Cu-rich sulphide (chalcopyrite), Fe-sulfide (massive pyrite and pyrite breccias), and Fe-monosulfides. An anhydrite-rich zone can be associated centrally with the black smoker, with silicified and pyritized stockwork and/or vent-proximal sulphide lenses. Gold concentrations can often be highest in these copper-rich zones. From the outer wall towards the Central Zone, colloform pyrite, a strong temperature gradient governs a decreasing trend in Tl, Ag, Ni, Mn, Co, As, Mo, Pb, Ba, V, Te, Sb, U, Au, Se, Sn, and Bi concentrations (Kingston et al., 1995). Therefore, the highest concentrations of most trace elements are found in colloform pyrite within the chimney's outer wall, likely due to rapid precipitation under high temperature gradient conditions (Maslennikov et al., 2009). Black smoker systems have been found to have open central conduits with young chimney walls dominated by anhydrite or more mature walls exhibiting inner chalcopyrite and outer anhydrite walls (Kingston et al., 1999). Characteristically, Cu, Co, and Se reflect high temperature assemblages and good correlations exist between As, Sb, Pb, Ag, and Au.

Grey smokers result from medium to high temperatures with an increasing oxygen fugacity (relative to black smokers) environment that forms both sulphides and sulphates, and deposit sphalerite, chalcopyrite, marcasite, and pyrite (Maslennikov et al., 2009). Cobalt and Mn likely substitute for Zn in the sphalerite structure (Maslennikov et al., 2009). Uranium and vanadium concentrate in the outer wall of most chimneys due to their extraction from seawater associated with more reduced fluids of black and grey smokers (Maslennikov et al., 2009).

In contrast, white smokers result from cooler temperatures [intermediate- (100°–250°C) to high temperature (>250°C)] more distal to a central vent with a higher oxygen environment (cold, oxygenated seawater), and, relative to black smokers, produce smaller chimneys of 'white ore' mineral deposits rich in barium, calcium, and silicon. Zinc (sphalerite) and lead (galena) form in these more distal, lower temperature areas that are more commonly associated with silver concentrations. Generally, non-economic Fe-sulphides (pyrite and pyrrhotite) occur with base metal sulphides (e.g. galena, sphalerite). Fe-sulphides can also be zoned, typically with pyrrhotite associated with zones of more Cu-rich mineralization whereas pyrite associates with zones of Zn- and Pb-rich mineralization (Foran Mining, 2015). Sphalerite-quartz-barite assemblages can be associated with Zn-Pb, and bulk chemical analysis indicate high-Sr is consistent with a barite-rich ($BaSO_4$) composition (Kingston et al., 1999). White smoker chimneys have been found to be enriched in Zn, Ag, Sb, Cd, and Pb, forming as precipitates on surfaces of mounds that formed from modified black smoker fluid that was mixed with entrained seawater (Maslennikov et al., 2009). Selenium concentrations are highest in black smokers and continue to decrease in grey smokers, with the lowest values associated with white smokers, which are also depleted in most elements except Ag, Tl, Te, Sb, and As, likely due to dilution of vent fluid by seawater which penetrates deeper in parts of hydrothermal systems (Maslennikov et al., 2009). Ion dissociation increases acidity as temperatures decrease, and ammonium consumes

H+ to maintain a relatively high pH (Kingston et al., 1999). Flange samples have shown higher Zn, Cd, and Mn concentrations that are consistent with increased abundance of wurtzite (hexagonal crystalline structure of ZnS, in contrast to cubic sphalerite). Lower Sr and Cu are consistent with lower abundances of anhydrite and chalcopyrite, and low Cu-values and the absence of Cu-dominated lenses/layers is representative of lower temperature white smoker systems (Kingston et al., 1999). Characteristically, in VMS deposits, Se and Co correlate with Cu in high temperature black smoker systems, whereas Cd and Mn correlate with Zn in lower temperature white smoker systems.

Present day active seafloor hydrothermal (white smoker) systems in back arcs of the southwest Pacific Ocean [southern Lau basin (Tonga-Kermadec arc), western Woodlark basin (Papua New Guinea), and eastern Manus back-arc (New Ireland)] exhibit similar ore and host-rock geochemistry and sulfosalt-rich mineralogy of white and black smoker VMS deposits located in the Alexander Terrane in Southeastern Alaska and Northwestern British Columbia (Taylor et al., 2008). In addition to the northern Windy Craggy and Palmer deposits, central to the Alexander Terrane is Greens Creek, one of the world's richest VMS deposits representative of a white smoker polymetallic and sheet style system hosted by ultramafics, volcaniclastics, and argillite that formed in shallow water during early incipient stages of a rift-related tectonic setting ~ 210 Ma (Taylor et al., 2008; Gemmell and Piercy, 2016). The footwall lithology is comprised of siliceous sedimentary rocks and phyllitic mafic and ultramafic rocks, whereas the hanging wall is Late Triassic argillite (Gemmell and Piercy, 2016). Four proximal to distal to proximal zones in the footwall are 1) chlorite to 2) sericite to 3) quartz-sericite to 3) quartz-pyrite alteration zones (Gemmell and Piercy, 2016).

The largest Zn-belt in the world is the Brunswick belt, of Ordivician age, where the Bathurst Mining Camp is situated. Discriminative ternary plots of Fe-Al-Mn help to determine high-Fe areas for Bathurst Mining Camp iron formations. A scatterplot of Fe/Mn ratio vs. distance from a known deposit helps to observe proximal vs distal to venting, since Mn travels further from the vent than Fe (Gemmell and Piercy, 2016; Peter and Goodfellow, 1993).

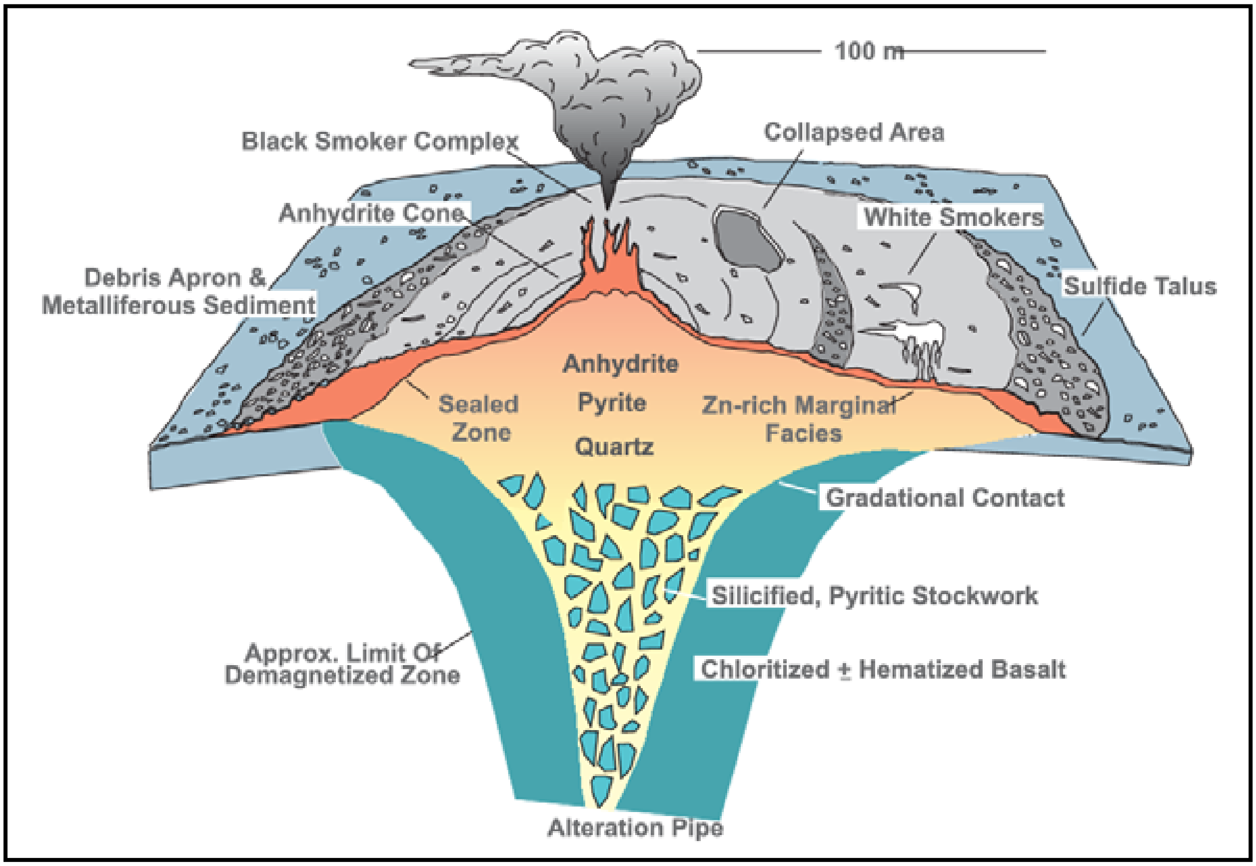
8.2 SUPERJACK PROPERTY

The three zones of the Superjack Property are all variants of volcanic-sediment hosted massive sulphide deposits. This is the dominant deposit type in the BMC. VSHMS deposits are a subtype of volcanogenic massive sulphide deposits. VSHMS deposits are the most important subtype economically, as on average they contain more than four times the total sulphide tonnage of VMS deposits containing only minor sediments. Seafloor hydrothermal deposits from sediment-rich back-arc rifts (both VSHMS and sedimentary exhalative ("SEDEX") deposits) account for over 50% of the world's zinc and lead reserves, and approximately 40% of the world's zinc and lead production (Goodfellow 2007).

Figure 8.1 depicts the "classic" cross-section of a VMS deposit based on modern mapping of the active Trans-Atlantic Geotraverse ("TAG") sulphide deposit on the Mid-Atlantic Ridge. VMS deposits are typically characterized by polymetallic massive sulphide lenses that occur at or near the seafloor in submarine volcanic environments. The formation of the massive sulphides is facilitated by the interaction of metal-enriched volcanic fluids and seafloor hydrothermal convection. The host rocks of the sulphides can be volcanic, sedimentary, or some combination of the two. Typically VMS deposits contain large quantities of zinc, copper, lead, silver, and gold, and can also be significant sources of cobalt, tin, selenium, manganese, cadmium, indium, bismuth, tellurium, gallium and germanium. Due to this polymetallic content, VMS deposits are highly desirable as a hedge against price fluctuations in individual metals (Galley et al. 2007).

Since VMS deposits form on or near the seafloor from the discharge of metal-rich hydrothermal fluids, they are classified under the general deposit type "exhalative", along with SEDEX and sedimentary nickel deposits. Characteristically, VMS deposits are composed of two parts. The exhalative portion, which is normally mound-shaped or tabular, contains stratabound massive sulphides, quartz and secondary phyllosilicates, as well as iron oxide minerals and altered silicate wallrock. Stratigraphically below the exhalative portion lies discordant to semi-concordant stockwork veins and disseminated sulphides, enveloped by a distinctive alteration halo (Galley et al. 2007).

FIGURE 8.1 SCHEMATIC DIAGRAM OF TAG SULPHIDE DEPOSIT

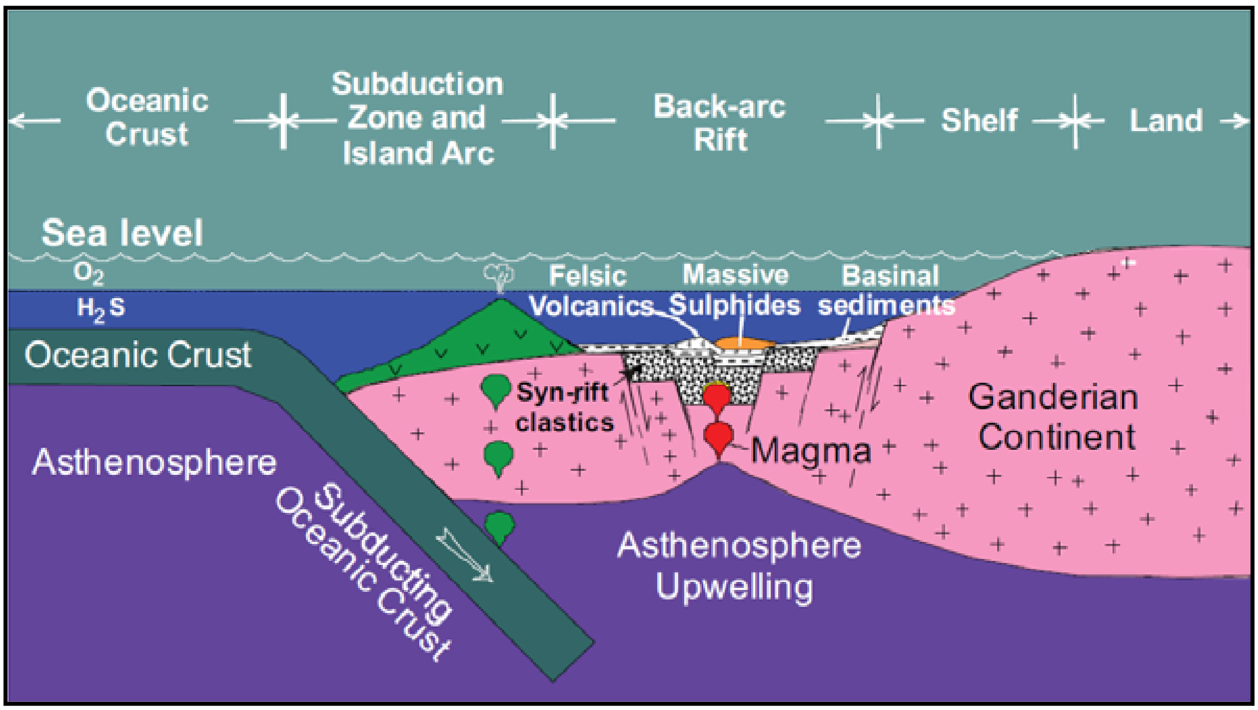


Note: *Considered a typical representation of the VMS deposit type*
(Source: *Hannington et al. 1998)*
Source: *2016 Tetra Tech Report on the Superjack Property.*

VMS deposits have been classified under various schemes over the past 30+ years. They have been categorized alternatingly on base metal content, host rock characteristics, gold content or submarine tectonic setting (Galley et al. 2007). The Superjack Deposits fall under the zinc-lead-copper, felsic-volcaniclastic, sericite-quartz +/- carbonate rich, normal (i.e. not gold-rich), and some combination of bimodal-felsic and felsic-siliciclastic deposit types.

The most common feature of all VMS deposit types is their formation in an extensional tectonic setting, including both oceanic seafloor spreading and arc environments. By far the latter is preferentially preserved in the geologic record, as oceanic rift settings have mostly been subducted. The BMC is an Ordovician-aged continental back-arc environment (Figure 8.2), and contains a bimodal volcanic and siliciclastic succession containing numerous VSHMS deposits and exhalative iron formation horizons. The occurrence of multiple deposits is another common feature of VMS deposits. They often occur in clusters, sometimes defining major mining camps (Galley et al. 2007).

FIGURE 8.2 TECTONIC SETTING OF THE BMC



Note: *O2 – oxygen, H2S – hydrogen sulphide*
(Source: *Goodfellow and McCutcheon, 2003)*
Source: *2016 Tetra Tech Report on the Superjack Property.*

An individual VMS deposit, while conforming generally to the two-part model discussed above, can vary greatly depending on synvolcanic faulting, footwall and host-rock lithologies, water depth, size and duration of the hydrothermal system, temperature gradients, and degree of preservation. Based on observations in modern systems, the formation of the stratabound massive sulphide mounds of a VMS deposit occur in several stages. First, a series of sulphide-silicate-sulphate chimneys form along the vent system. Second, the chimneys become structurally unstable, collapse and form a breccia mound. Third, the breccia mound is capped by deposition of silica, clay, and/or sulphate. Once capped, the hydrothermal fluids continuously deposit metal sulphides, replacing the original breccia mound with a complex network of semi-massive to massive sulphides. Below this mound is the stockwork vein system, where metal sulphides are deposited as hydrothermal fluids circulate below the vent complex. Sulphides can also be deposited by hydrothermal plume fallout as hot, mineral-enriched fluid is expelled from the vent complex. Long after deposition, sulphides can be dynamically recrystallized during regional tectonic events, owing to their ductile nature (Galley et al. 2007).

9.0 EXPLORATION

9.1 NASH CREEK PROPERTY

Drilling undertaken by Callinex is discussed in Section 10.0.

The recent work completed by the previous owner, SLAM is summarized in Sections 6.0 and 10.0.

9.2 SUPERJACK PROPERTY

Callinex completed six drill holes in 2017 that led to the discovery of a new zone of mineralization referred to as the D Zone. The 2017 drill program were completed outside of the current Mineral Resource area. All the work that has taken place prior to Callinex is summarized in Sections 6.0 and 10.0.

10.0 DRILLING

10.1 NASH CREEK PROPERTY

As summarized in Section 6.0, previous drill programs on the Nash Creek Property have been carried out by American Metals (1955) Texasgulf (1979), Falconbridge (1988-1991) and SLAM between (2004-2008 and 2011). The following description of these drill programs is adapted from Cullen and Barr (2005), Brown (2007) and Jankovic and Moreton (2009).

10.1.1 Logistics

Lantech Drilling Ltd. of Moncton, NB provided drilling services for the 2004 and spring and summer of 2005, while Maritime Diamond Drilling Ltd. of Hilden, Nova Scotia delivered NQ core (4.76 cm diameter) for both of the programs. The 1988 Falconbridge drill program was carried out by Logan Drilling Limited of Stewiacke, NS and Longyear Canada Inc. provided drilling services in 1989, 1990 and 1991. The 1979 program by Texasgulf was carried out by Ideal Drilling Ltd. of Bathurst, but contractors for the pre-1979 programs were not determined.

During the SLAM and Falconbridge programs drilling was typically carried out on a two shift, twenty-four hour per day basis with NQ size core (4.76 cm diameter) recovered. Conventional skid mounted drilling equipment was utilized in both instances. SLAM's drill programs were coordinated from the company's Miramichi exploration office and earlier Falconbridge programs were coordinated from that company's Windsor, NS regional office.

10.1.2 Drillcore Records

Falconbridge core has been discarded and is no longer available. Data from this drilling has been preserved in the geological database and original drilling assessment is available from the original Assessment Reports, available through the New Brunswick Department of Natural Resources ("NBDNR") online archive.

The majority of the core collected by SLAM was recently archived outdoors at the secured NBDNR core library in the town of Madran, near Bathurst. The core quality has degraded from weathering. Data from this drilling has been preserved in the geological database and original drilling assessment is available from the original Assessment Reports, available through the New Brunswick Department of Natural Resources online archive. The SLAM drilling and database has been reviewed by other Qualified Persons for use in previous NI 43-101 Technical Reports.

At the effective date of this report, all drillcore collected by Callinex was archived indoors at the NBDNR core library in Madran.

10.1.3 Drill Collar Surveys

Drill hole collar locations for the Falconbridge drilling were surveyed by a registered land surveyor using the New Brunswick provincial survey coordinate system and also coordinated to the local exploration grid by field personnel. SLAM used the hand chain method to find the collar locations and some cases the collar locations were located using a differential GPS while the UT research crew was available. Drill casings were generally left in the holes for potential future re-entry or cementing (Cullen and Barr, 2005). Table 10.1 summarizes the historical to recent drilling.

TABLE 10.1
NASH CREEK DRILLING SUMMARY 1955 THROUGH 2017

Company	Year	No. of Holes	Total Metres	Status for Resources Estimate
American Metals	1955	12	1,626.7	Approximate hole locations only, holes not used in the resource estimate
Betty Cheriton	1965-1970	5	602.5	Approximate hole locations only, holes not used in the resource estimate
Texasgulf Inc.	1979	10	588.5	Holes, lithologies and assays included, holes twinned by Callinex in 2017 were not used in the resource estimate
Falconbridge	1988	7	1,973.1	Holes, lithologies and assays included
Falconbridge	1989	29	6,957.9	Holes, lithologies and assays included
Falconbridge	1990	22	2,857.9	Holes, lithologies and assays included
Falconbridge	1991	6	885.5	Holes, lithologies and assays included
SLAM	2004	3	571.0	Holes, lithologies and assays included
SLAM	2005	12	2,641.5	Holes, lithologies and assays included
SLAM	2006	16	2,465.8	Holes, lithologies and assays included
SLAM	2007	89	9,779.4	Holes, lithologies and assays included
SLAM	2008	99	12,619.0	Holes, lithologies and assays included
SLAM	2011	2	1,165.0	Holes, lithologies and assays included
Callinex	2017	59	10,586.7	Holes, lithologies and assays included
TOTAL		**370**	**55,192.7**	

Source: *2018 Tetra Tech Report on the Nash Creek Property.*

10.1.4 SLAM Drilling Completed Between – 2005 and 2006

SLAM completed six holes in the fall of 2005 for a total of 2,641.5 m. Holes NC0510 and 11 were collared to test soil anomalies associated with an increase of the conductivity in the MegaTEM airborne in the Hickey Zone. The remaining holes were collared on the Hayes Zone.

In the summer of 2006 SLAM completed an additional 16 holes for a total of 2,465.8 m. Hole NC0616 was drilled on the Central Zone and yielded positive results intersecting 4.2 m of anomalous rock and 1.0 m of 6.64% Zn. Hole NC0631 was collared 2.3 km east of the Hayes Zone near a mobile metal ion response and a deep coincident target identified on the MegaTEM conductivity transform. This hole intersected a barren alteration zone. The remaining holes were collared around the Hickey and the Hayes zones (Figures 10.1 and 10.2).

Many of these drill holes intersected mineralized zones that can be correlated between drill holes occurring along individual Sections. Continuity of mineralized zones along strike between sections is also noted in stacked sections. There are at least three lenses of significant mineralization with one near surface lens and one deeper lens having good continuity from section to section over 300 m. The remaining lenses are somewhat discontinuous and show continuity from section to section over 50 to 100 m on longitudinal projections of the mineralized drill hole traces.

Good correlation between the SLAM and Falconbridge drillholes exists for both geological units and mineralized zones on the vertical cross-sections. The cross-sections also show a general easterly shallow dip to stratabound mineralized zones that are thickest near the main north-south Hayes Zone axis (Figure 10.3). Some disruption in continuity occurs in the vicinity of the rift and following compressive strain the rocks have undergone.

These stratabound zones typically decrease in thickness and grade progressively outward from the axis but show substantial lateral continuity at thicknesses of 1 m or less. Presence of a possible synclinal depression trending northerly along the axis of thickest mineralized intervals of the Hayes Zone was identified within the model. Its origin is unclear at present but could be related to an original topographic control of permeable and porous volcano-sedimentary lithofacies that have provided focus for mineralizing fluids (Cullen and Barr, 2005).

The mineralization intersected in the Hickey Zone is typically observed as discontinuous to locally continuous lenses. The intervals with three correlated mineralized horizons that occur within a similar stratigraphic section as that described above for the Hayes Zone. Correlation is based on the lower rhyolite unit seen at the Hayes Zone and continues upward through the andesite section and overlying mafic flow section. Mineralized zones within the Hickey Zone are of generally lower metal grade than those of the Hayes Zone. Despite the discontinuity of the lenses the soil geochemistry and gravity data indicate that to the north and west of the known trends there is sufficient promise for favourable results.

10.1.5 SLAM Drilling Completed Between – 2007 and 2008

SLAM carried out an extensive diamond drilling program in 2007-2008, drilling 22,076 m of drill core, in 189 diamond drill holes (NC07-32 to NC07-120 and NC08-121 to NC08-219). Prior to this drilling, the bulk of the work the company was engaged in was research-oriented petrophysical, geochemical and geophysical work. The gravity, resistivity and soil geochemical surveys are the most useful tools in targeting hole locations. Collection of Rock Quality Determination (“RQD”) data commenced with hole NC0735 and continued for the remainder of the drill program. This data complements the sparsely reported data by Falconbridge.

SLAM also concentrated on the detailed exploration of the Hickey Zone which was undertaken where previously spotty sulphide mineralization had been intersected. A reinterpretation of the resistivity data collected by Falconbridge and an examination of the sections constructed by SLAM in 2007 lead to the expansion of this zone.

10.1.6 SLAM Drilling Completed In – 2011

Two drill holes (NC11220 and NC11221) totalling 1,165 m were completed by SLAM in 2011.

Hole NC11220 was collared near the central portion of the Hayes Zone. The primary purpose was to recover mineralized core from the Nash Creek deposit to supply rock for Dense Media Separation metallurgical testing. A broad mineralized zone was intersected from 117 to 426 m core length, grading 1.92% Zn, 0.37% Pb and 12.71 g/t Ag. The hole was extended 260 m beyond the original proposed depth of 320 m because sulphide mineralization was intersected much deeper than planned. The results of the DMS are presented in Section 13.0.

Hole NC11221 was collared approximately 300 m east of the southeastern corner of the Hayes Zone. The drill hole was selectively sampled with minor base metal mineralization intersected at a depth of 225.3 m with assays grading 2.54% Zn, 0.29% Pb and 4 g/t Ag over a downhole length of 5.1 m. The hole completed at a depth of 582 m.

10.1.7 Callinex Drilling Completed In – 2017

Callinex undertook an extensive drilling program on the Nash Creek Property between May and November 2017. A total of 59 drill holes (totalling 10,586.7 m) were completed to test the mineralized extension towards the north of the Hickey Zone (drill holes NC17-222 to NC17-280). Using targets generated from previous drilling results in the area and re-interpretation of the geophysical surveys collected by previous operators. Eight of these holes were drilled within the delineated Hickey Zone to twin historical holes, as described in Section 14.1.3.1 Twinned Drill Holes.

Results of the campaign included intersection of zinc, lead and silver mineralization with all but seven holes with intersections of equal to or greater than 1% Zn. The longest continuous interval highlights include hole NC17-249 which intersected 2.44% Zn, 0.35% Pb, and 1.51 g/t Ag, or 2.71% ZnEq over a continuous downhole interval of 72.3 m (Figure 10.1). Intercept highlights with significant grades include hole NC17-257 which intersected 2.0 m of 23.9% Zn, 1.26% Pb, and 21.8 g/t Ag, or 24.97% ZnEq between 123 and 125 m downhole (Figure 10.2). Both intersections represent stockwork and replacement style mineralization within altered mafic host. These holes are collared approximately 175 m from each other and mineralization is interpreted to be related to a NW-SE directed extensional structural corridor. Drill hole collar locations and mineralized zones are shown in Figure 10.3.

FIGURE 10.1 DRILL HOLE NC17-249

Source: *2018 Tetra Tech Report on the Nash Creek Property.*

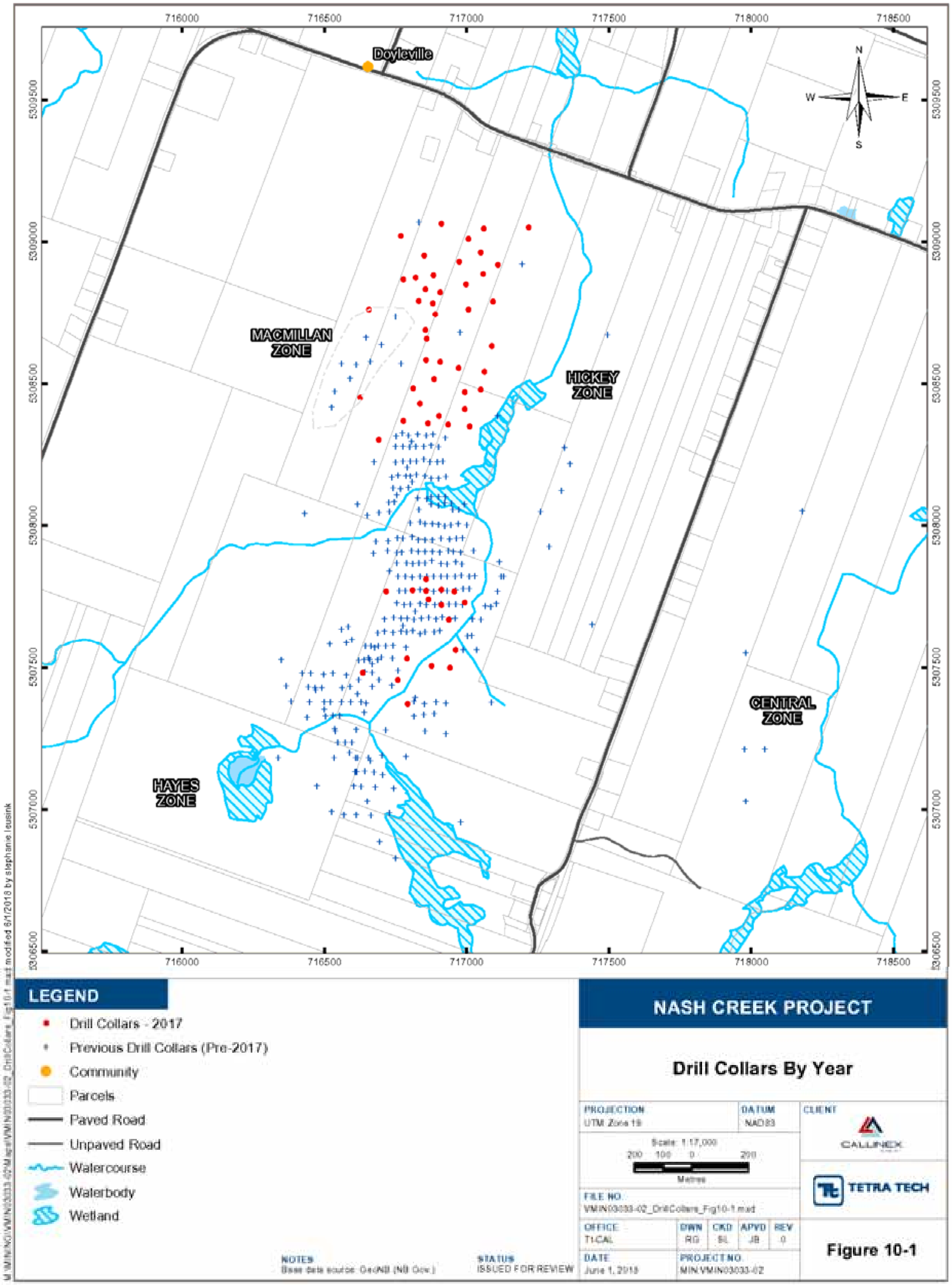
Highlighting 3.88% Zn, 0.55% Pb, and 0.67g/t Ag, or 4.29% ZnEq over 8 m from 51 m to 59 m downhole.

FIGURE 10.2 DRILL HOLE NC17-257

Source: *2018 Tetra Tech Report on the Nash Creek Property.*

Highlighting 23.9% Zn, 1.26% Pb, and 21.8 g/t Ag, or 24.97% ZnEq between 123 and 125 m downhole.

FIGURE 10.3 2017 DIAMOND DRILL HOLES PLAN VIEW AND MINERALIZED ZONES GENERAL LOCATION



Source: 2018 Tetra Tech Report on the Nash Creek Property.

10.2 SUPERJACK PROPERTY

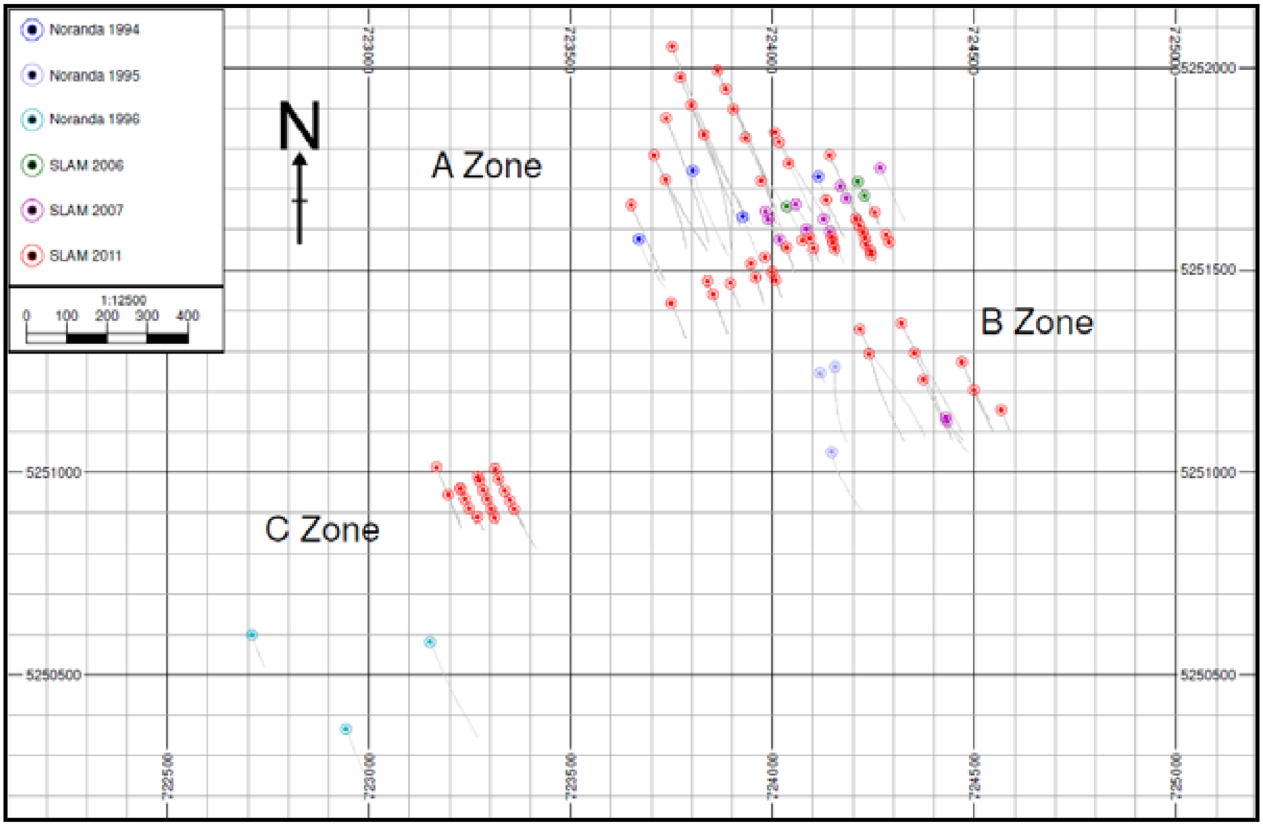
SLAM carried out drilling on the A, B, and C zones of the Superjack Property over five drill programs since 2006. Table 10.2 summarizes drilling at the Superjack Property completed during these programs, and Figure 10.4 illustrates the collar locations of the drill holes used for the 2012 Mineral Resource estimate which has been verified and re-stated in the current Technical Report. All drilling prior to SLAM is discussed in the historical context within Section 6.0.

TABLE 10.2
SUMMARY OF SUPERJACK PROPERTY DRILLING

Year	Number of Diamond Drill Holes	Length (m)	Target
2006	3	477.0	A Zone
2007	10	1,598.5	A Zone
	2	267.0	B Zone
2011	44	9,714.7	A Zone
	8	2,333.0	B Zone
	18	2,090.0	C Zone
2015	1	566.0	A Zone
2017	4	2,787.5	A,B,D zones
	1	405.0	C Zone
	2	603.0	Exploration
Total	**93**	**20,841.7**	

Source: *2016 Tetra Tech Report on the Superjack Property*

FIGURE 10.4 DRILL HOLE LOCATION MAP SHOWING LOCATION OF HOLES USED IN THE 2013 MINERAL RESOURCE ESTIMATE



***Source:** 2016 Tetra Tech Report on the Superjack Property.*

10.2.1 2006 Drilling Completed In 2006

The 2006 drilling program consisted of three diamond drill holes. The objective of the program was to test the A Zone for grade and thickness as well as testing the potential below previously drilled intercepts (Taylor, 2006). All three holes returned massive sulphide intersections with zinc-lead-copper-silver mineralization (Taylor, 2007).

Table 10.3 displays the significant results released for the 2006 drilling program.

TABLE 10.3
SIGNIFICANT RESULTS FROM 2006 DRILL PROGRAM

Hole #	From (m)	To (m)	Interval (m)	Zn (%)	Pb (%)	Cu (%)	Ag (g/t)
NP06-01	80.15	82.15	2.00	5.69	2.47	0.77	117.50
NP06-02	117.56	119.36	1.80	5.35	1.71	0.37	62.89
NP06-03	143.97	147.82	3.85	6.49	2.04	0.16	48.43
includes	143.97	144.42	0.45	22.40	7.28	0.15	141.00

*(**Source:** Taylor, 2007)*
***Source:** 2016 Tetra Tech Report on the Superjack Property.*

10.2.2 SLAM Drilling Completed In 2007

The 2007 drilling program consisted of 12 diamond drill holes. The objective of the program was to test sulphide targets up and down dip and along strike with the mineralization identified in previous drilling at A Zone. Additionally, two holes were drilled at the B Zone to test continuity nearer surface. The results of the drilling confirmed the presence of significant mineralization over the 250 m strike length area at A Zone, as well as confirming the up dip extension of massive sulphides from previous drilling (Creamer, 2009).

Table 10.4 displays significant results from the 2007 drilling program.

TABLE 10.4
SIGNIFICANT RESULTS FROM 2007 DRILL PROGRAM

Hole #	From (m)	To (m)	Interval (m)	Zn (%)	Pb (%)	Cu (%)	Ag (g/t)
NP07-04	111.25	117.25	6.00	0.54	0.08	0.05	2.9
NP07-05	154.40	155.40	1.00	6.79	0.09	0.20	13.0
NP07-06	80.05	86.05	6.00	7.74	2.88	0.10	31.4
NP07-07	131.36	136.51	4.15	3.72	0.59	0.23	32.9
NP07-08	80.00	85.71	5.71	2.04	0.71	0.06	22.3
NP07-08	81.35	81.80	0.45	7.00	1.05	0.06	32.0
NP07-09	107.95	125.40	17.45	2.26	0.41	0.07	14.8
NP07-09	107.95	108.95	1.00	6.64	0.71	0.05	24.0
NP07-10	89.90	97.65	7.75	7.00	1.32	0.18	57.5
NP07-10	89.90	93.65	3.75	10.58	2.34	0.20	91.8
NP07-11	110.40	111.07	0.67	13.53	3.62	0.43	179.0
NP07-11	132.23	136.00	3.68	7.53	1.66	0.12	69.0
NP07-13	167.83	172.06	4.23	6.99	1.00	0.22	27.3
NP07-14	84.15	86.95	2.80	5.47	1.31	0.27	58.8
NP07-15	19.02	22.50	3.48	5.86	0.33	0.71	39.5
NP07-15	29.48	40.70	11.22	6.09	0.81	0.21	31.3
NP07-15	29.48	34.79	5.31	7.75	1.19	0.17	36.8
NP07-15	53.16	59.24	6.08	3.43	1.38	0.10	39.7

*(**Source:** Creamer, 2009)*
***Source:** 2016 Tetra Tech Report on the Superjack Property.*

10.2.3 SLAM Drilling Completed in 2011

The 2011 drilling program consisted of 70 diamond drill holes. The objective of the program was to test sulphide targets up and down dip and along strike with the mineralization identified in previous drilling at all three zones of the Superjack Property. Initially the program was intended to drill 1,000 m, but was subsequently expanded due to positive results. The program was guided by BHPEM surveys. Forty-four holes were drilled targeting the A Zone, eight targeting the B Zone, and 18 targeting the C Zone.

Table 10.5 displays significant results released from the 2011 drilling program.

TABLE 10.5
SIGNIFICANT RESULTS FROM 2011 DRILL PROGRAM

Hole #	From (m)	To (m)	Interval (m)	Zn (%)	Pb (%)	Cu (%)	Ag (g/t)
NP11-16	23.85	33.80	9.95	6.26	1.92	0.14	65.24
Includes	27.35	31.35	4.00	12.20	3.02	0.11	94.50
Includes	27.35	28.85	1.50	8.10	2.40	0.12	66.00
Includes	28.85	30.35	1.50	14.80	4.73	0.09	142.00
Includes	30.35	31.35	1.00	13.70	1.39	0.13	66.00
NP11-16	43.25	50.30	7.05	7.24	3.45	0.60	157.72
Includes	43.25	44.75	1.50	8.33	4.72	0.32	159.00
Includes	44.75	45.75	1.00	8.94	4.06	0.32	202.00
Includes	45.75	47.30	1.55	4.77	1.65	1.29	139.00
Includes	47.30	48.80	1.50	7.28	2.62	0.83	145.00
NP11-17	21.16	21.30	0.14	10.90	4.14	0.27	74.00
NP11-17	26.20	28.20	2.00	2.53	0.82	0.88	48.00
Includes	26.20	27.00	0.80	1.53	0.64	0.99	48.00
Includes	27.00	28.20	1.20	3.20	0.94	0.81	48.00
NP11-17	34.60	38.00	3.40	4.39	1.55	0.25	65.00
Includes	34.60	35.60	1.00	3.88	2.74	0.30	110.00
Includes	35.60	37.00	1.40	1.47	0.87	0.28	45.00
Includes	37.00	38.00	1.00	7.82	1.33	0.16	48.00
NP11-18	56.75	59.25	2.50	2.79	1.42	0.12	21.92
NP11-19	78.12	89.00	10.88	3.04	0.49	0.17	12.43
Includes	78.12	82.50	4.38	5.00	0.74	0.28	20.54
NP11-20	28.71	29.90	1.19	5.42	3.65	0.07	147.34
NP11-21	219.40	221.40	2.00	4.08	0.70	0.35	38.45
NP11-22	209.56	210.80	1.24	5.15	1.20	0.09	73.00
NP11-23	387.60	402.23	14.63	3.34	0.89	0.36	25.16
NP11-23	387.60	397.20	9.60	4.63	1.29	0.40	32.21
NP11-23	387.60	393.35	5.75	6.88	1.94	0.34	43.22
NP11-23	387.60	390.50	2.90	10.99	3.16	0.19	52.48
NP11-25	325.90	331.47	5.57	3.31	0.83	1.03	57.00
NP11-26	417.82	418.65	0.83	3.36	0.66	0.22	33.00
NP11-29	289.40	289.77	0.37	3.17	1.23	0.15	29.00
NP11-30	465.75	487.15	21.40	1.74	0.24	0.18	12.00
Includes	466.40	468.35	1.95	7.91	1.29	0.16	27.00
NP11-33	224.80	227.05	2.25	2.01	0.45	0.19	17.00
NP11-34	234.22	236.14	1.92	2.44	0.39	0.23	18.00
NP11-35	72.55	73.13	0.58	6.53	4.92	0.75	137.00
NP11-35	118.50	119.10	0.60	10.00	0.53	0.02	10.00
NP11-36	139.84	141.60	1.76	1.29	0.38	0.21	21.00
NP11-37	532.95	536.00	3.05	4.87	0.55	0.63	37.00
NP11-38	298.30	299.75	1.45	2.78	0.68	0.17	36.00
NP11-39	614.90	626.10	11.20	5.03	0.95	0.24	34.00

TABLE 10.5 **SIGNIFICANT RESULTS FROM 2011 DRILL PROGRAM**							
Hole #	**From (m)**	**To (m)**	**Interval (m)**	**Zn (%)**	**Pb (%)**	**Cu (%)**	**Ag (g/t)**
Includes	622.00	626.10	4.10	10.11	1.24	0.30	33.00
NP11-43	3.00	22.20	19.20	4.33	1.12	0.44	61.00
Includes	5.00	11.00	6.00	8.27	1.98	0.38	79.00
NP11-44	10.85	24.40	13.55	3.16	0.91	0.41	44.00
Includes	14.15	18.50	4.35	6.01	1.65	0.37	75.00
NP11-45	6.00	16.10	10.10	4.15	1.09	0.31	28.00
NP11-45	24.70	44.00	19.30	4.48	1.51	0.42	69.00
Includes	36.00	44.00	8.00	7.14	2.16	0.51	96.00
NP11-46	8.00	14.17	6.17	5.00	2.20	0.29	70.12
NP11-46	21.30	32.30	11.00	7.42	2.07	0.56	109.41
NP11-47	19.50	21.00	1.50	1.16	0.24	0.03	7.00
NP11-48	9.50	23.50	14.00	3.41	0.91	0.23	23.02
Includes	10.00	15.00	5.00	6.35	1.99	0.35	42.30
NP11-49	18.65	32.00	13.35	3.67	0.56	0.37	44.95
Includes	18.65	27.05	8.40	5.06	0.76	0.53	63.09
NP11-54	494.12	503.80	9.68	3.98	1.64	0.41	52.00
Includes	494.12	500.75	6.63	5.32	2.23	0.42	69.00
NP11-55	32.50	45.17	12.67	4.17	1.49	0.14	30.00
Includes	37.90	43.68	5.78	6.69	2.66	0.13	47.00
NP11-57	58.45	61.80	3.35	4.12	0.54	0.11	6.00
NP11-58	74.80	75.44	0.64	4.04	0.19	0.18	17.00
NP11-61	321.75	324.50	2.75	1.71	0.20	0.08	6.00
NP11-63	392.10	393.10	1.00	2.91	0.43	0.19	15.00
NP11-64	12.00	17.00	5.00	1.61	0.34	0.11	12.00
NP11-65	47.75	48.60	0.85	8.05	0.17	0.07	1.00
NP11-66	10.50	15.00	4.50	4.15	2.43	0.19	52.00
NP11-66	38.80	40.30	1.50	2.08	0.25	0.10	8.00
NP11-67	78.90	80.60	1.70	4.29	2.92	1.01	116.00
NP11-67	78.90	85.90	7.00	3.62	1.11	0.43	50.00
NP11-68	34.00	36.50	2.50	6.16	1.34	0.24	46.00
NP11-69	37.80	48.90	11.10	3.49	0.82	0.76	57.00
NP11-69	37.80	42.00	4.20	5.71	0.99	0.44	59.00
NP11-71	93.30	125.10	31.80	2.86	0.63	0.39	29.00
NP11-71	93.85	98.00	4.15	6.89	0.55	0.54	32.00
NP11-71	112.50	125.10	12.60	3.81	1.09	0.38	47.00
NP11-73	22.00	23.00	1.00	2.42	1.58	0.28	49.00
NP11-73	38.00	48.00	10.00	2.14	0.45	0.40	26.00
NP11-75	27.40	48.00	20.60	6.66	2.85	0.50	111.00
NP11-75	27.90	33.00	5.10	14.18	5.18	0.28	121.00
NP11-76	60.50	65.40	4.90	3.06	0.96	0.25	38.00
NP11-77	63.00	67.30	4.30	2.14	0.75	0.31	25.00

TABLE 10.5 SIGNIFICANT RESULTS FROM 2011 DRILL PROGRAM							
Hole #	**From (m)**	**To (m)**	**Interval (m)**	**Zn (%)**	**Pb (%)**	**Cu (%)**	**Ag (g/t)**
NP11-78	65.00	68.00	3.00	2.58	0.23	0.31	7.00
NP11-78	82.00	87.40	5.40	1.21	0.17	0.60	19.00
NP11-79	88.20	90.50	2.30	1.61	0.33	0.76	36.00
NP11-82	8.00	21.00	13.00	3.16	0.46	0.22	18.00
NP11-85	90.50	90.95	0.45	5.75	2.10	0.43	50.00

Source: *2016 Tetra Tech Report on the Superjack Property.*

10.2.4 SLAM Drilling Completed In 2015

A single drill hole was completed by SLAM in 2015. The objective of the hole was to test the lateral extent of mineralization west of the high-grade zone intersected in 2011 in drill hole NP11-39, in an overall effort to expand the deposit at depth. The hole returned two main mineralized intervals containing zinc-lead-copper-silver mineralization (SLAM News Release, March 18, 2015).

Table 10.6 displays the significant results released for the 2015 drilling program.

TABLE 10.6 SIGNIFICANT RESULTS FROM THE 2015 DRILL PROGRAM							
Hole #	**From (m)**	**To (m)**	**Interval (m)**	**Zn (%)**	**Pb (%)**	**Cu (%)**	**Ag (g/t)**
SJ15-86	261.3.5	261.64	0.29	8.72	3.64	0.038	31.0
SJ15-86	507.25	515.05	7.8	1.56	0.35	0.12	13.19
SJ15-86	519.2	521.6	2.4	3.19	0.93	0.32	39.08
including	520.45	521.15	0.70	6.27	2.71	0.30	77.0

*(**Source:** SLAM News Release, March 18, 2015)*
Source: *2016 Tetra Tech Report on the Superjack Property.*

The drill hole was exploratory in nature and targeting mineralization outside the main deposits. Tetra Tech is of the opinion that the hole confirms continued mineralization at depth, and does not materially impact the existing resource area. The hole has not been incorporated into the previous Mineral Resource estimate restated in Section 14.2 of this Technical Report.

10.2.5 Callinex Drilling Completed In 2017

Callinex's 2017 drill program consisted of seven diamond drill holes totalling 3,795.5m. Two of the seven drill holes were abandoned prior to target depth due to down-hole deviation. Four drill holes were completed with the objective to identify potential to expand the Superjack A, B and C mineralized zones while two drill holes were designed to test new targets. The 2017 drill program led to the discovery of a Zn-Pb-Cu-Ag zone referred as the Superjack D Zone.

11.0 SAMPLE PREPARATION, ANALYSIS AND SECURITY

11.1 NASH CREEK PROPERTY

11.1.1 Falconbridge Drilling Programs

Detailed descriptions of core logging and sampling procedures are not presented in Falconbridge or earlier drilling program reports for the Nash Creek Property. Notwithstanding this point, review of drill logs and sampling records showed that continuous half core sampling through zones showing visible sulphide mineralization was typically carried out and that written drill logs with lithologic descriptions and sample interval data were prepared. Most Falconbridge core samples were either 1.0 m or 1.5 m in length with infrequent exceptions ranging length up to 4.42 m. Longer sample intervals sometimes reflected zones of poor core recovery. No minimum sample length appears to have been applied in any of the Falconbridge programs, but no samples less than 0.3 m in length appears in the compiled data set. In addition to the above, Falconbridge carried out a lithogeochemical core sampling program consisting of collection of non-biased core fragments over 3.0 m intervals spaced at intervals of approximately 30 or 60 m down hole (Cullen and Barr, 2005). Falconbridge also carried out a standard testing program which showed up in the sample numbering, but was not explained. The author believes this represents a blind duplicated or a blank indicating concerns for quality control.

Core samples were sent to ALS Chemex in Mississauga, Ontario where they were crushed and riffled to obtain a 250 gram split that was subsequently pulverized and screened to obtain minus 150 Mesh material for analysis. Standard core sample analysis followed which provided assay grade atomic absorption spectroscopy determinations for those samples with visually pre-determined levels of Zn, Pb, Ag and Cu exceeding 3.0%. Standard aqua regia digestion and atomic absorption spectroscopy determinations were returned for other samples with lower metal levels and in 1990 levels of cobalt, iron, manganese, molybdenum and nickel were determined for the lower grade sample set.

In addition to standard analyses noted above, litho-geochemical samples were submitted to X-ray Assay Laboratories (X-Ray) of Don Mills, Ontario for determination of whole rock geochemical profiles. This included determination of both major oxide and trace element levels using x-ray fluorescence spectrometry. Sample preparation protocols were not specified in the Falconbridge drilling program reports. Multiple reference control samples were submitted in each of two litho-geochemical whole rock sample shipments submitted by Falconbridge (Cullen and Barr, 2005).

No reference to core logging or sampling security protocols appear in Falconbridge reports pertaining to the core drilling programs described in this report. Based on standard practices for the time the company applied levels of security to its Nash Creek drilling, logging, core sampling and sample shipment procedures that met or exceeded industry standard levels. The correlation between analytical values attained by SLAM and Falconbridge on cross section plots it is reasonable to assume that their actions were at a high level for industry standards.

11.1.2 Pre-Falconbridge Drilling Programs

Sampling procedures for the pre-Falconbridge drilling programs are not well described in historic reports, but sampling also appears to have been focused on visually determined zones of sulphide mineralization. Half core sampling was confirmed for the 1979 Texasgulf program, but could not be verified for earlier efforts. Texasgulf sampling does not reflect application of minimum or maximum sample length criteria, with samples ranging between 0.05 m and 5.33 m in length (Cullen and Barr, 2005). Reports on drilling programs of this era are generally brief and show no specific references to issues surrounding security of sites, drill core, core logging, core sampling or associated drilling information. This reflects common practice of the times, as represented in many assessment reports filed with the government, and should not be construed as an indication of substandard technical work or lack of attention to project security.

Texasgulf data is the only pre-1980 data considered to be useful in a resource calculation in the "Inferred" category as there is good correlation between the SLAM core logging and assay data locally.

Sample preparation and analyses was reviewed by Christopher Moreton, P.Geo., former lead senior geologist with Wardrop during the site visit.

11.1.3 2005 – 2006 SLAM Drilling Program

Drill core was logged by a SLAM geologist and a hard copy lithologic log prepared for each drill hole. Information from this log was subsequently entered into a digital (Microsoft Excel) spreadsheet incorporating lithocodes for various rock types and mineralization styles as well as sample record and assay information. Core sample intervals were laid out by the logging geologist and sample intervals recorded on the drill log. Sample intervals were also recorded on pre-numbered three tag sample books at this time, with one tag placed in the core box at the end of respective sample intervals, one included in the core sample split sent to the laboratory for analysis and the remaining tag retained in the sample book as a permanent record.

SLAM geological staff was responsible for security of core and core samples after delivery from the drilling contractor. As described to the writer by SLAM staff in June 2005, logging and sampling were carried out in a secure indoor logging facility and samples were subsequently the responsibility of designated SLAM staff until shipment to the analytical laboratory by commercial services. Access to drill core and core samples was regulated by the company at all times. Core samples were cut by SLAM staff using a diamond saw or core splitter and one half of each interval was placed in a plastic sample bag along with one of the sample tags previously mentioned. The sample bag was labelled with the tag number, then sealed and stored in a secure location prior to shipment to the analytical laboratory. Sample intervals were laid out based on visually determined mineralized zone limits or lithologic boundaries, with individual samples typically not exceeding 1.5 m in length. The SLAM data set is also dominated by sample lengths in the 1.0 m to 1.5 m range, with a 1.6 m maximum noted. Review of sample records showed 0.3 m to be the minimum sample length (Cullen and Barr, 2005).

Control of handling was accomplished by first matching a label to the bag and the box and the distance measurements were recorded in a field note book and on the remaining tab in the sample book. While preparing for shipment the sample names were recorded on the sample shipment forms. All samples were stored in a secure facility while awaiting shipment to ALS Chemex of Mississauga, Ontario for analysis.

All samples were prepared using the standard Chemex rock preparation methodology that consists of drying at 110 to 120 degrees Celsius, crushing to 70% minus 10 mesh followed by riffle splitting of a 250 gram split for subsequent pulverization to >85% minus 200 Mesh, Aqua Regia digestion and analysis of Zn, Pb, Cu and Ag levels by atomic absorption spectroscopy. The Chemex "AA46" analytical protocol was applied due to anticipated presence of high metal grades in some samples (Cullen and Barr, 2005).

11.1.4 2007 – 2008 SLAM Drilling Program

SLAM began the 2007 drill program on May 1st, 2007 and ending in late 2008 using the following Quality Control and Quality Assurance ("QA/QC") programs at Nash Creek:

1. Insertion of blank drill core samples into the sample sets sent for laboratory analysis.

2. Reliance upon laboratory supplied QA/QC standards for monitoring of precision and accuracy.

Sample preparation was conducted by Derek Brown Exploration Manager of SLAM Exploration.

Blank sample material was sourced from barren drill core sections available to SLAM and samples were inserted into the analytical stream at intervals ranging between 20 and 50 samples. Values for Zn, Pb and Ag returned from the blanks are consistent and are interpreted for reporting purposes as indicating an acceptable variation.

Laboratory QA/QC standards were relied upon to monitor precision and accuracy of analytical processing and no independent standards were submitted by SLAM during the course of the core sampling programs. Analytical results for laboratory standards provided by ALS Chemex are considered by the laboratory to show acceptable limits of accuracy and precision. For the purposes of this report, this assertion has been accepted as presented and drilling data is considered to be of sufficient quality for use in the current Mineral Resource Estimate (Cullen and Barr, 2005).

On November 10, 2008, following a problem with some blank sample analysis, the QA/QC program was reviewed and a new program was implemented. Material for blanks was collected from barren crushed rock from a quarry. Standards provided by New Brunswick Department of Natural Resources and three different compositions for an independent provider were used to provide checks against the various labs used to analyze the core samples (Actlabs, Accurassay, and Polymet). The control samples, two standards and two blanks, were added for every 25 samples. An attempt was made to vary the standards through the sample suite being readied for shipment.

The lab reported one duplicate sample for every ten samples.

11.1.5 2011 SLAM Drill Program

Drill core from the 2011 program was delivered to SLAM's secure core shack for logging and sampling. Selected core samples were sawn and sent to Actlabs in Fredericton for preparation and subsequent analysis at Actlabs in Ancaster, Ontario. Activation Labs analyzed the samples using code 8AR for silver, zinc and lead. Selected samples were also tested using code Ultratrace 2 for multi-elements. SLAM used blank and standard samples for quality assurance and control.

11.1.6 2017 Callinex Drill Program

Individual samples were labelled, placed in plastic sample bags, and sealed. Groups of samples were then placed in security sealed bags and shipped directly to SGS Canada Inc in Vancouver, B.C. for analysis. Samples were crushed to 75% passing 2 mm and pulverized to 85% passing 75 microns in order produce a 250 g split.

All copper, zinc and silver assays were determined by Aqua Regia digestion with a combination of ICP-MS and ICP-AES finish, with overlimits (>100 ppm Ag, >10,000 ppm Zn, and >10,000 ppm Cu) completed by fire assay with gravimetric finish (Ag) or Aqua Regia digestion with ICP-AES finish (Cu and Zn). All samples were analyzed for gold by Fire Assay of a 30 g charge by AAS, or if over 10.0 g/t were re-assayed and completed with a gravimetric finish.

11.1.6.1 QA/QC Procedures

QA/QC included the insertion and continual monitoring of numerous standards and blanks into the sample stream at a frequency of 1 per 10 samples, and the collection of duplicate samples at random intervals within each batch at a frequency of 1 per 10 samples.

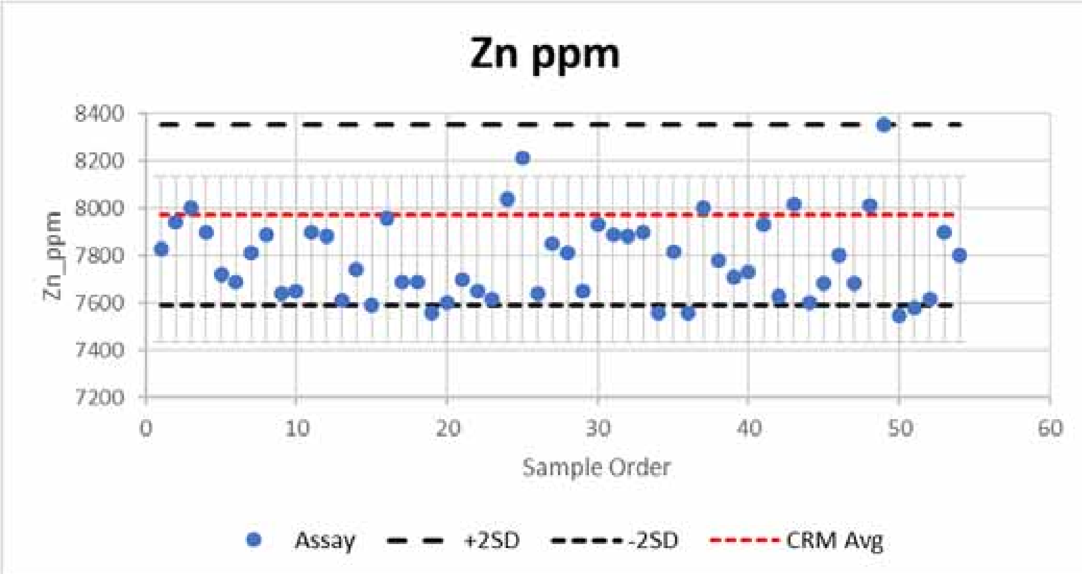
Certified Reference Standards

Four certified reference standard materials ("CRM") were used to check for analytical accuracy. Three CRMs (CDN-ME-1301, -1601, and -1402) were prepared by CDN Laboratory based in Langley, British Columbia, and a fourth CRM (OREAS 623) was prepared by Ore Research and Exploration based in Melbourne, Australia.

CDN-ME-1301

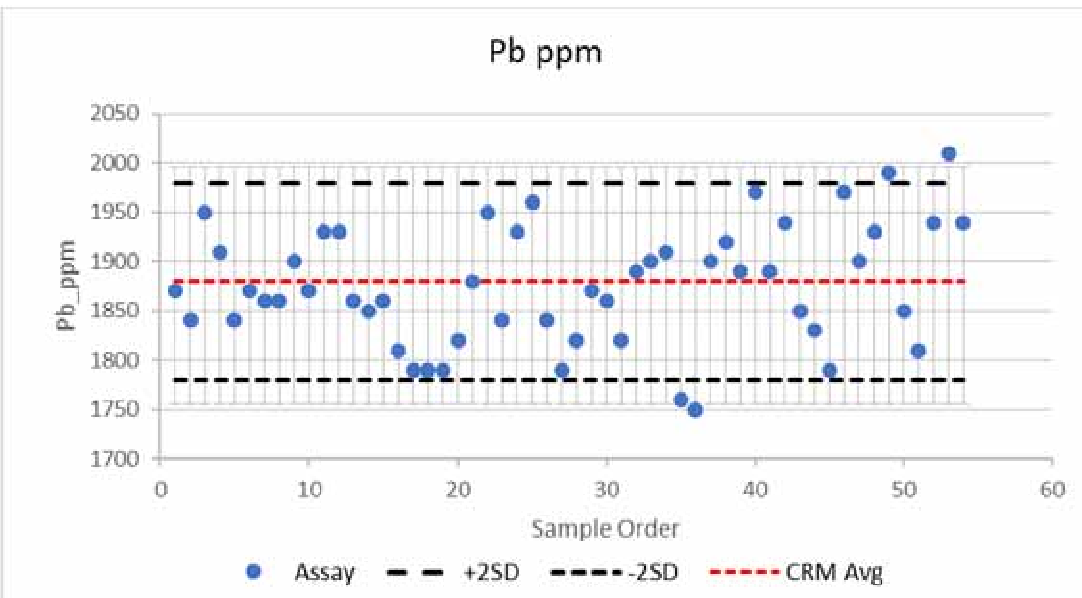
CRM CDN-ME-1301 was selected to evaluate analytical accuracy in range of <1% Zn. A total of 54 samples were inserted, with no significant sample failures or errors being identified. Figures 11.1 to 11.3 plot the assay results for Zn, Pb and Ag, respectively, against the expected CRM average value, the reported expected error range of +/- two standard deviations, and with the calculated error range of +/- 2 standard deviation of the analytical results.

FIGURE 11.1 ANALYTICAL PERFORMANCE OF CRM CDN-ME-1301, FOR ZINC GRADE



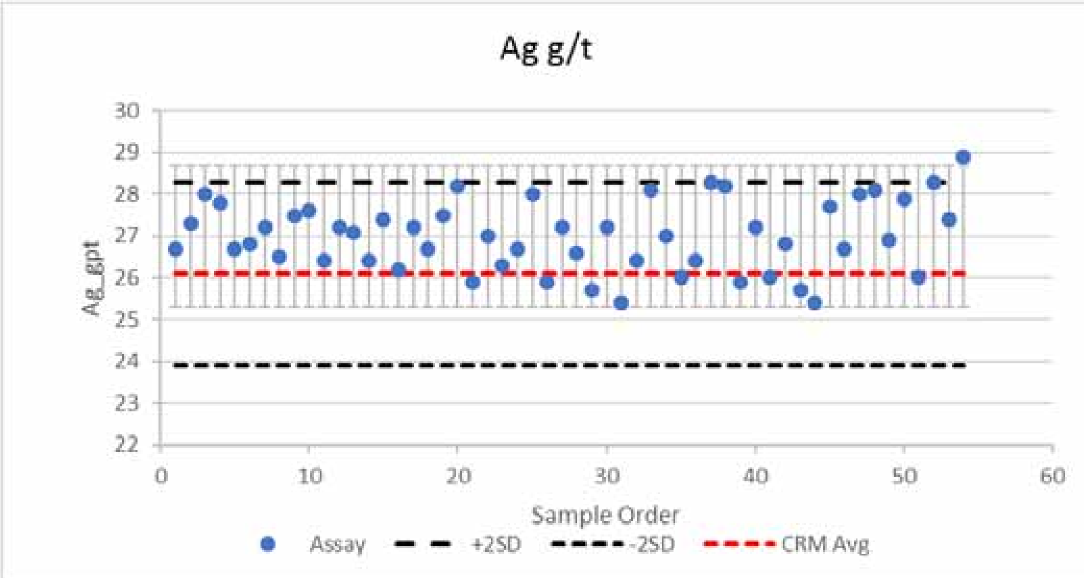
Source: *2018 Tetra Tech Report on the Nash Creek Property.*

FIGURE 11.2 ANALYTICAL PERFORMANCE OF CRM CDN-ME-1301, FOR LEAD GRADE



Source: *2018 Tetra Tech Report on the Nash Creek Property.*

FIGURE 11.3 ANALYTICAL PERFORMANCE OF CRM CDN-ME-1301, FOR SILVER GRADE

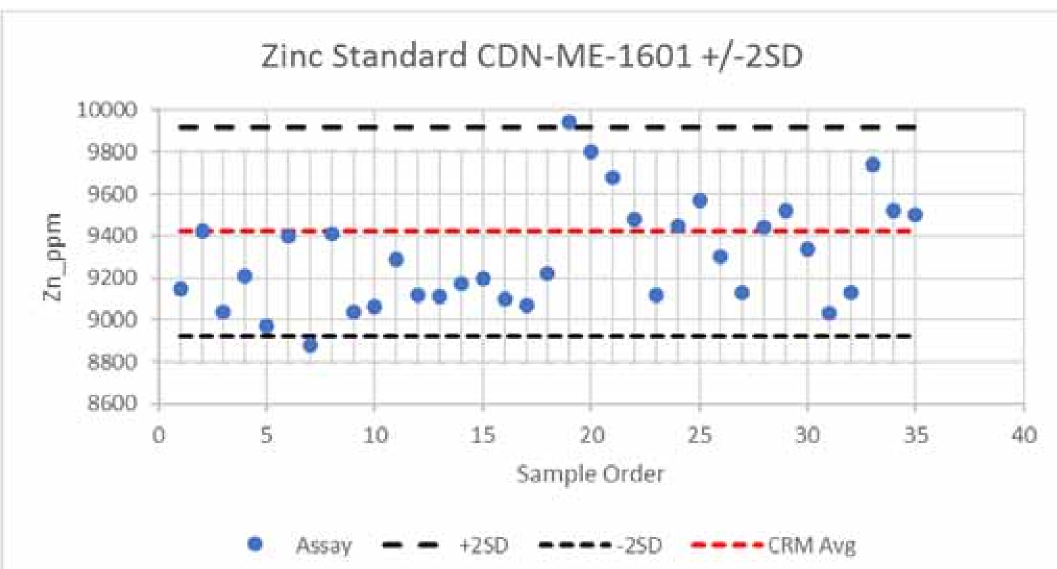


Source: *2018 Tetra Tech Report on the Nash Creek Property.*

CDN-ME-1601

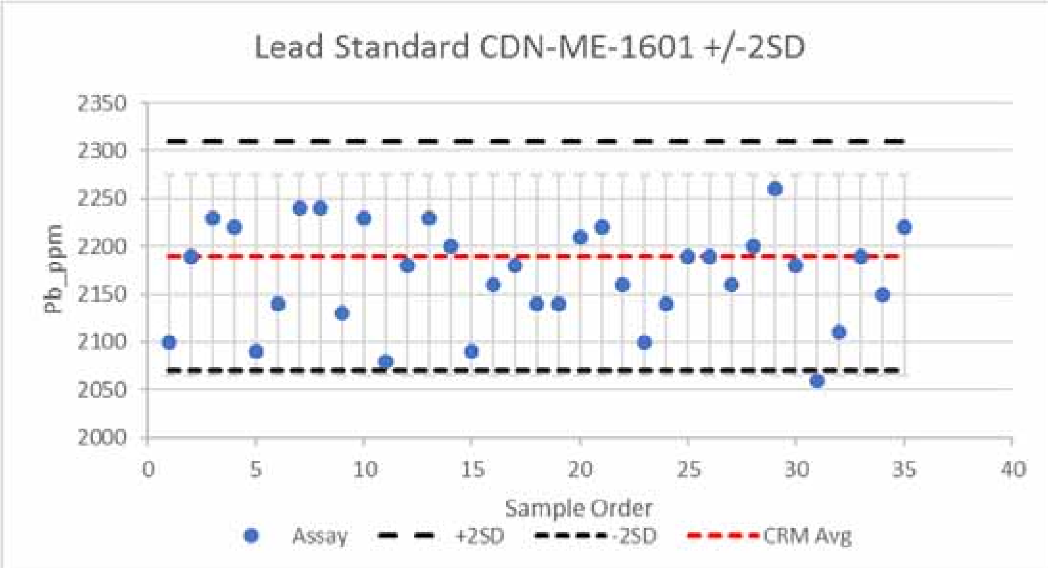
A total of 35 samples of CRM CDN-ME-1601 were inserted, with no significant sample failures or errors being identified for zinc and lead. Assay values returned for silver analysis were reported on average to be higher and outside of the two standard deviation range for the CRM. Figure 11.4 to 11.6 plot the assay results for Zn, Pb and Ag, respectively, against the expected CRM average value, the reported expected error range of +/- two standard deviations, and with the calculated error range of +/- 2 standard deviation of the analytical results.

FIGURE 11.4 ANALYTICAL PERFORMANCE OF CRM CDN-ME-1601, FOR ZINC GRADE



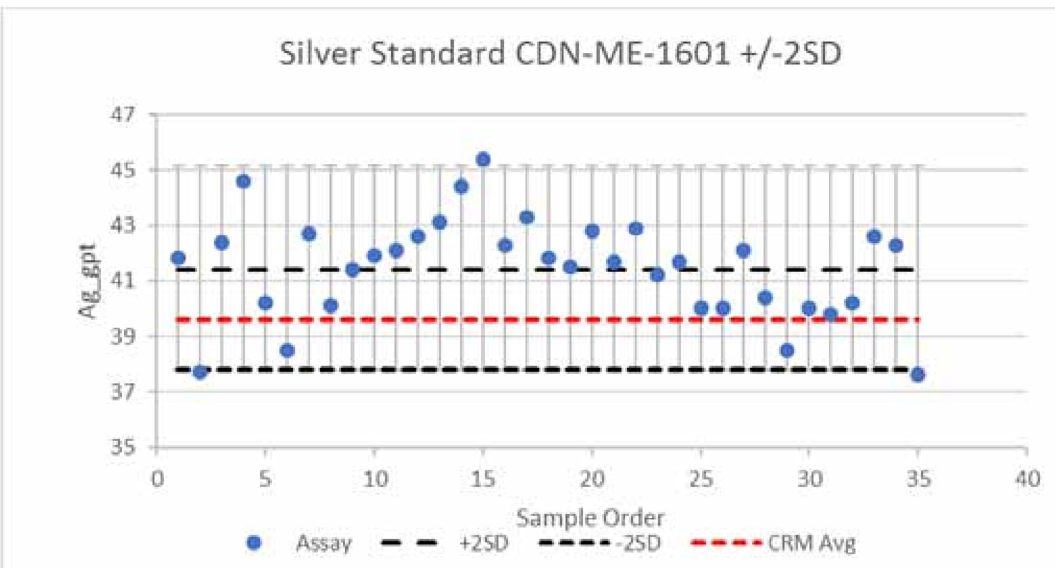
Source *2018 Tetra Tech Report on the Nash Creek Property.*

FIGURE 11.5 ANALYTICAL PERFORMANCE OF CRM CDN-ME-1601, FOR LEAD GRADE



Source: *2018 Tetra Tech Report on the Nash Creek Property.*

FIGURE 11.6 ANALYTICAL PERFORMANCE OF CRM CDN-ME-1601, FOR SILVER GRADE

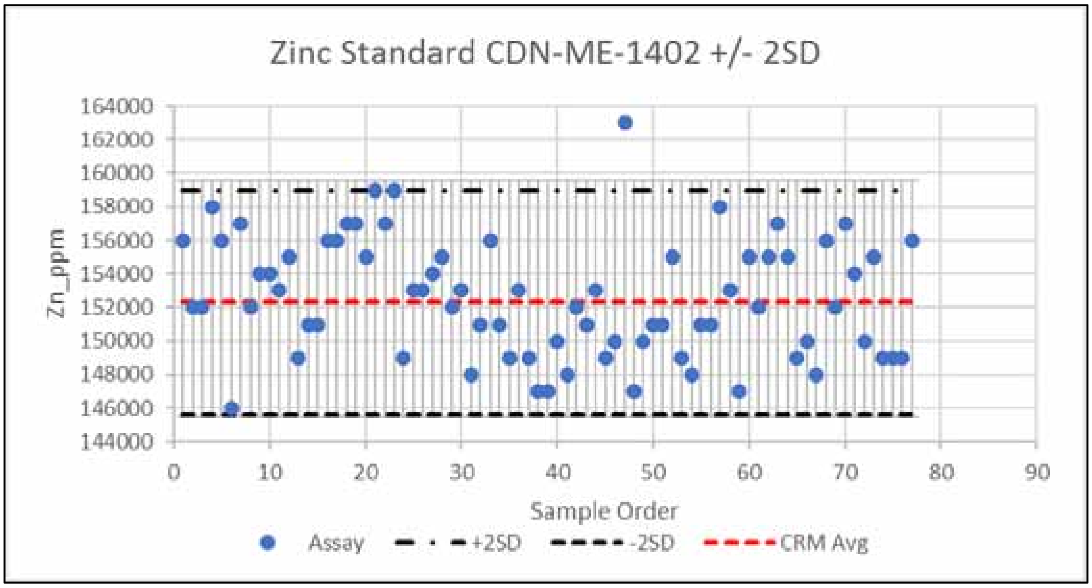


Source: *2018 Tetra Tech Report on the Nash Creek Property.*

CDN-ME-1402

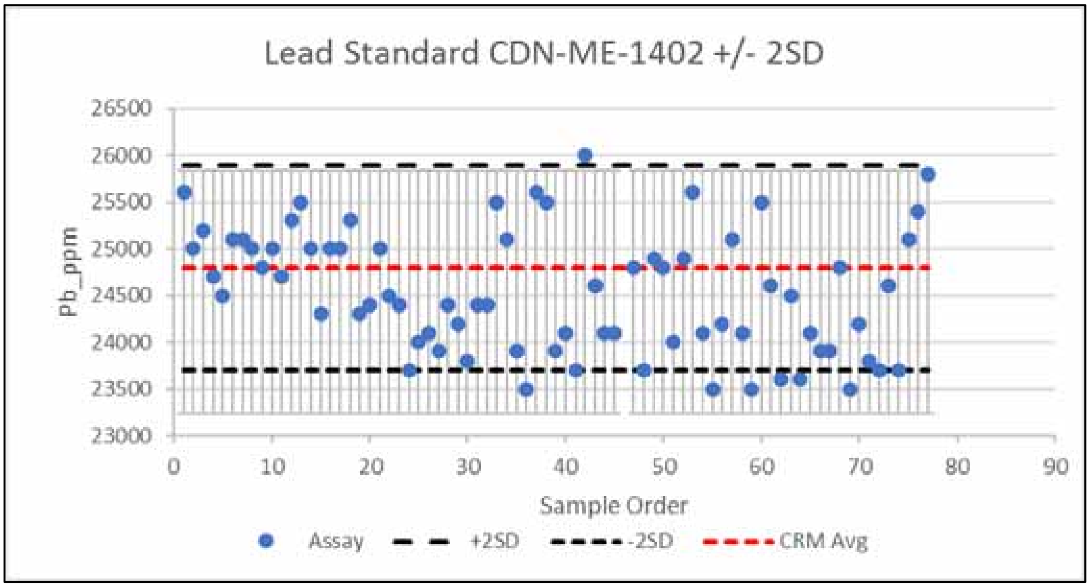
A total of 31 samples of CRM CDN-ME-16402 were inserted, with no significant sample failures or errors being identified for zinc and lead. Silver assays generally reported within the expected two standard deviation range, with exception to two samples which plotted well below the expected value which may be related to incomplete precious metal digestion of the sample using aqua regia. Figure 11.7 to 11.9 plot the assay results for Zn, Pb and Ag, respectively, against the expected CRM average value, the reported expected error range of +/- two standard deviations, and with the calculated error range of +/- 2 standard deviation of the analytical results.

FIGURE 11.7 ANALYTICAL PERFORMANCE OF CRM CDN-ME-1402, FOR ZINC GRADE



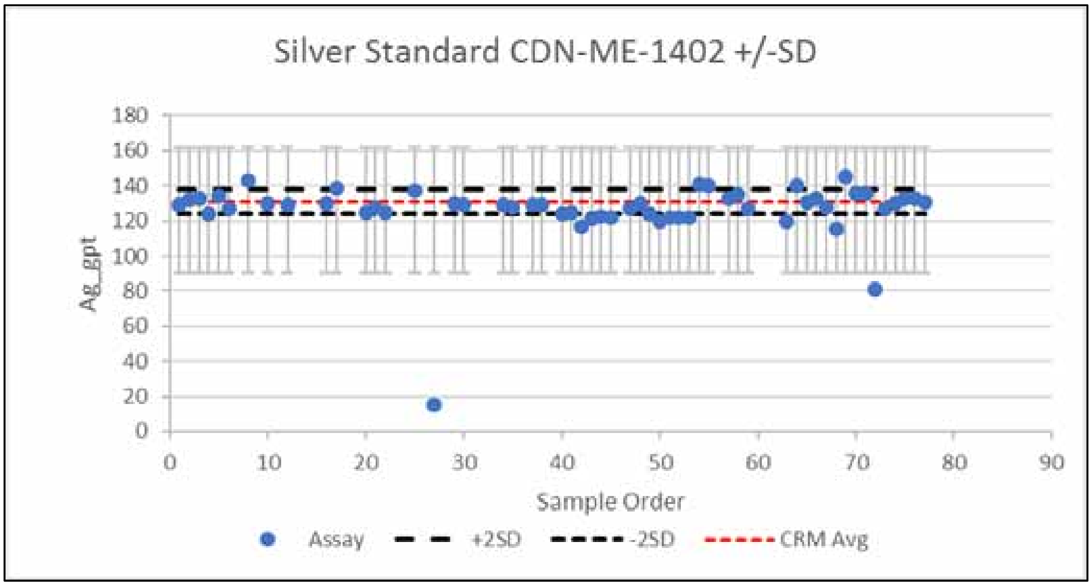
Source: *2018 Tetra Tech Report on the Nash Creek Property.*

FIGURE 11.8 ANALYTICAL PERFORMANCE OF CRM CDN-ME-1402, FOR LEAD GRADE



Source: *2018 Tetra Tech Report on the Nash Creek Property.*

FIGURE 11.9 ANALYTICAL PERFORMANCE OF CRM CDN-ME-1402, FOR SILVER GRADE

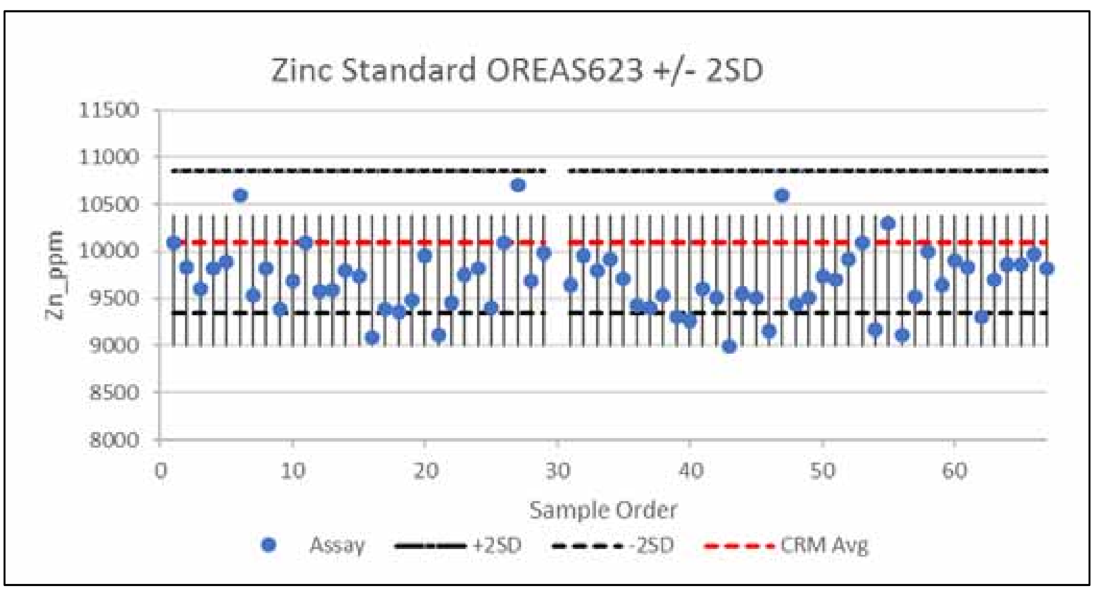


Source: *2018 Tetra Tech Report on the Nash Creek Property.*

OREAS 623

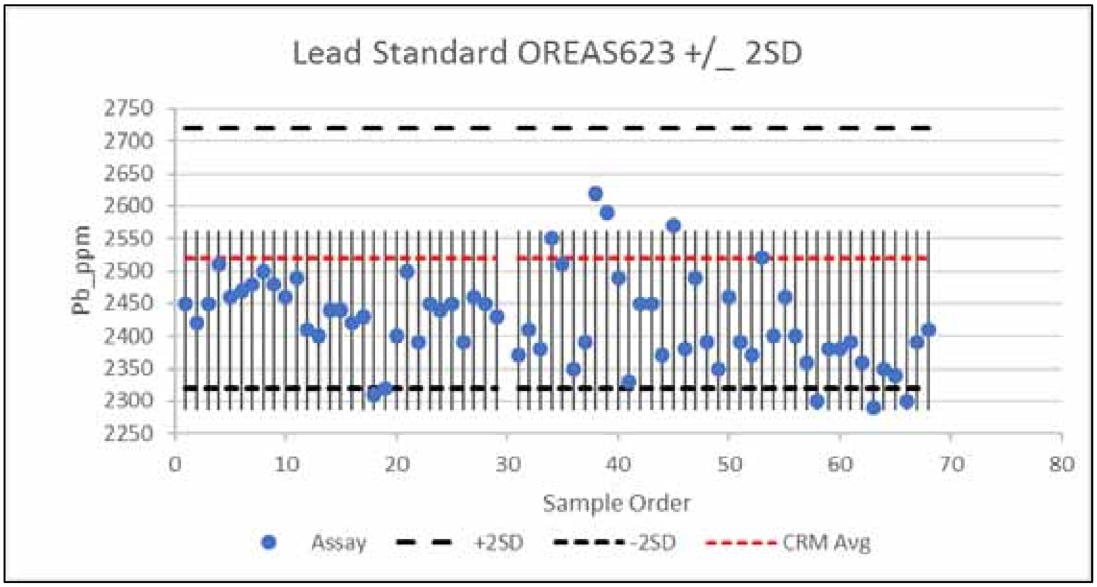
A total of 38 samples of CRM OREAS 623 were inserted, with no significant sample failures or errors being identified for zinc, lead or silver; both zinc and lead results plotted below the expected average, and silver values were distributed evenly within the range. Figures 11.10 to 11.12 plot the assay results for Zn, Pb and Ag, respectively, against the expected CRM average value, the reported expected error range of +/- two standard deviations, and with the calculated error range of +/- 2 standard deviation of the analytical results.

FIGURE 11.10 ANALYTICAL PERFORMANCE OF CRM OREAS623, FOR ZINC GRADE



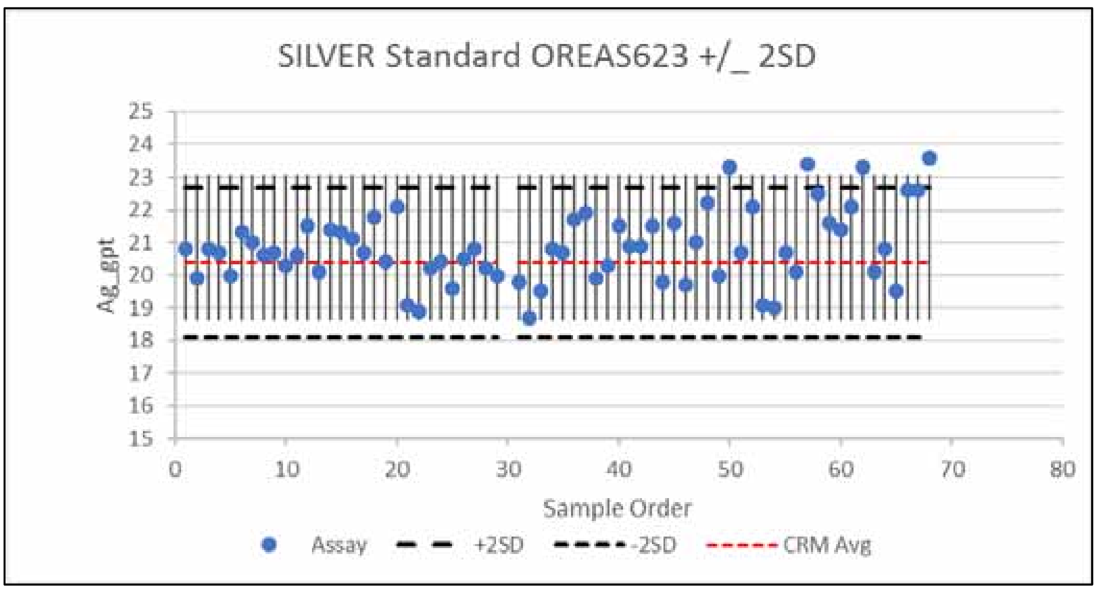
Source: *2018 Tetra Tech Report on the Nash Creek Property.*

FIGURE 11.11 ANALYTICAL PERFORMANCE OF CRM OREAS623, FOR LEAD GRADE



Source: *2018 Tetra Tech Report on the Nash Creek Property.*

FIGURE 11.12 ANALYTICAL PERFORMANCE OF CRM OREAS623, FOR SILVER GRADE



Source: *2018 Tetra Tech Report on the Nash Creek Property.*

Blanks

Certified blank material CDN-BL-10 prepared by CDN Laboratories was used to test for sample contamination. The blank was certified to be barren of gold, platinum and palladium, however, was used to detect anomalous concentrations of zinc, lead and silver. Table 11.1 list the results of the Blank material assessment with number of samples identified with assay values being greater than five times the reported detection limit.

The results of the assessment indicate that all samples reported detectible concentrations of zinc, lead and silver, more than five time the respective detection limits, however, the magnitude of the concentrations did not indicate that a contamination issue was prevalent. The source material used for the blank was derived from granitic rock, which may inherently contain low base metal concentrations. It is recommended that Callinex consider using a certified blank material suitable for base metal mineralization in subsequent phases of work.

TABLE 11.1
CERTIFIED BLANK SAMPLE INSERTION, SAMPLE CONTAMINATION SUMMARY TABLE

	Max	Min	Average	Detection Limit	Number of Samples >5x Detection Limit
Au (g/t)	0.05	0.01	0.01	0.005	71
Ag (g/t)	0.89	0.07	0.13	0.01	154
Cu (ppm)	183.00	19.80	71.23	0.5	154
Zn (ppm)	99.00	40.00	49.63	1	154
Pb (ppm)	81.70	1.60	5.10	0.2	154
Fe (%)	3.77	2.14	2.87	0.01	154

Source: *2018 Tetra Tech Report on the Nash Creek Property.*

Duplicates

Duplicate samples were collected randomly from drill core (field duplicates) and from sample pulps (preparation duplicates). These samples were analyzed and compared to the original assay grade to assess the precision of analytical methods.

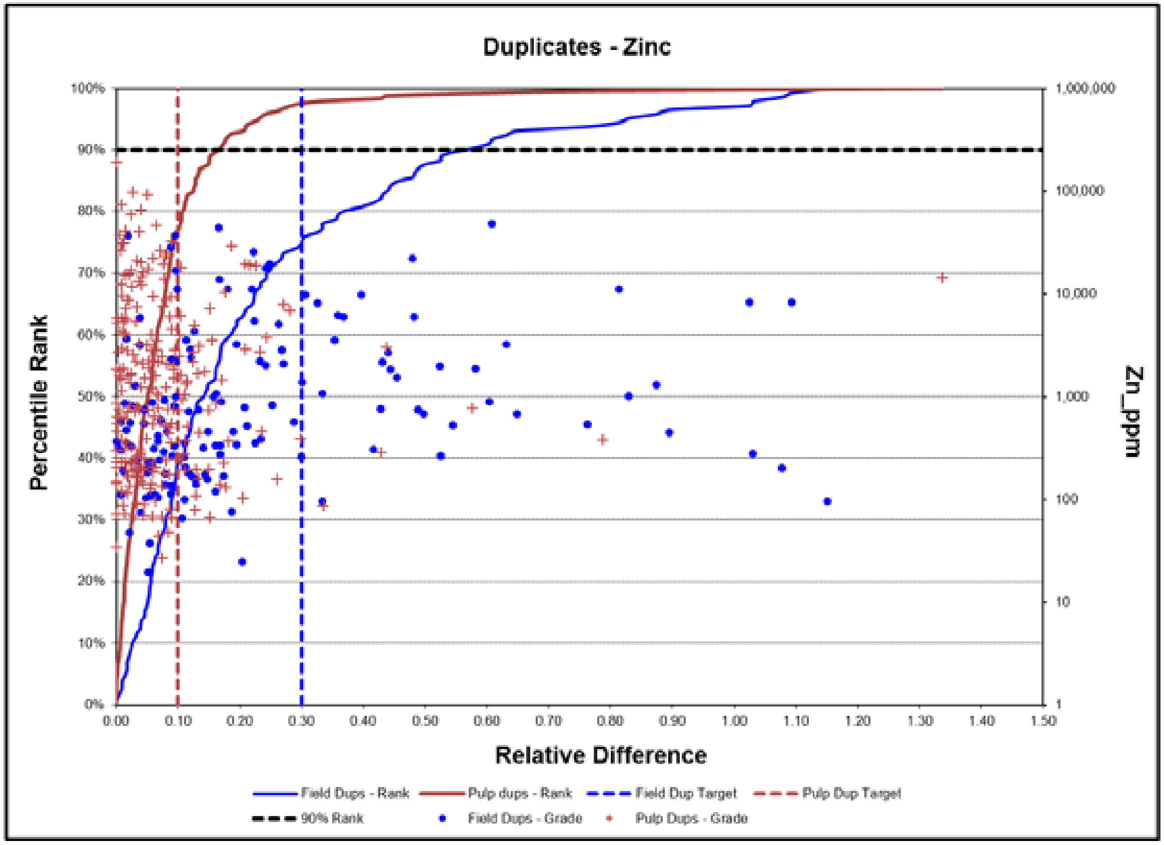
Generally, a high margin of error is expected from field duplicates, where it is desired to measure 90% of the sample population to have less than 30% relative percent difference (RPD). Conversely, preparations duplicates are desired to have much lower margin of error where 90% of samples should have less than 10% RPD.

On average, the field duplicate data reported a RPD of 23% for zinc, 29% for lead and 24% for silver, and the pulp duplicates reported RPD values of 8% for zinc, 10% for lead, and 11% for silver.

Figure 11.13 depicts the RPD distributions by percentile rank showing that although average RPD values are within desired ranges, only approximately 75% of the samples returned RPD values within the desired ranges. Additionally, Figure 11.13 also shows that of the samples outside of the desired ranges of 30% and 10% RPD, respectively, few have grades in excess of 10,000 ppm Zn.

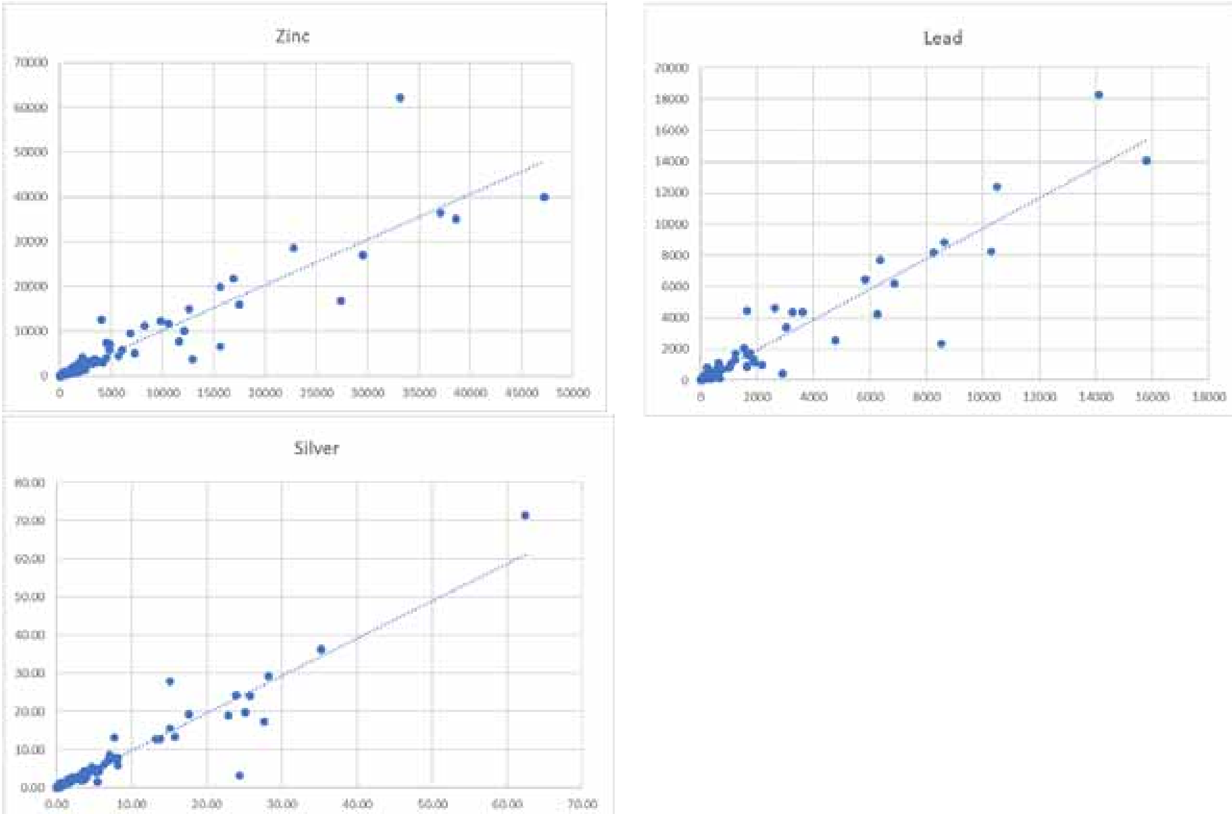
Duplicate scatter plots of zinc, lead and silver are shown in Figure 11.14 for field duplicates and Figure 11.15 for pulp duplicates.

FIGURE 11.13 CHART OF PERCENTILE RANK, RPD AND ZINC GRADE OF DUPLICATE SAMPLES



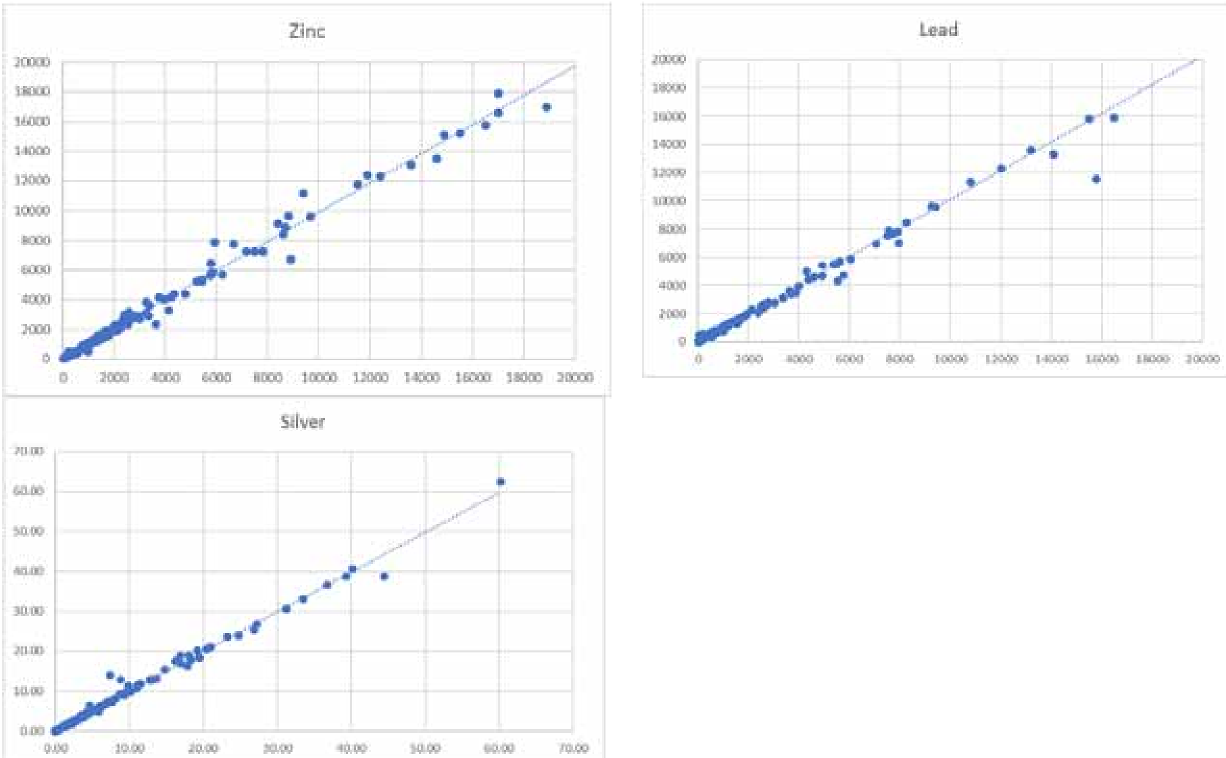
Source: *2018 Tetra Tech Report on the Nash Creek Property.*

FIGURE 11.14 FIELD DUPLICATE ANALYTICAL PERFORMANCE, FOR ZINC, LEAD AND SILVER



Source: *2018 Tetra Tech Report on the Nash Creek Property.*

FIGURE 11.15 PREPARATION (PULP) DUPLICATE ANALYTICAL PERFORMANCE, FOR ZINC, LEAD AND SILVER



Source: *2018 Tetra Tech Report on the Nash Creek Property.*

11.1.7 QP Opinion of Adequacy of Sample Preparation, Analysis and Security

The methods implemented by Callinex for sample collection, preparation and analysis were developed using industry standards and best practices. Analytical results for QAQC insertions were monitored by a Callinex geologist upon receipt. The procedures maximize use of sample volumes to measure physical and chemical parameters relevant to current and future Nash Creek Property studies. The laboratory selected by Callinex is a recognized accredited laboratory which adheres to recognized ISO, ASTM or internally reproducible Standards. Sample handling and processing was completed with appropriate chain of custody and storage was in a secure facility. The QP holds the opinion that the collection, analysis and security are reliable and adequate.

11.2 SUPERJACK PROPERTY

All information available to the authors of this report pertaining to sample preparation, analyses, and sample security with regard to work performed on the Superjack Property and included in this resource estimation are summarized in this section.

11.2.1 Historical Sample Preparation, Analyses and Security

11.2.1.1 1994 to 1996 Noranda Inc.

The three drilling programs undertaken by Noranda Inc. from 1994 through 1996 have limited information available except for that found in the relevant assessment filings. This consists of only the information regarding the analyses procedure. The relevant elements (zinc, lead, silver, copper, and gold) were analyzed by atomic absorption spectrophotometry ("AAS") in solution, using the following procedure (Mitton 1994):

1. A 0.5 g sample is cooked for 15 minutes in concentrated hydrochloric acid (HCl).

3. After cooling, 15 ml of nitric acid (HNO_3) is added. This is brought to dryness.

4. After dryness, 30 ml of water and 30 ml of HCl are added and boiled for approximately 15 minutes.

5. After cooling, the solution is transferred to a flask and diluted to 100 ml with water.

6. The sample is then shaken and analyzed on an atomic absorption unit.

During data validation assay results for these drill holes were verified against the current results using a quantile-quantile ("QQ") plot, displayed in Figures 12.3 to 12.5 in section 12.

11.2.1.2 2006

Sixty-six samples were sent to ALS Chemex in Sudbury, Ontario. These were weighed and analyzed using an aqua regia routine and AAS for zinc, lead, silver, and copper, and using a fire assay routine and inductively coupled plasma-atomic emission spectrometry (ICP-AES) for gold.

11.2.1.3 2007

During the 2007 drill program, 307 samples were collected from 12 holes. Where sampled for assaying, the core was cut in half lengthwise by a rock saw. Samples were bagged and sent to Accurassay Laboratories in Thunder Bay, Ontario and analyzed for zinc, lead, silver, copper, gold, and iron. Every tenth sample was run as a lab duplicate check sample.

11.2.2 Sample Preparation, Analyses and Security

11.2.2.1 2011

During the 2011 drill program, 1,259 samples were collected from 70 holes. Pure silica sand was inserted as a blank, and three standards (CU146, PB132, and PB141) provided by WCM Minerals were inserted intermittently. The sampling procedure was as follows:

1. Geologists would mark out sample intervals while logging the core. Upon completion, they would pass on the core and the recorded intervals (including

blanks and standards, one blank and one standard for every 20 rock samples) to the core technicians.

2. One core technician would half-cut the core using a rock saw with a diamond-impregnated blade. The other would fill out the sample tag booklet and bag the samples, blanks, and standards.

3. Upon completion, the core technician would collect the samples into batches and prepare for shipping.

4. Samples were shipped by truck via Armour Transportation Systems to Activation Laboratories (“Actlabs”) in Ancaster, Ontario.

5. Upon receipt, Actlabs would email a confirmation to the SLAM geologists.

6. Upon batch completion, Actlabs would email and mail completed assay certificates and corresponding Microsoft Excel™ files for import into SLAM’s database.

Samples were run for zinc, lead, silver, copper, and iron using inductively coupled plasma-optical emission spectrometry (“ICP-OES”), and for gold using a fire assay routine followed by either AAS or gravimetry (“GRAV”) as a finish. In addition, selected samples were run for whole rock geochemistry using an aqua regia routine and mass spectrometry. The following is a description given by Actlabs of their procedure:

> *A 0.5 g sample is digested in aqua regia and diluted volumetrically to 250 ml with 18 megaohm water. CANMET reference materials for the appropriate elements are digested the same way and are used as a verification standard(s). Samples are analyzed on a Thermo-Jarrell Ash ICP.*

12.0 DATA VERIFICATION

12.1 NASH CREEK PROPERTY

A detailed data verification was undertaken by Wardrop (now Tetra Tech) in 2009 as part of the original data verification for the 2009 technical report; this review is repeated here as this data review forms the basis for the current geological database. Wardrop carried out an internal validation of the drill hole database provided by SLAM. Wardrop reviewed the database of all the drill holes from the 2004 to 2008 drilling programs. Overall, the results of the database review found 42 entries with errors out of 8,009 entries checked for an error range of 0.05%. The results are listed in Table 12.1. Unless otherwise specified, Tetra Tech has relied on this verification.

TABLE 12.1
VERIFICATION OF THE DRILL HOLE DATA (COMPLETED 2009)

Year	Range of Drill Holes	Number. of Drill Holes	Number of Collar Entries	Number of Survey Entries	Number of Assay Entries	Totals
2004	1-3	3	3	3	-	
2005	4-15	12	12	37	-	
2006	16-31	16	16	33	466	
2007	32-120	89	89	177	2,462	
2008	121-219	99	99	264	4,348	
Total Entries	N/A	219	219	514	7,276	8,009
Total Errors	N/A	0	0	16	26	42
% Errors	N/A	0%	0%	3%	0.04%	0.05%

Source: *2018 Tetra Tech Report on the Nash Creek Property.*

12.1.1 Errors in Survey Database

Out of the 514 entries, 16 errors were encountered, cross-referenced with the original drill log and corrected. Some examples of errors in the drill hole survey database are listed in Table 12.2.

Table 12.2 Selected Examples of Errors in the Drill Hole Survey Data			
Hole #	**Error Found**	**2009 Notes**	**2016 Notes**
NC05-5	UTM coordinate incorrect	Corrected	OK
NC05-11	Order of drill hole azimuth and dip reversed	Corrected	OK
NC05-14	UTM coordinate incorrect	Corrected	OK
NC05-15	UTM coordinate incorrect	Corrected	Coordinates moved to match coordinates in drill log.
NC06-18	UTM coordinate incorrect	Corrected	Drill log coordinate and orientation is same as hole NC06020. Coordinate in dataset accepted to be correct, however, should be verified by surveyor on field.
NC06-25	Elevation incorrect	Corrected	OK
NC06-31	UTM coordinate incorrect	Corrected	OK
NC07-39	Order of drill hole azimuth and dip reversed	Corrected	OK

Source: *2018 Tetra Tech Report on the Nash Creek Property.*

12.1.2 Errors in the Assay Database (2009)

A total of 7,276 sampled intervals were verified for assay values of Pb, Zn, Cu, Ag and Fe. Of these 7,276 entries, 42 were found with errors. These errors included missing values and rounding errors which were cross-referenced to the assay certificate and corrected. Please note that the assay certificates used for cross-referencing were digital copies and not signed originals.

It should also be noted that the original database was delivered with assay values that were lower than the detectable limit (e.g. '<0.01%' Zn). These are not considered errors. For these entries a value of half the detection limit was given. For example, if a value of '<0.01%' Zn was in the database, the value of 0.005% was entered in its place.

From the original assay and the drill hole database on five (4.4%) of the 113 drill holes used by Noranda. Wardrop validated the dataset by comparing the original assay certificates and associated data against the digital dataset. In total, 124 samples were checked. Data verification was completed on Ag, Au, Cu, Pb and Zn values. These values were checked against the values in the validation sample in the ACCESS database.

Minor errors are present and appear to relate to mistakes in rounding. Note that the assay values were not checked against signed assay certificates.

Overall, the precious metal data verification had less than 1.0% error and based on the nature of the errors Wardrop recommended proceeding with a resource estimate.

12.1.3 Sample Analysis Check (2009)

During a site visit, in September 2008, three samples were collected from the 2007 and 2008 drill core. The samples were sent to ALS Chemex in North Vancouver (ISO 9001:2000) and sampled for the same elements in the drill hole database: Pb, Zn, Cu, Fe, Ag and Au. These samples were taken mainly to verify the presence of Pb and Zn mineralization.

The results of the assay analysis and comparison are listed in Table 12.3 below.

TABLE 12.3
COMPARISON OF CHECK ASSAY RESULTS TO THE ORIGINAL ASSAY RESULTS

Hole #	Sample #	Sample	Pb (%)	Zn (%)	Cu (ppm)	Fe (ppm)	Ag (ppm)	Au (ppm)
NC07-55	155898	Client	4.75	13.6	0.022	12.7	94.22	
		Wardrop	4.62	15.9	0.02	13.95	101	0.013
		Difference	3	17	9	10	7	
NC07-77	399743	Client	8.7585	16.286	0.0563	5.5125	111.32	
		Wardrop	16.95	19.3	0.06	3.46	144	0.003
		Difference	94	19	7	37	29	
NC08-219	534883	Client	2.52	4.7585	0.0145	8.6245	111.23	
		Wardrop	7.03	10.8	0.03	17.45	260	0.001
		Difference	179	127	7	2	34	

Source *2018 Tetra Tech Report on the Nash Creek Property.*

12.1.4 2016 Site Visit

In July 2016, Cameron Bartsch, Senior Geologist and Qualified Person with Tetra Tech at that time, visited the Nash Creek Property. Drill collar locations were examined during the site visit. Coordinates for each collar were collected using a handheld GPS unit and recorded in UTM (NAD83), the same datum as used in the resource database. A total of 14 collars were identified in the field, all of which retained the drill casing and an aluminum casing cap embossed with the hole number (Figure 12.1).

FIGURE 12.1 TYPICAL DRILL CASING WITH ALUMINUM COLLAR MARKER (July 2016)

Source: *2018 Tetra Tech Report on the Nash Creek Property.*

Locations identified in the field were then compared against those in the database to check for inconsistencies. The results of the collar comparison are listed in Table 12.4 below.

TABLE 12.4
COMPARISON OF CHECK ASSAY RESULTS TO THE ORIGINAL ASSAY RESULTS

Hole-ID	UTM_X (SLAM)	UTM_Y (SLAM)	UTM_X (TT)	UTM_Y (TT)	Delta_X	Delta_Y
NC05007	716601.0	5307226.0	716596.0	5307234.0	5.0	-8.0
NC0629	716539.0	5307279.0	716539.0	5307273.0	0.0	6.0
NC0745	716839.0	5307775.0	716835.6	5307774.3	3.4	0.7
NC0746	716836.0	5307814.0	716835.0	5307820.0	1.0	-6.0
NC0750	716850.0	5308009.0	716855.0	5308005.0	-5.0	4.0
NC0751	716807.0	5307821.0	716808.9	5307816.8	-1.9	4.2
NC0760	716772.0	5307909.0	716772.6	5307905.0	-0.6	4.0
NC08140	716955.0	5307717.0	716961.0	5307722.0	-6.0	-5.0
NC08146	716922.0	5308073.0	716924.0	5308078.0	-2.0	-5.0
NC08149	716937.0	5307716.0	716938.0	5307722.0	-1.0	-6.0
NC08166	716891.0	5307719.0	716887.0	5307719.0	4.0	0.0
NC08167	716971.0	5308053.0	716973.0	5308054.0	-2.0	-1.0
NC08168	716951.0	5308084.0	716951.0	5308054.0	0.0	30.0
NC11220 (LAQ-27-10-400)	716664.0	5307164.0	716661.0	5307170.0	3.0	-6.0

Source: *2018 Tetra Tech Report on the Nash Creek Property.*

Of the 14 collars compared, all but one (NC08168) are within what is reasonably considered to be the margin of error for a handheld GPS unit. The single errant hole, NC08168, was off by 30 m along the Y axis and within only a few metres of another drill hole (NC08144) recorded in the database. This would suggest that the hole number may have been transcribed incorrectly during compilation of the drill hole database, or the incorrectly marked in the field.

The location of the 2011 drill hole was identified using coordinates in the drill hole database originally provided by SLAM to Callinex. The site was recently cleared relative to the other hole location; however, the collar number embossed on the casing did not match the record in the drill database. What is referred to as NC11220 in the dataset contained an aluminum marker with the hole number “LAQ-27-10-400”. It is possible that the hole number was re-assigned after drilling; however, Tetra Tech was not able to verify this through SLAM exploration records.

The identification of two possible errors in the drill database in a relative small sample set would suggest that additional verification work in the form of a complete collar survey would increase confidence in the drill hole locations and the resulting resource estimate. Tetra Tech recommends this be undertaken prior to updating the resources in the future.

12.1.5 2018 Site Visit

A site visit was conducted on February 14-15, 2018, by James Barr, P.Geo., Senior Geologist and Qualified Person with Tetra Tech, visited the Nash Creek Property and core storage at the New Brunswick government core library located in the town of Madran, New Brunswick. The site visit included review of drillcore, review of field logs, sample collection and handling procedures, and general layout of the property site. Due to winter conditions at the time of the site visit, the Nash Creek Property was covered in snow which limited observation of general site conditions (Figure 12.2).

During the visit, Mr. Barr was accompanied by Mr. Derek Brown, a Professional Geologist and consultant to Callinex and whom has been involved in most major investigations completed by SLAM Exploration on the Nash Creek Property.

FIGURE 12.2 VIEW LOOKING DOWN, WINTER CONDITIONS AT THE NASH CREEK PROPERTY

Source: *2018 Tetra Tech Report on the Nash Creek Property.*

Figure 12.2 shows the hole dug in attempt to find collar of Callinex Hole NC17-256, twin of historical hole NC79-07 (visible at edge of hole).

Eugene Puritch, P.Eng., FEC, CET of P&E conducted a site visit to the Nash Creek Property on June 19, 2018. Mr. Puritch is a Qualified Person ("QP") under the terms of NI 43-101. Mr. Puritch traversed selected portions of the Property and made observations regarding proposed pit and process plant locations, surface topography, access, local infrastructure, powerlines, water courses and property proximity to local residents.

12.1.5.1 Independent Data Verification

During the 2017 site visit and as part of the drill core review, the QP collected quarter core samples for independent analysis and data verification. This information is summarized in Tables 12.5 and 12.6.

TABLE 12.5 LIST OF DRILL HOLES REVIEWED AT THE CORE STORAGE FACILITY		
Hole	**From (m)**	**To (m)**
NC17-255	110	150
NC17-257	100	140
NC17-253	20	60
NC17-256	0	40
NC17-278	40	100
NC17-275	35	60
NC17-249	0	80
NC17-264	150	170
NC11-220	217	275

Source: *2018 Tetra Tech Report on the Nash Creek Property.*

TABLE 12.6 INDEPENDENT SAMPLE RESULTS SUMMARY, FEBRUARY 2018							
Hole #	**From (m)**	**To (m)**	**Identification**	**Sample Number**	**Zn (%)**	**Pb (%)**	**Ag (%)**
NC17-255	133	134	CNX Sample	34030	4.6	0.4	0.11
			Tt Sample	500470	3.59	0.348	<1
			RPD		**24.66%**	**13.90%**	**n/a**
NC17-255	134	135	CNX Sample	34031	3.06	0.25	0.07
			Tt Sample	500473	2.4	0.322	<1
			RPD		**24.18%**	**25.17%**	**n/a**
NC17-255	135	136	CNX Sample	34033	9.15	0.64	0.39
			Tt Sample	500471	6.04	0.435	<1
			RPD		**40.95%**	**38.14%**	**n/a**
NC17-255	136	137	CNX Sample	34034	10.1	0.94	0.35
			Tt Sample	500472	4.66	0.583	1
			RPD		**73.71%**	**46.88%**	**96.30%**
BLANK - LST-11			BLANK	blank	-	-	-
			Tt Sample	500474	0.013	0.005	<1
			RPD		**-**	**-**	**-**
NC17-278	72	73	CNX Sample	45057	7.06	1.69	73.2
			Tt Sample	500475	8.18	1.855	81
			RPD		**14.70%**	**9.31%**	**10.12%**
NC17-278	73	74	CNX Sample	45058	9.18	2.64	75

TABLE 12.6 INDEPENDENT SAMPLE RESULTS SUMMARY, FEBRUARY 2018							
Hole #	**From (m)**	**To (m)**	**Identification**	**Sample Number**	**Zn (%)**	**Pb (%)**	**Ag (%)**
			Tt Sample	500476	10.2	2.76	71
			RPD		**10.53%**	**4.44%**	**5.48%**
CRM ME-1402			CRM	CRM	15.23	2.48	131
			Tt Sample	500477	15.15	2.43	130
			RPD		**0.53%**	**2.04%**	**0.77%**

Source: *2018 Tetra Tech Report on the Nash Creek Property.*

12.1.6 QP Opinion on Data Verification

The QP has audited the field data and drilling logs, compared digital analytical data to laboratory certificates, compiled the geological database and conducted independent sample verification following a site visit. The QP is satisfied that the geological database accurately reflects field observations and laboratory analysis and is adequate to support mineral resource estimation.

12.2 SUPERJACK PROPERTY

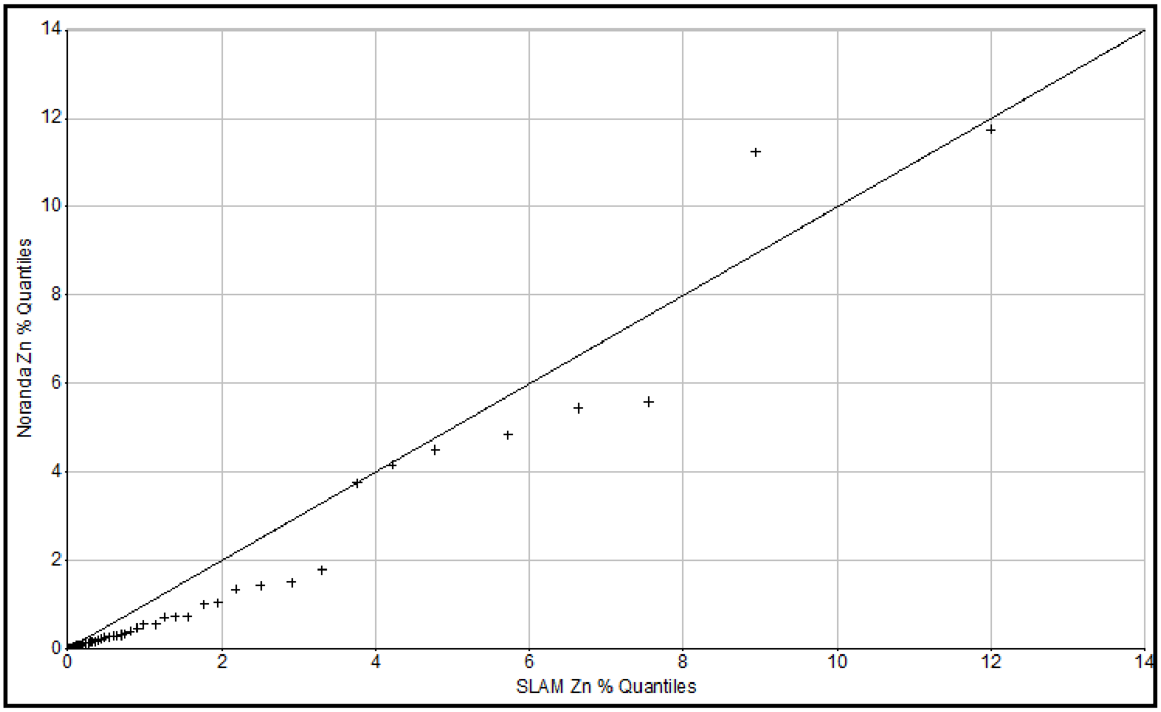
12.2.1 Historic Data Verification

Although there is historic drilling on the Superjack Property starting from 1954-1955, for the purposes of this report only holes drilled from 1994 and onwards were utilized. The following holes were drilled under the auspices of Noranda:

15-133-94-1
15-133-94-2
15-133-94-3
15-133-94-4
15-133-95-5
15-133-95-6
15-133-95-6A
15-133-96-7
15-133-96-8
15-133-96-9.

These holes were digitized from Noranda drill logs, which had a standard format and exist in PDF file format online at the New Brunswick Minerals and Petroleum Assessment File Database. Assays were performed by Noranda's own laboratory, Noranda Exploration Laboratory ("NOREX"), and assay certificates were not available to verify. QQ plots, shown in Figures 12.3 to 12.5, were plotted to verify that the data from the Noranda holes was consistent with that of SLAM's drilling. The variation between the two data sets can be attributed to the differing assay techniques utilized; all of Noranda's samples were assayed using AAS, whereas the majority of the SLAM assays were conducted using ICP-OES.

FIGURE 12.3 QQ PLOT COMPARING NORANDA AND SLAM ASSAY RESULTS FOR ZINC



Source: *2016 Tetra Tech Report on the Superjack Property*

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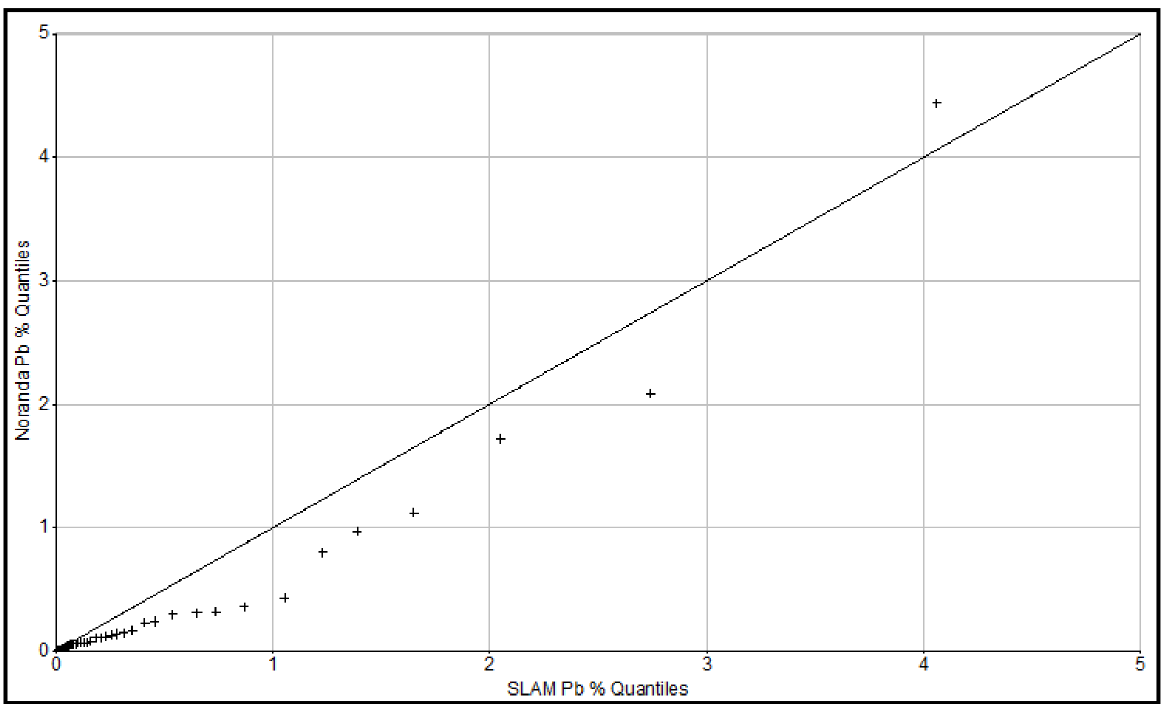
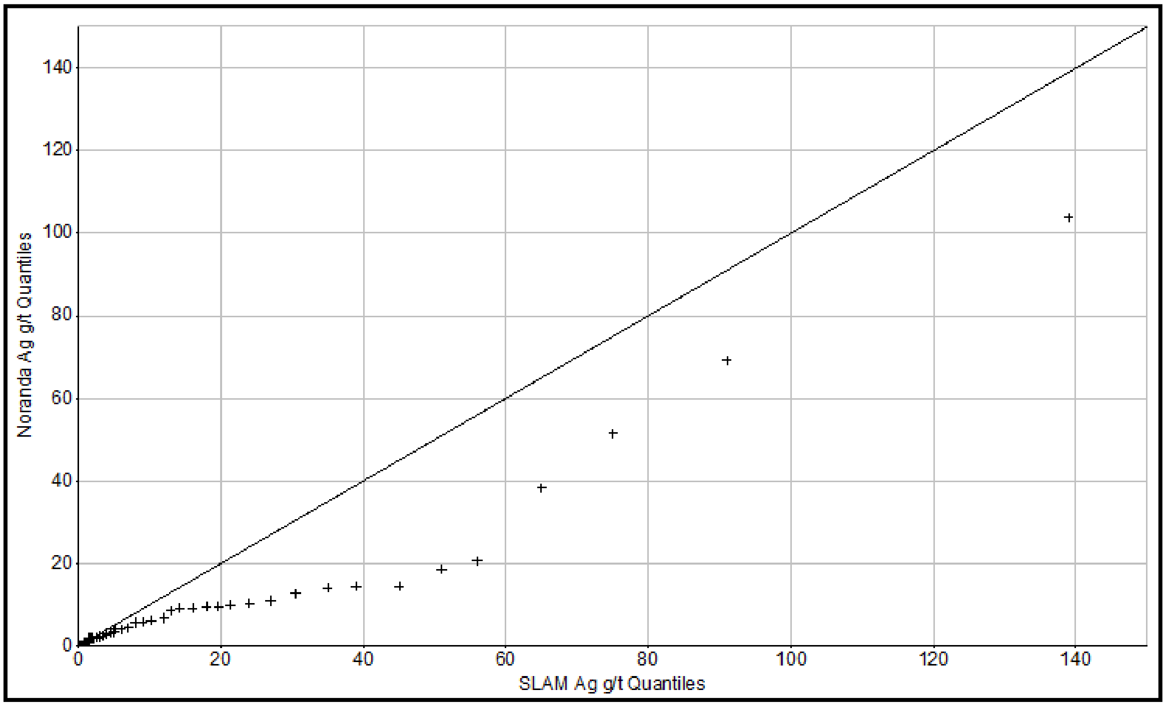
FIGURE 12.4 QQ PLOT COMPARING NORANDA AND SLAM ASSAY RESULTS FOR LEAD



Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 12.5 QQ PLOT COMPARING NORANDA AND SLAM ASSAY RESULTS FOR SILVER



Source: *2016 Tetra Tech Report on the Superjack Property.*

Noranda utilized a Tropari single-shot, micro-mechanical borehole-surveying instrument to measure the down-hole deviation during drilling. These values were also recorded in their drill logs.

Collar location was recorded in local grid coordinates for all three Noranda programs. These were converted to UTM coordinates by SLAM. Two of these collars were later resurveyed using a differential global positioning system (“DGPS”).

During data compilation, lithologies from the Noranda drill logs were digitized. These lithologies were in some cases altered to coordinate with the digital database; this included both renaming of rock types and combination/splitting of intervals.

12.2.2 Tetra Tech Database Verification

Tetra Tech performed an internal verification process of the Superjack Property database against all available reference material during the 2012 resource estimation process. Upon first receiving the database from SLAM, it was still in a preliminary state and evident that significant errors existed including, but not limited to, incorrectly entered assays, incorrectly rounded assays, incorrectly entered downhole survey data, and incorrectly entered collar coordinates. Tetra Tech and SLAM worked closely to resolve all these issues utilizing the original data sets wherever possible. The following discussion pertains to the final database SLAM submitted upon completion of this review process. Due to these initial errors, Tetra Tech reviewed 100% of the data used for the Mineral Resource Estimate.

12.2.2.1 Assay Table

The assay database was verified by examining sample number, as well as Zn, Pb, Cu, Ag, Au and Co assay values against the digital assay certificates. The database contained no incorrect assay values. As recommended by Tetra Tech, values below detection limit were entered as half the detection limit. For some samples, this was incorrectly entered as one-twentieth the detection limit. These values were corrected by Tetra Tech for use in the resource estimation. Table 12.7 lists the detection limits for the various labs and assay procedures. Any assays without values were allocated a value of zero.

TABLE 12.7
DETECTION LIMITS BY LAB AND ASSAY PROCEDURE

Laboratory	Element	Units	Procedure	Detection Limit
NOREX	zinc	%	AAS	n/a
	lead	%	AAS	n/a
	copper	%	AAS	n/a
	silver	oz/st	AAS	n/a
	gold	oz/st	AAS	n/a
	zinc	ppm	AAS	1
	lead	ppm	AAS	1
	copper	ppm	AAS	1
	silver	ppm	AAS	0.1
	gold	ppb	AAS	5
ALS Chemex Sudbury, ON	zinc	%	AAS	0.01
	lead	%	AAS	0.01
	copper	%	AAS	0.01
	silver	ppm	AAS	1
	gold	ppm	ICP-AES	0.001
Accurassay Thunder Bay, ON	zinc	ppm	-	-
	lead	ppm	-	1
	copper	ppm	-	-
	silver	ppm	-	0.01
	gold	ppb	-	1
Actlabs Ancaster, ON	zinc	%	ICP-OES	0.001
	lead	%	ICP-OES	0.003
	copper	%	ICP-OES	0.001
	silver	g/t	ICP-OES	3
	gold	ppb	AAS	5
	cobalt	%	ICP-OES	0.003
	gold	g/t	GRAV	0.03

Source: *2016 Tetra Tech Report on the Superjack Property.*

Where duplicates existed in the database, the values used in the database were averages taken from a combination of the original and the duplicate samples. This is in keeping with standard QA/QC procedures.

In the SLAM Microsoft Excel™ drill logs there is a worksheet, which is supposed to contain the original sample numbers and "From-To" values as recorded in the field, however in many cases this information was not entered. Due to this, the "From-To" values of the assay database could not be verified against this data. It was verified, however, that no sample intervals overlapped with one another.

12.2.2.2 Downhole Survey Table

Original downhole survey data was not available for the following holes:

NP07-04
NP07-05
NP07-06
NP07-07
NP07-08
NP07-09
NP07-10
NP07-11
NP07-12
NP07-13
NP07-14
NP07-15
NP11-26
NP11-44.

Holes drilled in 2006 were surveyed by Reflex "EZ-Shot" and verified from the original drill logs. One depth entry was entered incorrectly; Tetra Tech corrected this entry for use in this resource estimation. Holes drilled in 2011 were surveyed by a Reflex "EZ-Trac" multifunctional magnetic instrument for single shot or multi-shot surveys. The survey database was verified against the original Reflex survey files downloaded directly from the instrument. Azimuth values that varied widely from the hole direction were removed by SLAM prior to submission; all such errors are presumed to be due to magnetic interference from either the casing or the host rock. In the case of holes NP11-42 and NP11-81, many of the azimuth values were so inconsistent that they could not be used. For the former, the last correct value was used with the measured dips, and for the latter there were no reasonable measurements so the planned azimuth was used with the measured dips, which are not affected by magnetics.

12.2.2.3 Collar Table

Collar coordinates were verified against either the original logs or the master file created from the Precise Surveys DGPS survey. The following holes did not have collar coordinates recorded in either the original logs or the DGPS file:

15-133-94-2
15-133-94-3
15-133-95-5
15-133-95-6

15-133-95-6A
15-133-96-7
15-133-96-8
15-133-96-9
NP07-12
NP07-14.

Of the holes with data to verify, only two differed; NP07-09 and NP07-10. These holes were given UTM coordinates by SLAM geologists, which corresponded with their location on the local grid, as the original coordinates were incorrect. The location of NP07-10 was verified during Tetra Tech's site visit in 2012. Drill hole NP07-09 was not included in this resource and therefore was not checked.

12.2.2.4 Lithology Table

The lithology table was verified against the data recorded in the original logs. Verification of the "From-To" values showed that in many cases during data compilation, where deemed appropriate, intervals in the database have been combined or split, and therefore vary from the original logs. Similarly, lithologies have been altered slightly from the original logs to the database. Lithology naming remains inconsistent, and although this does not hinder the current resource estimation

12.2.2.5 Site Visit

Cameron Bartsch, P.Geo. visited the site for half a day on October 14, 2016 to review property access, verify drill collar locations and examine limited exposures of surface mineralization. A previous site visit by Robert Morrison, P.Geo. on April 12, 2012 as part of 2012 resource report included verification of collar locations, inspection of drill core, collection of check samples, and review of sampling protocol and QA/QC program of SLAM. Seventeen collars were checked and all collar locations matched those recorded in SLAM's database.

Figures 12.6 to 12.8 show examples of the collar locations visited.

Eugene Puritch, P.Eng., FEC, CET of P&E conducted a site visit to the Superjack Property on June 19, 2018. Mr. Puritch is a Qualified Person ("QP") under the terms of NI 43-101. Mr. Puritch traversed selected portions of the Property and made observations regarding proposed pit location, surface topography, access, local infrastructure, powerlines, water courses and property proximity to local residents.

FIGURE 12.6 SUPERJACK 2011 DRILL COLLAR

Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 12.7 SUPERJACK 2011 DRILL COLLAR

Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 12.8 SUPERJACK 2011 DRILL COLLAR

Source: *2016 Tetra Tech Report on the Superjack Property.*

Figures 12.9 and 12.10 display the SLAM core shack, just outside of Bathurst, New Brunswick. The sampling protocol (outlined in Section 11.0) is sufficient for the resource estimate reported herein.

FIGURE 12.9 SLAM CORE SHACK

Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 12.10 SLAM CORE SHACK

Source: *2016 Tetra Tech Report on the Superjack Property.*

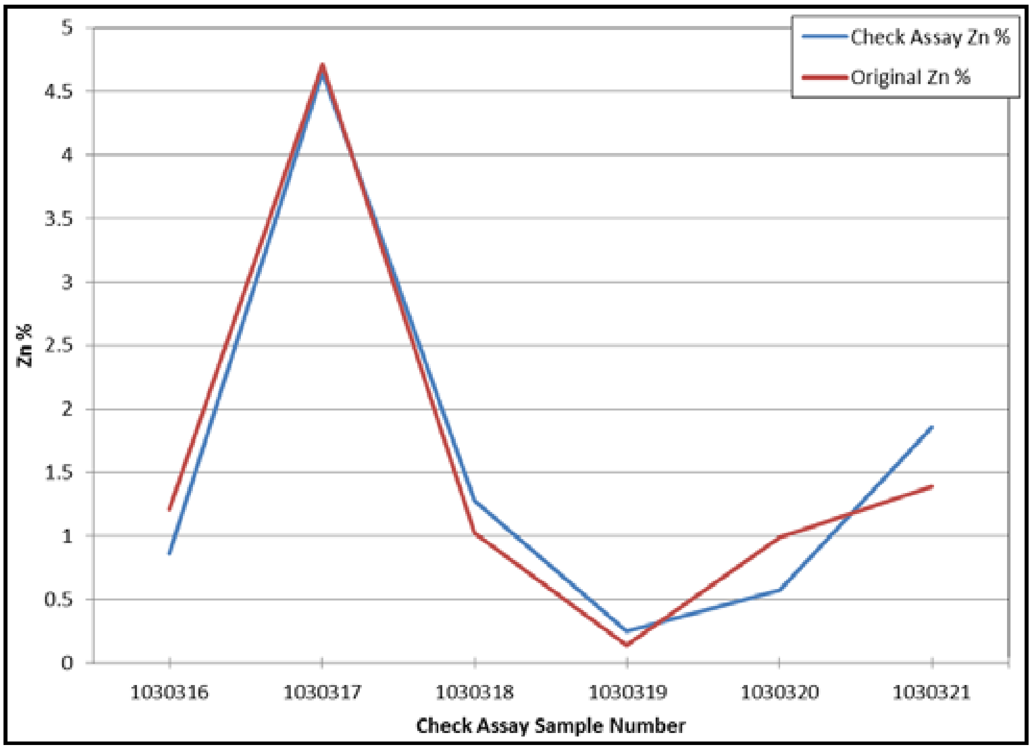
Six check assays were taken to verify independently against SLAM's assay results. These were quarter-sawn lengths of core. Comparison of the results of the check assays against the original SLAM assays are shown in Figures 12.11 to 12.14.

The check assays performed extremely well compared to the original data set. The correlation coefficients were:

Zinc0.98
Lead0.92
Copper0.99
Silver0.99.

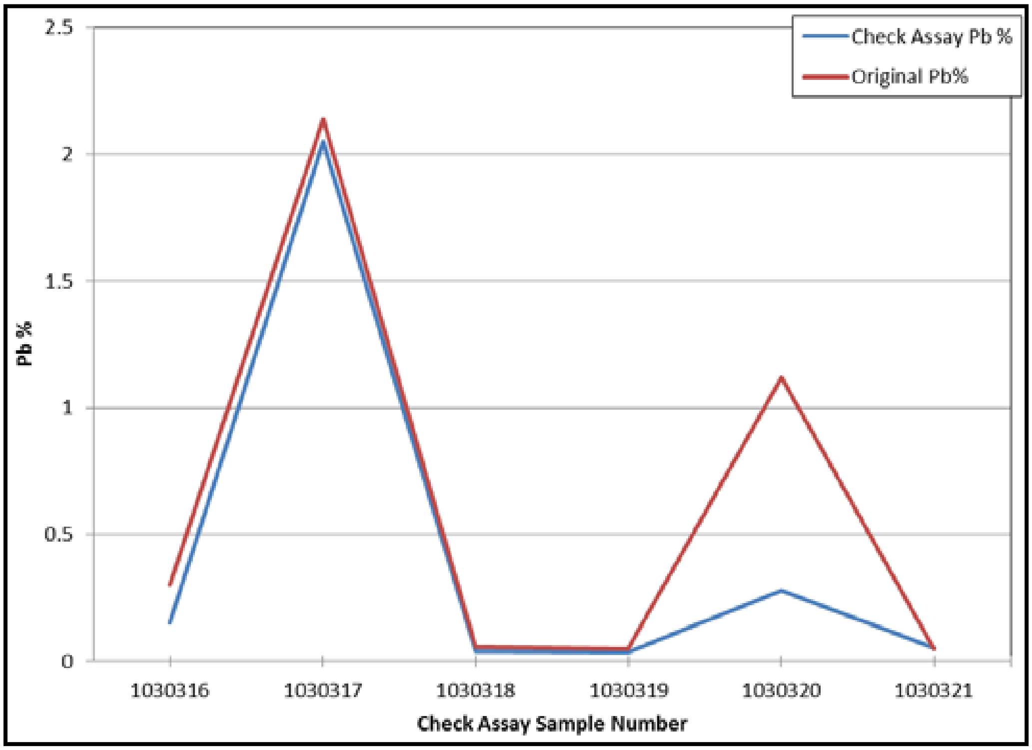
Differences in individual assays can be attributed to the heterogeneous nature of the mineralization (variable disseminated and stringer sphalerite and galena).

FIGURE 12.11 LINEAR PLOT COMPARING ORIGINAL ZINC ASSAY VS. CHECK ZINC ASSAY



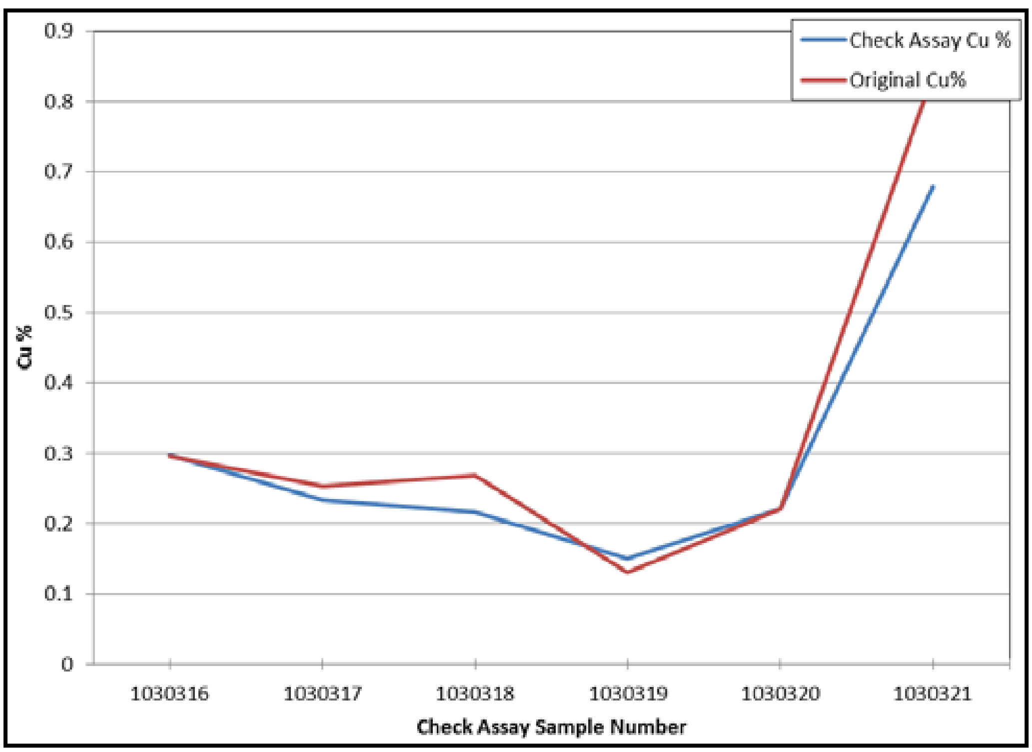
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURES 12.12 LINEAR PLOT COMPARING ORIGINAL LEAD ASSAY VS. CHECK LEAD ASSAY



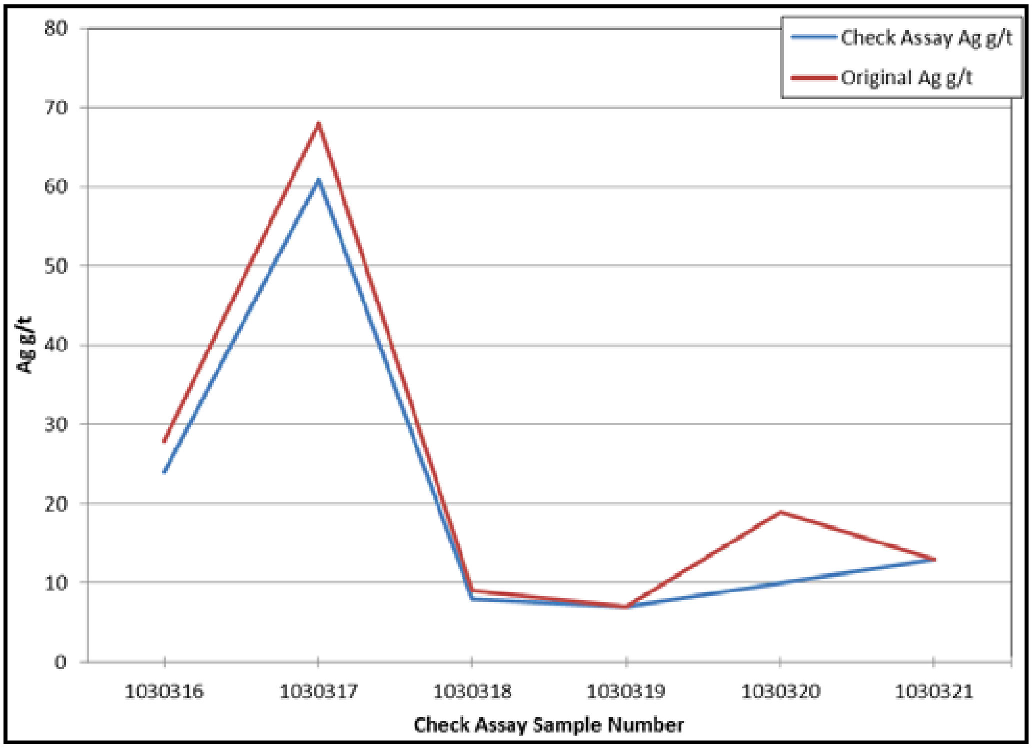
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURES 12.13 LINEAR PLOT COMPARING ORIGINAL COPPER ASSAY VS. CHECK COPPER ASSAY



Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURES 12.14 LINEAR PLOT COMPARING ORIGINAL SILVER ASSAY VS. CHECK SILVER ASSAY



Source: *2016 Tetra Tech Report on the Superjack Property.*

13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 NASH CREEK PROPERTY

13.1.1 Mineralogy

Research & Productivity Council ("RPC") was engaged by SLAM exploration to conduct a metallurgical test program and mineralogy review. The following is a summary of the mineralogy described by RPC and contained in their metallurgical report dated November 26, 2007.

> *"The principal sulphide minerals from Scanning Electron Microscopy / Energy Dispersive X-Ray Spectroscopy mineralogy examination were pyrite, sphalerite, and galena in varied proportions. Approximately 75% of the mineralization was coarse-grained in homogeneous fragments subdivided into monomineralic zones of either pyrite or sphalerite together with coarse galena. Some of the sulphide mineralization (~25%) was made up of narrow veins of sphalerite and/or galena or fine-grained granular intergrowths (pyrite/sphalerite/quartz). The principal gangue mineral in these samples is quartz, with lesser fine-grained potassium feldspar and uncommon barite/ankerite. The coarse-grained galena and sphalerite will present no problems for their sequential separation flotation with grinds of ~100 µm. The finer vein and concentric mantling occurrence of both sphalerite and galena seen in some sections will be challenging for their recovery without regrind of the rough concentrate." The presence of the clay minerals in the Nash Creek Deposit will be removed with the DMS process.*

13.1.2 Flotation Testwork

Flotation testwork was conducted by RPC on a composite sample of drill core assaying 7.58% Zn, 1.79% Pb, and 49 g/t Ag.

Rougher Pb concentrate grade attained in the testwork was 5.38% Pb, 7.76% Zn, 12.3% Fe and 52 g/t Ag. The Pb rougher concentrate did not require any regrind (P80 of 44.2 µm) to produce a concentrate grade of 48.51% Pb, 5.88% Zn, 16.83% Fe and 160 g/t Ag.

A Zn rougher grade of 20.77% Zn, 0.64% Pb, 11.59% Fe and 63 g/t Ag was produced. A Zn concentrate graded 54.5% Zn, 0.9% Pb, 5.7% Fe and 115 g/t Ag at a Zn recovery of 56.5% was produced with only one cleaning step (64.3% Zn after three cleanings). The Zn rougher grade was attained with the use of Aero 5100 promoter and an aeration step incorporated in the Zn rougher flotation. The Zn rougher concentrate required regrinding from P80 of 70 to 34 µm.

The limited flotation testwork by RPC shows promise, but more extensive testwork will be required to demonstrate acceptable Pb and Zn recoveries at saleable grades. Additional work will also be required to define and improve silver recovery. Based on rougher tailings, RPC have estimated potential Zn and Pb recoveries at 91% and 82% respectively; these are considered possible, however, somewhat aggressive numbers and as a result lower recovery rates were used for this PEA.

13.1.3 Gravity Testwork

Preliminary gravity testwork using a Wilfley table was not encouraging and it is considered unlikely that gravity concentration will be applicable to Nash Creek material.

13.1.4 Heavy Liquid Tests

As part of a 2011 drill program, four samples of sawn core were submitted to the RPC research facility for Dense Media Separation ("DMS") testing. Each sample was crushed to -6 mm and approximately 12% of each sample was separated by sieving the -1 mm fraction. The coarse (1 to 6mm) fraction of each sample was immersed in a heavy liquid with a specific gravity of 2.8. This separated the light gangue minerals from the heavier metallic sulphides, effectively upgrading the metal content up to 291% for zinc-lead and up to 338% for silver. The results are encouraging, and further testing is warranted. The following table summarizes the results of the heavy liquid tests:

TABLE 13.1
RESULTS OF DMS TESTING ON 2011 CORE

Sample #	Interval*		Original Sample Grade			DMS Concentrate Grade			Upgrade (%)
	From (m)	To (m)	Lead %	Zinc %	Silver g/t	Lead %	Zinc %	Silver g/t	
3	181.1	190.9	1.19	6.64	10.6	1.7	9.05	15	140
4	264.5	269.1	0.85	4.27	23.8	2.33	11.95	63	273
5	composite 3& 6		0.8	4.9	12.5	1.22	7.25	19.3	152
6	144.8	151.0	0.23	1.53	12.8	0.39	2.5	24.4	175

***** *All samples from hole NC11-220*
Source: *2018 Tetra Tech Report on the Nash Creek Property.*

13.1.5 Selected Process

For purposes of this study, zinc, lead and silver are assumed to be recovered by DMS followed by conventional flotation. Early stage DMS testwork may prove to be a useful technique for the early rejection of gangue. Additional testwork is required to assess this possibility. Selected recoveries for this study are assumed at: 90% for zinc and 80% for lead. Silver deportment is not clear but is assumed at 25% recovery to the lead concentrate 25% to the zinc concentrate. There is an opportunity for additional metallurgical testing to potentially increase silver recovery to the lead concentrate.

13.2 SUPERJACK PROPERTY

SLAM, through RPC Science & Engineering, had a preliminary metallurgical scoping study (Gilders and Cheung 2012) completed on the Superjack Property from February to April 2012. Eight samples were included in this study. All of the samples were crushed to 100% minus 0.625 mm before blending and homogenizing into a composite sample. A split of the composite sample was submitted for head assay (near total acid digest method ICP-OES finish). Subsamples of the composite were taken for grinding and flotation tests. Each subsample weighed 1.75 kg and was processed in a standard rod mill with stainless steel rod charge and floated in a laboratory Denver Flotation Cell. Different grinding times (75, 90, 120, 150, and 180 minutes) were used, and ground samples were submitted for Malvern particle size analysis. Nine flotation tests were completed for comparisons. In each flotation test, the head, rougher concentrates and tails produced were assayed at Dalhousie University Minerals Engineering Centre. These results were used in the recovery distribution estimations. The following is an excerpt from the results of this report (Gilders & Cheung, 2012):

> *The Nepisiguit (Superjack) sample responded relatively well to flotation techniques. Bulk Cu/Pb rougher flotation followed by separation and cleaning steps was found to be a better option for the copper and lead recoveries. Up to 80% Cu and 75% Pb can be recovered. High zinc recovery [potential of 96% Zn recovery] can be realized in the rougher flotation steps; although fine grinding is likely required.*

Silver recovery was not discussed directly in the text, but can be determined from the accompanying flotation test results table to be approximately 68%. This result was also confirmed via correspondence with the report author.

RPC recommends further work, including mineralogical analysis using scanning-electron microscope mineralogy, more aggressive collectors and conditions, copper/lead separation and cleaning tests, lead recovery from zinc cleaning stages, as well as zinc cleaning tests to determine optimum grade and recovery.

14.0 MINERAL RESOURCE ESTIMATES

14.1 NASH CREEK PROPERTY

14.1.1 Basis of Current Mineral Resource Estimate

This current Nash Creek Mineral Resource Estimate has been completed by Tetra Tech with an effective date of March 21, 2018, to incorporate new information collected from Callinex drilling into the existing model. The modelling has been completed using Geovia GEMS v.6.8.

The 2017 drilling campaign completed surface 59 drill holes, totalling 10,586 m, and collection of 4,169 drill core samples totalling 3,131 m. The program focused on deposit extension drilling to the north of the previously defined Hickey Zone and resulted in an overall strike extension of approximately 750 m along a 300 m wide corridor.

Current metal price and preliminary mining parameter assumptions have been incorporated to calculate a ZnEq cut-off value of 1.50%, which is applied to the Mineral Resource Estimate. The ZnEq value was formulated prior to development, and in support, of the mineralized grade shells and calculation of mineral resource estimate. The calculation uses trailing three-year metal prices (as of January 2018) of US$1.25 per pound Zn, US$1.05 per pound lead, and $17 per ounce silver.

From limited metallurgical testwork completed in 2007 and summarized in Section 13.0, the average metal recoveries are 91% for zinc, 82% for lead and 50% for silver into concentrates from grinding and flotation circuits. The positive results from the Dense Media Separation testwork completed in 2011, are not considered in the ZnEq calculation. Assuming these stated metal prices and recoveries, the ZnEq calculation is:

$$ZnEq = Zn\% + (Pb\% * 0.747) + (Ag\ g/t * 0.011)$$

No smelter charge reduction and no metal losses are applied to this calculation.

14.1.2 Previous Mineral Resource Estimate

Mineral Resource estimates were previously reported for the Nash Creek Property in 2016 by Tetra Tech for the Hickey and Hayes zones (Table 14.1). The 2016 work incorporated up to date pricing assumptions, detailed specific gravity data by metal composition, revised grade shells for resource modelling using Geovia GEMS v6.7.3 (GEMS), and results of preliminary metallurgical results of samples collected from drill hole NC11-220. The 2016 model was reported at a 2.00% ZnEq cut-off grade.

This Mineral Resource Estimate is superseded by the current Mineral Resource Estimate and is no longer relied upon.

TABLE 14.1 **PREVIOUS MINERAL RESOURCE ESTIMATE, EFFECTIVE DATE AUGUST 22, 2016**							
Zone	**Classification ****	**Cut-off ZnEq %**	**Tonnes**	**Zn %**	**Pb %**	**Ag g/t**	**ZnEq %**
Hickey	Indicated	2.00	3,174,000	2.38	0.53	15.8	3.09
Hickey	Inferred	2.00	177,000	2.24	0.68	16.7	3.09
Hayes	Indicated	2.00	5,859,000	3.01	0.59	19.4	3.84
Hayes	Inferred	2.00	936,000	2.95	0.55	15.3	3.67
Total	Indicated	2.00	9,033,000	2.79	0.57	18.2	3.58
Total	Inferred	2.00	1,113,000	2.83	0.57	15.5	3.58

****** *1) ZnEq calculated using 3-year trailing metal price trends of $0.90 /lb Zn, $0.87 /lb Pb, and $17.73 /oz Ag. Recoveries were applied as 90.5% Zn, 81.5% Pb, and 50% Ag based on preliminary metallurgical testwork.*

2) A cut-off value of 2.00% ZnEq was used as the base case for reporting Mineral Resources that are subject to open pit potential. The resource block model is not constrained by a conceptual open pit shell. Mineral Resource classification adheres to CIM Definition Standards; it cannot be assumed that all or any part of Inferred Mineral Resources will be upgraded to Indicated or Measured as a result of continued exploration.

3) All values are rounded.

Source: *2018 Tetra Tech Report on the Nash Creek Property.*

14.1.3 Database

The complete dataset consists of core drilling information in the vicinity of the Hickey and Hayes zones that totals 370 drill holes and includes collar, survey, lithology and assay information. A total of 346 of these drill holes were used for the Mineral Resource Estimate. The complete summary of the data is shown in Table 14.2.

Drilling data for historical drilling completed by American Metals in 1955 and Betty Cheriton between 1965-1970 were removed from the resource database due to lack of spatial control, lithology logs and assay data. These holes have been retained in the database, however, were not included in the Mineral Resource estimate.

Additionally, nine drill holes from the 1979 dataset were twinned by Callinex and were not included in the Mineral Resource Estimate, as described in Section 14.3.1 below.

TABLE 14.2 **TOTAL RECORDS IN DATABASE**					
	Diamond Drill Holes	**Coordinates**	**Survey**	**Lithology**	**Assay**
Records	370	370	1,021	4,744	14,520
Used in MRE	346	346	995	4,608	14,416

Source: *2018 Tetra Tech Report on the Nash Creek Property.*

14.1.3.1 Twinned Drill Holes

The 2017 Callinex drilling campaign included nine twin drill holes (Table 14.3) to replace historical drilling from 1979. Callinex identified selective sample collection methods implemented for this historical work may have under represented the true width of zinc, lead and silver mineralization. Assay data for these 1979 drill holes has been retained in the drill hole database, however, since drill core and original records of these drill holes were not available the holes were replaced with the 2017 assay results for the purpose of mineral resource estimation.

TABLE 14.3
LIST OF 1979 DRILL HOLES REPLACED BY 2017 CALLINEX TWIN DRILL HOLES

2017 Callinex Drill Hole	Twinned Drill Hole
NC17-258	NC7908
NC17-264	NC7905
NC17-261	NC7902
NC17-256	NC7907
NC17-253	NC7909
NC17-267	NC7910
NC17-265	NC7903
NC17-272	NC8946
NC17-273	NC7904

Source: *2018 Tetra Tech Report on the Nash Creek Property.*

14.1.4 Exploratory Data Analysis

Exploratory Data Analysis ("EDA") is the application of statistical tools to elucidate the characteristics of the data, such as the shape of the relative frequency distribution and cumulative frequency distributions, as shown on histograms and probability plots, and statistics such as the mean, standard deviation and coefficient of variation.

The coefficient of variation ("CV") is the standard deviation divided by the mean. This is a useful tool to measure the relative dispersion of a distribution. A CV which is less than one generally depicts syngenetic deposits. Coefficients of variation of one to two are typical of hydrothermal processes. The presence of "bonanza" high-grade shoots or veins may cause the CV to reach three or greater. Where the CV is greater than three, the mixture of two or more distinct ore-forming processes (or mineralization) is often identified.

In polymetallic deposits, the use of scatterplots and correlations tables with the Pearson's coefficient can be useful in demonstrating correlations (positive and negative) between the assays.

Identification of the spatial continuity by means of variography is an EDA tool which is later used to perform kriging and to adjust frequency distributions for change of support (volume) of units considered.

Descriptive statistics of the raw assays, assays within grade domains and composite grades within the grade domains are shown in Tables 14.4 and 14.5 along with a correlation matrix for the Hayes and Hickey zones, respectively.

TABLE 14.4
DESCRIPTIVE STATISTICS FOR HAYES ASSAY AND COMPOSITE DATA

Means and Variances of Hayes Assay Data, Not Capped					
Number of Records			3,093		
Field	**Mean**	**Variance**	**CV**	**Min**	**Max**
Silver, Ag ppm	13.418	307.7	1.31	0	199.54
Gold, Au ppm	0.001	6.437	16	0	0.02
Copper, Cu %	0.007	0	1.67	0	0.68
Iron, Fe %	1.057	10.92	3.12	0	89
Lead, Pb %	0.448	0.44	1.49	0	12.9
Zinc, Zn %	1.929	6.87	1.36	0	20.88
Means and Variances of Hayes Assay Data in Grade Domains, Not Capped					
Number of Records			2,084		
Field	**Mean**	**Variance**	**CV**	**Min**	**Max**
Silver, Ag ppm	19.1	422.7	1.08	0	199.54
Gold, Au ppm	0.001	0.001	17.23	0	0.02
Copper, Cu %	0.008	0	2.37	0	0.68
Iron, Fe %	1.325	9.96	2.38	0	41
Lead, Pb %	0.634	0.62	1.24	0	12.9
Zinc, Zn %	2.891	8.46	1.01	0	20.88
Means and Variances of Hayes 3m Composite Data in Grade Domains, Not Capped					
Number of Records			835		
Field	**Mean**	**Variance**	**CV**	**Min**	**Max**
Silver, Ag ppm	17.764	287.1	0.95	0	152.115
Gold, Au ppm	0.001	0	21.08	0	0.02
Copper, Cu %	0.007	0	1.13	0	0.111
Iron, Fe %	1.368	8.75	2.16	0	17.69
Lead, Pb %	0.577	0.33	0.99	0	4.34
Zinc, Zn %	2.704	5.15	0.84	0	14.2

Correlation Table of Hayes Assay Data, Pearson's Coefficient						
Field	**Ag ppm**	**Au ppm**	**Cu %**	**Fe %**	**Pb %**	**Zn %**
Silver, Ag ppm	1					
Gold, Au ppm	0.03	1				
Copper, Cu %	0.26	0.01	1			
Iron, Fe %	0.33	0.09	0.07	1		
Lead, Pb %	0.56	0	0.28	0.23	1	
Zinc, Zn %	0.58	0.09	0.16	0.29	0.53	1

Source: *2018 Tetra Tech Report on the Nash Creek Property.*

TABLE 14.5 **DESCRIPTIVE STATISTICS FOR HICKEY ASSAY AND COMPOSITE DATA**					
Means and Variances of Hickey Assay Data, Not Capped					
Number of Records			11,080		
Field	**Mean**	**Variance**	**CV**	**Min**	**Max**
Silver, Ag ppm	6.371	136.7	1.84	0	355.32
Gold, Au ppm	0.001	0.00004	10.01	0	0.51
Copper, Cu %	0.005	0	3.42	0	0.68
Iron, Fe %	4.636	8.74	0.64	0	50
Lead, Pb %	0.206	0.28	2.59	0	11.8
Zinc, Zn %	0.714	2.34	2.14	0	26.5
Means and Variances of Hickey Assay Data in Grade Domains, Not Capped					
Number of Records			2,532		
Field	**Mean**	**Variance**	**CV**	**Min**	**Max**
Silver, Ag ppm	15.901	380.3	1.23	0	355.32
Gold, Au ppm	0.001	0	5.63	0	0.07
Copper, Cu %	0.008	0	3.22	0	0.68
Iron, Fe %	4.603	13.77	0.81	0	31.8
Lead, Pb %	0.561	0.84	1.63	0	10.69
Zinc, Zn %	2.25	6.44	1.13	0	26.5
Means and Variances of Hickey 1m Composite Data in Grade Domains, Not Capped					
Number of Records			2,782		
Field	**Mean**	**Variance**	**CV**	**Min**	**Max**
Silver, Ag ppm	15.06	270.4	1.09	0	293.49
Gold, Au ppm	0.001	0	5.25	0	0.04
Copper, Cu %	0.008	0	3.28	0	0.68
Iron, Fe %	4.429	12.61	0.8	0	31.8
Lead, Pb %	0.524	0.58	1.45	0	9.725
Zinc, Zn %	2.128	4.62	1.01	0	24.6

Correlation Table of Hickey Assay Data, Pearson's Coefficient						
Field	**Ag ppm**	**Au ppm**	**Cu %**	**Fe %**	**Pb %**	**Zn %**
Silver, Ag ppm	1					
Gold, Au ppm	-0.02	1				
Copper, Cu %	0.33	0.01	1			
Iron, Fe %	0	0.1	0.02	1		
Lead, Pb %	0.47	0.01	0.29	-0.03	1	
Zinc, Zn %	0.71	-0.01	0.21	-0.01	0.5	1

Source: *2018 Tetra Tech Report on the Nash Creek Property.*

14.1.4.1 Assays

Drill hole data of 14,173 assay results were uploaded into GEMS, which is used for the interpretation of the mineralized zones. Data analysis was conducted for the complete dataset (see Tables 14-3 and 14-4) and for the captured assay results within the Hickey and Hayes zones respectively.

A total of 2,532 assay intervals were captured within the Hickey Zone as 40 individual domains, and total of 2,084 sample intervals were captured within the southern Hayes Zone, as 19 individual domains, using 1.50% ZnEq cut-off values to define the zones. Data analysis was conducted by creating probability, histogram plots and standard normal deviate plots of the data.

14.1.4.2 Composites

Different compositing strategies were applied to the Hayes Zone and the Hickey during preparation of the data.

At the Hayes Zone, compositing strategy was maintained to be consistent with the 2016 model, whereby the raw assay information was composited into three metre downhole lengths from the top of the hole. Selection of 3 m composite lengths was based on use of historical data where by various raw sample lengths were used with common length of 3.0 m, and to represent a minimum bench height. Where sample assay data was missing or below detection value, implicit or explicit to composites, a value of zero was used for that length of drill core. This resulted in a continuous record of 3.0 m composites along the entire drill string. The mineral wireframes were developed from the 3.0 m composites. Only 3.0 m composites falling within the mineral wireframes were used in the Mineral Resource Estimate.

At the Hickey Zone, compositing strategy was revised to better correspond with the 2017 Callinex drilling, whereby the raw assay information was composited into one metre downhole lengths within the mineralization wireframes, starting from the up-hole side. Residual sample lengths that were less than 0.25 m, or ¼ of the composite length, were not composited. Where sample assay data was missing or below detection value, implicit or explicit to composites, a value of zero was used for that length of drill core.

A summary of the composite data is provided in Tables 14.4 and 14.5, above.

14.1.4.3 Capping

When frequency distributions are skewed, a very small number or proportion of samples may represent a large amount of the contained metal in the resource. Frequently, these samples may be scattered through the deposit and not restricted to spatially identifiable or continuous zones. Sometimes, small clusters of high-grade mineralization may be present, and it may or may not be possible or practical to restrict their influence. Other times, the very high-grade samples may be the result of laboratory errors; pulps sometimes segregate high specific gravity materials like electrum or pyrite and may produce biased results if the pulps are not re-homogenized prior to aliquot selection for analysis.

Even when the assays are valid, linear interpolation (weighted average) grade estimation methods can be adversely affected. When these methods are used, the inclusion of a high-grade sample will have a greater influence on the estimate than a lower grade sample. This can lead to undue projection (or smearing) of the effect of high-grade material into areas for which there is no evidence on hand that the high-grade material continues to occur. Under such circumstances, restriction of the influence of the higher-grade material is considered as a best practice.

On the basis of a review of probability and histogram plots and a decile analysis of the composite sample data, it was concluded that there is a reasonable justification for capping of the zinc, lead and silver values. Breaks in the slope of the cumulative probability imply that a few higher-grade samples are spatially discontinuous from the remainder of the data set. The samples were then further investigated by decile and percentile analysis where often the top decile (greatest 10% of the sample population) contained more than 40% of the metal.

Based on this analysis, capping of raw assay data was applied at 23.2% Zn, 7.5% Pb and 161.8 g/t Ag for the Hickey Zone (see Table 14.5) and 14.1% Zn, 4.3% Pb and 103.4 g/t Ag for the Hayes Zone (see Table 14.6). A total of five Zn samples were capped within the Hickey Zone and six samples within the Hayes Zone; five and six Pb samples were capped for each zone.

14.1.4.4 Bulk Density

Based on Specific Gravity (SG) measurements conducted by SLAM (2008) (n = 1,169) and Callinex (2017) (n = 4,169) in the Nash Creek area, it has been shown that there is a weak correlation between Zn and Pb grades with SG.

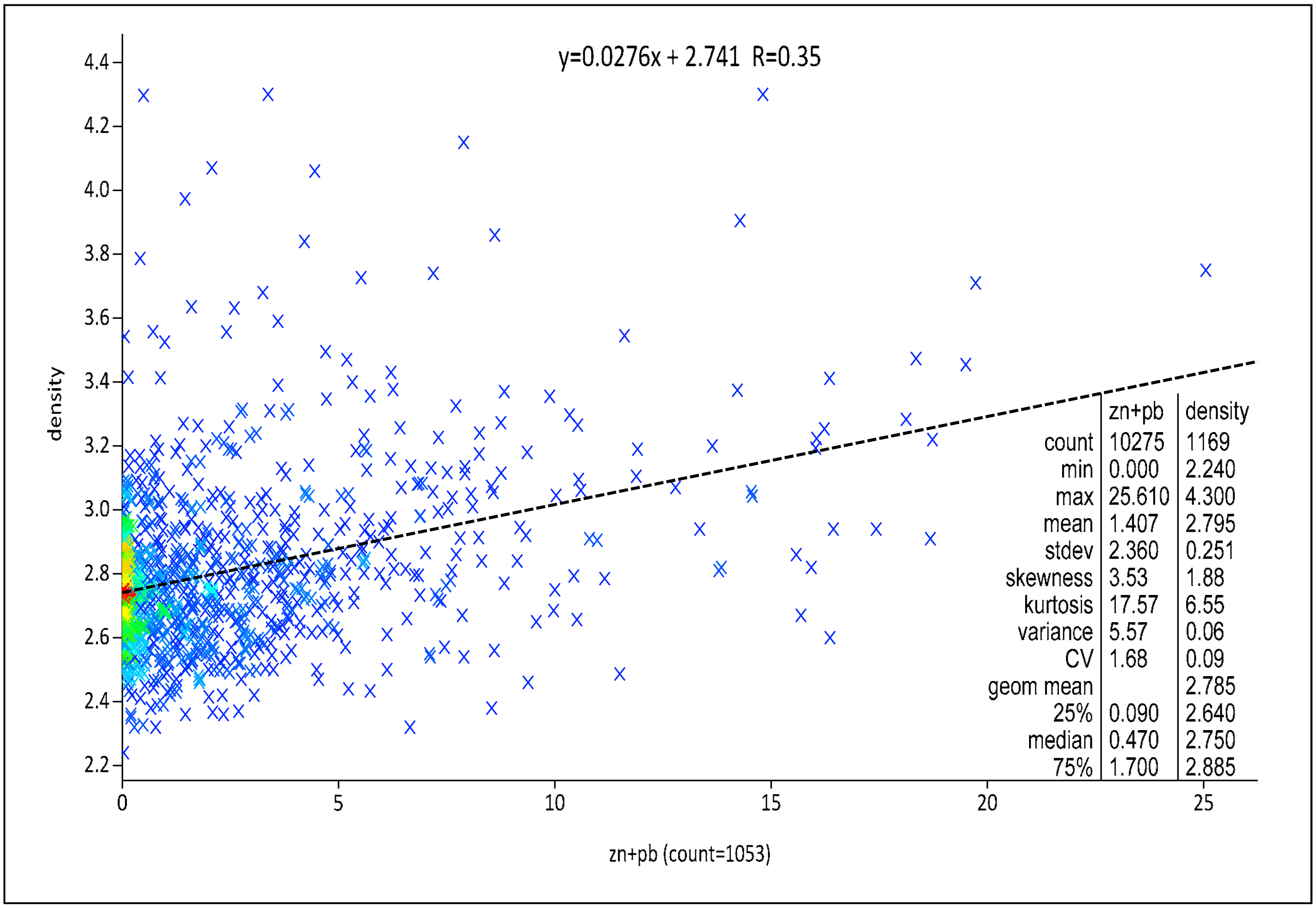
Highly variable density values are encountered due to mineral variation within styles of mineralization and the alteration zones throughout each zone, with in situ SG measurements ranging from 2.24 to 4.30, and mean value of 2.80.

It is noted that when barren rock and mineralized rock is considered, an increasing trend in SG may still be observed. The increased in density is attributed to sulphide concentrations. A simple regression was completed for the data between Zn% + Pb% grades, as a proxy for sulphide concentration, and the average density value for the corresponding sample interval. Consideration for barren pyrite has not been taken onto account for this calculation. The resulting linear function for density was applied to estimate local density, where unmineralized rock is defined as having a specific gravity of 2.74 and mineralized rock has specific gravity proportion to 2.74 + (0.028*(Zn%+Pb%)). This relationship is seen in Figure 14.1.

Specific gravity has been assumed to be a reasonable proxy for bulk density and the size of the dataset provides a reliable estimate. However, specific gravity lacks representation of internal cavities or voids which may exist within mineralized materials due to the hydrothermal alteration process, and could overestimate the in-situ bulk density of the rock materials.

Tetra Tech recommends that Callinex continue to refine the SG model using the existing data to characterize each of the mineralized styles found on the Nash Creek Property in order to refine the density and tonnage distribution through the deposit. This would include completing bulk density measurements with wax coated intact rock samples to calibrate the SG values.

FIGURE 14.1 DENSITY VERSUS ASSAY ZINC PLUS LEAD CONCENTRATION PERCENTAGE



Source: *2018 Tetra Tech Report on the Nash Creek Property.*

14.1.5 Geological Interpretation

The geological interpretation of the Nash Creek Deposit was originally conducted by Bob Jankovic from Wardrop (2009, now Tetra Tech) and refined by the QP for the present report. The wireframes were built using GEMS v6.8 and Datamine Studio.

The mineralization at Nash Creek was broken into multiple domains reflecting differences in either grade (high or low) or mineralization type (massive or disseminated). The presence of some geological features such as contacts, faults and late dykes can negatively affect the accuracy of an estimate, if not properly accounted for. Wireframes are constructed in order to determine the shape and location of these features.

Overburden depths on the Nash Creek Property average in the range of 3.0 m to 5.0 m. The area is flat lying and often water saturated which minimizes the penetration of surface weathering and oxidation depth in bedrock. For these reasons, an overburden model and an oxide model were not developed for the Nash Creek Property.

Mineral wireframes based on at least two composite samples with average values greater or equal to 1.50% ZnEq to construct a 3D graphical environment for each of the two zones and different domains within them. Where applicable, composite pairs with average grade less than 1.50% ZnEq were included at the edges of the mineral shells to act as boundary conditions, where boundary samples were not available, the wireframe was truncated according to interpreted continuity of the mineralization trend.

In order to create the most representative resource estimate of the different zones, a ZnEq value was calculated, based on the assumptions described in Section 14.1. The following represents the formula applied for this type of polymetallic mineralization, based on assumptions listed in Table 14.6.

$$ZnEq = Zn\%+(Pb\%*0.747)+(Ag\ g/t*0.006)$$

TABLE 14.6
THREE YEAR AVERAGE METAL PRICES
(AS OF FEBRUARY 2018)

Parameter	Value
Zn Price	US$1.25
Pb Price	US$1.05
Ag Price	US$17.00
Zn Recovery	91%
Pb Recovery	82%
Ag Recovery	50%
Pounds per metric tonne	2,204.62
Grams per ounce (troy)	31.1035

Source: *2018 Tetra Tech Report on the Nash Creek Property.*

Numerous structures are noted in the Hickey and Hayes zone, with prominent mineralized trend in association with the northwest trending Hayes Fault Zone. Tetra Tech recommends that a detailed investigation of the structural interpretation should be carried out. The output of this product would increase the potential discovery of the new lenses, which are offset from the interpreted mineralized zones.

Two main zones were analyzed and distinguished in the interpretation:

Hayes Zone, constrained by 19 domains and representing at least three horizons as sub-horizontal stratabound type of mineralization and inclined stockwork or vein style mineralization (Table 14.7).

Hickey Zone, constrained by 40 domains and representing at least three horizons as sub-horizontal stratabound type of mineralization or vein style mineralization (Table 14.7).

The total volume of the wireframes compare very well with the block model volumes (all blocks within wireframe).

TABLE 14.7 SUMMARY OF WIREFRAME VOLUMES, NASH CREEK				
Zone	**Volume (m^3)**			**Percent Difference**
	Wireframe	**Model within Block**	**Volume Difference**	
Hayes Zone	3,648,200	3,648,487	287	0.01%
Hickey Zone	1,629,499	1,596,735	32,764	0.04%

Source: *2018 Tetra Tech Report on the Nash Creek Property.*

14.1.6 Variography

Geostatistical study combines a variety of tools to describe the pattern of spatial continuity, or strength of the spatial similarity of a variable with separation distance and direction. The correlogram measures the correlation between data values as a function of their separation distance and direction. If we compare samples that are close together, it is common to observe that their values are quite similar and the correlation coefficient for closely spaced samples is near 1.0. As the separation between samples increases, there is likely to be less similarity in the values and the correlogram tends to decrease towards 0.0. The distance at which the correlogram reaches zero is called the "range of correlation", or simply the range. The range of the correlogram corresponds roughly to the more qualitative notion of the "range of influence" of a sample; it is the distance over which sample values show some persistence or correlation. The shape of the correlogram describes the pattern of spatial continuity. A very rapid increase near the origin is indicative of short scale variability. A more gradual increase moving away from the origin suggests longer scale continuity.

Directional sample correlograms were calculated along horizontal azimuths of 0, 30, 60, 90, 120, 150, 180, 210, 240, 270, 300, and 330 degrees. For each azimuth, sample correlograms were also calculated at dips of 30 and 60 degrees and horizontally.

After fitting the variance parameters, the algorithm then fits an ellipsoid to the thirty-seven ranges from the directional models for each structure. The final models of anisotropy are given by the lengths and orientations of the axes of the ellipsoids.

Variography, using Datamine Studio software, was completed on the assay dataset. This analysis was reviewed and incorporated into the present block model interpolation. Separate sets of experimental grade variograms were calculated for each of the elements (zinc, lead and silver) and each zone respectively. A downhole variogram was created to determine the nugget effect and the correlograms were modelled to determine spatial continuity of the composited mineralization. Tables 14.8 and 14.9 summarize variography results.

TABLE 14.8 GRADE VARIOGRAM FOR HICKEY ZONE														
	V Ref Num	**V Angle**	**V Axis**	**Nugget**	**X**	**1st Structure Range** Y	**Z**	**C Values**	**SILL**	**X**	**2nd Structure Range** Y	**Z**	**C Values**	**SILL**
Zn	1	0	1	0.200	70	16	12	0.161	0.361	59	31	33	0.048	0.409
Pb	2	0	1	0.237	41	3.5	12	0.205	0.441	59	31	16	0.088	0.53
Ag	3	0	1	0.237	41	9	15	0.155	0.391	59	31	32	0.058	0.449

Source: *2018 Tetra Tech Report on the Nash Creek Property.*

TABLE 14.9 GRADE VARIOGRAM FOR HAYES ZONE														
	V Ref Num	**V Angle**	**V Axis**	**Nugget**	**X**	**1st Structure Range** Y	**Z**	**C Values**	**SILL**	**X**	**2nd Structure Range** Y	**Z**	**C Values**	**SILL**
Zn	1	0	1	0.171	21	26	21	0.287	0.458	14	24	15	0.11	0.568
Pb	2	0	1	0.171	21	26	21	0.287	0.458	14	24	56	0.087	0.544
Ag	3	0	1	0.171	21	26	21	0.287	0.458	14	24	15	0.06	0.518

Source: *2018 Tetra Tech Report on the Nash Creek Property.*

14.1.7 Block Model

A single block model was created to capture the entirety of the Hickey and Hayes zones. Table 14.10 summarizes the block model limits of the mine grid system. The block model was not rotated.

TABLE 14.10 RESOURCE BLOCK MODEL DIMENSIONS FOR THE HICKEY AND HAYES ZONES				
Coordinate	**Origin (corners)**	**Number of Blocks**	**Block Size (m)**	**Model Extent (m)**
X (min)	716,180	296	5	1,480
Y (min)	5,306,540	522	5	2,610
Z (max)	360	90	5	450

Source: *2018 Tetra Tech Report on the Nash Creek Property.*

The drill hole spacing varies from 205 to 50 m along the sections, and 50 to 75 m between the sections across the deposit. A block size of 5 m x 5 m x 5 m was selected in order to accommodate the type of mineralization and the composited length.

Ordinary kriging was selected as the most suitable method of the resource estimation on the Nash Creek Property due to relatively closely spaced data and low nugget identified from downhole variography. With proper application, Ordinary Kriging can account for geological continuity as well as grade variability (the nugget effect).

Search volume dimensions are defined from the variogram models, based on the maximum range of the second structure in each direction. Limits are set for the minimum and maximum number of samples used per estimate and as a restriction on the maximum number of samples used from each hole.

14.1.8 Interpolation Plan

The estimations were designed as a three-pass system that were run independently within each individual wireframe using composite data constrained by the wireframe. Table 14.11 below summarizes search distances and rotations for estimating a block as well as minimum and maximum number of composites required.

TABLE 14.11 SEARCH ELLIPSE PARAMETERS HICKEY AND HAYES ZONES									
Hickey Zone (1 m Composites)									
Pass Number	**Search Distance (m)**			**Rotation**			**Number of Composites**		
	X	**Y**	**Z**	**Z**	**X**	**Z**	**Min.**	**Max.**	**Max. / Drill Hole**
Pass 1	40	34	10	60	8	0	6	15	4
Pass 2	70	60	18	60	8	0	5	15	4
Pass 3	140	120	35	60	8	0	4	15	4

TABLE 14.11 SEARCH ELLIPSE PARAMETERS HICKEY AND HAYES ZONES									
Hayes Zone (3 m Composites)									
Pass Number	Search Distance (m)			Rotation			Number of Composites		
	X	Y	Z	Z	X	Z	Min.	Max.	Max. / Drill Hole
Pass 1	21	26	21	-30	-15	-10	4	8	2
Pass 2	42	52	42	-30	-15	-10	3	8	2
Pass 3	42	52	42	-30	-15	-10	2	8	2

Source: *2018 Tetra Tech Report on the Nash Creek Property.*

14.1.9 Mineral Resource Classification

Several factors were used in the determination of the mineral resource classification as follows:

- CIM Definition Standards.
- Experience with similar deposits.
- Demonstrated spatial continuity of mineralization.
- Drill hole spacing.
- Number of sample composite values used in block grade estimation.

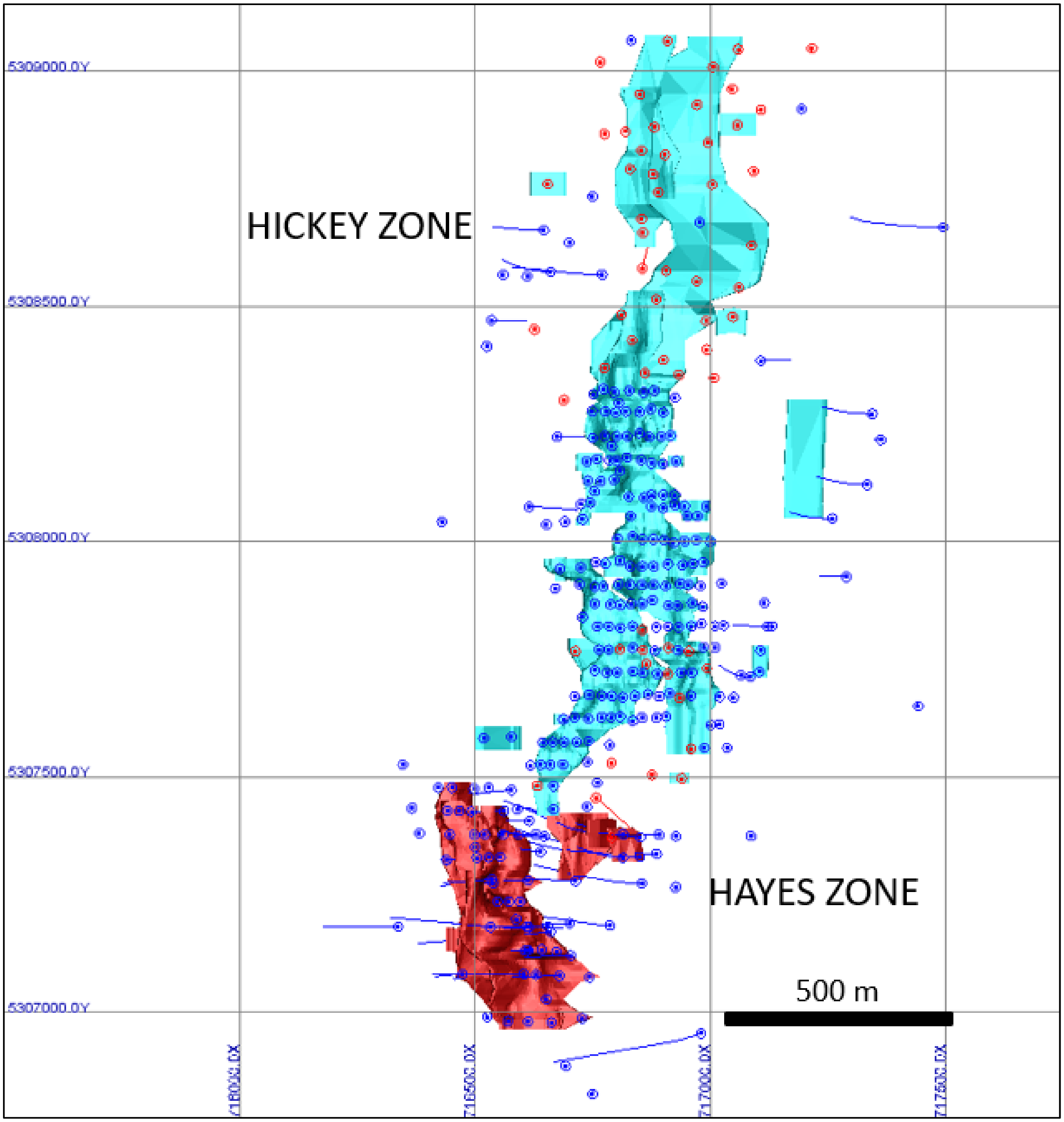
No known environmental, permitting, legal, title, taxation, socio-economic, marketing or other relevant issues are known to the authors that may affect the estimate of a Mineral Resource. Mineral Reserves can only be estimated on an economic evaluation that is used in a preliminary feasibility or a feasibility study on a mineral project, thus no reserves have been estimated, and the Mineral Resources that are reported are not yet demonstrated to have economic viability for extraction. Table 14.12 summarizes the resources for the Nash Creek deposit.

TABLE 14.12 MINERAL RESOURCE CLASSIFICATION CRITERIA	
Indicated	Inferred
Distance to nearest composite within the 1st and 2nd passes for Hickey and for Hayes.	Distance to nearest composite within the 3rd pass for Hickey and for Hayes.

Source: *2018 Tetra Tech Report on the Nash Creek Property.*

Figures 14.2 and 14.3 show the wire frame model and block model created for the resource calculations with interpolation and the resource classification for the Nash Creek deposit. Figures 14.4 and 14.5 are longitudinal cross sections displaying the Hickey and Hayes Zones with a 2.00% ZnEq and block model interpolation and resource classification.

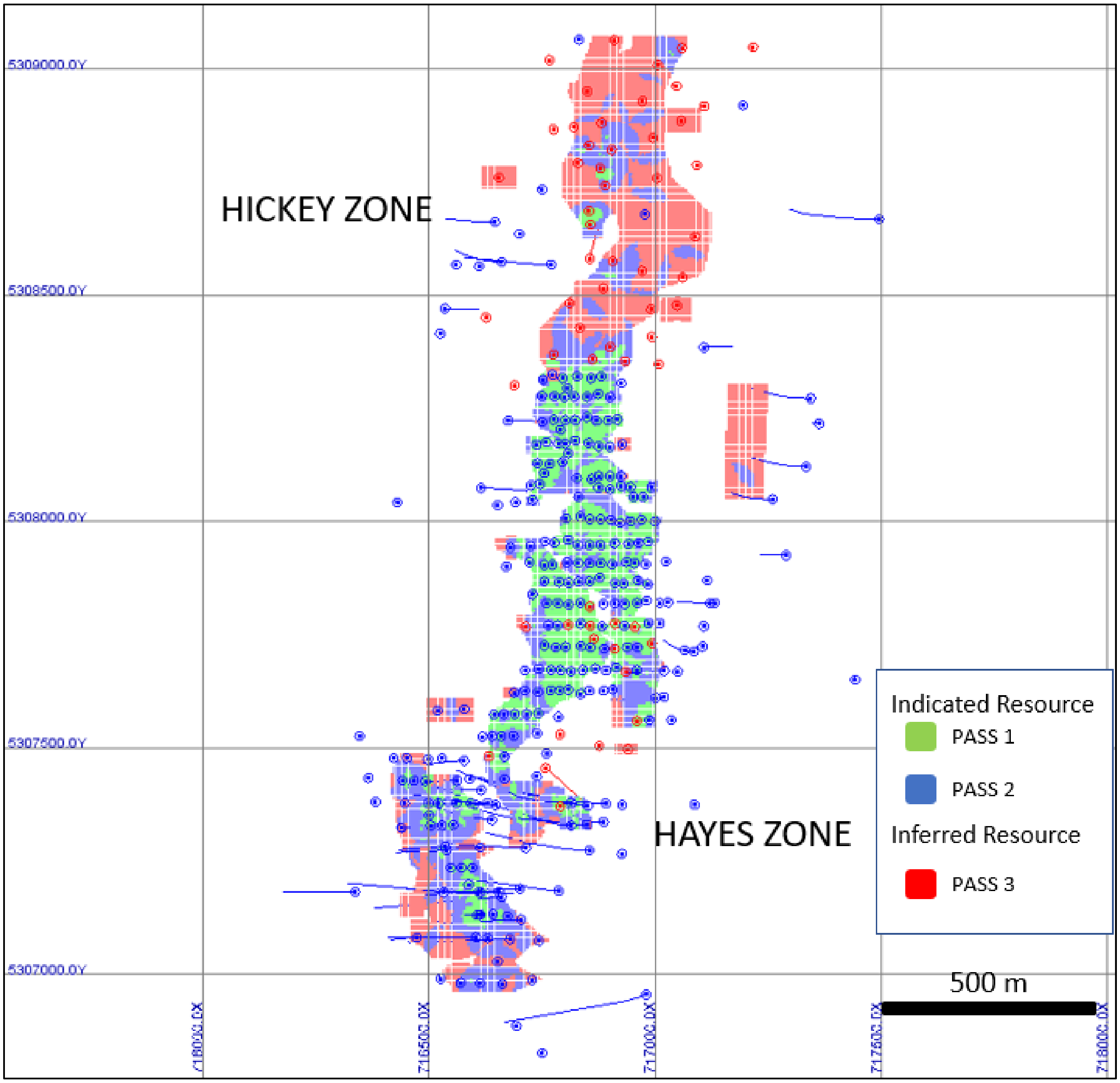
FIGURE 14.2 PLAN VIEW SHOWING HICKEY AND HAYES ZONE 1.50% ZNEQ WIREFRAME DOMAINS



Source: *2018 Tetra Tech Report on the Nash Creek Property.*

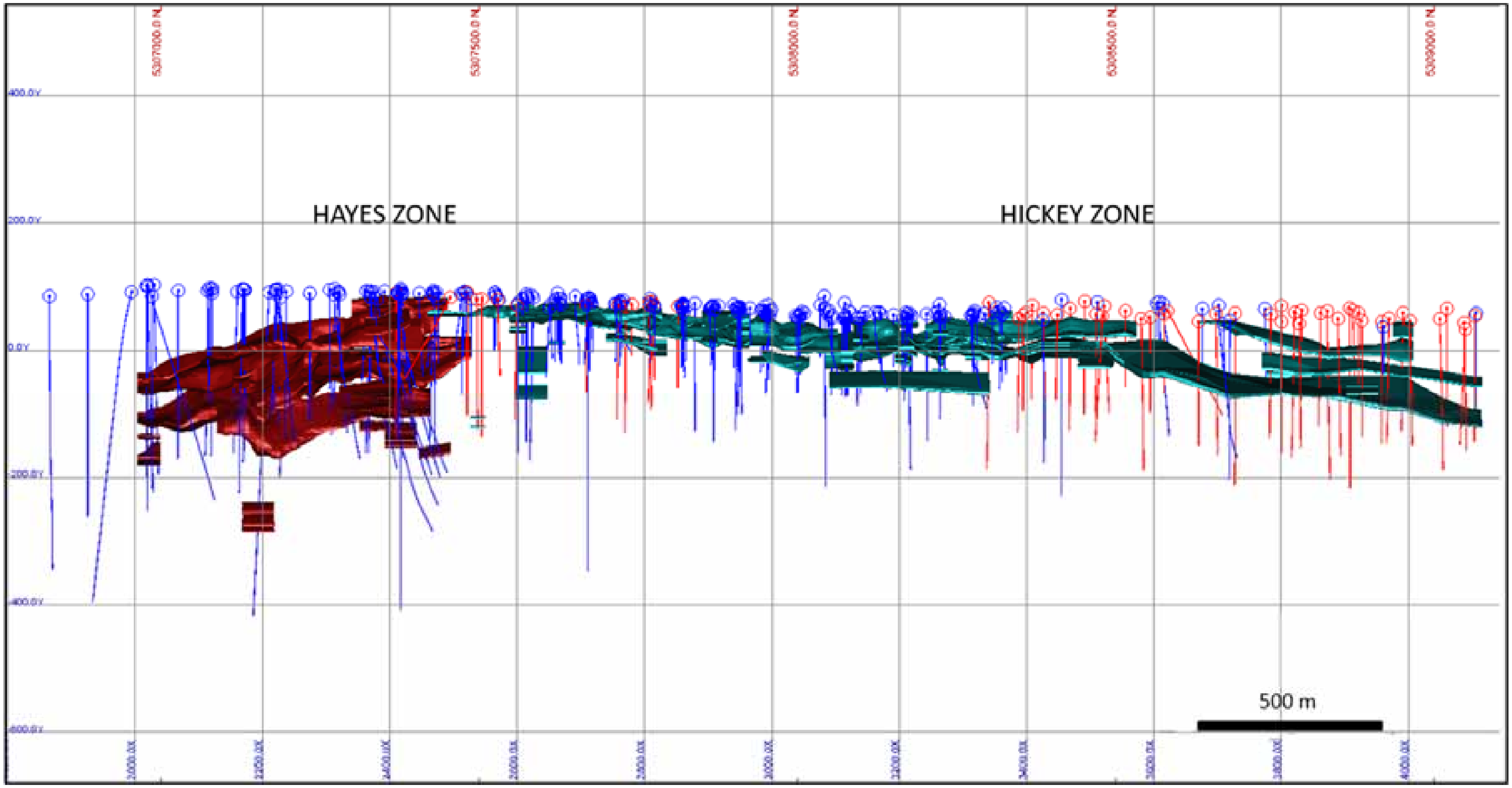
The Hickey Zone is shown in cyan and the Hayes Zone in red.

FIGURE 14.3 PLAN VIEW SHOWING BLOCK MODEL WITH INTERPOLATION PASSES AND RESOURCE CLASSIFICATION



Source: *2018 Tetra Tech Report on the Nash Creek Property.*

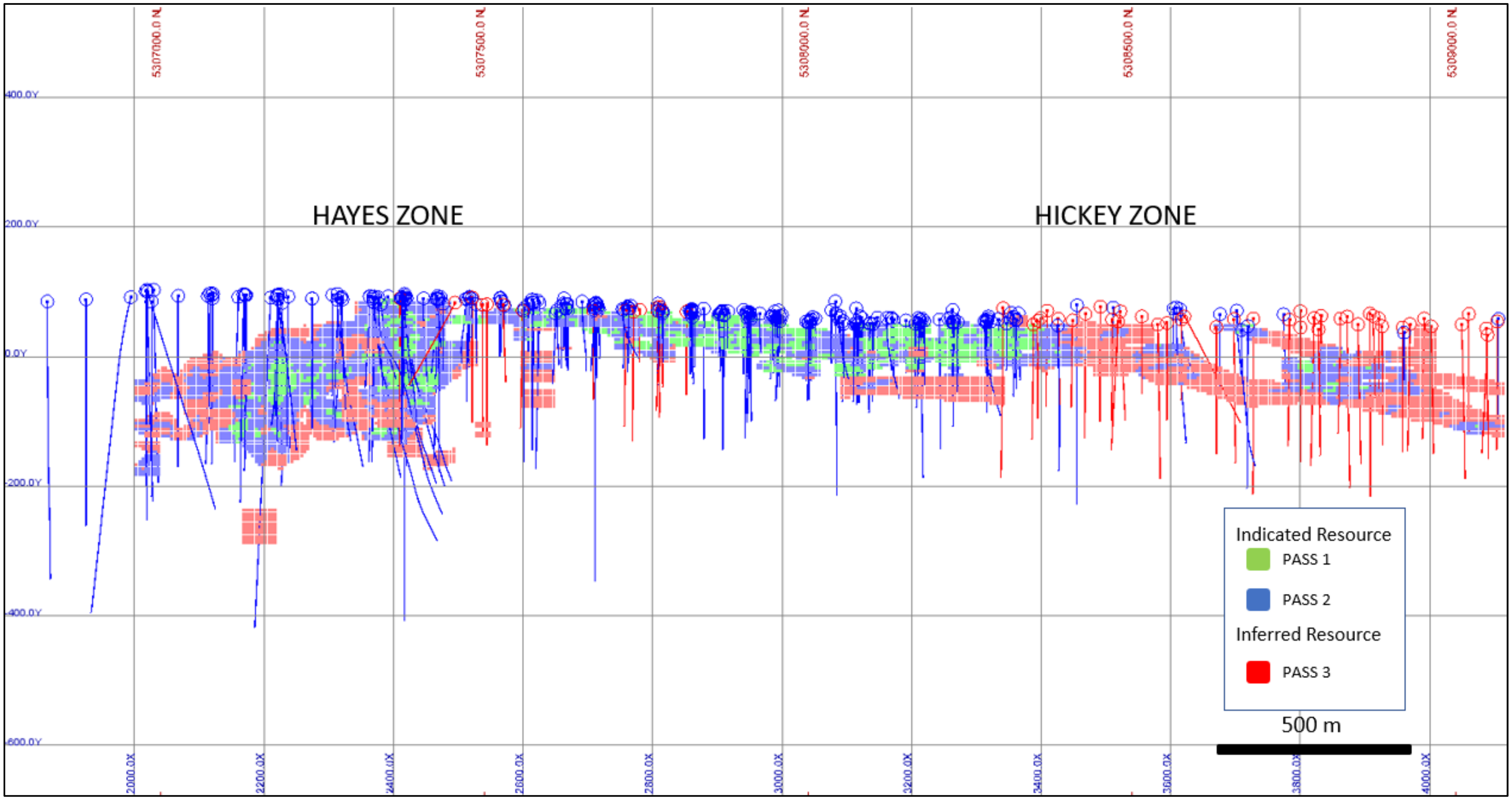
FIGURE 14.4 LONGITUDINAL SECTION, LOOKING WEST, SHOWING HICKEY ZONE AND HAYES ZONE 1.50% ZNEQ WIREFRAME DOMAINS



Source: *2018 Tetra Tech Report on the Nash Creek Property.*

The Hickey Zone is shown in cyan/green and the Hayes Zone in red.

FIGURE 14.5 LONGITUDINAL SECTION, LOOKING WEST, SHOWING HICKEY ZONE AND HAYES ZONE BLOCK MODEL WITH INTERPOLATION PASSES AND RESOURCE CLASSIFICATION



Source: *2018 Tetra Tech Report on the Nash Creek Property.*

14.1.10 Resource Tabulation

The mineral resource estimation at Nash Creek is tabulated in Tables 14.13 and 14.14 respectively for the Indicated and Inferred Resources. Ordinary kriging interpolation is used for the resource tabulation for both the Hickey Zone and the Hayes Zone. Figures 14.6 and 14.7 show a plan view and longitudinal view, respectively, of grade distribution in the model as >1.50% ZnEq and >5.00% ZnEq isoshells.

TABLE 14.13
NASH CREEK MINERAL RESOURCE ESTIMATE
(EFFECTIVE MARCH 21, 2018)[1-4]

Zone	Classification	Cut-off ZnEq (%)	Density (t/m3)	Tonnes	Zn (%)	Pb (%)	Ag (g/t)	ZnEq (%)
Hickey	Indicated	1.50	2.82	6,601,000	2.37	0.57	16.8	2.90
Hickey	Inferred	1.50	2.83	4,343,000	2.69	0.45	13.8	3.11
Hayes	Indicated	1.50	2.84	6,991,000	2.96	0.58	18.9	3.51
Hayes	Inferred	1.50	2.83	1,586,000	2.63	0.53	14.3	3.12
Total	Indicated	1.50	2.83	13,592,000	2.68	0.58	17.8	3.21
Total	Inferred	1.50	2.83	5,929,000	2.68	0.47	13.9	3.11

1) *ZnEq calculated using 3-year trailing metal price trends of $1.25 /lb Zn, $1.05 /lb Pb, and $17.00 /oz Ag. Recoveries were applied as 90% Zn, 80% Pb, and 50% Ag based on preliminary metallurgical testwork, using formula ZnEq = Zn% + 0.747*Pb% + 0.011*Ag g/t.*
2) *A cut-off value of 1.50% ZnEq was used as the base case for reporting Mineral Resources that are subject to open pit potential. The resource block model is not constrained by a conceptual open pit shell. Resource classification adheres to CIM Definition Standards; it cannot be assumed that all or any part of Inferred Mineral Resources will be upgraded to Indicated or Measured as a result of continued exploration.*
3) *Density is calculated by block based on grade using regression formula: Bulk Density = 2.74 + 0.028*(Zn%+Pb%).*
4) *All values are rounded.*

Source: *2018 Tetra Tech Report on the Nash Creek Property.*

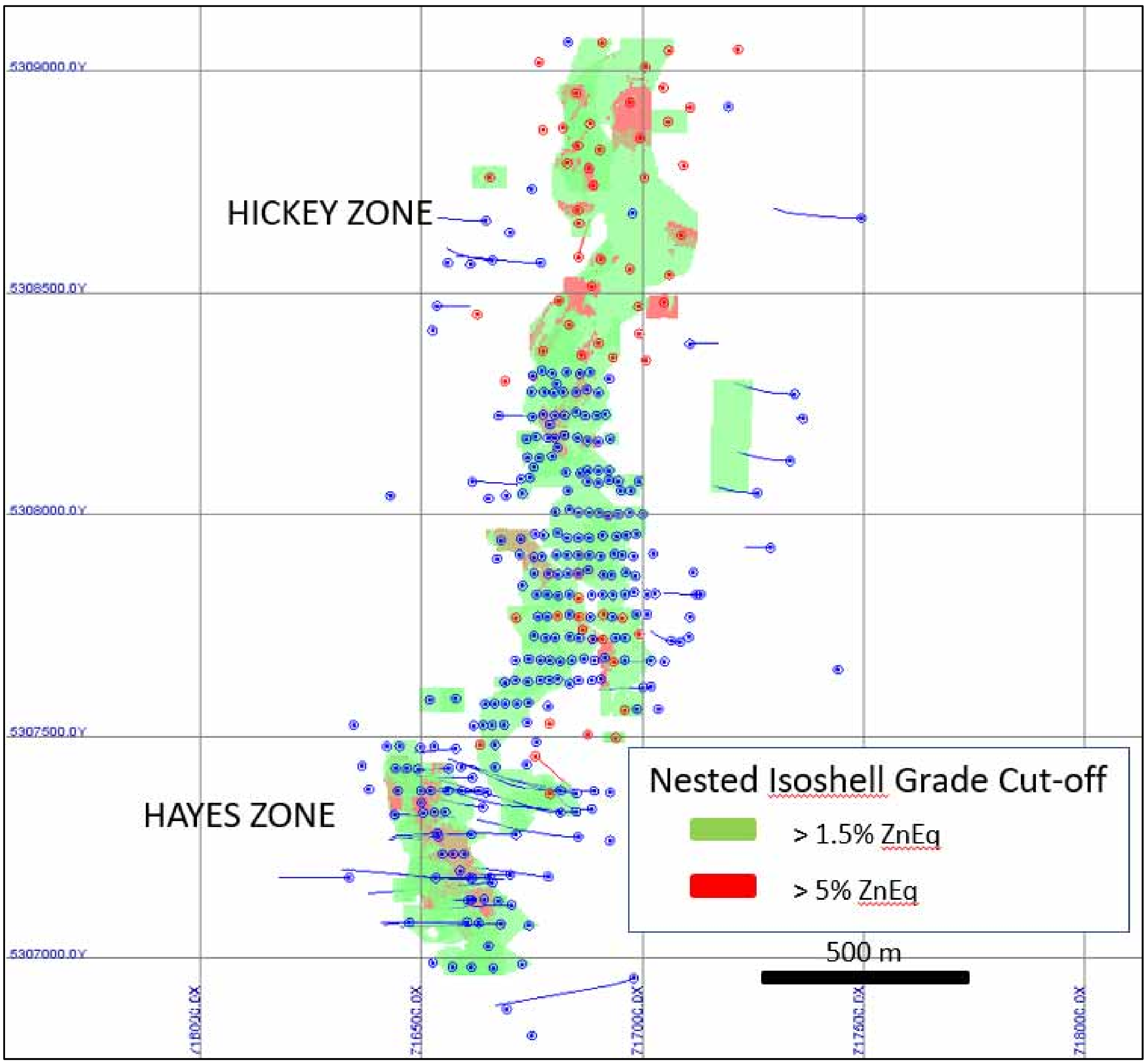
TABLE 14.14
NASH CREEK MINERAL RESOURCE ESTIMATE, CONTAINED METAL SUMMARY
(EFFECTIVE MARCH 21, 2018)[1-4]

Zone	Classification	Tonnes	Zn Cont. lbs	Pb Cont. lbs	Ag Cont. oz	ZnEq Cont. lbs
Hickey	Indicated	6,601,000	345,462,000	83,140,000	3,561,000	422,221,000
Hickey	Inferred	4,343,000	257,887,000	43,277,000	1,930,000	298,158,000
Hayes	Indicated	6,991,000	456,594,000	89,870,000	4,240,000	541,171,000
Hayes	Inferred	1,586,000	92,145,000	18,511,000	729,000	108,972,000
Total	**Indicated**	13,592,000	802,056,000	173,010,000	7,801,000	963,392,000
Total	**Inferred**	5,929,000	350,032,000	61,788,000	2,659,000	407,130,000

1) *ZnEq calculated using 3-year trailing metal price trends of $1.25 /lb Zn, $1.05 /lb Pb, and $17.00 /oz Ag. Recoveries were applied as 90% Zn, 80% Pb, and 50% Ag based on preliminary metallurgical testwork, using formula ZnEq = Zn% + 0.747*Pb% + 0.011*Ag g/t.*
2) *A cut-off value of 1.50% ZnEq was used as the base case for reporting Mineral Resources that are subject to open pit potential. The resource block model is not constrained by a conceptual open pit shell. Resource classification adheres to CIM Definition Standards; it cannot be assumed that all or any part of Inferred Mineral Resources will be upgraded to Indicated or Measured as a result of continued exploration.*
3) *Density is calculated by block based on grade using regression formula: Bulk Density = 2.74 + 0.028*(Zn%+Pb%).*
4) *All values are rounded.*

Source: *2018 Tetra Tech Report on the Nash Creek Property.*

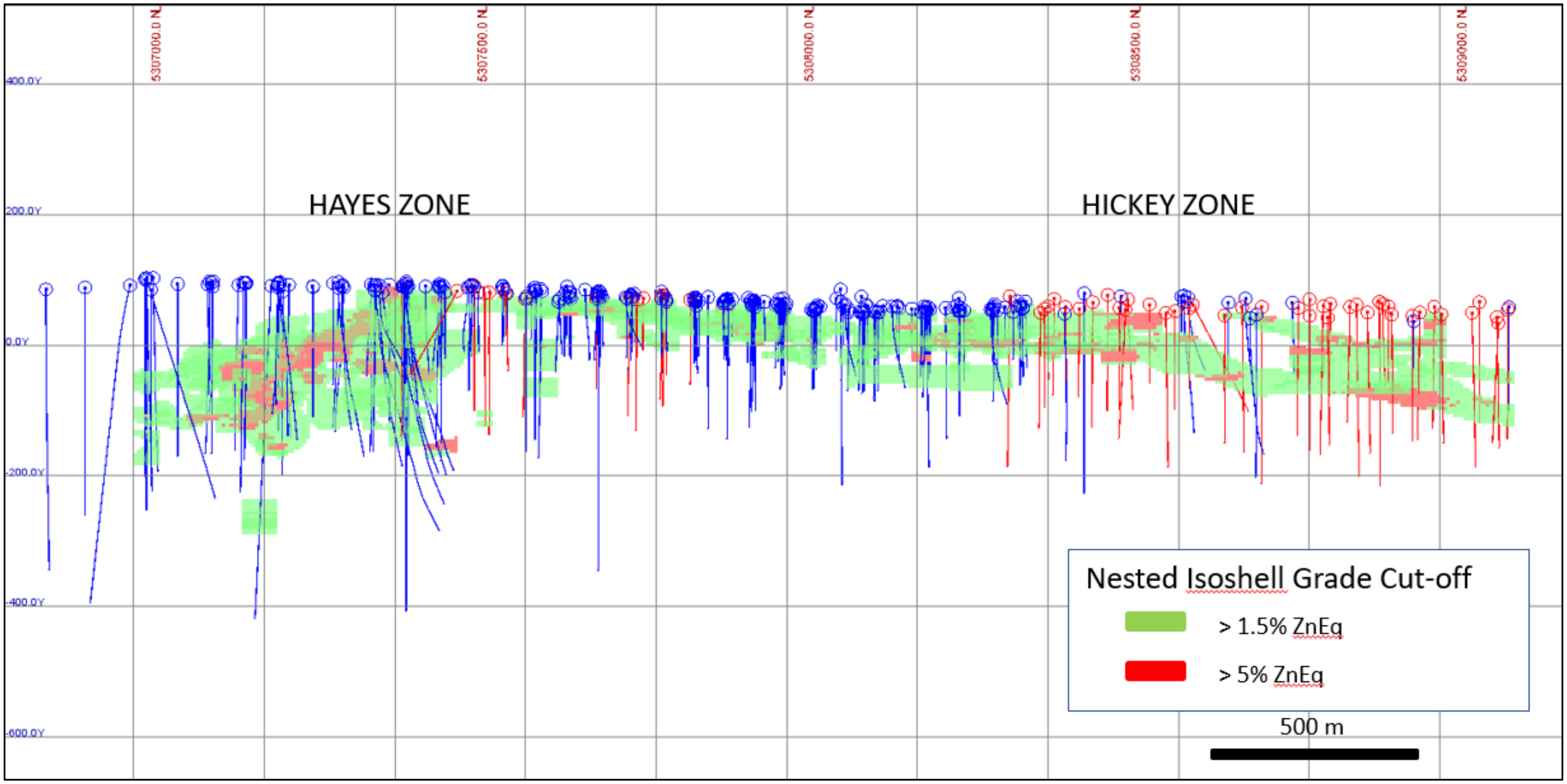
FIGURE 14.6 PLAN VIEW SHOWING ISOSHELLS



Source: *2018 Tetra Tech Report on the Nash Creek Property.*

>1.50% ZnEq (green, transparent) and >5.00% ZnEq (red) from ordinary kriging 3D block model.

FIGURE 14.7 LONGITUDINAL SECTION, LOOKING WEST, SHOWING ISOSHELLS

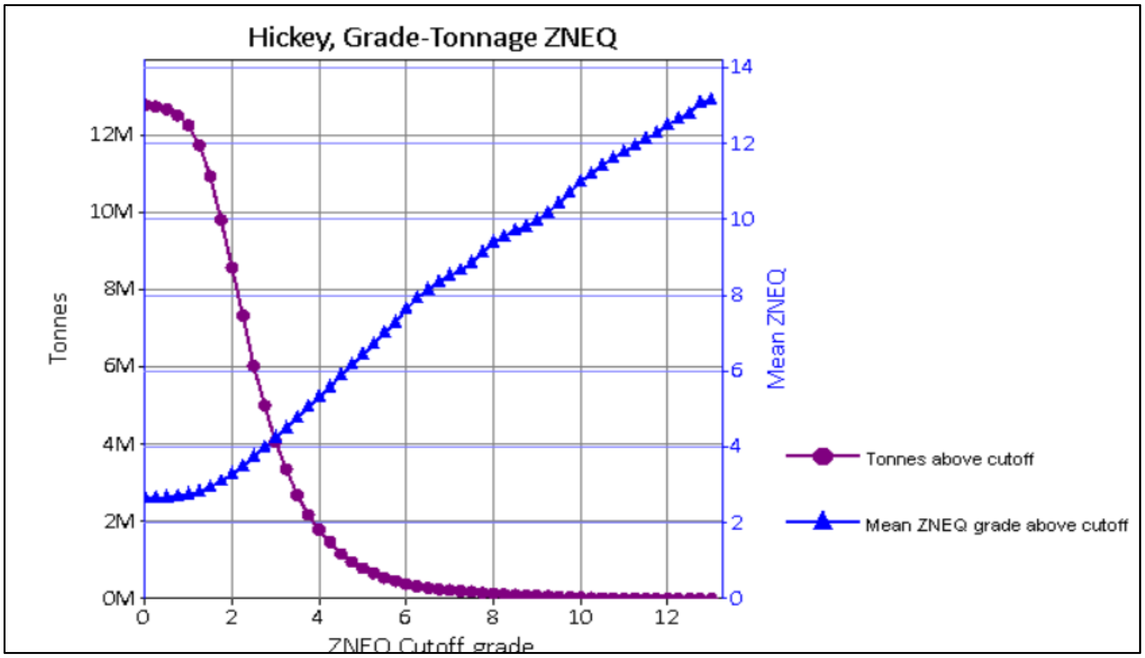


Source: *2018 Tetra Tech Report on the Nash Creek Property.*

>1.50% ZnEq (green, transparent) and >5.00% ZnEq (red) from ordinary kriging 3D block model.

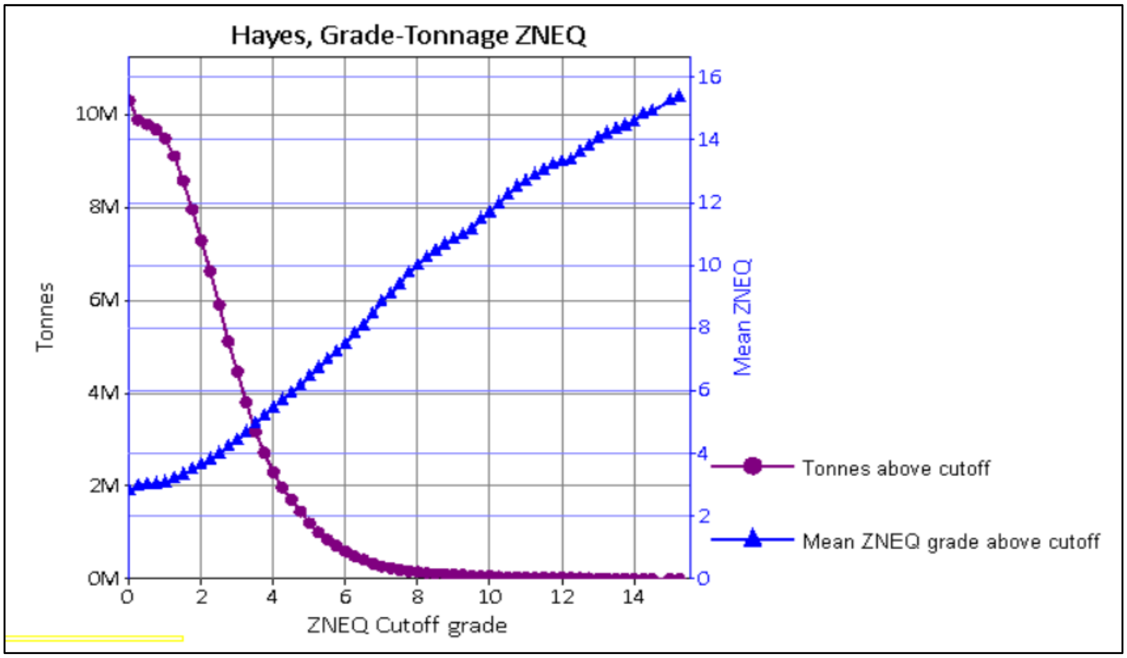
A grade-tonnage curve for the Hickey Zone is shown in Figure 14.8 and for the Hayes Zone in Figure 14.9. Grades are reported as ZnEq%.

FIGURE 14.8 GRADE-TONNAGE CURVE FOR THE HICKEY ZONE, SHOWN WITH ZNEQ (%)



Source: *2018 Tetra Tech Report on the Nash Creek Property.*

FIGURE 14.9 GRADE-TONNAGE CURVE FOR THE HAYES ZONE, SHOWN WITH ZNEQ (%)



Source: *2018 Tetra Tech Report on the Nash Creek Property.*

14.1.11 Model Validation

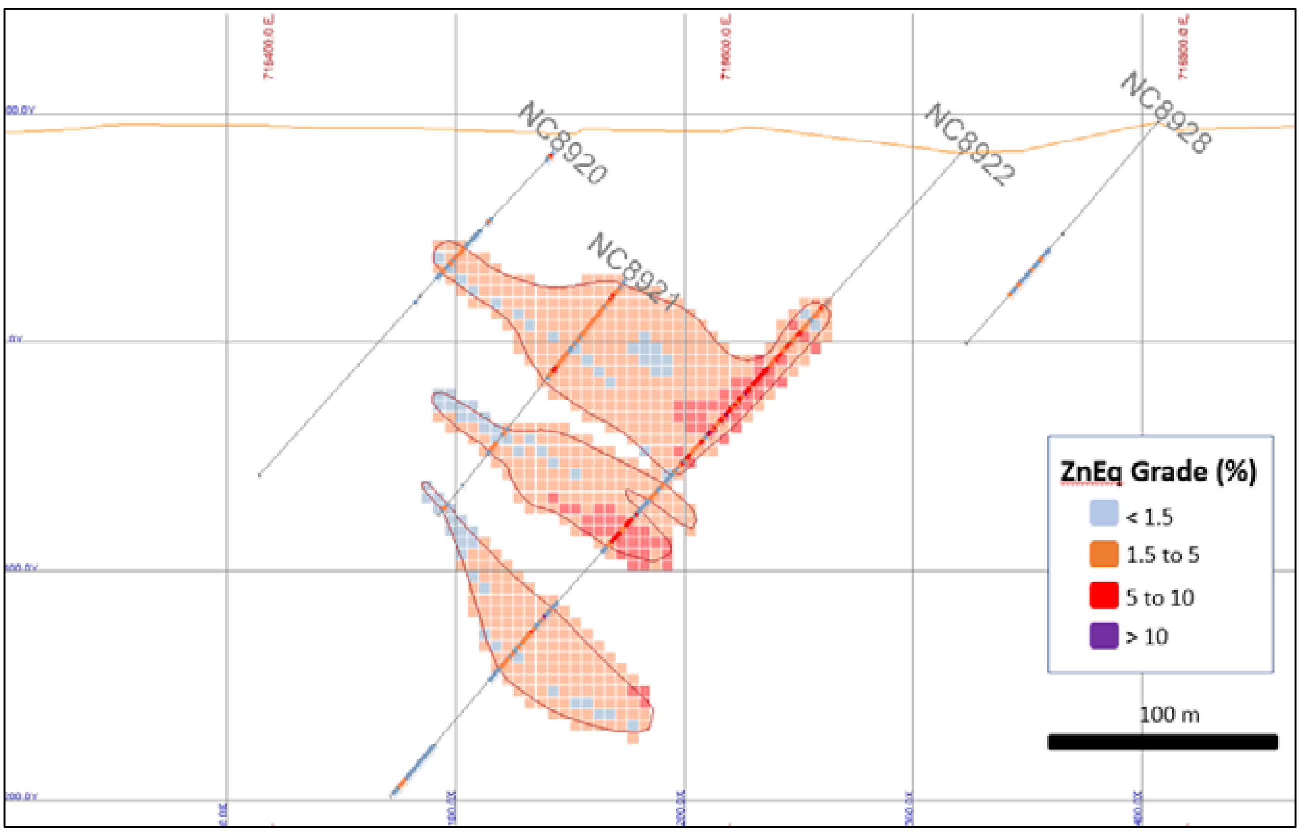
The Nash Creek mineral resource estimation was validated by the following methods:

- Visual comparisons of block grade distribution against diamond drill hole grades (see Figure 14-10 for the block model section within the Hayes Zone).
- Visual analysis and comparison of a swath plots for eastings, northings, and elevation through each of the deposit models.

14.1.12 Visual Comparison

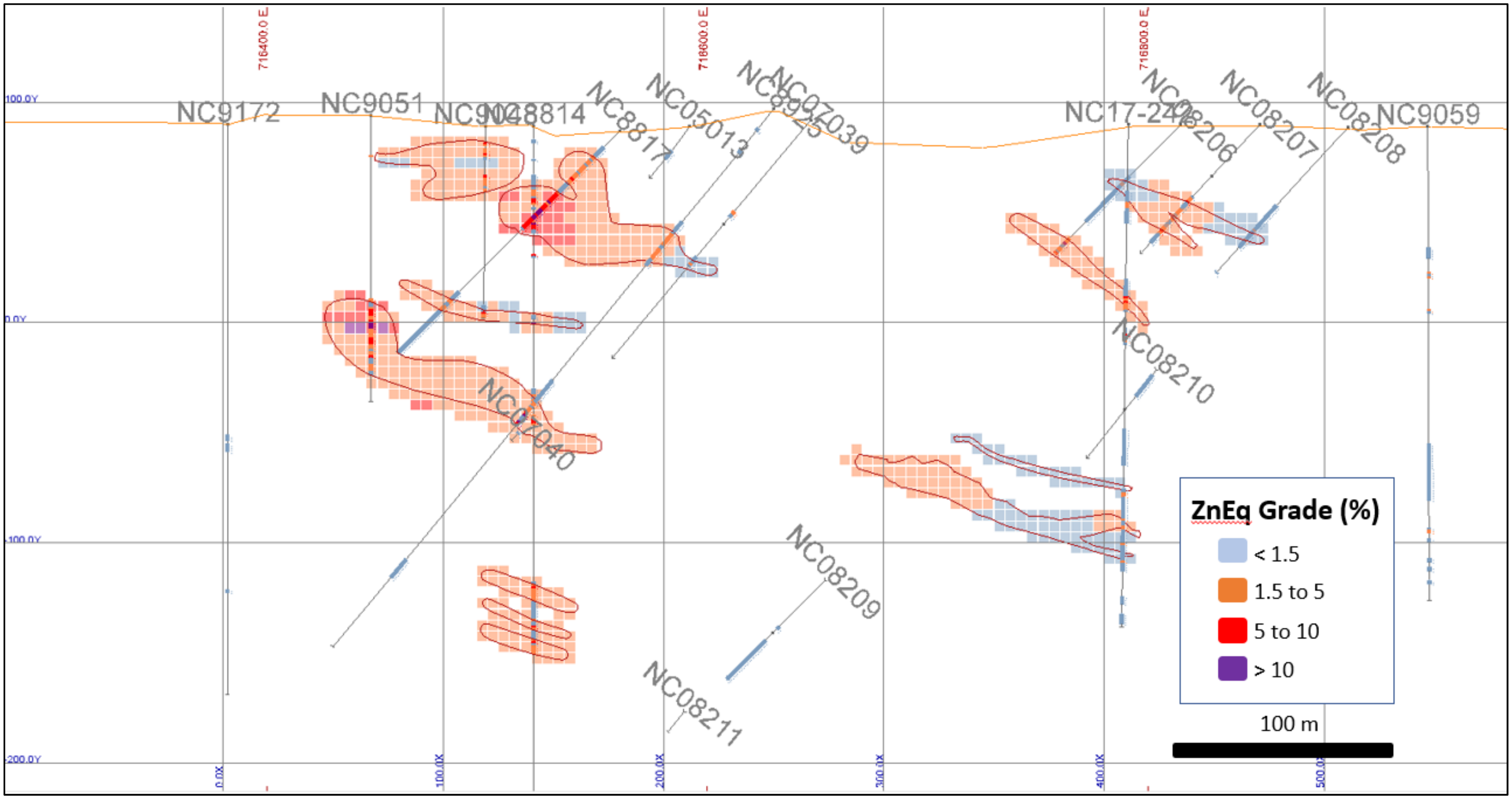
The visual comparison of block model grades against raw sample grades of the metal indicate a reasonable correlation between the values. No significant discrepancies were apparent between the sections. Figure 14.10 contains a representative section for the OK model estimates and original drill hole sample for the Hayes Zone and Figure 14.11 for the Hickey Zone.

FIGURE 14.10 HAYES ZONE ZNEQ MODEL, SECTION 7187.5 N, LOOKING NORTH



Source: *2018 Tetra Tech Report on the Nash Creek Property.*

FIGURE 14.11 HAYES ZONE ZNEQ MODEL, SECTION 7375.0 N, LOOKING NORTH

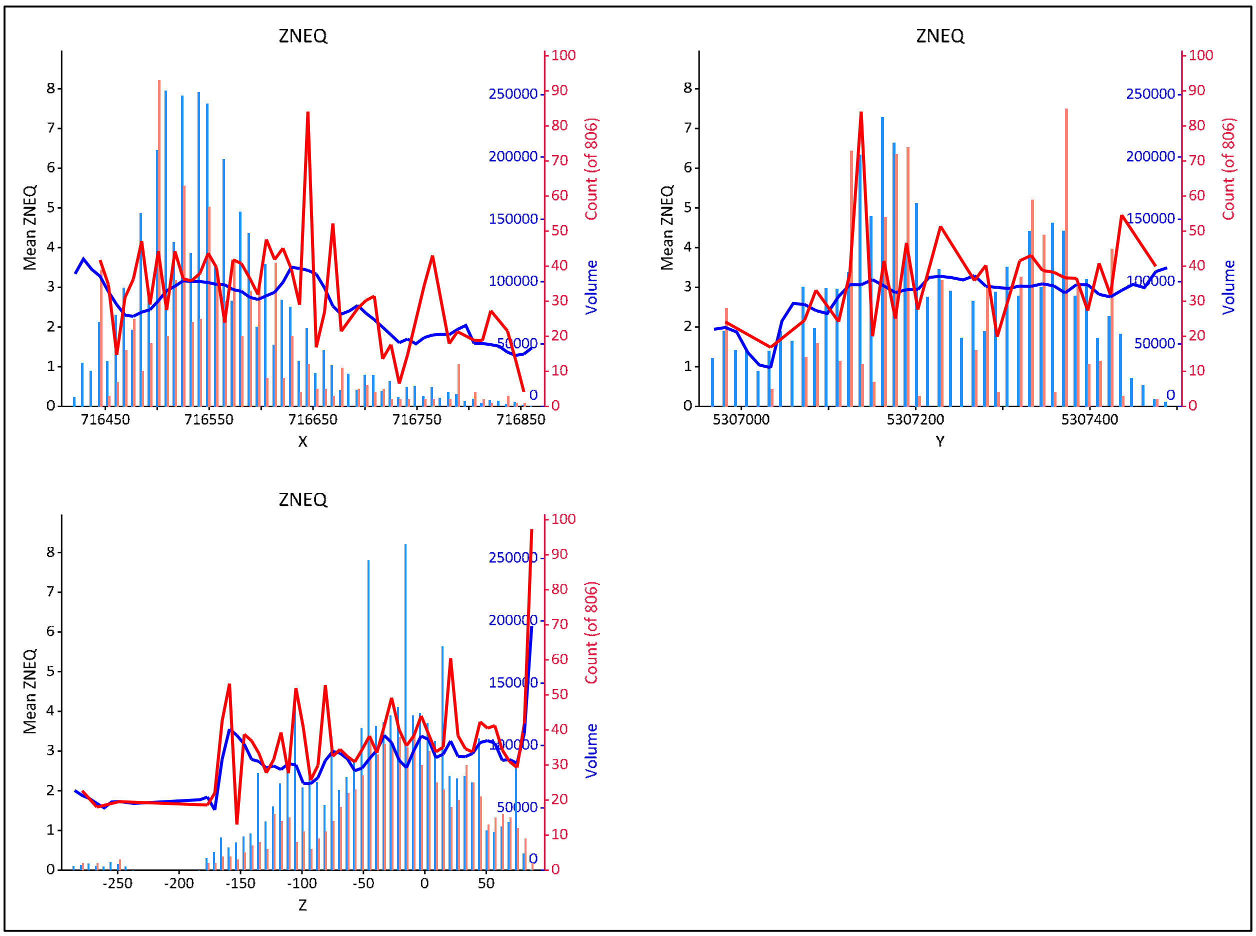


Source: *2018 Tetra Tech Report on the Nash Creek Property.*

14.1.12.1 SWATH Plot Analysis

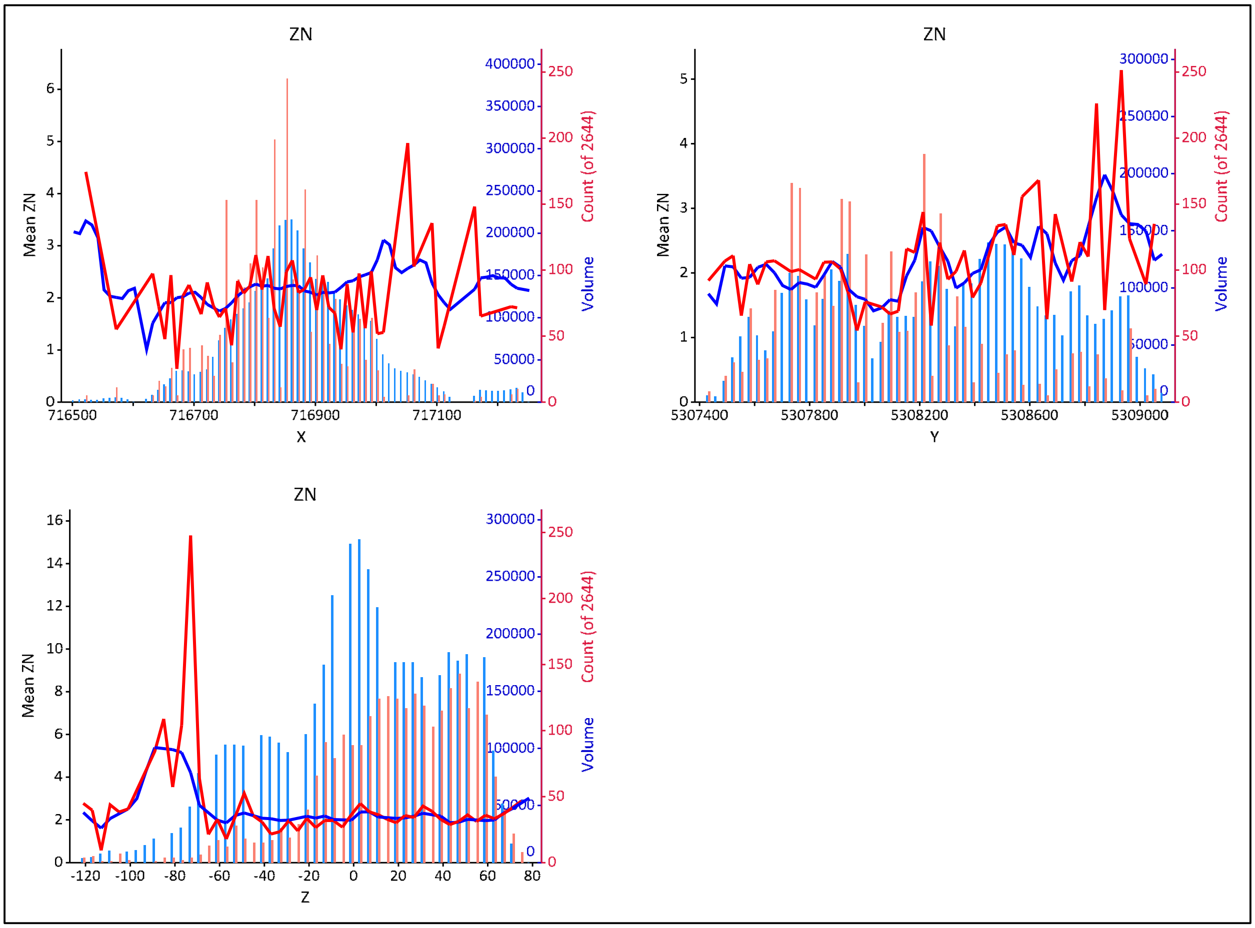
Swath plots were generated along eastings, northings and elevation in the OK, NN and ID3 block models for each of the Hickey and Hickey Hayes zones. These swaths were then plotted along with the count and grade of the composite samples which fall within each of the swath slices. The resulting plots for the Hayes Zone are shown in Figure 14.12, and the Hickey Zone in Figure 14.13. The block model swaths show good correlation between the OK, NN and ID3 models, where the ID3 model is the least smoothed, the NN is the most smoothed and the OK model is often somewhere between in areas where there are fewer samples. The OK model appears to be less smoothed in areas where there is more sampling and higher confidence in grade trends. Overall, all three models show a strong smoothing trend in comparison to the average composite grades shown for each section. This is attributed to the regional averaging of composite grades into each block, and is considered to be a reasonable spatial estimation for the composite sample grades.

FIGURE 14.12 SWATH PLOT FOR THE HAYES ZONE MODEL



Source: *2018 Tetra Tech Report on the Nash Creek Property.*

FIGURE 14.13 SWATH PLOTS FOR THE HICKEY ZONE MODEL



Source: *2018 Tetra Tech Report on the Nash Creek Property.*

14.2 SUPERJACK PROPERTY

Tetra Tech estimated a mineral resource of the zinc-lead-copper-silver sulphide deposits of both the Superjack A Zone and C Zone in 2012; both are re-stated herein. The B Zone requires further drilling to warrant a Mineral Resource Estimate.

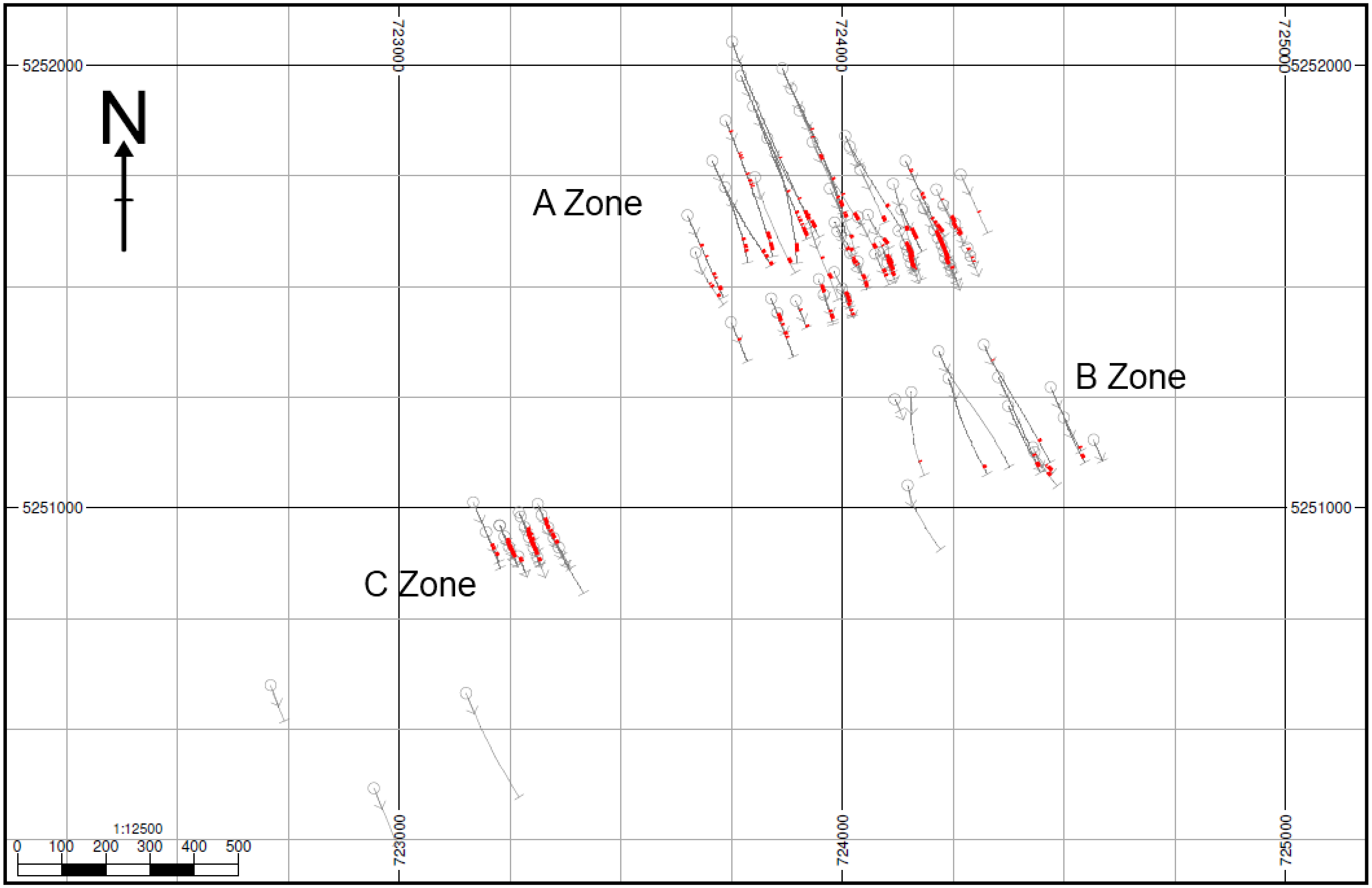
The current Mineral Resource Estimate re-addresses and updates a previous Mineral Resource Estimate completed for the Nepisiguit (i.e. Superjack) Project by Tetra Tech, dated May 31, 2012 (R. Morrison, 2012). This work was completed coincident with the acquisition of the Project from SLAM Exploration Ltd. (refer to Callinex News Release dated May 18, 2016) by Callinex.

This Mineral Resource Statement has not been updated as part of the current study to include the 2017 drilling. The effective date of the Mineral Resource Estimate is July 15, 2016.

14.2.1 Database

A common database was used for both estimates. The digital drill hole data was supplied by SLAM, dated March 2012. This data was imported into Datamine™ Studio 3 (v. 3.20.6420.0) resource software package in the form of a drill collar file, a downhole survey file, a lithology file, and an assay file, all in Microsoft Excel™ workbook format (XLS file). From these files, a comprehensive drill hole file was generated (Figures 14.14 and 14.15, projected in UTM, NAD83). Data verification procedures can be found in Section 12.2.

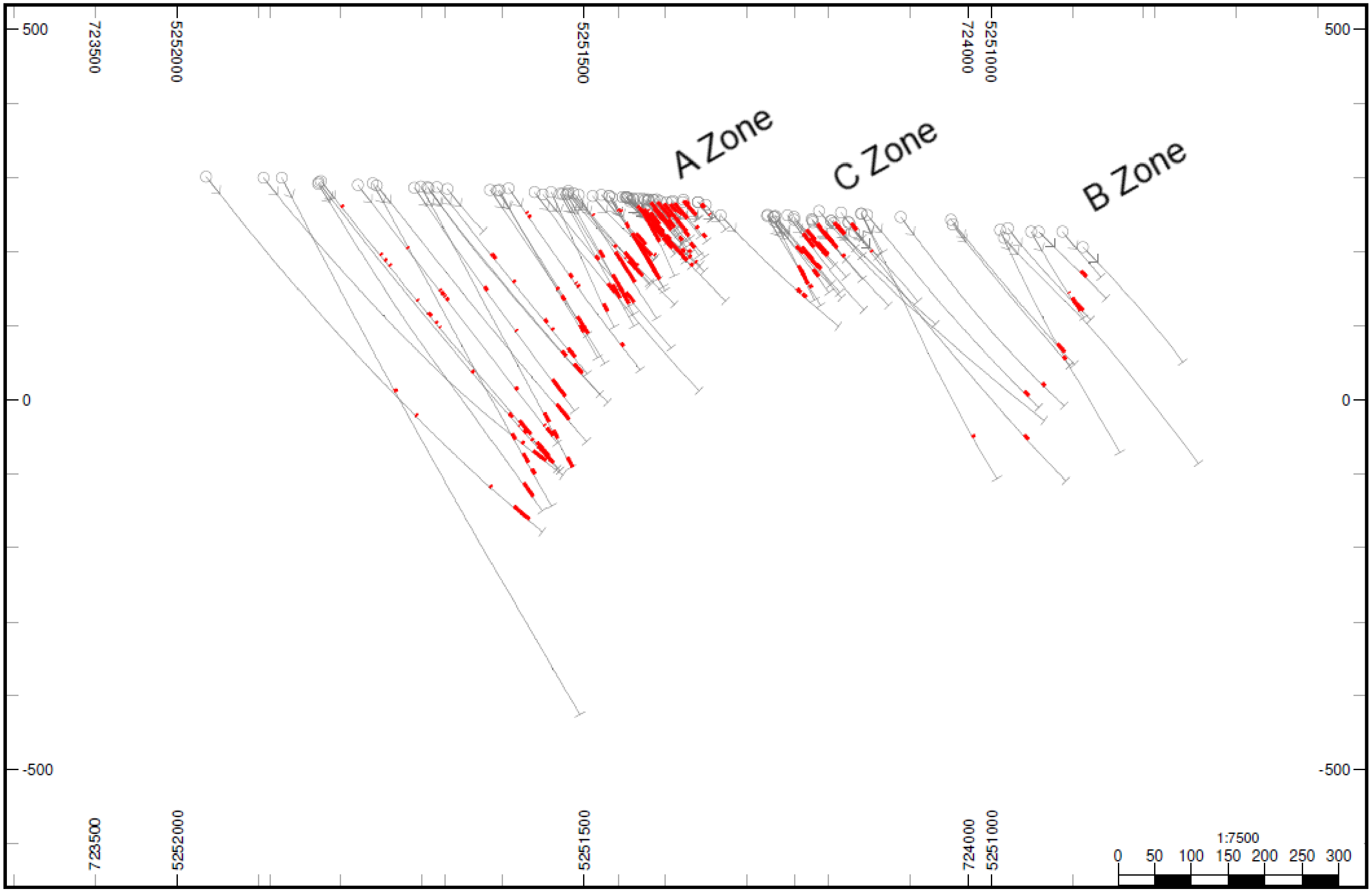
FIGURE 14.14 DRILL HOLE MAP USED IN 2016 MINERAL RESOURCE



Note: *sampled intervals are in red.*

Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.15 DRILL HOLE SECTION LOOKING 065°



Note: *sampled intervals are in red.*
Source: *2016 Tetra Tech Report on the Superjack Property.*

14.2.2 Geological Interpretation

The Superjack deposits are subject to complex polyphase deformation, as is most of the BMC. The sulphide mineralization investigated herein is also subject to this deformation. Due to the nature of this deformation, the drill spacing, and a lack of quantitative structural measurements, the deformation could only be partially determined based on the geometry of the lithological and mineralogical intervals. The geological interpretation used for this resource estimate is thus a reasonable approximation of this deformation using the available data. Part of this interpretation included separating the deposit into domains of high- and low-grade mineralization. The high-grade mineralization represents coherent massive sulphide intervals containing predominantly greater than 1.0% Zn. The low-grade mineralization represents disseminated, stringer, and thin massive sulphide intervals containing variable zinc, lead, copper, and silver grades.

14.2.3 Exploratory Data Analysis

The following discussion describes the data used for the Superjack resource estimates. It outlines the data statistics for both the A and C zones, and their respective domains. It also outlines the methodology used to identify and control the influence of outlier data and compositing data to maintain consistency in the estimation process.

All data used in this resource estimate is derived from diamond drill hole assays, summarized in Table 14.15.

TABLE 14.15
SUMMARY STATISTICS FOR ORIGINAL DRILL HOLE DATABASE

Field	Zn (%)	Pb (%)	Cu (%)	Ag (g/t)	SG	Length (m)
Number Records	6,312	6,312	6,312	6,312	6,312	6,312
Number Samples	1,824	1,824	1,824	1,824	165	6,312
Number Missing	4,488	4,488	4,488	4,488	6,147	0
Minimum	0.00	0.00	0.00	0.00	2.78	0.01
Maximum	30.80	9.48	2.59	291.00	5.06	102.95
Range	30.80	9.48	2.59	291.00	2.28	102.94
Mean	1.43	0.38	0.14	15.59	4.31	3.05
Variance	8.88	0.88	0.05	1,003.81	0.36	19.77
Standard Deviation	2.98	0.94	0.22	31.68	0.60	4.45
Standard Error	0.07	0.02	0.01	0.74	0.05	0.06
Skewness	4.08	4.63	3.53	4.05	-1.09	7.23
Kurtosis	23.33	26.93	19.26	21.25	0.02	81.67
Geometric Mean	0.21	0.04	0.04	4.19	4.26	2.09

Source: *2016 Tetra Tech Report on the Superjack Property.*

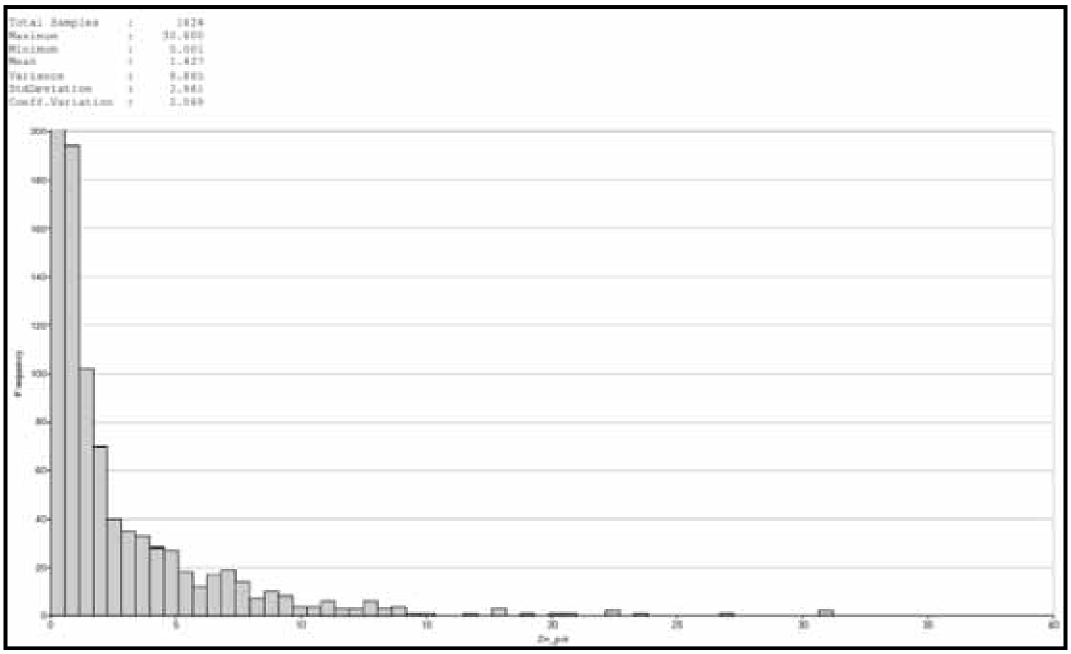
This document is reporting on the interpolation of zinc, lead, copper, and silver grades.

14.2.3.1 Top-Cuts and Outlier Management

In order to manage any outliers in the data set, which may not be representative of the sample population in consideration, the statistical distribution of each metal was separately examined. Respective grade distribution histograms, as shown below, were generated, and each was analyzed to identify where the high-grade "tail" of the distribution began to dissociate. For zinc, lead, copper and silver, values were "capped" (or a "top-cut" was applied) at 16.0%, 5.2%, 1.3%, and 165 g/t, respectively. Thus any assay values exceeding these margins were consigned a value equal to the top-cut value. In general, less than 20 individual samples (or approximately 1% of the data) were affected by this capping strategy.

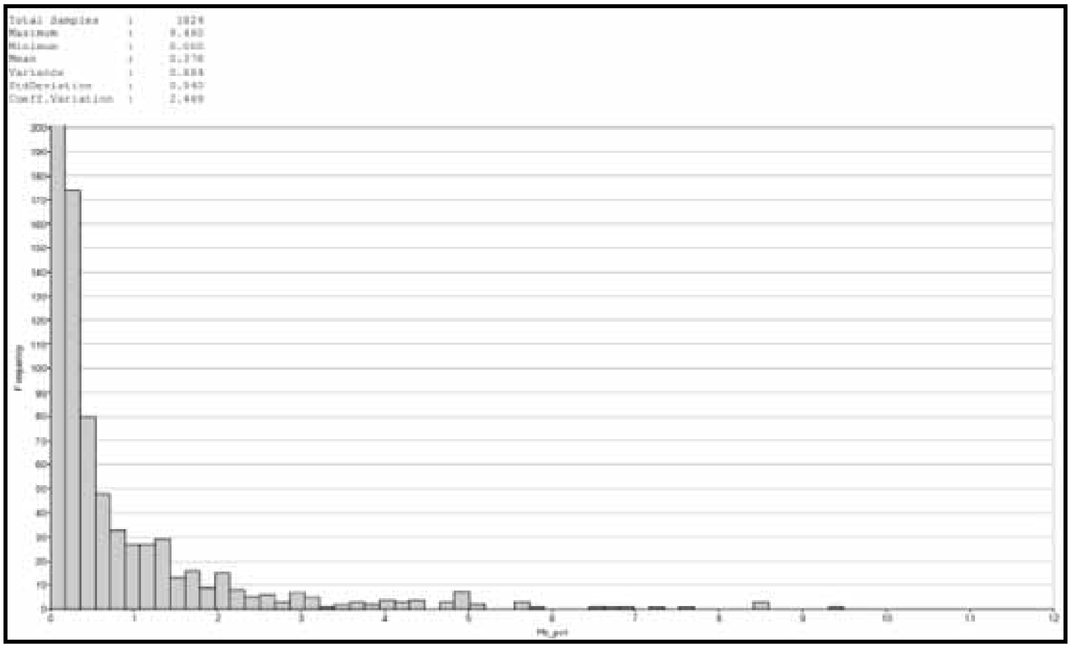
The grade distribution histograms are displayed in Figures 14.16 to 14.19.

FIGURE 14.16 RAW DATA HISTOGRAM OF ZINC GRADE DISTRIBUTION



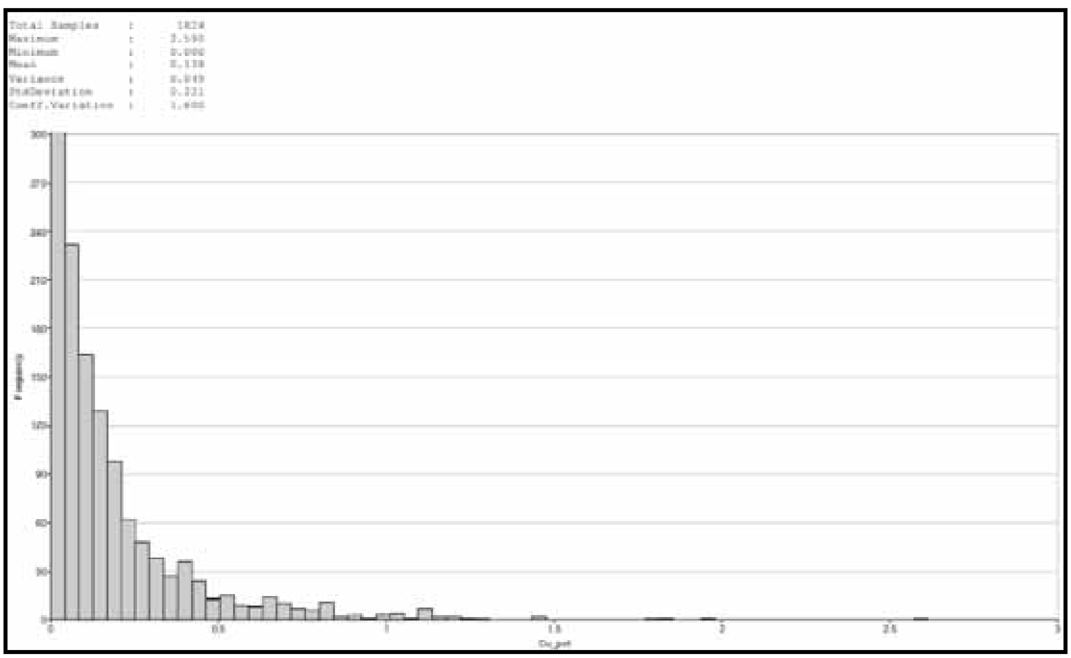
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.17 RAW DATA HISTOGRAM OF LEAD GRADE DISTRIBUTION



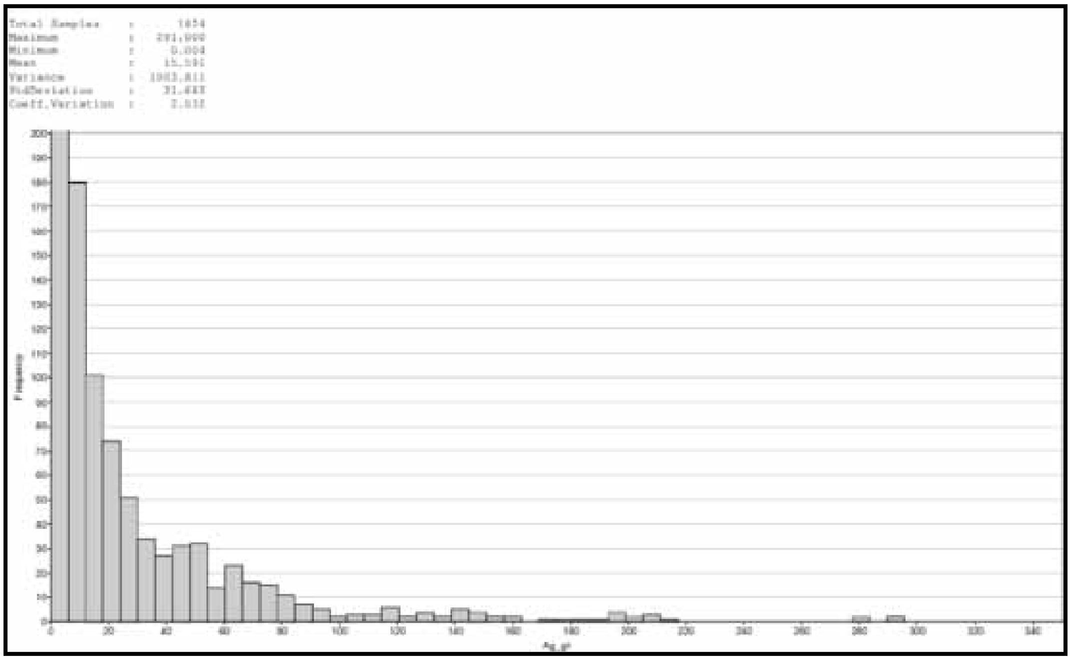
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.18 RAW DATA HISTOGRAM OF COPPER GRADE DISTRIBUTION



Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.19 RAW DATA HISTOGRAM OF SILVER GRADE DISTRIBUTION

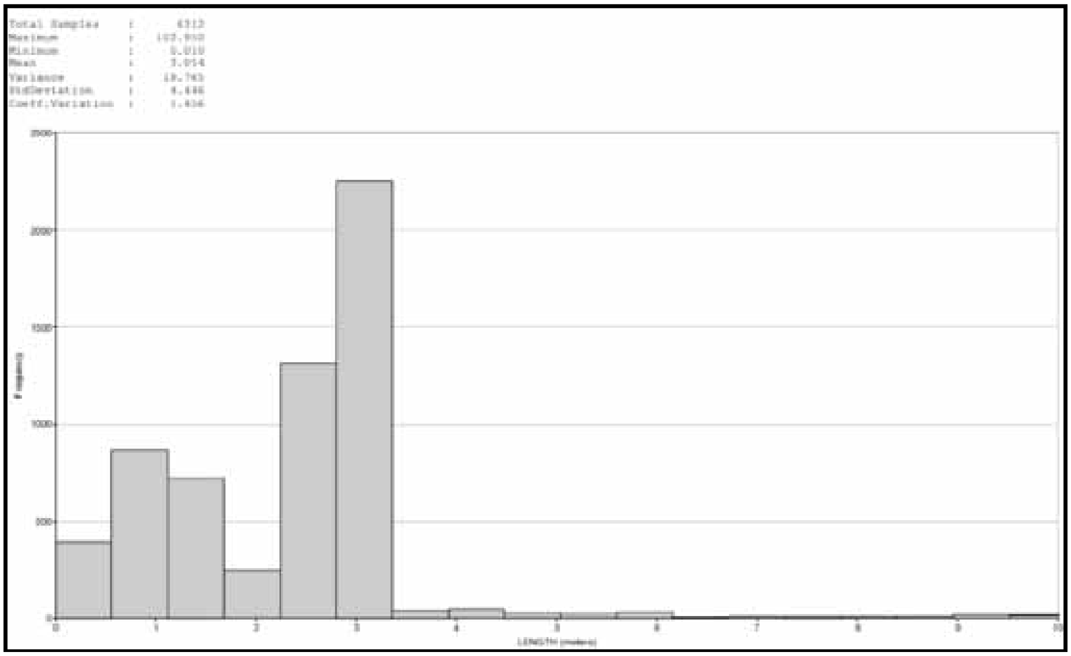


Source: *2016 Tetra Tech Report on the Superjack Property.*

14.2.3.2 Compositing

The raw sample length data was analyzed to determine a suitable composite length. The vast majority of intervals (sampled or otherwise) were less than 3.5 m. The majority of assayed intervals were between 1.0 m and 1.5 m. Three metres was chosen as a composite length in order to capture the characteristics of the original data (both geologically and empirically), while still maintaining sufficient resolution for the block estimation. The Datamine™ compositing process ("COMPDH") was utilized to composite the drill hole file. The chosen composite mode forces all samples to be included in one of the composites by adjusting the composite length, while keeping it as close as possible to the 3.0 m interval length. he maximum possible composite length is 4.5 m. Figure 14.20 shows the composite length distribution.

FIGURE 14.20 RAW DATA HISTOGRAM OF LENGTH DISTRIBUTION

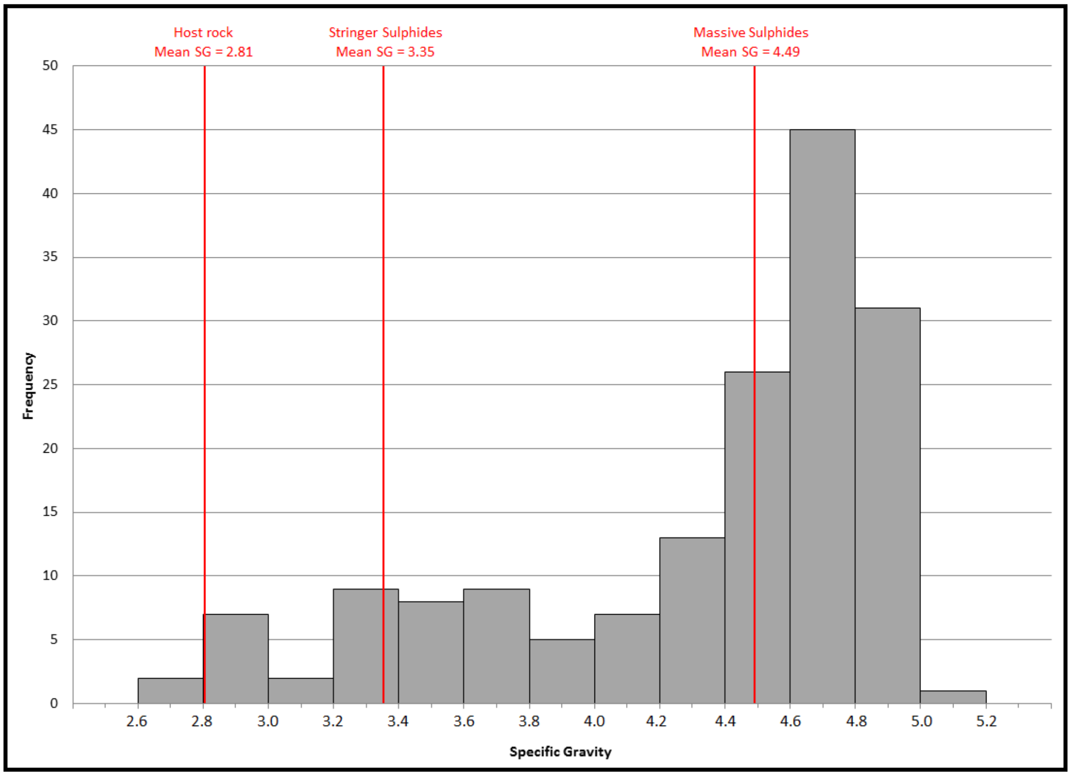


Source: *2016 Tetra Tech Report on the Superjack Property.*

14.2.3.3 Density

Actlabs ran 165 previously assayed samples for specific gravity. These samples were sorted by rock type (massive sulphides, stringer sulphides, or other). These density groupings were averaged, and then the resulting average was populated into the drill hole file to fill in all the intervals that did not have specific gravity measurements. It should be noted that the vast majority of the specific gravity samples were massive sulphide (86%) (Figure 14.21). For wall rock, there were only five samples. Therefore, the accuracy of these density determinations is low, simply because of a lack of samples. The lack of density measurements is considered a limiting factor in the estimation of these deposits. The variation in densities is high, however the number of samples measured is low, and the distribution of these samples is poor, being mostly isolated to massive sulphides. Conducting further investigations into the density distribution of the deposits is considered a priority.

FIGURE 14.21 RAW DATA HISTOGRAM OF DENSITY DISTRIBUTION



Source: *2016 Tetra Tech Report on the Superjack Property.*

14.2.3.4 Results

Tables 14.16 to 14.19 display summary statistics of the capped and composite drill hole sample data separated by zone and domain.

TABLE 14.16 SUMMARY STATISTICS FOR SUPERJACK A ZONE DOMAIN 1 (LOW-GRADE)															
Field	**RAW Zn (%)**	**RAW Pb (%)**	**RAW Cu (%)**	**RAW Ag (g/t)**	**RAW SG**	**TC Zn (%)**	**TC Pb (%)**	**TC Cu (%)**	**TC Ag (g/t)**	**TC SG**	**TC & C Zn %**	**TC & C Pb %**	**TC & C Cu %**	**TC & C Ag (g/t)**	**TC & C SG**
Domain	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number Records	910	910	910	910	910	910	910	910	910	910	334	334	334	334	334
Number Samples	540	540	540	540	568	540	540	540	540	568	211	211	211	211	223
Number Missing	370	370	370	370	342	370	370	370	370	342	123	123	123	123	111
Minimum	0.00	0.00	0.00	0.01	2.81	0.00	0.00	0.00	0.01	2.81	0.01	0.00	0.00	0.18	2.81
Maximum	13.70	4.44	1.10	103.89	4.61	13.70	4.44	1.10	103.89	4.61	4.54	0.84	0.85	46.68	4.49
Range	13.70	4.44	1.10	103.88	1.80	13.70	4.44	1.10	103.88	1.80	4.53	0.84	0.84	46.50	1.68
Mean	**0.47**	**0.10**	**0.09**	**5.20**	**3.32**	**0.47**	**0.10**	**0.09**	**5.20**	**3.32**	**0.46**	**0.10**	**0.09**	**5.09**	**3.32**
Variance	0.68	0.05	0.02	66.09	0.23	0.68	0.05	0.02	66.09	0.23	0.29	0.02	0.01	34.91	0.17
Standard Deviation	0.83	0.22	0.13	8.13	0.48	0.83	0.22	0.13	8.13	0.48	0.54	0.14	0.11	5.91	0.41
Standard Error	0.03	0.01	0.01	0.34	0.02	0.03	0.01	0.01	0.34	0.02	0.02	0.01	0.00	0.24	0.02
Skewness	9.19	9.88	3.51	5.23	1.26	9.19	9.88	3.51	5.23	1.26	3.34	3.00	2.95	3.34	0.91
Kurtosis	125.51	149.17	17.20	40.42	1.28	125.51	149.17	17.20	40.42	1.28	18.28	11.18	12.86	15.67	1.01
Geometric Mean	0.19	0.04	0.04	2.93	3.28	0.19	0.04	0.04	2.93	3.28	0.24	0.05	0.05	3.32	3.30

Note: *RAW designates original assayed samples; TC designates top-cut or capped assay samples; C designates composited assay samples.*
Source: *2016 Tetra Tech Report on the Superjack Property.*

Table 14.17 Summary Statistics for Superjack A Zone Domain 2 (High-grade)															
Field	**RAW Zn (%)**	**RAW Pb (%)**	**RAW Cu (%)**	**RAW Ag (g/t)**	**RAW SG**	**TC Zn (%)**	**TC Pb (%)**	**TC Cu (%)**	**TC Ag (g/t)**	**TC SG**	**TC & C Zn (%)**	**TC & C Pb (%)**	**TC & C Cu (%)**	**TC & C Ag (g/t)**	**TC & C SG**
Domain	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Number Records	910	910	910	910	910	910	910	910	910	910	334	334	334	334	334
Number Samples	339	339	339	339	342	339	339	339	339	342	106	106	106	106	111
Number Missing	571	571	571	571	568	571	571	571	571	568	228	228	228	228	223
Minimum	0.02	0.00	0.00	1.50	2.79	0.02	0.00	0.00	1.50	2.79	0.24	0.07	0.01	5.68	2.81
Maximum	30.80	8.50	1.79	291.00	5.06	16.00	5.20	1.30	165.00	5.06	10.95	3.64	0.96	152.83	5.00
Range	30.78	8.50	1.79	289.50	2.27	15.98	5.20	1.30	163.50	2.27	10.72	3.56	0.95	147.15	2.19
Mean	**4.41**	**1.17**	**0.31**	**45.69**	**4.07**	**4.32**	**1.15**	**0.31**	**44.96**	**4.07**	**4.27**	**1.15**	**0.31**	**44.97**	**4.08**
Variance	16.10	1.77	0.08	1737.74	0.46	13.15	1.48	0.08	1517.71	0.46	6.64	0.69	0.05	932.81	0.31
Standard Deviation	4.01	1.33	0.28	41.69	0.68	3.63	1.22	0.28	38.96	0.68	2.58	0.83	0.22	30.54	0.56
Standard Error	0.23	0.07	0.02	2.34	0.04	0.20	0.07	0.02	2.19	0.04	0.14	0.05	0.01	1.72	0.03
Skewness	1.88	2.19	1.60	1.78	-0.71	1.10	1.69	1.45	1.37	-0.71	0.65	0.96	1.08	1.24	-0.71
Kurtosis	5.99	5.95	2.78	4.04	-1.06	0.90	2.58	1.78	1.49	-1.06	-0.32	0.27	0.38	1.52	-0.34
Geometric Mean	2.51	0.57	0.20	28.79	4.01	2.50	0.56	0.20	28.68	4.01	3.42	0.84	0.23	35.26	4.03

Note: *RAW designates original assayed samples; TC designates top-cut or capped assay samples; C designates composited assay samples.*
Source: *2016 Tetra Tech Report on the Superjack Property.*

TABLE 14.18
SUMMARY STATISTICS FOR SUPERJACK C ZONE DOMAIN 1 (LOW-GRADE)

Field	RAW Zn (%)	RAW Pb (%)	RAW Cu (%)	RAW Ag (g/t)	RAW SG	TC Zn (%)	TC Pb (%)	TC Cu (%)	TC Ag (g/t)	TC SG	TC & C Zn (%)	TC & C Pb (%)	TC & C Cu (%)	TC & C Ag (g/t)	TC & C SG
Domain	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number Records	229	229	229	229	229	229	229	229	229	229	83	83	83	83	83
Number Samples	165	165	165	165	166	165	165	165	165	166	62	62	62	62	62
Number Missing	64	64	64	64	63	64	64	64	64	63	21	21	21	21	21
Minimum	0.01	0.00	0.00	1.50	2.81	0.01	0.00	0.00	1.50	2.81	0.06	0.00	0.01	1.50	2.81
Maximum	4.62	1.88	1.44	81.00	4.86	4.62	1.88	1.30	81.00	4.86	2.54	0.84	0.73	47.06	4.75
Range	4.62	1.88	1.44	79.50	2.05	4.62	1.88	1.30	79.50	2.05	2.48	0.84	0.73	45.56	1.94
Mean	**0.62**	**0.14**	**0.19**	**9.56**	**3.62**	**0.62**	**0.14**	**0.19**	**9.56**	**3.62**	**0.62**	**0.15**	**0.19**	**9.67**	**3.61**
Variance	0.46	0.06	0.04	185.51	0.46	0.46	0.06	0.04	185.51	0.46	0.24	0.03	0.03	123.32	0.42
Standard Deviation	0.68	0.25	0.21	13.62	0.68	0.68	0.25	0.20	13.62	0.68	0.49	0.17	0.16	11.10	0.65
Standard Error	0.05	0.02	0.02	1.01	0.05	0.05	0.02	0.02	1.01	0.05	0.04	0.01	0.01	0.83	0.05
Skewness	2.58	4.24	2.56	2.52	0.42	2.58	4.24	2.44	2.52	0.42	1.64	2.11	1.44	1.90	0.47
Kurtosis	8.81	21.72	8.49	6.83	-1.36	8.81	21.72	7.44	6.83	-1.36	2.88	4.76	1.25	3.06	-1.25
Geometric Mean	0.37	0.05	0.12	4.54	3.56	0.37	0.05	0.12	4.54	3.56	0.47	0.07	0.13	5.54	3.56

Note: *RAW designates original assayed samples; TC designates top-cut or capped assay samples; C designates composited assay samples.*
Source: *2016 Tetra Tech Report on the Superjack Property.*

Table 14.19 **Summary Statistics for Superjack C Zone Domain 2 (High-grade)**															
Field	**RAW Zn (%)**	**RAW Pb (%)**	**RAW Cu (%)**	**RAW Ag (g/t)**	**RAW SG**	**TC Zn (%)**	**TC Pb (%)**	**TC Cu (%)**	**TC Ag (g/t)**	**TC SG**	**TC & C Zn (%)**	**TC & C Pb (%)**	**TC & C Cu (%)**	**TC & C Ag (g/t)**	**TC & C SG**
Domain	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Number Records	229	229	229	229	229	229	229	229	229	229	83	83	83	83	83
Number Samples	63	63	63	63	63	63	63	63	63	63	21	21	21	21	21
Number Missing	166	166	166	166	166	166	166	166	166	166	62	62	62	62	62
Minimum	0.49	0.03	0.02	5.00	2.81	0.49	0.03	0.02	5.00	2.81	1.01	0.09	0.10	7.50	3.29
Maximum	26.90	9.48	2.59	281.00	4.97	16.00	5.20	1.30	165.00	4.97	11.21	4.76	0.93	162.03	4.92
Range	26.41	9.45	2.57	276.00	2.16	15.51	5.17	1.28	160.00	2.16	10.20	4.67	0.83	154.53	1.63
Mean	**4.19**	**1.34**	**0.42**	**53.39**	**4.15**	**4.00**	**1.29**	**0.39**	**49.88**	**4.15**	**4.04**	**1.28**	**0.40**	**50.66**	**4.16**
Variance	15.98	2.54	0.17	2929.40	0.42	9.97	1.91	0.10	1875.85	0.42	6.50	1.65	0.06	1600.01	0.31
Standard Deviation	4.00	1.60	0.41	54.12	0.65	3.16	1.38	0.31	43.31	0.65	2.55	1.29	0.25	40.00	0.55
Standard Error	0.52	0.21	0.05	7.02	0.08	0.41	0.18	0.04	5.62	0.08	0.34	0.17	0.03	5.34	0.07
Skewness	3.18	2.27	2.60	2.10	-0.52	1.99	1.54	1.40	1.37	-0.52	1.48	1.43	0.84	1.19	-0.38
Kurtosis	12.64	6.26	8.17	4.64	-1.30	4.57	1.41	1.30	1.18	-1.30	1.64	0.91	-0.59	0.98	-1.29
Geometric Mean	3.06	0.73	0.29	34.67	4.10	3.04	0.72	0.29	34.06	4.10	3.40	0.79	0.33	36.18	4.12

Note: *RAW designates original assayed samples; TC designates top-cut or capped assay samples; C designates composited assay samples.*
Source: *2016 Tetra Tech Report on the Superjack Property.*

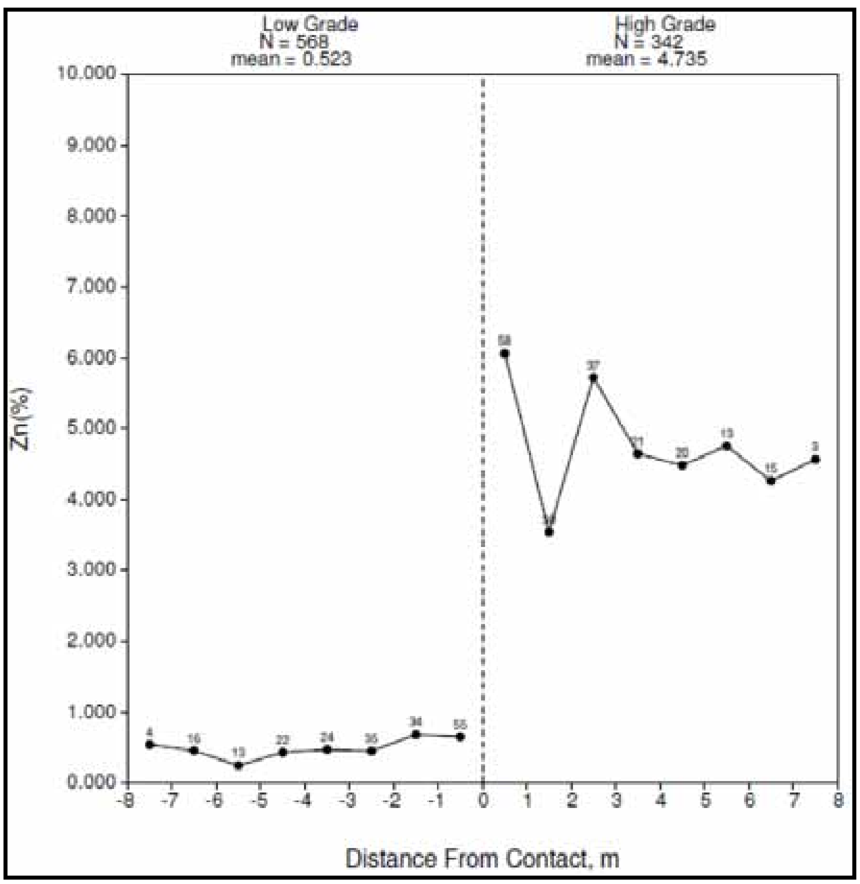
14.2.4 Superjack A Zone

The Superjack A Zone contains the highest concentration of drilling on the Superjack Property; 41 holes were incorporated in the resource estimation for this zone.

14.2.4.1 Wireframing

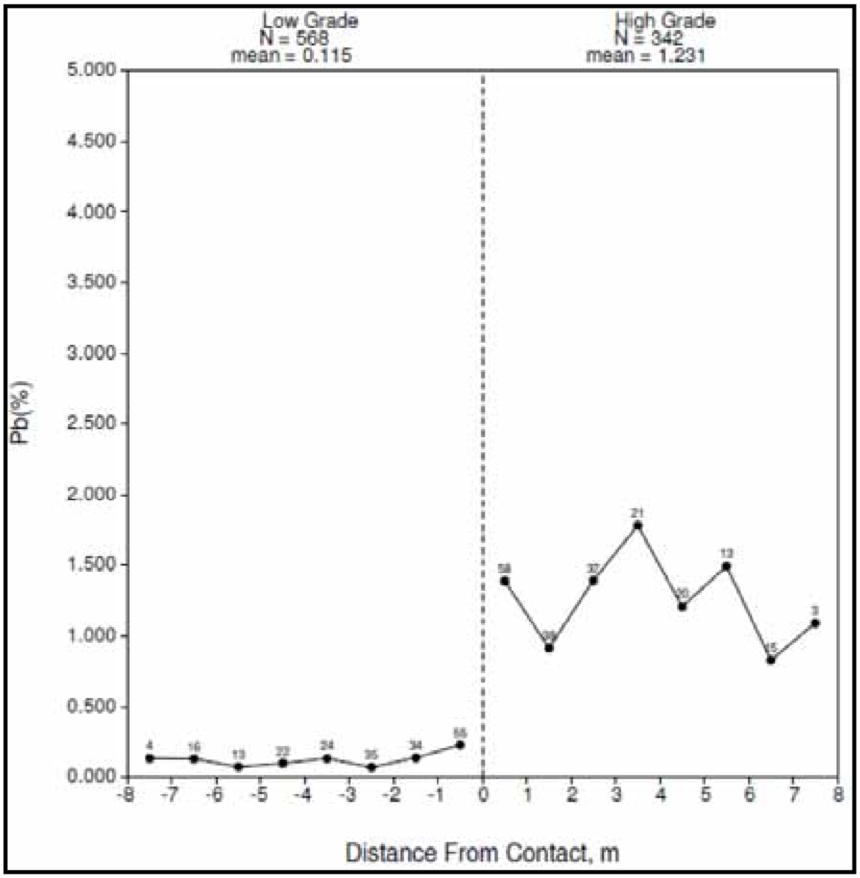
The ore zones and domains were modelled by wireframes in Datamine™. These wireframes were used to define the limits of interpolated and extrapolated blocks in the resource model. These wireframes were based on interpreted geological contacts between the wall rock and the low-grade mineralization (disseminated and stringer sulphides) and the low- and high-grade mineralization (massive sulphides). The distinction between low- and high-grade mineralization was investigated using contact profiles, and the results indicated that there was in fact a strong distinction between these zones, as demonstrated in Figures 14.22 to 14.25. In some cases the contacts between low- and high-grade mineralization were intersected several times in one drill hole due to the complexity of the folding. It was necessary then, due to this complexity, to model two separate low-grade zones within the high-grade wireframe. These wireframes are displayed in Figures 14.26 to 14.28.

FIGURE 14.22 CONTACT PROFILE OF SUPERJACK A AND C ZONES FOR ZN (%) GRADE



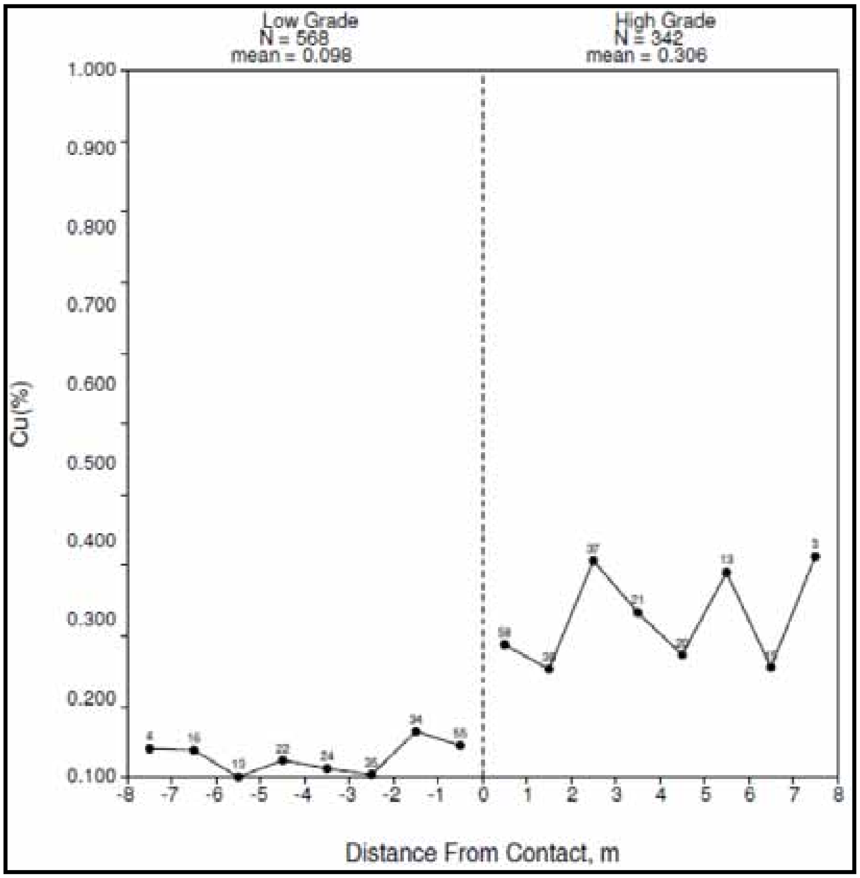
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURES 14.23 CONTACT PROFILE OF SUPERJACK A AND C ZONES FOR PB (%) GRADE



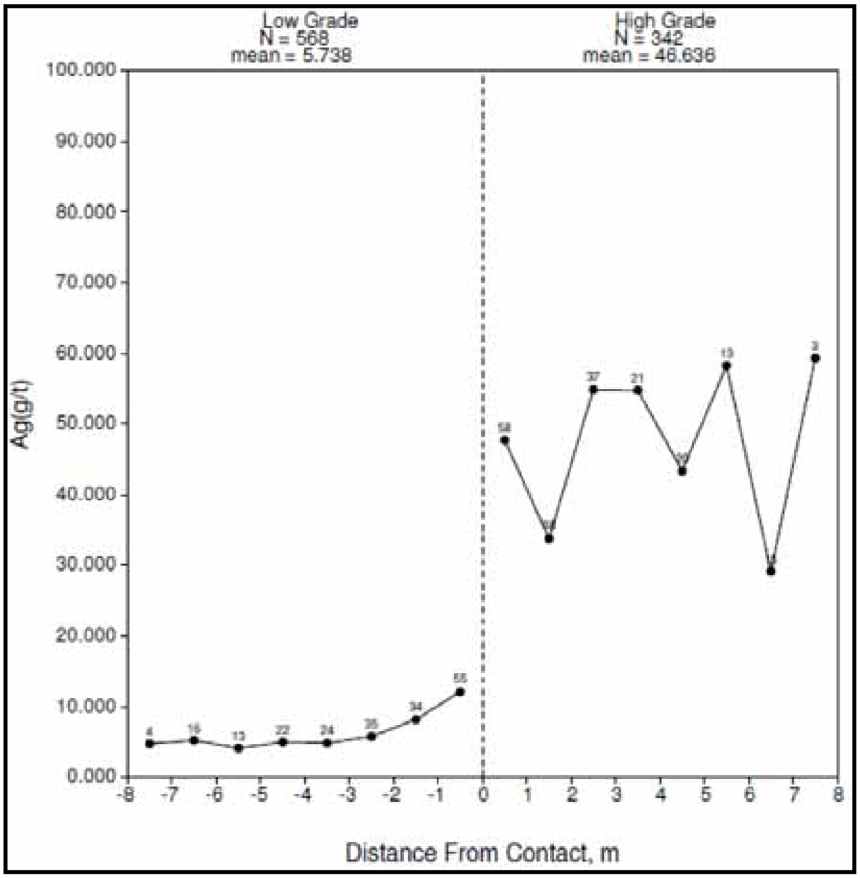
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURES 14.24 CONTACT PROFILE OF SUPERJACK A AND C ZONES FOR CU (%) GRADE



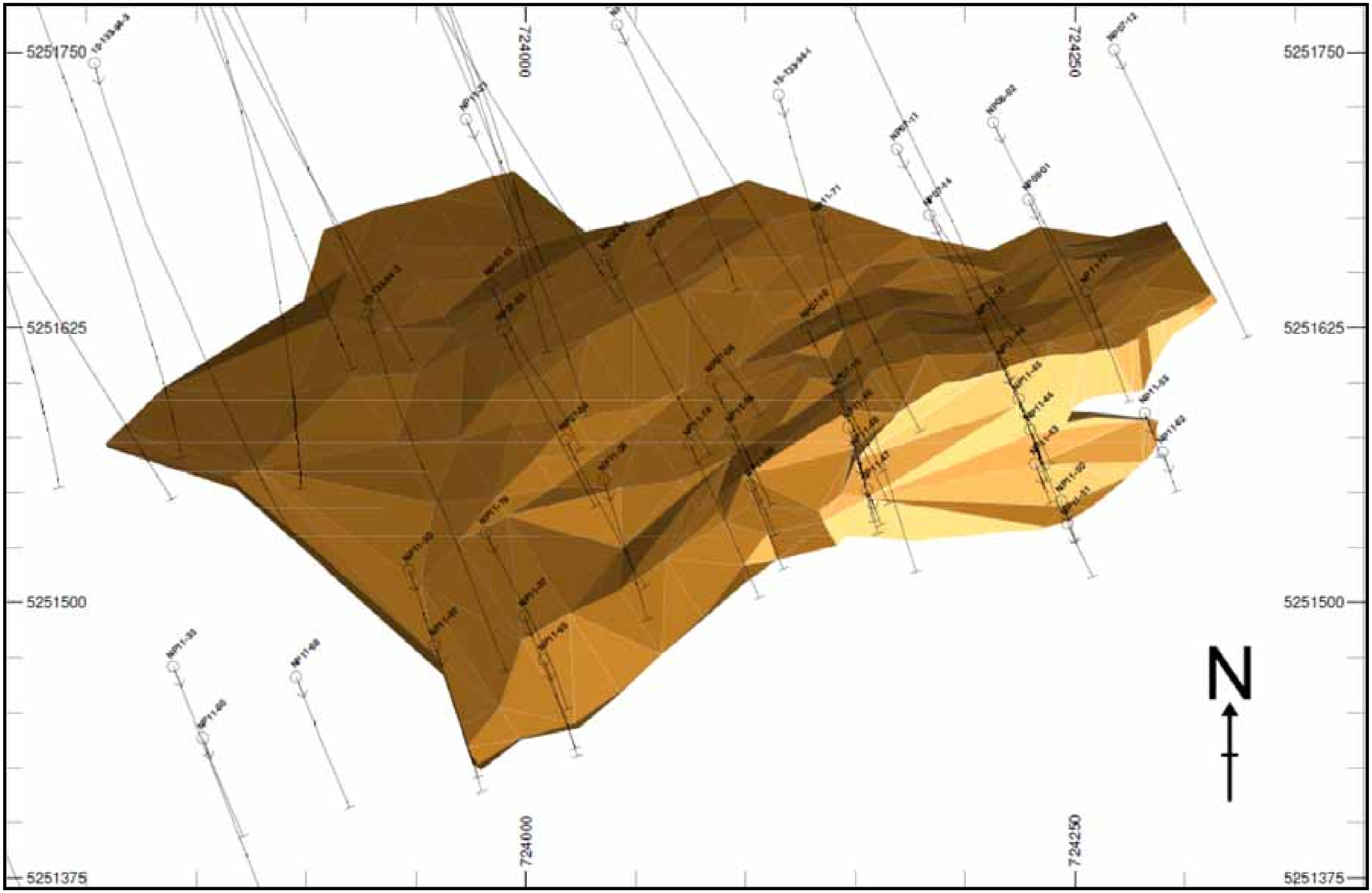
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURES 14.25 CONTACT PROFILE OF SUPERJACK A AND C ZONES FOR AG (G/T) GRADE



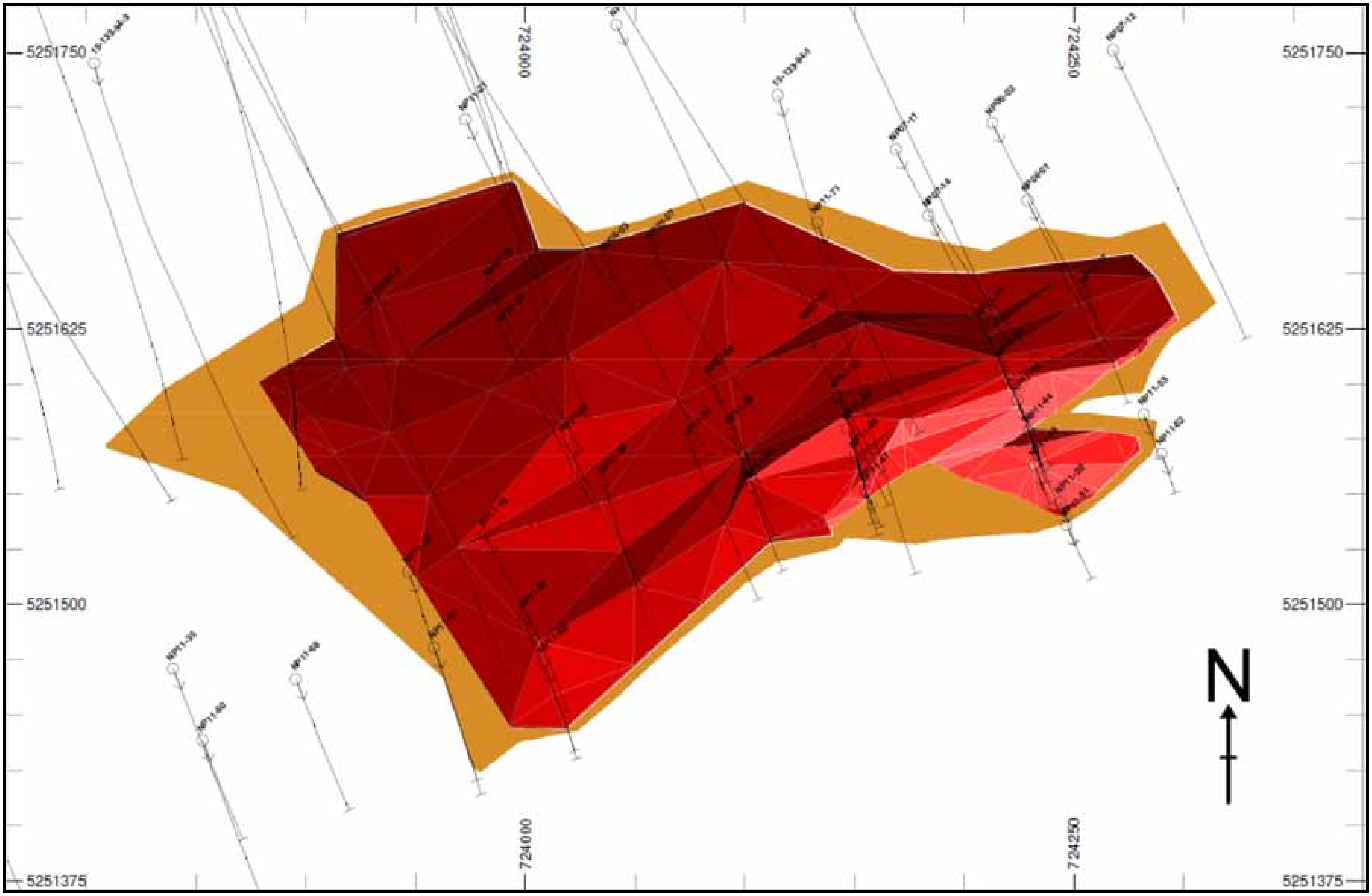
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.26 PLAN VIEW OF A ZONE LOW-GRADE WIREFRAME



Source: *2016 Tetra Tech Report on the Superjack Property.*

Figure 14.27 Plan View of A Zone High-grade Wireframe, Within Low-Grade



Source: *2016 Tetra Tech Report on the Superjack Property.*

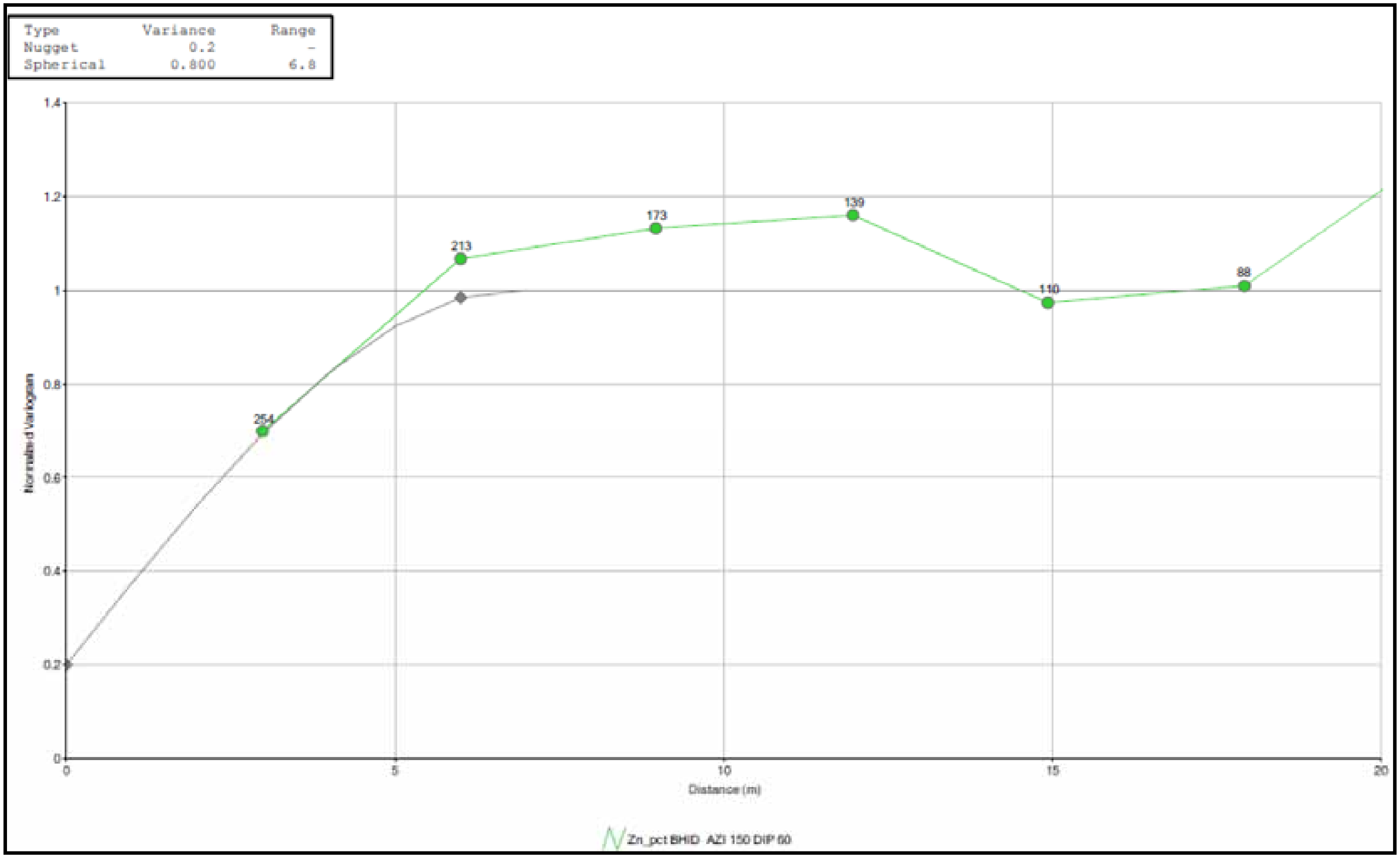
FIGURE 14.28 PLAN VIEW OF A ZONE LOW-GRADE ZONES WITHIN HIGH-GRADE WIREFRAME

Source: *2016 Tetra Tech Report on the Superjack Property.*

14.2.4.2 Variography

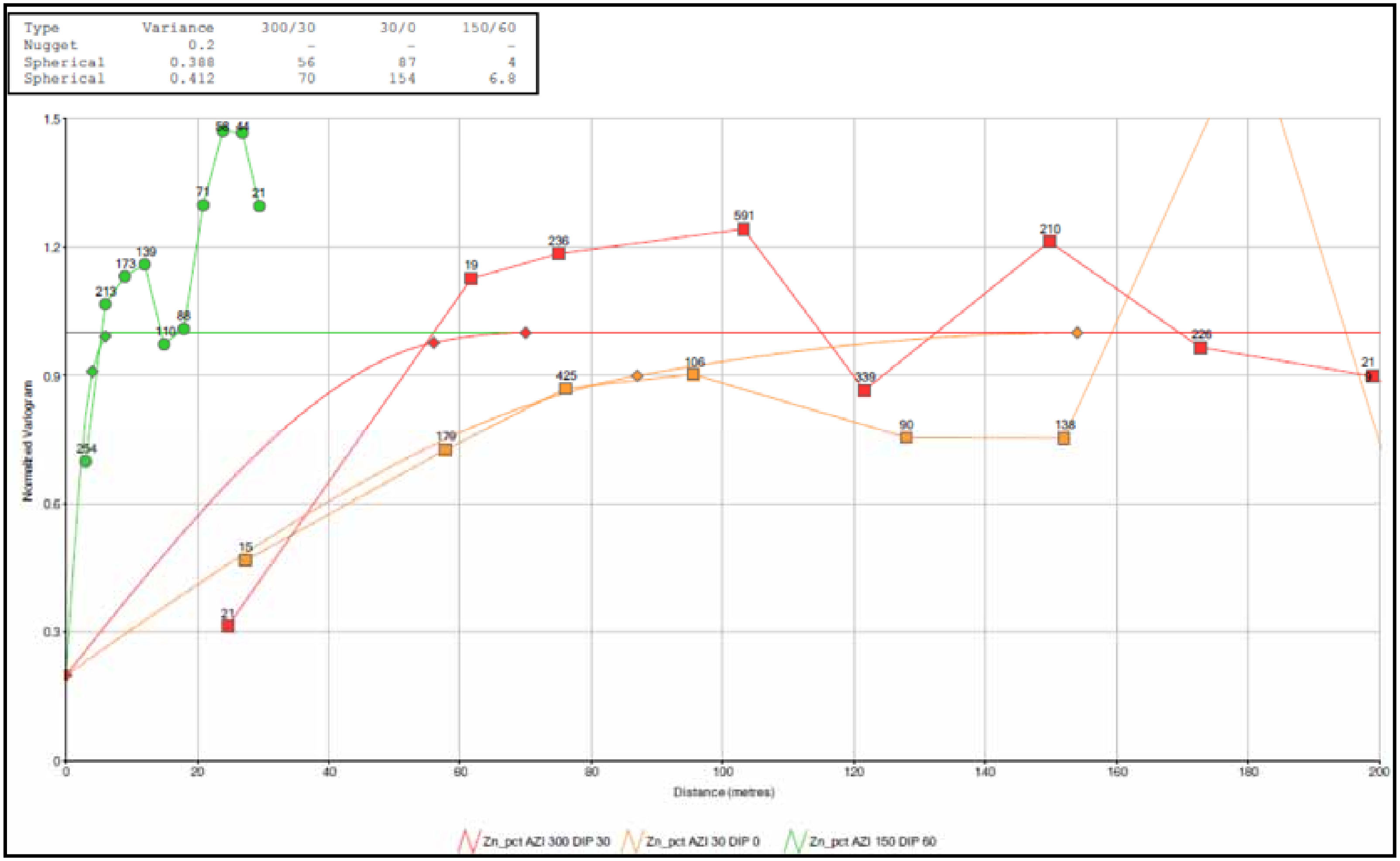
Separate variography was performed for each metal. All experimental and model variography was performed on Datamine™ software. Figures 14.29 to 14.36 display the variography for each metal included in the resource.

FIGURE 14.29 ZINC DOWNHOLE VARIOGRAPHY



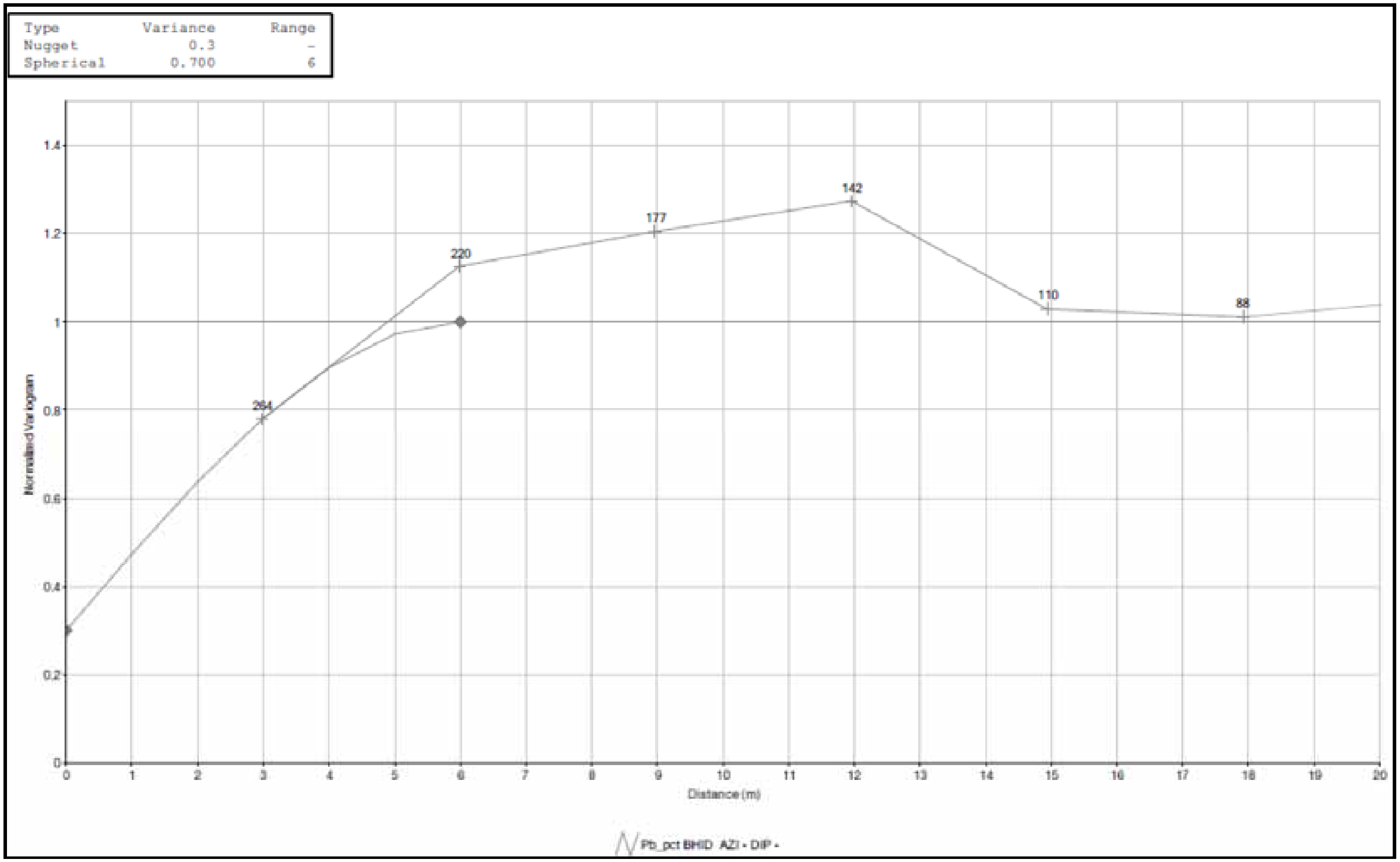
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.30 ZINC VARIOGRAPHY



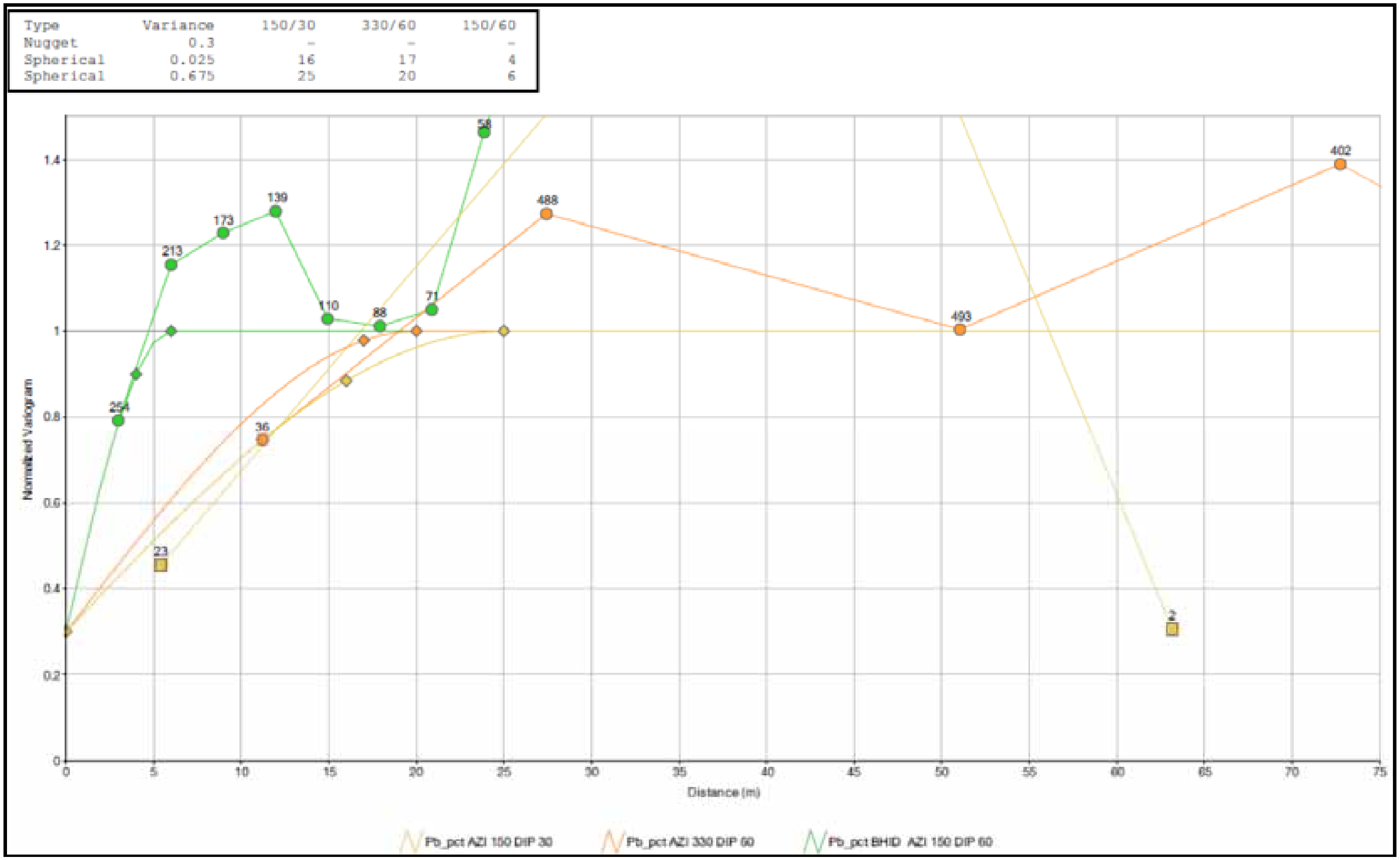
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.31 LEAD DOWNHOLE VARIOGRAPHY



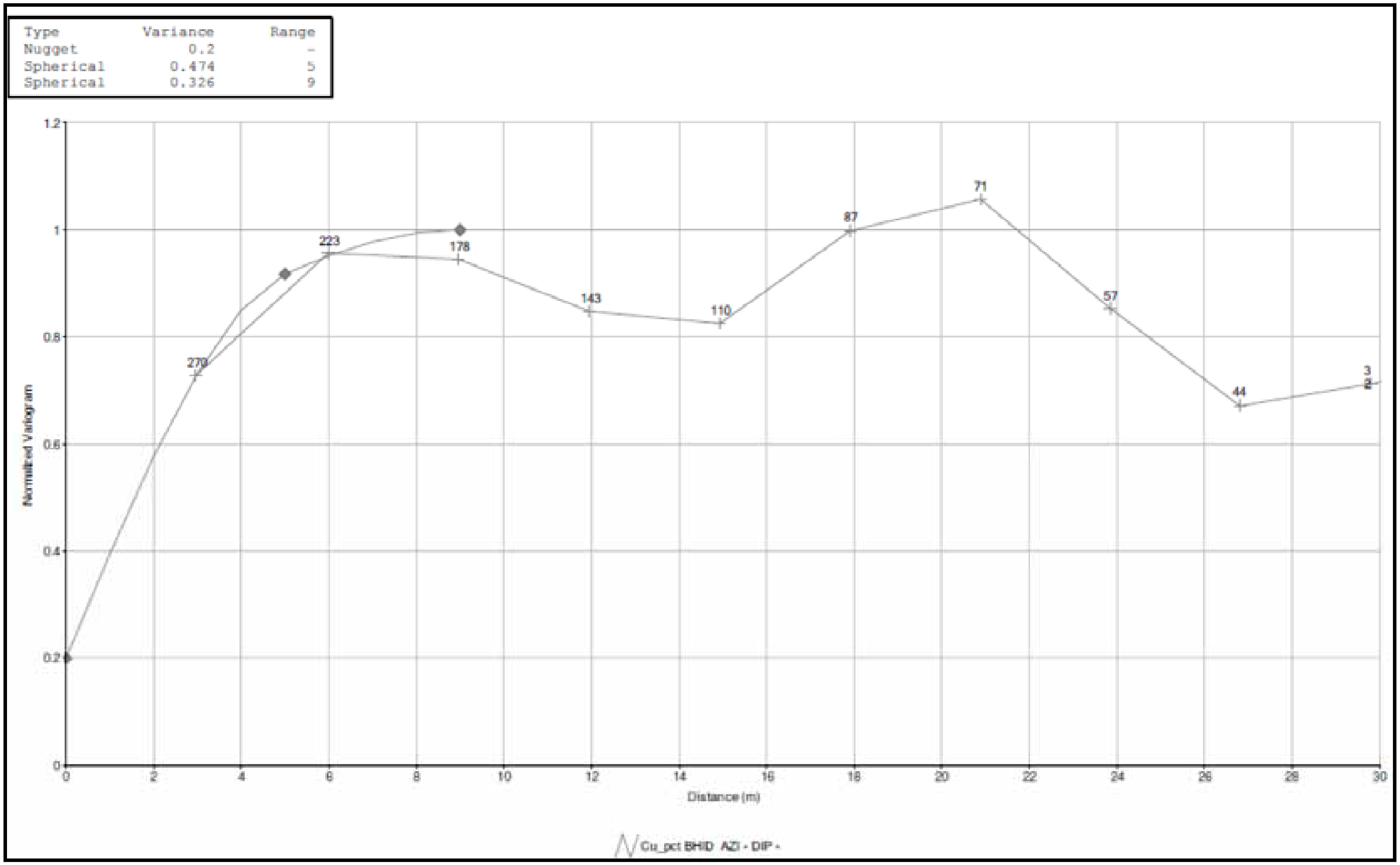
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.32 LEAD VARIOGRAPHY



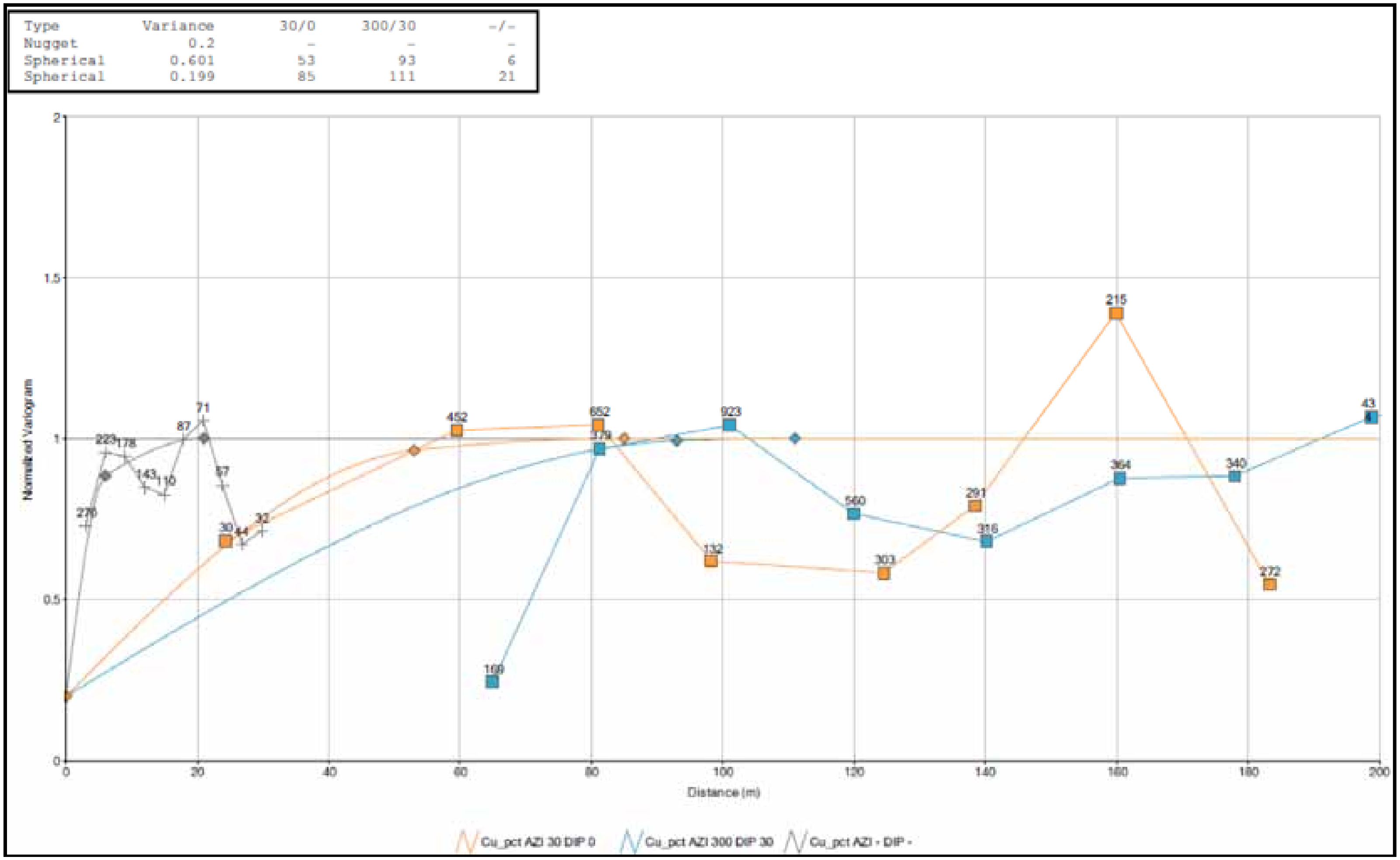
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.33 COPPER DOWNHOLE VARIOGRAPHY



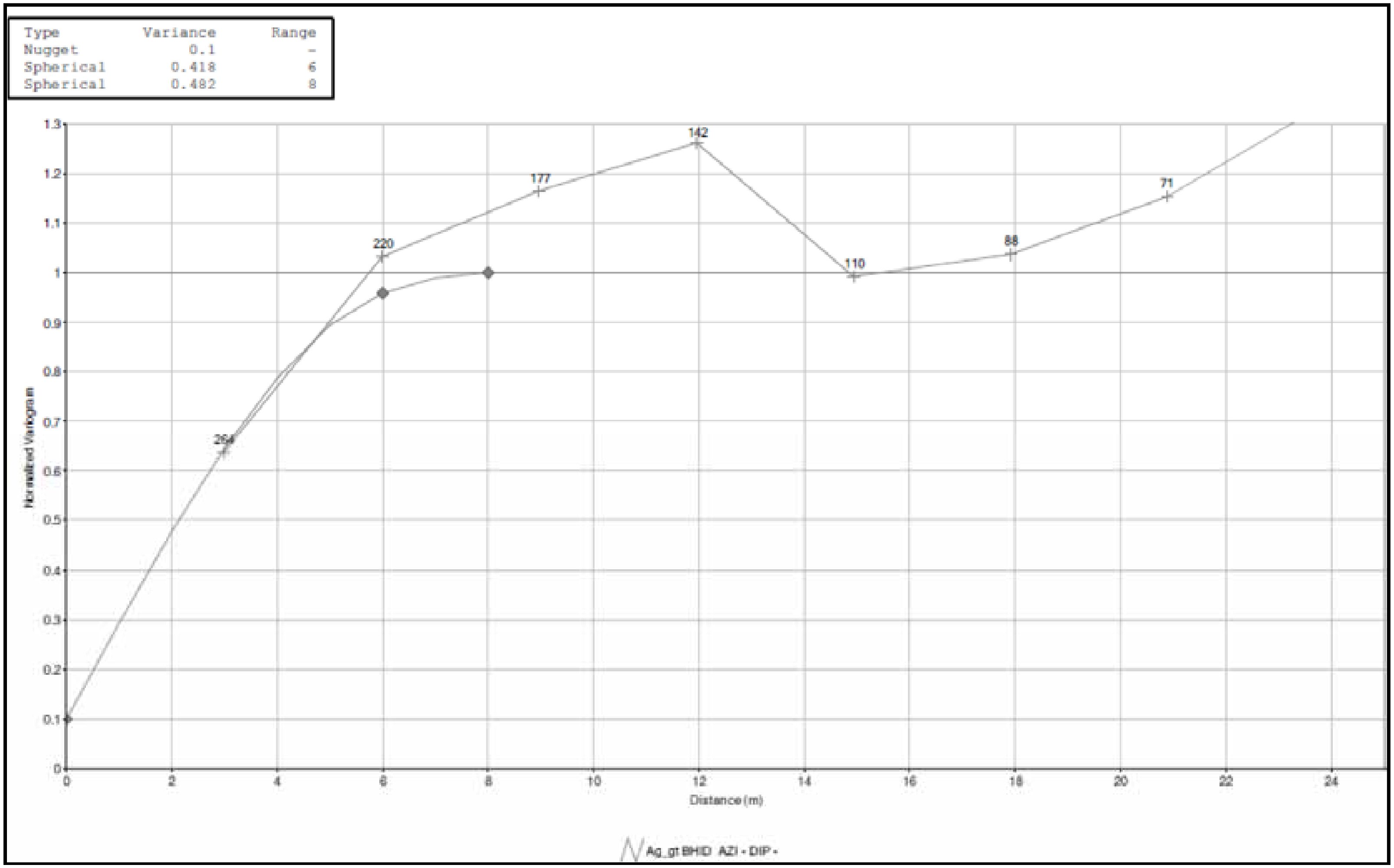
Source: *2016 Tetra Tech Report on the Superjack Property.*

Figure 14.34 Copper Variography



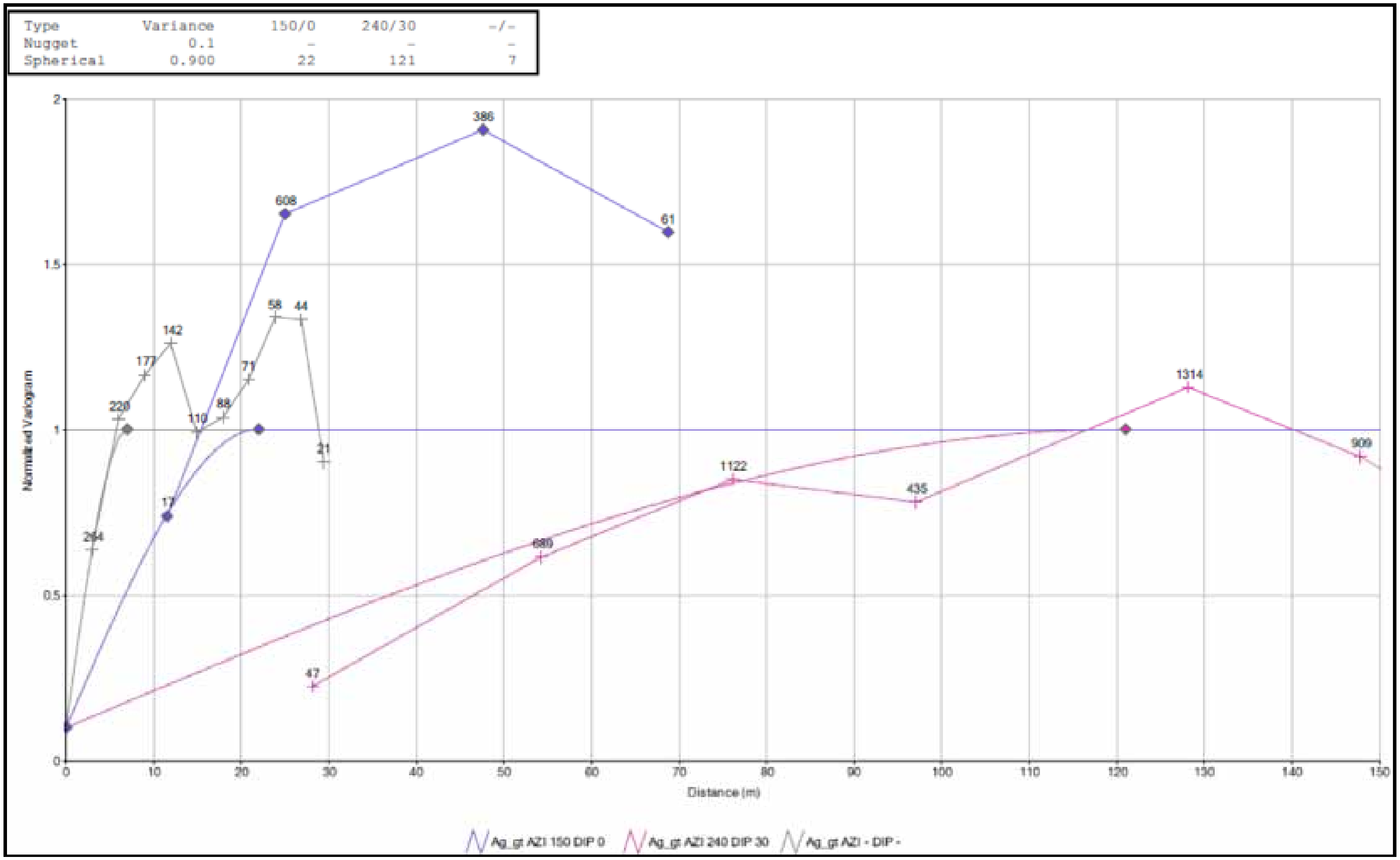
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.35 SILVER DOWNHOLE VARIOGRAPHY



Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.36 SILVER VARIOGRAPHY



Source: *2016 Tetra Tech Report on the Superjack Property.*

14.2.4.3 Block Modelling

In Datamine™, the block model is oriented with the model origin at the bottom southwest corner. All dimensions are in metres. There was no rotation applied to the model. Cell and sub-cell sizes were designed to reflect potential minimum mining widths and heights as well as accommodate drilling density. Blocks were generated to account for topography, overburden, and mineralized domains (Table 14.20).

TABLE 14.20 A ZONE BLOCK MODEL PARAMETERS			
	Easting	**Northing**	**Elevation**
Origin	723,500	5,251,000	-500
Parent Cell Dimensions (m)	20	20	20
Number of Parent Cells	60	75	45
Minimum Sub-cell Dimensions	4	4	4
Maximum Number of Sub-cells per Parent Cell	5	5	5

Source: *2016 Tetra Tech Report on the Superjack Property.*

14.2.4.4 Grade Estimation

Grade was interpolated into the block model by domain. Domain 1 (low-grade) blocks were interpolated using only grade from Domain 1, to prevent interference from the high-grade values. Domain 2 (high-grade) blocks were estimated in two different ways. Where confidence was high in the wireframed contact between high- and low-grade mineralization, the blocks were estimated using only grade from Domain 2 (without low-grade interference). Where confidence was lower, the blocks were interpolated using grade from both Domain 1 and 2. Confidence level was determined by careful comparison of drill density, geological sections, and Kriging Efficiencies ("KE"). A wireframe was created to enclose the high-confidence volume, and is depicted in Figure 14.37.

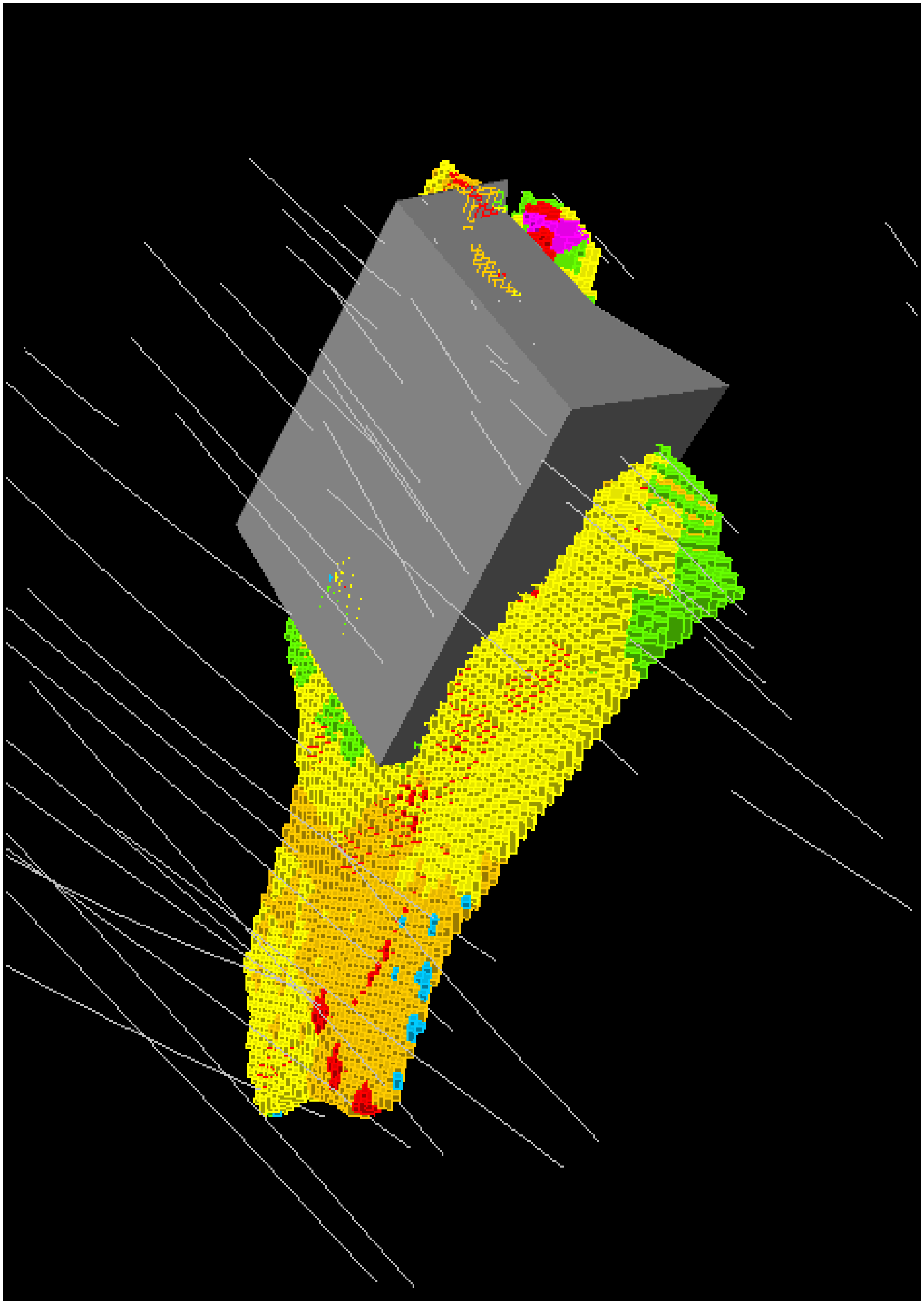
Interpolation utilized OK for the estimation of zinc, lead, copper, and silver grades. Inverse Distance Squared ("ID^2") and Nearest Neighbour ("NN") interpolation methods were also employed; however these were only used for block model validation purposes.

Source: 2016 Tetra Tech Report on the Superjack Property.

Figures 14.21 to 14.24 display the necessary parameter files for the estimation process: a variogram parameter file, an estimation parameter file, and a sample and search parameter file.

Source**:** 2016 Tetra Tech Report on the Superjack Property.

FIGURE 14.37 LOOKING EAST-SOUTHEAST – WIREFRAME MODEL OF HIGH-CONFIDENCE VOLUME DEPICTED WITH BLOCK MODEL AND DRILL HOLE TRACES



Source: *2016 Tetra Tech Report on the Superjack Property.*

TABLE 14.21 VARIOGRAM PARAMETER FILE				
Variogram Description	**Zinc**	**Lead**	**Copper**	**Silver**
VREFNUM	1	2	3	4
VANGLE1	210	240	-60	60
VANGLE2	-30	-60	0	0
VANGLE3	180	90	30	150
VAXIS1	3	3	3	3
VAXIS2	2	2	2	2
VAXIS3	1	1	1	1
NUGGET	0.2	0.3	0.2	0.1
ST1	1	1	1	1
ST1PAR1	56	16	53	22
ST1PAR2	87	17	93	121
ST1PAR3	4	4	6	7
ST1PAR4	0.388	0.025	0.601	0.9
ST2	1	1	1	-
ST2PAR1	70	25	85	-
ST2PAR2	154	20	111	-
ST2PAR3	6.8	6	21	-
ST2PAR4	0.412	0.675	0.199	-

Source: *2016 Tetra Tech Report on the Superjack Property.*

TABLE 14.22
SAMPLE AND SEARCH PARAMETER FILE

Parameter	Zinc	Lead	Copper	Silver	SG
SREFNUM	1	2	3	4	5
SMETHOD	2	2	2	2	2
SDIST1	40	40	40	40	40
SDIST2	80	80	80	80	80
SDIST3	8	8	8	8	8
SANGLE1	56	56	56	56	56
SANGLE2	58	58	58	58	58
SANGLE3	0	0	0	0	0
SAXIS1	3	3	3	3	3
SAXIS2	2	2	2	2	2
SAXIS3	1	1	1	1	1
MINNUM1	12	12	12	12	12
MAXNUM1	24	24	24	24	24
SVOLFAC2	2	2	2	2	2
MINNUM2	12	12	12	12	12
MAXNUM2	24	24	24	24	24
SVOLFAC3	3	3	3	3	3
MINNUM3	8	8	8	8	8
MAXNUM3	24	24	24	24	24
OCTMETH	0	0	0	0	0
MINOCT	2	2	2	2	2
MINPEROC	1	1	1	1	1
MAXPEROC	4	4	4	4	4
MAXKEY	0	0	0	0	0

Source: *2016 Tetra Tech Report on the Superjack Property.*

TABLE 14.23 ESTIMATION PARAMETER FILE 1															
Estimation Parameter Description	**ZnOK**	**PbOK**	**CuOK**	**AgOK**	**ZnID**	**PbID**	**CuID**	**AgID**	**ZnNN**	**PbNN**	**CuNN**	**AgNN**	**ZnF**	**ZnLG**	**Density**
EREFNUM	1	2	3	4	1	2	3	4	1	2	3	4	1	1	5
VALUE_IN	Zn_pct	Pb_pct	Cu_pct	Ag_gt	Zn_pct	Pb_pct	Cu_pct	Ag_gt	Zn_pct	Pb_pct	Cu_pct	Ag_gt	Zn_pct	Zn_pct	SG
VALUE_OU	ZnOK	PbOK	CuOK	AgOK	ZnID	PbID	CuID	AgID	ZnNN	PbNN	CuNN	AgNN	ZnF	ZnLG	Density
SREFNUM	1	2	3	4	1	2	3	4	1	2	3	4	1	1	5
NUMSAM_F	NSUM	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SVOL_F	SVOL	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VAR_F	VAR	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MINDIS_F	TDIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IMETHOD	3	3	3	3	2	2	2	2	1	1	1	1	101	102	2
POWER	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
VREFNUM	1	2	3	4	1	2	3	4	1	2	3	4	1	1	5
TOL	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
MAXITER	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
KRIGNEGW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KRIGVARS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
LOCALMNP	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
DOMAIN	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Source: *2016 Tetra Tech Report on the Superjack Property.*

TABLE 14.24
ESTIMATION PARAMETER FILE 2 (EPAR2)

Estimation Parameter Description	ZnOK	PbOK	CuOK	AgOK	ZnID	PbID	CuID	AgID	ZnNN	PbNN	CuNN	AgNN	ZnF	ZnLG	Density
EREFNUM	1	2	3	4	1	2	3	4	1	2	3	4	1	1	5
VALUE_IN	Zn_pct	Pb_pct	Cu_pct	Ag_gt	Zn_pct	Pb_pct	Cu_pct	Ag_gt	Zn_pct	Pb_pct	Cu_pct	Ag_gt	Zn_pct	Zn_pct	SG
VALUE_OU	ZnOK	PbOK	CuOK	AgOK	ZnID	PbID	CuID	AgID	ZnNN	PbNN	CuNN	AgNN	ZnF	ZnLG	Density
SREFNUM	1	2	3	4	1	2	3	4	1	2	3	4	1	1	5
NUMSAM_F	NSUM	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SVOL_F	SVOL	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VAR_F	VAR	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MINDIS_F	TDIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IMETHOD	3	3	3	3	2	2	2	2	1	1	1	1	101	102	2
POWER	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
VREFNUM	1	2	3	4	1	2	3	4	1	2	3	4	1	1	5
TOL	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
MAXITER	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
KRIGNEGW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KRIGVARS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
LOCALMNP	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
DOMAIN	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

Source: *2016 Tetra Tech Report on the Superjack Property.*

14.2.4.5 Resource Categorization

Mineral resource classification is standardized under NI 43-101 reporting by reference to the CIM definition standards for reporting on Mineral Resources and Reserves. The following discussion is made with consideration to these definitions. Various factors are taken into account, including, but not limited to, drill and sample spacing, deposit-type and mineralization continuity, variography, kriging efficiency ("KE"), and slope of regression (Z/*Z).

An Inferred Mineral Resource is that part of the total resource for which the quantity and grade can be estimated. Data is sufficient enough to reasonably assume both geological and grade continuity.

The entire A Zone resource has been classified as Inferred, due to geological complexity, drill spacing, a lack of quantitative structural information, as well as a paucity of specific gravity measurements.

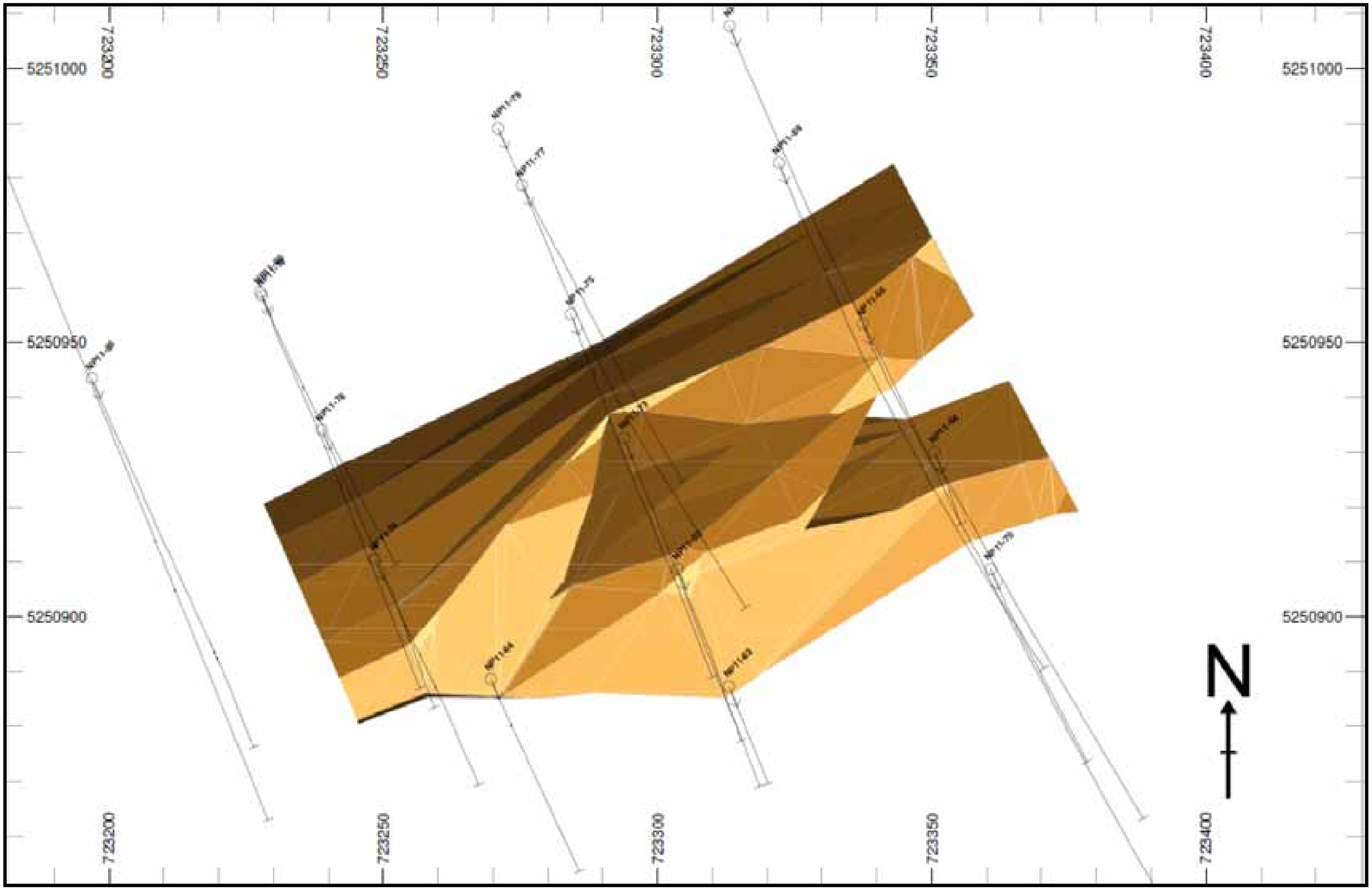
14.2.5 Superjack C Zone

The Superjack C Zone is located to the southwest of the A Zone, as depicted in the claim map, Figure 4.6, and drill hole location map with zones, Figure 10.4; 13 holes were incorporated in the Mineral Resource estimation for this zone.

14.2.5.1 Wireframing

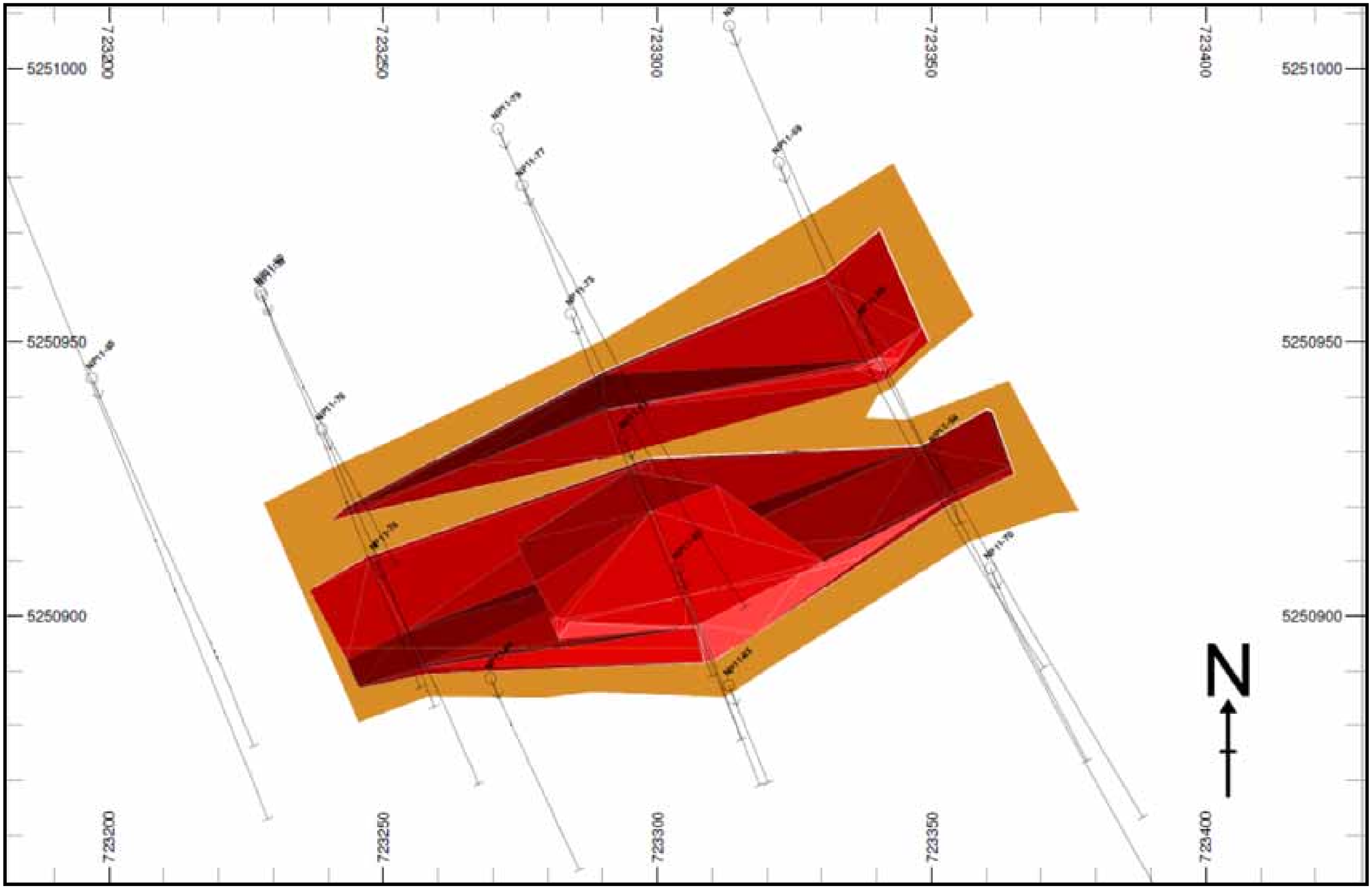
The mineralized zones and domains were modeled by wireframe in Datamine™ in order to define the limits of interpolated and extrapolated blocks in the resource model. These wireframes are displayed in Figures 14.38 and 14.39.

FIGURE 14.38 PLAN VIEW OF C ZONE LOW-GRADE WIREFRAME



Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.39 PLAN VIEW OF C ZONE HIGH-GRADE WIREFRAME, WITHIN LOW-GRADE



Source: *2016 Tetra Tech Report on the Superjack Property.*

14.2.5.2 Variography

Due to the smaller number of drill holes, and thus samples, the C Zone did not represent a large enough population to provide satisfactory variographic results. Due to the proximity, as well as the similar orientation to the A Zone, the variography from the A Zone was also applied to the estimation of the C Zone.

14.2.5.3 Block Modelling

As with the A Zone, the C Zone block model is oriented with the model origin at the bottom southwest corner. All dimensions are in metres. here was no rotation applied to the model. Cell and sub-cell sizes were designed to reflect potential minimum mining widths and heights, as well as accommodate the density of sampling. Blocks were generated to account for topography, overburden, and mineralized domains (Table 14.25).

TABLE 14.25
C ZONE BLOCK MODEL PARAMETERS

	Easting	Northing	Elevation
Origin	723,100	5,250,700	-200
Parent Cell Dimensions (m)	20	20	20
Number of Parent Cells	20	20	25
Minimum Sub-cell Dimensions	4	4	4
Maximum Number of Sub-cells per Parent Cell	5	5	5

Source: *2016 Tetra Tech Report on the Superjack Property.*

14.2.5.4 Grade Estimation

Grade was interpolated into the block model by domain. Domain 1 (low-grade) blocks were interpolated using only grade from Domain 1, to prevent interference from the high-grade values. Domain 2 (high-grade) blocks were interpolated using grade from both Domain 1 and 2. Unlike the A Zone, the C Zone did not contain a volume that carried a high enough confidence to estimate the high-grade zone separate from the low-grade zone. This is not because the high-grade zone is not distinct, but because the complexity of the structures requires further investigation in order to model the high-grade zone with higher confidence.

Interpolation utilized OK for estimation of zinc, lead, copper, and silver grade. ID^2 and NN interpolation methods were also employed, however these were only used for block model validation purposes. The same parameter files were utilized for the C Zone as the A Zone, and can be found in Section 14.2.4.4 Superjack A Zone Grade Estimation.

14.2.5.5 Resource Categorization

Due to the small number of included samples, the complexity of the deformation, and the lack of complete specific gravity measurements, the C Zone was classified entirely as an Inferred Resource.

14.2.6 Model Validation

14.2.6.1 Statistics

Block model statistics for zinc, lead, copper, and silver are shown in Tables 14.26 to 14.29, reported by deposit and by domain.

Table 14.26 Summary Statistics for Superjack A Zone Domain 1 (Low-grade) Modelled Resource													
Field	**ZnOK**	**ZnID**	**ZnNN**	**PbOK**	**PbID**	**PbNN**	**CuOK**	**CuID**	**CuNN**	**AgOK**	**AgID**	**AgNN**	**Density**
Domain	1	1	1	1	1	1	1	1	1	1	1	1	1
Number Records	13,308	13,308	13,308	13,308	13,308	13,308	13,308	13,308	13,308	13,308	13,308	13,308	13,308
Number Samples	9,300	9,300	9,300	9,300	9,300	9,300	9,300	9,300	9,300	9,300	9,300	9,300	9,300
Number Missing	4,008	4,008	4,008	4,008	4,008	4,008	4,008	4,008	4,008	4,008	4,008	4,008	4,008
Minimum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum	1.45	1.81	4.54	0.29	0.36	0.84	0.27	0.27	0.85	13.50	13.82	46.68	3.86
Range	1.45	1.81	4.54	0.29	0.36	0.84	0.27	0.27	0.85	13.50	13.82	46.68	3.86
Mean	0.47	0.45	0.47	0.10	0.09	0.10	0.09	0.09	0.09	5.30	5.13	5.21	3.31
Variance	0.05	0.05	0.35	0.00	0.00	0.02	0.00	0.00	0.01	4.44	5.03	35.02	0.09
Standard Deviation	0.22	0.22	0.59	0.04	0.05	0.14	0.04	0.05	0.11	2.11	2.24	5.92	0.29
Standard Error	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.06	0.00
Skewness	1.51	1.78	3.35	1.02	1.54	3.25	0.50	0.78	2.84	0.28	0.50	2.90	-8.34
Kurtosis	2.59	4.40	17.75	1.41	3.28	12.67	0.24	0.82	11.81	-0.10	-0.14	12.14	93.45
Geometric Mean	0.43	0.41	0.22	0.09	0.09	0.04	0.08	0.08	0.04	4.89	4.67	3.30	3.33

Source: *2016 Tetra Tech Report on the Superjack Property.*

Table 14.27 **Summary Statistics for Superjack A Zone Domain 2 (High-grade) Modelled Resource**													
Field	**ZnOK**	**ZnID**	**ZnNN**	**PbOK**	**PbID**	**PbNN**	**CuOK**	**CuID**	**CuNN**	**AgOK**	**AgID**	**AgNN**	**Density**
Domain	2	2	2	2	2	2	2	2	2	2	2	2	2
Number Records	13,308	13,308	13,308	13,308	13,308	13,308	13,308	13,308	13,308	13,308	13,308	13,308	13,308
Number Samples	4,008	4,008	4,008	4,008	4,008	4,008	4,008	4,008	4,008	4,008	4,008	4,008	4,008
Number Missing	9,300	9,300	9,300	9,300	9,300	9,300	9,300	9,300	9,300	9,300	9,300	9,300	9,300
Minimum	0	0	0	0	0	0	0	0	0	0	0	0	0
Maximum	5.70	5.92	10.95	2.08	2.32	3.64	0.46	0.48	0.96	87.87	102.97	152.83	4.47
Range	5.70	5.92	10.95	2.08	2.32	3.64	0.46	0.48	0.96	87.87	102.97	152.83	4.47
Mean	2.91	2.94	2.81	0.75	0.75	0.68	0.21	0.21	0.20	28.09	28.46	26.17	3.78
Variance	2.09	2.22	7.53	0.22	0.22	0.71	0.01	0.01	0.04	339.04	350.72	798.63	0.33
Standard Deviation	1.45	1.49	2.74	0.47	0.47	0.84	0.09	0.09	0.21	18.41	18.73	28.26	0.57
Standard Error	0.02	0.02	0.04	0.01	0.01	0.01	0.00	0.00	0.00	0.29	0.30	0.45	0.01
Skewness	-0.07	-0.01	0.99	0.42	0.60	1.69	0.31	0.25	1.75	0.88	1.19	1.86	-4.71
Kurtosis	-1.18	-1.14	0.03	-0.66	-0.17	2.45	0.16	0.06	2.78	0.41	1.45	4.23	28.45
Geometric Mean	2.55	2.56	1.23	0.61	0.61	0.24	0.19	0.20	0.11	22.63	23.29	13.37	3.84

Source: *2016 Tetra Tech Report on the Superjack Property.*

TABLE 14.28
SUMMARY STATISTICS FOR SUPERJACK C ZONE DOMAIN 1 (LOW-GRADE) MODELLED RESOURCE

Field	ZnOK	ZnID	ZnNN	PbOK	PbID	PbNN	CuOK	CuID	CuNN	AgOK	AgID	AgNN	Density
Domain	1	1	1	1	1	1	1	1	1	1	1	1	1
Number Records	1,204	1,204	1,204	1,204	1,204	1,204	1,204	1,204	1,204	1,204	1,204	1,204	1,204
Number Samples	942	942	942	942	942	942	942	942	942	942	942	942	942
Number Missing	262	262	262	262	262	262	262	262	262	262	262	262	262
Minimum	0.35	0.33	0.06	0.08	0.07	0.00	0.08	0.09	0.01	5.85	5.89	1.50	2.89
Maximum	1.32	1.42	2.54	0.25	0.29	0.69	0.35	0.36	0.61	16.17	18.17	45.26	4.54
Range	0.97	1.09	2.48	0.17	0.22	0.69	0.27	0.27	0.60	10.32	12.28	43.76	1.65
Mean	0.62	0.64	0.63	0.16	0.16	0.16	0.17	0.18	0.15	9.98	10.25	9.34	3.61
Variance	0.05	0.06	0.23	0.00	0.00	0.03	0.00	0.00	0.02	5.67	7.14	111.28	0.26
Standard Deviation	0.22	0.24	0.48	0.03	0.05	0.17	0.07	0.07	0.13	2.38	2.67	10.55	0.51
Standard Error	0.01	0.01	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.08	0.09	0.34	0.02
Skewness	1.14	1.23	2.01	-0.03	0.34	1.65	0.83	0.46	1.83	0.66	0.64	2.07	0.48
Kurtosis	0.71	0.84	5.06	0.21	0.11	2.11	-0.28	-0.78	3.18	0.13	0.19	3.64	-1.20
Geometric Mean	0.59	0.60	0.48	0.16	0.16	0.09	0.16	0.17	0.11	9.71	9.91	5.76	3.57

Source: *2016 Tetra Tech Report on the Superjack Property.*

TABLE 14.29
SUMMARY STATISTICS FOR SUPERJACK C ZONE DOMAIN 2 (HIGH-GRADE) MODELLED RESOURCE

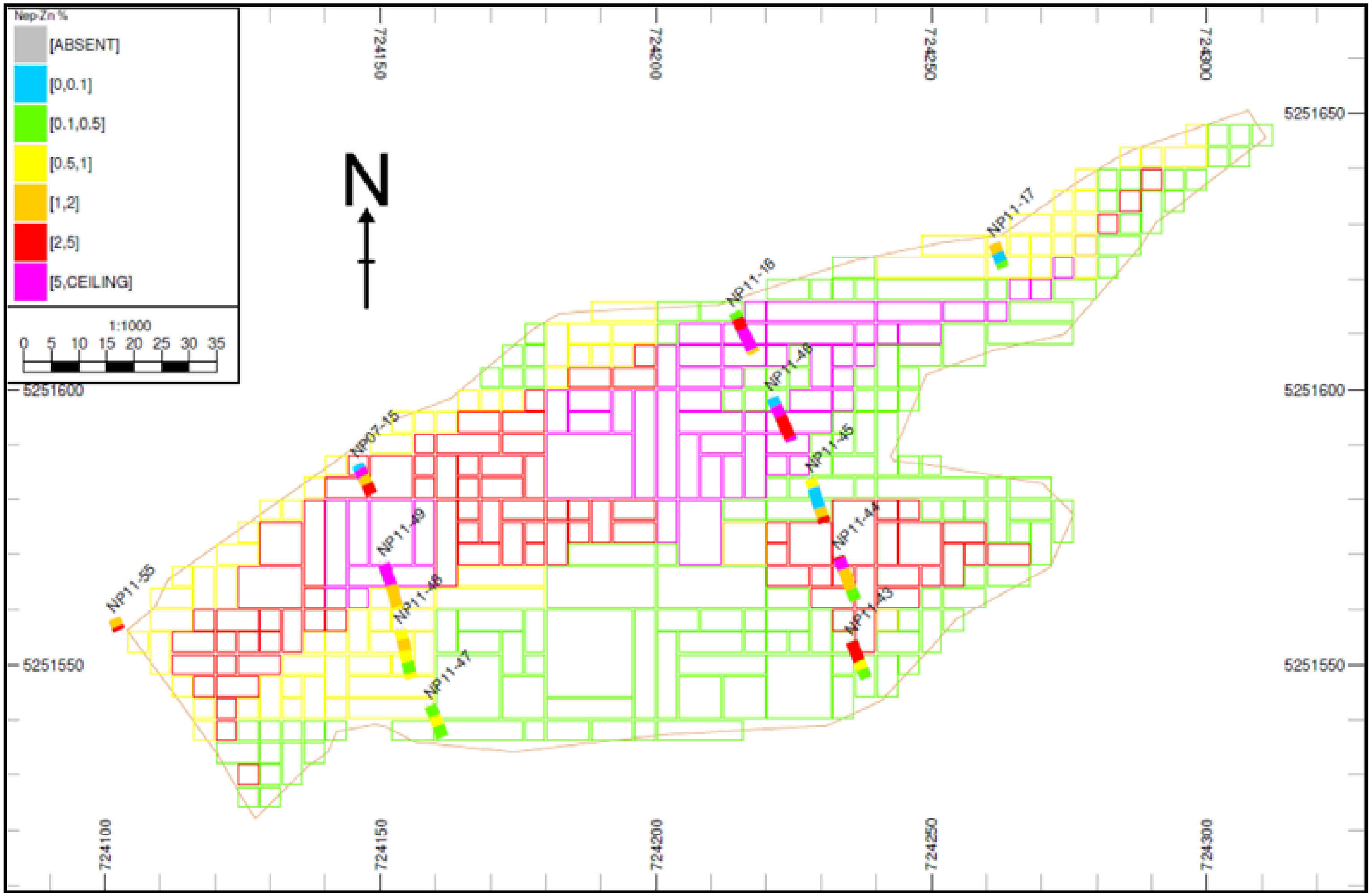
Field	ZnOK	ZnID	ZnNN	PbOK	PbID	PbNN	CuOK	CuID	CuNN	AgOK	AgID	AgNN	Density
Domain	2	2	2	2	2	2	2	2	2	2	2	2	2
Number Records	1,204	1,204	1,204	1,204	1,204	1,204	1,204	1,204	1,204	1,204	1,204	1,204	1,204
Number Samples	262	262	262	262	262	262	262	262	262	262	262	262	262
Number Missing	942	942	942	942	942	942	942	942	942	942	942	942	942
Minimum	0.45	0.51	0.06	0.12	0.10	0.01	0.12	0.13	0.01	9.17	8.30	1.50	3.20
Maximum	3.85	3.93	11.21	1.31	1.53	4.76	0.38	0.39	0.93	43.67	54.77	100.61	4.55
Range	3.40	3.42	11.15	1.19	1.42	4.75	0.26	0.27	0.93	34.50	46.46	99.11	1.35
Mean	1.75	1.79	1.84	0.45	0.52	0.44	0.27	0.27	0.23	20.75	24.05	19.26	4.00
Variance	0.62	0.60	3.43	0.08	0.14	0.37	0.00	0.00	0.03	105.57	185.39	353.20	0.17
Standard Deviation	0.79	0.78	1.85	0.29	0.37	0.61	0.07	0.07	0.18	10.27	13.62	18.79	0.41
Standard Error	0.05	0.05	0.11	0.02	0.02	0.04	0.00	0.00	0.01	0.63	0.84	1.16	0.03
Skewness	1.25	1.27	1.92	1.52	1.31	3.77	-0.41	0.10	1.08	0.90	0.88	1.39	-0.19
Kurtosis	1.12	1.26	4.54	1.80	0.75	19.91	-1.04	-0.75	0.30	-0.41	-0.54	1.56	-1.36
Geometric Mean	1.60	1.65	1.14	0.38	0.42	0.21	0.26	0.26	0.16	18.54	20.71	11.77	3.98

Source: *2016 Tetra Tech Report on the Superjack Property.*

14.2.6.2 Sections

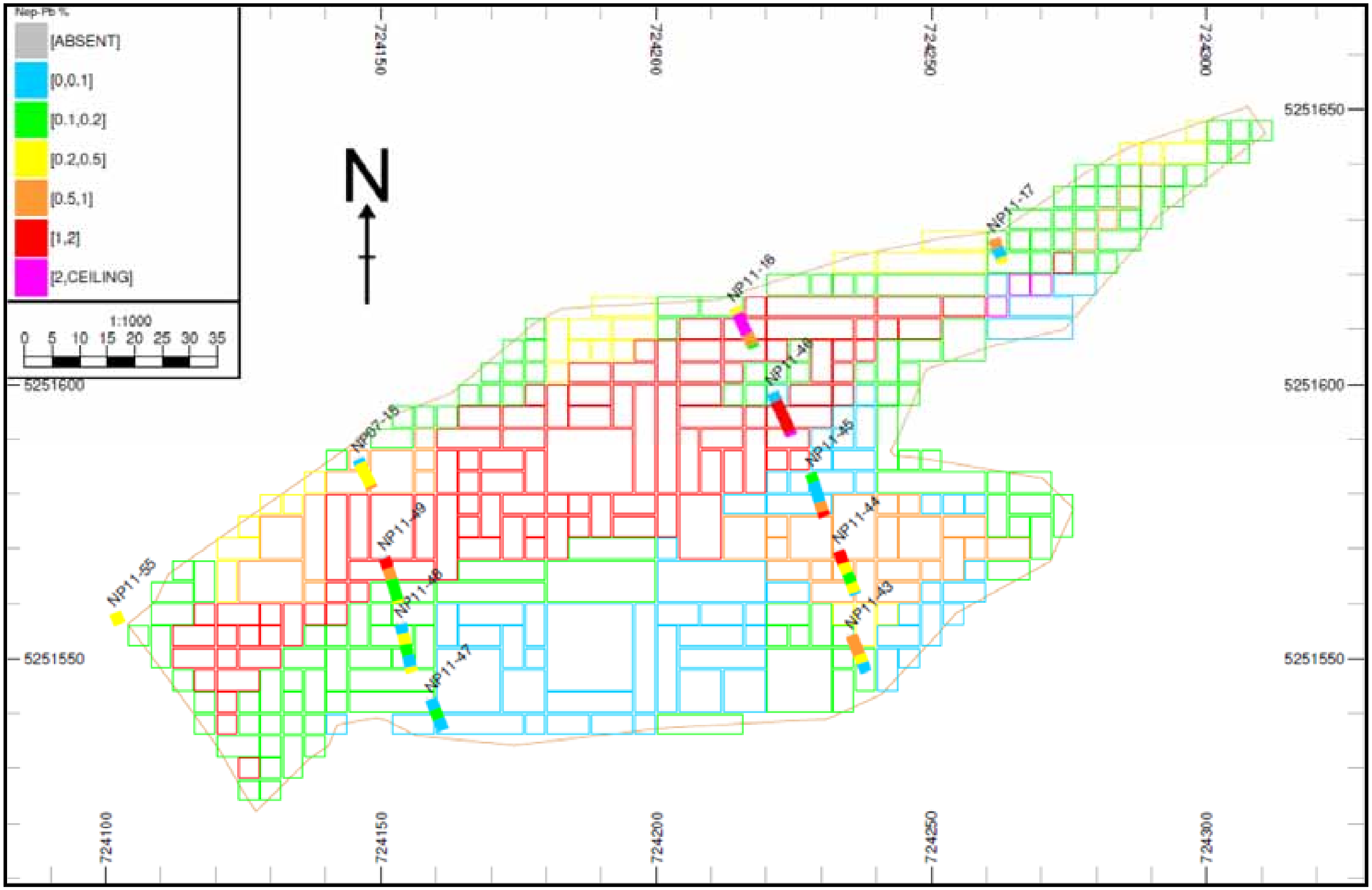
The results of the grade interpolations were visually confirmed against cross-sections and plan views. Figures 14.40 to 14.48 display the block model grades against the composited and capped drill hole grades used in the resource estimations. These sections confirmed good correlation between modeled grade and drill hole grade for both zones.

FIGURE 14.40 250 M PLAN VIEW OF A ZONE BLOCK MODEL COLOURED BY ZINC GRADE



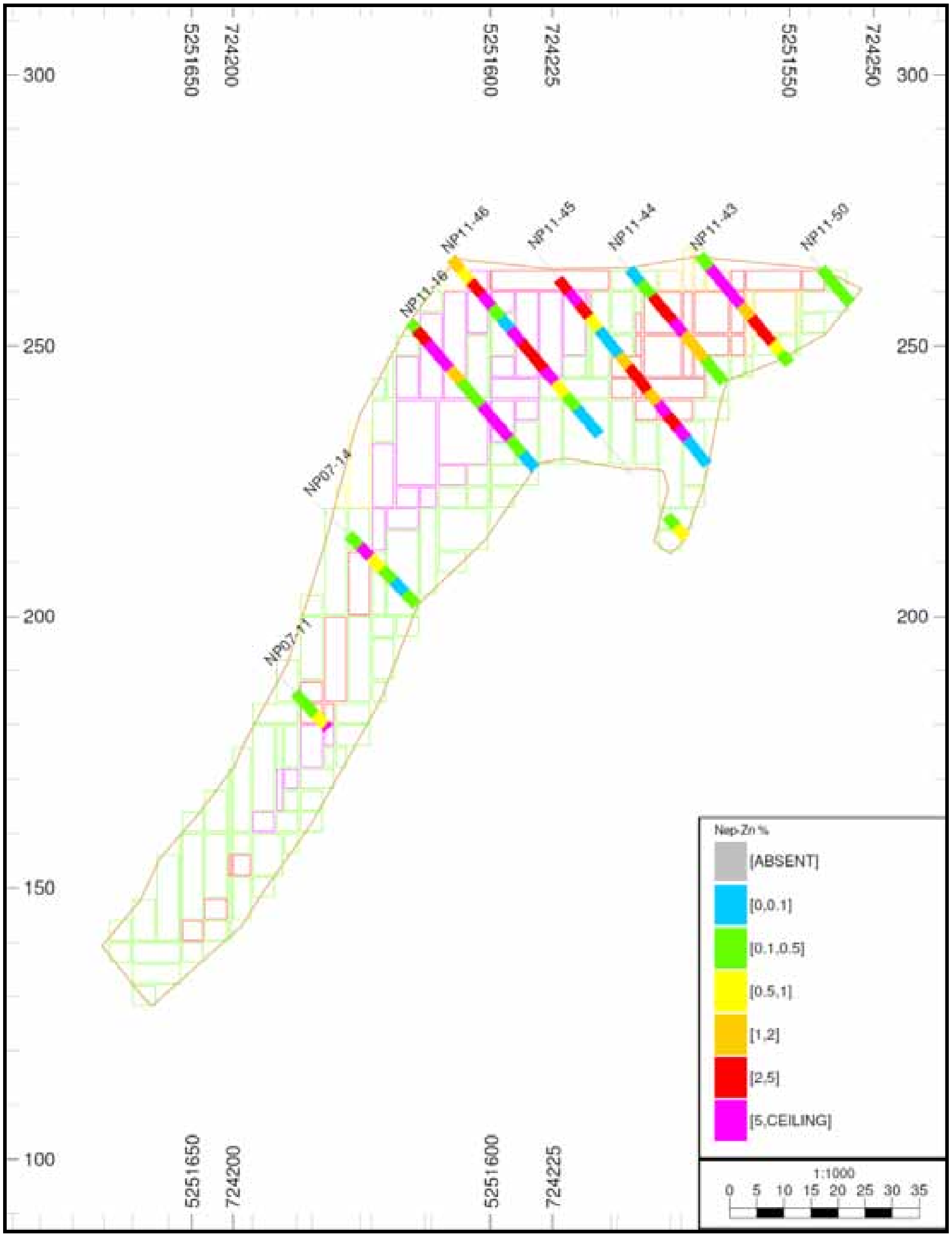
Note: *Total plan clipping distance is 10 m.*
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.41 250 M PLAN VIEW OF A ZONE BLOCK MODEL COLOURED BY LEAD GRADE



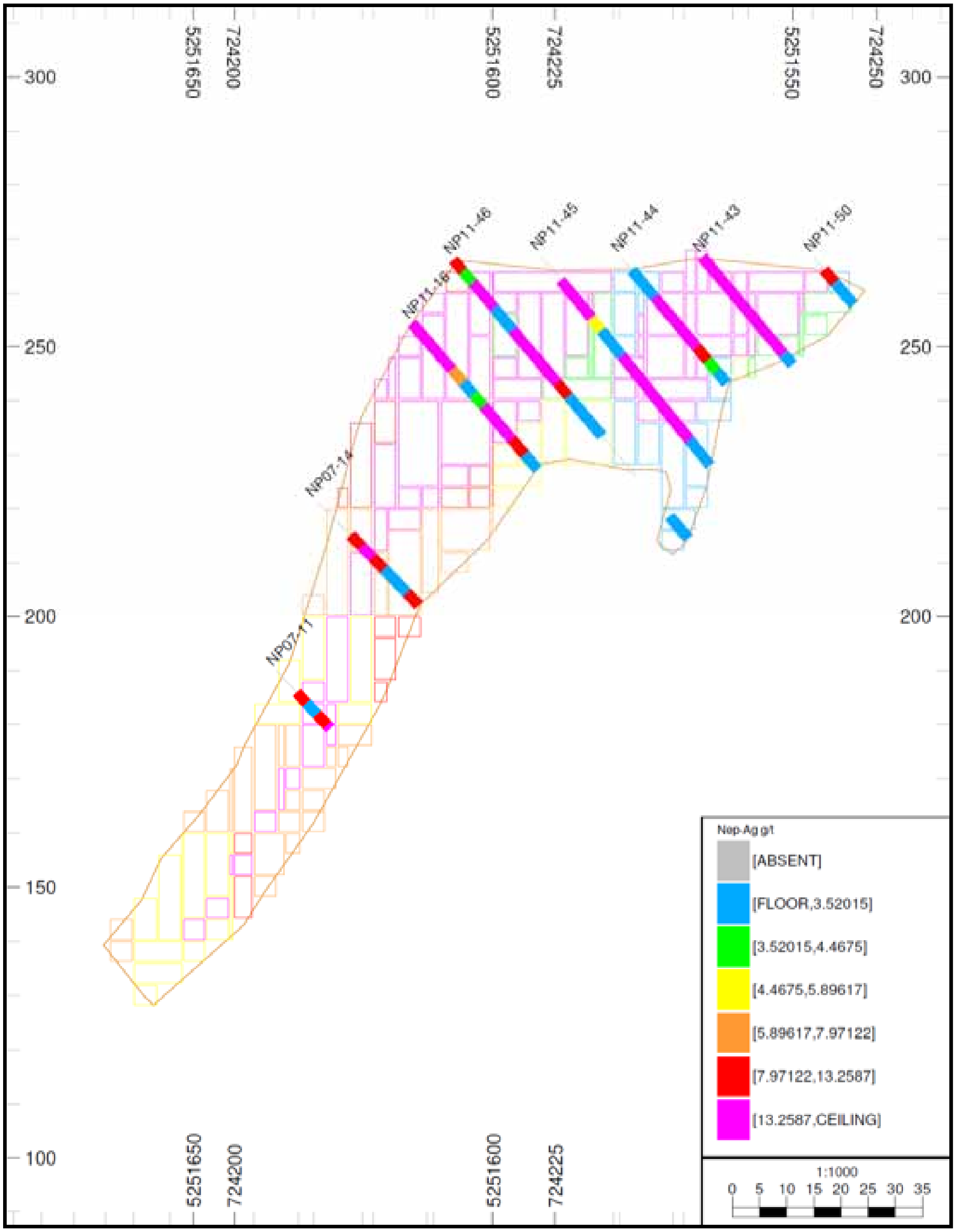
Note: *Total plan clipping distance is 10 m.*
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.42 SECTION LINE 6800 E LOOKING 065° AT A ZONE BLOCK MODEL COLOURED BY ZINC GRADE



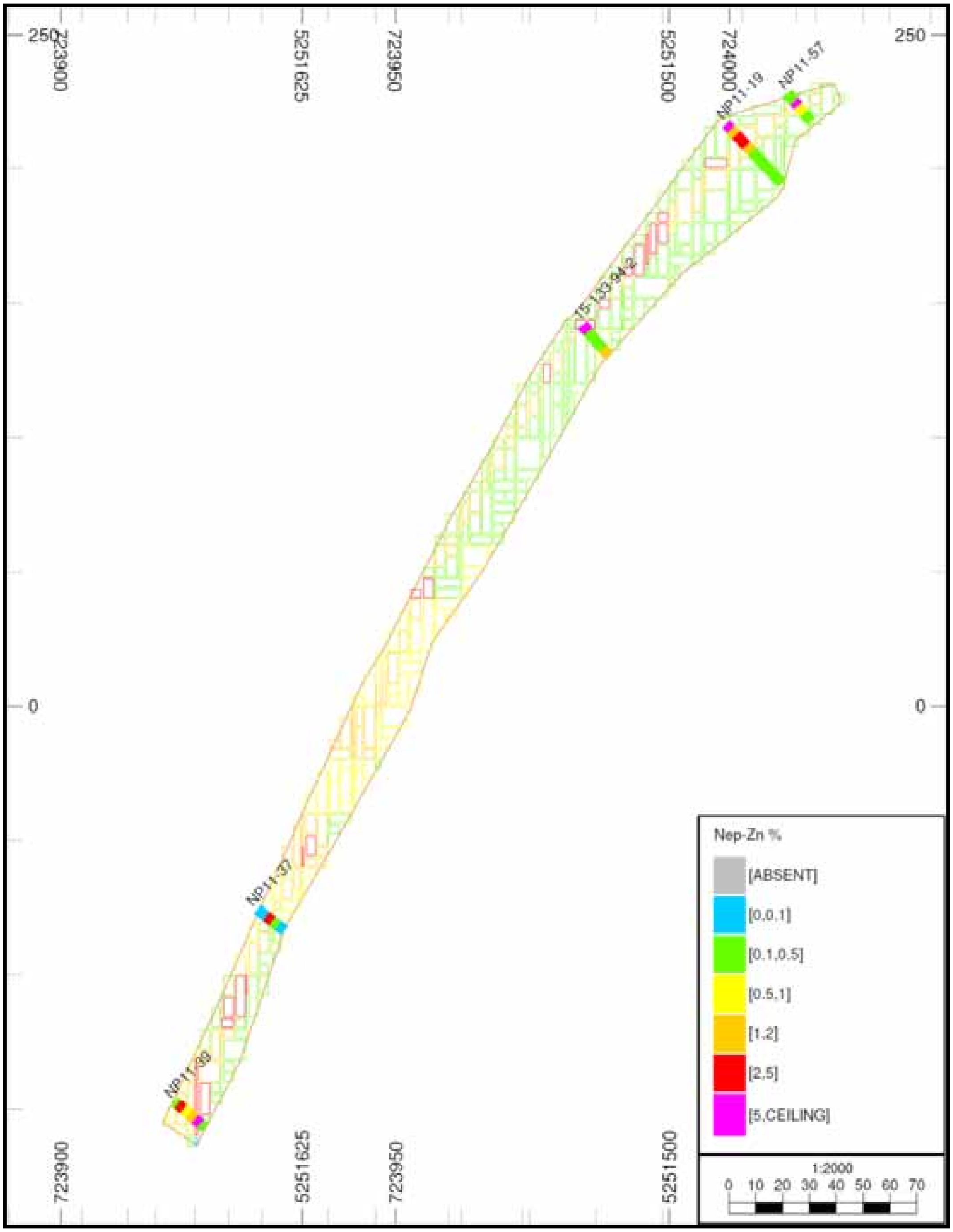
Note: *Total section clipping distance is 20 m.*
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.43 SECTION LINE 6800 E LOOKING 065° AT A ZONE BLOCK MODEL COLOURED BY SILVER GRADE



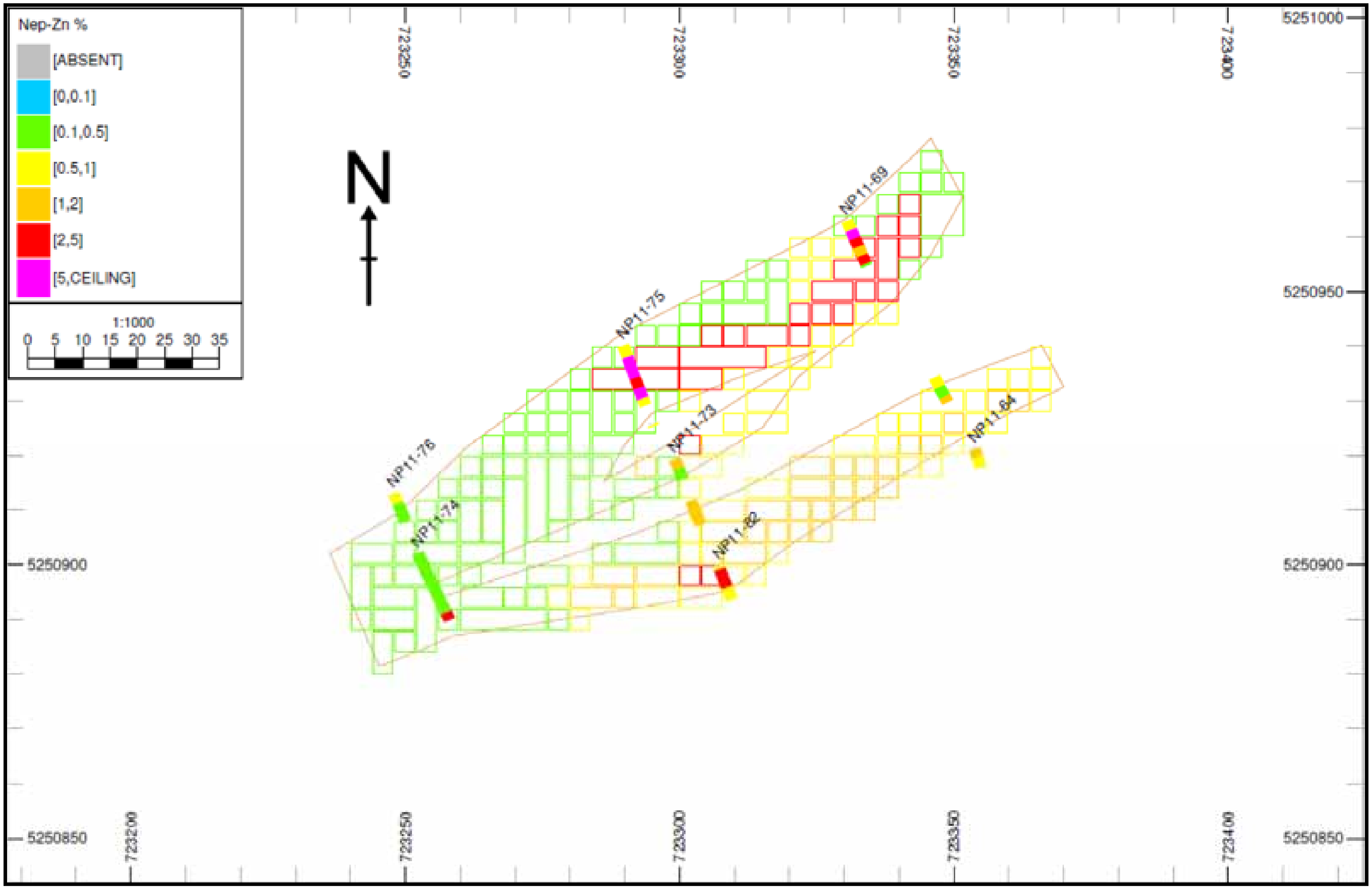
Note: *Total section clipping distance is 20 m.*
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.44 SECTION LINE 6500 E LOOKING 065° AT A ZONE BLOCK MODEL COLOURED BY ZINC GRADE



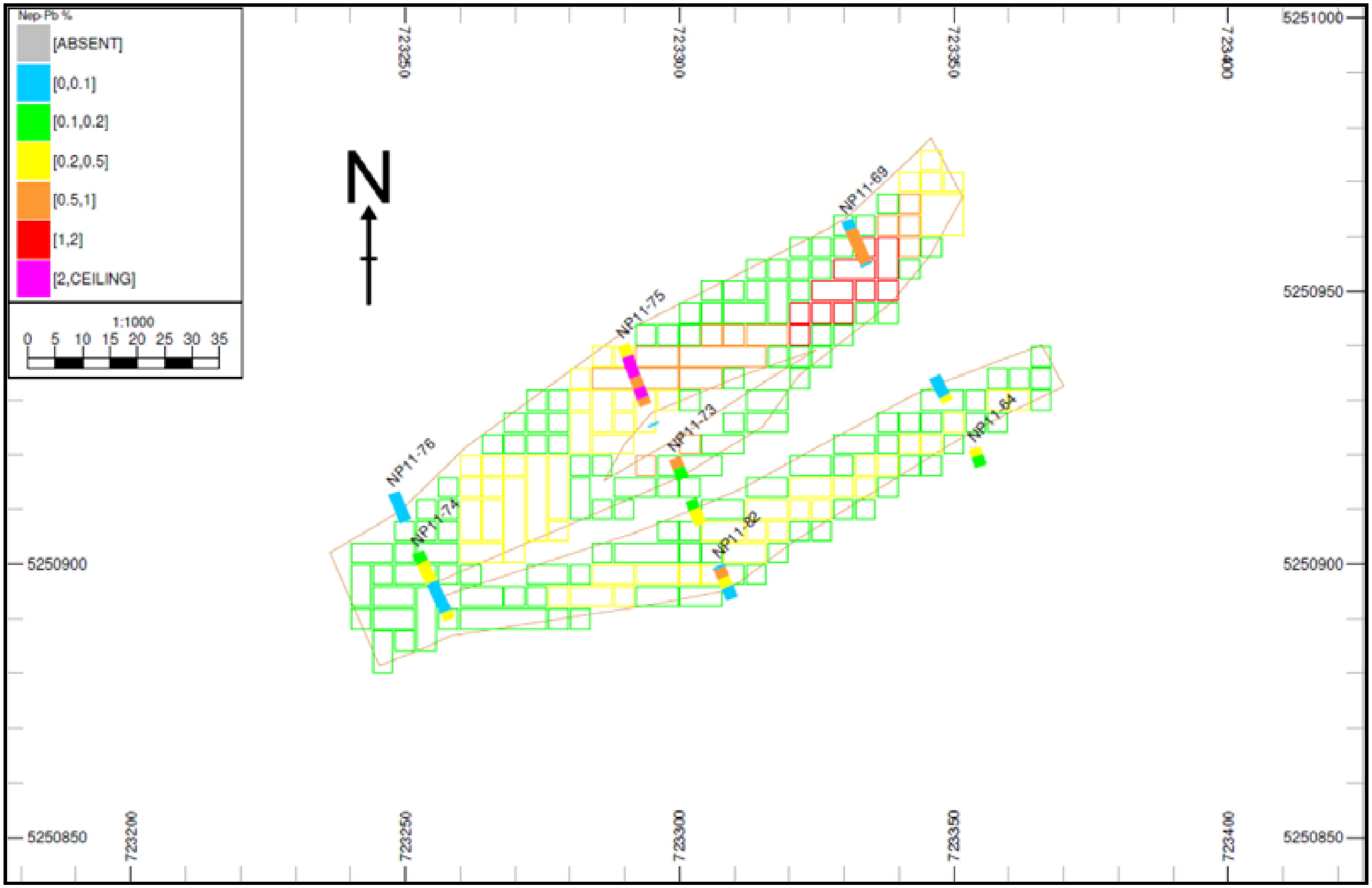
Note: *Total section clipping distance is 20 m.*
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.45 220 M PLAN VIEW OF C ZONE BLOCK MODEL COLOURED BY ZINC GRADE



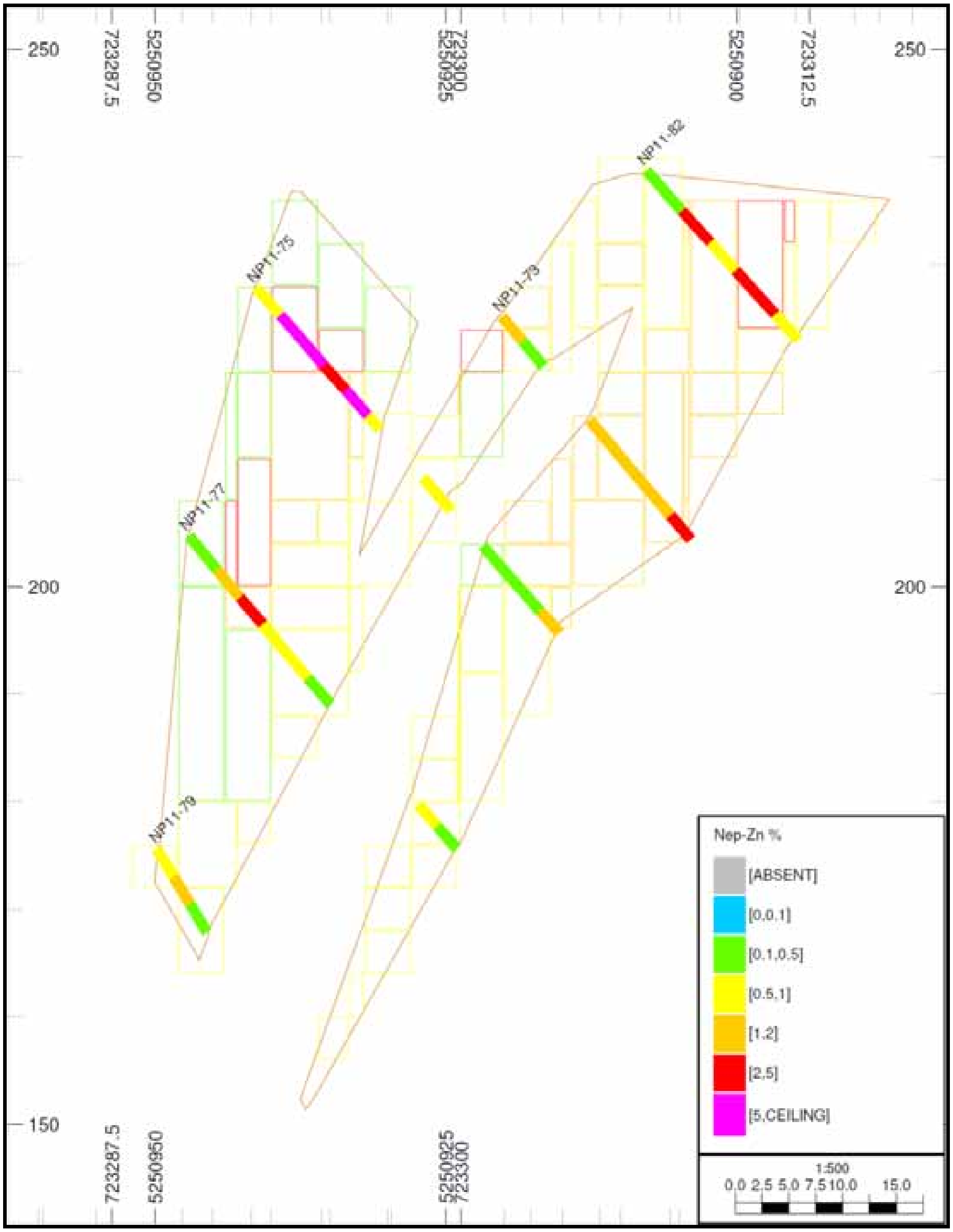
Note: *Total plan clipping distance is 20 m.*
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.46 220 M PLAN VIEW OF C ZONE BLOCK MODEL COLOURED BY LEAD GRADE



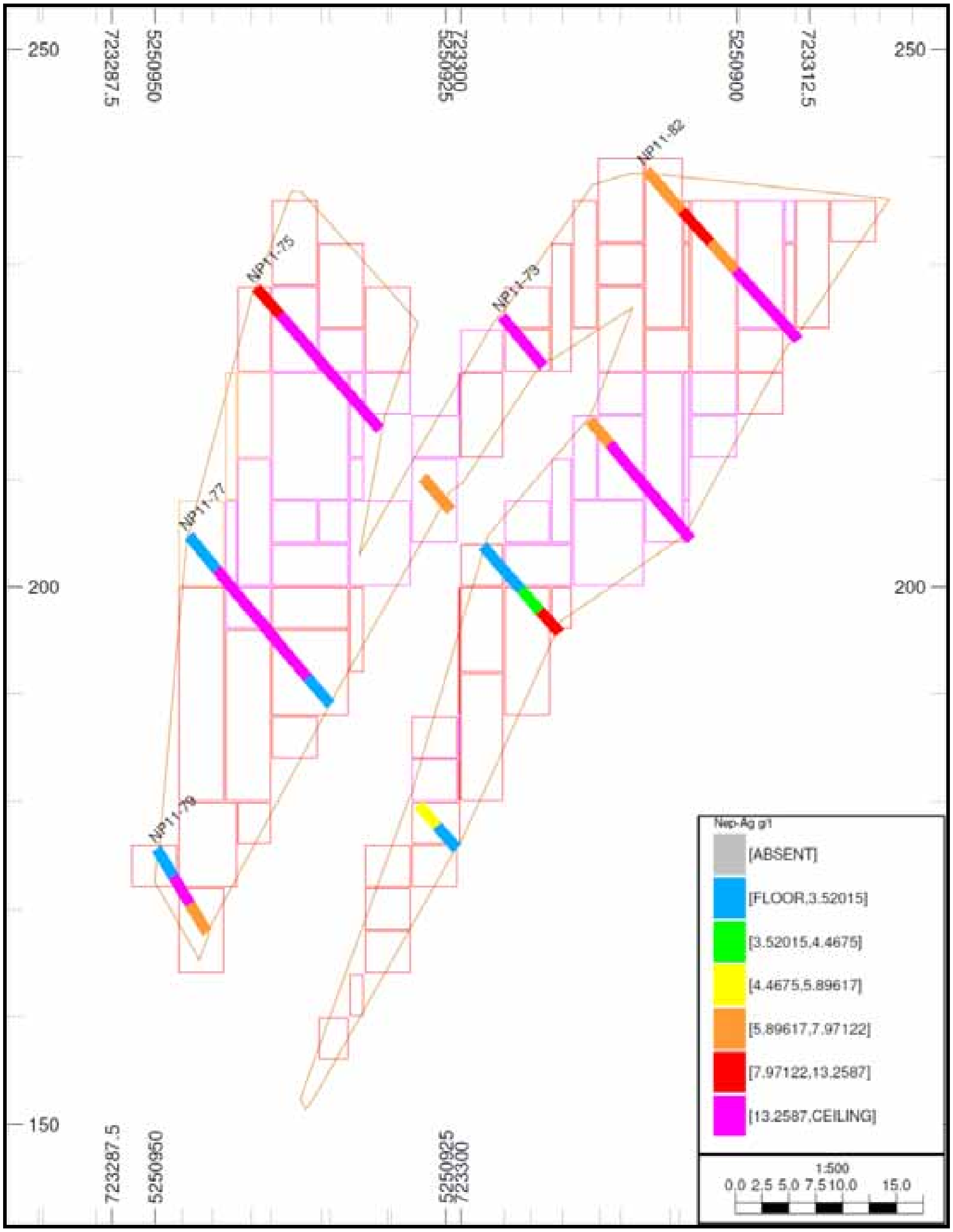
Note: *Total plan clipping distance is 20 m.*
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.47 SECTION LINE 5700 E LOOKING 065° AT C ZONE BLOCK MODEL COLOURED BY ZINC GRADE



***Note** Total section clipping distance is 20 m.*
***Source:** 2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.48 SECTION LINE 5700 E LOOKING 065° AT C ZONE BLOCK MODEL COLOURED BY SILVER GRADE

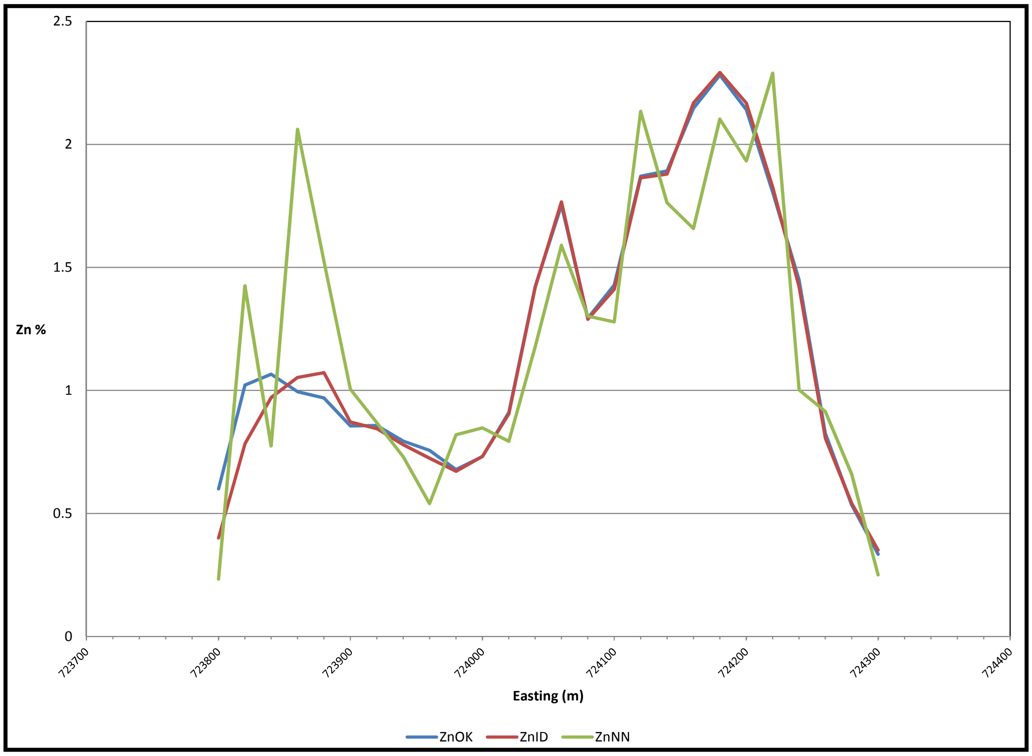


Note: *Total section clipping distance is 20 m.*
Source: *2016 Tetra Tech Report on the Superjack Property.*

14.2.6.3 Swath Plots

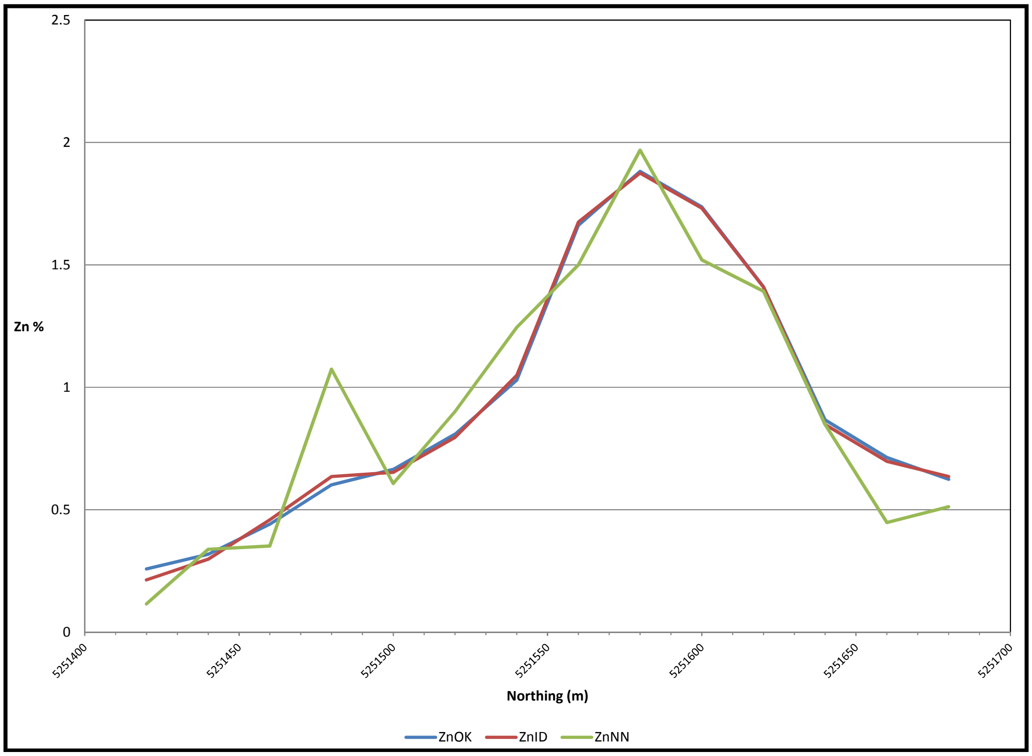
Swath plots are used to visually compare the differences and similarities in the estimated grades between the different estimators (OK, ID, NN). These are presented in Figures 14.49 to 14.72 for all metals estimated, in the form of average grades recorded across eastings, northings, and elevations. In general, it can be concluded that there is a good correlation between all grade interpolators, including a very good correlation between the OK and ID grade interpolators.

FIGURE 14.49 SWATH PLOT A ZONE ZINC GRADE ESTIMATION – EASTING



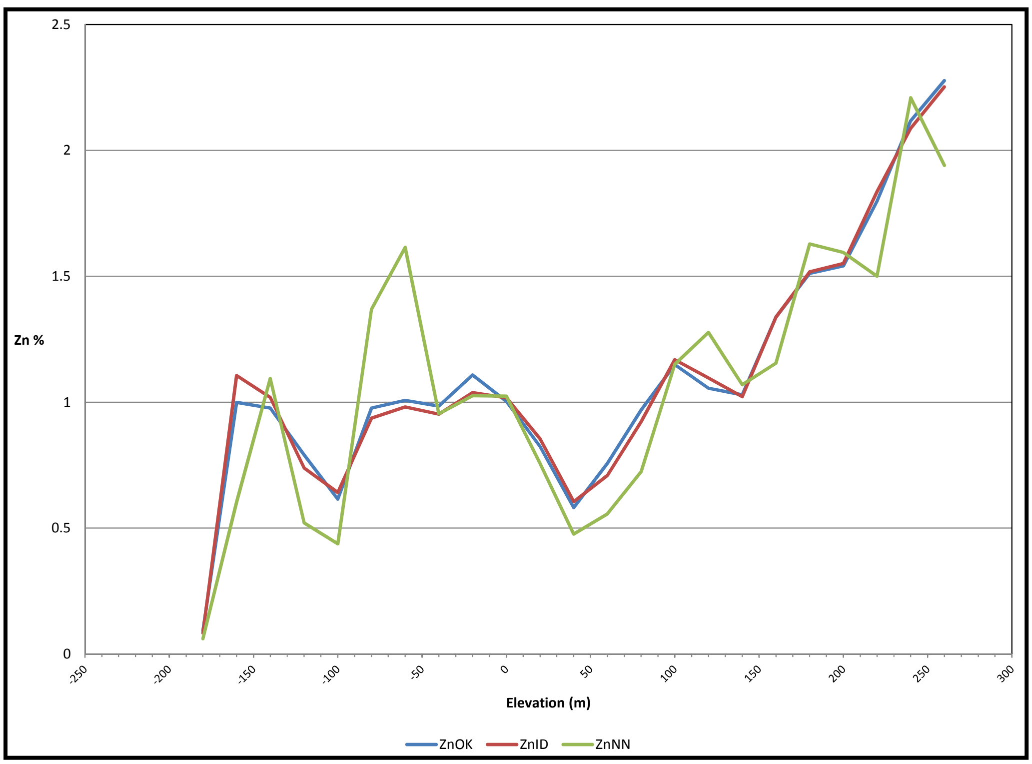
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.50 SWATH PLOT A ZONE ZINC GRADE ESTIMATION – NORTHING



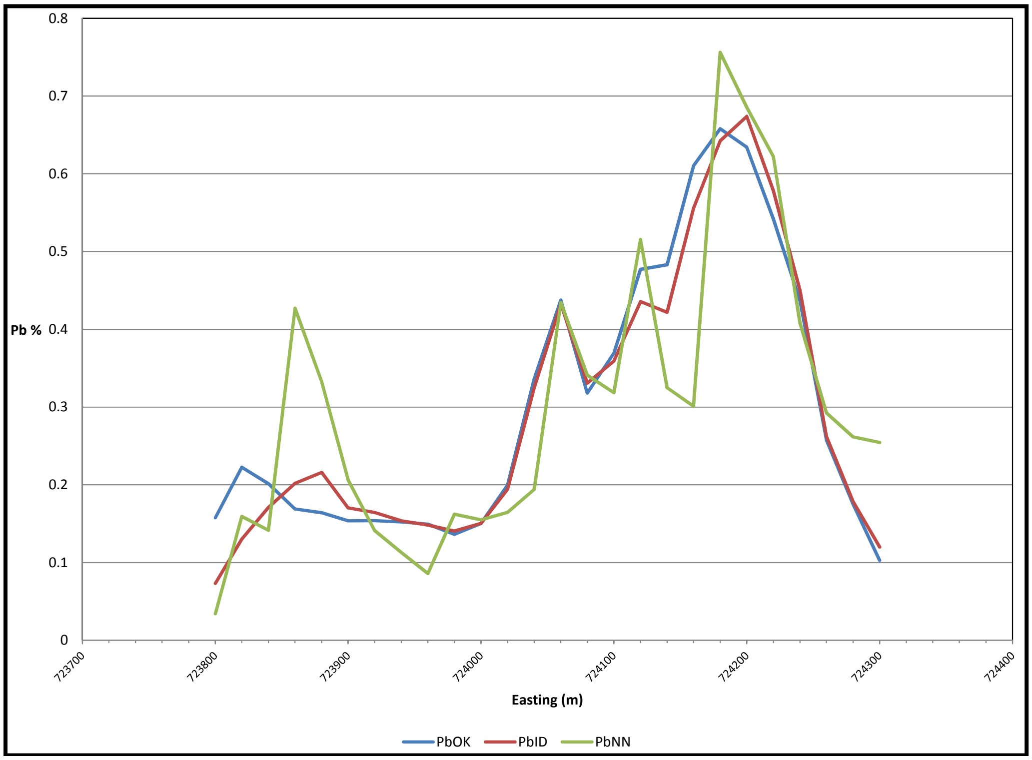
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.51 SWATH PLOT A ZONE ZINC GRADE ESTIMATION – ELEVATION



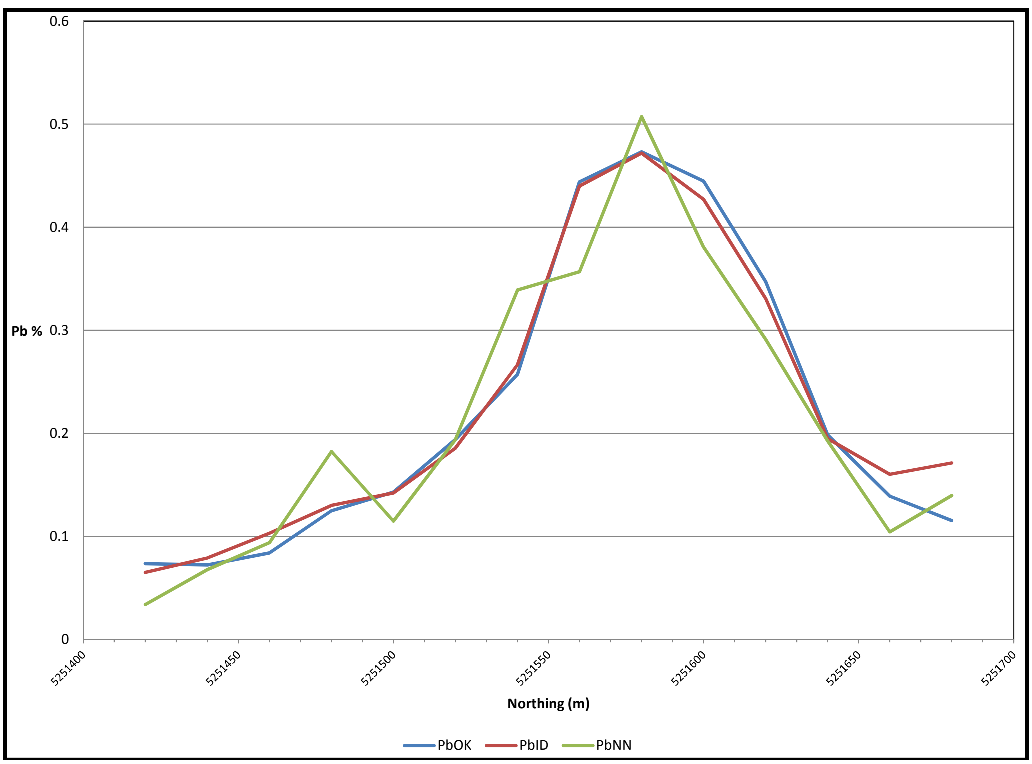
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.52 SWATH PLOT A ZONE LEAD GRADE ESTIMATION – EASTING



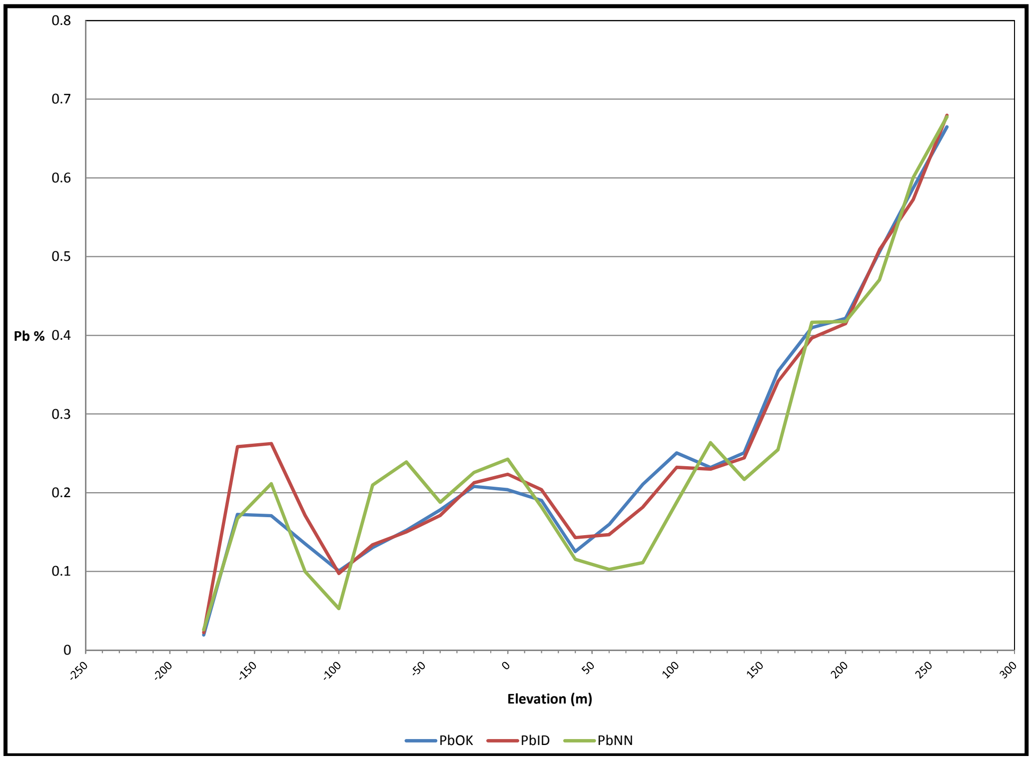
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.53 SWATH PLOT A ZONE LEAD GRADE ESTIMATION – NORTHING



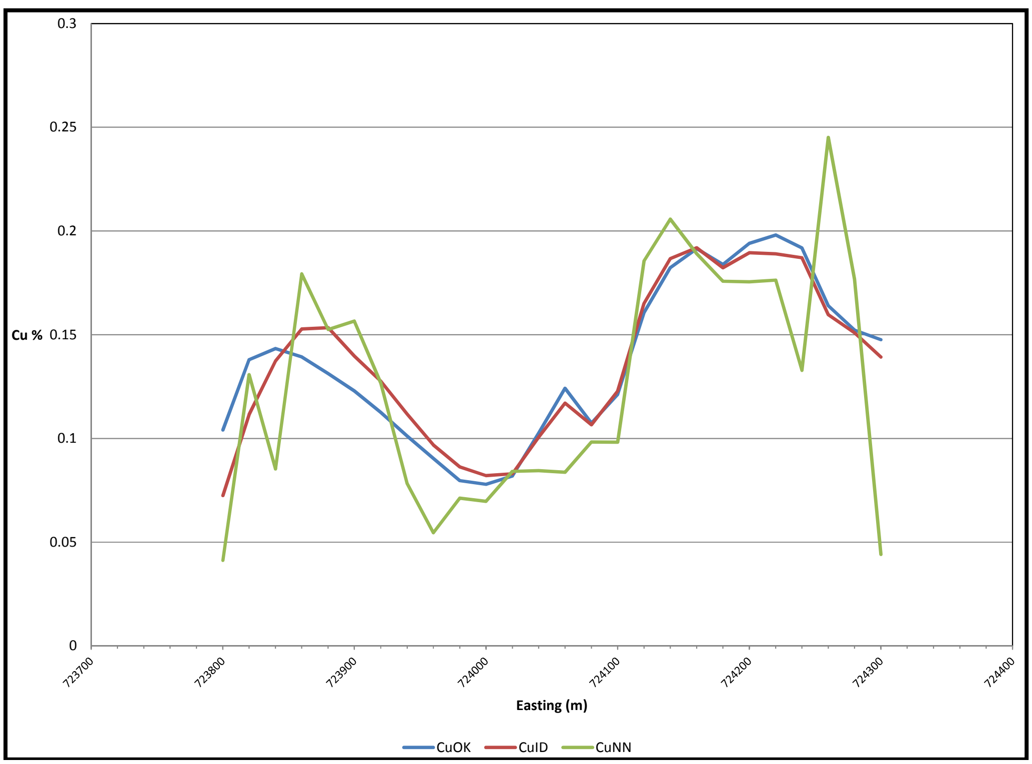
Source: *2016 Tetra Tech Report on the Superjack Property.*

Figure 14.54 Swath Plot A Zone Lead Grade Estimation – Elevation



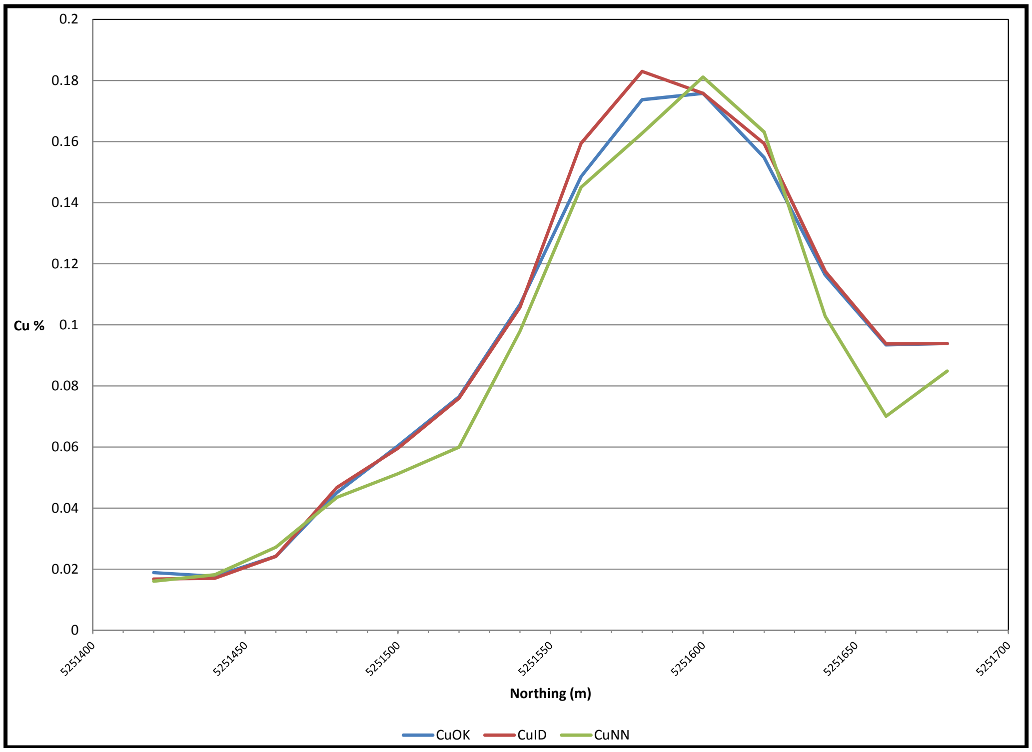
Source: *2016 Tetra Tech Report on the Superjack Property.*

Figure 14.55 Swath Plot A Zone Cu Grade Estimation – Easting



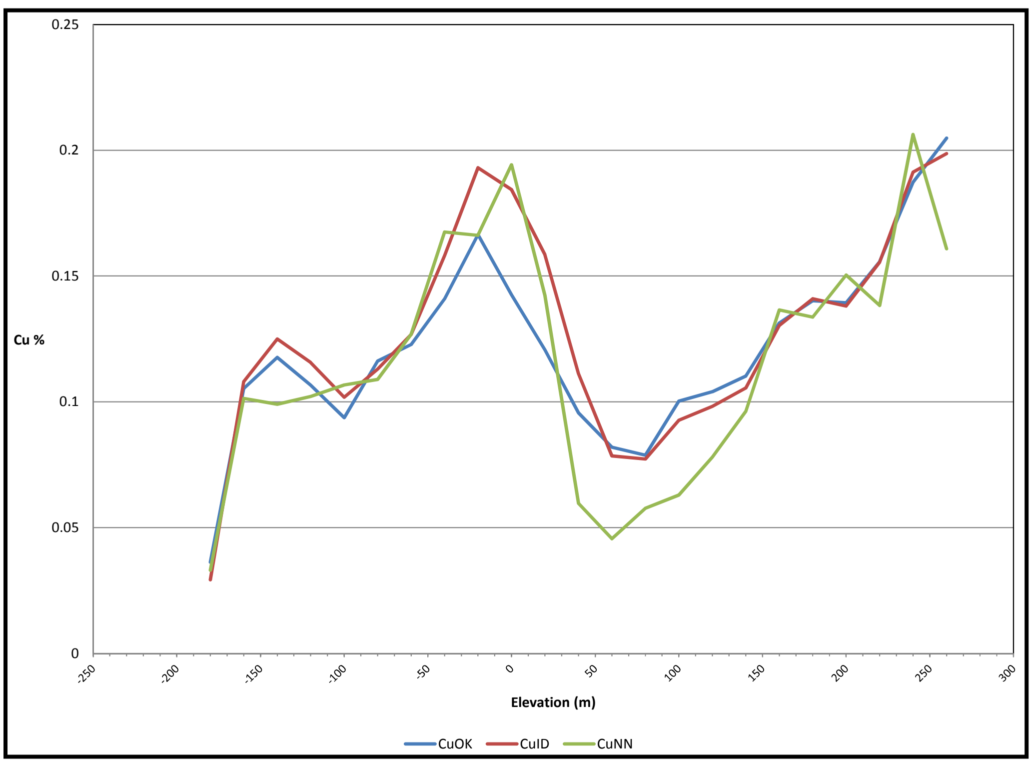
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.56 SWATH PLOT A ZONE CU GRADE ESTIMATION – NORTHING



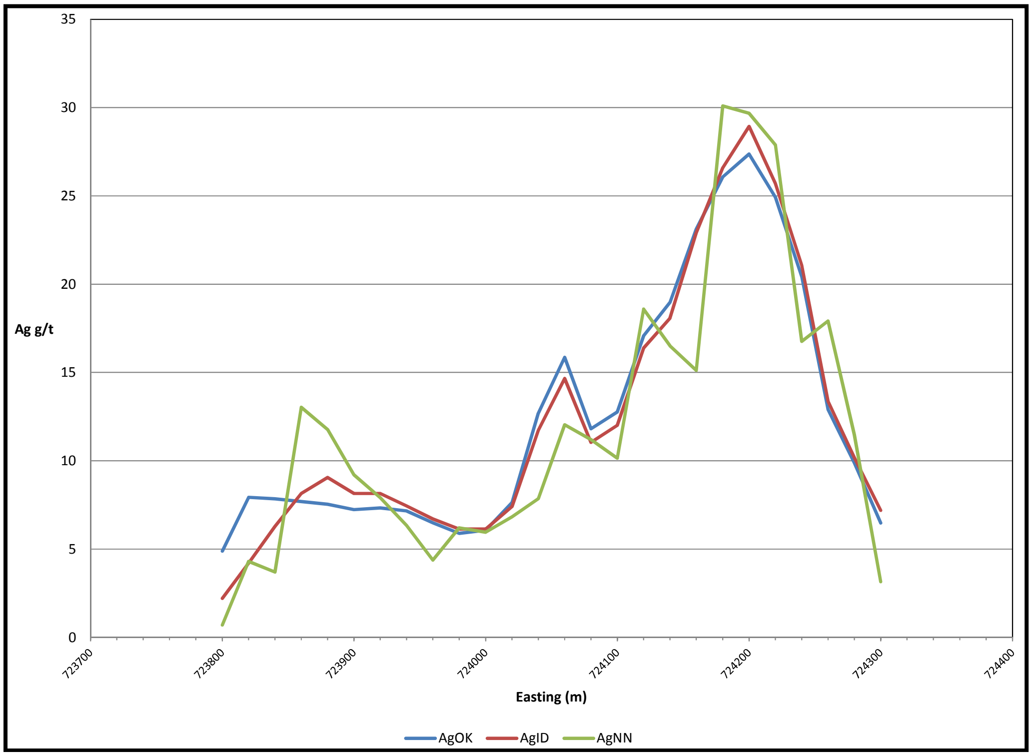
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.57 SWATH PLOT A ZONE CU GRADE ESTIMATION – ELEVATION



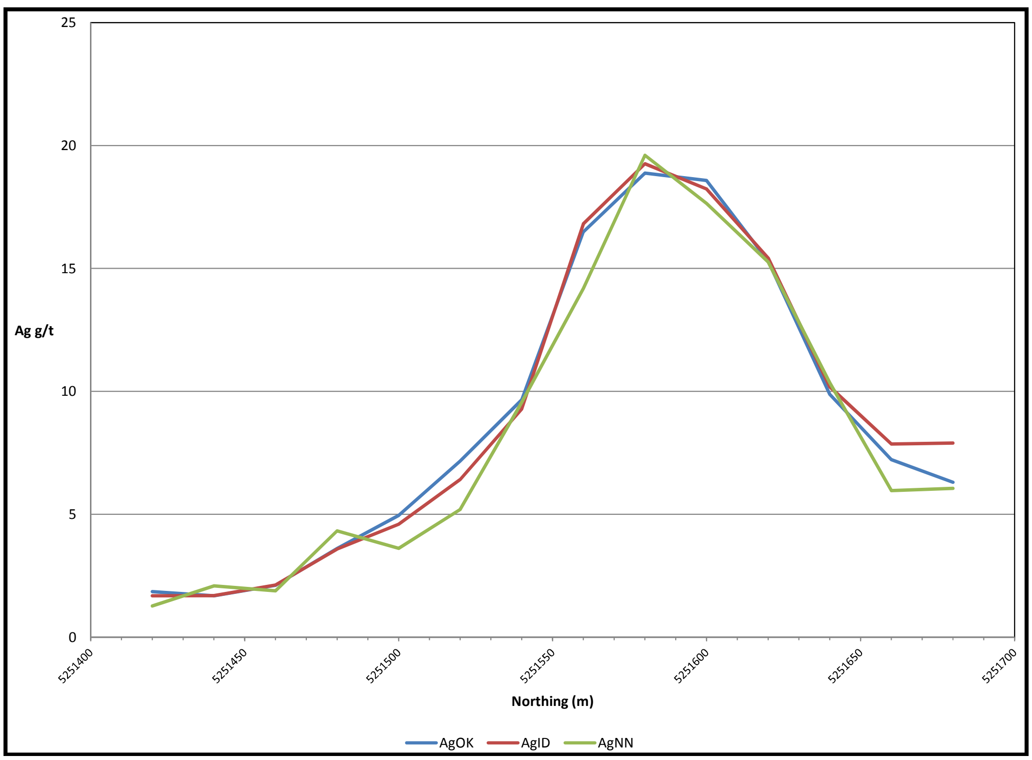
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.58 SWATH PLOT A ZONE AG GRADE ESTIMATION – EASTING



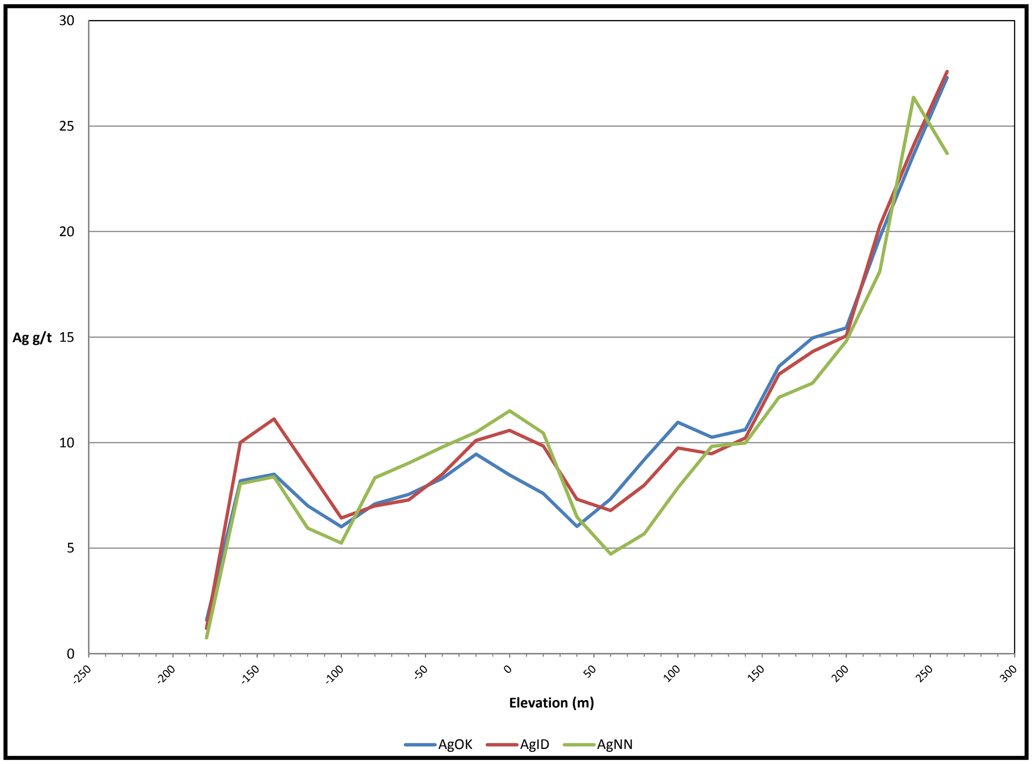
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.59 SWATH PLOT A ZONE AG GRADE ESTIMATION – NORTHING



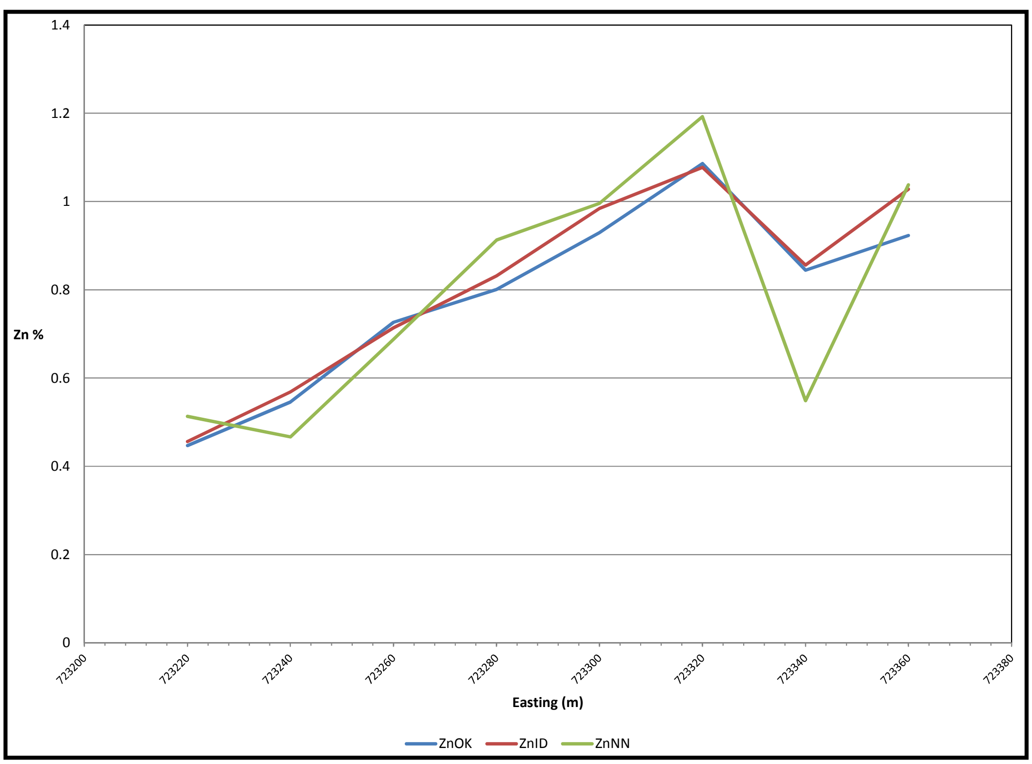
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.60 SWATH PLOT A ZONE AG GRADE ESTIMATION – ELEVATION



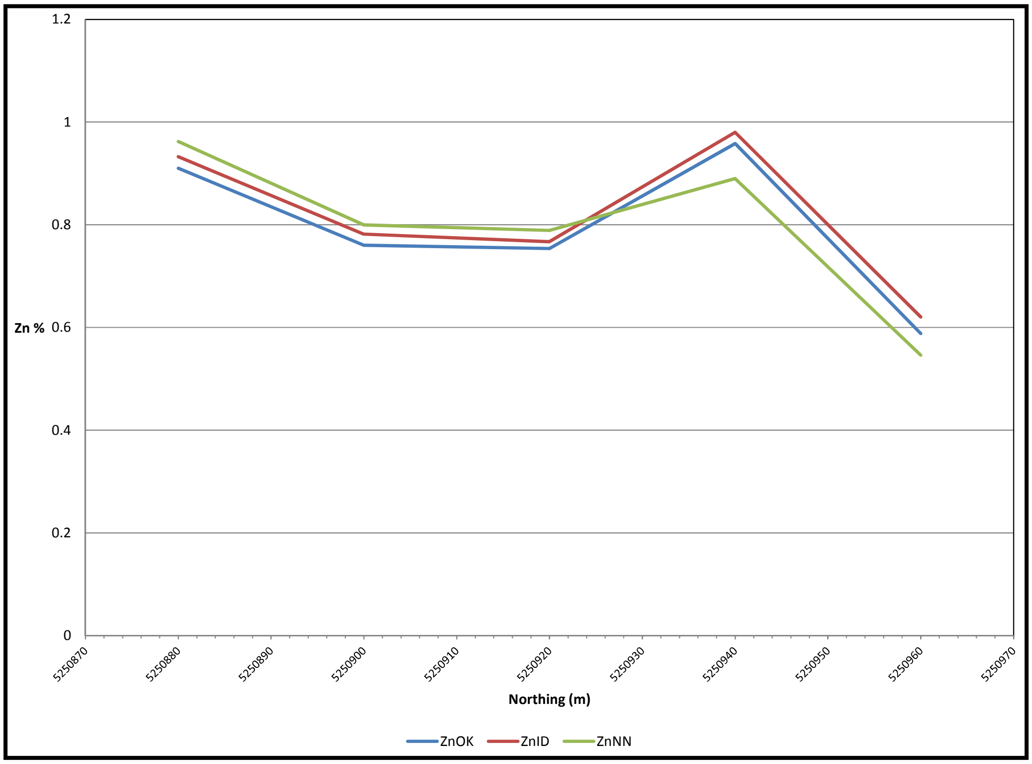
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.61 SWATH PLOT C ZONE ZN GRADE ESTIMATION – EASTING



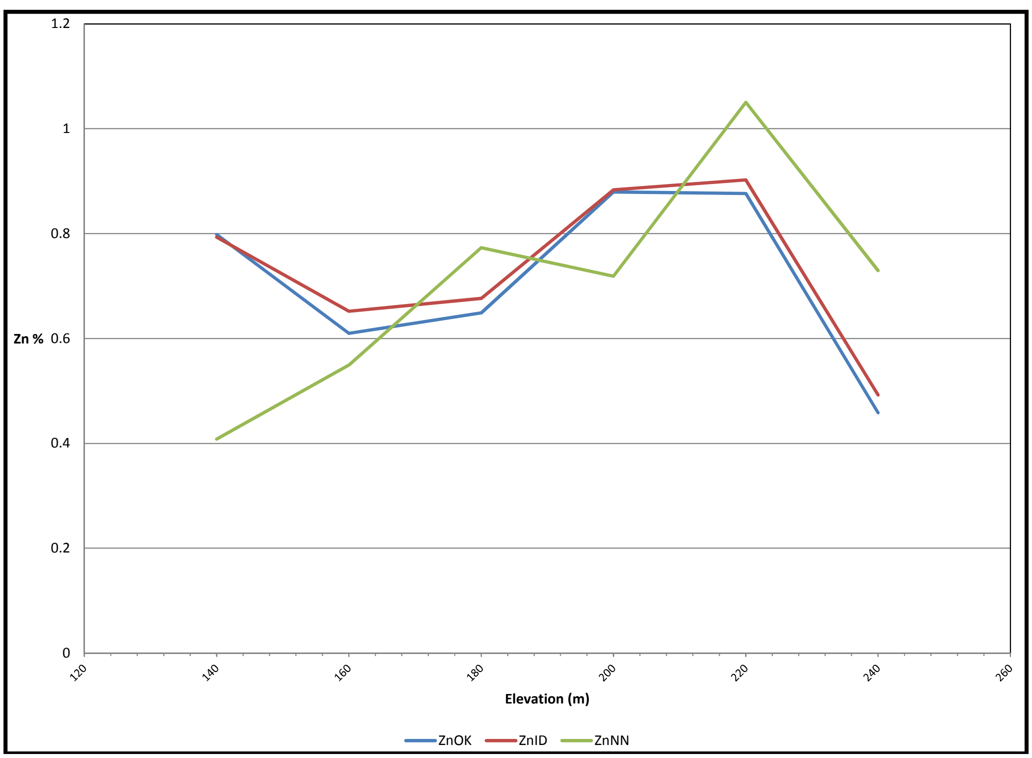
Source *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.62 SWATH PLOT C ZONE ZN GRADE ESTIMATION – NORTHING



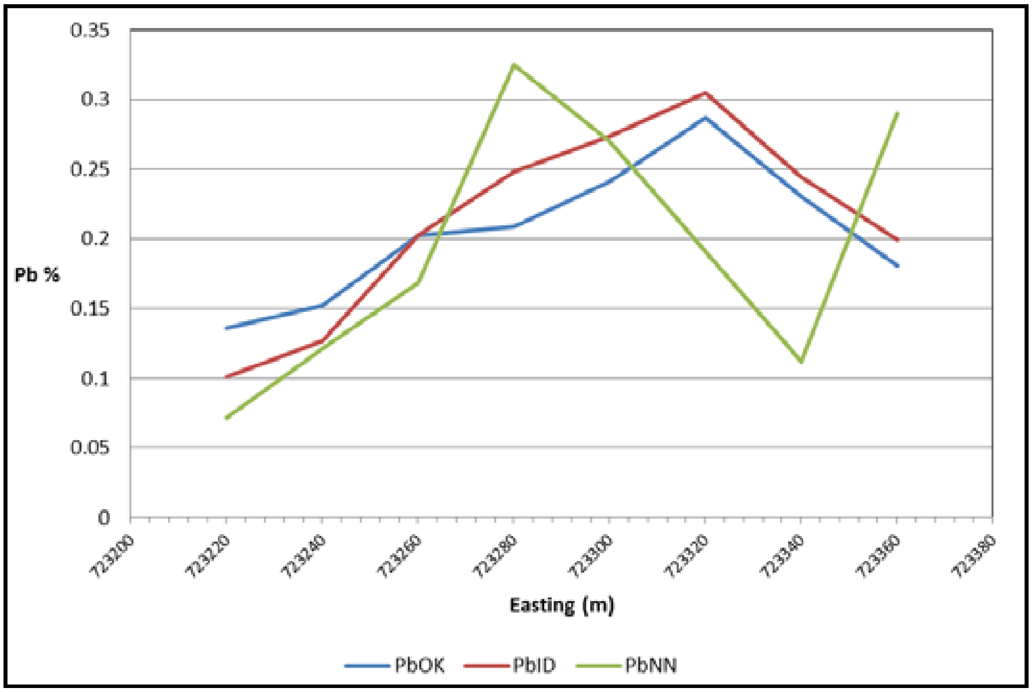
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.63 SWATH PLOT C ZONE ZN GRADE ESTIMATION – ELEVATION



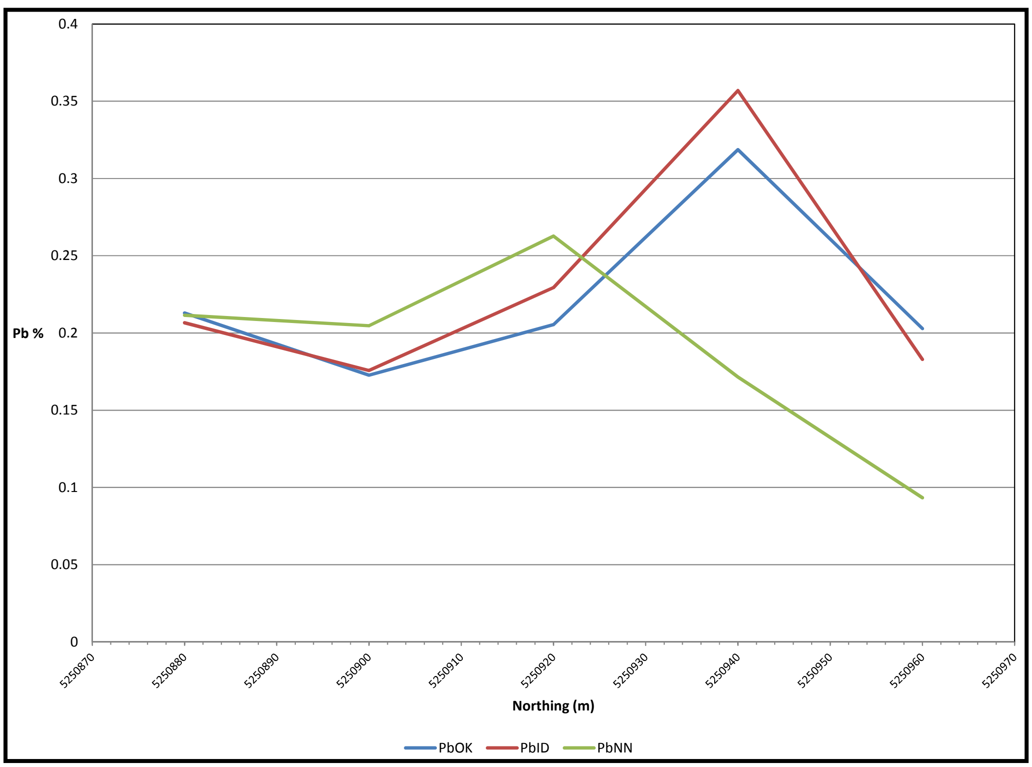
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.64 SWATH PLOT C ZONE PB GRADE ESTIMATION – EASTING



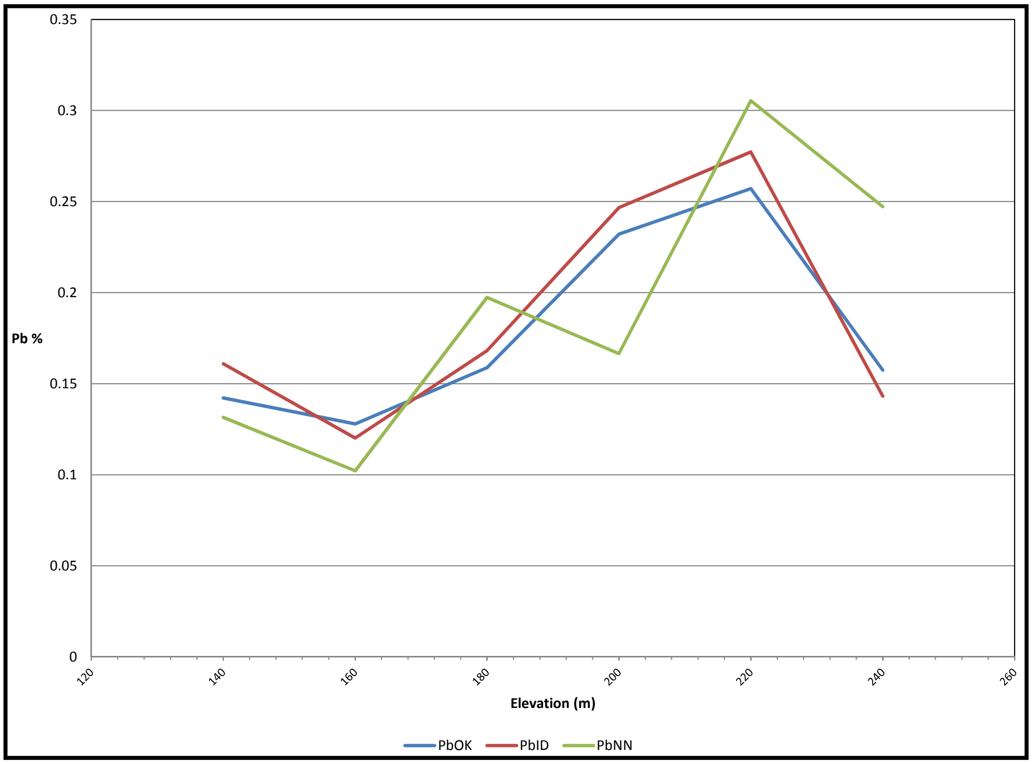
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.65 SWATH PLOT C ZONE PB GRADE ESTIMATION – NORTHING



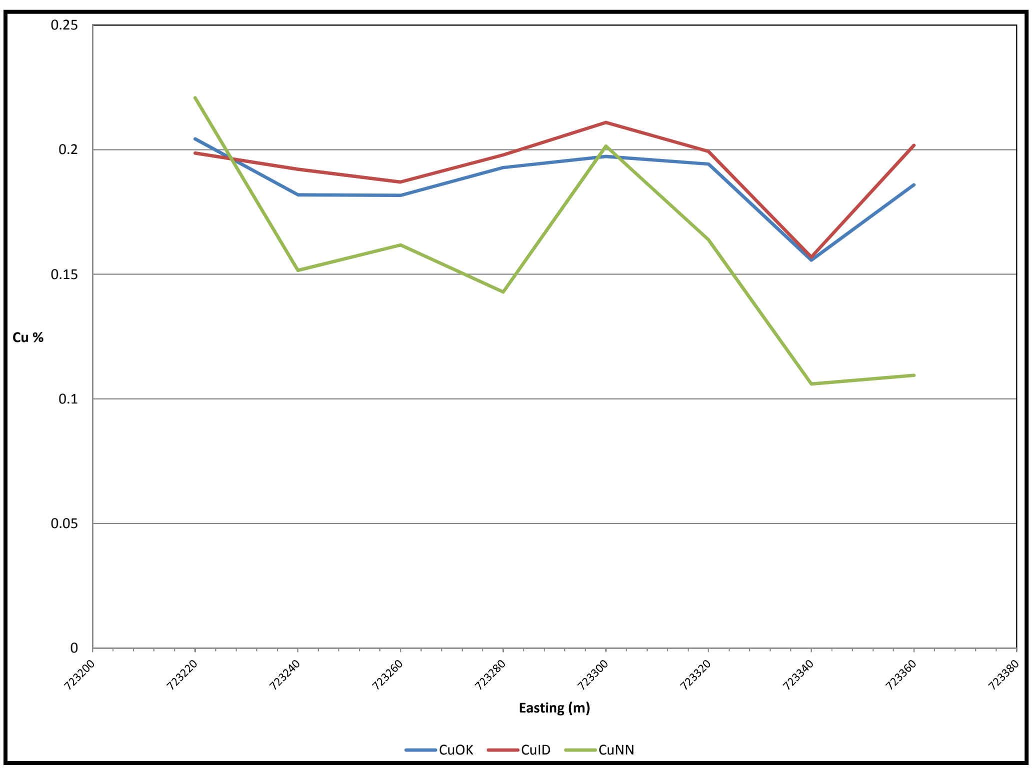
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.66 SWATH PLOT C ZONE PB GRADE ESTIMATION – ELEVATION



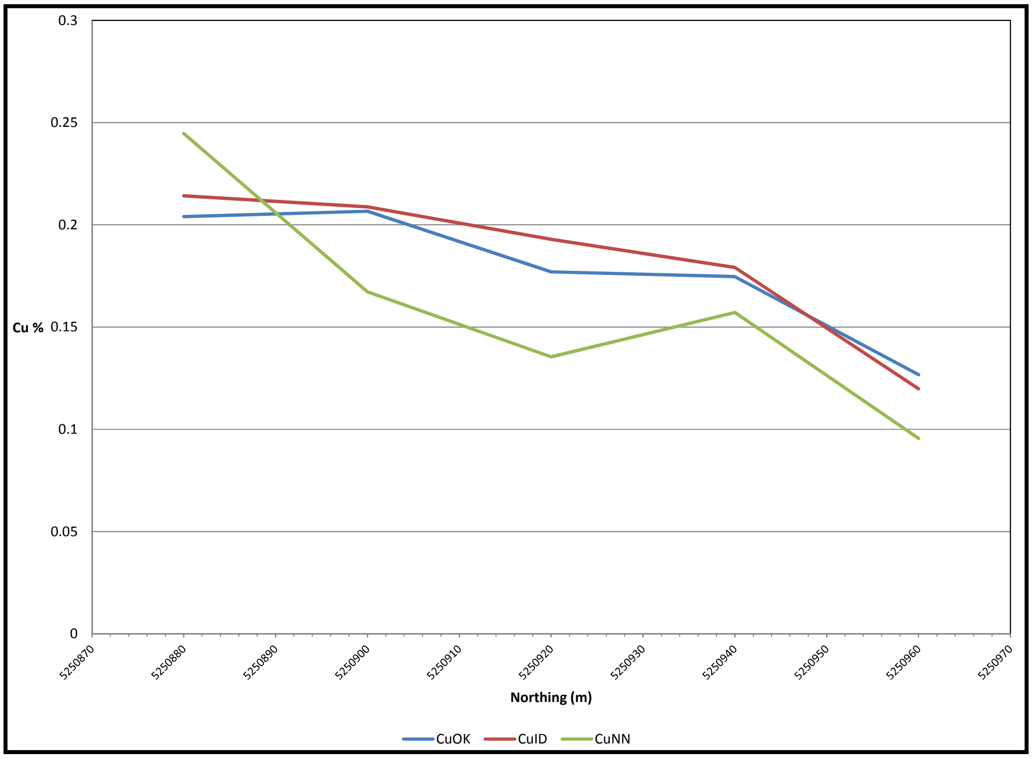
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.67 SWATH PLOT C ZONE CU GRADE ESTIMATION – EASTING



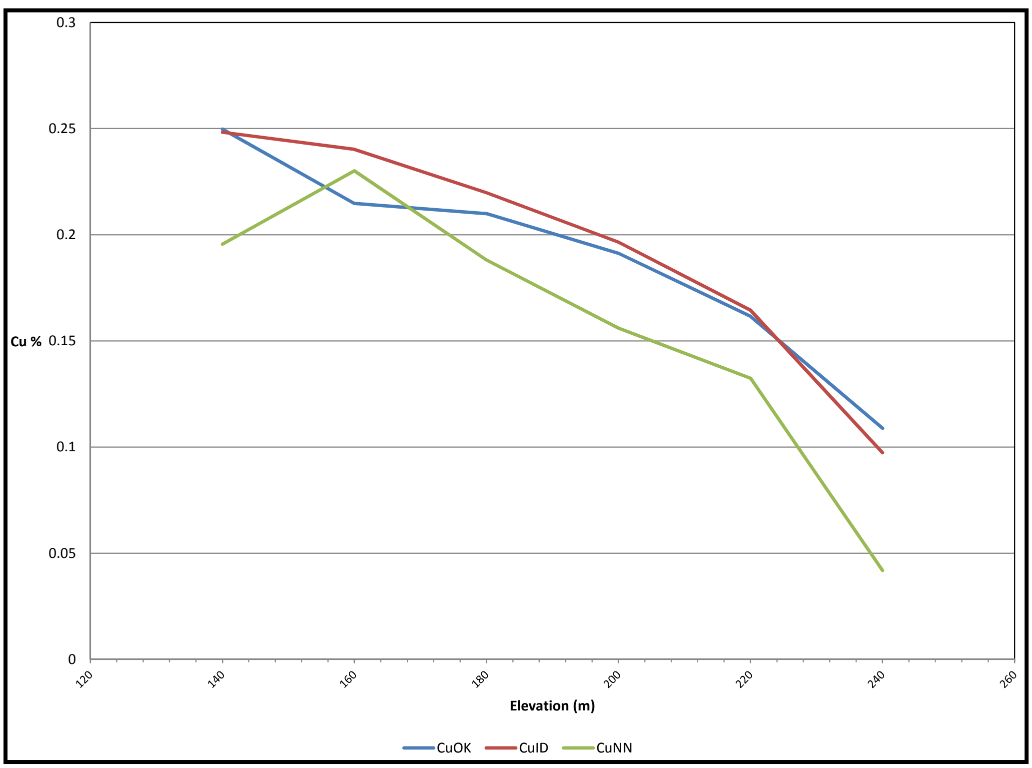
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.68 SWATH PLOT C ZONE CU GRADE ESTIMATION – NORTHING



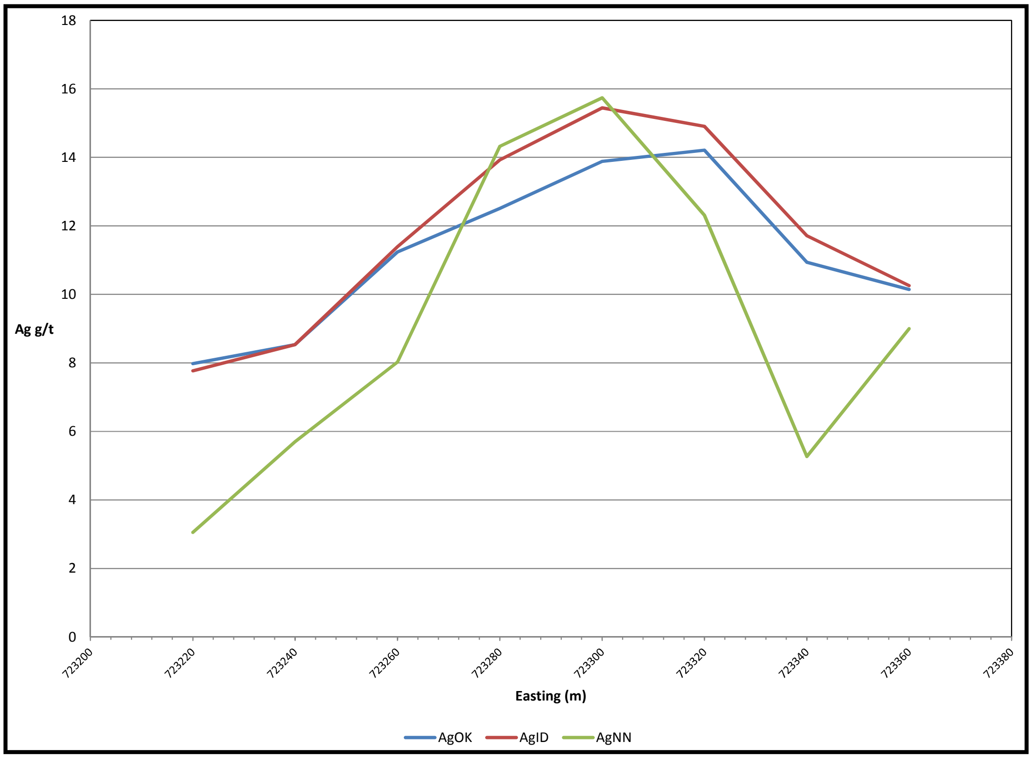
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.69 SWATH PLOT C ZONE CU GRADE ESTIMATION – ELEVATION



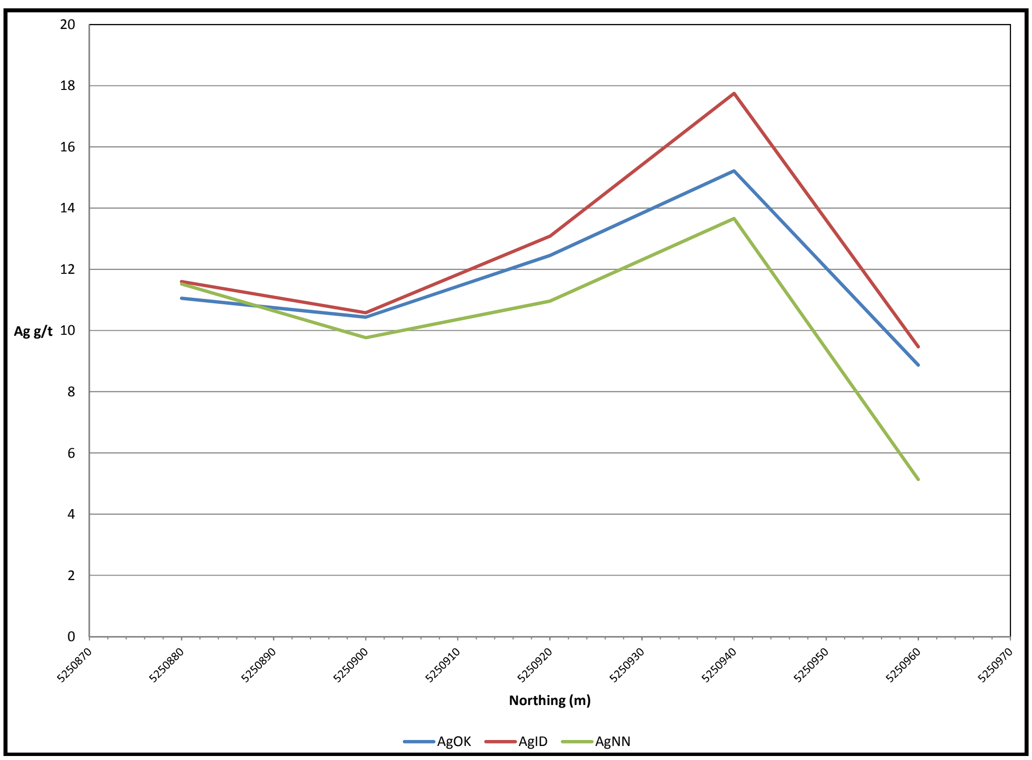
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.70 SWATH PLOT C ZONE AG GRADE ESTIMATION – EASTING



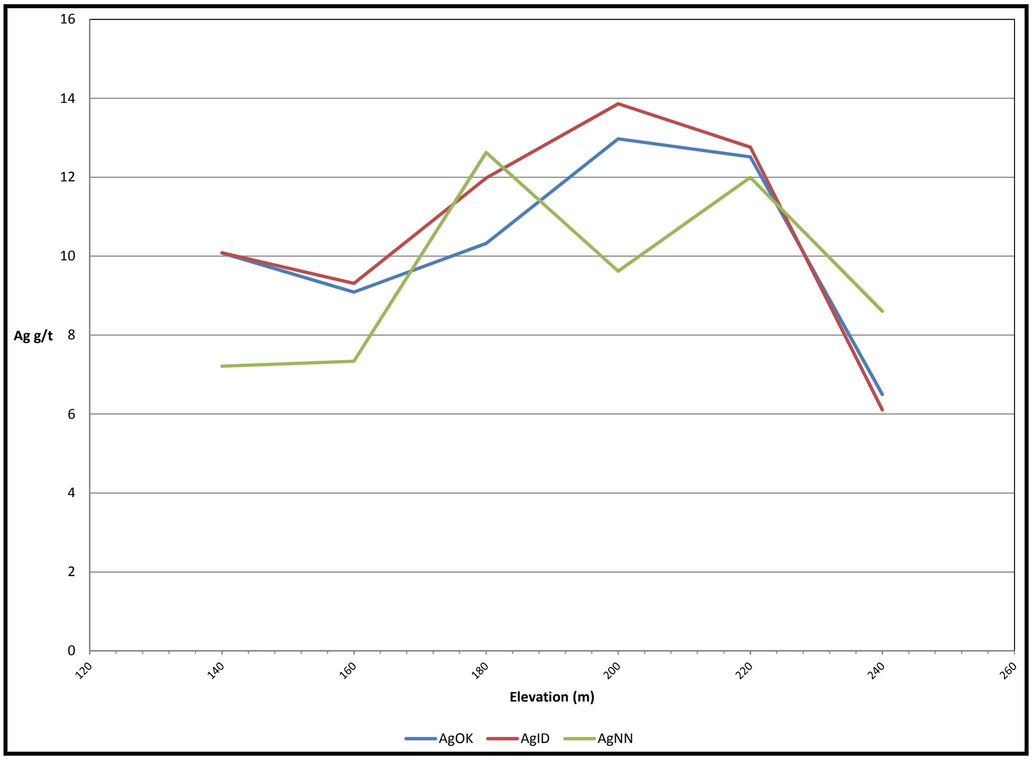
Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.71 SWATH PLOT C ZONE AG GRADE ESTIMATION – NORTHING



Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.72 SWATH PLOT C ZONE AG GRADE ESTIMATION – ELEVATION



Source: *2016 Tetra Tech Report on the Superjack Property.*

14.2.7 Mineral Resource Tabulation

14.2.7.1 Cut-Offs

Mineral resource cut-offs represent ZnEq (%) as a function of zinc, lead, copper, and silver. The following calculation was employed for this value:

Zn = wt.% x 22.0462 lb/wt. % x \$1.12/lb
Pb = wt.% x 72% recovery x 22.0462 lb/wt.% x \$1.06/lb
Cu = wt.% x 86% recovery x 22.0462 lb/wt.% x \$2.97/lb
Ag = g/t x 70% recovery / 31.1035 g/troy oz x \$20.38/troy oz
ZnEq (wt.%) = [Zn + Pb + Cu + Ag] / \$1.12/lb / 22.0462 lb/wt.%

Results from the preliminary metallurgical scoping study (Gilders and Cheung 2012) were used to estimate recoveries of lead and copper. The silver recovery was taken from a recent NI 43-101 technical report of a nearby property (Harron 2012). For the original Mineral Resource Estimate, long-term metal pricing as reported by Consensus Economics (Energy Metals Consensus Forecast, 2012) was used to determine metal prices.

The resulting ZnEq ratios on a value per mass basis, were Pb%:Zn% = 0.681, Cu%:Zn% = 2.281, and Ag(g/t):Zn% = 0.019.

As an exercise, trailing three-year average monthly metal prices from June 2016 were used to estimate what ‘current’ ZnEq ratios would be. This resulted in value per mass basis ratios of Pb%:Zn% = 0.755, Cu%:Zn% = 2.546, and Ag(g/t):Zn% = 0.020. Recoveries of Zn = 96%, Pb = 75%, Cu, 80% and Ag = 68% were applied to calculate these ratios.

Given the small proportional changes to metal prices and similarity in resulting ZnEq ratios, it was decided that re-assignment of ZnEq in the block model to reflect current pricing was not merited.

Mineralization occurs at surface and continues to approximately 400 m depth as a laterally continuous tabular mass. The QP holds the opinion that this style of deposit to be a reasonable prospect for open pit mining. A cut-off of 1.50% ZnEq was chosen based on comparable deposits in the area.

14.2.7.2 Resource Tables

Tables 14.30 and 14.31 show the Superjack Property Superjack A and C zone Mineral Resource.

The Mineral Resources have been classified as Inferred according to CIM Definition Standards for Mineral Resources and Mineral Reserves. An Inferred Mineral Resource is that part of the total resource for which the quantity and grade can be estimated. Data is sufficient enough to reasonably assume both geological and grade continuity. Due to the uncertainty that may exist with Inferred resources, it cannot be assumed that all of any part of the resource will be upgraded to Indicated or Measured as a result of continued exploration activities.

Table 14.30 Mineral Resource for the Superjack A Zone													
				Grade					Contained Metal (000)				
Resource Category*	**ZnEq** Cut-off**	**Density**	**Tonnes (t)**	**Zn (%)**	**Pb (%)**	**Cu (%)**	**Ag (g/t)**	**ZnEq** (%)**	**Zn (lb)**	**Pb (lb)**	**Cu (lb)**	**Ag (oz)**	**ZnEq** (lb)**
Inferred	0.50	3.53	7,560,300	1.52	0.38	0.15	15.3	2.41	253,695	63,577	24,291	3,722	400,920
	1.00	3.74	4,095,800	2.47	0.63	0.20	24.1	3.81	222,894	57,001	17,877	3,175	343,797
	1.50	3.89	2,938,600	3.16	0.82	0.23	30.6	4.82	204,871	53,272	14,623	2,895	312,234
	2.00	3.96	2,423,800	3.59	0.96	0.24	35.3	5.47	192,056	51,105	12,954	2,752	292,182
	2.50	4.00	2,222,300	3.79	1.02	0.25	37.4	5.76	185,642	49,734	12,218	2,673	282,158
	3.00	4.03	2,061,900	3.94	1.06	0.26	39.2	5.99	179,271	48,310	11,607	2,600	272,502
	3.50	4.06	1,907,700	4.09	1.11	0.26	41.0	6.22	171,899	46,747	10,977	2,516	261,557
	4.00	4.07	1,881,600	4.11	1.12	0.26	41.3	6.25	170,583	46,405	10,822	2,496	259,397
	4.50	4.07	1,857,600	4.13	1.12	0.26	41.4	6.28	169,088	46,019	10,697	2,475	257,072
	5.00	4.07	1,637,500	4.26	1.16	0.27	43.0	6.47	153,697	41,987	9,603	2,264	233,699
	5.50	4.08	1,160,400	4.54	1.28	0.29	47.9	6.98	116,234	32,829	7,306	1,787	178,541
	6.00	4.08	876,600	4.75	1.38	0.30	52.8	7.37	91,719	26,676	5,787	1,487	142,428
	6.50	4.07	620,200	5.00	1.47	0.32	58.0	7.82	68,330	20,044	4,321	1,157	106,912
	7.00	4.07	540,200	5.06	1.50	0.33	60.3	7.97	60,263	17,864	3,876	1,048	94,911
	7.50	4.08	363,500	5.17	1.59	0.34	65.0	8.26	41,449	12,710	2,716	760	66,205
	8.00	4.11	225,200	5.25	1.66	0.37	68.6	8.52	26,045	8,241	1,830	496	42,300
	8.50	4.20	83,500	5.44	1.72	0.41	77.7	9.01	10,011	3,164	750	209	16,593
	9.00	4.21	27,800	5.56	1.96	0.42	85.5	9.47	3,402	1,199	256	76	5,798
	9.50	4.22	12,400	5.70	2.08	0.47	87.9	9.84	1,561	569	128	35	2,697

***Note:** all tonnage estimated are rounded to nearest hundred.*

- The resource estimate is reported using a 1.5 ZnEq% cut-off, other values are shown here to demonstrate sensitivity to cut-off grade. Resources are categorized according to CIM Definition Standards; it cannot be assumed that all or any part of Inferred Mineral Resources will be upgraded to Indicated or Measured as a result of continued exploration.

**** ZnEq calculated using trailing metal price trends from 2012 of $1.12/lb Zn, $1.06/lb Pb, $2.97/lb Cu, and $20.38/oz Ag. Metal recoveries values applied as 100% Zn, 72% Pb, 86% Cu, and 70% Ag.*

***Source:** 2016 Tetra Tech Report on the Superjack Property.*

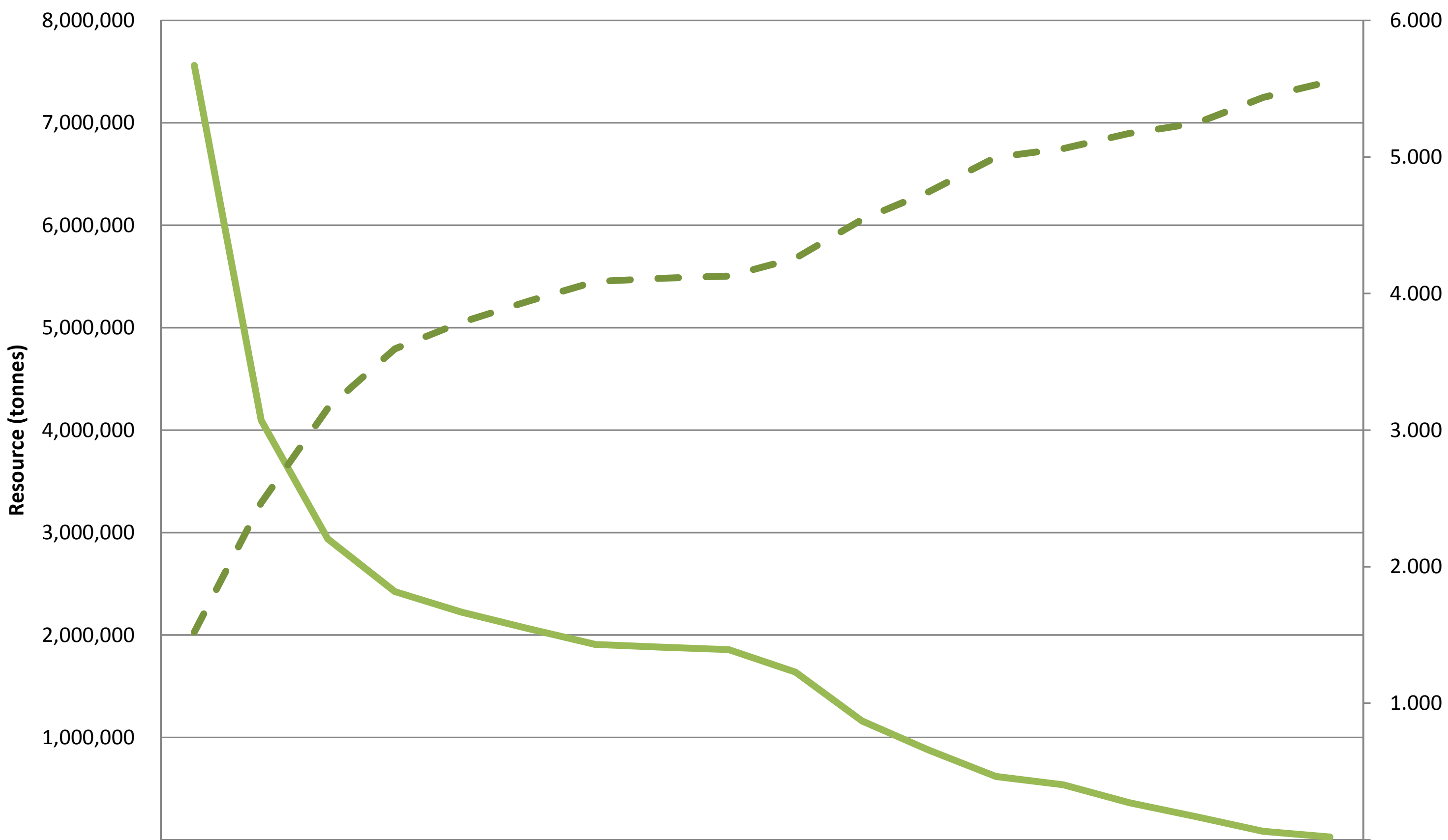
TABLE 14.31 **MINERAL RESOURCE FOR THE SUPERJACK C ZONE**														
				Grade					**Contained Metal (000)**					
Resource Category*	**ZnEq** Cut-off**	**Density**	**Tonnes (t)**	**Zn (%)**	**Pb (%)**	**Cu (%)**	**Ag (g/t)**	**ZnEq** (%)**	**Zn (lb)**	**Pb (lb)**	**Cu (lb)**	**Ag (oz)**	**ZnEq** (lb)**
Inferred	0.50	3.60	741,100	0.85	0.22	0.20	12.1	1.67	13,830	3,560	3,199	289	27,315
	1.00	3.76	586,800	0.96	0.23	0.22	13.2	1.86	12,397	2,996	2,811	249	24,084
	1.50	4.17	272,400	1.41	0.32	0.27	16.6	2.56	8,457	1,925	1,636	145	15,384
	2.00	4.12	165,400	1.76	0.42	0.29	20.7	3.11	6,420	1,543	1,063	110	11,327
	2.50	4.03	100,300	2.09	0.55	0.31	25.4	3.65	4,616	1,206	683	82	8,065
	3.00	3.89	60,200	2.45	0.70	0.32	30.8	4.24	3,252	926	428	60	5,633
	3.50	3.77	36,000	2.86	0.89	0.33	35.3	4.89	2,271	701	265	41	3,883
	4.00	3.76	32,500	2.93	0.90	0.33	36.2	4.99	2,101	648	238	38	3,576
	4.50	3.74	17,500	3.54	1.00	0.30	40.1	5.67	1,362	386	117	22	2,184
	5.00	3.91	12,000	3.76	1.15	0.29	41.4	6.00	996	304	77	16	1,587
	5.50	3.99	10,200	3.84	1.19	0.30	43.6	6.16	862	269	66	14	1,385
	6.00	4.13	8,200	3.85	1.31	0.30	43.5	6.26	697	236	55	11	1,131

Note: *all tonnage estimates are rounded to nearest hundred. Contained metal estimates are shown in thousands.*
***** *The resource estimate is reported using a 1.50 ZnEq% cut-off, other values are shown here to demonstrate sensitivity to cut-off grade. Resources are categorized according to CIM Definition Standards; it cannot be assumed that all or any part of Inferred Mineral Resources will be upgraded to Indicated or Measured as a result of continued exploration.*
****** *ZnEq calculated using trailing metal price trends from 2012 of $1.12/lb Zn, $1.06/lb Pb, $2.97/lb Cu, and $20.38/oz Ag. Metal recoveries values applied as 100% Zn, 72% Pb, 86% Cu, and 70% Ag.*
Source: *2016 Tetra Tech Report on the Superjack Property.*

14.2.7.3 Grade-Tonnage Curves

Figures 14.73 to 14.80 depict grade-tonnage curves for the Superjack A and C Zone Mineral Resources. These provide a graphic synopsis of the Mineral Resources.

FIGURE 14.73 GRADE-TONNAGE CURVES, SUPERJACK A ZONE – ZN INFERRED

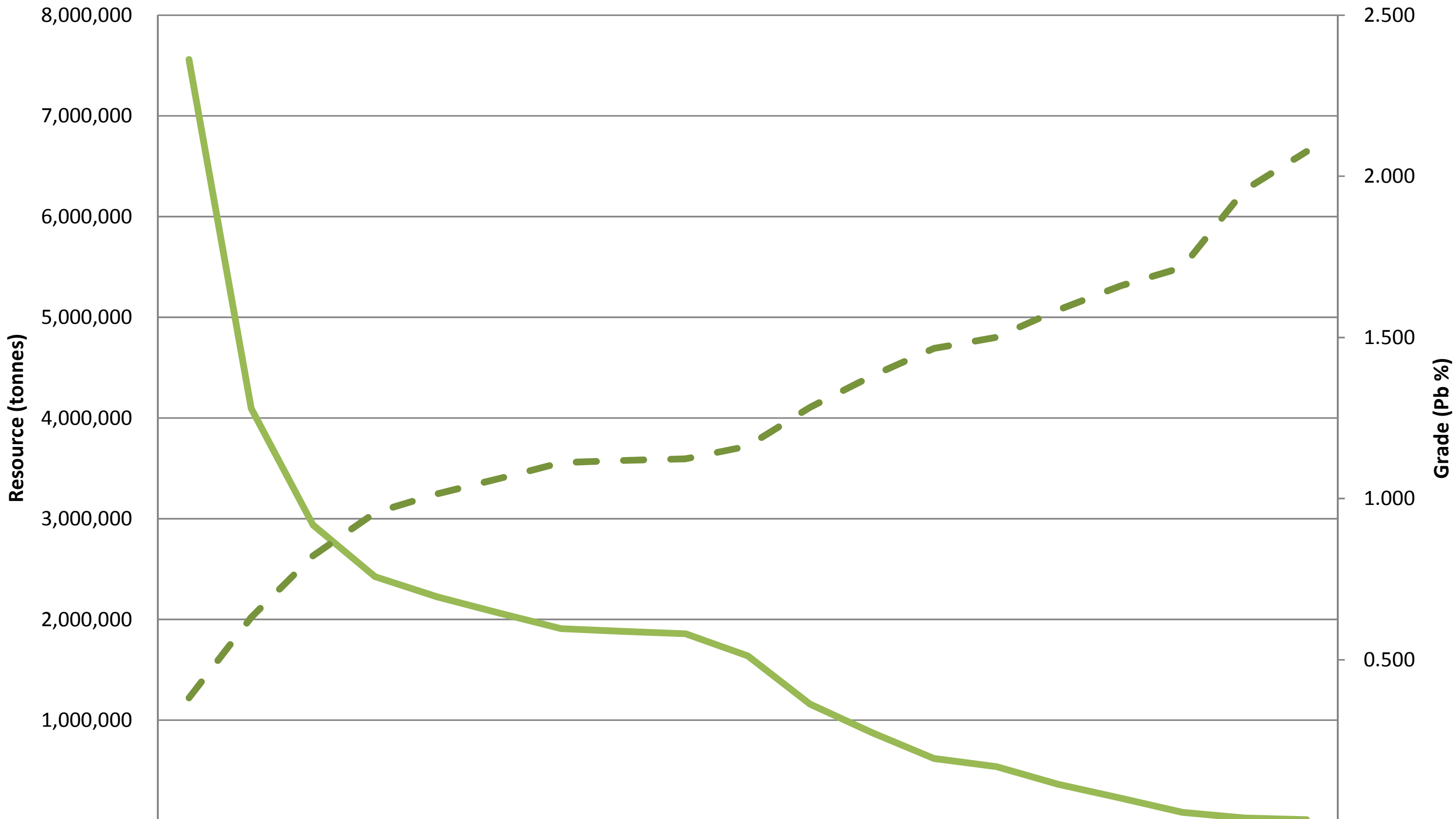


	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9
Inferred Tonnes	7,560,272	4,095,820	2,938,613	2,423,801	2,222,335	2,061,896	1,907,677	1,881,594	1,857,644	1,637,473	1,160,408	876,565	620,190	540,227	363,519	225,154	83,539	27,773
Inferred Zn %	1.522	2.468	3.162	3.594	3.789	3.944	4.087	4.112	4.129	4.258	4.543	4.746	4.998	5.060	5.172	5.247	5.435	5.555

Cut-off Grade (Zn equivalent %)

Source: *2016 Tetra Tech Report on the Superjack Property.*

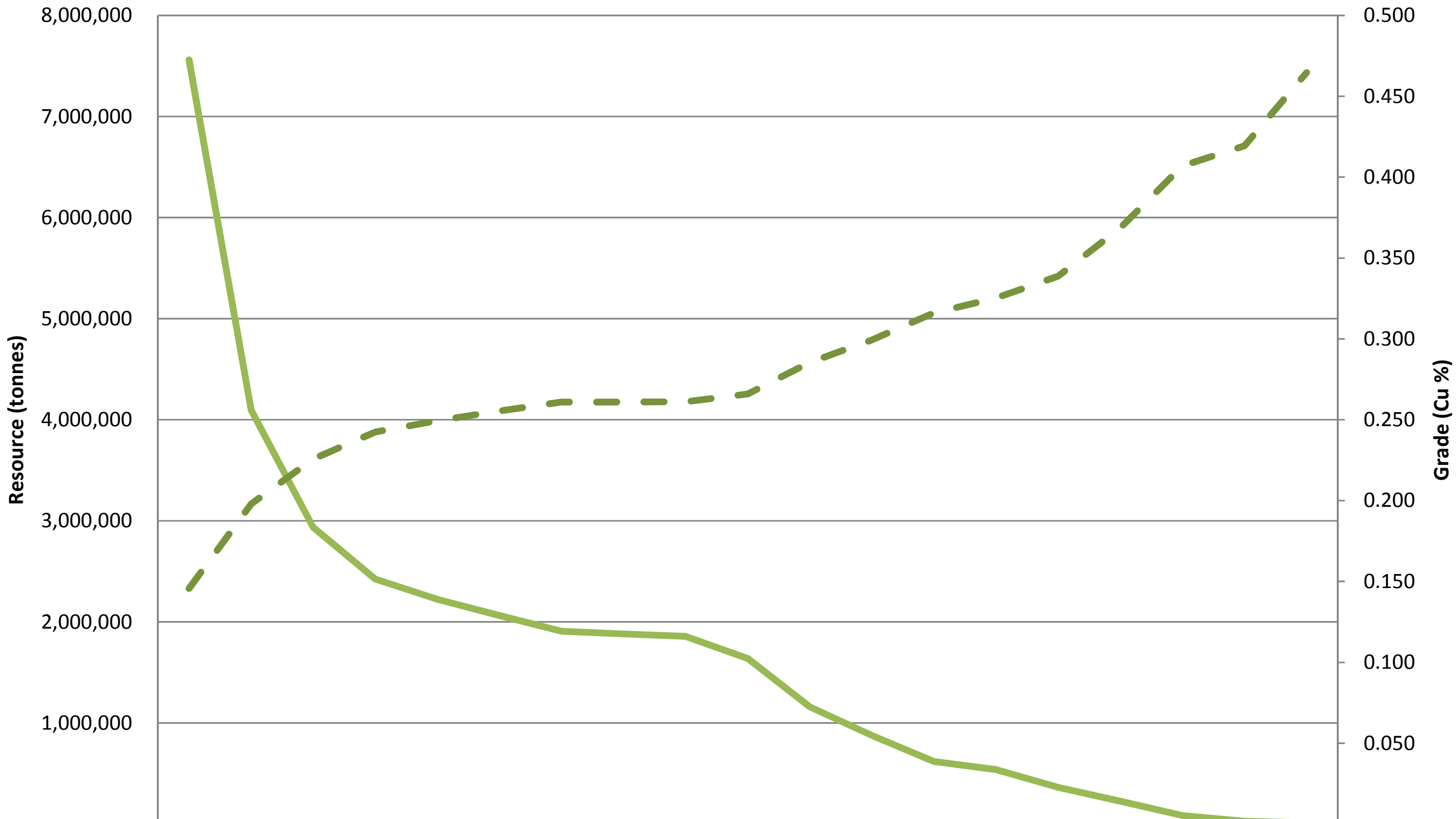
FIGURE 14.74 GRADE-TONNAGE CURVES, SUPERJACK A ZONE – PB INFERRED



	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5
Inferred Tonnes	7,560,272	4,095,820	2,938,613	2,423,801	2,222,335	2,061,896	1,907,677	1,881,594	1,857,644	1,637,473	1,160,408	876,565	620,190	540,227	363,519	225,154	83,539	27,773	12,426
Inferred Pb %	0.381	0.631	0.822	0.956	1.015	1.063	1.112	1.119	1.124	1.163	1.283	1.380	1.466	1.500	1.586	1.660	1.718	1.957	2.077

Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.75 GRADE-TONNAGE CURVES, SUPERJACK A ZONE – CU INFERRED

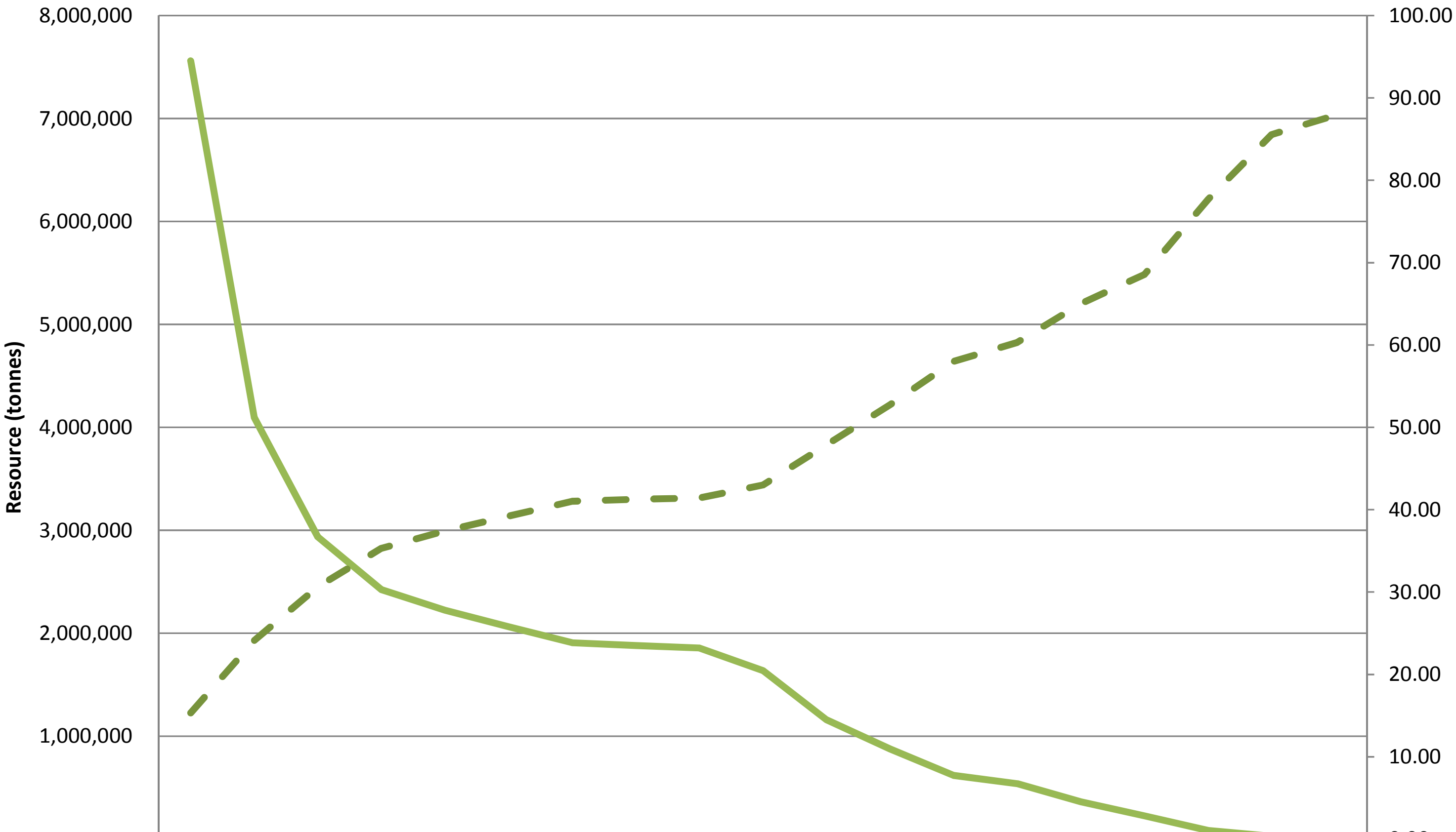


	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5
Inferred Tonnes	7,560,272	4,095,820	2,938,613	2,423,801	2,222,335	2,061,896	1,907,677	1,881,594	1,857,644	1,637,473	1,160,408	876,565	620,190	540,227	363,519	225,154	83,539	27,773	12,426
Inferred Cu %	0.146	0.198	0.226	0.242	0.249	0.255	0.261	0.261	0.261	0.266	0.286	0.299	0.316	0.325	0.339	0.369	0.407	0.419	0.465

Cut-off Grade (Zn equivalent %)

Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.76 GRADE-TONNAGE CURVES, SUPERJACK A ZONE – AG INFERRED

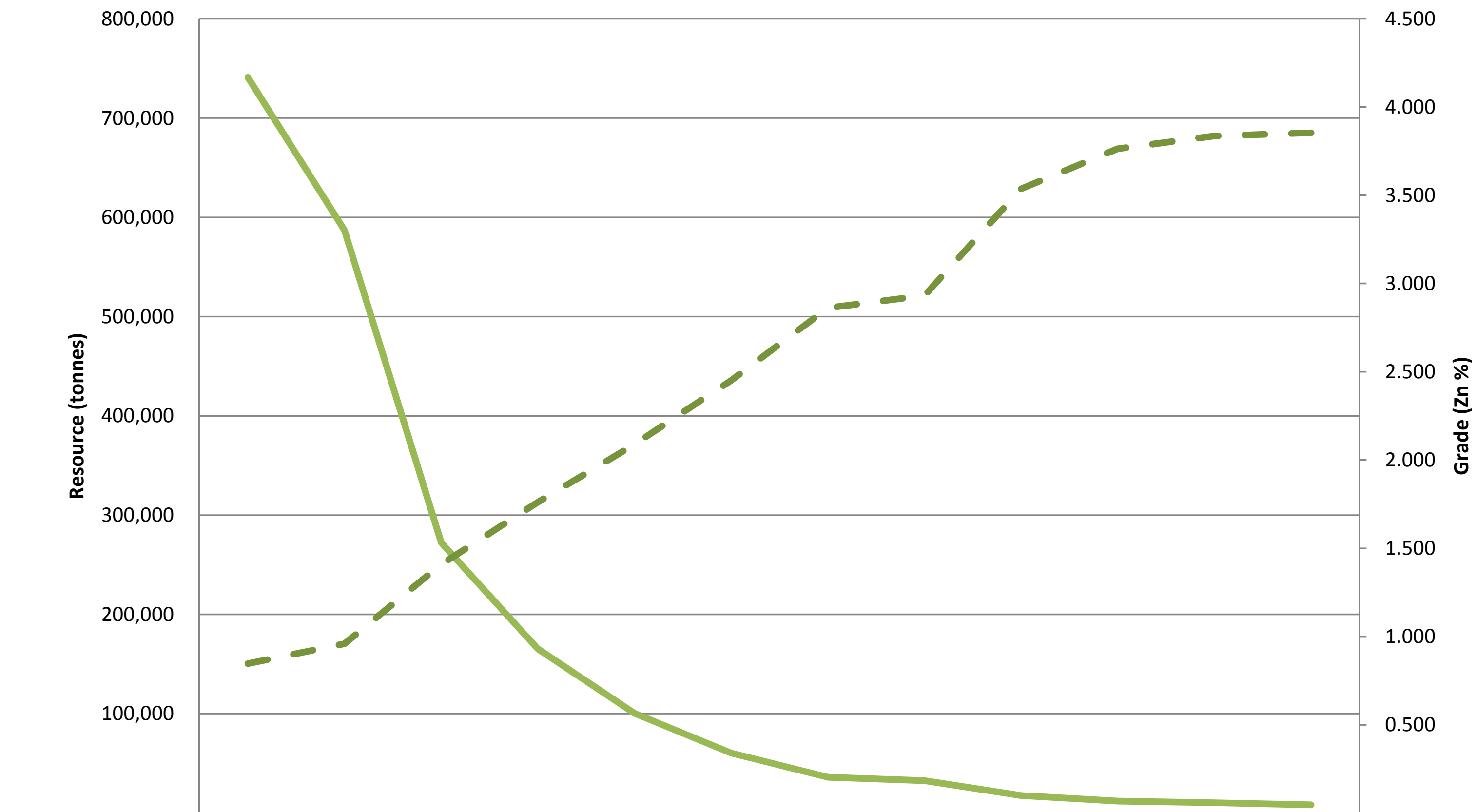


	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5
Inferred Tonnes	7,560,272	4,095,820	2,938,613	2,423,801	2,222,335	2,061,896	1,907,677	1,881,594	1,857,644	1,637,473	1,160,408	876,565	620,190	540,227	363,519	225,154	83,539	27,773	12,426
Inferred Ag g/t	15.31	24.11	30.64	35.31	37.41	39.22	41.02	41.25	41.44	42.99	47.89	52.76	58.01	60.33	65.03	68.56	77.70	85.54	87.87

Cut-off Grade (Zn equivalent %)

Source: *2016 Tetra Tech Report on the Superjack Property.*

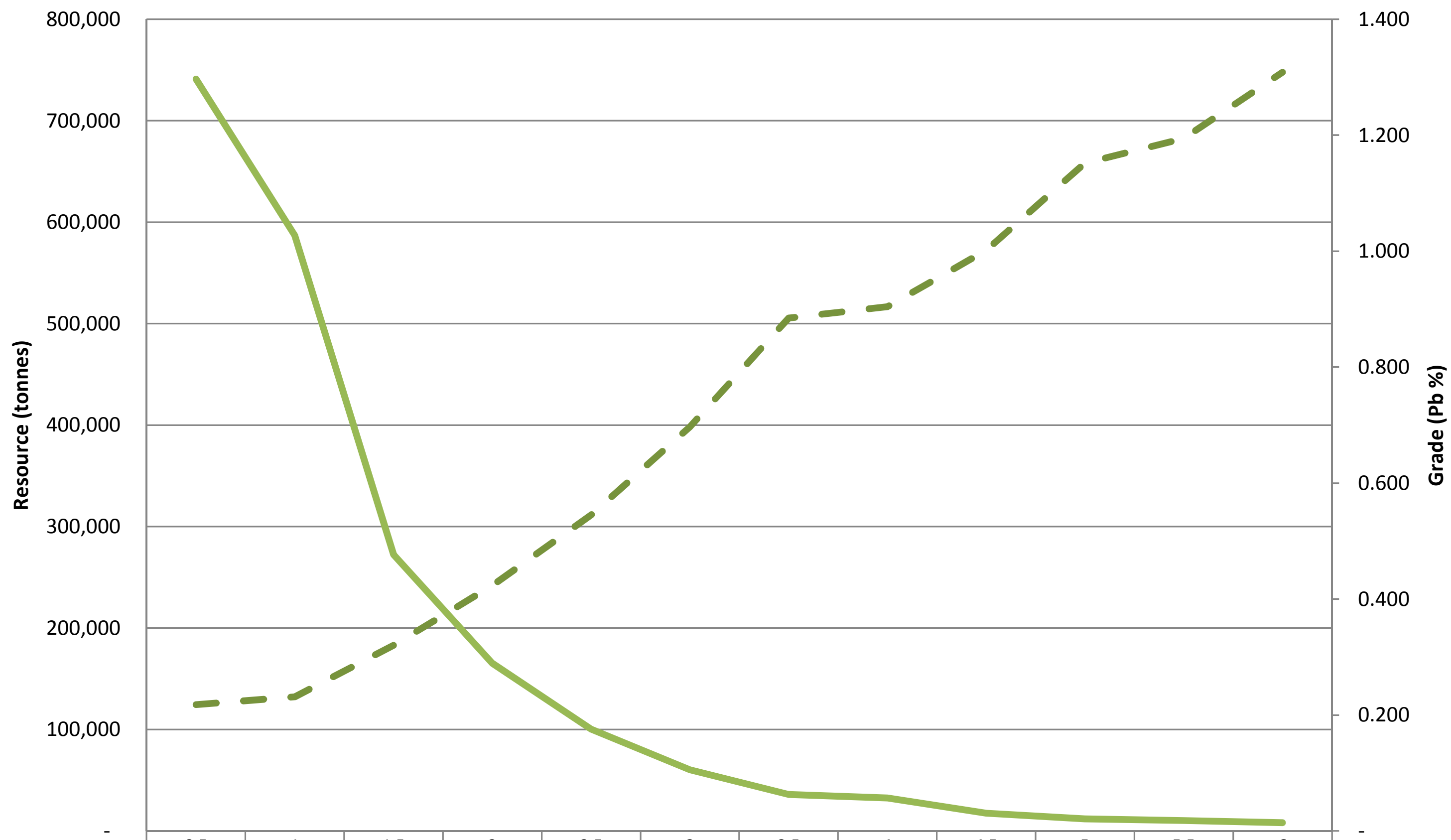
FIGURE 14.77 GRADE-TONNAGE CURVES, SUPERJACK C ZONE – ZN INFERRED



	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
Inferred Tonnes	741,107	586,777	272,402	165,384	100,314	60,207	35,988	32,489	17,468	12,000	10,201	8,194
Inferred Zn %	0.846	0.958	1.408	1.761	2.088	2.450	2.862	2.932	3.537	3.763	3.836	3.854

Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.78 GRADE-TONNAGE CURVES, SUPERJACK C ZONE – PB INFERRED

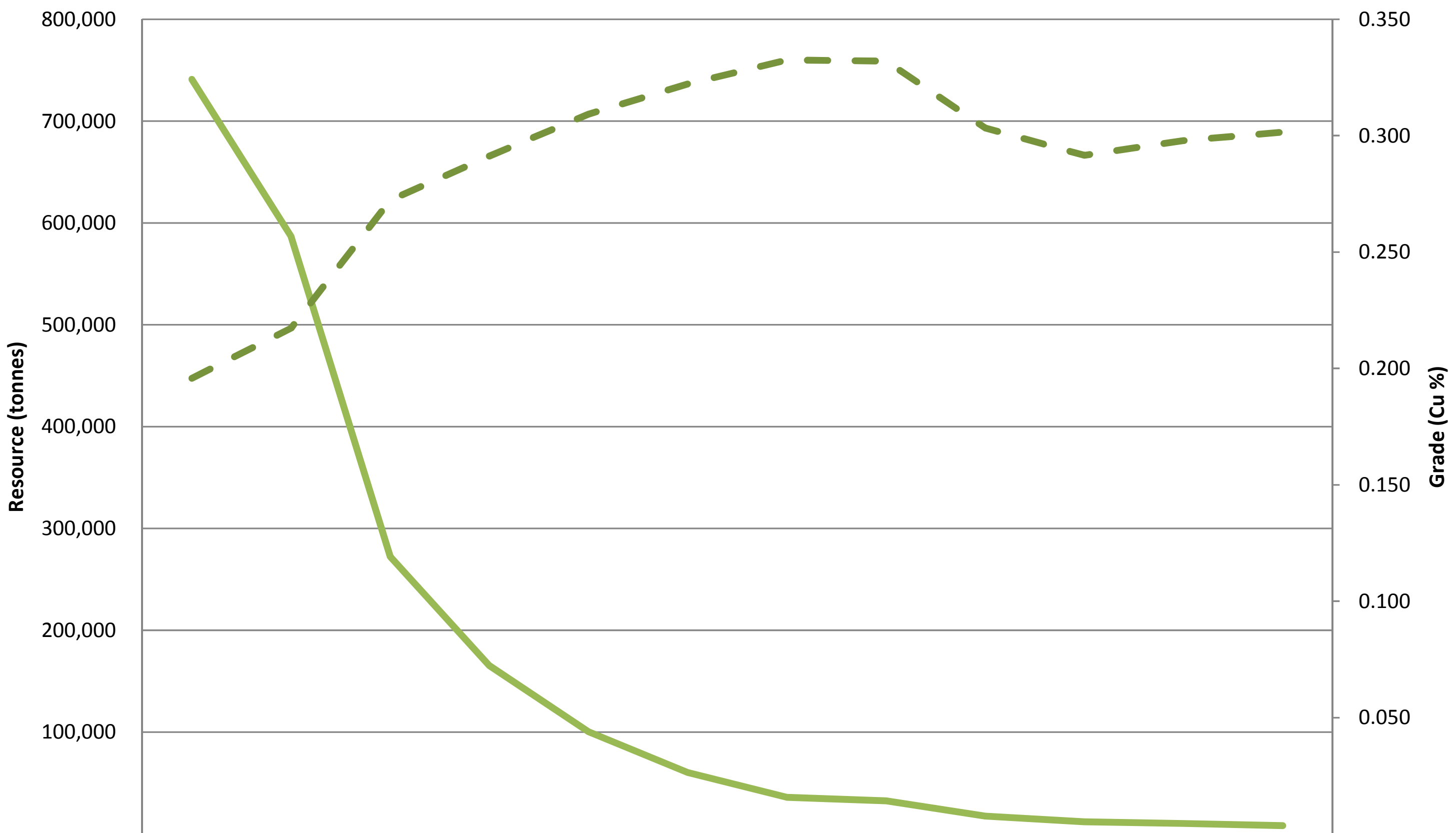


	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
Inferred Tonnes	741,107	586,777	272,402	165,384	100,314	60,207	35,988	32,489	17,468	12,000	10,201	8,194
Inferred Pb %	0.218	0.232	0.320	0.423	0.545	0.697	0.885	0.904	1.002	1.152	1.194	1.308

Cut-off Grade (Zn equivalent %)

Source: *2016 Tetra Tech Report on the Superjack Property.*

FIGURE 14.79 GRADE-TONNAGE CURVES, SUPERJACK C ZONE – CU INFERRED

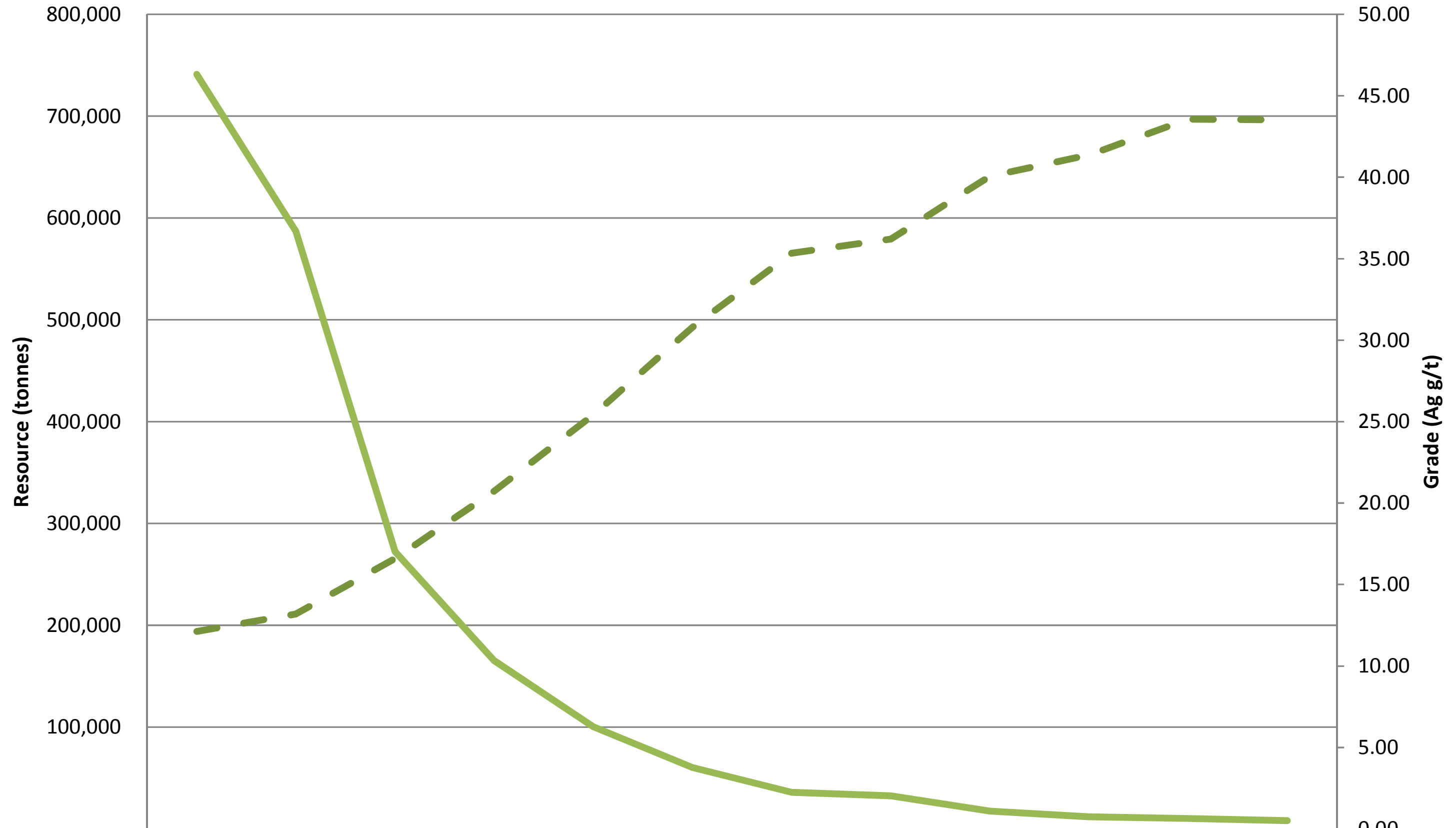


	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
Inferred Tonnes	741,107	586,777	272,402	165,384	100,314	60,207	35,988	32,489	17,468	12,000	10,201	8,194
Inferred Cu %	0.196	0.217	0.272	0.291	0.309	0.322	0.332	0.332	0.303	0.292	0.298	0.302

Cut-off Grade (Zn equivalent %)

Source: *2016 Tetra Tech Report on the Superjack Property.*

Figure 14.80 Grade-Tonnage Curves, Superjack C Zone – Ag Inferred



	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
Inferred Tonnes	741,107	586,777	272,402	165,384	100,314	60,207	35,988	32,489	17,468	12,000	10,201	8,194
Inferred Ag g/t	12.12	13.20	16.60	20.73	25.42	30.79	35.34	36.21	40.06	41.37	43.56	43.53

Cut-off Grade (Zn equivalent %)

Source: *2016 Tetra Tech Report on the Superjack Property.*

15.0 MINERAL RESERVE ESTIMATES

There is no Mineral Reserve Estimate currently identified at the Nash Creek or Superjack Properties.

According to NI 43-101 guidelines, a Preliminary Economic Assessment is considered preliminary in nature and includes the use of Inferred Mineral Resources which are considered too speculative geologically to apply economic considerations that would enable them to be categorized as Mineral Reserves.

16.0 MINING METHODS

16.1 INTRODUCTION

The PEA proposes a conventional truck and shovel open pit mining operation with leased-to-own equipment, to extract the potentially economic Mineral Resources at the Nash Creek and Superjack Properties.

The mine plan for the Nash Creek Property has an approximate ten-year production life with total on-site DMS process plant capacity of approximately 1.4 Mt per year.

The proposed site plan at Nash Creek is illustrated in Figure 16.1.

Initial mining activities will be carried out at the Superjack Property, located approximately 45 km by road southwest of Bathurst. A proposed plan of the Superjack mining site is provided in Figure 16.2.

FIGURE 16.1 NASH CREEK PROPERTY SITE PLAN

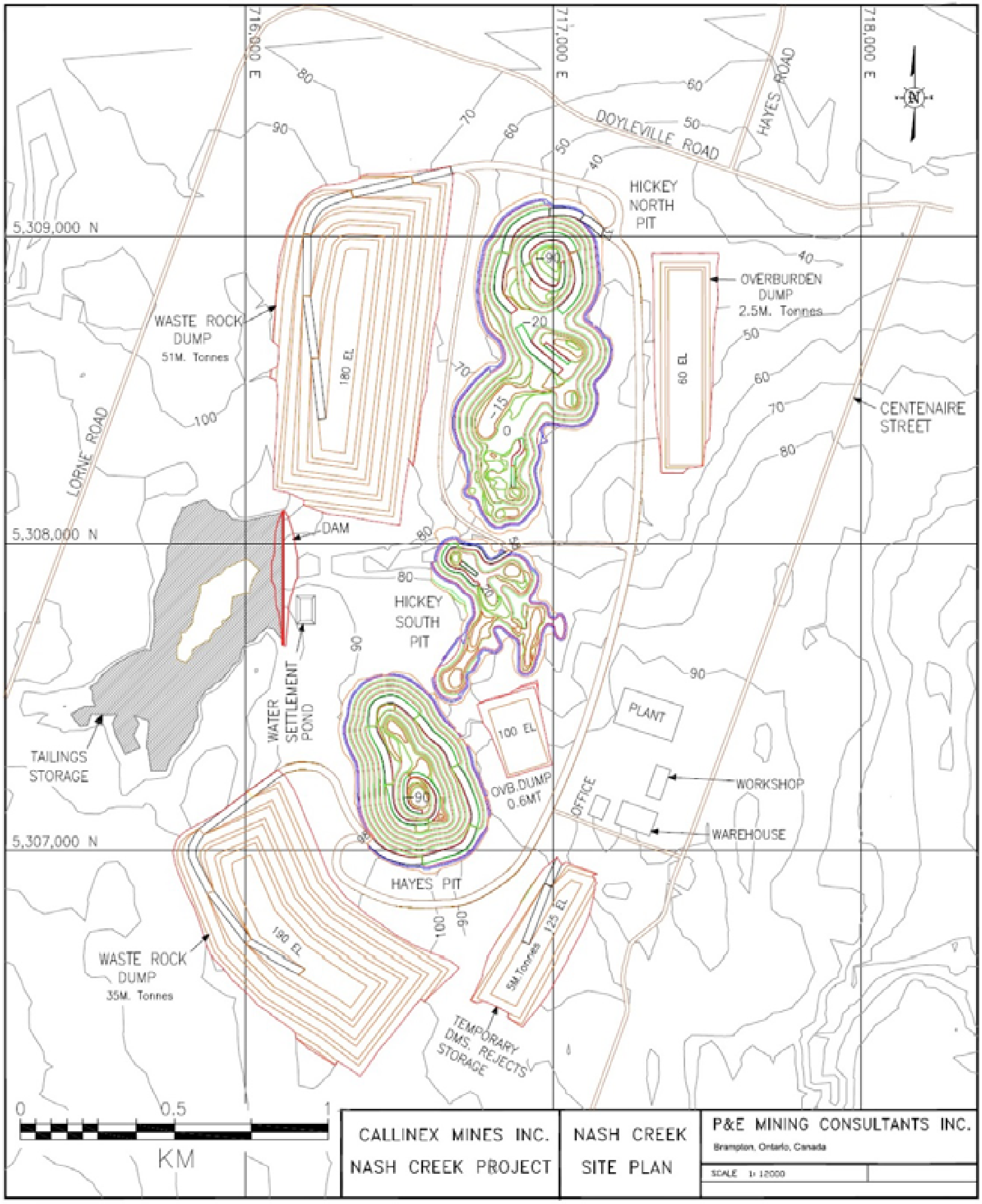
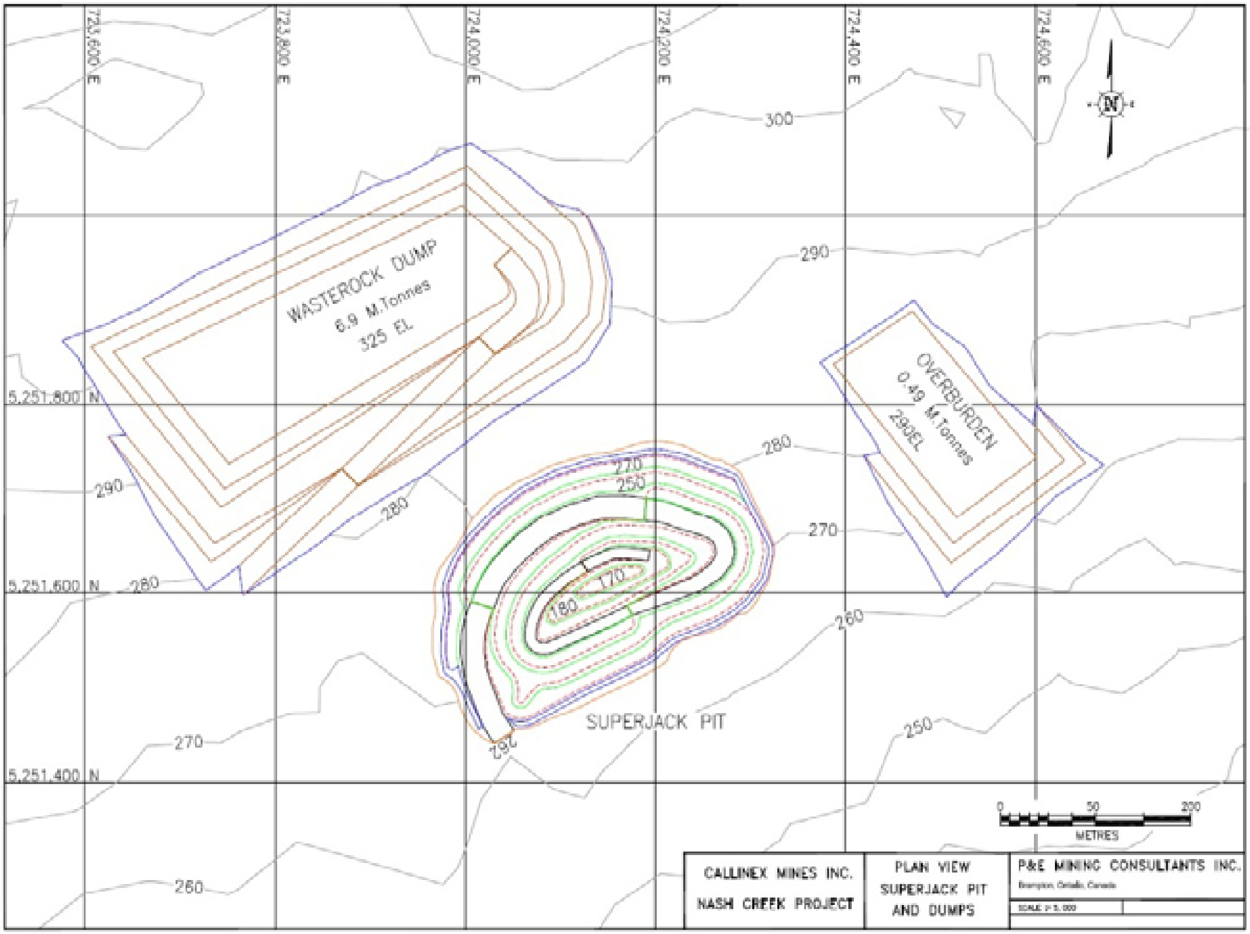


FIGURE 16.2 SUPERJACK PROPERTY SITE PLAN



16.2 PIT OPTIMIZATION

P&E examined the Mineral Resource block model developed for the Nash Creek and Superjack Properties and developed a series of optimized incremental pit shells for a selection of various zinc equivalent cut-off grades. The optimization analysis included Indicated and Inferred Mineral Resources. For pit optimization, a base case ZnEq cut-off grade of 1.50% for Nash Creek and 2.00% for Superjack was used along with an inter-ramp pit slope of 50°. The Mineral Resources were compared in terms of the total value potentially produced and the related waste/overburden stripping ratios. Of special interest was the rate of increase (or decrease) of certain factors in these comparable pit shells, as the open pit shells were excavated deeper.

The determination of an appropriate ZnEq cut-off grade was based on the parameters listed in Table 16.1.

TABLE 16.1 CUT-OFF GRADE DETERMINATION PARAMETERS	
Zn Price	US$1.20/lb
Currency Exchange Rate	US$0.80/CDN$
Zn Process Recovery	85%
Smelter Payable	80%
Concentrate Mass Pull	6.0%
Concentrate Freight & Re-handle	$50/t
Smelter Concentrate Treatment Charge	US$150/t
Process Cost	$16.00/t
G&A Cost	$2.50/t

16.3 PIT DESIGNS

An operational pit design was created using the selected optimized shell as the basis. Benches and haul roads were added, according to the parameters shown in Table 16.2.

TABLE 16.2 PIT DESIGN PARAMETERS	
Haulage Road	
Haul Road Width (double lane)	25 m
Haul Road Width (single lane)	12 m
Haul Road Grade (maximum)	10%
Overburden Slope	
Bench Height	10 m
Bench Face Angle	35º
Catch-bench Width	7.2 m
Inter-ramp Angle	25º
Rock Slope	
Bench Height (triple bench)	20 m
Bench Face Angle	75º
Catch-bench Width	11.4 m
Inter-ramp Angle	50º

Figures 16.3 through to Figure 16.8 show the Hickey North, Hickey South and Hayes open pits in plan and section respectively.

FIGURE 16.3 ULTIMATE NASH CREEK HICKEY NORTH OPEN PIT PLAN VIEW

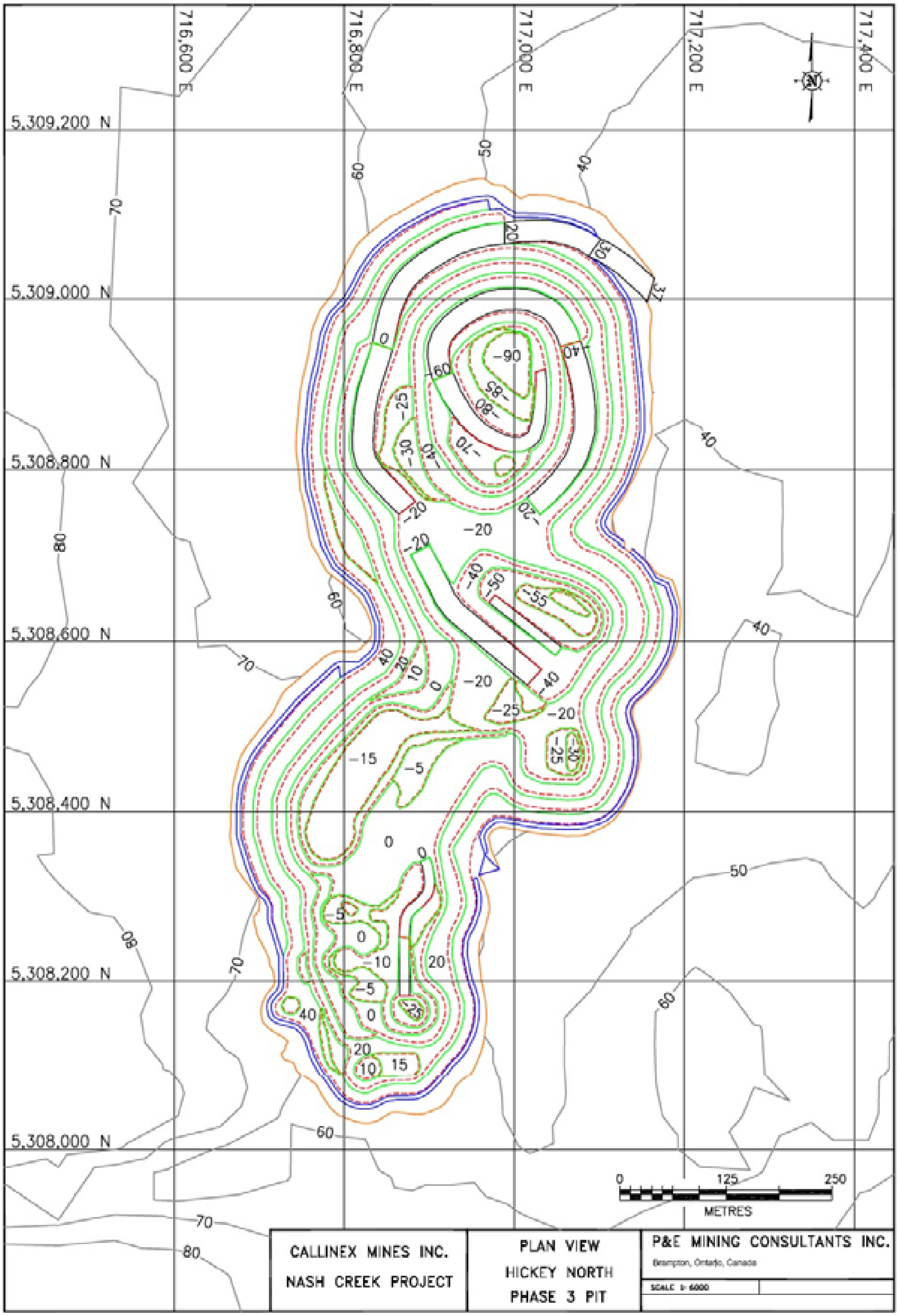


FIGURE 16.4 ULTIMATE NASH CREEK HICKEY SOUTH OPEN PIT PLAN VIEW

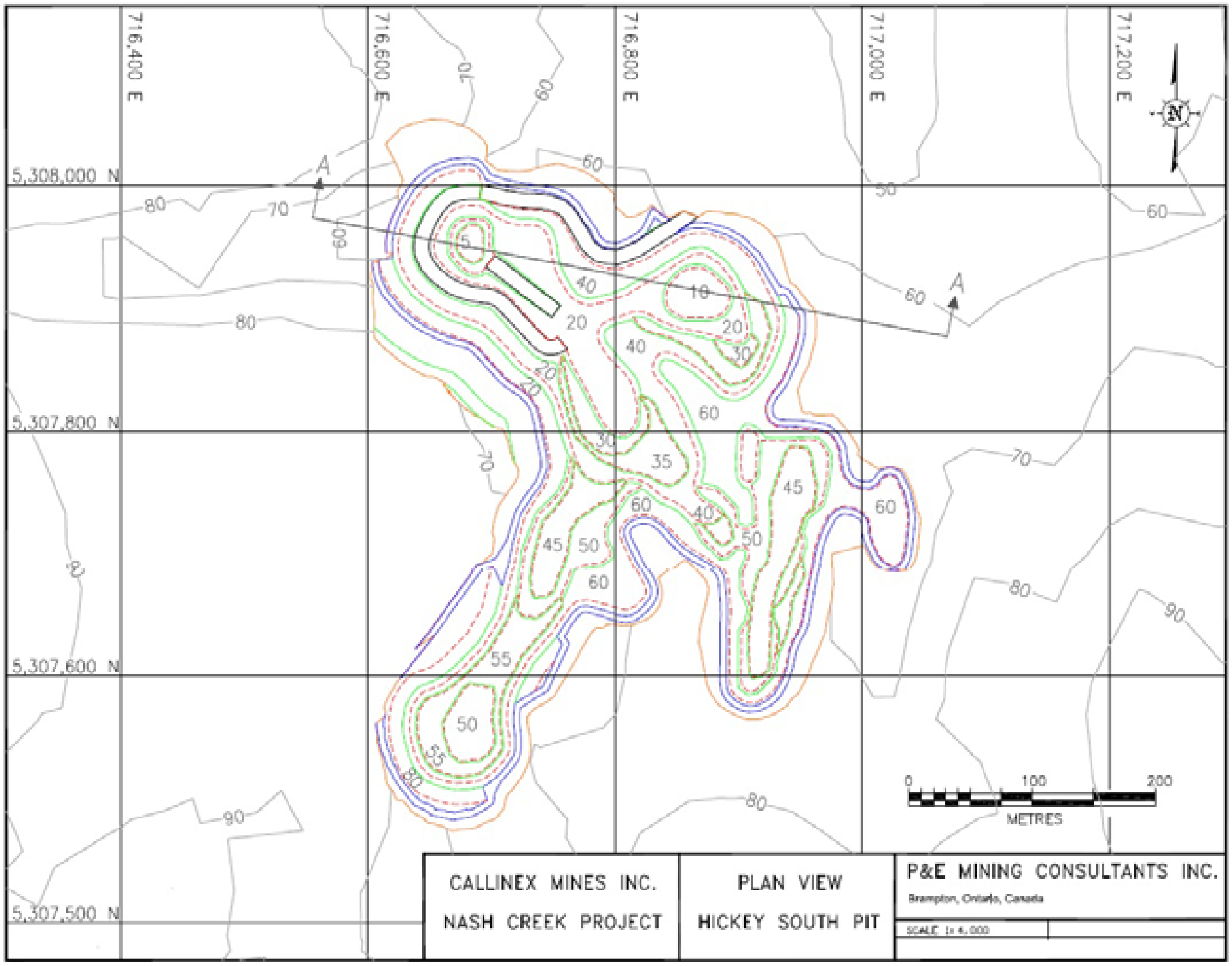


FIGURE 16.5 ULTIMATE NASH CREEK HAYES OPEN PIT PLAN VIEW

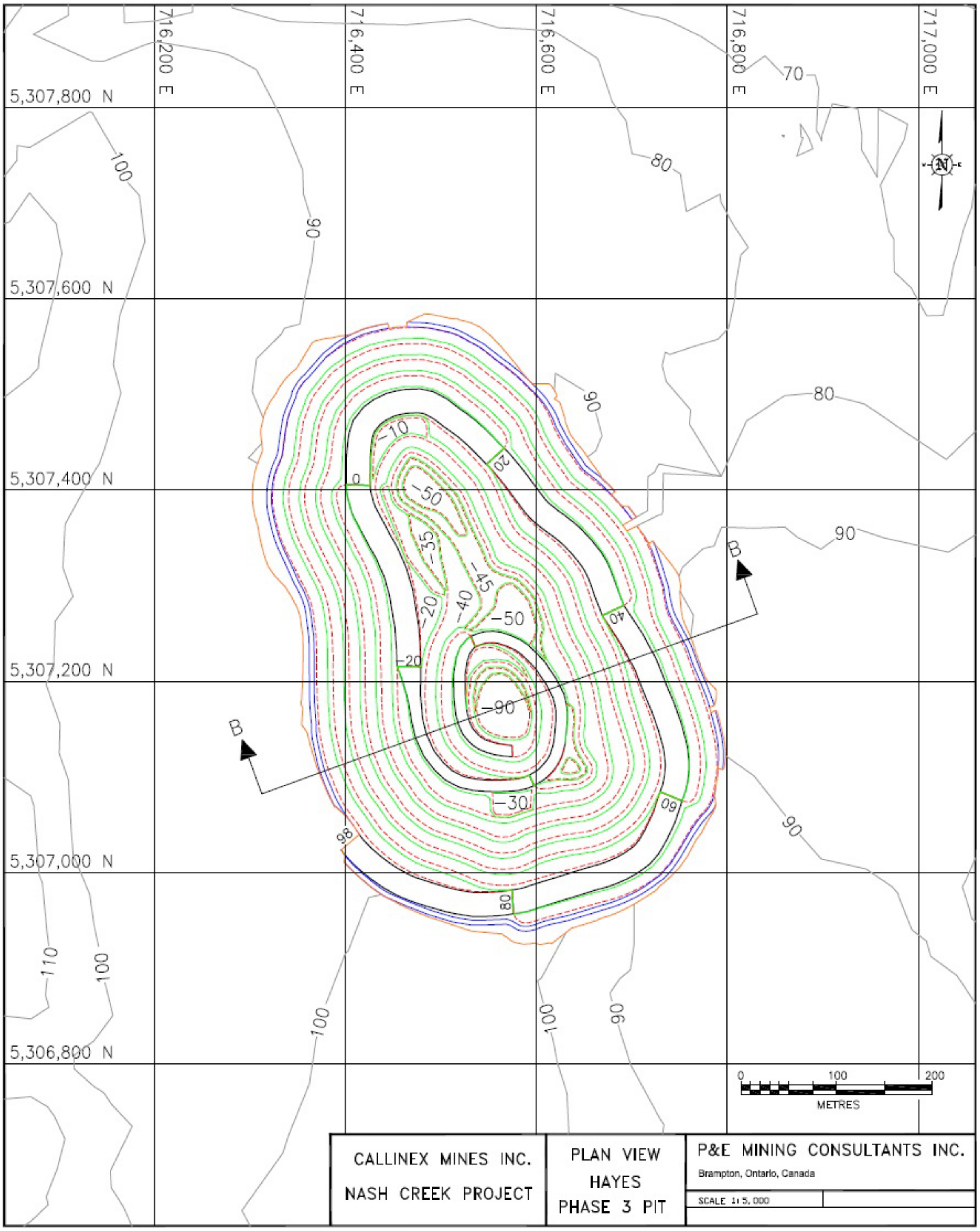


FIGURE 16.6 ULTIMATE HICKEY NORTH OPEN PIT LONGITUDINAL SECTION

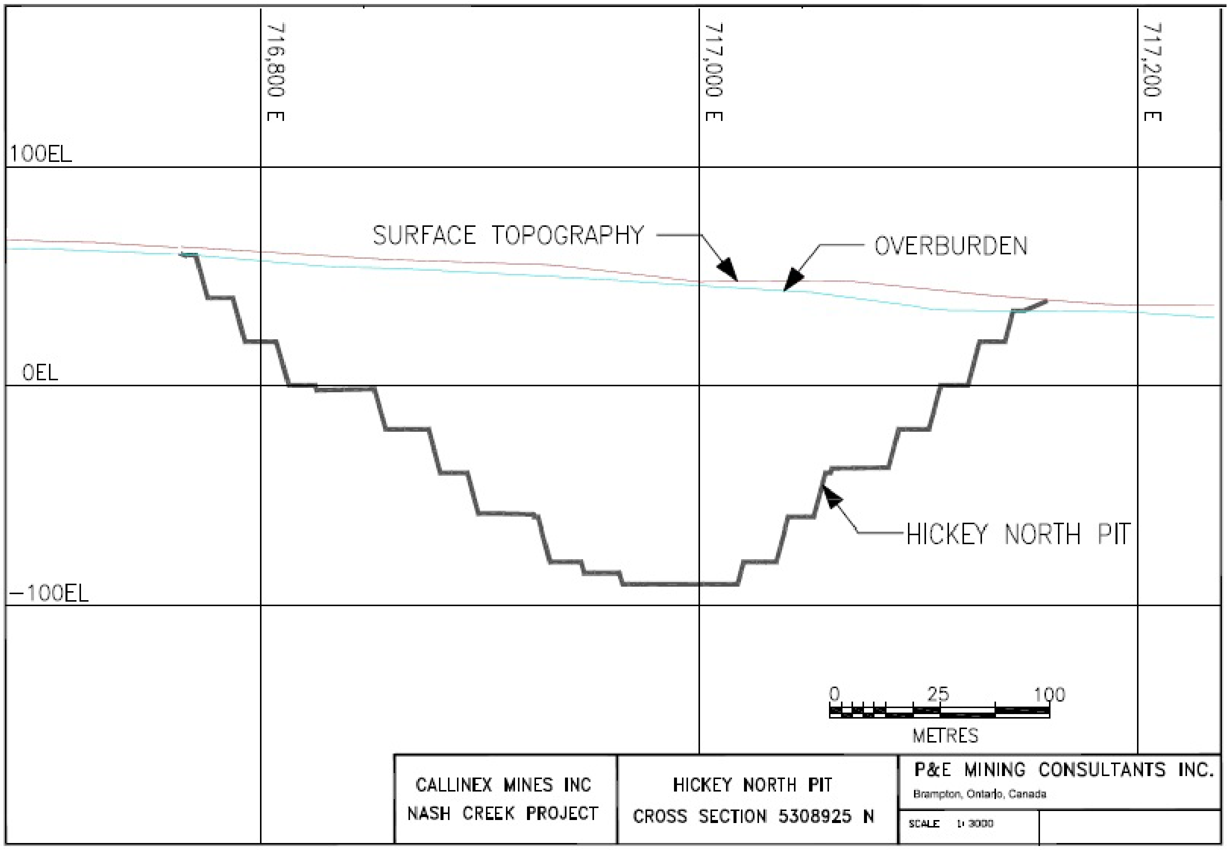


FIGURE 16.7 ULTIMATE HICKEY SOUTH OPEN PIT CROSS-SECTION A-A

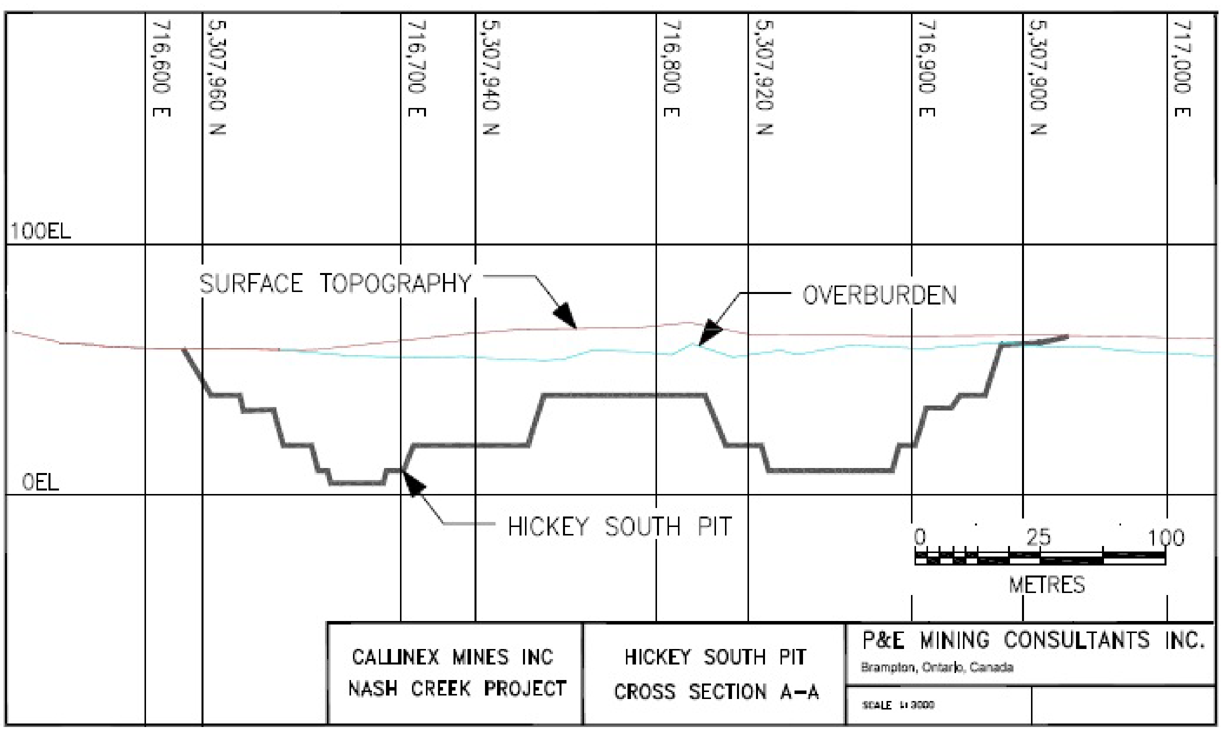
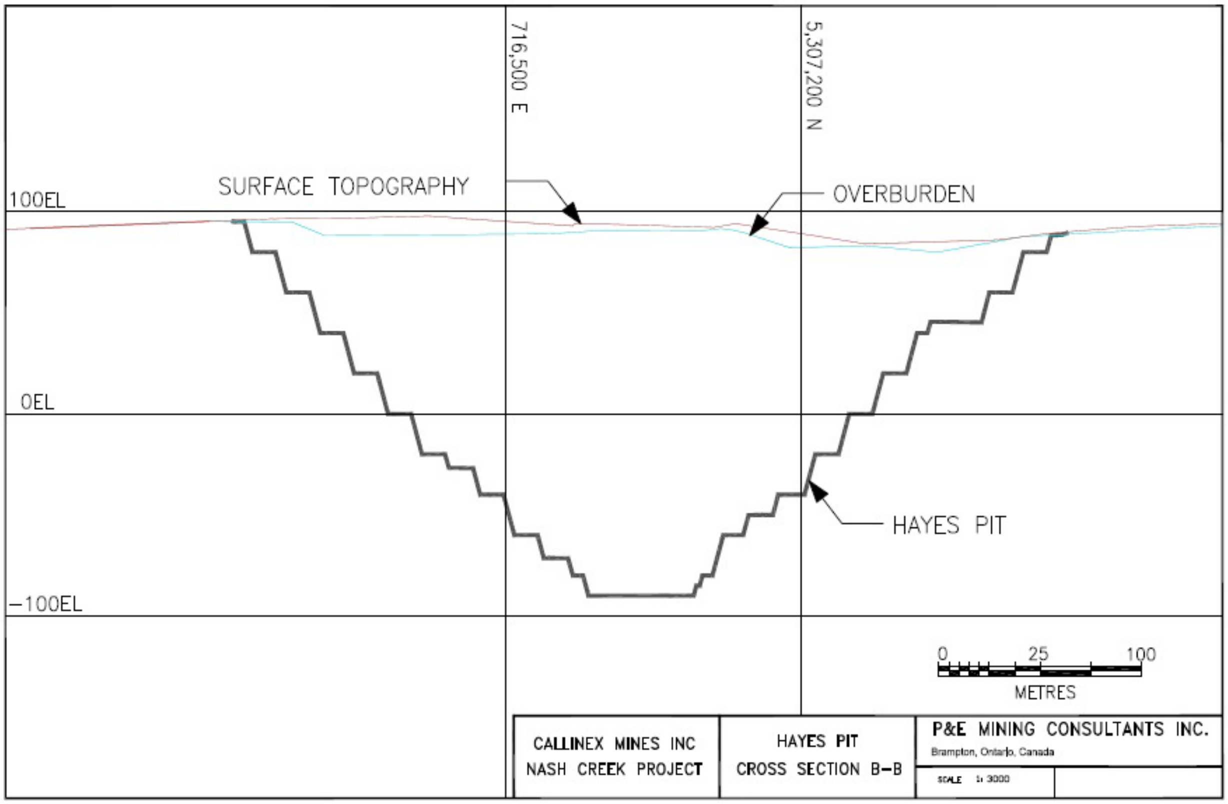


FIGURE 16.8 ULTIMATE HAYES OPEN PIT CROSS-SECTION B-B



Figures 16.9 and 16.10 show the Superjack open pit in plan and cross-section respectively.

FIGURE 16.9 ULTIMATE SUPERJACK OPEN PIT PLAN VIEW

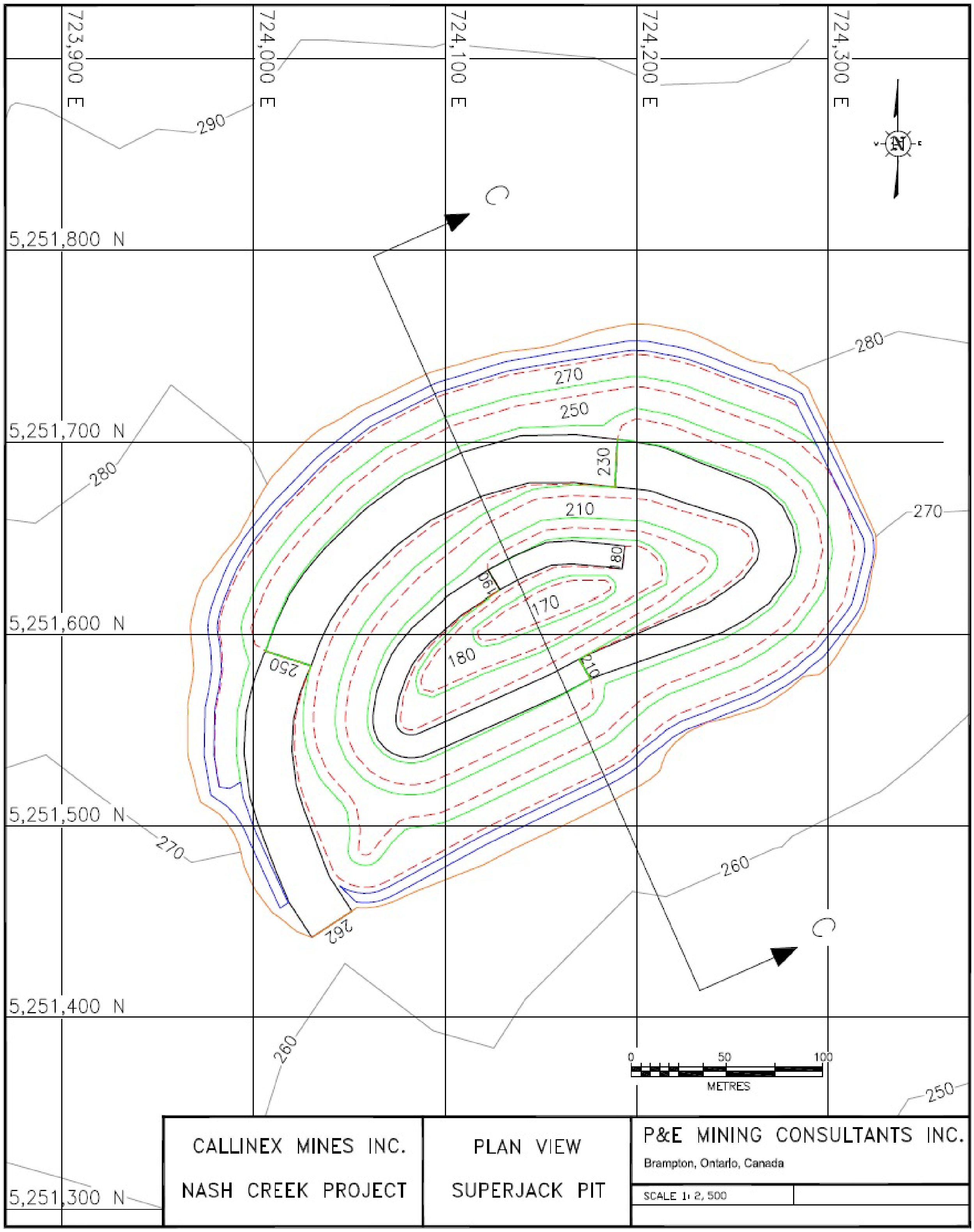
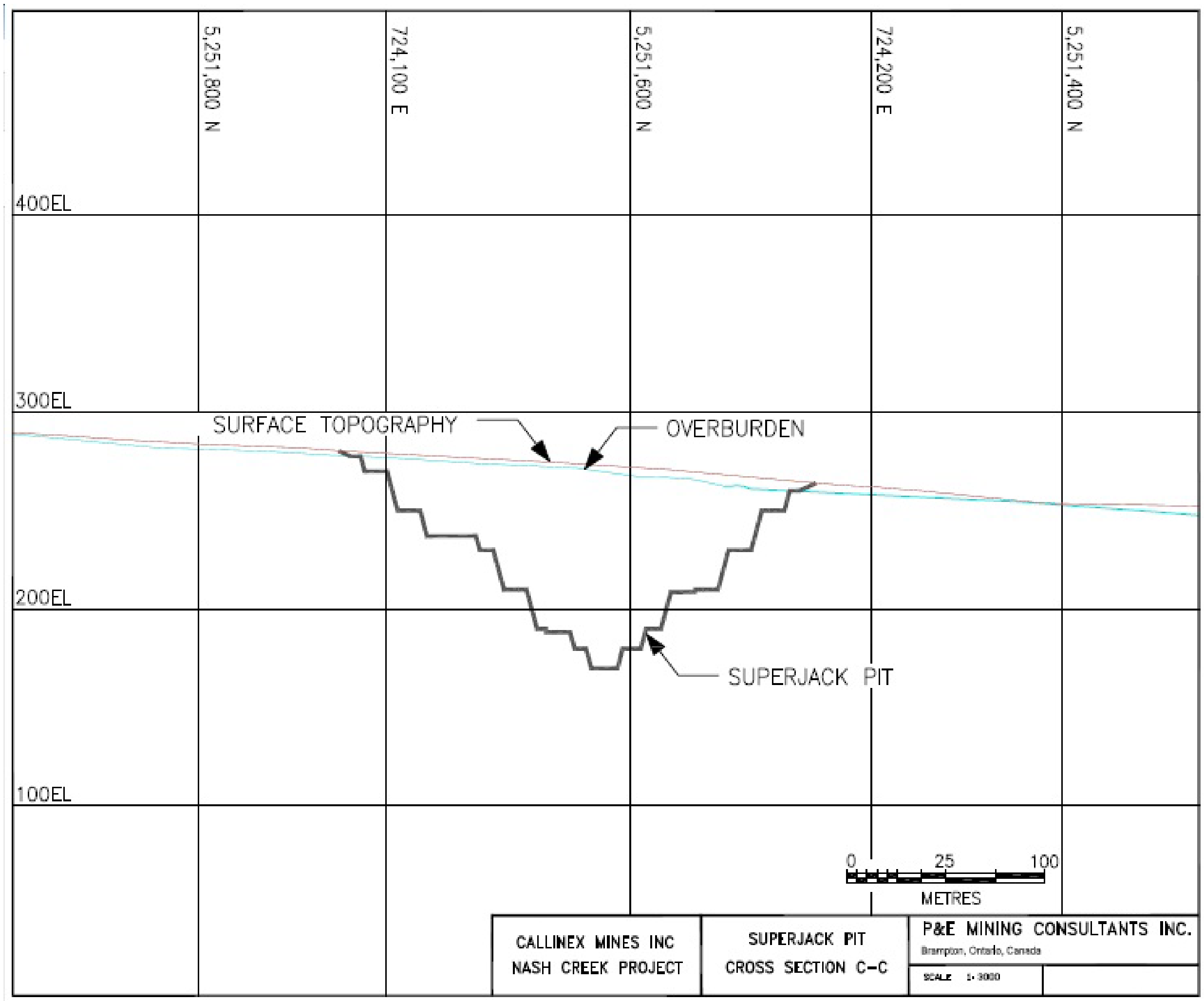


FIGURE 16.10 ULTIMATE SUPERJACK OPEN PIT CROSS-SECTION C-C



16.4 MINING DILUTION AND LOSSES OF MINERALIZED MATERIAL

The open pit mining dilution was estimated to be 10% at Nash Creek, with diluting grades of 0.96% ZnEq for Hickey North pit material, 0.91% ZnEq for Hickey South pit material and 0.78% ZnEq for Hayes pit material. At Superjack, dilution was estimated to be 15% due to narrower mineralized domains with a diluting grade of 0.60% ZnEq. Mineralized material extraction rate in all open pits was estimated to be 97%.

16.5 GEOTECHNICAL STUDIES

No geotechnical studies have been completed at this PEA stage, therefore pit slope angles used were estimated based on P&E's experience with similar rock types. The locations of waste rock storage and overburden storage facilities will require confirmation following geotechnical analysis at a later study stage of the Project.

16.6 HYDROGEOLOGICAL STUDIES

No hydrogeological studies have been completed at this PEA stage to assess groundwater and in-rock water conditions.

16.7 POTENTIALLY MINEABLE PORTION OF THE MINERAL RESOURCES

A summary of open pit diluted and extracted Mineral Resources considered for mining was determined, as well as associated overburden and waste rock removal.

Open pit mining would proceed as successive pre-strip and hard rock mining operations, and commence with the Superjack A Zone, followed by the mining of the Hickey and Hayes zones.

The mine production schedule consists of one pre-production year for pre-stripping and subsequently just over ten years of mine production.

The target DMS process plant rate is 1,425,000 tonnes per year, or approximately 3,900 tpd. Daily mining rates of mineralized material and waste combined will range from 15,000 tpd to 40,000 tpd and average approximately 29,000 t/day. The open pit mining schedule is presented in Table 16.3.

TABLE 16.3 MINE PRODUCTION SCHEDULE														
Description	**Units**	**Mineralized Material Production by Year**												
		-1	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**Total**
Nash Creek DMS Feed	tpy (000s)	0	138	1,424	1,425	1,424	1,425	1,424	1,425	1,424	1,424	1,425	174	13,132
Superjack DMS Feed	tpy (000s)	0	1,295	0	0	0	0	0	0	0	0	0	0	1,295
Total DMS Feed	tpy (000s)	0	1,433	1,424	1,425	1,424	1,425	1,424	1,425	1,424	1,424	1,425	174	14,427
DMS Feed Grade - Zn	%	0	3.68	2.27	2.75	2.83	2.67	2.76	3.08	2.78	2.49	3.08	6.38	2.88
DMS Feed Grade - Pb	%	0	1.02	0.56	0.87	0.72	0.60	0.54	0.57	0.43	0.48	0.41	0.43	0.62
DMS Feed Grade - Ag	g/t	0	38.7	16.4	24.2	23.7	18.4	17.0	18.7	15.6	17.2	14.5	5.2	20.26
Overburden	tpy (000s)	292		722	1,036	437	21	876	53		189			3,625
Waste	tpy (000s)	4,000	4,479	5,901	8,386	9,066	9,402	8,618	9,469	9,164	10,578	9,999	238	89,300
Total Material Mined	tpy (000s)	4,292	5,912	8,047	10,847	10,927	10,847	10,918	10,947	10,588	12,191	11,424	412	107,352

Note: *Some values have been rounded. The totals are accurate summations of the columns and rows of data.*

16.8 OPEN PIT MINING PRACTICES

The mine would be run on an owner-operator basis, with primarily leased-to-own production and service mobile equipment.

An initial pre-strip operation of approximately 4,300,000 tonnes of overburden and waste rock from Hickey South and Superjack pits will be required before process plant feed production commences.

Open pit mining will utilize conventional and well established open-pit mining practices, with successive drill and blast, load and haul cycles using a drill/excavator/truck mining fleet. Mining operations will utilize track mounted diesel-powered drill rigs, 11.5 m^3 diesel hydraulic excavators and 90 tonne nominal capacity haulage trucks.

16.8.1 Drilling and Blasting

It is assumed that the overburden is free digging with no drilling or blasting required. The mineralized and waste rock material will be more competent with drilling and blasting required for both of these materials.

Up to 200 mm diameter blastholes will be drilled on 5 m and 10 m benches. Blasting of the rock will be carried out using an ammonium nitrate fuel oil mixture ("ANFO"), which will be loaded by a bulk explosives truck directly into the drill holes. Blast initiation will be carried out using non-electric detonators and booster charges. The assumed powder factor is 0.18 kg/t for hard rock materials.

16.8.2 Loading and Hauling

Diesel powered hydraulic front shovel excavators with an 11.5 m^3 heavy rock bucket will be used to free dig the overburden and excavate and load the blasted rock. The overburden and waste rock material will be hauled to overburden and waste disposal areas near the pit with 90-tonne off-highway haul trucks. A 3 to 5 pass loading operation will be used, depending on the density of material being handled. The mineralized rock destined for the process plant will be loaded into the same haul trucks by the excavators and delivered to a primary crushing facility near the process plant, or to a nearby stockpile. The size of the mineralized rocks will be reduced by the primary crusher to 100% passing 0.15 m. Loading operations will also be supported by a wheel loader with a 12 m^3 rock bucket although only about 15%-20% of the haul truck loading will be done by the wheel loader.

In the case of Superjack mineralized rock or process plant feed, an initial crushing operation will be performed near the exit from the pit and the material will be loaded into highway transport trucks for haulage to the process plant at Nash Creek. At an advanced study level, mineralized material stockpiling may be considered.

16.8.3 Pit Dewatering

The pits will likely see some groundwater seepage in addition to regular precipitation events and snowmelt. An allowance has been included in the operating and capital costs for a pit dewatering system to pump water from pit sumps. No quantitative information was available to adequately predict the expected water inflow into the open pits so this allowance is based on P&E's experience with similar operations.

Skid or trailer mounted centrifugal pumps will be positioned in the pit to remove water from the pit sump locations during the pit operation to the tailings management facility or a settling pond with subsequent discharge to the environment after treatment.

16.8.4 Auxiliary Pit Services and Support Equipment

The primary mining operations will be supported by a fleet of support equipment consisting of Caterpillar D8 size class bulldozers with ripper attachments, Caterpillar 14 M class graders as well as a Caterpillar 814 class wheel dozer, water truck, maintenance vehicles, and service vehicles.

16.8.5 Mine Waste Storage

The pit will require the development of several mine waste storage locations, as illustrated on Figures 16.1 and 16.2.

A process plant feed stockpile system was not considered in PEA, however, should be considered for future more mining operations analysis

16.8.6 Support Facilities

The Nash Creek and Superjack Properties will require mine offices, change house facilities, maintenance facilities, warehousing and cold storage areas. The mine office will provide for mine management, engineering, geology, mine maintenance services. These are part of the Project infrastructure described in Section 18.

A maintenance shop which will provide pit support services will be located near the plant site. This maintenance facility will consist of a truck shop which will include a wash facility, welding equipment and a dedicated preventive maintenance bay. The facility will have adjoining indoor parts storage and tool crib. A fuel and lube station will be conveniently located near the maintenance facility and main haul road for equipment access. A mobile truck mounted fuel and lube system will be available to service less mobile equipment in the pit and surrounding area.

17.0 RECOVERY METHODS

The following is a general description of a preliminary process design flowsheet for the Project. Considerable metallurgical work remains to be done to validate the assumptions that have made and to arrive at a final flowsheet.

Conventional three stage crushing will reduce the 'run-of-mine' ("ROM") material to a size that will be suitable for pre-concentration in a DMS plant. The size and design of the DMS facility has not been completed yet and will be subject to the results of future test work on sample ROM material. This study assumes that the lower grade 50% of the process plant feed will be separated and rejected as waste in the DMS facility, with acceptable metal losses.

The resulting DMS concentrate will be reduced in size in a ball mill to a P_{80} of approximately 70 microns. From there, it will be directed to a rougher-scavenger flotation circuit that will produce a zinc and a lead rougher concentrate. Cleaner flotation circuits will upgrade both concentrates to a marketable grade. The concentrates will subsequently be thickened and filtered for shipment to suitable smelters. Silver in the process plant feed is expected to partially deport equally to both zinc and lead concentrates.

P&E investigated the potential of off-site processing of the DMS plant product at a conceptual off-site toll processing facility. Initial indications suggest that whereas this option is viable and financially attractive, the option of processing the material on site is shown to be more attractive and achievable along with the potential to leverage the considerable exploration upside of Callinex's district-scale land package.

18.0 PROJECT INFRASTRUCTURE

18.1 OVERVIEW

The Nash Creek Property will have access to the substantial infrastructure, services and skilled labour in the area. There will be reduced infrastructure cost requirements due to its location near Hwy 11 and approximately 50 km by road northwest of the historic mining town of Bathurst. The Superjack Property is located approximately 45 km by road southwest of Bathurst. The regional labour force includes experienced equipment operators, mine workers and material and equipment suppliers.

The mine plan for the Nash Creek Property has an approximate ten-year production life with total on-site process plant capacity of approximately 1.4 Mt per year.

The infrastructure related to the mining and mineral processing facilities have been described in earlier sections.

The services and ancillary facilities required for the Project include the following:

At Nash Creek:

- Access road from Centenaire Street (approximately 200 m);
- Project site access roads in order to accommodate highway transport trucks in the construction phase as well as concentrate shipments during production;
- New site service roads and haul roads;
- Power supply connection to the NB Power grid, which passes within 3 km of the proposed plant site, transmission to the Nash Creek site and power distribution;
- Backup emergency power generating facilities;
- Buildings, including an administration/engineering building, a change house, a warehouse facility and an heavy equipment maintenance and repair shop;
- Site water management:
  - Potable water supply;
  - Process water supply
  - Fire/fresh water storage and distribution;
- Recycled water collection/storage/distribution;
- Drainage and runoff settling ponds;

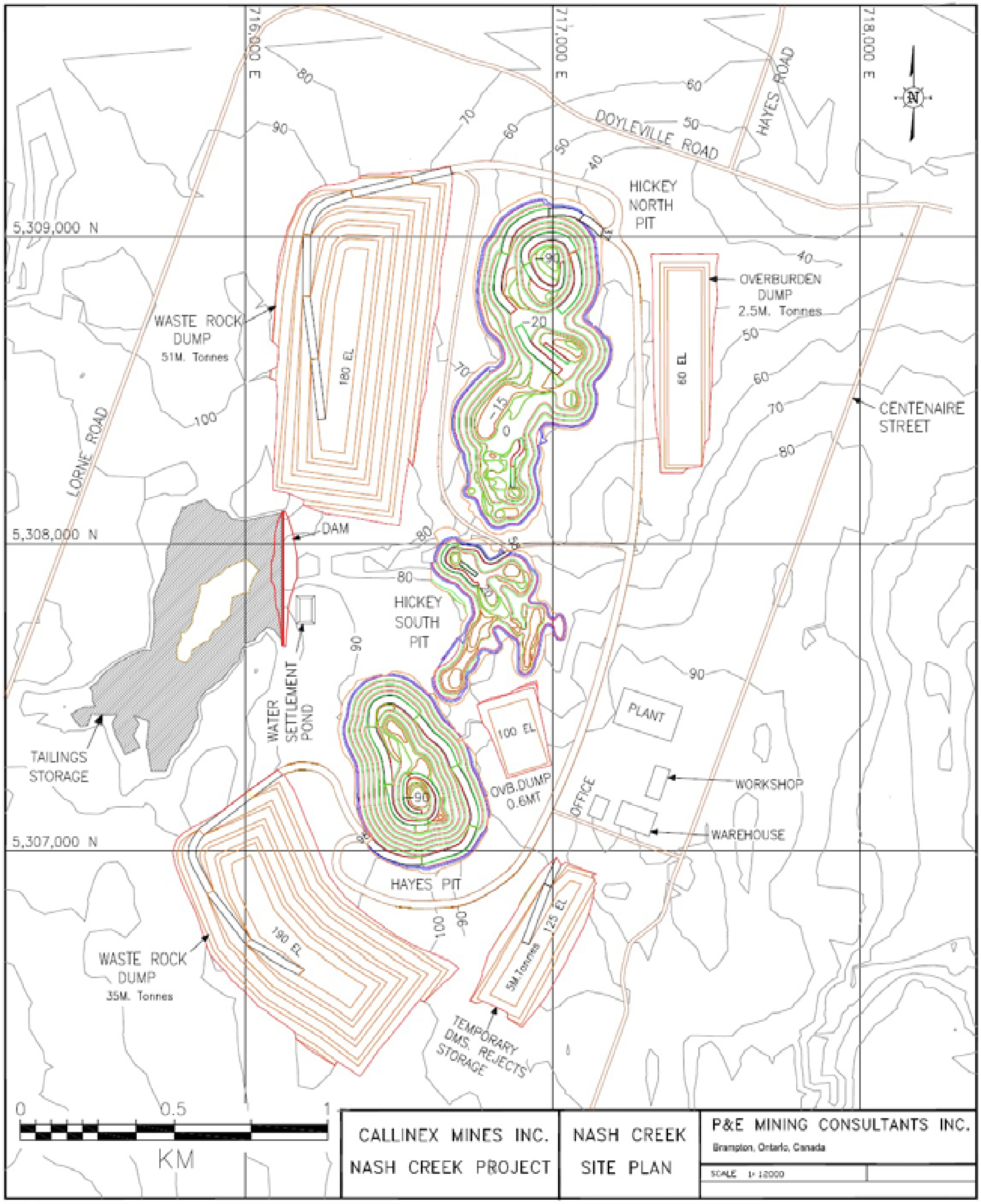
- Fuel storage and dispensing;
- Explosives storage facilities;
- Sewage collection and treatment;
- Plant site roads, yard areas and parking;
- Security, safety, and first aid facilities; and
- Surface mobile equipment, including a road grader, water truck, a service truck, an ambulance; a fire/ rescue truck and pickup trucks.

At Superjack:

- Access Road from NB430 (approximately 300 m);
- New site service roads and haul roads;
- Portable power supply generator for office and dry trailers and temporary shop facility and power distribution;
- Office and dry trailers, a temporary containerized warehouse facility and a temporary heavy equipment maintenance and repair shop;
- Parking lot;
- Site water management:
    - Potable water supply and portable restrooms;
    - Drainage and runoff settling ponds;
- Fuel storage and dispensing;
- Explosives storage facilities;
- Security, safety, and first aid facilities; and
- Surface mobile equipment, including a road grader, water truck, and pickup trucks.

The site layout at Nash Creek showing the proposed configuration of services and ancillary facilities to the mining and processing operations facilities is illustrated in Figure 18.1. This site plan is conceptual and changes will be required as additional data becomes available. This may include information on land ownership and construction permitting, sterilization drilling and geotechnical foundation testwork.

FIGURE 18.1 NASH CREEK PROPERTY SITE LAYOUT



18.2 SITE ACCESS ROAD

The Nash Creek Property is situated in northeastern New Brunswick, approximately 50 km by road northwest of Bathurst, a city of approximately 12,000 people. Access to the property is via Provincial Highway 11 to Hayes Road, connecting to Doyleville Road and Centenaire Street, which are all-season paved roads. A short (<1 km) access road will be required for construction equipment access. No upgrades are assumed or required for any of the provincial roads.

A short 300 m access road will be required at the Superjack Property.

18.3 SITE CLEARING AND GRUBBING

Land clearing will be required in the areas of the open pits, plant sites and the waste rock and tailings storage areas. Overburden will be collected and stored for later re-vegetation after mine closure. Land clearing will make use of all commercially marketable timber if feasible. No significant value from any marketable resource recovered through land clearing such as harvestable timber is expected in this Project. No assumptions about land cost and/or trade-offs for land use have been made in this PEA. The total area of affected land, disturbed and/or cleared, has been estimated at approximately 250 hectares at Nash Creek and less than 50 hectares at Superjack.

18.4 MINE HAULAGE AND SERVICE ROADS

Mine haulage roads are required to accommodate 90 t capacity off highway haulage trucks carrying material from the pit to the primary crusher, waste rock and overburden storage facilities and to the tailings storage area to build a dam. Service roads will be required to connect the mine with the process plant, the office/maintenance/warehouse complex, maintenance and repair facility and site access road.

18.5 POWER SUPPLY

The primary consumption of electric power at the Nash Creek Property will occur in the processing plant. The mine will only use marginal amounts of power for the mine maintenance facility and some dewatering.

There is no agreement as yet with NB Power as to the supply of power to the Nash Creek Property. However, for the purpose of this evaluation, it is assumed that power will be available within 3 km of the plant site, from the NB Power Grid. It is assumed that a substation will be constructed with a 10 MVA transformer to convert the incoming voltage to 4,160 V. Power would be brought to the Nash Creek site by a powerline. Step down transformers will reduce the voltage to site use levels and on-site power will be distributed to locations such as the plant, offices, the maintenance shop and mine change house.

The mining and support activities at Superjack will be serviced with a 50 kVA portable diesel generator.

18.6 TAILINGS AND DMS REJECT MANAGEMENT

The Nash Creek Property will require the managed disposal of tailings produced from the process plant. It is expected that this material will be potentially acid producing ("PAG"). The conceptual plan for the design of the HDPE lined Tailings Management Facility ("TMF") is to take advantage of the terrain in the vicinity of the mine and the proposed process plant site. Separate engineering and environmental studies will be necessary to confirm the adequacy of the site for this purpose. The TMF design would incorporate features to manage the chemical and physical stability of the deposited tailings in accordance with existing and new practices. All of the tailings (totalling 650 k tpy) produced by the process operation over the first four years of the Project would be placed in this facility. Thereafter, the remaining tailings would be placed in the mined out Hickey South pit.

The capacity of the TMF has been designed to accept a total of 1.7 million m^3 (2.7 Mt) of tailings. The containment area will be lined and will be constructed with appropriate spillways and water diversion ditches.

DMS rejects (totalling 650k tpy) will be stored adjacent to west side of the Hayes pit and will be placed into that pit once it has been exhausted in the last few years of mine life.

18.7 WASTE ROCK MANAGEMENT

The Nash Creek Property will require the managed disposal of mine rock. The total waste rock to be mined from the open pit is estimated at approximately 93.0 Mt. It is currently expected that to be 90% of this material will be classified as Non-Acid Generating ("NAG") which will be stored in a waste rock storage facility ("WSF") near the mine and in the Hayes Pit when mining operations there are completed. Some NAG waste rock will be hauled to the TMF for dam raising, as required. The remaining 10% is currently expected to be classified as PAG. This material will be temporarily stored on the west side of the Hayes Pit until it can be moved into that pit when mining is complete. The WSF will be designed, built and closed out so as to minimize long-term impact on the environment.

In addition, approximately 3.6 Mt of overburden will be stripped from the open pit. Some overburden will be used for road and dam construction and the balance will be placed in stockpiles located to the east of the Hayes and Hickey North Pits, as well as at Superjack, for reclamation of dumps at the end of mine life.

18.8 MINE MAINTENANCE AND REPAIR SHOP

The maintenance shop and administration complex will be located near the processing plant at Nash Creek. The maintenance shop will be used to service the open pit and other mobile equipment. The truck shop itself will be comprised of three regular service bays, one welding bay and one preventative maintenance bay. The truck shop and other bays will be serviced by a 50 t bridge crane. The building would be prefabricated from steel structural framing and metal cladding, with concrete floors.

A warehouse will be constructed adjacent to the truck maintenance shop and connected via a passageway. It will be used for storage of parts and materials needed for mine and plant operations.

A temporary maintenance shop will be constructed at Superjack.

18.9 OPERATIONS AND ADMINISTRATION BUILDING

The Operations and Maintenance building will be a pre-engineered, steel-framed structure with a spread footing foundation and metal deck roof cladding. The building will provide offices for administrative and technical staff, including management, training, accounting, safety, and security. It will also include staff support facilities such as a conference room, print room, and lunch room. It will be connected to a change room/dry complex.

18.10 CONSTRUCTION AND OPERATIONS WORKFORCE FACILITIES

It is anticipated that Nash Creek Property workers will live in the local area. A temporary camp will be constructed to accommodate contractors and other workers during the construction phase of the Project, however, no camp facilities are planned for the operational period.

18.11 WATER MANAGEMENT

Primary water sources for the processing plant and other uses would be pit dewatering and collection of surface runoff. Reclaimed water from the TMF would be recycled to reduce the need for fresh water additions to a minimum.

18.12 WASTE MANAGEMENT

It is expected that the Project will have a waste management program in place to ensure that waste materials are recycled or otherwise disposed in compliance with federal, provincial and local legislation.

Storage facilities for materials such as lubricants, explosives and process chemicals have not been detailed at this preliminary study level. These facilities would be designed to meet relevant codes and regulations in order to protect employees, the public and the environment.

18.13 EXPLOSIVES MAGAZINE

The modular and explosives magazine will be provided and surrounded by a perimeter security fence with lights at the required safe distance from other infrastructure.

18.14 FUEL STORAGE

Storage tanks will be provided for both gasoline and diesel fuel. These tanks will be fully enclosed by containment berms to contain leaks and will supply both bulk and independent vehicle dispensing equipment.

18.15 SANITARY SEWAGE SYSTEMS

Sanitary sewage will be collected and treated in two packaged sewage systems. One system will be located adjacent to the processing plant/change house area and the second will service the maintenance facility.

19.0 MARKET STUDIES AND CONTRACTS

19.1 SUMMARY

There are no existing relevant marketing contracts pertaining to the sale of concentrates produced by the Project.

The value of the concentrates that could potentially be produced at Nash Creek is essentially related to the value of the zinc, lead and silver metals they contain. In general, the price of zinc ended 2017 at a decade high of US$1.50 per pound. Since the start of 2018, zinc prices have settled back to around US$1.40 per pound.

19.2 NASH CREEK CONCENTRATE MARKETABILITY

Based on available information, it is estimated that the Nash Creek zinc concentrates should provide suitable feed for most zinc smelters and refineries. The most likely potential smelter is the Canadian Electrolytic Zinc refinery in Valleyfield, Québec.

The nearby location of the Belledune lead smelter makes it the likely candidate to receive lead concentrate feed from Nash Creek.

A review of metallurgical testwork has not identified any deleterious elements that would impact the marketability of the zinc and lead concentrates, which are considered of generally good quality.

20.0 ENVIRONMENTAL STUDIES, PERMITS, AND SOCIAL OR COMMUNITY IMPACTS

20.1 BACKGROUND

The proposed Nash Creek Project will include open pit mining at both Nash Creek and at Superjack Properties. The process plant feed of the mining operations will be crushed and screened at Nash Creek, followed by a DMS process. DMS is an environmentally benign process where very fine inert solids such as magnetite or ferrosilicon are used to create an artificially enhanced dense fluid that can be utilized to separate particles of differing specific gravities. A concentrate rich in sulphides of lead, zinc and iron is removed for further processing. While a specific DMS process applicable to Nash Creek and Superjack mineralization has not yet been developed, it is assumed that the process will be efficient and the DMS reject material would be neither acid generating ("ARD") nor metal leaching ("ML"). For waste management concept evaluation purposes, it is assumed that 50% of the process plant feed will be rejected as "clean" DMS waste. This waste will exit the process plant as pumpable, coarse-particulate slurry.

The Nash Creek processing plant first year feed will mostly originate from the Superjack Property.

The DMS, sulphide-rich product will be subject to grinding and flotation which will produce zinc and lead concentrates and flotation tailings. During mine and process plant operations there will be significant project support activities underway that are related to waste management, water handling and environmental management. On completion of mining and processing, an integrated site reclamation program will be implemented.

The on-site operations will handle an average of 3,900 t/d of process plant feed from the open pits. At this rate, the Indicated and Inferred Mineral Resource of approximately 14 Mt would be mined in about 10¼ years. This corresponds to approximately 1 Mt of concentrate, 7 Mt of DMS waste and 6 Mt of flotation tailings.

Two large pits (Hickey North and Hayes) and one smaller pit (Hickey South) are expected to be developed at Nash Creek and one small, moderate sized pit at Superjack (see Figure 16.1, Plan at Nash Creek Property Site Plan and Figure 20.9, Ultimate Superjack Open Pit Plan View). The proposed open pits will utilize conventional open pit drilling, blasting, loading and haulage technologies and related equipment. The overburden stripped from each pit area would be separately stockpiled for later use as site reclamation material. The mine waste rock would be stockpiled in designated rock storage areas. After four years of operation, the Hickey South Pit at Nash Creek will be available for tailings disposal. The Hickey South pit is expected to have a mined-out volume of 1.7 M m^3. For strategic estimation purposes, this pit is assumed to have solid, low permeability rock walls and any potential contaminated pit water is assumed to be hydrologically isolated from ground water resources. At a settled density of 1.6 t/m^3, using 90% of the pit, about 2.4 Mt of tailings will be disposed in the Hickey South Pit. After seven years of operation, the Hayes Pit is expected to be completed and this pit is also assumed to be suitable, without major engineering modifications, for DMS rejects and flotation tailings disposal. While pit disposal of tailings or waste rock is an acceptable option for managing PAG mine waste, each case requires detailed technical and regulatory review in advance of implementation. A general mine waste strategy is outlined in Table 20.1.

TABLE 20.1 MINE WASTE MANAGEMENT				
Years	**Flotation Tails**	**DMS Tails**	**Clean Waste Rock**	**PAG Waste Rock**
0 - 4	Surface facility	Surface	Surface	Temporary surface
5-7	Hickey South Pit	Surface	Surface	Temporary surface
8-11	Hayes Pit	Hayes Pit	Surface	Temporary surface
11				All to Hayes pit

At Superjack, approximately 5.8 Mt of rock will be mined, of which 1.3 Mt will be process plant feed. This material may be partially crushed on and will be transported by 40 t capacity highway haulage trucks to the Nash Creek processing plant. If mining is completed in one year, approximately 100 truckloads per day will transit on public roads from the Superjack Property to the Nash Creek processing facility.

A simple strategy for the prevention of acid drainage and metal leaching will be applied at Superjack. The Superjack A and C zones will be mined in sequence – A Zone first, and this will be used as a sump for water from the C Zone and drainage from PAG waste rock that will be stored up-gradient from A Zone. It is anticipated that substantially less than half of waste rock (for estimate purposes ¼) will be PAG (potentially acid generating). On completion of mining this waste rock will be submerged in flooded A and C zone pits. The limited amount of oxidized products on the PAG waste rock will be readily treated by lime injection into the flooded pits.

The Nash Creek processing facility includes crushing, DMS, grinding, flotation, thickening, concentrate storage and concentrate truck loading. For the first four years, the process plant tailings would be pumped to a surface tailings management facility where the tailings would be kept submerged under a water cover due to the assumed acid producing potential of the material. Tailings pond water would be recycled back to the plant when possible and excess tailings pond water would be treated prior to release. In order to achieve maximum density (e.g. 1.6 t/m^3), flotation tailings will be thickened in the process plant before discharge into either the TMF or into a pit. DMS rejects will have been stripped of fines during the DMS process and are expected to readily settle to the maximum density, whether disposed in the TMF or in a pit.

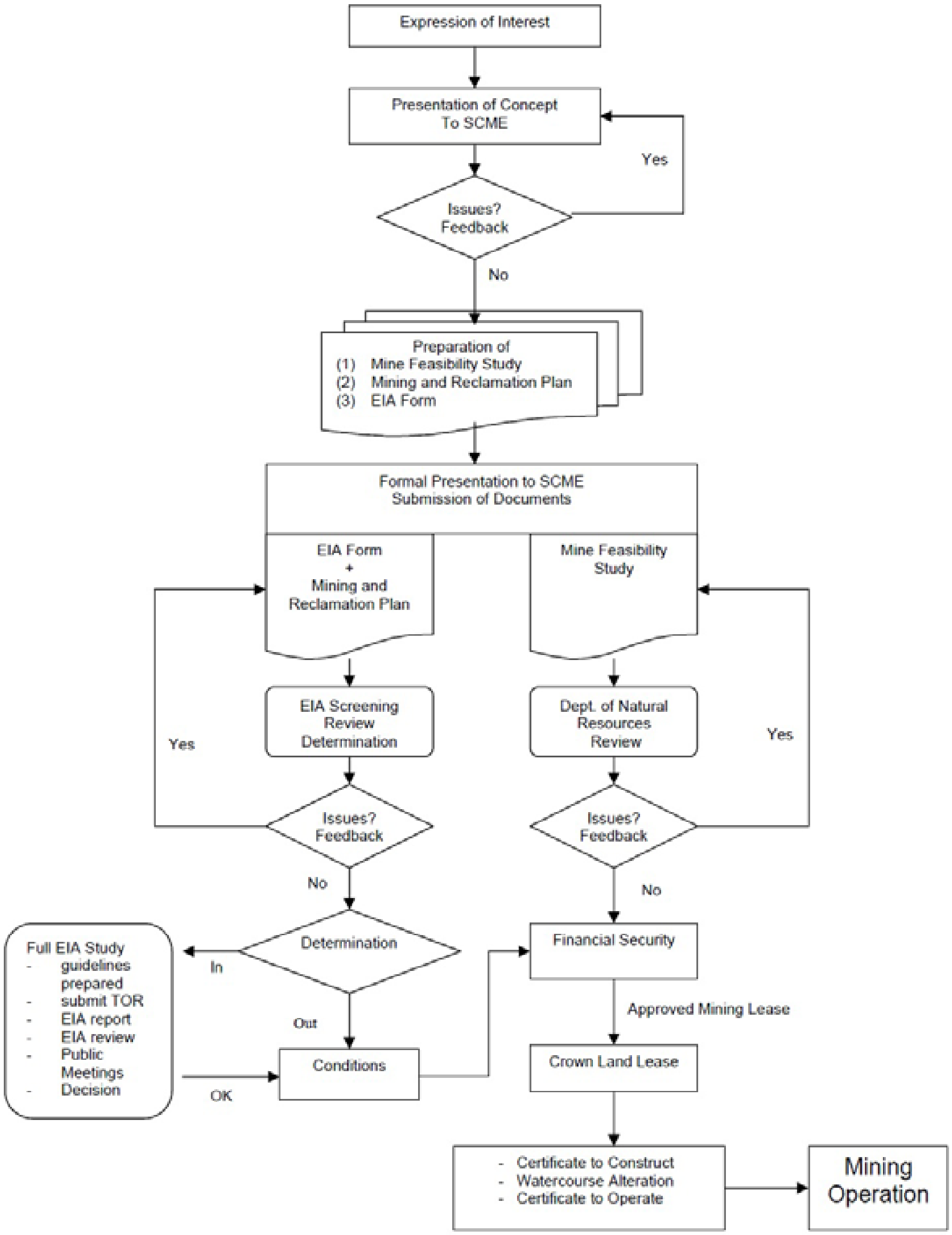
The zinc and lead concentrates will contain some silver and minor copper values and would be stored in a covered concentrate shed for re-handling by a front-end loader. These low moisture concentrates would be trucked from site using covered highway trailers.

20.2 REGULATORY REGIME

The Nash Creek Property will be subject to federal, provincial and local regulatory requirements. The principal provincial legislations related to the approval of mining projects and environmental impact assessment ("EIA") in New Brunswick are the New Brunswick Mining Act and General Regulation 86-98, the Clean Environment Act and EIA Regulation 87-83, and the Water Quality Regulation 82-126. Relevant key federal legislations include the Canadian Environmental

Assessment Act, the Fisheries Act and the Metal Mining Effluent Regulations. The New Brunswick Department of Energy and Resource Development has provided a concise guide to the mine approval process as shown in Figure 20.1.

FIGURE 20.1 NEW BRUNSWICK MINE APPROVAL PROCESS



Source: *New Brunswick Department of Energy and Resource Development.*

The key steps of the Mine Approval Process include:

- Expression of Interest: The mine approval process begins when an Expression of Interest to develop its mine property is submitted to The Standing Committee on Mining and the Environment ("SCME"). The SCME provides direction to the proponent on issues, deficiencies and concerns to assist it in developing the required project documentation including a Feasibility Study as well as Mining and Reclamation Plans.

- Feasibility Study, and Mining and Reclamation Plans: This information along with an EIA Registration Form for screening review is submitted to the SCME. The EIA is reviewed by a Technical Review Committee comprised of provincial and federal government agencies.

The Nash Creek Project as currently proposed would be subject to a federal-provincial coordinated EIA which is likely to include significant public consultation. Federal and provincial environmental assessment requirements will need to be addressed.

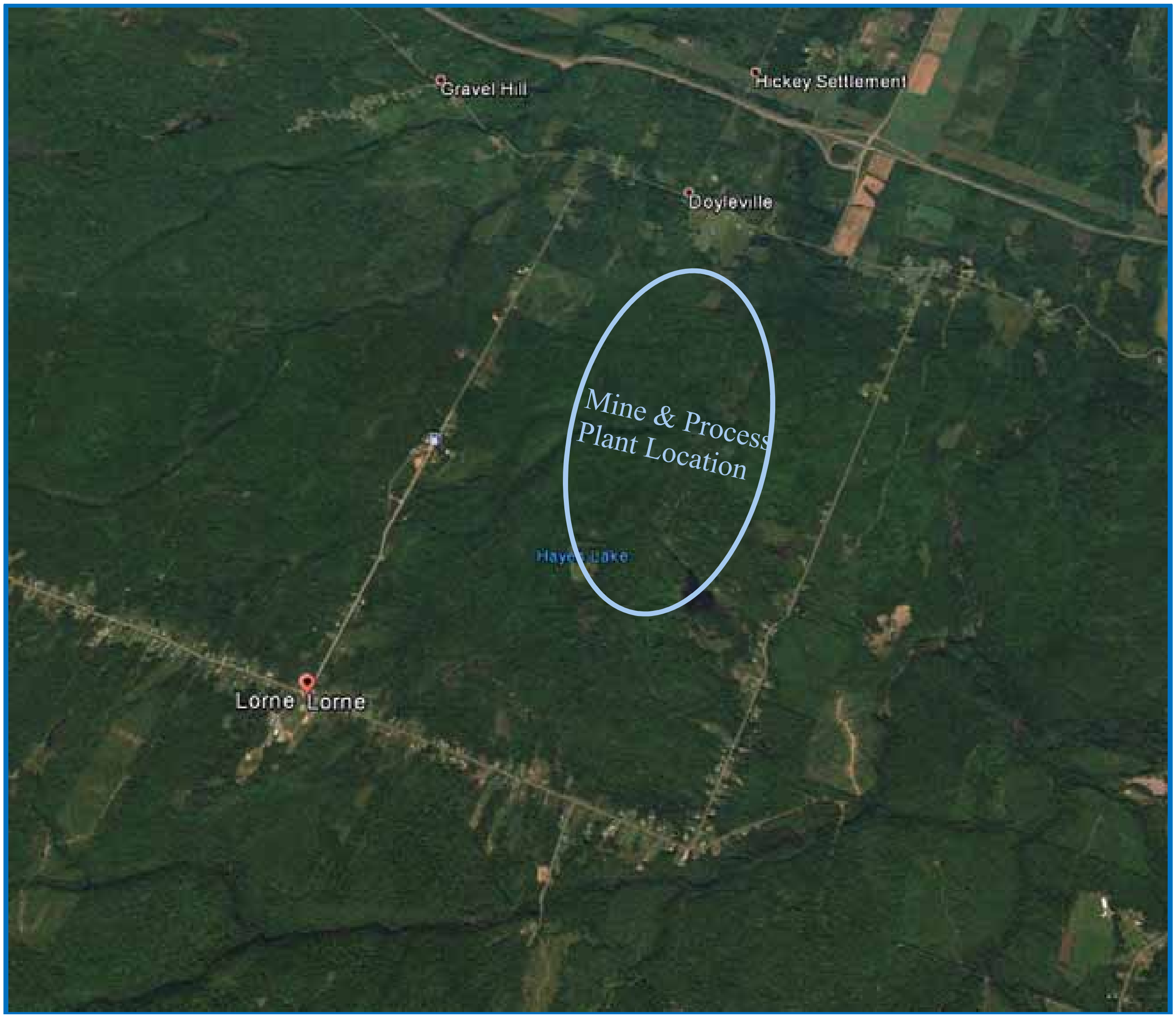
As shown in Figure 20.2, the Nash Creek Property is located 2 km south of New Brunswick Highway 11 and near many year-round rural residences, a few as close as 0.5 km. Several more are within 1.5 km of a potential active project boundary. Small scale farming operations are also situated within 2 km of the potential project. All residences source domestic water from on-site wells. Local concerns could include ground and surface water protection, noise, air quality, road traffic, safety and security.

The Project is believed to have strong community support due to the potential for employment opportunities in the area which is economically depressed and has an unemployment rate that exceeds 20%. The mine plan envisages that approximately 225 full time jobs would be created. The creation of 225 direct jobs, along with several other indirect jobs, would have a major economic impact to the community of Lorne that has a population of approximately 600.

In addition to a process plant, maintenance and administrative facilities, major project features are expected to include the three open pits, a TMF and at least two large WSFs. Considering that the mineral resource is rich in sulphides, the flotation tailings are anticipated to both PAG and ML. Subject to detailed testing and engineering analyses, the flotation tailings would be thickened in the process plant and disposed in a lined facility under a water cover. As previously noted, the tailings density is expected to be at least 1.6 t/m^3. A small portion of the pit waste rock is also anticipated to be potentially PAG and ML and this will be separately stored on an impermeable pad in advance of relocation and submergence in flooded pits on closure.

The processing plant will use Nash Creek water from the open pits and will recycle flotation and DMS tailings water to satisfy most of the process plant requirements. Fresh water needs will be therefore limited. Excess Project water will be treated to meet effluent standards during operations and during closure. Importantly, the Nash Creek Property will be designed to meet the objective that no water treatment will be necessary following the completion of mine closure and site reclamation.

FIGURE 20.2 NASH CREEK PROPERTY MINE AND PROCESS PLANT LOCATION



Source: *Google Earth 2017.*

20.3 FINANCIAL SECURITY

20.3.1 Rehabilitation and Site Reclamation

The N.B. Ministry of Energy and Resource Development ("MERD") requires financial security for mine site reclamation. The acceptable forms of security are:

1. cash deposit;
2. a negotiable bond assigned to the Province;
3. an irrevocable letter of credit;
4. an insurance company bond; or
5. such other forms of security as are acceptable to MERD (General Regulation, 86-98, s.47).

A reclamation security holdback may be required during the post-reclamation monitoring stage, while the success of the reclamation program is assessed by the Ministry. A 'walk-away condition' is designated for the mine site when it has been determined that it will neither pose a public safety hazard nor require long-term water treatment.

20.3.2 Approvals, Permits and Leases

The Minister of MERD would issue final approval for an application for a mining lease after receiving approval for the Mine and Reclamation Plan from the other Ministries with an interest in the Project and from local Government agencies. Since all of the land affected by the Project is privately owned, no Crown Land issues will arise. The Approval to Operate for the Project would set out water and air quality, noise limits, as well as monitoring and reporting requirements.

20.4 NASH CREEK PROJECT STATUS

Callinex's current focus is to assess the potential economic viability of the Project through the PEA process. No initiation of the Project approvals process has yet been triggered, although the Company is currently in discussions with environmental consulting firms for the preparation and submission of an EIA.

The Nash Creek Property site (Figure 20.2) can be classified as a green-field site with minimal historical disturbance of land and forest, only that resulting from diamond drilling.

Environmental and social-related studies at Nash Creek to date have been limited. A bird study and a domestic well water survey were conducted in May and August respectively in 2008. No environmental or social studies have been completed at the Superjack location.

Significant additional base-line studies and public consultations are anticipated to be needed to complete an EIA for both Properties and to obtain official and public consent for the Nash Creek Property development to proceed. A major component of the studies is expected to be hydrological studies at Nash Creek to provide confidence in protecting ground water quality and the avoidance of well water level depression as a result of mine development.

The Superjack Mineral Resource is located 60 km south of the Nash Creek site. The distance from the Superjack resource to the Nash Creek site by road is approximately 95 km. The Superjack site might also be classified as a green-field site, however, the deposit area has recently been clear cut logged. The location has been the subject of mineral exploration over 40 years up to 1996 which includes many boreholes and significant trenching. It is assumed that none of the drill holes or trenches are producing acidic waters.

20.5 PROJECTED NASH CREEK SITE RECLAMATION REQUIREMENTS

As currently envisaged, the Nash Creek Property would make use of best management practices and engineered controls to minimize or mitigate potential environmental impacts during development and operations. These will be designed to meet specific Nash Creek Property closure and reclamation objectives.

P&E assumes that the process plant tailings for the first four years will be contained in a lined facility, covered with water during operations and either maintained under water on closure, or covered with a multi-zone soil cover on closure. Pit disposal of tailings will be initially in the Hickey South pit which will take a significant fraction of the tailings tonnage. Potentially acid-generating waste rock will be would be disposed in the Hayes pit at the end of mining and will be submerged as the pit naturally fills with water. This is an accepted technique for the prevention of acid generation and metal leaching.

The following is a conceptual reclamation plan for the Nash Creek Property for the purposes of the present PEA and is based on available information and assumptions. It is expected that Callinex will further develop and refine the conceptual Closure and Reclamation plans as required for the Project permitting process. P&E assumes that the Property reclamation plans will be integrated where:

- Pit walls will be assessed for stability and stabilized as necessary. Public access to the flooded pits will be limited to a reasonable extent. Boulder-based barriers will be positioned to prevent vehicle access (at many closed mine sites, fences have proven to be subject to breaching and theft);

- A portion (estimated to be 10%) of the waste rock excavated from the proposed pits is expected to be acid generating / metal leaching. This material would be segregated and stockpiled in a containment area over the mine life and then relocated to one or more pits for submergence under water. The slopes of non-acid generating waste rock piles would be profiled for stability including the installation of multi-level terraces and robust drainage channels;

- Process plant flotation tailings would be disposed underwater in the tailings management facility during the first four years of operations and could be kept saturated over the long term by maintaining a water cover over the tailings or an engineered soil cover. DMS tailings are anticipated to be co-disposed with the flotation tailings, or disposed in a separate section of the TMF. On closure, the Project flotation tailings will be topped with an engineered soil cover. With confirmation that the DMS tailings are neither acid generating nor metal leaching, these DMS tailings could constitute part of the engineered cover; and

- The processing plant, site infrastructure and equipment would be salvaged or otherwise demolished. Large concrete foundations will be buried. Unused or waste chemicals and hazardous materials would be disposed in accordance with regulatory requirements. Disturbed land areas would be reclaimed and vegetated with local species.

Closure of the Superjack Property will involve ensuring that all PAG waste rock and mine walls will be submerged in flooded pits at the end of the very short mining cycle. Following the addition of lime to stabilize oxidation products (1 or 2 events), no long-term water treatment is anticipated to be necessary. The non-PAG waste rock will be re-profiled for long term stability.

The performance of the Reclamation Plan would be assessed over a three to five-year period post-closure.

20.6 PROJECTED ENVIRONMENTAL PROGRAM AND RECLAMATION COSTS

Costs for pre-operations, operations and on closure are shown below. These estimates are based on P&E's experience and each cost estimated is within +/- 50% of what can be expected. Pre-operation environmental costs (capital costs) are summarized in Table 20.2

TABLE 20.2
INITIAL ENVIRONMENTAL COSTS

Description	Estimated Costs
Baseline environmental studies including hydrology	\$0.8M
Public hearings and consultations	\$0.4M
EIA preparation	\$0.3M
Develop closure and reclamation plans	\$0.2M
Prepare Nash Creek site, construct lined tailings management starter facility 35 hectares, \$4.5/m^2 preparation, \$4.75/ m^2 liner, \$2.5M embankments, \$1.5M pumps, pipes, \$1.0M engineering	\$8.2M
Water sourcing and reservoir	\$2.5M
Effluent treatment plant – hydrated lime feed, settling basins, sand filtration polishing	\$3.0M
PAG* waste rock pads	\$0.8M
Total	**\$16.2M**

***** *PAG – potentially acid generating*

Estimates of environmental costs during operations are shown in Table 20.3.

TABLE 20.3 ENVIRONMENTAL COSTS DURING OPERATIONS		
Item or Aspect	**Estimated Costs**	
	Operating	**Capital**
Environmental monitoring equipment		$0.5
PAG waste rock separation, water collection and treatment, $0.25 M/y, 10 y	$2.5M	
Effluent treatment $0.75/t processed LOM	$10.5M	
Environmental monitoring, $0.5 M/y over 12 years	$6.0M	
Social consultations $0.1 M/y over 12 years	$1.2M	
Total	**$20.2 ($1.44/t processed)**	**$0.5M**

A summary of estimated closure and reclamation costs is shown in Table 20.4.

TABLE 20.4 CLOSURE AND RECLAMATION COSTS		
Item	**Closure**	**Reclamation**
Process plant, maintenance shops salvage and site reclamation	-$7.0M*	$0.5M
Relocate PAG waste rock to pits (assume 10% of 80 Mt of rock at Nash Creek plus 0.4 Mt at Superjack @ 1.0/t)	$8.4M	
Dewater and cover tailings with engineered soil barriers 50 ha @ $5.0/m^2	$2.5M	
Lime treatment - Superjack	$0.2	
Pit wall stabilization and security - allocation $0.4 M		$0.4M
General site rehabilitation and re-vegetation 50 ha @ $0.15 M/ha		$7.5M
Post operational monitoring and maintenance		$1.8M
Closure and reclamation management 5 years @ $0.3 M		$1.5M
Totals	**$4.1**	**$11.7**
Estimated Closure and Reclamation Cost	**$15.8 M**	

***** *net sales after demolition costs deducted.*

21.0 CAPITAL AND OPERATING COSTS

The Project is envisaged as a potential open pit mining operation and mineral processing facility with an operating life of approximately ten years, following an initial pre-production period.

The estimated capital and operating costs for the Project are described in this section.

All capital and operating costs are shown in Canadian dollars (“$”), unless otherwise stated.

21.1 BASIS OF COST ESTIMATES

The estimate was developed using pricing gathered from similar projects in central and eastern Canada and from first principals.

21.1.1 Indirect Costs

Indirect costs have been developed using appropriate factors for this level of study and the current expectations of operating conditions. Freight and commissioning costs have been included in the direct and indirect assumptions.

21.1.2 Contingency

An allowance for contingency is included in the plant and equipment lump sum costs, in recognition of the degree of detail upon which the estimate is based (Table 21.1).

TABLE 21.1
CONTINGENCY ALLOWANCE

Initial Capital	
Mine pre-stripping	5%
Mining capital cost	20%
Process plant with DMS (Directs)	20%
Infrastructure	20%
Indirects	20%
Average contingency	18%
Sustaining Capital	
Mine	10%
Process plant with DMS	10%

21.1.3 Estimate Accuracy

The Project capital cost estimate was developed to a level commensurate with that of a Preliminary Economic Assessment. After inclusion of the contingency, the capital cost estimate is considered to have an accuracy of ±35%.

21.1.4 Currency Exchange

An exchange rate of US$0.77= C$1.00 has been used for the capital cost estimate.

21.2 CAPITAL COSTS

21.2.1 Summary

The Project capital cost includes engineering, procurement, construction, management (EPCM) and start-up of the Nash Creek project, will comprise two separate open-pit mines, a processing plant complex composed of a 3,900 tpd Dense Media Separation facility and a 1,950 flotation plant and associated ancillary facilities.

The production period starts in Year 1 when the production of process plant feed commences. The pre-stripping (pre-production) of the surface mine site starts in Year -1.

The total estimated cost to design, procure, construct and start-up the facilities described in this report is $168.3 M (Table 21.2). Sustaining capital costs will be in the order of $0.44 M per year, after achieving steady-state production. In addition, equipment leasing costs ('lease-to-own') of approximately $36.1 M including contingency, are included in the sustaining capital over years -1 to 4. Sustaining capital represents capital expenses for additional costs and equipment purchases that will be necessary during the operating life of the Project, and are not included in the normal operating costs. The total sustaining capital cost over the LOM is approximately $57.9 M.

TABLE 21.2 CAPITAL COST SUMMARY (LIFE OF MINE)	
Description	**Total (M $)**
Preproduction Capital	
Mine pre-stripping	10.2
Mining	5.3
Process plant	63.1
Infrastructure	23.0
Permitting and tailings management	16.7
Indirects	24.6
Contingency	25.4
Initial Project Capital	**168.3**
Sustaining Capital	
Mine	31.1
Process plant with DMS	3.0
Closure and reclamation (year 12)	15.8
Contingency	8.0
Total Sustaining Capital	**57.9**
Total Capital	**226.2**

No provision has been included in the capital cost to offset future price escalation nor have higher prices been assumed within the cash flow model based on inflation.

Items not included in the capital estimate include:

- Sunk costs and costs prior to the start of basic engineering phase;
- Cost escalation;
- Working capital;
- Interest and financing costs; and
- Taxes.

21.2.2 Mine

Pre-stripping will be done by the Nash Creek operations fleet, commencing in year -1.

Mine equipment will be purchased in Year -1 with an initial down payment and lease-to-own payments from Years 1 through 4.

21.2.3 Process Plant Capital Cost

Process plant capital costs are based on an average daily throughput of the DMS facility of approximately 3,900 tpd and 1,950 tpd through the flotation plant. All costs are quoted in first quarter 2018 Canadian dollars.

Equipment costs are developed from in-house cost data and correlations. Direct costs other than equipment are factored on equipment or direct costs on a process area basis, using factors derived from historical projects.

Building costs are based on direct cost factors derived from area/volume unit cost data for historical projects and include space allowance for facilities such as process plant offices, change rooms and laboratory.

The following costs are included in the estimate:

- All process equipment cost;
- Site development costs, based on general site conditions expected for the Project and normal site services;
- All direct costs related to the process;
- Serviced process building;
- Construction indirect and EPCM costs;
- Spare parts allowance;
- Start-up allowance; and
- Freight allowance.

The following costs are excluded from the estimate:

- Ancillary buildings and services, including any mine related facilities, camp and general administration;
- All off-site costs including services to the site, except as noted above;
- Tailings disposal, tailings line, reclaim and fresh water pumps and pipelines;
- Any secondary effluent treatment facilities;
- Taxes and duties;
- Mobile equipment;
- Owner's costs including first fill and product inventory; and
- Cost escalation.

21.2.4 Infrastructure Capital Cost

Infrastructure capital costs include site facilities, buildings, furnishings and surface mobile equipment.

The capital cost of site facilities includes: site roads; surface parking areas; the fuel farm; lubrication and oil storage facilities; surface explosive magazines (leased from explosive supplier); yard piping; the fire prevention and fighting system; the potable water treatment plant and storage tanks; the tailings water treatment plant and pond; and the water management pond building and site run-off.

Buildings capital costs include: the main gate building; the surface mine-shop; the warehouse and warehouse equipment; the office facility and the dry. The buildings furnishings include; the surface mine shop equipment and tools; the office furniture, computers, etc.; environmental equipment; dry equipment; site communications and medical centre equipment.

Surface mobile equipment capital costs include: a road / ramp grader; an integrated tool carrier; a fuel/lube truck; a service truck; a garbage truck; an ambulance; a fire/ rescue truck; and pickup trucks.

21.2.5 Permitting and Tailings Management

Initial environmental costs during preproduction will include baseline environmental studies and costs related to the development of a full environmental assessment and permit application.

The sites will be prepared for mining and processing operations, including lining of the TSF and managing a supply of water. An effluent treatment plant will be constructed and potentially acid producing material storage areas will be prepared.

Environmental monitoring equipment will be installed for use during operations.

21.2.6 Indirect Costs

Indirect costs ("indirects") are factored on direct costs using information derived from historical projects and selected to relate to the project location. Indirects include overhead staff and support facilities; bonding; insurance; construction permits; contract administration; schedule management; surveying; construction equipment and small tools; supervision; safety; temporary power, toilets and communication; warehousing; clean-up and waste removal; construction vehicles, fuel and maintenance. A breakdown of the indirect cost estimate is provided in Table 21.3.

TABLE 21.3 PROCESS PLANT INDIRECT CAPITAL COSTS	
Description	**(M $)**
Field supervision	2.5
Field expense	2.7
Temporary facilities	1.9
Construction equipment	1.6
Craft benefits	4.0
Engineering	7.6
Freight	1.3
Spare parts	0.9
Start up	0.3
Engineering fee	1.9
Project Indirect Costs	**24.7**

21.2.7 Mine and Processing Plant Sustaining Capital

Capital investment in replacement equipment has been included over the operating life of the Project, based on experience with other similar operating mines. In addition, equipment leasing costs (‘lease-to-own’) of approximately $36.1 M including contingency, are included in the sustaining capital over years -1 to 4.

21.2.8 Closure and Reclamation

In anticipation of, and following the completion of mining, the PAG waste rock will be moved to the completed pits. Tailings deposited during operations in the TMF will covered with engineered soil barriers. Pit walls/waste rock storage facilities will be stabilized and the sites will generally be rehabilitated and re-vegetated.

Post closure operational monitoring and reclamation management has been included.

For more details on the environmental pans and costs, refer to Section 20.

21.3 OPERATING COSTS

The operating costs estimate includes the cost of mining, processing, waste management, and G&A services. The life-of-mine average operating cost for the Nash Creek project is summarized in Table 21.4.

Table 21.4 **Operating Cost Summary**		
Description	**Units**	**Unit Cost**
Overburden removal	$/t moved	$2.00
Mining cost (waste)	$/t mined	$2.35
Mining cost (process plant feed)	$/t mined	$2.75
Superjack process plant feed transport	$/t transported	$13.00
DMS processing cost	$/t DMS feed	$0.20
Flotation processing cost	$/t flotation feed	$13.20
Tailings handling	$/t flotation feed	$1.25
Environmental	$/t flotation feed	$1.44
G&A	$ M/year	$2.50
NSR royalty	%	1.00%

The average mining cost of the combined Nash Creek and Superjack mining operations is approximately $30.20 per tonne of process plant feed, based in part on an average LOM stripping ratio of 6.4:1.

21.3.1 Mining

Mine operating costs are derived from in-house equipment databases for all major and supporting equipment operating parameters and include fuel, consumables, labour ratios and general parts costs, summarized in Table 21.5. Overburden stripping is not expected to involve blasting and is estimated at $2.00 per tonne moved/mined. Waste rock is estimated to cost $2.35 per tonne mined and process plant feed at $2.75 per tonne mined due to is different density and narrower mining widths.

Table 21.5 **Mine Operating Cost Summary**		
Description	**$/t Mined**	
	Process Plant Feed	**Waste**
Drilling	$0.50	$0.48
Blasting	$0.35	$0.33
Loading	$0.26	$0.20
Hauling	$1.04	$0.78
Services/roads/dumps	$0.42	$0.38
General, supervision & technical	$0.18	$0.18
Total Mine Operating Cost	**$2.75**	**$2.35**

Annual production tonnes, waste tonnes and loading and hauling hours are calculated based on the capacities of the loading and hauling fleet. These tonnes and hours provide the basis for drilling, blasting, and support fleet inputs. Based on the tonnes scheduled to be mined, a requirement for production drilling hours is calculated based on hole size and pattern, bench height, material density, and penetration rate of the drill.

The quantity of explosives is calculated, priced, and contractor labour and fees added. An estimate for initiation systems and blasting accessories is provided on a per hole basis. Drilling and blasting inputs (pattern area, powder factor, etc.) have been included.

Fleet requirements for loading, hauling and support are derived from the loading and hauling operating hours. The support fleet of dozers, front-end loaders, graders, service and welding trucks, etc., is added in.

All equipment costs are based on estimated fuel consumption rate, consumables cost and general parts and preventative maintenance costs on a per-hour or per-metre interval basis.

Operating labour man-hours are categorized for the different labour categories such as operators, mechanics, electricians, etc. The mining cost also includes costs for all mine salaried staff, consumables, and software and fleet management systems' licensing and maintenance.

21.3.2 Process Plant Feed Transport

The process plant feed produced at Nash Creek will be delivered directly to the on-site DMS facility. However, the Superjack pit is located approximately 100 km by road from Nash Creek and process plant feed production from there will need to be transported over that distance to the Nash Creek DMS plant. A transport cost of $13.00 per tonne of process plant feed transported has been developed based on a tonne/kilometer rate of $0.13 per tonne hauled. This price is based on a recent commercial contract for a comparable contract.

21.3.3 Processing

Operating costs include all processing costs from receipt of feed from the mine through to concentrate production and disposal to tailings. Labour costs are based on estimated current rates and manning levels. Reagent prices are based primarily on vendor budget quotations for other projects and include an allowance for freight.

DMS operating costs are estimated at $0.20 per tonne of DMS plant feed.

Flotation plant costs are estimated at $13.20 per tonne of flotation plant feed. This includes operating labour, power, reagents, operating supplies and maintenance labour and supplies, Table 21.6.

TABLE 21.6 PROCESSING PLANT OPERATING COST SUMMARY	
Description	**$/t Processed**
Operating labour	1.91
Power	2.42
Reagents	5.93
Operating supplies	1.11
Maintenance labour	0.91
Maintenance supplies	0.92
Total Process Plant Operating Cost	**$13.20**

21.3.4 Tailings Handling

TMF handling costs are estimated to be $1.25 per tonne processed and include pipeline and TSF dam maintenance, tailings pond water treatment, conventional tailings thickener and support services.

21.3.5 Environmental

Environmental costs which have been estimated to total $20.2 M over the LOM and average $1.44 per tonne processed, including PAG waste rock separation, water collection and treatment, effluent treatment, environmental monitoring and on-going social consultations.

21.3.6 General and Administrative

General and Administration ("G&A") costs include costs for staff, general maintenance, office administration, safety equipment and personal protective equipment and support services.

The estimated cost for G&A is $2.5 M per year or $1.75 per tonne of DMS plant feed processed.

22.0 ECONOMIC ANALYSIS

22.1 SUMMARY

The Project's financial results are summarized in Table 22.1 and indicate an undiscounted after-tax NPV of $292.5 M, an after-tax IRR of 25.2% and a 2.8-year payback. The initial capital expenditure would be $168.3 M with a life-of-mine capital cost of $226.2 M. All currency values are expressed in Canadian dollars unless otherwise noted.

TABLE 22.1
FINANCIAL RESULTS SUMMARY

NPV (0%)	$292.5 M
NPV (5%)	$175.7 M
NPV (8%)	$127.6 M
IRR (after-tax)	25.2%
Payback (years)	2.8
Total LOM Capital	**$226.2 M**

The financial results are based the approximate two-year trailing average US$ metal prices of $1.25/lb zinc, $1.10/lb lead and $17.00/oz silver and exchange rate of US$ 0.77 = C$ 1.00 as of April 30, 2018.

The projected cash flow calculation spreadsheet is provided in Appendix A.

The Nash Creek production results are summarized in Table 22.2.

TABLE 22.2
METAL PRODUCTION RESULTS

Commodity	Annual Average		LOM Total	
Lead	14.6	M lbs	145.9	M lbs
Zinc	76.7	M lbs	767.5	M lbs
Silver	0.40	M oz	4.40	M oz

22.2 ASSUMPTIONS

A discounted cash flow analysis of the Nash Creek has been prepared based on technical and cost inputs developed by the P&E engineering team.

The discounted cash flow analysis was performed on a stand-alone project basis with annual cash flows discounted. The financial evaluation uses a discount rate of 8% and was performed at commencement of construction (Year -2 of the Project). A discount rate of 5% was applied in a separate exercise to indicate the results at a lower rate.

22.2.1 Metal Price Assumptions

The Nash Creek's key financial input assumptions are summarized in Table 22.3. Given that the Project is located in Canada, operating and sustaining costs will be predominantly denominated in Canadian dollars with revenues from metals being in US dollars. The economics of the Project will therefore be sensitive to US currency fluctuations relative to the Canadian dollar. Capital costs have been quoted in the PEA based on an exchange rate of 0.77 US dollars to 1 Canadian dollar.

TABLE 22.3
METAL PRICE ASSUMPTIONS

Lead	1.10	$US/lb
Zinc	1.25	$US/lb
Silver	17.00	$US/oz
Exchange rate	0.77:1.00	$US:$C

22.2.2 Recoveries

The Nash Creek project's recovery assumptions are outlined in Table 22.4.

TABLE 22.4
RECOVERY ASSUMPTIONS FOR PAYABLE METALS

Commodity	Lead Concentrate	Zinc Concentrate
Lead recovery	80.0%	
Zinc recovery		90.0%
Silver recovery	25.0%	25.0%

22.2.3 Capital Costs

Total capital costs are estimated at $226.2 M as outlined in the Capital and Operating Cost Section 21. Most of the initial capital costs are incurred over an 18-month construction period.

22.2.4 Net Smelter Return

Table 22.5 gives a summary of the NSR assumptions of the Nash Creek project.

TABLE 22.5 **NET SMELTER RETURN PARAMETERS**		
Item	Zinc Concentrate	Lead Concentrate
Deduction (units)	0%	0%
Payable metal	85%	95%
Payable Ag	90%	95%
Refining Ag (US$/oz)	$0.50	$0.50
Treatment cost (US$/dry tonne)	$150	$135
Marketing (US$/dry tonne)	$7.00	$7.00
Insurance (US$/dry tonne)	$2.00	$2.00
Assaying, supervision (US$/dry tonne)	$1.00	$1.00
Penalties	not included	not included
Transport cost (US$/wet tonne)	$30 (900 km rail)	$5.25 (35km truck)

22.2.5 Cash Flow Summary

The estimated annual LOM cash flow for the Nash Creek project is summarized in Table 22.6.

TABLE 22.6 **CASH FLOW SUMMARY**		
Description	**Units**	
Mine Production		
Overburden	000s of t	3,625
Waste rock	000s of t	89,300
Total waste	000s of t	92,925
Pit strip ratio		6.7
Total process plant feed	000s of t	14,427
Total material mined	000s of t	107,352
Processing		
Process Plant Feed tonnage	tpy	14,427
Grade -Zn	%	2.88
Grade -Pb	%	0.62
Grade - Ag	g/t	20.3
Revenue		
Lead concentrate	$(000)	216,650
Zinc concentrate	$(000)	939,349
Total NSR revenue	$(000)	1,156,000
Operating Cost		
Overburden removal	$/t mined	2.00
Mining cost (waste)	$/t mined	2.35
Mining cost (process plant feed)	$/t mined	2.75

Table 22.6 Cash Flow Summary		
Description	**Units**	
Superjack process plant feed transport	$/t transported	13.00
DMS processing cost	$/t DMS feed	0.20
Flotation processing cost	$/t DMS feed	13.20
Tailings handling	$/t DMS feed	1.25
Environmental	$/t DMS feed	1.44
G&A	$M/year	2.5
Unit operating cost	$/t processed	$30.84
Unit mining cost	$/t processed	$18.46
Preproduction Capital Costs		
Mine pre-stripping	$(000)	10,200
Mining	$(000)	5,310
Process plant	$(000)	63,100
Infrastructure	$(000)	23,000
Permitting and tailings management	$(000)	16,700
Indirects	$(000)	24,600
Contingency	$(000)	25,382
Total preproduction capital	$(000)	168,292
Sustaining Capital		
Mine	$(000)	31,140
Process plant with DMS	$(000)	3,000
Closure and reclamation (year 12)	$(000)	15,800
Contingency	$(000)	8,003
Total sustaining capital	$(000)	57,943
Total capital (LOM)	$(000)	226,235
Cash Flow		
Revenue from concentrate	$(000)	1,156,000
Operating cost	$(000)	-434,778
Royalties	$(000)	-11,560
Taxes	$(000)	-190,892
Capital spending	$(000)	-226,235
Cash flow	$(000)	292,535

22.3 DISCOUNT RATES

The discount rate applied to projected cash flows for mining projects takes many risks and variables into account, including: metal price fluctuation, marketability of the commodity, location of the project, stage of development, and experience of the owner. These rates also recognize the time value of money.

Discount rates commonly used within the mining industry range between 5.0% and 15.0%. The most appropriate rate for a specific mining project considers 1) the prevailing 'risk free' interest rate on capital; 2) the mineral project risks associated with Mineral Reserves, mining, processing, construction, environmental compliance, new technology, cost estimation, and the commodity being mined; and 3) country risk related to country-specific social, economic and political factors.

A rate between 5.0% and 8.0% was selected as an appropriate range for the base case of the Project. Government bond rates are a reasonable estimate of the prevailing "risk free" interest rates and these rates are currently quite low. The Project's location in Canada effectively eliminates any country risk component. The confidence levels of both the PEA and the Inferred Mineral Resources, provides the largest component of risk in selecting an appropriate discount rate.

The cash flow projections were discounted at 8.0% and also at 5.0% to demonstrate a range of potential outcomes for different levels of risk.

22.4 INCOME TAXES AND MINING TAXES

Mining operations in New Brunswick are subject to three tiers of taxes: a federal income tax under the Income Tax Act (Canada); a provincial income tax under the New Brunswick Income Tax Act and a provincial mining tax under the New Brunswick Metallic Minerals Act ("MMA"). The following is a summary of the significant taxes applicable to the Project.

Federal Income Tax

Federal income tax is applied to the Project's taxable income (generally being net of operating expenses, depreciation on capital asset and the deduction of exploration and pre-production development costs). The current federal income tax rate in Canada is 15.0%.

Provincial Income Tax

A New Brunswick provincial income tax is based on a similar taxable income as the federal calculation of taxable income. The current provincial income tax rate in New Brunswick is 10%.

NB Provincial Mining Tax

The Province of New Brunswick levies a two-tier mining tax: a 2.0% royalty based on "net revenue" and a 16.0% levy on "net profits".

The 2.0% royalty comes into effect two years after a new mine starts production. The royalty is based on 2.0% of the net revenue generated by the operation, which is generally equal to the revenue generated from the sale of mine output less transportation and processing costs (including refining & smelting costs). An allowance of 8.0% for process plant assets can be deducted from net revenue. The total deduction cannot exceed 25.0% of the net revenue before the process plant allowance has been deducted.

The net profit tax is calculated as 16.0% of the gross revenue in excess of $100,000 less allowable costs, eligible exploration expenditures and specified allowances for depreciation, financing, and processing. The 2% royalty paid is also deductible in determining net profits.

New Brunswick mining taxes paid are deductible for federal and provincial income tax purposes.

The financial model also includes deductions for the Canadian Exploration Expense ("CEE") of $3.37 million and Canadian Development Expense ("CDE") of $3.99 million. A tax loss carryover of $10 million is also included in the tax calculation.

22.5 OFF-SITE PROCESSING OPTION FOR THE DMS PRODUCT

This concept of processing the DMS product at a conceptual toll processing facility located approximately 100 km away, generated an after-tax NPV of $69 M at an 8.0% discount rate. The preproduction cost was estimated to be $62 M.

The reduced capital requirements were examined together with the higher toll processing and transport costs. There may be an opportunity to further increase the financial potential of the toll processing concept by using a higher cut-off grade than was used in the Base Case scenario to off-set higher processing and transportation costs.

While the toll processing results were positive, the base case DMS process plant was shown to be more attractive and achievable along with the potential to leverage the considerable exploration upside of Callinex's district-scale land package.

22.6 SENSITIVITIES

The Project sensitivity analysis was conducted to the following key variables on an after-tax basis:

- Zinc vs lead price (Tables 22.7 and 22.8);
- Capital and operating costs (Table 22.9);
- Currency exchange rates (Table 22.10).

TABLE 22.7
NPV SENSITIVITY TO VARYING ZINC AND LEAD PRICES
(8.0% DISCOUNT RATE) $M

NPV 8.0%	**Zinc Price**									
	$129.9	**$0.85**	**$0.95**	**$1.05**	**$1.15**	**$1.25**	**$1.35**	**$1.45**	**$1.55**	**$1.65**
Lead Price $US/lb	$0.85	- 4.1	27.0	56.3	85.8	114.0	142.2	170.4	198.7	226.9
	$0.90	0.7	30.3	59.6	88.9	117.2	145.4	173.6	201.8	230.1
	$0.95	4.1	33.6	62.9	92.1	120.3	148.6	176.8	205.0	233.2
	$1.00	7.5	36.9	66.2	95.3	123.5	151.7	180.0	208.2	236.4
	$1.05	10.9	40.2	69.4	98.5	126.7	154.9	183.1	211.4	239.6
	$1.10	14.2	43.4	72.7	101.6	**127.6**	158.1	186.3	214.5	242.8
	$1.15	17.6	46.7	75.9	104.8	133.0	161.2	189.5	217.7	245.9
	$1.20	20.9	50.0	79.7	108.0	136.2	164.4	192.6	220.9	249.1

TABLE 22.8
IRR SENSITIVITY TO VARYING ZINC AND LEAD PRICES

IRR	**Zinc Price**									
	25.2%	**$0.85**	**$0.95**	**$1.05**	**$1.15**	**$1.25**	**$1.35**	**$1.45**	**$1.55**	**$1.65**
Lead Price $US/lb	$0.85	7.4%	12.1%	16.1%	19.9%	23.2%	26.4%	29.4%	32.4%	35.2%
	$0.90	8.1%	12.5%	16.6%	20.3%	23.6%	26.8%	29.8%	32.7%	35.5%
	$0.95	8.6%	13.0%	17.1%	20.7%	24.0%	27.2%	30.2%	33.1%	35.9%
	$1.00	9.2%	13.5%	17.5%	21.1%	24.4%	27.5%	30.5%	33.4%	36.2%
	$1.05	9.7%	14.0%	17.9%	21.5%	24.8%	27.9%	30.9%	33.8%	36.6%
	$1.10	10.2%	14.5%	18.4%	21.9%	**25.2%**	28.3%	31.3%	34.1%	36.9%
	$1.15	10.7%	14.9%	18.8%	22.3%	25.6%	28.7%	31.6%	34.5%	37.3%
	$1.20	11.2%	15.4%	19.3%	22.7%	26.0%	29.0%	32.0%	34.8%	37.6%

TABLE 22.9
NPV SENSITIVITY TO VARYING CAPITAL AND OPERATING COSTS
(8.0% DISCOUNT RATE) $M

NPV 8.0%		Capital Cost Factor				
	$129.9	**80%**	**90%**	**100%**	**110%**	**120%**
Operating Cost Factor	**80%**	185.7	173.3	160.9	148.5	136.1
	90%	170.3	157.8	145.4	132.9	120.5
	100%	154.9	142.4	**127.6**	117.3	104.8
	110%	139.5	126.9	114.3	101.8	89.2
	120%	124.1	111.5	98.8	86.2	72.5

TABLE 22.10
NPV SENSITIVITY TO VARYING CANADIAN/US CURRENCY EXCHANGE RATES
(8.0% DISCOUNT RATE)

NPV 8.0%		$M
Exchange Rate $US:CDN	**$0.70**	168.9
	$0.77	**127.6**
	$0.87	85.0
	$0.97	47.7
	$1.07	17.7

23.0 ADJACENT PROPERTIES

23.1 NASH CREEK PROPERTY

There are no significant mineral claims or operating mines immediately adjacent to the Nash Creek Property.

23.1.1 Nearby Operating Mines

The Caribou Zinc Mine is owned and operated by Trevali Mining Corporation ("Trevali"). The underground mine is located approximately 30 km directly southwest of the Nash Creek Property and processes 3,000 tonnes per day through a sulphide flotation recovery process plant. The following information has been extracted from Trevali (2018) and has not been verified since the QP has not visited the site. The successful operations at the Caribou Mine do not imply economic viability of the Nash Creek Property; the operation of this mine may differ from a potential future operation at Nash Creek.

- Geology: the geological setting varies slightly from the Nash Creek Property as it is hosted within older Ordovician rocks at the base of the Spruce Lake Formation (California Lake Group). It was deposited sediment- covered back-arc continental rift during periods when the basin was stratified with a lower anoxic water-column.

- Mineralization: the deposit style is representative of a more typical black smoker VMS system with presence of black carbonaceous shale hosting footwall stringer sulphides and massive sulphides, with economic concentrations of copper, zinc, lead and silver.

- Operation: the Caribou Zinc Mine is currently in operation with Proven and Probable Reserve (December 31, 2017) of 5.22 Mt grading 6.34% Zn, 2.37% Pb, 0.38% Cu and 71.2g/t Ag.

23.2 SUPERJACK PROPERTY

Bordering the Superjack Property to the south is the Taylor Brook deposit, owned by Stratabound Minerals Corp. It is a stratabound sulphide deposit interlayered with hydrothermally altered volcanic rocks. In 2011, a Mineral Resource Estimate was completed on the Taylor Brook property with the following results (McLaughlin et al, 2011):

- an Indicated Mineral Resource of 243,000 t at 1.69 Zn%, 0.85 Pb%, 0.02 Cu% and 33.42 g/t Ag;

- an Inferred Mineral Resource of 102,000 t at 1.70 Zn%, 0.87 Pb%, 0.02 Cu% and 32.59 g/t Ag.

The authors of this Technical report are unable to verify the information above and that the information is not necessarily indicative of the mineralization on the Superjack Property that is the subject of this Technical Report.

24.0 OTHER RELEVANT DATA AND INFORMATION

24.1 PROJECT RISK ASSESSMENT

Violent and catastrophic events caused by forces of nature, or by man, which could not have been prevented or avoided by foresight or prudence are notable risks to the anticipated Project outcome. Similarly, risks related to uncertainties in metal price projections, uncertainties in projected unit costs of equipment and consumables, the availability of personnel to operate the mine, the availability of financial resources for construction and other industry risks, are also notable concerns. Whereas these issues may be quantifiable to some extent, they are only itemized here as a matter of record.

P&E also notes that whereas mining typically involves exposure to falling rocks, large moving mobile equipment, moving equipment parts, etc., the Project carries no unusual risks in terms of health and safety. The topography, rock conditions and climate of the Project location are considered non-problematic and conventional mining and processing techniques will be employed with adequate training of employees.

Some specific and significant risks related to failing to achieve the desired outcomes for the Project are described in Table 24.1. The risks identified therein are not the complete list of risks. They include only unusual risks related to technical issues.

TABLE 24.1
PROJECT RISK ASSESSMENT

Risk	Explanation/Potential Impact	Possible Risk Mitigation
Metal Prices	Any decrease in zinc, lead and/or silver prices would have negative implications on the results of the PEA.	The PEA used a projected price based on recent prices and price trends to estimate a metal price to use as part of the study. Metal prices typically vary upwards or downwards on multi-year cycles.
Water Inflow into Pits	Actual water inflow rates to the area have not been confirmed. Should inflow rates be significantly higher than expected for any reason, then this would increase total operating cost and negatively impact project economics.	Investigations into water inflow rates will determine the extent of any potential problems. Additional mitigation strategies, if required, could include drawdown wells around the pits. Water management will form an important part of the open pit development.
Mineral Resource Estimate Confidence	This PEA is based upon Indicated and Inferred Mineral Resources which are only an estimate of the quantity and	These estimates are of sufficient confidence to support a Preliminary Economic

TABLE 24.1 PROJECT RISK ASSESSMENT		
Risk	**Explanation/Potential Impact**	**Possible Risk Mitigation**
	grade of the mineralized material. If these estimates are inaccurate, then this may impact the economics of a future mining operation	Assessment which can serve as the basis for proceeding to more detailed analysis. Additional infill drilling will be required to upgrade the confidence level of the contained Inferred Mineral Resources, prior to more definitive analysis
Mining Dilution	Higher than expected mining dilution could have a significant impact on project economics.	Open pit mining operations will need to employ accurate drilling and blasting practices, in order to minimize mining dilution. A grade control plan should be developed as part of more detailed studies.
Metallurgical Recoveries*	Process recovery estimates are based on limited metallurgical data and analysis. If actual recoveries are lower than estimated, this would reduce revenue per tonne of process plant feed and adversely affect overall project economics.	Additional testwork should be performed in subsequent studies to confirm the current expectations of metallurgical recoveries
Capital and Operating Costs	Higher capital and/or operating costs will affect the Project economics.	In the next stage of study, confirm construction costs with more detailed scopes of work and more detailed contractors cost estimates. Investigate potential cost-reduction measures.
Geotechnical Risk	Geotechnical issues with the stability of the foundation of both waste rock and overburden piles.	Carry out a full geotechnical investigation at the location of both piles.
Environmental Issues	If any conditions arise where it appears that the environment will be unexpectedly affected during the Project construction and operation or post-closure, then the permitting process may be extended and the overall cost of the Project may be	Characterize the water bodies that may be affected by disturbances caused by the Project and relocate facilities, as required; Continue the laboratory tests to confirm the geochemical stability of the waste rock; Complete additional studies

TABLE 24.1 PROJECT RISK ASSESSMENT		
Risk	**Explanation/Potential Impact**	**Possible Risk Mitigation**
	increased. These conditions may include, but are not limited to issues with the location of the waste rock piles over a water body which could be a fish habitat; metal leaching from waste rock; and adverse impacts on the surrounding wet lands due to mine dewatering. If the conditions give rise to the requirement that certain federal processes are implemented in the permitting, this may have an impact on the overall project development schedule.	to better understand the existing hydrogeological and hydrological conditions

***** *The descriptions and preliminary designs for the Nash Creek PEA were based in part on the industry experience of the Authors of the relevant sections of this Technical Report. Contamination of products with deleterious elements/by-products will affect the value of the product. Higher reagent consumption or lower recoveries of metal can possibly occur. Detailed and advanced metallurgical testwork and/or pilot plant work will be required to verify the assumptions made in this PEA.*

24.2 CONCLUSION

To the best of the authors' knowledge, there are no other relevant data, additional information or explanation necessary to make this Technical Report understandable and not misleading.

25.0 INTERPRETATION AND CONCLUSIONS

Note: This PEA is preliminary in nature and its mineable tonnage includes Inferred Mineral Resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves and there is no certainty that the preliminary assessment will be realized. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.

The conclusions of this PEA are summarized in this section.

The Nash Creek and Superjack Properties could potentially be mined with conventional open pits using standard hard rock mining methods, producing an average of 3,900 tpd over a life-of-mine of approximately 10 years.

Mineralized material from the open pits would be delivered to a DMS plant at the Nash Creek Property which will separate out the higher value component of the feed. This pre-sorted material would subsequently be treated at a flotation plant, also located at Nash Creek. A zinc concentrate and a lead concentrate would be produced which could be shipped to the Valleyfield, Quebec and Belledune smelters, respectively.

Waste materials that would be generated as part of the mining and processing operations include overburden, waste rock, tailings and DMS reject. Overburden would be temporarily stored on site for use is road and facility construction, and later for site remediation. Waste rock will be stored on site and separated into non-acid producing and potentially acid producing piles. Later, the waste rock will be moved into the completed pits. Tailings will be placed into tailings impoundment areas and later into completed open pits, together with the DMS rejects.

P&E also investigated the potential of off-site toll processing of the DMS plant product at a conceptual off-site toll processing facility. The option of processing DMS product at an off-site toll processing plant generated an after-tax NPV $69 M at an 8.0% discount rate, which translates to after-tax IRR of approximately 32.3%

P&E estimates that the Base Case scenario could generate an undiscounted LOM after-tax cash flow of $293 M, or an after-tax NPV of $128 M at an 8.0% discount rate, which translates to a after-tax IRR of approximately 25.2%.

26.0 RECOMMENDATIONS

The Base Case of this PEA shows that the Project has economic potential for producing zinc and lead concentrates.

Note: This PEA is preliminary in nature and its mineable tonnage includes Inferred Mineral Resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves and there is no certainty that the preliminary assessment will be realized. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.

P&E recommends that Callinex advance the Project with extended and advanced technical studies, particularly in metallurgical, geotechnical and environmental matters with the intention to advance the project to a Pre-Feasibility Study level stage.

Specifically, it is recommended that Callinex take the following actions to develop the project to a Pre-Feasibility Study level:

- Continue metallurgical testwork on larger scale to confirm and improve the process design with the goal of improving metal recoveries;
- Continue to examine the off-site processing option;
- Characterize the acid generation / acid consuming and metal leaching potential and characteristics of the mine waste materials likely to be produced by the Project;
- Develop a more detailed mine waste and site water management plan at the next technical assessment stage of the Project;
- Carry out preliminary geotechnical investigations in the area of the proposed open pit and waste storage areas;
- Carry out a preliminary hydrogeological investigation and modelling study for the Project;
- Review the envisaged Project with regulatory authorities including possible environmental and social impact assessment study requirements and related public consultation aspects, time lines, etc. and consider proactively commencing studies that are likely to be required or that may require an extended time to complete. The environmental assessment requirements are established as part of the environmental impact assessment process; and
- Investigate and negotiate preliminary commercial parameters of key project components such as power supply, fuel and grinding media and key reagents.

P&E also recommends that other exploration targets in the area continue to be identified and investigated to provide supplemental process plant feed in the future.

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28.0 CERTIFICATES

CERTIFICATE OF QUALIFIED PERSON

EUGENE PURITCH, P. ENG., FEC, CET

I, Eugene J. Puritch, P. Eng., FEC, CET, residing at 44 Turtlecreek Blvd., Brampton, Ontario, L6W 3X7, do hereby certify that:

1. I am an independent mining consultant and President of P&E Mining Consultants Inc.
2. This certificate applies to the Technical Report titled "Technical Report and Preliminary Economic Assessment on the Nash Creek and Superjack Project, New Brunswick for Callinex Mines Inc.", (The "Technical Report") with an effective date of May 14, 2018.
3. I am a graduate of The Haileybury School of Mines, with a Technologist Diploma in Mining, as well as obtaining an additional year of undergraduate education in Mine Engineering at Queen's University. In addition I have also met the Professional Engineers of Ontario Academic Requirement Committee's Examination requirement for Bachelor's Degree in Engineering Equivalency. I am a mining consultant currently licensed by Professional Engineers and Geoscientists New Brunswick (License No. 4778), Professional Engineers, Geoscientists Newfoundland & Labrador (License No. 5998), Association of Professional Engineers and Geoscientists Saskatchewan (License No. 16216), Ontario Association of Certified Engineering Technicians and Technologists (License No. 45252) the Professional Engineers of Ontario (License No. 100014010) and Association of Professional Engineers and Geoscientists of British Columbia (License No. 42912). I am also a member of the National Canadian Institute of Mining and Metallurgy.

   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.

   I have practiced my profession continuously since 1978. My summarized career experience is as follows:
   - Mining Technologist - H.B.M.& S. and Inco Ltd., 1978-1980
   - Open Pit Mine Engineer – Cassiar Asbestos/Brinco Ltd., 1981-1983
   - Pit Engineer/Drill & Blast Supervisor – Detour Lake Mine, 1984-1986
   - Self-Employed Mining Consultant – Timmins Area, 1987-1988
   - Mine Designer/Resource Estimator – Dynatec/CMD/Bharti, 1989-1995
   - Self-Employed Mining Consultant/Resource-Reserve Estimator, 1995-2004
   - President – P&E Mining Consultants Inc, 2004-Present
4. I have visited the Properties that are the subject of this Technical Report on June 19, 2018.
5. I am responsible for co-authoring Sections 1, 16, 21, 22, 25 and 26 of the Technical Report.
6. I am independent of the Issuer applying the test in Section 1.5 of NI 43-101.
7. I have had no prior involvement with the Project that is the subject of this Technical Report.
8. I have read NI 43-101 and Form 43-101F1. This Technical Report has been prepared in compliance therewith.
9. As of the effective date of this 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.

Effective Date: May 14, 2018
Signing Date: June 28, 2018

{SIGNED AND SEALED}
[Eugene Puritch]

Eugene Puritch, P.Eng., FEC, CET

CERTIFICATE OF QUALIFIED PERSON

D. GRANT FEASBY, P. ENG.

I, D. Grant Feasby, P. Eng., residing at 12, 209 Hwy 38, Tichborne, Ontario, K0H 2V0, do hereby certify that:

1. I am currently the Owner and President of:

   Feasby Environmental Advantage Services
   38 Gwynne Ave, Ottawa, K1Y1W9
2. This certificate applies to the Technical Report titled "Technical Report and Preliminary Economic Assessment on the Nash Creek and Superjack Project, New Brunswick for Callinex Mines Inc.", (The "Technical Report") with an effective date of May 14, 2018.
3. I graduated from Queens University in Kingston Ontario, in 1964 with a Bachelor of Applied Science in Metallurgical Engineering, and a Master of Applied Science in Metallurgical Engineering in 1966. I am a Professional Engineer registered with Professional Engineers Ontario. I have worked as a metallurgical engineer for over 50 years since my graduation from university.

   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.

   My relevant experience for the purpose of the Technical Report have been acquired by the following activities:
   - Research Engineer, Metallurgist and Plant Manager in the Canadian Uranium Industry.
   - Manager of Canadian National Programs on Uranium and Acid Generating Mine Tailings.
   - Director, Environment, Canadian Mineral Research Laboratory.
   - Senior Technical Manager, for large gold and bauxite mining operations in South America.
   - Expert Independent Consultant associated with several companies, including P&E Mining Consultants, on mineral processing, environmental management, and mineral-based radiation assessment.
4. I have not visited the Property that is the subject of this Technical Report.
5. I am responsible for authoring Section 20 and co-authoring Sections 1, 21, 25 and 26 of the Technical Report.
6. I am independent of the issuer applying the test in Section 1.5 of NI 43-101.
7. I have had no prior involvement with the Project that is the subject of this Technical Report.
8. I have read NI 43-101 and Form 43-101F1 and the Technical Report has been prepared in compliance therewith.
9. As of the effective date of this 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.

Effective Date: May 14, 2018
Signed Date: June 28, 2018

{SIGNED AND SEALED}
[D. Grant Feasby]

D. Grant Feasby, P.Eng.

CERTIFICATE OF QUALIFIED PERSON

ALFRED S. HAYDEN, P. ENG

I, Alfred S. Hayden, P. Eng., residing at 284 Rushbrook Drive, Newmarket, Ontario, L3X 2C9, do hereby certify that:

1. I am currently President of:
   EHA Engineering Ltd.,
   Consulting Metallurgical Engineers
   Box 2711, Postal Stn. B.
   Richmond Hill, Ontario, L4E 1A7
2. This certificate applies to the Technical Report titled "Technical Report and Preliminary Economic Assessment on the Nash Creek and Superjack Project, New Brunswick for Callinex Mines Inc.", (The "Technical Report") with an effective date of May 14, 2018.
3. I graduated from the University of British Columbia, Vancouver, B.C. in 1967 with a Bachelor of Applied Science in Metallurgical Engineering. I am a member of the Canadian Institute of Mining, Metallurgy and Petroleum and a Professional Engineer and Designated Consulting Engineer registered with Professional Engineers Ontario. I have worked as a metallurgical engineer for over 40 years since my graduation from university.

   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.

   My summarized career experience is as follows:
   - EHA Engineering Ltd: (President) 1990-Present
   - EH Associates: (Partner) 1985-1990
   - A.H. Ross & Associates Ltd. (Senior Associate) 1976-1985
   - Eldorado Nuclear Limited (Chief Metallurgist/Mill Engineer) 1966-1976
4. I have not visited the Property that is the subject of this Technical Report.
5. I am responsible for authoring Sections 13, 17 and co-authoring Sections 1, 21, 25 and 26 of the Technical Report.
6. I am independent of the issuer applying the test in Section 1.5 of NI 43-101.
7. I have had no prior involvement with the Project that is the subject of this Technical Report.
8. I have read NI 43-101 and Form 43-101F1 and the Technical Report has been prepared in compliance therewith.
9. As of the effective date of this 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.

Effective Date: May 14, 2018
Signed Date: June 28, 2018

{SIGNED AND SEALED}
[Alfred Hayden]

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Alfred S. Hayden, P.Eng.

CERTIFICATE OF QUALIFIED PERSON

KEN KUCHLING, P.ENG.

I, Ken Kuchling, P. Eng., residing at 33 University Ave., Toronto, Ontario, M5J 2S7, do hereby certify that:

1. I am a senior mining consultant with KJ Kuchling Consulting Ltd. located at #1903-33 University Ave, Toronto, Ontario Canada contracted by P&E Mining Consultants Inc.
2. This certificate applies to the Technical Report titled "Technical Report and Preliminary Economic Assessment on the Nash Creek and Superjack Project, New Brunswick for Callinex Mines Inc.", (The "Technical Report") with an effective date of May 14, 2018.
3. I graduated with a Bachelor degree in Mining Engineering in 1980 from McGill University and a M. Eng degree in Mining Engineering from UBC in 1984. I have worked as a mining engineer for a total of 31 years since my graduation from university. My relevant work experience for the purpose of the Technical Report is 12 years as an independent mining consultant in commodities such as gold, copper, potash, diamonds, molybdenum, tungsten, and bauxite. I have practiced my profession continuously since 1980. I am a member of the Professional Engineers of Ontario.

   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.

   My relevant experience for the purpose of the Technical Report is:
   - Associate Mining Engineer, P&E Mining Consultants Inc. 2011 – Present
   - Mining Consultant, KJ Kuchling Consulting Ltd. 2000 – Present
   - Senior Mining Engineer, Diavik Diamond Mines Inc., 1997 – 2000
   - Senior Mining Consultant, KJ Kuchling Consulting Ltd., 1995 – 1997
   - Senior Geotechnical Engineer, Terracon Geotechnique Ltd., 1989 - 1995
   - Chief Mine Engineer, Mosaic, Esterhazy K1 Operation. 1985 – 1989
   - Mining Engineering, Syncrude Canada Ltd. 1980 – 1983
4. I have not visited the Property that is the subject of this Technical Report.
5. I am responsible for co-authoring Sections 1, 22, 25 and 26 of the Technical Report.
6. I am independent of the issuer applying the test in Section 1.5 of NI 43-101.
7. I have had no prior involvement with the Project that is the subject of this Technical Report.
8. I have read NI 43-101 and Form 43-101F1 and the Technical Report has been prepared in compliance therewith.
9. As of the effective date of this 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.

Effective Date: May 14, 2018
Signed Date: June 28, 2018

{SIGNED AND SEALED}
[Ken Kuchling]

Ken Kuchling, P.Eng.

CERTIFICATE OF QUALIFIED PERSON

KIRK H. RODGERS, P. ENG

I, Kirk H. Rodgers, P. Eng., residing at 146 Royal Beech Drive, Wasaga Beach, Ontario, do hereby certify that:

1. I am an independent mining consultant, contracted as Vice President, Engineering by P&E Mining Consultants Inc.
2. This certificate applies to the Technical Report titled "Technical Report and Preliminary Economic Assessment on the Nash Creek and Superjack Project, New Brunswick for Callinex Mines Inc.", (The "Technical Report") with an effective date of May 14, 2018.
3. I am a graduate of The Haileybury School of Mines, with a Technologist Diploma in Mining. I subsequently attended the mining engineering programs at Laurentian University and Queen's University for a total of two years. I have met the Professional Engineers of Ontario Academic Requirement Committee's Examination requirement for Bachelor's Degree in Engineering Equivalency. I have been licensed by the Professional Engineers of Ontario (License No. 39427505), from 1986 to the present. I am also a member of the National and Toronto Canadian Institute of Mining and Metallurgy.

   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.

   My relevant experience for the purpose of the Technical Report is:
   - Underground Hard Rock Miner, Denison Mines, Elliot Lake Ontario 1977-1979
   - Mine Planner, Cost Estimator, J.S Redpath Ltd., North Bay Ontario 1981-1987
   - Chief Engineer, Placer Dome Dona Lake Mine, Pickle Lake Ontario 1987-1988
   - Project Coordinator, Mine Captain, Falconbridge Kidd Creek Mine, Timmins, Ontario 1988-1990
   - Manager of Contract Development, Dynatec Mining, Richmond Hill, Ontario 1990-1992
   - General Manager, Moran Mining and Tunnelling, Sudbury, Ontario 1992-1993
   - Independent Mining Engineer 1993
   - Project Manager - Mining, Micon International, Toronto, Ontario 1994 - 2004
   - Principal, Senior Consultant, Golder Associates, Toronto, Ontario 2004 – 2010
   - Independent Consultant, VP Engineering to P&E Mining Consultants Inc, Brampton ON2011 – present
4. I have not visited the Property that is the subject of this Technical Report.
5. I am responsible for authoring Sections 2, 3, 15, 18, 19, 24, 27 and 28 and co-authoring Sections 1, 16, 21, 22, 25 and 26 of the Technical Report.
6. I am independent of the issuer applying the test in Section 1.5 of NI 43-101.
7. I have had no prior involvement with the Project that is the subject of this Technical Report.
8. I have read NI 43-101 and Form 43-101F1 and the Technical Report has been prepared in compliance therewith.
9. As of the effective date of this 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.

Effective Date: May 14, 2018
Signed Date: June 28, 2018

{SIGNED AND SEALED}
[Kirk Rodgers]

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Kirk Rodgers, P.Eng.

CERTIFICATE OF QUALIFIED PERSON

P. JAMES F. BARR, P.GEO.

I, James Barr, P.Geo., of Kelowna, British Columbia, do hereby certify:

1. I am Senior Geologist and Team Lead with Tetra Tech Canada Inc. with a business address at Suite 150 - 1715 Dickson Avenue, Kelowna, BC, V1Y 9G6.
2. This certificate applies to the Technical Report titled "Technical Report and Preliminary Economic Assessment on the Nash Creek and Superjack Project, New Brunswick for Callinex Mines Inc.", (The "Technical Report") with an effective date of May 14, 2018.
3. I graduated from the University of Waterloo in 2003 with a B.Sc. (Honours) in Environmental Science, Earth Science and Chemistry. I am a registered Professional Geoscientist with the Engineers and Geoscientists of British Columbia (#35150).

   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.

   My relevant experience for the purpose of the Technical Report is:
   I have worked as an exploration and resource geologist for numerous precious and base metal projects in Canada, Africa and Mexico since 2003. Since 2008, I have prepared, reviewed and audited mineral resource estimates including for open pit VMS and sulphide hosted deposits which are relevant to the content of this Technical Report.
4. I visited the Nash Creek Property that is the subject of the Technical Report on February 14-15, 2018.
5. I am responsible for authoring Sections 4.1 to 12.1, 14, and 23.1, excluding Section 10.2.5 and co-authoring Sections 1, 25 and 26 of the Technical Report.
6. I am independent of the issuer applying the test in Section 1.5 of NI 43-101.
7. I have had prior involvement with the Project that is the subject of this Technical Report. I was a QP for four Technical Reports for the Project and titled as follows:
   - Technical Report for Callinex Mines Inc. "Technical Report and Updated Mineral Resource Estimate on the Nash Creek Project, New Brunswick, Canada", dated June 3, 2018, with an effective date of March 21, 2018.
   - Qualifying Report for Callinex Mines Inc. entitled "Technical Report and Updated Mineral Resource Estimate on the Nash Creek Project, New Brunswick, Canada", dated October 28th, 2016, with an effective date of August 22, 2016.
   - Technical Report for Callinex Mines Inc. "Updated Technical Report on the Superjack Project, New Brunswick, Canada", with an effective date of July 15, 2016.
   - Technical Report for SLAM Exploration Ltd. entitled "Technical Report on Mineral Resource Estimate, SLAM Exploration Ltd., Nash Creek Property, Restigouche County, New Brunswick, Canada", with an effective date of August 12, 2005.
8. I have read NI 43-101 and Form 43-101F1 and the Technical Report has been prepared in compliance therewith.
9. As of the effective date of this 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.

Effective Date: May 14, 2018

Signed Date: June 28, 2018

{SIGNED AND SEALED}

[P. James F. Barr]

P. James F. Barr, P.Geo.

Senior Geologist and Team Lead – Geology, Tetra Tech Canada Inc.

CERTIFICATE OF QUALIFIED PERSON

CAMERON BARTSCH, P.GEO.

I, Cameron Bartsch, P.Geo., of Halifax, Nova Scotia, do hereby certify:

1. I am Senior Geologist with Terrane Geoscience Inc. with a business address at Suite 100 – 5435 Portland Place, Halifax, Nova Scotia B3K 2Y7.
2. This certificate applies to the Technical Report titled "Technical Report and Preliminary Economic Assessment on the Nash Creek and Superjack Project, New Brunswick for Callinex Mines Inc.", (The "Technical Report") with an effective date of May 14, 2018.
3. I graduated from the University of Saskatchewan in 2001 with a B.Sc. (Honours) in Geology, and from Acadia University in 2005 with a M.Sc. in Geology. I am registered as a Professional Geoscientist with the Association of Professional Engineers and Geoscientists of British Columbia (Reg.# 35418).

   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.

   My relevant experience for the purpose of the Technical Report is:
   I have worked continuously as an exploration and economic geologist for a total of 17 years since my graduation, exploring for and modelling precious and base metals deposits throughout North and South America, as well being a contributing author to numerous technical reports, including mineral resource estimates.
4. I visited the Nash Creek Property on July 13, 2016 for one day and the Superjack Property on October 14th, 2016 for one-half day that are the subject of the Technical Report.
5. I am responsible for authoring the Superjack Property Sections 4.2 to 12.2, 23.2, and co-authoring Section 1, 25 and 26 of the Technical Report.
6. I am independent of the issuer applying the test in Section 1.5 of NI 43-101.
7. I have had prior involvement with the Project that is the subject of this Technical Report. I was a QP for two Technical Reports for the Project and titled as follows:
   - Qualifying Report for Callinex Mines Inc. entitled "Technical Report and Updated Mineral Resource Estimate on the Nash Creek Project, New Brunswick, Canada", dated October 28th, 2016, with an effective date of August 22, 2016.
   - Technical Report for Callinex Mines Inc. "Updated Technical Report on the Superjack Project, New Brunswick, Canada", with an effective date of July 15, 2016.
8. I have read NI 43-101 and Form 43-101F1 and the Technical Report has been prepared in compliance therewith.
9. As of the effective date of this 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.

Effective Date: May 14, 2018
Signed Date: June 28, 2018

{SIGNED AND SEALED}
[Cameron Bartsch]

Senior Geologist with Terrane Geoscience Inc.

Callinex Nash Creek Project Cash Flow Summary

1 of 3

	Units	Inputs	Totals	-2	-1	1	2	3	4	5	6	7	8	9	10	11	12
Months Operating Target	months			-	-	12	12	12	12	12	12	12	12	12	12	12	12
Milling Processing Rate	t/day	100.0%	availability	-	-	1,962	1,951	1,952	1,951	1,951	1,951	1,952	1,951	1,951	1,952	239	-
DMS Processing Rate	t/day	100.0%	availability	-	-	3,925	3,903	3,903	3,902	3,903	3,902	3,903	3,902	3,902	3,903	478	-
MINE PRODUCTION																	
		years=	12														
Overburden (t)	t		3,625,200		291,600	-	721,575	1,036,350	436,725	20,700	876,150	53,325	-	188,775	-	-	
Waste Rock (t)	t		89,299,932		4,000,000	4,479,010	5,900,714	8,386,168	9,066,353	9,401,732	8,617,788	9,469,139	9,164,034	10,577,977	9,999,490	237,526	
Total Waste (t)	t		92,925,132	-	4,291,600	4,479,010	6,622,289	9,422,518	9,503,078	9,422,432	9,493,938	9,522,464	9,164,034	10,766,752	9,999,490	237,526	-
Strip Ratio	t		6.4	-	-	3.1	4.6	6.6	6.7	6.6	6.7	6.7	6.4	7.6	7.0	1.4	-
Total Mill Feed (t)	t		14,427,174			1,432,563	1,424,447	1,424,727	1,424,156	1,424,522	1,424,297	1,424,745	1,424,320	1,424,302	1,424,616	174,480	
Total Material Mined	t		107,352,306	-	4,291,600	5,911,573	8,046,736	10,847,245	10,927,234	10,846,954	10,918,235	10,947,209	10,588,354	12,191,054	11,424,106	412,006	-
Superjack Mill Feed (t) Included in Above	*t*		*1,294,706*			*1,294,706*											
PROCESSING (DMS & FLOTATION)																	
		years=	11														
DMS Plant Feed	tpy	Feed =	14,427,174			1,432,563	1,424,447	1,424,727	1,424,156	1,424,522	1,424,297	1,424,745	1,424,320	1,424,302	1,424,616	174,480	
Ag (g/t)	g/t-dil	*9,396,675*	20.26			38.7	16.4	24.2	23.7	18.4	17.0	18.7	15.6	17.2	14.5	5.2	
Pb (%)	%-dil	*88,943*	0.62			1.02	0.56	0.87	0.72	0.60	0.54	0.57	0.43	0.48	0.41	0.43	
Zn (%)	%-dil	*415,931*	2.88			3.68	2.27	2.75	2.83	2.67	2.76	3.08	2.78	2.49	3.08	6.38	
Mill tonnage after DMS (50% rejected)	tpy	50.0%	7,213,587	-	-	716,282	712,224	712,363	712,078	712,261	712,148	712,372	712,160	712,151	712,308	87,240	-
NSR	$/t		$80.13			$110.40	$64.83	$83.22	$82.02	$74.62	$75.17	$83.01	$72.80	$68.06	$78.69	$147.63	
Ag (g/t)	*8,738,907*	93.0%	37.7	-	-	71.9	30.6	45.0	44.1	34.2	31.6	34.7	29.0	32.0	26.9	9.7	-
Pb (%)	*82,717*	93.0%	1.15	-	-	1.89	1.05	1.61	1.34	1.11	1.01	1.05	0.80	0.89	0.75	0.81	-
Zn (%)	*386,816*	93.0%	5.36	-	-	6.84	4.23	5.11	5.26	4.97	5.14	5.73	5.16	4.63	5.74	11.87	-
Tailings Production (DMS+Flotation)	tpy	*94.6%*	13,648,527	-	-	1,329,124	1,362,191	1,345,563	1,346,278	1,352,742	1,351,612	1,344,463	1,353,769	1,359,054	1,347,695	156,037	-
Tailings (Flotation only)	tpy		6,434,939	-	-	612,842	649,967	633,199	634,200	640,482	639,463	632,090	641,609	646,903	635,387	68,797	-
Lead Concentrate Production																	
Mass Pull (calculated)			1.8%			3.00%	1.66%	2.56%	2.13%	1.76%	1.61%	1.68%	1.27%	1.41%	1.20%	1.28%	
Concentrate Tonnes (dry)			131,558	-	-	21,518	11,855	18,267	15,185	12,562	11,452	11,945	9,031	10,073	8,553	1,118	-
Concentrate tonnes (wet)	Moist =	8.0%	142,083	-	-	23,240	12,804	19,728	16,400	13,567	12,368	12,900	9,753	10,879	9,237	1,207	-
Recovery (Pb)	Recovery =	80.0%	80.0%			80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	
Recovery (Ag)		25.0%	25.0%			25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	
Pb to conc	t		66,174	-	-	10,824	5,963	9,188	7,638	6,319	5,760	6,008	4,542	5,067	4,302	562	-
Ag to conc	oz		2,184,727	-	-	414,219	175,109	257,754	252,677	195,646	180,913	198,677	165,784	182,887	154,263	6,797	-
Grade (Pb)	%Pb	50.3%	50.3%			50.3%	50.3%	50.3%	50.3%	50.3%	50.3%	50.3%	50.3%	50.3%	50.3%	50.3%	
Grade (Ag)	g/t	517	516.5	-	-	598.7	459.4	438.9	517.6	484.4	491.4	517.4	571.0	564.7	561.0	189.2	-
Lead Metal Produced	t		66,174	-	-	10,824	5,963	9,188	7,638	6,319	5,760	6,008	4,542	5,067	4,302	562	-
Lead Metal Produced	M-lbs	*13.3*	145.89	-	-	23.86	13.15	20.26	16.84	13.93	12.70	13.25	10.01	11.17	9.48	1.24	-
Silver Metal Produced	oz	*198,612*	2,184,727	-	-	414,219	175,109	257,754	252,677	195,646	180,913	198,677	165,784	182,887	154,263	6,797	-
Zinc Concentrate Production																	
Mass Pull (calculated)			9.0%			11.44%	7.08%	8.55%	8.80%	8.31%	8.60%	9.59%	8.64%	7.75%	9.60%	19.86%	
Concentrate Tonnes (dry)			647,090	-	-	81,922	50,401	60,897	62,693	59,218	61,233	68,337	61,521	55,174	68,368	17,325	-
Concentrate tonnes (wet)	Moist =	8.0%	698,857	-	-	88,475	54,433	65,769	67,708	63,955	66,132	73,804	66,443	59,588	73,837	18,712	-
Recovery (Zn)	Recovery =	90.0%	90.0%			90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	
Recovery (Ag)	Recovery =	25.0%	25.0%			25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	
Zn to conc	t		348,134	-	-	44,074	27,116	32,763	33,729	31,859	32,944	36,765	33,098	29,684	36,782	9,321	-
Ag to conc	oz		2,184,727	-	-	414,219	175,109	257,754	252,677	195,646	180,913	198,677	165,784	182,887	154,263	6,797	-
Grade (Zn)	%Zn	53.8%	53.8%			53.8%	53.8%	53.8%	53.8%	53.8%	53.8%	53.8%	53.8%	53.8%	53.8%	53.8%	
Grade (Ag)	g/t	105	105.0	-	-	157.3	108.1	131.7	125.4	102.8	91.9	90.4	83.8	103.1	70.2	12.2	-
Zinc Produced	t		348,134	-	-	44,074	27,116	32,763	33,729	31,859	32,944	36,765	33,098	29,684	36,782	9,321	-
Zinc Produced	M-lbs	*69.8*	767.50	-	-	97.17	59.78	72.23	74.36	70.24	72.63	81.05	72.97	65.44	81.09	20.55	-
Silver Metal Produced	oz	*198,612*	2,184,727	-	-	414,219	175,109	257,754	252,677	195,646	180,913	198,677	165,784	182,887	154,263	6,797	-
		397,223															

Callinex Nash Creek Project Cash Flow Summary

	Units	Inputs	Totals	-2	-1	1	2	3	4	5	6	7	8	9	10	11	12
REVENUE																	
Exchange Rate ==>	USD:CAD	$0.77															
Concentrate Values (per dmt)		**Metal Prices↓**															
Lead Concentrate NSR Value ($/t)	$US/lb	$1.10	$CAD / dmt	$ -	$ -	$ 1,701	$ 1,609	$ 1,596	$ 1,647	$ 1,626	$ 1,630	$ 1,647	$ 1,682	$ 1,678	$ 1,676	$ 1,433	$ -
Zinc Concentrate NSR Value ($/t)	$US/lb	$1.25	$CAD / dmt	$ -	$ -	$ 1,484	$ 1,454	$ 1,468	$ 1,464	$ 1,450	$ 1,444	$ 1,443	$ 1,439	$ 1,450	$ 1,430	$ 1,394	$ -
Silver	$US/oz	$17.00															
Metal Values Recovered (Theoretical)																	
Lead (theoretical)	C$(000)		208,409	$ -	$ -	$ 34,088	$ 18,781	$ 28,937	$ 24,056	$ 19,900	$ 18,141	$ 18,923	$ 14,306	$ 15,958	$ 13,549	$ 1,770	$ -
Zinc (theoretical)	C$(000)		1,245,936	$ -	$ -	$ 157,736	$ 97,044	$ 117,255	$ 120,712	$ 114,020	$ 117,902	$ 131,580	$ 118,455	$ 106,235	$ 131,639	$ 33,359	$ -
Silver (theoretical)	C$(000)		96,468	$ -	$ -	$ 18,290	$ 7,732	$ 11,381	$ 11,157	$ 8,639	$ 7,988	$ 8,773	$ 7,320	$ 8,076	$ 6,812	$ 300	$ -
Total Value (theoretical)	C$(000)		$ 1,550,814	$ -	$ -	$ 210,114	$ 123,557	$ 157,573	$ 155,924	$ 142,559	$ 144,031	$ 159,275	$ 140,081	$ 130,269	$ 152,000	$ 35,430	$ -
Value per tonne Mill Feed (theoretical)	$/t Mill Feed		$107.49			$146.67	$86.74	$110.60	$109.49	$100.08	$101.12	$111.79	$98.35	$91.46	$106.70	$203.06	
Revenues																	
Lead Concentrate NSR Value ($/t)	C$(000)	19%	216,650	-	-	36,592	19,081	29,155	25,017	20,423	18,670	19,677	15,193	16,906	14,334	1,601	-
Zinc Concentrate NSR Value ($/t)	C$(000)	81%	939,349	-	-	121,567	73,260	89,404	91,796	85,881	88,393	98,586	88,501	80,029	97,775	24,157	-
Total NSR Revenue	C$(000)	100%	$ 1,156,000	$ -	$ -	$ 158,159	$ 92,341	$ 118,559	$ 116,814	$ 106,304	$ 107,064	$ 118,263	$ 103,694	$ 96,935	$ 112,109	$ 25,758	$ -
NSR per tonneMill Feed	$/t Mill Feed		$80.13			$110.40	$64.83	$83.22	$82.02	$74.62	$75.17	$83.01	$72.80	$68.06	$78.69	$147.63	
Overall Payable Factor	%		74.5%			75.3%	74.7%	75.2%	74.9%	74.6%	74.3%	74.3%	74.0%	74.4%	73.8%	72.7%	
OPERATING COSTS	100%																
Mining Cost (Ovb)	$/t ovb	$2.00	$7,250	$ -	$ 583	$ -	$ 1,443	$ 2,073	$ 873	$ 41	$ 1,752	$ 107	$ -	$ 378	$ -	$ -	$ -
Mining Cost (Waste)	$/t rock	$2.35	$209,855	$ -	$ 9,400	$ 10,526	$ 13,867	$ 19,707	$ 21,306	$ 22,094	$ 20,252	$ 22,252	$ 21,535	$ 24,858	$ 23,499	$ 558	$ -
Mining Cost (Mill Feed)	$/t Mill Feed	$2.75	$39,849	$ -	$ -	$ 3,940	$ 3,917	$ 3,918	$ 3,916	$ 3,917	$ 3,917	$ 3,918	$ 3,917	$ 3,917	$ 3,918	$ 654	$ -
Superjack Mill Feed Transport	$/t Mill Feed	$13.00	$16,831	$ -	$ -	$ 16,831	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
DMS Processing Cost	$/t feed	$0.20	$2,885	$ -	$ -	$ 287	$ 285	$ 285	$ 285	$ 285	$ 285	$ 285	$ 285	$ 285	$ 285	$ 35	$ -
Flotation Processing Cost	$/t milled	$13.20	$95,219	$ -	$ -	$ 9,455	$ 9,401	$ 9,403	$ 9,399	$ 9,402	$ 9,400	$ 9,403	$ 9,401	$ 9,400	$ 9,402	$ 1,152	$ -
Tailings Handling	$/t feed	$1.25	$17,061	$ -	$ -	$ 1,661	$ 1,703	$ 1,682	$ 1,683	$ 1,691	$ 1,690	$ 1,681	$ 1,692	$ 1,699	$ 1,685	$ 195	$ -
Environmental During Operations	$/t feed	$1.44	$ 20,775	$ -	$ -	$ 2,063	$ 2,051	$ 2,052	$ 2,051	$ 2,051	$ 2,051	$ 2,052	$ 2,051	$ 2,051	$ 2,051	$ 251	$ -
G&A	$M/yr	$2.50	$25,833	$ -	$ -	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 833	$ -
Total Operating Cost	**C$(000)**		$ 435,560	$ -	$ 9,983	$ 47,262	$ 35,167	$ 41,620	$ 42,014	$ 41,982	$ 41,847	$ 42,198	$ 41,381	$ 45,088	$ 43,340	$ 3,679	$ -
Unit Operating	$/t feed		$30.19			$32.99	$24.69	$29.21	$29.50	$29.47	$29.38	$29.62	$29.05	$31.66	$30.42	$21.08	
Unit Mining Cost	$/t feed		$17.81			$10.10	$13.50	$18.04	$18.32	$18.29	$18.20	$18.44	$17.87	$20.47	$19.24	$6.95	
Unit Mining Cost	$/t mat'l		$2.39		$2.33	$2.45	$2.39	$2.37	$2.39	$2.40	$2.37	$2.40	$2.40	$2.39	$2.40	$2.94	
Operating Margin (Net Income)	C$(000)		$ 720,440			$ 110,897	$ 57,174	$ 76,939	$ 74,800	$ 64,322	$ 65,217	$ 76,066	$ 62,313	$ 51,847	$ 68,769	$ 22,080	$ -
Operating Margin (per tonne)	$/t feed		$49.94	-	-	$77.41	$40.14	$54.00	$52.52	$45.15	$45.79	$53.39	$43.75	$36.40	$48.27	$126.55	-
ROYALTIES																	
1% Royalty Payable	C$(000)	**1.00%**	11,560	-	-	1,582	923	1,186	1,168	1,063	1,071	1,183	1,037	969	1,121	258	-
			-														
Total Royalty	C$(000)		11,560	-	-	1,582	923	1,186	1,168	1,063	1,071	1,183	1,037	969	1,121	258	-
Unit Operating with Roylaty	$/t feed		$30.99														
CAPITAL COSTS	100%	Contingency															
Mine Pre-Stripping	C$(000)	5.0%	$ 9,983.2	$ -	$ 9,983.2												
Mining Capital Cost	C$(000)	20.0%	$ 35,400.0		$ 5,310.0	$ 7,522.5	$ 7,522.5	$ 7,522.5	$ 7,522.5								
Process Plant with DMS (Directs)	C$(000)	20.0%	$ 63,100.0	$ 31,550.0	$ 31,550.0												
Infrastructure	C$(000)	20.0%	$ 23,000.0		$ 23,000.0												
Initial Permitting & Tailings	C$(000)	10.0%	$ 16,700.0	$ 8,100.0	$ 8,600.0												
Indirects	C$(000)	20.0%	$ 24,600.0	$ 12,300.0	$ 12,300.0												
Contingency	C$(000)	18.2%	$ 31,389.2	$ 9,580.0	$ 15,791.2	$ 1,504.5	$ 1,504.5	$ 1,504.5	$ 1,504.5	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Initial Project Capital	C$(000)		$ 204,172.4	$ 61,530.0	$ 106,534.4	$ 9,027.0	$ 9,027.0	$ 9,027.0	$ 9,027.0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Sustainining		Contingency															
Mine	C$(000)	10.0%	$ 1,050.0	$ -	$ -	$ 100.0	$ 100.0	$ 100.0	$ 100.0	$ 100.0	$ 100.0	$ 100.0	$ 100.0	$ 100.0	$ 100.0	$ 50.0	
Process Plant with DMS	C$(000)	10.0%	$ 3,000.0	$ -	$ -	$ 300.0	$ 300.0	$ 300.0	$ 300.0	$ 300.0	$ 300.0	$ 300.0	$ 300.0	$ 300.0	$ 200.0	$ 100.0	
			$ -														
Closure & Reclamation	C$(000)	10.0%	$ 15,800.0														$ 15,800.0
Contingency (sustaining)	C$(000)	10.0%	$ 1,985.0	$ -	$ -	$ 40.0	$ 40.0	$ 40.0	$ 40.0	$ 40.0	$ 40.0	$ 40.0	$ 40.0	$ 40.0	$ 30.0	$ 15.0	$ 1,580.0
Total Sustaining Capital	C$(000)		$ 21,835.0	$ -	$ -	$ 440.0	$ 440.0	$ 440.0	$ 440.0	$ 440.0	$ 440.0	$ 440.0	$ 440.0	$ 440.0	$ 330.0	$ 165.0	$ 17,380.0
Total Capital	C$(000)		$ 226,007.4	$ 61,530.0	$ 106,534.4	$ 9,467.0	$ 9,467.0	$ 9,467.0	$ 9,467.0	$ 440.0	$ 440.0	$ 440.0	$ 440.0	$ 440.0	$ 330.0	$ 165.0	$ 17,380.0

Callinex Nash Creek Project Cash Flow Summary

	Units	Inputs	Totals	-2	-1	1	2	3	4	5	6	7	8	9	10	11	12
DEPRECIATION																	
Capital Additions	C$(000)		$ 226,007.4	$ 61,530.0	$ 106,534.4	$ 9,467.0	$ 9,467.0	$ 9,467.0	$ 9,467.0	$ 440.0	$ 440.0	$ 440.0	$ 440.0	$ 440.0	$ 330.0	$ 165.0	$ 17,380.0
EBITDA	C$(000)		$ 730,423.4	-	-	$ 110,897.0	$ 57,173.6	$ 76,939.2	$ 74,799.8	$ 64,322.5	$ 65,217.1	$ 76,065.7	$ 62,313.1	$ 51,847.0	$ 68,768.6	$ 22,079.7	-
Depreciation (max)	C$(000)	30.0%	$ 202,335.4	-	-	$ 50,419.3	$ 38,133.6	$ 29,533.6	$ 23,513.6	$ 19,299.6	$ 13,641.8	$ 9,681.2	$ 6,908.9	$ 4,968.2	$ 3,609.7	$ 2,625.8	-
Depreciation (actual)	C$(000)		$ 202,335.4	-	-	$ 50,419.3	$ 38,133.6	$ 29,533.6	$ 23,513.6	$ 19,299.6	$ 13,641.8	$ 9,681.2	$ 6,908.9	$ 4,968.2	$ 3,609.7	$ 2,625.8	-
Book Value Start of Yr	C$(000)		$ 735,981.5	-	$ 61,530.0	$ 168,064.4	$ 127,112.1	$ 98,445.4	$ 78,378.8	$ 64,332.2	$ 45,472.5	$ 32,270.8	$ 23,029.5	$ 16,560.7	$ 12,032.5	$ 8,752.7	
(+) Capital Additions	C$(000)		$ 226,007.4	$ 61,530.0	$ 106,534.4	$ 9,467.0	$ 9,467.0	$ 9,467.0	$ 9,467.0	$ 440.0	$ 440.0	$ 440.0	$ 440.0	$ 440.0	$ 330.0	$ 165.0	$ 17,380.0
(-) Depreciation (Actual)	C$(000)		$ 202,335.4	-	-	$ 50,419.3	$ 38,133.6	$ 29,533.6	$ 23,513.6	$ 19,299.6	$ 13,641.8	$ 9,681.2	$ 6,908.9	$ 4,968.2	$ 3,609.7	$ 2,625.8	-
= Book Value End of Yr	C$(000)			$ 61,530.0	$ 168,064.4	$ 127,112.1	$ 98,445.4	$ 78,378.8	$ 64,332.2	$ 45,472.5	$ 32,270.8	$ 23,029.5	$ 16,560.7	$ 12,032.5	$ 8,752.7	$ 6,291.9	$ 17,380.0
CEE, CDE, OTHER LOSSES																	
Canadian Exploration Expense (CEE)	C$(000)	$3,369		$ 3,369.0	$ 3,369.0	$ 3,369.0	-	-	-	-	-	-	-	-	-	-	-
Used (100%)	C$(000)		$ (3,369.0)	-	-	$ (3,369.0)	-	-	-	-	-	-	-	-	-	-	-
CEE end of year	C$(000)		$ 3,369.0	$ 3,369.0	$ 3,369.0	-	-	-	-	-	-	-	-	-	-	-	-
Canadian Dev Expense (CDE)	C$(000)	$3,987		$ 3,987.0	$ 3,987.0	$ 3,987.0	$ 2,790.9	$ 1,953.6	$ 1,367.5	$ 957.3	$ 670.1	$ 469.1	$ 328.3	$ 229.8	$ 160.9	$ 112.6	$ 78.8
Used (30%)	C$(000)		$ (3,908.2)	-	-	$ (1,196.1)	$ (837.3)	$ (586.1)	$ (410.3)	$ (287.2)	$ (201.0)	$ (140.7)	$ (98.5)	$ (69.0)	$ (48.3)	$ (33.8)	-
CDE end of year	C$(000)		$ 3,987.0	$ 3,987.0	$ 3,987.0	$ 2,790.9	$ 1,953.6	$ 1,367.5	$ 957.3	$ 670.1	$ 469.1	$ 328.3	$ 229.8	$ 160.9	$ 112.6	$ 78.8	$ 78.8
Other Tax Losses (cap, non-cap)	C$(000)	$10,000		$ 10,000.0	$ 10,000.0	$ 10,000.0	-	-	-	-	-	-	-	-	-	-	-
Used	C$(000)		$ (10,000.0)		-	$ (10,000.0)	-	-	-	-	-	-	-	-	-	-	-
CDE end of year	C$(000)		$ 10,000.0	$ 10,000.0	$ 10,000.0	-	-	-	-	-	-	-	-	-	-	-	-
TAXES	100%																
Revenue	C$(000)		$ 1,155,999.7	-	-	$ 158,159.2	$ 92,340.9	$ 118,559.1	$ 116,813.5	$ 106,304.4	$ 107,063.8	$ 118,263.4	$ 103,694.1	$ 96,934.7	$ 112,108.5	$ 25,758.3	-
Operating Cost	C$(000)		$ (425,576.3)			$ (47,262.1)	$ (35,167.2)	$ (41,619.9)	$ (42,013.7)	$ (41,981.9)	$ (41,846.6)	$ (42,197.7)	$ (41,381.0)	$ (45,087.7)	$ (43,339.9)	$ (3,678.6)	-
deduct Royalty	C$(000)		$ (11,560.0)			$ (1,581.6)	$ (923.4)	$ (1,185.6)	$ (1,168.1)	$ (1,063.0)	$ (1,070.6)	$ (1,182.6)	$ (1,036.9)	$ (969.3)	$ (1,121.1)	$ (257.6)	-
Depreciation	C$(000)		$ (202,335.4)			$ (50,419.3)	$ (38,133.6)	$ (29,533.6)	$ (23,513.6)	$ (19,299.6)	$ (13,641.8)	$ (9,681.2)	$ (6,908.9)	$ (4,968.2)	$ (3,609.7)	$ (2,625.8)	-
CEE, CDE	C$(000)		$ (7,277.2)			$ (4,565.1)	$ (837.3)	$ (586.1)	$ (410.3)	$ (287.2)	$ (201.0)	$ (140.7)	$ (98.5)	$ (69.0)	$ (48.3)	$ (33.8)	-
Taxable Income	C$(000)		$ 509,250.7	-	-	$ 54,331.0	$ 17,279.3	$ 45,633.9	$ 49,707.8	$ 43,672.6	$ 50,303.7	$ 65,061.1	$ 54,268.8	$ 45,840.5	$ 63,989.5	$ 19,162.5	-
Federal Income Tax	C$(000)	15.0%	$ 64,341.6	-	-	$ 7,213.3	$ 2,489.8	$ 5,737.9	$ 6,228.6	$ 5,458.4	$ 6,266.7	$ 8,080.2	$ 6,744.6	$ 5,691.0	$ 7,933.2	$ 2,497.9	-
New Brunswick Income Tax	C$(000)	14.0%	$ 60,052.2	-	-	$ 6,732.4	$ 2,323.8	$ 5,355.3	$ 5,813.4	$ 5,094.5	$ 5,848.9	$ 7,541.5	$ 6,295.0	$ 5,311.6	$ 7,404.4	$ 2,331.4	-
NB Net Profit Mining Tax	C$(000)	16.0%	$ 63,105.1	-	-	$ 6,242.3	$ 680.9	$ 5,111.3	$ 5,948.5	$ 5,257.9	$ 6,485.4	$ 8,929.0	$ 7,331.7	$ 6,062.7	$ 8,960.0	$ 2,095.5	-
NB Net Revenue Tax	C$(000)	2.0%	$ 17,201.4			-	-	$ 2,270.2	$ 2,235.3	$ 2,025.1	$ 2,040.3	$ 2,264.3	$ 1,972.9	$ 1,837.7	$ 2,141.2	$ 414.2	-
Deduction for NBNRT	C$(000)			-	-	$ 5,048.0	$ 5,048.0	$ 5,048.0	$ 5,048.0	$ 5,048.0	$ 5,048.0	$ 5,048.0	$ 5,048.0	$ 5,048.0	$ 5,048.0	$ 5,048.0	-
Tax Payable	C$(000)	40.2%	$ 204,700.3	-	-	$ 20,188.0	$ 5,494.5	$ 18,474.7	$ 20,225.7	$ 17,836.0	$ 20,641.3	$ 26,815.0	$ 22,344.2	$ 18,903.1	$ 26,438.8	$ 7,339.0	-
(-) Tax Losses	C$(000)		$ (10,000.0)	-	-	$ (10,000.0)	-	-	-	-	-	-	-	-	-	-	-
Net Tax Paid	C$(000)	38.2%	$ 194,700.3	-	-	$ 10,188.0	$ 5,494.5	$ 18,474.7	$ 20,225.7	$ 17,836.0	$ 20,641.3	$ 26,815.0	$ 22,344.2	$ 18,903.1	$ 26,438.8	$ 7,339.0	-
CASH FLOW				-2	-1	1	2	3	4	5	6	7	8	9	10	11	12
Revenue from Concentrate	C$(000)		$ 1,155,999.7	-	-	$ 158,159.2	$ 92,340.9	$ 118,559.1	$ 116,813.5	$ 106,304.4	$ 107,063.8	$ 118,263.4	$ 103,694.1	$ 96,934.7	$ 112,108.5	$ 25,758.3	-
Operating Cost	C$(000)		$ (425,576.3)			$ (47,262.1)	$ (35,167.2)	$ (41,619.9)	$ (42,013.7)	$ (41,981.9)	$ (41,846.6)	$ (42,197.7)	$ (41,381.0)	$ (45,087.7)	$ (43,339.9)	$ (3,678.6)	-
Working Capital (2 mth opex)	C$(000)	$ 7,900.0	-	-	$ (7,900.0)	-	-	-	-	-	-	-	-	-	-	$ 7,900.0	-
Royalties	C$(000)		$ (11,560.0)	-	-	$ (1,581.6)	$ (923.4)	$ (1,185.6)	$ (1,168.1)	$ (1,063.0)	$ (1,070.6)	$ (1,182.6)	$ (1,036.9)	$ (969.3)	$ (1,121.1)	$ (257.6)	-
Taxes	C$(000)		$ (194,700.3)	-	-	$ (10,188.0)	$ (5,494.5)	$ (18,474.7)	$ (20,225.7)	$ (17,836.0)	$ (20,641.3)	$ (26,815.0)	$ (22,344.2)	$ (18,903.1)	$ (26,438.8)	$ (7,339.0)	-
Capital Spending	C$(000)		$ (226,007.4)	$ (61,530.0)	$ (106,534.4)	$ (9,467.0)	$ (9,467.0)	$ (9,467.0)	$ (9,467.0)	$ (440.0)	$ (440.0)	$ (440.0)	$ (440.0)	$ (440.0)	$ (330.0)	$ (165.0)	$ (17,380.0)
Annual Cash Flow	C$(000)		$ 298,155.7	$ (61,530.0)	$ (114,434.4)	$ 89,660.5	$ 41,288.8	$ 47,811.9	$ 43,938.9	$ 44,983.4	$ 43,065.2	$ 47,628.1	$ 38,492.0	$ 31,534.6	$ 40,878.7	$ 22,218.1	$ (17,380.0)
Cumulative Cash Flow	C$(000)			$ (61,530.0)	$ (175,964.4)	$ (86,303.9)	$ (45,015.1)	$ 2,796.8	$ 46,735.7	$ 91,719.2	$ 134,784.3	$ 182,412.4	$ 220,904.4	$ 252,438.9	$ 293,317.6	$ 315,535.7	$ 298,155.7
Disc Annual Cash Flow	C$(000)	5%	$ 178,929.2	$ (58,600.0)	$ (103,795.3)	$ 77,452.1	$ 33,968.4	$ 37,461.9	$ 32,787.9	$ 31,968.9	$ 29,148.2	$ 30,701.5	$ 23,630.7	$ 18,437.6	$ 22,762.8	$ 11,782.7	$ (8,778.1)
Disc Cumulative Cash Flow	C$(000)			$ (58,600.0)	$ (162,395.3)	$ (84,943.3)	$ (50,974.9)	$ (13,513.0)	$ 19,274.9	$ 51,243.8	$ 80,392.0	$ 111,093.5	$ 134,724.2	$ 153,161.8	$ 175,924.6	$ 187,707.3	$ 178,929.2
Payback				-	-	-	-	2.9	-	-	-	-	-	-	-	-	-