Colomac Gold Project

NI 43-101 Technical Report and Preliminary Economic Assessment

Northwest Territories, Canada

Effective Date: April 26, 2023

Prepared for:

Nighthawk Gold Corp.
301-141 Adelaide St. W.
Toronto, Ontario, Canada
M5H 3L5

Prepared by:

Ausenco Engineering Canada Inc.
11 King St. West, 15th Floor
Toronto, Ontario, Canada, M5H 4C7

List of Qualified Persons:

Tommaso Roberto Raponi, P.Eng., Ausenco Engineering Canada Inc.
Aleksandar Spasojevic, P.Eng., Ausenco Engineering Canada Inc.
Jonathan Cooper, P.Eng., Ausenco Engineering Canada Inc.
James Millard, P.Geo., Ausenco Engineering Canada Inc.
Marc Schulte, P.Eng., Moose Mountain Technical Services
Marina Iund, P.Geo., InnovExplo
Simon Boudreau, P.Eng., InnovExplo
Carl Pelletier, P.Geo., InnovExplo

CERTIFICATE OF QUALIFIED PERSON
Tommaso Roberto Raponi, P.Eng.

I, Tommaso Roberto Raponi, P.Eng., certify that:

1. I am employed as a Principal Metallurgist with Ausenco Engineering Canada Inc., (Ausenco), with an office address of Suite 1550 - 11 King St West, Toronto, ON M5H 4C7.
2. This certificate applies to the technical report titled *Colomac Gold Project NI 43-101 Technical Report and Preliminary Economic Assessment* that has an effective report date of April 26, 2023 (the “Technical Report”).
3. I graduated from the University of Toronto with a Bachelor of Applied Science degree in Geological Engineering with specialization in Mineral Processing in 1984.
4. I am a Professional Engineer registered with the Professional Engineers Ontario (No. 90225970), Engineers and Geoscientists British Columbia (No. 23536) and NWT and Nunavut Association of Professional Engineers and Geoscientists (No. L4508) and with Professional Engineers and Geoscientists Newfoundland and Labrador (No. 10968).
5. I have practiced my profession continuously for over 39 years with experience in the development, design, operation, and commissioning of mineral processing plants, focusing on gold projects, both domestic and internationally. My project design and development experience include the generation of capital and operating costs for mineral processing plants and associated infrastructure and financial modeling of project economics.
6. I have read the definition of “Qualified Person” set out in the National Instrument 43-101 Standards of Disclosure for Mineral Projects (“NI 43-101”) and certify that by virtue of my education, affiliation to a professional association and past relevant work experience, I fulfill the requirements to be a “Qualified Person” for those sections of the Technical Report that I am responsible for preparing.
7. I have not visited the Colomac Gold Project site.
8. I am responsible for Sections 1.1, 1.8, 1.11, 1.12.1, 1.14, 1.15, 1.16, 1.17, 1.18, 1.19, 1.20.2, 1.20.5, 1.20.6.3, 2.1, 2.3 to 2.6, 3.1, 3.2, 12.8, 13, 17, 18 (except 18.6, 18.7, and 18.9), 19, 21(except 21.2.2, 21.2.8.1, and 21.3.2), 22, 24, 25.2, 25.5 to 25.6.1, 25.8, 25.9, 25.10.2, 25.10.4, 25.10.7, 25.10.8, 26.2, 26.5.3, 26.6 and 27 of the Technical Report.
9. I am independent of Nighthawk Gold Corp. as independence is defined in Section 1.5 of NI 43-101.
10. I have not been previously involved with the Colomac Project.
11. I have read NI 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

Dated: June 9, 2023

“Signed and Sealed”

Tommaso Roberto Raponi, P.Eng.

CERTIFICATE OF QUALIFIED PERSON
Aleksandar Spasojevic, P.Eng.

I, Aleksandar Spasojevic, P.Eng., certify that:

1. I am employed as a Lead Engineer Geotechnics with Ausenco Engineering Canada Inc ("Ausenco"), with an office address of 1016B Sutton Drive, Suite 100, Burlington, Ontario., L7L6B8, Canada.
2. This certificate applies to the technical report titled *Colomac Gold Project NI 43-101 Technical Report and Preliminary Economic Assessment* that has an effective report date of April 26, 2023 (the "Technical Report").
3. I graduated from Faculty of Civil Engineering of Belgrade University, Belgrade, Serbia, 1989, 1994, 1999 with a BSc, MSc, PhD.
4. I am a Professional Engineer of Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists (No. L5376).
5. I have practiced my profession for 34 years. I have been directly involved in the design of earthworks, stability of earth masses, design of staged construction, seepage control, piping stability, and the design of filters and barrier and containment systems for landfill systems and tailings facilities. I acted as a QP for the design of access and ventilation shafts for Rio Tinto's Lithium Jadar Mine in Serbia and NexGen Energy's Rook I Arrow Uranium Mine in Saskatchewan.
6. I have read the definition of "Qualified Person" set out in the National Instrument 43-101 Standards of Disclosure for Mineral Projects ("NI 43-101") and certify that by virtue of my education, affiliation to a professional association and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for those sections of the Technical Report that I am responsible for preparing.
7. I visited the Colomac Gold Project site between March 20-21, 2023 for two days.
8. I am responsible for Sections 1.12.2, 1.20.6.1,1.20.6.2, 2.1, 2.2, 18.6, 18.7, 21.2.4, 25.6.2, 25.10.5, 26.5.1, 26.5.2, and 27 of the Technical Report.
9. I am independent of Nighthawk Gold Corp. as independence is defined in Section 1.5 of NI 43-101.
10. I have had no previous involvement with the Colomac Gold Project.
11. I have read NI 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

Dated: June 9, 2023

"Signed and Sealed"

Aleksandar Spasojevic, P.Eng.

CERTIFICATE OF QUALIFIED PERSON
Jonathan Cooper, M.Sc., P.Eng.

I, Jonathan Cooper, M.Sc., P.Eng., certify that:

1. I am employed as a water resources engineering with Ausenco Sustainability ("Company"), with an office address of 11 King Street West, Suite 1500, Toronto, Ontario M5H 4C7.
2. This certificate applies to the technical report titled *Colomac Gold Project NI 43-101 Technical Report and Preliminary Economic Assessment* that has an effective report date of April 26, 2023 (the "Technical Report").
3. I graduated from the University of Western Ontario with a Bachelor of Engineering Science in Civil Engineering in 2008, and University of Edinburgh with a Master of Environmental Management in 2010.
4. I am a Professional Engineer registered and in good standing with the Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists (NAPEG), registration no. L4227.
5. I have practiced my profession continuously for over 15 years with experience in the development, design, operation, and commissioning of surface water infrastructure. Previous projects that I have worked on that have similar features to the Colomac Gold Project are Kwanika-Stardust for NorthWest Copper and KSM for Seabridge Gold located in British Columbia and Borden Advanced Exploration for Goldcorp, located in Ontario.
6. I have read the definition of "Qualified Person" set out in the National Instrument 43-101 Standards of Disclosure for Mineral Projects ("NI 43-101") and certify that by virtue of my education, affiliation to a professional association and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for those sections of the Technical Report that I am responsible for preparing.
7. I have not visited the Colomac Gold Project site.
8. I am responsible for Sections 2.1,18.9, 25.6.3, and 27 of the Technical Report.
9. I am independent of Nighthawk Gold Corp. as independence is defined in Section 1.5 of NI 43-101.
10. I have had no previous involvement with the Colomac Gold Project.
11. I have read NI 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

Dated: June 9, 2023

"Signed and Sealed"

Jonathan Cooper, M.Sc., P.Eng.

CERTIFICATE OF QUALIFIED PERSON

James Millard, P.Geo.

I, James Millard, P.Geo., certify that:

1. I am employed as a Director, Strategic Projects with Ausenco Sustainability Inc., a wholly owned subsidiary of Ausenco Engineering Canada ("Ausenco"), with an office address of Suite 100, 2 Ralston Avenue, Dartmouth, NS, B3B 1H7, Canada.
2. This certificate applies to the technical report titled *Colomac Gold Project NI 43-101 Technical Report and Preliminary Economic Assessment* that has an effective report date of April 26, 2023 (the "Technical Report").
3. I graduated from Brock University in St. Catharines, Ontario in 1986 with a Bachelor of Science in Geological Sciences, and from Queen's University in Kingston, Ontario in 1995 with a Master of Science in Environmental Engineering.
4. I am a member (P. Geo.) of the Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists, Membership No. 1624.
5. I have practiced my profession for 25 years. I have worked for mid- and large-size mining companies where I acted in senior technical and management roles, in senior environmental consulting roles, and provided advice and/or expertise in a number of key subject areas: feasibility-level study reviews; NI 43-101 report writing and review; due diligence review of environmental, social, and governance areas for proposed mining operations and acquisitions, and directing environmental impact assessments and permitting applications to support construction, operations, and closure of mining projects. In addition, I have been responsible for conducting baseline data assessments, surface and groundwater quantity and quality studies, mine rock geochemistry and water quality predictions, mine reclamation and closure plan development, and community stakeholder and Indigenous peoples' engagement initiatives. Recently, I held the following project roles: QP for the environmental/sustainability aspects for Puquios Project, Feasibility Study Report, La Higuera, Coquimbo Region, Chile; Principal author for the environmental/sustainability sections for the Kwanika-Stardust Project, NI 43-101 Technical Report and, Preliminary Economic Assessment, British Columbia, Canada; and Expert Advisor on regulatory matters and sustainability aspects for a number of exploration and mining projects located throughout the Northwest Territories, Nunavut, and Yukon Territories, Canada.
6. I have read the definition of "Qualified Person" set out in the National Instrument 43-101 Standards of Disclosure for Mineral Projects ("NI 43-101") and certify that by virtue of my education, affiliation to a professional association and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for those sections of the Technical Report that I am responsible for preparing.
7. I have not visited the Colomac Gold Project site.
8. I am responsible for Sections 1.13, 1.20.7, 2.1, 3.3, 20, 25.7, 25.10.6, 26.7, and 27 of the Technical Report.
9. I am independent of Nighthawk Gold Corp. as independence is defined in Section 1.5 of NI 43-101.
10. I have had no prior involvement with the Colomac Gold Project.
11. I have read NI 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

Dated: June 9, 2023

"Signed and Sealed"

James Millard, P.Geo.

CERTIFICATE OF QUALIFIED PERSON
Marc Schulte, P.Eng.

I, Marc Schulte, P.Eng., certify that:

1. I am employed as a Mining Engineer with Moose Mountain Technical Services, with an office address of #210-1510 2nd Street North Cranbrook, BC V1C 3L2.
2. This certificate applies to the technical report titled *Colomac Gold Project NI 43-101 Technical Report and Preliminary Economic Assessment* that has an effective report date of April 26, 2023 (the "Technical Report").
3. I graduated with a Bachelor of Science in Mining Engineering from the University of Alberta in 2002.
4. I am a member of the self-regulating Association of Professional Engineers, Geologist and Geophysicists of Alberta (No. 71051).
5. I have worked as a mining engineer for 21 years since my graduation from university. Throughout my career I have worked on numerous open pit and underground precious metals projects, within project engineering studies and within mine operations, on mineral reserve estimates, mine planning, and mine cost estimates.
6. I have read the definition of "Qualified Person" set out in the National Instrument 43-101 Standards of Disclosure for Mineral Projects ("NI 43-101") and certify that by virtue of my education, affiliation to a professional association and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for the purpose of N I43-101.
7. I have visited the Colomac Gold Project site on March 20-21, 2023.
8. I am responsible for Sections 1.10, 1.20.4, 2.1, 2.2, 15, 16, 21.2.2, 21.2.8.1, 21.3.2, 25.4, 25.10.3, and 26.4 of the Technical Report.
9. I am independent of Nighthawk Gold Corp, as independence is defined by Section 1.5 of NI 43–101.
10. I have had no previous involvement with the Colomac Gold Project.
11. I have read NI 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

Dated: June 9, 2023

"Signed and Sealed"

Marc Schulte, P.Eng.

CERTIFICATE OF QUALIFIED PERSON

Marina Iund, P.Geo.

I, Marina Iund, P.Geo., certify that:

1. I am employed as a Senior Geologist, Mineral Resource Estimation by InnovExplo Inc., with an office address of 725, Boul. Lebourgneuf, Suite 312, Quebec, QC, Canada, G2J 0C4.
2. This certificate applies to the technical report titled *Colomac Gold Project NI 43-101 Technical Report and Preliminary Economic Assessment* that has an effective report date of April 26, 2023 (the “Technical Report”).
3. I graduated with a Bachelor’s degree in Geology from Université de Besançon (Besançon, France) in 2008. In addition, I obtained a Master’s degree in Resources and Geodynamics from Université d’Orléans (Orléans, France), as well as a DESS degree in Exploration and Management of Non-Renewable Resources from Université du Quebec à Montreal (Montreal, Quebec) in 2010.
4. I am a member of the Ordre des Géologues du Québec (No. 1525), the Association of Professional Geoscientists of Ontario (No. 3123), and the Northwest Territories and Nunavut Association of Professional Engineers and Professional Geoscientists (No. L4431).
5. I have practiced my profession in mineral exploration, mine geology and resource geology for a total of 13 years since graduating from university. I acquired my expertise with Richmont Mines Inc. and Goldcorp. I have been a project geologist and then a senior geologist in mineral resources estimation for InnovExplo Inc. since September 2018.
6. I have read the definition of “Qualified Person” set out in the National Instrument 43-101 Standards of Disclosure for Mineral Projects (“NI 43-101”) and certify that by virtue of my education, affiliation to a professional association and past relevant work experience, I fulfill the requirements to be a “Qualified Person” for those sections of the Technical Report that I am responsible for preparing.
7. I visited the Colomac Gold Project site from September 20 to 22, 2022 for two days.
8. I assume responsibility for 1.2 to 1.6, 1.20.1, 2.1, 4 to 11. I am the co-author of Sections 1.7, 1.9, 1.20.3, 2.2, 2.3, 12 (except 12.8), 14 (except 14.14), 23, 25.1, 25.3, 25.10.1, 26.1, and 26.3, for which I share responsibility.
9. I am independent of Nighthawk Gold Corp. as independence is defined in Section 1.5 of NI 43-101.
10. I have had prior involvement with the Colomac Gold Project. I was QP for the NI 43-101 Technical reports entitled “NI 43 101 Technical Report and update of the Mineral Resource Estimate for the Indin Lake Gold Property, Northwest Territories, Canada” (March 30, 2021; March 31, 2022 and March 16, 2023).
11. I have read NI 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

Dated: June 9, 2023

“Signed and Sealed”

Marina Iund, M.Sc., P.Geo.

CERTIFICATE OF QUALIFIED PERSON

Simon Boudreau, P.Eng.

I, Simon Boudreau, P.Eng., certify that:

1. I am employed as Senior Mine Engineer by InnovExplo Inc., located at 560, 3e Avenue, Val-d'Or, Quebec, Canada, J9P 1S4.
2. This certificate applies to the technical report titled *Colomac Gold Project NI 43-101 Technical Report and Preliminary Economic Assessment* that has an effective report date of April 26, 2023 (the "Technical Report").
3. I graduated with a Bachelor's degree in mining engineering (B.Ing.) from Université Laval (Québec, Québec) in 2003.
4. I am a member in good standing of the Ordre des Ingénieurs du Québec (No. 132 338) and the Northwest Territories and Nunavut Association of Professional Engineers and Professional Geoscientists (No. L5047).
5. My relevant experience includes a total of 20 years since my graduation from university. I have been involved in mine engineering and production at Troilus mine for four years, HRG Taparko mine for four years, Dumas Contracting for three years. I have also worked as independent consultant for the mining industry for five years and with InnovExplo for four years. As consultant I have been involved in many base metals and gold mining projects.
6. I have read the definition of "Qualified Person" set out in the National Instrument 43-101 Standards of Disclosure for Mineral Projects ("NI 43-101") and certify that by virtue of my education, affiliation to a professional association and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for those sections of the Technical Report that I am responsible for preparing.
7. I have not visited the Colomac Gold Project site.
8. I am the author of Section 14.14 and co-author of Sections 1.9 and 2.2, for which I share responsibility.
9. I am independent of Nighthawk Gold Corp. as independence is defined in Section 1.5 of NI 43-101.
10. I have had prior involvement with the Colomac Gold Project. I was QP for the NI 43-101 Technical reports entitled "NI 43 101 Technical Report and up-date of the Mineral Resource Estimate for the Indin Lake Gold Property, Northwest Territories, Canada" (March 30, 2021; March 31, 2022 and March 16, 2023).
11. I have read NI 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

Dated: June 9, 2023

"Signed and Sealed"

Simon Boudreau, P.Eng.

CERTIFICATE OF QUALIFIED PERSON

Carl Pelletier, P.Geo.

I, Carl Pelletier, P.Geo., certify that:

1. I am a professional geoscientist and Co-President Founder of InnovExplo Inc., located at 560, 3e Avenue, Val-d'Or, Quebec, Canada, J9P 1S4.
2. This certificate applies to the technical report titled *Colomac Gold Project NI 43-101 Technical Report and Preliminary Economic Assessment* that has an effective report date of April 26, 2023 (the "Technical Report").
3. I graduated with a Bachelor's degree in Geology (B.Sc.) from Université du Quebec à Montréal (Montréal, Quebec) in 1992. I initiated a Master's degree at the same university for which I completed the course program but not the thesis.
4. I am a member of the Ordre des Géologues du Quebec (No. 384), the Association of Professional Geoscientists of Ontario (No. 1713), the Association of Professional Engineers and Geoscientists of British Columbia (No. 43167) and the Northwest Territories Association of Professional Engineers and Geoscientists (No. L4160).
5. My relevant experience includes a total of 31 years since my graduation from university. My mining expertise has been acquired at the Silidor, Sleeping Giant, Bousquet II, Sigma-Lamaque and Beaufor mines. My exploration experience has been acquired with Cambior Inc. and McWatters Mining Inc. I have been a consulting geologist for InnovExplo Inc. since February 2004 where I contributes to multiple mandates of mineral resources estimation. I have relevant experience in various types of mineral deposits ((precious metals (Au, Ag), base metals (CU, Zn, Ni), industrial and high technology (graphite, Li, Be, Ta, U, Sc and REE)) as well as for different types of operation (underground and open pit mines).
6. I have read the definition of "Qualified Person" set out in the National Instrument 43-101 Standards of Disclosure for Mineral Projects ("NI 43-101") and certify that by virtue of my education, affiliation to a professional association and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for those sections of the Technical Report that I am responsible for preparing.
7. I visited the Colomac Gold Project from September 11 to 14, 2018 for a period of three days.
8. I am responsible for co-authoring 1.7, 1.9, 1.20.3, 2.1 to 2.3, 12 (except 12.8), 14 (except 14.14), 23, 25.1, 25.3, 25.10.1, 26.1 and 26.3.
9. I am independent of Nighthawk Gold Corp. as independence is defined in Section 1.5 of NI 43-101.
10. I have had prior involvement with the Colomac Gold Project. I was QP for the NI 43-101 Technical reports entitled "NI 43 101 Technical Report and up-date of the Mineral Resource Estimate for the Indin Lake Gold Property, Northwest Territories, Canada" (March 30, 2021; March 31, 2022 and March 16, 2023).
11. I have read NI 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

Dated: June 9, 2023

"Signed and Sealed"

Carl Pelletier, P.Geo

Important Notice

This report was prepared as a National Instrument 43-101 Technical Report for Nighthawk Gold Corp. (Nighthawk) by Ausenco Engineering Canada Inc. (Ausenco), Moose Mountain Technical Services (MMTS), and InnovExplo Inc. (InnovExplo), collectively the Report Authors. The quality of information, conclusions, and estimates contained herein is consistent with the level of effort involved in the Report Authors' services, based on (i) information available at the time of preparation, (ii) data supplied by outside sources, and (iii) the assumptions, conditions, and qualifications set forth in this report. This report is intended for use by Nighthawk Gold Corp. subject to terms and conditions of its contracts with each of the Report Authors. Except for the purposes legislated under Canadian provincial and territorial securities law, any other uses of this report by any third party are at that party's sole risk.

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1 SUMMARY

1.1 Introduction

Nighthawk Gold Corp. (Nighthawk) commissioned Ausenco Engineering Canada Inc. (Ausenco) to compile a preliminary economic assessment (PEA) of the Colomac Gold Project., previously known as the "Indin Lake Project". The PEA was prepared in accordance with the Canadian disclosure requirements of National Instrument 43-101 (NI 43-101) and the requirements of Form 43-101 F1.

The responsibilities of the engineering consultants and firms who are providing qualified persons are as follows:

- Ausenco managed and coordinated the work related to the report. Ausenco developed the PEA-level design and cost estimate for the process plant, general site infrastructure, site water management infrastructure, tailings facility and environmental studies and permitting. Ausenco also compiled the overall cost estimate and completed the economic analysis.

- Moose Mountain Technical Services (MMTS) designed the open pit and underground mine production schedules, and mine capital and operating costs.

- InnovExplo Inc. (InnovExplo) completed the work related to property description, accessibility, local resources, geological setting, deposit type, exploration work, drilling, exploration works, sample preparation and analysis, data verification, and mineral resource estimate.

1.2 Project Setting

The property is in the Indin Lake area of the Northwest Territories (NWT), Canada, at latitude 64°24'N and longitude 115°06'W, approximately 220 km northwest of Yellowknife. The Colomac Gold Project is located on the Indin Lake Property.

A gravel landing strip approximately 1,500 m long on the property is capable of landing cargo aircraft. The property can also be accessed by helicopter, and ski- or float-equipped fixed-wing aircraft can land on Baton Lake or Steeves Lake.

Access in the winter is afforded by a 245 km long winter road (Robb, 1997). This route provides seasonal access to the NWT/Alberta/British Colombia highway systems and the railhead at Hay River. Winter road access is only possible during a limited period that is dependent on weather conditions but usually extends from the end of January to the beginning of April. In addition, the Tłı̨chǫ all-season road is a permanent, 97 km long, two-lane gravel highway leading to the community of Whatì. The Tłı̨chǫ all-season road improves the access to the property from Yellowknife by reducing the amount of winter road access.

The property comprises 153 mining leases totalling 94,736 ha that form a continuous, north-trending strip approximately 60 km long by 6 km to 22 km wide. Nighthawk owns and controls 100% of the mineral rights to the property.

Ten mining leases are subject to various royalties. On the Damoti area, leases 3616, 4572, 4573, 4574 and 4663 are subject to a 1% net smelter return (NSR) royalty held by Selkirk in addition to an underlying 2% NSR royalty payable to

Covello Bryan & Associates Ltd. On the Leta Arm area, lease 3328 is subject to an underlying 1.5% NSR royalty held by Adamus Resources Limited and an underlying 0.5% NSR royalty held by Durga Resources Ltd. The four Kim and Cass leases are subject to a 2.5% NSR royalty held by Geomark Exploration Ltd.

The authors are not aware of any known environmental, permitting, legal, title-related, taxation, socio-political, marketing issues or any other relevant issue not reported in the technical report that could materially affect the mineral resource estimate.

1.3 Geology and Mineralization

The property lies within the Indin Lake Supracrustal Belt, a 300 km long (2,000 km^2), NNE-trending, elongate area of Archean volcanic and sedimentary rocks belonging to the Yellowknife Supergroup (Frith, 1986). The belt lies within the southwestern Slave Structural Province, 30 km east of the boundary with the Bear Province (Morgan, 1992).

Supracrustal rocks of the Indin Lake Supracrustal Belt have been subdivided into three lithostratigraphic groups—the Hewitt Lake, Leta Arm, and Chalco Lake groups—based on their composition, volcanic facies, and distribution of units (Pehrsson and Chacko, 1997b; Pehrsson and Villeneuve, 1999).

The Hewitt Lake Group is conformably overlain by the Leta Arm Group, which consists of NNE-trending belts 1 to 4 km thick and 5 to 30 km long (Pehrsson, 2002b). It comprises a heterogeneous sequence of submarine to subaerial, tholeiitic, and calc-alkaline, mafic to felsic volcanic rocks intruded by synvolcanic gabbro to quartz diorite intrusions (Pehrsson and Villeneuve, 1999; Figure 7-2). It has a greater proportion of intermediate to felsic volcanic and volcaniclastic rocks than the Hewitt Lake Group and hosts numerous gold deposits, including the Colomac deposits, as well as polymetallic and base metal prospects (Pehrsson and Villeneuve, 1999).

The Leta Arm Group is unconformably overlain by the Chalco Lake Group, the most widespread lithostratigraphic unit in the Indin Lake Supracrustal Belt (Pehrsson, 2002b). It consists of a submarine turbidite sequence of graded greywacke-mudstones with lesser iron formations, conglomerates and felsic volcanogenic rocks (Pehrsson and Villeneuve, 1999). The Chalco Lake Group is subdivided into the Parker and Damoti formations, which underlie the central and marginal areas of the Indin Lake Supracrustal Belt, respectively. The Parker Formation consists of 2 to 5 km thick, thickly bedded, silty to sandy turbidites with associated volcanogenic conglomerate, felsic volcanic flows and breccia, hypabyssal intrusions, and rare peperitic rocks (Pehrsson, 1998). Basal polymictic volcanogenic conglomerate locally marks the contact with the underlying Leta Arm Group (Pehrsson and Villeneuve, 1999).

The Colomac Area is underlain by a 4 km thick belt of lower greenschist-grade intercalated mafic-intermediate flows, intermediate-felsic volcanics and intermediate intrusive rocks, bounded by metasedimentary rocks to the east and west (Cohoon et al.,1991a and b). A multiphase, synvolcanic intrusive complex (about 2 km x10 km at surface) intrudes the volcanic rocks on the west side of Baton Lake, within 800 m of the western volcanic-sedimentary contact. The host strata and synvolcanic intrusive complex is strongly deformed, and mafic units have a steeply-dipping foliation and a steeply-plunging lineation. The sill complex strikes north-northeast and dips steeply east, subparallel to the host strata. It consists of a series of multiphase, medium-grained diorite to quartz-diorite and gabbroic sills (NWT Geoscience Office, 2012a).

The Colomac sill (2671 ±10 Ma; Morgan, 1992), which hosts the Colomac Main deposit, occurs near the east side of the intrusive sill complex in contact with, or near, andesitic volcanics. The NWT showing report describes the Colomac sill as composed mainly of a medium-grained quartz-albite porphyry, with some chlorite, biotite, epidote, carbonate, amphibole, magnetite, up to 2% pyrite, and pyrrhotite (NWT Geoscience Office, 2012a).

Mineralization at the Colomac Main deposit has been identified along an approximate 6.7 km strike length of the Colomac sill and has been divided into a number of somewhat arbitrary zones historically identified from north to south as 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0 and 5.0. The sill behaved in a brittle manner during regional structural deformation and was amenable to fracturing, fluid transport and mineral deposition, in contrast to the more ductile behaviour of the lower more mafic quartz gabbro portion of the sill and the surrounding mafic volcanic rocks. Gold is found in several zones within the sill, in association with parallel sets of tensional quartz veins that consist of lenses of smoky grey quartz within white quartz (NWT Geoscience Office, 2012a).

The Goldcrest deposit is located approximately 1 km west and 2.25 km south of the Colomac Main deposit. It is hosted by the Goldcrest sill, a medium-grained, quartz diorite and diorite intrusive complex similar to the Colomac sill. The mineralized zone is very similar to the Colomac sill deposits, where quartz veins cut competent, fractured quartz diorite, but the mineralization and veining are more erratic at Goldcrest (NWT Geoscience Office, 2012b).

The Grizzly Bear deposit is underlain by greenschist-grade mafic volcanic and sedimentary rocks. The mineralized zone is subparallel to the strata, trending northeast, and contains anomalous hydrothermal alteration, sulphide mineralization and gold (NWT Geoscience Office, 2012c). The mineralization consists of quartz veins and veinlets, with disseminated sulphides and native gold.

The 24 deposit is located along a north-trending contact between volcanic rocks to the east and sedimentary rocks to the west. The 24 deposit is characterized by intense quartz flooding within interbedded andesite and greywacke siltstone. Quartz flooding occurs as parallel “veins”, with a strike length varying from 1.5 m to 7.5 m and widths from 0.15 m to 3.0 m. The quartz-flooded zones are greyish-white to smoky black, highly strained, and commonly contain carbonatized and/or sericitized wall rock inclusions. Mineralized zones are characterized by the presence of disseminated pyrite, pyrrhotite and arsenopyrite (NWT Geoscience Office, 2012d).

Although 27 deposit is near the volcanic-sedimentary contact, like 24 deposit it has a different style of mineralization. The mineralization consists of free gold in narrow (average 7.5 mm) quartz veins. The wallrock throughout the zone contains 3% very finely disseminated pyrrhotite, locally concentrated in short, altered sections (Cohoon et al.,1991a and b).

The bulk of the mineralization of the Kim deposit is hosted by the mafic volcanic rocks, but a few gold showings are also present in the sedimentary sequence (Morgan, 1991). The gold mineralization at the Kim Zone is hosted by the more competent massive mafic flows. It is associated with smoky quartz-carbonate veins oriented randomly rather than in a distinct direction. The smoky quartz-carbonate veins are surrounded by sulphide-rich alteration halos dominated by arsenopyrite and pyrrhotite. The mineralization was interpreted to have been formed as extensional veins in a reverse-dextral deformation corridor centered on the volcaniclastic rock horizon (Gaboury, 2021).

The Cass deposit is hosted within and/or along the contacts of the Cass Gabbro and a volcaniclastic unit. The gold mineralization is associated with steeply-dipping quartz-carbonate-sulphide (predominantly arsenopyrite) veins with grunerite-garnet alteration selvages that can be subdivided into two mutually cross-cutting sets suggesting that both sets formed synchronously (Morgan, 1991; Gaboury, 2021).

The Treasure Island deposit is underlain by a succession of pillowed and massive mafic flows that are overlain by an intercalated intermediate to felsic volcanic horizon and argillite- to wacke-dominated turbiditic sedimentary rocks belonging to the Chalco Lake Group (Morgan, 1991; Pehrsson and Villeneuve, 1999; Gaboury, 2021). The intermediate to felsic horizon forms a highly strained interface between the mafic volcanic and the sedimentary rocks. It is intruded by felsic dykes that are interpreted to play a key role in controlling the mineralization due to the created rheological contrast at their contacts (Hrabi, 2019). The mineralization occurs as quartz-sulphide (pyrrhotite-pyrite±chalcopyrite) veins, as well as disseminated and stringer style pyrite and pyrrhotite. Disseminated sphalerite and galena are locally associated with visible gold. The argillite-hosted mineralization is characterized by disseminated pyrrhotite and pyrite devoid of quartz veins. Gaboury (2021) proposed that the mineralization style is mostly consistent with volcanogenic hydrothermal mineralization that may or may not have been subsequently upgraded by orogenic style gold mineralization. The Laurie Lake and JPK prospects lie within the same mineralized system.

The Damoti deposit is underlain by the sedimentary Damoti Basin which is dominated by a turbidite sequence containing interstratified amphibolitic (grunerite) iron formations (Waychison W., 2011). The latter form BIFs containing disseminated to laminae-rich magnetite intercalated with laminae and bands of cherty and (amphibole-) silicate facies iron formation. Field evidence suggests that sulphides replace magnetite with gold strongly associated with pyrrhotite-pyrite and to a lesser extent with quartz veining. The iron formations are folded along north to northeast trending axes with the main mineralized zone being a U-shaped syncline fold named the Horseshoe Zone. The bulk of the mineralization has thus far been delineated on the east limb of the Horseshoe syncline.

Two main gold deposit models are relevant to most of the mineral deposits and showings on the Property: 1) greenstone-hosted quartz-carbonate vein ("GQCV") deposits; and 2) BIF-hosted deposits. Both types are lithology-based subtypes of orogenic gold deposits (Poulsen et al., 2000). Additionally, the Andy Lake and the Treasure Island area were interpreted as an intrusion-related gold system ("IRGS") and volcanogenic-related gold mineralization, respectively, although the latter still needs to be demonstrated (Laflamme, 2018; Gaboury, 2021). Until then, Treasure Island is classified within the GQCV model.

1.4 History

Since the 1938 discovery of the Anna (Barker Vein) gold showing on the south shore of Indin Lake (Morgan, 1992), 131 gold occurrences have been identified on the property. These occurrences are documented in the Northern Mineral Showings (NORMIN) database in the NWT Geoscience Office.

Historical mineral exploration on the property area can be synthesized into five major periods:

- Late 1930s to late 1940s –Initial exploration. Discovery of Diversified, North Inca, Lex Main, Treasure Island Main, and Colomac/Goldcrest mineralization. Several trenches in the Barker Vein were excavated from 1939 to 1941 by Territories Exploration Company Ltd, and 700 kg of mineralized material containing 2 kg of gold was extracted. Further exploration via 15 drill holes in 1945 and 1946 failed to define other mineralized gold-bearing portions of the vein (Puritch, 2005).
- 1970s – Regional exploration focused on base metal volcanogenic massive sulphides.
- Mid to late 1980s – Regional gold-focused exploration. Discovery of the Cass deposit and development of the Colomac mine, which operated from 1989 to 1991 and from 1994 to 1997 (refer to Section 6.2).
- 1990s – Discovery of several gold-bearing banded-iron formation (BIF) showings in the Damoti Lake area. In 1996-1997, a ramp and two levels were developed, and underground drilling was performed. Sampling was also carried out, which included a bulk sample from the Horseshoe Zone (refer to Section 6.4).

Historical ownership of the Colomac and Damoti properties is summarized in Tables 6-1 and 6-2.

1.5 Exploration

1.5.1 2010 EM, and IP Surveys

In 2010, Nighthawk conducted a ground geophysical program on the Damoti area. Work consisted of detailed ground electromagnetic (EM) and induced polarization (IP) surveys focused on gold mineralized zones previously drilled by Nighthawk to determine their physical responses and characteristics to create a geophysical "footprint" of the known mineralized areas.

1.5.2 2011 to 2017 Surface exploration

Between 2011 and 2017, prospecting, geological mapping and sampling programs were completed on the Indin Lake property. A total of 4226 rock, chip and channel samples were collected. The highlights were new gold discoveries at Treasure Island and Swamp, and the delineation of another mineralized quartz diorite sill, similar to the Colomac and Goldcrest sills, over a strike length of 160 m and a width of 20 m at the Nice Lake Sill-Nice Lake Trend, 1.5 km east of the Colomac deposit. Grab samples collected along the Nice Lake Trend contained up to 4.19 g/t Au.

1.5.3 2011 Magnetic Survey

In 2011, a high sensitivity aeromagnetic tri-axial gradiometer and very low frequency electromagnetic (VLF-EM) airborne survey was carried out over the Indin Lake Property by Goldak Airborne Surveys (Goldak) of Saskatoon, SK, for Nighthawk.

The magnetic vertical gradient, total field and horizontal gradient data, as well as VLF-EM data were processed and four maps were produced at 1:25,000.

1.5.4 2012 IP Survey

A test geophysical survey was conducted to determine the capability of selected IP methods to detect the plunging higher grade mineralized shoot at Colomac Zone 3.5. Due to highly resistive ground conditions and difficulties encountered in establishing good ground contact, Nighthawk deemed the IP survey ineffective for the area tested and the data generated of limited value.

1.5.5 2017 IP and Magnetic Surveys

In 2017, Nighthawk retained Dias Geophysical Limited (Dias) of Saskatoon, SK, to conduct 2D and 3D DC-resistivity and induced polarization (DCIP) surveying and magnetic surveying at the Colomac Area. The DCIP program was designed to detect the electrical resistivity and chargeability characteristics across the survey areas to assist in the mapping of the lithology, alteration, and mineralization associated with the gold mineralization at the Colomac area.

1.5.6 2018 IP Survey

In 2018, Abitibi Geophysics Inc. (Abitibi) of Val-d'Or, QC, completed a time-domain resistivity/IP survey on the property using proprietary deep-penetrating OreVision® array. A total of 25.5 km of lines were surveyed for Nighthawk over different areas of the Indin Lake property. The surveyed areas were Leta Arm (16 km), Andy Lake (2.5 km) and Swamp (7 km). The aim of the survey was to delineate and prioritize targets for further exploration. Maps of resistivity, conductivity, metal factor, and gold index were produced, as well as 3D inversion sections, to define drilling targets and determine prospective areas of the Colomac sill on the property.

1.5.7 2018 Magnetic and Gravity Surveys

In 2018, SJ Geophysics Ltd. (SJ) of Delta, BC, completed both ground magnetic and gravimetric surveys on the Indin Lake property on behalf of Nighthawk. A total of 203.9 km and 4.5 km of lines were covered for the ground magnetic and gravity surveys, respectively, over different areas on the property. The surveyed areas comprised Treasure Island, Swamp, Nice Lake South, Andy Lake as well as the Colomac deposit area. The objective of the ground magnetic data was to map magnetic features within the defined areas of interest. The data was gathered to assist with the mapping of geologic units and structures on the property. The objective of the gravity survey was to test the effectiveness of the gravity method on the property. Some of the data in areas with significant glacial drift was deemed invalid and the results inconclusive.

1.5.8 2018 Summer Exploration Program

In 2018, GeoMinEx Consultants Inc. (GeoMinEx) of Vancouver, BC, conducted geological evaluations, prospecting and limited geological mapping on the Indin Lake property. A total of 1,477 rock, chip and channel samples were collected over the different areas of the property during the exploration campaign.

1.5.9 2018 Structural Mapping of the Colomac Project

In 2018, SRK Consulting Canada Inc. (SRK) from Toronto, Ontario, conducted a six-week mapping program focused mainly on the historical Zone 1.0 of the Colomac main sill to Grizzly Bear in the south. The firm concluded that although several phases of deformation are present on the Indin Lake Gold property (D1–D6, D2 being the main phase), a critical factor in the localization of gold in several deposits on the property (e.g., Colomac, Leta Arm and Andy Lake) is the intersection and overprinting of early D2 (D2a) high-strain zones by NNE-oriented late-D2 (D2b) shear zones/faults.

1.5.10 2019 IP Survey

In 2019, Abitibi completed a time-domain resistivity/IP survey on the Indin Lake property using deep-penetrating OreVision® array. A total of 19.7 km of lines were surveyed for Nighthawk over different areas. This ground geophysical campaign was conducted in order to detect and help delineate targets for further exploration in three areas: Treasure Island, Colomac, and Andy Lake. However, the Andy Lake survey did not take place due to ground conditions. Resistivity, conductivity, metal factor and gold index maps, as well as 3D inversion sections, were produced for the other areas to assist with drilling and exploration.

1.5.11 2019 Summer Exploration Program

GeoMinEx conducted a 2019 summer exploration program on behalf of Nighthawk. The work involved geological evaluations, prospecting, and geological mapping in different areas of the property. Areas covered during the 2019 program included the northern extensions of the Gamey Lake Volcanic Panel, Albatross, Treasure Island, Nice Lake, Andy Lake and Fishhook. Detailed mapping and sampling took place in the Andy Lake area.

1.5.12 2019 LiDAR Survey of the Colomac Deposit

In July 2019, Japosat Satellite Mapping (Japosat) from St-Constant, QC, conducted a detailed LiDAR survey coupled with high-resolution imagery in the Colomac deposit area. The main purpose of the survey was to assist with the structural interpretation and 3D modelling of the Colomac deposit, largely by collecting surface data from the inaccessible and nearly vertical pit walls from the former mining operation.

1.5.13 2019 Structural Mapping of the Colomac Deposit

In 2019, InnovExplo completed a structural review of the Colomac deposit. The reviews showed that the mineralized vein sets consisted of conjugate network of extensional and hydrothermal breccia veins. The gold-bearing structures appear to be hosted and controlled by the quartz diorite upper portion of the subvertical sill. Modeling also suggests that steep-dipping, mineralized shoots are related to complex, stacked, gold-bearing veining.

1.5.14 2020 Summer Exploration Program

GeoMinEx conducted the 2020 summer exploration program on behalf of Nighthawk. The work involved prospecting, sampling, and geological mapping in different areas of the property. Areas explored included Andy Lake, Treasure Island, Zone 24 and 27, JPK iron formation, Jerry 12, 33, 37 and Suncore 3641 showings and the Nice Lake/Santa zone.

In addition, several lower priority target areas were prospected. Limited mapping and sampling were performed at Leta Arm along the eastern and western lakeshores and at the Fly, A19, A31, and D18 showings. Prospecting was also undertaken at the Pistol-Knob showing and the Mar A showing.

1.5.15 2022 Structural Mapping

Terrane Geoscience (Terrane) of Halifax, NS, updated the structural models at Colomac, Cass, Kim, and Damoti deposits. The worked defined 19 fault structures at the Colomac deposit. Northeast-trending faults caused mineralization offset over tens of meters, while northwest-striking faulting are associated with deflection of mineralization and host lithology.

The Kim deposit showed a complex structural history with several vein sets, but only a select grouping is mineralized. At the Cass deposit, nine fault structures were defined, with a prominent east-west trending fault that bounds mineralization and host lithology to the north. Multiple parallel fault structures trending northeast from the main fault are associated with mineralization and host lithologies.

The Damoti deposit has fine faults and one shear zone defined but there is no evidence that they significantly influence mineralization. The updated structural model suggests a single folding event can explain the deposit.

1.6 Drilling and Sampling

From 2012 to 2020, the programs were supervised by an exploration consultant for all activities related to drilling, including the preparation and supervision of geological logging. Since 2021, GeoMinEx has supervised all activities related to drilling, including the preparation and supervision of geological logging.

The information in Section 10 was provided by Nighthawk's geology team or obtained by InnovExplo's geologists during their site visits and subsequent discussions. Grade results are uncapped, and stated intervals are downhole lengths, not true widths.

Major Drilling Group International Inc. of Rouyn-Noranda, QC, has provided the personnel, supplies and ancillary equipment for all drilling programs since 2012. Drilling used NQ drilling barrels (47.6 mm core diameter). Holes were generally drilled with maximum stabilization using 6 m hexagonal core barrels with a 36-inch or 18-inch shell on surface.

The downhole orientation survey was performed by the drilling company and sent to the geologist for approval. A Reflex EZ-SHOT™ tool was used to record deviation surveys by taking single-shot measurements every 30 meters during drilling. Azimuth readings were dismissed where the magnetite content in the host lithology was high. In such cases, where possible, an average of the change in azimuth was calculated for the station as a weighted average for the distance from the nearest assumed valid azimuth readings uphole and downhole, or the azimuths were flatlined near the end of the hole if no valid reading was available downhole.

Starting in 2016, orientated core measurements were collected in selected holes using the Reflex Act III™ system. From 2016 to 2020, 118 over 387 drill holes were oriented. An additional 72 drill holes were orientated in 2022.

As per Nighthawk's standard procedures, the driller helper placed the core into core boxes at the rig, marking off every 3 meters with wooden blocks. Once the box was full, the helper wrapped it in tape. Drillers delivered the core to Nighthawk's core logging facility daily by road or helicopter. Drill hole casings remain anchored in bedrock to allow future surveying or lengthening. Land-based drill hole casings are cut close to the ground and sealed with an aluminum cap stamped with the hole number.

1.7 Data Verification

The QP's data verification included visits to the property, drill sites, outcrops and core logging facilities, as well as an independent review of the data for selected drill holes (surveyor certificates, assay certificates, QA/QC program and results, downhole surveys, lithologies, alteration and structures).

Overall, the authors believe that the data verification process demonstrates the validity of the data and protocols. The authors consider the Nighthawk databases to be valid and of sufficient quality to be used for the mineral resource estimate in this technical report.

1.8 Mineral Processing and Metallurgical Testwork

Four metallurgical testing campaigns between 2016 and 2019 have been conducted to quantify metallurgical performance of the Colomac deposit, which is the major mineralized zone in the Indin Lake properties. A sample from the Goldcrest deposit was also tested

Several processing options including flotation, gravity concentration and cyanidation were considered. All samples were found to be amenable to grinding through conventional semi-autogenous grinding (SAG) and ball mill grinding. The samples exhibited free milling gold recoveries amenable to gravity concentration, flotation and cyanide leaching. Gravity concentration and cyanide leaching at a grind size k_{80} of 150 µm was determined to be the optimum process option for this deposit. There is no evidence of any deleterious elements that would impair recovery or result in low-quality doré. Gold recoveries are expected to be greater than 96% at design and average life-of-mine grades.

1.9 Mineral Resource Estimation and Statement

The 2023 Colomac Gold Project mineral resource estimate (2023 MRE) was prepared by Marina Iund, P.Geo., Carl Pelletier, P.Geo. and Simon Boudreau, P.Eng., using all available information.

The mineral resources are not mineral reserves, as they do not have demonstrated economic viability. The result of this study is individual mineral resource estimates for eight deposits: Cass, Colomac Main, Damoti, Goldcrest, Grizzly Bear, Kim, Treasure Island, and 24/27.

The effective date of the 2023 MRE is February 9, 2023.

The authors are of the opinion that the current mineral resource estimate can be classified as indicated and inferred mineral resources based on data density, search ellipse criteria, drill hole spacing and interpolation parameters. The authors are also of the opinion that the requirement of a reasonable prospect for eventual economic extraction is met by having resources constrained by optimized pit-shell and DSO stope designs and a cut-off grade based on reasonable inputs that are amenable to potential in-pit and underground extraction scenarios.

Table 1-1 displays the results of the 2023 MRE for each deposit combining potential open pit and underground mining scenarios at cut-off grades of 0.45 to 0.57 g/t Au (in pit), 1.02 to 1.50 g/t Au (underground bulk) and 1.66 g/t Au (selective underground), respectively.

Table 1-1: Colomac Gold Project 2023 Mineral Resource Estimate by Deposit and Mining Method

Deposit	Area (Mining Method)	Cut-off (g/t)	Indicated Mineral Resource			Inferred Mineral Resource		
			Tonnage (kt)	Au (g/t)	Ounces	Tonnage (kt)	Au (g/t)	Ounces
Colomac Main	Open pit	0.45	54,404	1.45	2,548,000	2,625	1.97	166,000
	Underground Bulk	1.02	8,750	1.77	498,000	10,017	1.97	634,000
Goldcrest	Open pit	0.45	2,849	1.36	125,000	104	1.52	5,000
	Underground Bulk	1.02	659	1.49	32,000	225	1.29	9,000
Grizzly Bear	Open pit	0.46	1,142	1.34	49,000	11	0.69	250
	Underground Bulk	1.03	563	1.54	28,000	156	1.43	7,000
24/27	Open pit	0.46	1,451	1.75	82,000	15	1.51	700
	Underground Bulk	1.03	514	1.55	26,000	305	1.97	19,000
Cass	Open pit	0.52	-	-	-	3,983	2.36	302,000
	Underground Bulk	1.31	-	-	-	702	2.05	46,000
Kim	Open pit	0.52	-	-	-	2,568	1.72	142,000
	Underground Bulk	1.31	-	-	-	662	1.86	40,000
Damoti	Open pit	0.57	-	-	-	505	4.13	67,000
	Underground Selective	1.66	-	-	-	601	2.60	50,000
Treasure Island	Open pit	0.51	-	-	-	1,259	3.64	147,000
	Underground Bulk	1.5	-	-	-	696	2.96	66,000
Total Open pit			59,945	1.45	2,804,000	11,070	2.33	830,000
Total Underground			10,486	1.73	583,000	13,364	2.03	872,000
Total			70,432	1.50	3,387,000	24,434	2.17	1,702,000

Notes: 1. The independent and qualified persons for the mineral resource estimate, as defined by NI 43-101, are Marina Iund, P.Geo., Carl Pelletier, P.Geo., and Simon Boudreau, P.Eng. all from InnovExplo Inc., and the effective date is February 9, 2023. 2. These mineral resources are not mineral reserves, as they do not have demonstrated economic viability. The mineral resource estimate follows current CIM definitions and guidelines. 3. The results are presented undiluted and are considered to have reasonable prospects of economic viability. 4. The estimate encompasses eight gold deposits (Cass, Colomac Main, Damoti, Goldcrest, Grizzly Bear, Kim, Treasure Island, 24/27), subdivided into 115 individual zones (six for Cass, six for Colomac Main, 38 for Damoti, three for Goldcrest, four for Grizzly Bear, one for Kim, 45 for Treasure Island, 12 for 24/27) using the grade of the adjacent material when assayed or a value of zero when not assayed. Five low-grade envelopes were created: one for Colomac Main (quartz diorite dyke) and four for Damoti (BIF). 5. High-grade capping supported by statistical analysis was done on raw assay data before compositing and established on a per-zone basis varying from 15 to 100 g/t Au for mineralized zones and 15 to 20 g/t Au for the envelopes. 6. The estimate was completed using sub-block model in Leapfrog Edge 2022.1, except for Goldcrest, which was estimated using sub-block model in GEOVIA Surpac 2021, and Damoti, which was estimated using a percent block model in Gemcom. 7. Grade interpolation was performed with the inverse distance cubed (ID3) method on 1.5 m composites for the Colomac Main, Goldcrest and Grizzly Bear deposits, with the inverse distance squared (ID2) method on 1 m composites for the Cass and Treasure Island deposits, with the ID3 method on 1 m composites for the Kim deposit, with the ID2 method on 1.5 m composites for the 24/27 deposits, and with the ordinary kriging (OK) method on 1.0 m composites for the Damoti deposit. 8. A density of value of 3.2 g/cm^3 (Damoti), 3.0 g/cm^3 (Cass), 2.95 g/cm^3 (Kim), 2.7 g/cm^3 (Colomac Main, Goldcrest, Grizzly Bear, Treasure Island and 24/27,) and 2.00 g/cm^3 (overburden) was assigned. 9. The mineral resource estimate is classified as indicated and inferred. For the Cass, Colomac Main, Goldcrest and Grizzly Bear, Kim, Treasure Island, 24/27 deposits, the inferred category is defined with a minimum of two drill holes within the areas where the drill spacing is less than 75 m and shows reasonable geological and grade continuity. The indicated mineral resource category is defined with a minimum of three drill holes within the areas where the drill spacing is less than 50 m. For the Damoti deposit, the inferred category is defined with a minimum of two drill holes within the areas where the drill spacing is less than 60 m and shows reasonable geological and grade continuity. Clipping boundaries were used for classification based on those criteria. 10. The mineral resource estimate is locally pit-constrained with a bedrock slope angle of 50° and an overburden slope angle of 30°. It is reported at rounded cut-off grade ranges of 0.45 to 0.57 g/t Au (open pit), 1.02 to 1.50 g/t Au (underground bulk) and 1.66 g/t Au (Damoti – underground selective). The cut-off grades were calculated using the following parameters: mining cost = CA$3.25/t to CA$ 73.00/t; processing cost = CA$21.00/t; G&A = CA$6.00/t; refining costs = CA$5.00/oz; selling costs = CA$ 5.00/oz to CA$54.80/oz; gold price = US$1,660.00/oz; USD:CAD exchange rate = 1.33; and mill recovery = 97.0%. The cut-off grades should be re-evaluated in light of future prevailing market conditions (metal prices, exchange rates, mining costs etc.). 11. The number of metric tonnes was rounded to the nearest thousand, following the recommendations in NI 43-101 and any discrepancies in the totals are due to rounding effects. The metal contents are presented in troy ounces (tonnes x grade / 31.10348). 12. The authors are not aware of any known environmental, permitting, legal, title-related, taxation, socio-political, or marketing issues, or any other relevant issue not reported in the technical report, that could materially affect the mineral resource estimate.

The results of the MRE 2023 represent the following differences compared to the previous 2022 MRE (lund et al., 2022):

- 26% increase in total indicated mineral resource estimate ounces and a +4% increase in grade
- 36% increase in open pit indicated resource estimate ounces and a +5% increase in grade
- 28% increase in the total inferred resource estimate ounces and a +3% increase in grade
- 38% increase in the open pit inferred resource estimate ounces and a 2% decrease in grade

Those increases are mainly due to:

- adjustment of the economic parameters to reflect current economic condition
- addition of 40,086 m (182 drill holes) of drilling since the last MRE at the Colomac, Grizzly Bear, 24/27, Kim and Cass deposits
- optimization of the interpolation parameters for the Colomac and Cass deposits.

1.10 Mining Methods

The project is amenable to industry-standard open pit and underground mining practices. Open pit and underground mine designs, mine production schedules and mine capital and operating costs have been developed for the Colomac Main, Grizzly Bear, Goldcrest, 24/27, Kim, Cass, Damoti, and Treasure Island deposits at a scoping level of engineering. The mineral resources form the basis of the mine planning.

The open pit activities are designed for approximately 13 years of operation, and underground activities are designed to take place concurrently. Conventional drill/blast/load/haul open pit mining methods are suited for the project location and local site requirements. Mechanized cut-and-fill (MCF) underground mining methods are suited for the deposit geometries and targeted selectivity and production rates.

The subsets of mineral resources contained within the designed open pits and underground stopes are summarized in Table 1-2. Cut-off grades used for each deposit and mining method are also shown as reference. This subset of mineral resources forms the basis of the mine plan and production schedule.

Economic pit limits are determined using the Pseudoflow implementation of the Lerchs-Grossman algorithm. For Colomac Main, the ultimate pit limits are split up into phases or pushbacks to target higher economic margin material earlier in the mine life. The Goldcrest, Grizzly Bear, 24/27, Cass, Kim and Damoti open pits are each planned to be mined as one phase. Geotechnical investigations have not been completed for the deposits, so benches and ramps have not been designed, and pit contents are bounded by the optimization shells. Open pit shells have 45° overall slopes at Colomac Main and 50° overall slopes in all other deposits. Open pit contents are based on a diluted and recovered 5 m SMU block size (6 m block size for Damoti). The SMU blocks introduce a weighted average 11% dilution to the original mineral resource estimate (effect varies by deposit).

Underground stope inventories are determined using the stope shape optimizer algorithm targeting material above 2.5 g/t Au, and with stope shape sizes of 10 m long x 10 m high x 4 m thick, appropriate for MCF methods. Stope shapes are clipped to 25 m below the open pit limits to provide a pillar between the underground workings and the open pits. Underground mining dilution of 12%, at a 1 g/t Au diluting grade, is applied to the stope contents based on the selectivity of the MCF mining method and average stope thickness. Mining recovery of 95% is also applied.

Table 1-2: PEA Mine Plan Production Summary

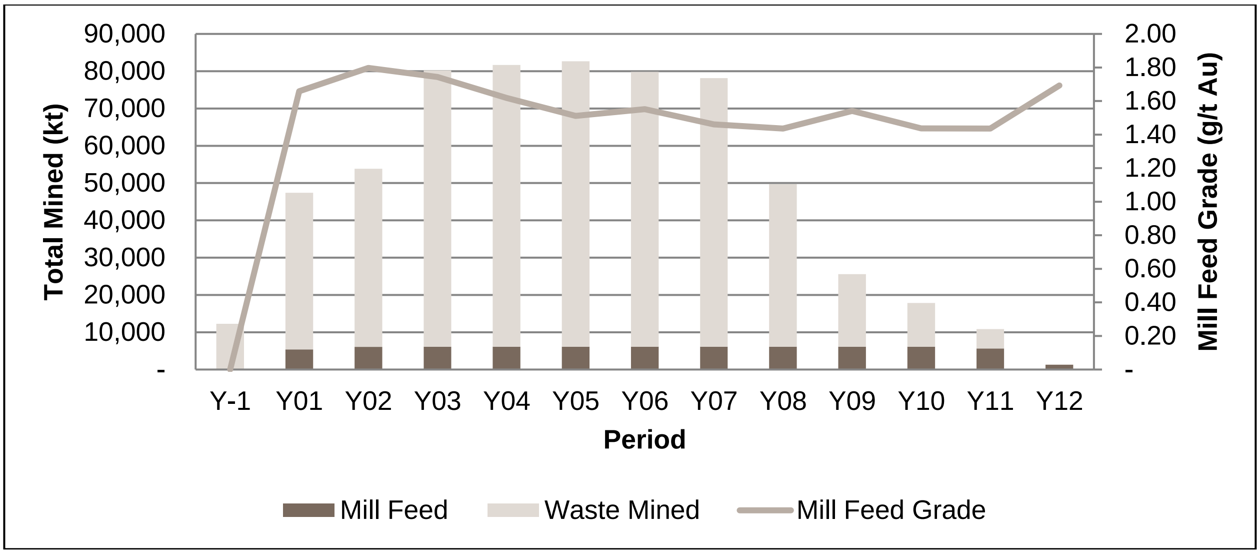
Deposit	Mining Method	Mill Feed (Mt)	Mill Feed Au Grade (g/t)	Mill Feed Metal (koz)	Waste Rock (Mt)	S/R	Applied Cut-off Grade (g/t Au)
Colomac Main	Open Pit	49.7	1.26	2,020	477	9.6	0.36
Goldcrest	Open Pit	2.6	1.17	100	19	7.3	0.36
Grizzly Bear	Open Pit	1.3	1.06	45	6	4.4	0.36
24/27	Open Pit	1.2	1.38	54	5	3.8	0.41
Cass	Open Pit	3.3	1.91	205	28	8.5	0.48
Kim	Open Pit	2.5	1.56	124	13	5.3	0.48
Damoti	Open Pit	0.6	2.91	52	5	9.8	0.61
Total Open Pit		61.3	1.32	2,600	554	9.0	
Colomac Main	Underground	4.8	4.06	627	-	-	2.20
Cass	Underground	0.3	3.77	37	-	-	2.20
Treasure Island	Underground	0.6	4.88	86	-	-	2.20
Damoti	Underground	0.2	3.92	31	-	-	2.20
Total Underground		5.9	4.12	782	-	-	
Total Open Pit & Underground		**67.2**	**1.57**	**3,383**	**554**		

Notes: 1. The PEA mine plan and mill feed estimates are a subset of the February 9, 2023. mineral resource estimates and are based on open pit and underground mine engineering and technical information developed at a scoping level for the Colomac Main, Goldcrest, Grizzly Bear, 24/27, Cass, Kim, Damoti, and Treasure Island deposits. 2. PEA Mine Plan and mill feed estimates are mined tonnes and grade; the reference point is the primary crusher. 3. Mill feed tonnages and grades include mining modifying factors. Open pit contents are based on 5 m selective mining unit (SMU) block sizes (except for Damoti, which uses 6 m SMU block sizes). The SMU block sizes account for the effects of open pit mining dilution and recovery. Underground stope contents include and additionally applied 12% mining dilution, at a 1 g/t Au diluting grade, and 95% underground mining recovery. 4. Cut-off grade estimates are based on US$1,550/oz. Au at a currency exchange rate of US$0.74 per C$1.00; 99.95% payable gold; $6.50/oz off-site costs (refining, transport and insurance); and an 85% metallurgical recovery for cut-off grade gold. 5. The open pit cut-off grade of 0.36 g/t Au includes the processing costs of $12.00/t, administrative (G&A) costs of $3.50/t, mining costs of $3.00/t, and low-grade stockpile rehandling costs of $2.00/t. The increased cut-off grades of 0.41 g/t, 0.48 g/t and 0.61 g/t Au for the satellite deposits also include coverage for resource to mill transport costs of $3/t, $7/t, and $14/t, respectively. 6. The underground cut-off grade of 2.20 g/t Au covers processing costs of $12.00/t, administrative (G&A) costs of $3.50/t, mining costs of $115.00/t, and low-grade stockpile rehandle costs of $2.00/t. 7. Estimates have been rounded and may result in summation differences.

The mill will be fed with material from the pits and stopes at an average rate of 6.1 Mt/a (16.7 kt/d), with the majority of mill feed coming from the Colomac Main open pits. Waste rock will be placed in waste rock storage facilities (WRSF) directly adjacent to open pit ramp exits. Waste rock will also be used for construction of the haul roads between the pit exits and the primary crusher. Topsoil and overburden encountered at the top of the pits will be placed in dedicated areas of the WRSF and kept salvageable for closure at the end of the mine life. Waste rock from the underground operations will be placed within the open pit WRSF facilities.

The mine production schedule is summarized in Figure 1-1.

Figure 1-1: Mine Production Schedule Summary



Source: MMTS, 2023.

Open pit mine operations are planned to be owner-operated. Mining operations will be based on a schedule of 365 operating days per year with two 12-hour shifts per day. An allowance of 10 days of no mine production has been built into the schedule to allow for adverse weather conditions.

The open pit mining fleet will consist of diesel-powered gear and will include the following:

- 250 mm hole rotary drills for waste production drilling
- 200 mm hole down-the-hole (DTH) drills for mineralized material production drilling
- 140 mm reverse circulation (RC) drills for bench-scale grade control drilling
- 34 m^3 bucket size shovels for waste production loading
- 22 m^3 hydraulic excavators for mineralized material and waste production loading
- 14 m^3 bucket-sized wheel loaders for rehandle and support loading
- 230 t payload rigid-frame haul trucks for waste production hauling
- 91 t payload rigid-frame haul trucks for mineralized material and waste production hauling
- ancillary and service equipment to support the mining operations.

The larger gear will generally focus on mining waste rock in the Colomac Main, Grizzly Bear and Goldcrest deposits, and smaller gear will be dedicated to mineralized material extraction and mining within the satellite deposits.

In-pit dewatering systems will be established for each pit. All surface water and precipitation in the pits will be handled by submersible pumps and directed to ex-pit settling water management facilities directly outside the pit limits.

Minor equipment maintenance will be performed in the field; major repairs and planned interval maintenance will be carried out in the shops near the process facilities.

Underground operations are planned to be executed via contractor. This will include capitalized ramp, drift, and raise development, operating development, and stope extraction and backfill. The detailed make-up of the contractor fleet has not been considered.

Colomac Main open pit operations will be carried out over the entire life of mine, while other satellite open pit deposits are mined simultaneously. Colomac Main underground operations will also be carried out over the entire life of mine, with a secondary underground operation progressing concurrently through the satellite deposits.

The planned sequence of extraction over the life of mine is illustrated in Table 1-3.

Table 1-3: Deposit Sequence of Extraction

Deposit Name & Type	PP	Y01	Y02	Y03	Y04	Y05	Y06	Y07	Y08	Y09	Y10	Y11	Y12
Colomac Open Pit Phase 1	XX	XX	XX	XX	XX	XX	XX						
Colomac Open Pit Phase 2			XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	
Colomac Open Pit Phase 3			XX	XX	XX	XX	XX	XX					
Colomac Open Pit Phase 4			XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
Colomac Open Pit Phase 5			XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
Colomac Open Pit Phase 6			XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
Goldcrest Open Pit				XX	XX	XX	XX	XX					
Grizzly Bear Open Pit			XX	XX	XX	XX	XX	XX					
24/27 Open Pit	XX	XX	XX	XX									
Cass Open Pit	XX	XX	XX	XX	XX	XX	XX	XX					
Kim Open Pit	XX	XX	XX	XX	XX								
Damoti Open Pit	XX	XX	XX	XX									
Colomac Underground	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX		
Cass Underground										XX	XX	XX	XX
Treasure Island Underground	XX	XX	XX	XX	XX	XX							
Damoti Underground							XX	XX	XX				

1.11 Recovery Methods

The process flowsheet was designed based on metallurgical testwork carried out for the Colomac Main and Goldcrest deposits. Based on a mine to mill analysis, the processing plant capacity was selected as 6.1 Mt/a or 16,715 t/d.

The process design for the project consists of the following:

- Two-stage crushing, consisting of a primary jaw crusher and a secondary cone crusher with screen classification and material handling equipment.
- Grinding of crushed material to 80% (k_{80}) passing size of 150 µm with a SAG mill and ball mill in closed circuit with hydrocyclones. The SAG mill and ball mill are each equipped with 7.0 MW motors.

- A gravity concentration circuit included in the grinding area. Gravity concentrate will feed intensive cyanidation and will be recovered by electrowinning independently of the leach circuit.
- Leaching and adsorption circuit including four leach tanks and six carbon-in-pulp (CIP) tanks for a total leach and adsorption circuit retention time of 24 hours. This will feed loaded carbon to twin 8-tonne carbon elution systems.
- Cyanide destruction will be carried out using an SO_2/air system on the final tailings slurry.
- Final tails from the cyanide destruction circuit will be thickened prior to deposition in either a management facility or in exhausted open pits.

Select process design criteria are listed in Table 1-4. The simplified overall process flow diagram is presented in Figure 1-2.

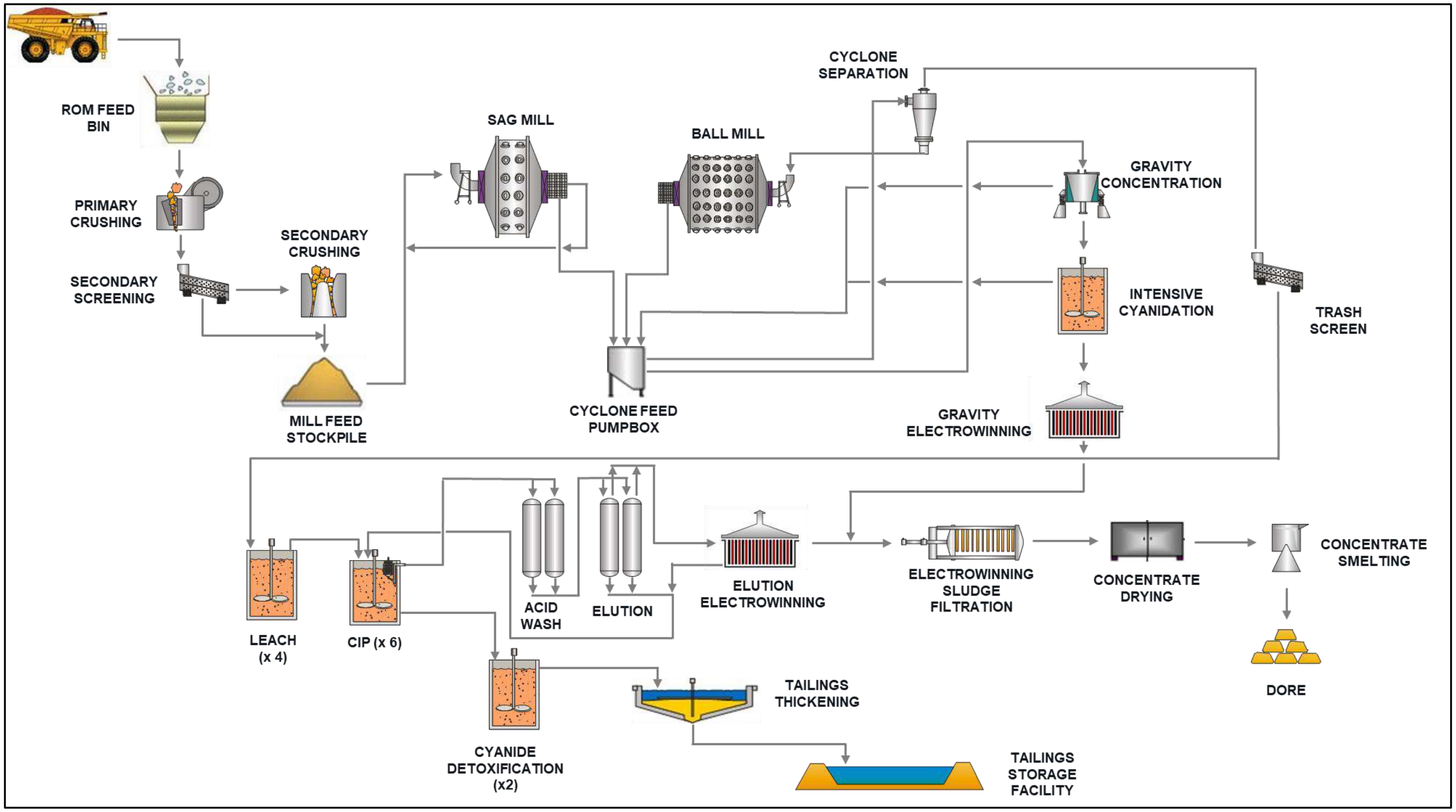
Table 1-4: Process Design Criteria

Description	Units	Value
Plant Throughput, Design	Mt/a	6.10
Plant Throughput, Design	t/d	16,715
Gold Head Grade, Design	g/t Au	1.80
Crushing Plant Availability	%	65
Mill Availability	%	92
Bond Crusher Work Index (CWi), Design	metric	18.7
Bond Ball Mill Work Index (BWi), Design	metric	16.0
Bond Abrasion Index (Ai), Design	-	0.47
ROM Specific Gravity, Design	-	2.69
ROM Mineralized Material Maximum Size	mm	800
ROM Mineralized Material Moisture	%	3
Mill Feed Stockpile Live Capacity	h	12
Grinding Circuit Feed Size, F_{80}	mm	36
Grinding Circuit Product Size, P_{80}	µm	150
Pebble Recycle Rate, Operating	% Fresh Feed	13
Cyclone Underflow Pulp Density, Design	% Solids (w/w)	72
Cyclone Overflow Pulp Density, Design	% Solids (w/w)	42.5
Circulating Load	% Fresh Feed	400
Mass Pull to Gravity Concentrator	% Fresh Ball Mill Feed	100
Gravity Concentrator Recovery	% Au	27.7
Leach Configuration	-	Leach/CIP
Leach Feed Pulp Density, Design	% Solids (w/w)	41.5
Leach + CIP Residence Time	h	24
Leach & CIP Tanks	-	4+ 6
Leach Tank Total Residence Time, Design	h	18
Leach Extraction, Average	% Au	86
Leach Sodium Cyanide Addition Rate, Design	kg/t	0.50
Leach Hydrated Lime Addition Rate, Design	kg $Ca(OH)_2$/t	0.1
Adsorption Number of Stages	-	6
Adsorption Time Total, Design	h	8

Description	Units	Value
CIP tail, Solution Concentration	mg/L Au	<0.015
Overall Recovery	% Au	96.3
Carbon Batch Size	t	8.0
Type of Stripping System	-	Pressure Zadra
Number of Parallel Elution Circuits	-	2
Number of Strips per Elution Column per Day	-	1
Number of Acid Wash Columns	-	2
Hydrochloric Acid Addition Rate, Design	% Concentrate w/v	3.0
Number of Elution Columns	-	2
Electrowinning Plating Time	h	16
Barren Eluate Assay	mg/L Au	<10
Carbon Addition Rate, Design	kg/t	0.04
Fuel Source for Elution Heater and Regeneration Kiln	-	Electric
Detoxification Feed CN_{WAD} Concentration, Design	mg/L	100
Detoxification Tanks	-	Two, parallel
Detoxification Residence Time, Total	min	60
Detoxification SO_2 Addition Rate, Design	g/g CN_{WAD}	5.0
Detoxification Copper Addition Rate, Design	ppm Cu^{2+}	15
Detoxification Hydrated Lime Addition Rate, Design	g/g SO_2	0.75
CN_{WAD} Discharge Concentration (Circuit Discharge)	mg/L	<5
Tailings Thickener Underflow Density, Design	% solids (w/w)	65
Thickener Overflow Solids	mg/L	<100
Thickener Flocculant Addition Rate, Design	g/t	20

Source: Ausenco, 2023.

Figure 1-2: Simplified Process Flow Diagram



Source: Ausenco, 2023.

1.12 Project Infrastructure

1.12.1 General Site Facilities

Infrastructure to support the Colomac Gold Project will consist of site civil work, site facilities/building, a water system, and site electrical services. Site facilities will include both mine and process facilities, as follows:

- Mine – Administration offices, truckshop and warehouse, tire repair shop, mine workshop, mine dry, fuel storage and distribution, permanent accommodations facility, and miscellaneous facilities
- Process – Process plant, crusher facility, process plant workshop and assay laboratory
- Services – Potable water, fire water, compressed air, power generation, diesel, communication, and sanitary systems.

Power generation for the site will come from diesel for critical users and from renewable sources, namely wind and solar, for non-critical users. The diesel generation plant will have enough capacity to power the entire site, if required. The use of renewable energy offsets the expense of diesel generation at a remote location as well as improving the project carbon footprint.

1.12.2 Tailings Management Facility

It is assumed there will be three waste rock storage facilities between the open pits and Steeves Lake, developed on the west side of the open pits. A portion of the waste rock will be utilized in the construction of the tailings management facility (TMF) rockfill embankments.

The project will produce a total of 67.2 Mt of tailings over the design life of the project. Tailings will be stored in two facilities: initially in the existing slurry TSF, and later in the mined-out Grizzly Bear and Goldcrest open pits.

The existing TMF is approximately 2.7 km long and 1.0 km wide. It was selected as the preferred tailings storage option due to topographical containment and the reduction of environmental impact. The existing TMF stores around 11.2 Mt of the tailings at elevations ranging from 346 to 352 masl; the crest of the dam 1 is at 349 masl. The TMF has been designed to store additional 52.7 Mt of tailings although it has potential for further expansion. The TMF requires the construction of seven small dams ranging in height from 4 m to 31 m, all with a final crest elevation at 372 masl to contain the required volume of tailings, operational water, and stormwater plus freeboard. In addition, spillways will be constructed for every dam raise to pass the one-third level between the 1;1,000-year event and PMF. In its final configuration the facility will store 63.9 Mt of tailings.

Approximately 14.5 Mt of tailings will be deposited into the mined-out Grizzly Bear and Goldcrest open pits at the end of Year 7 when they become available. The schedule will begin with Goldcrest, so waste rock can be stacked over these pits in the east sections of the Central and South WRSF over the last three years of operation. Final life-of-mine tailings will then be placed in the TMF.

Slurried tailings will be pumped from the process plant to the TMF and open pits by way of pipelines that extend two-thirds of the way around their perimeters. Spigots around the facilities would then discharge tailings to provide a uniform tailings surface and maximize storage volume. Tailings are planned to be discharged at 32% solids and will have an overall final dry bulk density of 1.45 t/m^3. The TMF will provide a portion of water for the process plant from excess tailings water, rainfall runoff, and snowmelt.

1.13 Environmental, Permitting and Social Considerations

The project involves the development of a mine cantered near the historical Colomac mine with several satellite developments in the surrounding area. The property is located approximately 220 km northwest of Yellowknife, NWT. The site is accessible year-round by air and during a portion of the winter season it can be accessed by a 245 km long winter road.

The deposits will be developed by a combination of surface and underground mining methods. Planned infrastructure includes seven open pits (Damoti, Colomac Main, Grizzly Bear, Kim, Cass, 24/27, and Goldcrest), as well as underground operations at three of those open pits (Damoti, Colomac Main, and Cass). Treasure Island is to be developed by underground methods only. The project will include mine, process, and services infrastructure as detailed in Section 18. From an environmental perspective, key facilities and processes include waste rock piles, process plant, tailings storage facilities, pipelines, roads, airstrip, water management areas, effluent streams to the receiving environment, water treatment plant, accommodations facility, potable and sanitary systems, crushing facilities and assay laboratory. Most of the major mine infrastructure and all processing will be located in the Colomac center area (Colomac Main, Goldcrest, Grizzly Bear). Limited infrastructure is associated with the satellite sites (Kim, Cass, 24/27, Damoti,).

The project is located in the Wek'èezhìi region and within the management area of the Tłı̨chǫ Government. The Wek'èezhìi Renewable Resources Board (WRRB) has the wildlife co-management authority for the region, as established by the Tłı̨cho Agreement. The Tłı̨chǫ Government represents the communities of Behchokǫ̀, Gamètì, Wekweètì, and Whatì (refer to Figure 4-1 for location of these communities). The North Slave Métis Alliance (NSMA) represents the rights of the Métis people of the Great Slave Lake area, primarily in the region north and east of Great Slave Lake, NWT.

1.13.1 Environmental Considerations

The project site was historically a gold mine (Colomac Mine) which operated between 1990–1992, and 1994–1997. After being forced into receivership, Crown-Indigenous Relations and Northern Affairs Canada, CIRNAC (formerly DIAND) assumed responsibility for the site in 1999 and began remediation activities. Remediation took place from 2000 to 2012 and subsequent post-closure monitoring produced a significant amount of data. Several monitoring programs were in place through CIRNAC, such as the geotechnical, the hydrological monitoring program, and the surveillance network monitoring program. Several relevant reports were developed during the reclamation and post-closure monitoring periods which provide useful baseline information for the proposed project. However, the available data covers the areas in and around the Colomac center area of the property and do not include the more remote satellite sites. In addition, much of the data are not current and therefore not applicable for supporting future permitting efforts. Over the last several years, Nighthawk has commenced limited data collection in the areas of water quality, geochemistry, and archaeology, with much of this work focused around the Damoti area. Therefore, there are baseline data gaps that would require filling to support future regulatory applications and the Environmental Impact Assessment (EIA) process which is likely to be carried out by the Mackenzie Valley Environmental Impact Review Board (MVEIRB). Future baseline work will focus on current project development description and scope as presented in this report, herein.

WSP completed an Environmental Information Needs Assessment in 2022 which identified gaps in baseline data which will help to support future regulatory applications for the project. Recommendations for future baseline work were put forward by WSP in that report. It is noted that for some baseline studies, both seasonal and multiple years of data collection are required to support regulatory applications and completion of these studies are a critical path for permitting.

The proposed project has been designed to minimize infrastructure permit and new impacts. This has resulted in a design footprint that interacts with areas of historical mining operations and corresponding mine closure features that have been constructed and advanced by CIRNAC from 2000 to 2012. Discussions with CIRNAC will need to be advanced regarding the potential disturbance of existing closed facilities and any consequential security liabilities associated with post-closure monitoring.

There are opportunities for renewable energy for the project site that have been identified and incorporated in the design for the project. The assumption is for 60% of the site power to be provided by solar and wind power and the remaining 40% from diesel. The use of renewable energy offsets the expense of diesel generation at a remote location as well as improving the project carbon footprint.

In terms of water management, the main consideration for the project is related to changes to the flow regime of Baton Lake, which will require diversion around the Colomac Main open pits and loss of fish habitat. This will require fisheries authorization and habitat compensation measures. Mine contact water around all surface facilities will be managed in accordance with regulatory requirements and tested/treated as required prior to discharge to downstream receivers.

As the project progresses through the PFS, environmental assessment and permitting stages, a number of environmental management and monitoring plans will be required for the purpose of guiding the development and operation of the project and mitigating and limiting environmental impacts. These plans will be complementary to the engineered designs that will be required for the storage of tailings, waste rock, mineralized material, and conveyance/storage/treatment of mine contact water (refer to Section 18 for details).

1.13.2 Closure and Reclamation Considerations

Nighthawk currently has an approved Interim Closure and Reclamation Plan (ICRP -Version 3.3) for the Damoti site only, and further requirements for an ICRP for advanced exploration are outlined in Schedule 5 of water licence W2021L2-0005 and a version 4 of that document is currently under review by regulators. Future water licences and land use permits for mine development will outline closure plan requirements for the Colomac Gold Project.

The current conceptual closure and reclamation plan for the project as outlined in this report includes the following potential measures:

- partial backfilling of open pits with waste rock, and flooding of the remaining open pits and underground workings
- mineralized material stockpile to be reclaimed, once depleted
- mine portals to be decommissioned, plugged and backfilled
- plant and infrastructure pad to be dismantled, removed, and re-contoured and revegetated
- tailings dam and beach to be reclaimed with an erosion resistant surface
- water treatment to be continued as required until the TMF and other contact water quality meets applicable discharge criteria

- once TMF water quality meets discharge criteria, water treatment to cease, and the TMF will be allowed to discharge naturally via a closure spillway
- at closure, PAG rock will be managed by rehandling into the pits to keep it permanently submerged in the pit lakes and/or capping it with low permeability liner to reduce seepage and oxygen infiltration; NPAG waste rock stored on the surface will be stored to ensure stability and compatibility with existing landforms and wildlife usage.

The preliminary closure and reclamation costs are provided in Sections 1.15 and 21.2.9.

1.13.3 Permitting Considerations

The major federal legislation and associated processes and authorizations include an environmental assessment under the Mackenzie Valley Resource Management Act (MVRMA), a Fisheries Act Authorization(s) issued under the Fisheries Act, and potentially a Schedule 2 amendment to the Metal and Diamond Mining Effluent Regulations (MDMER).

The Land Claims and Self-Government Agreement among the Tłı̨chǫ the Government of the Northwest Territories, and the Government of Canada (the Tłı̨chǫ Agreement) provides rights and benefits to land, resources, and self-government to Tłı̨chǫ citizens. Under Section 23.4 of the Tłı̨chǫ Agreement, the proponent of a major mining project (as defined under the Tłı̨chǫ Agreement) must negotiate and come to an agreement with the Tłı̨chǫ Government regarding the project or agree that the project does not require an agreement. This agreement typically involves provisions for environmental protection, employment targets, training, and business opportunities for the Tłı̨chǫ.

Upon completion of the environmental assessment, the Colomac Gold Project will require a federal water licence, a non-federal water licence, and land use authorization prior to commencing mine development. Water licences allow for the use of water and the deposition of waste and a land use permit authorizes land use activities such as blasting, fuel storage, use of heavy machinery, and site/building construction. Water licences and land use permits are issued by the Wek'èezhìi Land and Water Board under the MVRMA and enforced by federal and territorial inspectors.

1.13.4 Social Considerations

The Colomac Gold Project is located across both federal and non-federal lands in the traditional territory of the Tłı̨chǫ. Traditionally, the Indin Lake area has been used for hunting, fishing, and trapping (SLR, 2022). The land is located in the Wek'èezhìi region and within the Môwhì Gogha Dè Nîîtåèè boundary.

Since acquiring the property in 2012, Nighthawk has increasingly engaged especially with the Tłı̨chǫ Government, Wek'èezhìi Renewable Resources Board (WRRB) and with the North Slave Métis Alliance (NSMA) to discuss and seek input on ongoing exploration projects activities, environmental management plans, and monitoring programs, including organizing tours to the Project site, and to identify employment and contracting opportunities for Indigenous peoples. Nighthawk has developed a system of tracking its engagement activities and follow-up actions/commitments.

Traditional Knowledge, and its incorporation in the project design and environmental programs, will be a key requirement during the regulatory process. Traditional Knowledge studies and community workshops should be initiated early in the regulatory process so there can be meaningful integration with western science when developing environmental management programs.

1.14 Markets and Contracts

It was assumed in this PEA that the Colomac Gold Project will produce gold in the form of doré bars. The market for doré is well-established and accessible to new producers. The doré bars will be refined in a certified North American refinery and the gold will be sold on the spot market.

No market studies have been conducted by Nighthawk or its consultants on the gold doré that will be produced at the Colomac Gold Project. Gold is a freely traded commodity on the world market and there is a steady demand from numerous buyers. Gold production is expected to be sold on the spot market. Terms and conditions included as part of the sales contracts are expected to be typical for this commodity. Gold is bought and sold on many markets, and it is not difficult to obtain a market price at any time. The gold market is liquid, with many buyers and sellers active at any given time.

1.15 Capital Cost Estimates

The capital cost estimate conforms to Class 5 guidelines for a PEA-level estimate with ±50% accuracy according to the Association for the Advancement of Cost Engineering International (AACE International). The capital cost estimate was developed in Q1 2023 Canadian dollars based on Ausenco's in-house database of projects and studies, as well as experience from similar operations.

The estimate includes open pit and underground mining, processing, on-site infrastructure, tailings and waste rock facilities, off-site infrastructure, project indirect costs, project delivery, Owner's costs, and contingency. The capital cost summary is presented in Table 1-5. The total initial capital cost for the Colomac Gold Project is C$654 million; and life-of-mine sustaining costs are C$665 million. Closure costs are estimated at C$50 million, with salvage credits of C$32 million.

Table 1-5: Summary of Capital Costs

WBS	WBS Description	Initial Capital Cost (C$M)	Sustaining Capital Cost (C$M)	Total Capital Cost (C$M)
1000	Mining	161	547	708
2000	Process Plant	160	0	160
3000	On-Site Infrastructure	170	86	256
4000	Off-Site Infrastructure	9	0	9
	Total Directs	499	633	1,133
5000	Project Indirects	15	0	15
6000	Project Delivery	35	0	35
7000	Owner's Cost	9	0	9
	Total Indirects	59	0	59
8000	Contingency	96	32	127
	Closure (Net of Salvage)	-	18	18
	Kim & Cass NSR Buyback	-	3	3
	Project Totals	654	686	1,340

Note: Numbers may not add up due to rounding.

1.16 Operating Cost Estimates

The operating cost estimate is presented in Q1 2023 Canadian dollars. The estimate was developed to have an accuracy of ±50%. The estimate includes mining, processing, and general and administration (G&A) costs. Table 1-6 provides a summary of the project operating costs.

The overall life-of-mine operating cost is C$2,952 million over 12 years, or an average of C$43.87/t of material milled in a typical year. Of this total, processing and G&A account for C$768 million and mining accounts for C$2,183 million.

Common to all operating cost estimates are the following assumptions:

- Cost estimates are based on Q1 2023 pricing without allowances for inflation.
- For material sourced in US dollars, an exchange rate of 1.35 Canadian dollar to 1.00 US dollar was assumed.
- Estimated cost for diesel is C$1.00/L
- The annual power costs were calculated using a unit price of C$0.08/kWh. This is an average calculated using solar, wind and diesel power generation sources.

Open pit mine operating costs are built up from first principles and applied to the mine production schedule. Productivity and cost inputs are derived from historical data collected by MMTS.

Underground mine operating costs assume operations will be carried out by contractor and are derived from historical data collected by MMTS.

Table 1-6: Operating Cost Summary

Cost Area	Life-of-Mine Total (C$M)	Per Mineralized Tonne (C$/t)	% of Total
Mining	2,183	3.5/t mined	74
Open Pit	*1,504*	*2.5/t mined*	*51*
Underground	*680*	*115/t mined*	*23*
Process	600	8.9/t milled	20
G&A	168	2.5/t milled	6
Total	$2,952	$43.9/t	100

1.17 Economic Analysis

The 2023 PEA is preliminary in nature and is partly based on 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. There is no certainty that the 2023 PEA based on these mineral resources will be realized. Mineral resources that are not mineral reserves do not have demonstrated economic viability.

The results of the economic analyses represent forward-looking information as defined under Canadian securities law. The results depend on inputs that are subject to known and unknown risks, uncertainties, and other factors that may cause actual results to differ materially from those presented here.

The project was evaluated using a discounted cash flow analysis based on a 5% discount rate. Cash inflows consisted of annual revenue projections. Cash outflows consisted of capital expenditures, including pre-production costs; operating costs; treatment, refining and transport costs; taxes; and royalties. These were subtracted from the inflows to arrive at the annual cash flow projections. Cash flows were taken to occur at the midpoint of each period. The economic analysis also used the following assumptions:

- Construction will take 12 months.
- The project has a mine life of 11.2 years (last year is a partial year).
- The results are based on 100% ownership.
- The project will be capital cost funded with 100% equity (no financing cost assumed).
- All cash flows are discounted to the start of construction using a mid-period discounting convention.
- All metal products will be sold in the same year they are produced.
- Project revenue will be derived from the sale of gold doré.
- No contractual arrangements for refining currently exist.

The pre-tax NPV discounted at 5% is C$1,800 million; the IRR is 42.4%; and payback period is 2.1 years. On a post-tax basis, the NPV discounted at 5% is C$1,170 million; the IRR is 34.6%; and payback period is 2.1 years. A summary of project economics is shown in Table 1-7.

Table 1-7: Economic Analysis Summary

General	Unit	Value
Gold Price	US$/oz	1,600
Exchange Rate	CAD:USD	0.74
Mine Life	years	11.2
Total Waste Tonnes Mined	kt	554,128
Total Mill Feed Tonnes	kt	67,203
Open Pit Strip Ratio	w:o	9.0
Production		
Mill Head Grade	g/t	1.57
Mill Recovery Rate	%	96.3%
Total Mill Ounces Recovered	koz	3,257
Total Average Annual Payable Production	koz	290
Operating Costs		
Open Pit Mining Cost	C$/t mined	2.49
Underground Mining Cost	C$/t mined	115.0
Overall Mining Cost (Open Pit and Underground)	C$/t mined	3.5
Overall Mining Cost (Open Pit and Underground)	C$/t milled	32.5
Processing Cost	C$/t milled	8.9
General & Administrative Cost	C$/t milled	2.5
Total Operating Costs	C$/t milled	43.9
Refining, Treatment & Transportation Cost	C$/oz	2.4
Net Smelter Royalty	%	0.0%
Cash Costs[1]	US$/oz Au	673
All-In Sustaining Costs[2]	US$/oz Au	828
All-In Costs[3]	US$/oz Au	977
Capital Costs		
Initial Capital	C$M	654
Sustaining Capital	C$M	665
Closure Costs	C$M	50
Salvage Costs	C$M	32
Financials – Pre-Tax		
Net Present Value (5%)	C$M	1,800
Internal Rate of Return	%	42.4%
Payback	years	2.1
Financials – Post-Tax		
Net Present Value (5%)	C$M	1,170
Internal Rate of Return	%	34.6%
Payback	years	2.1

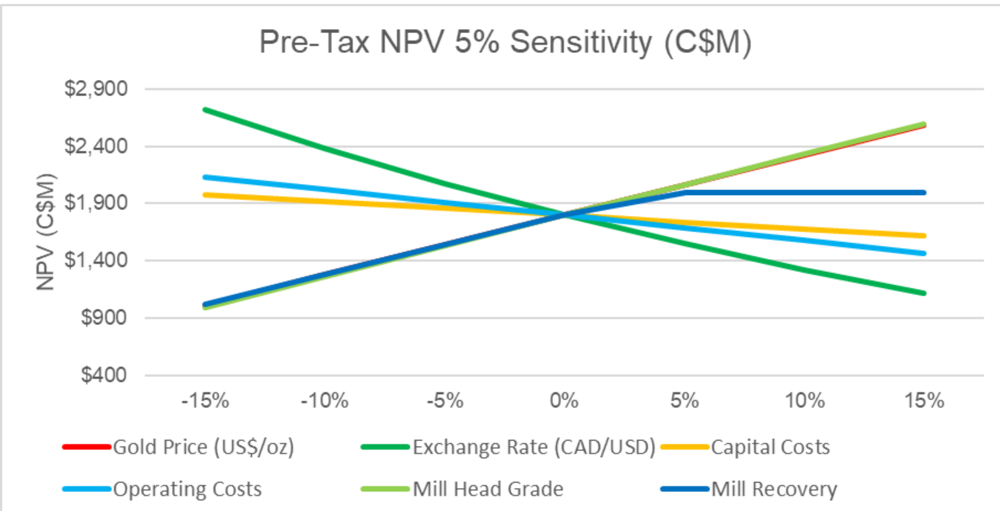
Note: 1. Cash costs consist of mining costs, processing costs, mine-level G&A and refining charges. 2. All-in sustaining costs include cash costs plus sustaining capital, closure costs and salvage value. 3. All-In Costs consists of all-in sustaining costs plus initial capital.

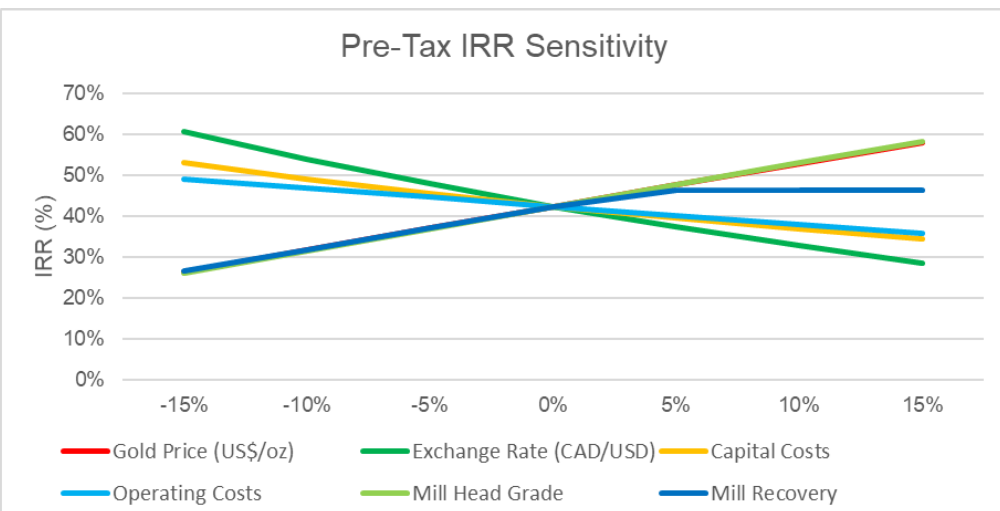
1.18 Sensitivity Analysis

A sensitivity analysis was conducted on the base case pre-tax and post-tax NPV and IRR of the project using the following variables: gold price, discount rate, exchange rate, capital costs, operating costs, mill head grades and mill recoveries.

As presented in Figures 1-3 and 1-4, the analysis showed that the project is most sensitive to changes in gold price, foreign exchange, mill recovery, and head grade.

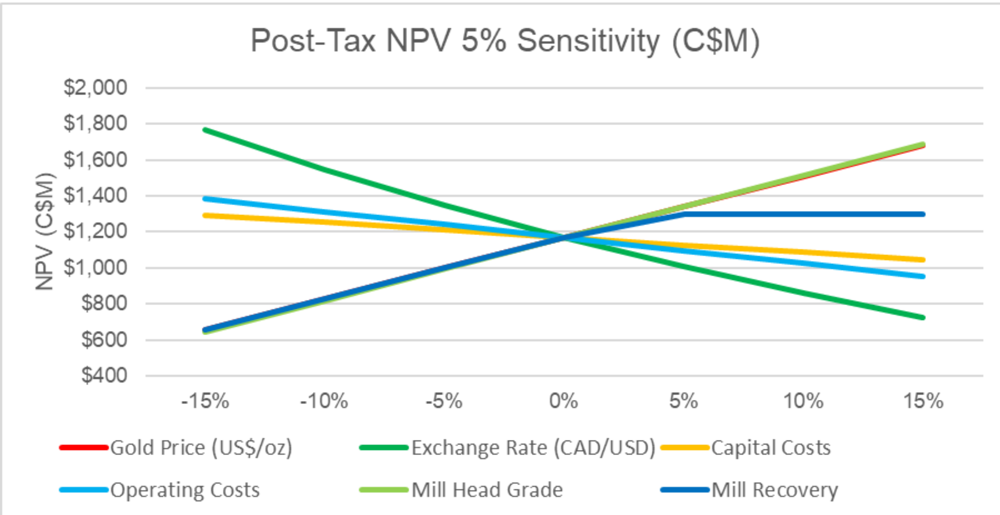
Figure 1-3: Pre-Tax NPV, IRR Sensitivity Results

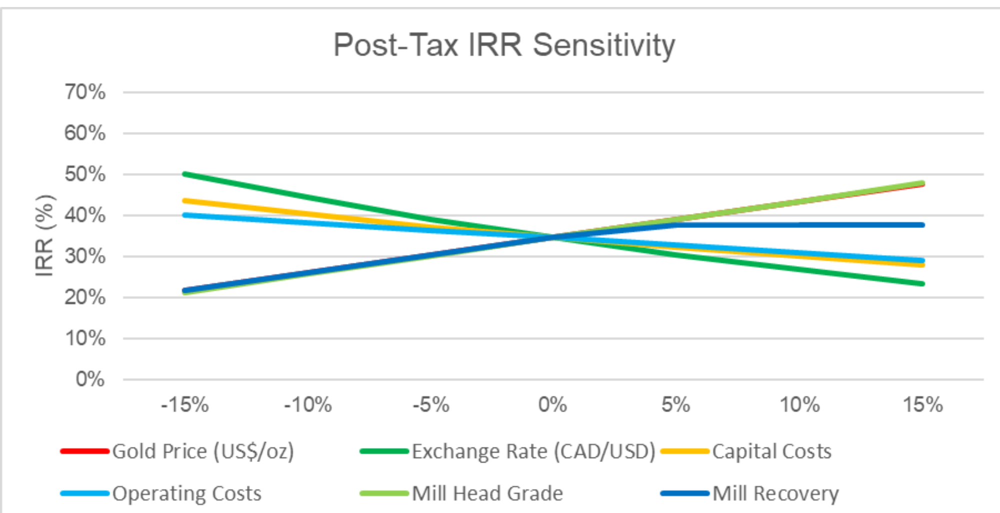




Source: Ausenco, 2023.

Figure 1-4: Post-Tax NPV, IRR Sensitivity Results





Source: Ausenco, 2023.

1.19 Interpretation and Conclusions

Based on the assumptions and parameters presented in this report, the PEA shows positive economics (i.e., $1,170 million post-tax NPV (5%) and 34.6% post-tax IRR). The PEA supports a decision to carry out additional detailed studies. There is a recommended work program totalling C$53 million, including recommendations pertaining to geological investigations, metallurgical testwork, geotechnical investigations, renewable energy generation investigations, mining engineering, environmental and community impact studies, and the execution of a pre-feasibility study.

1.20 Recommendations

The authors have prepared a cost estimate for the recommended work program to serve as a guideline for the next project stage (i.e., pre-feasibility study). Expenditures are estimated at C$51.2 million including 15% for contingency.

1.20.1 Exploration and Geology

Additional diamond drilling on multiple zones could potentially upgrade some of the inferred mineral resource to the Indicated category and potentially add to the inferred mineral resource, since most of the mineralized zones have not been fully explored along strike or to depth.

Based on the results of the 2023 MRE, the authors make the recommendations listed below by area.

1.20.1.1 Colomac Centre Area

- Additional exploration drilling using a regularly-spaced drill grid to satisfy inferred mineral resource category criteria. The exploration drilling should be targeted in the dip extension of the mineralized shoots identified in the litho-structural models and in the resource block models to test the potential mainly in the depth extension of the deposits, but also in the lateral extensions.

1.20.1.2 Damoti Area

- Additional exploration drilling along the continuity of the BIF to discover additional favourable areas for gold mineralization and additional resources. The authors suggest to target the still-open northern part of the central fold, the underexplored eastern limb of the western third fold, and more generally, areas of the BIF with a low magnetic response as a good correspondence between low magnetism, alteration and gold values has been observed in the Damoti BIF.

- Metallurgical testwork to yield a better assessment of the recovery rate and milling cost assumptions in the cut-off grade calculation for a future MRE update.

- A survey program for historical drill hole collars and access to the ramp to confirm the exact location of the drill holes. This would allow some of the inferred mineral resources to be converted to the Indicated category.

1.20.1.3 Kim & Cass Area

- Additional exploration drilling using a regularly-spaced drill grid to satisfy inferred mineral resource category criteria. The exploration drilling should be targeted in the dip extension of the mineralized shoots identified in the litho-structural model and in the resource block model to test the potential mainly in the depth extension of the deposit, but also in the lateral extensions.

- Metallurgical testwork to yield a better assessment of the recovery rate and milling cost assumptions in the cut-off grade calculation for a future MRE update.

- A survey program for historical drill hole collars to confirm the exact location of the drill holes. This would allow some of the inferred mineral resources to be converted to the indicated category.
- An advance litho-structural study to increase the confidence in the geological models (in progress).

1.20.1.4 Treasure Island Area

- Additional exploration drilling using a regularly-spaced drill grid to satisfy inferred mineral resource category criteria. The exploration drilling should be targeted in the dip extension of the mineralized shoots identified in the litho-structural model and in the resource block model to test the potential mainly in the depth extension of the deposit, but also in the lateral extensions.
- Metallurgical testwork to yield a better assessment of the recovery rate and milling cost assumptions in the cut-off grade calculation for a future MRE update.
- A survey program for historical drill-hole collars to confirm the exact location of the drill holes. This would allow some of the inferred mineral resources to be converted to the indicated category.

1.20.1.5 Regional Exploration

- Regional exploration drilling on the more prominent satellite targets including Albatross, Nice Lake and Leta Arm Group. Conditional upon successful drilling, it could lead to a mineral resource estimate.
- Continued regional exploration work, including drilling, on a number of regional prospects while maintaining a similar scale of activity on many of the high-profile targets with the goal of advancing known deposits and showings and making new discoveries. Particular attention should be paid to near-surface mineralization proximal to the Colomac deposit.

1.20.2 Mineral Processing and Metallurgical Testwork

Work should be conducted to determine the optimal flowsheet and design criteria to potentially improve project economics as part of a pre-feasibility study. A pre-feasibility level metallurgical testwork program, using industry standard testwork procedures, focusing on the major deposits, is recommended. This includes the following work:

- Samples reflecting the different styles and geological settings of mineralization to test recoveries near cut-off grade, including samples from the other deposits in the Colomac Gold Project. Sampling should include flowsheet development composites and variability samples that address grade ranges and the major styles of mineralization.
- Bulk mineralogy studies and gold deportment studies of major lithological units, as well as any areas of specific interest noted by the geology team.
- Comprehensive comminution testing including Bond rod and ball mill work indices, SMC testing and abrasion index tests with the number of samples tested appropriate for a PFS study. These will validate the design assumptions on comminution equipment sizing and selection.

- Gravity concentration testing on appropriate composite samples using the E-GRG protocol to better estimate full scale recoveries.
- Gravity recovery and leach tests at the optimized grind size with appropriate kinetic solution sampling to optimize leach retention time.
- Cyanide detoxification testing to determine reagent usage, residence times and expected concentrations at discharge.
- Oxygen uptake testing to determine air/oxygen requirements.
- Acid/base accounting and kinetic testing of detoxified tailings including trace element background data collection for environmental base line studies.
- Solids liquid separation testing for thickener sizing and reagent usage.
- Multi-element ICP analysis with a focus on typical deleterious elements.

1.20.3 Mineral Resource Estimation

Based on the results of the 2023 MRE, the QPs make the recommendations outlined in the following subsections.

1.20.3.1 Colomac Centre Area

- Carry out additional exploration drilling using a regularly-spaced drill grid to satisfy inferred mineral resource category criteria. The exploration drilling should target the dip extension of the mineralized shoots identified in the litho-structural models and in the resource block models to test the potential of the deposits, mainly in the depth extension but also in the lateral extensions.

1.20.3.2 Damoti Area

- Carry out additional exploration drilling along the continuity of the BIF to discover additional favourable areas for gold mineralization and additional resources. The authors suggest targeting the still-open northern part of the central fold, the underexplored eastern limb of the western third fold, and more generally, areas of the BIF with a low magnetic response, because good correspondence between low magnetism, alteration, and gold values has been observed in the Damoti BIF.
- Carry out metallurgical testwork to yield a better assessment of the recovery rate and milling cost assumptions in the cut-off grade calculation for a future MRE update. A survey program for historical drill hole collars and access to the ramp to confirm the exact location of the drill holes should be completed. This would allow some of the inferred mineral resources to be converted to the indicated category.

1.20.3.3 Kim & Cass Area

- Carry out additional exploration drilling using a regularly-spaced drill grid to satisfy inferred mineral resource category criteria. The exploration drilling should target the dip extension of the mineralized shoots identified in the litho- structural model and in the resource block model to test the potential of the deposits, mainly in the depth extension but also in the lateral extensions.

- Complete metallurgical testwork to yield a better assessment of the recovery rate and milling cost assumptions in the cut-off grade calculation for a future MRE update.

- A survey program for historical drill-hole collars to confirm the exact location of the drill holes should be completed. This would allow some of the inferred mineral resources to be converted to the indicated category.

- An advance litho-structural study to increase the confidence in the geological models is in progress and should be completed.

1.20.3.4 Treasure Island Area

- Carry out additional exploration drilling using a regularly-spaced drill grid to satisfy inferred mineral resource category criteria. The exploration drilling should target the dip extension of the mineralized shoots identified in the litho-structural model and in the resource block model to test the potential of the deposit, mainly in the depth extension but also in the lateral extensions.

- Complete a metallurgical testwork to yield a better assessment of the recovery rate and milling cost assumptions in the cut-off grade calculation for a future MRE update.

- A survey program for historical drill-hole collars to confirm the exact location of the drill holes should be carried out. This would allow some of the inferred mineral resources to be converted to the indicated category.

1.20.3.5 Regional Exploration

- Carry out regional exploration drilling on the more prominent satellite targets, including Albatross, Nice Lake and Leta Arm Group. Conditional upon successful drilling, it could yield to a mineral resource estimate.

- Continue regional exploration work, including drilling, on a number of regional prospects while maintaining a similar scale of activity on many of the high-profile targets with the goal of advancing known deposits and showings and making new discoveries. Particular attention should be paid to near-surface mineralization proximal to the Colomac deposit.

- In addition to the work above, the authors recommend increasing the number of bulk density measurements at all deposits and to perform a PEA-level economic study. An environmental baseline study should be part of the planning process.

The authors also recommend continuing to maintain a pro-active and transparent strategy and communication plan with local communities and First Nations. The authors have prepared a cost estimate for the recommended work program to serve as a guideline.

1.20.4 Mining

The following recommendations are made with regard to advancing the mine engineering of the Colomac Gold Project to the next project phase:

- geotechnical analysis of planned open pits and underground development, as follows:
  - targeted geotechnical drilling for each deposit's planned open pit walls, and within underground ramp/stope host rock.
  - laboratory testing for intact rock strength (unconfined compressive strength tests, point load tests, and indirect tensile strength tests) and for discontinuity strength (direct shear tests)
  - crown pillar analysis for underground mining below planned open pits
  - underground analysis of geotechnical information to determine appropriate spans that can be opened
  - hydrogeology and hydraulic conductivity testing to refine pit and underground water inflow estimates.
- condemnation drilling of the footprints identified for the waste rock storage facilities, as well as site infrastructure
- topographic surveys of all planned roads to satellite deposits
- portal siting studies for the Colomac and Treasure Island surface portals
- further analysis of underground mining method to be used
- analysis of backfill material (paste fill versus unconsolidated waste rock versus cemented rock fill)
- detailed stope planning should be carried out to estimate production rate of underground mining
- drill penetration and blast fragmentation studies for mineralized material and waste rock in all deposits
- updates to designs of open pits, waste storage piles, stockpiles, mine haul roads, underground stopes and underground development, incorporating results from all other recommended work programs
- mine operational and cost trade-off studies examining contractor vs. owner managed operations, lease vs. purchase of mine mobile equipment fleet, cost comparisons of various mobile fleet equipment class sizes.

1.20.5 Recovery Methods

Additional studies to determine the optimal process flowsheet for the project should be conducted once suitable metallurgical testing is completed. These studies should include engineering trade-off studies to confirm the following:

- optimal grind size and comminution circuit selection
- optimal slurry thickening strategy, if any
- leaching configuration (carbon in leach/carbon in pulp/carousel)

- pre-aeration requirements and optimal leaching reagent dosing strategy
- optimal reagent supply strategy
- cyanide detoxification process/method
- review of plant layout and site infrastructure to incorporate any recommendations generated by the work described above.

1.20.6 Project Infrastructure

1.20.6.1 Tailings Management Facility – Site Geotechnical Field and Laboratory Program

The site is located in an area of extensive discontinuous and degradation of permafrost, which affects the design of all mining infrastructure not in terms of stability and deformation of earth masses, but also control of surface/subsurface/processing water and its interaction with existing and future thermal regime of the degrading permafrost as it may affect both short-term and long-term performance of these facilities. The existing database contains only data from the drilling program completed in 2006 and needs to be updated.

A comprehensive geotechnical site investigation program should be performed in the next phase of the project. The program should include a site field geotechnical investigation and laboratory testing program that includes the following facilities:

- tailings management facility
- waste rock storage facility
- primary crusher
- process plant
- mine infrastructure
- mine roads.

The main purposes of the recommended field investigation and laboratory program since historical geotechnical information is not available is as follows:

- provide detailed characterizations of the sites of waste rock storage facility, primary crusher, process plant and supporting infrastructure
- establish detailed foundation and groundwater conditions underneath the existing TMF and the proposed TMF that would bring it in line with current CDA guidelines and Canadian industry standards for tailing dam facilities
- establish the presence of permafrost and depth to permafrost for mine infrastructure (if present).

For the TMF, the site investigation includes total of 18 boreholes to a depth of 40 m or 10 m into bedrock and 15 test pits to a depth of 4 m or refusal. The boreholes should be drilled within the footprint of the impoundment, proposed embankments, and any potential faults (if present).

For the waste rock storage areas, the site investigation should include six boreholes to a depth of 40 m or 10 m into bedrock and 15 test pits to a depth of 4 m or refusal. For the process plant and primary crusher, the investigation should include four boreholes to a depth of 30 m or 10 m into bedrock and eight test pits to a depth of 4 m or refusal. An additional 15 test pits to a depth of 4 m or refusal should be performed for other site infrastructure.

Based on the above, the site investigation program for mine Infrastructure would include 28 boreholes and 55 test pits. The boreholes should be drilled using a geotechnical rig capable of performing standard penetration tests (SPT), packer testing (rock), and constant head test (soil), along with taking samples. The test pits should be performed using an excavator.

The field program should also include the installation of eight thermistors in selected boreholes and six vibrating wire piezometers in selected boreholes to measure pore water pressures. As part of the geotechnical program, a geophysical investigation would be performed to complement the borehole and test pit program. The program would consist of several geophysical lines for a total length of 1,500 m.

1.20.6.2 Tailings Storage and Waste Rock Storage Design

The design of the tailings storage area should include a conventional TMF and in-pit tailings storage. For the waste rock storage facility, Ausenco will provide the mine planner with the geotechnical design criteria. The following tasks will be performed:

- acquire LiDAR imagery for the site to improve topography for the project
- develop seepage predictions and seepage control measures for the TMF and WRSF
- perform stability analysis for TMF embankments and WRSF
- perform a liquefaction assessment with consideration of material properties for both the TMF embankments and WRSF foundations
- optimize the tailings deposition strategy
- provide mine planner with WRSF slope design criteria based on waste rock properties and foundation conditions
- develop PFS level design of TMF and in-pit tailings disposal (including surface water management, tailings water balance, seepage and sediment ponds)
- solicit additional budgetary quotes for earthworks and geosynthetics (i.e., geomembrane, geotextile, and piping) to get more accurate pricing for the next cost estimates
- develop cost estimates (i.e., capital, sustaining capital, and operating costs) for TMF and In-pit tailings storage

1.20.6.3 Energy Generation

More detailed data is required for the further development of renewable energy sources and should be included in future project phases. These include:

- determine hourly electrical demand, which will provide greater insight into the opportunities of renewable energy generation

- complete a detailed wind resource study based on a bankable energy yield assessment, which requires a minimum of 12 months of wind measurement data.
- investigate the opportunity of developing a hybrid solution, which includes flexible generation and/or storage to greatly increase the maximum proportion of demand met without the need to oversize the renewable
- complete a cost/benefit optimization exercise to determine the most cost-effective project scenario, considering the addition of renewables as an iterative process, scaling up over a period of time to lessen diesel consumption
- complete a detailed constraints analysis, consulting with the relevant authorities and stakeholders, to ensure that siting of any renewable energy technology would not be restricted and that it will not interfere with future mining opportunities
- complete a site and high-level ground investigation study to ensure adequate ground conditions for renewable energy development.

1.20.7 Environmental, Permitting, Social and Community Recommendations

The recommendations in the following subsections are made regarding future studies and activities related to areas of environment, permitting and community engagement. These studies and activities will be necessary to support the project to the pre-feasibility stage and provide a strong basis for future environmental assessment preparation and permitting. The recommendations for baseline studies were derived partially from the 2022 WSP report entitled "Environmental Information Needs Assessment, Indin Lake Gold Project". The recommended studies, presented below, are sufficient to take the project through the next project stage, but not necessarily through the environmental assessment preparation and permitting. The recommended studies would provide a start to this work, but further scoping studies would be required. The estimated costs do not include transportation to/from the site, travel costs, site accommodation, and site helicopter and fixed-wing support (e.g., for aerial wildlife surveys).

1.20.7.1 Data Review

A comprehensive review of all pertinent data available from the CIRNAC database should be undertaken to identify useful data that can be used to support EIA and permitting applications. This would include identifying the horizontal and vertical extent of legacy contamination issues based on the desk top review. This information could then be used as a basis for planning and implementing an existing conditions environmental site assessment in the field.

1.20.7.2 Water Resources

The following activities are recommended:

- Development and implementation of the first year of a multiyear surface water and groundwater monitoring, sampling, and testing plan, focusing on areas that will be potentially affected by mine infrastructure based on current infrastructure plans (refer to Section 18). Surface water and sediment quality samples should be collected to establish reference areas, baseline conditions in the receiving environment, and source terms for a future water quality model.

- A series of monitoring wells should be installed in the active layer to better establish shallow groundwater levels and groundwater quality. Baseline groundwater data and hydraulic gradients can be collecting using vibrating wire piezometers beneath the permafrost and in possible talik zones.
- A professional grade meteorological station should be installed at the project site to monitor conditions, as opposed to relying on data from CIRNAC project or from Yellowknife.
- Dustfall monitoring stations and passive nitrogen dioxide monitoring and low-cost sensors should be used to establish baseline airborne dust and particulate levels.
- Surface and groundwater baseline and testing data will need to support the development of a future integrated predictive model and overall water balance model for the site.
- A permafrost characterization study should be carried out that involves installing thermistors into boreholes to identify the extent of permafrost and geothermal gradients associated with pits, underground workings, and proposed site infrastructure.
- Hydrogeological testing of monitoring wells should be carried out to support groundwater inflow estimates for pits and underground workings.
- A conceptual groundwater model should be developed.

1.20.7.3 Geochemistry

The geochemical testing results (from 2004) are currently available for the Colomac center area and do not include all current deposits/pits being considered for development. Further work to update the Colomac center deposits and for the satellite deposits are required. For proceeding to a PFS-level study, the general level of effort required to establish the ARD/ML risk, a Phase 1 program has been recommended. A more comprehensive characterization program will be developed in a Phase 2 of the program. These programs are to be executed in accordance to the Canadian Industry standard guidance for geochemical characterization described by MEND (2009). The Phase 1 part of the program to support the PFS to include the following:

- collection of 200 to 300 waste rock samples (from drill core) based on the site specific geological and structural models and the results of a gap analysis across all sites (sample intervals to be determined based on the results of a review of the geological mode)
- collection of 6 to 12 tailings samples (assuming variable compositions between deposits)
- collection of 6 to 12 mineralized rock samples
- collection of several overburden samples
- recommended range of analytical tests to include elemental analysis; acid base accounting; shake flask extraction (short-term leach); NAG pH; mineralogy; humidity cell testing (minimum 40 weeks)
- preliminary interpretation of results and assessment of requirement for special mine rock management practices and water treatment.

1.20.7.4 Aquatics and Fish and Fish Habitat

Additional fish and fish habitat sampling and assessments are recommended for the areas of proposed project disturbance. Crews will need to initially conduct further studies to identify fish-bearing waterbodies and watercourses and where there is potential for a direct loss of habitat or harmful alteration, disruption, or destruction.

1.20.7.5 Terrestrial and Wildlife Monitoring

Surveys will need to be completed related to the areas of vegetation/ecosystem and wildlife/wildlife habitat for the mine infrastructure presented in Section 18. The results of those surveys should be used to develop plans that will eliminate or mitigate environmental risk.

Wek'èezhìi Renewable Resources Board (WRRB) and other land users should be closely involved in developing and executing the wildlife baseline studies, especially as related to traditional and current use of the land for harvesting.

1.20.7.6 Socio-Economic, Cultural Baseline Studies and Community Engagement

The following activities are recommended for community engagement and the collection of socio-economic and cultural information:

- It is important that Nighthawk pursues cooperation, information sharing, and impact benefit agreements with impacted Indigenous nations and communities closest to the site.
- An archaeological overview or impact assessment should be completed on locations of proposed project infrastructure.
- Nighthawk should continue ongoing engagement activities as required in its current Engagement Management Plan.
- The practice of working closely with the Wek'èezhìi Renewable Resources Board (WRRB), the Tłı̨chǫ Government, and the local communities should continue regarding advertising and retaining Indigenous staff and Indigenous-owned businesses to support exploration activities, as well as Indigenous environmental monitors and technicians to help support drilling programs and environmental baseline programs.
- Available regional socioeconomic data and information should be reviewed. Nighthawk should work closely with Indigenous communities and organizations to develop data sharing agreements that will allow for an understanding of Indigenous land and resource use in the vicinity of the project site and seek out local Indigenous Knowledge relative to the site to support future regulatory processes.

2 INTRODUCTION

Nighthawk Gold Corp. (Nighthawk) commissioned Ausenco Engineering Canada Inc. (Ausenco) to compile a preliminary economic assessment (PEA) of the Colomac Gold Project., previously known as the "Indin Lake Project". The PEA was prepared in accordance with the Canadian disclosure requirements of National Instrument 43-101 (NI 43-101) and the requirements of Form 43-101 F1.

The responsibilities of the engineering consultants and firms who are providing qualified persons are as follows:

- Ausenco managed and coordinated the work related to the report. Ausenco developed the PEA-level design and cost estimate for the process plant, general site infrastructure, site water management infrastructure, tailings facility and environmental studies and permitting. Ausenco also compiled the overall cost estimate and completed the economic analysis.
- Moose Mountain Technical Services (MMTS) designed the open pit and underground mine production schedules, and mine capital and operating costs.
- InnovExplo Inc. (InnovExplo) completed the work related to property description, accessibility, local resources, geological setting, deposit type, exploration work, drilling, exploration works, sample preparation and analysis, data verification, and mineral resource estimate.

Readers are cautioned that the PEA is preliminary in nature. It 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 PEA will be realized.

The report supports disclosures by Nighthawk in a news release dated April 26, 2023, entitled, "Nighthawk Gold's Maiden PEA: C$1.2 billion NPV5% and 35% material IRR after taxes at US$1,600/oz gold".

2.1 Qualified Persons

The individuals presented in Table 2-1 serve as the qualified persons for this technical report as defined in National Instrument 43-101, Standards of Disclosure for Mineral Projects, and in compliance with Form 43-101F1.

The authors are not experts with respect to legal, socioeconomic, land title, or political issues, and are therefore not qualified to comment on issues related to the status of permitting, legal agreements, and royalties. Information related to these matters has been provided directly by Nighthawk and include, without limitation, validity of mineral tenure, status of environmental issues and other liabilities, and permitting progress to complete the environmental assessment work. These matters were not independently verified by the QPs but appear to be reasonable representations that are suitable for inclusion in Sections 4, 14, 20 and 22 of this report.

Table 2-1: Report Contributors

Qualified Person	Professional Designation	Position	Employer	Independent of Nighthawk	Report Section
Tommaso Roberto Raponi	P.Eng.	Principal Metallurgist	Ausenco Engineering Canada Inc.	Yes	1.1, 1.8, 1.11, 1.12.1, 1.14, 1.15, 1.16, 1.17, 1.18, 1.19, 1.20.2, 1.20.5, 1.20.6.3, 2.1, 2.3 to 2.6, 3.1, 3.2, 12.8, 13, 17, 18 (except 18.6, 18.7, and 18.9), 19, 21(except 21.2.2, 21.2.8.1, and 21.3.2), 22, 24, 25.2, 25.5 to 25.6.1, 25.8, 25.9, 25.10.2, 25.10.4, 25.10.7, 25.10.8, 26.2, 26.5.3, 26.6 and 27
Aleksandar Spasojevic	P.Eng.	Lead Engineer Geotechnics	Ausenco Engineering Canada Inc.	Yes	1.12.2, 1.20.6.1,1.20.6.2, 2.1, 2.2, 18.6, 18.7, 21.2.4, 25.6.2, 25.10.5, 26.5.1, 26.5.2, and 27
Jonathan Cooper	P.Eng.	Senior Water Resources Engineer	Ausenco Engineering Canada Inc.	Yes	2.1,18.9, 25.6.3, and 27
James Millard	P.Geo.	Director, Strategic Projects	Ausenco Engineering Canada Inc.	Yes	1.13, 1.20.7, 2.1, 3.3, 20, 25.7, 25.10.6, 26.7, and 27
Marc Schulte	P.Eng.	Principal, Mine Engineering	Moose Mountain Technical Services	Yes	1.10, 1.20.4, 2.1, 2.2, 15, 16, 21.2.2, 21.2.8.1, 21.3.2, 25.4, 25.10.3, and 26.4
Marina Iund	P.Geo.	Senior Resources Geologist	InnovExplo Inc.	Yes	1.2 to 1.6, 1.20.1, 2.1, 4 to 11. I am the co-author of Sections 1.7, 1.9, 1.20.3, 2.2, 2.3, 12 (except 12.8), 14 (except 14.14), 23, 25.1, 25.3, 25.10.1, 26.1, and 26.3
Simon Boudreau	P.Eng.	Senior Mine Engineer	InnovExplo Inc.	Yes	Section 14.14 and co-author of Sections 1.9 and 2.2
Carl Pelletier	P.Geo.	Co-President and Founder	InnovExplo Inc.	Yes	1.7, 1.9, 1.20.3, 2.1 to 2.3, 12 (except 12.8), 14 (except 14.14), 23, 25.1, 25.3, 25.10.1, 26.1 and 26.3

2.2 Site Visits and Scope of Personal Inspection

Carl Pelletier visited the property on one occasion, from September 11 to 14, 2018 and he reviewed selected drill core, inspected the core storage facility, and visited outcrops and open pits. He also collected drill core samples and surveyed drill hole collars for independent validation.

Marina Iund visited the property on one occasion, from September 20 to 22, 2022. During the visit, she reviewed selected drill core, inspected the core storage facility, and visited outcrops and open pits. She also collected drill core samples and surveyed drill hole collars for independent validation.

Marc Schulte visited the property on one occasion, from March 20-21, 2023. During the visit he reviewed selected drill core, inspected the historic Colomac Main open pits and waste rock storage facilities, walked the Cass and Damoti deposit areas, and carried out a helicopter flyover of all eight deposit areas, examining the locations for all potential open pits, waste rock storage piles, and haul roads. Ice roads, connecting Yellowknife to site, were also flown over and examined.

The tailings QP, Aleksandar Spasojevic made a two-day visit to the site. The visit took place on March 20- 21, 2023. During the visit, Mr. Spasojevic carried out a helicopter tour over the Colomac Main pits, satellite sites, and existing tailings management facility. He reviewed the topography of the potential tailings management facility site locations on either side of Steeves Lake, and identified the locations of local ponds and streams. He also reviewed the signs of potential acid drainage from the existing waste rock dumps around the Colomac pits.

The other QPs did not visit the project site.

2.3 Effective Dates

This technical report has a number of significant dates as follows:

- Colomac Gold Project mineral resource estimate: February 9, 2023
- Financial Analysis: April 26, 2023

The effective date of this technical report is April 26, 2023.

2.4 Information Sources & References

This technical report is based on internal company reports, maps, published government reports, and public information as listed in Section 27. Additionally, it is based on information cited in Section 3.

2.5 Previous Technical Reports

The Colomac Gold Project has been the subject of previous technical reports, as follows:

- NI 43101 Technical Report and Update of the Mineral Resource Estimate for the Indin Lake Gold Property, Northwest Territories, Canada, InnovExplo, Effective Date: February 9, 2023.
- NI 43-101 Technical Report and Update of the Mineral Resource Estimate for the Indin Lake Gold Property, Northwest Territories, Canada, InnovExplo, Effective Date: March 8, 2022.
- NI 43-101 Technical Report and up-date of the Mineral Resource Estimate for the Indin Lake Gold Property, Northwest Territories, Canada, InnovExplo, Effective Date: February 26, 2021.
- NI 43-101 Technical Report on the Indin Lake Property - Colomac Project Indin Lake Belt, Northwest Territories, Canada, CSA Global Canada Geosciences Ltd. Effective Date: June 13, 2018.
- NI 43-101 Technical Report and Mineral Resource Estimate Update on the Colomac Property of the Indin Lake Project Indin Lake Belt, Northwest Territories, Canada, A.C.A Howe International Ltd. Effective Date: June 17, 2013.
- NI 43-101 Technical Report and Mineral resource Estimate on the Colomac Property of the Indin Lake Project, Indin Lake Belt Northwest Territories, Canada. A.C.A Howe International Ltd, Effective Date: February 21, 2012.

2.6 Currency, Units, Abbreviations and Definitions

All units of measurement in this report are metric and all currencies are expressed in Canadian dollars (symbol: C$ or currency: CAD) unless otherwise stated. Contained gold metal is expressed as troy ounces (oz), where 1 oz = 31.1035 g. All material tonnes are expressed as dry tonnes (t) unless stated otherwise. A list of abbreviations and acronyms is provided in Table 2-2, and units of measurement are listed in Table 2-3.

Table 2-2: Abbreviations and Acronyms

Abbreviation	Description
AA	Atomic absorption spectroscopy
AANDC	Aboriginal Affairs and Northern Development Canada
Au	Gold
Az	Azimuth
BIF	Banded iron formation
BWi	Bond ball mill work index
CAD:USD	Canadian-American exchange rate
CIM	Canadian Institute of Mining, Metallurgy and Petroleum
CIM Definition Standards	CIM Definition Standards for Mineral Resources and Mineral Reserves 2014
CIP	Carbon in pulp
CIRNAC	Crown Indigenous Relations and Northern Affairs Canada
CoG	Cut-off grade
CRM	Certified reference material

Abbreviation	Description
CWi	Bond crusher work index
DCIP	Direct current resistivity and induced polarization
DDH	Diamond drill hole
DIAND	Department of Aboriginal Affairs and Northern Development
E-GRG	Extended gravity recoverable gold
EM	Electromagnetic
FA	Fire assay
FET	Federal Excise Tax
FS	Feasibility study
G&A	General and administration
GNWT	Government of Northwest Territories
GPR	Gross production royalty
GQCV	Greenstone-hosted quartz-carbonate vein deposits
GRAV	Gravimetric finish method
ICP	Inductively coupled plasma
ICP-OES	Inductively coupled plasma - optical emission spectrometry
ID2	Inverse distance squared
ID3	Inverse distance cubed
IEC	International Electrotechnical Commission
INAC	Indigenous and Northern Affairs Canada
IOCG	Iron oxide copper gold
IP	Induced polarization
IRGS	Intrusion-related gold system
ISO	International Organization for Standardization
JV	Joint venture
LIDAR	Light detection and ranging
LUP	Land Use Permit
MCF	Mechanized cut and fill
MRE	Mineral resource estimate
MS-FA	Metallic screen analysis
NAD 83	North American Datum of 1983
NAPEG	Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists
NI 43-101	National Instrument 43-101 (Regulation 43-101 in Quebec)
NN	Nearest neighbour
NORMIN	Northern Mineral Showings
NSMA	North Slave Métis Alliance
NSR	Net smelter return
NTGS	Northwest Territories Geological Survey
NTS	National Topographic System
NWT	Northwest Territories
OGQ	Ordre des Géologues du Quebec
OK	Ordinary kriging
PEA	Preliminary economic assessment

Abbreviation	Description
PFS	Prefeasibility study
PFT	Provincial Fuel Tax
PGE	Platinum group elements
PGO	Professional Geoscientists Ontario
QA	Quality assurance
QA/QC	Quality assurance/quality control
QC	Quality control
QP	Qualified person (as defined in National Instrument 43-101)
Regulation 43-101	National Instrument 43-101
ROM	Run of mine
RQD	Rock quality designation
SAG	Semi-autogenous grinding
SCC	Standards Council of Canada
SD	Standard deviation
S_d-BWI	Micro hardness or bond ball mill work index on SAG ground material
SEDEX	Sedimentary exhalative deposits
SG	Specific gravity
SMC	Steve Morell comminution test
TASR	Tłı̨chǫ all-season road
TG	Tłı̨chǫ Government
TMF	Tailings management facility
UG	Underground
UTM	Universal Transverse Mercator coordinate system
UV	Ultraviolet
VLF-EM	Very low frequency electromagnetic
VMS	Volcanogenic massive sulphide
WLWB	Wek'èezhìi Land and Water Board
WRRB	Wek'èezhìi Renewable Resources Board
W_{SDT}	Macro Hardness or SAG grindability
XRF	X-ray fluorescence

Table 2-3: Units of Measurement

Abbreviation	Description
%	Percent
% solids	Percent solids by weight
CAD	Canadian dollar as currency
C$	Canadian dollar as symbol
$/t	Dollars per metric ton
°	Angular degree
°C	Degree Celsius
µm	Micron (micrometre)
avdp	Avoirdupois
cm	Centimetre
cm^3	Cubic centimetre
ft	Foot (12 inches)
g	Gram
g/cm^3	Gram per cubic centimetre
g/L	Gram per litre
g/t	Gram per metric ton (tonne)
h	Hour (60 minutes)
ha	Hectare
kg	Kilogram
kg/t	Kilogram per tonne
km	Kilometre
km^2	Square kilometre
kW	Kilowatt
kWh/t	Kilowatt-hour per tonne
L	Litre
lb	Pound
m, m^2, m^3	Metre, square metre, cubic metre
M	Million
Ma	Million years (annum)
masl	Metres above mean sea level
mm	Millimetre
Moz	Million (troy) ounces
Mt	Million tonnes
MW	Megawatt
oz	Troy ounce
oz/t	Ounce (troy) per tonne
oz/ton	Ounce (troy) per short ton (2,000 lbs)
ppb	Parts per billion
ppm	Parts per million
t	Metric tonne (1,000 kg)
ton	Short ton (2,000 lbs)
t/d	Tonnes per day
USD	US dollars as currency
US$	US dollar as symbol

3 RELIANCE ON OTHER EXPERTS

The authors have reviewed, within the scope of their technical expertise, all the available information presented to them by others; however, they cannot guarantee its accuracy and completeness. The authors reserve the right, but will not be obligated to, revise the technical report and its conclusions if additional information becomes known to them subsequent to the effective date of this report.

3.1 Taxes

The QPs have relied upon the following for tax advice and tax calculations:

- As instructed in the April 24, 2023 meeting with Nighthawk Chief Financial Officer, Salvatore Curcio, and confirmed on April 24, 2023 in an e-mail from Mr. Curcio, "RE: Indin Lake PEA – Update" on Monday, April 24, 2023 at 6:43 pm.
- Nighthawk Gold Corp. retained Kirsch Chartered Professional Accountants, who are independent of the Company, to assist in the tax rate assessment and the review of the taxation calculations with respect to the economic model.

This information was relied upon in Sections 1, 22, 25 and 26.

3.2 Fuel

The authors have relied upon the following for fuel costs:

- A fuel supply contractor quotation received from the Nighthawk Chief Financial Officer, Salvatore Curcio, "Fuel Price Analysis.xlsx" on Tuesday, April 25, 2023.

This information was relied upon in Sections 1, 16, 17, 18, 21, 22, 25 and 26.

3.3 Environmental, Permitting and Closure Planning

The QPs have fully relied upon, and disclaim responsibility for, information supplied by Nighthawk and experts retained by Nighthawk for information related to environment, permitting, closure planning and related cost estimation, and social and community impacts as follows:

- WSP, 2022. Environmental Information Needs Assessment. Indin Lake Gold Project, July 2022.
- Golder, 2015. Geochemical Characterization of Waste Rock – Damoti Lake Site. Report Number 13-1328-0012, February 2015.
- Golder, 2019. Indin Lake Gold Project Archaeological Overview Assessment. April 2019.

- WSP Golder, 2022. Indin Lake Gold Project 2022 Archaeological Overview Assessment – Kim and Cass Zone, November 2022.
- Golder, 2021. Drainage Assessment to Support the Damoti Lake Type A Water Licence Application. October 2021.
- Nighthawk – Federal Licence – Recommendation to the Minister and RFD – Nov 30_22.pdf (mvlwb.ca).

In addition, the QPs have also relied upon reports provided by CIRNAC that documented environmental conditions during and after closure activities related to the former Colomac mine. The key reports relied on are publicly available and are listed below:

- INAC (Indian and Northern Affairs Canada), 2004. Colomac Site Remediation Plan Final Report, March 2004.
- SLR, 2022. Colomac Mine Remediation Project Phase II Long Term Monitoring Plan. Revised Final Report, June 2022.
- SLR, 2022. Colomac Mine Remediation Project 10 Year Long Term Monitoring Performance Assessment Report. Issued to Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) Contaminants and Remediation Division (CARD), March 2022.
- SRK Consulting, 2004. Colomac Site Geochemical Characterization. Report prepared for Indian and Northern Affairs Canada, NWT Region and Public Works and Government Services Canada, Western Region.
- Golder, 2015. Geochemical Characterization of Waste Rock – Damoti Lake Site. Report Number 13-1328-0012, February 2015.

This information is used in Section 20 of the report. The information is also used to support the recommendations in Section 26.

4 PROPERTY DESCRIPTION AND LOCATION

4.1 Introduction

The property is in the Indin Lake area of the Northwest Territories (NWT), Canada, at latitude 64°24'N and longitude 115°06'W, approximately 220 km northwest of Yellowknife (see Figure 4-1). The UTM coordinates of the approximate center of the property are 592000 E, 7143000 N (NAD 83, Zone 11). The property lies on NTS map sheet 86B06. The Colomac Gold Project is located on the Indin Lake property.

A gravel landing strip approximately 1,500 m long on the property is capable of landing cargo aircraft. The property can also be accessed by helicopter, and ski- or float-equipped fixed-wing aircraft can land on Baton Lake or Steeves Lake. Access in the winter is afforded by a 245 km long winter road (Robb, 1997). This route provides seasonal access to the NWT/Alberta/British Colombia highway systems and the railhead at Hay River. Winter road access is only possible during a limited period that is dependent on weather conditions but usually extends from the end of January to the beginning of April. In addition, the Tłı̨chǫ all-season road is a permanent, 97 km long, two-lane gravel highway leading to the community of Whatì. The Tłı̨chǫ all-season road improves the access to the property from Yellowknife by reducing the amount of winter road access.

The property comprises 153 mining leases totalling 94,736 ha that form a continuous, north-trending strip approximately 60 km long by 6 km to 22 km wide. Nighthawk owns and controls 100% of the mineral rights to the property. Ten mining leases are subject to various royalties. On the Damoti area, leases 3616, 4572, 4573, 4574 and 4663 are subject to a 1% net smelter return (NSR) royalty held by Selkirk in addition to an underlying 2% NSR royalty payable to Covello Bryan & Associates Ltd. On the Leta Arm area, lease 3328 is subject to an underlying 1.5% NSR royalty held by Adamus Resources Limited and an underlying 0.5% NSR royalty held by Durga Resources Ltd. The four Kim and Cass leases are subject to a 2.5% NSR royalty held by Geomark Exploration Ltd.

The authors are not aware of any known environmental, permitting, legal, title-related, taxation, socio-political, marketing issues or any other relevant issue not reported in the technical report that could materially affect the mineral resource estimate.

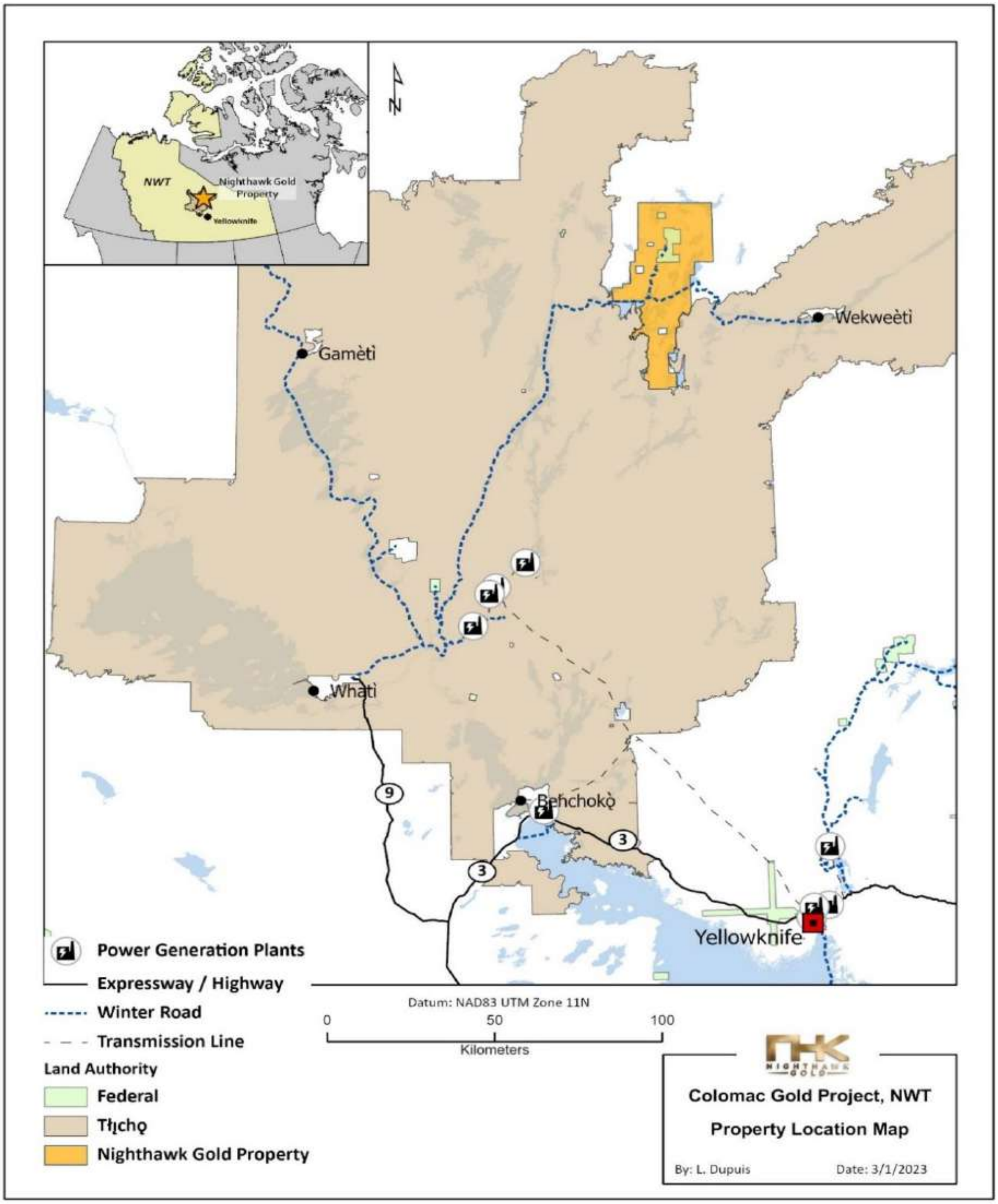
4.2 Mineral Title and Status

Nighthawk supplied maps and tables relating to the mineral titles constituting the property. The author verified the status of all mineral titles using Mineral Tenure Map Viewer, the NWT's internet-based electronic mineral titles management system (NWT Geoscience Office, 2012abcd). The property comprises 153 mining leases totalling 94,736 ha forming a continuous, north-trending strip approximately 60 km long by 6 to 22 km wide as seen in Figure 4-2. The author has validated that all leases are in good standing. Nighthawk owns and controls 100% of the mineral rights to the property. The property is subject to various royalties, agreements and encumbrances, as discussed below. The issuer was formerly Merc International Minerals Inc. In April 2012, the name was changed to Nighthawk Gold Corp. For simplicity, the company is referred to as the issuer or "Nighthawk" in this report, regardless of the timeframe.

Nighthawk is obligated to apply for lease renewals upon expiry. There are annual fees to remain in good standing in the amount of $237,389.71 to the Northwest Territories Government and $16,698.55 to the Canadian Federal Government.

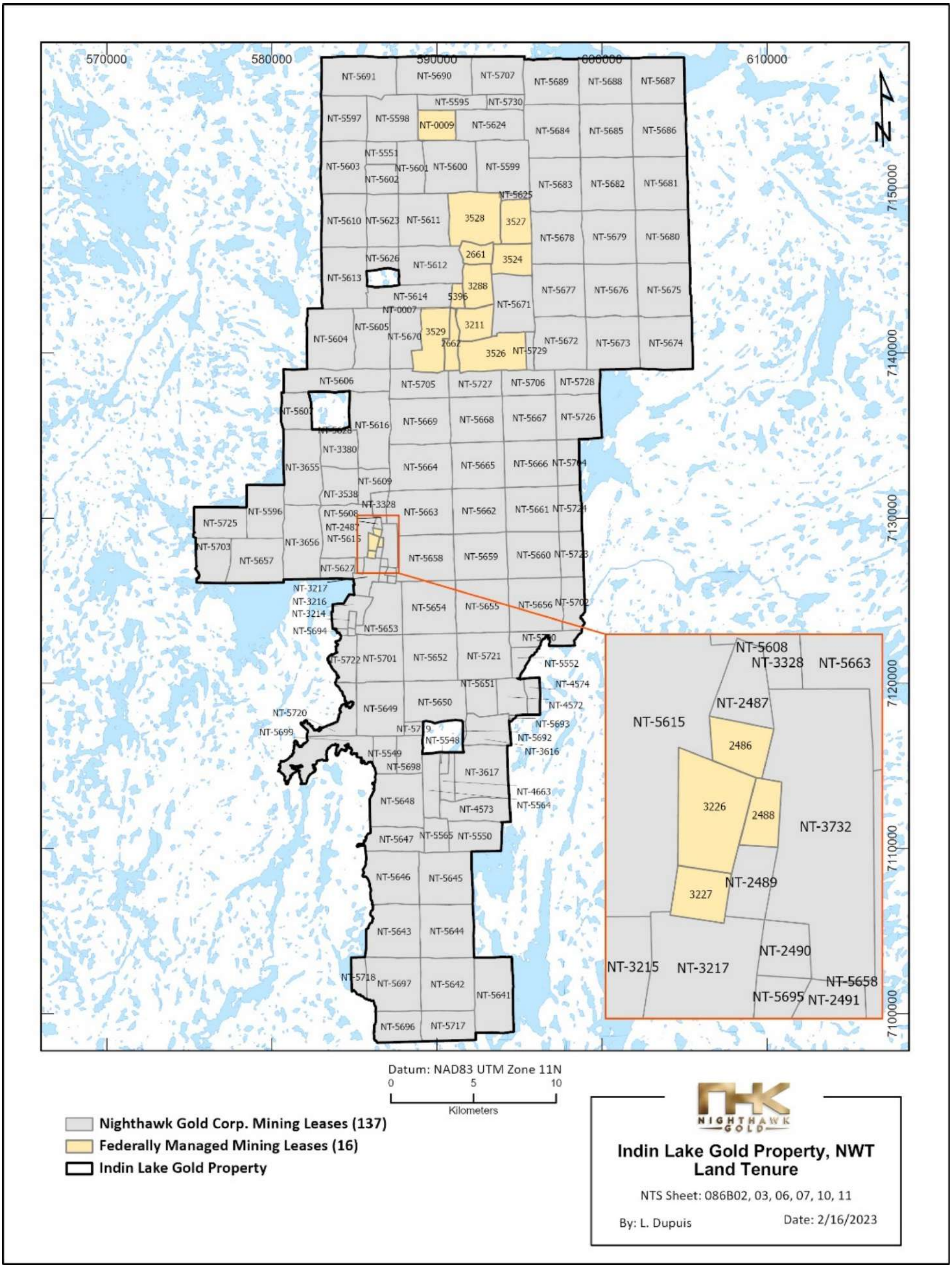
A summary of all the claims can be found in Table 4-1.

Figure 4-1: Indin Lake Property Location Map



Source: Nighthawk, 2023.

Figure 4-2: Map of Colomac Gold Project Mineral Tenure



Source: Nighthawk, 2023.

Table 4-1: Claims Summary

Lease No.	NTS	Type	Status	Registration Date	Expiration Date	Area (Ha)	Owners	Royalties, Options
TERRITORIAL LEASES								
NT-2487	086B06	Lease	Active	1971-10-19	2034-10-18	30.52	Nighthawk Gold Corp. (100%)	
NT-2489	086B06	Lease	Active	1971-10-19	2034-10-18	24.10	Nighthawk Gold Corp. (100%)	
NT-2490	086B06	Lease	Active	1971-10-19	2034-10-18	22.61	Nighthawk Gold Corp. (100%)	
NT-2491	086B06	Lease	Active	2003-10-19	2034-10-18	31.00	Nighthawk Gold Corp. (100%)	
NT-2492	086B06	Lease	Active	1971-10-19	2034-10-18	22.65	Nighthawk Gold Corp. (100%)	
NT-3214	086B03	Lease	Active	1985-04-19	2027-04-18	47.40	Nighthawk Gold Corp. (100%)	
NT-3215	086B06	Lease	Active	2007-01-30	2028-01-29	50.10	Nighthawk Gold Corp. (100%)	
NT-3216	086B03	Lease	Active	1986-01-30	2028-01-29	340.00	Nighthawk Gold Corp. (100%)	
NT-3217	086B06	Lease	Active	1985-04-19	2027-04-18	259.00	Nighthawk Gold Corp. (100%)	
NT-3328	086B06	Lease	Active	1988-01-12	2030-01-11	153.30	Nighthawk Gold Corp. (100%)	1.5 % NSR to Adamus Resources Ltd. & 0.5% NSR to Durga Resources Ltd.
NT-3380	086B06	Lease	Active	1991-02-27	2033-02-26	508	Nighthawk Gold Corp. (100%)	2.5% NSR to Geomark Exploration Ltd.
NT-3538	086B06	Lease	Active	1994-04-11	2036-04-10	501	Nighthawk Gold Corp. (100%)	2.5% NSR to Geomark Exploration Ltd.
NT-3616	086B03	Lease	Active	1997-07-11	2039-07-10	490.00	Nighthawk Gold Corp. (100%)	1% NSR to Selkirk Metals Corp. & 2% NSR to Covello Bryan and Associates Ltd.
NT-3617	086B03	Lease	Active	1997-07-01	2039-07-10	1024.00	Nighthawk Gold Corp. (100%)	
NT-3655	086B06	Lease	Active	1994-10-12	2036-10-11	1042	Nighthawk Gold Corp. (100%)	2.5% NSR to Geomark Exploration Ltd.
NT-3656	086B06	Lease	Active	1994-10-12	2036-10-11	1020	Nighthawk Gold Corp. (100%)	2.5% NSR to Geomark Exploration Ltd.
NT-3732	086B06	Lease	Active	1998-07-10	2040-07-09	224.00	Nighthawk Gold Corp. (100%)	
NT-4572	086B03	Lease	Active	2003-05-21	2024-05-20	385.00	Nighthawk Gold Corp. (100%)	1% NSR to Selkirk Metals Corp. & 2% NSR to Covello Bryan and Associates Ltd.
NT-4573	086B03	Lease	Active	2003-05-21	2024-05-20	568.00	Nighthawk Gold Corp. (100%)	1% NSR to Selkirk Metals Corp. & 2% NSR to Covello Bryan and Associates Ltd.
NT-4574	086B03	Lease	Active	2003-05-21	2024-05-20	189.00	Nighthawk Gold Corp. (100%)	1% NSR to Selkirk Metals Corp. & 2% NSR to Covello Bryan and Associates Ltd.
NT-4663	086B03	Lease	Active	2003-05-21	2024-05-20	193.00	Nighthawk Gold Corp. (100%)	1% NSR to Selkirk Metals Corp. & 2% NSR to Covello Bryan and Associates Ltd.
NT-5548	086B03	Lease	Active	2019-05-05	2040-05-04	69.10	Nighthawk Gold Corp. (100%)	
NT-5549	086B03	Lease	Active	2019-04-30	2040-04-29	320.00	Nighthawk Gold Corp. (100%)	
NT-5550	086B03	Lease	Active	2019-05-05	2040-05-04	590.00	Nighthawk Gold Corp. (100%)	
NT-5551	086B06	Lease	Active	2019-04-30	2040-04-29	254.00	Nighthawk Gold Corp. (100%)	
NT-5552	086B03	Lease	Active	2019-05-05	2040-05-04	188.00	Nighthawk Gold Corp. (100%)	
NT-5564	086B03	Lease	Active	2019-05-05	2040-05-04	403.00	Nighthawk Gold Corp. (100%)	
NT-5565	086B03	Lease	Active	2019-05-05	2040-05-04	310.00	Nighthawk Gold Corp. (100%)	
NT-5595	086B06, 086B11	Lease	Active	2019-12-18	2040-12-17	382.00	Nighthawk Gold Corp. (100%)	
NT-5596	086B06	Lease	Active	2020-08-24	2040-08-23	725.00	Nighthawk Gold Corp. (100%)	
NT-5597	086B06, 086B11	Lease	Active	2019-12-18	2040-12-17	756.00	Nighthawk Gold Corp. (100%)	
NT-5598	086B06, 086B11	Lease	Active	2019-12-18	2040-12-17	854.00	Nighthawk Gold Corp. (100%)	
NT-5599	086B06	Lease	Active	2019-12-18	2040-12-17	1019.00	Nighthawk Gold Corp. (100%)	
NT-5600	086B06	Lease	Active	2019-12-18	2040-12-17	1001.00	Nighthawk Gold Corp. (100%)	
NT-5601	086B06	Lease	Active	2019-12-18	2040-12-17	518.00	Nighthawk Gold Corp. (100%)	
NT-5602	086B06	Lease	Active	2019-12-18	2040-12-17	346.00	Nighthawk Gold Corp. (100%)	
NT-5603	086B06	Lease	Active	2019-12-18	2040-12-17	874.00	Nighthawk Gold Corp. (100%)	
NT-5604	086B06	Lease	Active	2019-12-18	2040-12-17	1051.00	Nighthawk Gold Corp. (100%)	
NT-5605	086B06	Lease	Active	2019-12-18	2040-12-17	806.00	Nighthawk Gold Corp. (100%)	
NT-5606	086B06	Lease	Active	2019-12-18	2040-12-17	887.00	Nighthawk Gold Corp. (100%)	
NT-5607	086B06	Lease	Active	2019-12-18	2040-12-17	401.00	Nighthawk Gold Corp. (100%)	
NT-5608	086B06	Lease	Active	2020-04-21	2041-04-20	0.11	Nighthawk Gold Corp. (100%)	
NT-5609	086B06	Lease	Active	2019-12-18	2040-12-17	327.00	Nighthawk Gold Corp. (100%)	
NT-5610	086B06	Lease	Active	2019-12-18	2040-12-17	882.00	Nighthawk Gold Corp. (100%)	
NT-5611	086B06	Lease	Active	2019-12-18	2040-12-17	970.00	Nighthawk Gold Corp. (100%)	
NT-5612	086B06	Lease	Active	2019-12-18	2040-12-17	883.00	Nighthawk Gold Corp. (100%)	
NT-5613	086B06	Lease	Active	2019-12-18	2040-12-17	1014.00	Nighthawk Gold Corp. (100%)	
NT-5614	086B06	Lease	Active	2019-12-18	2040-12-17	700.00	Nighthawk Gold Corp. (100%)	
NT-5615	086B06	Lease	Active	2019-12-18	2040-12-17	968.00	Nighthawk Gold Corp. (100%)	
NT-5616	086B06	Lease	Active	2019-12-18	2040-12-17	1019.00	Nighthawk Gold Corp. (100%)	
NT-5623	086B06	Lease	Active	2019-12-18	2040-12-17	617.00	Nighthawk Gold Corp. (100%)	
NT-5624	086B06, 086B11	Lease	Active	2019-12-18	2040-12-17	775.00	Nighthawk Gold Corp. (100%)	
NT-5625	086B06	Lease	Active	2019-12-18	2040-12-17	64.80	Nighthawk Gold Corp. (100%)	
NT-5626	086B06	Lease	Active	2019-12-18	2040-12-17	265.00	Nighthawk Gold Corp. (100%)	
NT-5627	086B06	Lease	Active	2019-12-18	2040-12-17	260.00	Nighthawk Gold Corp. (100%)	
NT-5628	086B06	Lease	Active	2019-12-18	2040-12-17	21.00	Nighthawk Gold Corp. (100%)	
NT-5641	086B03	Lease	Active	2020-04-21	2041-04-20	1055.00	Nighthawk Gold Corp. (100%)	
NT-5642	086B03	Lease	Active	2020-04-21	2041-04-20	1041.00	Nighthawk Gold Corp. (100%)	
NT-5643	086B03	Lease	Active	2020-04-21	2041-04-20	1010.00	Nighthawk Gold Corp. (100%)	
NT-5644	086B03	Lease	Active	2020-04-21	2041-04-20	1053.00	Nighthawk Gold Corp. (100%)	

Lease No.	NTS	Type	Status	Registration Date	Expiration Date	Area (Ha)	Owners	Royalties, Options
NT-5645	086B03	Lease	Active	2020-04-21	2041-04-20	1023.00	Nighthawk Gold Corp. (100%)	
NT-5646	086B03	Lease	Active	2020-04-21	2041-04-20	997.00	Nighthawk Gold Corp. (100%)	
NT-5647	086B03	Lease	Active	2020-04-21	2041-04-20	517.00	Nighthawk Gold Corp. (100%)	
NT-5648	086B03	Lease	Active	2020-04-21	2041-04-20	1008.00	Nighthawk Gold Corp. (100%)	
NT-5649	086B03	Lease	Active	2020-04-21	2041-04-20	939.00	Nighthawk Gold Corp. (100%)	
NT-5650	086B03	Lease	Active	2020-04-21	2041-04-20	926.00	Nighthawk Gold Corp. (100%)	
NT-5651	086B03	Lease	Active	2020-04-21	2041-04-20	411.00	Nighthawk Gold Corp. (100%)	
NT-5652	086B03	Lease	Active	2020-04-21	2041-04-20	928.00	Nighthawk Gold Corp. (100%)	
NT-5653	086B03	Lease	Active	2020-04-21	2041-04-20	701.00	Nighthawk Gold Corp. (100%)	
NT-5654	086B03	Lease	Active	2020-04-21	2041-04-20	1042.00	Nighthawk Gold Corp. (100%)	
NT-5655	086B03	Lease	Active	2020-04-21	2041-04-20	1037.00	Nighthawk Gold Corp. (100%)	
NT-5656	086B02, 086B03	Lease	Active	2020-04-21	2041-04-20	1036.00	Nighthawk Gold Corp. (100%)	
NT-5657	086B06	Lease	Active	2020-04-21	2041-04-20	880.00	Nighthawk Gold Corp. (100%)	
NT-5658	086B06	Lease	Active	2020-04-21	2041-04-20	964.00	Nighthawk Gold Corp. (100%)	
NT-5659	086B06	Lease	Active	2020-04-21	2041-04-20	903.00	Nighthawk Gold Corp. (100%)	
NT-5660	086B06, 086B07	Lease	Active	2020-04-21	2041-04-20	895.00	Nighthawk Gold Corp. (100%)	
NT-5661	086B06, 086B07	Lease	Active	2020-04-21	2041-04-20	869.00	Nighthawk Gold Corp. (100%)	
NT-5662	086B06	Lease	Active	2020-04-21	2041-04-20	874.00	Nighthawk Gold Corp. (100%)	
NT-5663	086B06	Lease	Active	2020-04-21	2041-04-20	1043.00	Nighthawk Gold Corp. (100%)	
NT-5664	086B06	Lease	Active	2020-04-21	2041-04-20	1053.00	Nighthawk Gold Corp. (100%)	
NT-5665	086B06	Lease	Active	2020-04-21	2041-04-20	887.00	Nighthawk Gold Corp. (100%)	
NT-5666	086B06, 086B07	Lease	Active	2020-04-21	2041-04-20	895.00	Nighthawk Gold Corp. (100%)	
NT-5667	086B06, 086B07	Lease	Active	2020-04-21	2041-04-20	883.00	Nighthawk Gold Corp. (100%)	
NT-5668	086B06	Lease	Active	2020-04-21	2041-04-20	880.00	Nighthawk Gold Corp. (100%)	
NT-5669	086B06	Lease	Active	2020-04-21	2041-04-20	1005.00	Nighthawk Gold Corp. (100%)	
NT-5670	086B06	Lease	Active	2020-04-21	2041-04-20	627.00	Nighthawk Gold Corp. (100%)	
NT-5671	086B06	Lease	Active	2020-04-21	2041-04-20	860.00	Nighthawk Gold Corp. (100%)	
NT-5672	086B06, 086B07	Lease	Active	2020-04-21	2041-04-20	1028.00	Nighthawk Gold Corp. (100%)	
NT-5673	086B07	Lease	Active	2020-04-21	2041-04-20	1024.00	Nighthawk Gold Corp. (100%)	
NT-5674	086B07	Lease	Active	2020-04-21	2041-04-20	1028.00	Nighthawk Gold Corp. (100%)	
NT-5675	086B07	Lease	Active	2020-04-21	2041-04-20	1042.00	Nighthawk Gold Corp. (100%)	
NT-5676	086B07	Lease	Active	2020-04-21	2041-04-20	1019.00	Nighthawk Gold Corp. (100%)	
NT-5677	086B06, 086B07	Lease	Active	2020-04-21	2041-04-20	1001.00	Nighthawk Gold Corp. (100%)	
NT-5678	086B07	Lease	Active	2020-04-21	2041-04-20	985.00	Nighthawk Gold Corp. (100%)	
NT-5679	086B07	Lease	Active	2020-04-21	2041-04-20	1043.00	Nighthawk Gold Corp. (100%)	
NT-5680	086B07	Lease	Active	2020-04-21	2041-04-20	1038.00	Nighthawk Gold Corp. (100%)	
NT-5681	086B07	Lease	Active	2020-04-21	2041-04-20	1044.00	Nighthawk Gold Corp. (100%)	
NT-5682	086B07	Lease	Active	2020-04-21	2041-04-20	1039.00	Nighthawk Gold Corp. (100%)	
NT-5683	086B06, 086B07	Lease	Active	2020-04-21	2041-04-20	1009.00	Nighthawk Gold Corp. (100%)	
NT-5684	086B06, 086B11	Lease	Active	2020-04-21	2041-04-20	1060.00	Nighthawk Gold Corp. (100%)	
NT-5685	086B07, 086B10	Lease	Active	2020-04-21	2041-04-20	1030.00	Nighthawk Gold Corp. (100%)	
NT-5686	086B07, 086B10	Lease	Active	2020-04-21	2041-04-20	1036.00	Nighthawk Gold Corp. (100%)	
NT-5687	086B10	Lease	Active	2020-04-21	2041-04-20	894.00	Nighthawk Gold Corp. (100%)	
NT-5688	086B10	Lease	Active	2020-04-21	2041-04-20	887.00	Nighthawk Gold Corp. (100%)	
NT-5689	086B10, 086B11	Lease	Active	2020-04-21	2041-04-20	922.00	Nighthawk Gold Corp. (100%)	
NT-5690	086B11	Lease	Active	2020-04-21	2041-04-20	1052.00	Nighthawk Gold Corp. (100%)	
NT-5691	086B11	Lease	Active	2020-04-21	2041-04-20	1079.00	Nighthawk Gold Corp. (100%)	
NT-5692	086B03	Lease	Active	2020-10-08	2041-10-07	20.50	Nighthawk Gold Corp. (100%)	
NT-5693	086B03	Lease	Active	2020-10-08	2041-10-07	29.50	Nighthawk Gold Corp. (100%)	
NT-5694	086B03	Lease	Active	2020-10-08	2041-10-07	24.90	Nighthawk Gold Corp. (100%)	
NT-5695	086B06	Lease	Active	2020-10-08	2041-10-07	42.00	Nighthawk Gold Corp. (100%)	
NT-5696	086B03	Lease	Active	2020-04-21	2041-04-20	527.00	Nighthawk Gold Corp. (100%)	
NT-5697	086B03	Lease	Active	2020-04-21	2041-04-20	1034.00	Nighthawk Gold Corp. (100%)	
NT-5698	086B03	Lease	Active	2020-04-21	2041-04-20	361.00	Nighthawk Gold Corp. (100%)	
NT-5699	086B03	Lease	Active	2020-04-21	2041-04-20	771.00	Nighthawk Gold Corp. (100%)	
NT-5700	086B02, 086B03	Lease	Active	2020-04-21	2041-04-20	357.00	Nighthawk Gold Corp. (100%)	
NT-5701	086B03	Lease	Active	2020-04-21	2041-04-20	802.00	Nighthawk Gold Corp. (100%)	
NT-5702	086B02	Lease	Active	2020-04-21	2041-04-20	427.00	Nighthawk Gold Corp. (100%)	
NT-5703	086B06	Lease	Active	2020-04-21	2041-04-20	545.00	Nighthawk Gold Corp. (100%)	
NT-5704	086B07	Lease	Active	2020-04-21	2041-04-20	376.00	Nighthawk Gold Corp. (100%)	
NT-5705	086B06	Lease	Active	2020-04-21	2041-04-20	598.00	Nighthawk Gold Corp. (100%)	

Lease No.	NTS	Type	Status	Registration Date	Expiration Date	Area (Ha)	Owners	Royalties, Options
NT-5706	086B062, 086B07	Lease	Active	2020-04-21	2041-04-20	491.00	Nighthawk Gold Corp. (100%)	
NT-5707	086B11	Lease	Active	2020-04-21	2041-04-20	720.00	Nighthawk Gold Corp. (100%)	
NT-5717	086B03	Lease	Active	2020-04-21	2041-04-20	596.00	Nighthawk Gold Corp. (100%)	
NT-5718	086B03	Lease	Active	2020-04-21	2041-04-20	204.00	Nighthawk Gold Corp. (100%)	
NT-5719	086B03	Lease	Active	2020-04-21	2041-04-20	93.60	Nighthawk Gold Corp. (100%)	
NT-5720	086B03	Lease	Active	2020-04-21	2041-04-20	437.00	Nighthawk Gold Corp. (100%)	
NT-5721	086B03	Lease	Active	2020-04-21	2041-04-20	918.00	Nighthawk Gold Corp. (100%)	
NT-5722	086B03	Lease	Active	2020-04-21	2041-04-20	383.00	Nighthawk Gold Corp. (100%)	
NT-5723	086B07	Lease	Active	2020-04-21	2041-04-20	389.00	Nighthawk Gold Corp. (100%)	
NT-5724	086B07	Lease	Active	2020-04-21	2041-04-20	388.00	Nighthawk Gold Corp. (100%)	
NT-5725	086B06	Lease	Active	2020-04-21	2041-04-20	600.00	Nighthawk Gold Corp. (100%)	
NT-5726	086B07	Lease	Active	2020-04-21	2041-04-20	741.00	Nighthawk Gold Corp. (100%)	
NT-5727	086B06	Lease	Active	2020-04-21	2041-04-20	495.00	Nighthawk Gold Corp. (100%)	
NT-5728	086B07	Lease	Active	2020-04-21	2041-04-20	404.00	Nighthawk Gold Corp. (100%)	
NT-5729	086B06	Lease	Active	2020-04-21	2041-04-20	108.00	Nighthawk Gold Corp. (100%)	
NT-5730	086B11	Lease	Active	2020-04-21	2041-04-20	205.00	Nighthawk Gold Corp. (100%)	
FEDERAL LEASES								
NT-0007	086B06	Lease	Active	2015-05-13	2036-05-13	2.58	Nighthawk Gold Corp. (100%)	
NT-0009	086B06	Lease	Active	2018-04-29	2039-04-29	421.00	Nighthawk Gold Corp. (100%)	
NT-2486	086B06	Lease	Active	2013-10-19	2034-10-01	23.10	Nighthawk Gold Corp. (100%)	
NT-2488	086B06	Lease	Active	2013-10-19	2034-10-01	18.07	Nighthawk Gold Corp. (100%)	
NT-2661	086B06	Lease	Active	2016-02-28	2028-03-11	241.84	Nighthawk Gold Corp. (100%)	
NT-2662	086B06	Lease	Active	2016-02-28	2028-03-13	254.34	Nighthawk Gold Corp. (100%)	
NT-3211	086B06	Lease	Active	2010-03-06	2043-03-20	417.84	Nighthawk Gold Corp. (100%)	
NT-3226	086B06	Lease	Active	2009-11-04	2030-11-04	60.26	Nighthawk Gold Corp. (100%)	
NT-3227	086B06	Lease	Active	2009-11-04	2030-11-04	22.65	Nighthawk Gold Corp. (100%)	
NT-3288	086B06	Lease	Active	1989-02-08	2043-02-08	460.53	Nighthawk Gold Corp. (100%)	
NT-3524	086B06	Lease	Active	1994-12-01	2027-12-15	450.01	Nighthawk Gold Corp. (100%)	
NT-3526	086B06	Lease	Active	2015-12-01	2027-12-15	844.98	Nighthawk Gold Corp. (100%)	
NT-3527	086B06	Lease	Active	2015-12-01	2027-12-15	500.19	Nighthawk Gold Corp. (100%)	
NT-3528	086B06	Lease	Active	2015-12-01	2027-12-15	983.79	Nighthawk Gold Corp. (100%)	
NT-3529	086B06	Lease	Active	1994-12-01	2027-12-15	689.17	Nighthawk Gold Corp. (100%)	
NT-5396	086B06	Lease	Active	2013-05-14	2034-05-14	111.29	Nighthawk Gold Corp. (100%)	

4.2.1 Acquisition of the Colomac Gold Project

Much of the following information on acquisitions was summarized from the 2018 NI 43- 101 report by CSA Global Canada Geosciences Ltd (Trinder et al., 2018).

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC), in its former incarnations as Aboriginal Affairs and Northern Development Canada (AANDC), then the Department of Indian Affairs and Northern Development (DIAND) and lastly Indian and Northern Affairs Canada (INAC), became the owner of the mineral claims and leases of the former producing Colomac Gold Mine on January 12, 2000, following the receivership of Royal Oak Mines Inc. (Royal Oak) and its related companies. As per an Ontario Superior Court of Justice order dated December 13, 1999, all rights, titles and interests of Royal Oak and the Interim Receiver in and to the Colomac transferred assets were conveyed to DIAND (now CIRNAC) free and clear of any and all claims, estates, rights, titles and interests of all persons holding, or who were the beneficiaries of, encumbrances, mortgages, orders, charges, liens, security interests, pledges and writs of execution. Also, no person, firm, or corporation could be entitled to any royalty or other payment in the nature of rent or royalty on any minerals produced or removed from the Colomac transferred assets. (Trinder et al., 2018).

On January 26, 2012, Nighthawk acquired the Colomac Project from DIAND. At the time of the acquisition, the Colomac Project comprised nine leases and two mining claims. Table 4-2 presents the ownership history of the Colomac Project's current mining leases. Given the clear title provided when the Interim Receiver conveyed to DIAND all rights, titles, and interests of Royal Oak and the Interim Receiver in and to the Colomac Transferred Assets, the author considers it unnecessary to detail the extensive ownership history of the historical mining claims underlying the leases, which is described in Trinder (2013).

4.2.2 Acquisition of the Damoti Lake Project

In September 2008, Nighthawk purchased a 100% interest in Damoti Lake mining lease 3617 and an 80% interest in Damoti Lake mining leases 4574, 4572, 4663, 4573, 3616 from Anaconda Mining Inc. for $250,000 and 1,250,000 common shares of the issuer. At the time, Selkirk Metals Corp. (Selkirk), a wholly owned subsidiary of Imperial Metals Corporation, held the remaining 20% interest. (Trinder et al., 2018)

On May 28, 2012, Nighthawk's interest increased to 100%, and Selkirk's interest was diluted to a 1% NSR royalty on leases 4574, 4572, 4663, 4573 and 3616 when Selkirk elected not to contribute financially to the budgeted exploration program.

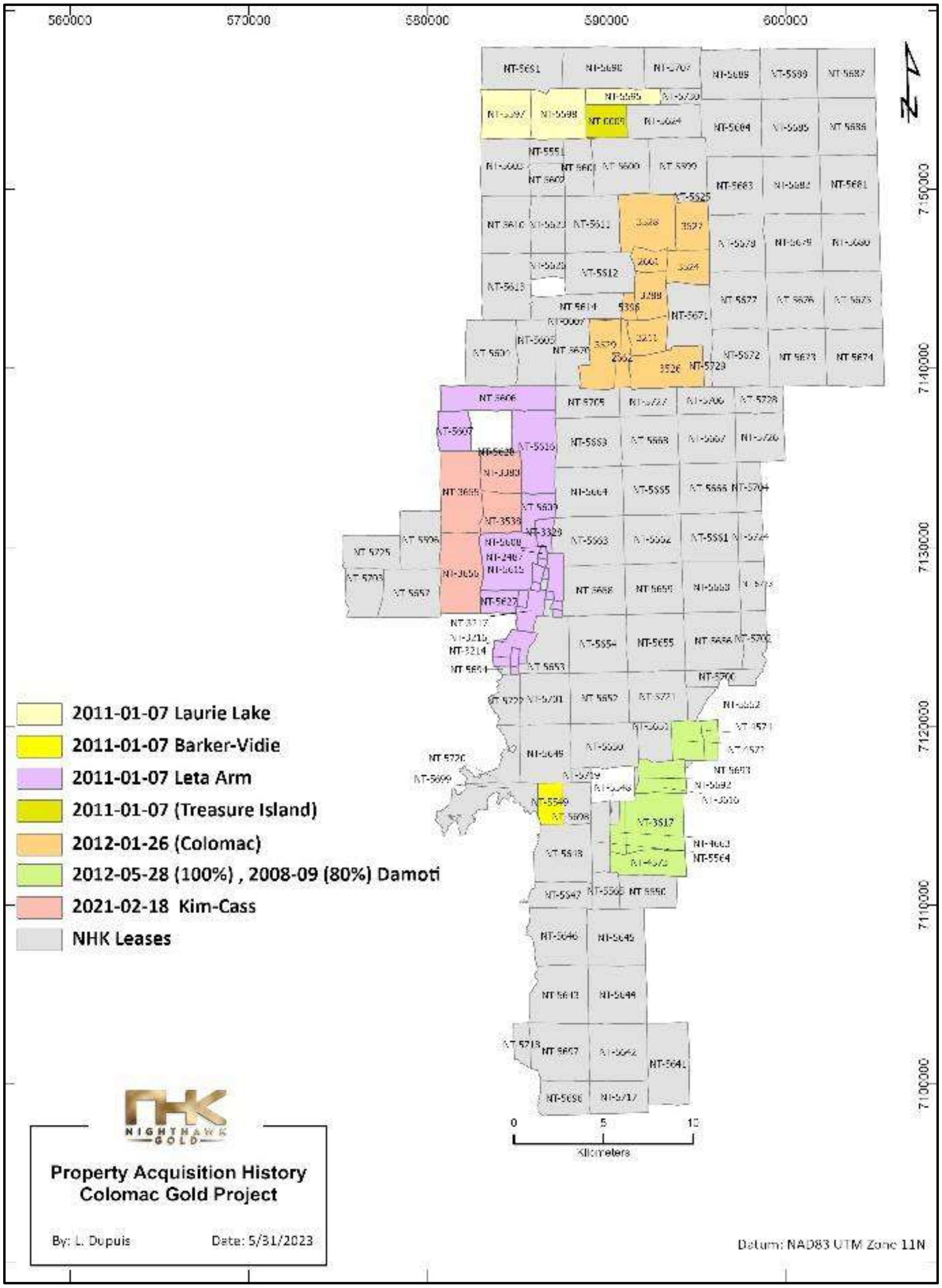
4.2.3 Acquisition of other Projects

Between 2009 and 2011, Nighthawk staked a 100% undivided interest in 115 claims. On January 7, 2011, Nighthawk optioned from Ursa Polaris Developments Corporation (Ursa) the Treasure Island, Laurie Lake and Barker-Vidie claims and the Leta Arm mining leases. The option payment schedule was amended on April 4, 2013. The acquisition comprises 15 leases across 1,328 ha and 3 staked claims across 962 ha for a total of 2,290 ha as seen in Figure 4-2. Under the 2011 option agreement with Ursa and subsequent 2013 amendment, Nighthawk earned a 100% undivided interest in the properties effective July 31, 2014 (other than the royalties detailed below) by completing the payments (Trinder et al., 2018). On December 18, 2013, Nighthawk announced an option/purchase agreement to acquire four mining leases (the Kim and Cass properties) from Geomark Exploration Ltd (Geomark). On December 29, 2015, Nighthawk announced that it was terminating the option/purchase agreement. On February 18, 2021, Nighthawk announced an option/purchase agreement to acquire four mining leases totalling 3,070 ha (the Kim and Cass properties) from Geomark. The ownership history of the project can be found in Table 4-2, and a map of the acquisition of all projects can be found in Figure 4-3.

Table 4-2: Ownership History of the Colomac Project

Lease No.	Issued	Expiry	Ownership Change	Ownership Transfer From	Ownership Transfer To
2661	1974-02-28	2028-03-13	2012-01-26 2000-01-12 1993-04-05 1989-05-04 1974-02-28	AANDC Royal Oak Mines Inc. Neptune Resources Corp. Johnsby Mines Limited -	Nighthawk Gold Corp. DIAND Royal Oak Mines Inc. Neptune Resources Corp. Johnsby Mines Limited
2662	1974-02-28	2028-03-13	2012-01-26 2000-01-12 1993-04-05 1989-05-04 1974-02-28	AANDC Royal Oak Mines Inc. Neptune Resources Corp. Johnsby Mines Limited -	Nighthawk Gold Corp. DIAND Royal Oak Mines Inc. Neptune Resources Corp. Johnsby Mines Limited
3211	1986-03-06	2043-03-20	2012-01-26 2000-01-12 1993-04-05 1989-05-04 1986-03-06	AANDC Royal Oak Mines Inc. Neptune Resources Corp. Johnsby Mines Limited -	Nighthawk Gold Corp. DIAND Royal Oak Mines Inc. Neptune Resources Corp. Johnsby Mines Limited
3288	1989-02-08	2043-02-22	2012-01-26 2000-01-12 1993-04-05 1989-05-04 1989-02-08	AANDC Royal Oak Mines Inc. Neptune Resources Corp. Johnsby Mines Limited -	Nighthawk Gold Corp. DIAND Royal Oak Mines Inc. Neptune Resources Corp. Johnsby Mines Limited
3524	1994-12-01	2027-12-15	2012-01-26 2000-01-12 1994-12-01	AANDC Royal Oak Mines Inc. -	Nighthawk Gold Corp. DIAND Royal Oak Mines Inc.
3526	1994-12-01	2027-12-15	2012-01-26 2000-01-12 1994-12-01	AANDC Royal Oak Mines Inc. -	Nighthawk Gold Corp. DIAND Royal Oak Mines Inc.
3527	1994-12-01	2027-12-15	2012-01-26 2000-01-12 1994-12-01	AANDC Royal Oak Mines Inc. -	Nighthawk Gold Corp. DIAND Royal Oak Mines Inc.
3528	1994-12-01	2027-12-15	2012-01-26 2000-01-12 1994-12-01	AANDC Royal Oak Mines Inc. -	Nighthawk Gold Corp. DIAND Royal Oak Mines Inc.
3529	1994-12-01	2027-12-15	2012-01-26 2000-01-12 1994-12-01	AANDC Royal Oak Mines Inc. -	Nighthawk Gold Corp. DIAND Royal Oak Mines Inc.
5396	2013-05-14 1991-02-07	2034-05-14 2013-02-07	 2012-01-26 2000-01-12 1991-02-07	- Previously claim NWG#1 AANDC Royal Oak Mines Inc. -	Nighthawk Gold Corp. Nighthawk Gold Corp. DIAND Royal Oak Mines Inc.
NT-007	2015-05-15 1994-05-13	2036-05-15 2015-05-13	 2012-01-26 2000-01-12 1994-05-13	- Previously claim RO12 AANDC Royal Oak Mines Inc. -	Nighthawk Gold Corp. Nighthawk Gold Corp. DIAND Royal Oak Mines Inc.

Figure 4-3: Acquisition Map of the Indin Lake Property



Source: Nighthawk, 2023.

As part of the terms of the option agreement, Nighthawk paid aggregate consideration of $1.1 million (which was satisfied through the issuance of an aggregate of 1,681,689 common shares in the capital of Nighthawk) and granted a 2.5% NSR royalty. In addition, Nighthawk at any time has the right to purchase up to 100% of the Geomark NSR for up to $2.5 million. Lease transfers from Geomark to Nighthawk have been initiated and is in progress at time of preparing this report.

4.3 Mineral Royalties

Ten mining leases are subject to various royalties, agreements and encumbrances for Damoti Lake (five leases), Kim and Cass (four leases) and Leta Arm (one lease). These areas were shown in Figure 4-2. The details can be found in the 2023 NI 43-101 Mineral Resource Estimate 2023 (Nighthawk, 2023) and are summarized in the following subsections.

4.3.1 Damoti Lake Area

In the Damoti Lake area, leases 3616, 4572, 4573, 4574 and 4663 are subject to the 1% NSR royalty held by Selkirk in addition to an underlying 2% NSR royalty payable to Covello Bryan & Associates Ltd.

4.3.2 Kim and Cass Area

Under an option agreement dated February 17, 2021, the four Kim and Cass leases are subject to a 2.5% NSR royalty held by Geomark. As part of the terms of the NSR agreement, Nighthawk at any time has the right to purchase up to 100% of the NSR for up to $2.5 million, thereby reducing the NSR to zero if the full 100% is purchased. The preliminary economic assessment has explicitly included the cost of the NSR repurchase of $2.5 million before commercial production is achieved in Year 1 of the cash flow model.

4.3.3 Leta Arm Area

In the Leta Arm area, lease 3328 is subject to the following:

- an underlying 1.5% NSR royalty held by Adamus Resources Limited, pursuant to an agreement with George Stephenson dated November 19, 2007.
- an underlying 0.5% NSR royalty held by Durga Resources Ltd, pursuant to an agreement with Leader Mining Corporation and Ursa dated December 30, 1993.

4.4 Permitting

Pursuant to the Mackenzie Valley Resource Management Act and Regulations, Nighthawk's permits are issued under the authority of the Wek'èezhìi Land and Water Board (WLWB) and are administered under both Federal and Territorial jurisdiction. In 2019, Nighthawk received land use permits and water licences approving its exploration activities over the next five years. The permits and licences expire in February 2024 but can be extended until February 2026. The permits cover all claims and mining leases within the property.

Nighthawk holds a Land Use Permit (LUP), W2018C0007 Class A, and Water Use Permits, W2018L2-0002 (Federal lands) Type B and W2018L2-0003 Type B (non-Federal lands). Nighthawk also holds LUP W2018X0006, which covers remediation of the Damoti Lake, Diversified, Chalco Lake, and Spider Lake sites.

Nighthawk also holds a valid GNWT Prospector's Licence (No. 33742) and a federal NWT-CIRNAC Prospector's Licence (No. NEF0012).

The WLWB approved a type A water licence, W2021L2-000 (Territorial) and W2021L0005 (Federal) with an effective date of January 13, 2023 and an expiration date of January 12, 2038. The permit allows access to a maximum water volume of 800 cubic meters per day (m^3/d).

4.5 Environment

The Colomac mine site was rehabilitated from 2005 to 2011 by DIAND (now CIRNAC). The work involved the tailings containment management area, the construction of tailings dams, the restoration of diversion ditches and sumps, quarry remediation, the construction of caribou berms, hydrocarbon remediation, the removal of mining and milling infrastructures, and the demolition of facilities and site clean-up with disposal in a non-hazardous landfill (pit 2.5). Remediation work was completed in 2011.

A long-term monitoring phase began in 2012 under CIRNAC's Northern Contaminated Sites Program that continued the program to address residual hydrocarbons in bedrock. Environmental monitoring includes evaluating water quality, water levels in lakes and pits, the geotechnical stability of dam 1B, the tailings cap, spillway and discharge channel, and the non-hazardous landfill. Monitoring will continue at the site until it can be determined that remediation activities have been effective and site conditions have reached a steady state.

In January 2012, Nighthawk acquired the Colomac Project from DIAND. In consideration for the conveyance of the Colomac claims and leases, Nighthawk committed to reclaim three disturbed historical exploration sites within Nighthawk's surrounding Indin Lake land package. Reclamation will be carried out on behalf of CIRNAC to a maximum of $5 million. At closing, Nighthawk posted a security of $5 million in favour of CIRNAC to secure Nighthawk's obligation to perform the required reclamation. Nighthawk will not assume the reclamation liabilities directly. The security will be returned to Nighthawk upon completing remediation activities to the satisfaction of an independent third-party engineer (Nighthawk press release, December 15, 2011). On March 21, 2013, Nighthawk announced $1 million from the security, posted in favour of INAC, was returned to Nighthawk and added back into treasury following the successful reclamation of one of the three historical sites. Nighthawk is not responsible for any historical environmental liabilities associated with the Colomac mine site.

Since the acquisition, Nighthawk has cleaned up the Chalco Lake site and has commenced remediation work on the Diversified and Spider Lake sites.

The author is not aware of any other environmental liabilities related to the Indin Lake property.

4.6 Communication and Consultation with the Community

The property is located in the Wek'èezhìı region of the NWT which is in the management area of the Tłı̨chǫ Government. The WLWB has regulatory authority under the Mackenzie Valley Land and Water Board, and the Wek'èezhìi Renewable

Resources Board has the wildlife co-management authority for the region as established by the Tłįchǫ Government. The Tłįchǫ Government represents the communities of Behchokǫ̀, Gamètì, Wekweètì and Whatì. The North Slave Métis Alliance (NSMA) represents the rights of the Métis people of the Great Slave Lake area, primarily in the region north and east of Great Slave Lake, NWT.

Nighthawk implemented an engagement plan detailing Nighthawk's commitment to consult the Tłįchǫ Government, Wek'èezhìi Renewable Resources Board, and NSMA and keep them informed as the project advances. The triggers under Nighthawk's engagement plan are detailed in Table 4-3.

Table 4-3: Nighthawk's Engagement-Plan Triggers

Engagement Trigger	Purpose(s) for Engagement	Format for Engagement
Land Use Permit or Water Licence Application, Amendment or Renewal	• To communicate changes to the Land Use Permit or Water Licence • To explain the reason behind the application • To solicit comments, suggestions, or concerns regarding any change	• Phone conversation • Email with stakeholder letter
Seasonal Opening or Closing of Colomac Exploration Accommodations	• To communicate seasonal opening or closing of existing facilities • To solicit comments, suggestions, or concerns	• Email correspondence • Phone conversation (upon request)
Intention to Commence Ground Exploration Program (Other Than Drilling)	• To communicate Nighthawk's intent to begin a ground exploration program • To provide an overview of the scope of the ground exploration program • To solicit comments, suggestions, or concerns	• Email correspondence • Phone conversation (upon request)
Results of Exploration Program Received	• To inform of the results of Nighthawk's exploration activity	• News release distributed via email
Semi-Annual In-Person Update	• To provide an update on Nighthawk's exploration activities • To solicit comments, suggestions, or concerns • To build and foster relationships	• In-person meeting at a location to be determined at the party's request
Non-Scheduled Update Requested	• To provide information, receive • comments, or hear concerns	• Format shall be dependent on the situation
Updates to the Closure and Reclamation Plan	• To solicit comments, suggestions, or concerns on the current ICRP or proposed changes to the ICRP	• During the semi-annual in-person update • Email • correspondence
Initiation of Closure or Reclamation Activities	• To communicate Nighthawk's intent to begin closure and reclamation activities	• Email correspondence • Phone conversation (upon request)

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Physiography

The average altitude of the property is approximately 340 meters above sea level (masl). Some hills reach 430 masl in the northern area, where there is more topographical relief and consequently more outcrops. The minimum elevation is approximately 255 masl at lake levels. The numerous lakes on the property drain south into Snare River.

The property is located below the tree line. It is covered by taiga vegetation mainly composed of conifers, lichens, mosses, and some deciduous trees, including birch.

The property lies within the boundary of continuous permafrost (Jeness, 1949). Permafrost does not present operational problems based on historical drilling and operations at the Colomac mine (Robb, 1997).

Figure 5-1 presents an aerial view of the property physiography.

Figure 5-1: Indin Lake Property Physiography

Souce: Nighthawk, 2022.

5.2 Accessibility

The property is located approximately 220 km northwest of Yellowknife, NWT, Canada.

A gravel landing strip approximately 1,500 m long on the property is capable of landing cargo aircraft. The property can also be accessed by helicopter, and ski- or float-equipped fixed-wing aircraft can land on Baton Lake or Steeves Lake.

Access in the winter is afforded by a 245 km long winter road (Robb, 1997). that starts west of Yellowknife and branches off from the No.3 Highway at the Tłı̨chǫ̀ community of Behchokǫ̀. The winter road follows the Emile River north to Basler Lake and Matteberry Lake. From Matteberry Lake, the road goes east across country to Indin Lake. It follows the lake before heading north into the Baton Lake area. This route provides seasonal access to the NWT/Alberta/British Colombia highway systems and the railhead at Hay River. Winter road access is only possible during a limited period that is dependent on weather conditions but usually extends from the end of January to the beginning of April.

In addition, the Tłı̨chǫ̀ all-season road was completed and opened to the public on November 30, 2021. The Tłı̨chǫ̀ all-season road is a permanent, 97 km long, two-lane gravel highway leading to the community of Whatì. The TASR improves the access to the property from Yellowknife by reducing the amount of winter road access. The access roads and Tłı̨chǫ̀ all-season road are shown in Figure 5-2.

Mining and drilling operations may be carried out year-round with some limitations in specific areas of the property. Surface exploration work (e.g., mapping, channel sampling) can be done from late May to early October. Lakes are usually frozen and suitable for drilling from February to late April. Conditions may be difficult when the snow melts in May and for a few weeks during the fall until the ground freezes.

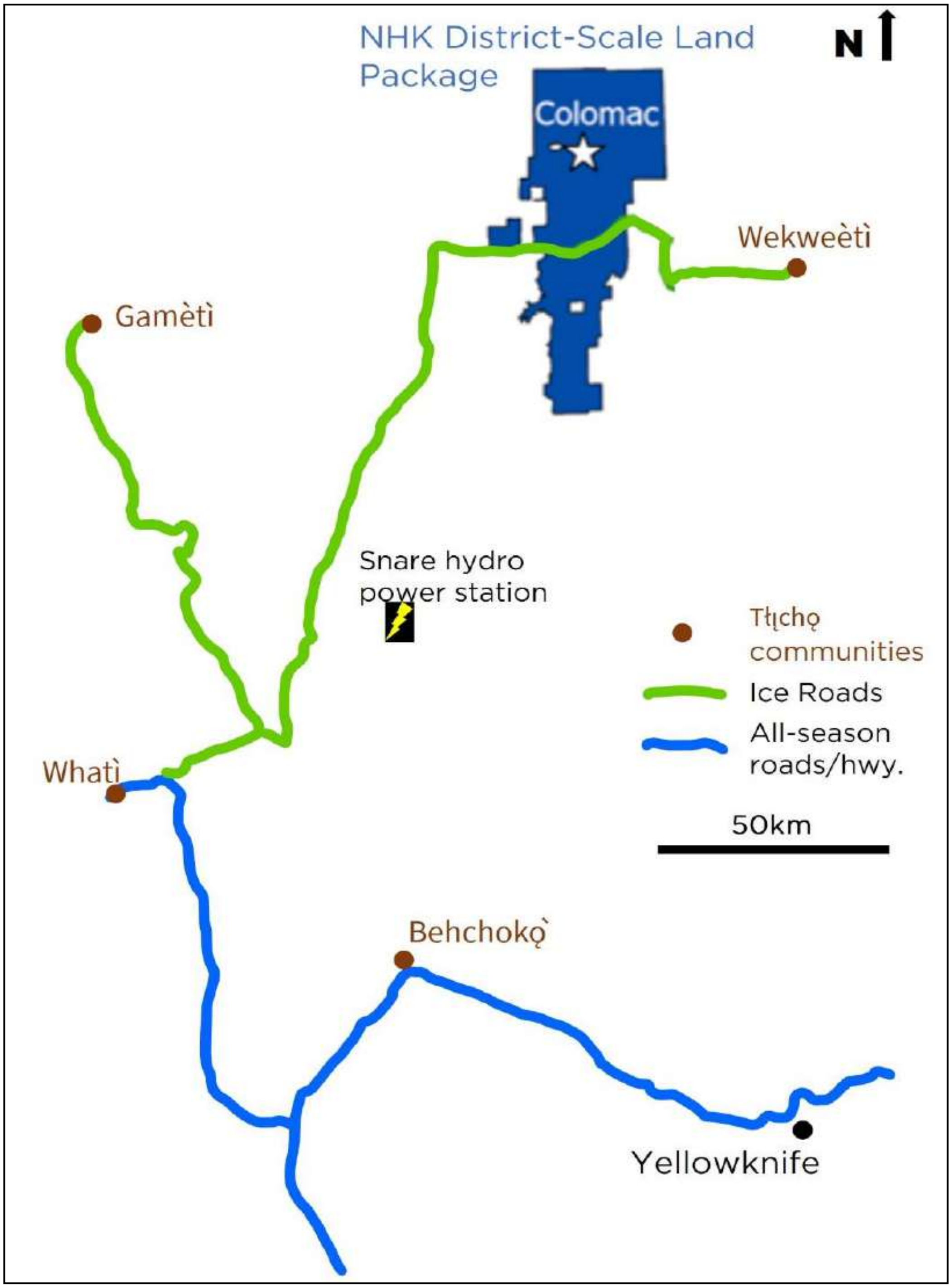
5.3 Climate

The property experiences a continental subarctic climate. Winters, predominantly polar, are long and very cold, and summers are short, and cold to mild. According to Environment Canada (climat.meteo.gc.ca/climatenormals), statistics for the closest city of Yellowknife during the 1981to 2010 period show a daily average temperature in July of 17°C and a daily average temperature in January of -26°C. The record low was -51°C, and the record high was 32.5°C.

Overall, precipitations are low in a subarctic climate with an average annual precipitation of 171 mm of rain and 158 mm of snow. On average, there are 115 days without frost. Lakes are typically frozen from November to June. Hours of daylight are at a maximum between mid-May and early August, with a maximum of 20 hours per day. During winter, only about five or six hours of daylight occur at Yellowknife and less at Colomac.

Climatic conditions do not seriously hinder exploration or mining activities, with only some seasonal adjustments for certain types of work (e.g., mapping in summer and drilling on lakes or swampy areas in winter).

Figure 5-2: Property Location Map Showing Regional Access



Source: Nighthawk, 2023.

5.4 Local Resources and Infrastructure

The property area is remote; no powerlines, mobile connections, or other services exist on or near the property. The property is located approximately 110 km north-northeast of the Snare River hydroelectric power complex, which produces approximately 29.3 MW from four plants. Water is readily available from many creeks and lakes found on the property. Figure 5-2 shows the proximity of the nearest infrastructure.

The city of Yellowknife, with a population of approximately 19,600, is the closest service community to the property at a distance of 220 km. Yellowknife has a long mining history, so it is well-serviced by exploration and mining industries and has an experienced labour force. Yellowknife's airport is the largest airport in the NWT. It provides several daily scheduled flights between Yellowknife and Edmonton or Calgary.

The property is peripheral to the Tłı̨chǫ Comprehensive Land Claim and Self-Government Agreement area, which includes several Tłı̨chǫ communities, including the following:

- Wekweètì has a population of approximately 145 and is 50 km east-southeast of the property.
- Gamètì has a population of approximately 310 and is 114 km west-southwest of the property. Gamètì has a community store, hotel and restaurant, a fire station, and a health center.
- Whatì has a population of approximately 500 and is 176 km southwest of the property.
- Behchokǫ̀ has a population of approximately 1,950 and is 181 km south-southwest of the property. Services in the community include a grocery store, bed and breakfast, and a convenience store.

These communities have experienced workers currently employed on rotation schedules at the diamond mines.

The property's main facility (see Figure 5-3), was constructed after the acquisition in 2012. It is on the east shore of Steeves Lake, approximately 2 km north of the Colomac airstrip.

Colomac accommodations currently consists of the following:

- 36 insulated sleepers (mix of Weatherhaven-Alaska structures)
- three insulated sleepers for those with COVID-19
- seven wooden sleepers
- five wooden sheds for storing skidoos and equipment
- two wooden kitchen structures
- one wooden office structure
- two wooden core structure facilities
- one wooden sampling room
- one wooden cutting room
- two wooden bathroom structures
- four additional wooden structures for miscellaneous items
- two wooden storage structures (near airstrip)

- one dock for float planes
- six fuel berms for fuel storage for the airstrip
- two Alaskan washhouse structures
- one 1 Alaskan dry facility
- two generators, one at 72 kW and one at 92 kW
- one water room with 3,500 liters (L) of storage (includes ultraviolet and other filters)
- one additional water room (old, repurposed cutting room) with 2,500 L of storage for water and fire suppression.

Figure 5-3: Colomac Camp in 2022

Source: Nighthawk, 2022.

The historical Colomac mine site was rehabilitated by INAC by removing the old mining and milling facilities.

Nighthawk also maintains the Damoti Horseshoe Camp, which is located 28 km south of the historical Colomac mine site. The accommodations facility contains several sleeping tents and two hardshell sleeping buildings, hardshell washroom facilities, a generator building, a large, insulated plywood core logging shack, a plywood core cutting shack, and three double-walled environmental protection tanks, each with a fuel capacity of 75,000 L.

6 HISTORY

This section is based on Trinder et al., 2018. A brief overview of historical exploration on the property is presented in Section 6.1. More detailed exploration and production histories of the property are presented in Sections 6.2, 6.3 and 6.4. References to the Colomac and Damoti projects or properties in this section refer to the historical claim groups before they were consolidated into the Indin Lake property as it exists today.

6.1 Indin Lake Property – Regional Exploration

Since the 1938 discovery of the Anna (Barker Vein) gold showing on the south shore of Indin Lake (Morgan, 1992), 131 additional gold occurrences have been identified on the property (Figure 6-1 and Table 6-1). These occurrences are documented in the Northern Mineral Showings database in the NWT Geoscience Office.

Historical mineral exploration on the property area can be synthesized into five major periods:

- Late 1930s to late 1940s –Initial exploration. Discovery of Diversified, North Inca, Lex Main, Treasure Island Main, and Colomac/Goldcrest mineralization. Several trenches in the Barker Vein were excavated from 1939 to 1941 by Territories Exploration Company Ltd, and 700 kg of mineralized material containing 2 kg of gold was extracted. Further exploration via 15 drill holes in 1945 and 1946 failed to define other mineralized gold-bearing portions of the vein (Puritch, 2005).
- 1970s – Regional exploration focused on base metal volcanogenic massive sulphides.
- Mid to late 1980s – Regional gold-focused exploration. Discovery of the Cass deposit and development of the Colomac mine, which operated from 1989 to 1991 and from 1994 to 1997 (refer to Section 6.2).
- 1990s – Discovery of several gold-bearing banded-iron formation (BIF) showings in the Damoti Lake area. In 1996-1997, a ramp and two levels were developed, and underground drilling was performed. Sampling was also carried out, which included a bulk sample from the Horseshoe Zone (refer to Section 6.4).

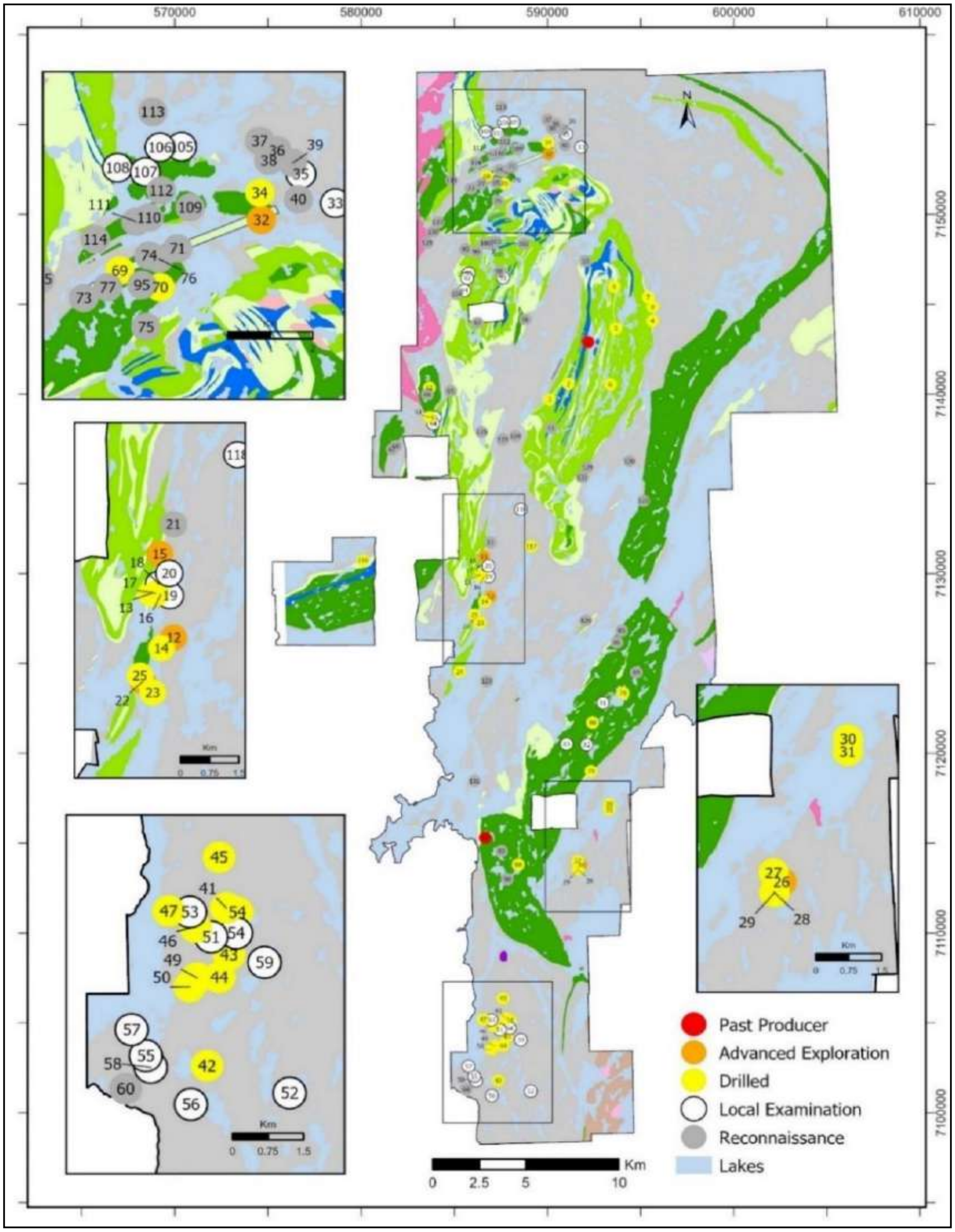
6.2 Colomac Gold Project – Exploration and Development

Since the initial gold discoveries in the Indin Lake area in 1938 by prospectors of Territories Exploration Company, various mining companies have worked on the Colomac Project. The exploration history can be grouped into the following periods:

- 1938 to 1947 –Initial gold discoveries and early exploration work (including historical drilling and trench sampling) by Leta Explorations, Goldcrest Mines, Colomac Yellowknife Mines, Indian Lake Gold Mines, Indyke Gold Mines, Nareco Gold Mines and Central Mining Services (Toronto)
- 1974 to 1986 – Early and advanced exploration work (e.g., geochemical survey, drilling, metallurgical tests) by Cominco Ltd, Newmont Mining Corporation and Wollex Exploration
- 1986 to 1999 – Exploration and production by Neptune Resources Corp. and Royal Oak Mines Inc.
- 2000 to 2011 – Remediation of the Colomac mine site by CIRNAC (previously AANDC, DIAND AND INAC).

Table 6-2 summarizes the ownership changes and historical work carried out on the Colomac Project from 1945 to 2011.

Figure 6-1: Map of Historical Work and Gold Occurrences on the Indin Lake Property



Source: Nighthawk, 2020.

Table 6-1: Mineral Occurrences on the Indin Lake Property

#	Name	Development Stage	Showing ID
Colomac			
1	Colomac	Past Producer	086BSW0004
2	Goldcrest	Drilled	086BSW0039
3	Grizzly Bear	Drilled	086BSW0102
4	Indin Zone	Drilled	086BSW0156
5	Santa Zone North	Drilled	086BSW0158
6	SE Nice Lake	Drilled	086BSW0157
7	Zone 24	Drilled	086BSW0154
8	Zone 27	Drilled	086BSW0155
9	Duck Lake	Drilled	086BSW0159
10	EB 27897	Reconnaissance	086BSW0164
11	Noranda 11171	Reconnaissance	086BSW0161
Leta Arm			
12	Diversified (Arseno No. 1)	Advanced Exploration	086BSW0029
13	Diversified (Arseno No. 2)	Drilled	086BSW0030
14	Diversified (Arseno No. 3)	Drilled	086BSW0031
15	Lexindin (K Zone)	Advanced Exploration	086BSW0020
16	Lexindin (No. 1 Zone)	Advanced Exploration	086BSW0019
17	Lexindin (D Zone)	Drilled	086BSW0094
18	Lexindin (E Vein)	Local Examination	086BSW0092
19	Lexindin (G Zone)	Local Examination	086BSW0093
20	Lexindin (H Zone)	Local Examination	086BSW0095
21	Lexindin (I Zone)	Reconnaissance	086BSW0126
22	North Inca (A Zone)	Advanced Exploration	086BSW0035
23	North Inca (Main Zone)	Drilled	086BSW0036
24	North Inca (Island Veins)	Drilled	086BSW0038
25	North Inca (No. 6 Vein)	Drilled	086BSW0037
Damoti			
26	Horseshoe Zone	Advanced Exploration	086BSW0050
27	Causeway Zone	Drilled	086BSW0053
28	Lard Zone	Drilled	086BSW0051
29	Quartz Zone	Drilled	086BSW0052
30	BIF Island	Drilled	086BSW0001
31	North Island	Drilled	086BSW0096
Treasure Island			
32	Treasure Island	Advanced Exploration	086BSW0028
33	JPK	Local Examination	086BSW0153
34	BOOTY	Drilled	086BNW0047
35	Fly	Local Examination	086BNW0061
36	A19	Reconnaissance	086BNW0064
37	A31	Reconnaissance	086BNW0065
38	D18	Reconnaissance	086BNW0063
39	D31	Reconnaissance	086BNW0062
40	Point Occurrence	Reconnaissance	086BSW0105
Fishhook			
41	Bivisible	Drilled	086BSW0083
42	Black Ghost	Drilled	086BSW0075
43	Firefly Zone	Drilled	086BSW0048
44	Humpy IF	Drilled	086BSW0077
45	Irresistible	Drilled	086BSW0084
46	R-35	Drilled	086BSW0081
47	R-42B	Drilled	086BSW0175
48	Red Badger Zone	Drilled	086BSW0047
49	Red Butt	Drilled	086BSW0076
50	Woolly Bugger Zone	Drilled	086BSW0049
51	Bivisible South	Local Examination	086BSW0080
52	Boner Zone	Local Examination	086BSW0085
53	R-36B	Local Examination	086BSW0082
54	Red Badger South	Local Examination	086BSW0079
55	Richardson	Local Examination	086BSW0074
56	SE Fishhook	Local Examination	086BSW0072
57	Shore	Local Examination	086BSW0088
58	South Fishhook	Local Examination	086BSW0073
59	Viola	Local Examination	086BSW0078
60	Placer A18581	Reconnaissance	086BSW0176
Echo-Indin			
61	CATHY— Echo Indin	Drilled	086BSW0118
62	CATHY— Lucky Lake	Drilled	086BSW0033
63	Kim 8	Local Examination	086BSW0097
64	RO 8 Gold	Local Examination	086BSW0116
65	CATHY — East Shear	Reconnaissance	086BSW0120
66	CATHY—Goose Lake	Reconnaissance	086BSW0119
67	N38	Reconnaissance	086BSW0112
68	N39	Reconnaissance	086BSW0113
Laurie Lake			
69	D Zone (Laurie Lake)	Drilled	086BSW0010
70	Pop Grid	Drilled	086BSW0130
71	95ITKT013	Reconnaissance	086BSW0140

#	Name	Development Stage	Showing ID
72	EB 27812	Reconnaissance	086BSW0145
73	Laurie Lake South	Reconnaissance	086BSW0131
74	NE Laurie Lake	Reconnaissance	086BSW0133
75	Occurrence 10	Reconnaissance	086BSW0141
76	SE Taiga 4	Reconnaissance	086BSW0136
77	Solomon Trench	Reconnaissance	086BSW0132
Andy Lake			
78	Bet	Drilled	086BSW0046
79	DOODIT	Drilled	086BSW0016
80	P.B.	Drilled	086BSW0025
81	Andy Lake	Local Examination	086BSW0064
82	Damoti Lake (NW 1 km)	Local Examination	086BSW0026
83	MAT	Local Examination	086BSW0063
84	Andy Lake North	Reconnaissance	086BSW0066
85	Joe North	Reconnaissance	086BSW0124
86	Joe South	Reconnaissance	086BSW0067
Barker-Vidie			
87	Anna (Barker Vein)	Past Producer	086BSW0012
88	Drill Lake	Drilled	086BSW0058
89	Conrad Lake	Reconnaissance	086BSW0059
90	Gamey Lake	Reconnaissance	086BSW0057
Riss Lake			
91	Nautilus Lake	Local Examination	086BSW0041
92	Riss Lake — 103	Local Examination	086BSW0128
93	Riss Lake — Main Zone	Local Examination	086BSW0032
94	Riss Lake — Swamp Zone	Local Examination	086BSW0127
95	EB 27762	Reconnaissance	086BSW0147
96	Jackknife	Reconnaissance	086BSW0163
97	NWTQ	Reconnaissance	086BSW0162
98	Occurrence 2	Reconnaissance	086BSW0148
99	Occurrence 3	Reconnaissance	086BSW0146
100	Occurrence 4	Reconnaissance	086BSW0143
101	Occurrence 5	Reconnaissance	086BSW0142
102	Occurrence 9	Reconnaissance	086BSW0149
103	Placer 79666	Reconnaissance	086BSW0144
104	Riss Lake —Area 3	Reconnaissance	086BSW0129
Northwest Showings			
105	Bay 1	Local Examination	086BNW0048
106	Bay 2	Local Examination	086BNW0051
107	Bay 3	Local Examination	086BNW0052
108	MIDAS 1	Local Examination	086BNW0049
109	Jerry 12	Reconnaissance	086BSW0151
110	Jerry 33	Reconnaissance	086BSW0152
111	Jerry 37	Reconnaissance	086BSW0150
112	K13	Reconnaissance	086BNW0060
113	SH 52	Reconnaissance	086BNW0066
114	Suncor 3641	Reconnaissance	086BSW0134
115	Suncor 3826	Reconnaissance	086BSW0135
Other Showings			
116	Albatross	Drilled	086BSW0098
117	Float Lake (ROLEX)	Drilled	086BSW0034
118	Pistol-Knob	Local Examination	086BSW0125
119	2633-5	Reconnaissance	086BSW0106
120	CHALCO	Reconnaissance	086BSW0017
121	Chalco Lake (West Side)	Reconnaissance	086BSW0040
122	Chalco Lake East	Reconnaissance	086BSW0109
123	Indin Bay	Reconnaissance	086BSW0071
124	LOBO 21	Reconnaissance	086BSW0042
125	LOM 2633-6	Reconnaissance	086BSW0110
126	MAR — A Zone	Reconnaissance	086BSW0121
127	Mitt	Reconnaissance	086BSW0137
128	Occurrence 6	Reconnaissance	086BSW0139
129	Steal Grid 10032	Reconnaissance	086BSW0117
130	SW Mitt	Reconnaissance	086BSW0138
131	Zig Zag Island	Reconnaissance	086BSW0173

Source: From the NWT Northern Mineral Showings (NORMIN) Database. Nighthawk, 2020. See Figure 6-1 for location.

Table 6-2: Historical Ownership Changes and Historical Work on the Colomac Project from 1945 to 2011

Year	Company	Work	Results
1945	Leta Explorations	Field exploration	Gold showing discovery in the Baton Lake area north of Indin Lake (Davison and Tyler, 1988)
	Goldcrest Mines Colomac Yellowknife Mines Indian Lake Gold Mines Indyke Gold Mines Nareco Gold Mines	5 companies staked claim blocks within the current Colomac Project area	
	Goldcrest Mines	Drilling of 5 DDH (580 m) into a shear zone on the Goldcrest property (East Zone).	One hole returning 0.285 oz/t Au over 0.6 m
		Drilling 11 DDH (1,500 m) along the Goldcrest sill (East Zone)	Delineation of three gold zones (A, B and C)
		Field exploration on the northwest side of the dyke (West Zone)	Discovery of a gold mineralized shear in an altered rhyolite tuff/sericite schist
		7 rock trenches opened	4 bulk samples, 5 ft each, assayed 0.07, 0.06, 0.10 and 0.08 oz/t Au
		9 DDH drilled across the West Zone	GC-I0 returned 0.42 oz/t Au in a 2.7-m sludge assay drilled through a quartz vein in a sericite schist
Winter of 1945-1947	Indian Lake Gold Mines	Acquisition of 20 claims along the northeast boundary of the Goldcrest property	
	Indyke Gold Mines	Acquisition of 20 claims along the southeast boundary of the Goldcrest property	
	Colomac Yellowknife Mines	Acquisition of 24 claims north of the Indian Lake property	
	Nareco Mines	Acquisition of claims in the north and south extensions of Colomac sill	
	Central Mining Services (Toronto)[1]	Drilling 136 DDH (12,600 m) along and adjacent to the Colomac sill	Exploration and definition of 3 gold zones
		Extensive geological mapping of the Baton Lake area during the summer of 1946	
	University of Alberta	Metallurgical investigations during the winter of 1946-1947	
1959	Hydra Explorations Limited	Acquisition of properties from Colomac Yellowknife Mines and Indian Lake Mines	
	Nareco Gold Mines Indyke Gold Mines Hearne Gold Mines Dyke Lake Gold Mines	Properties allowed to lapse	
1968	Discovery Mines	Colomac-Yellowknife and Indian Lake properties optioned from Hydra Explorations under a 5-year agreement. 24 adjoining claims staked (parts of old Goldcrest and northern Nareco properties) to expand the coverage of the Colomac and Goldcrest sills	Study of controls on gold mineralization within quartz veins along the Colomac and Goldcrest sills, and mapping of their northern limits
1971	Johnsby Mines	Hydra Explorations and Discovery Mines amalgamate their claims into one group of 68 claims. property subsequently transferred to Johnsby Mines, a private company owned jointly by Hydra Explorations and Discovery Mines	
1972	Discovery Mines	Acquisition of 3 additional claims (part of the former Indyke property), completing the coverage of the Colomac and Goldcrest sills	
1974	Cominco Ltd	Colomac property optioned	
		Drilling 20 DDH (2880 m) over a distance of 360 m along the Colomac sill	Cominco re-assesses mineral reserve figures quoted in 1946 and 1968
		Geochemical survey to test for possible geochemical markers associated with gold mineralization	No markers identified
		Core sampling and trenching of a 2,000 lb sample of mineralized gold-bearing sill rock, 15 m west of DDH 74-2	Metallurgical testing, heap leaching, flotation and grindability tests
1980	Newmont	Sampling	Metallurgical testing
1985-1987	Wollex Exploration	Prospecting programs on the ED-1 claim near the Indin River	Discovery of 2 areas of mineralization: main Wollex showing and a zone farther north that may be part of Zone 24 (Dickson, 1985 and 1988)
1986	Noranda Exploration Limited	Reconnaissance mapping and prospecting programs on the BAT-1 claims Litho-geochemical sampling and resampling of some existing trenches	Some weakly anomalous gold values (Powerset al.,1986)
1987	Echo Bay Mines Ltd	Widely spaced prospecting traverses on the SPAN-l claim	No significant results (MacMahon and Sarjeant, 1987)
	Triple Crown Resources Corp.	DIGHEM III airborne VLF-EM survey and a magnetic survey over both the AGE2 and FRE2 claims	
1986-1987	Neptune Resources Corp.	Colomac and Goldcrest properties optioned from Johnsby Mines in the fall of 1986	
		Extensive diamond drilling, geological mapping, surveying, airborne geophysics and topography	Historical reserve statement and mining economic feasibility study for the Colomac Zone 2.0 mineralized body (Davison and Tyler, 1988)
1987-1991		Drilling approximately 705 DDH (60,200 m), on the Colomac sill Some drilling also completed on the Goldcrest, Goldcrest North, Grizzly Bear, 24/27 and other targets on the property	
1991-1992		Colomac mine production (Zone 2.0 mineralized body)	Results discussed in Section 6.3 of this Technical Report
1993-1997	Royal Oak Mines Inc.	Acquisition of Colomac assets for $7.875M in Royal Oak shares and the gross production royalty on the Colomac property in exchange for $4.0M in Royal Oak shares Royal Oak holds a 100% interest in the leases (Royal Oak, 1999)	
		Acquisition of Kim and Cath 1 claims	Increased land position around the Colomac mill site (Robb, 1997)
		Filed exploration focused on delineating and defining resources (line cutting, geological mapping, surveying, ground and airborne geophysics, and topographic surveying)	Definition of mineable reserves (not in accordance with NI 43-101) on zones 2.5 and 3.0
		Engineering and environmental work for permitting and mine design	
		Drilling 265 DDH (26,700m) on zones 1 to 5 of the Colomac sill and at the Goldcrest, Goldcrest North, Grizzly Bear, 24/27 and other targets on the property	
		Colomac mine production	Results discussed in section 6.3 of this Technical Report
2000	INAC (formerly DIAND)	Transfer of all Royal Oak's rights, titles and interests to DIAND by court order from the Ontario Superior Court of Justice	
2005-2011		Restoration of the Colomac mine site	Results discussed in section 4.5 of this Technical Report
2012	Nighthawk (formerly Merc)	Acquisition of the Indin Lake property	

Notes: [1] The properties of Indyke Gold Mines (20 claims), Indian Lake Gold Mines (20 claims; GI 1 to GI 16 and GI 25 to GI 28), Colomac Yellowknife Mines (24 claims; IF 1 to IF 12 and DID 1 to DID 12) and Nareco Gold Mines, situated along the length of the Colomac sill, and the eastern peripheral properties of Hearne Gold Mines and Dyke Lake Gold Mines, were jointly developed (a total of 141 claims) under the direction and management of Central Mining Services (Toronto) from the winter of 1945 into 1947.

6.3 Colomac Mine – History and Production

Neptune Resources Corp. (Neptune) brought the Colomac mine to production in 1990 following a positive feasibility study by Wright Engineers. The Colomac Zone 2.0 deposit was mined as a conventional open pit of approximately 980 m by 270 m at surface. The milling circuit was a conventional cyanide leach with a carbon-in-pulp (CIP) gold recovery circuit (Royal Oak, 1993). The cut-off grade used was 0.03 oz/t, and a 15% tonnage dilution factor was applied to arrive at the mill feed grade. Mine production averaged 30,700 t/d peaking at 35,000 t/d in September and October 1990, which was far below the 45,000 t/d needed to meet the mill's designed capacity of 18,000 t/d at its design strip ratio of 2.5:1 (Royal Oak, 1993). During its eight-month pre-production phase (September 1989 to April 1990) and 13 months of operation (May 1990 to June 1991), the zone 2.0 pit produced 3,214,000 tonnes of mineralized material for a total of 146,400 ounces of gold at an average mill head of 0.057 oz/t and 92% recovery (Royal Oak, 1993; Johnson, 1994).

Neptune experienced cash flow difficulties in 1990 due to unanticipated production difficulties, low ounce production and low gold prices, and the mine ceased operation on June 29, 1991 (Royal Oak, 1993).

In April 1993, Royal Oak purchased the Colomac assets from Neptune and acquired the gross production royalty on the Colomac Project. Royal Oak recommenced stripping operations at the Colomac mine in March 1994. Royal Oak utilized conventional open pit mining techniques similar to Neptune's. The mill circuit was modified in 1996 to include a pebble crusher bypass to overcome operating difficulties and facilitate the processing of 10,000 t/d of mineralized gold-bearing material (Royal Oak, 1999). In September 1997, Royal Oak discontinued mining operations at the Colomac mine because of low gold prices and the depletion of economic open pit mineralized material mineral reserves. The Colomac mine was closed in December 1997. During its operation from 1994 to December 1997, the Colomac mine (zones 2.0, 2.5 and 3.0) produced 9,629,716 tonnes of mineralized gold-bearing material for a total of 389,308 ounces of recovered gold at an average mill head of 0.046 oz/t and 88.1% recovery (Randall, 1997). In 1998, the open pit mine was cleared of all man-made material, the power plant was sold, and a number of pumps and ancillary equipment from the mill were moved to Royal Oak's Kemess South mine (Royal Oak, 1999).

Zone 2.0 was mined to a depth of approximately 163 m. Zones 2.5 and 3.0 were mined to depths of 51.8 m and 48.8 m, respectively. All three pits were mined near to their lower reserve limits at the time of operation, although mineralization remained open at depth.

CIRNAC became the owner of the Colomac assets on January 12, 2000, and remediated the mine site from 2005 to 2011. Environmental monitoring will continue at the site until it can be determined that remediation has been effective and site conditions have reached a steady state.

6.4 Damoti Project – Exploration and Development

In 1992, a Canadian government geological team led by John A. Brophy discovered a new gold showing from sulphidic BIF samples collected on the aptly named "BIF Island", in the northern part of Damoti Lake. The work was part of the NWT Mineral Initiatives Program. This subsequently led to the staking of lands in the Damoti area and a series of exploration and drilling programs over the following years that resulted in the discovery of several other gold BIF showings.

Historical ownership of the Damoti Lake property is presented in Table 6-3.

Table 6-3: Historical Ownership of the Damoti Property

Company	Year	Relationship
Covello Bryan and Associates	1993	JV with Athabaska (operator)
Athabaska Gold Resources Ltd.	1993	JV with Athabaska (operator)
Gitennes Exploration Inc.	1993	JV with Athabaska (operator)
Consolidated Ramrod Gold Corporation	1993	JV with Athabaska (operator)
Consolidated Ramrod Gold Corporation	1994	JV with Ramrod (operator)
Consolidated Ramrod Gold Corporation	1995	Sole owner
Quest International Resources Corporation	1996	Ramrod changes name to Quest International Resources Corporation
Standard Mining Corporation	1999	Quest International changes name to Standard Mining Corp.
Doublestar Resources Ltd	2001	Acquired Standard Mining and 100% of Damoti property
Canadian Zinc	2002	Option agreement with Doublestar
Doublestar Resources Ltd	2003	Option agreement expired
Anaconda Gold Corporation	2003	Agreement with Doublestar to acquire 55% of Damoti
Anaconda Gold Corporation	2006	Purchases an increased interest in Damoti from Doublestar (i.e., 80 to 100% depending upon mining lease)
Selkirk Metals Corp	2007	Purchases Damoti minority interest from Doublestar
Nighthawk	2008	Purchases Damoti majority interest from Anaconda (i.e., 80 to 100% depending upon mining lease)
Imperial Metals Corporation	2009	Purchases Selkirk Metals Corp and acquires Damoti minority interest
Nighthawk	2012	Interest increased to 100%, and Selkirk's interest diluted to a 1% NSR royalty on leases 4574, 4572, 4663, 4573 and 3616 when Selkirk elected not to contribute financially to the budgeted exploration program

Surface exploration conducted between 1992 and 1997 can be summarized at 323 surface DDH (40,810 m), ground and airborne geophysics, and 5,000 rock samples collected.

In 1996 and 1997, underground development was performed on the Horseshoe Zone at Damoti Lake by Quest International Management Services under the supervision of E.H. van Hees Geological Services Inc. A ramp of approximately 430 m was built, and two levels were opened: 120 m on the 25 m level, and 30 m on the 40 m level. Underground drilling, sampling, and bulk sampling were performed from these workings. Thirty-five underground holes were drilled for 792 m.

During 2004 and 2005, Anaconda Gold Corp. (Anaconda) drilled 52 DDH totalling 4,191 m.

In 2005, Anaconda mandated P&E Mining Consultants Inc. to prepare an independent NI 43-101 mineral resource estimate on the Damoti Lake property (Puritch and Ewert, 2005).

7 GEOLOGICAL SETTING AND MINERALIZATION

The information in this section was in part based on the 2018 NI 43-101 report by CSA Global Canada Geosciences Ltd. (Trinder et al., 2018).

7.1 Colomac Gold Project

7.1.1 Regional, Local and Property Geology

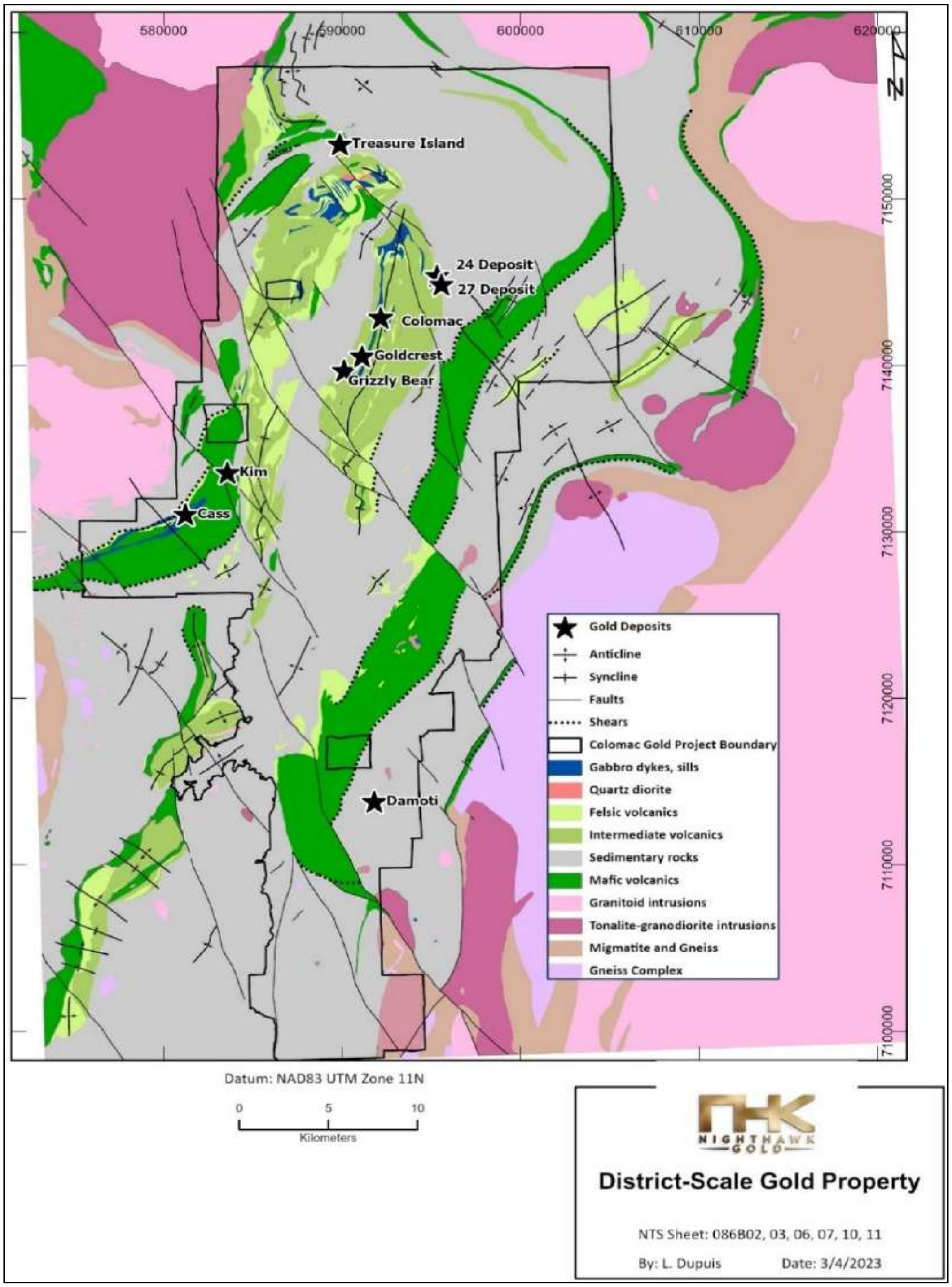
As shown on Figures 7-1 and 7-2, the property lies within the Indin Lake Supracrustal Belt, a 300 km long (2,000 km^2), NNE-trending, elongate area of Archean volcanic and sedimentary rocks belonging to the Yellowknife Supergroup (Frith, 1986). The belt lies within the southwestern Slave Structural Province, 30 km east of the boundary with the Bear Province (Morgan, 1992). For the purposes of this technical report, all supracrustal rock terms, whether prefixed or not by "meta", denote metamorphosed rocks.

The Indin Lake Supracrustal Belt is bounded to the west by Archean granitoid plutons and migmatites of the Slave Structural Province and Paleoproterozoic rocks of the Wopmay Orogen. To the east, the Indin Lake Supracrustal Belt is flanked by plutonic and high-grade gneissic rocks, including those of the Cotterill Complex (Pehrsson and Villeneuve, 1999). The granites are, in large part, intrusive into the supracrustal rocks (Frith, 1986). The eastern gneissic complexes were previously thought to be basement rocks to the belt, given their similarity to Pre-Yellowknife Supergroup basement gneisses known from or inferred to underlie the Acasta, Grenville Lake, and Winter Lake areas to the north-northwest, north and east, respectively; however, the gneissic Cotterill Complex is dominated by magmatic phases broadly coeval with Yellowknife Supergroup volcanism (Pehrsson and Villeneuve, 1999).

Supracrustal rocks of the Indin Lake Supracrustal Belt have been subdivided into three lithostratigraphic groups—the Hewitt Lake, Leta Arm, and Chalco Lake groups—based on their composition, volcanic facies, and distribution of units (Pehrsson and Chacko, 1997b; Pehrsson and Villeneuve, 1999). The Hewitt Lake Group occurs as four N-NE trending lenses in the Indin Lake Supracrustal Belt and is dominated by homogeneous, laterally continuous (1 to 3.5 km thick, 10 to 60 km long) submarine mafic flows and synvolcanic gabbro sills (Pehrsson and Villeneuve, 1999, Pehrsson, 2002b). Minor calc-alkaline felsic volcanic and epiclastic rocks are interbedded with and overlie the mafic flows of the Hewitt Lake Group as a 750 m thick, 50 km long unit (see Figure 7-2). The mafic volcanic rocks are intruded by quartz-feldspar porphyry (QFP) dykes and hypabyssal sills that are interpreted as feeders to the upper felsic unit (Pehrsson and Villeneuve, 1999). The Hewitt Lake Group is overprinted by extensive carbonate alteration, and it hosts the Cass and Kim deposits (Morgan, 1991), which lie in the western central part of the property.

The Hewitt Lake Group is conformably overlain by the Leta Arm Group, which consists of NNE-trending belts 1 to 4 km thick and 5 to 30 km long (Pehrsson, 2002b). It comprises a heterogeneous sequence of submarine to subaerial, tholeiitic, and calc-alkaline, mafic to felsic volcanic rocks intruded by synvolcanic gabbro to quartz diorite intrusions (Pehrsson and Villeneuve, 1999; Figure 7-2). It has a greater proportion of intermediate to felsic volcanic and volcaniclastic rocks than the Hewitt Lake Group and hosts numerous gold deposits, including the Colomac deposits, as well as polymetallic and base metal prospects (Pehrsson and Villeneuve, 1999).

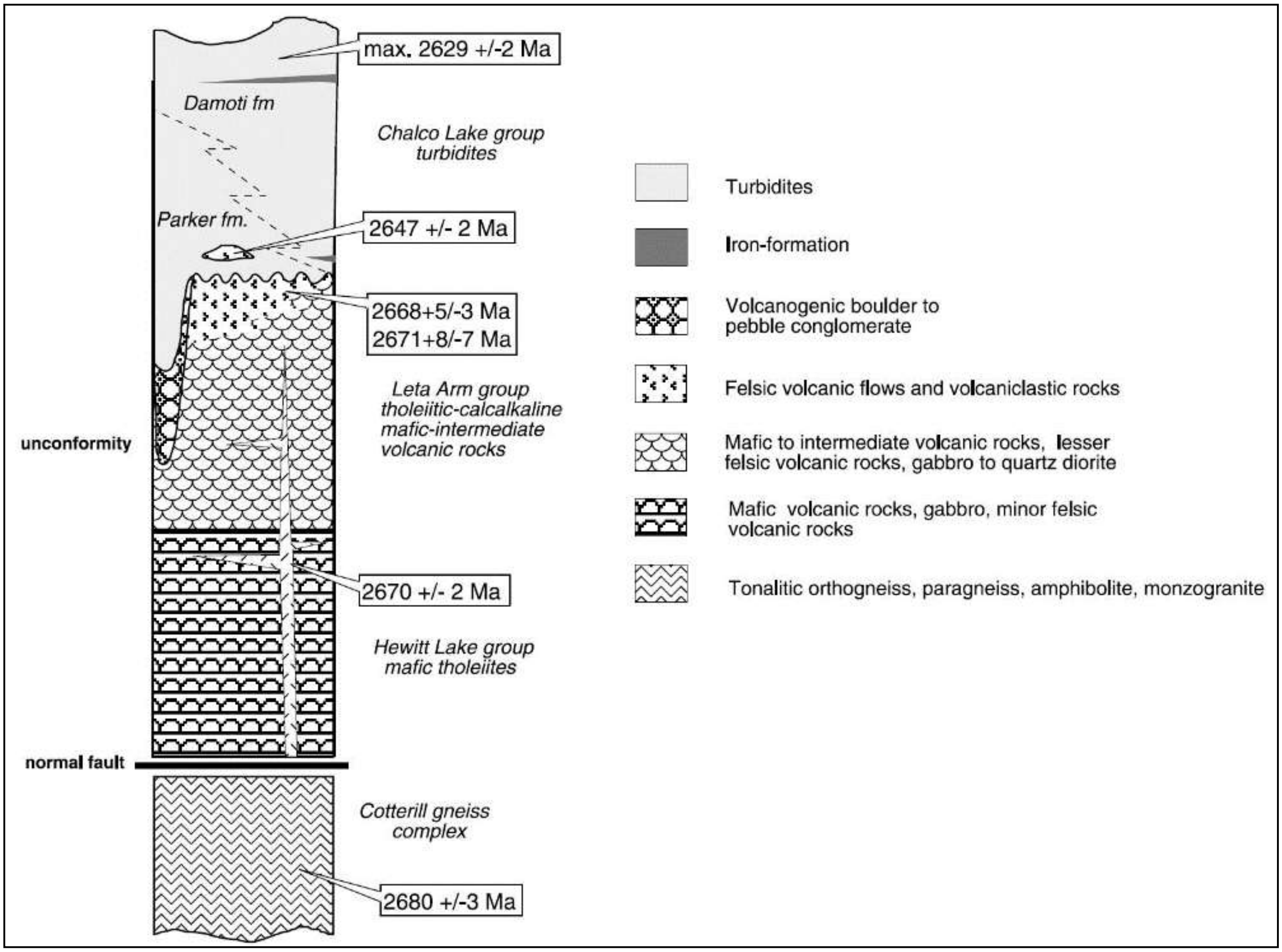
Figure 7-1: Regional Geology Plan



Source: Nighthawk, 2023; modified after Pehrsson and Kerswill, 1997a, b.

The Leta Arm Group is unconformably overlain by the Chalco Lake Group, the most widespread lithostratigraphic unit in the Indin Lake Supracrustal Belt (Figure 7-2) (Pehrsson, 2002b). It consists of a submarine turbidite sequence of graded greywacke-mudstones with lesser iron formations, conglomerates and felsic volcanogenic rocks (Pehrsson and Villeneuve, 1999). The Chalco Lake Group is subdivided into the Parker and Damoti formations, which underlie the central and marginal areas of the Indin Lake Supracrustal Belt, respectively (Figure 7-2). The Parker Formation consists of 2 to 5 km thick, thickly bedded, silty to sandy turbidites with associated volcanogenic conglomerate, felsic volcanic flows and breccia, hypabyssal intrusions, and rare peperitic rocks (Pehrsson, 1998). Basal polymictic volcanogenic conglomerate locally marks the contact with the underlying Leta Arm Group (Pehrsson and Villeneuve, 1999).

Figure 7-2: Schematic Lithostratigraphic Section for the Indin Lake Area



Source: Pehrsson and Villeneuve, 1999.

The Damoti Formation is a 3 to 5 km thick succession of thinly bedded, pelite-dominated turbiditic rocks with associated iron formation and sulphidic-graphitic argillite that was interpreted to onlap the Parker Formation (Pehrsson and Villeneuve, 1999, Pehrsson, 2002b). The mixed silicate-oxide and rarely sulphide facies iron formation units host the Horseshoe Zone and Fishhook Lakegold prospects, as well as several other smaller gold occurrences (Brophy 1995; Pehrsson and Kerswill 1996; Pehrsson and Villeneuve, 1999).

Several pre-, syn- and post-tectonic Archean gabbroic to granitoid plutonic bodies intrude the volcano-sedimentary rocks (Pehrsson, 1998). Diabase dykes of the Paleoproterozoic (2150 Ma) Indin dyke swarm are numerous and cut all units throughout the Indin Lake area (LeCheminant et al.,1997; Pehrsson, 1998). The dykes trend predominantly northwest to north-northwest, and a second conjugate set trends northeast (Frith, 1993). North-trending dykes of the younger Mesoproterozoic (1270 Ma) Mackenzie dyke swarm are present in small numbers, generally distinguished from those of the Indin dyke swarm by their prominent aeromagnetic signature and “fresh” appearance (LeCheminant and Heaman, 1989; Frith, 1993; Pehrsson, 2002a), although less altered Indin dykes may be difficult to distinguish from the Mackenzie dykes (Frith, 1986; Pehrsson, 2002a).

The Indin Lake Supracrustal Belt has been metamorphosed to lower greenschist facies with local amphibolitic facies (Pehrsson and Chacko 1997b).

As shown on Figure 7-3, the complex, polyphase deformation history of the Indin Lake Supracrustal Belt includes three Archean (D_1–D_3) and two Proterozoic (D_4–D_5) deformation episodes (Pehrsson and Villeneuve, 1999). The Archean D_1 and D_2 stages affect all units of the Yellowknife Supergroup (Pehrsson 1998).

The D_1 stage is synchronous with early greenschist-facies regional metamorphism and resulted in rare bedding-subparallel slaty cleavage, foliations, dip-slip faults, and moderately to steeply doubly plunging, isoclinal folds of bedding (Pehrsson and Villeneuve, 1999). Pehrsson and Villeneuve (1999) interpreted these structures to have formed in an originally east-northeast-trending fold-fault belt. The D_2 episode produced upright open to isoclinal folds of bedding and S_1 foliation, crenulation cleavage and faults (Jones, 1994) that formed broadly coevally with regional low-pressure–high-temperature metamorphism (Pehrsson and Villeneuve, 1999).

The Archean D_3 deformation is represented by the steeply west-dipping oblique-normal, brittle-ductile Daran Lake fault system that is interpreted to have caused be an Archean D_3 structure the juxtaposition of the relatively higher-grade gneissic Cotterill Complex to the east with the lower-grade Indin Lake Supracrustal Belt (Pehrsson and Chacko, 1997a; Pehrsson, 1998). Although Pehrsson (1998) suggested that the Daran Lake fault is post-dated by all D_4 structures, including the Indin-West Bay faults that host significant gold mineralization 200 km to the south, Miller and Stanley (2013) proposed that these fault zones are likely genetically related due to the similarity in their geometry and deformation styles.

The D_4 and D_5 events are Paleoproterozoic in age and associated with the Calderian orogeny. D_4 deformation is characterized by northwest-trending sinistral strike-slip faults, open cross-folds, kink bands and local cleavage. D_5 deformation resulted in minor gently dipping (west to southwest) reverse faults, kink bands and cleavage (Pehrsson, 1998; Pehrsson and Villeneuve, 1999).

Figure 7-3: Summary of Geological Events in the Indin Lake Area

Group or stage	Lithology and character	Age (Ma)[a]
D_5 deformation	Minor reverse faults, kink bands, cleavage	<1880[b]
D_4 deformation	Northwest-trending sinistral strike-slip faults, open cross-folds, kink bands, local cleavage	>1880[b]
Indin dyke swarm	Northwest- and northeast-trending diabase dykes	2150[c]
	Intrusive contact	
Syenogranite intrusive suite	Biotite–muscovite-bearing massive stocks, pegmatite dykes	>2560[d]
	Intrusive contact	
D_3 Daran Lake fault	Steep, west-dipping, normal–oblique fault, ductile early amphibolite-, later greenschist-facies brittle–ductile shear zones	
Monzogranite intrusive suite	Biotite-, orthopyroxene-, magnetite-bearing, massive to megacrystic batholiths, stocks, dykes	2600–2590[e]
	Intrusive contact	
D_2 deformation	North-northeast-trending, steeply north-northeast-plunging, open to isoclinal folds, crenulation cleavage, faults	
M_2 metamorphism	350–600°C at 3.3–4 kbar	
Biotite–tonalite intrusive suite	Foliated, lineated batholiths, stocks, and dykes	
	Intrusive contact	
D_1 deformation	East-trending, moderately doubly plunging isoclinal folds, foliation, dip-slip faults	
M_1 metamorphism	Low to middle greenschist facies, max. 4–5 kbar	
Chalco Lake group		
Damoti formation	Thin-bedded turbidites, iron-formation	
Parker formation	Thick-bedded turbidites, felsic hypabyssal sills, flows, breccia, polymictic conglomerate	
	Unconformity	
Leta Arm group	Mafic–intermediate pillowed and massive flows, felsic volcanic flows, intermediate–felsic volcaniclastic rocks, gabbro to quartz diorite sills, argillite	
Hewitt Lake group	Mafic pillowed and massive flows, gabbro sills, felsic lapilli tuffs and breccia, quartz–feldspar porphyry sills and dykes, argillite, siltstone	
Cotterill gneiss complex	Tonalitic to granitic orthogneiss, paragneiss, amphibolite, monzogranite	

[a]Ages available prior to the current U–Pb study, based on geological relationships unless specified.
[b]Kusky et al. (1993).
[c]LeCheminant et al. (1997).
[d]Rb–Sr (Frith et al. 1977).
[e]U–Pb zircon (Villeneuve and van Breemen 1994).

Source: Pehrsson and Villeneuve, 1999.

7.1.2 Mineralization on the Property

Since exploration began in the late 1930s, approximately 130 gold occurrences have been identified within the property area, as documented in the Northern Mineral Showings database of the NWT Geoscience Office (Figure 6-1, Table 6-1). Approximately 28 of these occurrences are considered significant gold deposits and showings (see Table 7-1 and Figure 7-4).

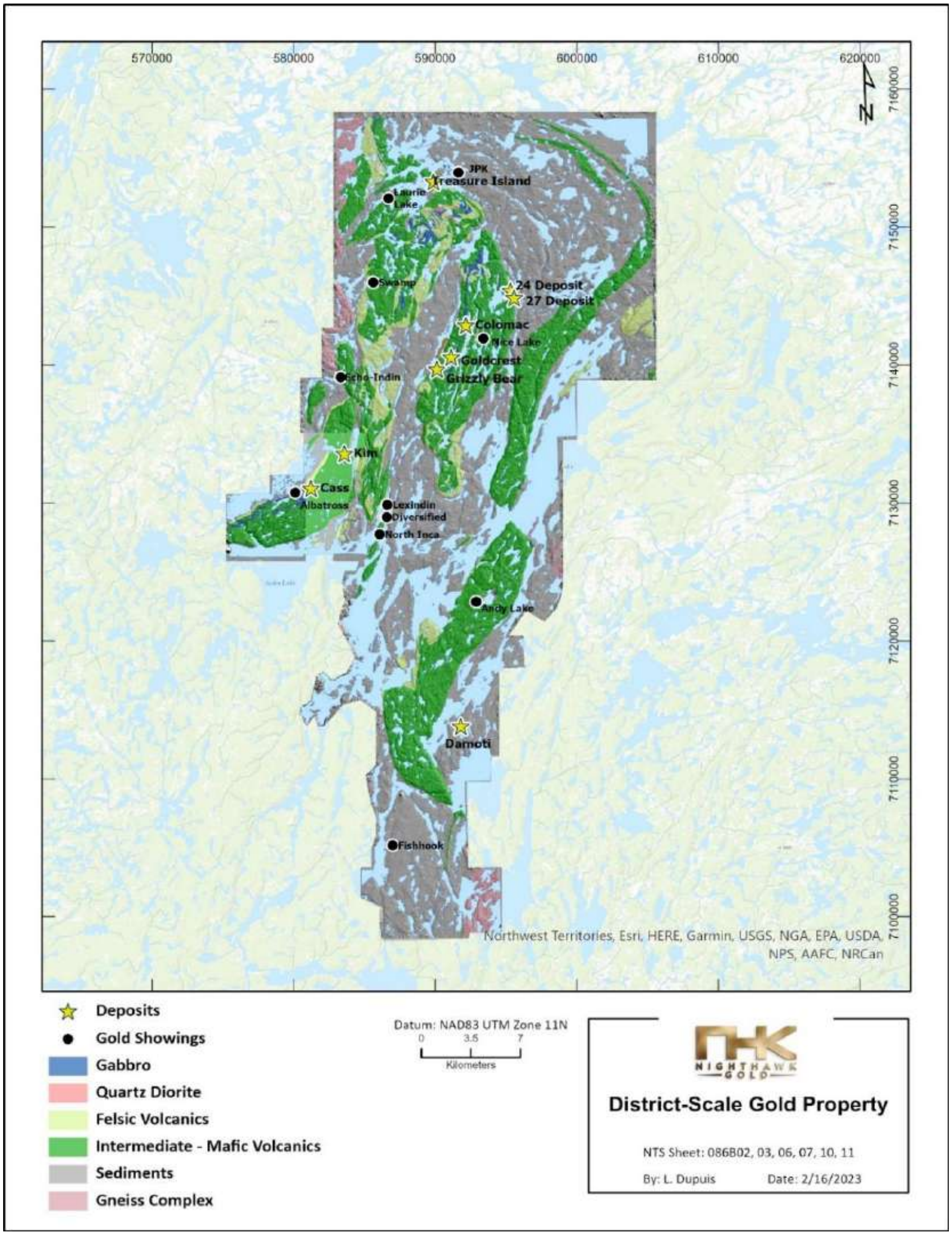
The geology and mineralization of the Colomac and Damoti areas are presented separately in the following sections.

Table 7-1: List of Significant Gold Deposits and Showings on the Indin Lake Property

No.	Deposit/Showing	Style of Mineralization
1	Colomac Main	Gold-bearing stacked quartz veins/stockworks/silicified zones hosted by intermediate intrusive
2	Goldcrest	
3	Goldcrest North/Dyke Lake	
4	Grizzly Bear	Gold-bearing stacked silicified zones, often spatially associated with felsic units.
5	Laurie Lake	
6	Treasure Island	
7	Chalco Zone - West Shore and Face Peninsula showings	
8	24/27 Zones	Gold-bearing quartz veins or silicified zones in mafic volcanics, often within or near graphitic argillites and fault/shear zones along contacts of mafic volcanic-sedimentary belts
9	Chalco Zone - Northeast showing	
10	Chalco Zone - North End showing	
11	North Inca mine	
12	Nice Lake	
13	Diversified mine	
14	#3 Zone	
15	Lexindin Zone	
16	Barker-Vidie	
17	Echo-Indin	
18	Goose Lake	Gold associated with sulphides (arsenopyrite and loellingite) and quartz-carbonate veins or silicified zones within mafic volcanic units or intrusive equivalents. Possible extensions of the Kim and Cass zones.
19	Lucky Lake	
20	Kim	
21	Kim South	
22	Cass	
23	Albatross showings	
24	Fishhook	BIF-hosted gold
25	Damoti Lake	
26	BIF Island	
27	JPK	
28	Andy Lake	Intrusion-related gold system

Source: Updated from Trinder et al., 2018.

Figure 7-4: Significant Gold Deposits and Showings on the Indin Lake Property



Source: Nighthawk, 2023; modified after Pehrsson and Kerswill, 1997a, b. Not inclusive of all 28 significant gold showings as per NWT Geoscience Office.

7.2 Colomac Centre Area

7.2.1 Colomac Centre Area Geology

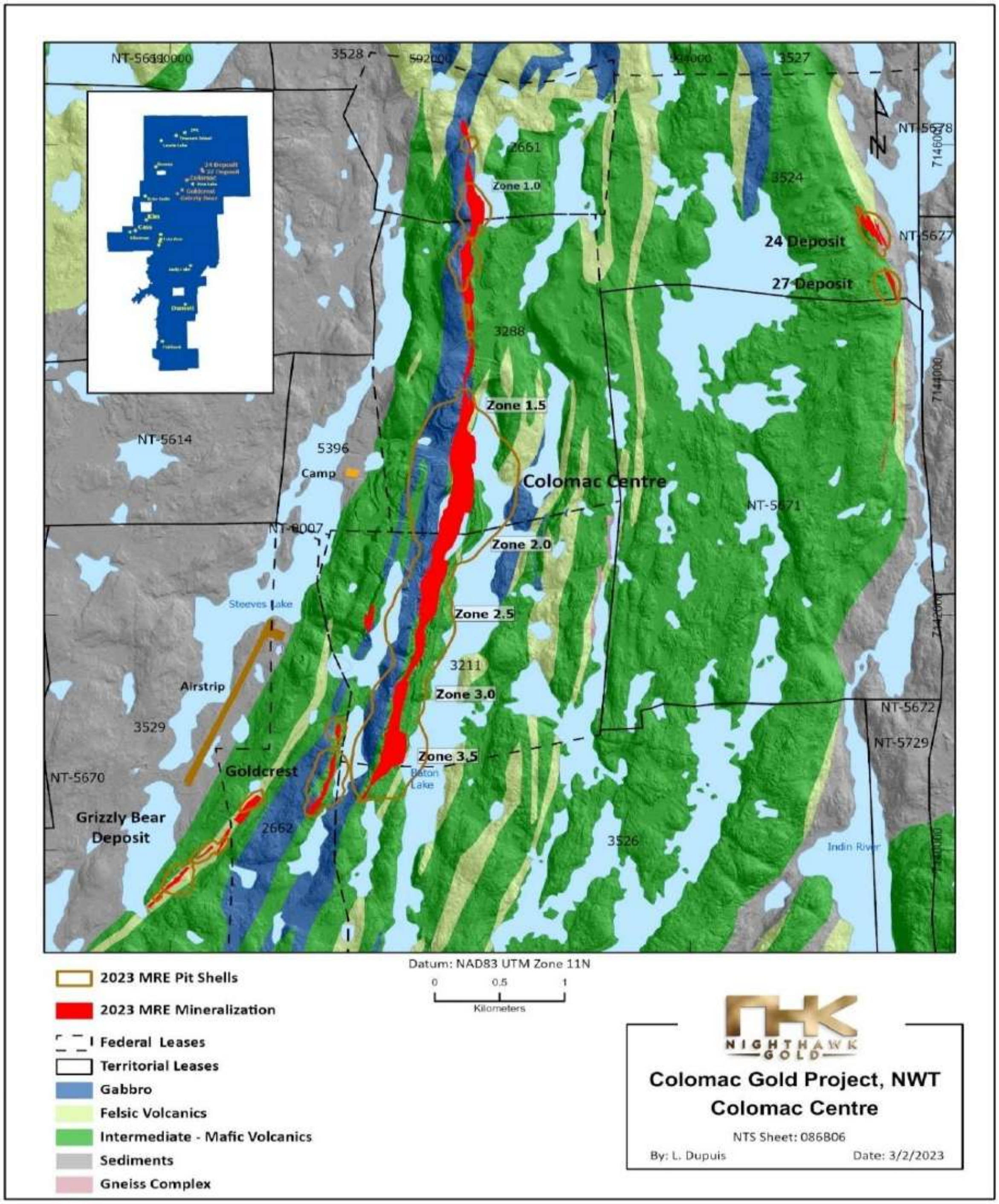
The Colomac Centre area is underlain by a 4 km thick belt of lower greenschist-grade intercalated mafic-intermediate flows, intermediate-felsic volcanics and intermediate intrusive rocks, bounded by metasedimentary rocks to the east and west (see Figure 7-5). The volcanic-sedimentary contact to the west along Steeves Lake is not well exposed. Sedimentary rocks observed in outcrop are weakly deformed slaty argillites; however, the contact to the east in the Indin River area shows the more classic Archean contact with evidence of strong and repeated folding and faulting along with accompanying hydrothermal alteration. Sedimentary rocks vary from graphitic argillites and siltstones to arkoses and sandstones (Cohoon et al.,1991a and 1991b).

A multiphase, synvolcanic intrusive complex (about 2 km by10 km at surface) intrudes the volcanic rocks on the west side of Baton Lake within 800 m of the western volcanic-sedimentary contact. The host strata and synvolcanic intrusive complex is strongly deformed, and mafic units have a steeply dipping foliation and a steeply plunging lineation. The sill complex strikes NNE and dips steeply E, subparallel to the host strata. It consists of a series of multiphase, medium-grained diorite to quartz-diorite (small blue quartz phenocrysts; up to 15% magnetite) and gabbroic sills, with about 15% of the complex occupied by elongate, andesitic enclaves (tens or hundreds of meters in size) (NWT Geoscience Office, 2012a).

The Colomac sill (2671 ±10 Ma; Morgan, 1992), which hosts the Colomac Main deposit, occurs near the east side of the intrusive sill complex in contact with, or near, andesitic volcanics. The NWT report describes the Colomac sill as composed mainly of a medium-grained quartz-albite porphyry (dioritic to trondhjemitic), with some chlorite, biotite, epidote, carbonate, amphibole, magnetite, up to 2% pyrite, and pyrrhotite (NWT Geoscience Office, 2012a). Historical drill logs describe the Colomac sill as a multiphase intrusion that comprises a QFP component enclosed by a phase of quartz diorite and/or diorite/gabbro. Detailed historical surface outcrop mapping shows an unrestricted distribution of the rock types. Historically, the Colomac sill was often referred to as a dyke because of its steeply dipping orientation; however, most now accept that the Colomac intrusion is a subvolcanic sill that was intruded in a horizontal position and later rotated and/or folded together with the surrounding intrusive and volcanic rocks into its present, steeply dipping orientation (Stanton et al.,1954; Helmstaedt, 1990; Morgan, 1992). Morgan (1992) considered the Colomac sill a separate intrusion from the quartz-dioritic Goldcrest dyke.

Nighthawk's drill core logging has identified quartz diorite and diorite as the main intrusive units, with QFP and gabbro rarely identified. To clarify, Nighthawk completed detailed sampling and XRF and ICP lithogeochemical analysis of several holes from the 2012 and 2014 drill programs to better understand the intrusion, gold distribution, and possible alteration. Samples taken throughout the Colomac sill show highly constrained trace element profile slopes throughout the sill's transition from top to base, with abrupt breaks across major lithological contacts. Nighthawk interprets that the trace element distributions are best explained by a fractionation process that gave rise to a differentiated sill of intermediate to mafic composition (tonalite-trondhjemite) with a fine- to medium-grained felsic to intermediate upper portion and a medium- to coarse-grained mafic base. The sill has been rotated post-emplacement and is steeply dipping and topping to the east.

Figure 7-5: Colomac Area Geology Map Showing Gold Deposits



Source: Nighthawk, 2023; modified after Pehrsson and Kerswill, 1997a, 1997b.

Where tested along its strike, the Colomac sill ranges from 40 m to 200 m wide (averaging 100 m). The quartz diorite (historical QFP) portion of the Colomac sill ranges from 9 m to 60 m wide (averaging 30 m). The sill has a drill-tested strike length of about 6.7 km. It does not have a strong tectonic fabric. The attitude of the sill is 010°/80° in the north and 023°/80° in the south. The deformation in the sill is brittle, producing fracture stockworks and auriferous quartz-vein zones that are highly altered and carbonatized. Otherwise, the sill shows only weak tectonic fabrics in contrast to the less competent surrounding country rocks. Overall, alteration zoning in the sill consists of potassic altered cores, accompanied by weak silicification and massive clots of hematite-magnetite in quartz, enveloped by chloritization and epidotization (NWT Geoscience Office, 2012a).

Goldcrest Mines Ltd located three showings in 1945 on the former AE claims: the Goldcrest Dyke, the Goldcrest North (or Dyke Lake Zone), and the Goldcrest East Zone (NWT Geoscience Office, 2012b). The showings consist of felsic porphyries intruded by tensional quartz veins within a large, multiphase, synvolcanic sill/dyke complex that ranges in composition from diorite to quartz-diorite, with gabbroic sills and large andesitic enclaves. The complex is situated near the base of a sequence of greenschist-grade andesitic flows (pillows) and intermediate-felsic volcanics. Morgan (1992) considered the quartz-dioritic Goldcrest dyke a separate intrusion from the Colomac sill.

Several N-S-trending quartz feldspar intrusions, similar to the Colomac sill, were located in the Duck Lake area. These were mapped and sampled in detail, and although they were locally very pyritic and hydrothermally altered, gold values from both lithogeochemical samples and diamond drilling were uniformly low (Cohoon et al., 1991a and 1991b).

Cohoon et al. (1991a and 1991b) noted a relatively thick sequence of QFP, rhyolite porphyry and sericitic rhyolite in the approximate center of the Colomac area in the Nice Lake area, possibly associated with a high-level intrusion. These units are commonly pyritic (1% to 5%) and give rise to strong IP anomalies. Many of the units contain 10% to 15% quartz. Nighthawk's fieldwork has shown that the mafic to felsic volcanic sequence between Baton Lake and Nice Lake is upright, steeply east-dipping and east-facing. This volcanic sequence is intruded by blue quartz-eye gabbro and the Nice Lake biotite tonalite (based on its mineralogy: glassy to blue quartz+plagioclase+biotite). It has the same structural and alteration overprint as the intrusive-volcanic rocks that host the Colomac Main deposit.

A prominent aeromagnetic anomaly just east of the Colomac Main 2.0 open pit reflects an ultramafic intrusion under Baton Lake. This ultramafic unit is very schistose, and ankeritic quartz veining is present at its south boundary where the enclosing basalts are more competent. A unit of variolitic basalt was observed due east of the pit near the lakeshore, possibly the only occurrence of komatiites on the property (Cohoon et al.,1991a and 1991b).

Several crosscutting faults were evident from both the geological and geophysical results, but none appear to be significant with respect to the distribution of mineralization.

7.2.2 Colomac Centre Area Mineralization

Gold mineralization in the Colomac Centre area is thought to postdate isoclinal folding and predate the final closure of the north-plunging regional antiform along which several significant deposits are found, including the Colomac Main deposit on the east limb, Treasure Island on the fold nose, and the Kim/Cass deposits on the west limb (NWT Geoscience Office, 2012a). Brittle deformation of the more felsic quartz diorite relative to the more mafic and ductile diorite and gabbro portions of the differentiated intrusive complex at Colomac provided conduits for fluids that produced the mineralized quartz stockworks and veins. The Colomac Centre area contains several gold deposits and showings. The most significant deposits are Colomac Main, Goldcrest, Goldcrest North (Dyke Lake), Grizzly Bear (Airport Showing), 24/27 (Cohoon et al.,1991a). These deposits are discussed in the following subsections.

7.2.2.1 Colomac Main Deposit

Gold mineralization has been identified along an approximate 6.7 km strike length of the Colomac sill. It has been divided into somewhat arbitrary zones based on their spatial position along the sill, their location with respect to historical claim boundaries, and the grade of their mineralization. The zones have been historically identified from north to south as 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0 and 5.0. Based on its drilling programs and lithogeochemical studies, Nighthawk reported that gold is preferentially located within the upper (eastern), more sodic and siliceous quartz diorite portion of the sill. The quartz diorite behaved in a brittle manner during regional structural deformation and was amenable to fracturing, fluid transport and mineral deposition, in contrast to the more ductile behaviour of the lower, more mafic quartz gabbro part of the sill and the surrounding mafic volcanic rocks.

Gold is found in several zones within the sill, associated with parallel sets of tensional quartz veins that consist of lenses of smoky grey quartz within white quartz (NWT Geoscience Office, 2012a). The quartz veins average from less than 0.5 cm to 10 cm thick, and they commonly contain little (less than 5%) carbonate. They are generally co-planar, with variable trends and relatively shallow dips of 20° to 40°. Shallow-dipping veins become steeply dipping within shear zones and become part of the shear veins, which may approach up to 1.0 m wide. Shear vein margins tend to be ribboned by crack-seal textures and may be sheared, unlike the veins oriented at a high angle to the core axis (i.e., shallow-dipping “flat” veins). Contacts between veins and the host rock are sharp but may also appear gradational due to bleached, sulphidized halos. The quartz veins generally terminate at the sill margins, but a few small, barren quartz-carbonate veins occur locally in the overlying basalt. A late set of barren white quartz veins is also present.

Gold occurs as fine grains along vein margins, in fractures, and in quartz veins and their selvages/halos. Gold is generally associated with pyrrhotite and to a lesser degree with pyrite in quartz veins and vein selvages, as well as arsenopyrite, tourmaline and trace quantities of sphalerite, galena, and molybdenite. The immediate vicinity of mineralization is generally bleached due to sulphidation and may be silicified due to quartz-filled micro-fractures. Alteration halos contain minor pyrrhotite, lesser pyrite, and trace amounts of sphalerite, galena and molybdenite.

Mineralization has been intersected over a strike length of approximately 5.8 km. True widths of the mineralized zones vary from 5 m to locally 100 m. Zone 2.0 consists of the thickest and coarsest-grained part of the Colomac sill. Veins form up to 10% of zone 2.0. The mineralized zones dip steeply to the east and are parallel and spatially related to the quartz diorite.

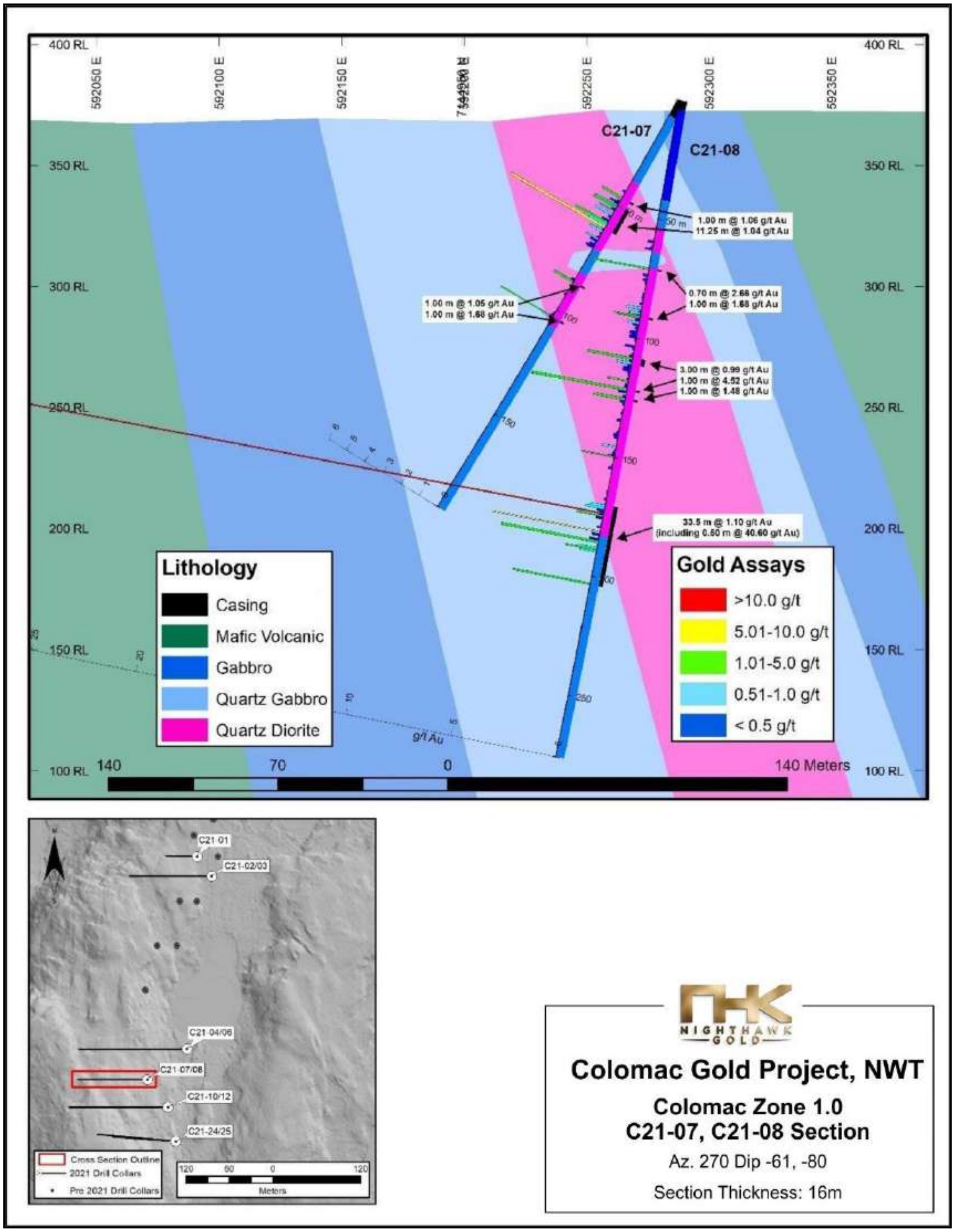
The deepest holes drilled on the Colomac Main deposit intersected mineralization at depths of approximately 790 m at zone 1.5 and 800 m below surface at zone 3.5. Historically, most drill holes in the zones 2.0 to 3.5 were completed to a vertical depth of less than 300 m (see Figures 7-5 and 7-6). The mineralization is open to depth.

Colomac gold mineralization is spatially associated with what was historically referred to as a “QFP” or quartz-albite dyke. Nighthawk has introduced a different Colomac sill rock-type terminology in its drill logs. The following is apparent:

- “Quartz diorite” intervals in the Nighthawk logs correspond spatially to “QFP” intervals in historical logs
- “Quartz gabbro” intervals in Nighthawk logs correspond spatially to “Diorite” intervals in historical logs.

The terminology in the historical logs has been renamed according to Nighthawk’s current lithological codes. The 2021 drill program identified another quartz-diorite and gabbro body that coincides with a 2,000 m long positive magnetic anomaly parallel to the Colomac sill and the associated magnetic anomaly. This anomaly was explored along a strike length of 200 m. The northernmost DDH along this trend (C21-05) identified a mineralized zone with 5.95 g/t over 11.9 m, including 12.89 g/t over 3.5 m. The strike extent of this mineralization to the north is untested.

Figure 7-6: Typical Geological Section through Zone 1.0 of the Colomac Deposit



Source: Nighthawk, 2023.

7.2.2.2 Goldcrest Deposit

7.2.2.2.1 Goldcrest

The Goldcrest deposit is located approximately 1 km west and 2.25 km south of the Colomac main zone 2.0 deposit. It is hosted by the Goldcrest sill, a medium-grained, quartz diorite and diorite intrusive complex similar to the Colomac sill that was historically referred to as a dioritic to trondhjemitic quartz-albite intrusion. Similar to the Colomac sill, the Goldcrest intrusion has historically been referred to as a dyke because of its steeply dipping orientation. The mineralized zone is very similar to the Colomac sill deposits, where quartz veins cut competent, fractured quartz diorite, but the mineralization and veining are more erratic at Goldcrest. The Goldcrest sill lies approximately 500 m west of the southern part of the Colomac sill, near the west shores of Fly and Ridge Lakes (NWT Geoscience Office, 2012b).

Mineralization has been intersected over a strike length of approximately 800 m and has been tested to 400 m below surface. True widths of the mineralized zones vary from 10 m to 30 m. The mineralized zone dips steeply to the east and is parallel and spatially related to the quartz diorite. The mineralization is open to depth and along strike to the north but appears to peter out southward.

7.2.2.2.2 Goldcrest North

The Goldcrest North deposit (previously referred to as the Dyke Lake Zone by Northgate Exploration Limited) is located about 350 m west of the Colomac sill and is roughly on strike with the Goldcrest sill, although no continuity has been established between the two zones.

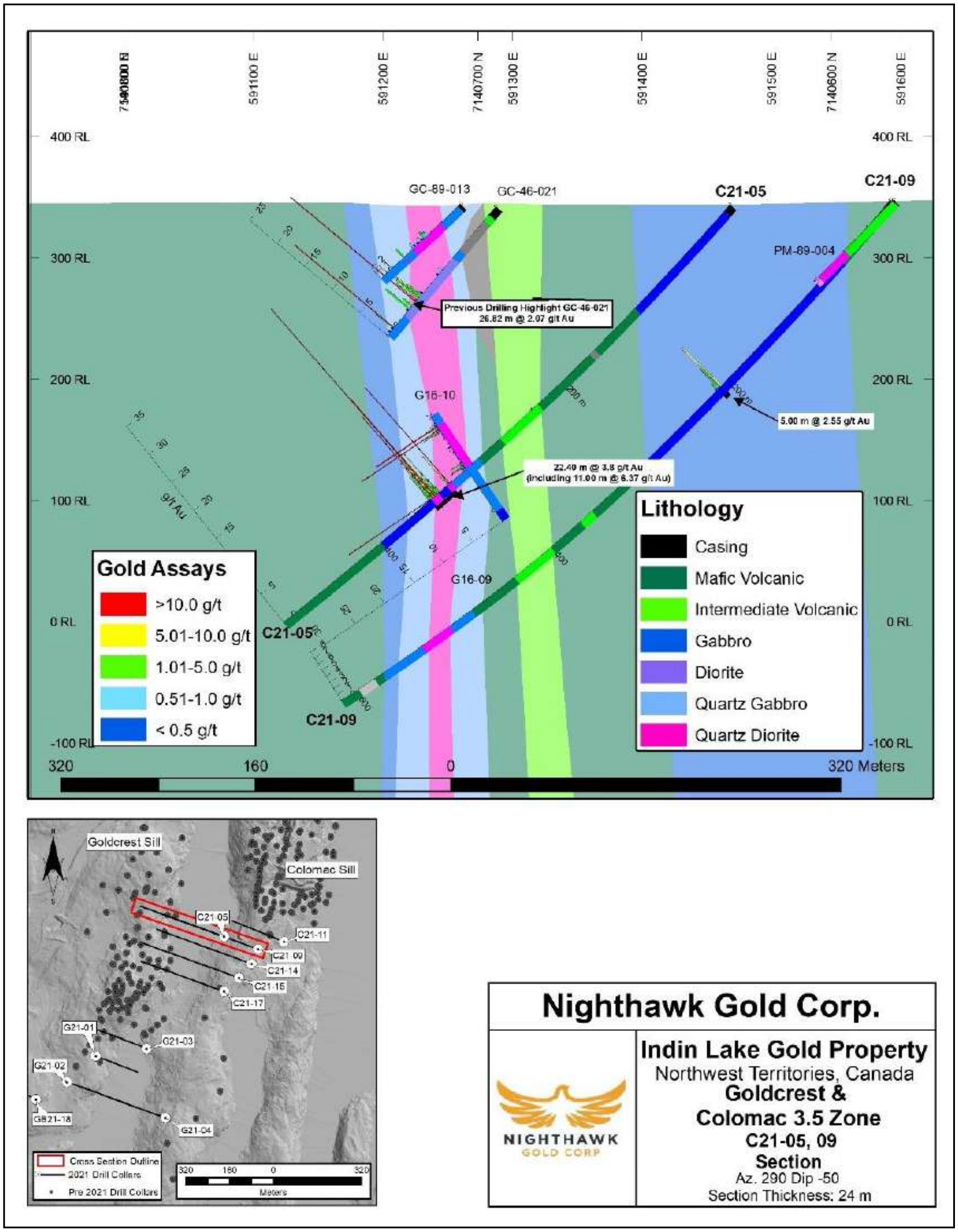
The host rock at Goldcrest North has historically been described as a fine-grained, massive, siliceous, sericitized quartz or dacite porphyry dyke/sill associated with a narrow band of rhyolite but is referred to herein as a diorite-quartz diorite intrusion using Nighthawk’s current terminology. Abundant glassy grey quartz veins cut the intrusion, which is up to 18 m wide. Pyrrhotite and arsenopyrite are present.

Mineralization has been intersected over a strike length of approximately 250 m and has been tested to 200 m below surface. Mineralization averages 12 m to 15 m in width, dips steeply to the east, and is parallel and spatially related to the quartz diorite's hanging wall (eastern contact).

Gold is associated with an alteration assemblage that includes silicification, feldspathization and sulphidation, with minor chlorite, tourmaline and carbonate. Sulphides include pyrite, pyrrhotite and arsenopyrite, disseminated in both quartz veins and in the wall rock; however, the sulphides occur more often as fillings in hairline fractures. Although gold is always associated with quartz veins and sulphides, there is no direct correlation between the quantity of veins or sulphides and gold values.

Historical drilling indicates that the favourable quartz diorite pinches out to the north. The quartz diorite has not been closed off to the south, but no significant gold mineralization has been found in the southernmost section of the holes. The zone remains poorly defined and open at depth (Lee and Trinder, 2012; Trinder et al., 2018) A typical section through the Goldcrest North zone is shown in Figure 7-7.

Figure 7-7: Typical Geological Section through the Goldcrest North Zone



Source: Nighthawk, 2021.

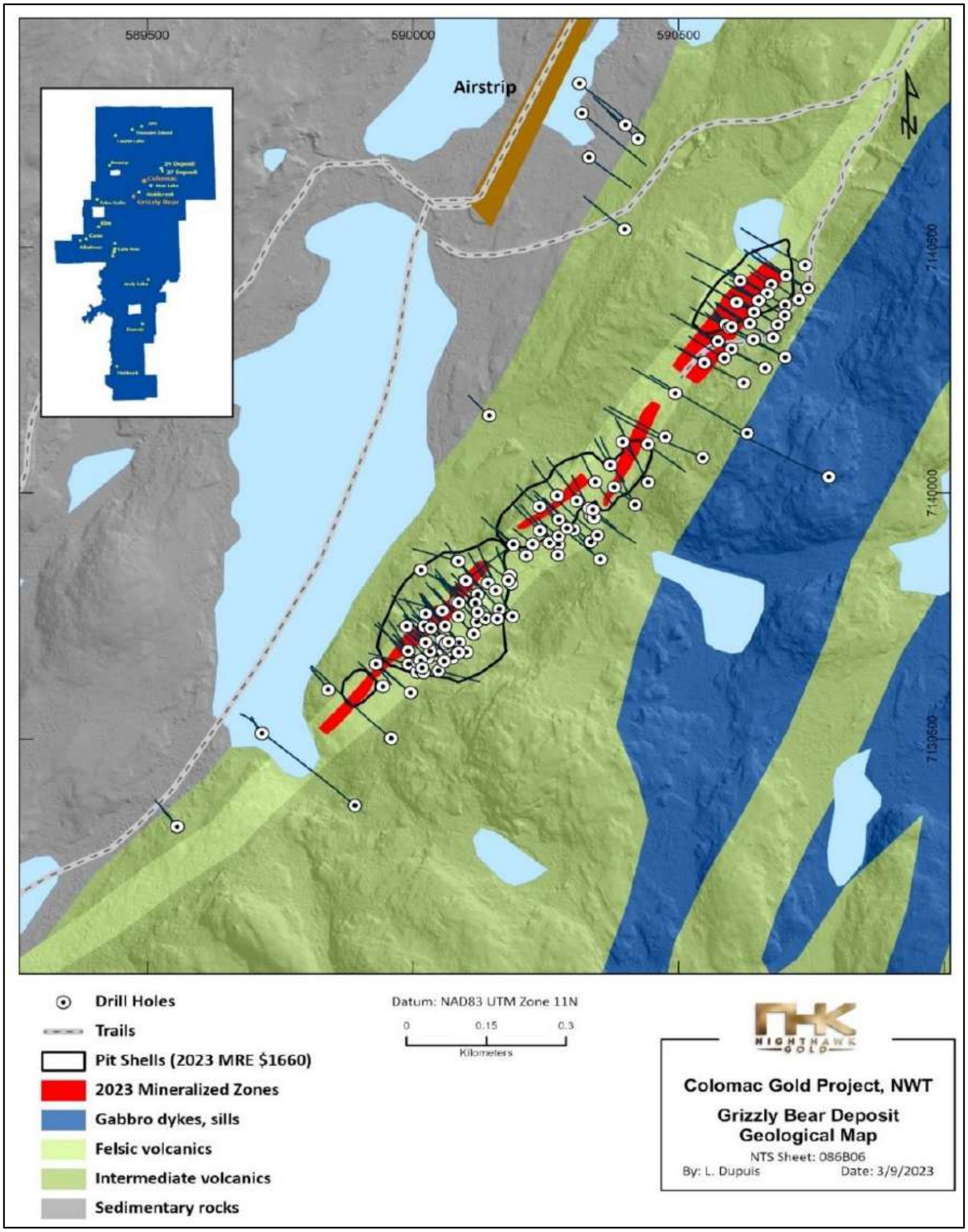
7.2.2.3 Grizzly Bear Deposit (aka Grizzly Zone and Airport Zone)

The Grizzly Bear deposit, previously referred to as the Airport Zone by Neptune Resources Corp. (Neptune), is located on mining leases 3529 and 2662, about 3 km west and 2 km south of the Colomac Main zone 2.0 deposit.

The deposit is underlain by greenschist-grade mafic volcanic and sedimentary rocks. The mafic volcanic rocks include felsic lapilli tuffaceous horizon that hosts discontinuous mineralization. The tuff is strongly foliated, rhyolite clast-supported, pervasively sericitized, contains thin wisps of pyrrhotite parallel to the foliation, and may have local biotitization and carbonatization. The mineralized zone is subparallel to the strata, trending northeast, and contains anomalous hydrothermal alteration, sulphide mineralization and gold (NWT Geoscience Office, 2012c). The mineralization consists of quartz veins and veinlets, with disseminated sulphides and native gold.

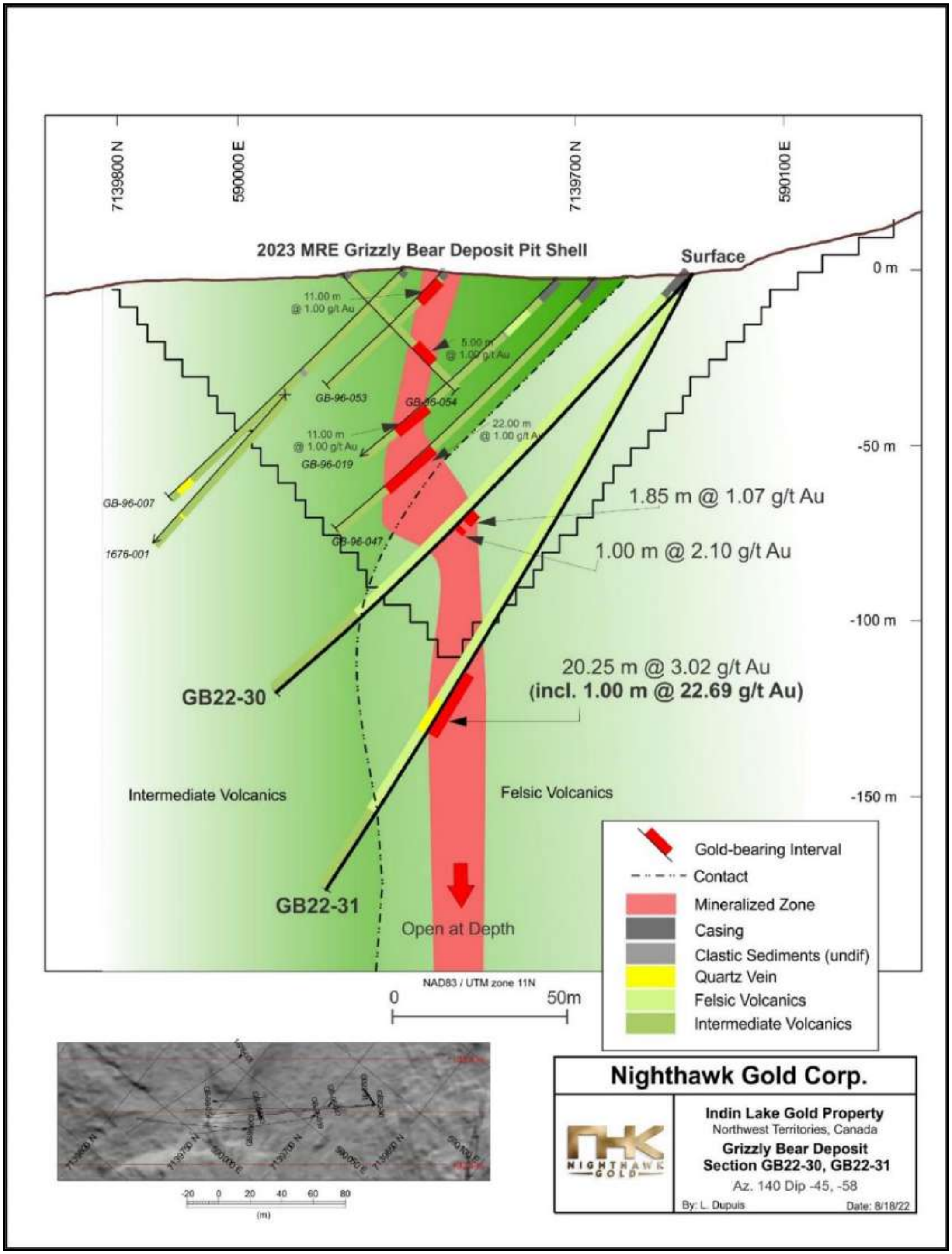
Mineralization has been intersected over a cumulative length of 1,200 m and has been tested to 200 m below surface. True widths of the mineralized zones vary from 5 m to 20 m. The mineralized zones strike 040° and dip steeply to the southeast (see Figures 7-8 and 7-9). The mineralization is open to depth and along strike to the north but appears to peter out southward.

Figure 7-8: Geological Map of the Grizzly Bear Deposit with Collar Location and Surface Trace of Drill Holes



Source: Nighthawk, 2023. Modified after Pehrsson and Kerswill, 1997a.

Figure 7-9: Geological Section through the Grizzly Bear Deposit



Source: Nighthawk, 2023.

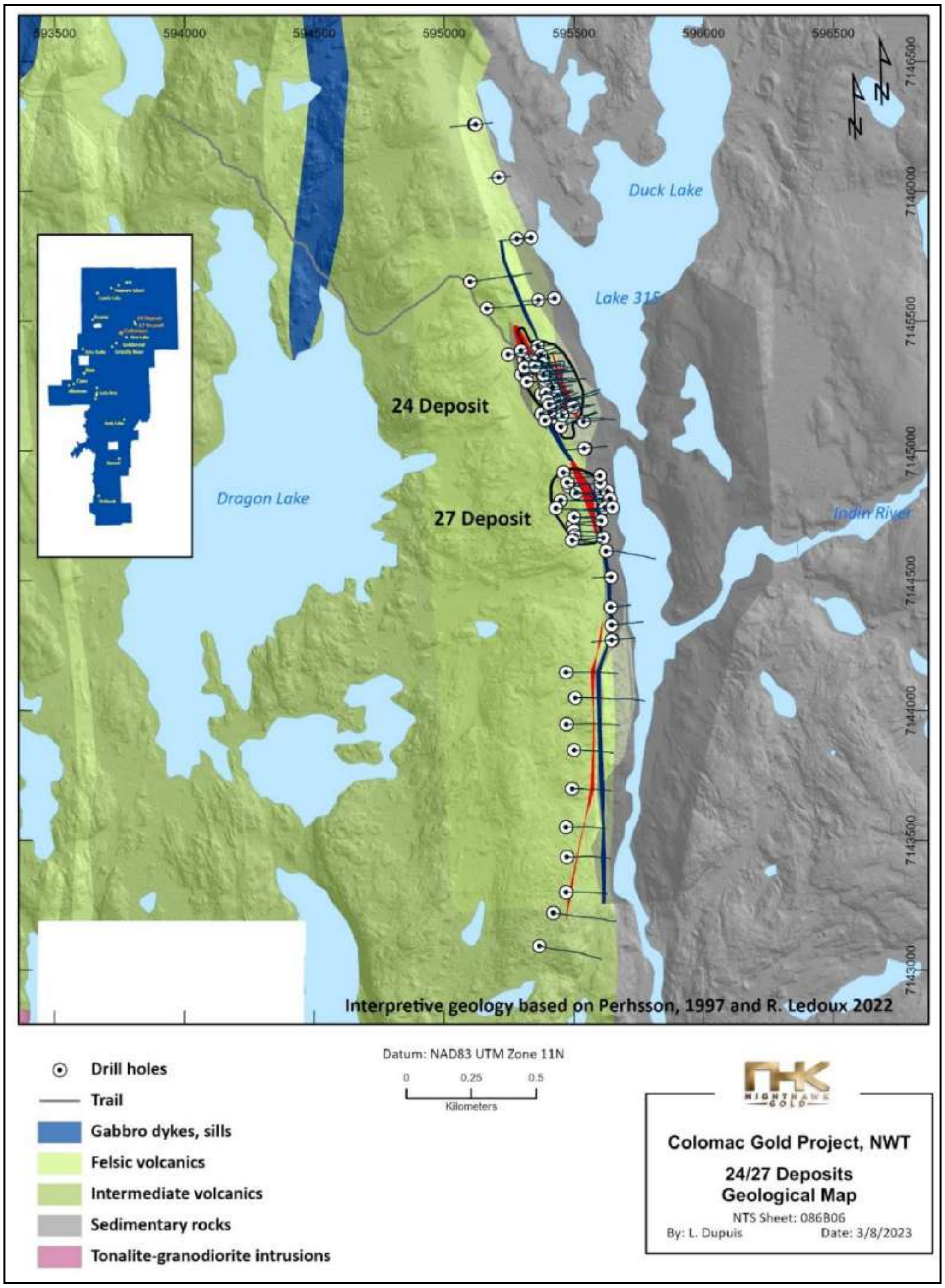
7.2.2.4 24 Deposit (aka Zone 24)

On the west bank of the Indin River, 24 deposit is located along a north-trending contact between volcanic rocks to the east and sedimentary rocks to the west (see Figure 7-10). Volcanic rocks range from mafic to intermediate massive flows with some irregular diorite intrusions. Sedimentary rocks are predominantly greywacke turbidites, but graphitic argillites/mudstone horizons are also present (NWT Geoscience Office, 2012d). 24 deposit is characterized by intense quartz flooding within interbedded andesite and greywacke siltstone. Quartz flooding occurs as parallel "veins", with a strike length varying from 1.5 m to 7.5 m and widths from 0.15 m to 3.0 m. The quartz-flooded zones are greyish white to smoky black, highly strained, and commonly contain carbonatized and/or sericitized wall rock inclusions. Adjacent to the zones, the volcanic rocks are commonly altered to carbonatized and chloritized schist, whereas the sedimentary rocks are locally altered to sericite schist. Mineralized zones are characterized by the presence of disseminated pyrite, pyrrhotite and arsenopyrite, along with minor chalcopyrite and occasionally galena and sphalerite (NWT Geoscience Office, 2012d).

Recent investigation of the gold mineralization at 24 deposit revealed that the gold mineralization is centered on a horizon of strongly sheared felsic volcaniclastic rocks (lapilli tuff and tuff) that lies between more competent sedimentary and mafic volcanic rocks (Gaboury, 2021). The rocks display steeply dipping to subvertical dominant foliation with steeply plunging stretching lineation, which become very intense in the volcaniclastic package (Figure 7-11). An early sulphidation event is suggested by disseminated pyrite and pyrrhotite that are present without associated quartz±carbonate veins (Gaboury, 2021). Subsequently, syntectonic, shallowly dipping extensional quartz-carbonate veining developed in the competent lithological units that became isoclinally folded and boudinaged within the intensely deformed volcaniclastic horizon (Gaboury, 2021). The surface exposure of the mineralized zone is constrained within a 20 m thick corridor.

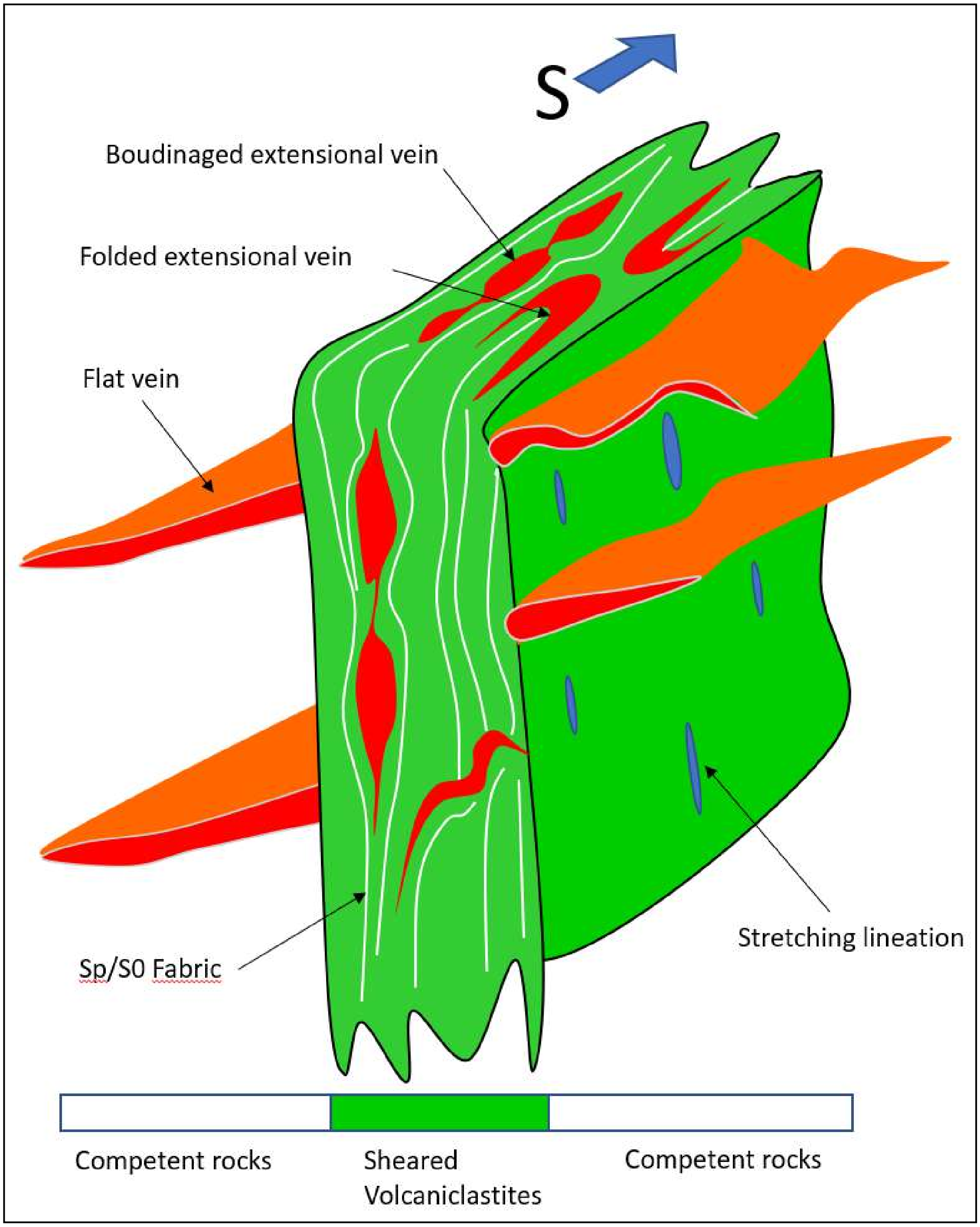
Mineralization has been intersected over a length of 250 m and has been tested to 150 m below surface. True widths of the mineralized zones vary from 2 m to 15 m with a cumulative width of the sub-parallel, folded mineralized zones of 30 m to 85 m. The mineralized zones strike 325° and dip steeply to the northeast. The mineralization is open to depth and along strike to the north but appears to peter out southward.

Figure 7-10: Geological Map of the 24 and 27 Deposits with the Collar Location and Surface Trace of the Drill Holes



Source: Nighthawk, 2023.

Figure 7-11: Schematic Model for the Structural Setting of the Gold-Mineralized Quartz Veins



Source: Gaboury, 2021.

7.2.2.5 27 Deposit (aka Zone 27)

The area referred to as “27 deposit” is approximately 550 m south of 24 deposit (see Figure 7-10) along the contact between volcanic and sedimentary rocks.

Although 27 deposit is near the volcanic-sedimentary contact, like Zone 24, it has a different style of mineralization. The mineralization consists of free gold in narrow (average 7.5 mm) quartz veins (Cohoon et al.,1991a and 1991b). The wallrock throughout the zone contains 3% very finely disseminated pyrrhotite, locally concentrated in short, altered sections.

Seven mineralized zones were defined at the 27 deposit with true widths varying from 1 m to 10 m. The cumulative width of the subparallel mineralized zones reaches locally 120 m. Mineralization has been intersected over a length of 200 m and has been tested to 150 m below surface. The mineralized zones strike from 170° to 190° and dip steeply to the southwest to the northwest. The mineralization is open to depth.

The 2021 drill program identified a new zone approximately 500 m south of the last drill hole intersecting 27 deposit. This zone is narrow, ranging in thickness from 0.3 m to 3.3 m and can be followed for over 970 m. It was intercepted in the mafic volcanic rocks and the overlying intermediate to felsic volcanic horizon that also hosts the mineralization at 24 deposit.

The Echo Indin and Andy Lake prospects share similarities with the 24/27 mineralized system but are located away from the deposits. Echo Indin lies 6 km west of 24/27 (on the western limb of the regional fold, whereas Andy Lake was interpreted to be a different deposit type, an intrusion-related mineralized system (Laflamme, 2018).

7.2.2.6 Exploration at Depth

Most of the historical and more recent exploration work by Nighthawk that have intersected the Colomac Main and Goldcrest deposits extended less than 200 m vertically below surface.

In 1997, the last year of production, Royal Oak conducted a deep drilling program in zone 3.5 of the Colomac Main deposit. The holes passed through a steep northeast-plunging shoot of mineralization, which has a higher grade than the average grade of mineralization at Colomac Main. The deepest drill hole in this area (3.5-97-08), intersected two intervals of 7.63 g/t Au over 4.6 m (core length) and 8.44 g/t Au over 4.3 m (core length) (true thicknesses unknown in both cases) at a vertical depth of approximately 792 m below surface.

In 1997, Royal Oak also completed drill hole 2.0-97-02 in the zone 2.0 open pit area that intersected 1.27 g/t Au over a mineralized core interval of 120.7 m (true thickness unknown) at a vertical depth of approximately 670 m below the surface. This grade is similar to the zone 2.0 pit at a depth of approximately 90 m below the surface.

Nighthawk intersected another steeply plunging, higher grade shoot at Colomac Main in Zone 1.5. Examples of higher-grade mineralization included core intervals of 145.75 m (25.00 m true width) grading 3.33 g/t Au, including 10.80 m of 12.19 g/t Au; and a core interval of 50.30 m (45.30 m true width) grading 2.58 g/t Au, including 10.20 m of 10.14 g/t Au. In 2017, Nighthawk drilled a hole that intersected 0.94 g/t Au over a mineralized core interval of 342.50 m (true thickness unknown) to a maximum vertical distance of approximately 900 m below surface.

These drill hole intersections demonstrate the potential for discrete higher-grade mineralized trends within the Colomac sill. The trends remain unconstrained at depth. At both zones 1.5 and 3.5, mineralized quartz diorite has been drilled 450 m below the current resource block model, where it remains open, demonstrating the potential to follow these higher-grade domains deeper, down to approximately 1 km below surface.

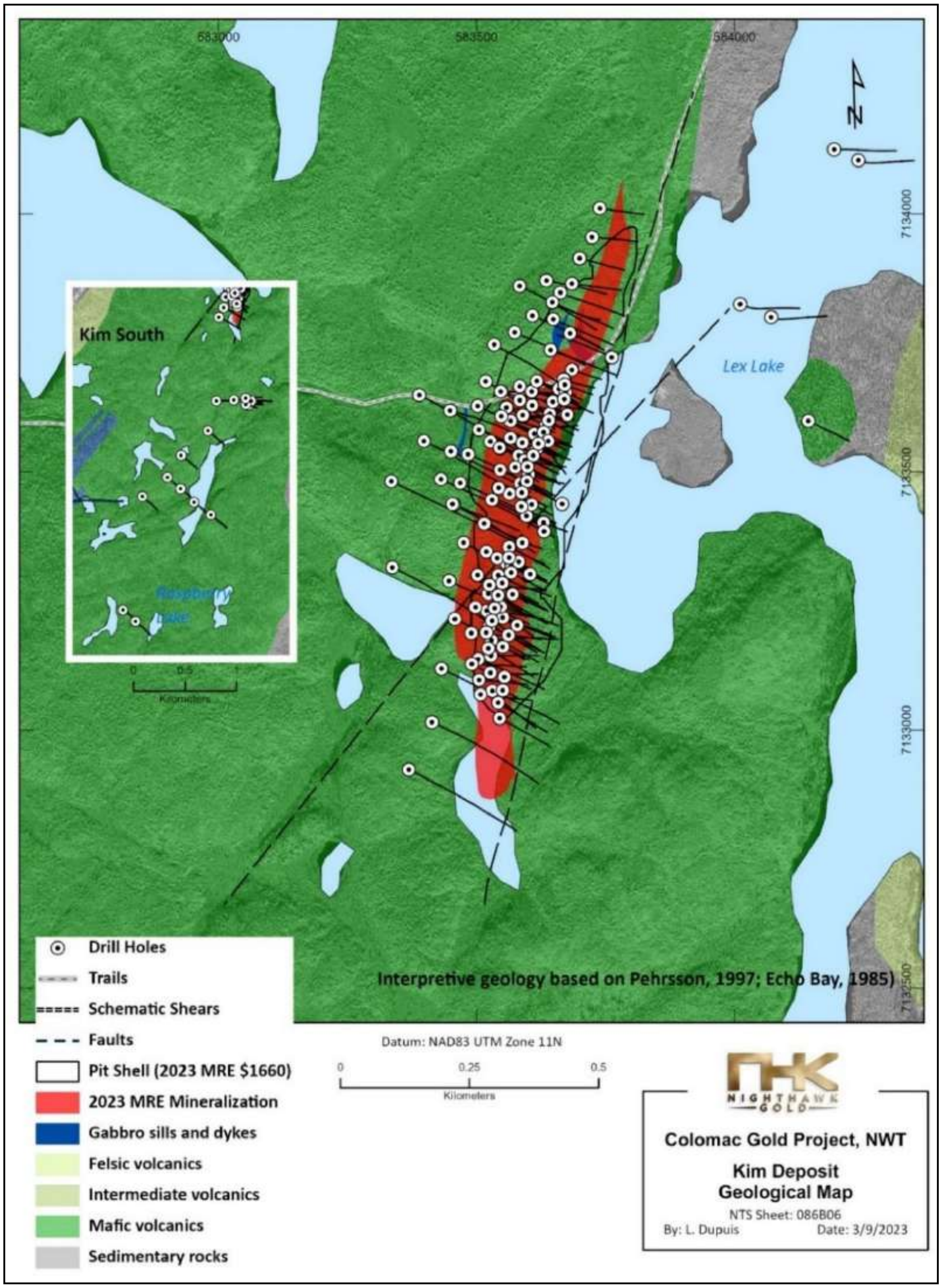
7.3 Kim Deposit

The Kim deposit is located in the western-central part of the Indin Lake Supracrustal Belt, about 12.5 km from the Colomac Main deposit. The area is underlain by subvertical pillowed and massive mafic flows of the Hewitt Lake group that are intruded by gabbroic dikes/sills and turbiditic metasedimentary rocks (including greywacke and argillite) to the east along the shore of and underneath Lex Lake (see Figure 7-12; Morgan, 1991). The bulk of the mineralization is hosted by the mafic volcanic rocks, but a few gold showings are also present in the sedimentary sequence (Morgan, 1991). The rocks display steep to subvertical foliation and a strong subvertical stretching lineation highlighted by flattened and stretched pillows in the mafic flows, and the lithological units are displaced along NW- and NE-striking faults (Morgan, 1991). Morgan (1991) noted that extensive silicification of the mafic flows and sedimentary rocks was not related to gold mineralizing processes.

The gold mineralization at the Kim deposit is hosted by the more competent massive mafic flows. It is associated with smoky quartz-carbonate veins oriented randomly rather than in a distinct direction (Morgan, 1991). Gaboury (2021) proposed that the two mineralized corridors are hosted by very strongly deformed volcaniclastic rock horizons. The smoky quartz-carbonate veins are surrounded by sulphide-rich alteration halos dominated by arsenopyrite and pyrrhotite (Morgan, 1991). Blocky boudinage of the arsenopyrite parallel to the stretching lineation suggests that the mineralization predates the dominant regional deformation (Morgan, 1991). Gaboury (2021) distinguished multiple sets of veins such as: (1) grey quartz veins without arsenopyrite dissemination in wallrock; (2) grey quartz veins with disseminated arsenopyrite halo; (3) grey quartz veins with arsenopyrite overprinting; (4) grey quartz veins with chlorite and albite with arsenopyrite disseminations in wallrock; and (5) grey quartz-chlorite-albite veins with arsenopyrite disseminations in wallrock and with hematization of albite and late albite veining. The variation of the quartz veins with respect to the core angle suggests that the veins are likely folded (Gaboury, 2021). Gaboury (2021) also describes disseminated pyrrhotite and pyrite mineralization that does not appear to be associated with quartz-carbonate veins. The mineralization was interpreted to have been formed as extensional veins in a reverse-dextral deformation corridor centered on the volcaniclastic rock horizon, and that continued deformation resulted in sigmoidal folding of the veins (see Figure 7-13; Gaboury, 2021).

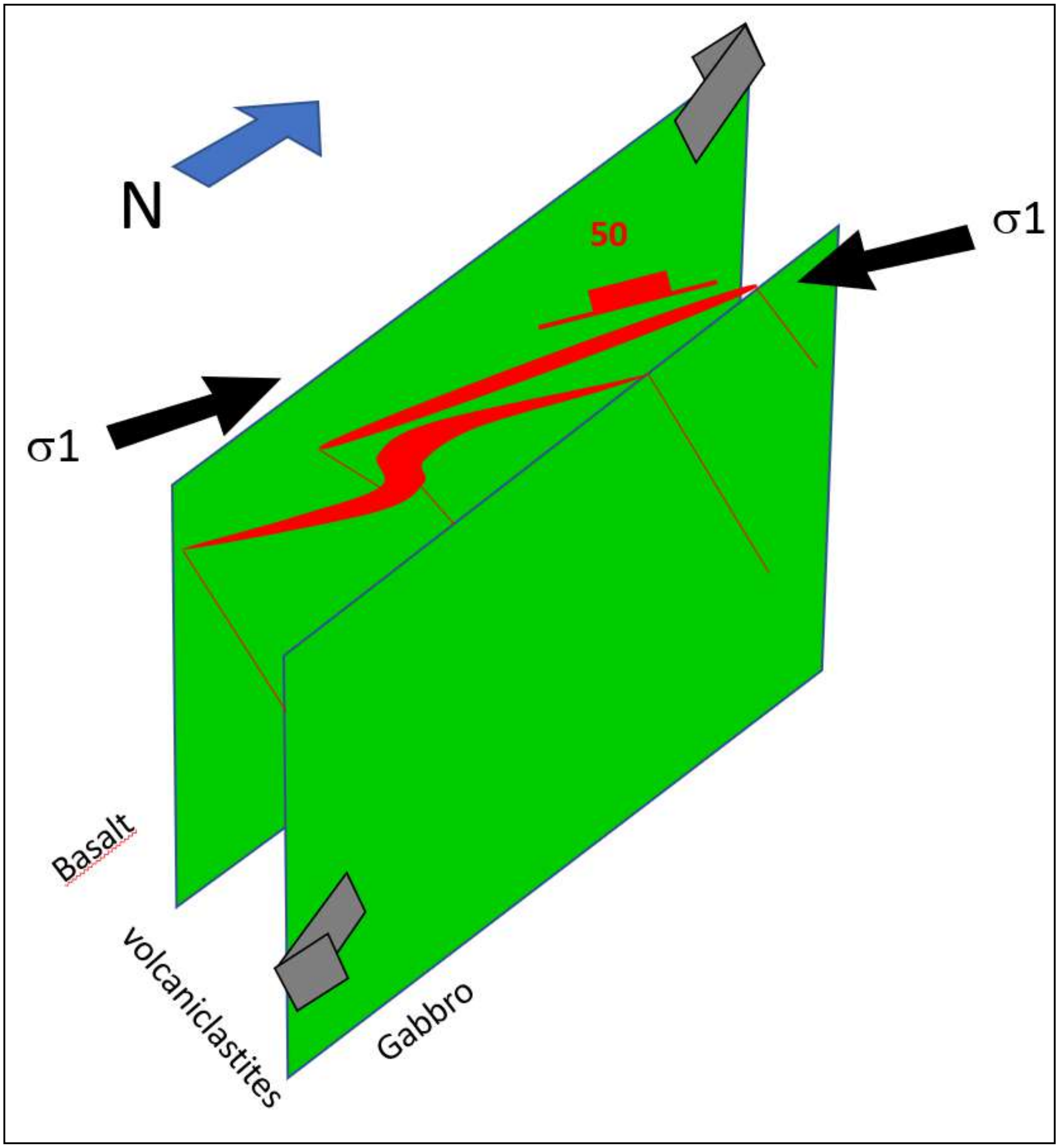
Mineralization has been intersected over a length of 1,000 m and has been tested to 350 m below surface. True width of the mineralized zone varies from 3 m to 30 m. The mineralized zone strikes 190° and dips steeply to the west. The zone remains open at depth and has a known extension to the south (Kim South).

Figure 7-12: Geological Map of the Kim Deposit with the Location and Surface Trace of the Drill Holes



Source: Nighthawk, 2023. Modified after Morgan, 1991.

Figure 7-13: Schematic Model of the Structural Setting of the Gold-Mineralized Quartz-Carbonate Veins



Source: Gaboury, 2021.

7.4 Cass Deposit

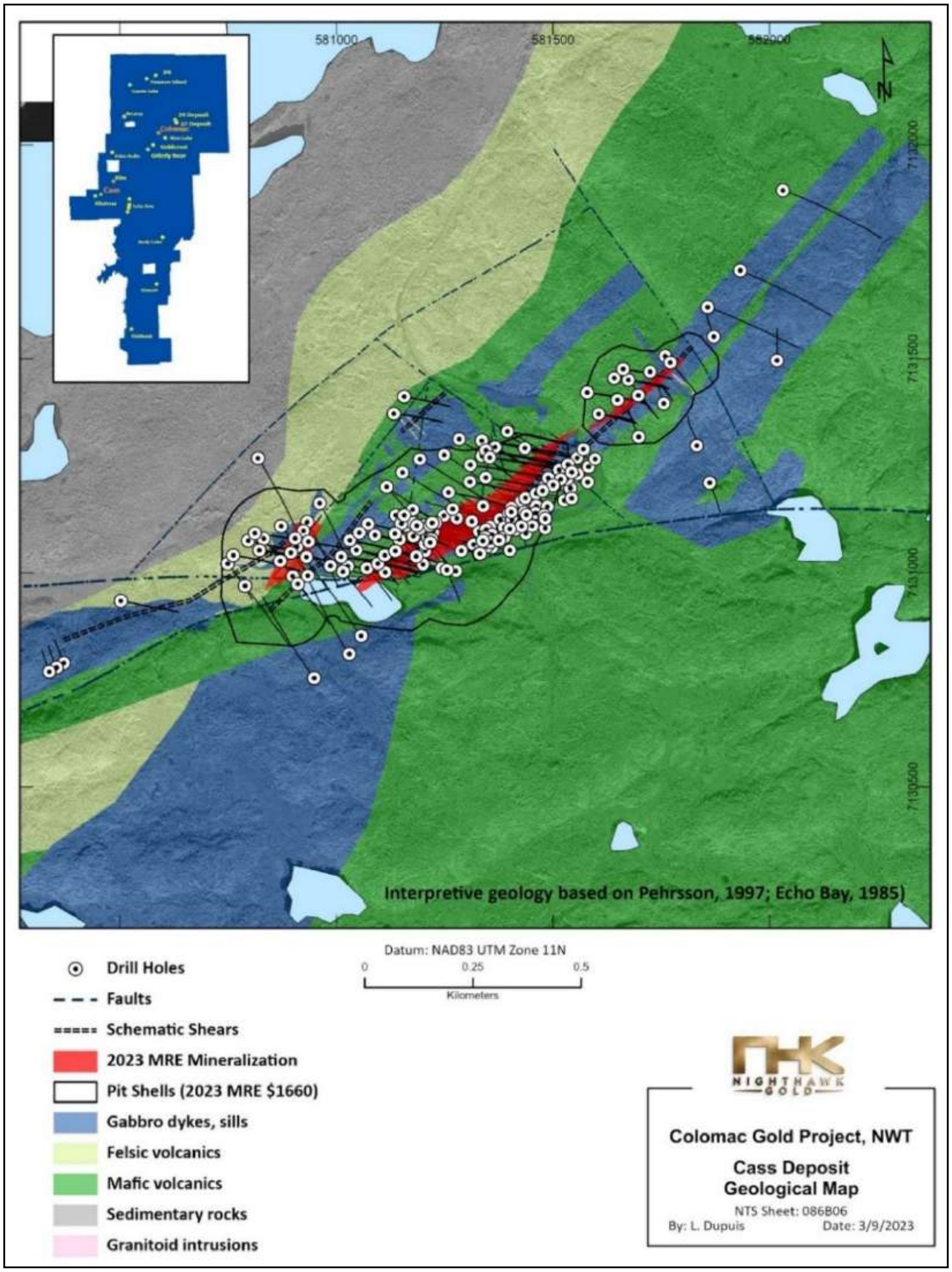
The Cass deposit lies in the western-central part of the Indin Lake Supracrustal Belt, about 16 km SSW of the Colomac Main deposit. The area is underlain by the amphibolite-grade pillowed and massive mafic and intermediate flows of the 3 km wide Hewitt Lake group that are intruded by several gabbroic intrusion including the Cass Gabbro (see Figure 7-14; Morgan, 1991). An intermediate to felsic volcaniclastic horizon marks the contact between the mafic to intermediate flows and the overlying metasedimentary succession (Morgan, 1991). The Archean rocks are intruded by NW-striking Proterozoic diabase dikes (Morgan, 1991; Frith, 1993). Local, NE-to E-NE-striking sinistral ductile shear zones that are parallel to the regional foliation are the most prevalent in the Cass Gabbro (Morgan, 1991). The Archean (and maybe the Proterozoic) rocks are cut by an ENE-striking fault zone along which the lithological units were displaced in a presumably dextral oblique-slip manner (Morgan, 1991).

The deposit is hosted within and along the contacts of the Cass Gabbro and is surrounded by a broad pervasive carbonate alteration halo (Morgan, 1991). The gold mineralization is associated with steeply dipping quartz-carbonate-sulphide (predominantly arsenopyrite) veins with grunerite-garnet alteration selvages that can be subdivided into two mutually cross-cutting sets suggesting that both sets formed synchronously (Morgan, 1991; Gaboury, 2021). Gaboury (2021) describes that grunerite dominates the proximal, whereas garnet dominates the more distal alteration selvages surrounding the veins. The quartz-carbonate veins are folded by steeply plunging open to tight folds that are consistent with sigmoidal tension veins within sinistral shear zones (Morgan, 1991; Gaboury, 2021). The most common sulphide associated with the auriferous quartz-carbonate vein is arsenopyrite, whereas pyrrhotite occurs disseminated throughout the gabbro and pyrite forms cubic grains and irregular aggregates (Morgan, 1991). Gaboury (2021) noted that the mineralization style is similar to that observed at the Kim deposit, but visible gold specks are common at the Cass deposit. This feature was explained by the metamorphic recrystallization of sulphides that results in the exsolution and reprecipitation of native gold. The post-mineralization metamorphism is also supported by the grunerite-garnet-pyrrhotite bearing alteration selvages (e.g., Dubé and Gosselin, 2007).

The mineralization is intersected as seven stratigraphy-parallel and en-echelon like zones in gabbro with a cumulative strike length of 1,000 m. The mineralized zones vary mostly between 2 and 20 m in thickness. The mineralized zones strike 230° and dip steeply to the north-west. The mineralization is open to depth and along strike to the south but appears to peter out northward.

The Albatross showing lies along strike of the western extension of the Cass mineralized system and lies approximately 2.5 km WSW of the Cass deposit.

Figure 7-14: Geological Map of the Cass Deposit with Collar Location and Surface Trace of Drill Holes



Source: Nighthawk, 2023. Modified after Morgan, 1991.

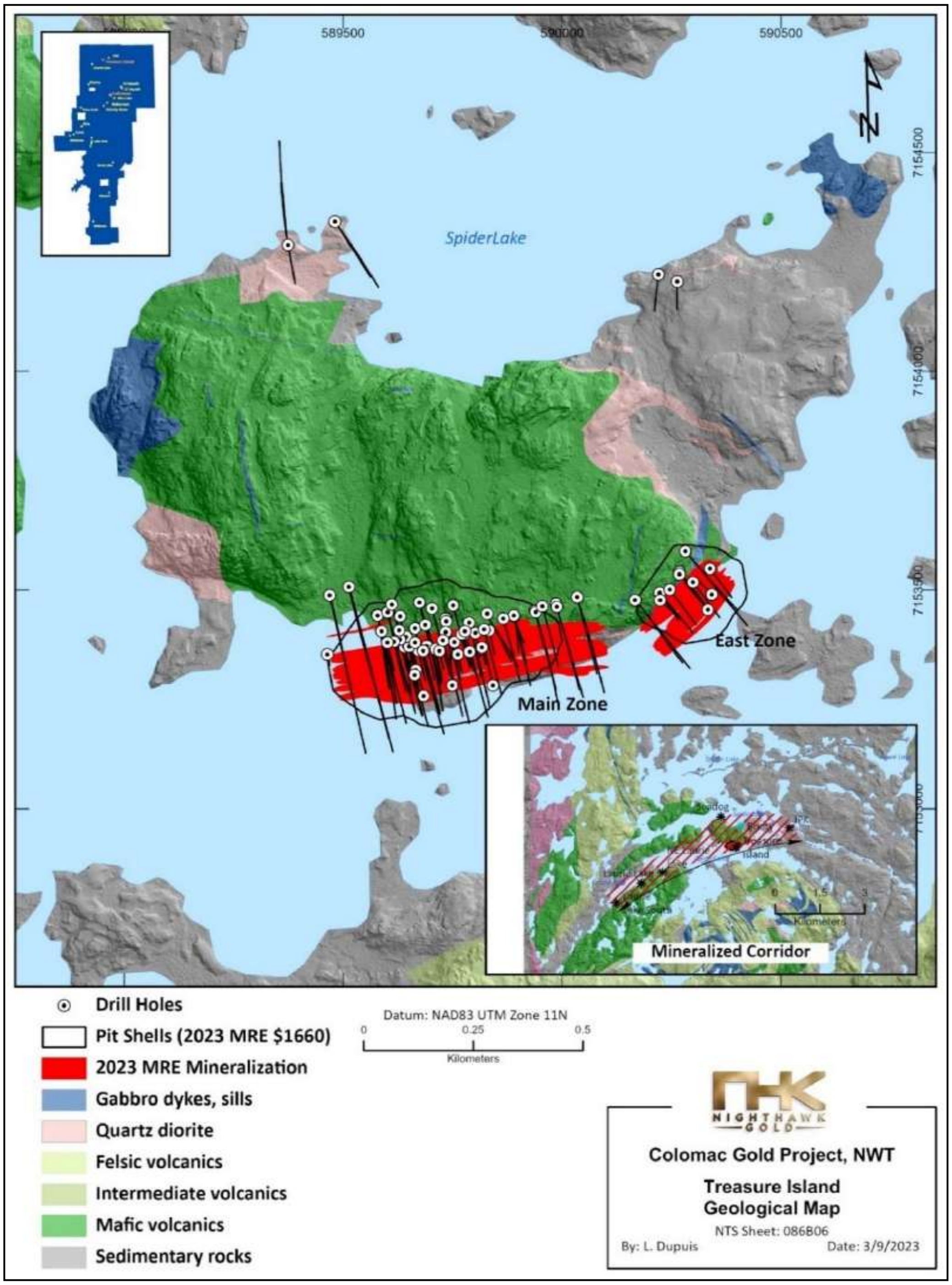
7.5 Treasure Island Deposit

The Treasure Island deposit lies in the northern part of the Indin Lake Supracrustal Belt, approximately 11 km north of the Colomac Main deposit (see Figure 7-1). Treasure Island is underlain by a succession of pillowed and massive mafic flows that are overlain by an intercalated intermediate to felsic volcanic horizon and argillite- to wacke-dominated turbiditic sedimentary rocks belonging to the Chalco Lake Group (see Figure 7-15; Morgan, 1991; Pehrsson and Villeneuve, 1999; Gaboury, 2021). The intermediate to felsic horizon forms a highly strained interface between the mafic volcanic and the sedimentary rocks. It is intruded by felsic dykes (e.g., the Gamble dyke) that are interpreted to play a key role in controlling the mineralization due to the created rheological contrast at their contacts (Hrabi, 2019). This succession is tightly folded about an arcuate fold axis (F_1) that is refolded by regional N-NE-trending F_2 folds (Pehrsson and Villeneuve, 1999).

The main mineralized zones lie along the southern limb of the F_1 fold where the succession youngs to the south. Numerous E- to NE-striking mineralized corridors were identified within a 100 m to 350 m wide corridor centered on the Gamble dyke along an 600 m strike and a vertical depth of 380 m, predominantly in felsic to intermediate and sedimentary rocks and, to a lesser extent, mafic volcanic rocks. Most zones are parallel to stratigraphy.

The mineralization occurs as quartz-sulphide (pyrrhotite-pyrite±chalcopyrite) veins (average width of 1.5 m), as well as disseminated and stringer style pyrite and pyrrhotite. Disseminated sphalerite and galena are locally associated with visible gold. The argillite-hosted mineralization is characterized by disseminated pyrrhotite and pyrite devoid of quartz veins. Gaboury (2021) proposed that the mineralization style is mostly consistent with volcanogenic hydrothermal mineralization that may or may not have been subsequently upgraded by orogenic style gold mineralization. The Laurie Lake and JPK prospects lie within the same mineralized system.

Figure 7-15: Geological Map of the Treasure Island Area with the Collar Location and Surface Trace of Drill Holes



Source: Nighthawk, 2023. Modified after Morgan, 1991 and Pehrsson and Kerswill, 1997a.

7.6 Damoti Deposit

The Damoti deposit (aka Damoti Lake deposit) is located approximately 30 km to the southeast of the Colomac Main deposit (see Figure 7-4). The Damoti deposit is part of the Damoti property, a group of claims that includes the nearby BIF Island and North showings.

7.6.1 Damoti Deposit – Geology

The lithologies of the Damoti property are dominated by the sedimentary Damoti Basin (Waychison W., 2011). This basin is dominated by a turbidite sequence containing minor oxide-silicate iron formations. The sedimentary rocks are composed of finely bedded, rhythmically layered, sequences of argillite, siltstone and greywacke beds forming units ranging in size from millimeter-thick argillite laminations to tens of meters thick greywacke horizons.

Thin lenses of pyrite-pyrrhotite-bearing iron formation, sulphide-bearing argillite and graphitic argillite often occur in the sediments, which in some cases interfinger with felsic volcanic pyroclastic units. Numerous NW to NNW-trending Proterozoic diabase dykes, along with several granitic plugs, cut the volcanics and sediments throughout the area (Morgan, 1992).

7.6.2 Damoti Deposit – Mineralization

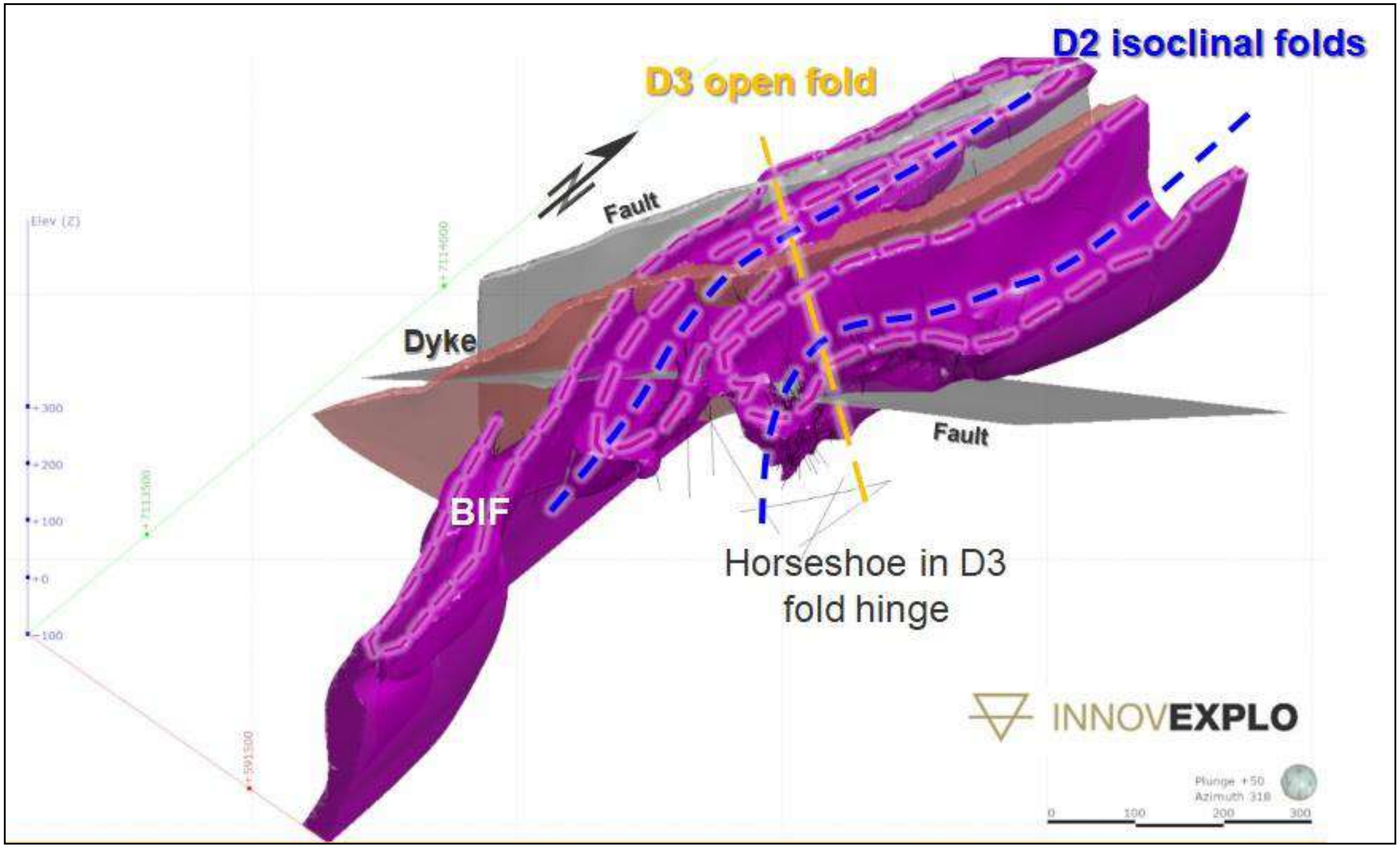
Exploration programs in the Damoti Lake area confirmed that metamorphosed greywacke-turbidites locally contain interstratified amphibolitic (grunerite) iron formations. The latter displays positive magnetitic responses and form banded iron formation (BIF) containing disseminated to laminae-rich magnetite intercalated with laminae and bands of cherty and (amphibole-)silicate facies iron formation.

Field evidence documented during the 2009 and 2010 exploration programs (Waychison, 2011) suggests that contrary to the BIF exhalative models for mineralization at Damoti Lake, the sulphides hydrothermally replace magnetite with gold being strongly associated with pyrrhotite-pyrite and, to a lesser extent, with quartz veining and chlorite.

The iron formations are highly folded along N- to NE-trending axes (see Figure 7-16), with the main mineralized zone being a U-shaped syncline fold named the Horseshoe Zone. The best gold values are associated with fracture-controlled sulphides within dilation and pressure shadow areas within the isoclinal folded and faulted BIF. The bulk of the mineralization has thus far been delineated on the east limb of the Horseshoe syncline (see Figure 7-17), with some remarkable intercepts on the west limb (e.g., 3.42 g/t Au over 9.25 m in D09-382). The bulk of the mineralization is contained in a low grade envelop continuous over a straight length of 330 m, an average thickness of 20 m and vertical depth of 270 m, which contains higher grade mineralized zone having an average dimension of 20 m long, 5 m wide and a vertical depth of 270 m.

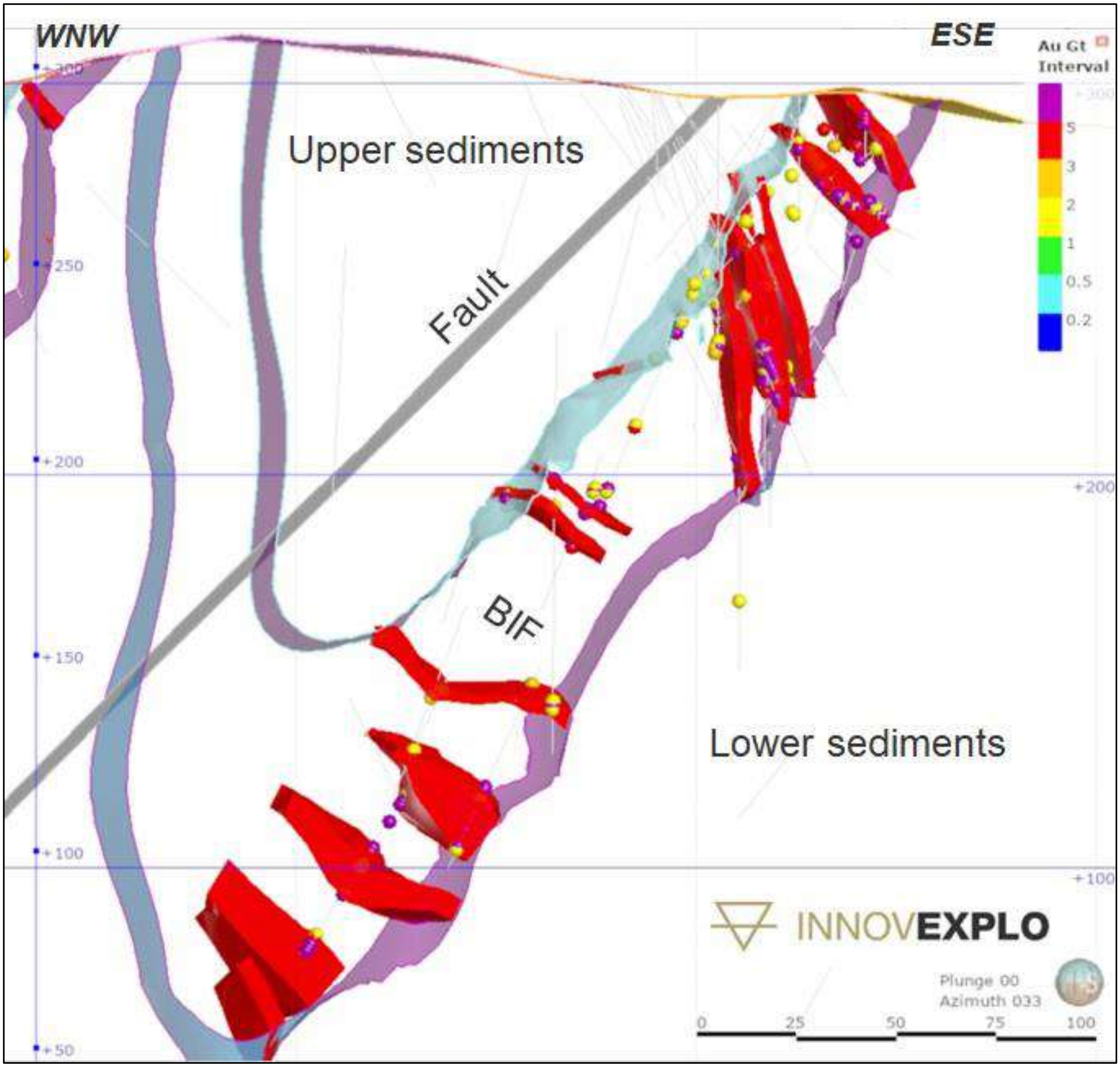
The Fishhook prospect is located about 7.5 km south of the Damoti deposit and shares a similar geological setting.

Figure 7-16: 3D Structural Interpretation of the Damoti Deposit



Source: InnovExplo, 2019.

Figure 7-17: Typical Geological Section of the Horseshoe Syncline of the Damoti Deposit



Note: Quartz veining stacking and associated gold mineralization (in red) in the east limb of the fold (looking north). Source: InnovExplo, 2019.

8 DEPOSIT TYPES

This section references previous reports on the property (e.g., Lee et al., 2012; Trinder et al., 2018). Two main gold deposit models are relevant to most of the mineralized material deposits and showings on the property: (1) greenstone-hosted quartz-carbonate vein (GQCV) deposits; and (2) BIF-hosted deposits. Both types are lithology-based subtypes of orogenic gold deposits (Poulsen et al., 2000). Additionally, Andy Lake and Treasure Island were interpreted as an intrusion-related gold system (IRGS) and volcanogenic-related gold mineralization, respectively, although the latter still needs to be demonstrated (Laflamme, 2018; Gaboury, 2021). Until then, Treasure Island is classified within the GQCV model.

8.1 Greenstone-Hosted Quartz-Carbonate Vein Deposits

Dubé and Gosselin (2007) defined GQCV deposits in the following way:

> "...structurally controlled, complex epigenetic deposits that are hosted in deformed and metamorphosed terranes. They consist of simple to complex networks of gold-bearing, laminated quartz-carbonate fault-fill veins in moderately to steeply dipping, compressional brittle-ductile shear zones and faults, with locally associated extensional veins and hydrothermal breccias. They are dominantly hosted by mafic metamorphic rocks of greenschist to locally lower amphibolite facies and formed at intermediate depths (5-10 km). GQCV deposits are typically associated with iron-carbonate alteration. Gold is mainly confined to the quartz-carbonate vein networks but may also be present in significant amounts within iron-rich sulphidized wall rock. GQCV deposits are distributed along major compressional to transpressional crustal-scale fault zones in deformed greenstone terranes of all ages but are more abundant and significant, in terms of total gold content, in Archean terranes."

In the property area, GQCV deposits can be subdivided into the following different styles:

- gold-bearing, stacked quartz veins/stockworks/silicified zones hosted by felsic porphyritic intrusions (e.g., Colomac Main, Goldcrest and Goldcrest North/Dyke Lake)
- gold-bearing, stacked silicified zones, often spatially associated with felsic units (e.g., Grizzly Bear, Laurie Lake, Treasure Island, and Chalco Zone–West Shore and Face Peninsula showings)
- gold-bearing quartz veins or silicified zones in mafic volcanics often within or near graphitic argillites and fault/shear zone along contacts of mafic volcanic-sedimentary belts (e.g., Zone 24, Zone 27, Chalco Zone–Northeast and Chalco Zone–North End showings, North Inca mine, Nice Lake, Diversified mine, #3 Zone, Lexindin Zone, Barker-Vidie and Echo-Indin showing)
- gold associated with sulphides (in particular, arsenopyrite and loellingite) and quartz-carbonate veins or silicified zones within mafic volcanic units or intrusive equivalents (e.g., Kim and Cass deposits, Goose Lake, Lucky Lake, Kim South and Albatross showings – the possible extensions of the Kim and Cass Zones which lie outside the property area).

All GQCV styles, except the last one above, are known to underlie the Colomac area.

8.2 Banded Iron Formation-Hosted Gold Deposits

BIF-hosted gold deposits mainly occur within Archean greenstone belts, typical of the shield areas of northern Ontario, Quebec, the NWT, and Nunavut. Generally, BIF host rocks are thinly banded sedimentary rocks with alternating iron-rich and cherty (siliceous) layers. Gold mineralization is epigenetic and is commonly associated with quartz and iron-carbonate veining and iron-sulphide-rich hydrothermal alteration zones (mainly pyrite, pyrrhotite and/or arsenopyrite) located mainly along high-strain (shear) zones associated with tightly folded and structurally complex BIF horizons that provide favourable chemical and structural traps (Kerswill, 1996).

The Damoti Lake, BIF Island, Fishhook and JPK deposits and showings are examples of BIF-hosted gold deposits within the property. Lease 3527 on the Colomac area covers the possible southeast strike extension of the auriferous BIFs around Spider Lake to the northwest, including the JPK showing.

8.3 Intrusion-Related Gold Systems

IRGS deposits are low-grade and large-tonnage deposits that share many similarities with orogenic gold systems. They are typically hosted by deformed shelf sequences on the inboard side of accreted terrains and within terranes that also host Sn±W deposits in a convergent, accretionary orogen geodynamic setting (Hart and Goldfarb, 2005). IRGS systems are characterized by a predictable metal zonation with generally low sulphide content that is manifested by intrusion-hosted (Au±Bi±W±Te), skarn (Au±W, Cu±Bi±Te), proximal (Au-As±W, Sb) and distal zones (Au-As-Sb±Ag, Pb,Zn) (Hart and Goldfarb, 2005).

IRGS gold mineralization typically occurs as low-grade (<1 g/t Au) sheeted veins spatially associated with cupolas and contact aureoles of relatively reduced, alkaline-leaning, volatile-rich plutons (Hart and Goldfarb, 2005). Mineralization is hosted by an array of veins, stockworks, skarns and replacement bodies. Other than the diagnostic vein texture, the volatile-rich cupola environment might be identified by the features indication fluid exsolution such as aplites/pegmatites, tourmaline veins and greisen alteration. The formation of IRGS deposits is considered synchronous (±2 Ma) with their associated, causative intrusions but are generally younger than the regional metamorphic and deformation events in the host allochthons (Hart and Goldfarb, 2005). IRGS deposits have mostly been recognized in the Proterozoic and Phanerozoic, with abundant examples throughout the Tintina Gold Belt Province of the North American Cordillera. Archean intrusion-related mineralization has also been described in the Eastern Goldfields of the Yilgarn Craton of Australia and the Abitibi Belt of the Superior Province of Canada (Hart and Goldfarb, 2005).

The Andy Lake Prospect is the only known example of IRGS mineralization on the property (Laflamme, 2018).

9 EXPLORATION

9.1 Geophysical Surveys

9.1.1 2010 Electromagnetic and IP Surveys

Between January and early March 2010, Nighthawk conducted a ground geophysical program in the Damoti area. Work consisted of detailed ground electromagnetic (EM) and induced polarization (IP) surveys focused on gold-mineralized zones previously drilled by Nighthawk to determine their physical responses and characteristics and create a geophysical "footprint" of the known mineralized areas.

9.1.2 2011 Magnetic Survey

Between July 2 and August 2, 2011, Goldak Airborne Surveys (Goldak) of Saskatoon, Saskatchewan carried out a high-sensitivity aeromagnetic tri-axial gradiometer and VLF-EM airborne survey over the Indin Lake property area for Nighthawk (Pelletier, 2011).

A total of 16,245 line-km of high-resolution magnetic gradiometer data was collected, processed and plotted. VLF-EM data, collected on a best-effort basis, covers the entire survey block, but data quality varies. E-W traverse lines (14,690 km) were flown on a spacing of 75 m over the property. N-S control lines (1,555 km) were flown at a separation of 750 m.

Goldak processed magnetic vertical gradient, total field, and horizontal gradient data, as well as VLF-EM data, producing four maps at a scale of 1:25,000:

- GVT: gradient-enhanced total magnetic field
- CVG: calculated vertical gradient
- VLFL: line VLF (total field and quadrature)
- VLFO: orthogonal VLF (total field and quadrature).

9.1.3 2012 IP Survey

In 2012, SJ Geophysics Ltd of Delta, British Columbia, carried out a test geophysical survey to determine the capability of selected IP methods to detect the plunging higher-grade mineralized shoot at Colomac Main zone 3.5.

The Colomac grid consisted of six lines (100 to 800 m length) centered at 7,141,050N 591,650E; NAD83 Zone 11. A total of 4.1 km of 3D IP and 2.39 km of 2D IP surveying were completed between April 13-28, 2012.

A second grid (centered at 7,143,869N 592,043E; NAD83 Zone 11) was established at Spot Lake, approximately 2.8 km north of the Colomac Main zone 3.5 geophysical grid. The Spot Lake grid consisted of 0.4 km of 2DIP survey on one line, completed on April 29, 2012.

Due to highly resistive ground conditions and difficulties encountered in establishing good ground contact, Nighthawk deemed the IP survey ineffective for the area tested and the data generated of limited value.

9.1.4 2017 IP and Magnetic Surveys

Between April 13 and June 2, 2017, Nighthawk retained Dias Geophysical Limited of Saskatoon, Saskatchewan to conduct 2D and 3D DC-resistivity and induced polarization (DCIP) surveying and magnetic surveying at the Colomac area. Thirty-one survey lines totalling 31.6 km were completed (see Figure 9-1).

Magnetic surveying was also conducted at Leta Arm to fill gaps from the prior magnetic survey coverage. A single 4.71 km^2 area of magnetic surveying was completed.

The DCIP program was designed to detect electrical resistivity and chargeability characteristics across the survey areas to assist in mapping the lithology, alteration, and mineralization associated with the Colomac gold mineralization.

9.1.5 2017 LiDAR Survey

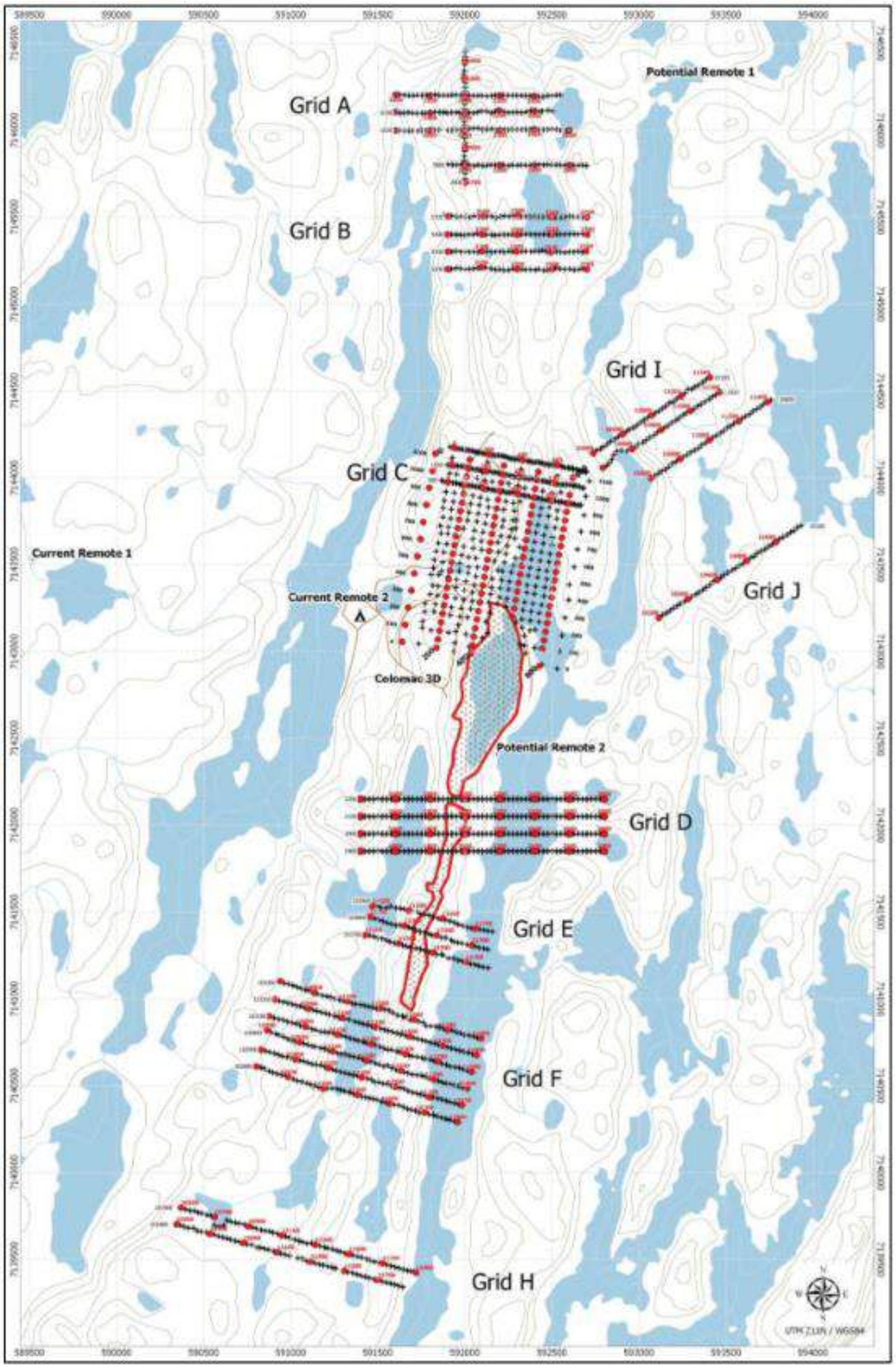
An airborne LiDAR survey was completed by Eagle Mapping Ltd. of Port Coquitlam, British Colombia, over the entire Indin Lake property before the 2017 summer field program. The survey was completed at a resolution of four pulses per square meter and with an accuracy of ±15 cm vertical and ±30 cm horizontal. It provided information for subsequent geological mapping, structural studies, and prospecting programs.

9.1.6 2018 IP Survey

From April 18 to May 14, 2018, Abitibi Geophysics Inc. of Val-d'Or, Quebec, completed a time-domain resistivity/IP survey on the property using their proprietary deep-penetrating OreVision® array.

A total of 25.5 km of lines were surveyed over different areas of the property (see Figure 9-2). The surveyed areas were Leta Arm (16 km), Andy Lake (2.5 km) and Swamp (7 km). The aim of the survey was to delineate and prioritize targets for further exploration (Abitibi Geophysics, 2018). Maps of resistivity, conductivity, metal factor and gold index were produced, as well as 3D inversion sections, to define drilling targets and determine prospective areas of the Colomac sill on the property.

Figure 9-1: Locations of the 2017 IP and Magnetic Survey Grids on the Indin Lake Property



Source: Dias Geophysical Limited, 2017.

Figure 9-2: Locations of the 2018 IP Survey Grids on the Indin Lake Property

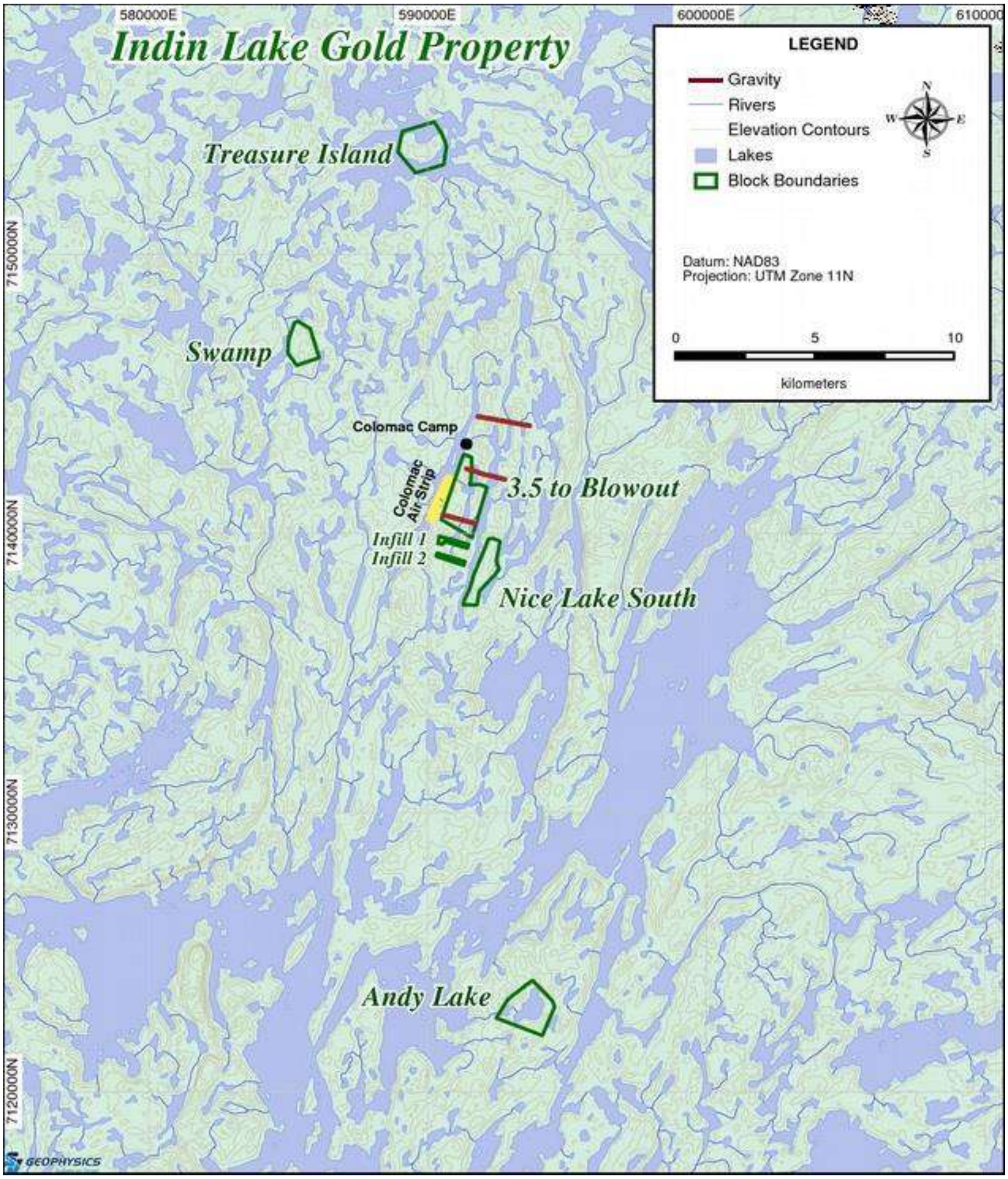
Source: Abitibi Geophysics, 2018.

9.1.7 2018 Magnetic and Gravity Surveys

From April 14 to May 8, 2018, SJ Geophysics Ltd of Delta, British Columbia, completed ground magnetic and gravimetric surveys on the property on behalf of Nighthawk.

The ground magnetic and gravity surveys totalled 203.9 line-km and 4.5 line-km, respectively, in different areas on the property (Figure 9-3), notably the Treasure Island, Swamp, Nice Lake South, Andy Lake areas, and the Colomac Main deposit area. The objective of the ground magnetic data was to map magnetic features within the defined areas of interest. The data was gathered to assist with the mapping of geologic units and structures on the property. The objective of the gravity survey was to test the effectiveness of the gravity method on the property (SJ Geophysics, 2018). Some of the data in areas with significant glacial drift were deemed invalid and the results inconclusive.

Figure 9-3: Locations of the 2018 Magnetic and Gravity Survey Grids on the Indin Lake Property



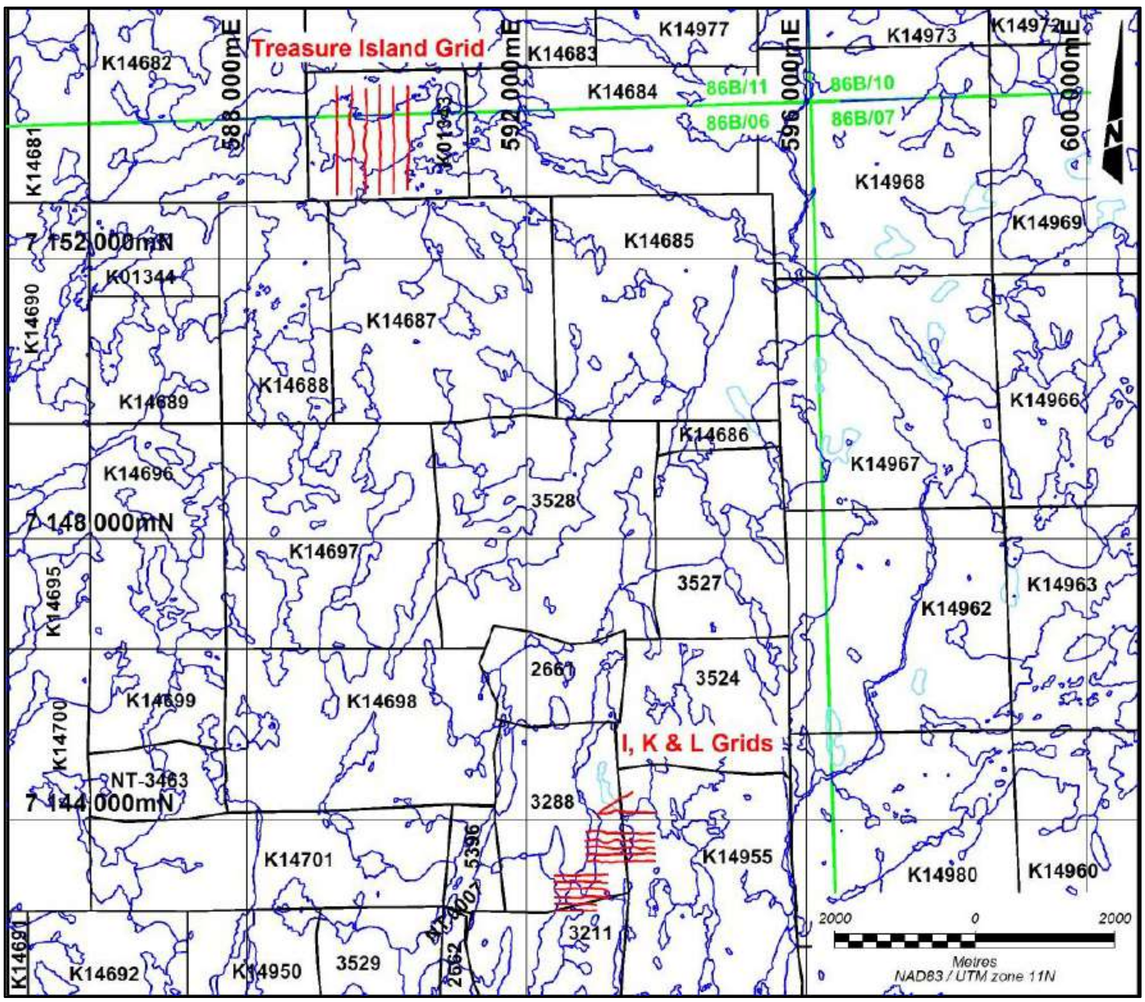
Source: SJ Geophysics, 2018.

9.1.8 2019 IP Survey

From April 9 to May 28, 2019, Abitibi Geophysics completed a time-domain resistivity/IP survey on the property using the deep-penetrating OreVision® array.

A total of 19.7 km of lines were surveyed for Nighthawk over different areas of the property (see Figure 9-4). The surveyed areas comprised Treasure Island (9 km) and the Colomac deposit area, Grids I (0.6 km), K (4.3 km) and L (5.8 km). This ground geophysical campaign was conducted to detect and help delineate targets for further exploration in three areas: Treasure Island, Colomac (I, K and L grids) and Andy Lake. However, the Andy Lake survey did not take place due to ground conditions. Resistivity, conductivity, metal factor, and gold index maps, as well as 3D inversion sections, were produced for the other areas to assist with drilling and exploration.

Figure 9-4: Locations of the 2019 IP Survey Grids on the Indin Lake Property

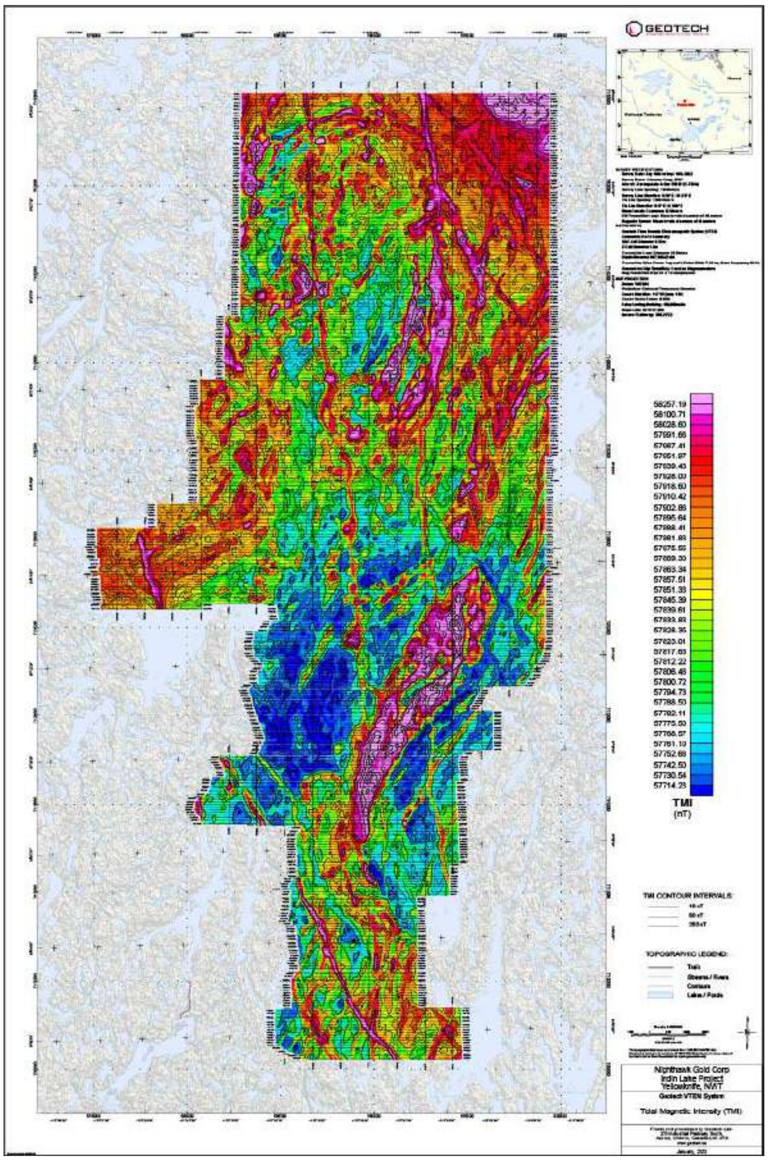


Source: Abitibi Geophysics, 2019.

9.1.9 2022 Electromagnetic and Magnetic Survey

From August 10, 2022, to September 18, 2022, Geotech Ltd. completed a versatile time domain electromagnetic (VTEM Plus) and horizontal magnetic gradiometer geophysical survey on site. The survey was the first property-wide, regional exploration geophysical survey since 2011 (see Figure 9-5). The survey was designed for approximately 88% of the property; the northeastern portion of the property was not flown due to time constraints allowing for the more prospective portion of the property to be prioritized.

Figure 9-5: 2022 Total Magnetic Intensity Survey on the Indin Lake Property



Source: Geotech Ltd., 2022.

A total of 6,004 line-km was flown at 150 m spacing. The lines ran east-west at 90° to 270˚ with north-south tie line spacing every 1,500 m at 0° to 180˚. The principle geophysical deliverables from the survey included B-field and dB/dt Z component electromagnetic profiles, total magnetic intensity, and resistivity depth imaging.

9.2 Surface Exploration

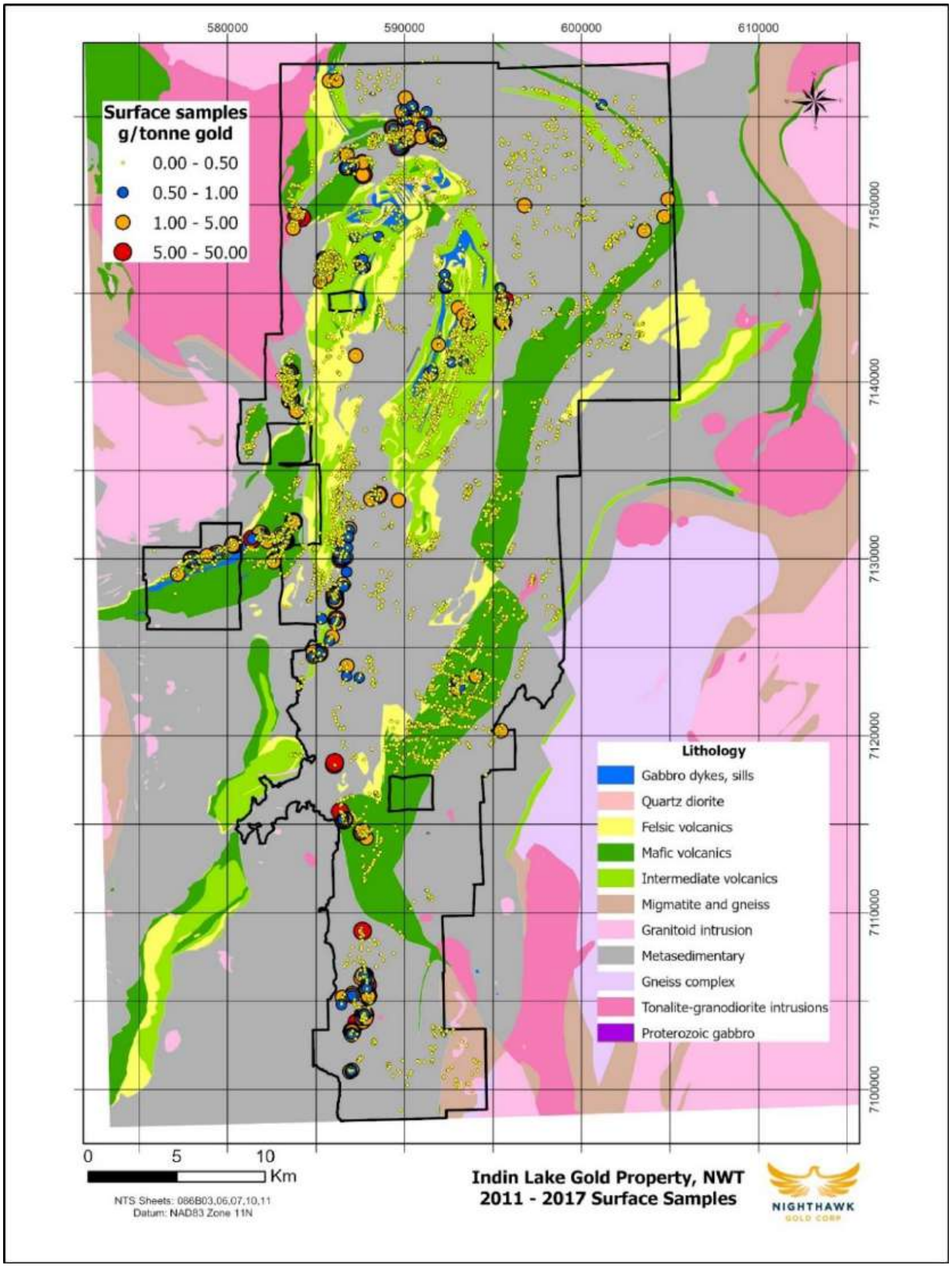
9.2.1 2011 to 2017 Exploration Program

Between 2011 and 2017, Nighthawk conducted regional-scale surface exploration programs over many areas of the property. Table 9-1 and Figure 9-6 summarize these programs.

Table 9-1: Summary of Nighthawk's 2011 to 2017 Surface Exploration Program on the Indin Lake Property

Year	Objective	Result
2011	Regional prospecting and sampling program at Echo-Indin, JPK, Fishhook, Leta Arm's North Inca, Diversified, and Lexindin.	728 rock samples collected.
2012	Regional prospecting, sampling, and mapping program. Investigation of all known gold showings and targets derived from Nighthawk's 2011 airborne magnetic survey (Colomac sill's distinct strong magnetic signature elsewhere within the property).	1,523 rock samples collected.
2014	Regional prospecting and sampling. Detailed mapping and sampling of select historical showings.	631 rock samples collected.
2015	Regional prospecting and sampling. Geological mapping and sampling of selected historical showings. Follow up on anomalous results and observations from the 2011, 2012 and 2014 exploration programs.	115 rock, chip and channel samples collected.
2016	Regional prospecting, geological mapping, and rock and channel sampling program. Prospecting targets from previous airborne and ground magnetic surveys with focus on magnetic features similar to the Colomac and Goldcrest sills. Prospecting historical showings and areas of interest identified by previous prospecting work.	415 rock and channel samples collected. Nice Lake sill traced over 4 km in outcrop along a trend (Nice Lake Trend) subparallel to the Colomac sill. Approximately 40% of grab samples from the Nice Lake Trend contained gold above the detection limit, including a sample that returned 2.61 g/t Au.
2017	Regional prospecting and sampling. Geological mapping and sampling of selected historical showings. Follow up on anomalous results and observations from previous exploration programs and verify historical showings.	814 rock samples collected. Discovery of a new gold anomaly at Treasure Island (Seadog Showing) with grab samples grading 1.3 g/t Au to 27.80 g/t Au and mineralized channel samples grading 0.93 g/t Au to 19.85 g/t Au over 1.0 m. Discovery of a new gold anomaly at Swamp with grab samples from 1.39 g/t Au to 4.33 g/t Au and mineralized channel samples grading 1.68 g/t Au to 3.03 g/t Au over 0.5 m. At Nice Lake, another quartz diorite sill was delineated over a strike length of 160 m and 20 m wide, where two mineralized grab samples returned 1.14 g/t Au to 4.19 g/t Au. Mapping between Colomac and east of Nice Lake revealed multiple smaller sills within this 2-km-wide corridor. Subsequent prospecting located additional sills north and south along strike, expanding the length of the corridor to over 10 km. Detailed geological mapping showed that sills in the corridor exhibit deformation and alteration of similar intensity to the mineralized Colomac sill.

Figure 9-6: 2011 to 2017 Surface Exploration Sampling Results for the Indin Lake Property



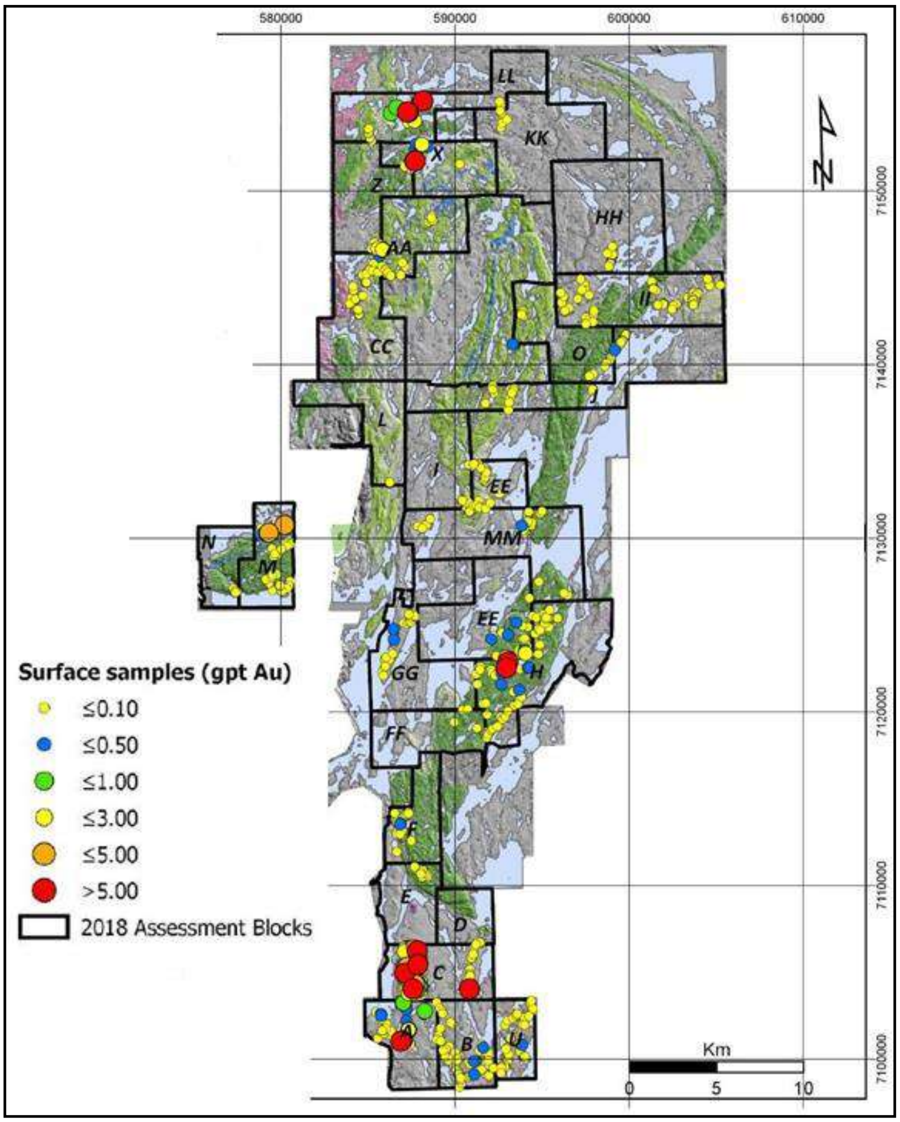
Source: Nighthawk, 2021.

9.2.2 2018 Summer Exploration Program

From June 4 to September 10, 2018, GeoMinEx Consultants Inc. (GeoMinEx) of Vancouver, British Columbia, conducted geological evaluations, prospecting, and limited geological mapping on the property on behalf of Nighthawk. A total of 1,477 rock, chip and channel samples were collected over different areas of the property during the exploration campaign (Walther and Indra, 2019).

Figure 9-7 presents the gold assay results for the 2018 surface sampling program.

Figure 9-7: 2018 Summer Surface Exploration Sampling Results for the Indin Lake Property



Source: Modified after Walther and Indra, 2019.

9.2.2.1 Andy Lake

As part of GeoMinEx's 2018 prospecting and sampling program, a more detailed geological mapping and structural study was conducted by Terrane Geoscience Inc. of Halifax, Nova Scotia, in the Andy Lake area and the Gamey Lake Volcanic Panel (LaFlamme, 2018). The study area consisted of volcanic lithologies of the Hewitt Lake and Leta Arm Groups juxtaposed against sediments of the Chalco Lake Group. The mafic to felsic volcanic and volcaniclastic units of the Hewitt Lake Group are intruded by the Andy Lake granodiorite and associated granitoid dykes. Several stages of deformation have affected the lithological units, but iron-carbonate veining has apparently affected only the Hewitt Lake Group units.

The results of the detailed fieldwork indicated that the most prospective style of mineralization is associated with quartz veins that intrude synchronously with the Andy Lake granodiorite. These sheeted quartz veins are 1 cm to 30 cm wide, often hematite-altered, and contain visible pyrite and chalcopyrite mineralization. The veins are 0.5 g/t Au to 2 g/t Au, but up to 42 g/t Au, and form an NNE-SSW trend away from the Andy Lake granodiorite and are spatially associated with aplite or pegmatite dykes indicative of hydrothermal fluid generation. Quartz veining was determined to be coincident with late, steeply dipping, roughly N-S shearing. Other than Au, the samples were also anomalous in Ag, Bi, Cu, Mo and Pb. Based on the above observations, LaFlamme (2018) interpreted the mineralization at Andy Lake as an intrusion-related gold system (IRGS). Geophysical surveys indicate that the area coincides with a west-dipping moderate IP anomaly with a coincident resistivity high. Follow-up drilling was recommended (LaFlamme, 2018).

9.2.3 2018 Structural Mapping of the Colomac Area

In 2018, SRK Consulting (Canada) Inc. (SRK) from Toronto, Ontario, conducted a six-week mapping program focused mainly on the area between the historical zone 1.0 of the Colomac mine to Grizzly Bear in the south. This work complemented SRK's previous work from 2017. SRK concluded that although several phases of deformation are present on the property (D_1–D_6, D_2 being the main phase), a critical factor in the localization of gold in several deposits on the property (e.g., Colomac, Leta Arm and Andy Lake) is the intersection and overprinting of early D_2 (D_{2a}) high-strain zones by NNE-oriented late-D_2 (D_{2b}) shear zones/faults (Hrabi, 2019).

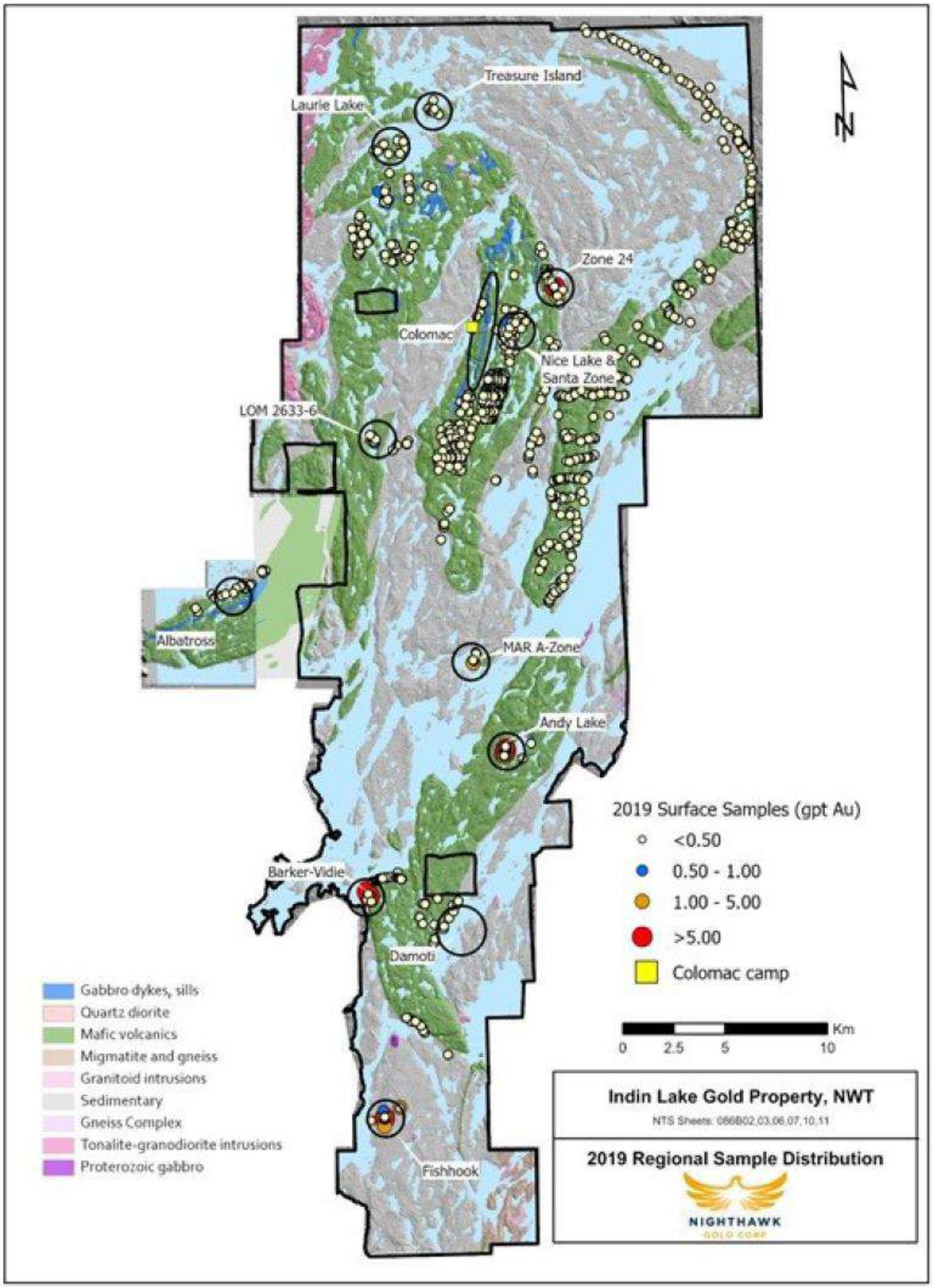
9.2.4 2019 Summer Exploration Program

GeoMinEx conducted a 2019 summer exploration program that consisted of geological evaluations, prospecting, and geological mapping in different areas of the property. Areas covered included the northern extensions of the Gamey Lake Volcanic Panel, Albatross, Treasure Island, Nice Lake, Andy Lake and Fishhook. Detailed mapping and sampling took place in the Andy Lake area. The highlights included of the program are as follows:

- Andy Lake Area – Channel and grab samples returned up to 42.80 g/t Au from mineralized shears.
- Barker-Vidie Showing – Grab samples returned up to 13.65 g/t Au. The high-grade zone extends 300 m along strike.
- Zone 24 Showing – Grab samples taken from surface quartz veins returned up to 8.83 g/t Au.
- New Surface Showings at Fishhook Gold – Grab samples returned up to 6.25 g/t Au from host silicate and oxide facies iron formation.

Figure 9-8 presents the gold assay results for the 2019 surface sampling program.

Figure 9-8: Sampling Results from the 2019 Summer Surface Exploration Program on the Indin Lake Property



Source: Nighthawk, 2020.

To complement the summer exploration program, InnovExplo's geologists compiled the geology and mineralization on the property and reassessed the styles of mineralization present.

Details of the types of mineralization identified by InnovExplo's geologists:

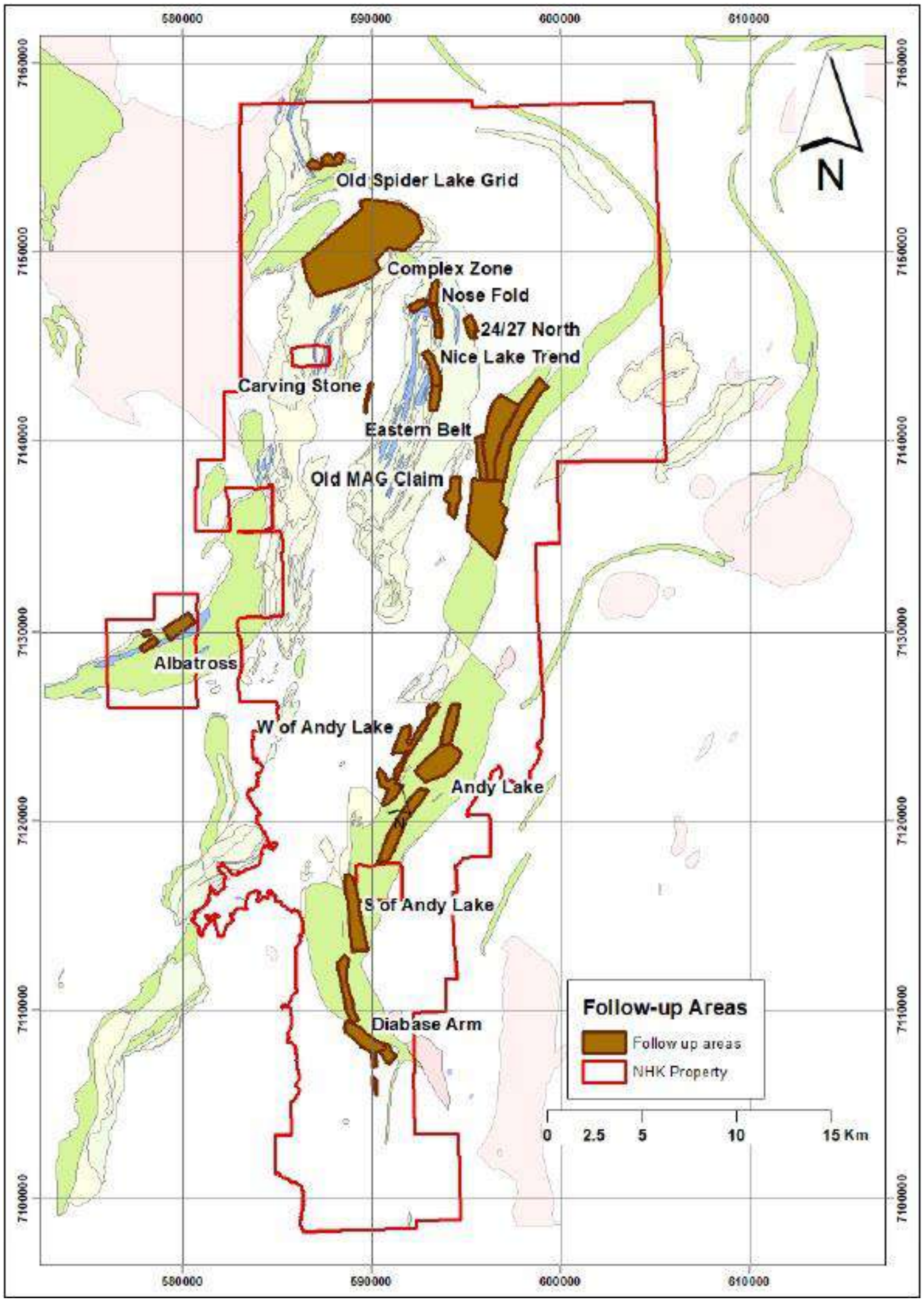
- Type I – BIF-Hosted Au – (Chemical/Structural Control)
- Type II – GQCV Au (Structural Control)
  - Type IIa – Shear/Contact Zones – Type IIa (Ductile >> Brittle Deformation)
  - Type IIb – Intrusion-Hosted – Type IIb (Brittle >> Shear Deformation)
  - Type IIc – Intrusion-Related – Type IIc (Brittle-Shear of Silica Alt Zones)
- Type III – Intrusion-Related Au (Cu-Mo) – (Mineralization Associated with Calc-Alkaline, Alkaline and/or Felsic Intrusions)
- Type IV – Turbidite-Hosted Au
- Type V – VMS/Exhalite/SEDEX
- Type VI – Magmatic Ni-Cu (Au-PEGs?).

It should be noted that BIF represents banded iron formation; GQCV Au represents greenstone-hosted quartz carbonate gold; VMS represents volcanogenic massive sulphides; SEDEX represents sedimentary exhalative deposits; and PGE represents platinum group elements.

InnovExplo's field validations took place from August 19 to 31, 2019. Roughly a dozen regional targets were covered. The collected samples were incorporated into GeoMinEx's ongoing summer field program.

Figure 9-9 shows selected regional target areas for the property.

Figure 9-9: Selected Regional Follow-up Targets on the Indin Lake Property



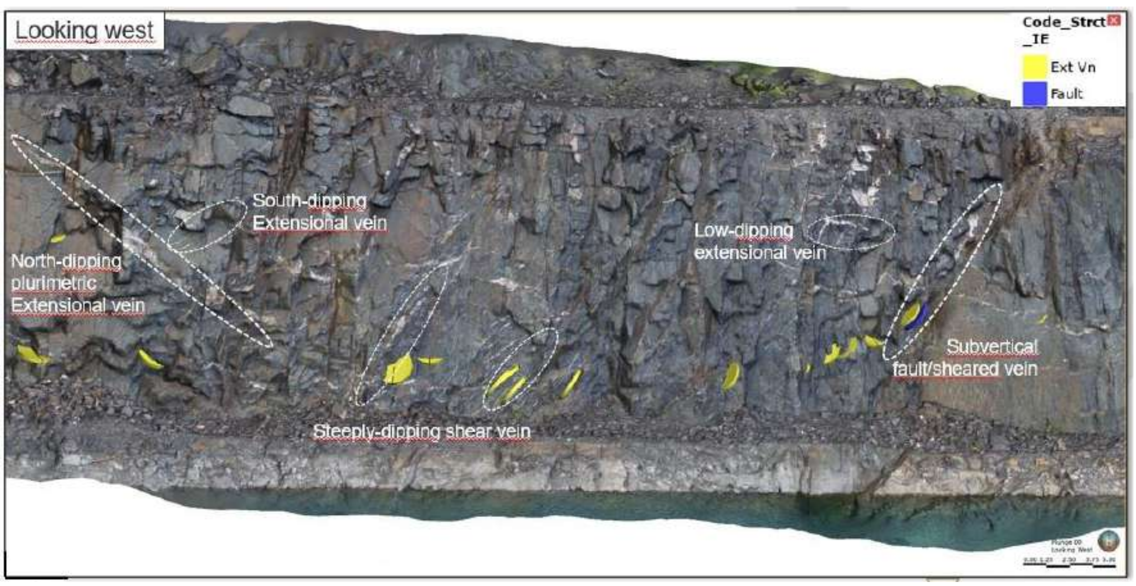
Note: Type IIa – 24/27, Eastern Belt, South of Andy Lake, Carving Stone; Type IIb – Albatross, Nice Lake Trend, Nose Fold, Complex Zone; Type IIc – Old Spider Lake Grid; Type III – Andy Lake; Type IV – Old MAG Claim; Type V – West of Andy Lake; Type VI – Diabase Arm. Source: Durieux, G., 2019.

9.2.5 2019 LiDAR Survey of the Colomac Main Deposit

In July 2019, Japosat Satellite Mapping from St-Constant, Quebec, conducted a detailed LiDAR survey coupled with high-resolution imagery in the Colomac Main deposit area. The survey's main purpose was to assist with the structural interpretation and 3D modelling of the Colomac Main deposit, largely by collecting surface data from the inaccessible and nearly vertical pit walls of the former mining operation.

Figure 9-10 shows the structural measurements taken on the pit walls using a high-resolution image superimposed on the detailed LiDAR survey.

Figure 9-10: Structural Measurements Taken on a High-Resolution Image Superimposed on Detailed LiDAR Topography in an Inaccessible Part of the Colomac Main Deposit



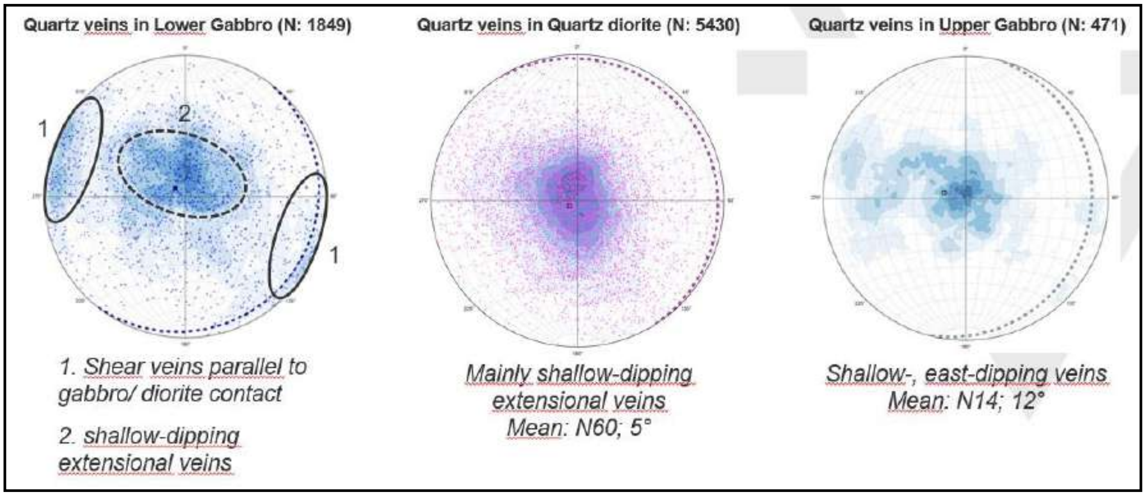
Source: Fontaine et al., 2019.

9.2.6 2019 Structural Review of the Colomac Main Deposit

From June 4 to 11, 2019, InnovExplo conducted a structural review of drill core from different zones of the Colomac Main deposit. The purpose was to collect and validate data for 3D litho-structural modelling of the deposit to support the mineral resource update. The drill core data were combined with the structural data from a surface study and the LiDAR drone survey (see Figure 9-11). The results confirmed the contrasting deformation styles between the Lower/Upper Gabbro units (ductile) and the Colomac quartz diorite sill (brittle; Faure and Durieux, 2019).

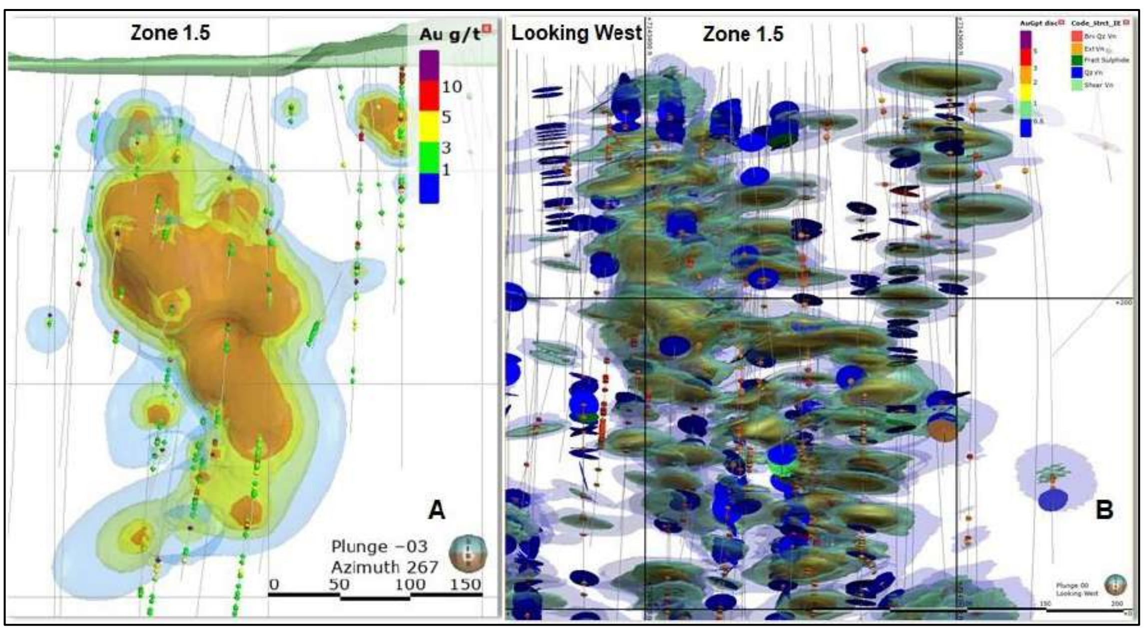
Measurements indicate that Colomac mineralized vein sets consist of a simple to complex conjugate network of gold-bearing, extensional veins and hydrothermal breccias with local laminated quartz-carbonate fault-fill veins in moderately to steeply dipping, compressional brittle-ductile shear zones and faults. The complex stockwork of flat-lying to steeply dipping gold-bearing structures appear to be hosted and controlled by the quartz diorite upper portion of the subvertical sill. Structural modelling suggests that steeply dipping mineralized shoots within the quartz diorite are related to complexly stacked gold-bearing veins (see Figure 9-12).

Figure 9-11: Structural Measurements Used to Construct the 3D Litho-Structural Model for the Colomac Main Deposit



Source: Fontaine et al., 2019.

Figure 9-12: 3D Litho-Structural Model of the Colomac Main Deposit (Zone 1.5)

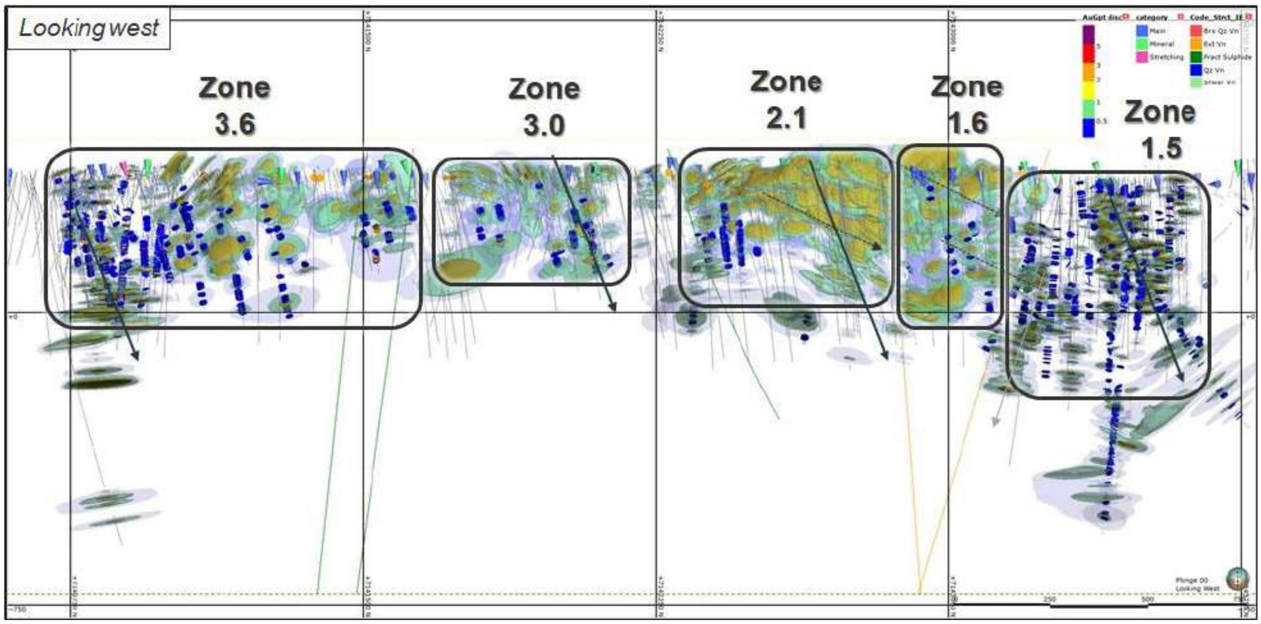


Source: Fontaine et al., 2019. Note: A – Previous model; B – 2019 new model (InnovExplo).

At the deposit scale, these subhorizontal stacked veins form envelopes of shoots with generally steep plunges to the north (zones 1.0, 1.5 and 2.0) and south (zones 2.5, 3.0 and 3.5).

Figure 9-13 presents the results of the 3D litho-structural modelling for the Colomac deposit.

Figure 9-13: North-South Longitudinal Section Showing the 3D Structural Model of the Colomac Main Deposit



Source: Fontaine et al., 2019.

9.2.7 2020 Summer Exploration Program

GeoMinEx conducted the 2020 summer exploration program on behalf of Nighthawk. The work involved prospecting, sampling, and geological mapping in different areas of the property. Details of this program are as follows:

- Andy Lake Area – Channel sampling and mapping at scales of 1:2,000 and 1:100. Prospecting on intrusive bodies and contacts mapped by LaFlamme (2018) in the area surrounding the Andy Lake structural corridor. Collection of 192 samples from 33 cut channels at half-meter sampling intervals. Collection of 72 grab samples while prospecting the intrusive contacts.

- Treasure Island Area – Detailed mapping at a scale of 1:2500. Collection of 11 grab samples.

- Zone 24 and 27 areas – Channel sampling on the Zone 24 showing. Detailed mapping in both areas and their surroundings at a scale of 1:1500. Production of a detailed map of the Zone 24 showing at a scale of 1:250. From 33 cut channels, 355 samples were collected at half-meter sampling intervals.

- JPK Iron Formation Area – Mapping and channel sampling. A total of 326 half-meter samples were collected from 73 channels.

- Jerry 12, 33, 37 and Suncore 3641 Showings – Geological mapping and prospecting.
- Nice Lake/Santa Zone – Mapping and channel sampling. Collection of 31 half-meter samples from four channels.

Several lower-priority target areas were also prospected. Limited mapping and sampling were performed at Leta Arm along the eastern and western lakeshores and on the Fly, A19, A31, and D18 showings. Prospecting was also undertaken at the Pistol-Knob showing and the Mar A showing.

Figure 9-14 presents the 2020 surface sampling program.

9.2.8 2021 Exploration Program

The 2021 exploration program focused on drilling at various targets on the Indin Lake property and will be discussed in Section 10.

9.2.9 2022 Exploration Program

Terrane Geoscience Inc (Terrane) was contracted to update the structural models at the Colomac Main, Cass, Kim and Damoti deposits. The update included two weeks of field mapping and core logging, and an update of the database with additional orientated drill core and rock quality designation (RQD) data.

At the Colomac Main deposit, 19 faults were modelled and subdivided according to their impact on mineralization. Eleven faults had a potential impact on mineralization while eight faults were likely to be geotechnically significant. Several of the dominant structures were confirmed from previous work; however, additional structures were added. These results indicate that northeast-trending faults cause mineralization to offset over tens of meters, while the northwest striking faults are associated with deflection of mineralization as folding rather than offsetting.

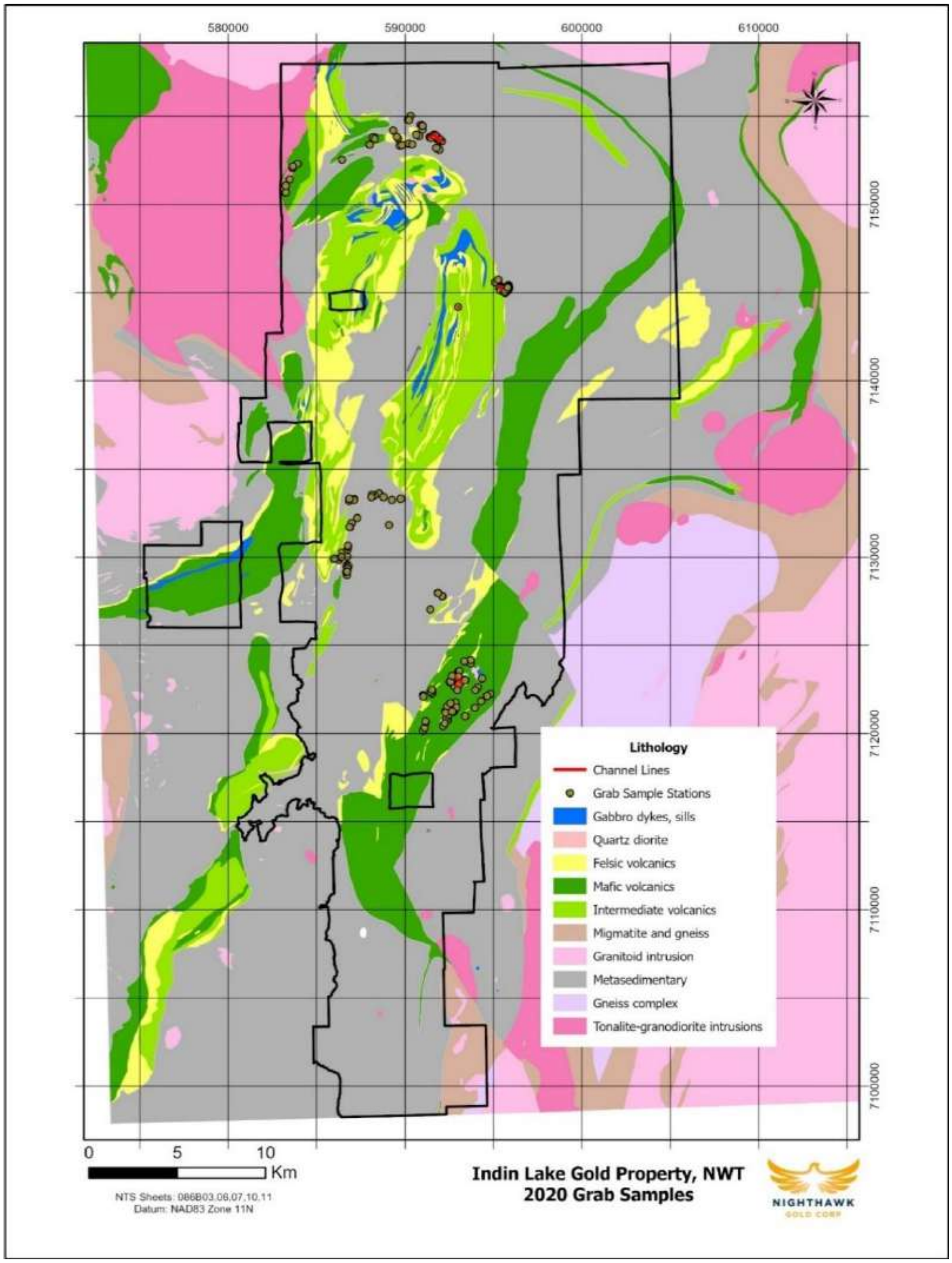
The geotechnical faulting was included with the benefit of additional RQD data and confirmed a continuous shallow, north-dipping fault that terminates at surface in the 3.5 zone and extends north of the 1.5 zone.

Kim deposit showed several vein orientations; however, only a select group is mineralized. The mineralized veins have two dominant orientations; steep veins orientated at ~175/70 and oblique to the foliation, and a second set of shallow veins oriented at ~145/15 and 57° with respect to steep veins. The veins hosting the mineralization are predominantly quartz-carbonated (+ chlorite-sulphide) veins.

At the Cass deposit, nine faults were modelled based on available data. The main regional fault extends east-west and bounds mineralization and host geology on the north side. Multiple parallel, northeast striking faults splay from the main fault and are associated with gabbroic intrusions and mineralization. Several steeply dipping, north to northwest striking faults extend between the main Cass Valley fault and the northeast splay faulting. This results in a rotational offset of mineralization and foliation of the gabbro intrusions.

At the Damoti deposit, five faults and one shear zone were modelled. The faults do not show significant offset of the geology. The new structural model suggests a single folding is sufficient to explain the complexity of the area. This interpretation differs from previous models as it leaves the bottom of the mineralization open at depth and a moderate plunge along the fold nose, rather than being closed in a double digit and plunging fold.

Figure 9-14: Locations of Grab Samples Collected During the 2020 Summer Surface Exploration Program on the Indin Lake Property



Source: Nighthawk, 2021.

10 DRILLING

This section describes Nighthawk's surface diamond drilling campaigns from 2009 to 2022. Although the Leta Arm, Treasure Island, and Swamp areas are not the focus of this report, their results are presented for completeness. Previous drilling programs are summarized in Section 6.

From 2012 to 2020, the programs were performed on behalf of Nighthawk and supervised by an exploration consultant for all activities related to drilling, including the preparation and supervision of geological logging. Since 2021, GeoMinEx has supervised all activities related to drilling, including the preparation and supervision of geological logging.

The information in this chapter was provided by Nighthawk's geology team or obtained by InnovExplo's geologists during site visits and subsequent discussions. Grade results are uncapped, and stated intervals are downhole lengths, not true widths.

10.1 Drilling Methodology

Major Drilling Group International Inc. of Rouyn-Noranda, Quebec has provided the personnel, supplies, and ancillary equipment for all drilling programs since 2012. Drilling used NQ drilling barrels (47.6 mm core diameter). Holes were generally drilled with maximum stabilization using 6 m hexagonal core barrels with a 36-inch or 18-inch shell on surface.

The downhole orientation survey was performed by the drilling company and sent to the geologist for approval. A Reflex EZ-SHOT™ tool was used to record deviation surveys by taking single-shot measurements every 30 meters during drilling. Azimuth readings were dismissed where the magnetite content in the host lithology was high. In such cases, where possible, an average of the change in azimuth was calculated for the station as a weighted average for the distance from the nearest assumed valid azimuth readings uphole and downhole, or the azimuths were flatlined near the end of the hole if no valid reading was available downhole.

Starting in 2016, orientated core measurements were collected in selected holes using the Reflex Act III™ system. From 2016 to 2020, 118 over 387 drill holes were oriented. An additional 72 drill holes were orientated in 2022.

As per Nighthawk's standard procedures, the driller helper placed the core into core boxes at the rig, marking off every 3 meters with wooden blocks. Once the box was full, the helper wrapped it in tape. Drillers delivered the core to Nighthawk's core logging facility daily by road or helicopter.

Drill hole casings remain anchored in bedrock to allow future surveying or lengthening. Land-based drill hole casings are cut close to the ground and sealed with an aluminum cap stamped with the hole number.

10.2 Collar Surveys

Sub-Arctic Geomatics Ltd. of Yellowknife provided a land surveyor with a global positioning system (GPS) base station to survey the proposed and completed drill collar locations.

10.3 Logging Procedures

As the core boxes arrived at the core shack from the drill, the meterage in each box was recorded and verified by a technician. The hole number and meterage were reported on an aluminum tag stapled to the core box. Rock quality designation (RQD) was measured every meter, and the results were entered into a Microsoft Excel table.

The drill core was aligned according to the marks drawn by the driller at the end of each 3-meter drilled interval to indicate the downhole direction. An orientation line was drawn along the core by a geologist or geotechnical staff. Good confidence was attained when the orientation line joined the driller marks on both sides of the 3-meter run.

Geological logging was then performed, and the following features were recorded in MX Deposit software:

- lithology
- grain size and texture
- rock colour
- alteration type and strength
- sulphide type and amount
- vein type, width, and density
- structural features (e.g., foliation, shearing, brecciation, faulting).

If the core is oriented, the alpha and beta angles of structural features are measured using REFLEX IQ-LOGGER™.

A geologist used a red marker to indicate sampling intervals. In general, the length of a sample should not exceed 1.0 m. In the case of visible gold or a significant sulphide content, samples ranged from 0.5 to 0.75 m long for greater detail. Samples respected lithological boundaries and/or major changes in alteration/mineralization/veins. Starting in 2019, digital photographs have been taken of marked and tagged core for archival purposes.

Once logged and labelled, samples were sawn in half using a circular rock saw. One half was placed in a plastic bag with the corresponding ID tag for shipment to the laboratory, and the other half was stapled to the core box at the end of each sampled interval for reference.

Reference drill cores are stored at the Colomac site in outdoor core racks or flat stacked, except for historical (legacy) Damoti drill cores or those drilled by Nighthawk at Damoti during 2009 and 2010. These are stored at the former Damoti Horseshoe camp. Nighthawk's drill core from the 2011 drilling in Treasure Island and the Leta Arm areas, as well as the early 2012 drilling in the Colomac area, are also stored at the former Damoti Horseshoe camp. In 2018 and 2019, Starkey & Associates Inc. (S&A) was contracted to conduct metallurgical testwork on selected core samples. The programs represented the third and fourth generations of metallurgical testwork on material from the Colomac area.

In 2018, S&A collected four bulk drill core samples from 21 boreholes covering seven mineralized zones in the Colomac and Goldcrest sills. Each sample consisted of approximately 70 kg of drill core.

In 2019, Starkey collected four bulk drill core samples from zones 2.0, 2.5 and 3.0 in the Colomac sill. Each sample consisted of approximately 70 kg of drill core. The results of this study are presented in Section 13.

10.4 2009-2017 Drilling Programs

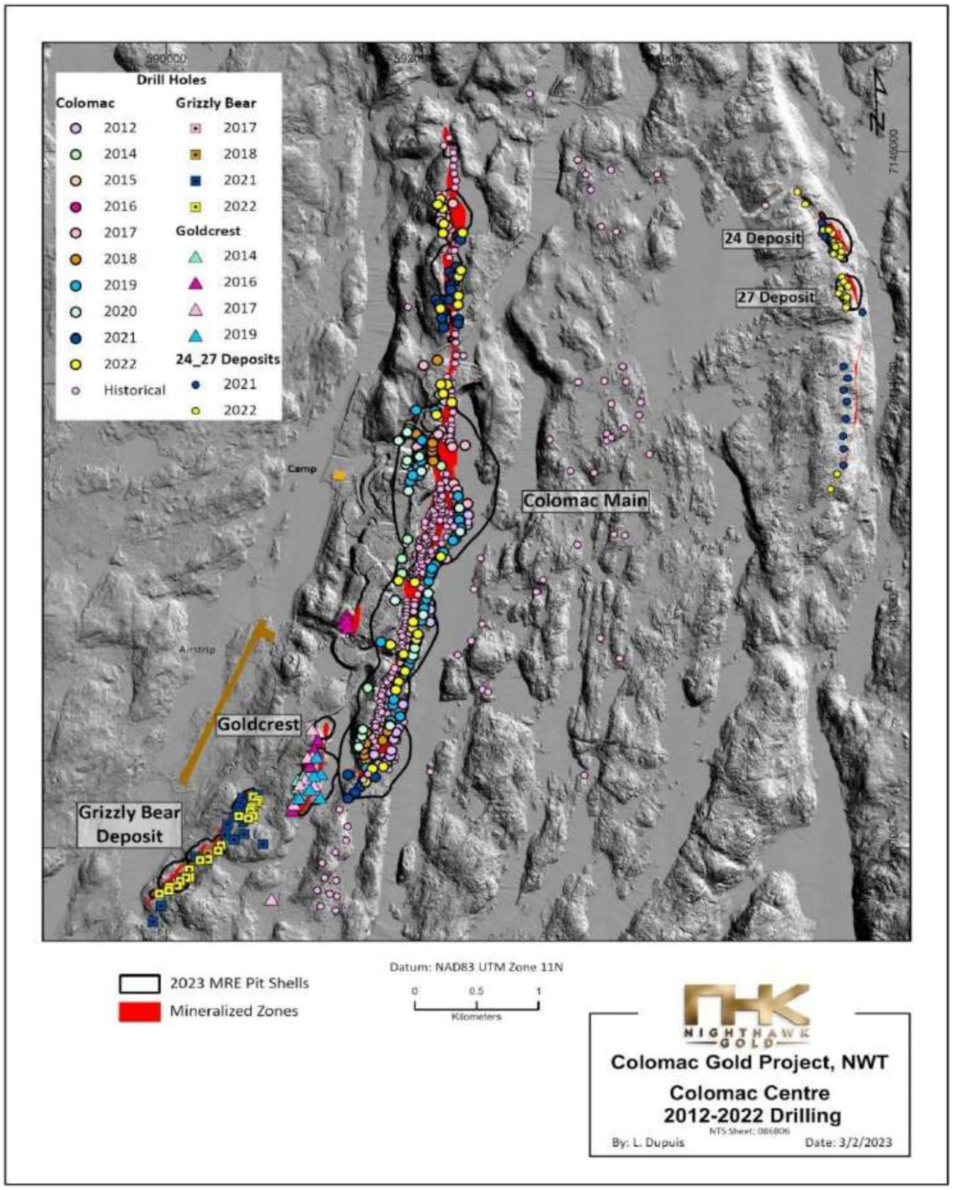
10.4.1 Colomac Centre Area

Between 2012 and 2017, Nighthawk completed five drilling programs in the Colomac area totalling 177 holes for 56,216 m. The details are presented in Table 10-1 and Figure 10-1.

Table 10-1: Summary of Nighthawk's 2012 to 2017 Exploration Drilling Program in the Colomac Area

Period	Deposit	Work Completed	Number of Holes	Meters	Results
2012	Colomac Main	C12-01 to C12-15	30	11,235	Confirmed higher-grade gold shoots below zones 2.0, 2.5, 3.0, and 3.5.
2014	Colomac Main	C14-01 to C14-07	10	3,635	Demonstrated potential for higher-grade shoots and resource growth in zone 1.5, 2.0 and 3.0. Highlight: C14-06 intersected 7.78 g/t Au over 52.50 m in Zone 1.5, expanding the zone over 60 m along strike and to a depth of 175 m.
	Goldcrest Main	G14-01 to G14-13	24	6,038	G14-04/G14-05 and G14-08/08B identified two new higher-grade gold shoots and suggested a N-plunging shoots.
2015	Colomac Main	C15-01 to C15-06	8	2,080	Extended Zone 1.5. Highlight: C15-04B intersected 2.63 g/t Au over 77.75 m. Tested zone 1.0 for the first time. Opened up over 2.0 km of largely unexplored intrusion.
2016	Colomac Main	C16-01 to C16-10B	19	4,524	Delineated zone 1.5. Highlight: C16-03 intersected 7.72 g/t Au over 52 m. Tested Zone 2.5. Highlight: C16-07B intersected 1.47 g/t Au over 57 m. Tested zone 1.0. Highlight: C16-06B intersected 1.09 g/t Au over 56 m.
	Goldcrest Main and north	G16-01 to G16-11	15	3,845	G16-10 confirmed continuity to the depth of a previously reported mineralization. G16-07 intersected another zone of broad mineralization of underexplored extensions.
2017	Colomac Main	C17-01 to C17-30	56	21,167	Expanded zone 1.5 an additional 250 m to depth and tripled its true width.
	Goldcrest Main	G17-01 to G17-09	13	3,308	Increased zones definition with infill drilling.
	Grizzly Bear	GB17-01 to GB17-01B	2	381	
Total	Colomac Main		123	42,642	
	Goldcrest		52	13,193	
	Grizzly Bear		2	381	

Figure 10-1: Drilling in the Colomac Area Between 2012 and 2022



Source: Nighthawk, 2023.

10.4.2 Damoti, Treasure Island and Leta Arm areas

Between 2009 and 2017, Nighthawk drilled 26,940 m to explore the Damoti, Treasure Island, and Leta Arm areas. The details of those programs are presented in Table 10-2.

Table 10-2: 2009 to 2017 Exploration Drilling Programs in the Damoti, Treasure Island, and Leta Arm Areas

Period	Location	Work Completed	Number of Holes	Meters	Results
2009	Damoti - Horseshoe Syncline	D04-376 to 389 and D09-393	19	3,580	D09-382 intersected 30.55 g/t Au over 3.45 m near surface and 4.58 g/t Au over 5.05 m at the base of the Horseshoe fold, opening up opportunities into the lower portion of the western fold limb. Subsequent drilling north of hole D09-382 (D09-383 to D09-389) confirmed and extended near-surface mineralization and the newly discovered potential in the lower part of the western limb of the syncline.
	Damoti - Red Mountain Syncline. East limb	D09-390 to 392C	8	89	Established the continuity of near-surface mineralization identified during the 1995 drilling program. The 1995 and 2009 results confirmed the mineralization over 180 m and to a depth of 40 m. Hole D09-390B returned 7.86 g/t Au over 2.65 m and D09-392C intersected 5.19 g/t Au over 4.80 m.
2009 Totals			27	5,670	
2010	Damoti - BIF Island Area	D10-394 to 404 and D10-424	19	3,153	Confirmed several previous gold values and showed the BIF to be tightly folded and faulted, forming a NE-plunging syncline which approaches the near-surface and is exposed near BIF Island.
	Damoti - Granite Showing	D10-410 to 413	3	362	No significant or anomalous gold values detected.
	Damoti - Red Mountain (Lookout and Causeway Showings)	D10-416 to 423	15	3,228	Confirmed several previous gold values.
	Damoti - Horseshoe North	D10-427	3	834	
	Damoti - Runway & Lardass	D10-430	2	400	
2010 Totals			42	7,977	
2011	Treasure Island	T11-01 to T11-03B	5		Confirmed historical stacked gold mineralization within a zone of up to 200 m wide along a 200-m strike length and to depths of up to 250 m. Visible gold encountered in each of the 5 holes. New mineralization also discovered near surface and at depth.
	Leta Arm–North Inca	N11-01 to N11-10B	22		Confirmed historical reports of gold along and near the volcano-sedimentary rock contact. Tested and extended existing zones in all directions and confirmed new zones at depth.
	Leta Arm–Diversified	DV11-01 to DV11-09B	16		
	Leta Arm–Lexindin	LX11-01	1		
2011 Totals			44	11,979	
2017	Leta Arm–North Inca	NI17-01 to NI17-02B	4	1,314	Hole NI17-01 intersected 2.24 g/t Au over 13.20 m, extending the depth of the mineralization by 70 m; the bottom of the zone remains open. Holes NI17-02 and 02B filled a gap between previous holes, with NI17-02 returning 4.03 g/t Au over 9.55 m.
2017 Totals			4	1,314	

10.5 2018 to 2021 Drilling Programs

Between 2018 and 2021, 550 holes (167,700 m) were drilled on the property. In 2018, three rigs drilled 124 holes (32,602 m) on the property. Drilling was performed in the following areas: Leta Arm (North Inca, #3, Diversified and Lexindin), Treasure Island, Swamp, Damoti, and Colomac (Colomac Main and Grizzly Bear deposits). In 2019, three rigs drilled 110 holes (40,844 m) on the property. The targets were the Treasure Island area and the Colomac Main and Goldcrest deposits in the Colomac area. In 2020, three rigs drilled 44 holes (21,929 m) on the property. The targets were the Treasure Island area and the Colomac Main deposit. In 2021, five rigs drilled 272 holes (72,325 m) on the property. The targets were Colomac Main (zones 1.0 and 3.5), South of Colomac Main, Grizzly Bear, Goldcrest, Nice Lake, Cass, Kim, Kim South, Albatross, 24 and 27, Laurie Lake, JPK, Fishhook, Andy Lake, and Echo-Indin.

The information presented in this section is available in Nighthawk's press releases and annual reports. Table 10-3 summarizes the 2018 to 2021 drilling programs.

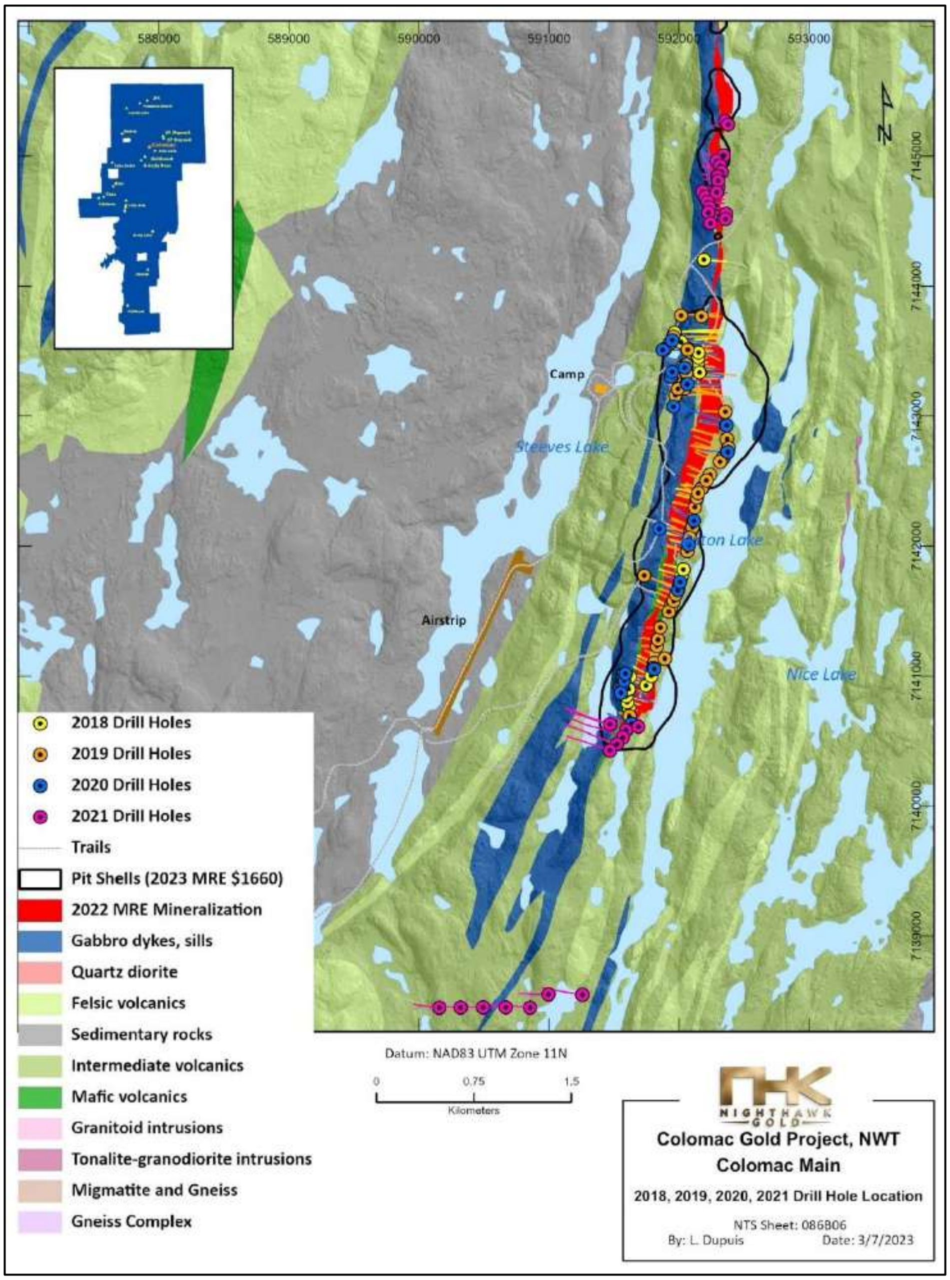
Table 10-3: Summary of the 2018 to 2021 Drilling Programs on the Indin Lake Property

Year	Area	Deposit	DDH Count	Length (m)
2018	Colomac Area	Colomac Main	44	12,685
		Grizzly Bear	11	2,367
	Damoti Area	Damoti	17	5,140
	Other Areas	Diversified (Leta Arm)	14	3,446
		#3 (Leta Arm)	6	1,294
		Lexindin (Leta Arm)	2	429
		North Inca (Leta Arm)	11	2,513
		Swamp	3	693
		Treasure Island	16	4,035
2018 Subtotal			**124**	**32,602**
2019	Colomac Area	Colomac Main	84	32,835
		Goldcrest	7	2,193
	Other Areas	Treasure Island	19	5,816
2019 Subtotal			**110**	**40,844**
2020	Colomac Area	Colomac Main	29	16,421
	Other Areas	Treasure Island	15	5,508
2020 Subtotal			**44**	**21,929**
2021	Colomac Area	Colomac Main	36	10,535
		South of Colomac	7	2295
		Grizzly Bear	32	5809
		Goldcrest	4	1251
		Zone 24-27	22	5794
	Kim and Cass Area	Cass	51	11,908
		Kim	12	3558
		Kim South	14	4197
	Other Areas	Nice Lake	17	5325
		Albatross	12	4059
		Laurie Lake	13	3375
		JPK	8	1872
		Fishhook	12	6630
		Andy Lake	9	2397
		Echo-Indin	11	3321
2021 Subtotal			**260**	**72,326**
Total			**550**	**167,700**

10.5.1 Colomac Main Deposit

Figure 10-2 illustrates the distribution of holes drilled on the Colomac Main deposit between 2018 and 2021.

Figure 10-2: Drilling on the Colomac Main deposit from 2018 to 2021



Source: Nighthawk, 2023.

10.5.1.1 2018 Drilling Program

In 2018, 44 holes were drilled on the deposit for 12,685 m. The aim was to test the extension of mineralization to the north and at depth, and to fill in gaps in the near-surface portion of the mineralization. The results extended the mineralization of Zone 3.5 for 110 m to the north and demonstrated its steep north-plunging trajectory (holes C18-09, C18-12 and C18-12B). The mineralization appears to widen at depth to over 80 m (true width) in hole C18-09. The highlights for zone 3.5 were as follows:

- C18-06 intersected 1.53 g/t Au over 71.5 m (27 m true width), including 3.58 g/t Au over 9.65 m.
- C18-12B intersected 1.15 g/t Au over 85.5 m (22 m true width), including 4.48 g/t Au over 9.75 m.

The dimensions of Zone 1.5 were extended to 300 m along strike, 660 m in vertical depth, and a true width of 30 to 60 m near the surface and over 155 m at depth. The highlights for zone 1.5 were:

- C18-05 intersected 2.91 g/t Au over 84.3 m (41 m true width), including 8.11 g/t Au over 4.25 m.
- C18-14 intersected 1.36 g/t Au 45.25 m (32 m true width), including 7.37 g/t Au over 2.25 m.

For zones 2.0, 2.5 and 3.0, drilling confirmed the continuity of mineralization within the large near-surface gaps and extended zones at depth below the current resources and identified new areas of higher-grade mineralization that suggest the presence of new high-grade gold shoots. The highlights for these zones were:

- C18-19B: 2.98 g/t Au over 20.1 m, including 9.54 g/t Au over 5 m (Zone 3.0).
- C18-25B: 1.68 g/t Au over 51 m, including 3.17 g/t Au over 8.25 m (Zone 2.5).
- C18-26: 3.42 g/t Au over 25.25 m, including 7.10 g/t Au over 7.25 m (Zone 2.0).

10.5.1.2 2019 Drilling Program

In 2019, 84 holes were drilled on the deposit for 32,835 m. The major objectives were to test zones 1.5 and 3.5 at depth, and to explore for shallower, higher-grade domains within a 2 km section of the Colomac sill between zone 3.5 and the southern part of zone 2.0. The best results were as follows:

- C19-08 intersected 13.49 g/t Au over 56 m in zone 1.5, including 53.57 g/t Au over 10 m, the highest gold intercept ever reported in core at Colomac Main.
- C19-24 intersected 2.76 g/t Au over 56.25 m in zone 2.0.
- C19-18 intersected 1.33 g/t Au over 91.50 m in zone 2.0, including 2.95 g/t Au over 24.75 m, 4.55 g/t Au over 14.25 m, and 6.44 g/t Au over 9.25 m.
- C19-39B intersected 1.89 g/t Au over 110.50 m in zone 2.0, including 2.37 g/t Au over 57 m and 5.16 g/t Au over 6.40 m. This intersection extended the depth of the mineralization by 175 m to reach a vertical depth of 700 m.

The 2019 results support the continuity of mineralization throughout the deposit. Zones were extended at depth, and observations suggest a widening of the favourable brittle host quartz diorite in the Colomac sill at depth. Although this had previously been noted during the 2017 and 2018 drilling campaigns, the extensive drilling in 2019 confirmed that the quartz diorite was not only present in zones 1.5 and 2.0 but also in zones 2.5 and 3.0. For example, in zone 3.0, holes C19-25, -25B and -25C show the widening of the quartz diorite at depth from a true width of 12 m in C19-42 to a true width of 45 m in C19-42B, 160 m below; and in zone 1.5, C19-42 and C19-42B show the widening of the quartz diorite at depth from a true width of 35 m in C19-42 to a true width of 110 m in C19-42B, 250 m below.

10.5.1.3 2020 Drilling Program

In 2020, 29 holes were drilled on the deposit for 16,421 m. The main objective was to continue testing the Colomac sill below the current resource and to test gaps in drill coverage that were identified as "exploration targets" in the 2020 MRE to potentially convert these areas into future resources. Most of the holes returned significant mineralized intercepts and have extended mineralization to depths. The highlights were as follows:

- C20-03 intersected 2.09 g/t Au over 38.25 m, including 4.16 g/t Au over 10.5 m.
- C20-03 suggested a widening of the mineralization with an interpreted zone 1.5 to 60 m true width at 500 m vertical depth.
- C20-06 intersected 1.84 g/t Au over 252.1 m, including 2.01 g/t Au over 200.5 m.
- C20-06 suggested a widening of the host quartz diorite to depth within the northern part of zone 2.0 with an interpreted zone of up to 100 m (true width) at a depth of 450 m. This represents approximately double the width of the zone near the surface on the same section.
- C20-10 intersected 1.36 g/t Au over 155 m, including 5.51 g/t Au over 8 m and 3.02 g/t Au over 12.5 m. C20-10 helped delineate uninterrupted mineralization in zone 2.0 from near surface to over 500 m vertical depth.
- C20-12 intersected 1.85 g/t Au over 34.5 m, including 2.83 g/t Au over 18 m. This intersection extended the depth of the mineralization in Zone 2.5 to 320 m vertical depth.
- Hole C20-07C was completed at zone 3.5 and returned 3.00 g/t Au over 32.7 m, supporting the continuity of the higher-grade mineralization previously obtained at depth.
- Holes C20-14 and C20-17(17B) tested Zone 2.5 at depth. Although no extensively wide intervals were obtained, hole C20-17 did return a high-grade interval of 12.36 g/t Au over 4.3 m (26.08 g/t Au uncut), including a 0.5 m sample assaying 218.00 g/t Au.
- Holes C20-15(15B), C20-16, C20-18(18B), and C20-20 were drilled on Zone 1.5 to test the depth extension of the mineralization. Significant intervals were obtained, particularly in holes C20-18, which returned 1.67 g/t Au over 61 m (1.72 g/t Au uncut), and C20-20 returned 2.44 g/t Au over 30.25 m. These results demonstrate that zone 1.5 remains wide and well mineralized at depth, adding to the resource potential within this zone.
- Holes C20-19 tested Zone 2.0 and returned a wide intersection of 1.03 g/t Au over 64.1 m, including 2.88 g/t Au over 7.5 m.

C20-02, C20-04, and C20-07 were drilled on three separate sections spaced 50 m apart to explore the south, central, and northern parts of zone 3.5 at depth and to test areas defined as exploration targets in the 2020 MRE. All holes intersected mineralization and confirmed the continuity of the zone. The highlights included the following:

- C20-04 intersected 2.15 g/t Au over 66.5 m, including 4.42 g/t Au over 18 m.
- C20-07 intersected 1.72 g/t Au over 42.75 m including 3.88 g/t Au over 4.5 m and 1.55 g/t Au over 52.75 m including 5.17 g/t Au over 3.75 m.

C20-05 and C20-05B were planned to test the southern extent of zone 3.5 close to the surface. The typical quartz diorite of the Colomac sill was not observed, but both holes intersected a new style of quartz vein hosting mineralization within the sill's basal quartz gabbro. The highlights included the following:

- C20-05B intersected 9.04 g/t Au over 7.25 m, including 13.09 g/t Au over 4.25 m.

The 2020 results supported the continuity of mineralization throughout the deposit. Zones were extended down-dip where they remain open, and observations suggest a widening of the favourable brittle host quartz diorite (Colomac sill) at depth.

10.5.1.4 2021 Drilling Program

In 2021, 36 holes were drilled on the deposit for 10,535 m. Of the 23 holes drilled at Colomac Main, 17 tested the north extension of the deposit where shallow isolated pit shells were included as part of the 2021 MRE. Drilling focused on extending the shallow mineralized zones at depth and exploring open areas along strike. The results confirmed continuous, near-surface mineralization extending over 200 m at depth and 550 m along strike.

The highlights for Zone 1.0 were as follows:

- C21-08 returned 1.10 g/t Au over 33.50 m.
- C21-13 returned 1.02 g/t Au over 25.45 m.
- C21-16 returned 1.05 g/t Au over 17.00 m.
- C21-22 returned 1.35 g/t Au over 20.50 m.
- C21-28 returned 1.08 g/t Au over 14.00 m.
- C21-30 returned 0.70 g/t Au over 36.50 m.

The remaining six holes drilled at Colomac Main tested the southern extension of the deposit. In this area, the previous drilling, including Nighthawk's holes C20-05 and 05B, returned narrow, high-grade, near-surface intervals. Hole C21-11 confirmed the presence of shallow high-grade mineralization, which will be further delineated in the future.

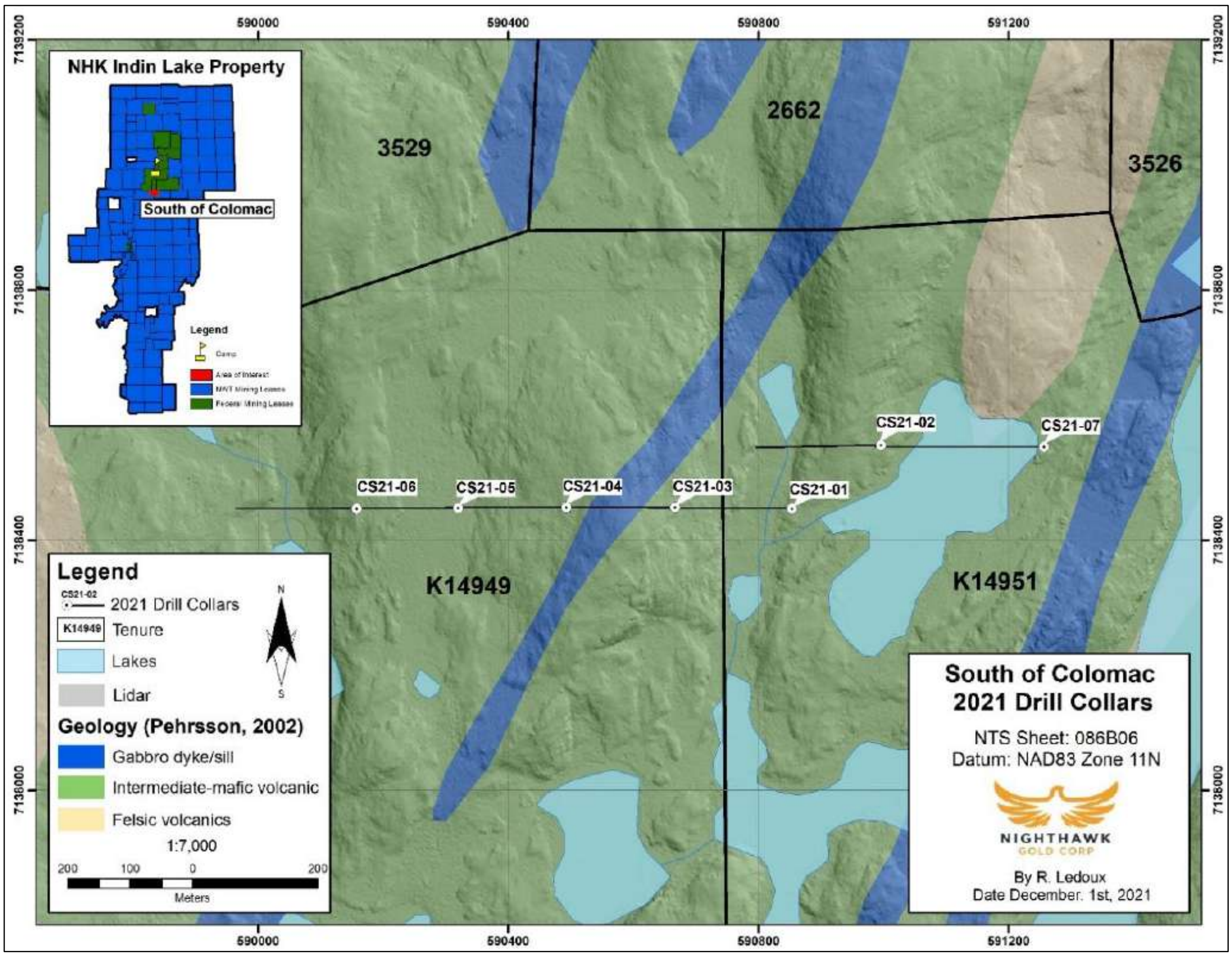
- C21-11 returned 4.70 g/t Au over 6.00 m, and 6.78 g/t Au (51.13 g/t uncut) over 4.25 m, including 427.00 g/t uncut over 0.50 m.

Other holes further south intercepted minor narrow mineralized intervals and showed pitching of the quartz-diorite unit.

10.5.2 South of Colomac

In 2021, seven holes were drilled 2 km south of the Colomac Main deposit for 2,295 m. The aim was to test the southern extension of the Colomac sill from the known mineralized domain. Figure 10-3 illustrates the distribution of holes drilled to the south of the Colomac target during the 2021 campaign. No economic results were obtained during this program.

Figure 10-3: 2021 Drilling on the South of Colomac Target

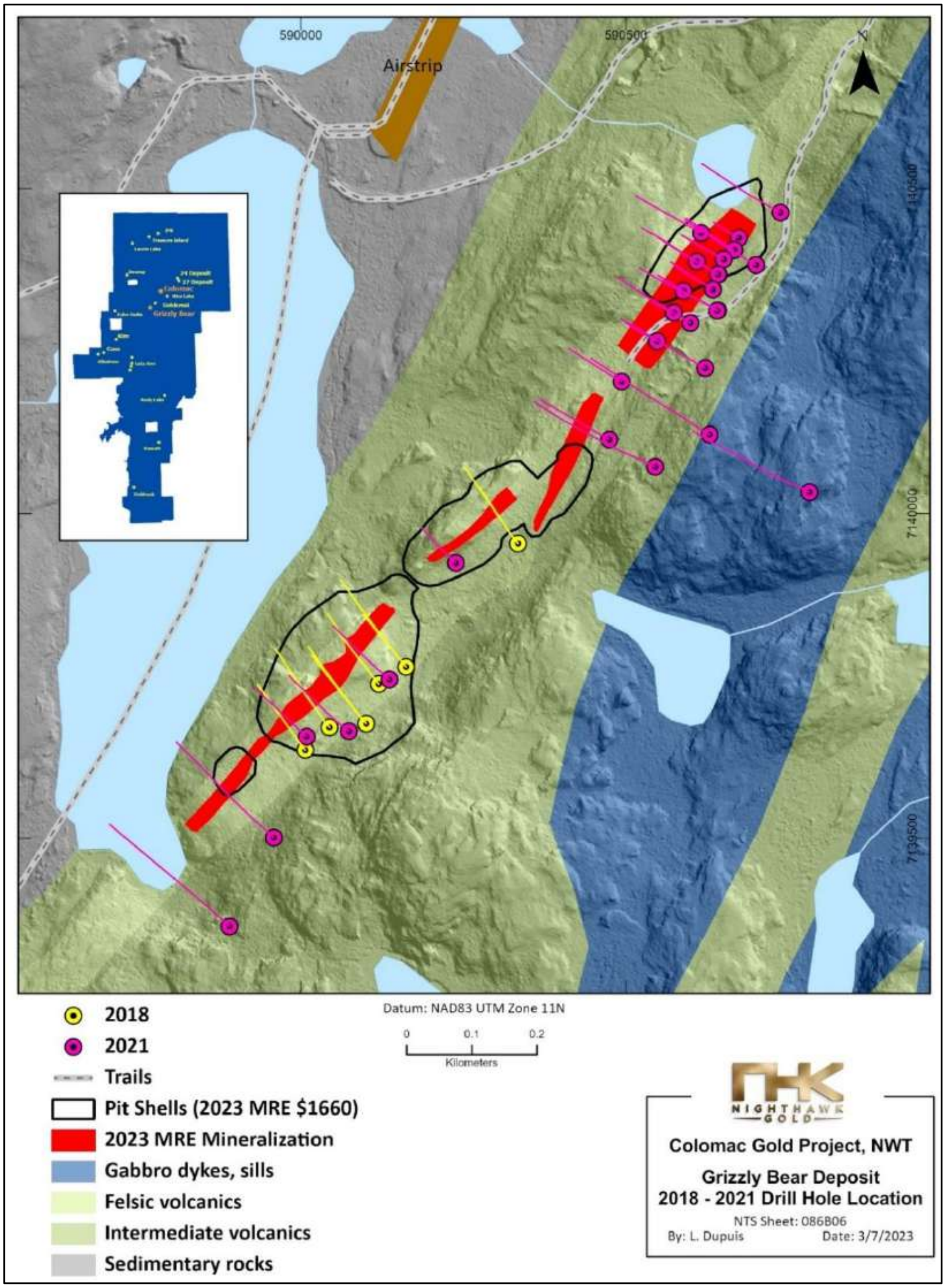


Source: Nighthawk, 2021

10.5.3 Grizzly Bear Deposit

Figure 10-4 illustrates the distribution of holes drilled on the Grizzly Bear deposit between 2018 and 2021.

Figure 10-4: Drilling on the Grizzly Bear Deposit from 2018 to 2021



Source: Nighthawk, 2023.

10.5.3.1 2018 Drilling Program

The 2018 drilling campaign on the Grizzly Bear deposit focused on the potential for expansion at depth and along strike, beyond the known historical shallow intersections.

Eleven holes were drilled for 2,367 m. A drill hole location map is presented in Figure 10-4. Ten holes intersected gold mineralization, extending the depth of the known deposit to 200 m. The highlights included the following:

- GB18-02 intersected 4.04 g/t Au over 6.25 m, including 7.78 g/t Au over 2.50 m and 9.06 g/t Au over 1.50 m.
- GB18-02B intersected 2.00 g/t Au over 17.25 m, including 5.13 g/t Au over 4.50 m.
- GB18-03 intersected 1.98 g/t Au over 16.00 m, including 3.15 g/t Au over 8.50 m and 4.75 g/t Au over 3.50 m.

10.5.3.2 2021 Drilling Program

In 2021, 32 holes were drilled on the deposit for 5,809 m. The aims were to add to the near-surface resource in the main Grizzly Bear zone, to add near-surface resources by exploring the undrilled area to the Northeast of previous Grizzly Bear drilling, and to add near-surface resources by exploring the undrilled area to the southwest of previous Grizzly Bear drilling.

Three holes were drilled on the main zones. The best result was intercepted by GB21-13, returning 4.64 g/t Au over 6.15 m.

To test the northeast extension, 24 holes were drilled. Results confirmed the presence of a fourth zone of near-surface mineralization with significant results obtained over 550 m along strike and 100 m at depth.

The highlights for the northern extension were as follows:

- GB21-07 returned 2.77 g/t Au over 10.25 m.
- GB21-11 returned 1.63 g/t over 6.15 m.

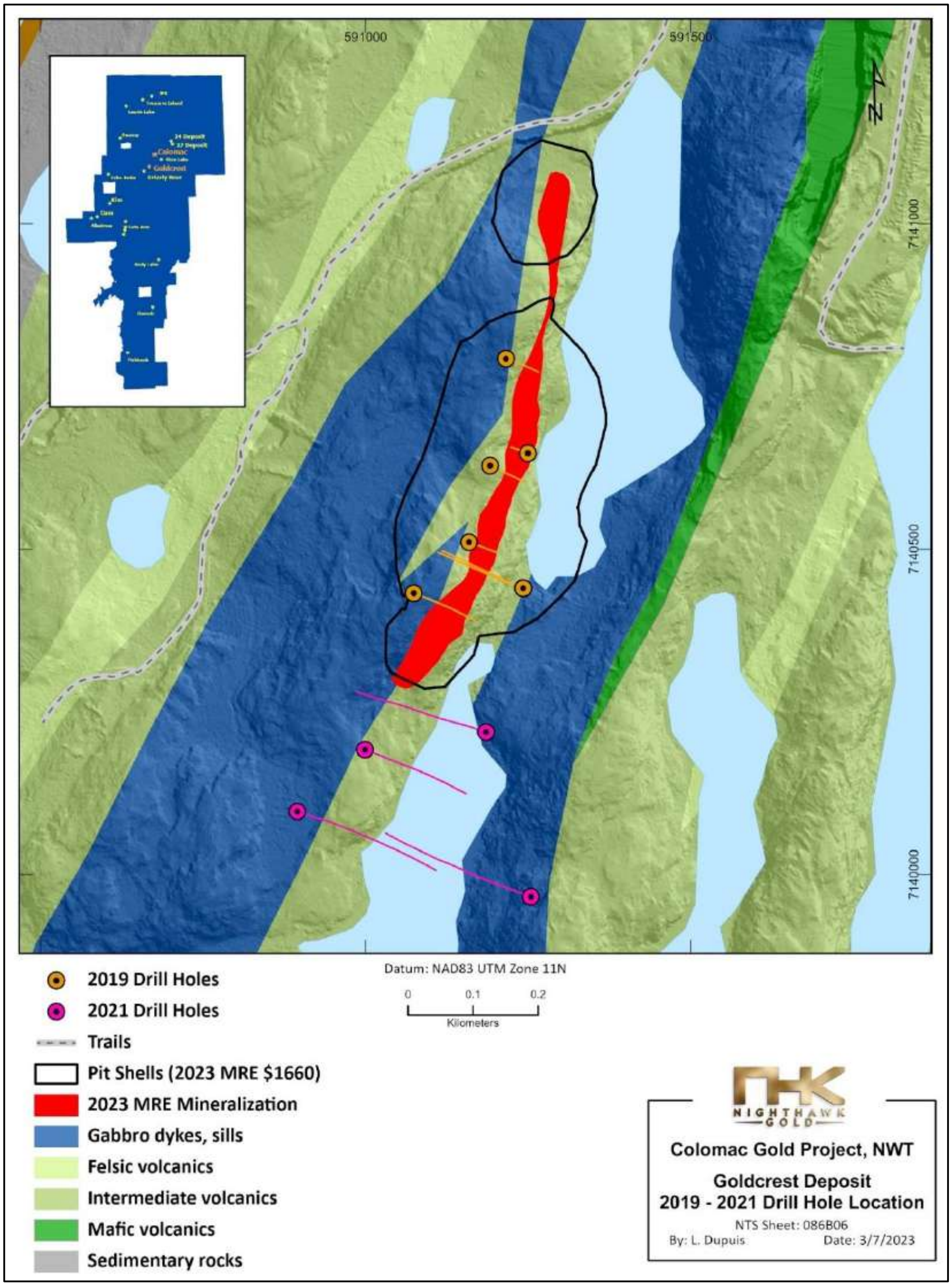
Three holes were drilled to test the extension of the southern zone at deep, and two were drilled to test the south extension. Most holes intercepted the mineralized zone, with GB21-04 suggesting the extension of the mineralized zone 80 m south and GB21-01 suggesting the pitching of the mineralized zone further south.

- GB21-04 returning 3.68 g/t Au over 1.00 m and 1.14 g/t Au over 1.50 m.
- GB21-08 returned 1.11 g/t Au over 6.50 m.

10.5.4 Goldcrest Deposit

Figure 10-5 illustrates the distribution of holes drilled on the Goldcrest deposit between 2019 and 2021.

Figure 10-5: Drilling on the Goldcrest Deposit from 2019 to 2021



Source: Nighthawk, 2023.

10.5.4.1 2019 Drilling Program

In 2019, seven holes were drilled on the Goldcrest sill for a total of 2,193 m. The program was designed to test unexplored gaps along the main Goldcrest sill, both along strike and down-dip.

Five holes intercepted mineralization and confirmed zone continuity by filling in gaps in the drill coverage. The best results were from G19-05, which intersected 2.00 g/t Au over 68.50 m (8 m true width), including 5.47 g/t Au over 15.5 m. This subvertical hole was drilled down the sill and intersected 130 m (20 m true width) of relatively continuous downhole mineralization to a vertical depth of 153 m, where it remains open.

Hole G19-02 is the deepest hole drilled at Goldcrest. The aim was to explore the sill's depth potential. It intersected nine separate stacked mineralized lenses distributed among alternating horizontal bands of quartz gabbro and quartz diorite over its downhole length of 501 m. This type of layering has not been documented elsewhere within the sill. The highlight from G19-02 was a deep intercept of 6.95 g/t Au over 7.75 m (2 m true width), including 15.83 g/t Au over 3.25 m at 425 m vertical depth.

10.5.4.2 2021 Drilling Program

In 2021, four holes were drilled on the deposit for 1,251 m. The aim was to test the extension of the Goldcrest deposit to the south. No economical results were obtained during this program.

Hole C21-05 was collared in the Colomac Main deposit 3.5 zone but extended to the west to undercut the Goldcrest zone at depth, where very limited deep drilling has been completed. The hole crossed a strongly mineralized zone returned 3.80 g/t Au over 22.40 m, including 6.37 g/t Au over 11.00 m. Following those results, four holes from Colomac Main (C21-09, C21-14, C21-15 and C21-17) were extended to test the continuity of the Goldcrest zone at depth. Some minor results were obtained.

10.5.5 Deposits 24 and 27

In 2021, 22 holes were drilled on the deposit for 2,937m. The aim was to test the extension of a favourable structure south of deposit 27 and explore for the extensions of deposit 24.

10.5.5.1 27 South Deposit

Nine holes were drilled to test the southern extension of deposit 27. No major mineralized intervals were intercepted except in hole TFS21-06 returning 0.76 g/t Au over 12.00 m, including a higher-grade intersection of 1.08 g/t Au over 5.00 m.

10.5.5.2 Deposit 24

13 holes were drilled on deposit 24. Results confirmed the continuity of the mineralization at depth with significant results extending the zones over 230 m at depth. The highlights were:

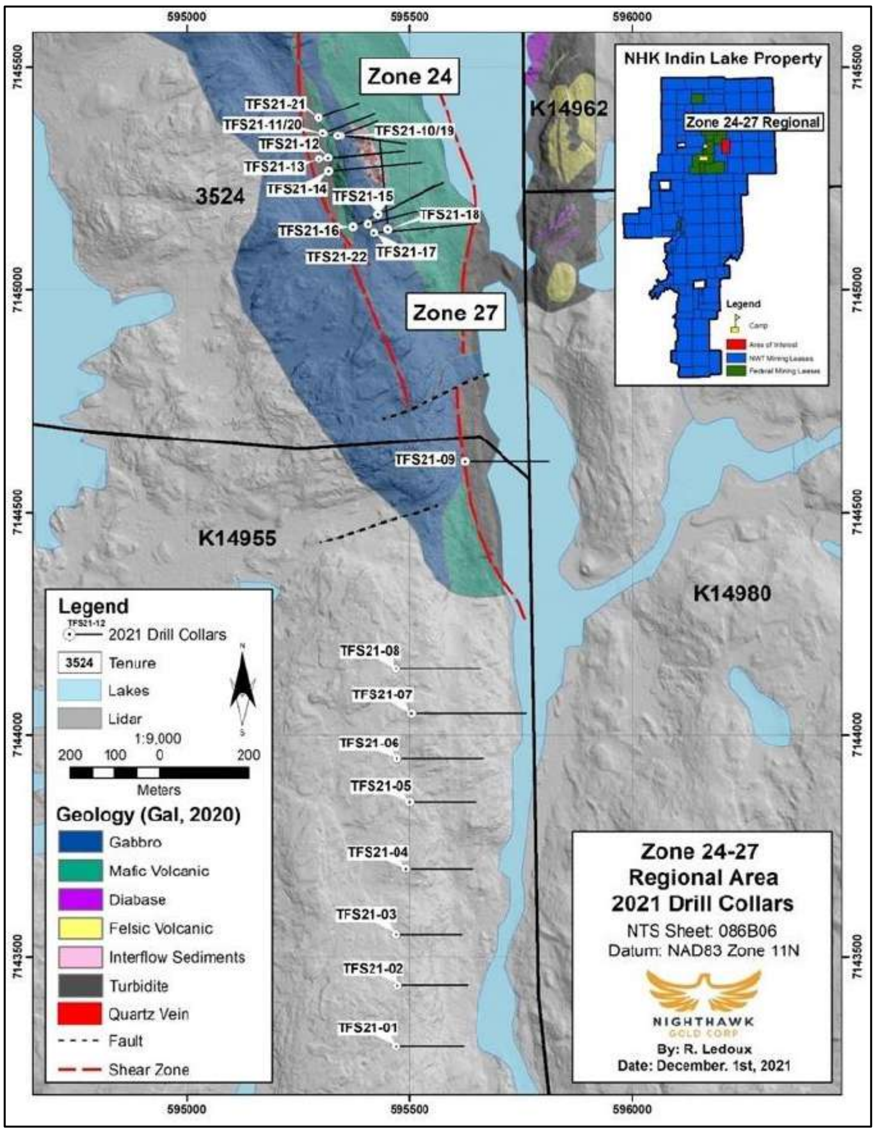
- TFS21-10 returned 2.16 g/t Au over 14.00 m.
- TFS21-11 returned 1.84 g/t Au over 27.50 m.

- TFS21-15 returned 1.29 g/t Au over 20.00 m.
- TFS21-16 returned 2.69 g/t Au over 17.00 m.

The new drilling associated with geological field works also provided a better understanding of the deposit. The resulting new geological interpretation describes the deposit as sub-parallel and sub-vertical intensely folded mineralized zones.

Figure 10-6 illustrates the distribution of holes drilled on deposits 24 and 27 deposits during the 2021 program.

Figure 10-6: 2021 Drilling on Deposits 24 and 27



Source: Nighthawk, 2021

10.5.6 Damoti Area

In 2018, 17 holes (5,140 m) were drilled in the Damoti area to test gaps in the drill spacing and to explore several new geological targets within the Horseshoe and Red Mountain synclines. Nine holes successfully filled in gaps and extended mineralized zones in both areas, intersecting additional near-surface and deeper mineralization and outlining at least one new discovery at Red Mountain that remains open in several directions. The highlights were as follows:

- D18-02 intersected 10.12 g/t Au over 6.95 m and 8.97 g/t Au over 2.50 m (Horseshoe Zone).
- D18-07B intersected 6.91 g/t Au over 14.75 m and 2.61 g/t Au over 9.50 m (Horseshoe Zone).
- D18-06B intersected 3.31 g/t Au over 4.25 m and 2.46 g/t Au over 5.25 m (Red Mountain Zone).

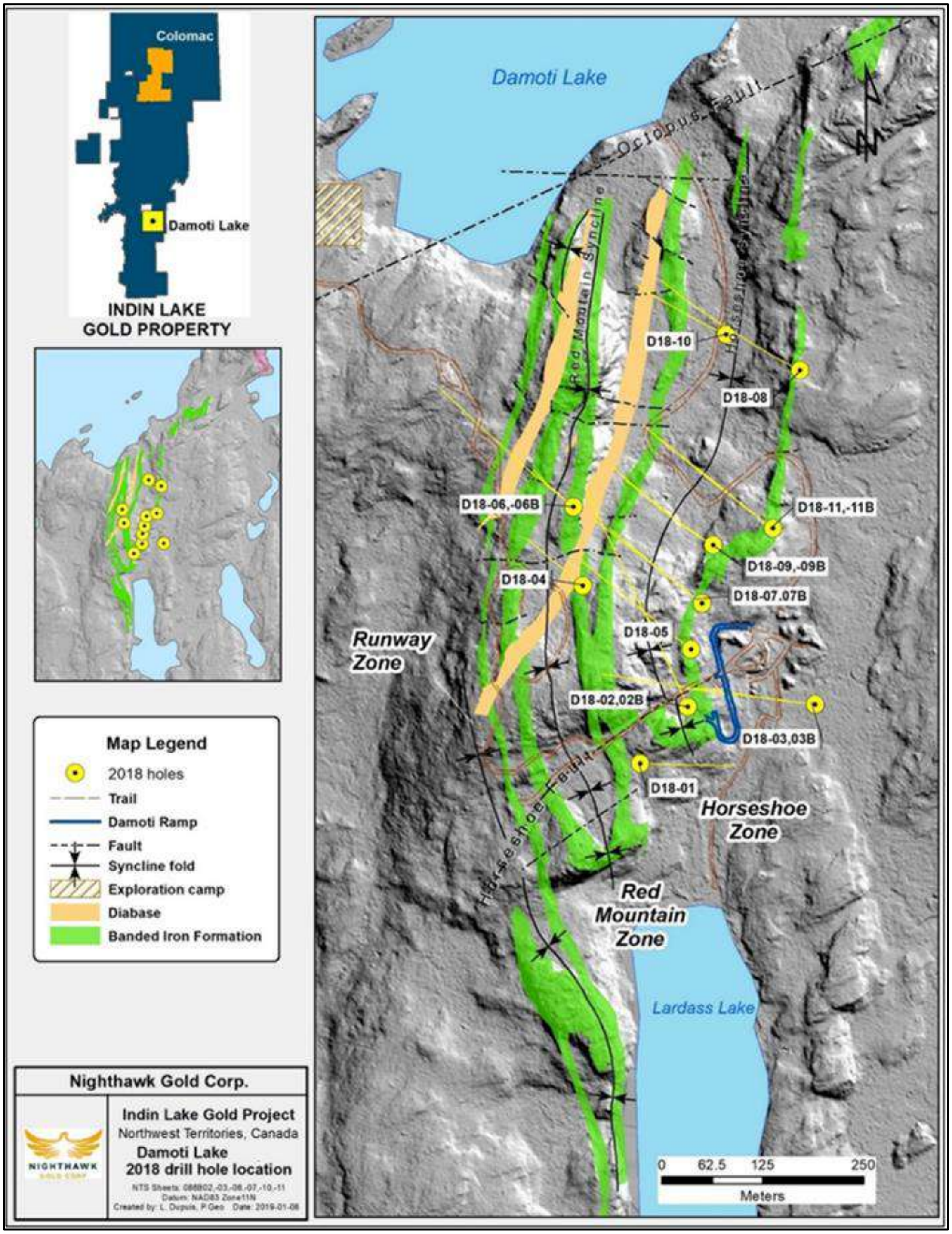
Hole D18-01 was drilled 40 m south of the Horseshoe Syncline fold nose to test for hypothetical shear-hosted mineralization emanating outward from the deposit's high-grade core. The hole encountered several zones with anomalous assays around a downhole depth of 100 m, placing them directly south of the high-grade Horseshoe Zone.

Holes D18-03 and 03B were drilled 100 m below the southern fold nose of the Horseshoe Syncline to test whether the host stratigraphy repeats at depth. Although mineralization was encountered, the holes did not intersect grades typical of the overlying deposit.

Holes D18-08 and D18-10 were drilled 450 m north of the main body of the Horseshoe Zone to test an undrilled area in the central part of the fold where two magnetic highs converge. The holes intersected their intended targets but did not encounter significant mineralization.

Figure 10-7 illustrates the distribution of holes drilled in the Damoti area during the 2018 program.

Figure 10-7: Drilling on the Damoti Area in 2018



Source: Nighthawk, 2020.

10.5.7 Treasure Island Area

Figure 10-8 illustrates the distribution of holes drilled on the Treasure Island deposit between 2018 and 2020.

10.5.7.1 2018 Drilling Program

In 2018, 16 holes (4,035 m) were drilled in the Treasure Island area. All the holes intersected mineralization, with visible gold reported in 14 of them. The highlights were as follows:

- T18-04B: 3.31 g/t Au over 46.25 m, including 14.20 g/t Au over 7.75 m.
- T18-06B: 4.45 g/t Au over 26.95 m, including 25.95 g/t Au over 4.20 m.
- T18-03B: 7.37 g/t Au over 18.50 m, including 16.14 g/t Au over 8.00 m.

The new intersects suggest the existence of additional subvertical stacked mineralized zones near surface, including a number of high-grade zones, as well as the potential for expanding the known zones.

10.5.7.2 2019 Drilling Program

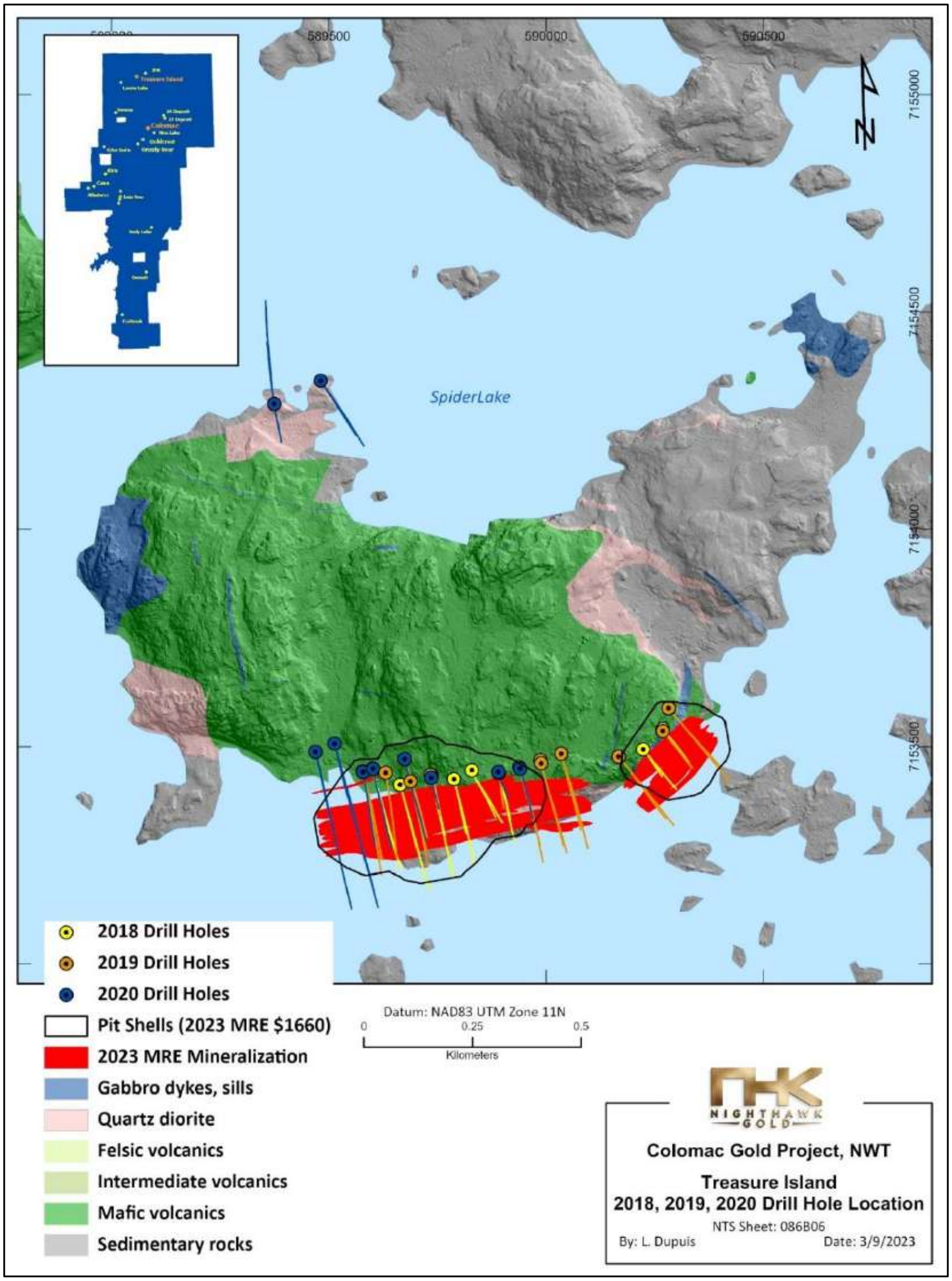
In 2019, 19 holes were drilled on the Treasure Island area for 5,816 m. The main objectives were to follow up on the results of the 2018 program by testing the lateral extensions along strike, testing new areas between the Main and East Zones, and exploring to greater depths.

All 19 holes encountered gold mineralization. Holes T19-01, T19-01B, T19-03 and T19-04 effectively extended the western and eastern boundary of the Main Zone by intersecting mineralization down to a vertical depth of 200 m. T19-02 and T19-02B explored a gap in drilling within the western section of the Main Zone. Both drill holes encountered mineralization and extended stacked zones from a vertical depth of 80 m to 130 m on this section. T19-05-05B, T19-06 and T19-06B were designed to explore the region separating the Main Zone and East Zone, an area that had never been drilled. Both holes returned gold values. The remaining 2019 holes expanded the eastern extension of the East Zone and tested gaps in the drilling coverage and the depth extension of the Main Zone. The highlights were as follows:

- T19-11 intersected 8.51 g/t over 12.7 m, including 14.06 g/t Au over 7.3 m.
- T19-02 intersected 10.08 g/t Au over 6.5 m, including 15.94 g/t Au over 4 m, and a deeper intercept of 1.27 g/t Au over 22.4 m, including 3.04 g/t Au over 6 m.

T19-01B intersected 1.41 g/t Au over 27.25 m, including 4.21 g/t Au over 3.5 m and a deeper intercept of 10.20 g/t Au over 6.50 m, including 16.38 g/t Au over 3.75 m.

Figure 10-8: Drilling on the Treasure Island Deposit from 2018 to 2020



Source: Nighthawk, 2023.

10.5.7.3 2020 Drilling Program

In 2020, 15 holes were drilled on the Treasure Island area for 5,508 m. Of the 12 holes with assay results, five holes tested the Seadog Showing, an area where surface grab samples previously returned values of up to 27.8 g/t Au, and two holes intersected mineralization with T20-02C reaching 10.37 g/t Au over 5.0 m. The remaining seven holes tested the extension of the Main Zone. The objectives were to test the western extension and provide preliminary testing of the depth potential. Two sections were completed at 50 m and 100 m from the westernmost section drilled to date. Results suggest that the Main Zone continues for at least an additional 100 m to the west with similar grades and widths as was previously obtained. The highlights were:

- T20-03B intersected 4.49 g/t over 7.25 m.
- T20-05 intersected 13.60 g/t Au over 3.29 m.
- Hole T20-07 returned 5.62 g/t Au over 3.3 m.
- Hole T20-09 returned 4.65 g/t Au over 2.05 m, and 207.18 g/t Au over 5.5 m (uncut), including a single assay result of 2,260.00 g/t Au over 0.5 m.
- Hole T20-10 returned 37.59 g/t Au over 2.35 m (uncut) including a single sample of 0.5 m which assayed 80.75 g/t Au.

The mineralization envelope encompassing both the Main Zone and East Zone has been traced for up to 850 m in strike length. It remains open in both directions and at depth.

10.5.8 Leta Arm area

Thirty-three holes were drilled on the Leta Arm area for 7,683 m, comprising 11 holes (2,513 m) on the North Inca deposit, 14 holes (3,446 m) on the Diversified deposit, six holes (1,294 m) on the #3 showing and two holes (429 m) on the Lexindin showing.

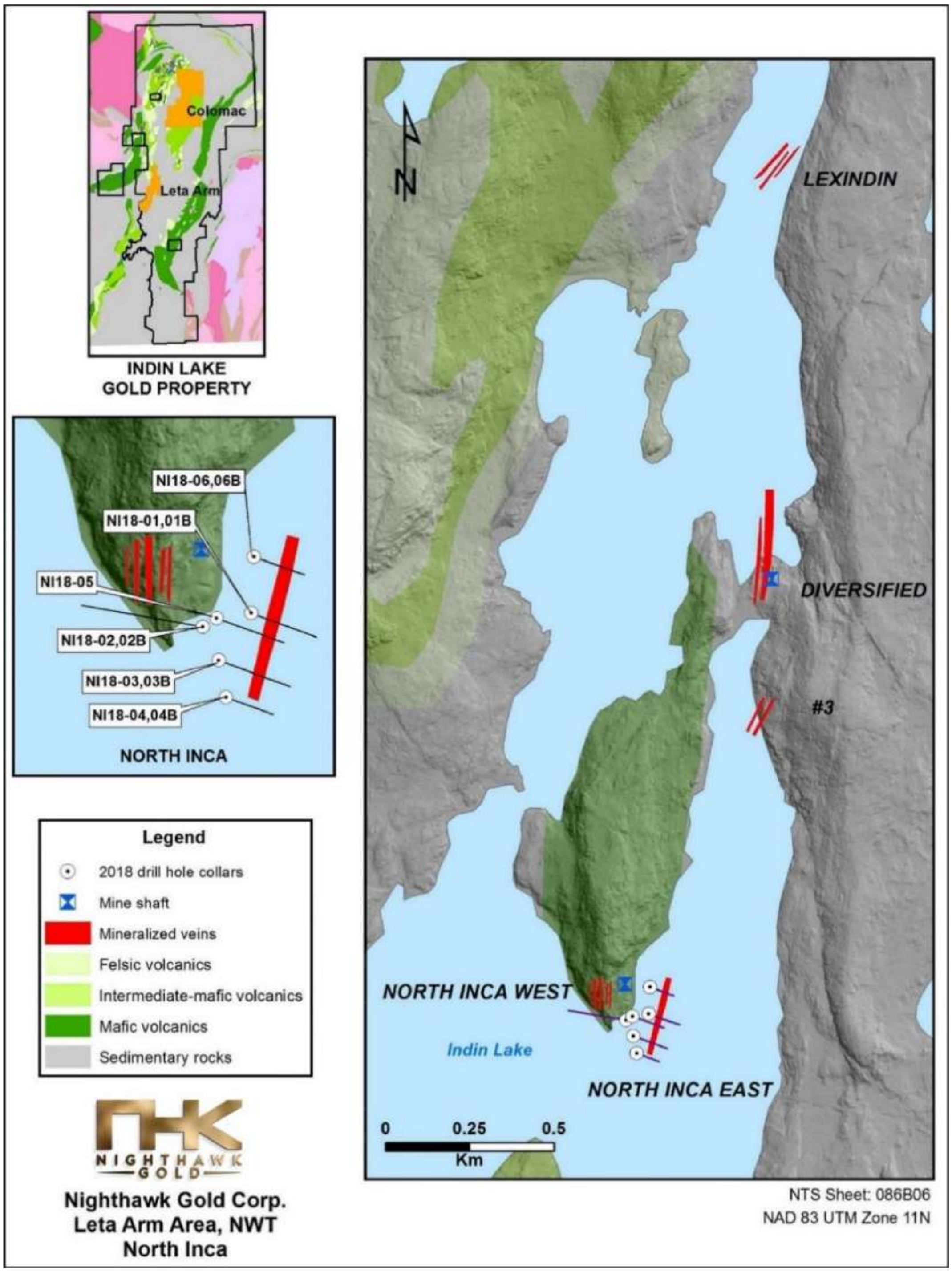
The geological modelling of the four Leta Arm prospects defined a steep northern plunge for the mineralization. The focus was to test the geological model and the zone's extensions and to follow up on high-grade intersects encountered during Nighthawk's 2011 drilling campaign.

Nine holes were drilled at North Inca to test the East Zone and two holes were drilled to test the West Zone (see Figure 10-9).

All holes intersected mineralization, with visible gold reported in eight of them, highlighted by NI18-03B that returned 2.68 g/t Au over 25.5 m, including 6.60 g/t Au over 4.6 m, and NI18-02B with 4.49 g/t Au over 9.25 m, including 10.45 g/t Au over 2.25 m. NI18-05 was the deepest hole of the program, intersecting the modelled mineralization 120 m below surface and returning 3.26 g/t Au over 11.25 m, including 8.35 g/t Au over 2.25 m.

Results from the North Inca holes have helped validate the geological model and resulted in the extension of the East Zone for an additional 100 m to the south, where it remains open.

Figure 10-9: Drilling on the North Inca Deposit (Leta Arm Area) in 2018



Source: Nighthawk, 2018.

Other highlights include the following:

- DV18-06 on the Diversified deposit intersected 3.50 g/t Au over 14.1 m (7 m true width), including 18.50 g/t Au over 2.35 m. This hole tracked the Main Zone mineralization down to a vertical depth of 190 m.
- DV18-07 intersected 3.86 g/t Au over 11.75 m (9.5 m true width), including 8.07 g/t Au over 4.25 m. This intercept confirmed the modelled plunge of the Main Zone at depth and its continuity.
- DV18-08 intersected 5.81 g/t Au over 17.5 m, including 18.12 g/t Au over 4.75 m. This intersection represents a new discovery at Diversified that opened the deposit to the north.
- DV318-02B intersected 2.67 g/t Au over 10 m, including 6.09 g/t Au over 3 m. This intersection represents a new discovery 40 m below surface in the #3 showing area, south of the Diversified deposit.
- LX18-01B in the Lexindin showing area, intersected 1.20 g/t Au over 21.8 m. This intercept represents a new discovery located 120 m below surface and 40 m east of the Lexindin model.

10.5.9 Swamp Lake area

Two holes (S18-01 and S18-01B) were drilled to test beneath a showing with a corresponding IP chargeability high. Both holes intersected mineralization 60 to 80 m below the surface mineralization and centered on the IP anomaly. The host rock is a carbonatized mafic volcanic rock with minor sulphides. Two occurrences of visible gold were noted in hole C18-01B with the best intercept returning 3.33 g/t over 3.25 m.

Hole S18-02 was drilled below a showing where a 2012 grab sample assayed 43.60 g/t. It intersected an area of significant quartz veining at 135 m depth with trace gold.

10.5.10 Cass deposit

In 2021, 51 holes were drilled on the deposit for 11,908 m. The aim of the program was to confirm historical drilling, test the depth extension of the known historical Cass resource, follow up on the drilling done in 2014 by Nighthawk on the northeastern extension of Cass, and test the western extension of Cass mineralization identified by historical drilling.

10.5.10.1 Cass Main

Twenty-two holes were drilled on the main zones of the Cass deposit. The results confirmed historical results and extended the known mineralized zone at depth.

Highlights included the following:

- CM21-12 returned 6.92 g/t Au over 51.00 m, including a higher-grade core of 11.31 g/t Au over 19.50 m.
- CM21-42 returned 2.21 g/t Au over 8.00 m.
- CM21-44 returned 3.76 g/t Au over 33.15 m, including 7.16 g/t over 9.50 m.
- CM21-46 returned 1.09 g/t Au over 21.75 m, including a higher-grade portion of 2.77 g/t Au over 4.00 m.

10.5.10.2 Cass Northeast extension

Eight holes were drilled in the northern zone. All holes intercepted mineralized intervals and increased the definition of the zone. Three other holes were drilled to test the northeastern extension of the Cass deposit, but no economic results were obtained in those holes.

Highlights included the following:

- CM21-04 returned 1.10 g/t Au over 8.25 m, including 10.80 g/t Au over 0.50 m.
- CM21-06 returned 1.78 g/t Au over 15.25 m, including 2.23 g/t Au over 9.50 m.

10.5.10.3 Cass South-West

Twenty-one holes were drilled to test the southwestern extension of the Cass deposit. Most of the holes intercepted mineralized intervals. The known zone seems to pinch out to the southwest and/or shift to the north. More studies would be required to better understand the morphology of the southwestern extension.

Highlights included the following:

- CM21-19 returned 1.47 g/t Au over 23.75 m.
- CM21-22 returned 1.49 g/t Au over 32.00 m, including a higher-grade portion of 3.37 g/t Au over 10.50 m.
- CM21-36 returned 3.21 g/t Au over 20.50 m.
- CM21-37 returned a high-grade interval of 5.08 g/t Au over 9.00 m.

Figure 10-10 illustrates the distribution of holes drilled on the Cass deposit during the 2021 program.

10.5.11 Kim Deposit

In 2021, twelve holes were drilled on the deposit for 2,227m. The objective was to test the historical mineralization at depth and the potential of mineralization extending to the north and south of Kim Main.

The holes drilled below the well-defined core of the zone suggested the continuity of the mineralization at depth. Highlights included the following:

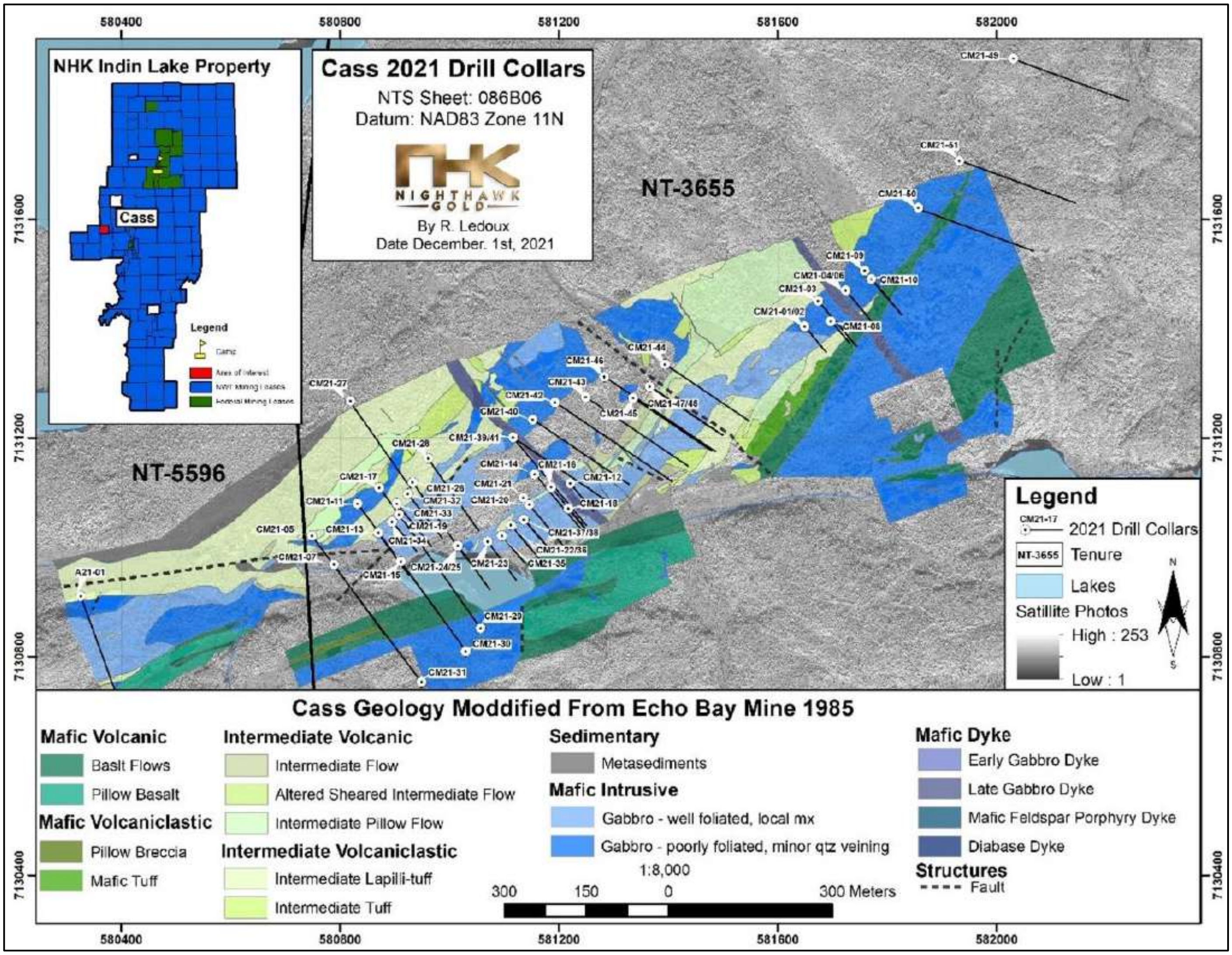
- KM21-04 returned 1.52 g/t Au over 7.50 m.
- KM21-05 returned 0.91 g/t Au over 23.00 m.
- KM21-08 returned 1.12 g/t Au over 5.75 m.

Three holes drilled to test the deep southern extension of the zone intercepted narrow, slightly mineralized intervals. The highlights were as follows:

- KM21-11 returned 0.98 g/t Au over 2.00 m and 0.82 g/t Au over 2.00 m.
- KM21-12 returning 0.84 g/t Au over 1.00 m.

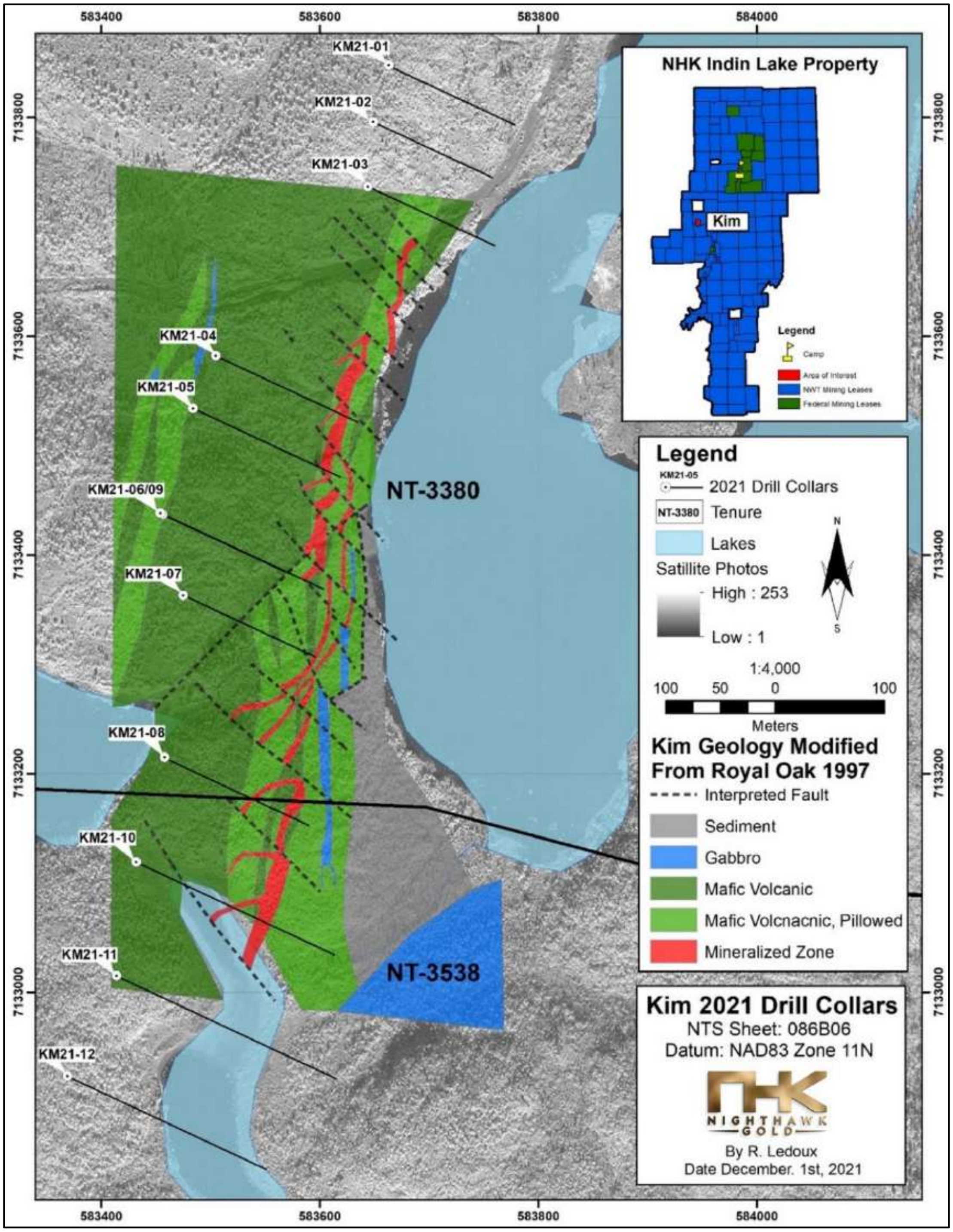
Figure 10-11 illustrates the distribution of holes drilled on the Kim deposit in 2021.

Figure 10-10: 2021 Drilling on the Cass Deposit



Source: Nighthawk, 2021

Figure 10-11: 2021 Drilling on the Kim Deposit



Source: Nighthawk, 2021

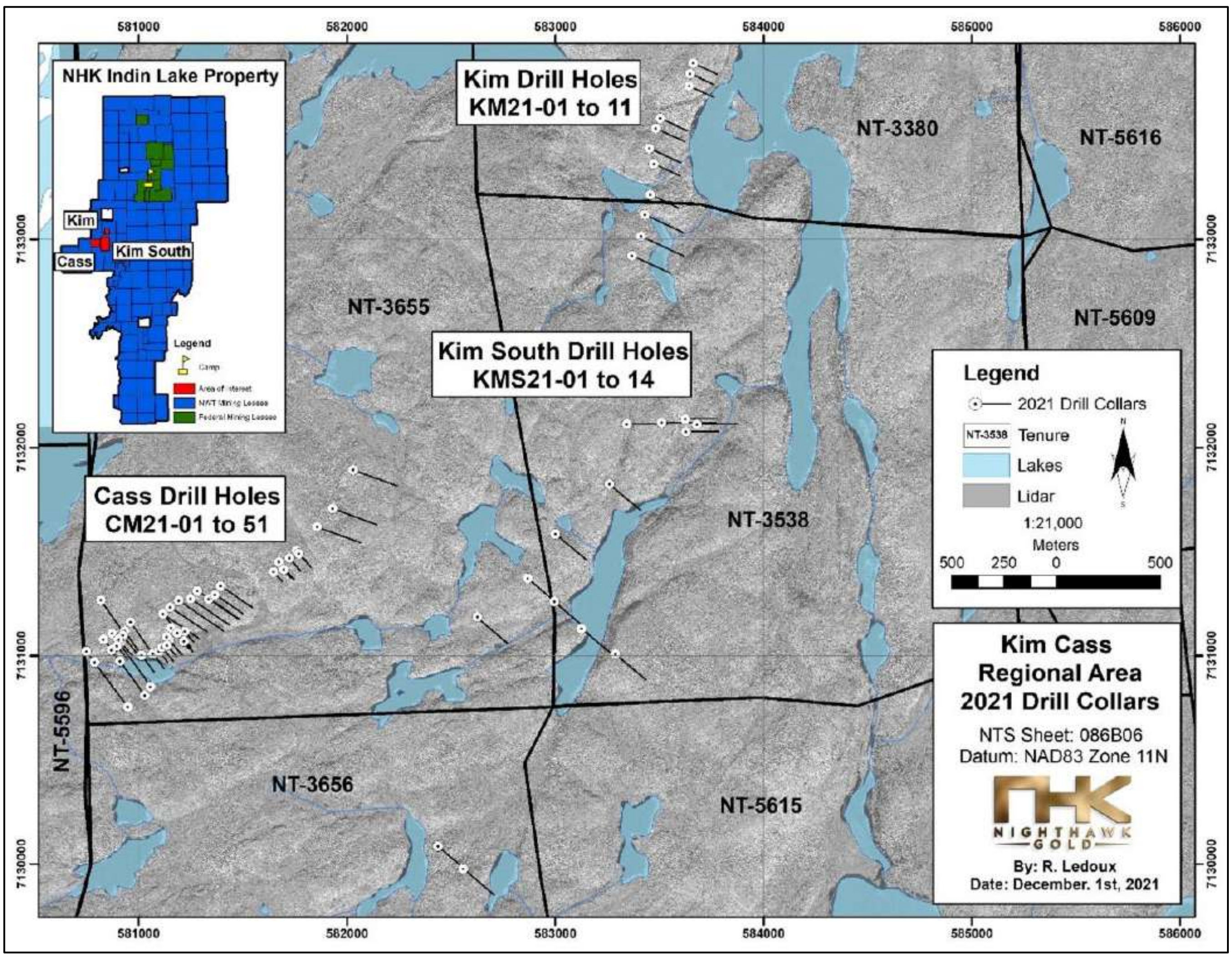
10.5.12 Kim South

In 2021, fourteen holes were drilled on the Kim South target for 1,745 m. The aim was part of the 2021 greenfield campaign to explore for gold in the broad 1.3 km wide by 2.4 km long mostly undrilled area approximately 1 km south of Kim Main and 1.2 km east of Cass Main. Regional mapping and prospecting in the area had identified several anomalous surface grab samples with over 1.00 g/t Au.

Hole KMS21-10 returned 1.02 g/t Au over 26.5 m (including 2.27 g/t Au over 6.5 m) and deeper hole KMS21-14 returned 3.76 g/t Au over 2.75 m. This represents a new zone to be further explored.

Figure 10-12 illustrates the distribution of holes drilled on the Kim South target during the 2021 campaign.

Figure 10-12: 2021 Drilling on the Kim South Target in Compared to the Kim and Cass Deposits



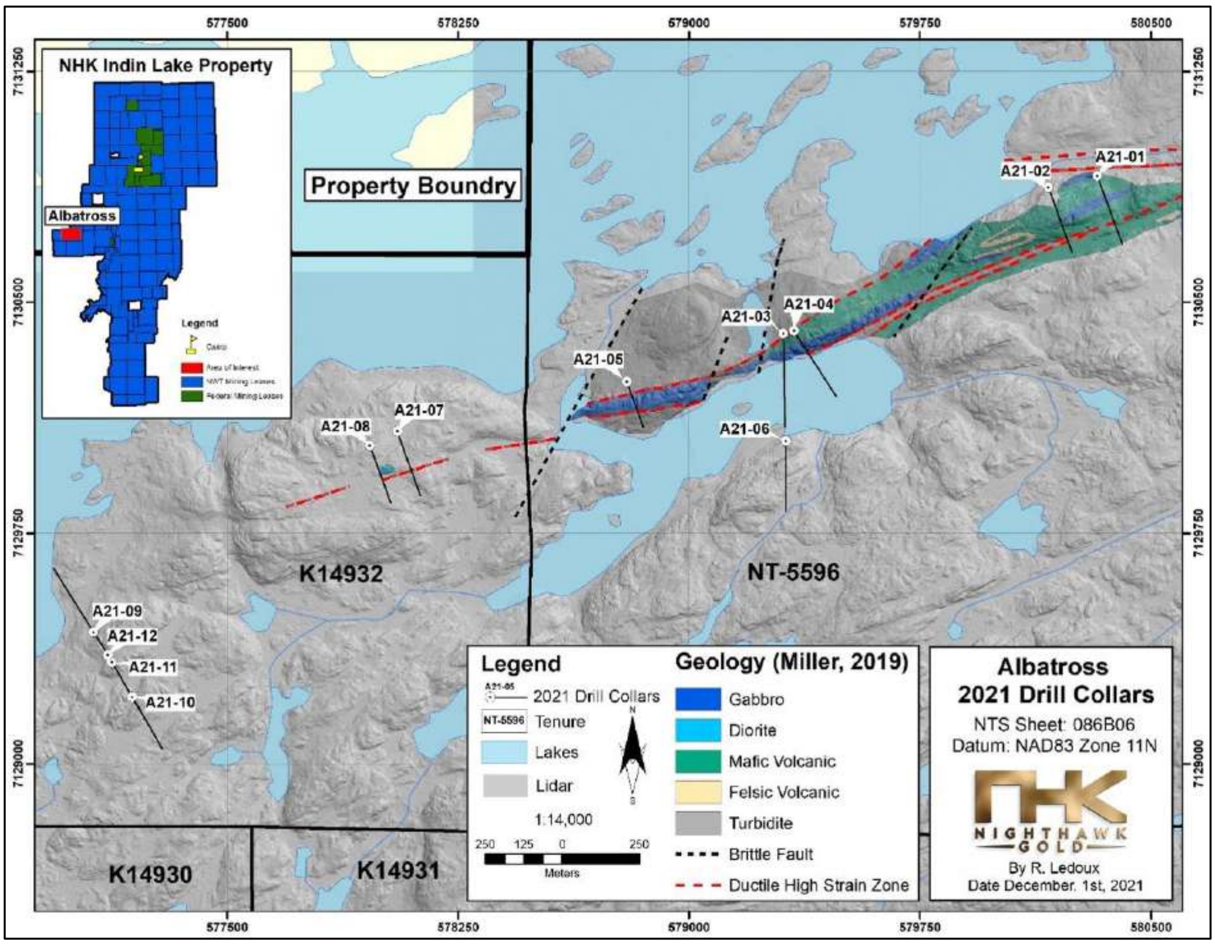
Source: Nighthawk, 2021

10.5.13 Albatross

In 2021, twelve holes were drilled on the deposit for 1,009 m. The aim was to identify favourable rock types, alteration, and mineralization along strike below surface gold grab sample results obtained from previous surface exploration work ranging up to 20.60 g/t Au. A21-02 returned 1.37 g/t Au over 14.00 m, including a higher-grade portion returning 5.37 g/t Au over 2.00 m.

Figure 10-13 illustrates the distribution of holes drilled on the Albatross target during the 2021 program.

Figure 10-13: 2021 Drilling on the Albatross Target



Source: Nighthawk, 2021

10.5.14 Other Exploration Targets

During the 2021 drilling campaign, some drilling efforts were conducted on six others targets with local marginal results. These targets included Nice Lake, Laurie Lake, JPK, Fishhook, Andy and Echo Indin.

10.6 2022 Drilling Program

Drilling commenced on May 5, 2022 and finished on August 18, 2022. The drilling was completed in a staged approach, starting with two drills and expanding to a maximum of five. The end of the program was also staggered, finishing with two drills.

The drilling program focused on near-surface mineralization adjacent to the Colomac Main (Zones 1.0, 1.5, 2.0, 2.5 and 3.5), Grizzly Bear, 24/27, Kim and Cass deposits. A total of 182 NQ-sized diamond drillholes were completed for 40,085 m drilled and 20,420 core samples were submitted for gold analysis.

Table 10-4 summarizes the 2022 drilling programs on the property.

Table 10-4: Summary of the 2022 Drilling Programs on the Indin Lake Property

Area	Number of DDH	Length (m)	Number of Samples
Colomac Main	45	11,149	5,706
Grizzly Bear	34	6,655	3,432
24	18	4,178	2,397
27	22	4005	2,958
Kim	24	5,341	2,158
Cass	39	8,757	3,769
Total	**182**	**40,085**	**20,420**

10.6.1 Colomac Main Deposit

In 2022, 45 holes were drilled on the deposit for 11,149 m. The drilling had several objectives, including mineral resource addition targeting near surface higher than average resource grade along the length of the deposit. The drilling also tested the continuation of mineralization across fault boundaries that are interpreted to be controlling mineralization. And finally, to transition existing underground mineral resource to open pit at shallow depths.

Of the 45 holes drilled at Colomac Main, 16 tested Zone 1.0. Holes C22-01, C22-02 and C22-09 tested the continuation of mineralization north of the existing resource across a steeply dipping, northeast-striking fault known to offset mineralization. The quartz diorite host lithology was intersected with minor intervals of mineralization. Holes C22-05, C22-07 and C22-13 tested the continuate of mineralization to the south of zone 1.0 across a shallow, north-dipping, east-west striking fault. The host lithology was intersected with narrow intervals of mineralization. The remaining ten holes drilled step out along the remainder of the zone. Highlight intercept include C22-04 with 1.91 g/t Au over 60.95 m (including 63.20 g/t Au over 0.50 m).

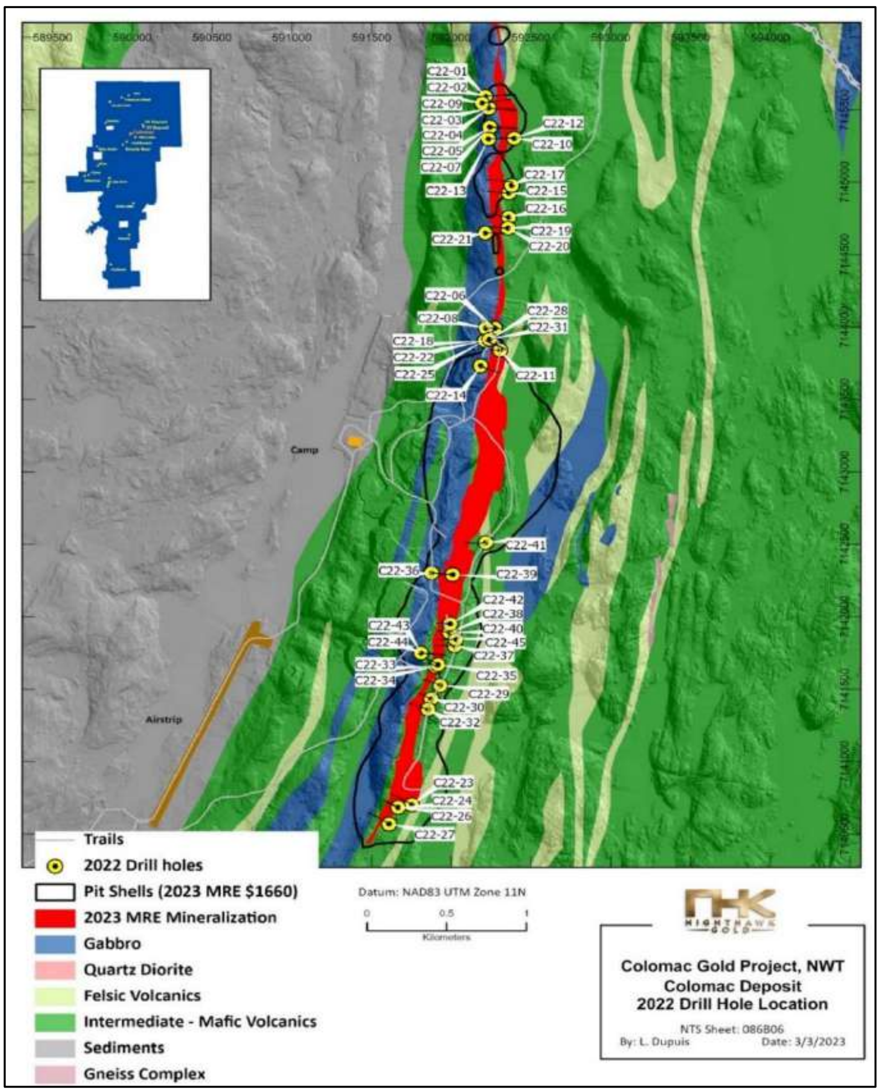
Eight holes tested Zone 1.5 near-surface mineralization to the north of the Colomac Main pit, across a northwest fault structure. Wide intervals of mineralization were intercepted and support continued drilling to the north. Highlight includes hole C22-25 with 0.53 g/t Au over 126.0 m (including 6.36 g/t Au over 0.50 m).

Zone 2.0, 2.5 and 3.0 included 3, 10 and 3 holes, respectively. The holes infilled drilling between 2022 MRE pit shells where saddles occurred due to fault structures or targeted mineralization around 200 m depth that was within underground resource with the objective to convert them to open pit. Highlight holes in zone 2.5 include C22-40, 2.09 g/t Au over 92 m (including 6.32 g/t Au over 7 m).

Four holes tested the continuation of Zone 3.5 mineralization to the south of the Colomac Main deposit. Mineralization was intersected in wider intervals. Mineralization throughout the Colomac Main deposit is hosted within a quartz diorite unit and flanked on the east and west sides by quarts gabbro to gabbro which does not host mineralization. However, hole C22-27 intercepted 271 g/t Au over 1.0 m in the quartz gabbro.

Figure 10-14 illustrates the distribution of holes drilled on the Colomac Main deposit during the 2022 program.

Figure 10-14: Drilling on the Colomac Main Deposit from 2022



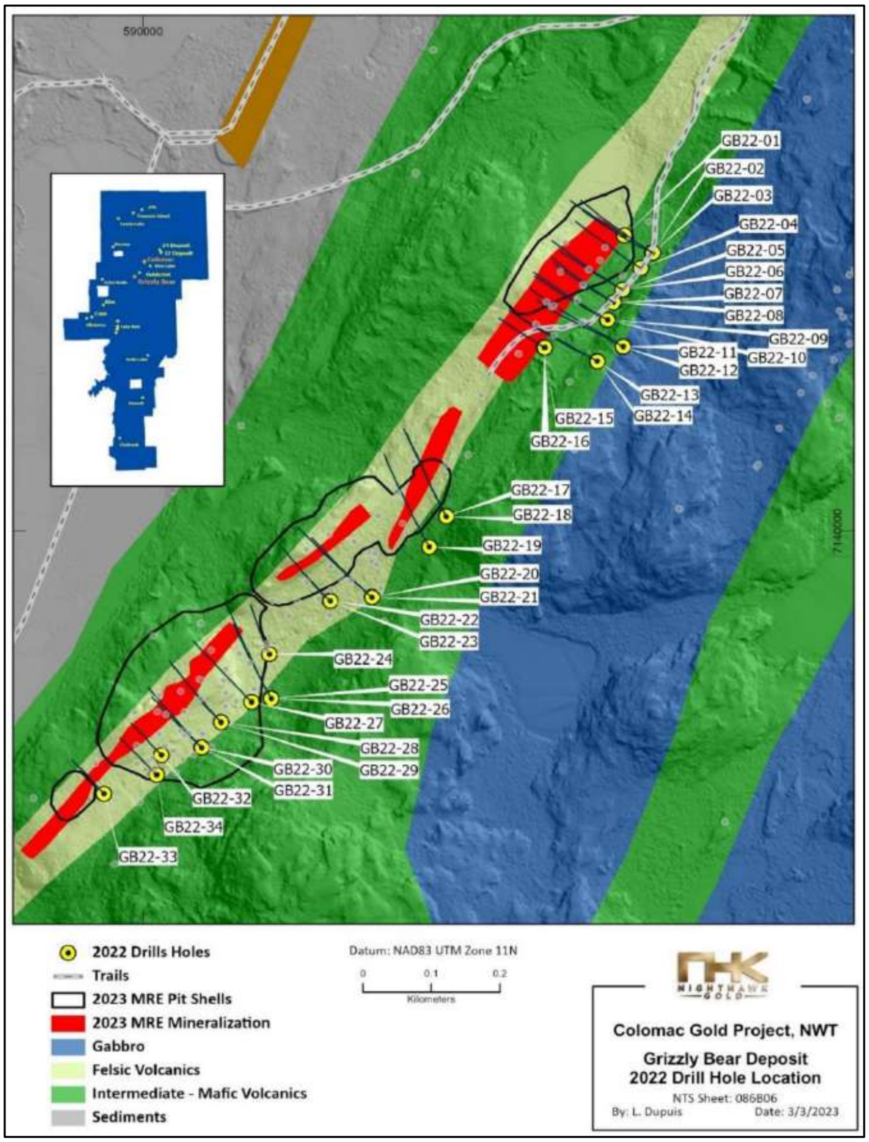
Source: Nighthawk, 2023.

10.6.2 Grizzly Bear Deposit

Thirty-four holes were drilled on the deposit for 6,655 m. The drilling tested extension of mineralization along strike and at depth with the aim of defining a continuous mineralized zone, connecting the Grizzly Bear Main and Northeast Extension. Narrow zones of mineralization were intersected. Highlights include GB22-31, 3.02 g/t Au over 20.25 m.

Figure 10-15 illustrates the distribution of holes drilled on the Colomac Main deposit during the 2022 program.

Figure 10-15: Drilling on the Grizzly Bear Deposit from 2022



Source: Nighthawk, 2023.

10.6.3 24/27 Deposit

Following the success of the 2021 drill program, 51 holes were drilled at the 24 and 27 deposits for a total of 8,183 m. The drilling was designed to confirm and add to the near-surface resource of both deposits along strike and at depth. The deposits are approximately 175 m apart.

Eighteen holes were completed at 24 deposit for 4,178 m and 22 holes were completed at 27 deposit for a total of 4,005 m. Although the drilling was successful at extending near-surface mineralization along strike and at depth, the gap between the two deposits was left to be tested in future drilling programs. Holes TFS22-11 and TFS22-13 were drilled 250 m to the north along strike from the 24 deposit testing magnetic high anomalies along the volcanic-sediment contact. Quartz veining with minor intervals of mineralization were intercepted. Similarly, holes TFS22-23 and TFS22-35 tested magnetic high signatures along the volcanic-sedimentary contact 1,500 m south of the 27 deposit. These holes were also successful at intercepting narrow quartz veining with mineralization.

Highlight holes at both the 24 and 27 deposits include TFS22-08 (27 deposit), 2.52 g/t Au over 40.75 m (including 5.07 g/t Au over 18.75m and TFS22-02 (24 deposit), 6.75 g/t Au over 12.75 m (including 16.45 g/t Au over 2.75 m).

Figure 10-16 illustrates the distribution of holes drilled on the 24/27 deposit during the 2022 program.

10.6.4 Cass Deposit

A total of 39 holes were completed at Cass in 2022 for a total of 8,753 m. The purpose of the drilling was to increase the near-surface mineral resource along strike and at depth. The drilling orientation was changed for the 2022 campaign at 100° azimuth from 124° in 2021. The objective was to drill perpendicular to the host gabbro foliation rather than along strike, as it was observed that quartz veins and mineralization followed the foliation rather than the lithology orientation. In addition to the change in drill orientation, drilling attempted to test parallel zones of mineralization striking northeast from the main Cass Valley fault, rather than simply along the gabbro intrusion strike, as previous drilling identified gaps in mineralization along the gabbro strike direction.

Both these changes enabled mineralization at the west end of the known deposit to be intercepted and the orientation of a potential parallel zone to be defined. Highlight holes include CM22-22, 232.18 g/t Au over 2 m (including 916 g/t Au over 0.50 m), CM22-07, 9.13 g/t Au over 3.50 m (including 125.50 g/t Au over 0.50 m) and CM22-31, 2.67 g/t Au over 33.50 m.

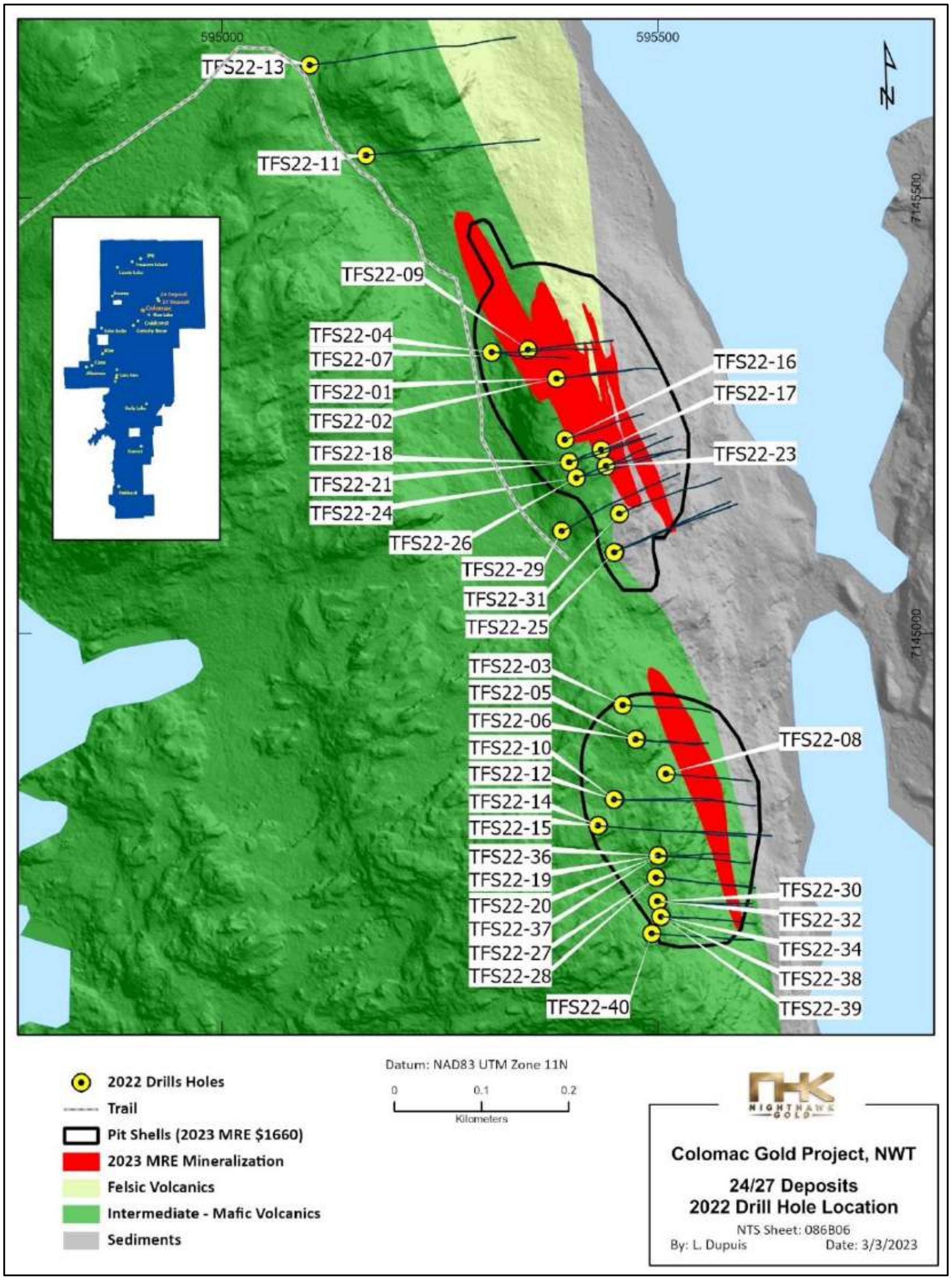
Figure 10-17 illustrates the distribution of holes drilled on the Cass deposit during the 2022 program.

10.6.5 Kim Deposit

The 2022 drilling at Kim was designed to both confirm historical drilling and test the continuation of mineralization down dip across fault offsetting structures. The drilling was systematically planned along the strike length of the exiting mineralization, as the fault structures at the Kim deposits are complex. Twenty-four holes were drilled for 5,341 m. The drilling was successful at defining mineralization below the current deposit. Highlight holes include, KM22-04 for 7.30 g/t Au over 17.65 m (including 217 g/t Au over 0.50 m).

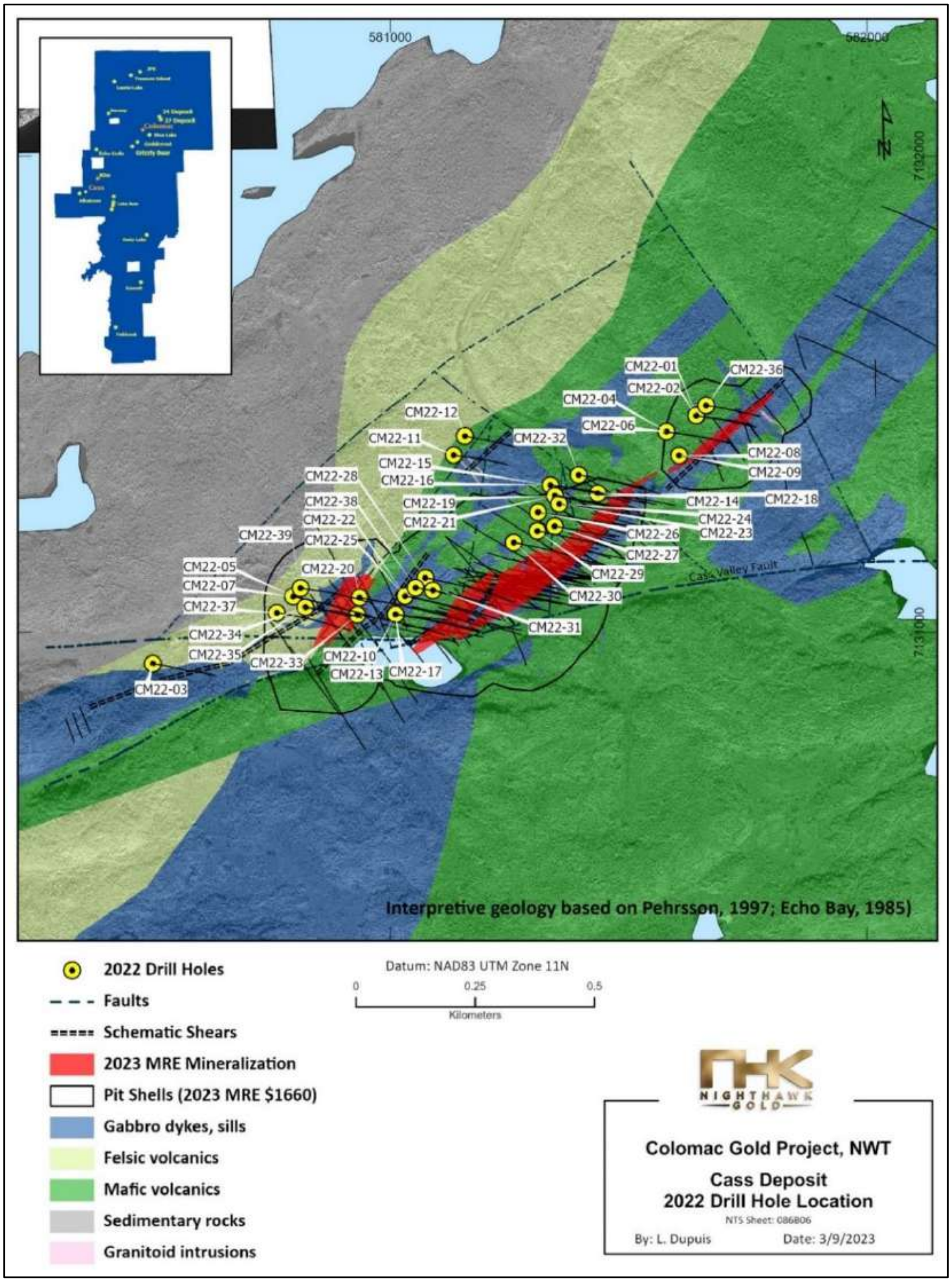
Figure 10-18 illustrates the distribution of holes drilled on the Kim deposit during the 2022 program.

Figure 10-16: Drilling on the 24/27 Deposit from 2022



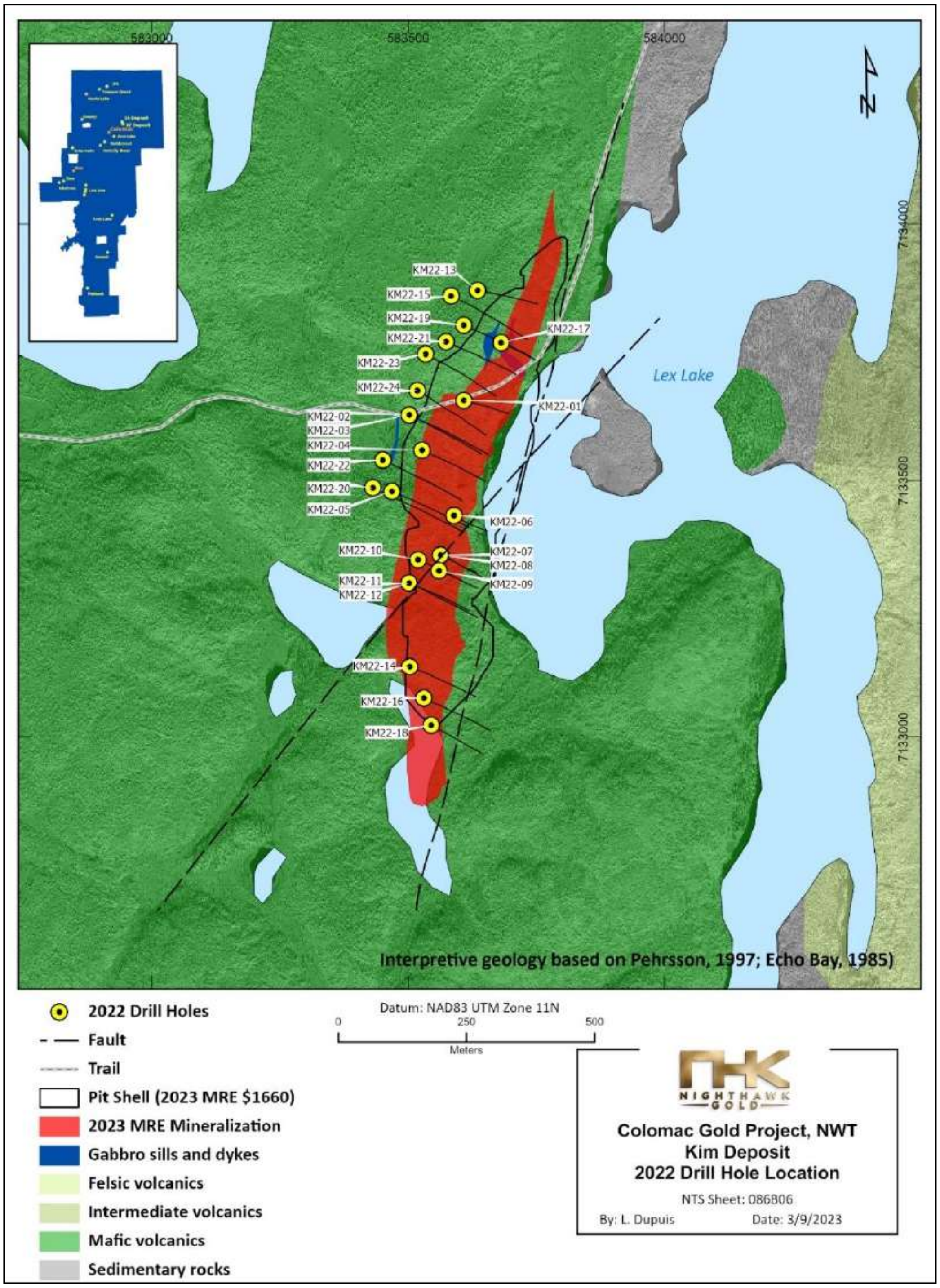
Source: Nighthawk, 2023.

Figure 10-17: Drilling on the Cass Deposit from 2022



Source: Nighthawk, 2023.

Figure 10-18: Drilling on the Kim Deposit from 2022



Source: Nighthawk, 2023.

10.7 2023 Drilling Program

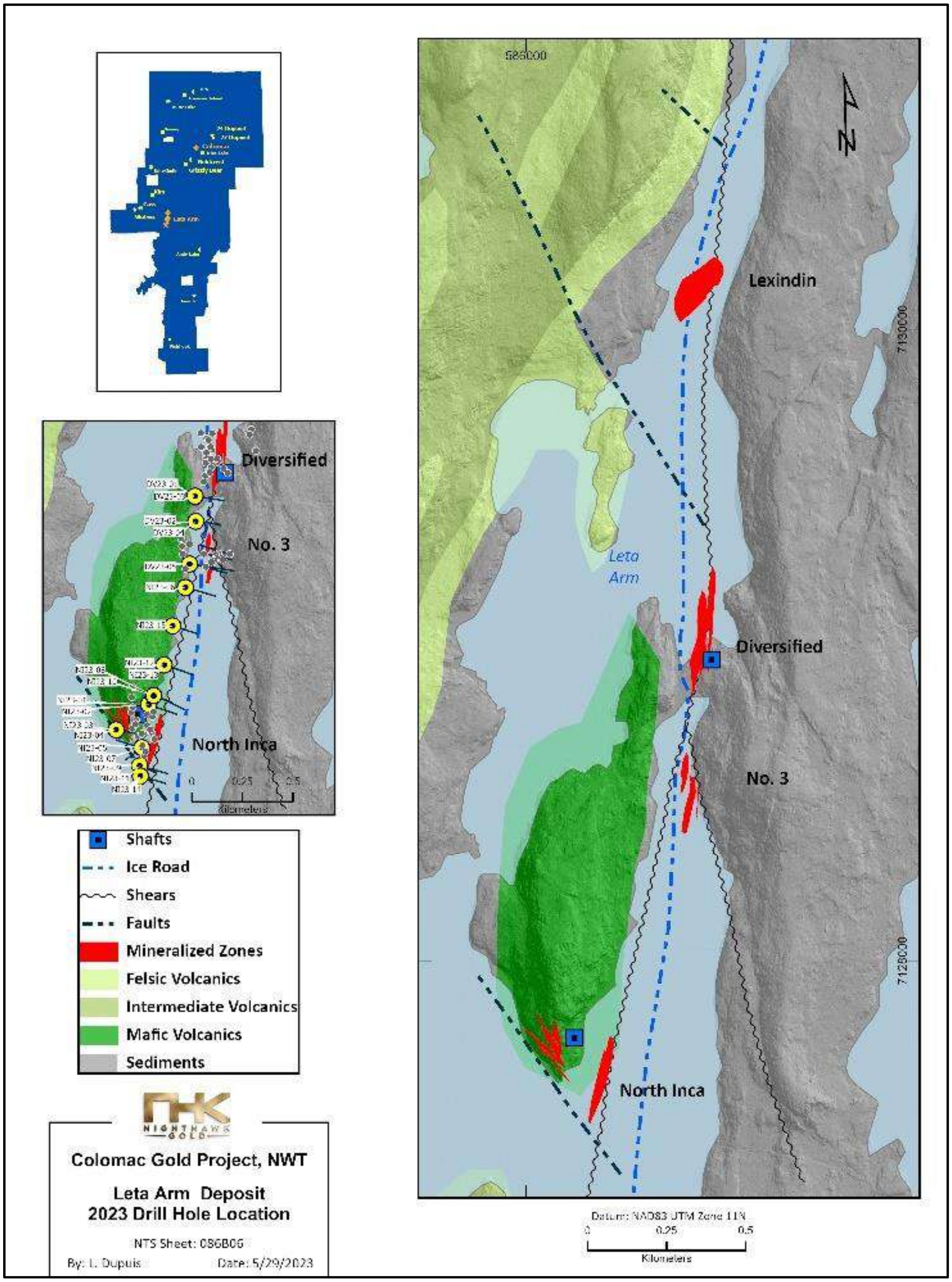
In the winter of 2023, 21 holes were drilled at the Leta Arm zone. The aim was to test near surface mineralization along strike from the historic drilling at North Inca and Diversified. The drilling tested the continuity of the shear zone over 2 km with wide spaced drilling, and the influence of secondary structures on mineralization. Holes NI23-03 and NI23-04 tested the orientation of mineralization at North Inca West, where quartz veining is hosted in mafic volcanics parallel to the main Leta Arm shear zone. A total of 4,555 m of drilling was completed, 6 holes at Diversified and 15 holes at North Inca. The results of the drilling confirm the orientation and location of the Leta Arm shear zone between North Inca and Diversified zones, and the occurs of gold mineralization along the structure.

The highlights included from North Inca are as follows:

- NI23-04 20.50 m at 2.84 g/t Au, including 6.00 m at 7.67 g/t Au
- NI23-09 16.55 m at 1.38 g/t Au including 2.65 m at 5.68 g/t Au
- NI23-15 0.50 m at 10.75 g/t Au and 4.90 m at 2.09 g.t Au.

Results of the 2023 drilling program on the Leta Arm deposit can be seen on Figure 10-19.

Figure 10-19: Drilling on the Leta Arm Deposit from 2022



Source: Nighthawk, 2023

11 SAMPLE PREPARATION, ANALYSES AND SECURITY

This chapter describes the sample preparation, analysis and security procedures for the diamond drilling performed on the property by Nighthawk from 2009 to November 7, 2022, the close-out date of the database for this technical report. Nighthawk's geology team provided the information discussed below. The QP reviewed the QA/QC procedures and the results for the drilling programs.

11.1 Core Handling, Sampling and Security

The drill core is boxed and sealed at the drill rigs and delivered daily by road or helicopter to the logging facility, where a technician takes over the core handling. Drill core is logged and sampled by experienced geologists or by a geologist-in-training under the supervision of a qualified geologist. A geologist marks the samples by placing a unique ID tag at the end of each core sample interval. Core sample lengths vary from 0.5 to 1.5 m, and samples respect lithological contacts and/or changes in the appearance of mineralization or alteration (type and/or strength).

The technician saws each marked sample in half. One half of the core is placed in a plastic bag along with a detached portion of the unique bar-coded sample tag, and the other half of the core is returned to the core box with the remaining tag portion stapled in place. The core boxes are stockpiled or stored in outdoor core racks for future reference. Individually bagged samples are placed in security-sealed rice bags along with the list of samples for delivery to the assay laboratory.

QA/QC samples are prepared and bagged ahead of time by Nighthawk personnel and added to the sample batch at the core shack according to the geologist's instructions. Samples remain under the supervision of Nighthawk personnel at the accommodations site until transferred to the air charter company for air transport under the supervision of Discovery Mining Services Ltd. for ground delivery to the ALS Minerals (ALS" laboratory in Yellowknife, NT. The Yellowknife laboratory completes sample preparation operations and employs bar coding and scanning technologies that provide complete chain-of-custody records for every sample. The prepared samples are then delivered via bonded commercial couriers to the ALS laboratory in Vancouver, British Columbia, for analysis.

Sample cutting and preparation was carried out by contract personnel from Aurora Geosciences Ltd. between 2009 and 2011 and by GeoMinEx Consultants Inc. thereafter.

From 2012 to 2020, the drilling programs were supervised by an exploration consultant for all activities related to drilling, including the preparation and supervision of geological logging. Since 2021, GeoMinEx has supervised all activities related to the drilling, including the preparation and supervision of geological logging.

11.2 Laboratory Accreditation and Certification

The International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC) form the specialized system for worldwide standardization. ISO/IEC 17025 General Requirements for the Competence of Testing and Calibration Laboratories sets out the criteria for laboratories wishing to demonstrate that they are technically competent, operating an effective quality system, and able to generate technically valid calibration and test results. The standard forms the basis for the accreditation of laboratory competence by accreditation bodies. ISO 9001 applies to management support, procedures, internal audits and corrective actions. It provides a framework for existing quality functions and procedures.

ALS laboratories in Yellowknife and Vancouver received ISO/IEC 17025 accreditation through the Standards Council of Canada. ALS laboratories are independent of Nighthawk and have no interests in the property.

11.3 Laboratory Preparation and Assays

Samples were analyzed for gold at the ALS laboratory in Vancouver. Procedures used were fire assay (FA) with atomic absorption spectroscopy (AA) and FA by gravimetric finish when samples returned values exceeding an overlimit threshold. For 2009 to 2020, this threshold was set at 3 g/t Au. In 2021, the overlimit threshold was raised to 7 g/t Au. For the Colomac Main, Grizzly Bear, Goldcrest and 24/27 deposits, all samples within the main mineralized horizons and those samples with visible gold or significant sulphides were submitted to a metallic screen procedure for more accuracy.

The methodology is described below:

- Samples are sorted, bar-coded, and logged into the laboratory tracking program.
- Samples are dried and crushed to 70% passing a 2 mm screen.
- Following Nighthawk's instructions, a 1,000 g split (regular samples) or the entire sample (i.e., for samples sent for metallic screen analysis; "MS-FA") is pulverized using a matching bowl and saucer pulverizer to 85% passing a 75 µm screen.
- Since 2021, silica washes were requested by Nighthawk for crushers and pulverizers after comminuting samples observed by geologists to have contained visible gold.
- Regular samples are analyzed for gold by FA with AA finish on a 30 g charge aliquot pulp (Au-AA25, reporting range of 0.01 to 100 g/t).
- When assay results (regular samples) are higher than the overlimit threshold, samples are re-assayed by FA with a gravimetric finish method (FAGRAV) on a 30 g charge aliquot (AuGRA21, reporting range of 0.05 to 1,000 g/t).
- For samples submitted to MS-FA (AU-SCR21, reporting range of 0.05 g/t and upper limit of 1,000 g/t Au), the pulp is screened through a 100 µm screen. The >100 µm material is retained and analyzed in its entirety by the FAGRAV and reported as the Au(+) fraction. The <100 µm material is homogenized and two 30 g subsamples are analyzed by the FA-AA method. The average of the two FA-AA results is taken and reported as the Au(-) fraction result. The gold values for both the Au(+) and Au(-) fractions are reported together with the weight of each fraction as well as the calculated total gold content of the sample.
- Assay results are provided in Microsoft Excel spreadsheets and the official certificate (sealed and signed) is sent as a PDF.
- The pulverized pulp is placed in Kraft sample bags, and the unpulverized portions are returned to their original sample bags.
- From 2009 to 2021, the remainder of the crushed samples (the rejects) were discarded 45 days after assay certificate issuance, whereas the pulps were discarded 90 days after issuance. In 2022, all sample fractions remaining after assay were returned to Nighthawk for storage on site.

11.4 Quality Assurance and Quality Control

Nighthawk's quality assurance and quality control (QA/QC) program for drill core includes the insertion of blanks and standards in the sample stream of core samples. About 10% of the samples were control samples in the sampling and assaying process. One standard and one blank sample of barren rock were added to each group of 20 samples as an analytical check for the laboratory batches. In addition, Nighthawk's QA/QC includes field duplicate samples that comprised 5% of the core selected as quarter core sample duplicates for comparison with the original core sample.

A further check comprised a pulp duplicate program. Five percent of the sample rejects (approximately 100 g of pulp each) were sent to SGS Canada Inc. (SGS) for secondary laboratory check assays.

Nighthawk geologists were responsible for the QA/QC and database compilation. Upon receiving the analytical results, the geologists extracted the results for blanks and standards to compare against the expected values. If QA/QC acceptability was achieved for the analytical batch, the data were entered into the database; if not, the laboratory was contacted to review and address the issue, including retesting the batch as required.

The discussion below details the results of the blanks and standards used in Nighthawk's QA/QC program.

11.4.1 Certified Reference Materials (Standards)

Accuracy is monitored by inserting certified reference materials (CRMs) at a ratio of one for every twenty samples (1:20). The standards were manufactured by Ore Research & Exploration (OREAS), Melbourne, Australia and were supplied by Analytical Solutions Ltd, Toronto, Ontario from 2009 to 2020, and then by OREAS itself. The definition of a QC failure is when the assay result for a standard falls outside three standard deviations (3SD). Gross outliers are excluded from the standard deviation calculation.

Between 2012 and 2022, 31 different CRMs ranging from 0.34 g/t Au to 12.11 g/t Au were used. Of the 6,391 CRMs inserted, 123 returned results outside 3SD and Nighthawk took actions to explain the cause of the abnormal values (e.g., incorrect submissions to the laboratory or sequencing issues). The protocol for accepting a certificate with an unexplained failed standard is if:

- less than three samples are above 1 g/t, and
- less than three consecutive samples are above 0.80 g/t, and
- less than two standards or blank failures are within the fusion batch.

When no satisfactory explanation could be found, a re-run of the failed sample sequence was performed.

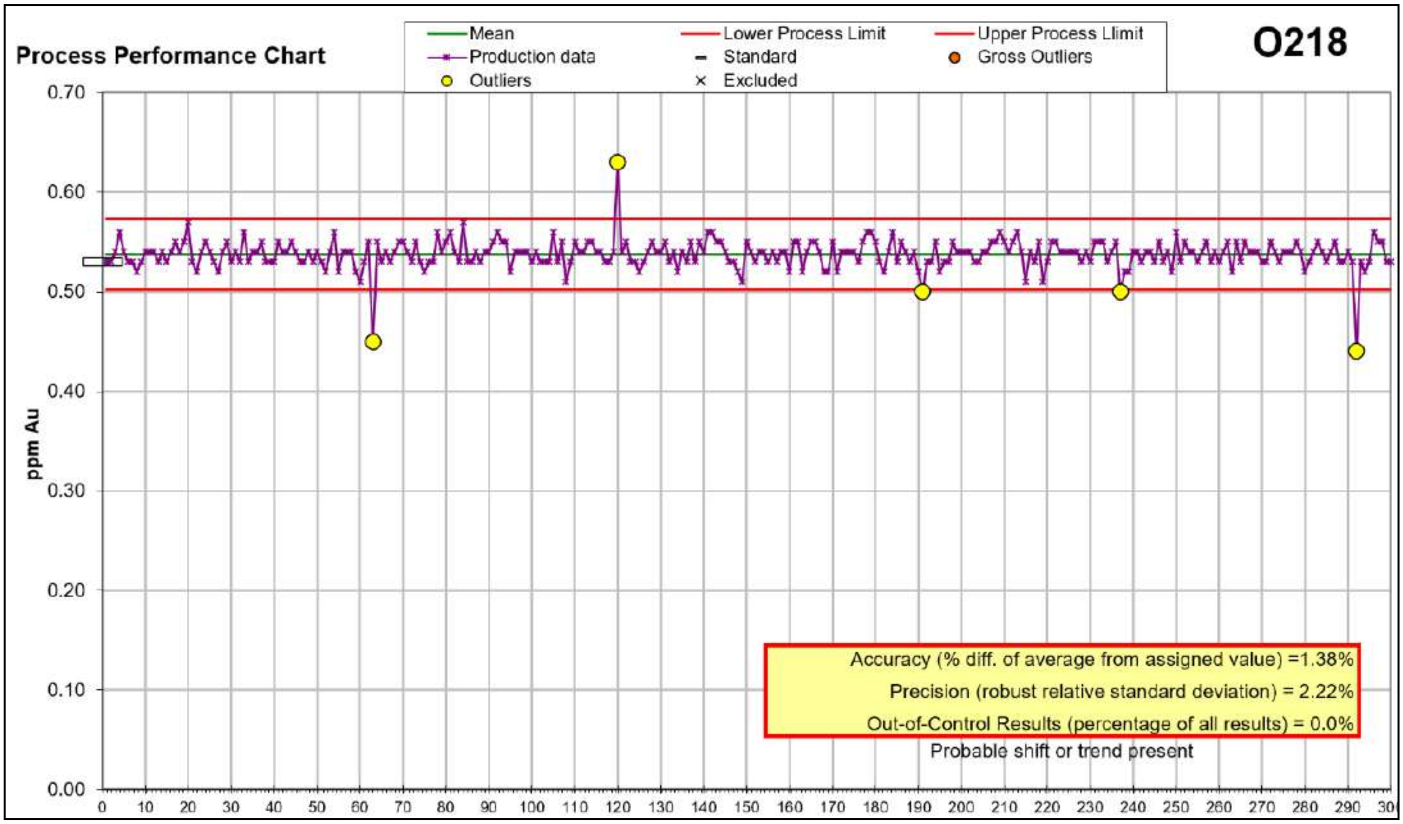
The overall success rate was 98% (see Table 11-1). Outliers did not show a persistent analytical bias (either below or above the 3SD limit). The results exhibit very slight bias in terms of accuracy with an average of +0.4% for representative standards. The precision for most CRMs is around 2.2%. Both parameters meet standard industry criteria.

Figure 11-1 shows an example of a control chart for the standard OREAS 218 assayed by ALS. A similar control chart was prepared for each CRM to visualize the analytical concentration value over time.

Table 11-1: Results of Standards Used Between 2012 to 2022

CRM	CRM Value (g/t Au)	No. of Assays	Average (g/t Au)	Accuracy (%)	Precision (%)	Outliers	Gross Outliers	Percent Passing QC
OREAS 10C	6.60	5	6.53	-1.1	0.7	0	0	100.0
OREAS 15h	1.02	104	1.01	-1.4	2.5	1	0	99.0
OREAS 15Pb	1.06	42	1.06	-0.2	2.0	0	0	100.0
OREAS 16a	1.81	189	1.78	-1.5	2.2	2	0	98.9
OREAS 17c	3.04	90	3.11	2.3	2.4	3	1	95.6
OREAS 18c	3.52	166	3.50	-0.6	2.7	2	1	98.2
OREAS 19a	5.49	212	5.53	0.6	2.6	4	0	98.1
OREAS 200	0.34	100	0.34	0.5	2.5	1	2	97.0
OREAS 203	0.87	199	0.87	0.3	2.0	2	1	98.5
OREAS 205	1.24	106	1.24	0.0	2.1	2	0	98.1
OREAS 208	9.25	151	9.41	1.7	2.3	5	1	96.0
OREAS 210	5.49	319	5.48	-0.1	2.2	7	0	97.8
OREAS 211	0.77	33	0.77	0	2.7	0	0	100.0
OREAS 214	3.03	275	3.01	-0.6	2.5	8	0	97.1
OREAS 215	3.54	88	3.53	-0.2	2.1	2	0	97.7
OREAS 216-216b	6.66	518	6.71	0.7	1.7	8	0	98.5
OREAS 218	0.53	314	0.54	1.4	2.2	5	0	98.4
OREAS 219	0.79	226	0.77	0.7	3.4	4	1	97.8
OREAS 220	0.87	324	0.87	-0.5	2.3	4	2	98.1
OREAS 222	1.22	477	1.23	0.6	2.1	7	1	98.3
OREAS 223	1.78	242	1.77	-0.4	2.1	2	0	99.2
OREAS 226	5.45	263	5.50	0.9	1.7	6	0	97.7
OREAS 228b	8.57	566	8.64	0.9	1.8	10	0	98.2
OREAS 229	12.11	71	12.1	-0.1	1.8	1	0	98.6
OREAS 229b	11.95	560	12.98	0.3	1.8	10	1	98.0
OREAS 231	0.54	325	0.55	1.5	2.3	8	0	97.5
OREAS 240	5.51	159	5.51	0.1	1.6	1	1	98.7
OREAS 60b	2.57	20	2.53	-1.6	2.5	0	0	100.0
OREAS 62c	8.79	91	8.78	-0.1	2.0	1	0	98.9
OREAS 62d	10.36	59	10.38	0.2	4.0	4	0	93.2
OREAS 6Pc	1.52	97	1.52	0.3	2.7	1	0	99.0

Figure 11-1: Control Chart for Standard OREAS 218 Assayed by ALS



Source: InnovExplo 2023.

11.4.2 Blank Samples

Contamination is monitored by the routine insertion of a barren sample (blank) which goes through the same sample preparation and analytical procedures as the core samples.

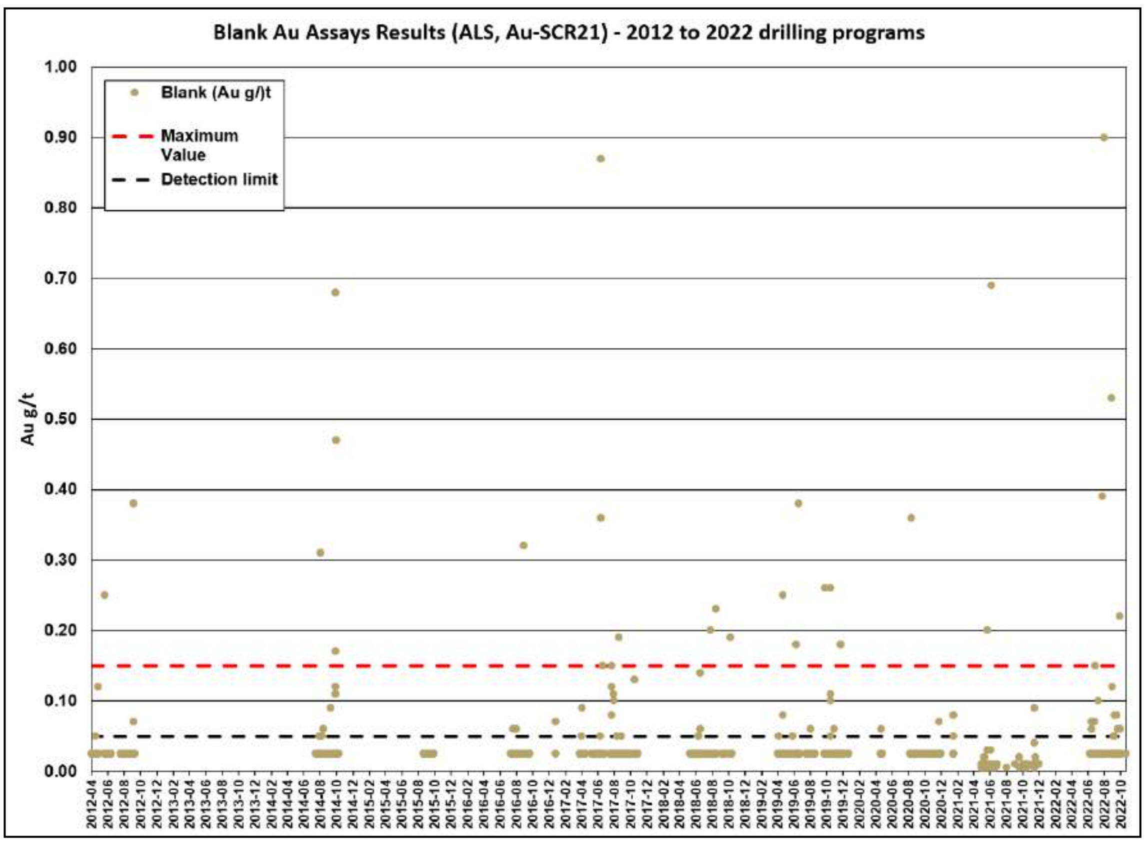
A total of 4,912 blanks were inserted in the batches from the 2012 to 2022 drilling programs. The blanks were derived from barren diabase obtained during previous drill programs on the Colomac Main deposit. Each sample of the blank material was cut-split with a diamond core saw to appear similar to the regular core being submitted, placed into a plastic sample bag and given a sequential sample identification number.

A general guideline for success during a contamination QC program is a rate of 90% of blank assay results not exceeding the acceptance limit of three times (3x) the detection limit. The detection limit was 0.01 g/t Au for the regular FA-AA analysis method and 0.05 g/t Au for the MS-FA analysis method. For the drilling programs performed between 2012 and 2022, 45 samples (1.1%) returned grades higher than three times the detection limit (see Table 11-2 and Figures 11-2 and 11-3).

Table 11-2: Results of Blanks Used Between 2012 and 2022 on the Property

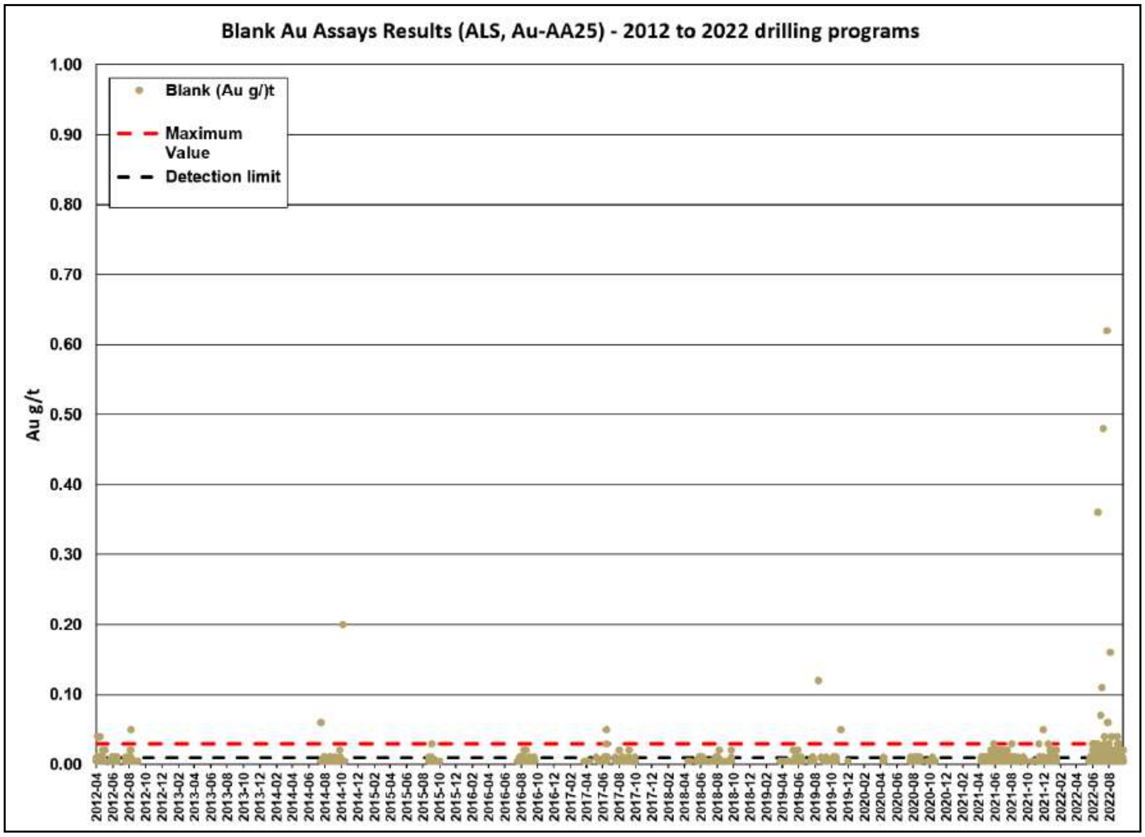
Year	Method	Acceptance Limit (ppm)	Quantity Inserted	Quantity Failed	Percent Passing QC
2012-2017	FA-AA (Au-AA25)	0.03	590	6	98.9%
	MS-FA (Au-SCR21)	0.15	1,053	10	99%
2018-2019	FA-AA (Au-AA25)	0.03	209	0	100%
	MS-FA (Au-SCR21)	0.15	1,032	11	98.9%
2020	FA-AA (Au-AA25)	0.03	83	0	100%
	MS-FA (Au-SCR21)	0.15	212	1	99.7%
2021	FA-AA (Au-AA25)	0.03	580	1	99.8%
	MS-FA (Au-SCR21)	0.15	110	2	98.2%
2022	FA-AA (Au-AA25)	0.03	789	10	98.7%
	MS-FA (Au-SCR21)	0.15	254	4	98.4%

Figure 11-2: Time Series Plot for Blank Samples Assayed by ALS (SCR Method)



Source: InnovExplo 2023.

Figure 11-3: Time Series Plot for Blank Samples Assayed by ALS (AA Method)



Source: InnovExplo 2023.

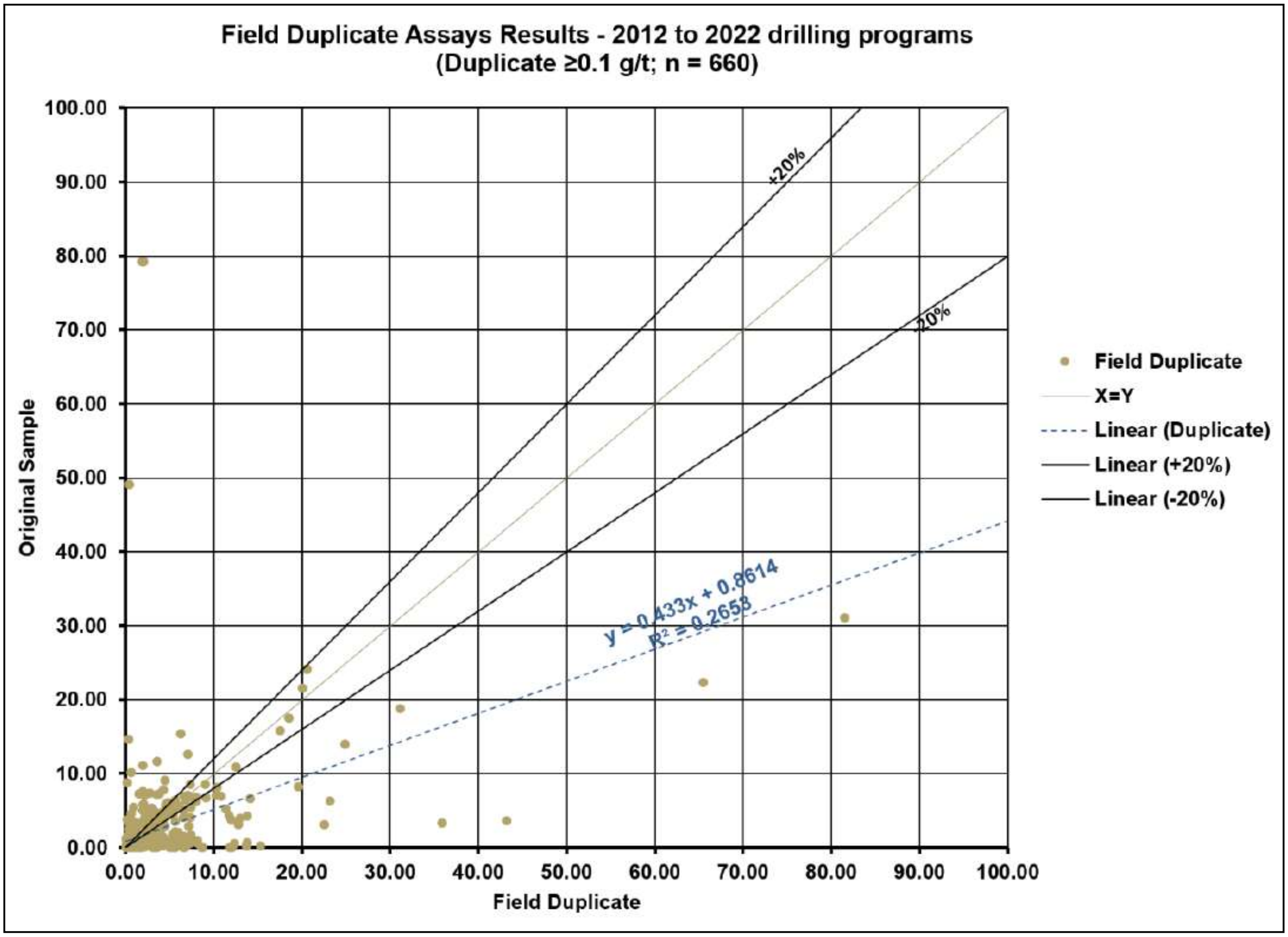
11.4.3 Duplicates

11.4.3.1 Field Duplicates

Since 2017, drilling programs included quarter-core duplicate samples to assess the presence of a nugget effect or heterogeneity of gold mineralization within individual intervals of sampled drill core. Nighthawk inserted 2,590 quarter-core duplicates into the sample stream at a rate of one for every twenty samples. The data were filtered to remove any values within an order of magnitude of the lower limit of detection for the analysis method (i.e., 0.1 g/t Au), as these data are inherently imprecise. The filtering resulted in the removal of 1,930 samples from the dataset.

The original and quarter-core duplicate assays are plotted on the graph in Figure 11-4. The plot shows a moderate precision with a coefficient of determination (R^2) of 0.26, but also a low accuracy monitored by the linear regression line (below the 20% tolerance limit). This low to moderate repeatability shows that gold distribution in the core is heterogenous and can be explained by the nugget effect, particularly for high-grade results.

Figure 11-4: Linear Graph Comparing Original and Field Duplicate Assays Above 0.1 g/t Au Analyzed Between 2012 and 2022



Source: InnovExplo 2023.

11.4.3.2 Check Assays

At Nighthawk's request, ALS collected a pre-selected portion of pulp from samples and shipped them to Nighthawk for submittal to a second independent laboratory for comparison purposes. Since 2012, approximately 5% of the samples were selected for check assay.

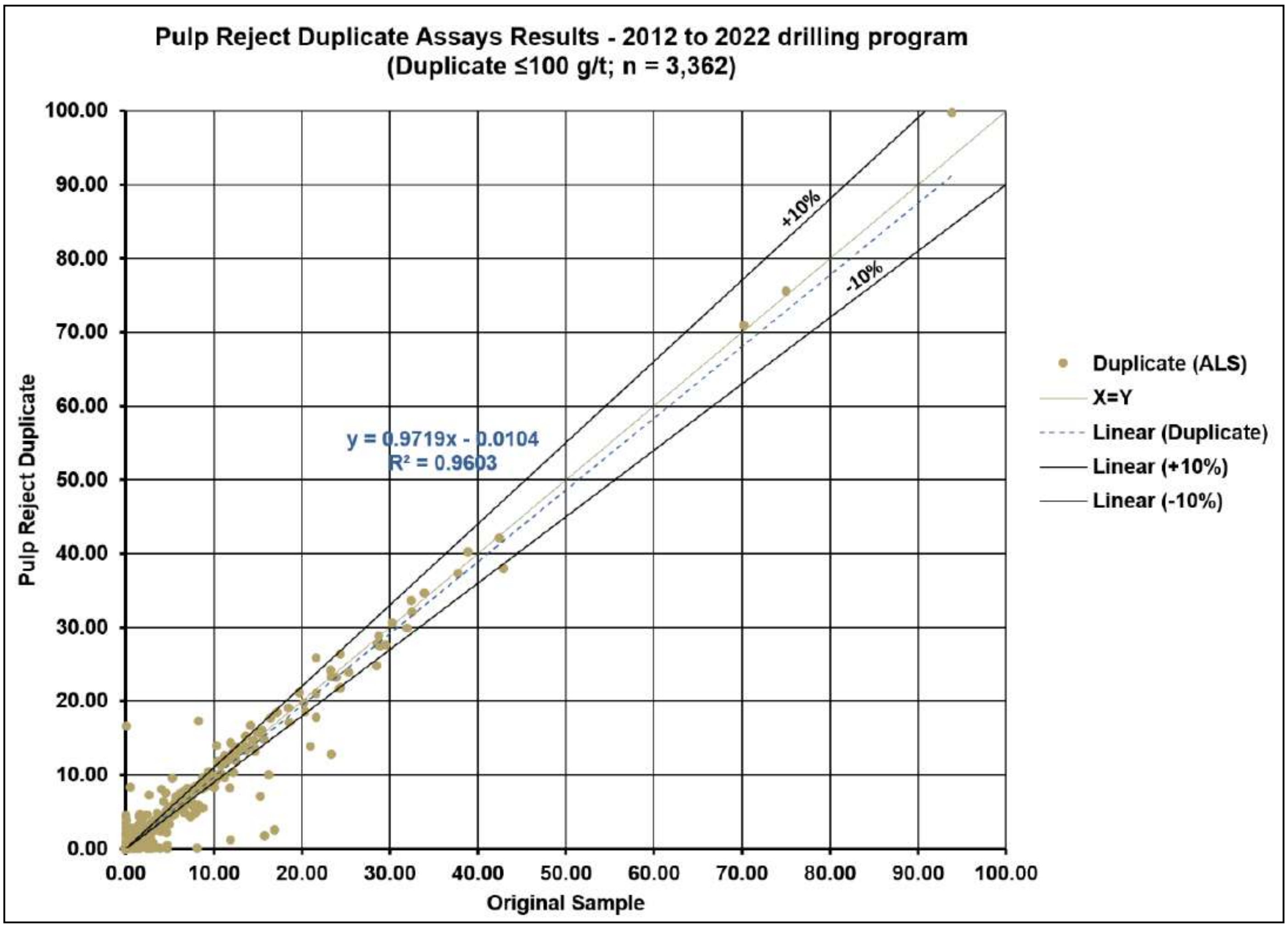
SGS analyzed the check pulps for gold by FA-AA spectroscopy finish on a 30 g charge of pulp. The initial method used has a lower detection limit of 0.005 g/t Au and an upper limit of 10 g/t Au. For 2020 drill programs onward, detection limits were between 0.01 g/t Au and 100 g/t Au.

Of the 3,366 samples selected from 2012 to 2022, 1,755 were pulps originating from ALS' MS-FA method in which the entire sample is pulverized and passed through a stainless-steel screen (Au-SCR21). The coarse fraction retained on the screen is assayed in its entirety. A subsample of the fine fraction that passed through the screen is thereafter sent for repeat analysis at SGS. Consequently, only the ALS results for the fine fraction were compared to the SGS results. The other 1,611 samples were pulps from samples analyzed by ALS directly by FA methods (FA-AA and FAGRAV). Four assays with results above 100 g/t Au were not selected for the study as it exceeded the upper detection limit for the analyses performed at SGS.

The results from ALS show good reproducibility of analyses with a coefficient of determination (R^2) of 0.96 and good accuracy as monitored by the linear regression line (between the 10% tolerance limit).

Scatter plots of the original ALS analyses and SGS pulp duplicates are shown in Figure 11-5.

Figure 11-5: Linear Graphs Comparing Original Samples and Pulp Duplicate Samples Analyzed from 2012 to 2022



Source: InnovExplo 2023.

11.5 Conclusion

The authors are of the opinion that the sample preparation, security, analysis and QA/QC protocols performed by Nighthawk followed generally accepted industry standards, and that the data is valid and of sufficient quality for a mineral resource estimation.

12 DATA VERIFICATION

This section covers the data verification of the diamond drill hole database supplied by Nighthawk. The database close-out date for this technical report is November 7, 2022.

The QP's data verification included visits to the property, drill sites, outcrops and core logging facilities, as well as an independent review of the data for selected drill holes (surveyor certificates, assay certificates, QA/QC program and results, downhole surveys, lithologies, alteration and structures).

12.1 Historical Work

Some of the historical information used in this report was taken from reports produced before the implementation of NI 43-101. In some cases, little information is available about the sample preparation, analytical or security procedures. The authors assume that exploration activities conducted by previous companies followed prevailing industry standards.

12.2 Site Visit

QP Carl Pelletier (P.Geo.) visited the property from September 11 to 14, 2018 and QP Marina Iund (P.Geo.) visited the property from September 20 to 22, 2022. On-site data verification included a general visual inspection of the property and the core storage facilities, a check of drill collar coordinates, and a review of selected mineralized core intervals, the QA/QC program, and the log descriptions of lithologies, alteration and mineralization.

12.3 Logging, Sampling and Assaying Procedures

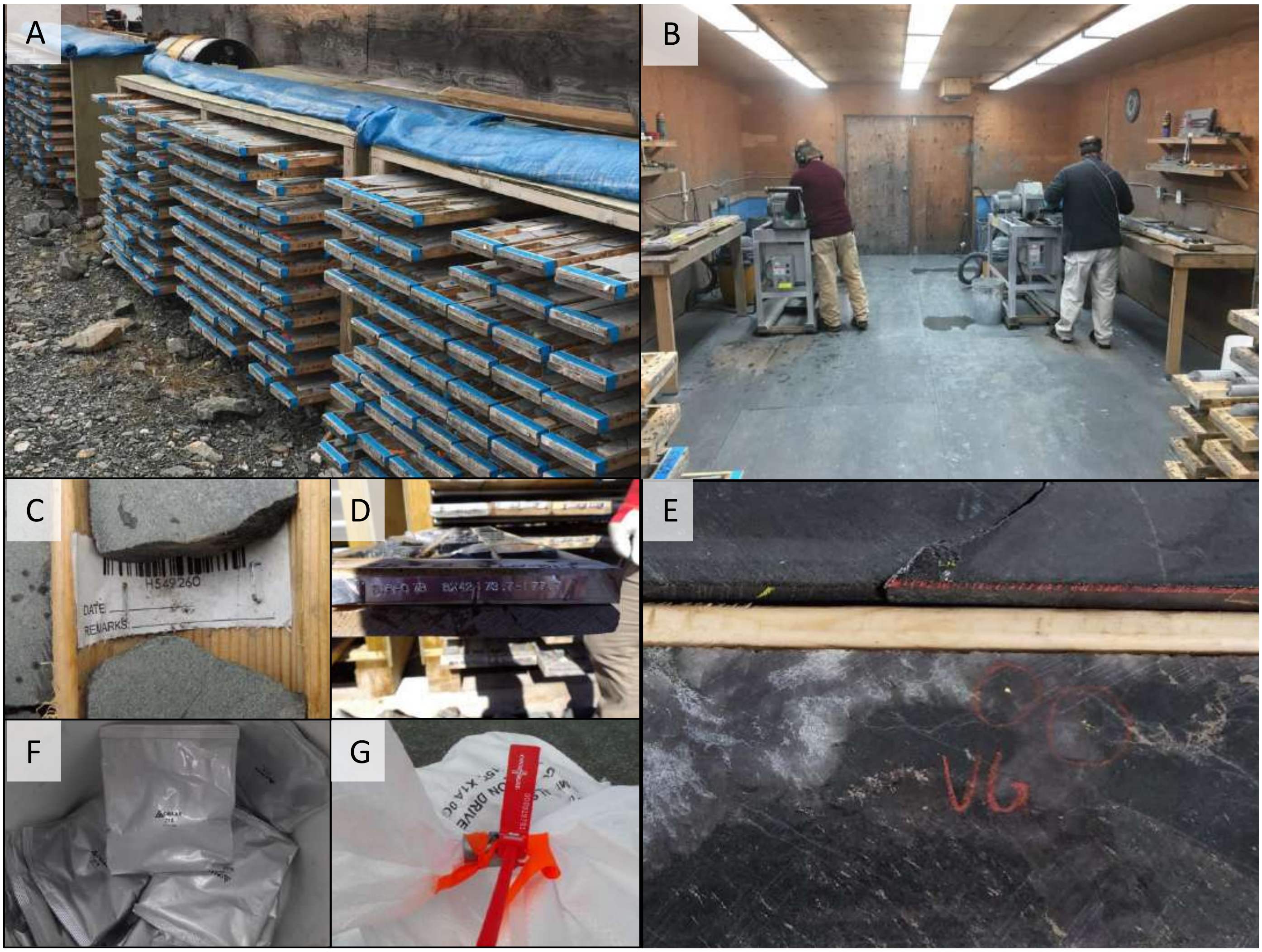
The authors reviewed the chain of custody for the drill core, from the drill rig to the logging and sampling facility, and deemed it to be adequate.

The core boxes are stored in core racks or stockpiled. The QPs found the boxes in good order and properly labelled. The wooden blocks at the beginning and end of each drill run were still in place, matching the indicated footage on each box. The authors examined several mineralized core sections while visiting the core storage facility. Sample tags were still present in the boxes, and it was possible to validate sample numbers and confirm the presence of mineralization in half-core reference samples from the mineralized zones (see Figure 12-1).

The Nighthawk database was verified for consistency of the information entered into MX Deposit software by Nighthawk's geologists. Geological logging was completed using standard logging codes for lithologies, alteration, structural elements, mineralization and brief descriptive columns.

Nighthawk's QA/QC program includes standards, duplicates and blanks. The authors are of the opinion that the protocols have been followed and are adequate.

Figure 12-1: Photographs Taken During the Drill Core Review



Notes: A) Outdoor core storage; B) Sawing facility; C) Sample tag stapled in core box; D) Proper labelling of the drill core boxes with metallic tags; E) Visible gold and mineralization in hole CM22-28; F) Standards; G) Security seal on sample bag.

12.4 Nighthawk Database

The Nighthawk database contains a total of 2,600 holes (434,460 m) divided by deposits as follows:

- Cass: 203 holes (38,426 m)
- Colomac Main: 1,183 holes (201,886 m)
- Damoti: 499 holes (71,443 m)
- Goldcrest: 174 holes (28,908 m)
- Grizzly Bear: 143 holes (22,211 m)
- Kim: 180 holes (27,955 m)
- Treasure Island: 107 holes (23,969 m)
- 24 and 27: 111 holes (19,662 m).

The database includes 1,830 historical holes (209,368 m) drilled before 2012 and 770 holes (225,092 m) drilled between 2012 and 2022.

Since the 2022 mineral resource estimate (IUND et al., 2022), 182 new holes were drilled for a total of 40,086 m on the Colomac Main, Kim, Cass, Grizzly Bear and 24/27 deposits.

12.4.1 Drill Hole Coordinates

Since 2009, Sub-Arctic Geomatics Ltd., of Yellowknife provided a land surveyor with a GPS base station to survey the proposed and completed drill collar locations.

The authors ran a 5% check on drill hole location accuracy confirming the coordinates of the selected surface holes using a handheld GPS (see Figure 12-2).

During the database validation process, an elevation offset was observed between historical holes (drilled before 2012) and the topographic surface determined from the airborne LiDAR survey of 2017. This vertical offset was 5 m on average. To correct the problem, 739 historical hole collars (from a total of 1,085 holes in the databases) located in the Colomac area were projected onto the updated topographic surface.

The same observation was made for the Damoti area, but historical hole collars were not projected. The authors recommend proceeding with a check survey campaign of some historical holes and a survey of the mine portal before applying corrections.

For the Cass, Kim and Treasure Island deposits, the authors also recommend proceeding with a check survey campaign of some historical holes and performing a LiDAR survey on those areas, as some incongruities observed during the geological modelling suggest minor shifts in some historical collars.

Overall, the collar locations in the Nighthawk database are considered adequate and reliable.

Figure 12-2: Examples of On-Site Collar Location Verifications

Notes: A) Hole C-18-15; B) Historical hole D04-355.

12.5 Downhole Survey

Downhole surveys were conducted on most of the holes. The most recent drill holes (2012-2022) had single-shot measurements taken every 30 m with a Reflex EZ-SHOT™ tool. For drilling programs before 2012, a single-shot measurement was generally taken at the end of the hole for short holes and either every 30 m or every 70 m to 80 m for long holes.

Since 2016, orientated core measurements have been collected in selected holes using the Reflex Act III™ system. From 2016 to 2020, 118 drill holes of 387 were oriented. An additional 72 holes were orientated in 2022.

The survey information was verified for 5% of the Nighthawk database. Any discrepancies were corrected and incorporated into the current resource database.

12.6 Assays

The verified holes represent 5% of the Nighthawk database. The authors were granted access to the assay certificates for all requested holes drilled since 2012. The certificates were obtained directly from the laboratory. The assays in the database were compared to the original laboratory certificates. None of the certificates for pre-2012 historical holes are available, so that data was validated against the paper logbooks.

Minor errors of the type typically encountered in a project database were found and corrected. A comparison of historical assays and results obtained since 2012 show similarities in the geographical distribution of gold values. The QPs consider the Nighthawk database to be valid and reliable.

12.7 Independent Resampling

During the site visits, 44 quarter-split core intervals were selected to be sawed by Nighthawk personnel. The QPs bagged the samples and transported them to ALS for analysis.

The resampling results confirmed the ranges of grades of the mineralization in the different deposits. The resampling results indicate a good reproducibility of the original assays despite some differences that may be explained by the gold nugget effects visually observed in the drill core. The authors believe the field duplicate results from the independent resampling program are reliable and valid for this type of gold project.

Table 12-1 shows the resampling results for the 44 samples.

Table 12-1: Summary of Independent Resampling

Deposit	Hole ID	Original (Nighthawk)		Field Duplicate (InnovExplo)		Difference
		Sample Number	Au (g/t)	Sample Number	Au (g/t)	Au (g/t)
Cass Main	CM-14-06	N939745	4.74	B00418358	6.89	2.15
Cass Main	CM-14-06	N939752	2.12	B00418359	2	-0.12
Cass Main	CM-14-06B	N939866	6.78	B00418360	8.65	1.87
Cass Main	CM-21-12	C913873	7.8	B00418355	8.81	1.01
Cass Main	CM-21-12	C913874	7.61	B00418356	10.6	2.99
Cass Main	CM-21-12	C913909	2.35	B00418357	3.5	1.15
Cass North	CM-21-06	C913450	4.97	B00418353	6.9	1.93
Cass North	CM-21-06	C913451	2.12	B00418354	6.62	4.5
Colomac	C17-28	V961356	6.31	W035907	4.42	-1.89
Colomac	C17-28	V961357	1.79	W035908	1.01	-0.78
Colomac	C17-02C	V956370	18.5	W035909	6.1	-12.4
Colomac	C17-02C	V956371	2.29	W035910	0.34	-1.95
Colomac	C18-09	X621816	4.31	W035912	14.95	10.64
Colomac	C18-09	X621817	1.68	W035913	1.84	0.16
Colomac	C18-04	V952602	1.04	W035914	1.63	0.59
Colomac	C18-04	V952603	8.13	W035915	6.22	-1.91
Damoti	D09-380	H549241	10.3	W035901	8.46	-1.84

Deposit	Hole ID	Original (Nighthawk)		Field Duplicate (InnovExplo)		Difference
		Sample Number	Au (g/t)	Sample Number	Au (g/t)	Au (g/t)
Damoti	D09-384	H549761	5.47	W035902	5.98	0.51
Damoti	D09-380	H549259	3.65	W035903	4.47	0.82
Damoti	D09-380	H549260	27.2	W035904	25.3	-1.9
Damoti	D04-361	4773	23.02	W035906	15.35	-7.67
Damoti	D18-02B	X627604	9.16	W035916	10.75	1.59
Damoti	D18-02B	X627605	17	W035917	5.41	-11.59
Fishhook	FH-21-19	B599177	4.37	B00418374	2.96	-1.41
Fishhook	FH-21-19	B599179	0.13	B00418375	0.07	-0.06
Fishhook	FH-21-24	B599350	0.08	B00418372	0.11	0.03
Fishhook	FH-21-24	B599356	0.02	B00418373	0.04	0.02
Kim	KM-21-04	C916643	1.64	B00418361	1.78	0.14
Kim	KM-21-04	C916650	0.27	B00418362	0.67	0.4
Kim	KM-21-07	C917205	0.03	B00418363	0.03	0
Kim	KM-21-07	C917211	0.02	B00418364	0.02	0
Treasure Island	T-19-02	Y512170	6.88	B00418365	4.78	-2.1
Treasure Island	T-19-02	Y512176	1.02	B00418366	1.36	0.34
Treasure Island	T-20-06	B591959	2.5	B00418367	5.18	2.68
Treasure Island	T-20-06	B591960	3.86	B00418368	4.6	0.74
Treasure Island	T-20-06	B591961	1.98	B00418369	1.09	-0.89
Treasure Island	T-20-08	B592887	3.66	B00418370	0.23	-3.43
Treasure Island	T-20-08	B592888	5.12	B00418371	3.4	-1.72
Zone 24	1671-034	30895	1.71	B00418380	2.39	0.68
Zone 24	1671-034	30896	6.92	B00418381	11.55	4.63
Zone 24	TFS-21-14	C931064	6.34	B00418378	6.79	0.45
Zone 24	TFS-21-14	C931065	3.16	B00418379	3.69	0.53
Zone 27	1671-065	36412	15.53	B00418382	5.85	-9.68
Zone 27	1671-065	36415	6.51	B00418383	17.9	11.39

12.8 Mineral Processing and Metallurgical Data

Metallurgical test data was verified through a review of previous studies and testwork reports. Any studies and reports referred to were thoroughly reviewed and align with the current metallurgical design and analysis. All metallurgical data was verified and is adequate for this technical report.

12.9 Conclusion

Overall, the authors believe that the data verification process demonstrates the validity of the data and protocols. The authors consider the Nighthawk databases to be valid and of sufficient quality to be used for the mineral resource estimate in this technical report.

13 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 Introduction

Four metallurgical testwork programs on drill core samples from the Indin Lake properties have been conducted between 2016 and 2019. These programs were designed to quantify metallurgical performance and different processing options. Figure 13-1 shows the locations where the samples were extracted. The programs included the following testwork:

- head assays
- multi-element analysis
- comminution testing
- gravity concentration
- flotation
- cyanidation.

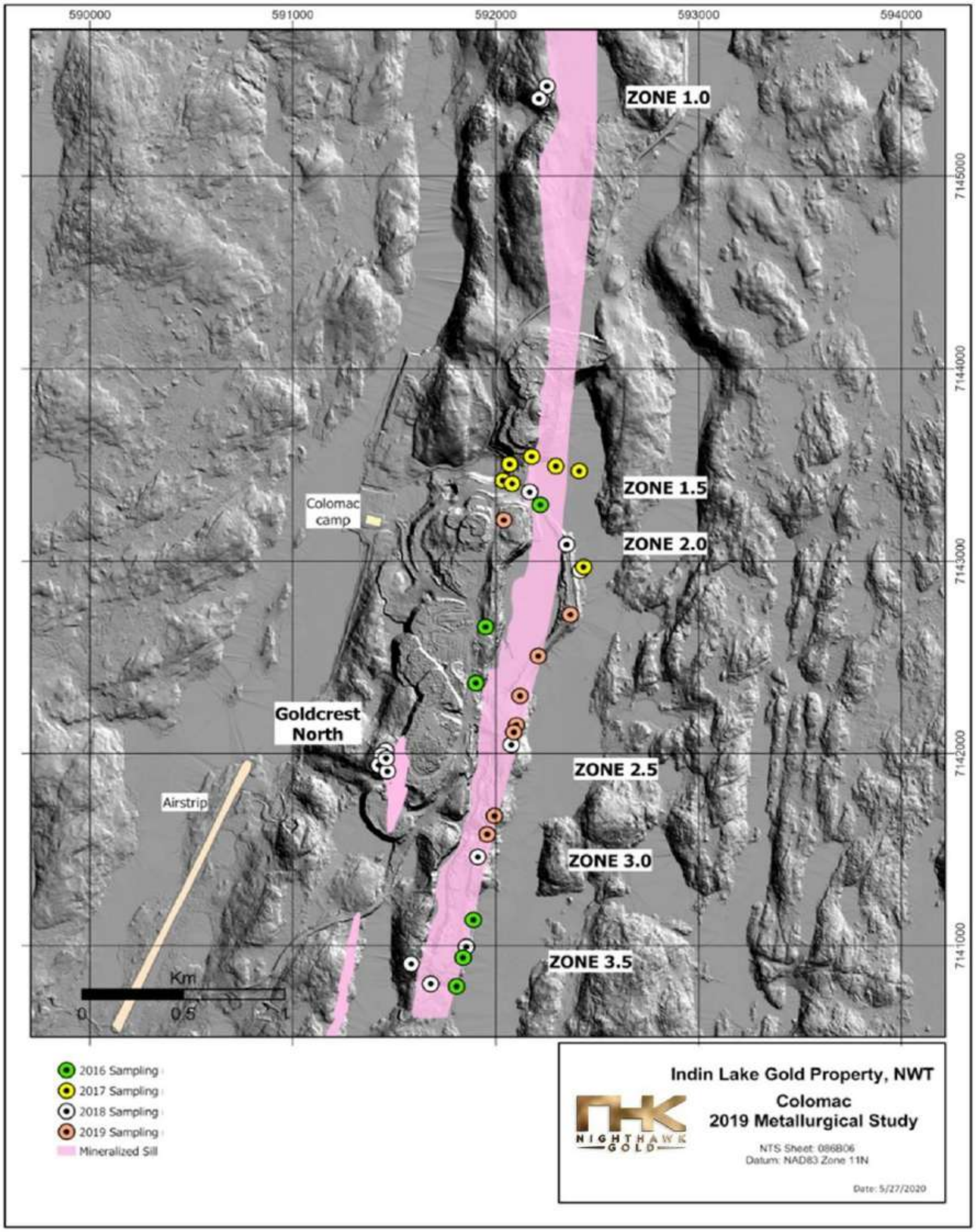
The metallurgical testwork was conducted at Bureau Veritas in Richmond, British Columbia, and audited by Starkey & Associates Inc., who also evaluated the SAGDesign™ testing results. Table 13-1 shows a summary of the testwork programs. The mineralized material was obtained from boreholes covering different mineralized zones in the Colomac and Goldcrest sills as shown on Figure 13-1. These samples are representative of the mineralization and grades as the Colomac sill forms the majority of the mineralization at the Indin Lake property.

Table 13-1: Metallurgical Testwork Summary

Year	Laboratory/Location	Deposit	Zones	Testwork Performed	Comments
2016	Bureau Veritas/ Richmond BC	Colomac	Zone 1.5 (North) Zone 3.0 (South) Zone 3.5 (Deep) .	Head assays, SAG and ball mill grindability, flotation, gravity (centrifugal), cyanidation (bottle roll, column leach, heap leach, whole mineralized material, gravity and leach)	Zone 3.5 and 1.5 blended into Master composite
2017	Bureau Veritas/ Richmond BC	Colomac	Zone 1.5 (High grade)	Head assays, SAG and ball mill grindability, flotation, gravity (centrifugal), cyanidation (bottle roll, column leach, heap leach, whole mineralized material, gravity and leach)	Blended into High Grade composite
2018	Bureau Veritas/ Richmond BC	Colomac Goldcrest	Zone 1.0 Zone 2.0 - 2.5 Zones 3.0 – 3.5 Goldcrest North	Head assays, SAG and ball mill grindability, flotation, gravity (centrifuge), cyanidation (bottle roll, column leach, heap leach, whole mineralized material, gravity and leach)	Colomac Variability samples and sole Goldcrest deposit sample
2019	Bureau Veritas/ Richmond BC	Colomac	Zones 2.0 - 3.0	Head assays, SAG and ball mill grindability, flotation, gravity (centrifugal), cyanidation (bottle roll, column leach, heap leach, whole mineralized material, gravity and leach)	Colomac Variability samples

Source: Ausenco 2023.

Figure 13-1: Metallurgical Sample Location Map



Source: Nighthawk Gold 2022

13.2 Head Assays

Gold content was analyzed through the standard fire assay procedures and metallic screen analysis procedures to overcome the "nugget effect", where grades can be skewed by the existence of coarse gold. The procedures employed were as follows:

- Standard fire assay – Based on 30 g samples, with an atomic absorption (AA) spectrophotometer finish.
- Metallic Assay – A representative 500 g sample was sieved at 105 μm with standard fire assays performed on the entire oversize fraction and on a split of the undersize fraction. A final assay was calculated based on the weight of each separated fraction and their respective gold value.
- Screen Analysis – 2 kg of 12.5 mm crushed material was screened from 12.5 mm to 38 μm generating 15 fractions. Each fraction was weighed and assayed for gold via standard fire assay method. A final assay was calculated based on the weight of each separated fraction and their respective gold value. The screen analysis procedure was not employed on the 2016 and 2017 program samples.

The results are summarized in Table 13-2. There was a noted variance between the fire assay and screened metallic assays, indicating the potential presence of coarse gold in the samples. This is supported by the screen analysis in which the majority of the gold was found to reside in the +4.76 mm fractions.

Table 13-2: Head Assays

Program	Deposit	Zones	Gold Content (g/t Au)			
			Fire Assay	Metallic Assay	Screen Analysis	Average
2016	Colomac	Zone 1.5 (North)	0.35	0.90	-	0.63
		Zone 3.0 (South)	1.16	1.32	-	1.28
		Zone 3.5 (Deep)	0.65	1.69	-	1.17
		Master Composite	1.80	2.58	-	2.19
2017	Colomac	Zone 1.5 (High Grade Composite)	2.83	7.16	-	4.99
2018	Colomac	Zone 1.0	1.67	2.28	3.77	2.57
		Zone 2.0 – 2.5	2.15	2.05	2.29	2.16
		Zone 3.0 -3.5	2.38	2.41	2.81	2.53
	Goldcrest	Goldcrest North	1.34	2.29	1.48	1.71
2019	Colomac	Zones 2.0 – 3.0	0.39	0.34	0.50	0.41
			0.67	0.84	0.71	0.74
			0.58	0.52	0.40	0.50
			0.47	0.60	0.44	0.50

Source: Ausenco 2023.

13.3 Multiple Element Analysis

Samples from the 2018 and 2019 programs were tested using XRF whole rock analysis. The results are shown on Table 13-3. This analysis is not a standard methodology for sample characterization and does not include specific testing for typical deleterious elements such as arsenic and mercury. Previous operations produced doré bullion with no reported issues with deleterious elements. Future testing is required to validate this assumption.

Table 13-3: Multi-Element Analysis

Element	Unit	Colomac Zone 1.0	Colomac Zone 2.0 – 2.5	Colomac Zone 3.0 – 2.5	Goldcrest North	Colomac Zones 2.0 – 3.0			
SiO_2	%	72.41	72.4	65.48	74.91	67.34	66.81	70.04	66.66
Al_2O_3	%	10.88	10.27	10.98	11.05	11.86	11.8	11.25	11.33
Fe_2O_3	%	5.46	5.6	8.69	4.07	6.66	7.55	5.88	7.44
MgO	%	0.49	0.16	0.27	0.46	0.83	0.20	0.10	0.32
CaO	%	2.03	2.51	3.77	1.34	2.81	3.22	2.93	3.57
Na_2O	%	5.15	5.5	5.78	5.55	5.94	6.14	5.89	5.71
K_2O	%	0.6	0.19	0.23	0.25	0.28	0.25	0.21	0.29
TiO_2	%	0.32	0.29	0.51	0.22	0.38	0.41	0.32	0.44
P_2O_5	%	0.03	0.03	0.08	0.02	0.05	0.07	0.04	0.05
MnO	%	0.07	0.08	0.11	0.04	0.09	0.10	0.09	0.10
Cr_2O_3	%	0.026	0.031	0.023	0.021	0.022	0.017	0.019	0.016
BaO	%	0.03	0.01	0.02	<0.01	0.02	0.02	0.02	0.01
LOI	%	2.4	2.8	3.9	2.0	3.4	3.3	3.0	3.3
Sum	%	99.96	99.99	99.96	99.97	99.8	99.93	99.82	99.29

Source: Ausenco 2023.

13.4 Comminution Testing

Grindability testing was conducted on each sample to provide information on its resistance to various forms of grinding using the SAGDesign™ testing methodology. This measures the macro and micro hardness by means of a SAG mill test and standard Bond Ball Mill Work Index test on SAG ground sample to provide the total energy at the specified grind size for mill design purpose in kWh/t. The SAG test reproduces commercial SAG mill grinding conditions on 4.5 L of material and determines the SAG mill specific pinion energy to grind sample from 80% passing 152 mm to 80% passing 1.7 mm (W_{SDT}). The SAG mill product is then crushed to 100% passing 3.35 mm and subjected to the Bond ball mill work index (S_d-BWI) grindability test at a closing screen of 150 µm to provide the total pinion energy at the specified grind size for mill design purposes.

The results, presented in Table 13-4, show the tested samples have low variability, most values are within one standard deviation of the mean. It should be noted that the SAG discharge ball mill grindability (S_d-BWI) does not correlate directly with a conventional Bond Ball Mill Work Index (BWI) test, and is generally lower than the equivalent BWI conducted on the same sample due to the finer feed particle size distribution (3.35 mm vs. 12.5 mm). No paired BWI tests have been completed on this project to confirm this relationship holds. The grindability results cannot therefore be compared to values within standard bond mall work index testing databases. When compared within other values in the SAGDesign™ testing database, these results place the samples on the 76th percentile of SAGDesign™ AG/SAG hardness database, and the 44th percentile of the SAGDesign™ Bond ball mill work index database. This indicates that material from the deposit would be amenable to grinding with conventional SAG and ball mills. Bond ball mill work index using the standard procedure is recommended to confirm the grinding energy requirement for design sizing.

Table 13-4: SAGDesign™ Hardness Testwork results

Deposit	Zones	Solids SG	W_{SDT} (kWh/t)	S_d-BWI (kWh/t)
Colomac	Zone 1.5 (North)	2.73	13.52	14.38
	Zone 3.0 (South)	2.76	12.32	14.28
	Zone 3.5 (Deep)	2.70	14.07	14.10
	Zone 1.5 (High Grade Composite)	2.67	12.69	15.18
	Zone 1.0	2.70	13.49	15.43
	Zone 2.0 – 2.5	2.62	11.74	14.93
	Zone 3.0 -3.5	2.71	11.48	13.90
Goldcrest	Goldcrest North	2.61	16.45	14.88
Colomac	Zones 2.0 – 3.0	2.69	12.00	14.44
		2.74	12.84	14.22
		2.67	11.70	14.23
		2.75	12.59	14.61

Source: Ausenco 2023.

13.5 Baseline Process Evaluation

The following preliminary metallurgical tests were carried out to determine the amenability of the gold in the samples to recovery via common process routes:

- gravity concentration
- cyanidation
- flotation.

13.5.1 Gravity Concentration

Gravity concentration testing was carried out at three different grind sizes (K_{80} of 75, 105 and 150 µm). Samples were ground to the target size then adjusted to a pulp density of about 20% solids and subjected to a single pass through the 75 mm Knelson gravity concentrator. The primary gravity concentrate was collected and further upgraded by hand panning to simulate cleaning. The cleaned concentrate was assayed for gold by standard fire assay procedures, and a cut from gravity cleaner tailings and gravity tailings were assayed for gold. This methodology does not follow the standard extended gravity recoverable gold (E-GRG) protocol but provides some indication of the amenability to recovery by gravity.

The results are shown on Table 13-5, the samples responded well to gravity concentration with no significant trends observed due to grind size indicating that the liberation and recovery of gold is independent of the grind size at the grind sizes tested. The mass yield to final concentrate is higher than the typical observed at plant scale conditions (≈ 0.05%) which indicates the recoveries obtained may not be reproducible during operation. Testing with the E-GRG protocol to model and predict plant scale recoveries is recommended.

Table 13-5: Gravity Concentration Results

Deposit	Zones	Pan Concentrate Mass Recovery (%)			Pan Concentrate Gold Recovery, (Au%)		
		k_{80} -75 µm	k_{80} -105 µm	k_{80} -150 µm	k_{80} -75 µm	k_{80} -105 µm	k_{80} -150 µm
Colomac	Zones 1.5, 3.0 – 3.5 (Master Composite)	0.08	0.13	0.07	33.3	45.0	25.9
	Zone 1.5 (High Grade Composite)	0.11	0.13	0.12	54.3	40.5	42.8
	Zone 1.0	0.08	0.07	0.09	53.0	48.2	34.4
	Zone 2.0 – 2.5	0.08	0.08	0.06	42.0	48.8	34.1
	Zone 3.0 -3.5	0.07	0.10	0.09	27.2	24.5	20.4
Goldcrest	Goldcrest North	0.07	0.06	0.08	58.3	44.4	52.0
Colomac	Zones 2.0 – 3.0	0.07	0.09	0.08	30.1	48.0	66.4
		0.07	0.08	0.13	50.5	12.8	21.8
		0.10	0.08	0.08	17.3	12.4	44.5
		0.07	0.09	0.07	11.3	31.0	21.5

Source: Ausenco 2023.

13.5.2 Cyanidation Tests

A series of coarse bottle roll cyanidation and column leach tests on crushed samples (k_{80} of 12.5 mm) were conducted to evaluate heap leach processing potential. Standard bottle roll cyanidation tests on samples ground to k_{80} of 150 µm were conducted to determine the baseline response of the samples to cyanidation. Recoveries stated in this section are extractions without plant losses including soluble gold losses and gold lost in carbon fines.

13.5.2.1 Heap Leach Evaluation

Ten- and eleven-day coarse bottle roll tests were conducted at 1g/L NaCN on a 50% slurry with a pH maintained at 10.5 using hydrated lime. Kinetic samples were taken twice daily for the first 48 hours then once daily afterwards. Table 13-6 summarizes the tests results. Figure 13-2 shows gold recovery over time for these tests. The master composite had an overall recovery of 82%, which has not been consistently reproduced with the follow up samples. For most of the samples, the overall recovery of gold does not exceed 60% with slow leach kinetics and long leach times.

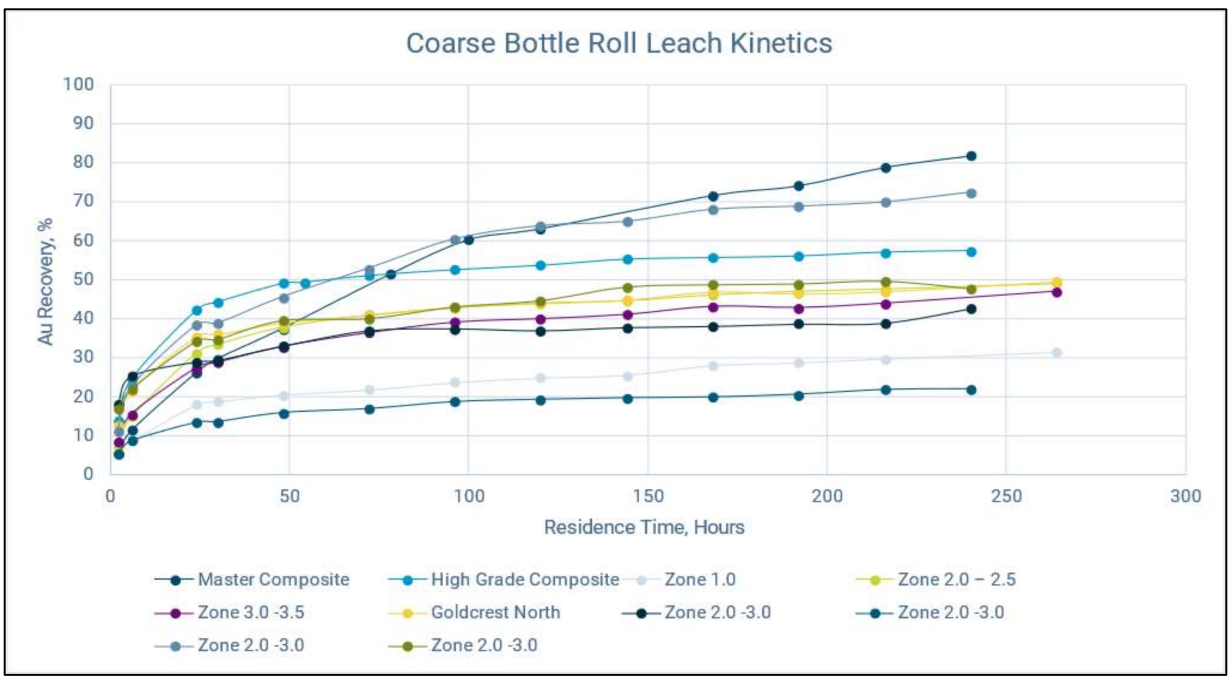
For the 2018 and 2019 test programs, a >200-day column leach test was carried out on coarse crushed samples as well, with 500 mg/L NaCN maintained at a solution flow of 6 L/min in a 152 mm diameter column with a fill capacity height of 1.2 m. The tests were terminated when no additional recovery of gold was detected. A 107-day column leach test was conducted on the high-grade composite sample. The results are shown on Table 13-7. The overall gold recoveries are comparable with the coarse bottle roll tests confirming that overall gold recoveries obtained are representative of heap leaching. The modest recoveries, long cycle times and high cyanide consumption rates indicate heap leaching is not a suitable option for processing Indin Lake material.

Table 13-6: Coarse Bottle Roll Cyanidation Test Results

Deposit	Zones	Crush Size (k_{80} mm)	Calculated Head Grade (g/t Au)	Consumption (kg/t)		Recovery (Au%)
				NaCN	Ca (OH)$_2$	
Colomac	Zones 1.5, 3.0 – 3.5 (Master Composite)	12.7	2.37	2.53	0.42	81.8
	Zone 1.5 (High Grade Composite)	12.7	2.47	4.06	0.10	57.5
	Zone 1.0	12.5	1.83	4.45	0.12	31.5
	Zone 2.0 – 2.5	12.2	2.14	4.42	0.12	49.1
	Zone 3.0 -3.5	12.3	2.00	4.18	0.08	47.1
Goldcrest	Goldcrest North	12.9	1.35	5.05	0.08	49.6
Colomac	Zones 2.0 – 3.0	12.5	0.28	3.90	0.16	42.6
		12.2	1.28	3.84	0.14	22.0
		12.3	0.44	4.16	0.14	72.4
		12.9	0.41	3.89	0.12	47.7

Source: Ausenco 2023.

Figure 13-2: Coarse Bottle Roll Leach Kinetics



Source: Ausenco 2023.

Table 13-7: Column Leach Test Results

Deposit	Zones	Leach Time (Days)	Crush Size (k_{80} mm)	Calculated Head Grade (g/t Au)	Consumption (kg/t)		Recovery (Au%)
					NaCN	Ca (OH)$_2$	
Colomac	Zone 1.5 (High Grade Composite)	107	12.5	2.47	1.30	0.21	34.3
	Zone 1.0	206	12.5	1.83	2.87	0.33	57.4
	Zone 2.0 – 2.5	213	12.5	2.14	3.08	0.24	55.5
	Zone 3.0 -3.5	213	12.5	2.00	3.20	0.30	54.9
Goldcrest	Goldcrest North	206	12.5	1.35	3.25	0.26	69.7
Colomac	Zones 2.0 – 3.0	206	12.5	0.30	1.06	0.22	66.1
		206	12.5	0.57	1.05	0.21	43.6
		206	12.5	0.48	1.15	0.23	60.3
		206	12.5	1.0	1.12	0.23	21.3

Source: Ausenco 2023.

13.5.2.2 Baseline Whole Mineralized Material Cyanidation

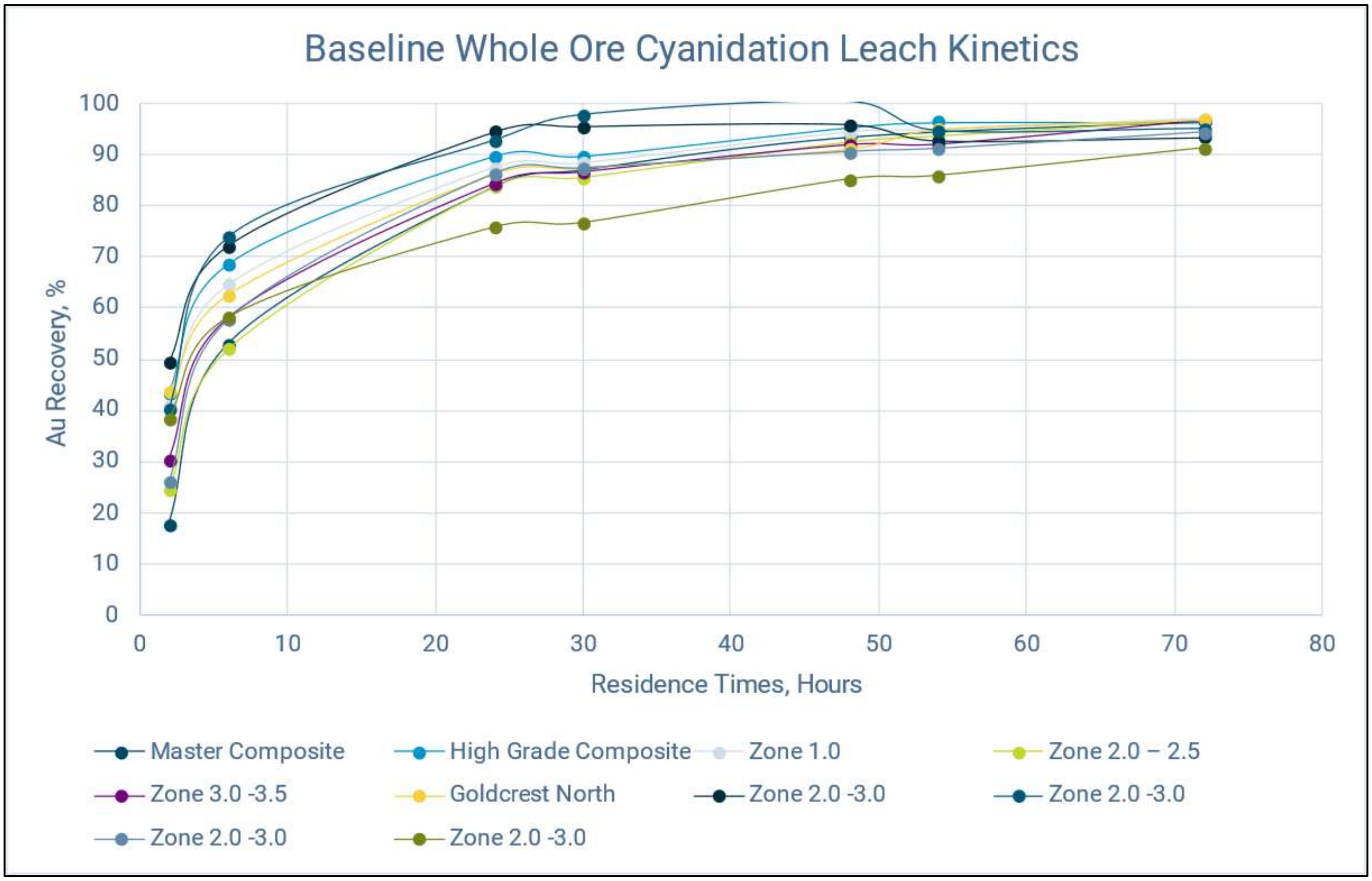
Baseline cyanidation tests were conducted on samples ground to a k_{80} of 150 µm for 72 hours at 40% solids in 1.0 g/L NaCN and pH greater than 10.5. The results (see Table 13-8) showed that gold was readily extractable with high gold recoveries, greater than 95% for most samples. Kinetic samples to estimate gold recovery as a function of time were taken at specified intervals of 2, 6, 24 ,30, 48 and 72 hours on most samples. Figure 13-3 shows the results. Most leaching occurred in the first 24 hours and slowed down afterwards. Additional testing to define recoveries around the 24-hour target zone is recommended.

Table 13-8: Baseline Cyanidation Test Results

Deposit	Zones	Calculated Head Grade (g/t Au)	Consumption (kg/t)		Recovery (Au%)
			NaCN	Ca (OH)$_2$	
Colomac	Zones 1.5, 3.0 – 3.5 (Master Composite)	1.70	1.7	0.24	96.5
	Zone 1.5 (High Grade Composite)	4.39	1.9	0.26	96.4
	Zone 1.0	2.98	1.6	0.14	97.1
	Zone 2.0 – 2.5	3.14	1.5	0.14	96.8
	Zone 3.0 -3.5	3.45	1.9	0.12	96.7
Goldcrest	Goldcrest North	2.24	1.5	0.12	96.8
Colomac	Zones 2.0 – 3.0	0.40	1.6	0.34	93.4
		0.74	1.7	0.36	95.2
		0.50	1.8	0.34	94.4
		0.50	1.7	0.30	91.3

Source: Ausenco 2023.

Figure 13-3: Whole Mineralized Material Cyanidation Leach Kinetics



Source: Ausenco 2023.

13.5.3 Sulphide Flotation

Kinetic flotation tests were carried out on whole ground samples at three different grind sizes (k_{80} of 75, 105 and 150 µm) to assess the response to recovery via sulphide flotation at the different grind sizes. The flotation tests were conducted in four stages, using potassium amyl xanthate (PAX) and Aerofloat 208 as mineral collectors. The results are summarized on Table 13-9. All samples responded well to flotation. The grind size does not appear to significantly influence gold recovery over the grind sizes tested.

Table 13-9: Kinetic Flotation Results

Deposit	Zones	Concentrate Mass Recovery%			Total Concentrate Gold Grade (g/t Au)			Overall Gold Recovery (Au%)		
		k_{80} -75 µm	k_{80} -105 µm	k_{80} -150 µm	k_{80} -75 µm	k_{80} -105 µm	k_{80} -150 µm	k_{80} -75 µm	k_{80} -105 µm	k_{80} -150 µm
Colomac	Zones 1.5, 3.0 – 3.5 (Master Composite)	7.9	8.1	6.3	12.9	17.9	44.6	94.9	94.1	95.5
	Zone 1.5 (High Grade Composite)	7.1	6.9	6.5	52.5	68.2	69.6	94.6	93.5	90.7
	Zone 1.0	10.1	8.5	7.7	20.0	25.9	29.5	94.9	94.5	94.2
	Zone 2.0 – 2.5	11.3	9.9	9.0	19.4	27.5	34.2	94.8	94.5	94.2
	Zone 3.0 -3.5	10.2	9.2	8.9	24.5	22.1	27.1	92.1	88.6	84.8
Goldcrest	Goldcrest North	9.2	6.4	7.1	21.4	23.1	20.9	98.1	94.9	95.5
Colomac	Zones 2.0 – 3.0	5.7	4.7	3.9	5.0	8.5	6.8	90.0	92.8	84.2
		4.2	5.3	5.2	14.9	10.6	10.1	88.2	88.8	85.8
		4.6	4.8	4.9	12.5	12.7	8.7	95.7	93.4	87.4
		4.3	5.6	4.0	14.7	8.6	11.9	86.3	82.6	75.6

Source: Ausenco 2023.

13.6 Gravity and Cyanidation

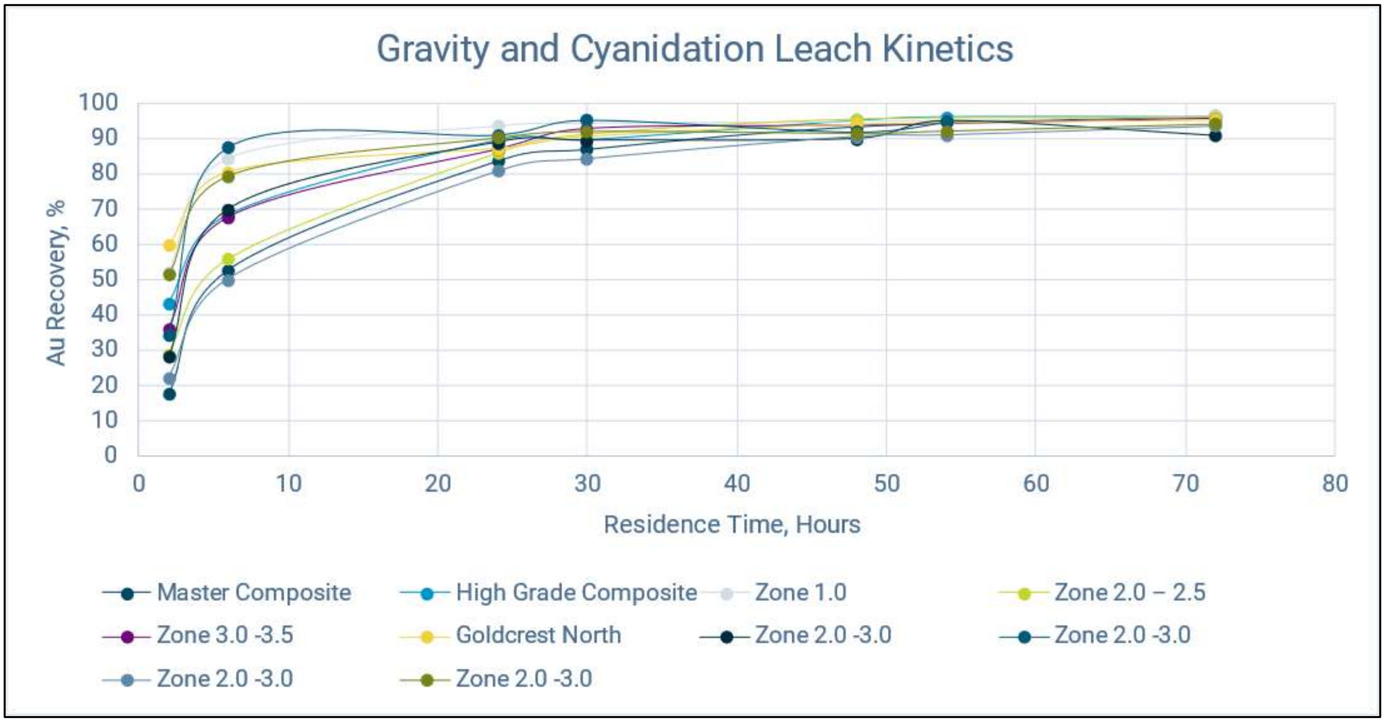
Following the baseline process evaluation conducted by Starkey & Associates, a combination of gravity pre-concentration followed by cyanidation of gravity tailings was carried out at a target grind k_{80} of 105 µm. The gravity concentration and cyanidation methodologies were as previously described in the baseline process evaluation tests. The results are summarized on Table 13-10. Overall gold recoveries were high, comparable to the baseline whole mineralized material cyanidation tests. Leach kinetics on the gravity tailings were, on average, faster than the baseline whole mineralized material cyanidation achieving near maximum recovery in 20-30 hours for most samples as shown on Figure 13-4. The finer grind size (k_{80} of 105 µm vs. 150 µm) as well as removal of coarse gold via gravity concentration may have contributed to the improved leach kinetics.

Table 13-10: Gravity- Cyanidation Test Results

Deposit	Zones	Calculated Head Grade (g/t Au)	Consumption (kg/t)		Recovery (Au%)		
			NaCN	$Ca(OH)_2$	Gravity	Cyanidation	Overall
Colomac	Zones 1.5, 3.0 – 3.5 (Master Composite)	1.38	1.53	0.29	27.7	68.7	96.4
	Zone 1.5 (High Grade Composite)	4.66	1.52	0.20	36.9	61.1	98.0
	Zone 1.0	2.75	1.71	0.12	40.5	57.5	98.0
	Zone 2.0 – 2.5	2.88	1.65	0.10	33.4	64.0	97.3
	Zone 3.0 -3.5	2.75	1.95	0.10	14.5	81.9	96.3
Goldcrest	Goldcrest North	1.83	1.71	0.10	37.7	59.5	97.2
Colomac	Zones 2.0 – 3.0	0.47	1.44	0.18	31.5	62.3	93.8
		0.73	1.69	0.18	22.8	73.3	96.0
		0.83	1.53	0.18	35.3	60.6	95.9
		0.73	1.75	0.14	4.6	90.0	94.6

Source: Ausenco 2023.

Figure 13-4: Gravity and Cyanidation Leach Kinetics



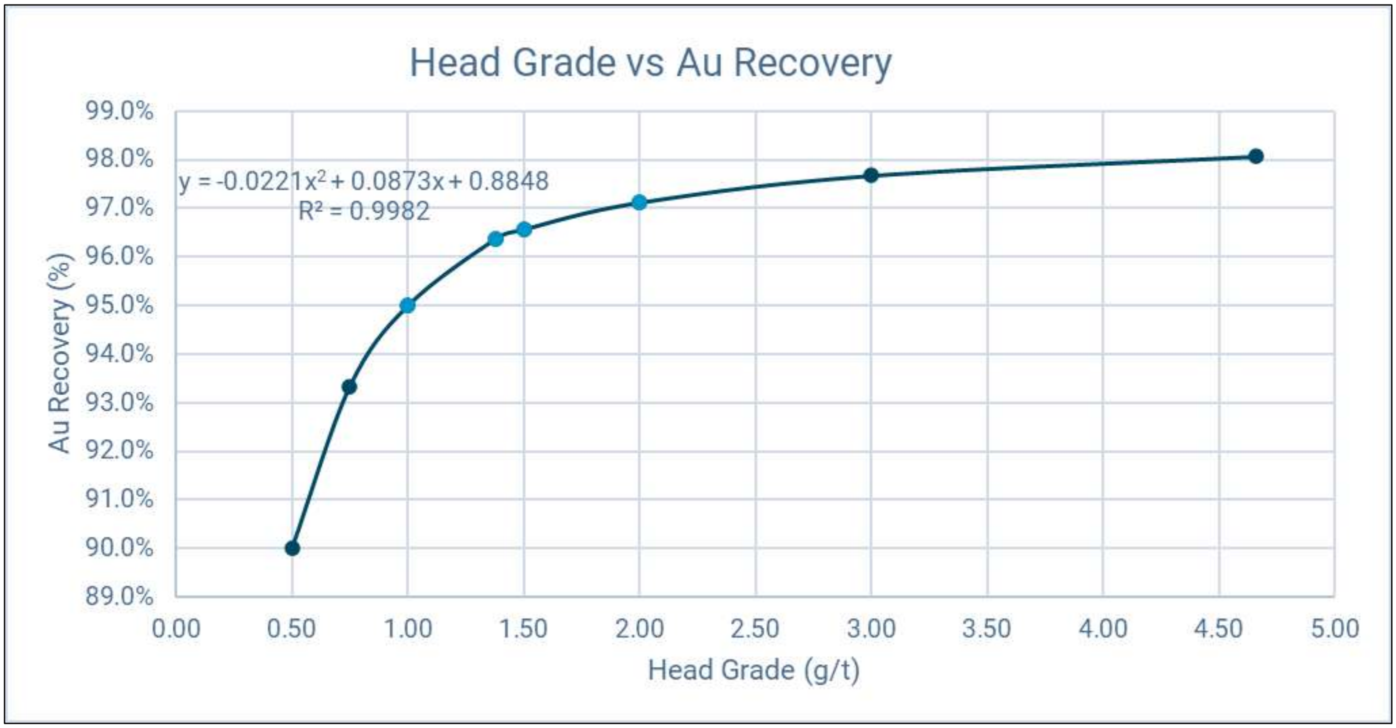
Source: Ausenco 2023.

13.7 Recovery Estimates

The proposed flowsheet selected from the testwork includes standard gravity concentration and cyanidation to produce doré. There is no evidence from the metallurgical test results of any deleterious elements that would impair recovery or result in low quality doré. The expected recovery versus grade regression based on gravity and cyanidation testwork on the master composite and high-grade samples is shown on Figure 13-5. The minimum grade of the tailings was assumed at 0.05 g/t Au.

The recovery function (Figure 13-5) predicts overall recovery to solution and should be decreased by an additional 0.4% to account for solution losses to tailings and gold lost to carbon fines.

Figure 13-5: Grade vs. Recovery Regression



Source: Ausenco 2023.

14 MINERAL RESOURCE ESTIMATES

14.1 Introduction

The 2023 Colomac Gold Project mineral resource estimate (2023 MRE) was prepared by Marina Iund, P.Geo., Carl Pelletier, P.Geo. and Simon Boudreau, P.Eng., using all available information.

The mineral resources are not mineral reserves, as they do not have demonstrated economic viability. The result of this study is individual mineral resource estimates for eight deposits: Cass, Colomac Main, Damoti, Goldcrest, Grizzly Bear, Kim, Treasure Island, and 24/27.

The effective date of the 2023 MRE is February 9, 2023.

14.2 Methodology

The model was prepared using LeapFrog 2022.1 (LeapFrog), Leapfrog Edge 2022.1 (Edge), GEOVIA Surpac 2021 (Surpac) and GEOVIA GEMS v.6.8.2 (GEMS). LeapFrog was used to model the lithologies, mineralized zones and faults wireframes. The estimation, which consisted of 3D block modelling and grade interpolation, was performed with Edge, except for Goldcrest, which was estimated with Surpac and Damoti, which was estimated with GEMS. Statistical studies, capping, and variography were completed using Snowden Supervisor v.8.13 (Supervisor) and Microsoft Excel.

The main steps in the methodology were as follows:

- compile and validate the database for the diamond drill holes used in the mineral resource estimate
- 3D modelling of mineralized zones, lithologies and faults
- drill hole intercepts and composite generation for each mineralized zone
- basic statistics
- geostatistical analysis, including variography
- block modelling and grade interpolation
- block model validation
- establish resource classification criteria and clipping areas to classify the mineral resources
- assess the “reasonable prospect for eventual economic extraction” and select the appropriate cut-off grades.
- generate a mineral resource statement.

14.3 Drill Hole Database

The database close-out date is November 7, 2022.

One diamond drill hole database covers the property. A subset of drill holes was used to generate the 2023 MRE database for each deposit. Table 14-1 presents the breakdown of the drillholes used for the MRE 2023 by deposit.

The database includes assay results and lithological, alteration and structural descriptions taken from drill core logs. Oriented core data have been available since 2016 for some holes. In addition to the tables of raw data, each database includes several tables of calculated drill hole composites and wireframe solid intersections, which are required for the statistical evaluation and resource block modelling.

Table 14-1: Details of the DDH used for the MRE 2023

Deposit	Number of historical DDH	Historical DDH Total Length (m)	Number of 2012 to 2021 DDH	2012 to 2021 DDH Total Length (m)	Number of 2022 DDH	2022 DDH Total Length (m)
Cass	79	12,542	34	8,459	34	8,078
Colomac Main	646	65,544	331	124,965	45	11,149
Damoti	256	30,157	10	3,276	-	-
Goldcrest	72	7,387	57	14,618	-	-
Grizzly Bear	39	4,190	39	7,087	34	6,655
Kim	135	18,080	11	3156	24	5,341
Treasure Island	44	6,354	50	15,557	-	-
24/27	25	3,183	11	3090	31	6,548

14.4 Geological Model

For the MRE 2023, the authors updated five geological models (Colomac Main, Grizzly Bear, Kim, Cass and 24/27 deposits) from the previous mineral resource estimate (2022 MRE; Iund et al., 2022). The Damoti, Goldcrest and Treasure Island models were not changed from the 2022 MRE.

Drill hole data (including oriented core) was used to update the geological models. All geological solids were modelled in Leapfrog and were snapped to drill holes.

Two surfaces were created for each deposit to define the topography and the overburden/bedrock contact. The topography was created using DTM data from 2014 (10 m resolution) for the Damoti, Kim, Cass and Treasure Island deposits and LiDAR data from 2017 (5 m resolution) for the Colomac Main, Grizzly Bear, Goldcrest and 24/27 deposits. For Colomac Main, the LiDAR data from 2017 were merged with a drone survey (DTM) from 2019 for the pit area. The overburden-bedrock contact was modelled using logged overburden intervals.

14.5 Interpretation of Mineralized Zones

Mineralized zones were interpreted directly in 3D in Leapfrog on a hole-by-hole basis.

14.5.1 Cass Deposit

The mineralized zone model comprises six zones. Cass mineralization is hosted by a northeast-trending gabbro sill. The proposed model involves tension veins in a dextral asymmetrical shear zone developed mostly along the east contact of the gabbro sill (Gaboury, 2021).

The zone solids were designed without a minimum thickness. The cut-off grade was 0.25 g/t Au. The solids for the veins extend to a radius of up to 100 m from the last selected intercept or are fixed at the mid-distance of an intercept that does not meet the minimum grade criterion.

A cross-cutting post-mineralization diabase was also modelled.

14.5.2 Colomac Main Deposit

The mineralized zone model comprises one zone and one low-grade envelope subdivided into six areas (1.0, 1.5, 2.0, 2.5, 3.0 and 3.5) for estimation purposes. The area subdivision is based on historical nomenclature.

The main host for the Colomac Main mineralization is the brittle deformed quartz-diorite part of the Colomac sill that contains fracture stockworks and auriferous quartz-vein zones, which are highly altered and carbonatized.

The quartz-diorite lithology 3D solid was used as a low-grade envelope, and another solid was defined inside the quartz diorite envelope to recover higher grade intervals in accordance with geological data. This high-grade zone solid was designed with a minimum thickness of 3 m and based on a cut-off grade of 0.5 g/t Au. The solid extends to a radius of up to 100 m from the last selected intercept or is fixed at the mid-distance of an intercept that does not meet the minimum grade criterion.

The current study incorporates a geological model refined by additional structural data from oriented core, a drone survey and surface mapping since 2016. Measurements indicate that the mineralized vein sets of the Colomac Main deposit consist of a simple to complex network of gold-bearing, extensional veins and hydrothermal breccias with local laminated quartz-carbonate fault-fill veins in moderately to steeply dipping, compressional brittle-ductile shear zones and faults. The complex stockwork of flat-lying to steeply dipping gold-bearing structures appear to be hosted and controlled by the quartz diorite upper part of the subvertical sill. Structural modelling suggests that steeply dipping mineralized shoots within the quartz diorite are related to complex stacked gold-bearing veins.

The review and analysis of surface mapping and structural drill hole data also led to the identification of three faults that cut across and offset the mineralized zones. The faults were modelled in Leapfrog as 3D surfaces. A barren post-mineralization dyke displacing the quartz-diorite was also identified and modelled in Leapfrog as a 3D solid.

14.5.3 Damoti Deposit

The mineralized zone model comprises thirty-eight (38) zones and four low-grade envelopes. It has not changed as of the effective date of this Technical Report from the previous MRE.

The main control on the Damoti deposit is the strongly folded BIF. The best gold values are associated with fracture-controlled sulphides within dilation and pressure-shadow areas within the isoclinally folded and faulted BIF. Mineralized zones were interpreted as low-dipping, isolated and subparallel lenses that cut across the primary layering in the iron formations. Zone extensions are constrained inside the BIF. The BIF lithological solids are used as low-grade envelopes.

The zone solids were designed with a minimum thickness of 2 m. The cut-off grade was 1.0 g/t Au. The solids for the veins extend to a radius of up to 50 m from the last selected intercept or stop at the BIF solid limits if encountered before 50 m is reached. If an intercept does not meet the minimum grade criterion, the limits are fixed at mid-distance.

14.5.4 Goldcrest Deposit

The mineralized zone model comprises three zones: GC3 (Goldcrest main zone), GC1 and GC2 (together, Goldcrest North). It has not changed as of the effective date of this technical report from the 2022 MRE. The shape of the Goldcrest zones is mainly controlled by the brittle deformed host quartz diorite sill.

The zones solids were designed with a minimum thickness of 3 m and based on a cut-off grade of 0.5 g/t Au. The solids extend to a radius of up to 100 m from the last selected intercept or are fixed at the mid-distance of an intercept that does not meet the minimum grade criterion.

14.5.5 Grizzly Bear Deposit

The mineralized zone model comprises four zones. The zones are located on a mafic volcanic lithological unit in contact with felsic volcanic units and are subparallel to the strata (NWT Geoscience Office, 2012c). This unit served as a guide for the 3D solids design.

The zones solids were designed with a minimum thickness of 3 m and based on a cut-off grade of 0.5 g/t Au. The solids extend to a radius of up to 100 m from the last selected intercept or are fixed at the mid-distance of an intercept that does not meet the minimum grade criterion.

14.5.6 Kim Deposit

The mineralized zone model comprises one zone corresponding to several generations of extensional quartz veins (the veins vary in direction and dip) and metric corridors of disseminated mineralization in a sequence of northerly striking, steeply dipping, mafic to intermediate volcanic rocks (Gaboury, 2021). The mineralized elements were interpreted as one main envelope for this study.

The zone solid was designed without a minimum thickness and based on a cut-off grade of 0.25 g/t Au. The solids for the veins extend to a radius of up to 100 m from the last selected intercept or are fixed at the mid-distance of an intercept that does not meet the minimum grade criterion.

One main fault crosscutting the mineralized zone was also modelled. Not enough data were available to confirm the displacement of the fault; The authors' interpretation opted for a minor displacement.

14.5.7 Treasure Island Deposit

The mineralized zone model comprises 43 zones and one low-grade envelope. It has not changed as of the effective date of this technical report from the 2022 MRE.

The mineralization occurs as quartz-sulphide veins and disseminated or stringer-style sulphides in numerous east- to northeast-striking corridors, predominantly in felsic to intermediate and sedimentary rocks and, to a lesser extent, in mafic volcanic rocks. Most zones are parallel to stratigraphy.

The zones solids were designed without a minimum thickness and based on a cut-off grade of 1 g/t Au. The solids for the veins extend to a radius of up to 100 m from the last selected intercept or are fixed at the mid-distance of an intercept that does not meet the minimum grade criterion.

14.5.8 24/27 Deposits

The mineralized zone model comprises twelve zones: four for the 24 deposit and eight for the 27 deposit.

The combined 24/27 deposit is characterized by intense quartz flooding occurring as parallel "veins".

Recent investigation of the gold mineralization at Zone 24 revealed that the gold mineralization is centered on a horizon of strongly sheared felsic volcaniclastic rocks between more competent sedimentary and mafic volcanic rocks (Gaboury, 2021). The rocks display steeply dipping to subvertical dominant foliation with steeply plunging stretching lineation, which becomes very intense in the volcaniclastic package. Syn-tectonic, shallowly dipping extensional quartz-carbonate veining developed in the competent lithological units that became isoclinally folded and boudinaged within the intensely deformed volcaniclastic horizon (Gaboury, 2021).

The zones solids were designed without a minimum thickness and based on a cut-off grade of 0.25 g/t Au. The solids for the veins extend to a radius of up to 100 m from the last selected intercept or are fixed at the mid-distance of an intercept that does not meet the minimum grade criterion.

14.6 High-Grade Capping

Basic univariate statistics were performed on the raw assay datasets for each mineralized zone. The following criteria were used to decide if capping was warranted:

- The coefficient of variation of the assay population is above 3.0.
- The quantity of metal contained in the top 10% highest grade samples is above 40%, and/or the quantity of metal in the top 1% highest grade samples is higher than 20%.
- The probability plot of grade distribution shows abnormal breaks or scattered points outside the main distribution curve.
- The log-normal distribution of grades shows erratic grade bins or distanced values from the main population.

The capping threshold decided for all zones is consistent with the combination of three criteria:

- break in the probability plot
- coefficient of variation below 3.0 after capping
- total metal in the top 1% highest grade samples is below 20% after capping.

14.6.1 Cass Deposit

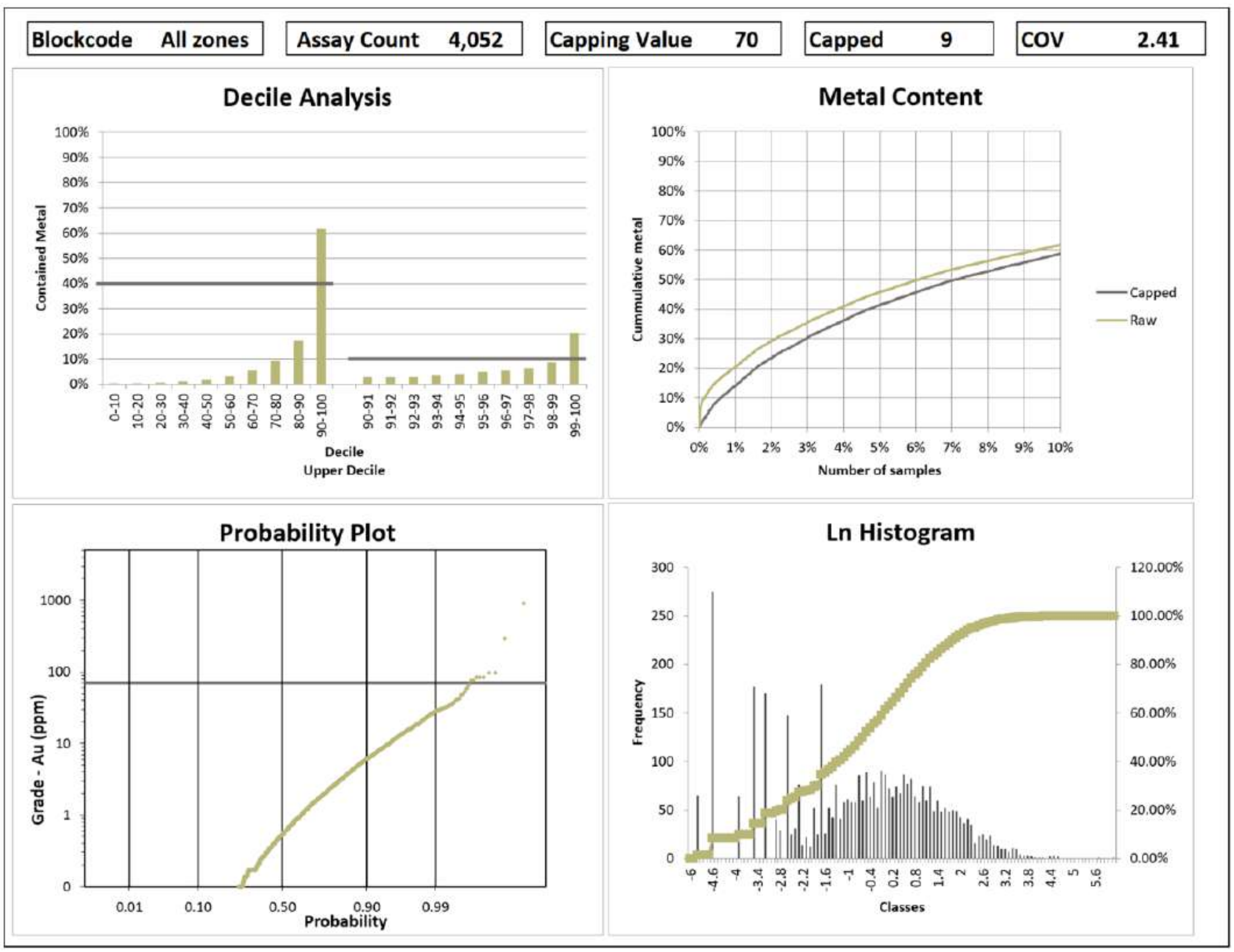
Four of the 2,882 raw assays from the mineralized zones were capped. Table 14-2 presents a summary of the statistical analysis for the dataset.

The capping on raw assays consisted of a single top cap of 70 g/t Au. Figure 14-1 shows graphs supporting the capping threshold decisions.

Table 14-2: Summary Statistics for Raw Assays, Cass Deposit

Zone	No. of Sample	Max (Au g/t)	Uncut Mean (Au g/t)	Uncut COV	Capping (Au g/t)	No. Capped	Cut Mean (Au g/t)	Cut COV	Cut Metal Factor (%)
All	4052	916	2.68	6.04	70	9	2.39	2.41	7.4

Figure 14-1: Graphs Supporting a Capping Value of 70 g/t Au for the Cass Deposit



Source: InnovExplo, 2023

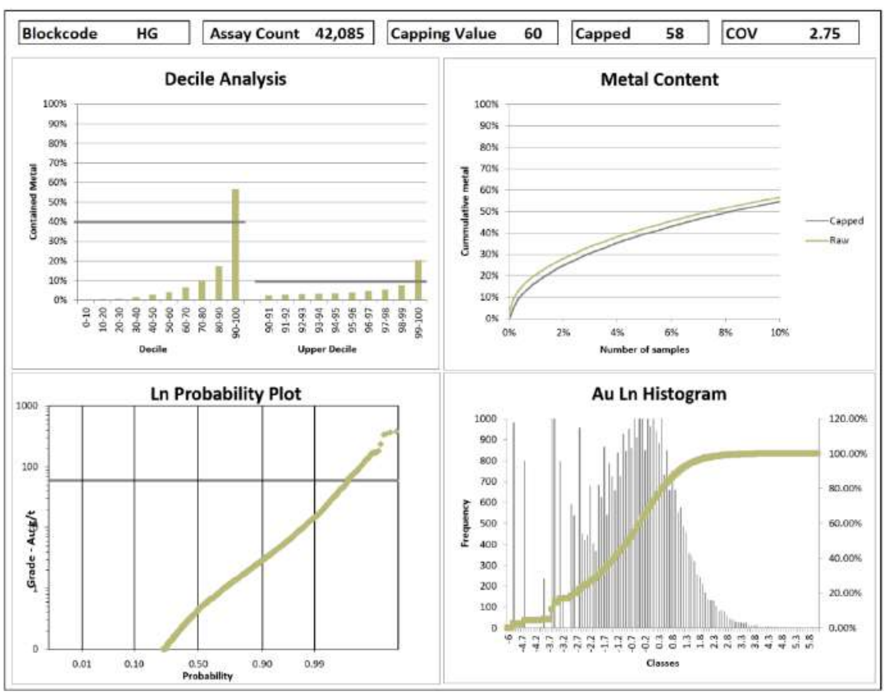
14.6.2 Colomac Main Deposit

Eighty of the 61,088 raw assays from the mineralized zones were capped. Table 14-3 presents a summary of the statistical analysis for each dataset. The capping on raw assays consisted of a single top cap of 60 g/t Au for zones 1.5, 2.0, 2.5, 3.0 and 3.5 and 15 g/t Au for the low-grade zone 1.0 and the low-grade envelope. Figure 14-2 shows graphs supporting the capping threshold decisions for zones 1.5, 2.0, 2.5, 3.0 and 3.5, Figure 14-3 for zone 1.0, and Figure 14-4 for the low-grade envelope.

Table 14-3: Summary statistics for raw assays by zone, Colomac Main deposit

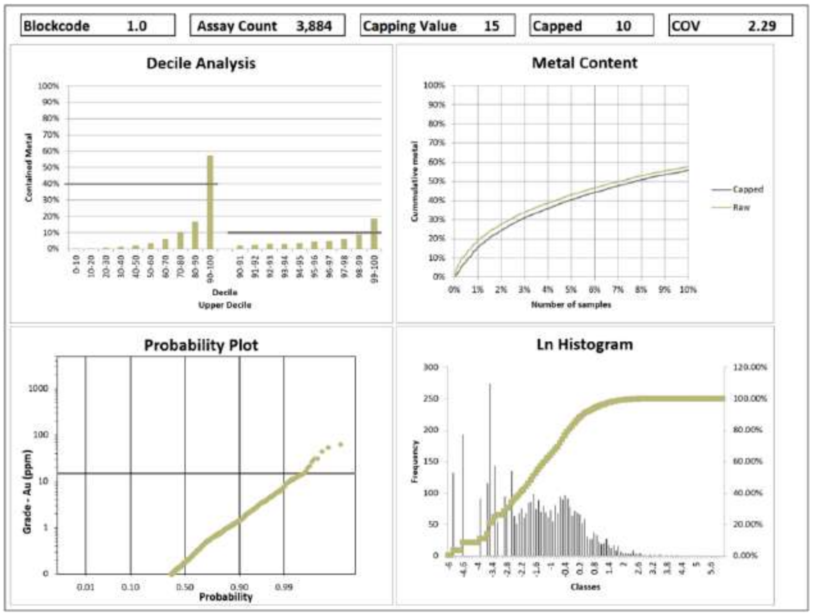
Zone	No. of Sample	Max (Au g/t)	Uncut Mean (Au g/t)	Uncut COV	Capping (Au g/t)	No. Capped	Cut Mean (Au g/t)	Cut COV	Cut Metal Factor (%)
3.5	4,997	172	1.41	3.22	60	5	1.38	2.66	1.9
3.0	3,588	174	1.33	4.11	60	6	1.24	2.78	5.3
2.5	3,299	169.5	1.44	3.59	60	5	1.44	2.62	5.1
2.0	16,036	382.4	1.59	3.59	60	16	1.53	2.3	2.64
1.5	10,281	418	1.51	5.95	60	25	1.32	3.39	10.4
1.0	3,884	63.2	0.69	3.2	15	10	0.64	2.29	4.2
Low-Grade Envelope	19,003	95.4	0.19	5.95	15	13	0.17	3.58	6.3

Figure 14-2: Graphs Supporting a Capping Value of 60 g/t Au for Zones 1.5, 2.0, 2.5, 3.0 and 3.5, Colomac Main Deposit



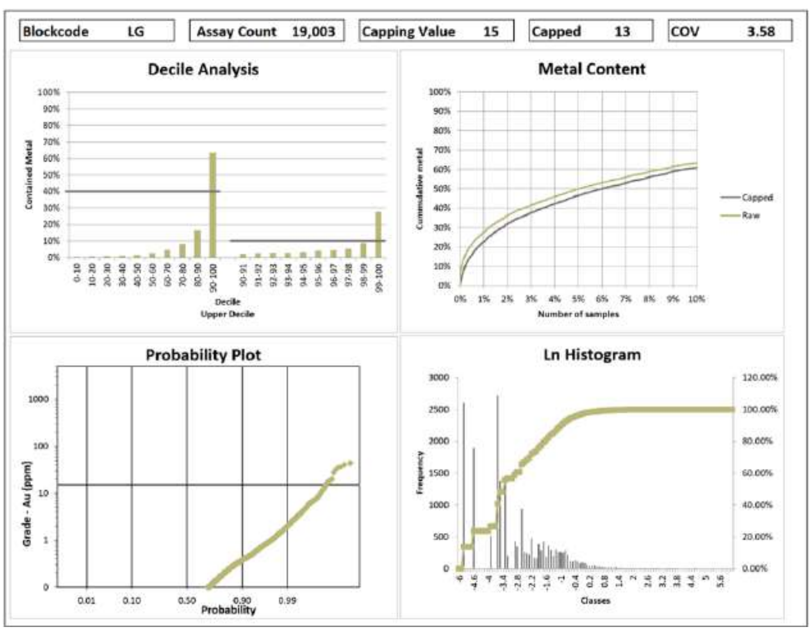
Source: InnovExplo, 2023.

Figure 14-3: Graphs Supporting a Capping Value of 15 g/t Au for Zone 1.0, Colomac Main Deposit



Source: InnovExplo, 2023.

Figure 14-4: Graphs Supporting a Capping Value of 15 g/t Au for the Low-Grade Envelope, Colomac Main Deposit



Source: InnovExplo, 2023.

14.6.3 Damoti Deposit

Sixty-one of the 14,633 raw assays from the mineralized zones were capped. Table 14-4 presents a summary of the statistical analysis for each dataset.

The capping on raw assays consisted of a top cap of 100 g/t Au for all high-grade zones, except for zones 2000 to 2200 that were capped at 45 g/t Au, and zone 4300 that was capped at 40 g/t Au. The capping value for the low-grade envelopes is 20 g/t Au.

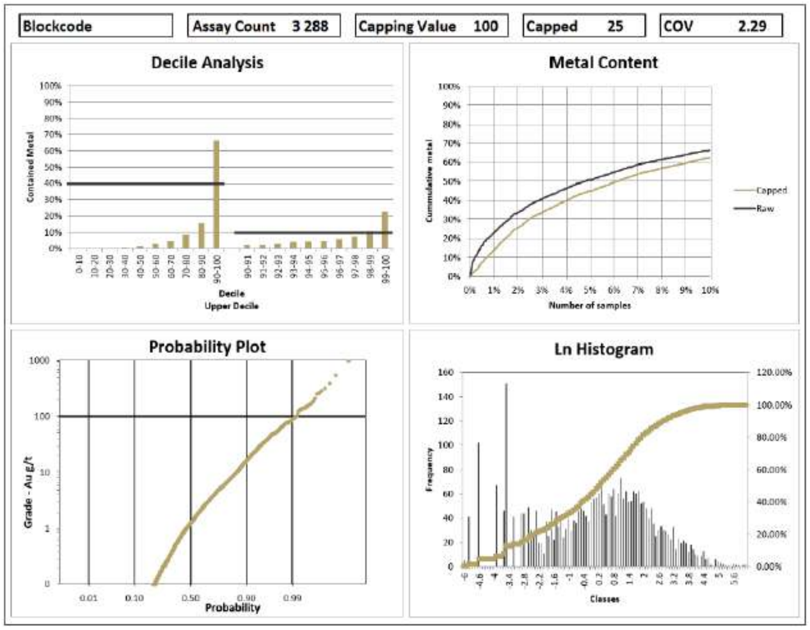
Zones 2000 to 2200 and Zone 4300 have a more restrictive capping limit to control their higher COV.

Figure 14-5 shows graphs supporting the capping threshold decisions for all high-grade zones excepted zones 2000 to 2200 and 4300. Figure 14-6 shows graphs supporting the capping threshold decisions for zones 2000 to 2200. Figure 14-7 shows graphs supporting the capping threshold decisions for Zone 4300, and Figure 14-8 shows graphs supporting the capping threshold decisions for the low-grade envelopes.

Table 14-4: Summary Statistics for Raw Assays, Damoti Deposit

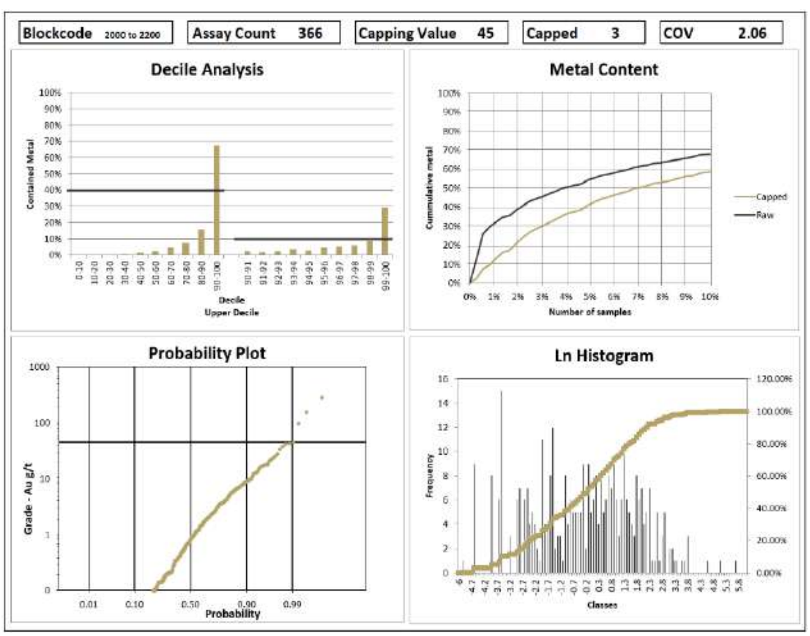
Zone	No. of Samples	Max (Au g/t)	Uncut Mean (Au g/t)	Uncut COV	Capping (Au g/t)	No. Capped	Cut Mean (Au g/t)	Cut COV	Cut Metal Factor (%)
High-grade zones	3,288	963.10	7.36	3.75	100	25	6.40	2.29	10.64
2000 to 2200	366	282.49	4.62	3.96	45	3	3.54	2.06	22.09
4300	94	142	4.27	3.64	40	2	3.16	2.19	22.45
low-Grade Envelopes	10,885	132.5	0.42	8.42	20	31	0.33	4.52	24.42

Figure 14-5: Graphs Supporting a Capping Value of 100 g/t Au for High-Grade Zones (except 2000 to 2200 and 4300), Damoti Deposit



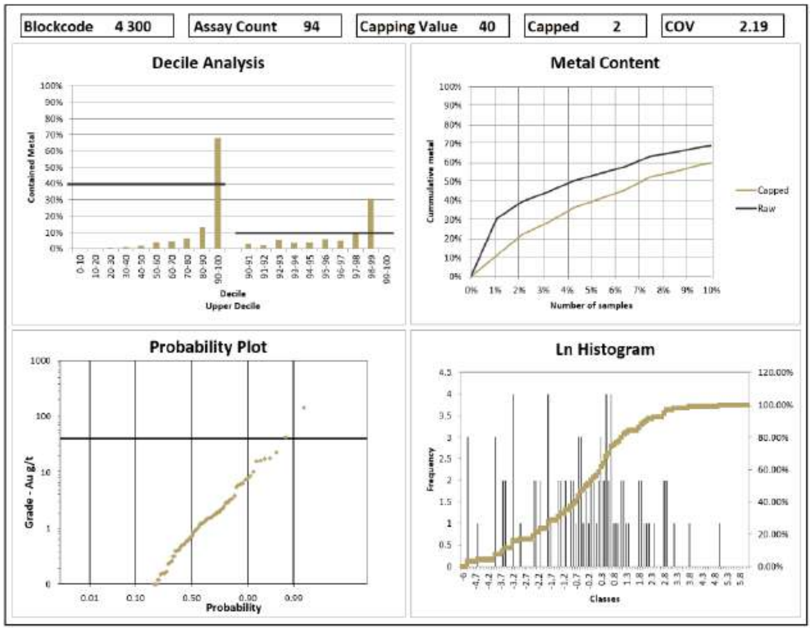
Source: InnovExplo, 2023.

Figure 14-6: Graphs Supporting a Capping Value of 45 g/t Au for High-Grade Zones 2000 to 2200, Damoti Deposit



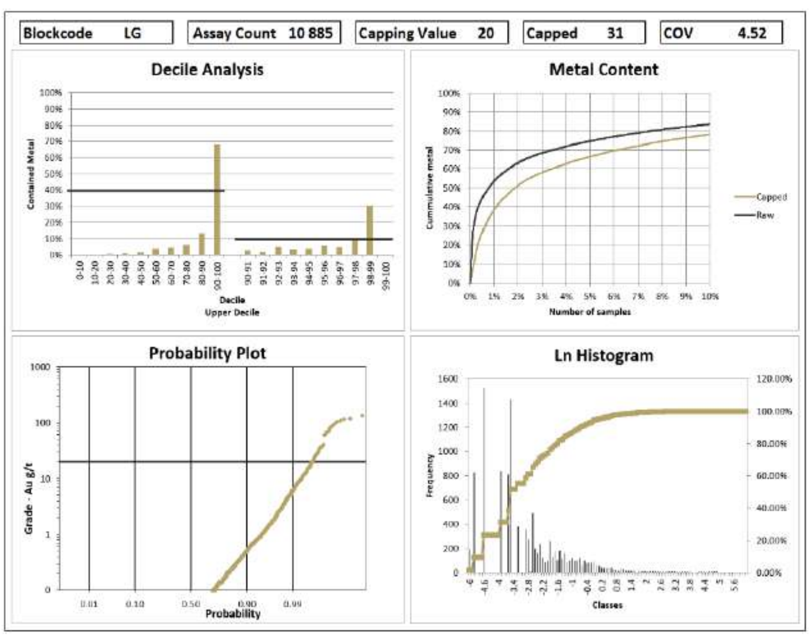
Source: InnovExplo, 2023.

Figure 14-7: Graphs Supporting a Capping Value of 40 g/t Au for High-Grade Zones 4300, Damoti Deposit



Source: InnovExplo, 2023.

Figure 14-8: Graphs Supporting a Capping Value of 20 g/t Au for the Low-Grade Envelopes, Damoti Deposit



Source: InnovExplo, 2023.

14.6.4 Goldcrest Deposit

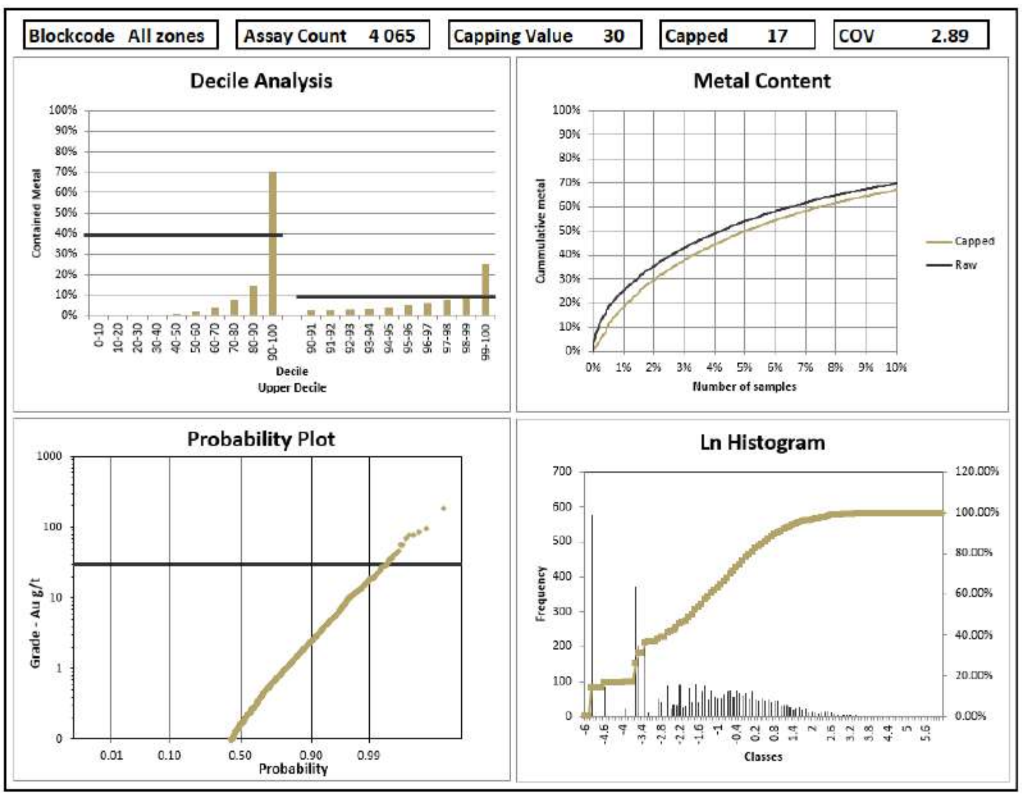
Seventeen of the 4,095 raw assays from the mineralized zones were capped. Table 14-5 presents a summary of the statistical analysis for each dataset.

The capping on raw assays consisted of a single top cap of 30 g/t Au for zones GC1, GC2 and GC3. Figure 14-9 shows graphs supporting the capping threshold decisions.

Table 14-5: Summary Statistics for Raw Assays by Zone, Goldcrest Deposit

Zone	No. of samples	Max (Au g/t)	Uncut Mean (Au g/t)	Uncut COV	Capping (Au g/t)	No. of Capped	Cut Mean (Au g/t)	Cut COV	Cut Metal Factor (%)
GC1	315	36.58	1.04	2.50	30.00	1	1.02	2.29	1.67
GC2	562	36.44	1.03	2.30	30.00	1	1.01	2.16	0.74
GC3	3218	184.50	1.28	4.50	30.00	15	1.12	3.03	10.25

Figure 14-9: Graphs Supporting a Capping Value of 30 g/t Au for the Goldcrest Deposit



Source: InnovExplo, 2023.

14.6.5 Grizzly Bear Deposit

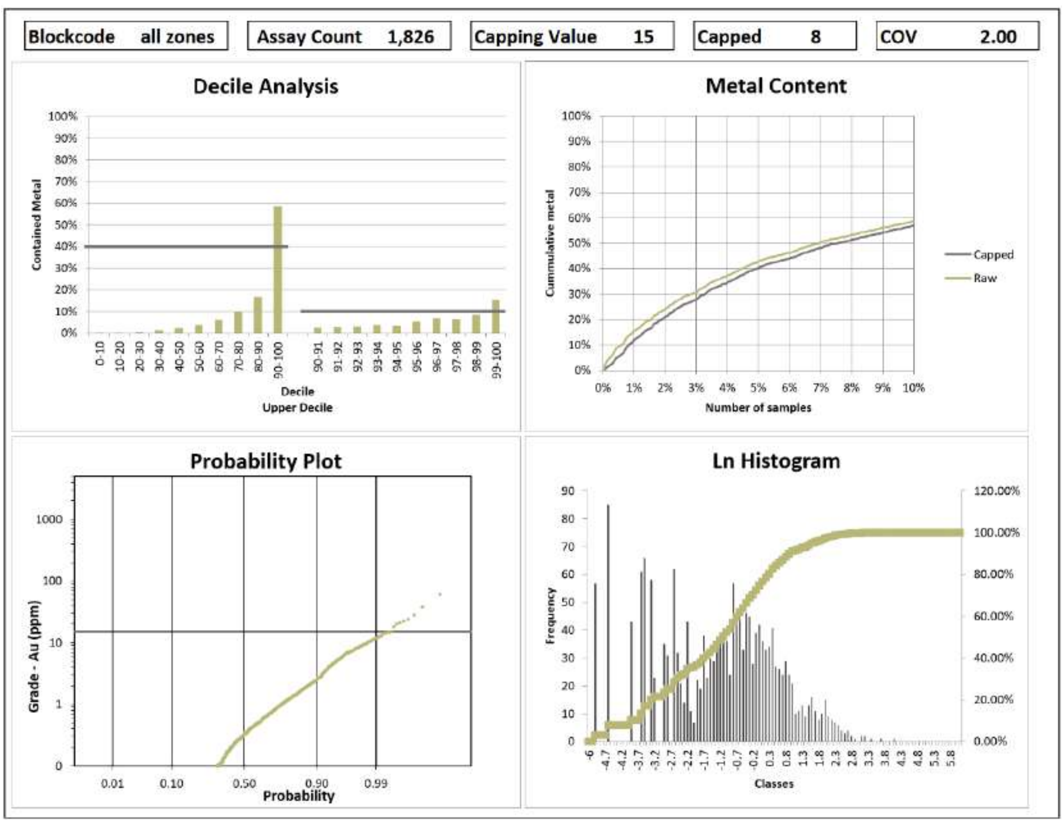
Eight of the 1,826 raw assays from the mineralized zones were capped. Table 14-6 presents a summary of the statistical analysis for the dataset.

The capping on raw assays consisted of a single top cap of 15 g/t Au. Figure 14-10 shows graphs supporting the capping threshold decisions.

Table 14-6: Summary Statistics for Raw Assays, Grizzly Bear Deposit

Zone	No. of samples	Max (Au g/t)	Uncut Mean (Au g/t)	Uncut COV	Capping (Au g/t)	No. Capped	Cut Mean (Au g/t)	Cut COV	Cut Metal Factor (%)
GB All zones	1,826	60.30	1.13	2.48	15	8	1.07	2.0	4.0

Figure 14-10: Graphs Supporting a Capping Value of 15 g/t Au for the Grizzly Bear Deposit



Source: InnovExplo, 2023.

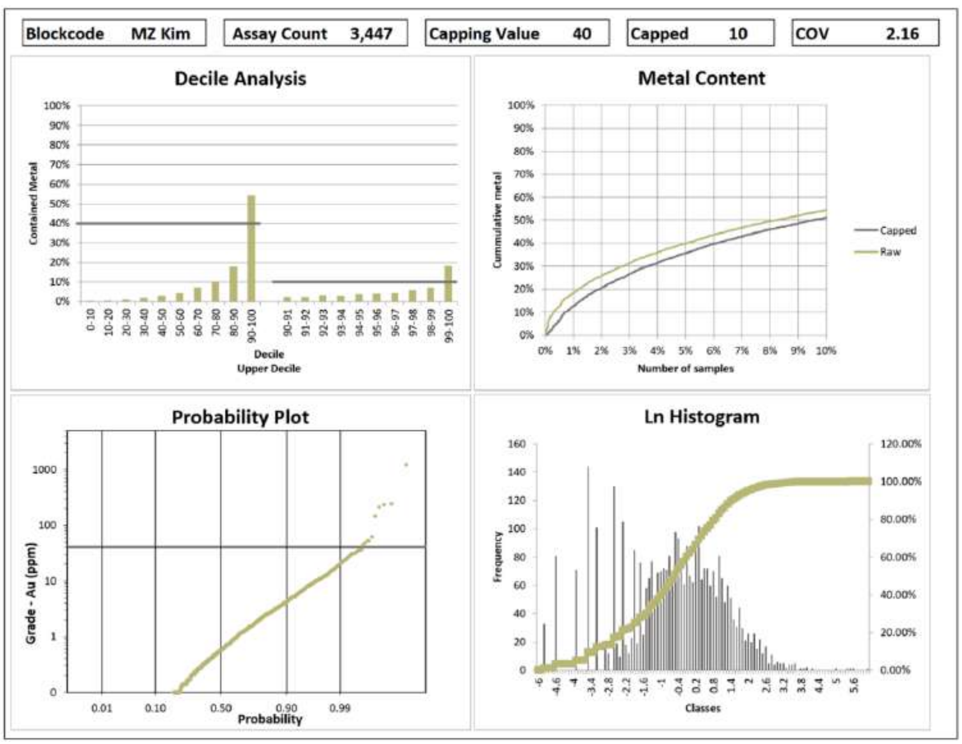
14.6.6 Kim Deposit

Ten of the 3,447 raw assays from the mineralized zones were capped. Table 14-7 presents a summary of the statistical analysis for the dataset. The capping on raw assays consisted of a single top cap of 40 g/t Au. Figure 14-11 shows graphs supporting the capping threshold decisions.

Table 14-7: Summary Statistics for Raw Assays, Kim Deposit

Zone	No. of Samples	Max (Au g/t)	Uncut Mean (Au g/t)	Uncut COV	Capping (Au g/t)	No. Capped	Cut Mean (Au g/t)	Cut COV	Cut Metal Factor (%)
Kim	3,447	1,255.20	2.39	9.58	40	10	1.82	2.16	6.57

Figure 14-11: Graphs Supporting a Capping Value of 40 g/t Au for the Kim Deposit



Source: InnovExplo, 2023.

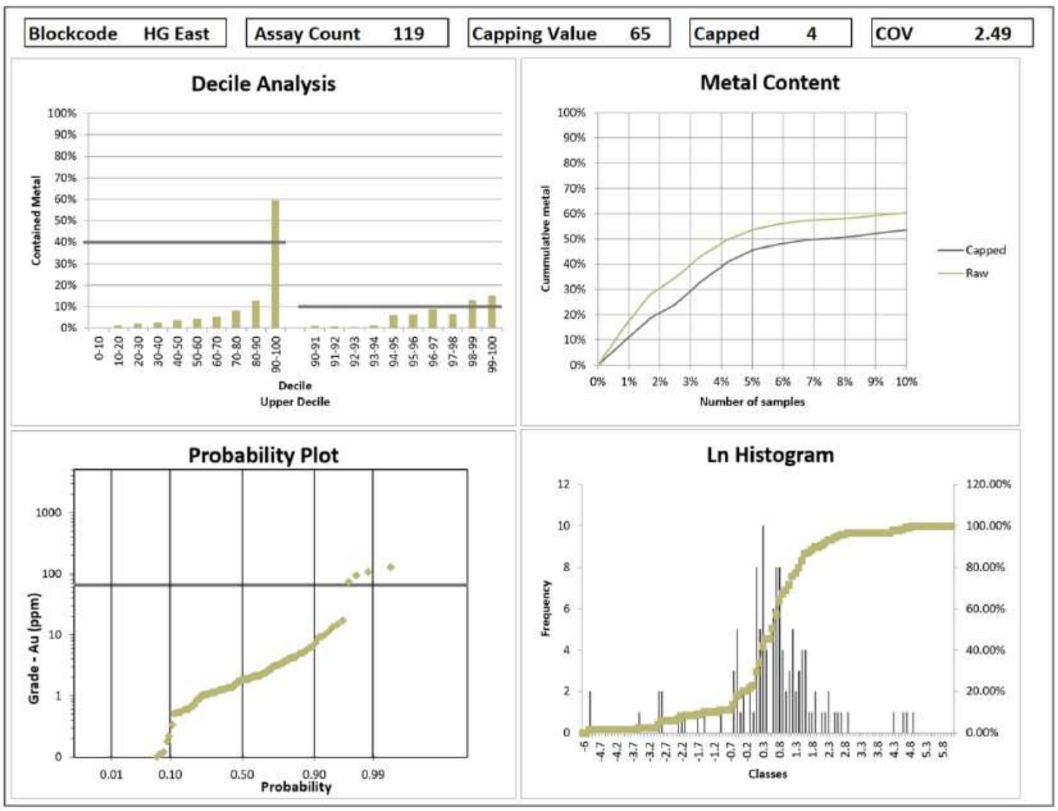
14.6.7 Treasure Island Deposit

A total of 22 of the 1,384 raw assays from the mineralized zones were capped. Table 14-8 presents a summary of the statistical analysis for each dataset. Figure 14-12 and Figure 14-13 show graphs supporting the capping threshold decisions.

Table 14-8: Summary Statistics for Raw Assays, Treasure Island Deposit

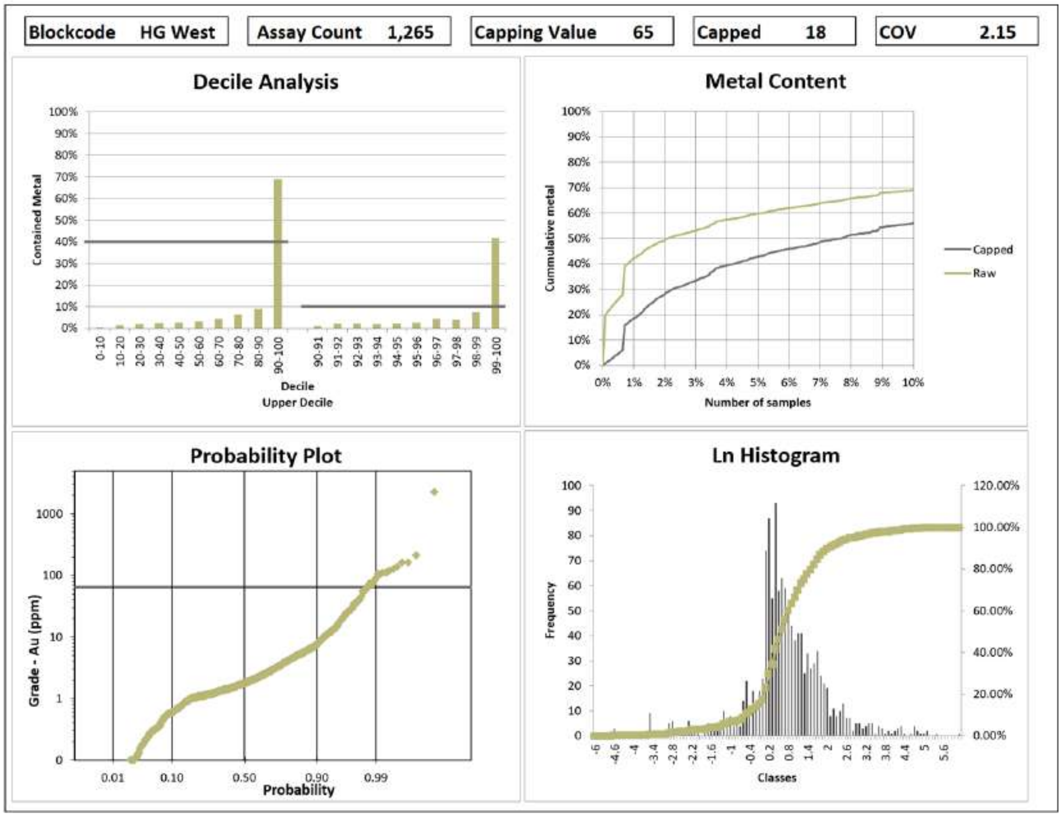
Zone	No. of Samples	Max (Au g/t)	Uncut Mean (Au g/t)	Uncut COV	Capping (Au g/t)	No. Capped	Cut Mean (Au g/t)	Cut COV	Cut Metal Factor (%)
HG_West	1,265	2,260.00	6.87	9.47	65	18	4.49	2.15	29.60
HG_East	119	124.50	5.79	3.09	65	4	4.66	2.49	15.03

Figure 14-12: Graphs Supporting a Capping Value of 65 g/t Au for the High-Grade East Zones, Treasure Island Deposit



Source: InnovExplo, 2023.

Figure 14-13: Graphs Supporting a Capping Value of 65 g/t Au for the High-Grade West Zones, Treasure Island Deposit



Source: InnovExplo, 2023.

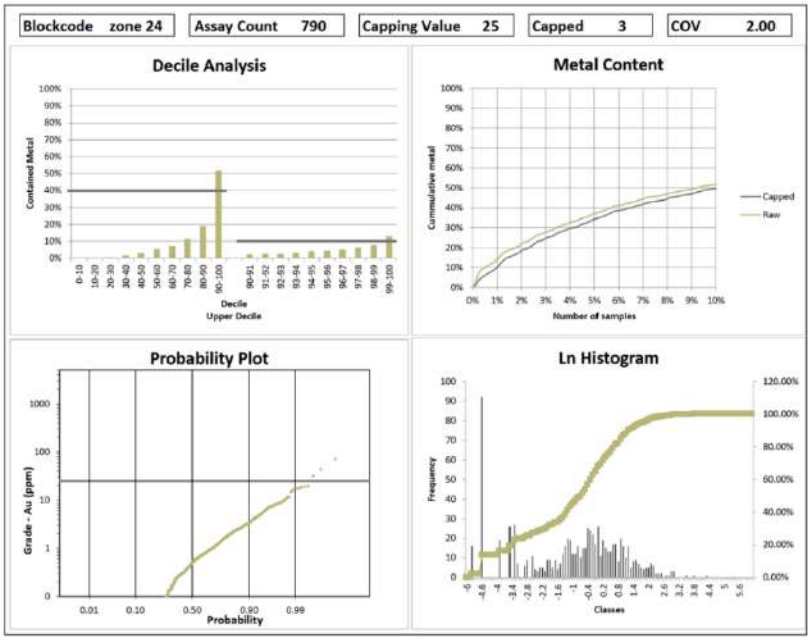
14.6.8 24/27 Deposits

Seven of the 1,418 raw assays from the mineralized zones were capped. The capping on raw assays consisted of a single top cap of 25 g/t Au. Table 14-9 presents a summary of the statistical analysis for each dataset. Figure 14-14 and Figure 14-15 show graphs supporting the capping threshold decisions.

Table 14-9: Summary Statistics for Raw Assays, 24/27 Deposits

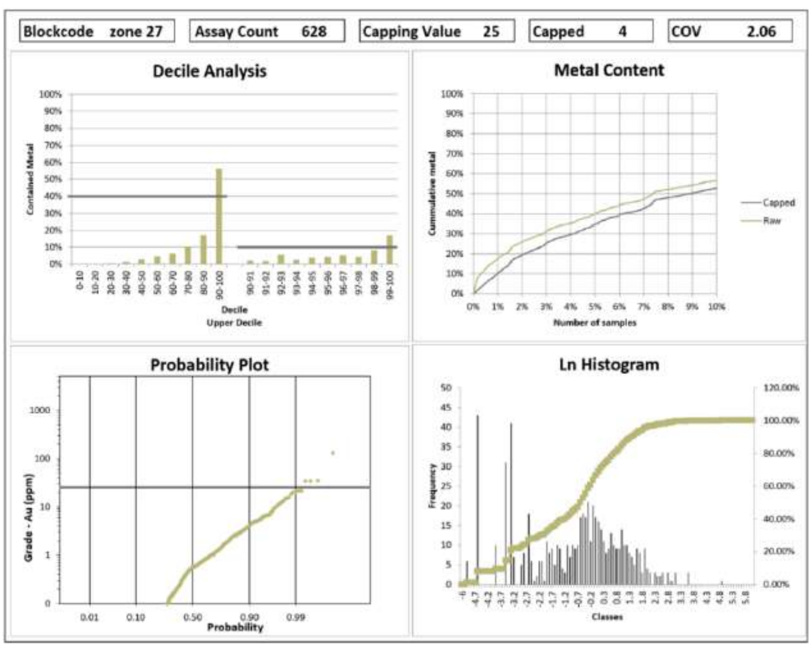
Zone	No. of Samples	Max (Au g/t)	Uncut Mean (Au g/t)	Uncut COV	Capping (Au g/t)	No. Capped	Cut Mean (Au g/t)	Cut COV	Cut Metal Factor (%)
24	790	70.8	1.5	2.6	25	3	1.41	2.0	4.29
27	628	131	1.84	3.42	25	4	1.62	2.06	8.12

Figure 14-14: Graphs Supporting a Capping Value of 25 g/t Au for the 24 Deposit



Source: InnovExplo, 2023.

Figure 14-15: Graphs Supporting a Capping Value of 25 g/t Au for the 27 Deposit



Source: InnovExplo, 2023.

14.7 Compositing

To minimize any bias introduced by variable sample lengths, the gold assays of the DDH data were composited to equal lengths within each of the mineralized veins.

Codes were automatically attributed to DDH assay intervals intersecting the mineralized veins. Codes use the name of the corresponding 3D solid. The coded intercepts were used to analyze sample lengths and generate statistics for raw assays and composites. Table 14-10 summarizes the statistical analysis of the original (raw) assays for each deposit.

Table 14-10: Summary Statistics for the DDH Raw Assays

Deposit	Number of Samples	Max Au Cut (g/t)	Mean Au Cut (g/t)	Standard Deviation	COV	Mean Sample Length (m)
Cass	4,128	916	1.8	11.1	6.3	0.9
Colomac Main	61,008	418.0	1.0	5.3	5.1	1.0
Damoti	14,471	100	1.8	7.7	4.3	0.9
Goldcrest	4,175	30	1.1	3.2	2.8	1.0
Grizzly Bear	1,853	60.3	1.1	2.8	2.5	0.9
Kim	3,488	1255.2	1.5	6.6	4.5	0.9
Treasure Island	1,384	65	4.5	9.8	2.2	0.7
24/27	1,479	131	1.6	5.0	3.1	1.0

Zone thickness, proposed block size, and original sample length were taken into consideration to calculate the composite length for each deposit. The composite length was set to 1.5 m for the Colomac Main, 24/27, Goldcrest and Grizzly Bear deposits and 1.0 m for the Cass, Damoti, Kim and Treasure Island deposits.

A grade of 0.00 g/t Au was assigned to missing sample intervals. Table 14-11 presents the summary statistics for the composites per deposit.

Table 14-11: Summary Statistics for Composites by Deposit

Deposit	Number of Composites	Max Au Cut (g/t)	Mean Au Cut (g/t)	Standard Deviation	COV	Composite Length (m)
Cass	4,235	70	1.8	3.9	2.2	1.0
Colomac Main	41,838	60	0.8	2.0	2.3	1.5
Damoti	18,442	100	1.1	5.3	5.0	1.0
Goldcrest	2,710	28.5	1.0	2.2	2.3	1.5
Grizzly Bear	1,227	10.8	0.9	1.5	1.7	1.5
Kim	3,486	40	1.4	2.7	1.9	1.0
Treasure Island	978	65	4.5	8.7	2.0	1.0
24/27	1,104	21.1	1.1	1.9	1.8	1.5

14.8 Density

Bulk densities are used to calculate tonnage from the estimated volumes in the resource-grade block model.

In 2012, the issuer submitted 15 samples for specific bulk gravity (SG) analysis to the SGS laboratory in Garson, Ontario. Density samples were selected from mineralized intervals collected on the Colomac sill. Thirteen quartz diorite samples returned a mean SG of 2.70 g/cm^3 and two quartz gabbro samples returned values of 2.71 g/cm^3 and 2.50 g/cm^3.

From 2016 and 2019, Starkey & Associates Inc. was contracted to conduct metallurgical tests on 12 samples of mineralized quartz diorite (11 from the Colomac sill, one from the Goldcrest sill). Samples returned a mean SG of 2.7 g/cm^3 for the Colomac sill, and one 1) sample returned 2.61 g/cm^3 for the Goldcrest sill.

An average bulk density of 2.7 g/cm^3 was selected for the Colomac Main and Goldcrest deposits based on the SG results and the geological similarity between the zones and deposits.

For the Damoti deposit, the authors used the value of 3.2 g/cm^3 from the MRE 2005 (Puritch and Ewert, 2005). This average bulk density was derived from measurements on 14 representative samples from the mineralized zones. ALS Chemex of Mississauga, Ontario, performed the study.

For the Kim and Cass deposits, the authors used 2.95 g/cm^3 and 3.0 g/cm^3, respectively, from 1995 data. These average bulk densities were derived from measurements on 101 representative drill core samples from the mineralized zones.

No density data was available for the 24/27 or Grizzly Bear deposits. An arbitrary value of 2.7 g/cm^3 was attributed based on the lithological setting and the knowledge that those zones are mainly massive quartz veins in sheared and carbonatized mafic volcanic units. The estimate used the following assumptions: 85% quartz veins at 2.65 g/cm^3 + 15% mafic volcanics at 3 g/cm^3 = 2.7 g/cm^3.

No density data were available for the Treasure Island deposit. An arbitrary value of 2.7 g/cm^3 was attributed based on the lithological setting and the knowledge that those zones are mainly quartz veins in volcaniclastics (felsic to mafic) and argillites. The estimate used the following assumptions: 50% quartz veins at 2.65 g/cm^3 + 25% argillite at 2.7 g/cm^3 + 25% volcaniclastics at 2.8 g/cm^3 =2.7 g/cm^3.

Overburden was attributed to a bulk density of 2.00 g/cm^3.

14.9 Block Model

A block model was created for each deposit in the 2023 MRE, including a buffer zone sufficient to host an open pit.

The block models correspond to a sub-block model in Surpac for the Goldcrest deposit, single-folder block models in GEMS for the Damoti deposit, and sub-block models in Edge for the Cass, Colomac Main, Kim, Grizzly Bear, 24/27 and Treasure Island deposits. All blocks with more than 50% of their volume falling within a selected solid were assigned the corresponding solid block code.

The block model origin is the lower north-west corner and a specific rotation was applied for each deposit as described below:

- Cass: 50°
- Colomac Main: 0°
- Damoti: 0°
- Goldcrest: 15°
- Grizzly Bear: 45°
- Kim: 0°
- Treasure Island: 80°
- 24/27: 0°

Block dimensions reflect the sizes of mineralized zones and plausible mining methods. Table 14-12 provides the properties of all the block models.

Table 14-12: Block Model Properties

Deposits	Description	Easting (m)	Northing (m)	Elevation (m)
Cass	Origin Coordinates	580,550	7,131,050	-100
	Standard Block Size (m)	2	2	2
	Minimum Block Size (m)	1	1	1
	Block Extent (m)	1,000	1,500	500
Colomac Main	Origin Coordinates	590,450	7,139,250	-600
	Standard Block Size (m)	2.5	10	10
	Minimum Block Size (m)	1.25	5	5
	Block Extent (m)	2,527.5	7,050	1,020
Goldcrest	Origin Coordinates	590,825	7,140,315	-180
	Standard Block Size (m)	5	10	10
	Minimum Block Size (m)	1.25	2.5	2.5
	Block Extent (m)	550	1,940	610
Damoti	Origin Coordinates	591,510	7,114,260	25
	Standard Block Size (m)	3	3	3
	Minimum Block Size (m)	-	-	-
	Block Extent (m)	420	480	300
Grizzly Bear	Origin Coordinates	589,565	7,139,595	60
	Standard Block Size (m)	5	10	10
	Minimum Block Size (m)	1.25	1.25	1.25

Deposits	Description	Easting (m)	Northing (m)	Elevation (m)
	Block Extent (m)	400	1,550	320
Kim	Origin Coordinates	582,550	7,132,600	-100
	Standard Block Size (m)	5	5	5
	Minimum Block Size (m)	1.25	1.25	1.25
	Block Extent (m)	2,250	2,000	500
Treasure Island	Origin Coordinates	589,390	7,152,860	-125
	Standard Block Size (m)	5	5	5
	Minimum Block Size (m)	0.5	0.5	0.5
	Block Extent (m)	1,145	605	555
24/27	Origin Coordinates	595,000	7,143,150	60
	Standard Block Size (m)	5	10	10
	Minimum Block Size (m)	1.25	1.25	1.25
	Block Extent (m)	950	2,500	340

14.10 Variography and Search Ellipsoids

14.10.1 Variography

Three-dimensional directional variography was carried out in Snowden Supervisor on capped composites. Zones were studied individually or grouped when data showed similar behaviours.

Performed in connection with the geological knowledge of the deposit, the main steps in the variography process are as follows:

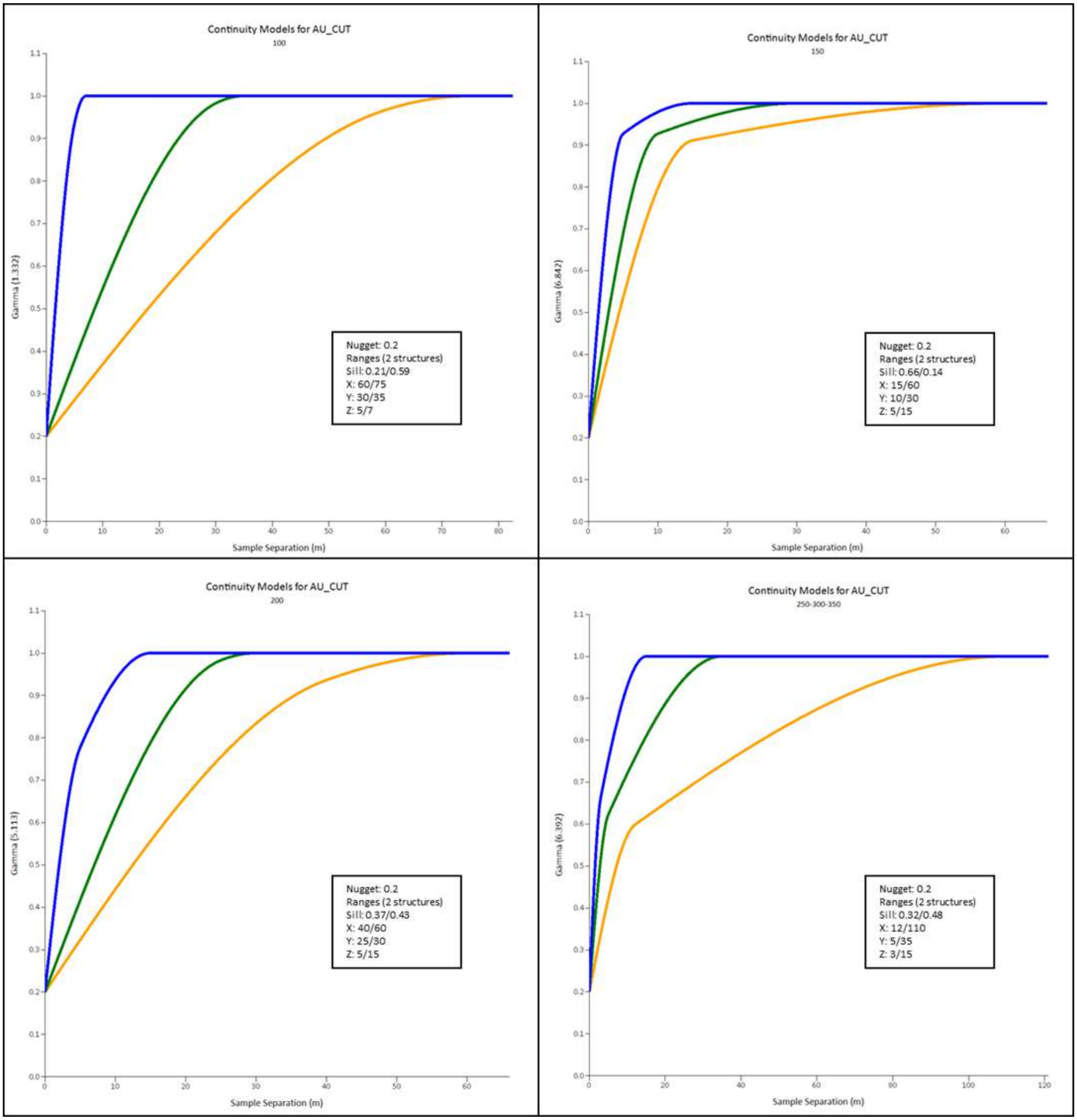
- examine the strike, dip and dip plane of the mineralized zones to define the direction and plunge of the best continuity in the mineralization
- estimate the nugget effect (C0) based on the downhole variogram
- model the major, semi-major and minor axes of continuity.

Table 14-13 documents the variogram model parameters of each zone or group of zones. Figure 14-16 shows examples of the variography study for the Colomac Main deposit.

Table 14-13: Variogram Model Parameters

Deposits	Dataset	Variogram Components								
		Nugget (C0)	First Structure - Spherical				Second Structure - Spherical			
			Sill	Range			Sill	Range		
				X (m)	Y (m)	Z (m)		X (m)	Y (m)	Z (m)
Cass	All Zones	0.3	-	-	-	-	0.7	55	55	20
Colomac Main	Zone 1.0	0.2	-	-	-	-	0.8	60	35	15
	Zone 1.5	0.2	0.66	15	10	5	0.14	60	30	15
	Zone 2.0	0.2	0.37	40	25	5	0.43	60	30	15
	Zones 2.5, 3.0,3.5 grouped	0.2	0.32	12	5	3	0.48	110	35	15
24/27	Zones 24 and 27 grouped	0.2	-	-	-	-	0.8	90	50	10
Damoti	Zones 100 to 500 grouped	0.16	0.50	5	3	3	0.34	30	10	7
	Zones 700 to 5300 grouped	0.12	-	-	-	-	0.88	30	10	7
Goldcrest	Zones GC1 and GC2 grouped	0.55	-	-	-	-	0.45	60	25	10
	Zone GC3	0.5	0.09	45	15	7	0.41	90	30	15
Grizzly Bear	Zones grouped	0.1	-	-	-	-	0.9	70	50	30
Kim	Main zone	0.3					0.7	60	30	25
Treasure Island	Zones East grouped	0.1	0.35	90	55	5	0.55	110	55	15
	Zones West grouped	0.15	0.6	26	26	4	0.25	100	65	8
24/27	Zones 24 and 27 grouped	0.2	-	-	-	-	0.8	90	50	10

Figure 14-16: Variography Study and Search Ellipsoid Ranges for the Colomac Main Deposit



Source: InnovExplo, 2023.

14.10.2 Search Ellipsoids

Sixty-six sets of search ellipsoids were built using the ranges of the best-fit variogram model for each zone or group of zones: 1 for Cass, 4 for Colomac Main, 38 for Damoti, 2 for Goldcrest, 1 for Grizzly Bear, 1 for Kim, 18 for Treasure Island and 1 for 24/27. When the data were studied in groups or when the main zone results were applied to a zone without enough data to be studied, the search ellipsoid orientations were adjusted to the orientation of each individual zone. For the interpolation performed in Edge, the QPs used dynamic anisotropy to adjust the search ellipsoids to fit each zone's mean orientation (azimuth and dip). Otherwise, the QPs used search ellipsoids with fixed orientation, which corresponds to the mean orientation of each zone.

For the 24 deposit, the folded zones were split into panels, and the ellipsoids orientations were adjusted to each fold's flank.

The interpolation strategy involved two or three cumulative passes, characterized by increasing search ranges.

For the Colomac Main deposit, the ranges of the search ellipsoids correspond to two-thirds of the variography range results for the first interpolation pass, one times the variography results for the second pass, and two times the variography results for the third and last pass.

For the Goldcrest deposit, the ranges of the search ellipsoids correspond to half the variography range results for the first interpolation pass, one times variography results for the second pass, and one-and-a-half times the variography results for the third and last pass.

For the Damoti deposit, the ranges of the search ellipsoids correspond to one times the variography range results for the first interpolation pass and two the variography results for the second pass.

For the Kim, Cass, Grizzly Bear, Treasure Island and 24/27 deposits, the ranges of the search ellipsoids correspond to one-half of the variography range results for the first interpolation pass, one times the variography results for the second pass, and twice the variography results for the third and last pass.

Table 14-14 summarizes the parameters of the search ellipsoids used to select composites. Figure 14-17 to Figure 14-24 show examples of the ellipsoids in isometric views.

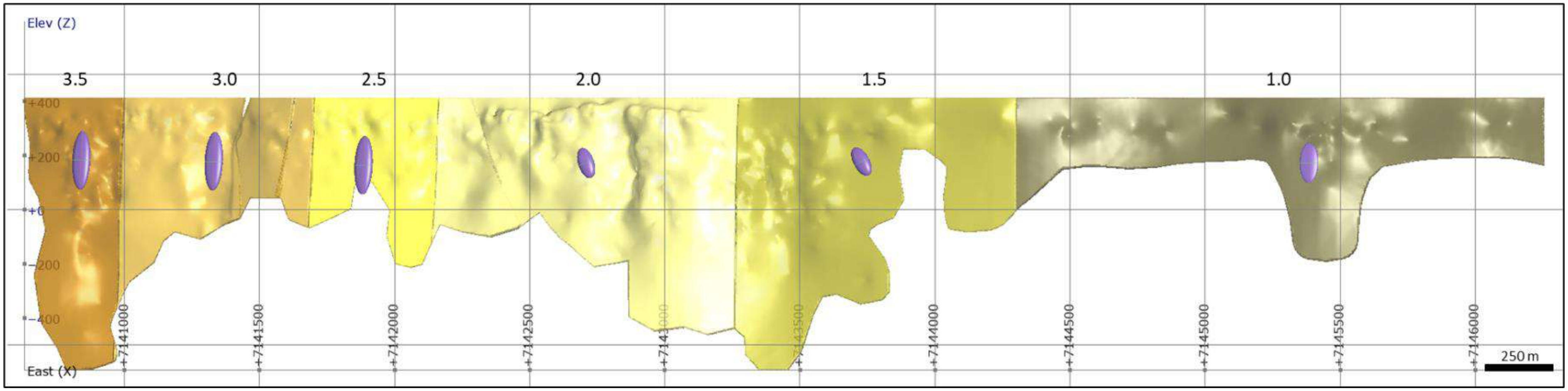
Table 14-14: Search Ellipsoid Parameters

Deposit	Rock code	Search Ellipse	Orientation (Leapfrog)			Orientation (Leapfrog)		
			Dip Az	Dip Az	Y	X (m)	Y (m)	Z (m)
Cass	MZ	Pass 1	85	319	120	27.5	27.5	10
		Pass 2				55	55	20
		Pass 3				110	110	40
Colomac Main	100, 101	Pass 1	75	90	90	40	23.33	10
		Pass 2				60	35	15
		Pass 3				120	70	30
	150, 151	Pass 1	84	107	59	40	20	10
		Pass 2				60	30	15
		Pass 3				120	60	30
	200, 201	Pass 1	84	100	68	40	20	10
		Pass 2				60	30	15
		Pass 3				120	60	30
	250, 251, 300, 301, 350, 351	Pass 1	80	105	90	73.33	23.33	10
		Pass 2				110	35	15
		Pass 3				220	70	30
Grizzly Bear	101, 102, 103, 104	Pass 1	80	135	40	35	25	15
		Pass 2				70	50	30
		Pass 3				140	100	60
Kim	MZ1	Pass 1	75	285	140	30	15	12.5
		Pass 2				60	30	25
		Pass 3				120	60	50
24/27	24, 27	Pass 1	84	243	30	45	25	5
		Pass 2				90	50	10
		Pass 3				180	100	20
Treasure Island	East zones	Pass 1	81	310	17	55	27.5	7.5
		Pass 2				110	55	15
		Pass 3				220	110	30
	West zones	Pass 1	72 to 90	1 to 358	50 to 140	50	32.5	4
		Pass 2				100	65	8
		Pass 3				200	130	16

Deposit	Rock code	Search Ellipse	Orientation (Gems)			Ranges		
			A	D	A	X (m)	Y (m)	Z (m)
Damoti	100 to 5300	Pass 1	3 to 355	-22 to -1	39 to 120	30	10	7
		Pass 2				60	20	14
	9100	Pass 1	10	-4	100	30	10	7
		Pass 2				60	20	14
	9200	Pass 1	6	-7	100	30	10	7
		Pass 2				60	20	14
	9300	Pass 1	352	-12	86	30	10	7
		Pass 2				60	20	14
	9400	Pass 1	181	-14	55	30	10	7
		Pass 2				60	20	14

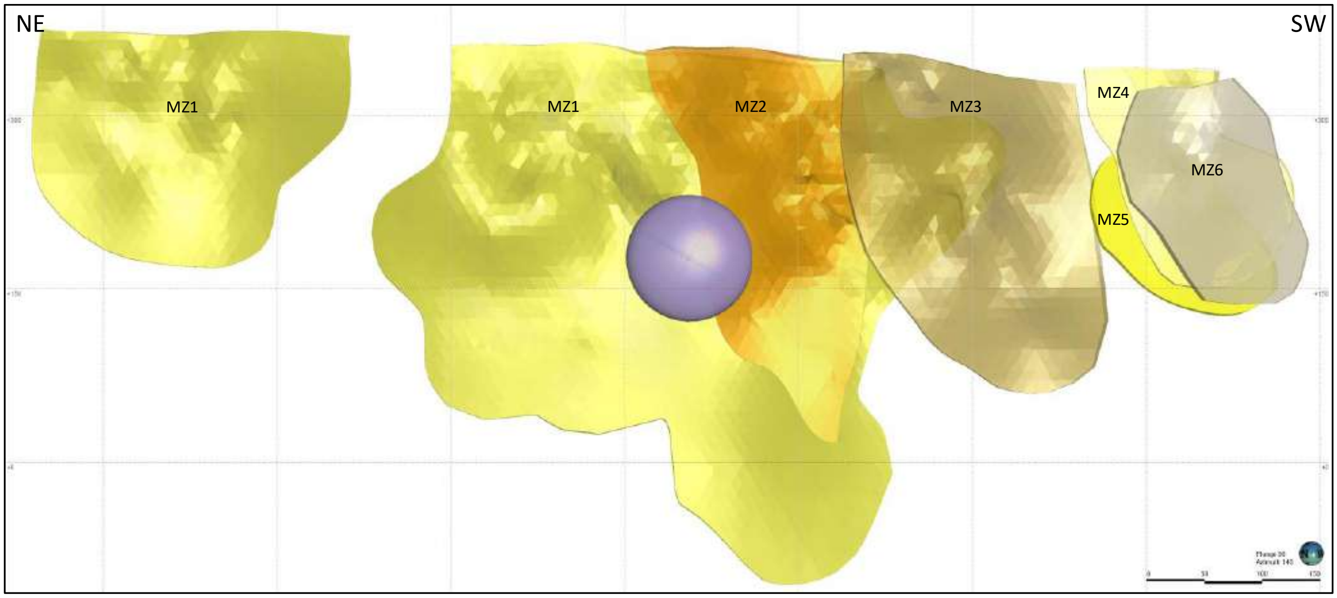
Deposit	Rock code	Search Ellipse	Orientation (Surpac)			Ranges		
			Z	X	Y	X (m)	Y (m)	Z (m)
Goldcrest	101, 102	Pass 1	31	-68	181	30	12.5	5
		Pass 2				60	25	10
		Pass 3				90	37.5	15
	103	Pass 1	10	40	21	45	15	7.5
		Pass 2				90	30	15
		Pass 3				135	45	22.5

Figure 14-17: Longitudinal View (Looking West) of the Zone Wireframes and Search Ellipsoids (Pass 2) for the Colomac Main Deposit



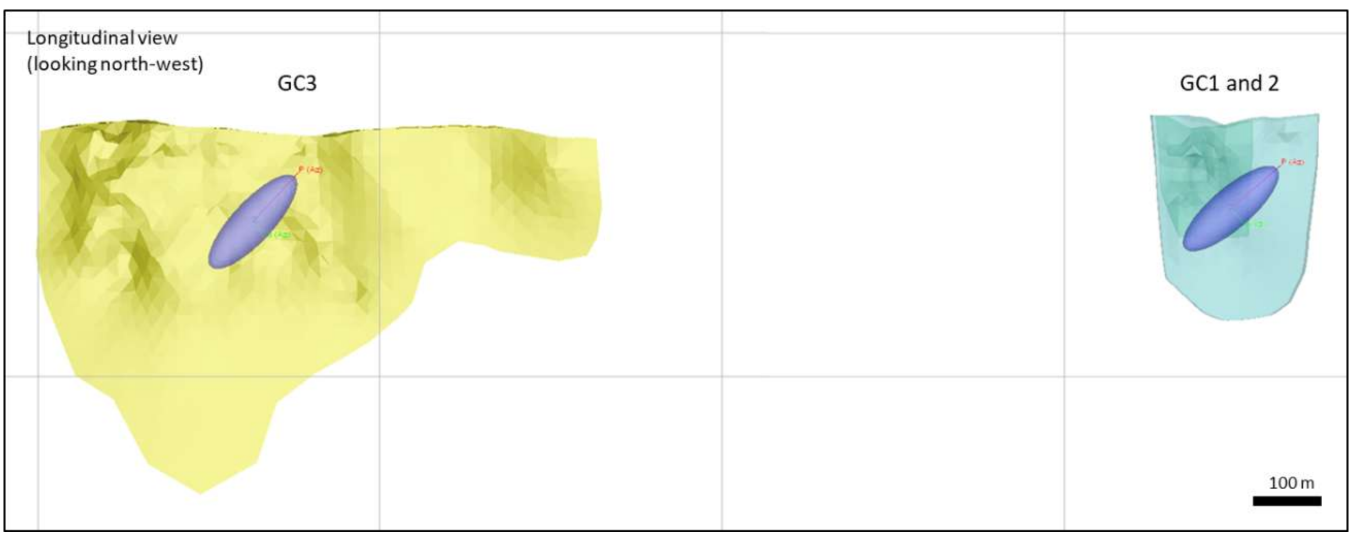
Source: InnovExplo, 2023.

Figure 14-18: Longitudinal View of the Zone Wireframes and Search Ellipsoids (Pass 2) for the Cass Deposit



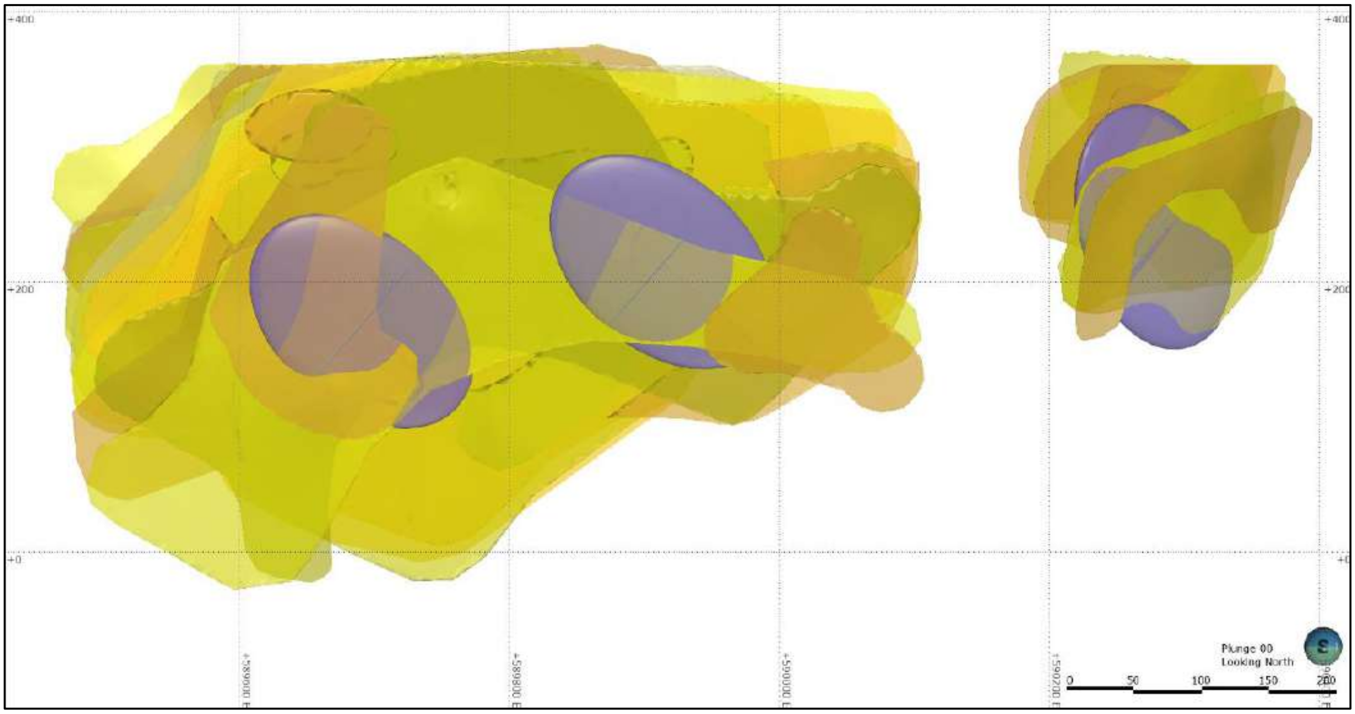
Source: InnovExplo, 2023.

Figure 14-19: Longitudinal View of the Zone Wireframes and Search Ellipsoids (Pass 2) for the Goldcrest Deposit



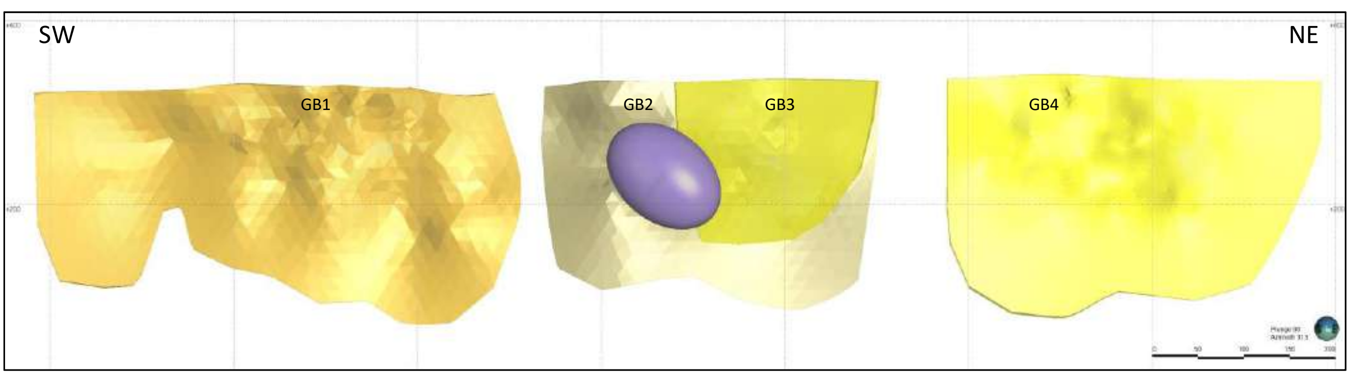
Source: InnovExplo, 2023.

Figure 14-20: Longitudinal View of the Zone Wireframes and Search Ellipsoids (Pass 2) for the Treasure Island Deposit



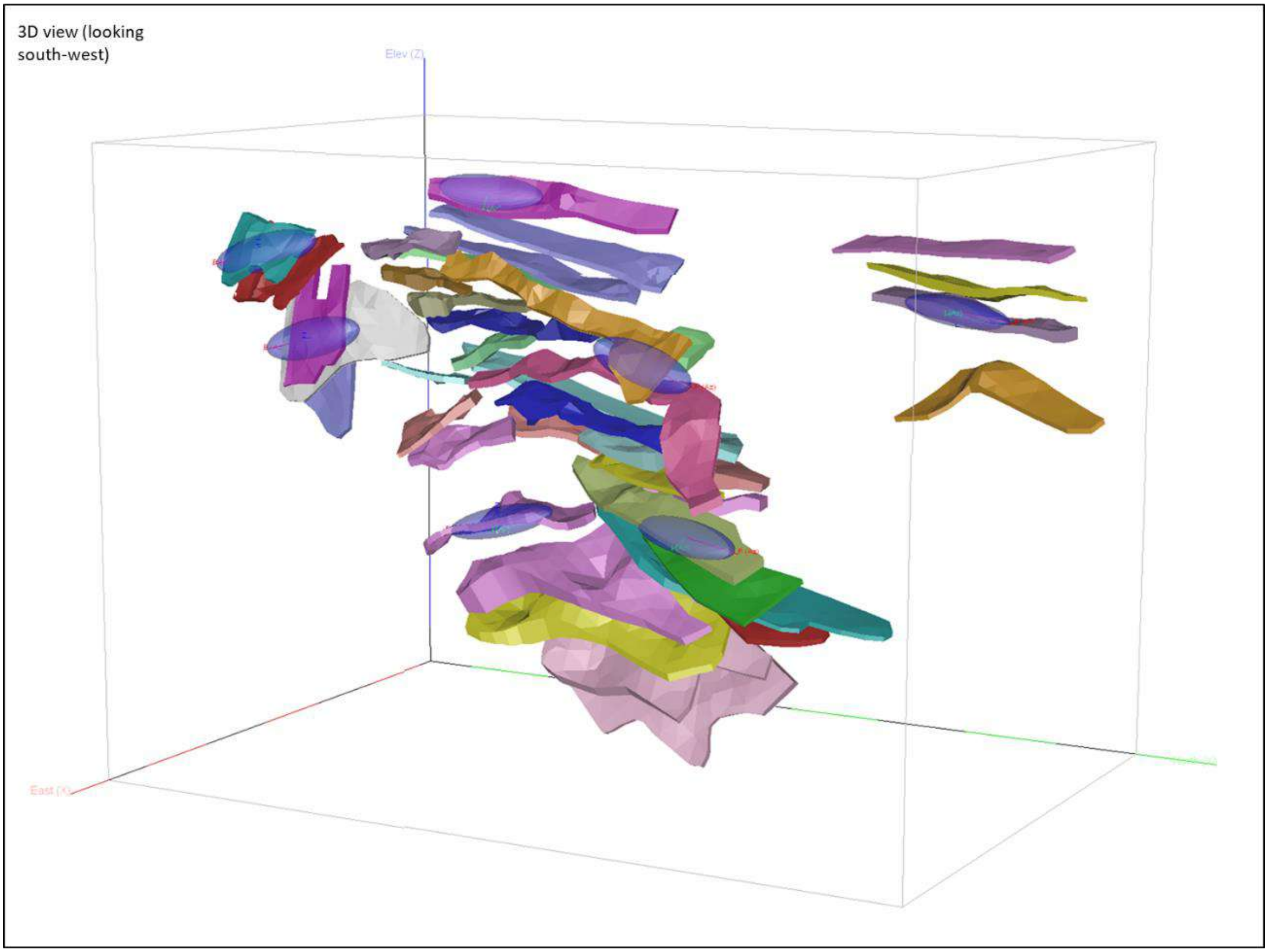
Source: InnovExplo, 2023.

Figure 14-21: Longitudinal View of the Zone Wireframes and Search Ellipsoids (Pass 2) for the Grizzly Bear Deposit



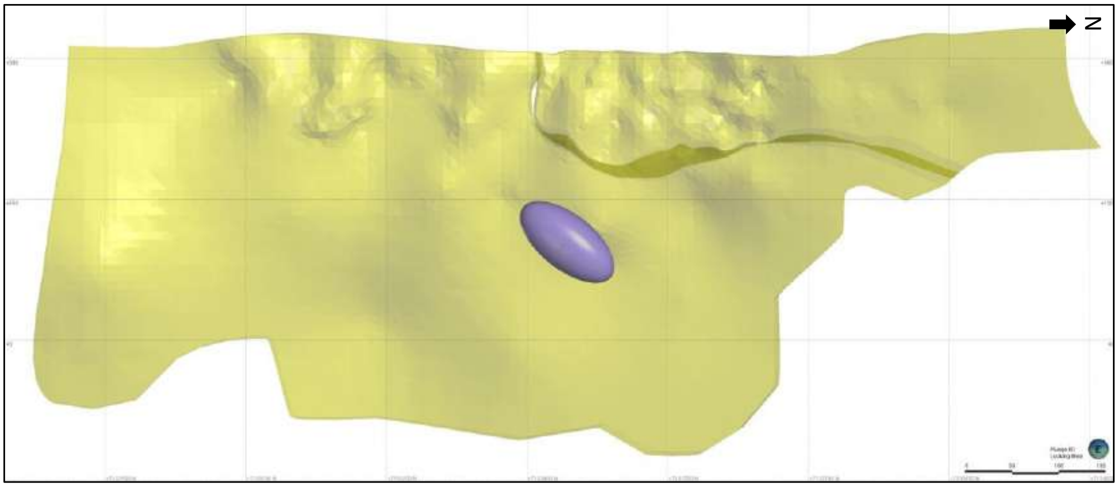
Source: InnovExplo, 2023.

Figure 14-22: 3D View of the Zone Wireframes and Search Ellipsoids for the Damoti Deposit



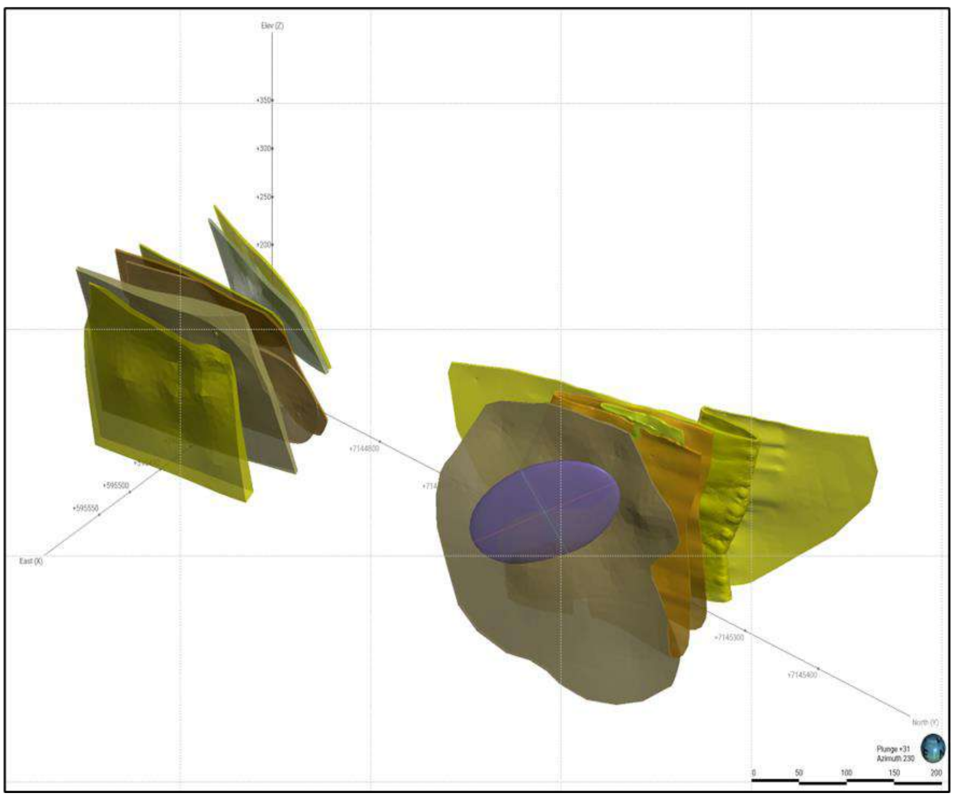
Note: Ellipsoids displayed for zones 100, 300, 1000, 2100, 2950, 4000 and 5200 only; Pass 1. Each zone has an adjusted ellipsoid.
Source: InnovExplo, 2023.

Figure 14-23: Longitudinal View of the Zone Wireframes and Search Ellipsoid (Pass 2) for the Kim Deposit



Source: InnovExplo, 2023.

Figure 14-24: 3D View of the Zone Wireframes and Search Ellipsoids (Pass 2) for the 24 Deposit



Source: InnovExplo, 2023.

14.11 Grade Interpolation

The variography study provided the parameters used to interpolate the grade model using capped composites. The interpolation was run on point area workspaces extracted from the composite datasets (flagged by zone). A cumulative 2- or 3-pass search was used for the resource estimate. The interpolation profiles were applied to each mineralized zone using hard boundaries to prevent block grades from being estimated using sample points with different block codes other than the block being estimated.

For every deposit, several models were produced using the nearest neighbour (NN), inverse distance squared (ID2), ordinary kriging (OK) and/or inverse distance cubed (ID3) method to choose the one that best honoured the raw assays and composite grade distribution for that particular deposit. Models were compared visually (in section, plan and longitudinal), statistically and with swath plots. The aim was to limit the smoothing effect to preserve local grade variations while avoiding the smearing of high-grade values.

ID3 was selected for the final resource estimate of the Colomac Main, Grizzly Bear, Kim and Goldcrest deposits, whereas ID2 was selected for the Cass, Treasure Island and 24/27, and OK was selected for Damoti. The strategy and parameters used for the grade estimation are summarized in Table 14-15.

Table 14-15: Interpolation Strategy by Deposit

Deposit	Pass	Number of Composites		
		Minimum	Maximum	Maximum per Hole
Cass	1	5	16	2
	2	3	16	2
	3	1	16	2
Colomac Main	1	5	16	2
	2	3	16	2
	3	1	16	2
Damoti	1	8	24	3
	2	5	24	3
Goldcrest	1	10	24	4
	2	6	24	4
	3	4	24	4
Grizzly Bear	1	10	24	4
	2	6	24	4
	3	4	24	4
Kim	1	8	24	3
	2	5	24	3
	3	2	24	3
Treasure Island	1	10	24	4
	2	6	24	4
	3	4	24	4
24/27	1	6	24	4
	2	4	24	4
	3	2	24	4

14.12 Block Model Validation

The block models were validated visually and statistically.

A visual comparison between block model grades, composite grades and gold assays was conducted on sections, plans and longitudinal views for both densely and sparsely drilled areas. No significant differences were observed during the comparison. It generally provided a good match in grade distribution without excessive smoothing in the block models. The visual validation confirmed that the block models honour the drill hole composite data (Figure 14-25 on the following page).

As previously stated, several models were produced for each deposit using NN, ID2, OK and/or ID3 methods to check the local bias of every method. Table 14-16 below presents the results of the statistical comparison. The trend and local variation of the estimated models were also compared to the composites in the three directions of the swath plots (North, East and Elevation) for blocks estimated during the first and second pass.

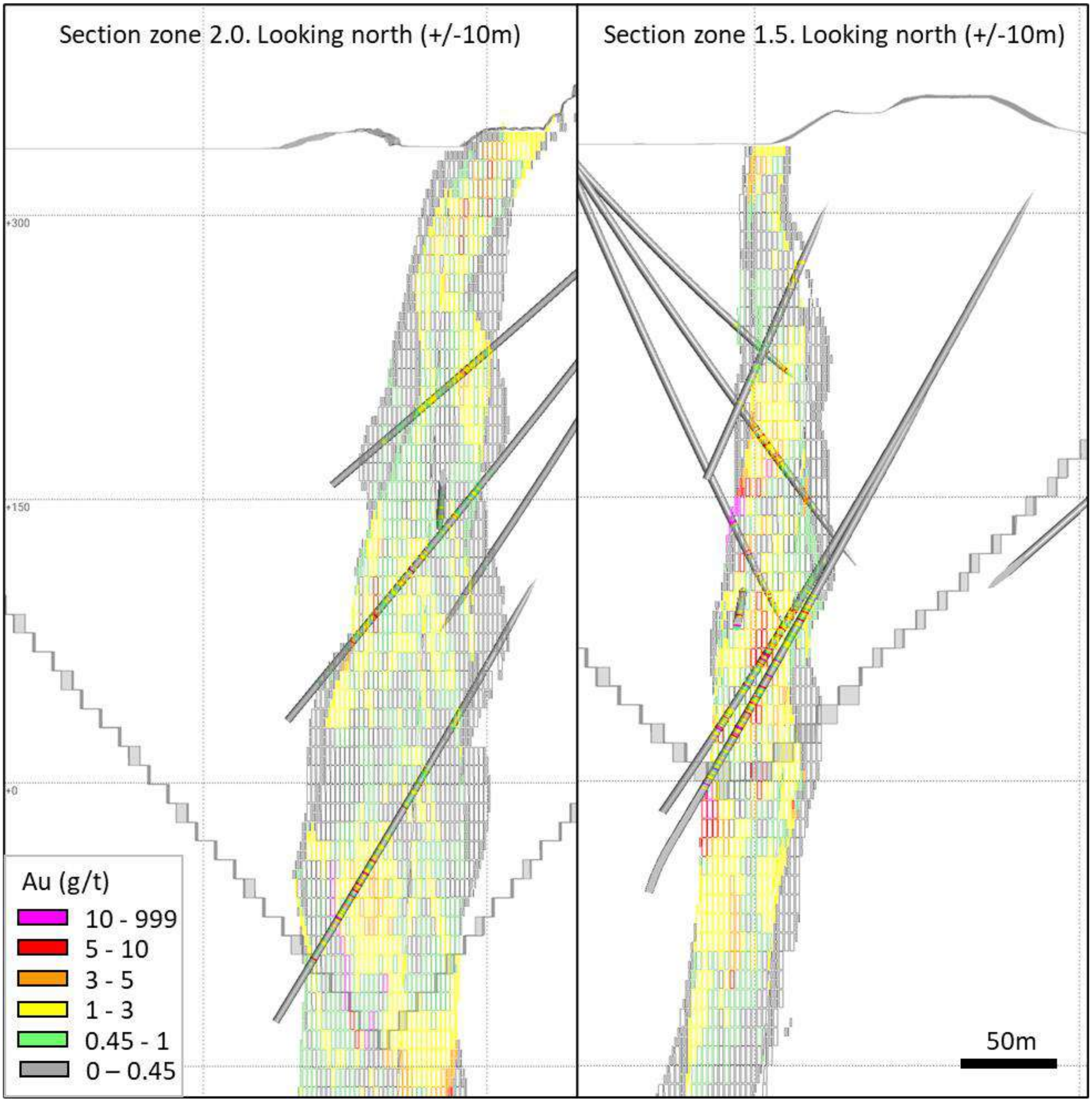
Table 14-16: Statistical Comparison of Composite Mean Grades to Block Model Mean Grades for Different Interpolation Methods

Deposits	Composite	Interpolation			
	Mean (Au g/t)	ID3 (Au g/t)	ID2 (Au g/t)	OK (Au g/t)	NN (Au g/t)
Cass	1.73	1.62	1.63	1.63	1.64
Colomac Main	1.23	1.26	1.26	1.28	1.25
Damoti	0.68	-	0.57	0.58	0.55
Goldcrest	0.95	0.84	0.84	0.88	-
Grizzly Bear	0.91	0.83	0.82	0.88	0.97
Kim	1.39	1.18	1.18	1.20	1.21
Treasure Island	2.73	-	2.63	2.60	-
24/27	1.16	-	1.13	1.16	1.10

Notes: All blocks interpolated during the first and second passes. Declustered composites.

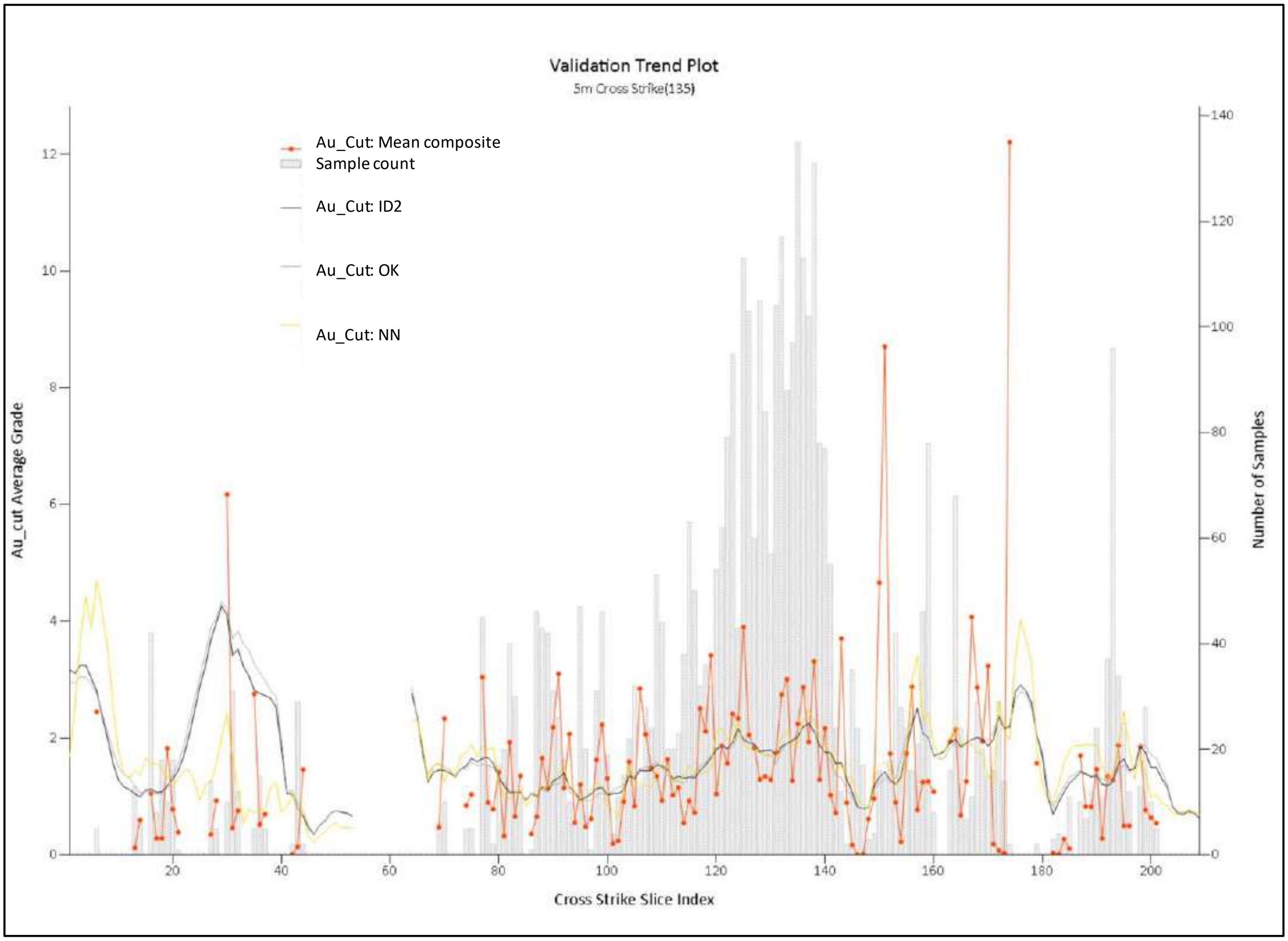
The swath plots show an acceptable amount of smoothing in the grade distribution regarding each method (see Figures 14-26 to Figure 14-32).

Figure 14-25: Validation of the Colomac Main Deposit Interpolation Results, Comparing Drill Hole Assays and Block Model Grade Values



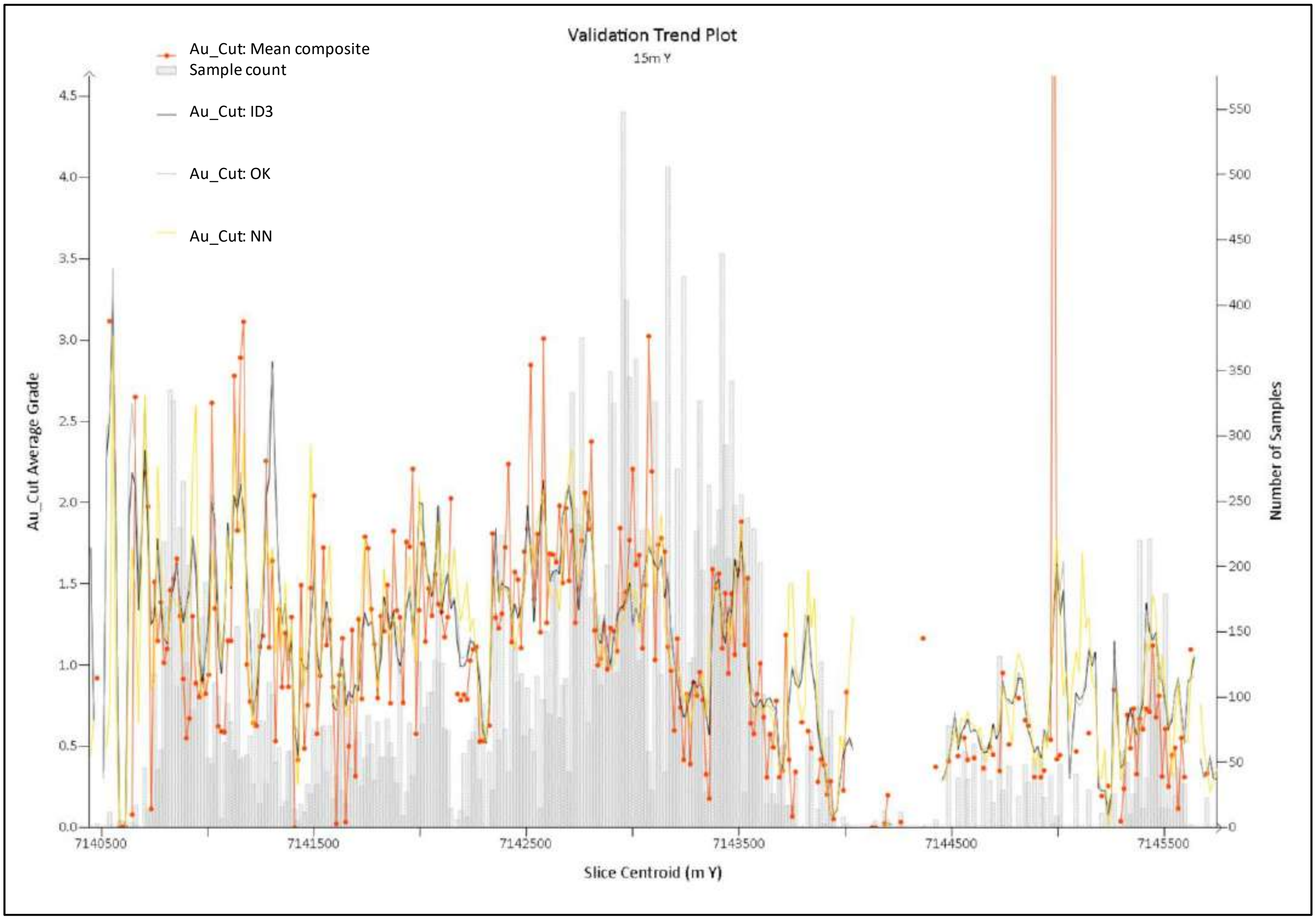
Source; InnovExplo, 2023.

Figure 14-26: Swath Plot for the Cass Deposit (Cross Strike 135°)



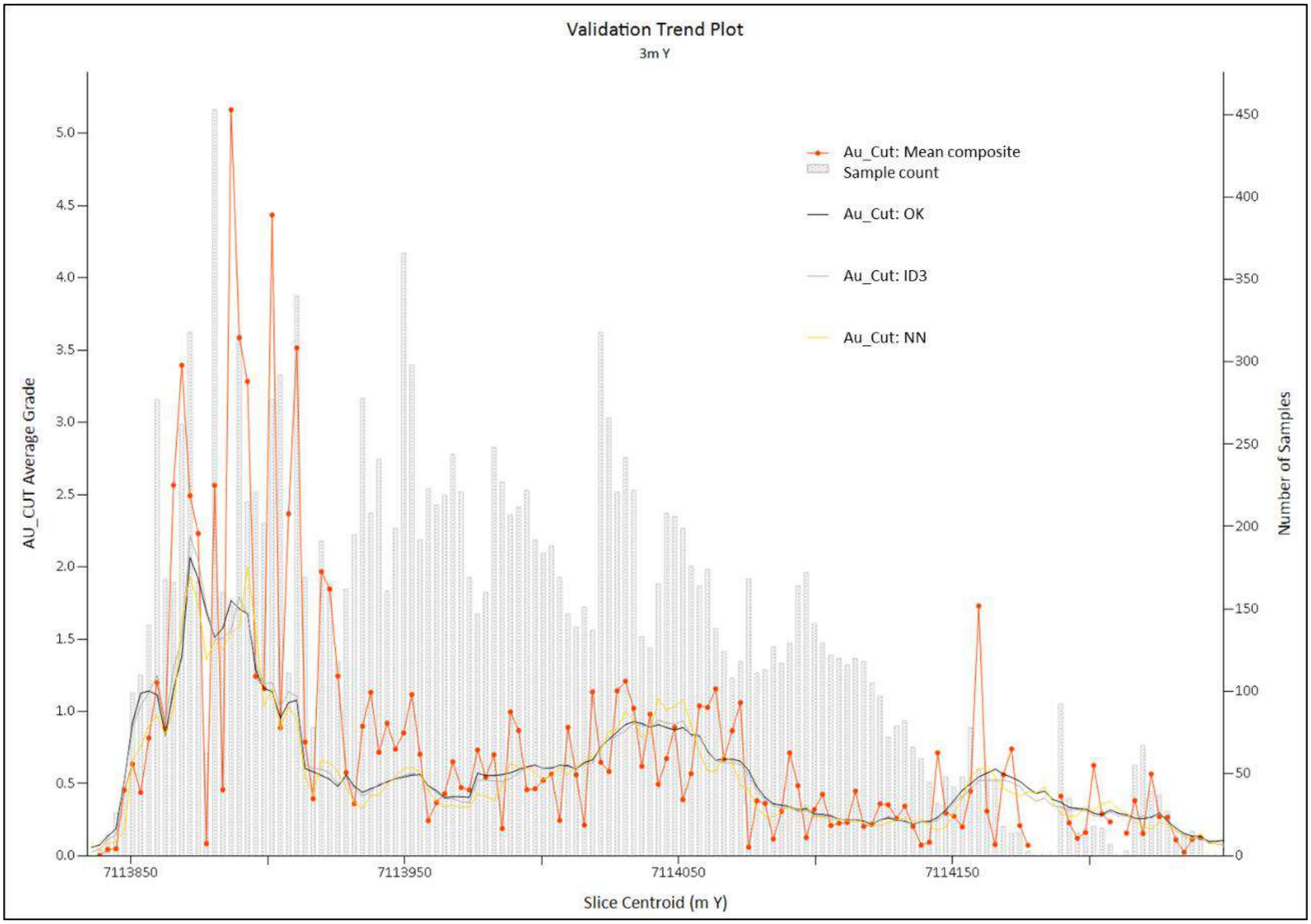
Source: InnovExplo, 2023.

Figure 14-27: Swath Plot for the Colomac Main Deposit (Looking West)



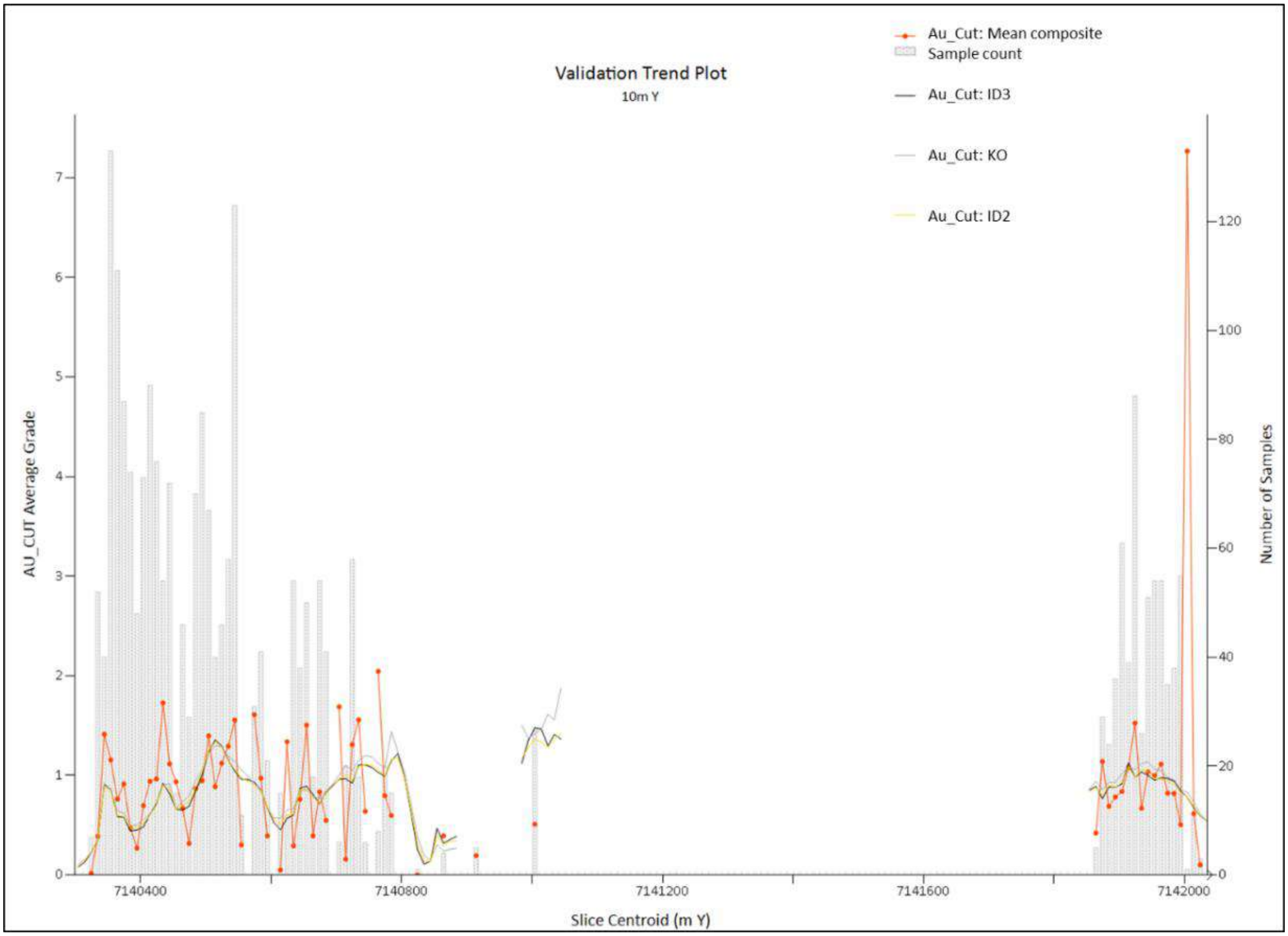
Source: InnovExplo, 2023.

Figure 14-28: Swath Plot for the Damoti Deposit (Looking West)



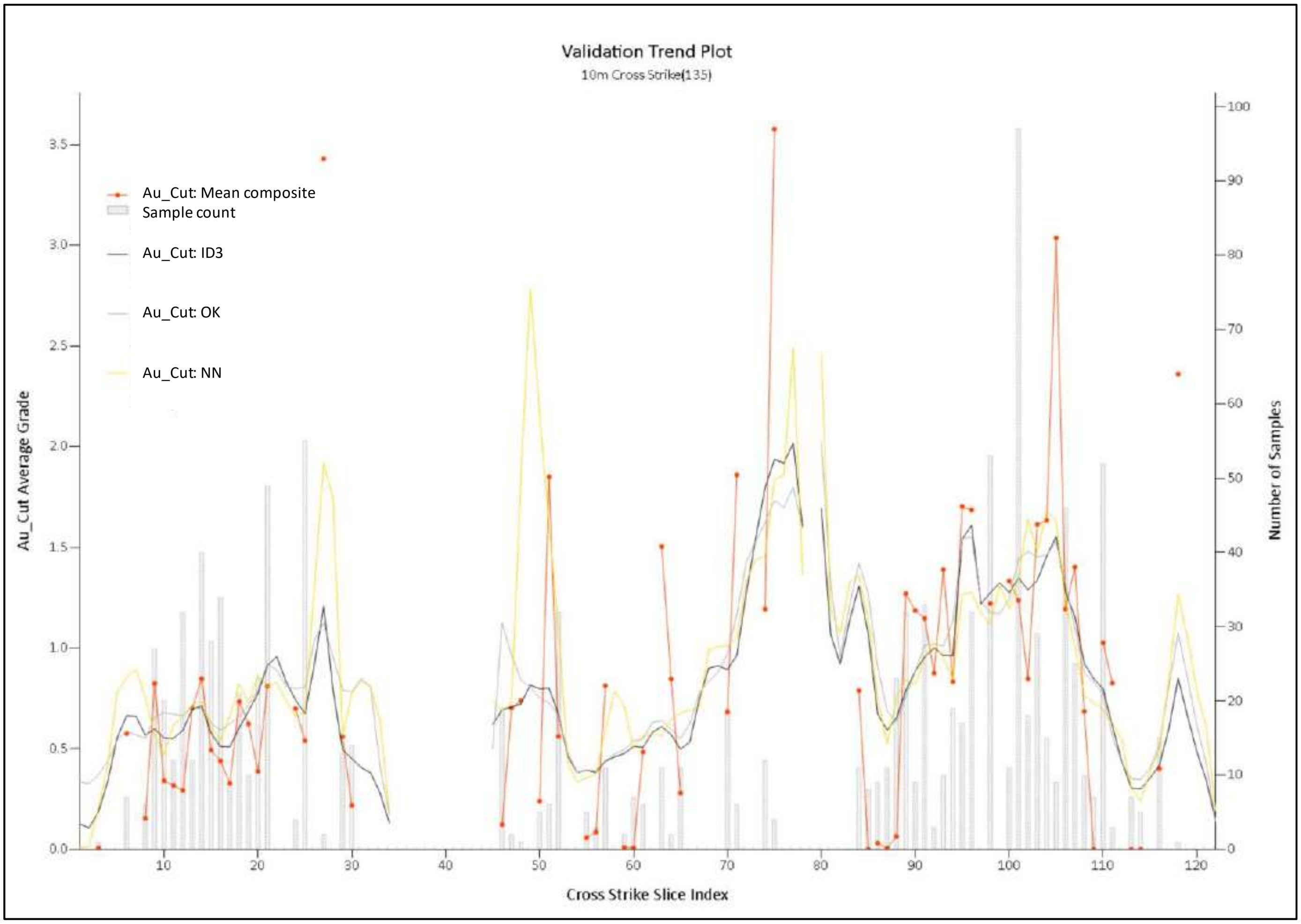
Source: InnovExplo, 2023.

Figure 14-29: Swath Plot for the Goldcrest Deposit (Looking West)



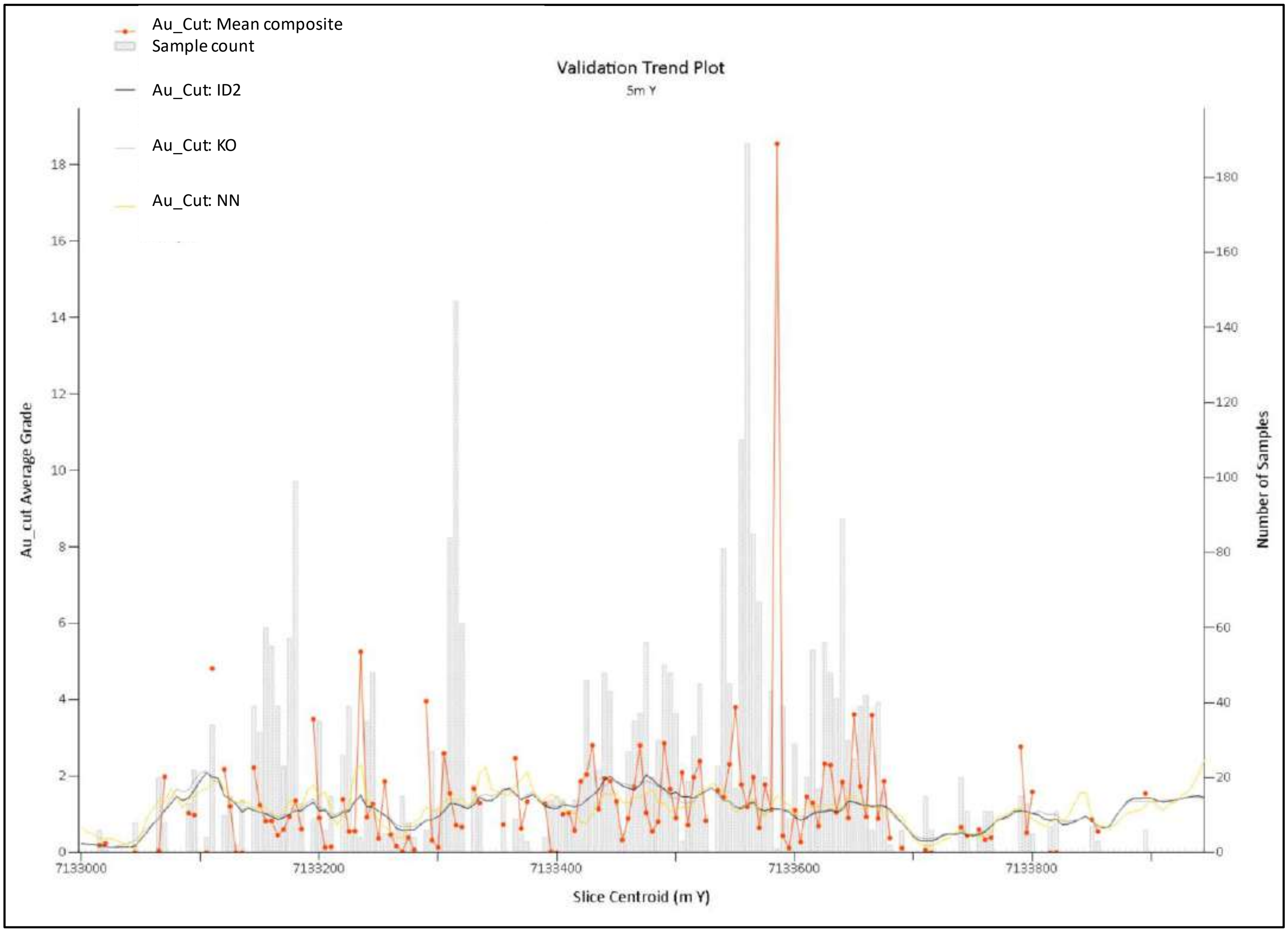
Source: InnovExplo, 2023.

Figure 14-30: Swath Plot for the Grizzly Bear Deposit (Cross Strike 135°)



Source: InnovExplo, 2023.

Figure 14-31: Swath Plot for the Kim Deposit (Looking West)



Source: InnovExplo, 2023.

14.13 Mineral Resource Classification

By default, all interpolated blocks were assigned to the "exploration potential" when creating the grade block model. Subsequent reclassification to either indicated or inferred category was done according to the following criteria:

Inferred category criteria:

- blocks showing geological and grade continuity
- blocks from well-defined mineralized zones only
- blocks interpolated by a minimum of two holes
- blocks in areas where drill spacing is no more than 55m (Cass); 60m (Kim, Damoti); 75 m (Colomac, Grizzly Bear, Goldcrest, 24/27, Treasure Island).

Indicated category criteria:

- blocks showing geological and grade continuity
- blocks from well-defined mineralized zones only
- blocks interpolated by a minimum of three holes
- blocks in areas where drill spacing is no more than 50 m (Colomac, Grizzly Bear, Goldcrest, 24/27).

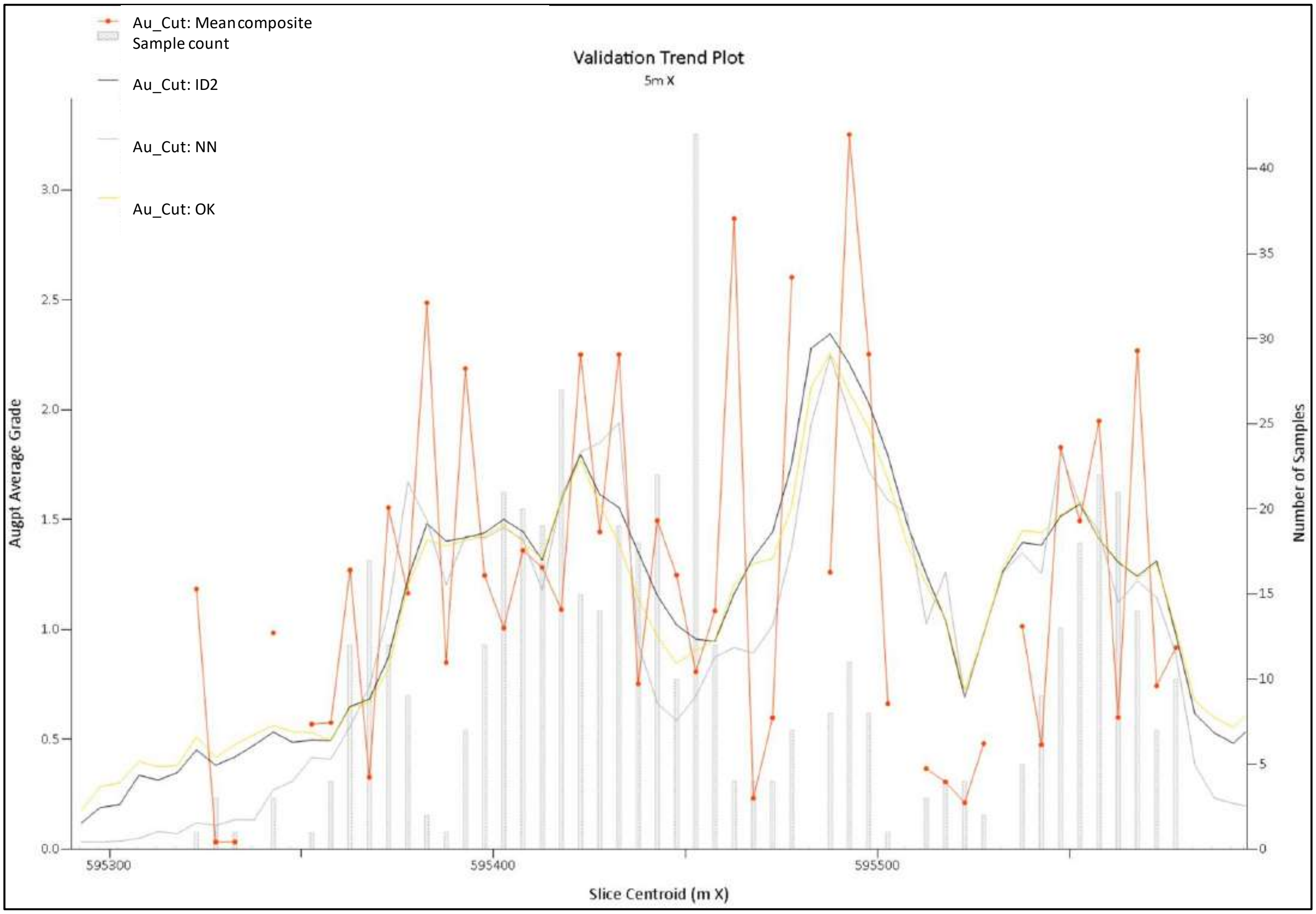
No measured resources were defined.

For the Cass, Kim, Damoti and Treasure Island deposits, only inferred mineral resources were calculated as the databases contain a significant amount of historical data. To meet the standards for indicated mineral resources, the QPs would recommends to re-sample or to duplicate some historical holes to confirm grades, as well as land surveys to confirm collar locations of historical holes and the exact location of the Damoti's underground ramp access.

Some blocks were locally upgraded to the inferred or indicated category, and some blocks were locally downgraded to inferred or exploration potential to homogenize (smooth out) the resource volumes in each category and to avoid isolated blocks from being included in a category domain.

Final block classification was done using a series of outline rings (clipping boundaries) built on a longitudinal view. For the Colomac Main deposit, 3D solids were also created in cross-sections for the two largest zones, 1.5 and 2.0, to design the thickness of the resource boundaries accurately.

Figure 14-32: Swath Plot for the 24 Deposit (Looking North)



Source: InnovExplo, 2023.

14.14 Cut-off Parameters

Mineral resources for all deposits were compiled using a minimum cut-off grade. Specific extraction methods are used only to establish a reasonable cut-off grade for various parts of the deposit. No PEA, PFS or FS studies have been completed to support the economic viability and technical feasibility of exploiting any part of the mineral resource by any particular mining method.

The cut-off grade must be re-evaluated in light of prevailing market conditions and other factors, such as gold price, exchange rate, mining method, related costs, etc.

Under CIM Definition Standards, mineral resources should have "reasonable prospects of eventual economic extraction". A Whittle pit shell was used to constrain the 2023 MRE on each deposit for its near-surface potential. Resource-level optimized pit shells and the corresponding open-pit cut-off grade are used for the open pit resource statement. The remaining (out-pit) mineralized material was then flagged for its underground potential. Deswik Stope Optimizer (DSO) was used on each deposit to apply constraining volumes to any blocks in the potential underground extraction scenario to address the reasonable prospect for eventual economic extraction of underground resources. Figure 14-33 to Figure 14-40, which show the optimized pit shell and DSO stope designs of the classified mineral resources, are provided to visualize relationships between the two.

14.14.1 Optimized Open Pit Cut-off parameters

The open pit cut-off grades vary from 0.45 to 0.57 g/t Au. The parameters and assumptions are presented in Table 14-17.

Table 14-17: Input Parameters used for the Open Pit Cut-Off Grade Estimation

Parameter	Unit	Colomac	Goldcrest	Grizzly Bear	24/27	Damoti	Kim & Cass	Treasure Island
Gold Price	US$/oz	1,660	1,660	1,660	1,660	1,660	1,660	1,660
Exchange Rate	USD:CAD	1.33	1.33	1.33	1.33	1.33	1.33	1.33
Royalty	%	0	0	0	0	3	0	0
Refining Cost	C$/oz	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Cost of Selling	C$/oz	5.00	5.00	5.00	5.00	54.80	5.00	5.00
Total Processing Cost[1]	C$/t treated	21.00	21.00	21.00	21.00	21.00	21.00	21.00
Metallurgical Recovery	%	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Mining Cost	C$/t moved	3.25	3.25	3.25	3.25	3.25	3.25	3.25
General & Administration	C$/t treated	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Northern Logistics	C$/t treated	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Transport to Process	C$/t treated	0.00	0.00	0.45	0.50	7.40	5.00	3.75
Total Based Cost	C$/t treated	31.00	31.00	31.45	31.50	38.40	36.00	34.75
Cut-off Grade	g/t Au	0.45	0.45	0.46	0.46	0.57	0.52	0.51

Note: 1. Total processing cost if processed with Colomac Main mineralization material or other.

Using the parameters in the table above, cut-off grades were calculated as follows:

Cut-off Grade = *(Processing + A&G + Northern Logistics + Transport to Process + Mining) / (Gold Price * Exchange Rate - Sell Cost) * Metallurgical Recovery*

14.14.2 Underground Cut-off Parameters

The underground cut-off grades are based on a bulk mining method for all deposits except Damoti, which is based on a selective mining method (room and pillar). The underground cut-off grades vary from 1.02 to 1.66 g/t Au.

The parameters and assumptions are presented in Table 14-18.

Table 14-18: Input Parameters used for the Underground Cut-Off Grade Estimation

Parameter	Unit	Colomac	Goldcrest	Grizzly Bear	24/27	Damoti	Kim & Cass	Treasure Island
Gold Price	US$/oz	1660	1660	1660	1660	1660	1660	1660
Exchange Rate	USD:CAD	1.33	1.33	1.33	1.33	1.33	1.33	1.33
Royalty	%	0	0	0	0	3	0	0
Refining Cost	C$/oz	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Cost of Selling	C$/oz	5.00	5.00	5.00	5.00	54.80	5.00	5.00
Total Processing Cost[1]	C$/t treated	21.00	21.00	21.00	21.00	21.00	21.00	21.00
Metallurgical Recovery	%	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Mining Cost	C$/t moved	39.00	39.00	39.00	39.00	73.00	54.20	68.50
General & Administration	C$/t treated	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Northern Logistics	C$/t treated	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Transport to Process	C$/t treated	0.00	0.00	0.45	0.50	7.40	5.00	3.75
Total Based Cost	C$/t treated	70.00	70.00	70.45	70.50	111.40	90.20	103.25
Cut-off Grade	g/t Au	1.02	1.02	1.03	1.03	1.66	1.31	1.50

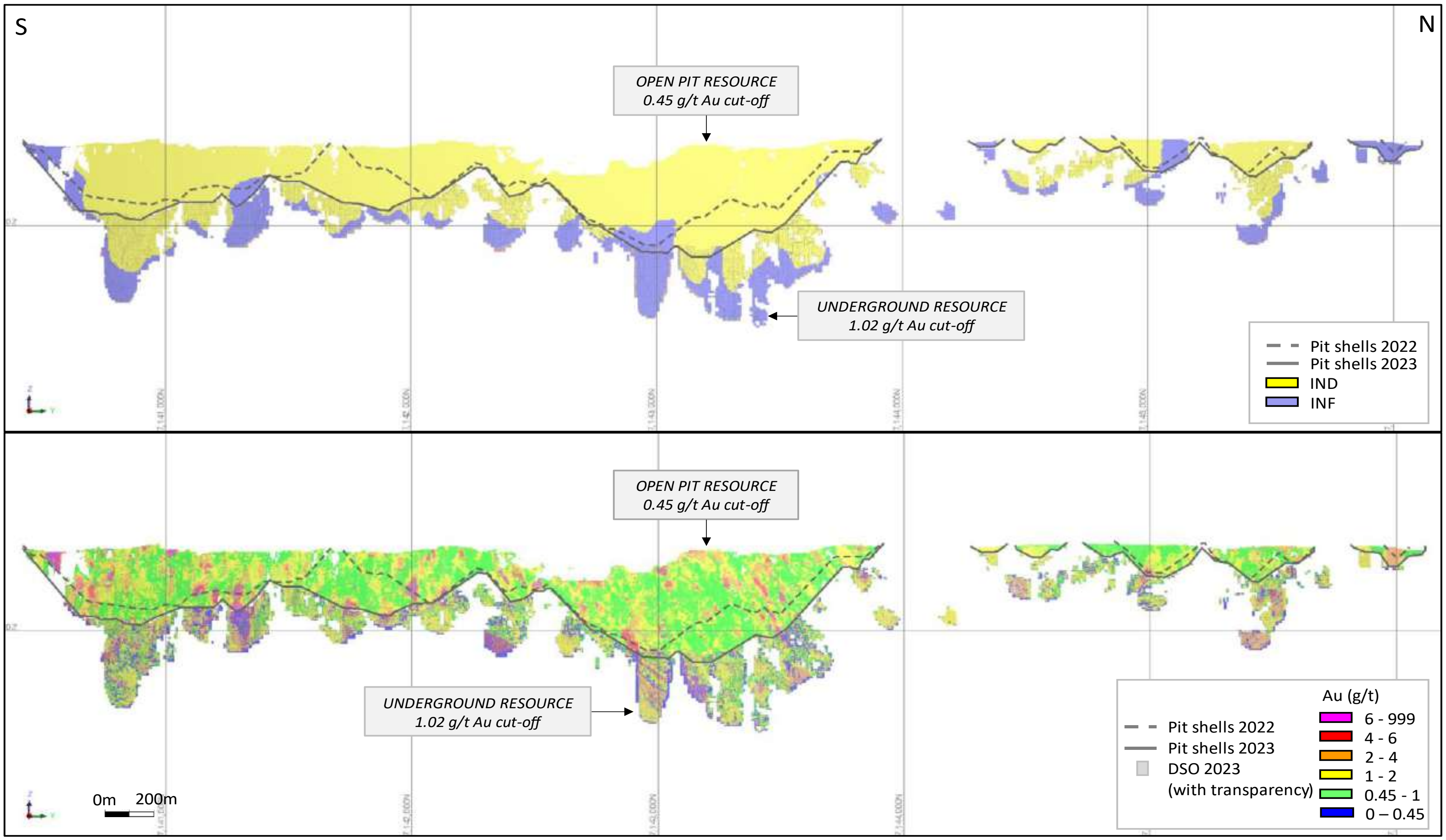
Note: 1. Total processing cost if processed with Colomac Main mineralization material or other.

14.15 Mineral Resource Estimate

The authors are of the opinion that the current mineral resource estimate can be classified as indicated and inferred mineral resources based on data density, search ellipse criteria, drill hole spacing and interpolation parameters. The authors are also of the opinion that the requirement of a reasonable prospect for eventual economic extraction is met by having resources constrained by optimized pit-shell and DSO stope designs and a cut-off grade based on reasonable inputs that are amenable to potential in-pit and underground extraction scenarios.

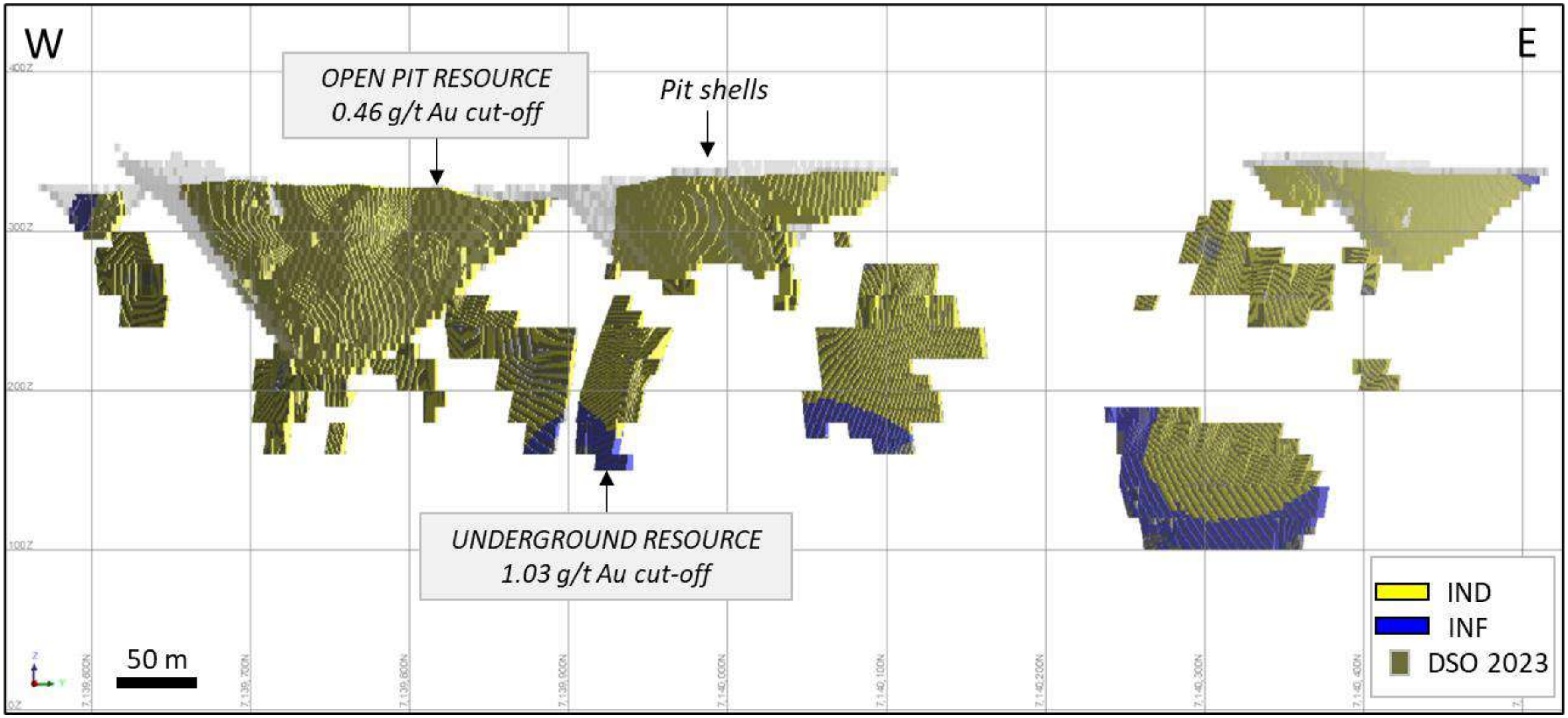
Figure 14-33 to Figure 14-40 present the mineral resources constrained in-pit and in DSO stope designs above their respective cut-off grade for each deposit.

Figure 14-33: Longitudinal Views of the Colomac Main Deposit Showing the Classified Mineral Resources and the Interpolated Grades Contained in Optimized Pit Shells and DSO Stope Designs



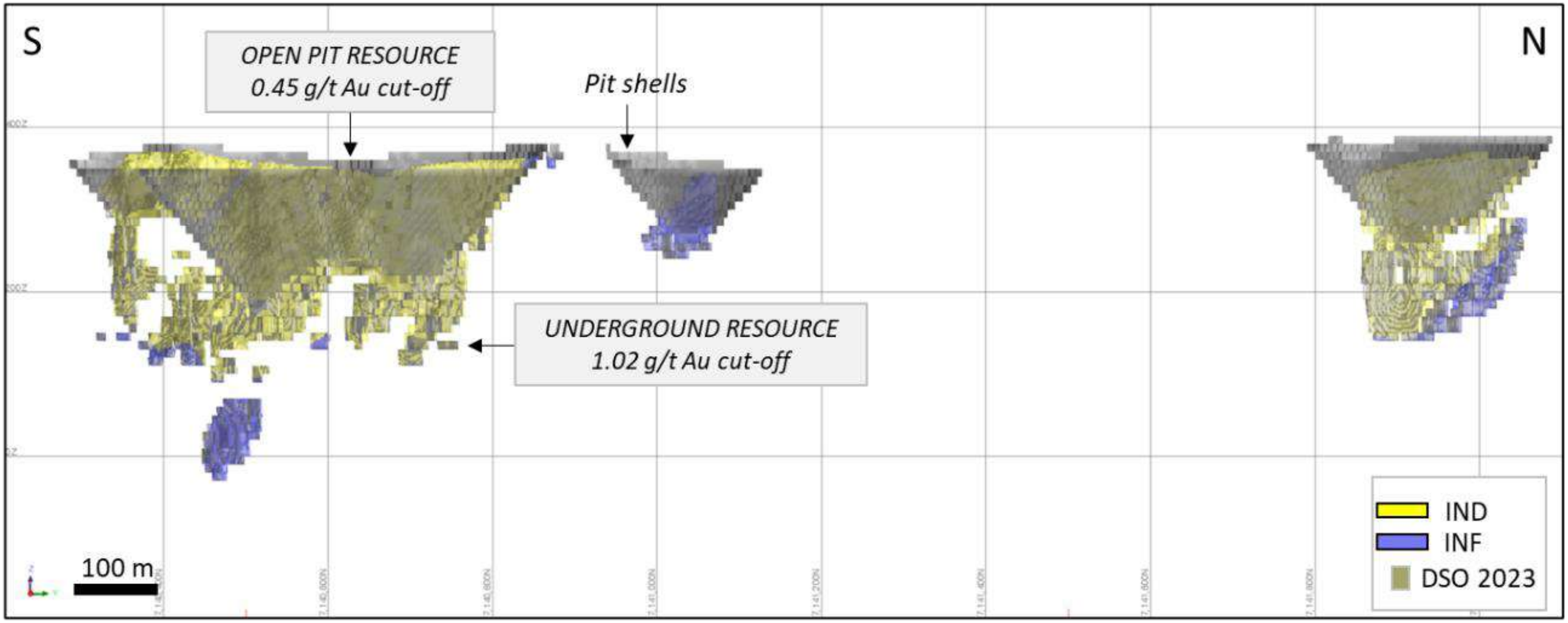
Source: InnovExplo, 2023.

Figure 14-34: Longitudinal View of the Grizzly Bear Deposit Showing the Classified Mineral Resources



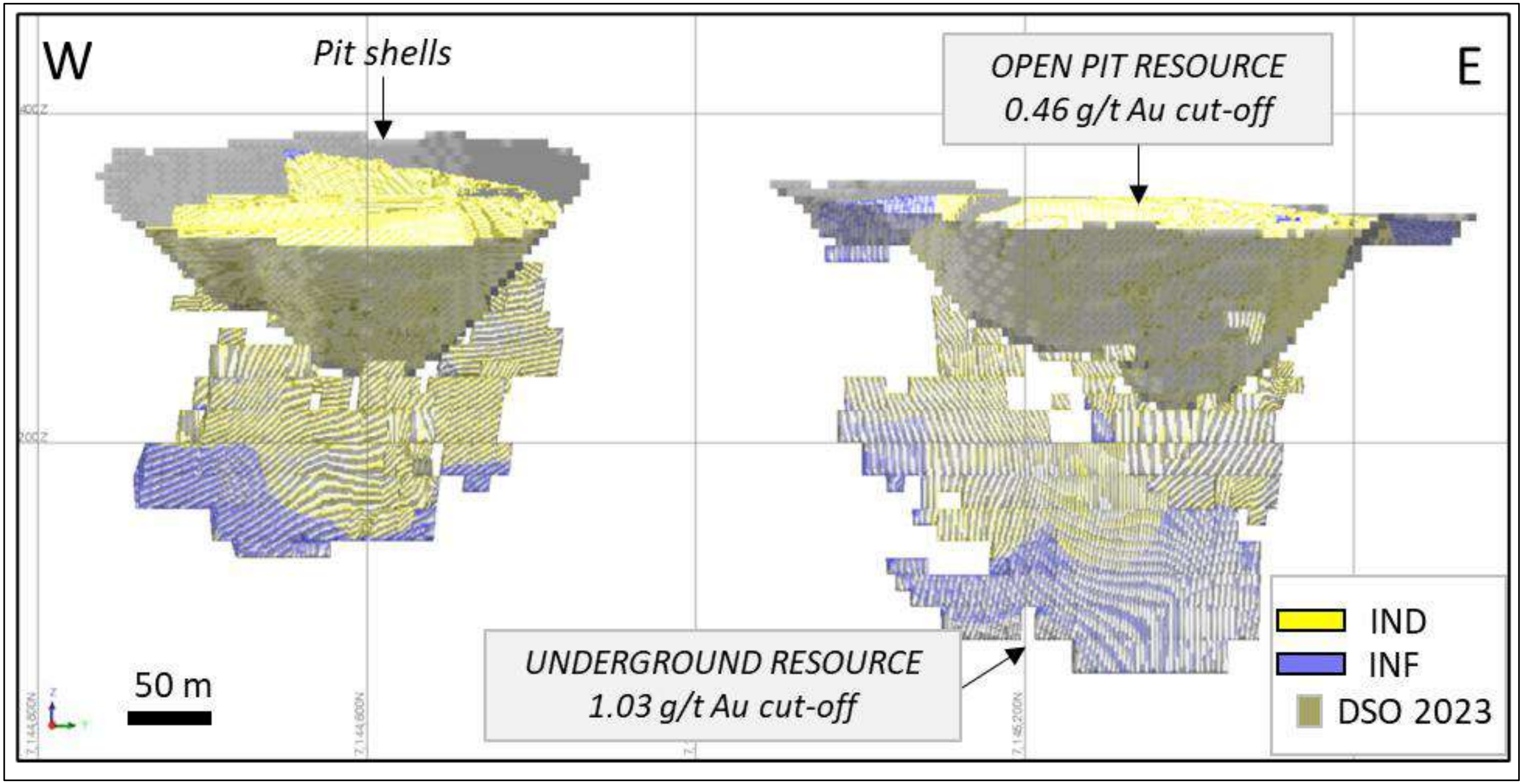
Source: InnovExplo, 2023.

Figure 14-35: Longitudinal View of the Goldcrest Deposit Showing the Classified Mineral Resources



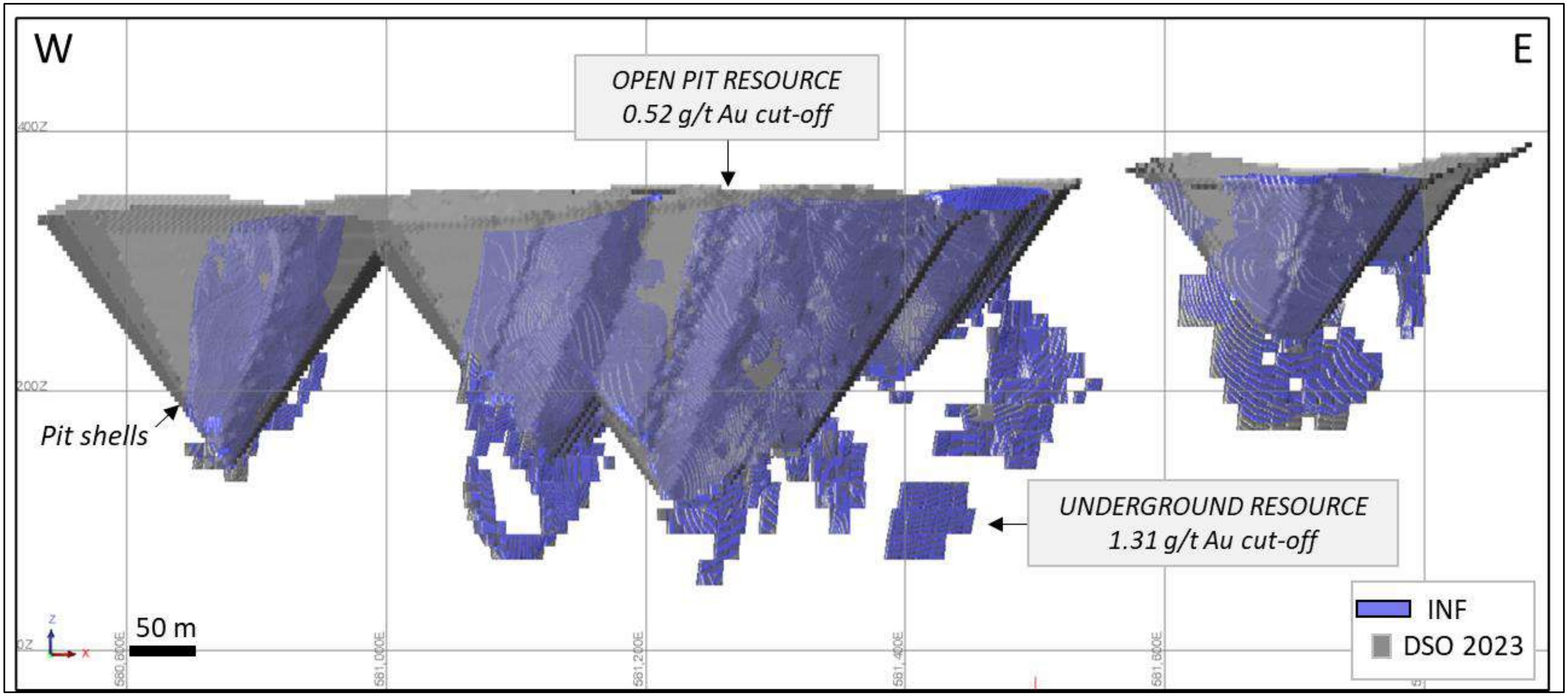
Source: InnovExplo, 2023.

Figure 14-36: Longitudinal of the 24/27 Deposit Showing the Classified Mineral Resources



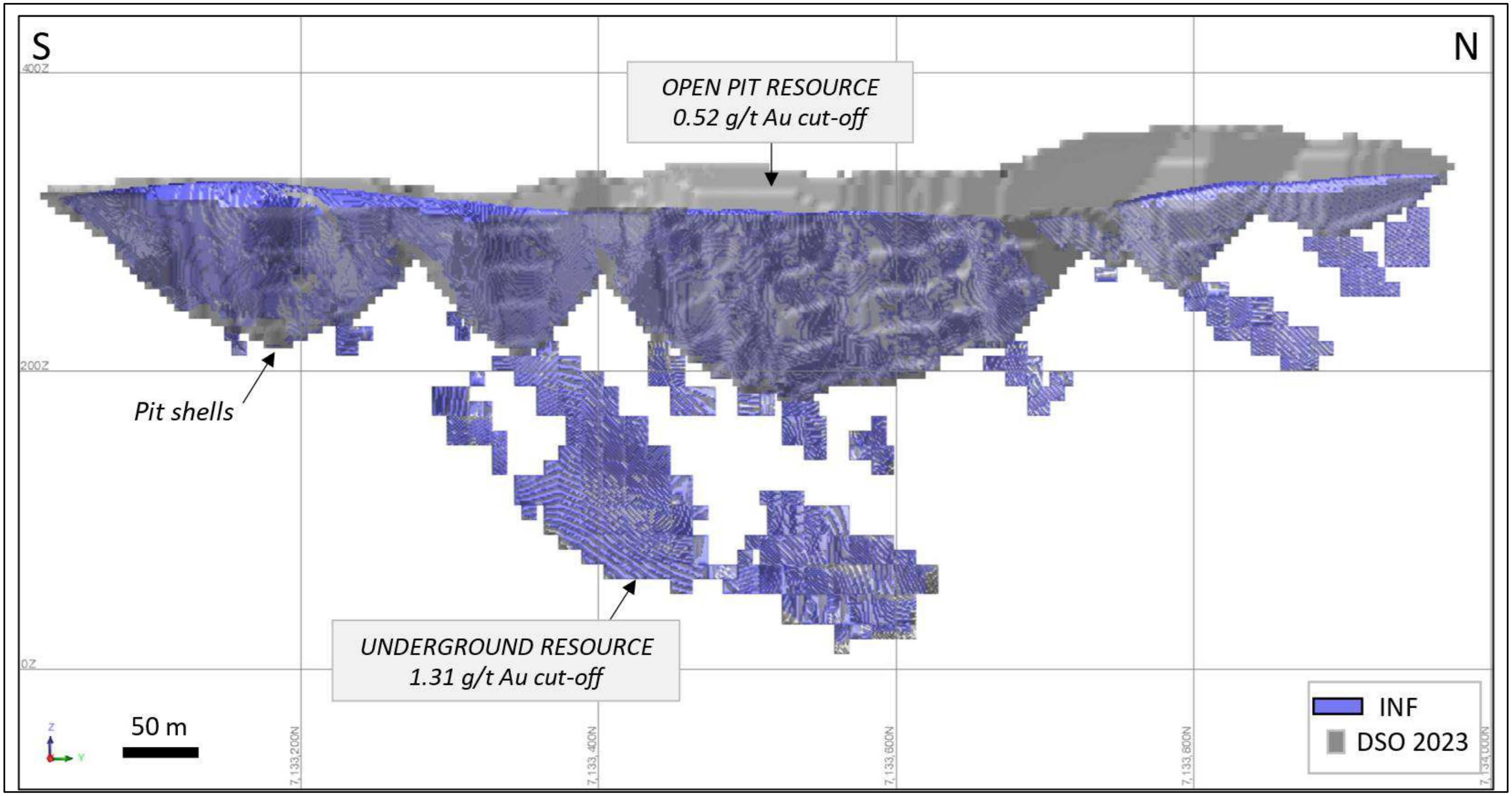
Source: InnovExplo, 2023.

Figure 14-37: Longitudinal View of the Cass Deposit Showing the Classified Mineral Resources



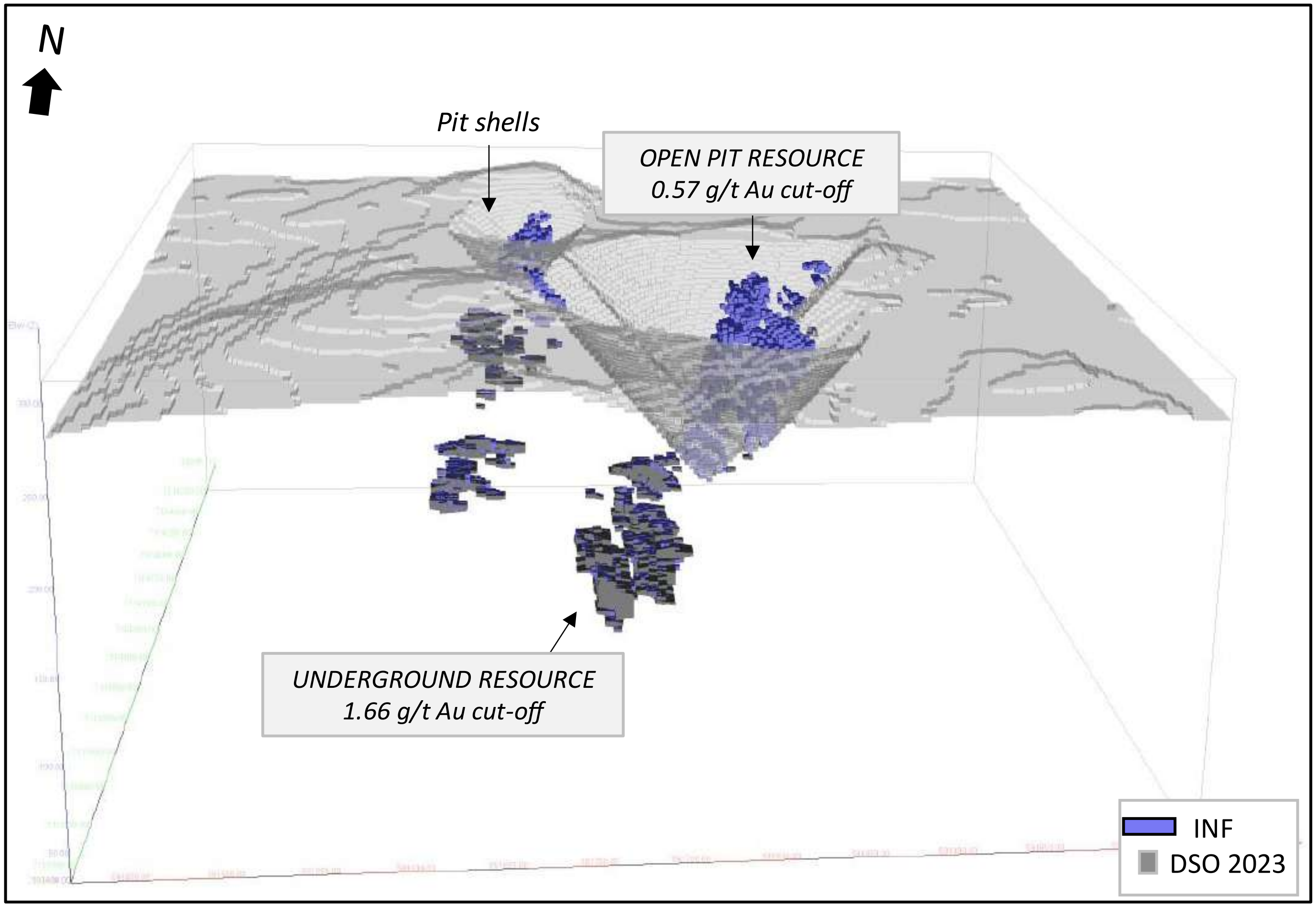
Source: InnovExplo, 2023.

Figure 14-38: Longitudinal View of the Kim Deposit Showing the Classified Mineral Resources



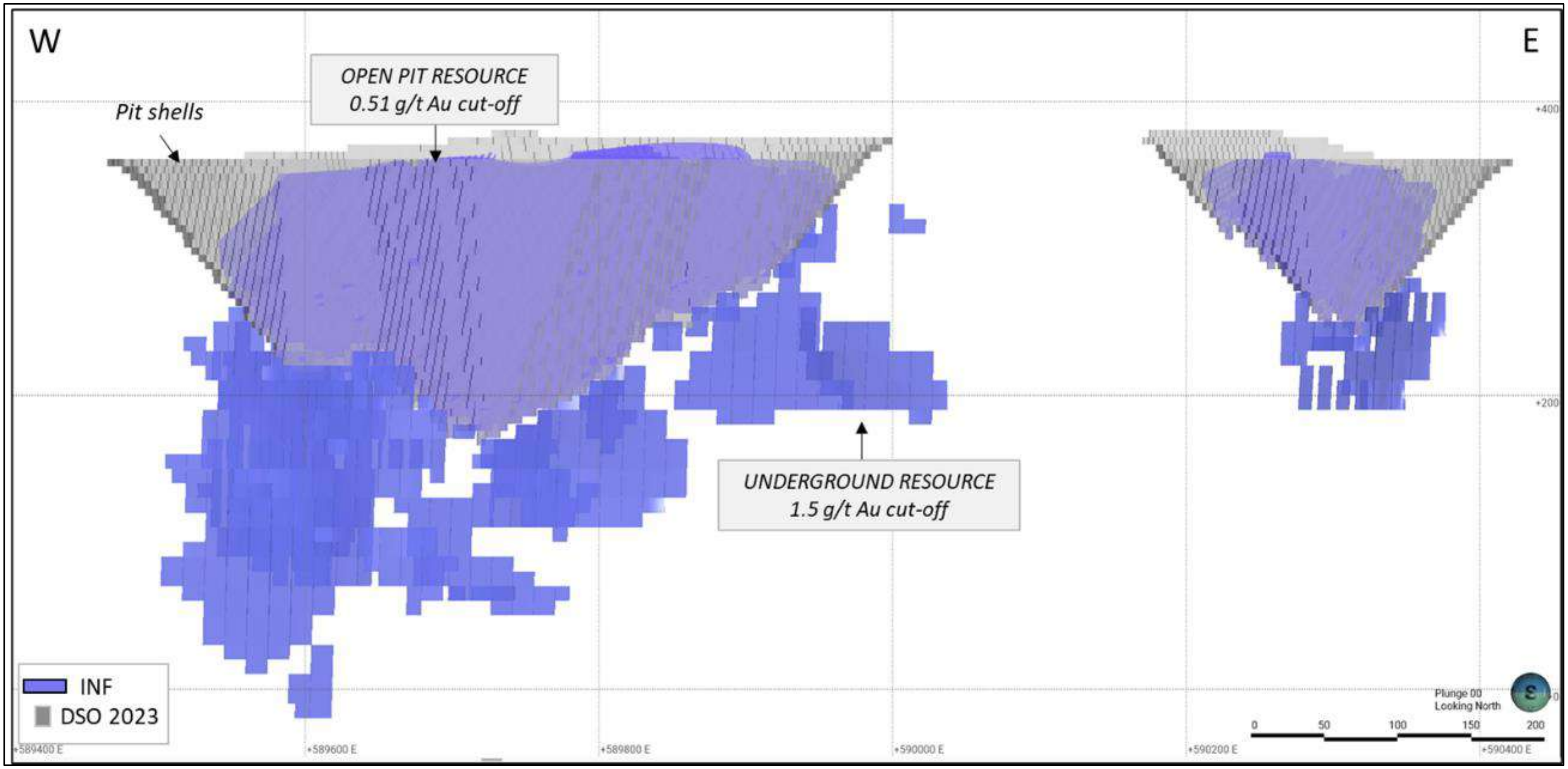
Source: InnovExplo 2023.

Figure 14-39: Isometric View of the Damoti Deposit Showing the Classified Mineral Resources



Source: InnovExplo 2023.

Figure 14-40: Longitudinal View of the Treasure Island Deposit showing the Classified Mineral Resources



Source: InnovExplo 2023.

The authors consider the 2023 MRE to be reliable and based on quality data, reasonable assumptions and parameters that follow CIM Definition Standards. The authors are not aware of any known environmental, permitting, legal, title-related, taxation, socio-political, or marketing issues, or any other relevant issue not reported in the technical report, that could materially affect the mineral resource estimate.

Table 14-19 displays the results of the 2023 MRE for each deposit combining potential open pit and underground mining scenarios at cut-off grades of 0.45 to 0.57 g/t Au (in pit), 1.02 to 1.50 g/t Au (underground bulk) and 1.66 g/t Au (selective underground), respectively.

Tables 14-20 and 14-21 present the sensitivity of the 2023 MRE at different cut-off grades for each deposit and mining method. The reader should be cautioned that the figures provided in this table should not be interpreted as a mineral resource statement. The reported quantities and grade estimated at different cut-off grades are presented for the sole purpose of demonstrating the sensitivity of the resource model to the selection of a reporting cut-off grade and should not be taken out of context as they meet the requirement of a reasonable prospect for eventual economic extraction only at the appropriate price of gold selected to calculate the cut-off grade of the sensitivity (from US$1,328/oz to US$1,992/oz).

The results of the MRE 2023 represent the following differences compared to the previous 2022 MRE (Iund et al., 2022):

- 26% increase in total indicated mineral resource estimate ounces and a +4% increase in grade
- 36% increase in open pit indicated resource estimate ounces and a +5% increase in grade
- 28% increase in the total inferred resource estimate ounces and a +3% increase in grade
- 38% increase in the open pit inferred resource estimate ounces and a 2% decrease in grade

Those increases are mainly due to:

- adjustment of the economic parameters to reflect current economic condition
- addition of 40,086 m (182 drill holes) of drilling since the last MRE at the Colomac, Grizzly Bear, 24/27, Kim and Cass deposits
- optimization of the interpolation parameters for the Colomac and Cass deposits.

Table 14-19: Colomac Gold Project 2023 Mineral Resource Estimate by Deposit and Mining Method

Deposit	Area (Mining Method)	Cut-off (g/t)	Indicated Mineral Resource			Inferred Mineral Resource		
			Tonnage (kt)	Au (g/t)	Ounces	Tonnage (kt)	Au (g/t)	Ounces
Colomac Main	Open pit	0.45	54,404	1.45	2,548,000	2,625	1.97	166,000
	Underground Bulk	1.02	8,750	1.77	498,000	10,017	1.97	634,000
Goldcrest	Open pit	0.45	2,849	1.36	125,000	104	1.52	5,000
	Underground Bulk	1.02	659	1.49	32,000	225	1.29	9,000
Grizzly Bear	Open pit	0.46	1,142	1.34	49,000	11	0.69	250
	Underground Bulk	1.03	563	1.54	28,000	156	1.43	7,000
24/27	Open pit	0.46	1,451	1.75	82,000	15	1.51	700
	Underground Bulk	1.03	514	1.55	26,000	305	1.97	19,000
Cass	Open pit	0.52	-	-	-	3,983	2.36	302,000
	Underground Bulk	1.31	-	-	-	702	2.05	46,000
Kim	Open pit	0.52	-	-	-	2,568	1.72	142,000
	Underground Bulk	1.31	-	-	-	662	1.86	40,000
Damoti	Open pit	0.57	-	-	-	505	4.13	67,000
	Underground Selective	1.66	-	-	-	601	2.60	50,000
Treasure Island	Open pit	0.51	-	-	-	1,259	3.64	147,000
	Underground Bulk	1.5	-	-	-	696	2.96	66,000
Total Open pit			59,945	1.45	2,804,000	11,070	2.33	830,000
Total Underground			10,486	1.73	583,000	13,364	2.03	872,000
Total			70,432	1.50	3,387,000	24,434	2.17	1,702,000

Notes: 1. The independent and qualified persons for the mineral resource estimate, as defined by NI 43-101, are Marina Iund, P.Geo., Carl Pelletier, P.Geo., and Simon Boudreau, P.Eng. all from InnovExplo Inc., and the effective date is February 9, 2023. 2. These mineral resources are not mineral reserves, as they do not have demonstrated economic viability. The mineral resource estimate follows current CIM definitions and guidelines. 3. The results are presented undiluted and are considered to have reasonable prospects of economic viability. 4. The estimate encompasses eight gold deposits (Cass, Colomac Main, Damoti, Goldcrest, Grizzly Bear, Kim, Treasure Island, 24/27), subdivided into 115 individual zones (six for Cass, six for Colomac Main, 38 for Damoti, three for Goldcrest, four for Grizzly Bear, one for Kim, 45 for Treasure Island, 12 for 24/27) using the grade of the adjacent material when assayed or a value of zero when not assayed. Five low-grade envelopes were created: one for Colomac Main (quartz diorite dyke) and four for Damoti (BIF). 5. High-grade capping supported by statistical analysis was done on raw assay data before compositing and established on a per-zone basis varying from 15 to 100 g/t Au for mineralized zones and 15 to 20 g/t Au for the envelopes. 6. The estimate was completed using sub-block model in Leapfrog Edge 2022.1, except for Goldcrest, which was estimated using sub-block model in GEOVIA Surpac 2021, and Damoti, which was estimated using a percent block model in Gemcom. 7. Grade interpolation was performed with the inverse distance cubed (ID3) method on 1.5 m composites for the Colomac Main, Goldcrest and Grizzly Bear deposits, with the inverse distance squared (ID2) method on 1 m composites for the Cass and Treasure Island deposits, with the ID3 method on 1 m composites for the Kim deposit, with the ID2 method on 1.5 m composites for the 24/27 deposits, and with the ordinary kriging (OK) method on 1.0 m composites for the Damoti deposit. 8. A density of value of 3.2 g/cm^3 (Damoti), 3.0 g/cm^3 (Cass), 2.95 g/cm^3 (Kim), 2.7 g/cm^3 (Colomac Main, Goldcrest, Grizzly Bear, Treasure Island and 24/27,) and 2.00 g/cm^3 (overburden) was assigned. 9. The mineral resource estimate is classified as indicated and inferred. For the Cass, Colomac Main, Goldcrest and Grizzly Bear, Kim, Treasure Island, 24/27 deposits, the inferred category is defined with a minimum of two drill holes within the areas where the drill spacing is less than 75 m and shows reasonable geological and grade continuity. The indicated mineral resource category is defined with a minimum of three drill holes within the areas where the drill spacing is less than 50 m. For the Damoti deposit, the inferred category is defined with a minimum of two drill holes within the areas where the drill spacing is less than 60 m and shows reasonable geological and grade continuity. Clipping boundaries were used for classification based on those criteria. 10. The mineral resource estimate is locally pit-constrained with a bedrock slope angle of 50° and an overburden slope angle of 30°. It is reported at rounded cut-off grade ranges of 0.45 to 0.57 g/t Au (open pit), 1.02 to 1.50 g/t Au (underground bulk) and 1.66 g/t Au (Damoti – underground selective). The cut-off grades were calculated using the following parameters: mining cost = CA$3.25/t to CA$ 73.00/t; processing cost = CA$21.00/t; G&A = CA$6.00/t; refining costs = CA$5.00/oz; selling costs = CA$ 5.00/oz to CA$54.80/oz; gold price = US$1,660.00/oz; USD:CAD exchange rate = 1.33; and mill recovery = 97.0%. The cut-off grades should be re-evaluated in light of future prevailing market conditions (metal prices, exchange rates, mining costs etc.). 11. The number of metric tonnes was rounded to the nearest thousand, following the recommendations in NI 43-101 and any discrepancies in the totals are due to rounding effects. The metal contents are presented in troy ounces (tonnes x grade / 31.10348). 12. The authors are not aware of any known environmental, permitting, legal, title-related, taxation, socio-political, or marketing issues, or any other relevant issue not reported in the technical report, that could materially affect the mineral resource estimate.

Table 14-20: Colomac Gold Project 2023 Mineral Resource Estimate, Cut-off Sensitivity by Deposit for the Open Pit Portion

Deposit	Area (Mining Method)	Cut-off (g/t)	Indicated Mineral Resource			Inferred Mineral Resource		
			Tonnage (kt)	Au (g/t)	Ounces	Tonnage (kt)	Au (g/t)	Ounces
Colomac Main	Open pit	0.38	65,350	1.38	2,891,614	5,375	1.79	309,073
		0.41	60,025	1.41	2,714,798	3,656	1.85	216,915
		0.45	54,404	1.45	2,548,436	2,625	1.97	166,126
		0.50	40,500	1.54	2,006,586	1,566	2.13	107,092
		0.56	31,784	1.63	1,669,239	866	2.48	69,209
24/27	Open pit	0.38	1,778	1.61	91,121	18	1.44	840
		0.42	1,593	1.68	86,276	15	1.49	744
		0.46	1,451	1.75	81,718	15	1.51	721
		0.51	1,321	1.82	77,404	13	1.56	662
		0.57	1,200	1.89	73,003	10	1.64	554
Goldcrest	Open pit	0.38	3,381	1.27	138,605	125	1.45	5,818
		0.41	3,141	1.31	132,438	114	1.50	5,533
		0.45	2,849	1.36	124,561	104	1.52	5,073
		0.50	2,578	1.42	117,432	97	1.58	4,944
		0.56	2,279	1.46	106,995	85	1.61	4,390
Grizzly Bear	Open pit	0.38	1,529	1.22	60,204	19	0.73	432
		0.42	1,407	1.26	56,902	15	0.72	342
		0.46	1,142	1.34	49,208	11	0.69	243
		0.51	938	1.45	43,615	3	0.69	71
		0.57	833	1.51	40,493	0.1	0.70	2
Cass	Open pit	0.44	-	-	-	4,368	2.25	315,756
		0.48	-	-	-	4,173	2.31	309,309
		0.52	-	-	-	3,983	2.36	301,758
		0.58	-	-	-	2,927	2.54	239,356
		0.66	-	-	-	2,636	2.66	225,684
Kim	Open pit	0.44	-	-	-	2,872	1.63	150,090
		0.48	-	-	-	2,734	1.66	146,319
		0.52	-	-	-	2,568	1.72	141,994
		0.58	-	-	-	2,304	1.78	131,646
		0.66	-	-	-	2,063	1.87	123,934
Treasure Island	Open pit	0.42	-	-	-	1,688	3.39	184,126
		0.46	-	-	-	1,633	3.44	180,891
		0.51	-	-	-	1,259	3.64	147,416
		0.56	-	-	-	1,035	3.81	126,820
		0.63	-	-	-	953	3.95	121,061
Damoti	Open pit	0.47	-	-	-	1,415	3.00	136,617
		0.52	-	-	-	1,340	3.12	134,384
		0.57	-	-	-	505	4.13	67,042
		0.64	-	-	-	476	4.33	66,281
		0.72	-	-	-	445	4.55	65,070

Table 14-21: Colomac Gold Project 2023 Mineral Resource Estimate, Cut-off Sensitivity by Deposit for the Underground Portion

Deposit	Area (Mining Method)	Cut-off (g/t)	Indicated Mineral Resource			Inferred Mineral Resource		
			Tonnage (kt)	Au (g/t)	Ounces	Tonnage (kt)	Au (g/t)	Ounces
Colomac Main	Underground	0.85	7,475	1.52	365,131	10,152	1.74	566,313
		0.93	8,314	1.67	446,964	10,348	1.87	621,674
		1.02	**8,750**	**1.77**	**498,092**	**10,017**	**1.97**	**633,535**
		1.13	12,770	1.91	782,709	9,431	2.12	642,104
		1.27	13,051	2.07	870,080	8,548	2.28	626,489
24/27	Underground	0.85	590	1.38	26,227	357	1.80	20,628
		0.93	566	1.44	26,236	330	1.89	19,999
		1.03	**514**	**1.55**	**25,571**	**305**	**1.97**	**19,279**
		1.14	468	1.65	24,865	278	2.07	18,487
		1.28	386	1.80	22,364	250	2.18	17,482
Goldcrest	Underground	0.85	776	1.29	32,056	287	1.15	10,650
		0.93	720	1.38	31,820	253	1.22	9,956
		1.02	**659**	**1.49**	**31,661**	**225**	**1.29**	**9,365**
		1.13	591	1.64	31,203	183	1.37	8,056
		1.27	521	1.88	31,472	136	1.51	6,571
Grizzly Bear	Underground	0.85	646	1.35	28,055	215	1.28	8,814
		0.93	583	1.42	26,578	192	1.31	8,077
		1.03	**563**	**1.54**	**27,830**	**156**	**1.43**	**7,196**
		1.14	512	1.60	26,286	150	1.50	7,264
		1.28	451	1.69	24,543	115	1.59	5,886
Cass	Underground	1.09	-	-	-	704	1.78	40,297
		1.19	-	-	-	661	1.87	39,825
		1.31	**-**	**-**	**-**	**702**	**2.05**	**46,224**
		1.46	-	-	-	999	2.50	80,368
		1.64	-	-	-	937	2.68	80,827
Kim	Underground	1.09	-	-	-	907	1.61	46,980
		1.19	-	-	-	766	1.73	42,541
		1.31	**-**	**-**	**-**	**662**	**1.86**	**39,692**
		1.46	-	-	-	577	2.00	37,121
		1.64	-	-	-	460	2.17	32,061
Treasure Island	Underground	1.25	-	-	-	635	2.40	48,976
		1.37	-	-	-	570	2.58	47,268
		1.50	**-**	**-**	**-**	**696**	**2.96**	**66,141**
		1.67	-	-	-	731	3.23	75,847
		1.88	-	-	-	641	3.51	72,380
Damoti	Underground	1.38	-	-	-	56	1.87	3,342
		1.50	-	-	-	58	2.03	3,776
		1.66	**-**	**-**	**-**	**601**	**2.60**	**50,203**
		1.85	-	-	-	521	2.78	46,656
		2.09	-	-	-	452	2.99	43,398

15 MINERAL RESERVE ESTIMATES

This section is not relevant to this technical report.

16 MINING METHODS

16.1 Introduction

Open pit and underground mine designs, mine production schedules and mine capital and operating costs have been developed for the Colomac Main, Grizzly Bear, Goldcrest, 24/27, Kim, Cass, Damoti, and Treasure Island deposits at a scoping level of engineering.

The open pit operations are designed for approximately 13 years, and the underground operations are designed to take place concurrently. Conventional drill/blast/load/haul open pit mining methods are suited for the project location and local site requirements. Mechanized cut-and-fill (MCF) underground mining methods are suited for the deposit geometries and targeted selectivity and production rates.

The subsets of mineral resources contained within the designed open pits and underground stopes are summarized in Table 16-1. Cut-off grades used for each deposit and mining method are also shown as reference. This subset of mineral resources forms the basis of the mine plan and production schedule.

Table 16-1: PEA Mine Plan Production Summary

Deposit	Mining Method	Mill Feed (Mt)	Mill Feed Au Grade (g/t)	Mill Feed Metal (koz)	Waste Rock (Mt)	S/R	Applied Cut-off Grade (g/t Au)
Colomac Main	Open Pit	49.7	1.26	2,020	477	9.6	0.36
Goldcrest	Open Pit	2.6	1.17	100	19	7.3	0.36
Grizzly Bear	Open Pit	1.3	1.06	45	6	4.4	0.36
24/27	Open Pit	1.2	1.38	54	5	3.8	0.41
Cass	Open Pit	3.3	1.91	205	28	8.5	0.48
Kim	Open Pit	2.5	1.56	124	13	5.3	0.48
Damoti	Open Pit	0.6	2.91	52	5	9.8	0.61
Total Open Pit		61.3	1.32	2,600	554	9.0	
Colomac	Underground	4.8	4.06	627	-	-	2.20
Cass	Underground	0.3	3.77	37	-	-	2.20
Treasure Island	Underground	0.6	4.88	86	-	-	2.20
Damoti	Underground	0.2	3.92	31	-	-	2.20
Total Underground		5.9	4.12	782	-	-	
Total Open Pit & Underground		67.2	1.57	3,383	554		

Notes: 1. The PEA Mine Plan and mill feed estimates are a subset of the February 9, 2023. mineral resource estimates and are based on open pit and underground mine engineering and technical information developed at a scoping level for the Colomac Main, Goldcrest, Grizzly Bear, 24/27, Cass, Kim, Damoti, and Treasure Island deposits. 2. PEA Mine Plan and mill feed estimates are mined tonnes and grade; the reference point is the primary crusher. 3. Mill feed tonnages and grades include mining modifying factors. Open pit contents are based on 5 m selective mining unit (SMU) block sizes (except for Damoti, which uses 6 m SMU block sizes). The SMU block sizes account for the effects of open pit mining dilution and recovery. Underground stope contents include and additionally applied 12% mining dilution, at a 1 g/t Au diluting grade, and 95% underground mining recovery. 4. Cut-off grade estimates are based on US$1,550/oz. Au at a currency exchange rate of US$0.74 per C$1.00; 99.95% payable gold; $6.50/oz off-site costs (refining, transport and insurance); and an 85% metallurgical recovery for cut-off grade gold. 5. The open pit cut-off grade of 0.36 g/t Au includes the processing costs of $12.00/t, administrative (G&A) costs of $3.50/t, mining costs of $3.00/t, and low-grade stockpile rehandling costs of $2.00/t. The increased cut-off grades of 0.41 g/t, 0.48 g/t and 0.61 g/t Au for the satellite deposits also include coverage for resource to mill transport costs of $3/t, $7/t, and $14/t, respectively. 6. The underground cut-off grade of 2.20 g/t Au covers processing costs of $12.00/t, administrative (G&A) costs of $3.50/t, mining costs of $115.00/t, and low-grade stockpile rehandle costs of $2.00/t. 7. Estimates have been rounded and may result in summation differences.

Economic pit limits are determined using the Pseudoflow implementation of the Lerchs-Grossman algorithm. For Colomac Main, the ultimate pit limits are split up into phases or pushbacks to target higher economic margin material earlier in the mine life. The Goldcrest, Grizzly Bear, 24/27, Cass, Kim and Damoti open pits are each planned to be mined as one phase. Geotechnical investigations have not been completed for the deposits, so benches and ramps have not been designed, and pit contents are bounded by the optimization shells. Open pit shells have 45° overall slopes at Colomac and 50° overall slopes in all other deposits. Open pit contents are based on a diluted and recovered 5 m SMU block size (6 m block size for Damoti). The SMU blocks introduce a weighted average 11% dilution to the original mineral resource estimate (effect varies by deposit).

Underground stope inventories are determined using the stope shape optimizer algorithm targeting material above 2.5 g/t Au, and with stope shape sizes of 10 m long x 10 m high x 4 m thick, appropriate for MCF methods. Stope shapes are clipped to 25 m below the open pit limits to provide a pillar between the underground workings and the open pits. Underground mining dilution of 12%, at a 1 g/t Au diluting grade, is applied to the stope contents based on the selectivity of the MCF mining method and average stope thickness. Mining recovery of 95% is also applied.

The mill will be fed with material from the pits and stopes at an average rate of 6.1 Mt/a (16.7 kt/d), with the majority of mill feed coming from the Colomac open pits. Waste rock will be placed in waste rock storage facilities (WRSF) directly adjacent to open pit ramp exits. Waste rock will also be used for construction of the haul roads between the pit exits and the primary crusher. Topsoil and overburden encountered at the top of the pits will be placed in dedicated areas of the WRSF and kept salvageable for closure at the end of the mine life. Waste rock from the underground operations will be placed within the open pit WRSF facilities.

Open pit mine operations are planned to be owner operated. Mining will be based on an operating schedule of two 12-hour shifts per day, 365 days per year. An allowance of 10 days has been built into the mine schedule to allow for adverse weather conditions when there is no mine production.

Underground operations are planned to be executed via contractor, covering capitalized ramp, drift, and raise development, operating development, and stope extraction and backfill. The detailed make-up of the contractor fleet has not been considered.

16.2 Key Design Criteria

The following mine planning design inputs were used:

- Topography is based on a several LiDAR surveys of the various deposit areas.
- Surveys of bedrock contact surfaces are also used to estimate the following:
  - historical waste rock deposition at the Colomac Main and Goldcrest deposits,
  - overburden quantities within each deposit.
- Re-blocked resource block models have 5 m spacing in all three dimensions (6 m for Damoti).
- The resource models contain diluted mineralized gold grades, bulk densities, resource classifications.
- Measured, indicated and inferred class mineral resource estimates are included in pit optimizations and mill feed estimates.

- A mill process recovery of 95% is assumed for mine planning.
- Open pit overall slopes of 45° have been assumed for the Colomac Main deposit, which ranges from 200 m to 300 m in depth, and 50° for the satellite deposits, which range from 50 m to 150 m in depth. In addition:
  - Overburden slopes are decreased to 22°, and within rehandled waste rock stockpiles to 27°.
  - These parameters are not based on geotechnical testwork or modelling. They are based on potential pit depth compared to other open pit operations in Canada. This is considered sufficient for scoping-level mine planning.
- Historical Colomac open pits are standing at 60° slopes at up to 150 m in depth.
- Waste storage piles, stockpiles and haul roads are planned to minimize wetland, waterbody, and watercourse disturbance.
- WRSF facilities are designed with 3:1 overall slopes and a placed density of 2.1 t/m^3.
- Haul roads to the satellite deposits are designed with a 20 m width, accommodating one way haulage for 90-tonne payload rigid-frame trucks, assuming spaced pull-outs every 2 km passing. Haul road maximum grades of 8% were assumed.
- Underground stope shape dimensions of 10 m length x 10 m height x 4 m width were applied.
- Underground development ramps maximum grades of 15% were applied.

16.2.1 Net Smelter Price and Cut-off Grade

Net smelter price (NSP) is used for mine planning in place of the market price for gold to consider all off-site costs and determine revenue potential at the mine gate. The NSP calculation uses the inputs shown in Table 16-2.

Table 16-2: Net Smelter Price

Item	Value/Unit
Gold Price	US$1,550/oz
U.S. Exchange Rate	US$0.74 : C$1.00
Payable Gold	99.95%
Gold Off-Site Costs (Refining, Transport, Insurance)	US$6.50/oz
Royalty	0.0%
Net Smelter Price	**C$67/g**
Dollars per Ounce	**C$2,085/oz**

The economic cut-off grade is chosen as the gold grade required to pay for mining costs, processing costs, general and administration costs, low grade stockpile reclaim costs, and mineralized material transport costs. The cut-off grade calculation uses the inputs shown in Table 16-3.

Table 16-3: Economic Cut-off Grade

Item	Value/Unit
Net Smelter Price	67/g
Process Recovery at Cut-off	85%
Process Costs	$12/t
G&A and Site Costs	$3.50/t
Open Pit Mining Costs	$3/t
Underground Mining Costs	$115/t
Stockpile Rehandle Costs	$2/t
Resource to Mill Transport Costs, 24/27	$3/t
Resource to Mill Transport Costs, Kim and Cass	$7/t
Resource to Mill Transport Costs, Damoti	$14/t
Open Pit Economic Cut-off Grade: Colomac Main, Grizzly Bear, Goldcrest	0.36 g/t
Open Pit Economic Cut-off Grade: 24/27	0.41 g/t
Open Pit Economic Cut-off Grade: Cass, Kim, Treasure Island	0.48 g/t
Open Pit Economic Cut-off Grade: Damoti	0.61 g/t
Underground Economic Cut-off Grade	2.20 g/t

16.2.2 Mining Loss & Dilution

The mineral resources are based on resource model sub-block sizes listed in Table 16-4. For open pit mine planning, these blocks have been re-blocked to an open pit mining unit size of 5 m x 5 m x 5 m, which accounts for planned open pit mine operating conditions. This re-blocking to 5 m block spacing introduces ~11% dilution the original sub-block resource models, when measured at the cut-off gold grades listed in Table 16-3. The resource model block sizes and introduced dilution for each open pit deposit is listed in Table 16-4.

Table 16-4: Open Pit Dilution Estimates

Deposit	Resource Model Block Sizes (m)	SMU Block Estimated Dilution
Colomac Main	1.25 x 5 x 5	11%
Goldcrest	1.25 x 2.5 x 2.5	10%
Grizzly Bear	1.25 x 1.25 x 1.25	12%
24/27	1.25 x 1.25 x 1.25	12%
Cass	1 x 1 x 1	23%
Kim	1.25 x 1.25 x 1.25	5%
Damoti	3 x 3 x 3	10%

This approach to calculating dilution and loss is considered appropriate for the current mine plan. The calculated 5 m re-blocked mill feed gold grades are taken as representative of the diluted run-of-mine material that the operator will be able to achieve when pursuing the throughputs targeted in this mine plan.

Additional mining operational losses have not been accounted for and are assumed to be considered within the scoping level accuracy of the dilution measurements.

For underground mine planning a mining dilution of 12% at 1 g/t Au is introduced to the calculated stope shape contents. This dilution is based on an average measured stope shape thickness of 5.8 m diluted out by 0.7 m for MCF mining methods. A 95% underground mining recovery has been applied to the diluted stope shape contents.

16.2.3 Waterbody Restrictions

The mine design is restricted from mining or depositing waste rock to within 30 m of Steeve's Lake, just west of the Colomac Main deposit. This restriction does not limit the economic pit limits for the Colomac, Goldcrest, or Grizzly Bear deposits, but restricts the footprint of planned WRSF's between the pits and the lake.

Baton Lake, on the eastern side of the Colomac Main deposit is impacted by the economic limits of the Colomac Main open pit. The pit has not been restricted from mining into Baton Lake for this mine plan, with the assumption that the impacted portion of this lake will be diverted prior to mining.

Open pit mining is restricted from impacting Spider Lake, which completely restricts the economic potential of open pit exploitation of the Treasure Island deposit. Treasure Island is only considered as an underground operation in this mine plan.

Lex Lake, on the southern side of the Kim deposit, is impacted by the economic limits of the Kim open pit. The pit has not been restricted from mining into Lex Lake for this mine plan, with the assumption that the impacted portion of this lake will be diverted prior to mining.

The haul roads between the Colomac centre area mill and the satellite deposits will cross several watercourses. Routes have been chosen to minimize these crossings, and, where possible, crossing points have been chosen along existing developed roads.

16.3 Open Pit Optimization

The economic pit limits are determined using the Pseudoflow algorithm. This algorithm uses the resource gold grades and bulk density for each block of the 3D block model and evaluates the costs and revenues of the blocks within potential pit shells. The routine uses input economic and engineering parameters and expands downwards and outwards until it finds the highest revenue open pit shape.

Additional cases are included in the analysis to evaluate the sensitivities of open pit mined resources to waste mining ratio and high-grade/low-grade areas of the deposits. In this study, the various cases or pit shells are generated by varying the input gold price and comparing the resultant waste and mill feed tonnages and gold grades for each pit shell.

By varying the economic parameters while keeping inputs for metallurgical recoveries and pit slopes constant, various generated pit cases are evaluated to determine where incremental pit shells produce marginal or negative economic returns. This drop-off is due to increasing waste mining ratios, decreasing gold grades, increased mining costs associated with the larger or deeper pit shells, and the value of discounting costs before revenues. The economic margins from the expanded cases are evaluated on a relative basis to provide payback on capital and produce a return for the project. At some point, further expansion does not provide significant added value. A pit limit can then be chosen that has suitable economic return for the deposit.

For each pit shell, an undiscounted cashflow (UCF) is generated based on the shell contents and the economic parameters listed in Table 16-5. The UCFs for each case are compared to reinforce the selected point at which increased pit expansions do not increase the project value. Note that the economics are only applied for comparative purposes to assist in the selection of an optimum pit shell for further mine planning; they do not reflect the actual financial results of the mine plan. The chosen pit shell is then used as the basis for more detailed mine planning and economic modelling.

Price inputs for the Pseudoflow runs are listed Table 16-5 and operating cost assumptions are provided in Table 16-6. Diluted SMU block gold grades are used as an input. The input gold price is varied from US$240/oz to US$2,560/oz, with US$1,550/oz considered the base case price factor (PF) input.

Table 16-5: Operating Cost Inputs into Pseudoflow Shell Runs

Item	Unit
Mining Cost	C$3.20/t
Processing Cost	C$12.00/t
Process Recovery	95%
General/Administration Cost	C$3.50/t

16.3.1 Open Pit Limits

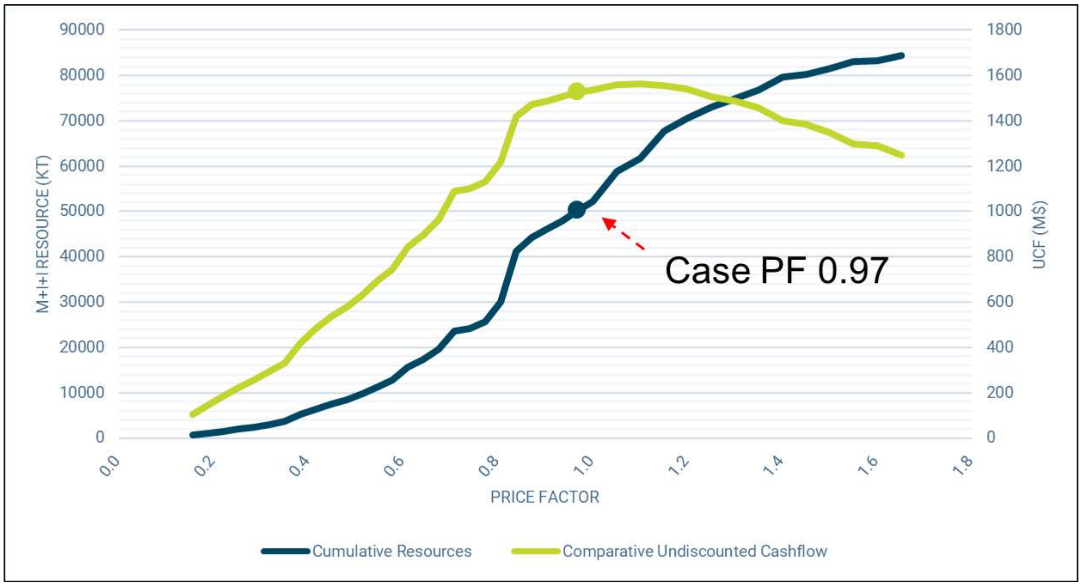
Figures 16-1 to 16-7 show the contents of the generated Pseudoflow pit shells for the Colomac Main, Goldcrest, Grizzly Bear, 24/27, Cass, Kim, and Damoti deposits. Each point on the curve represents a physical pit shell surrounding a portion of the deposit. Inflection points can be seen in the curve of cumulative resources and UCF by pit shell case. These inflections indicate points at which larger pit shells will not produce significant increases to project value and have been chosen as the basis for further mine planning for each deposit.

Table 16-6 summarizes the price factor input used to generate the chosen pit shell limits for each deposit.

Table 16-6: Price Factors Used to Generate Selected Open Pit Shells for Mine Planning

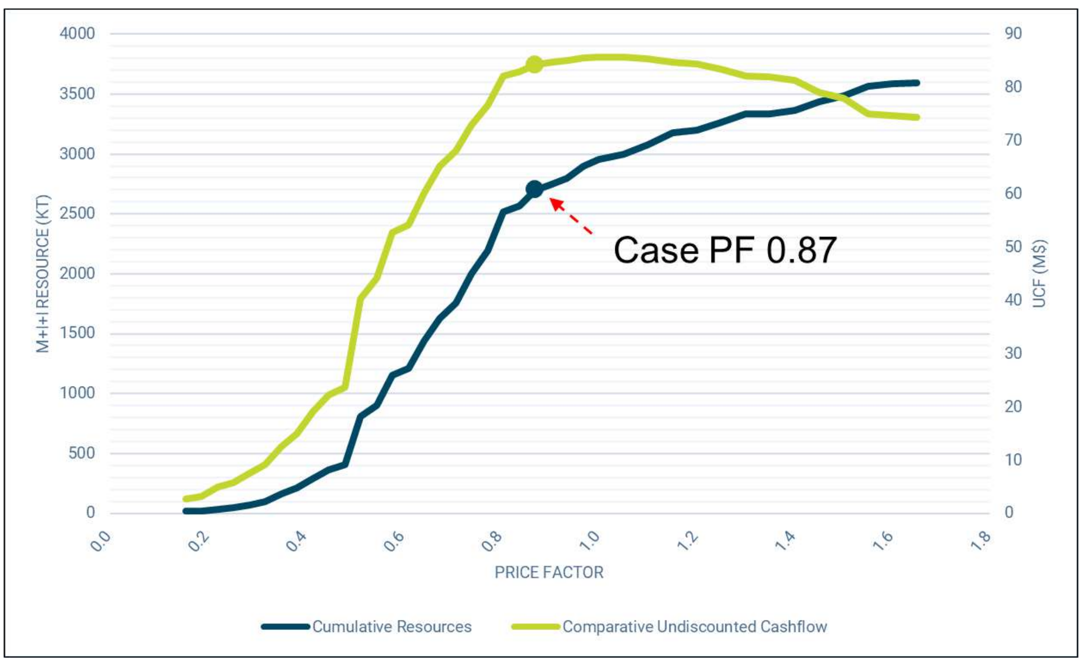
Deposit	Price Factor (PF) Shell Selected
Colomac Main	0.97
Goldcrest	0.87
Grizzly Bear	0.87
24/27	0.68
Cass	0.74
Kim	0.81
Damoti	0.81

Figure 16-1: Colomac Main Pseudoflow Pit Shell Resource Contents by Case



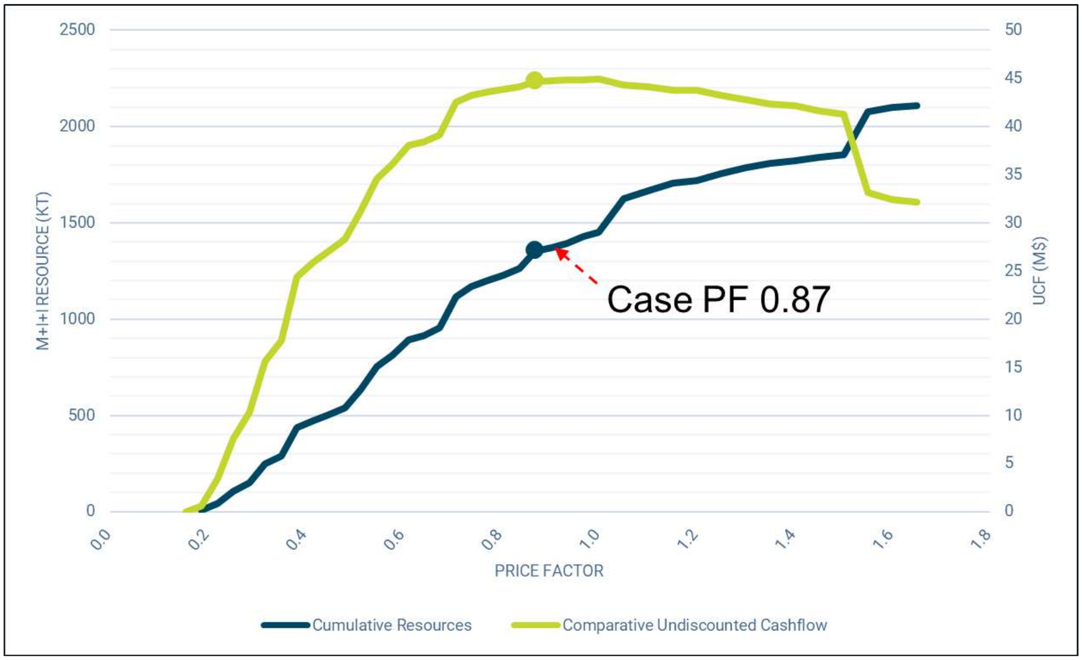
Source: Moose Mountain, 2023.

Figure 16-2: Goldcrest Pseudoflow Pit Shell Resource Contents by Case



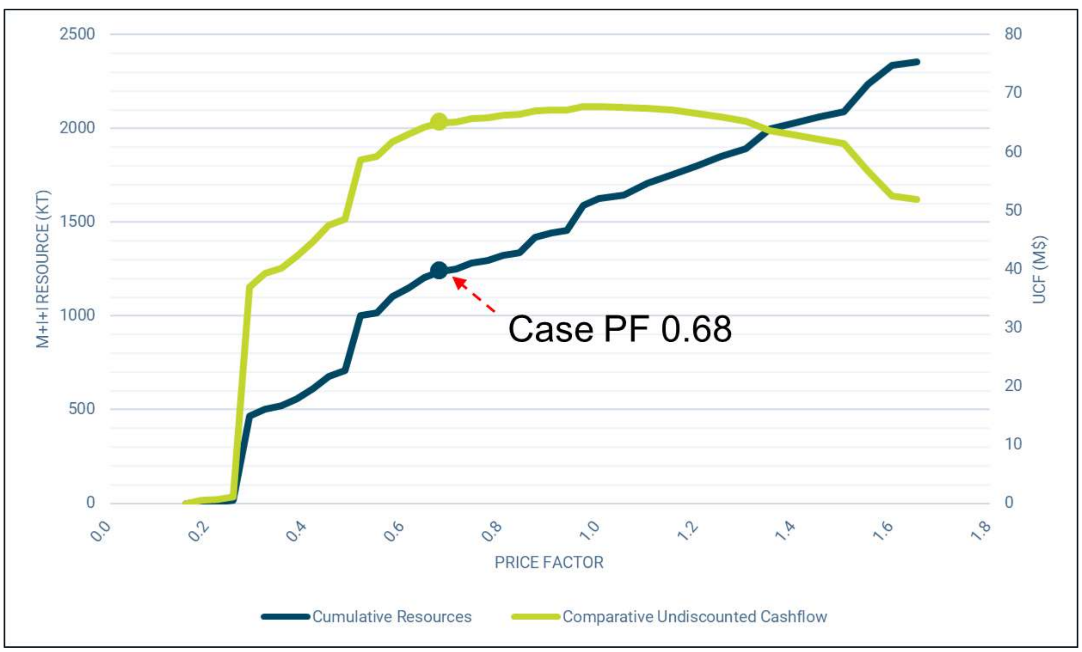
Source: Moose Mountain, 2023.

Figure 16-3: Grizzly Bear Pseudoflow Pit Shell Resource Contents by Case



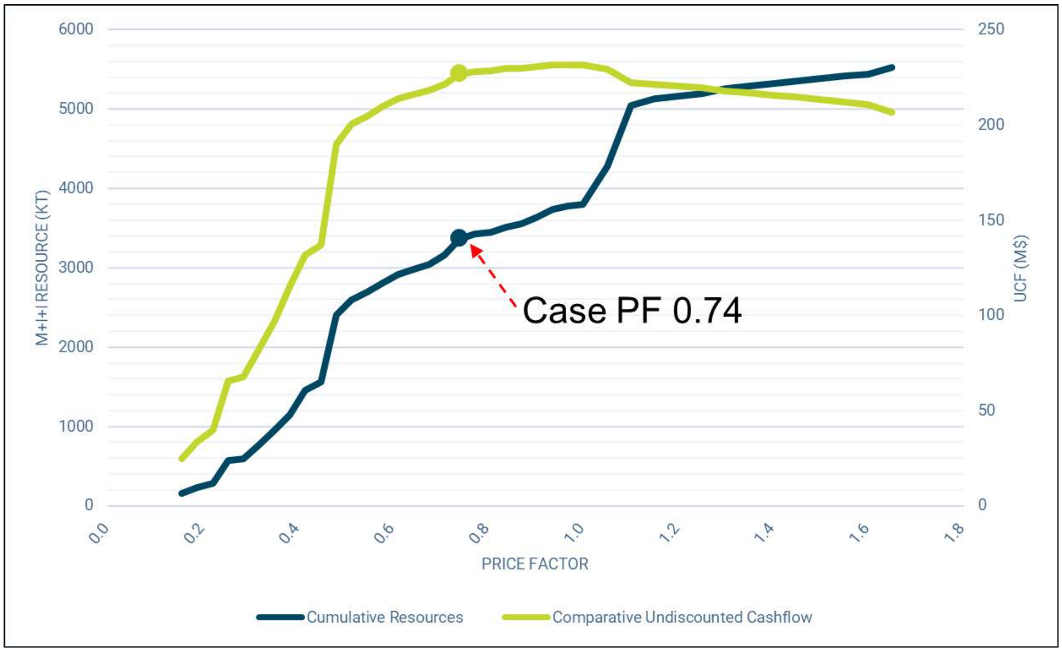
Source: Moose Mountain, 2023.

Figure 16-4: 24/27 Pseudoflow Pit Shell Resource Contents by Case



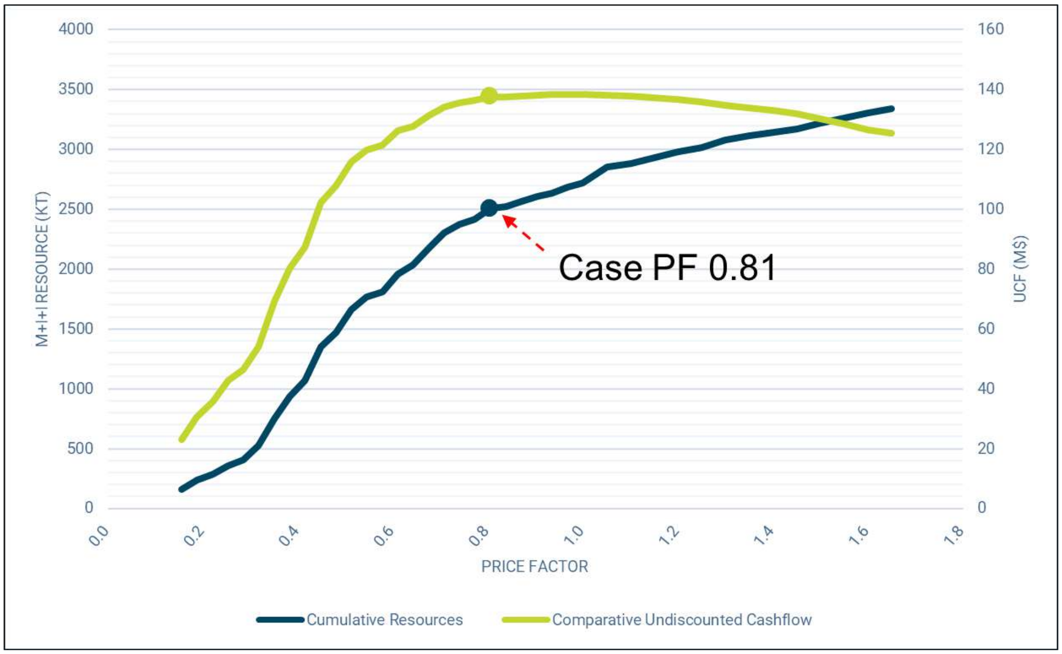
Source: Moose Mountain, 2023.

Figure 16-5: Cass Pseudoflow Pit Shell Resource Contents by Case



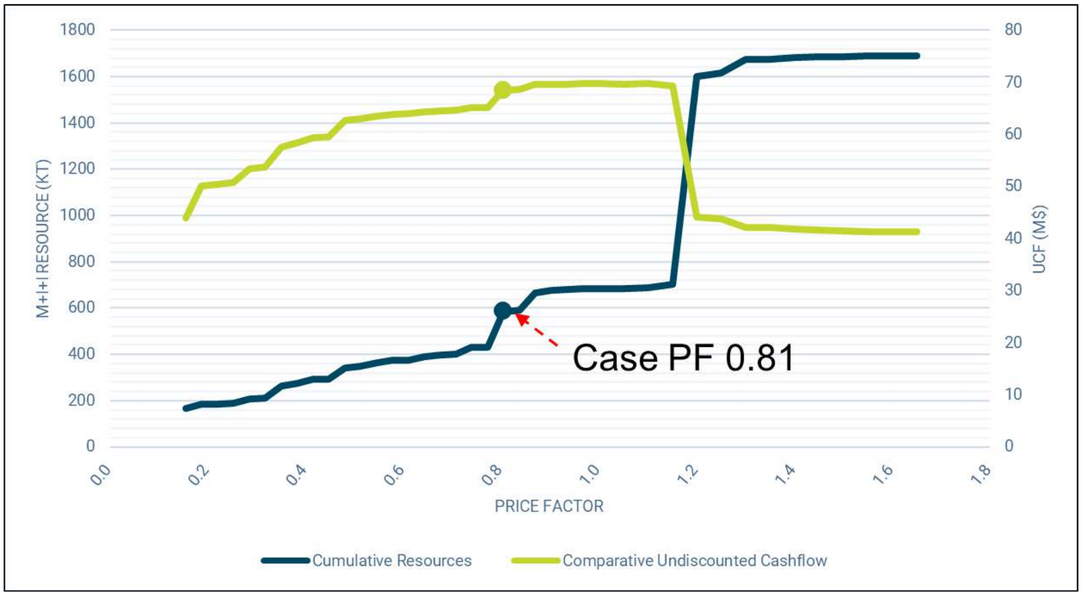
Source: Moose Mountain, 2023.

Figure 16-6: Kim Pseudoflow Pit Shell Resource Contents by Case



Source: Moose Mountain, 2023.

Figure 16-7: Damoti Pseudoflow Pit Shell Resource Contents by Case



Source: Moose Mountain, 2023.

The contents of these shells form the basis of the PEA mine production schedule. No geotechnical bench configuration has been designed for these deposits, so no berms or access ramps have been incorporated into these shells. It is assumed that the input overall pit slopes will properly account for the strip ratios associated with accessing the mill feed tonnes contained within the chosen pit shells. This is an adequate assumption for scoping-level mine planning but includes a risk/opportunity that future geotechnical analysis will result in increased or decreased strip ratios associated with these mill feed tonnes.

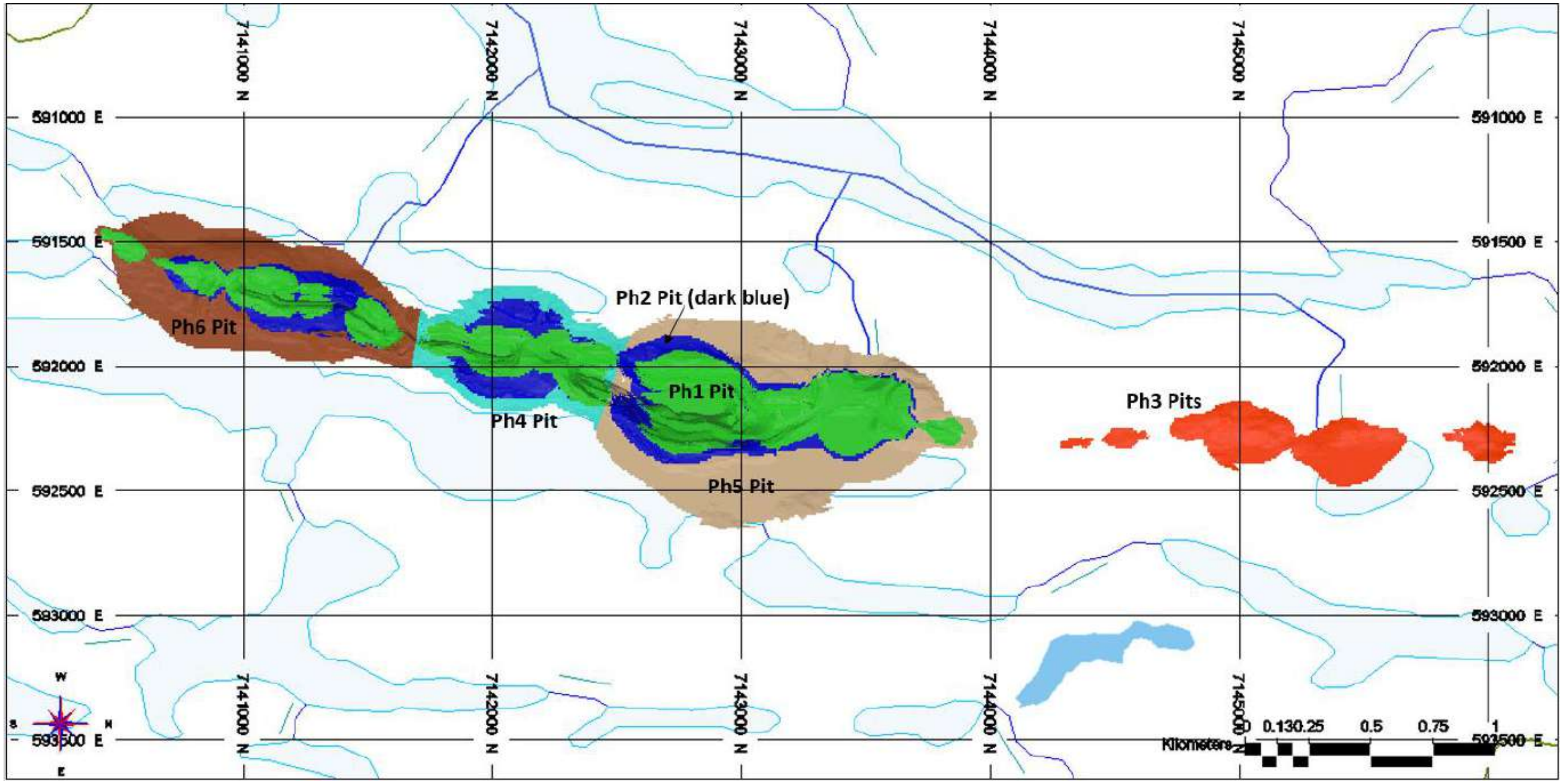
16.3.2 Open Pit Phasing

The Colomac Main open pits are split into several phases that initially target high economic margin areas of the deposit, followed by pushbacks to lower margin material later in the mine life. All other deposit pit shells assume single-phase development from top to bottom.

The Colomac Main pit is split into six phases (see Figure 16-8. The 0.51 and 0.58 price factor pit shells are used to guide the first two pit phases. The third phase uses the chosen 0.97 price factor target shell but is limited to several shallow mini pits in the north of the deposit. The fourth, fifth and sixth phases push the pit walls to the 0.97 price factor shell in three separate areas.

A minimum pushback distance of 50 m is targeted. A few areas between the first two pit phases do not achieve this, but the waste rock contents for these areas do not materially impact the material flow of the generated PEA mine production schedule. This is illustrated in Section 16.9.2, which shows the coincident progression of phase 1 and phase 2 pits in the early years of the PEA mine plan.

Figure 16-8: Colomac Pit Phasing



Source: Moose Mountain, 2023.

16.4 Underground Optimizations

16.4.1 Colomac Main

The economic underground stope inventories for the Colomac Main deposit are determined using the stope shape optimizer algorithm followed by manual deletion of stopes that are too small or too remote from the principal development. This algorithm applies a minimum mining sized 3D stope shape, with dimensions based on a chosen mining method, to groups of resource blocks. If the aggregated grade within the stope shape passes an economic cut-off grade, then the shape is drawn, and the total contents of the mineable shape are reported. This algorithm is run on the original sub-blocked resource model.

Several combinations of mining method, stope shape size, and cut-off grade were tested for the Colomac Main deposit. As underground mining methods become more selective, the stope shape dimensions become smaller, and less aggregated internal dilution is introduced. However, the associated mining costs for the selective mining method are increased, along with the economic cut-off grade required to preserve the economics of the stope, so lower grade stopes drop out.

An MCF underground mining method with 10 m x 10 m x 4 m stope dimensions are applied, along with a 2.5 g/t Au cut-off grade that is selected to generate an economic margin at C$115/t contractor mine operating costs for the MCF method.

The generated stope shapes have been examined spatially, and smaller, remote groupings of stopes that would not generate enough revenue to pay for the development capital required to access them have been manually removed.

The measured stope shape contents with internally diluted grades are further diluted by 12%, at 1 g/t Au, applying external hangingwall and footwall dilution on either side of the stope shapes. A 95% mining recovery is applied to the diluted underground tonnages to account for potential pillars between the stope shapes and operational losses.

16.4.2 Satellite Deposits

An alternative method of estimating potential underground stope contents has been employed by drawing grade shells around all 5 m diluted SMU blocks above 2.5 g/t Au and manually removing small, remote groupings of these outlined blocks (orphans). The measured contents of these grade shells at Colomac are equal in tonnes and grade to the contents of stope shapes generated by the stope shape optimizer algorithm.

The grade shell method has therefore been used to estimate underground mining inventories for all satellite (non-Colomac) underground deposits. There is a risk/opportunity that running a more detailed stope shape optimizer solution for these deposits would generate a smaller or larger underground mining inventory. In the context of the total PEA mining project, this risk/opportunity is insignificant.

16.5 Open Pit vs. Underground Value Trade-Off Study

For all deposits under consideration, a trade-off study between open pit and underground mining has been carried out. This trade-off is based on a value formula that accounts for the revenues from the contained mill feed ounces (tonnes and gold grade), and the potential capital and operating costs for exploiting those ounces via open pit and underground methods. This value formula uses the revenue and costs inputs described in Table 16-7, along with the additional cost estimates.

Table 16-7: Additional Cost Inputs for Open Pit vs. Underground Economic Trade-off

Item	Unit
Open Pit Mine Fleet Capital	C$0.60/t
Underground Development Costs	C$50/t

The value formula is applied to the following, and compared:

- ounces within chosen open pit shapes
- ounces within underground stope shapes internal to the open pit shapes
- ounces within underground stope shapes clipped to 25 m below the open pits.

Coincident ounces bounded by both open pit and underground mining shapes generate higher value when exploited via open pit methods. This is the conclusion for all deposits.

For the Colomac Main, Cass, and Damoti deposits, the remaining underground stope shapes below the open pit also generate positive value and are carried forward into the mine plan. For the Goldcrest, Grizzly Bear, 24/27 and Kim deposits, the remaining stope shapes below the open pit do not generate enough positive economic value for exploitation and are not carried forward into the mine plan.

For Treasure Island, a decision was taken to only exploit the deposit via underground methods, but a positive open pit opportunity exists should a solution to open pit mining through Spider Lake be realized in future engineering studies.

The value formula used to evaluate the trade-off between potential open pit and underground mining is also used to rank each deposit based on the value per ounce generated. The results of this ranking have been used to guide the order of exploitation in the mine production schedule.

16.6 Selected Open Pit and Underground Limits

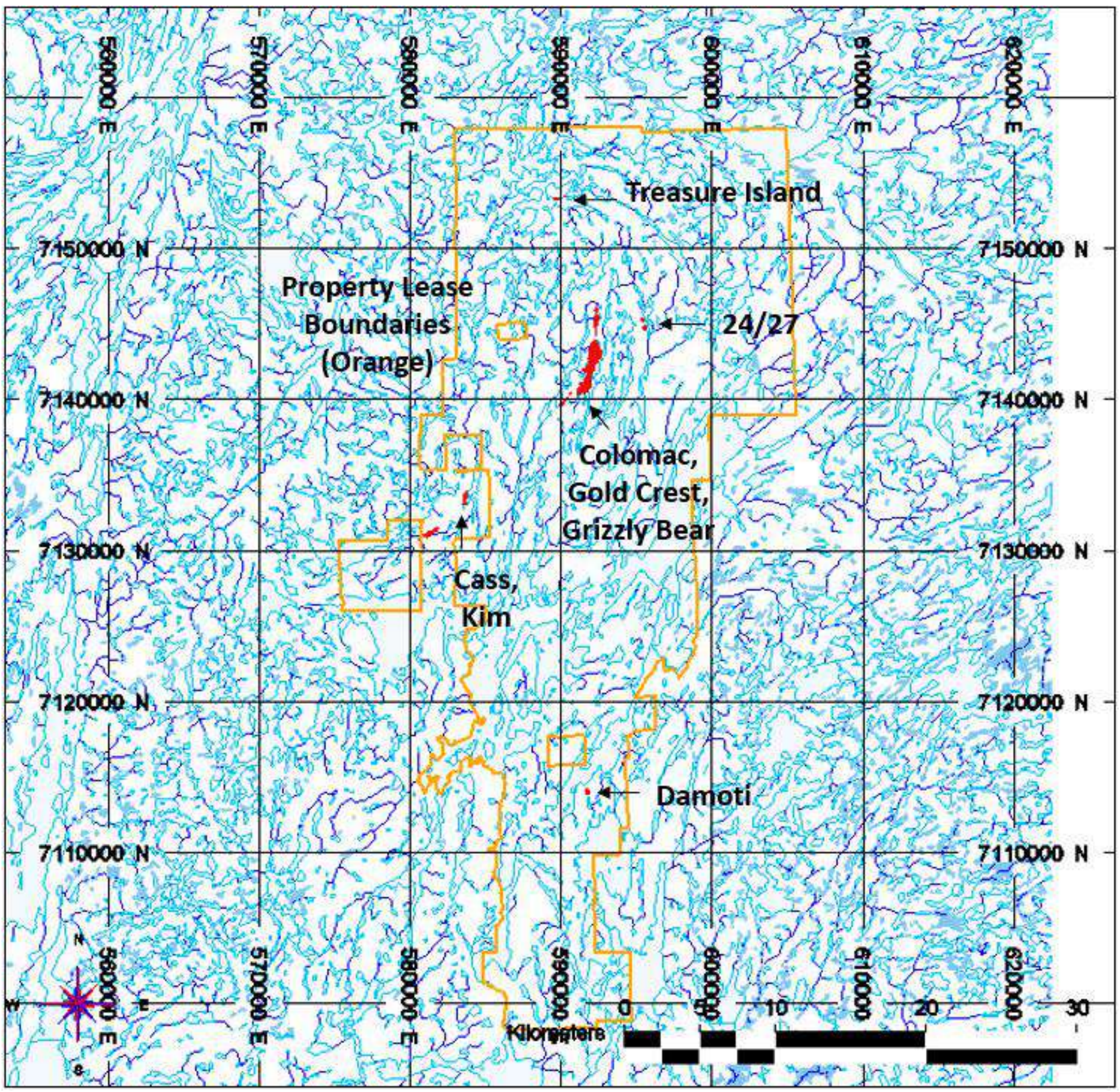
Figures 16-10 to 16-31 show 3D ortho, plan, and section views of the open pit and underground mining targets in the following order:

- Colomac Main, Goldcrest, Grizzly Bear
- 24/27
- Kim
- Cass
- Damoti
- Treasure Island.

The contour lines on these figures are at 5 m spacing.

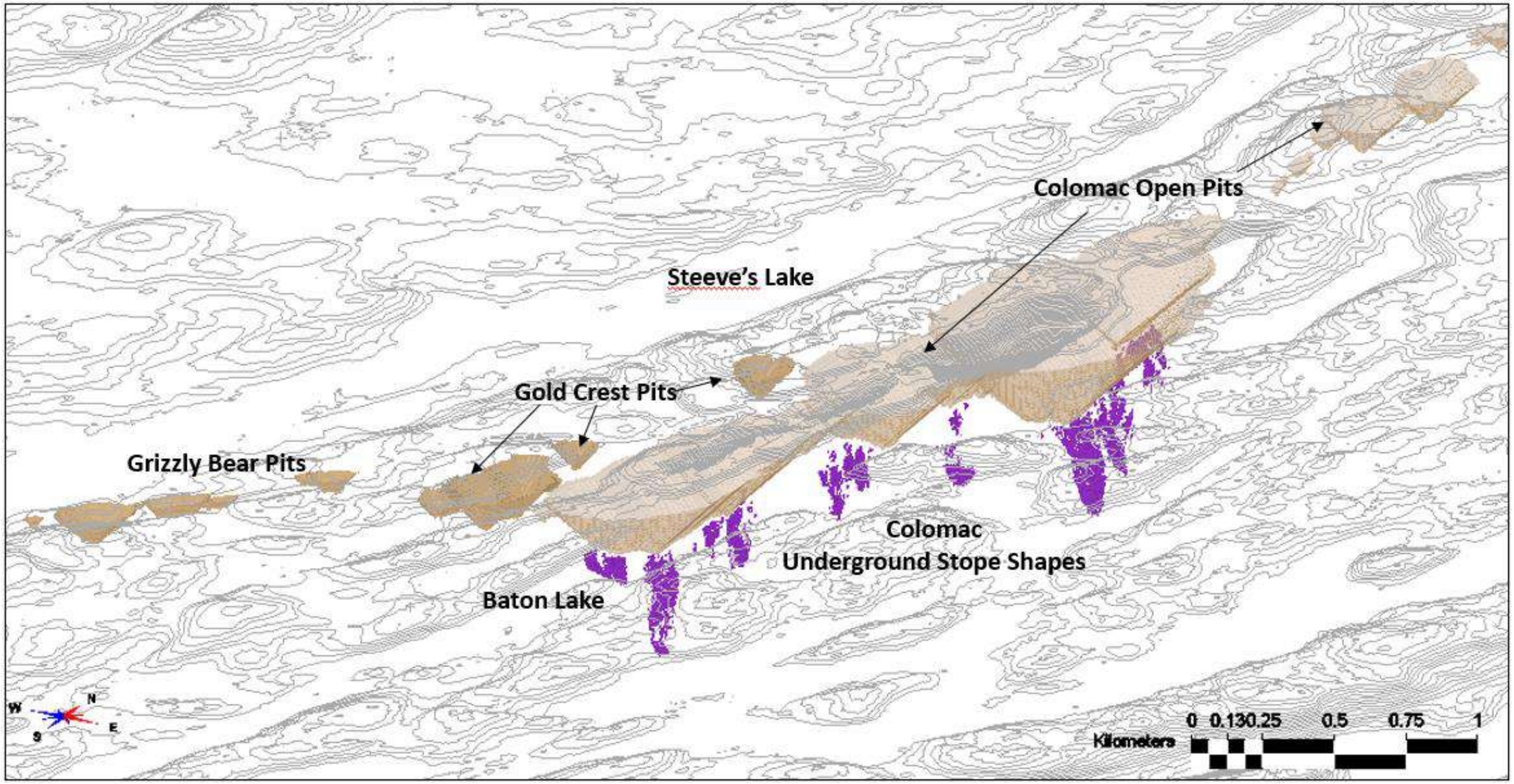
Note that the project lease boundaries are several kilometers outside the limits of these figures, so they are not shown in each individual plan view. Figure 16-9 illustrates the relative location of each deposit compared to the project lease boundaries. As described in Section 16.3.2, the Colomac Main open pit is split into six phases, or pushbacks. These phases are colour-coded in the section views.

Figure 16-9: Property Boundaries with Deposit



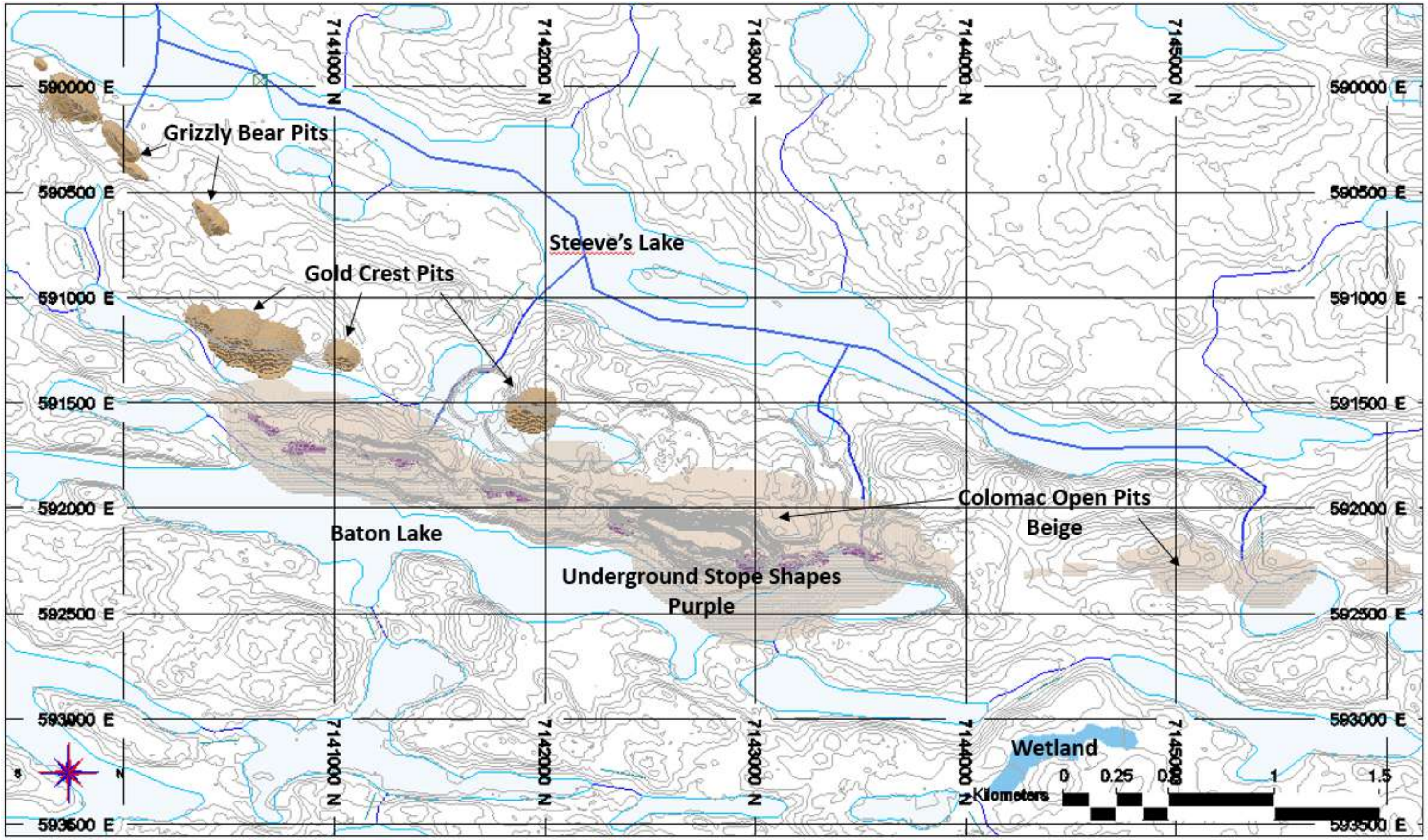
Source: Moose Mountain, 2023.

Figure 16-10: Colomac Main, Goldcrest, Grizzly Bear Pits and Stopes Orthographic View



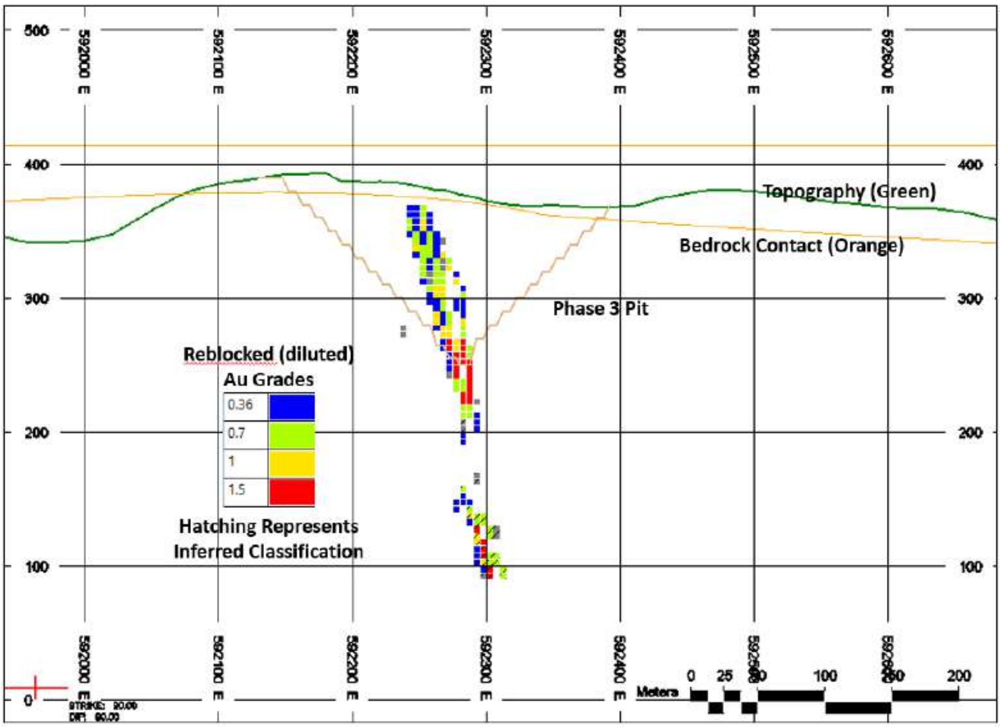
Source: Moose Mountain, 2023.

Figure 16-11: Colomac Main, Goldcrest, Grizzly Bear Pits and Stopes Plan View



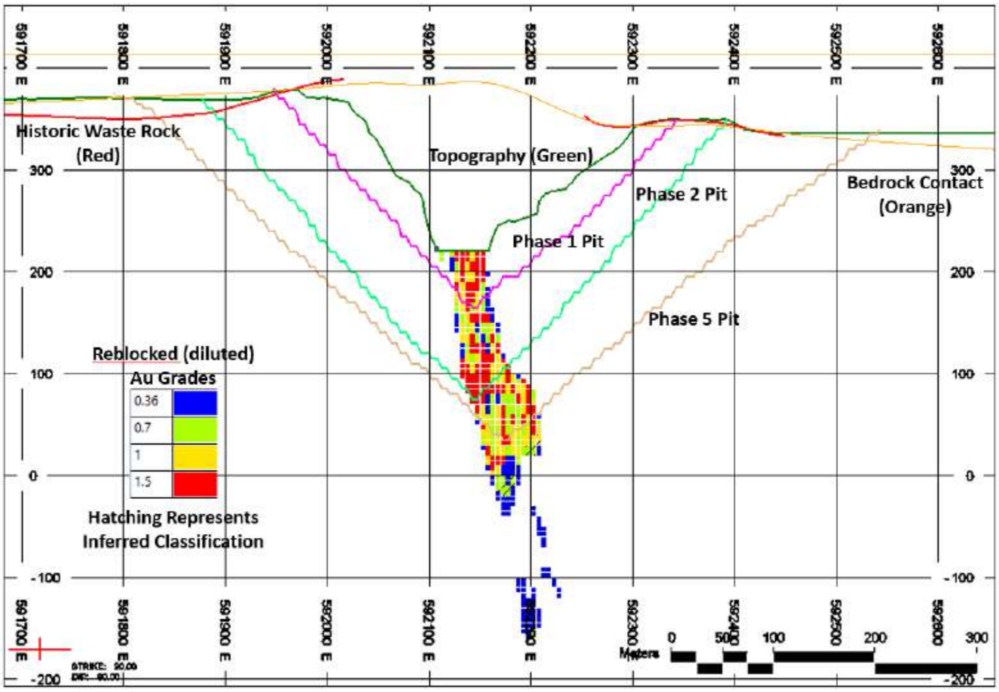
Source: Moose Mountain, 2023.

Figure 16-12: Colomac Main Pits Section View, 7,145,000 N



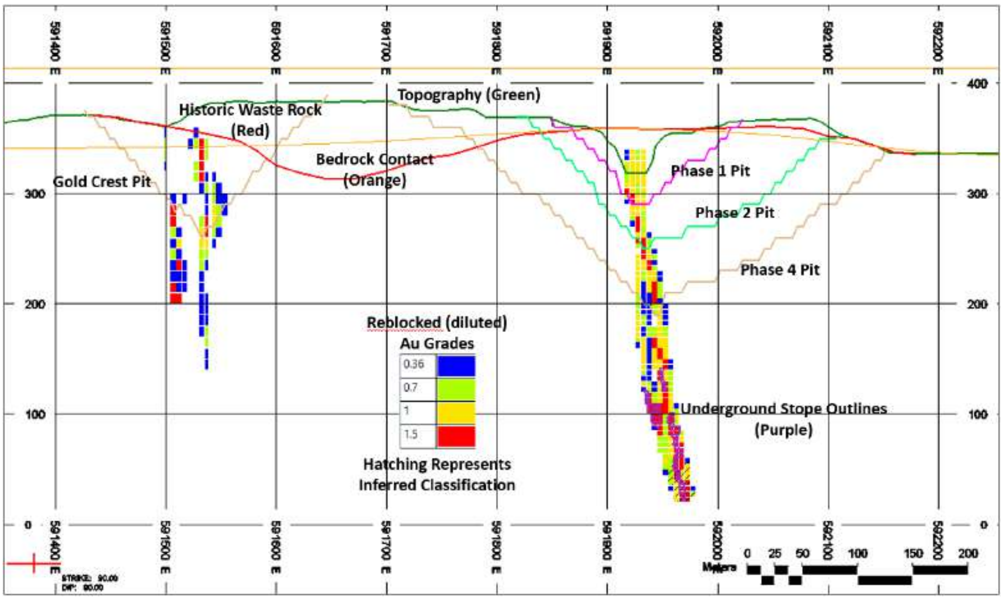
Source: Moose Mountain, 2023.

Figure 16-13: Colomac Main Pits Section View, 7,142,700 N



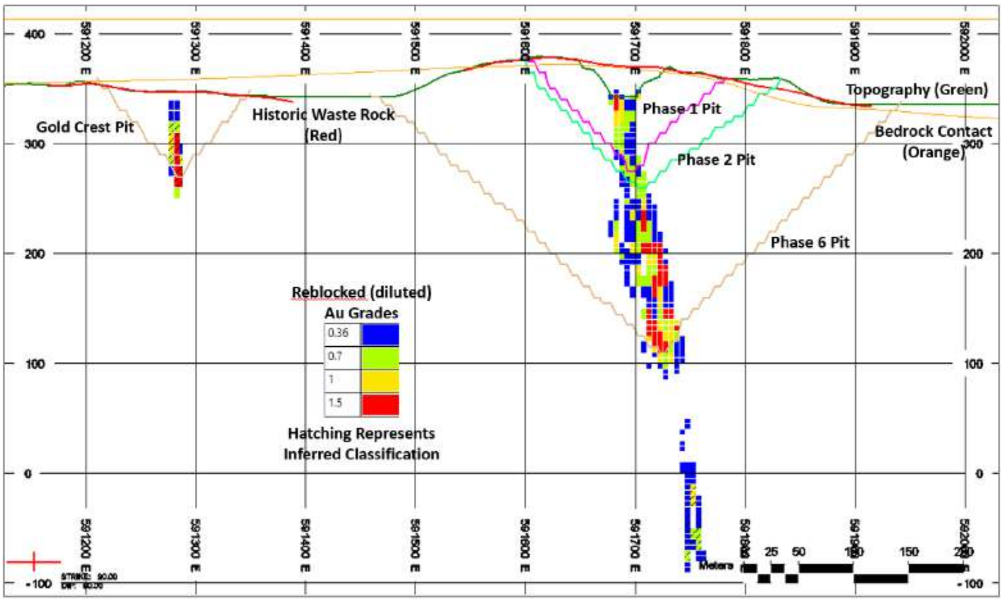
Source: Moose Mountain, 2023.

Figure 16-14: Colomac Main and Goldcrest Pits and Stopes Section View, 7,141,925 N



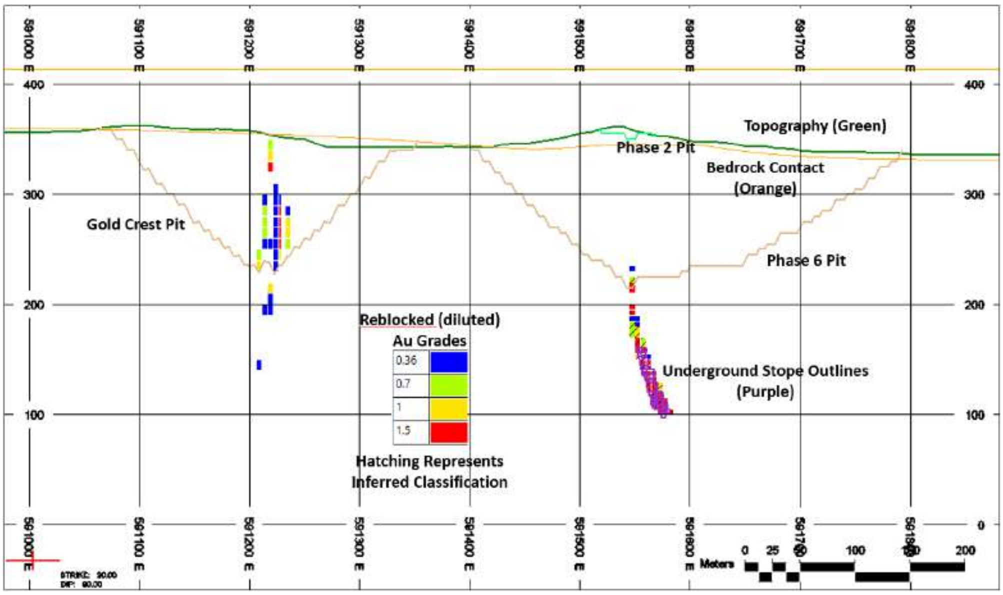
Source: Moose Mountain, 2023.

Figure 16-15: Colomac Main and Goldcrest Pits Section View, 7,141,050 N



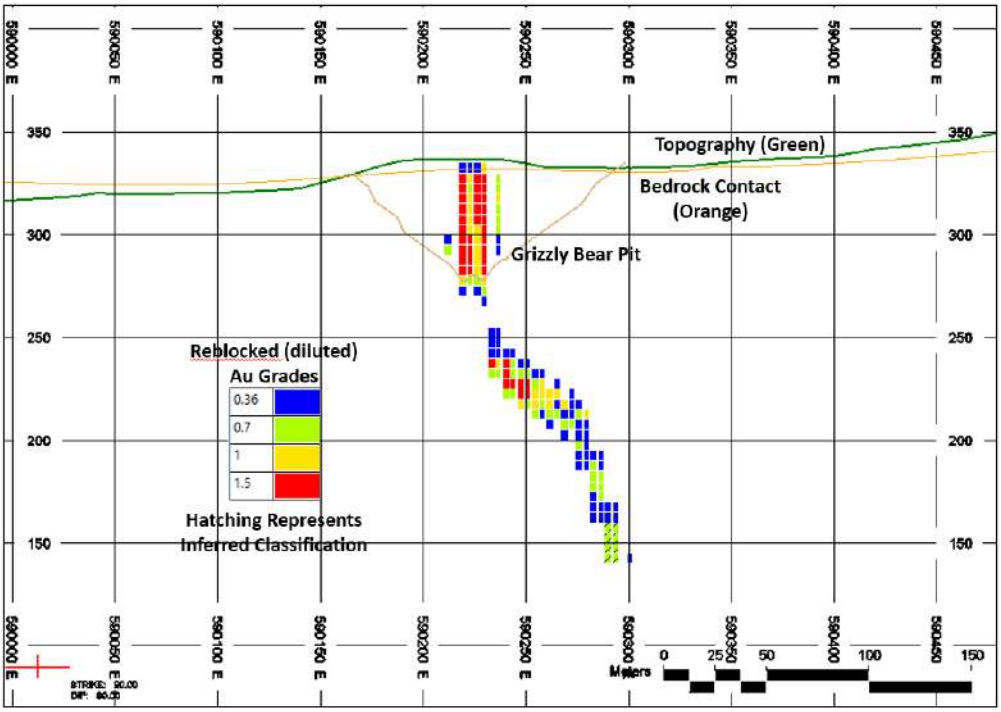
Source: Moose Mountain, 2023.

Figure 16-16: Colomac Main and Goldcrest Pits and Stopes Section View, 7,140,600 N



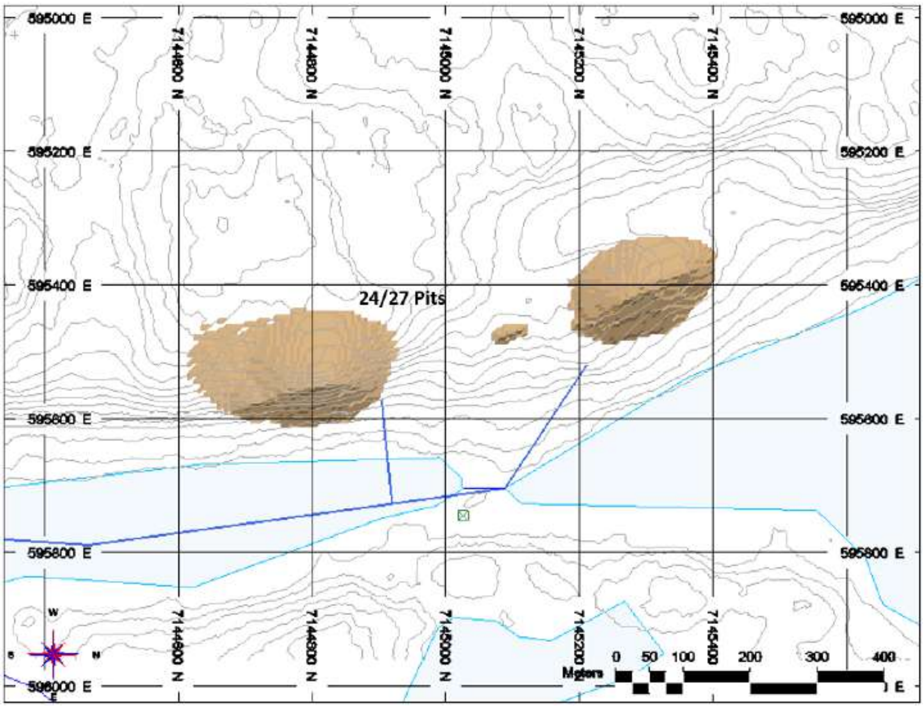
Source: Moose Mountain, 2023.

Figure 16-17: Grizzly Bear Pits Section View, 7,139,950 N



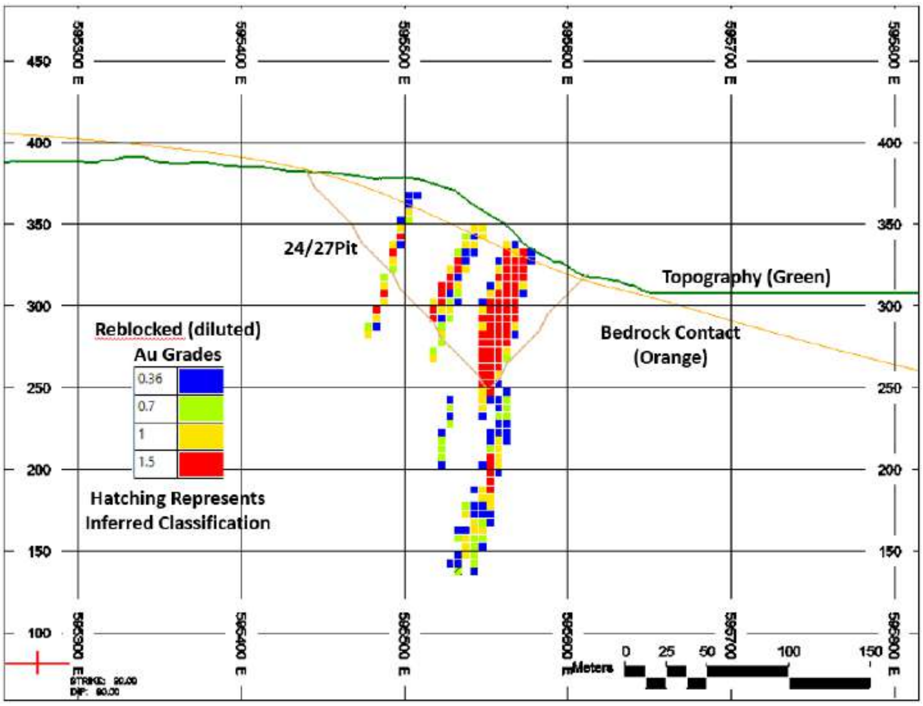
Source: Moose Mountain, 2023.

Figure 16-18: 24/27 Pits Plan View



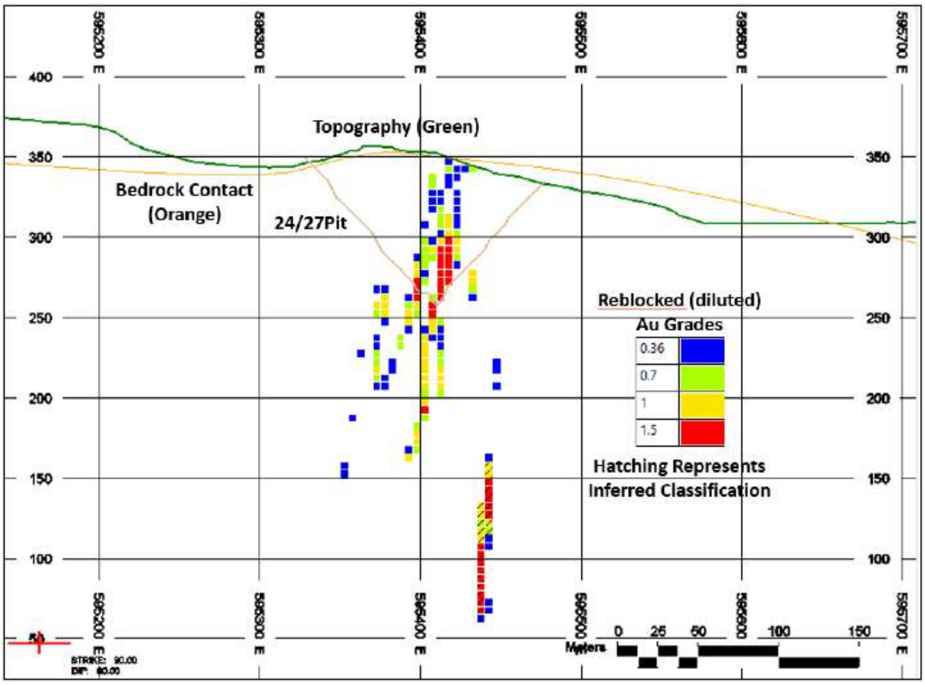
Source: Moose Mountain, 2023.

Figure 16-19: 24/27 Pits Section View, 7,144,800 N



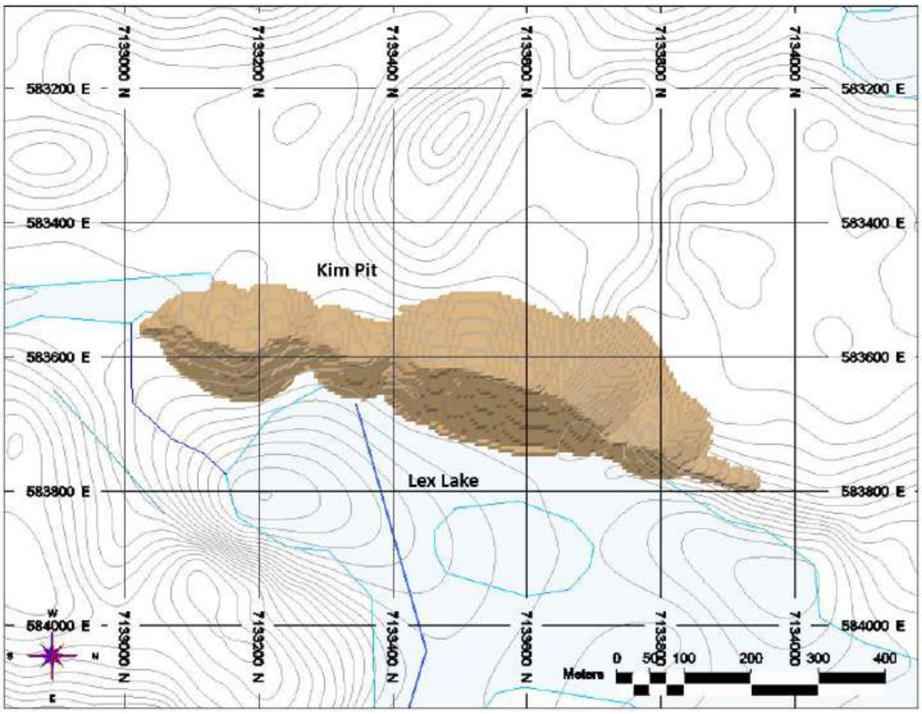
Source: Moose Mountain, 2023.

Figure 16-20: 24/27 Pits Section View, 7,145,300 N



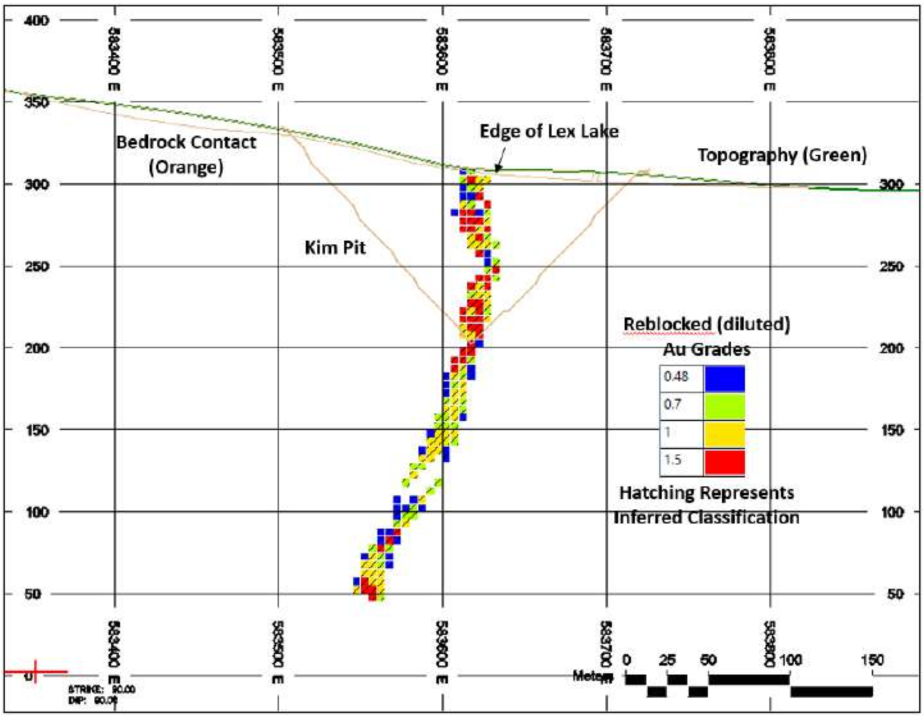
Source: Moose Mountain, 2023.

Figure 16-21: Kim Pit Plan View



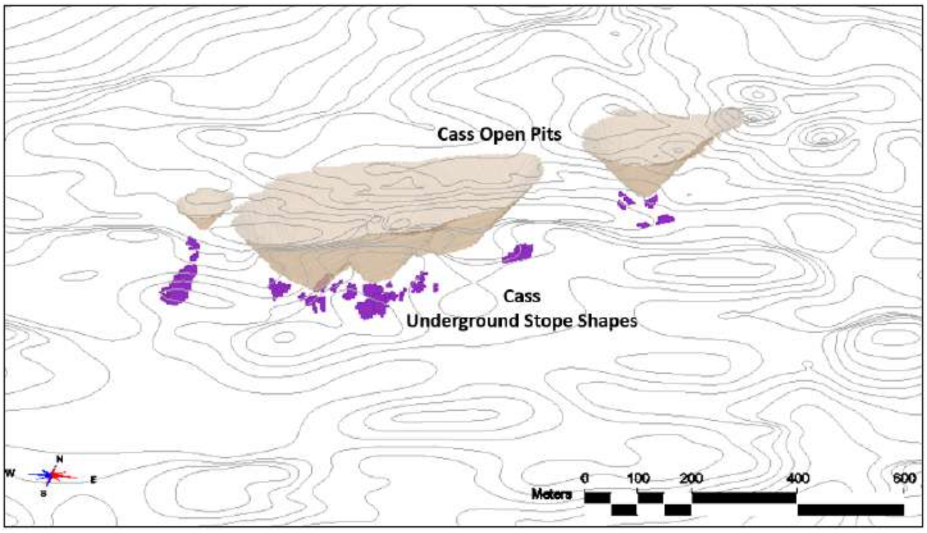
Source: Moose Mountain, 2023.

Figure 16-22: Kim Pit Section View, 7,133,500 N



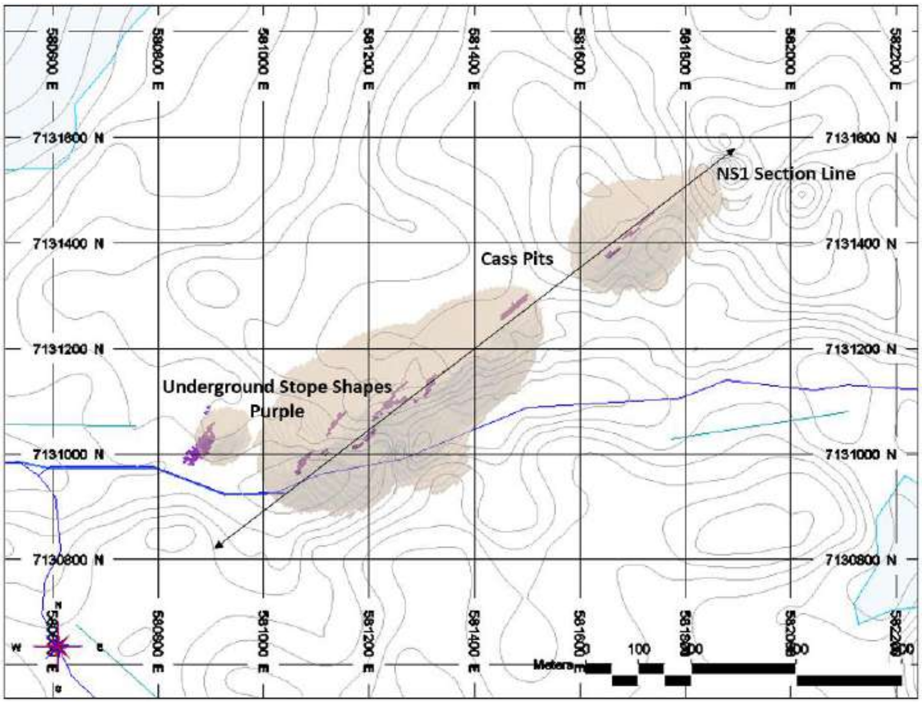
Source: Moose Mountain, 2023.

Figure 16-23: Cass Pits and Stopes Orthographic View



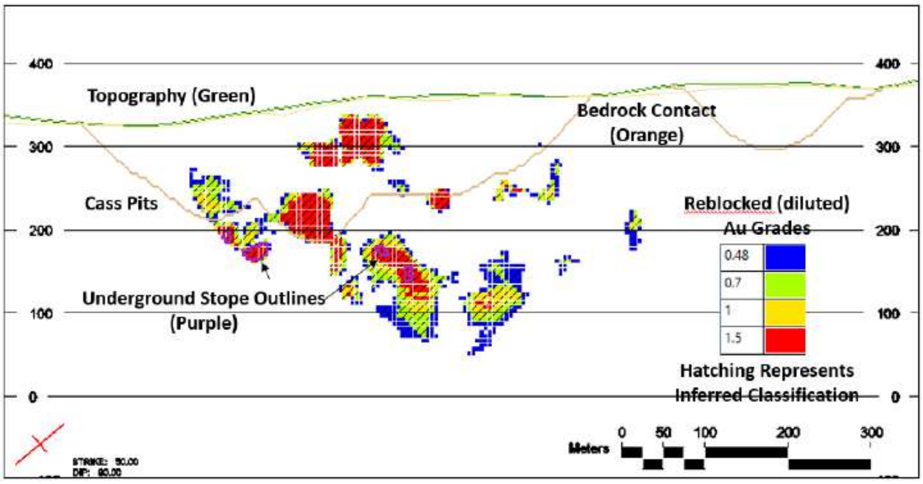
Source: Moose Mountain, 2023.

Figure 16-24: Cass Pits and Stopes Plan View



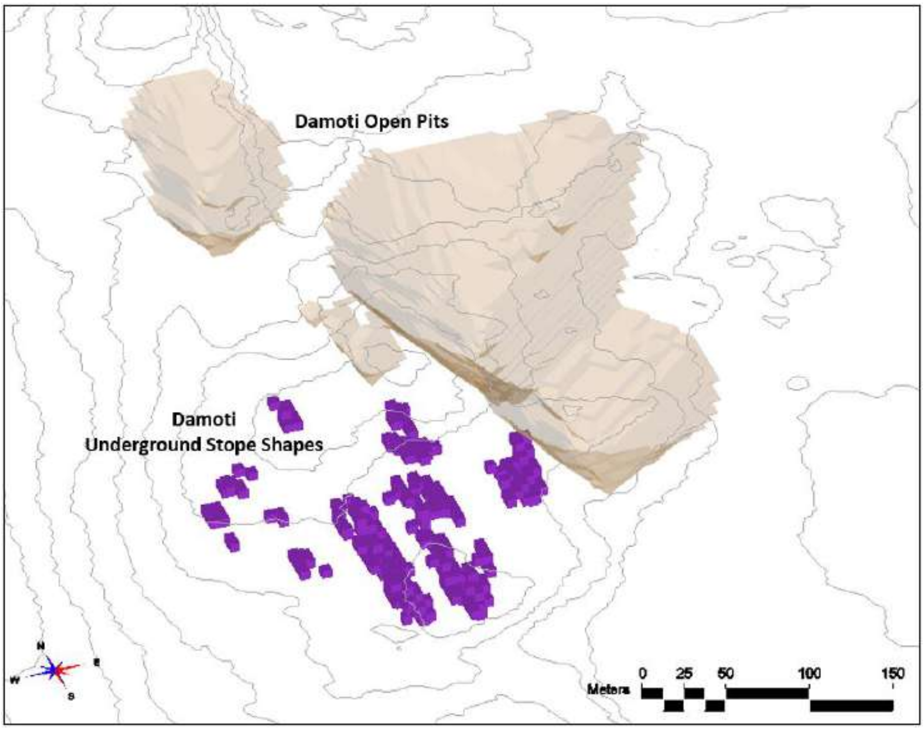
Source: Moose Mountain, 2023.

Figure 16-25: Cass Pits and Stopes Section View, NS1



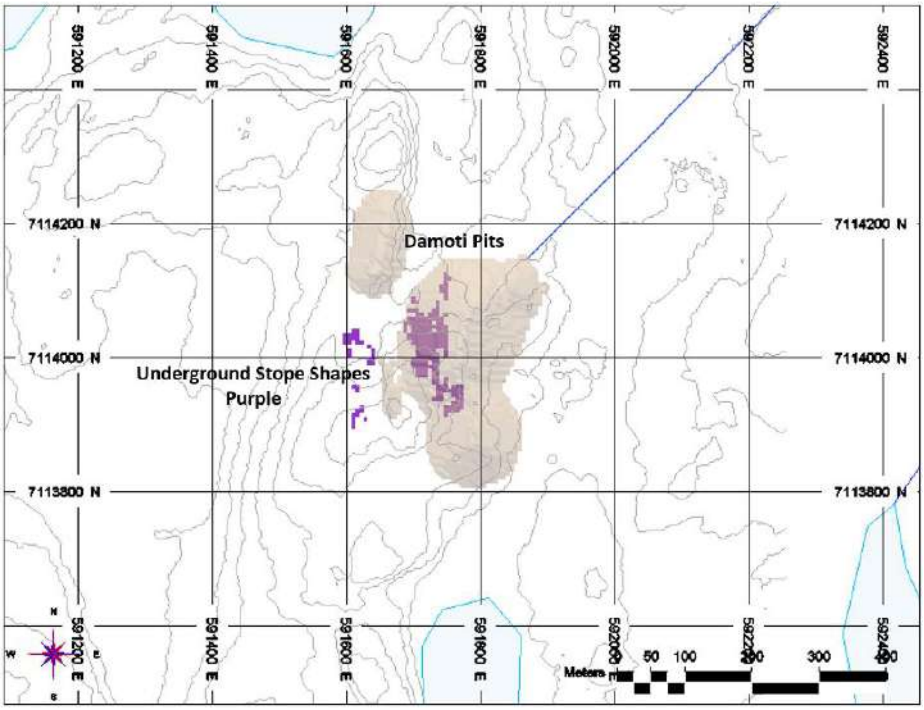
Source: Moose Mountain, 2023.

Figure 16-26: Damoti Pits and Stopes Orthographic View



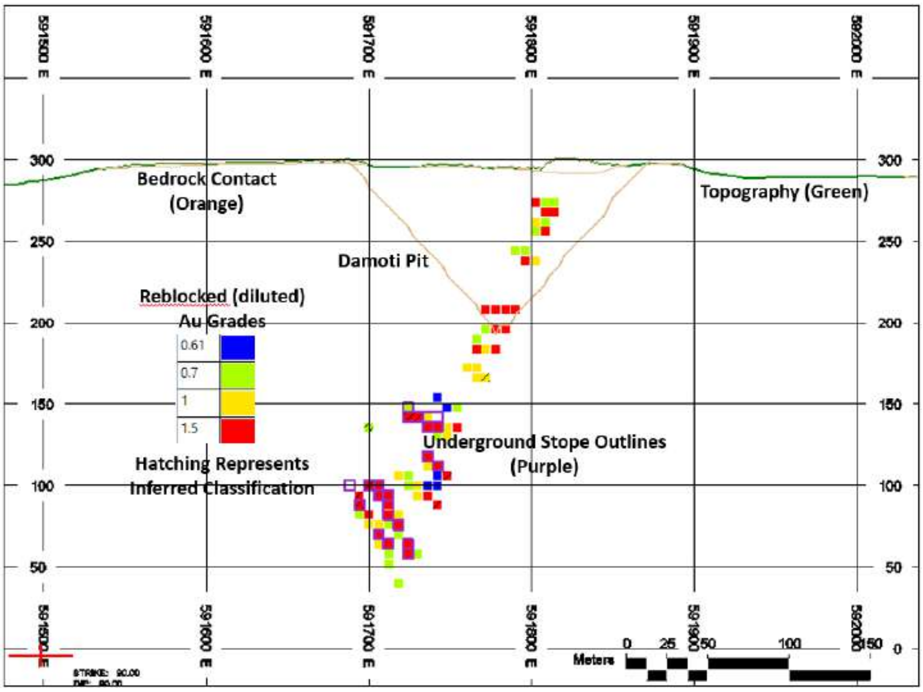
Source: Moose Mountain, 2023.

Figure 16-27: Damoti Pits and Stopes Plan View



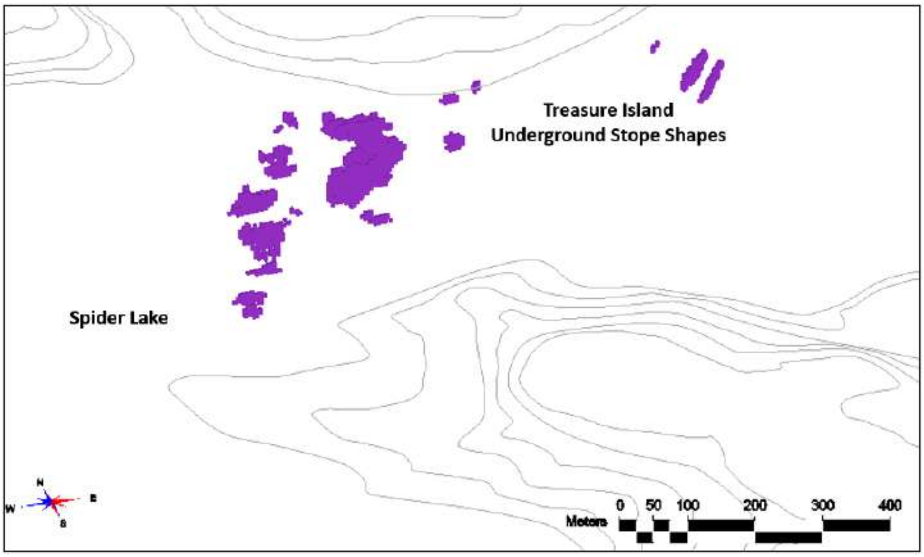
Source: Moose Mountain, 2023.

Figure 16-28: Damoti Pits and Stopes Section View, 7,114,055 N



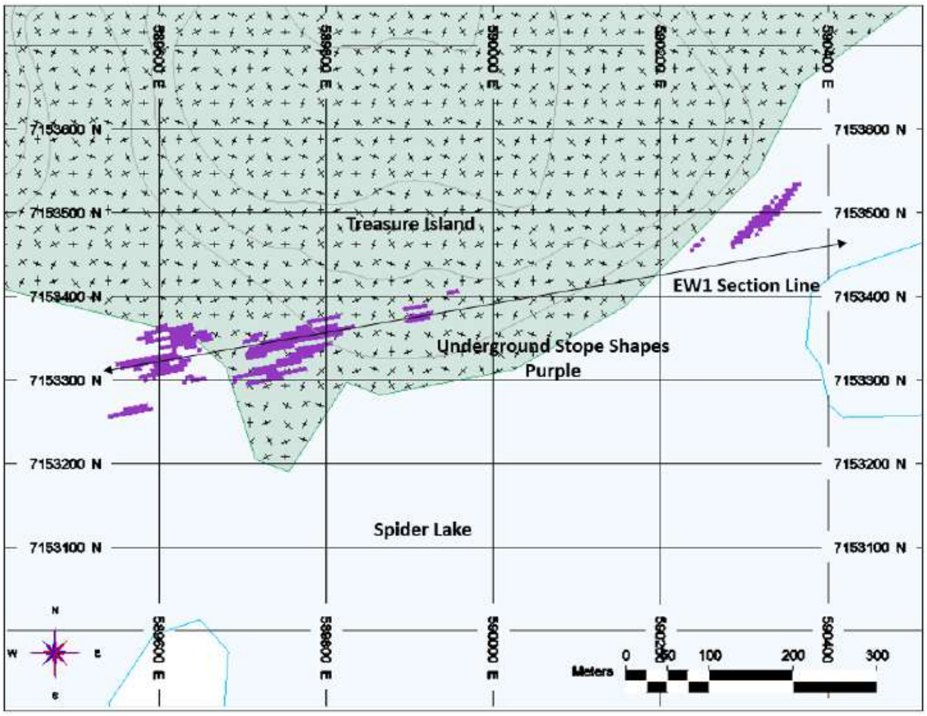
Source: Moose Mountain, 2023.

Figure 16-29: Treasure Island Stopes Orthographic View



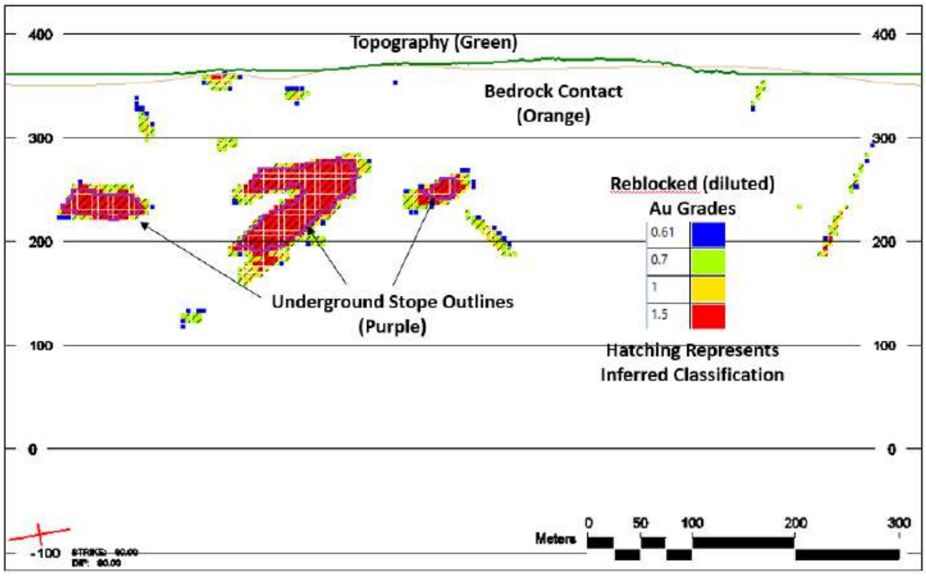
Source: Moose Mountain, 2023.

Figure 16-30: Treasure Island Stopes Plan View



Source: Moose Mountain, 2023.

Figure 16-31: Treasure Island Stopes Section View, EW1



Source: Moose Mountain, 2023.

16.7 Deposit Access

16.7.1 Open Pit Access

Mine haul roads external to the open pits are planned for transportation of mill feed from the satellite open pits to the Colomac area run-of-mine pad and primary crusher. Routes for these ex-pit mine haul roads have been designed out with the following conceptual features:

- 20 m wide ex-pit haul roads that incorporate a single-lane running width and berms on both edges of the haul road
- sized to handle 91-tonne payload rigid-frame haul trucks
- 8% maximum grade
- maximizing fill construction with minimal cut requirements for construction:
  - Fill will be supplied as waste rock from the open pits.
  - Cut slopes of 45° are assumed, with cuts generally under 5 m in height.
  - Fill slopes of 37° assumed, at angle of response for the waste rock used to construct.

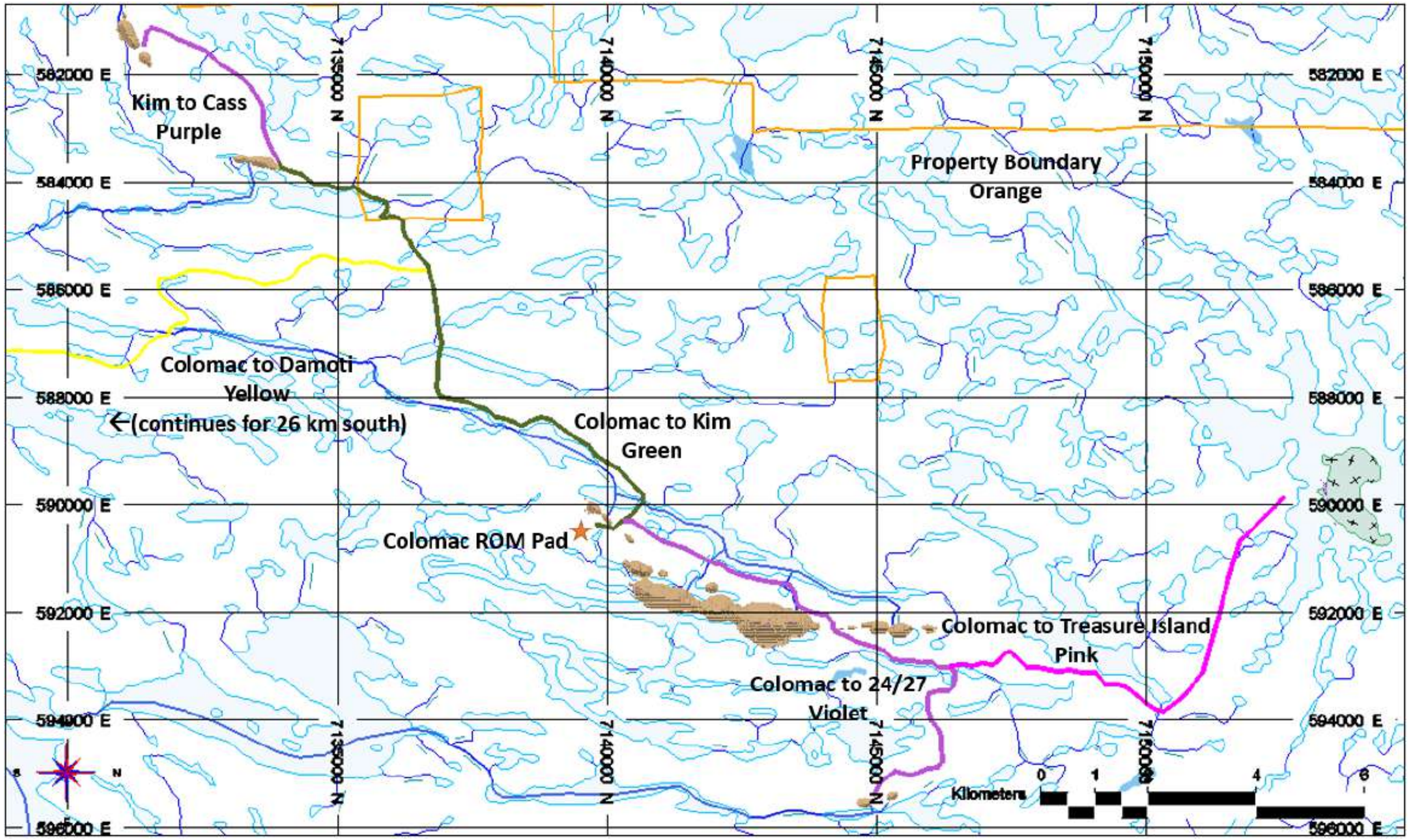
Table 16-8 lists the estimated cut-and-fill requirements for each of the planned haul roads. These haul roads are planned to be built during the project's two-year construction period using waste rock mined from the open pits.

Table 16-8: Haul Road Estimated Cut and Fill Construction Quantities

Route	Cut (1,000,000 m^3)	Fill (1,000,000 m^3)	Length (km)
Colomac to 24/27	0.20	0.45	10.8
Colomac to Kim	0.10	0.60	12.1
Kim to Cass	0.05	0.15	4.1
Colomac to Damoti	0.30	1.00	37.4
Colomac to Treasure Island	0.20	1.20	9.2

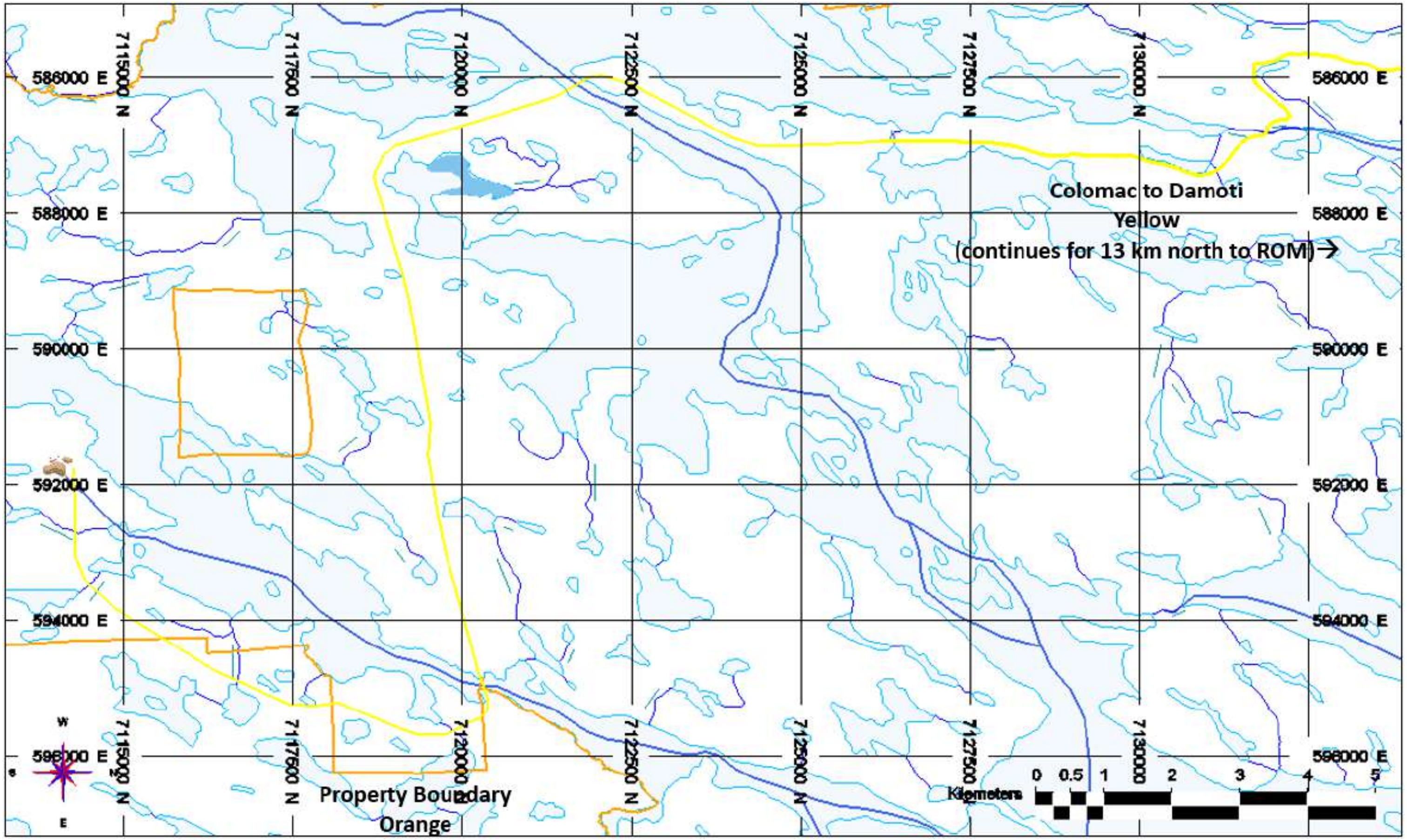
Figures 16-32 and 16-33 illustrate the mine haul roads to the satellite deposits. Over the life of mine, some of the roads will be covered by WRSFs. Where it is necessary to maintain access, the roads will be reconstructed or shaped into the outer surfaces of the WRSFs.

Figure 16-32: Haul Roads to Satellite Deposits



Source: Moose Mountain, 2023.

Figure 16-33: Haul Road to Damoti



Source: Moose Mountain, 2023.

16.7.2 Underground Access

The road to Treasure Island terminates south of Spider Lake, 800 m south of the deposit itself. A portal will be built at the end of this road, and a tunnel/ramp will be built under the lake to access the Treasure Island deposit. All mined material will exit this portal with access south to the Colomac area.

Underground access to the Cass and Damoti deposits will be established via portals in the mined-out open pits.

Underground mine production is planned for the Colomac Main deposit concurrently with open pit activities, so portal access is established outside the footprint of the Colomac Main, Goldcrest and Grizzly Bear open pits.

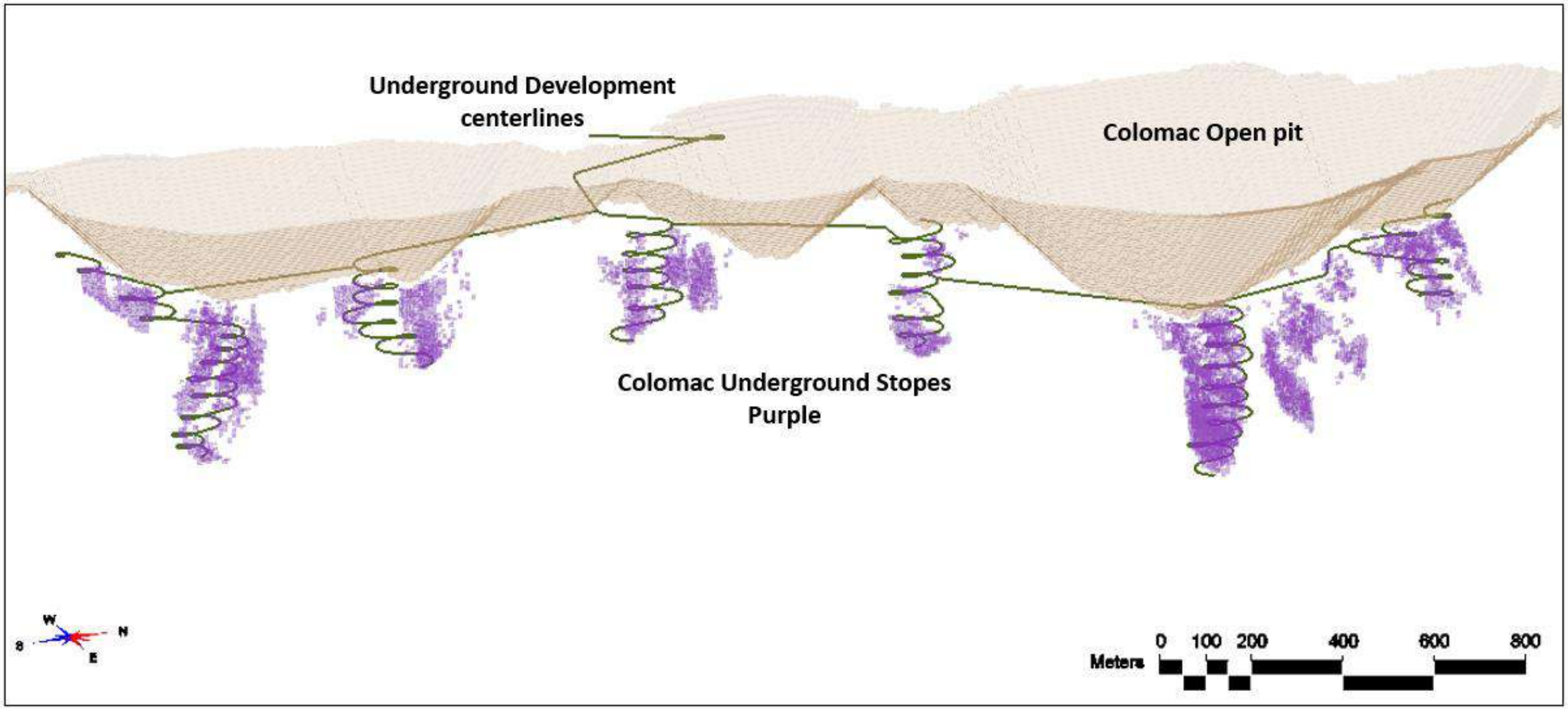
Portal, ramp, level access, and vent raise development for all four underground deposits is capitalized over the life of mine. Attack ramps accessing MCF levels are assumed to be developed as part of mine operations.

Ramp, level access and vent raise centerlines have been drawn out for the Colomac Main deposits, as shown in Figures 16-34 and 16-35.

The capitalized development meters for Colomac Main have been measured, and factored estimates have been applied for development into the Treasure Island, Cass and Damoti areas. Factoring is based on underground spatial configuration for each deposit's stopes, which is a measurement of the overall underground mining limit distances in all three dimensions.

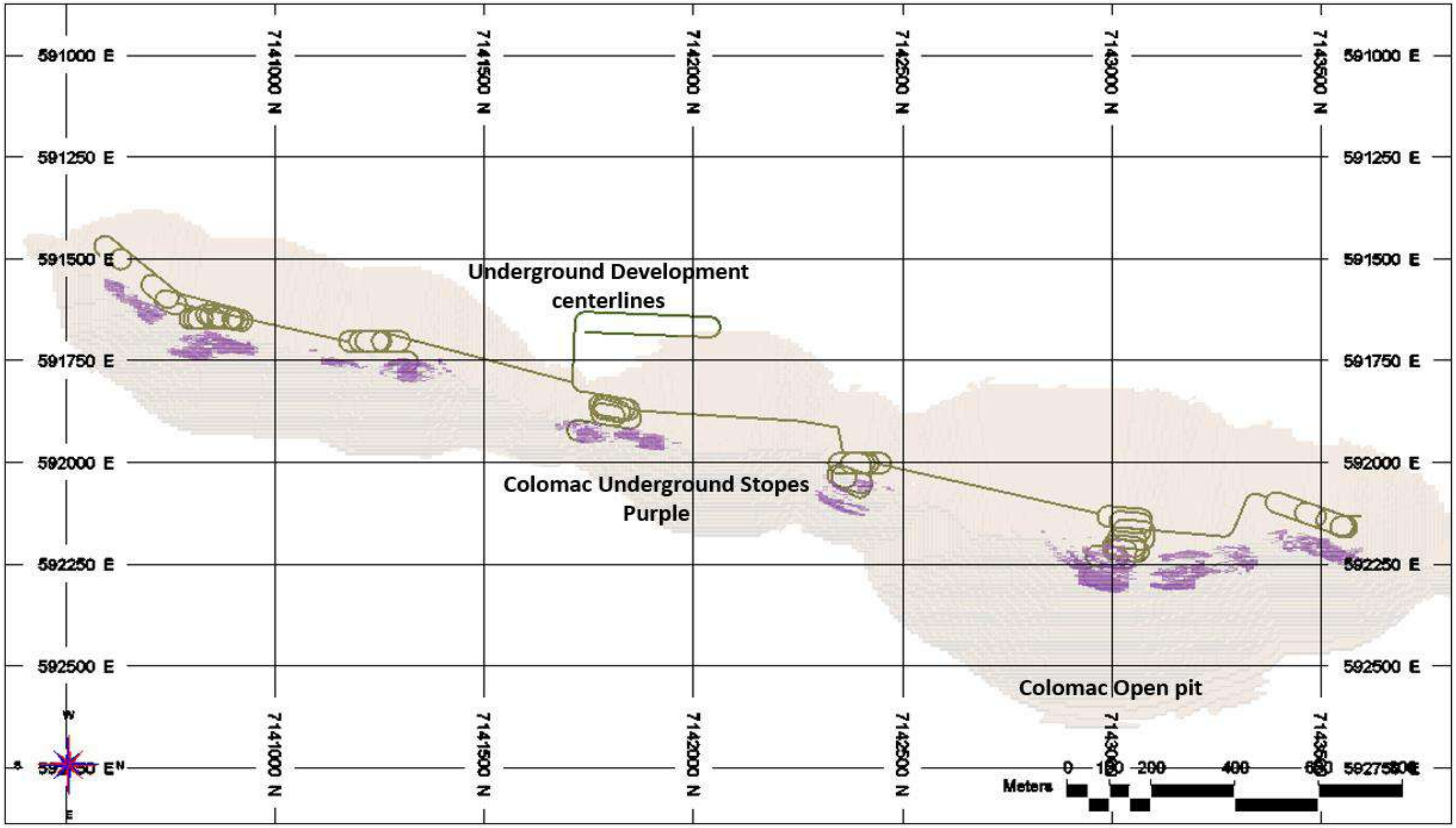
There is a risk/opportunity that designing the ramp, raise, and drift development for these deposits, rather than factoring from Colomac designs, would require an increase/decrease in the estimated development effort. In the context of the total PEA mining project, this risk/opportunity is insignificant.

Figure 16-34: Colomac Main Underground Development Orthoview



Source: Moose Mountain, 2023.

Figure 16-35: Colomac Main Underground Development Plan View



Source: Moose Mountain, 2023.

16.8 Waste Rock Storage Facilities

Waste rock storage facilities are planned for waste materials mined from the open pits and underground operations. Separate facilities are planned for all deposit areas, with facilities placed directly adjacent to open pit exits. Waste rock from Goldcrest and Grizzly Bear pits will use the southern portion of the Colomac facilities, and waste rock from the Treasure Island underground area will use the northern portion of the Colomac facilities.

Overburden, and potentially topsoil, salvaged from the open pits will also be stored in a segregated portion of the facility footprint, safeguarding the availability of this material for use in the project closure phase.

Preliminary designs for these facilities were completed assuming the following:

- bottom-up construction
- 3:1 overall slopes
- storage density of 2.10 t/m^3.

Backfilling the Colomac Main, Goldcrest and 24/27 open pits is included in the plans. The Colomac WRSF covers the Colomac Main phase 3 open pits, as well as the Goldcrest open pits. These pits are planned to be mined out several years before waste rock production from Colomac Main Phase 4, 5 and 6 is completed. The waste rock from these later pit phases will be backfilled into the pits as the Colomac WRSF is expanded. At 24/27, there are two separate open pits around each of the 24 and 27 deposits. The 24 deposit will be mined first, and waste rock from the 27 will be backfilled into the mined-out 24 open pit. Backfilling these pits with waste rock has the potential to sterilize future economic resources, should they become available as the mine is developed.

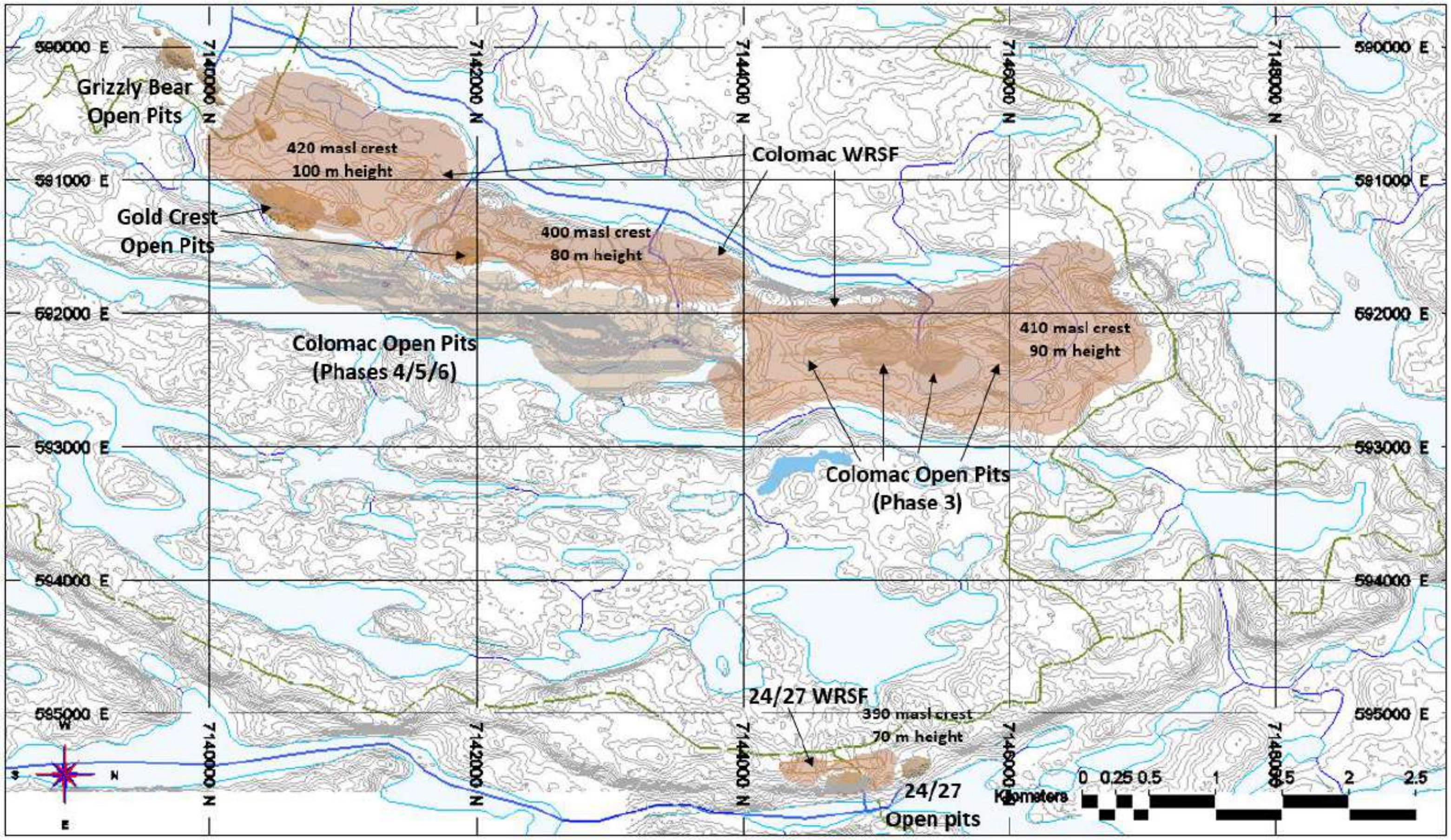
Based on tested qualities of historically mined waste rock from Colomac Main, it is assumed that waste rock from all deposits is net acid neutralizing and there has been no consideration of segregating different rock types in the planned storage facilities. Further testwork and analysis is recommended to better classify waste materials according to acid-generating potential, and to confirm that a blending strategy is the preferred method for handling any potentially acid-generating waste rock.

Waste rock mined from all deposits is also used to construct the mine haul roads (refer to Section 16.7).

All facilities are planned to avoid existing waterbodies and watercourses. The Colomac facilities are at least 30 m away from Steeve's Lake but will have some effect on watercourses between the Colomac Main open pit and Steeve's Lake.

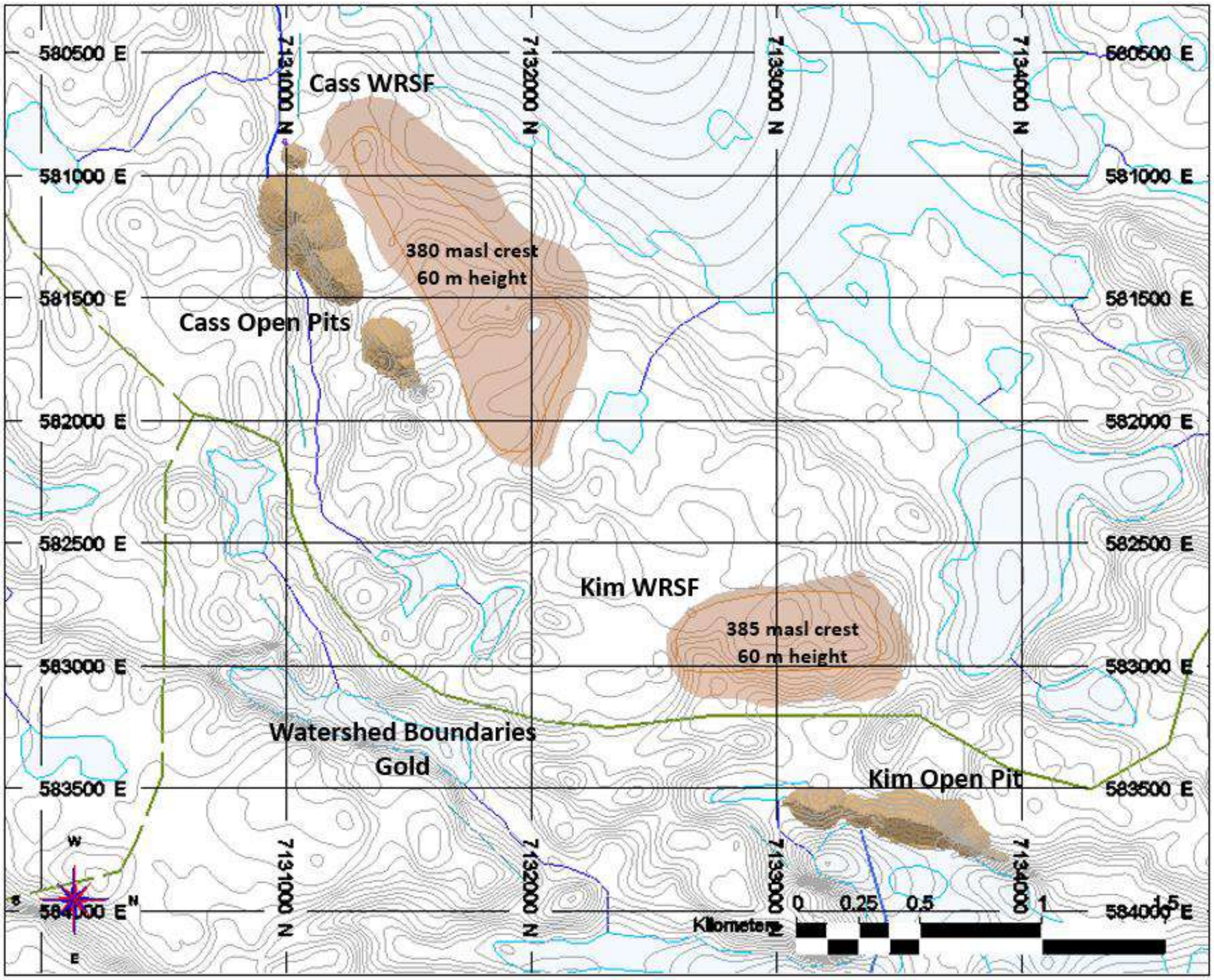
Figures 16-36 to 16-38 show plan views of the planned WRSF's for each deposit. Contour lines on the figures are at 5 m spacing.

Figure 16-36: Colomac Area WRSFs



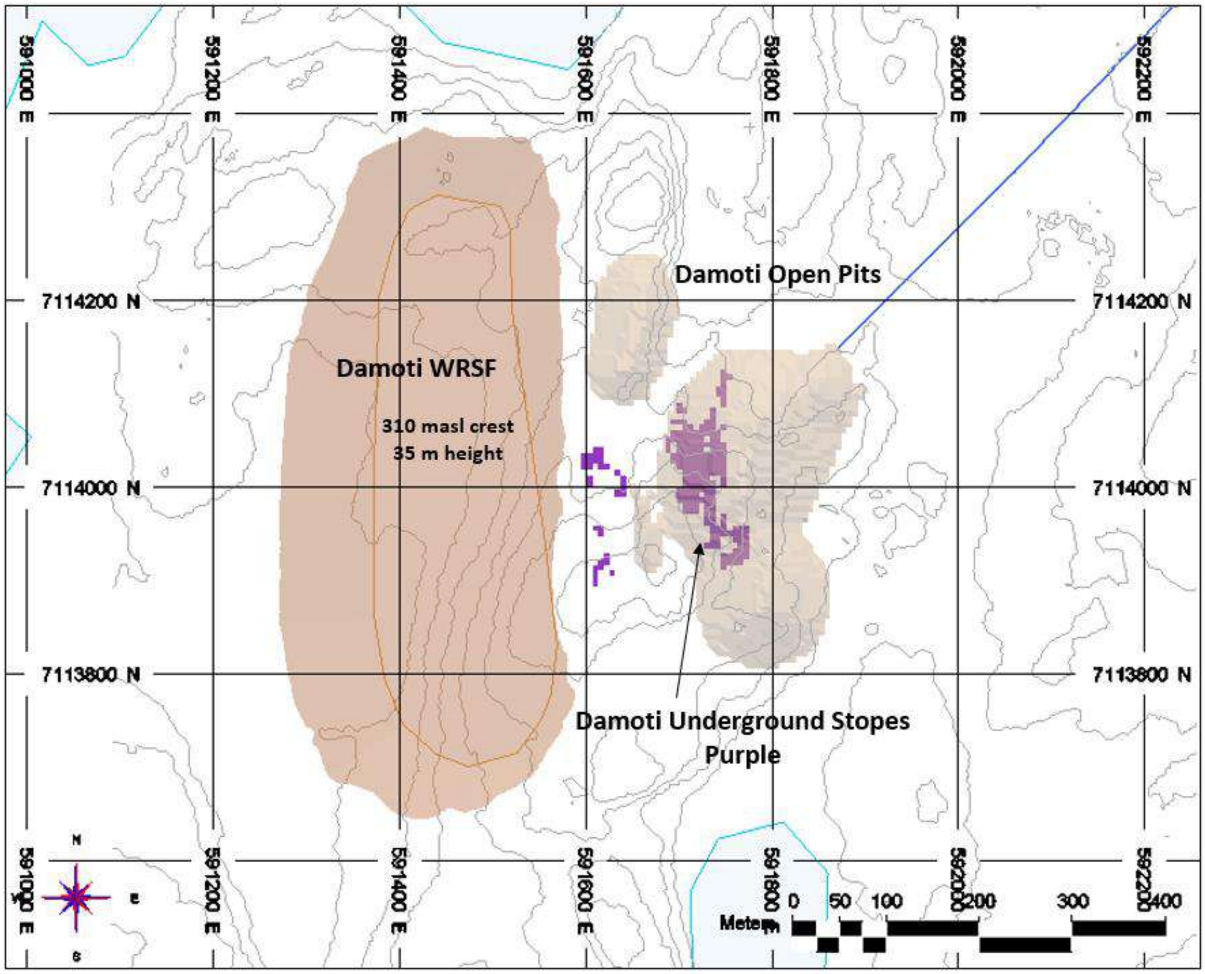
Source: Moose Mountain, 2023.

Figure 16-37: Cass and Kim Area WRSFs



Source: Moose Mountain, 2023.

Figure 16-38: Damoti Area WRSFs



Source: Moose Mountain, 2023.

16.9 Production Schedule

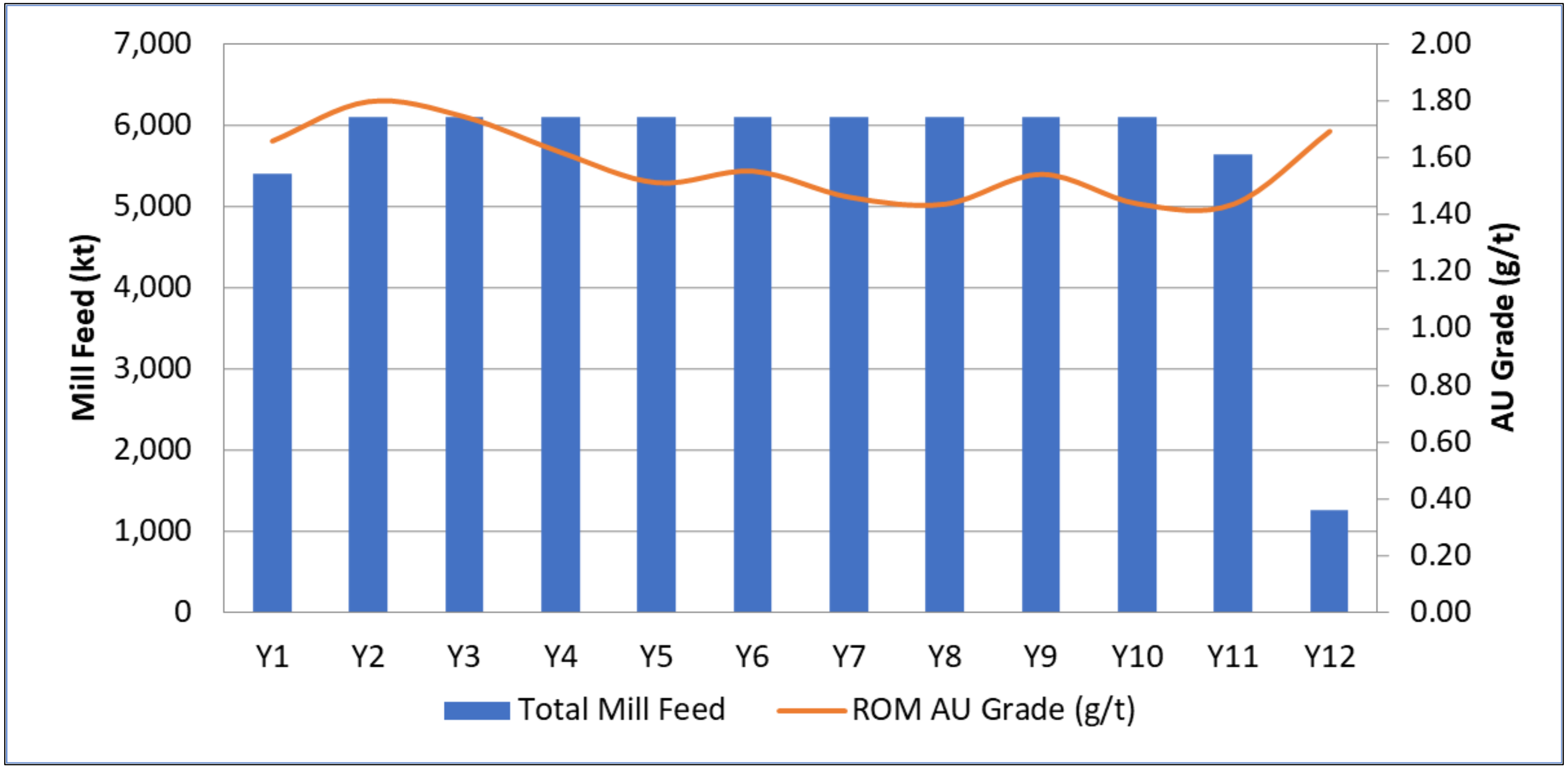
Production requirements by scheduled period, mine operating considerations, product prices, recoveries, destination capacities, equipment performance, haul cycle times, and operating costs are used to determine the optimal production schedule from the pit and underground contents. The overall production schedule is included as Table 16-9.

The mine production schedule for all the deposits is included as Figure 16-39 and shows the production tonnage and grade forecast; Figure 16-40 provides an illustration of the projected material mined and waste mining ratio; and Figure 16-41 provides and illustration of the phases developed in each period.

Table 16-9: Mine Production Schedule

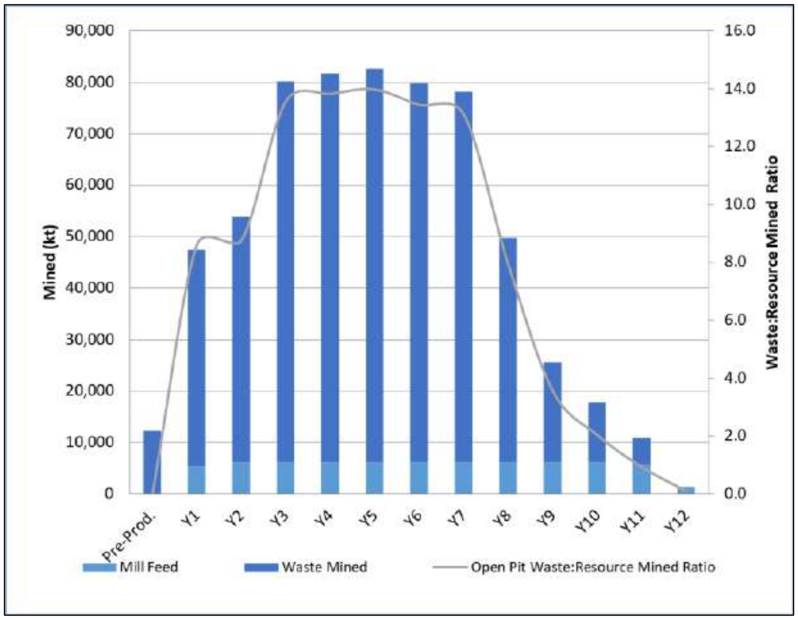
Total Mine Production	Units	LOM	Pre-Prod.	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12
Mill Feed	kt	67,203	-	5,400	6,100	6,100	6,100	6,100	6,100	6,100	6,100	6,100	6,100	5,637	1,266
Gold	g/t	1.57	-	1.66	1.80	1.74	1.62	1.51	1.55	1.46	1.44	1.54	1.44	1.44	1.69
Mill Feed Gold	koz	3,382	-	288	352	342	317	296	304	286	282	302	282	260	69
Mill Feed Mined from Pits	kt	61,293	-	4,879	5,456	5,462	5,470	5,481	5,489	5,497	5,510	5,465	5,751	5,567	1,266
Gold Grade from Pits	g/t	1.32	-	1.42	1.51	1.46	1.31	1.23	1.26	1.20	1.11	1.25	1.29	1.40	1.69
Waste Mined from Pits	kt	554,128	12,276	41,978	47,751	74,094	75,581	76,549	73,741	72,035	43,600	19,457	11,729	5,211	127
Total Mined from Pits	kt	615,421	12,276	46,857	53,207	79,556	81,051	82,030	79,230	77,532	49,110	24,922	17,480	10,777	1,393
Mill Feed Mined from Underground	kt	5,910	-	521	644	638	630	619	611	603	590	635	349	71	-
Gold Grade from Underground	g/t	4.12	-	3.87	4.24	4.19	4.27	3.98	4.19	3.88	4.52	4.04	3.80	4.21	-
Underground Development	m	33,500	4,500	3,500	3,500	3,500	3,000	3,500	3,000	3,000	3,000	2,000	1,000	-	-
By Deposit															
Colomac Main Open Pit Mined	kt	527,170	6,123	21,272	37,599	68,530	69,557	72,458	71,185	76,763	49,110	24,922	17,480	10,777	1,393
Goldcrest Open Pit Mined	kt	22,048	-	-	-	693	6,540	7,731	6,679	405	-	-	-	-	-
Grizzly Bear Open Pit Mined	kt	7,196	-	-	74	3,022	2,183	1,277	599	41	-	-	-	-	-
24/27 Open Pit Mined	kt	5,832	1,047	2,658	1,823	304	-	-	-	-	-	-	-	-	-
Cass Open Pit Mined	kt	31,556	2,212	11,257	8,288	5,504	2,642	564	767	323	-	-	-	-	-
Kim Open Pit Mined	kt	15,622	947	8,458	4,677	1,411	129	-	-	-	-	-	-	-	-
Damoti Open Pit Mined	kt	5,997	1,947	3,212	746	92	-	-	-	-	-	-	-	-	-
Colomac Main Underground Mined	kt	4,803	-	426	516	508	512	540	526	510	521	516	230	-	-
Cass Underground Mined	kt	308	-	-	-	-	-	-	-	-	-	119	119	71	-
Damoti Underground Mined	kt	247	-	-	-	-	-	-	85	93	70	-	-	-	-
Treasure Island Underground Mined	kt	551	-	95	128	130	118	80	-	-	-	-	-	-	-

Figure 16-39: Mine Production Schedule, Mill Feed Tonnes & Grade (All Deposits)



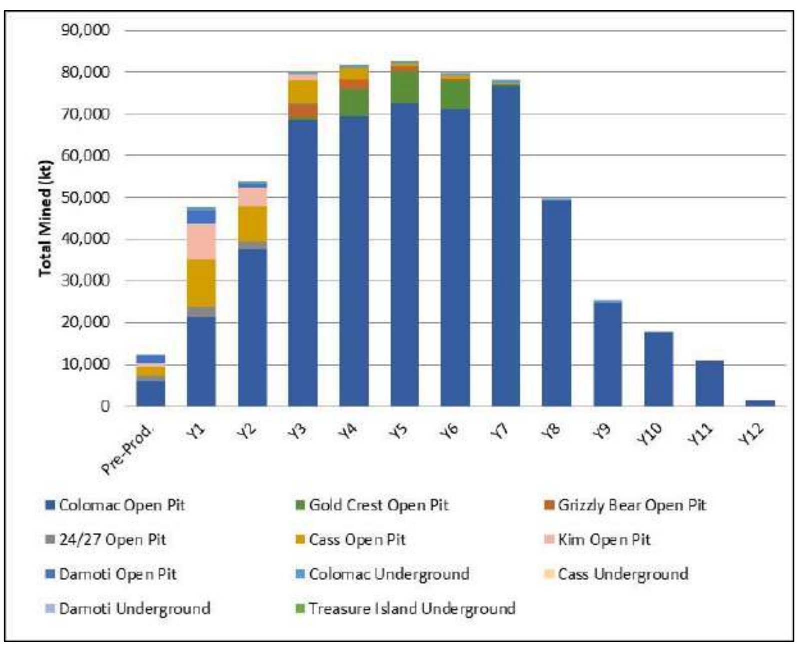
Source: Moose Mountain, 2023.

Figure 16-40: Mine Production Schedule, Total Material Mined & Waste Mining Ratio (All Deposits)



Source: Moose Mountain, 2023.

Figure 16-41: Mine Production Schedule, Total Material Mined by Phase



Source: Moose Mountain, 2023.

The production schedule is based on the following parameters:

- For open pit mining, mill feed tonnes and grade and associated waste material quantities are split by pit phase and bench quantities.
- For underground mining, each stope would be mined from bottom up, based on the chosen MCF mining method, but the overall sequence is assumed to be from top of the deposit to the bottom. For MCF, the following daily production targets are used: Colomac Main at 1,500 t/d; Cass at 350 t/d; Damoti at 250 t/d; and Treasure Island at 350 t/d.
- The operations are scheduled on annual periods.
- An annual mill feed rate of 6.1 Mt/a (16.7 kt/d) is targeted. Mill throughput ramp-up is assumed to occur in Year 1 at a target rate of 5.4 Mt.
- Within a given open pit phase, each bench is fully mined before progressing to the next bench.
- Pit phases are mined in sequence, where the later pit phases do not mine below the initial pit phases.
- Pit phase vertical progression is limited to no more than 45 m in each year; average annual phase progression is 30 m.
- Pre-production (Year -1) open pit mining targets construction materials for haul roads.

16.9.1 Mining Sequence

The operations will run for 14 years, including two years of pre-production (construction phase). The general mine sequence through the various phases is shown in Table 16-10.

Colomac Main open pit operations will occur over the life of mine, while other satellite open pit deposits are mined simultaneously. Colomac Main underground operations will also occur over the life of mine, with a secondary underground operation progressing concurrently through the satellite deposits.

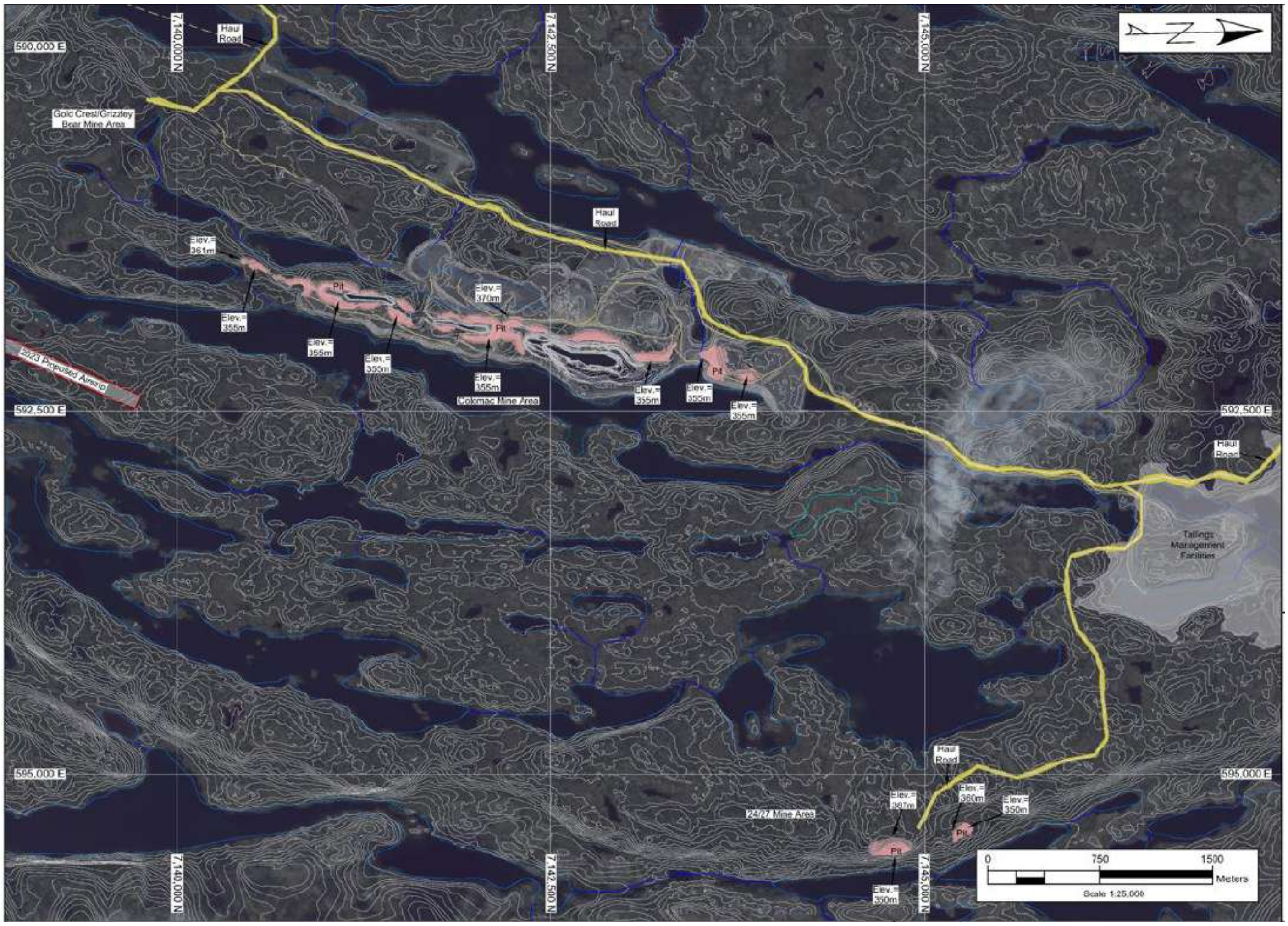
Table 16-10: Mining Phase Sequence

Deposit Name & Type	PP	Y01	Y02	Y03	Y04	Y05	Y06	Y07	Y08	Y09	Y10	Y11	Y12
Colomac Open Pit Phase 1	XX	XX	XX	XX	XX	XX	XX						
Colomac Open Pit Phase 2			XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	
Colomac Open Pit Phase 3			XX	XX	XX	XX	XX	XX					
Colomac Open Pit Phase 4			XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
Colomac Open Pit Phase 5			XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
Colomac Open Pit Phase 6			XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX
Goldcrest Open Pit				XX	XX	XX	XX	XX					
Grizzly Bear Open Pit			XX	XX	XX	XX	XX	XX					
24/27 Open Pit	XX	XX	XX	XX									
Cass Open Pit	XX	XX	XX	XX	XX	XX	XX	XX					
Kim Open Pit	XX	XX	XX	XX	XX								
Damoti Open Pit	XX	XX	XX	XX									
Colomac Underground	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX		
Cass Underground										XX	XX	XX	XX
Treasure Island Underground	XX	XX	XX	XX	XX	XX							
Damoti Underground							XX	XX	XX				

16.9.2 Colomac Main Open Pit Sequence

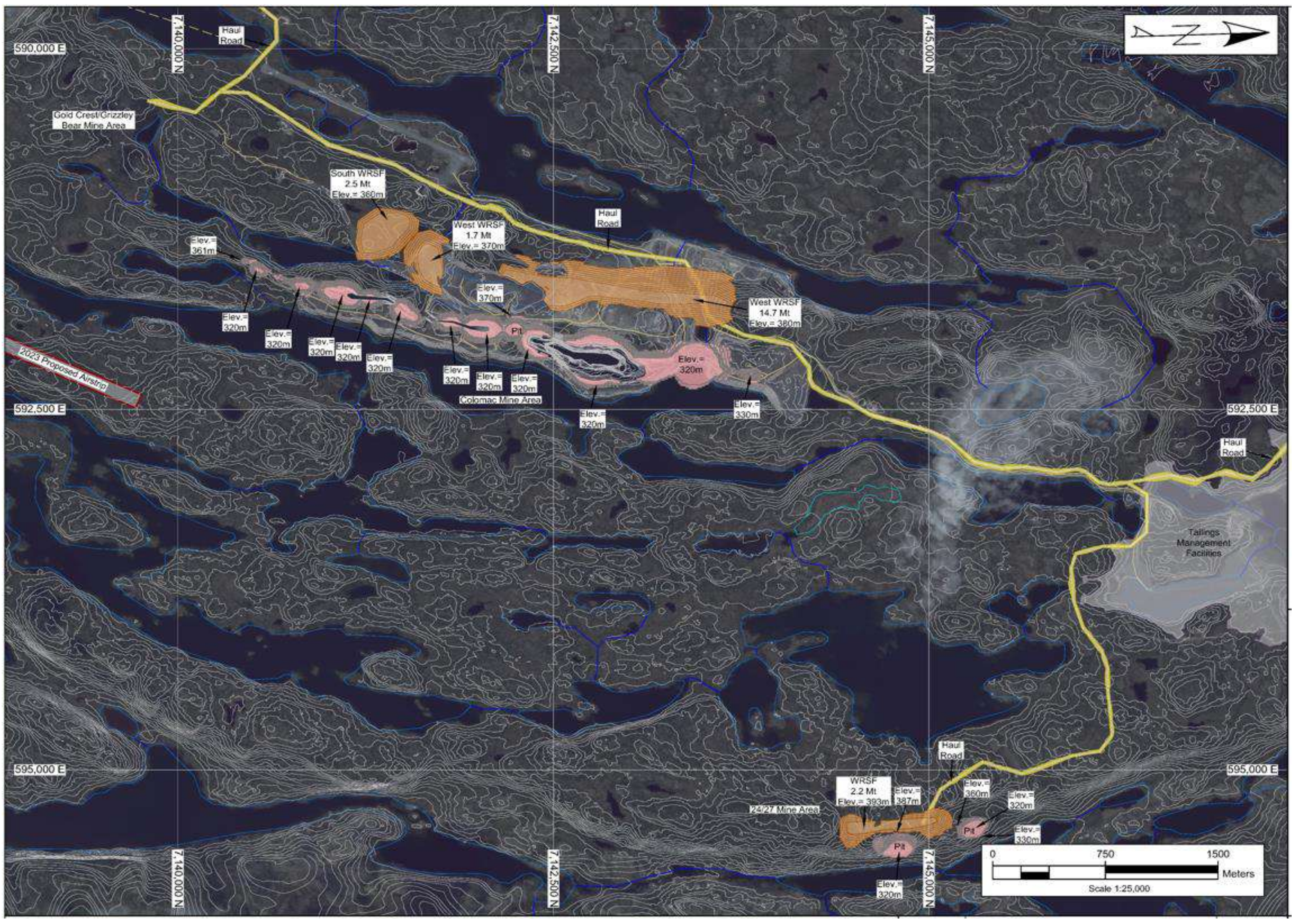
Figures 16-42 to 16-46 illustrate the sequence of Colomac Main open pit development over the life of mine.

Figure 16-42: Colomac Area End of Period Map, Year -1



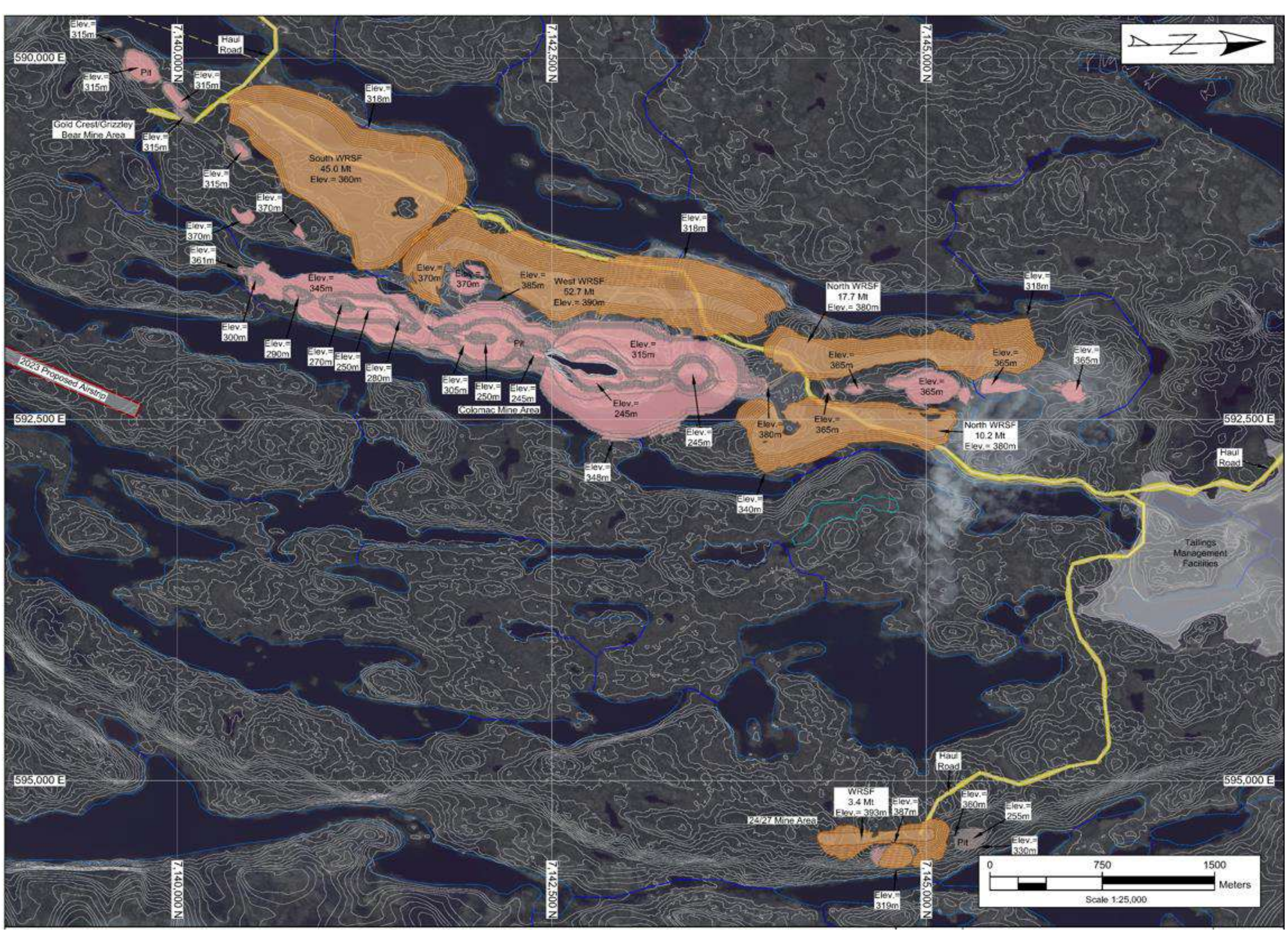
Source: Moose Mountain, 2023

Figure 16-43: Colomac Area End of Period Map, Year 1



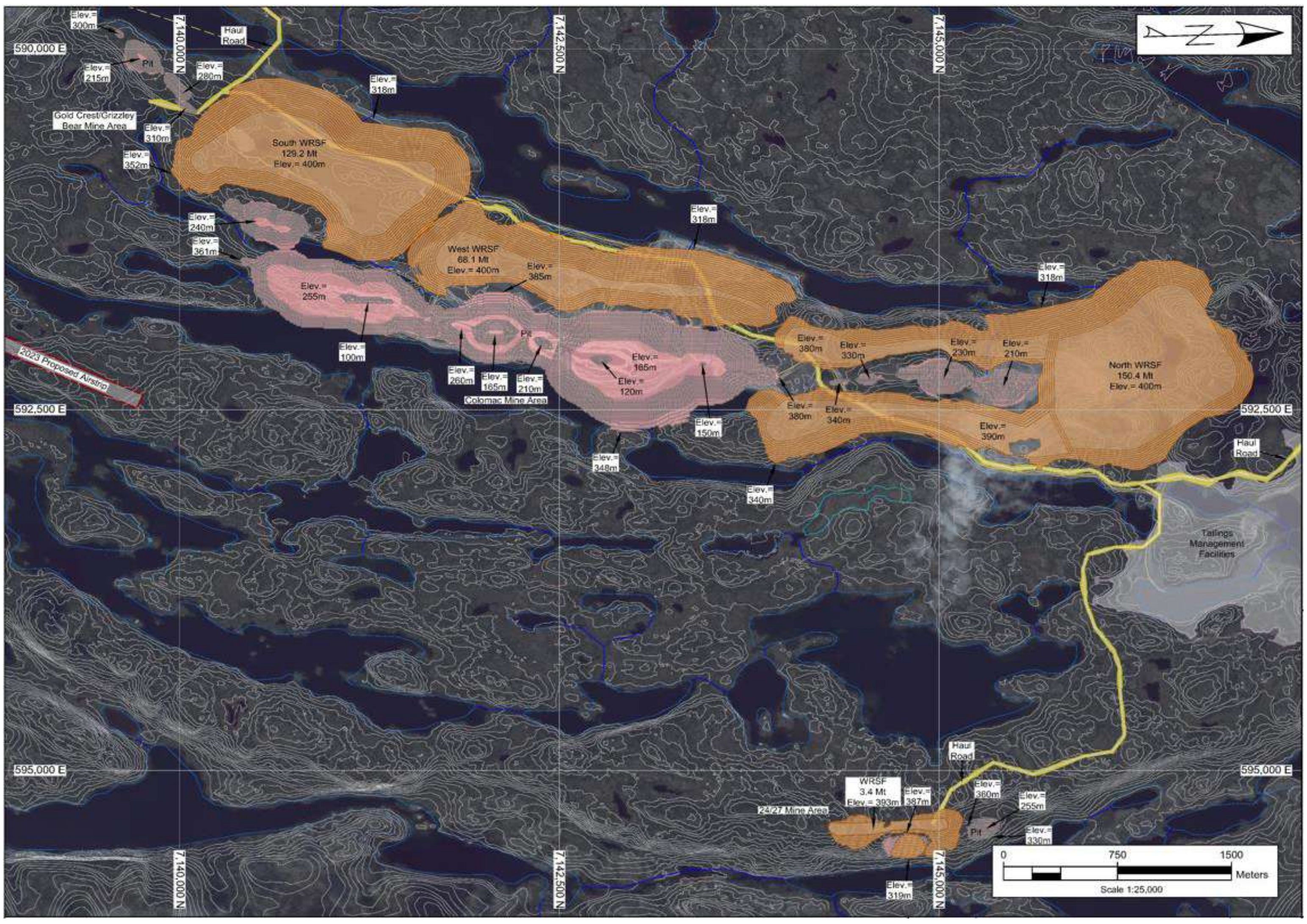
Source: Moose Mountain, 2023

Figure 16-44: Colomac Area End of Period Map, Year 3



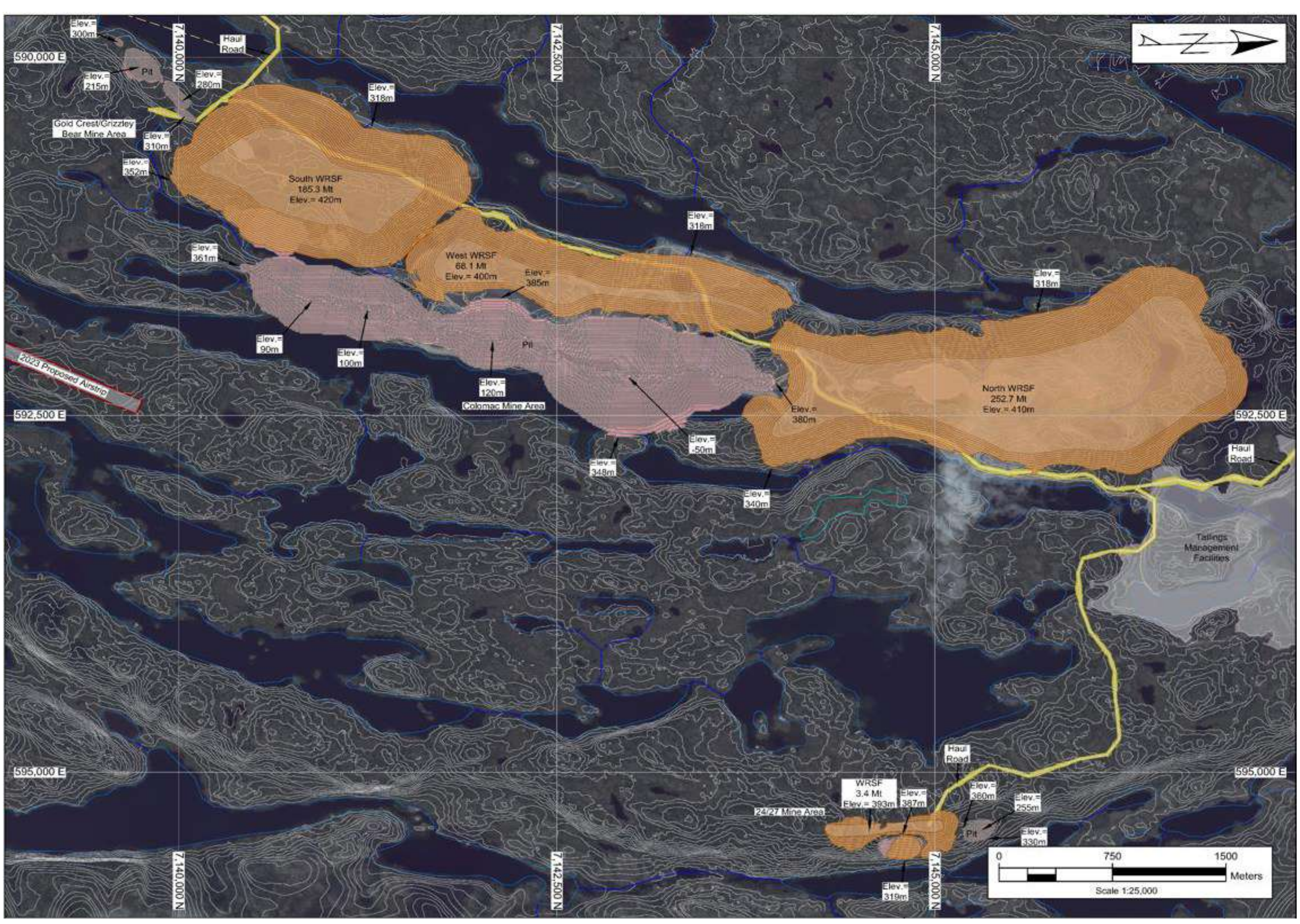
Source: Moose Mountain, 2023

Figure 16-45: Colomac Area End of Period Map, Year 6



Source: Moose Mountain, 2023

Figure 16-46: Colomac Area End of Period Map, Year 12



Source: Moose Mountain, 2023

16.10 Operations

16.10.1 Open Pit Operations

16.10.1.1 Mining Operations

Open pit mine operations are planned to be operated and managed by the owner, which is typical of similar operations in Canada.

Grade control drilling is carried out to better delineate the resource in upcoming benches. A grade control system is planned to provide field control for the loading equipment to selectively mine resource-grade material separately from the waste.

In-situ rock is drilled and blasted on 10 m benches to create suitable fragmentation for efficient loading and hauling of both resource and waste rock. It is assumed that overburden material does not require blasting. Powder factors of 0.33 kg/t in resource and 0.25 kg/t in waste rock are proposed for all deposits. Due to the remote location of the project, an onsite emulsion mixing plant and bulk storage of explosive products is planned. An on-site magazine is planned for initiation systems and packaged explosive products.

Loading in resource zones will be completed with a hydraulic excavator on 5 m benches. In waste zones a hydraulic excavator and wheel loader on 5 m or 10 m benches will be used, depending on grade control requirements.

Resource material and waste rock will be hauled from the pit to scheduled destinations with off-highway, rigid-frame haul trucks.

Mine pit services include the following:

- haul road maintenance
- pit floor and ramp maintenance
- stockpile and WRSF maintenance
- mobile fuel and lube services
- ditching
- dewatering
- secondary blasting and rock breaking
- snow removal
- reclamation and environmental control

- lighting
- transporting personnel and operating supplies.

Direct mining operations and mine fleet maintenance are planned as an owner's fleet.

Mining operations are based on 365 operating days per year with two 12-hour shifts per day. An allowance of 10 days of no production has been built into the mine schedule to allow for adverse weather conditions.

The number of hourly mine operations personnel, including maintenance crews, peaks at 290 persons. Due to the shift rotation, only one-quarter of the full personnel complement will be on shift at a given time. Salaried personnel of approximately 35 persons will be required for mine operations, including mine and maintenance supervision staff and mine engineering and geology staff.

Most (85%) of the open pit production will occur within the Colomac Main open pits, but several satellite pits will be concurrently operated, with operations staged from the Colomac area. Equipment, personnel, and supplies will be shuttled between the pits as required.

16.10.1.2 Mining Equipment

The mine equipment descriptions in this section are based on typical fleet contingents utilized in North American open pit mine operations. It should be expected that equipment specifications and fleet sizes will be altered with further project engineering and optimization. The planned mobile fleet is entirely diesel driven.

Grade control drilling will be carried out with tracked RC drills. Production drilling will be carried out with 250 mm (10-inch) tracked rotary drills in waste headings and 200 mm (8-inch) tracked down-the-hole (DTH) drills in mineralized material.

Reliable mining equipment commonly found in the construction and open pit mining industry has been selected for the loading and hauling fleet. For large waste headings, hydraulic front shovels (34 m^3 bucket) are chosen to load 230-tonne payload rigid frame haulers in four passes. For mineralized material and satellite deposit mining, hydraulic excavators (22 m^3 bucket) loading 91-tonne payload rigid frame haulers are chosen based on their ability to minimize losses and dilution for the grade control operations. Front end wheel loaders (14.0 m^3 bucket) are proposed for support loading based on their ability to load the haulers and the crusher when required.

Articulated haul trucks (40-tonne payload) are included as a support hauler for overburden and topsoil materials, as well as accessing smaller pit mining areas such as pit bottoms or initial bench access when diving. Graders will be used to maintain the haul routes for the haul trucks and other equipment within the pits and on all routes to the various waste storage locations and the crusher. Rigid-frame trucks that are outfitted with a water tank (120,000 L) and gravel spreader are included for haul road maintenance. Track dozers (450 kW and 325 kW) are included to handle waste rock on the WRSFs and to support in-pit activities. Front-end wheel loaders (7 m^3 bucket) and hydraulic excavators (4.5 m^3 and 2.0 m^3 bucket) are included as pit support, grade control support, and general back-up loaders for the main fleet. Custom fuel/lube trucks are included for mobile fuel/lube support. Various small mobile equipment pieces are proposed to handle all other pit service and mobile equipment maintenance functions.

Pits will be dewatered with conventional dewatering equipment (submersible pumps placed in pit bottom sumps or in underground workings). Preliminary pit inflows of 20,000 m^3 per day are estimated for all pits combined. It is recommended to conduct hydrogeologic testwork and analysis to further refine this estimate in future mine planning.

Specific risk exists if there is hydraulic conductivity between nearby waterbodies and the open pits. Pit water will be pumped to collection water management facilities adjacent to the pits where it will be managed as per the overall site water management plan in Section 18.9.

Mine fleet maintenance activities are generally performed in the maintenance facilities located near the plant site.

Primary mining equipment requirements are summarized in Table 16-11. Equipment classes and number of units are scoping-level estimates only; future modifications should be anticipated.

The smaller drills, excavators, and haul trucks will be utilized for mining operations at the satellite deposits. The fleet size is large enough to accommodate the flexibility needed for this strategy. The larger haul trucks may also be used for significant waste headings in the Cass open pits.

Table 16-11: Primary Mining Fleet Schedule

Description	Pre-Prod.	Y01	Y02	Y03	Y04	Y05	Y06	Y07	Y08	Y09	Y10	Y11	Y12
Drilling													
Rotary Tracked Drill 250 mm (10") holes	1	1	2	2	2	2	2	2	2	1	1	0	0
DTH Tracked Drill 200 mm (8") holes	1	4	4	5	5	5	5	5	2	2	2	2	2
Loading													
Hydraulic Front Shovel (34 m^3 bucket)	0	1	1	2	2	2	2	2	2	1	1	0	0
Hydraulic Excavator (22.0 m^3 bucket)	1	2	2	3	3	3	3	3	3	2	1	1	1
Wheel Loader (14.0 m^3 bucket)	1	1	1	1	1	1	1	1	1	1	1	1	1
Hauling													
Rigid-Frame Haul Truck 230 t Payload	0	7	7	13	18	18	18	18	18	10	6	3	0
Rigid-Frame Haul Truck 91 t Payload	12	12	12	12	12	12	12	12	10	10	10	10	10

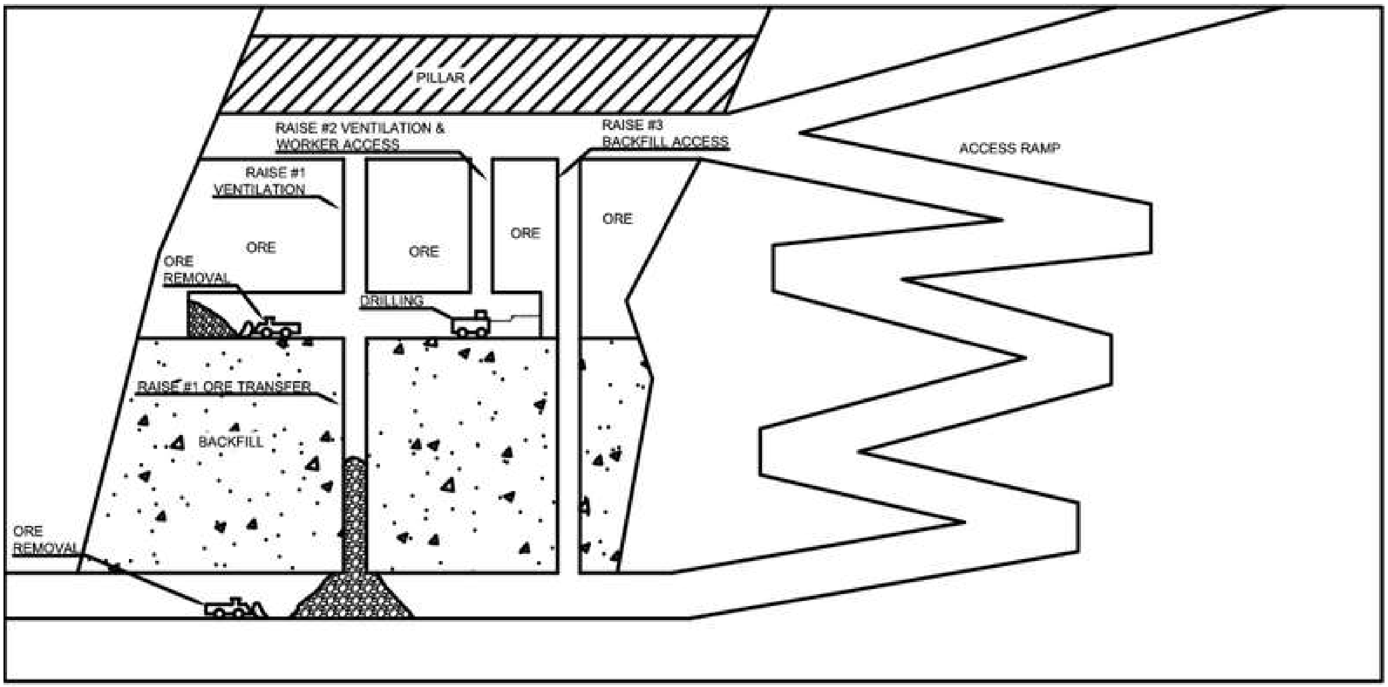
16.10.2 Underground Operations

Underground operations, including both access (capital) development, attack ramp (operating) development, and MCF stope extraction and backfill, are planned to be executed via contractor. The details of the contractor fleet and workforce have not been considered but will be similar to other Canadian MCF operations targeting 1,750 t/d.

Two separate underground operations will be executed concurrently. The main underground production will be at Colomac Main, targeting 1,500 t/d, while a smaller secondary operation will sequence through Treasure Island, Damoti and Cass deposits at 350 t/d.

MCF mining begins at the bottom of each stope and progresses via vertical cuts to the top of each stope. Each cut requires an attack ramp off the level access placed along the footwall of each stope. Each cut requires drilling, blasting, excavating, and hauling. As each cut is mined out, it is backfilled with waste rock or paste to provide a working platform for the next vertical cut. A schematic of typical MCF stope development is displayed in Figure 16-47.

Figure 16-47: Typical MCF Stope Development



Source: Kelapstick, distributed under a CC-BY 2.0 licence via Wikimedia Commons

16.11 Mining Risks

Risks to the estimated mill feed quantities, gold grades, associated waste rock quantities, and costs in this technical report include changes to the following factors and assumptions:

- metal prices
- interpretations of mineralization geometry and grade continuity in mineralization zones
- exact dimensions of voids created by historic mining
- geotechnical and hydrogeological assumptions
- ability of the mining operations to meet the annual production rates and anticipated grade control standards
- operating cost assumptions and cost creep
- mine operation and process plant recoveries
- ability to meet and maintain permitting and environmental licence conditions, and the ability to maintain the social licence to operate
- ability to access capital for project financing.

17 RECOVERY METHODS

17.1 Overall Process Design

The most appropriate process flowsheet for the project was selected based on the preliminary metallurgical testwork results and subsequent economic modelling. The unit operations selected are standard technologies typically used in gold processing plants. The proposed flowsheet uses conventional processes for the following:

- crushing/grinding
- leach/carbon adsorption
- carbon desorption/electrowinning/refining
- cyanide destruction/tailings dewatering.

17.2 Process Design Criteria

The process design criteria established after a review of available metallurgical testwork and comparable industry benchmarks are summarized in Table 17-1 on the following page. The overall process flow diagram in presented in Figure 17-1.

17.3 Process Plant Description

The process design is comprised of the following circuits:

- primary and secondary crushing of run-of-mine (ROM) material
- mill feed stockpile to provide buffer capacity ahead of the grinding circuit.
- semi-autogenous grinding (SAG) mill with trommel screen in closed circuit, followed by a ball mill with cyclone classification
- gravity recovery of ball mill discharge by semi-batch centrifugal gravity concentrator, followed by intensive cyanidation of the gravity concentrate and electrowinning of the pregnant leach solution,
- leach and carbon-in-pulp adsorption
- acid washing of loaded carbon and pressure Zadra elution followed by electrowinning and smelting to produce doré.
- carbon regeneration
- tailings cyanide destruction using the SO_2/air process.
- carbon safety screening, and tailings disposal
- reagent storage and distribution

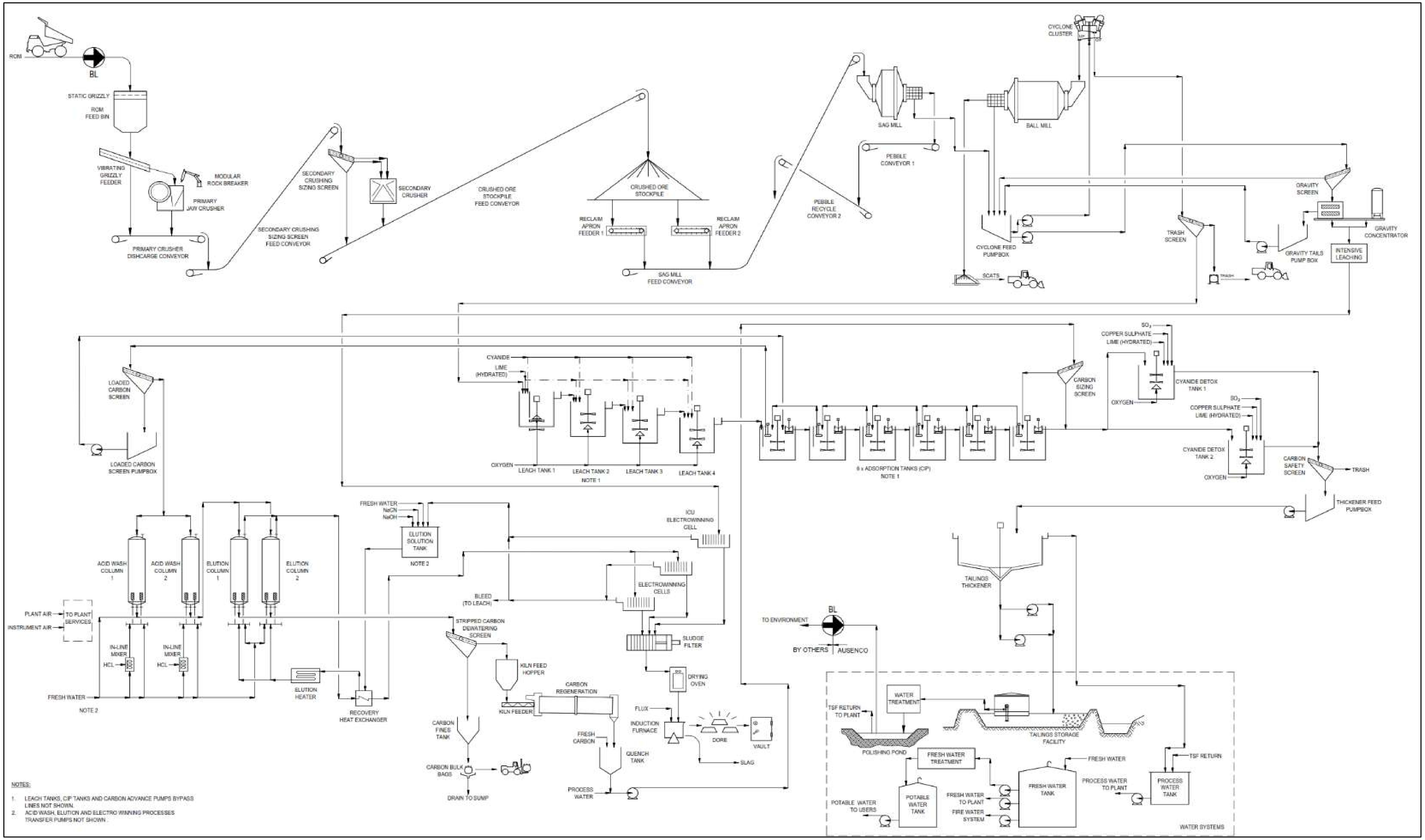
Table 17-1: Process Design Criteria

Description	Units	Value
Plant Throughput, Design	Mt/a	6.10
Plant Throughput, Design	t/d	16,715
Gold Head Grade, Design	g/t Au	1.80
Crushing Plant Availability	%	65
Mill Availability	%	92
Bond Crusher Work Index (CWi), Design	metric	18.7
Bond Ball Mill Work Index (BWi), Design	metric	16.0
Bond Abrasion Index (Ai), Design	-	0.47
ROM Specific Gravity, Design	-	2.69
ROM Mineralized Material Maximum Size	mm	800
ROM Mineralized Material Moisture	%	3
Mill Feed Stockpile Live Capacity	h	12
Grinding Circuit Feed Size, F_{80}	mm	36
Grinding Circuit Product Size, P_{80}	µm	150
Pebble Recycle Rate, Operating	% Fresh Feed	13
Cyclone Underflow Pulp Density, Design	% Solids (w/w)	72
Cyclone Overflow Pulp Density, Design	% Solids (w/w)	42.5
Circulating Load	% Fresh Feed	400
Mass Split to Gravity Concentrator	% Fresh Ball Mill Feed	100
Gravity Concentrator Recovery	% Au	27.7
Leach Configuration	-	Leach/CIP
Leach Feed Pulp Density, Design	% Solids (w/w)	41.5
Leach + CIP Residence Time	h	24
Leach & CIP Tanks	-	4+ 6
Leach Tank Total Residence Time, Design	h	18
Leach Extraction, Average	% Au	86
Leach Sodium Cyanide Addition Rate, Design	kg/t	0.50
Leach Hydrated Lime Addition Rate, Design	kg $Ca(OH)_2$/t	0.1
Adsorption Number of Stages	-	6
Adsorption Time Total, Design	h	8
Carbon-in-Pulp Tail, Solution Concentration	mg/L Au	<0.015
Recovery for Design Purposes	% Au	96.3
Carbon Batch Size	t	8.0
Type of Stripping System	-	Pressure Zadra
Number of Parallel Elution Circuits	-	2
Number of Strips per Elution Column per Day	-	1

Description	Units	Value
Number of Acid Wash Columns	-	2
Hydrochloric Acid Addition Rate, Design	% Concentrate w/v	3.0
Number of Elution Columns	-	2
Electrowinning Plating Time	h	16
Barren Eluate Assay	mg/L Au	<10
Carbon Addition Rate, Design	kg/t	0.04
Fuel Source for Elution Heater and Regeneration Kiln	-	Electric
Detoxification Feed CN_{WAD} Concentration, Design	mg/L	100
Detoxification Tanks	-	Two, parallel
Detoxification Residence Time, Total	min	60
Detoxification SO_2 Addition Rate, Design	g/g CN_{WAD}	5.0
Detoxification Copper Addition Rate, Design	ppm Cu^{2+}	15
Detoxification Hydrated Lime Addition Rate, Design	g/g SO_2	0.75
CN_{WAD} Discharge Concentration (Circuit Discharge)	mg/L	<5
Tailings Thickener Underflow Density, Design	% solids (w/w)	65
Thickener Overflow Solids	mg/L	<100
Thickener Flocculant Addition Rate, Design	g/t	20

Source: Ausenco, 2023.

Figure 17-1: Process Flowsheet



Source: Ausenco, 2023.

17.3.1 Crushing and Stockpiling

Run-of-mine production is hauled from the mines and stockpiled or directly tipped into to the run-of-mine feed bin. Material from the bin is discharged by gravity to a vibrating grizzly screen where oversize is discharged into the primary jaw crusher. This oversize material is crushed by the primary jaw crusher along with a modular rock breaker to manage very large rocks that may exceed the crusher cavity size. The jaw crusher discharge and vibrating grizzly undersize is then conveyed to the secondary crushing circuit where the particle size is reduced in open circuit with a scalping vibrating screen and cone crusher.

Secondary crusher discharge and scalping screen undersize is conveyed to the mill feed stockpile. The 12-hour live residence time of the stockpile affords the opportunity to perform maintenance on the crushing circuit without affecting the downstream process plant. Crushed material is withdrawn from the stockpile by two apron feeders that discharge onto the semi-autogenous grinding (SAG) mill feed conveyor. Oversize pebbles returned from the SAG mill trommel are deposited back on the SAG mill feed conveyor. Major equipment in this area includes the primary jaw crusher, secondary sizing screen, secondary crusher and associated material handling equipment.

17.3.2 Grinding Circuit

The grinding circuit consists of a SAG mill in closed circuit with a trommel screen and is followed by a ball mill in closed circuit with a hydrocyclone cluster. Process water is added to the SAG mill feed chute as well as the discharge pumpbox to maintain slurry pulp densities throughout the circuit. The hydrocyclone cluster is fed the combined SAG discharge screen undersize and ball mill discharge from the cyclone feed pumpbox. Slurry from the pumpbox is pumped to a hydrocyclone cluster and gravity circuit by individual pumps. The hydrocyclones classify the mill discharge to achieve a grind size of 80% passing 150 µm.

Cyclone overflow gravitates over the trash screen where the oversize is collected and periodically removed. Trash screen undersize reports to the leach/carbon-in-pulp circuit. The hydrocyclone underflow returns to the ball mill for further size reduction. The circulating load within the ball mill hydrocyclone circuit is designed to be 400%. Major equipment in this area includes the SAG mill, ball mill, hydrocyclone cluster, cyclone feed pump, gravity feed pump, and other associated material handling equipment.

17.3.3 Gravity Circuit

The gravity circuit includes one centrifugal concentrator with a feed scalping screen to protect the unit from oversize material. Feed to the circuit is pumped from the cyclone feed pumpbox via a dedicated pump to the scalping screen. Gravity scalping screen oversize reports back to the cyclone feed pumpbox. Scalping screen undersize is fed to the centrifugal concentrator. Operation of the gravity concentrator is semi-continuous, and the gravity concentrate is collected in the concentrate storage cone and subsequently leached by the intensive cyanidation reactor. The tails from the gravity concentrator are returned to the grinding circuit for further liberation. Major equipment in this area includes the gravity concentrator, tailings return pump and other associated material handling infrastructure.

17.3.4 Intensive Leach Reactor

A separate leaching circuit is used to treat the gold concentrate produced by the gravity concentrator. In the intensive leach reactor, gold concentrate is leached into solution using sodium hydroxide, sodium cyanide, and leach accelerant.

The intensive leach reactor pregnant solution is transferred to its dedicated electrowinning cell for gold recovery as gold sludge. The sludge is periodically removed from the electrowinning cell, then collected and then smelted into doré.

17.3.5 Leach/Carbon-in-Pulp Circuit

Hydrocyclone overflow gravitates to the leach and carbon-in-pulp (CIP) area via a trash screen. The trash screen will remove any debris or trash from the slurry before leaching for periodic disposal with other site trash. The leach and CIP circuit consists of ten tanks—four leach tanks and six CIP tanks—to provide a total residence time of 24 hours. Air is sparged to the tanks to maintain adequate dissolved oxygen levels for leaching. Hydrated lime slurry is added to maintain the operating pH at the desired set point of 10.5. Cyanide solution is added to the first leach tank.

Fresh/regenerated carbon from the carbon regeneration circuit is returned to the last tank of the CIP circuit and is advanced counter-currently to the slurry flow by pumping slurry and carbon. Slurry from the last CIP tank gravitates to the cyanide detoxification tanks. Each CIP tank has a mechanically swept carbon retention screen to retain the carbon while allowing the slurry to flow by gravity to the downstream tank. Loaded carbon is transferred from the first CIP tank to carbon elution via the loaded carbon screen using a recessed impeller pump. Major equipment in this area includes the leach tanks, CIP tanks, carbon and slurry pumps as well as the associated retention screens and launders for material transfer.

17.3.6 Cyanide Detoxification and Tailings Disposal

CIP tailings slurry is discharged into two cyanide detoxification tanks in parallel. Cyanide detoxification will take place using the SO_2/air process. In this process, SO_2 and oxygen are used to detoxify the CIP tailings to a weak acid dissociable cyanide (CN_{WAD}) concentration of 5 mg/L or less. The SO_2 is generated on site with a sulphur burner that melt and burns prilled sulphur in air to generate SO_2. Detoxification is carried out at a pH of 8.5 and makes use of copper sulphate as a catalyst. Lime is used to maintain the pH of the reaction. The cyanide detoxification makes use of two tanks in parallel that have each been sized for a total residence time of 60 minutes.

The detoxified tailings slurry is passed through a carbon safety screen and pumped to the tailings thickener where it is thickened to a slurry density of 65% solids by weight. Thickener overflow is recovered into the process water tank for re-use. Carbon retained on the safety screen is removed into bulk bags and shipped off-site for third-party processing. The thickener underflow solids are pumped to a tailings management facility, where further consolidation of solids occurs. The water released is reclaimed from the dam, treated, and used as makeup process water within the plant. Major equipment in this area includes the detoxification tanks, carbon safety screen, thickener, pumps, and associated slurry transfer equipment.

17.3.7 Carbon Acid Wash and Elution

Carbon slurry is pumped from the first CIP tank to the loaded carbon screen. Screen undersize is pumped back to the first CIP tank, while screen oversize discharges to one of two acid wash columns. The batch size per carbon transfer is 8 tonnes. Loaded carbon is washed with a weak hydrochloric acid solution to remove calcium, magnesium, and other salt deposits. The spent acid is discharged into the cyanide detoxification system where it can be neutralized with lime. The acid-washed carbon is then hydraulically transferred to one of two elution columns for gold stripping via the pressure Zadra process. The acid-washed carbon is eluted with a sodium cyanide solution and sodium hydroxide solution in the elution column.

Pregnant solution from the elution column is transferred to electrowinning. Electrowinning barren solution is then re-circulated through the elution column via a heater. A heat exchanger preheats the barren eluate by recovering some heat from the pregnant solution. When an elution cycle is complete, the circuit is ready to initiate a new acid wash and elution cycle. Two cycles, one in each acid wash and elution column combination, can be carried out per day. Major equipment in this area includes the loaded carbon screen, acid wash columns, elution columns, recovery heat exchanger, elution heater, and associated pumping systems.

17.3.8 Carbon Reactivation

The stripped carbon is dewatered by a screen over a feed hopper that feeds an electric rotary kiln via a screw feeder. The kiln is operated at 700°C in an atmosphere of superheated steam to restore the activity of the carbon. Carbon discharging from the kiln is quenched in water and screened on a carbon sizing screen located on top of the CIP tanks to remove undersized carbon fragments. Make-up carbon is added to the circuit as needed in the carbon quench tank. Oversize carbon reports to the last CIP tank; undersized carbon is combined with CIP tailings into the detoxification process feed. The major equipment in this area includes the carbon dewatering screen, regeneration kiln, carbon sizing screen, and associated materials handling infrastructure.

17.3.9 Electrowinning and Gold Room

Gold is recovered from the intensive leach reactor and elution pregnant solution by electrowinning and smelted to produce doré bars. The pregnant solution is pumped through electrowinning cells fitted with stainless steel mesh cathodes. An electrical current is applied across the cells, causing gold to deposit on the surface of the cathodes. Electrowinning barren solution is re-circulated to the elution columns with a periodic bleed to the leach circuit in order to prevent the build-up of impurities. The gold-rich sludge is washed off the steel cathodes in the electrowinning cells using high-pressure spray water and gravitates to the sludge hopper. The sludge is filtered, dried, mixed with fluxes, and smelted in an electric induction furnace to produce gold doré. The electrowinning and smelting process takes place within a secure and supervised gold room equipped with access control, intruder detection, and monitoring.

17.3.10 Reagent Handling & Storage

The consumables and reagents required for the mechanical and chemical treatment of the run-of-mine material can be summarized as follows:

- Quicklime (CaO) – This will be slaked into hydrated lime ($Ca(OH)_2$) which is then used to control the pH in the leach, CIP, and detoxification circuit.
- Sodium Cyanide ($NaCN$) – This is the main gold leaching reagent in the CIP circuit, elution column, and intensive leach reactor circuit.
- Sodium Hydroxide ($NaOH$) – This will be used in the carbon elution and intensive leach reactor circuits.
- Hydrochloric Acid (HCL) – This will be used in the acid wash circuit to remove scale formation on the carbon.
- Copper Sulphate ($CuSO_4$) Pentahydrate – This is a catalyst in the detoxification reaction.
- Prilled Sulphur – This is a source of SO_2 for cyanide detoxification.

- Process Air – Air will be used as a source of oxygen for leaching and cyanide detoxification.
- Activated Carbon – Carbon is used in the CIP circuit to adsorb dissolved gold.
- Flocculant – This is used as a thickening aid to accelerate settling rates and/or achieve higher pulp densities.
- Leach Aid – This is used in the intensive leach reactor circuit to improve the free gold leaching process.
- Antiscalant – This is used to reduce the formation of scale in the elution and electrowinning circuit equipment and on the activated carbon itself.
- Flux – A flux of silica, niter and soda ash is used in gold smelting to produce slag and capture metal impurities.

17.4 Services – Air, Water, Power

The process plant will be supplied with low-pressure and high-pressure compressed air at 120 kPag and 750 kPag, respectively. Compressors will first supply air for general process use, notably in leaching and detoxification, to a primary receiver. A portion of air will then be dried and filtered before being transferred to a dried air receiver for instrument use.

The process will require both fresh and reclaim water to maintain the plant water balance. Fresh water will be used to supply gland seal pumps, reagent makeup water, and the elution circuit. The process will use an estimated 58 m^3/h of fresh water. Make-up water will be reclaimed from consolidated tailings and other sources (e.g., surface runoff and pit dewatering) when available. Permitting for the required fresh water flow is discussed in Section 20.3.20.

The process plant is expected to consume 168 GWh of power per year, or an average operating power draw of 20.8 MW.

17.5 Consumption Rates

The estimated consumption rates for major plant reagents based on nominal usage assumptions are shown in Table 17-2. Consumption rates for major wear parts estimated from comparable industry benchmarks with similar abrasion properties are shown in Table 17-3.

Table 17-2: Reagent Consumption Rates

Reagent	Unit	Quantity
Cyanide	t/y	2,418
Lime	t/y	3,989
Sulphur	t/y	2,170
$CuSO_4$	t/y	512
HCl	t/y	300
NaOH	t/y	350
Flocculant	t/y	122
Carbon	t/y	244

Source: Ausenco, 2023.

Table 17-3: Wear Part Consumption Rates

Consumable	Unit	Quantity
Primary Jaw Liner Sets	#/y	4
Cone Crusher Liner Sets	#/y	6
Secondary Screening Media Sets	#/y	6
SAG Mill Liner	#/y	1
SAG Mill Grinding Media	t/y	2,135
SAG Mill Trommel	#/y	0.5
Ball Mill Liner	#/y	0.6
Ball Mill Grinding Media	t/y	3,068

Source: Ausenco, 2023.

18 PROJECT INFRASTRUCTURE

18.1 Introduction

The infrastructure layout plan in Figure 18-1 shows the major project facilities, including the open pit mines, tailings management facility (TMF), waste rock facilities, polishing pond, mine services, access road, accommodations facility, and treatment plant. Access to the facility is from the existing public access road on the west side of the property. Access to the process plant will be via the security gate at the public road intersection.

The site will not be fenced, which allows open access to all waterbodies in the area. However, gatehouses will be located to clearly delineate the mining and processing areas to deter access by unauthorized people. The process plant is south of Colomac Main pit, between Steeves Lake and Baton Lake, in a position that avoids impact to natural waterbodies.

Site selection and location for project infrastructure was guided by the following considerations:

- locate the ROM pad between the two furthest open pits to minimize haul distance.
- ensure the location of the process plant and mining truck area are outside the flyrock exclusion zone from the Colomac zone resource
- utilize the natural high ground for the ROM pad as much as possible
- separate heavy mine vehicle traffic from non-mining, light-vehicle traffic
- locate the process plant near an existing winter access road
- locate the process plant in an area safe from flooding
- place mining, administration and processing plant staff offices close together to limit walking distances between them
- avoid known fish habitation areas.

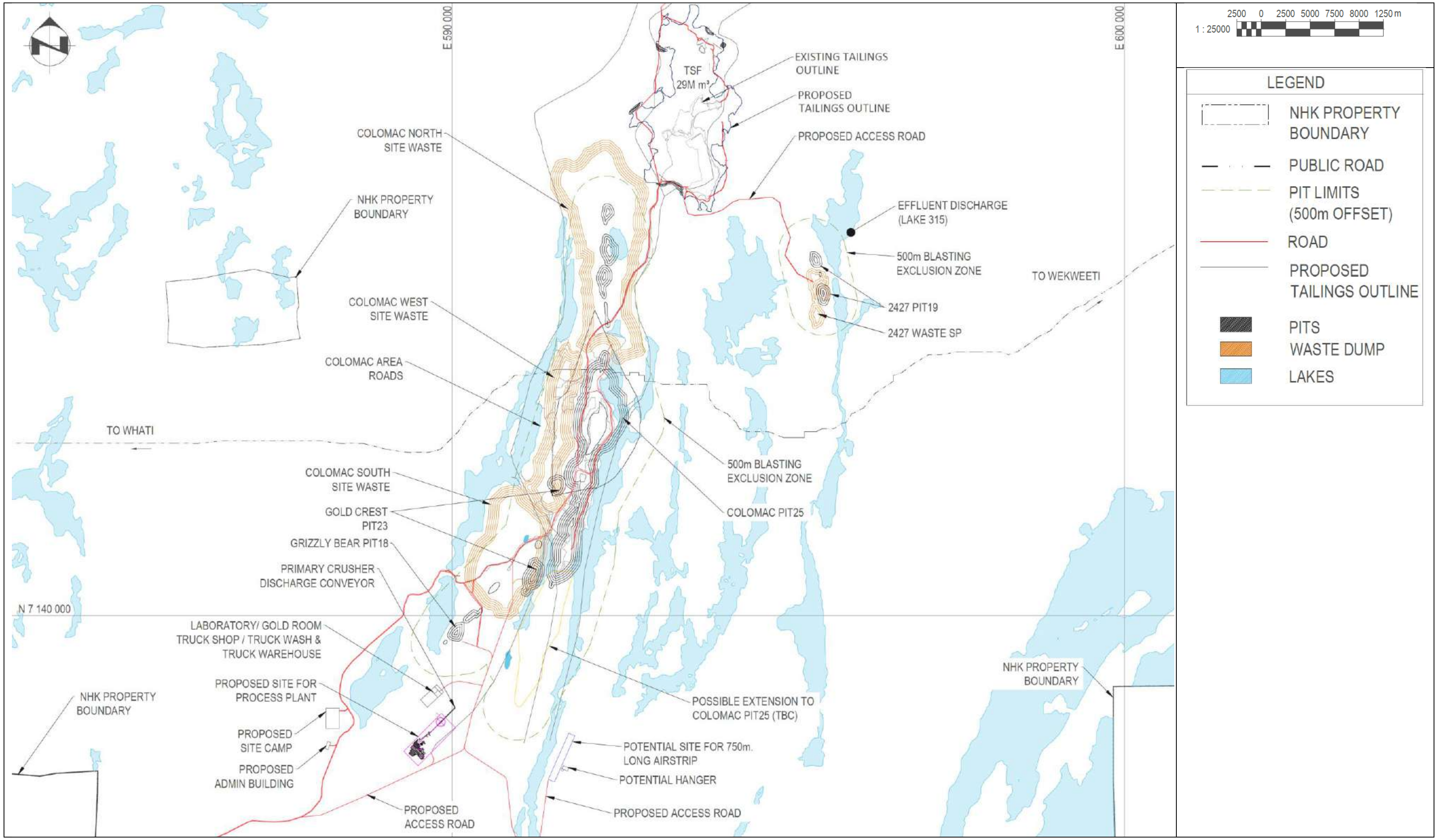
18.2 Site Access

18.2.1 Roads

Site access is initially via the Gamètì winter road that starts outside of Whatì. As shown on Figure 18-2, at the KM 97 junction, the road splits into two: the winter road continues northwest to Gamètì, and the route to site follows the Wekweètì winter road which runs northeast, passing the turnoff to the Colomac Gold Project site at KM 157.

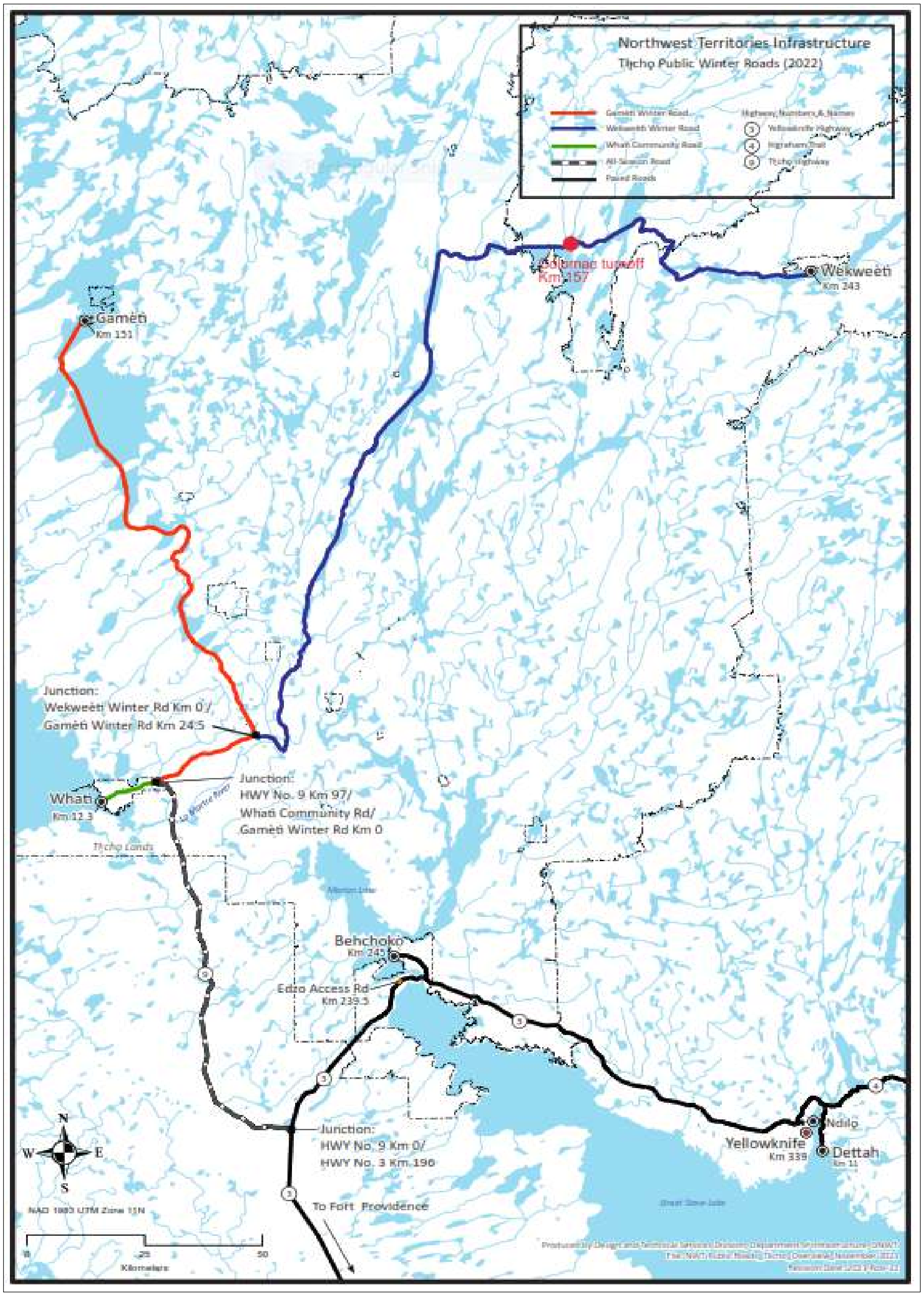
The all-season, existing site roads will be upgraded. The road upgrades will include re-surfacing gravel pavement, improving surface drainage, and installing new culverts at stream crossings. All other internal mine roads will be all-season, gravel-paved road.

Figure 18-1: Infrastructure Layout Plan



Source: Ausenco, 2023.

Figure 18-2: Site Access



Souce: Ausenco, 2023

18.2.2 Airstrip

There is an existing 1.4 km airstrip that provides access to the mine site. Due to mine development, this airstrip will be relocated to the east of process plant.

18.3 Built Infrastructure

Three types of buildings have been incorporated into the project design: modular buildings, fabric buildings, and pre-engineered buildings. The buildings are listed in Table 18-1.

Table 18-1: Buildings

Description	Location	Building Construction	Length (m)	Width (m)	Height (m)	Area (m^2)
Administrative Building	Plant	Modular	12.2	36.6	2.7	445.9
Airstrip Hangar	Plant	Fabric	30	18	14	540
Airstrip Office	Plant	Modular	12.2	7.3	2.7	89.2
Assay Laboratory	Plant	Modular	12.2	7.3	2.7	89.2
Accommodations Facility*						
Gold Room Building	Plant	Foldable	18	10	10	180
Mill Office	Plant	Modular	12.2	7.3	2.7	89.2
Mine Dry	Plant	Modular	12.2	36.6	2.7	445.9
Mine Offices @ 2427	Plant	Modular	12.2	7.3	2.7	89.2
Mine Offices @ Cass & Kim	Plant	Modular	12.2	7.3	2.7	89.2
Mine Offices @ Damoti	Plant	Modular	12.2	7.3	2.7	89.2
Plant Warehouse and Maintenance Building	Plant	Fabric	48	20	6	960
Reagents Building	Plant	Fabric	41	22.5	16.2	922.5
Reagents Storage Warehouse	Plant	Fabric	15.2	9.8	6	149
Security Gatehouse	Plant	Modular	12.2	3.7	2.7	44.6
Stockpile Cover	Plant	Fabric	76.0	72.0	26.0	5,472.0
Truck Shop Building	Plant	Fabric	65.8	25.9	14	1,704.2
Truck Wash Building	Plant	Fabric	26	18.3	14	475.8
Truck shop Warehouse	Plant	Fabric	26	18.3	6	475.8

Note: *The accommodations facility is to be constructed. Refer to Section 18.5.

18.4 Assay Laboratory

The laboratory has two 12 m (40 ft) modules that are compiled into a rectangular-shaped, single-storey modular building that is used to assay mine samples and test metallurgical samples. The laboratory has a total area of 89.2 m^2.

The assay laboratory will house equipment for typical mine and plant assays as well as office space. Tests performed in the laboratory would include gold grade control samples from the mine as well as solid, solution, bullion and carbon assays from the plant. Cyanide detoxification samples may be verified in the assay laboratory as well. The laboratory will be located in close proximity to the process plant and administration building.

18.5 Accommodation

The current location of the exploration accommodation is not suitable for mining operations. A new accommodation will be constructed along the existing main road away from the process plant, but as close as possible to the Colomac Main pit.

The accommodation will be for 350 beds, a fully functioning kitchen providing two hot meals a day and a box lunch to workers on site, shared toilets and showers, and an activity room, including a gym. The estimate of the facility size is based on projects of a similar size and will be further refined in the prefeasibility phase.

18.6 Tailings and Storage Facilities

The tailings management facility (TMF) and associated surface water management design features are described in the following subsections.

18.6.1 Historical Tailings Deposition

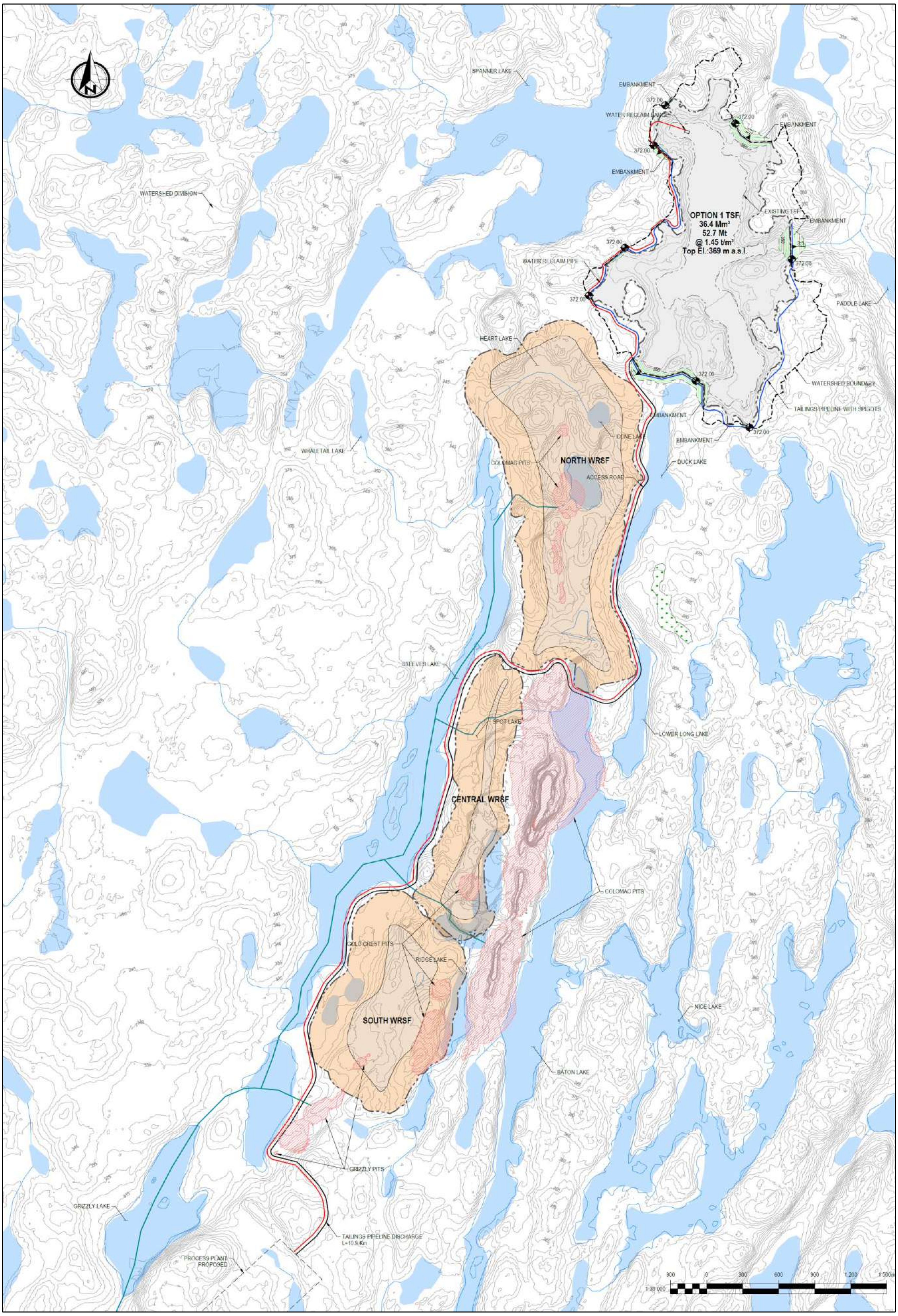
The Colomac Gold Project is located at the old brownfield “Colomac mine” that was privately owned and operated first by Yellowknife from 1990 to 1992 and then by Royal Oak Mines from 1994 to 1997. Tailings were placed approximately 5 km north of the process plant in a TMF over the top of Tailings, Spruce, and Fuscum lakes with two containment dams. Both operations produced 11.2 Mt of tailings. Royal Oak Mines went bankrupt in 1998 and the Federal Government of Canada assumed ownership of the mine and undertook the environmental remediation of the site. The government led site-wide remediation took place between 2000 and 2012 and it included several areas associated with the TMF (tailings containment area, dam 1/1b, dyke 7 with spillway, dam 2 discharge channel, Spruce Lake disposal cell) and Steeves Lake shoreline area. Most substantial component of the remediation involved cleaning up of residue cyanide issues, remediation of the leaking and poorly constructed dam 1, and the installation of a closure cover. Regardless of these efforts, the new dam 1 continues to leak due to poor engineering.

In 2012, Nighthawk acquired the mineral claims and leases of the former Colomac mine, but the liability for the legacy tailings facility remains with the Federal Government of Canada.

18.6.2 Site Selection

The total tailings anticipated to be produced over the life of mine is 67.2 Mt. The PEA TMF siting study included a site visit and the review of satellite imagery and topographic maps from the NWT Government to identify potential TMF sites within a 10 km range of the proposed plant site. The project physiography consists of flat terrain with gently undulating rock outcrops and a maze of rivers, ponds and irregular lakes. The proximity of recently remediated Steeves Lake was another major constraint for this study. Figure 18-3 shows the general physiographic and hydrogeological setting.

Figure 18-3: General Mine Site Layout



Source: Ausenco, 2023.

The general design criteria for the siting study considered a tailings storage requirement of 52.7 Mt deposited subaerially in a surface tailings facility and the balance (14.5 Mt) placed in the mined-out Grizzly Bear and Goldcrest open pits. The tailings siting study considered a range of deposition technologies, from slurry tailings to filtered tailings along with placement inside raised embankments, drystack tailings facility (DSTF), and waste rock co-disposal. High overall cost for the size of the project and large footprint eliminated the new conventional slurry TMF (it would require almost a complete ring dyke due to relatively flat topography) and the filtered tailings option. The co-disposal option was also eliminated due to insufficient capacity of a waste rock storage facility (WRSF).

The final location of the TMF for the project is over the old TSF, which has better confinement topography, as well as the use of the mined-out Grizzly Bear and Goldcrest open pits towards the end of the project. The general design criteria for the siting study considered a tailings storage requirement of 52.7 Mt deposited subaerially in a surface tailings facility and the balance (14.5 Mt) placed in the mined-out Grizzly Bear and Goldcrest open pits.

This approach has several advantages. It reduces the environmental impact of the new TMF, encapsulates the old TMF, and completely eliminates the impact on Steeves Lake. The TMF requires the construction of seven small dams ranging in height between 4 m and 31 m. The in-pit filling does not require any embankments to contain the tailings.

18.6.3 Tailings Management Facility Design Assumptions/Criteria

The proposed process plant is approximately 7.5 km south of the TMF and less than 600 m from the Grizzly Bear and Goldcrest open pits. The flotation process will produce a slurry tailing stream. Design criteria includes the following:

- required storage of 67.2 Mt tailings:
    - 52.7 Mt into a conventional TMF
    - 14.5 Mt into the Grizzly Bear and Goldcrest open pits
- slurry percent solids of 32%
- dry tailings density of 1.45 t/m^3
- subaerial deposition
- minimized disturbance footprint through use of the existing TMF and spent open pits
- limited watershed disturbance to a single catchment basin
- limited impact to wildlife and fisheries resources
- designed for closure
- meets or exceeds applicable regulatory requirements and industry guidelines for stability and design flood events.

Proposed TMF design assumptions are as follows:

- multiple embankment raises
- rockfill dam shell with filter, low permeability material, and geomembrane along the upstream embankment faces

- embankment foundations comprised of low permeability and high-bearing capacity material
- embankments with 2.5:1 (H:V) upstream slope and 3.0:1 (H:V) downstream slope
- reinforced concrete spillway
- minimum freeboard of 1.0 m
- containment of the 1:475-year event and passing one-thirds between the 1:1000-year event and the probable maximum flood
- withstand the 1:2,475-year seismic event
- maximum embankment heights ranging from 4 to 31 m from crest to downstream toe
- tailings deposition system for the TMF around two-thirds of the facility to maximize storage volume.

Proposed in-pit disposal includes the following:

- depositing tailings into the Grizzly Bear and Goldcrest open pits
- minimum freeboard of 1.0 m
- containment of the 1:475-year event and passing one-thirds between the 1:1,000-year event and the probable maximum flood
- tailings deposition system for the open pit around two-thirds of the facility to maximize storage volume.

18.6.4 Tailings Disposal Design

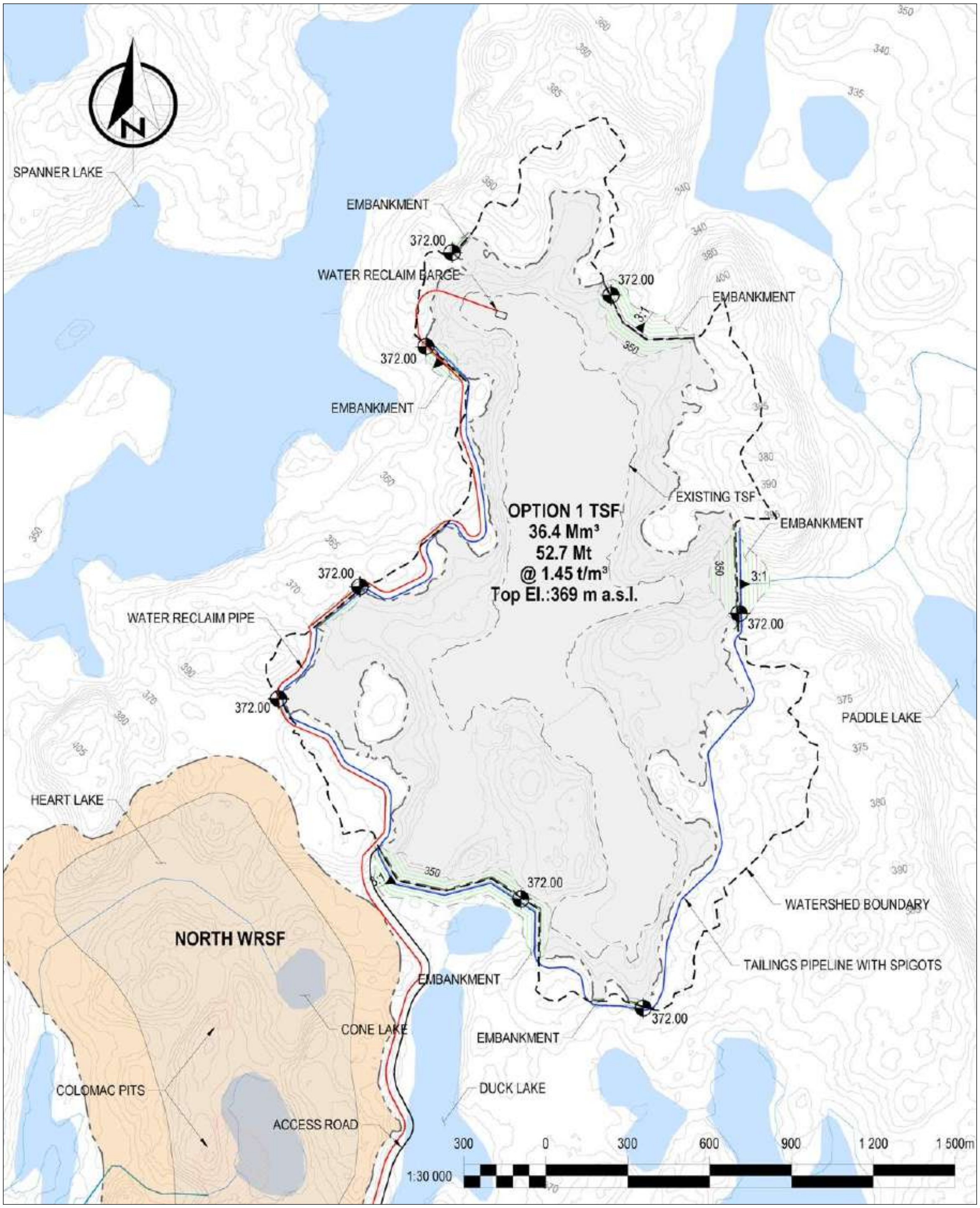
The project is in a low seismic zone and the embankments are designed to meet the Canadian Dam Association guidelines. The TMF is approximately 2.7 km long and 1.0 km wide, with a long axis oriented in north-south direction. The depth of the ranges from 23 m at the north end to 17 m in the south above the existing tailings. The existing volume of the TMF corresponds to 11.2 Mt of solids and will increase to 63.9 Mt over the life of mine (refer to Figure 18-4). The ultimate tailings will reach the 369 masl elevation, not including operational, stormwater, and freeboard.

Conventional slurry tailings will be pumped from the process plant to the TMF via a pipeline that will extend two-thirds of the way around the TMF and will discharge through multiple spigots to be developed and evenly distributed across the TMF. The excess slurry water will be reclaimed for processing through the reclaim water system. The site-wide water balance discusses available water from the TMF that includes reclaimable slurry water, rainfall runoff, and snowmelt.

At the end of Year 7, tailings disposal will shift to the Grizzly Bear and Goldcrest mined-out open pits. Goldcrest will first be filled in Years 8 and 9 to allow for waste rock to be placed on the east sides of the Central and South WRSF in Years 10 through 12. Tailings will then be placed in the Grizzly Bear open pit in a portion of Year 10 until filled.

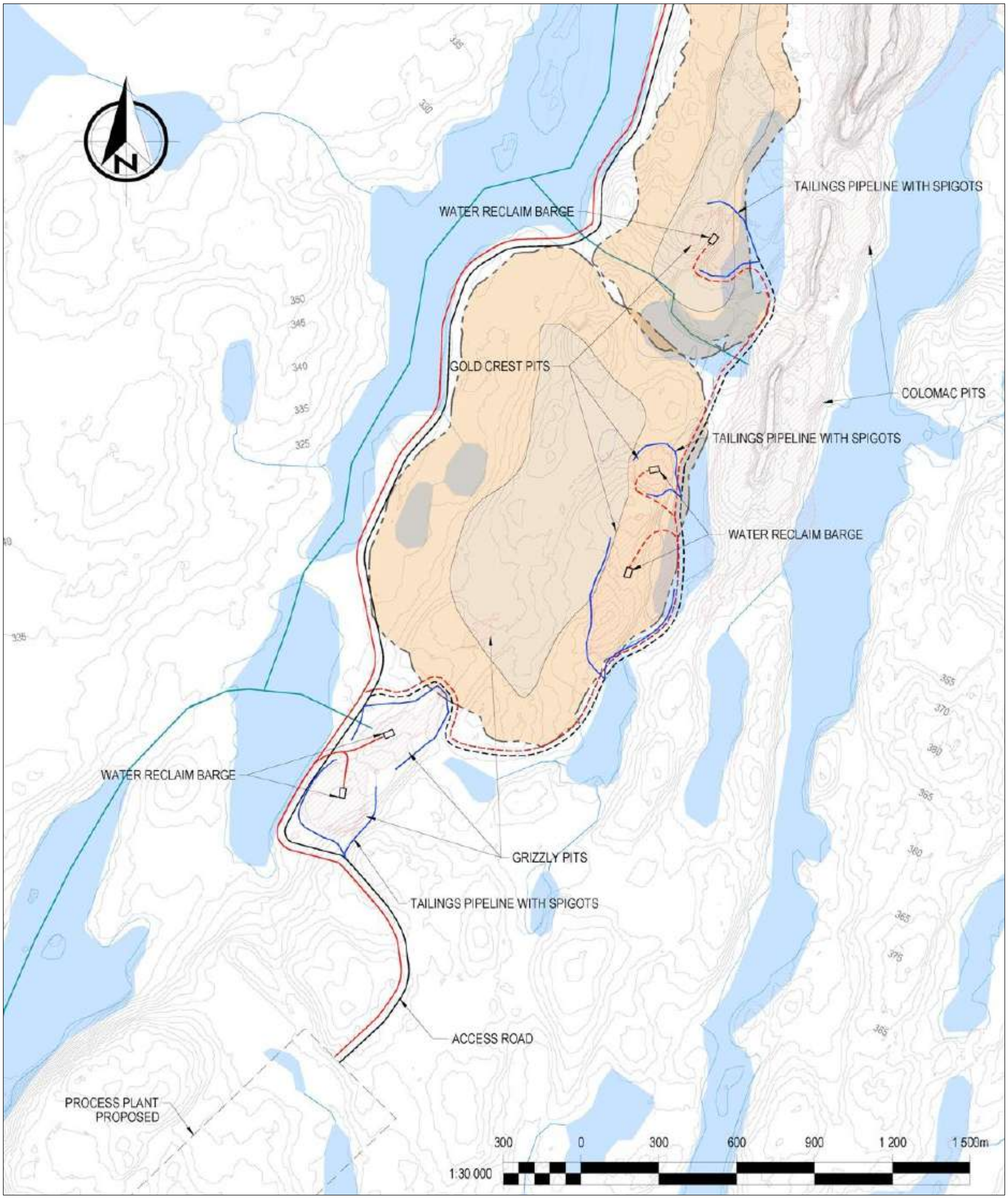
Tailings disposal will switch back to the TMF for the remainder of the mine life. The open pits have a combined storage capacity of the 14.5 Mt (refer to Figure 18-5).

Figure 18-4: General Layout of the Tailings Management Facility



Source: Ausenco, 2023.

Figure 18-5: Grizzly Bear Open Pits General Layout

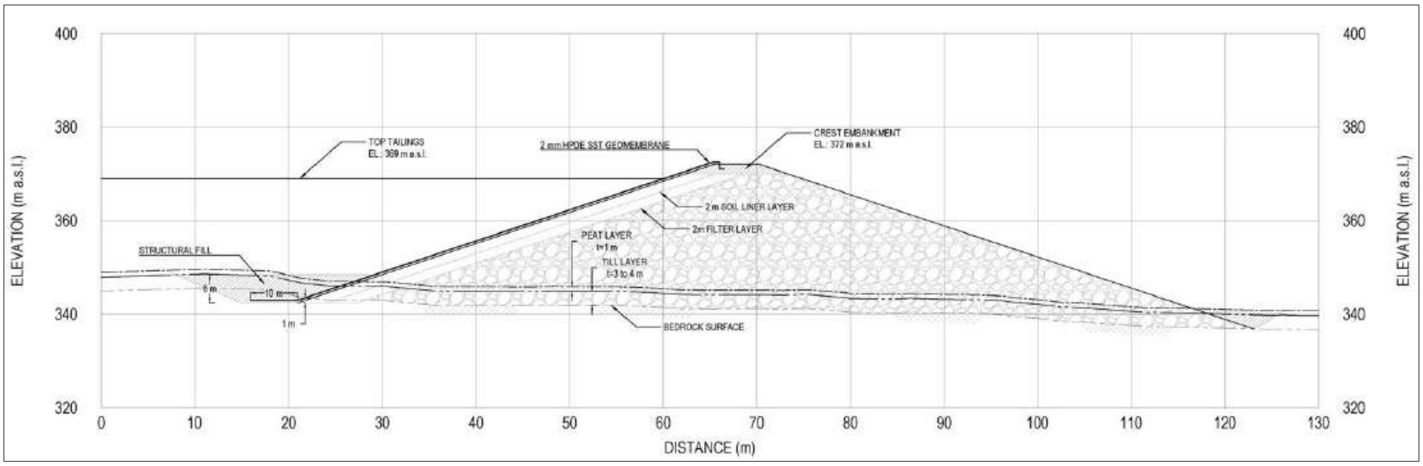


Source: Ausenco, 2023.

18.6.5 TMF Embankment Design

The tailings dams will be constructed with compacted waste rock and an upstream filter zone, low permeability soil zone, and geomembrane to minimize seepage through the embankment. The embankments will range in size from 4 to 31 m. They will have overall slopes of 2.5:1 (H:V) on the upstream face and 3:1 (H:V) on the downstream face. Spillways, designed to pass the one-third level between the 1:1,000-year event and PMF, will be built in phases during each embankment raise. Figure 18-6 shows the tallest, critical section of the east main dam.

Figure 18-6: TMF East Embankment Section



Source: Ausenco, 2023.

18.6.6 Tailings Management Facility Stability

Stability of the embankment was assessed using the conventional limit-equilibrium methods and limit-equilibrium modelling software Slope/W, (Geostudio, 2018) for the following scenarios:

- Static – Effective friction angles applied to tailings embankment; no seismic loading
- Pseudo-static – Rockfill effective friction angle with the design horizontal seismic coefficient equal to 50% of the peak ground acceleration.

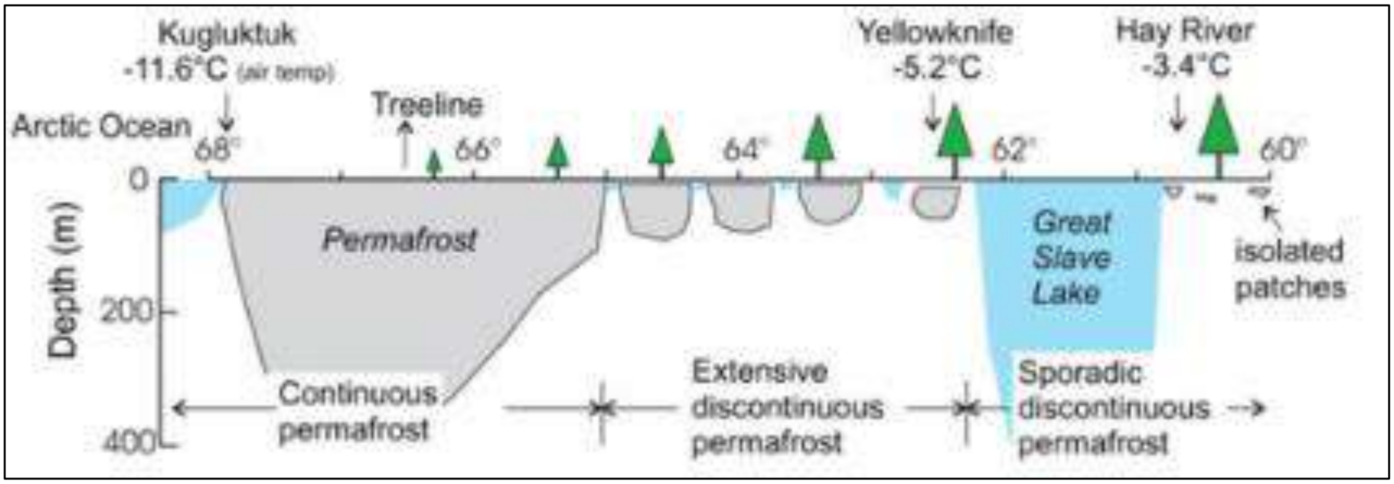
Stability analyses undertaken for both static and pseudo-static conditions produced calculated factors of safety (FOS) higher than the minimum values required by CDA guidelines. The tailings embankment is designed to withstand potential dynamic displacement without release of tailings during the maximum design earthquake event.

Infilling of the Grizzly Bear and Goldcrest open pits does not require embankments, so a stability analysis was not carried out for these areas.

18.7 Geotechnical

The mine infrastructure is in a zone of extensive discontinuous permafrost (at ~64°N parallel). On the barren lands north of the Yellowknife region (north of 65° latitude), continuous permafrost is about 400 m thick. Permafrost thickness decreases southward with increasing mean annual air temperatures, and when encountered in the Yellowknife area, it is typically less than 50 m thick. In permafrost areas, the lakes and rivers that exceed the depth of maximum winter ice thickness are underlain by unfrozen ground called a "talik" (see Figure 18-7).

Figure 18-7: Regional Permafrost Conditions



Note: Figure shows permafrost thicknesses and mean annual air temperatures along a north-to-south transect from Kugluktuk, Nunavut to Hay River, NWT. Source: Adapted from Brown RJE. 1970. Permafrost in Canada. University of Toronto Press, 234 p.

The presence of extensive discontinuous (between 50% and 90% of the area) and degrading permafrost results in the design of all mining infrastructure must account not just for the stability and deformation of earth masses, and the control of surface/subsurface/processing water and its interaction with groundwater but also for the existing and future thermal regime of the degrading permafrost as it may potentially significantly affect both short-term and long-term their performance.

The existing database contains only data from the drilling program completed in 2006 before Nighthawk's project interest and it indicated the presence of permafrost starting from elevation 326 m at the location of the existing dam 1. The overall lack of data, including permafrost information for the bedrock and overburden, is a potential risk to project stability and long-term performance and it is recommended that additional site investigations be completed. This comprehensive geotechnical site investigation program should be performed at the onset of the pre-feasibility study and should include site investigation and field and laboratory testing for the following:

- tailings management facility
- waste rock dumps
- processing plant
- access roads.

The main purpose of the recommended site investigation program is to verify historical site data where available as well as to establish the following:

- more detailed characterizations of the sites of waste rock dumps and newly proposed process plant
- more detailed foundation and groundwater conditions underneath the existing impoundment and the proposed dams that would bring it in line with current CDA guidelines and Canadian industry standards for tailing dam facilities
- the presence of permafrost
- the depth to permafrost (if present)
- the thickness of the active layer.

For the TMF, the site investigation should be based on a borehole drilling program of 25 boreholes accompanied by 20 test pits. The boreholes should be drilled within the footprint of the impoundment, proposed dams, at their respective abutments, and along dam alignments. For the waste dump areas, the site investigation program should include nine boreholes and 21 test pits. The site investigation program for the processing plant should include four boreholes and eight test pits.

Based on the above, a program of 38 boreholes and 49 test pits should be carried out in total. The boreholes should be drilled to 20 m depth, or at least 5 m into bedrock, and should be accompanied by soil sampling, which is necessary to permit an assessment of soil properties.

The sample and/or test locations should be determined in a manner that records all changes in strata. In addition, several extra samples and test results should be used to assess the variation of the properties of a stratum with depth. In granular soils, the usual investigation procedure is to perform standard penetration tests (SPT) using a cone or split spoon at the top of each stratum, and then at 1.0 m intervals within the stratum. Cohesive soils are similarly identified at stratum changes by taking an open-tube sample and further samples at 1.5 m intervals. Where the open-tube sample has been unsuccessful, it can be followed immediately by an SPT at the base level to provide an approximate assessment of consistency. Disturbed samples are also obtained at 1.0 m intervals between SPTs and open-tube samples, and at strata changes.

Shallow trial pits provide an economical method of examining in-situ conditions. Exploration depths are usually between 2 and 4 m, and therefore require temporary support if personnel were to enter them. (Refer to OSHA regulations for the safety precautions required.) Investigation is normally limited to levels above the groundwater in non-cohesive soils. Pits up to about 4 m are usually excavated by a hydraulic backhoe excavator of the JCB 3C-type. Deeper pits may be excavated by Hymac 580-type excavators to a depth of about 6 m, or by excavation from within larger pits with ramped access.

The program of field investigation should include 30 thermistors monitoring cables to measure ground temperatures and 15 piezometers to measure in-situ pore pressures. The location and bead spacing for the thermistors and screened intervals for the piezometers should be determined by the lead geotechnical engineer and mine infrastructure design engineer before starting the site investigation program.

The site investigation program should also include geophysical evaluations. Geophysics is a specialized subject normally requiring expert advice, supervision, and interpretation. For sites such as Colomac, with an exploration of rock head or permafrost level below overburden, the geophysical methods provide an economic solution. The methods most often used rely on a contrast of density, void space, or resistivity properties between the soil or rock being investigated, and the results obtained require careful correlation with borehole data. The greater the contrast between the geophysical properties of the strata exploited in the test, the more reliable the results. Adequate borehole coverage and considerable experience in this field are essential to ensure correct interpretation of the observations. A preliminary borehole survey may be needed to substantiate the applicability of geophysical methods. A more detailed borehole or static penetration program may then be necessary subsequent to the survey to confirm and interpret the results.

A budget estimate for this work, assuming an all-in drilling cost of C$250/m for core drilling, C$1200/day for the presence of Ausenco's engineer (to oversee drilling, logging, field testing, conduct sampling from boreholes, perform face mapping of 49 test pits, thermistor, and piezometer installation), C$200/m for laboratory testing, logging, data processing and reporting, C$2,000/thermistor for installation and logging, C$800/piezometer for installation and logging, and $75,000 for geophysical testing is C$1.2 million.

18.7.1 Tailings Disposal Closure

Closure of the TMF and Grizzly Bear and Goldcrest open pits will consist of removing the tailings discharge pipeline, water reclaim pipeline, and reclaiming any road not required for post-closure monitoring. The tailings will be covered with a waste rock cap and soil and vegetative cover.

18.8 Site Services

18.8.1 Power and Electrical

The total electrical maximum demand load for the process plant is approximately 12 MW. This load will be supplied from a new power plant complete with 13.8 kV switchgear. Power will be brought from the power plant to the process plant's main power distribution electrical room using 13.8 kV overhead line assumed about 1 km long.

The 13.8 kV switchgear in the process plant's main power distribution electrical room, will feed power to four electrical rooms located within the process plant (i.e., primary and secondary crusher electrical room, grinding area electrical room, gravity/leach/CIP electrical room and gold room/reagents electrical room). The fifth electrical room (i.e., tailings electrical room) will be fed power via a 13.8 kV overhead line approximately 3 km long. Other buildings around the process plant (e.g., truck shop, warehouse, administration building etc.) will also be fed power from a 1 km long, 13.8 kV overhead line.

All electrical rooms will be adequately rated for the environment and outfitted with heating and ventilation, lighting and small power transformers, distribution boards, and uninterrupted power supply (UPS) systems. To reduce installation time, the electrical rooms will be prefabricated modular buildings, installed on structural framework above ground level for bottom entry of cables. The electrical rooms will be located as close as practical to the electrical loads thereby minimizing voltage drop concerns and reducing cable cost, and they will have medium-voltage / low-voltage motor control centres (MCCs) and variable frequency drives (VFDs) to power the process plant loads.

As the power supply is sourced from a dedicated power plant with N + 2 redundancy, it is unlikely for the process plant to be without power, so separate emergency diesel generators for essential loads have not been considered.

18.8.2 Energy Generation

Power will be generated from a combination of sources: a diesel generation plant will work in tandem with wind and solar. A study in 2022 by Green Cat Renewables Canada (GCR, 2022) investigated various opportunities for renewable energy for the project site.

The GCR report divided the energy users of the site down into critical and non-critical demand categories. Critical loads—such as process safety, HVAC life safety, and higher winter HVAC loads—will be supplied by diesel generation sources to ensure reliability and consistency. Non-critical loads were further divided into a non-critical process peak load and non-critical utility peak load, which the GCR report finds can be met with renewable energy generation. Both wind and solar generation would be installed to diversify energy sources and provide energy from sunset to sunrise, when solar energy is unavailable, reducing overall risk. Battery energy storage systems were not investigated at this project stage, but if included would further reduce the risk associated with renewable energy generation by temporarily storing excess energy from wind and solar generation.

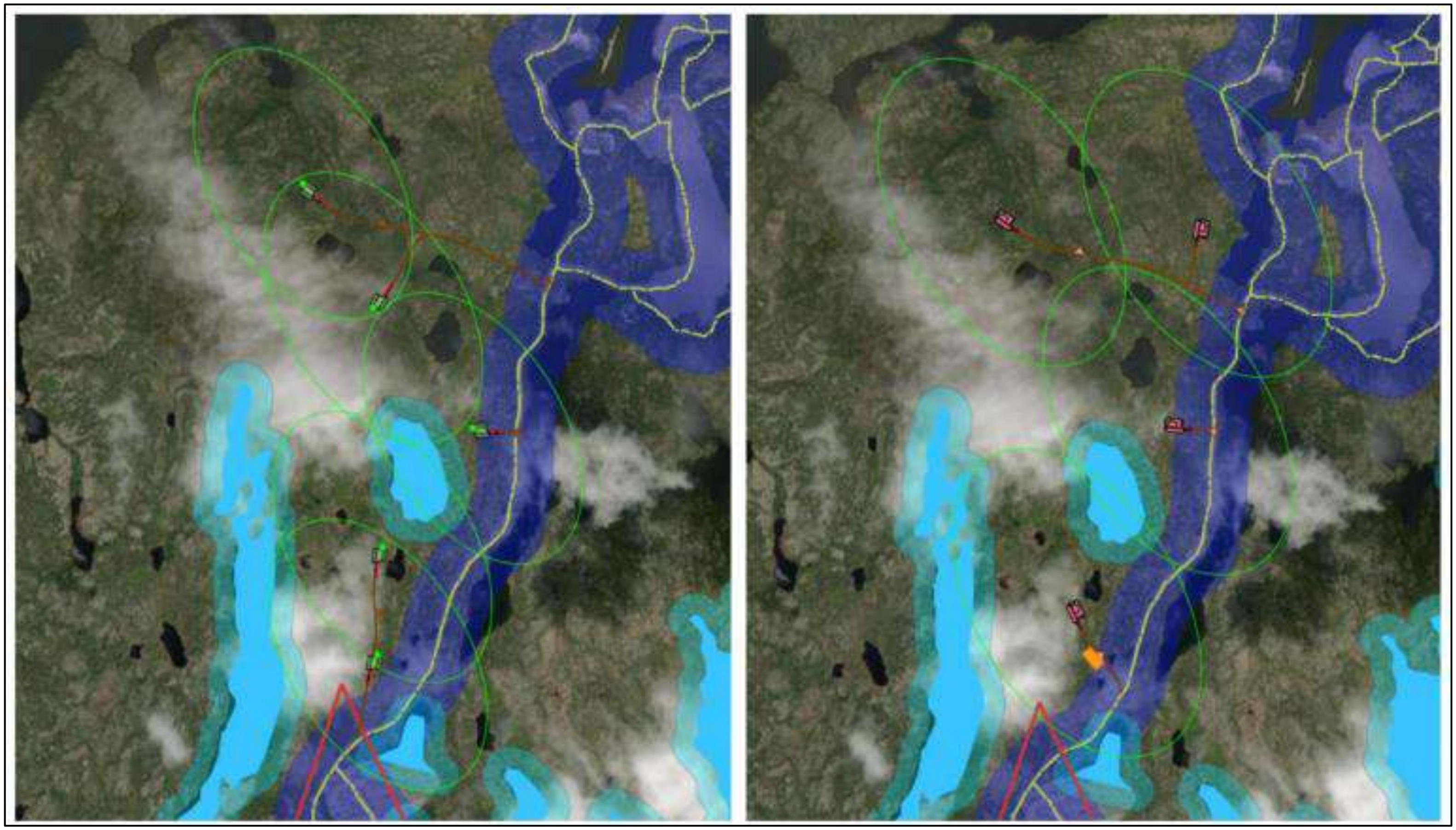
The findings of the GCR report were used to evaluate and compare the cost per kilowatt-hour of energy with 100% diesel generation vs. a hybrid of diesel and renewable generation. Table 18-2 shows how the energy source is broken down for the three energy generation plants proposed for the project.

Table 18-2: Energy Generation Sourcing

Energy Source	Target Supply Power (MW)	% of Power Supply
Wind	11.0	52.9
Solar	2.0	9.6
Diesel	7.8	37.5
Total	20.8	100.0

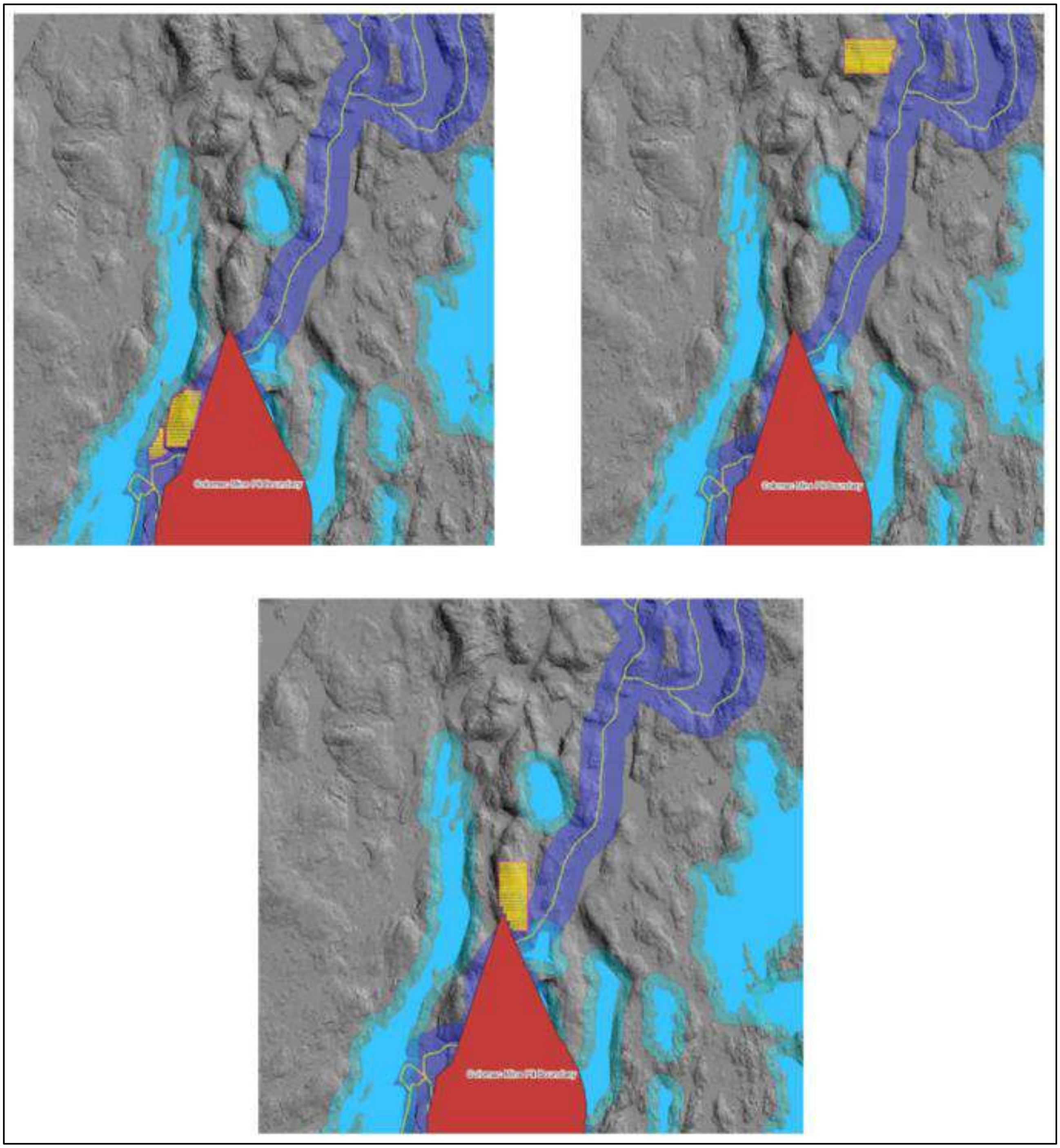
Conceptual wind and solar layouts were developed by GCR and used to determine available lands and approximate project size. The layouts were developed using project constraints including the property boundary, mining operations, hydrological and road constraints. GCR produced two wind layouts (see Figure 18-8) and three solar layouts (see Figure 18-9) indicative of potential locations. The locations depicted are considered flexible as they can be relocated and scaled as necessary.

Figure 18-8: Wind Turbine Layout Options



Source: Green Cat Resources, 2022.

Figure 18-9: Three Solar Layout Options with Respect to the Colomac Pit Boundary



Source: Green Cat Resources, 2022.

18.8.2.1 Greenhouse Gas (GHG) Reductions

The potential greenhouse gas savings from the proposed renewable energy generation projects relative to the baseline option of 100% diesel-generated power was calculated. Wind can offset approximately 2.6 million gallons of diesel annually, while solar can offset approximately 0.3 million gallons of diesel annually. This does not include battery energy storage, which is an opportunity for further energy offset.

18.8.3 Fuel

As the site is only accessible via winter road, nine months of fuel storage is required on site. To satisfy the mining fleet and hybrid power plant demands, four 15 ML tanks are required. It has been assumed that top-up deliveries are possible throughout the winter road season.

A diesel fuel purchase price of $1.00/L has been considered for the project cost. The breakdown of these costs is as per Table 18-3 as received from the client's fuel supplier. The costs were rounded up to account for potential fluctuations in costs.

Table 18-3: Breakdown of Fuel Costs

Cost Item	C$
Rack Price	0.997
Spot Refinery Discount	– 0.04
Fuel Excise Tax	0.04
Provincial Fuel Tax	0.09
Carbon Tax	0.137
Long-Term Forward Curve on Oil/Diesel	– 0.21
Large Remitter Industrial Offset Carbon	– 0.0986
Total Fuel Price Input	0.915
Delivery Estimate	0.050
All-In Fuel Price	0.965

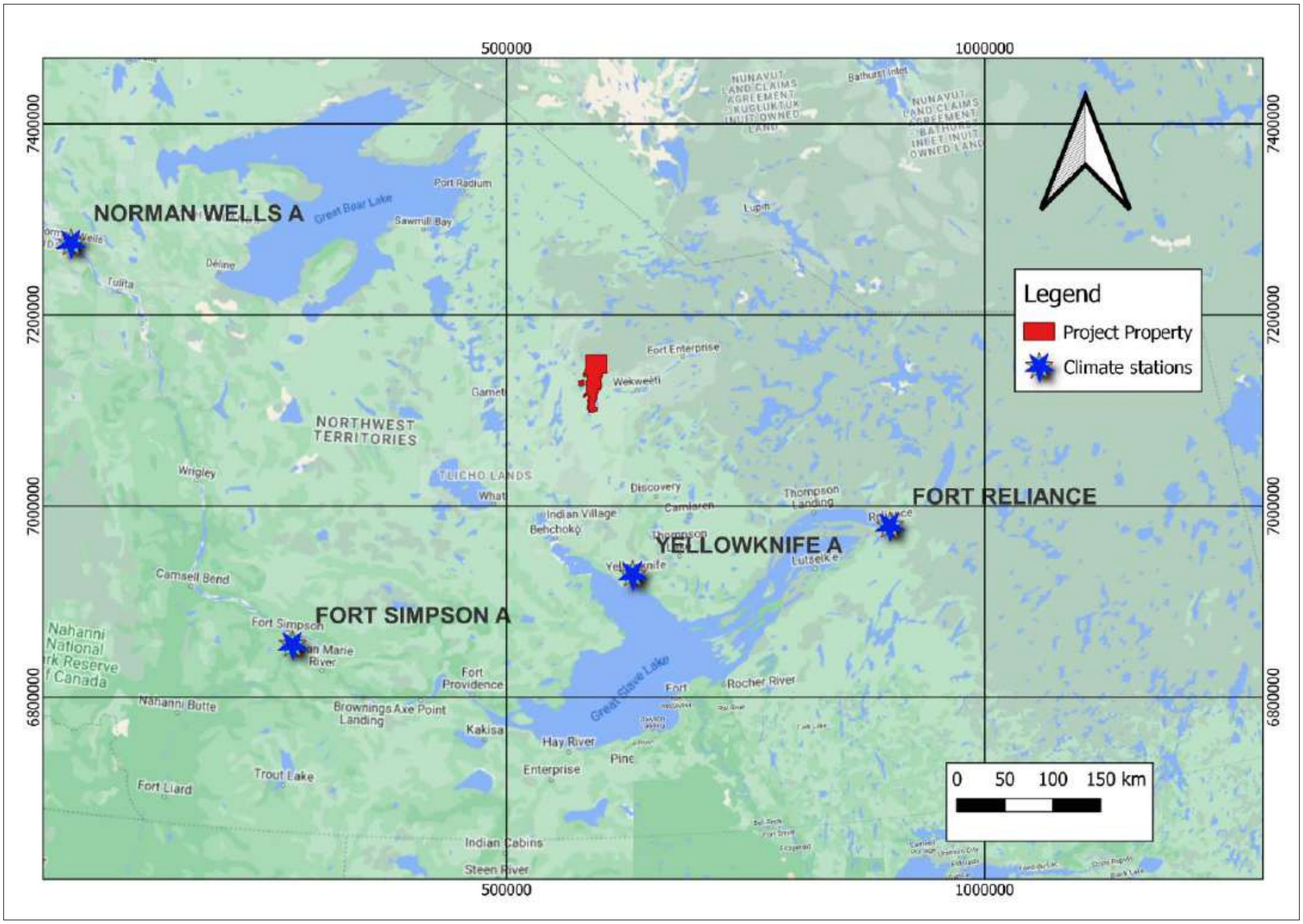
18.9 Site Water Management

This section discusses site-wide water management, the design of water management structures, hydrology, and water balance.

18.9.1 Climate and Hydrology

The climate stations close to the project site and with sufficient minimum data history (30 years) are Yellowknife A, Fort Reliance, Fort Simpson A, and Norman Wells A (see Figure 18-10). The climate normal data (1981-2010) for the Yellowknife A station (see Table 18-4) was chosen for infrastructure design and water balance analysis.

Figure 18-10: Climate and Hydrometric Stations Near the Project Site



Souce: Ausenco, 2023

Table 18-4: Yellowknife A Climate Normals (1981-2010)

Parameter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Total
Daily Average (°C)	-25.6	-22.9	-16.8	-5.3	4.6	13.3	17	14.2	7.2	-1.7	-13.7	-21.8	-4.3
Daily Maximum (°C)	-21.6	-18.1	-10.8	0.4	9.7	18.1	21.3	18.1	10.4	0.9	-10	-17.8	0
Daily Minimum (°C)	-29.5	-27.5	-22.7	-11	-0.5	8.5	12.6	10.2	4	-4.2	-17.5	-25.7	-8.6
Rainfall (mm)	0.1	0	0.2	2.5	13.8	28.9	40.8	39.2	32.7	12.1	0.3	0.2	170.7
Snowfall (cm)	19.7	20	18.5	10.3	4.7	0	0	0.1	3.5	20.9	36.5	23.5	157.6
Precipitation (mm)	14.3	14.1	13.9	11.3	18.4	28.9	40.8	39.3	36.3	30.3	24.8	16.2	288.6
Evaporation (mm/d)	-	-	-	-	4.6	4.8	4.9	3.5	1.7	-	-	-	19.5

18.9.2 Water Management Structures

This section summarizes proposed water management structures for the site. The location of the proposed infrastructure is shown in Figures 18-11 and 18-12. The major structures are as follows:

- Diversion Ditches – Diversion ditches are required to divert non-contact runoff away from the facilities and to minimize the amount of contact runoff to be collected and managed. The design criterion for the diversion ditches was the conveyance of 1:100-year peak flow without overflow.

- Collection Ditches – Collection ditches collect contact runoff from the waste rock dump and process plant area. The design criterion for collection ditches was the conveyance of 1:100-year peak flow without overflow.

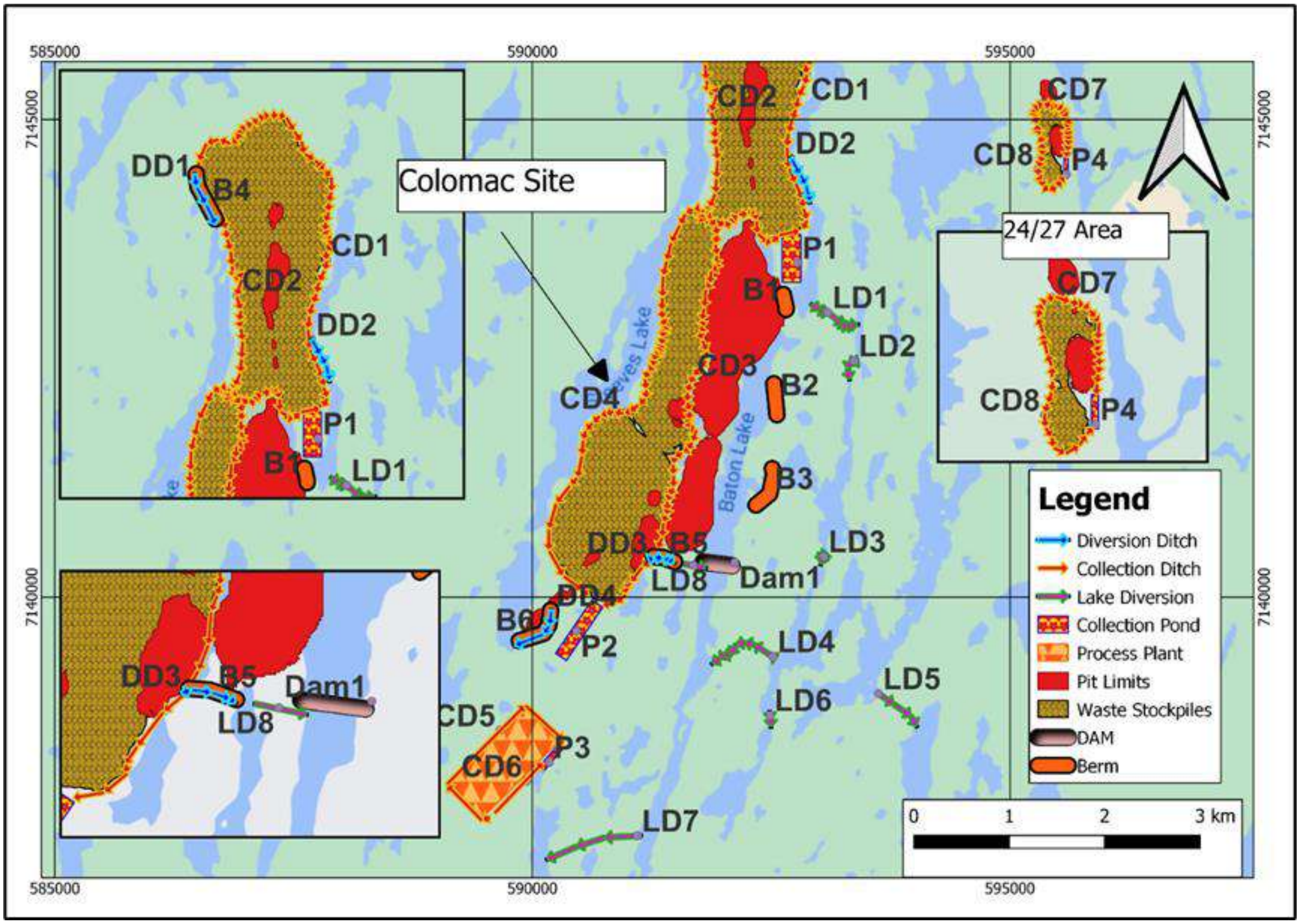
- Collection Water Management Facilities – Collection water management facilities were proposed to store contact runoff from the collection ditches. The design criteria of the collection water management facilities include accommodating the 1:100-year, 24-hour flood with a minimum freeboard of 0.5 m. The stored contact water should be treated and released to the environment or reused for processing purposes.

- Diversion Dams – Two dams were sized to separate the proposed pits from Baton and Lex lake water. These dams will isolate the waterbodies and serve as a hydraulic barrier to facilitate mining of the pits. In conjunction with the dams, a series of diversions (berms and channels) will be constructed to connect the adjacent lakes to each other and act as a diversion, allowing runoff to bypass Baton and Lex lakes.

Ditches and water management facilities were sized using estimated peak flow rates and flood volumes from the rational method and frequency analysis results. There are approximately 18,000 m of diversion ditches and 31,000 m of collections ditches for the site. All ditches are designed to be trapezoidal with 2.5H:1V side slopes with base widths ranging from 0.5 to 1.0 m and overall depths from 0.6 to 1.1 m.

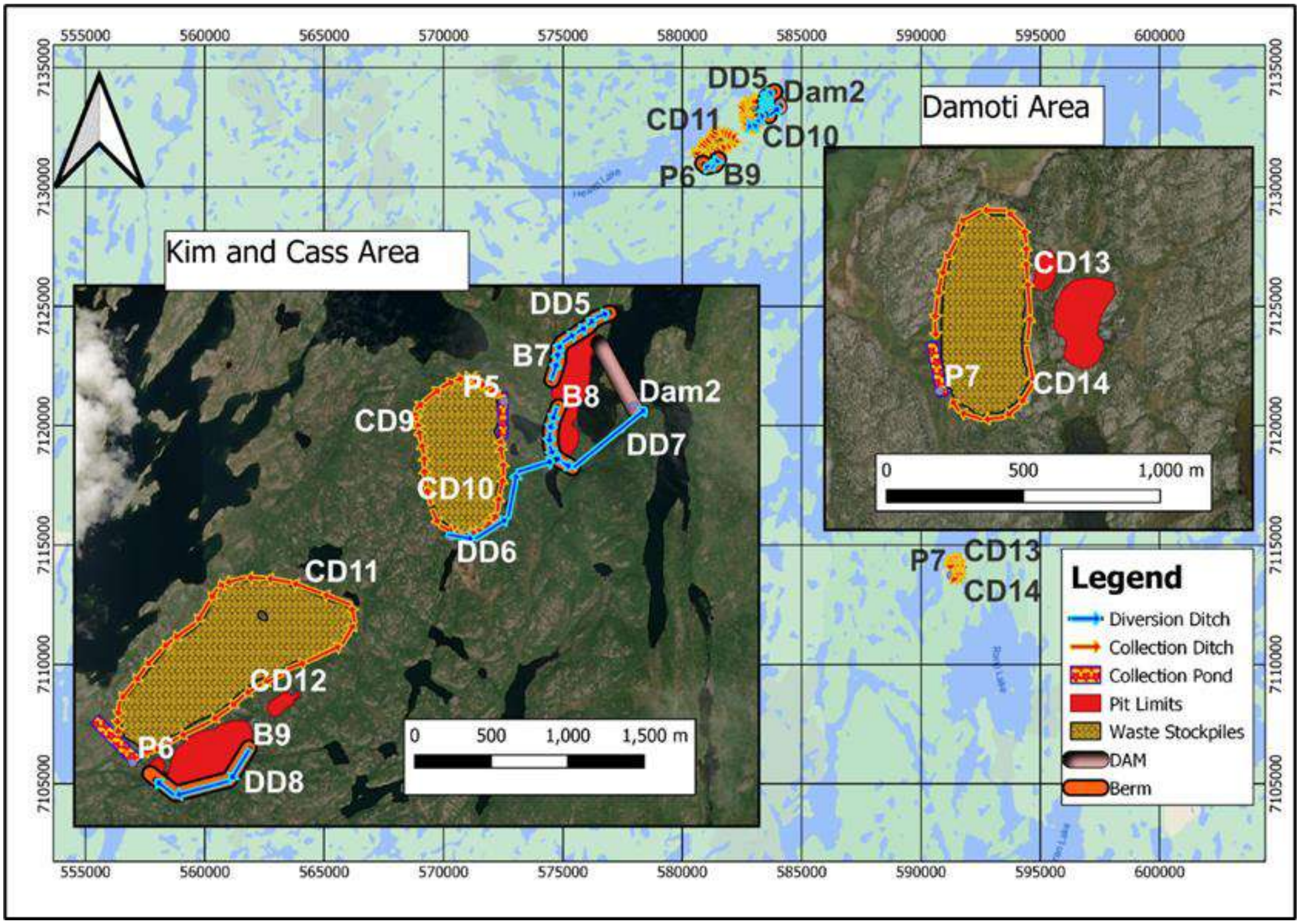
All collection water management facilities were designed with a 2 m depth. Two diversion dams were sized to separate pits from Baton Lake and Lex Lake. These dams have heights of 11.8 m (Baton Lake; dam 1) and 14.2 m (Lex Lake; dam 2) with side slopes of 4H:1V and overall crest width of 10 m. Additional diversion berms divert flow around the lakes and were sized to be 3 m high, 3H:1V side slopes and overall crest width of 5 m.

Figure 18-11: Location of Mine Water Management Facilities for Colomac Site and 24/27 Area



Source: Ausenco, 2022.

Figure 18-12: Location of Mine Water Management Facilities for Kim, Cass and Damoti Areas



Source: Ausenco, 2022.

18.9.3 Site-Wide Water Balance

A preliminary site-wide water balance analysis was performed for the Colomac site and is summarized below. It should be noted that other satellite sites, such as KC area, 24/27 area and Damoti area, were not included. It is assumed the surface runoff from satellite sites only requires total suspended solids (TSS) treatment in a sediment pond, and the effluent can be discharged into the environment without additional treatment.

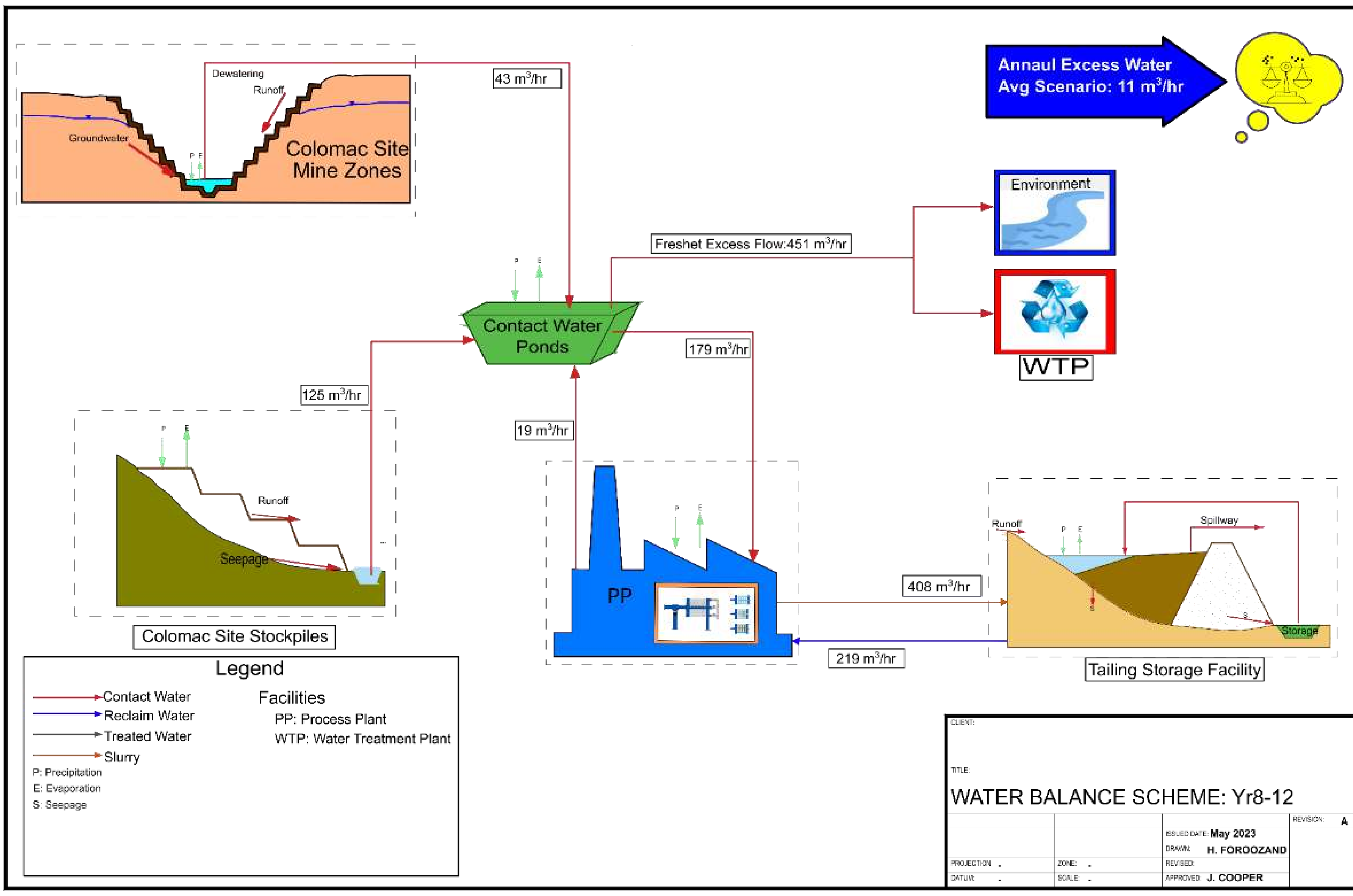
In this analysis, a comparison between water requirements and available water from the collection system was made to identify the site-wide water balance. This analysis has been made for the site's average climate conditions in three phases (Years 2, 4 and 8). The following water components were considered in this calculation:

- surface runoff from precipitation on WRDs, process plant area and pits
- evaporation from water management facilities and pits
- process water requirement
- tailing storage facility reclaim capacity

There is a net annual water excess of approximately 11 m^3/h in Years 8 to 12 (see Figure 18-13 and Table 18-5) with a net annual water deficit of approximately 69 m^3/h and 9 m^3/h in Year 2 and Year 4 respectively, for average climate scenarios. As the WRSF is developed there is a negligible increase in surplus water during the spring that will need to be managed. If the water quality of collection water management facilities can satisfy environmental discharge requirements, the excess flow can be discharged to the environment; otherwise, flow should either be treated or pumped to TMF for storage.

It should be noted that groundwater modelling was not conducted at the time of this report, and pit dewatering values are calculated based on precipitation only. Groundwater input must be added in the next phase of the project.

Figure 18-13: Annual Average Water Balance – Colomac Years 8 to 12



Source: Ausenco, 2023.

Table 18-5: Site-Wide Water Balance (m³/h) – Colomac Year 8-12

Colomac Water Component (m³/h)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Process Plant Water Make-up Water Demand	110	110	110	110	110	110	110	110	110	110	110	110	110
TMF Reclaim Water													
Reclaim Water from Tailings Management Facility	219	219	219	219	219	219	219	219	219	219	219	219	219
Precipitation Contact Water on Pits													
Pit Precipitation	0	0	0	125	152	29	53	61	64	28	1	0	43
Contact Water from Net Precipitation and Evaporation													
Process Plant Area	0	0	0	42	64	23	32	31	26	9	0	0	19
WRSFs	1	0	1	276	420	153	209	201	173	62	2	1	125
Water Management Facility Direct Precipitation	0	0	0	15	23	8	12	11	10	3	0	0	7
Water Management Facility Evaporation	0	0	0	0	40	42	43	31	15	0	0	0	14
Water Deficits/Excess (-/+)	-167	-168	-166	290	451	3	95	105	90	-65	-165	-166	11

Note: The pit dewatering values are calculated based on precipitation only. Groundwater input must be added in the next phase.

19 MARKET STUDIES AND CONTRACTS

19.1 Introduction

It was assumed in this PEA that the Colomac Gold Project will produce gold in the form of doré bars. The market for doré is well-established and accessible to new producers. The doré bars will be refined in a certified North American refinery—there are many in the eastern United States and Canada—and the gold will be sold on the spot market.

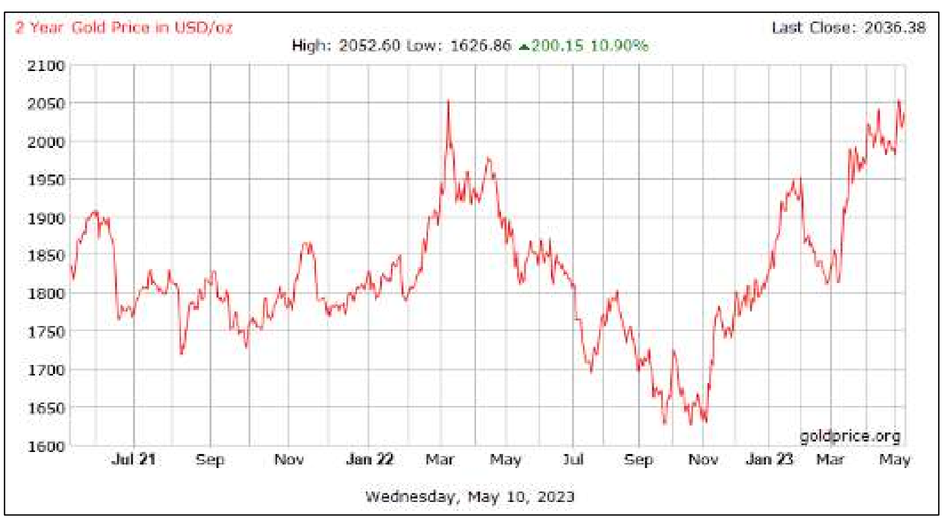
19.2 Market Studies

No market studies have been conducted by Nighthawk or its consultants on the gold doré that will be produced at Indin Lake. Gold is a freely traded commodity on the world market and there is a steady demand from numerous buyers. Gold production is expected to be sold on the spot market. Terms and conditions included as part of the sales contracts are expected to be typical for this commodity. Gold is bought and sold on many markets, and it is not difficult to obtain a market price at any time. The gold market is liquid, with many buyers and sellers active at any given time.

19.3 Commodities Price and Refining Assumptions

As of May 10, 2023 the trailing two-year gold price was US$1,865/oz and the trailing three-year gold price was US$1,790/oz (see Figure 19-1). For the purpose of this PEA, a gold price of US$1,600/oz was assumed. The exchange rate used in the study is C$1.00 to US$0.74.

Figure 19-1: Two-year Gold Price Chart



Source: Goldprice.org, 2023.

20 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

20.1 Introduction

This chapter provides an overview of the setting of the Colomac Gold Project. It outlines existing biological and physical baseline conditions using currently available information, proposed new baseline studies to support future permitting applications, existing permits, and future regulatory and permitting requirements including required management plans. In addition, this chapter also discusses socio-economic baseline conditions, the status of community consultation and engagement, and conceptual mine closure and reclamation planning for the project. Recommendations are also provided if the decision is made to progress the project through the environmental assessment and permitting phases.

The project involves the development of a mine centered near the previous Colomac mine with several satellite developments in the surrounding area. The property is located approximately 220 km northwest of Yellowknife, NWT. The site is accessible year-round by air and during the winter season it can be accessed by a 245 km long winter road.

The project is situated on a land package of mineral leases and claims covering 94,736 ha, as stated in Section 4.1, within the Northern Mining District, NWT. The property is located on both federal and non-federal lands, but not on Tłı̨chǫ ̨ lands.

The deposits will be developed by a combination of surface and underground mining methods. Planned infrastructure includes seven open pits (Damoti, Colomac Main, Grizzly Bear, Kim, Cass, 24/27, and Goldcrest), as well as underground operations at three of those open pits (Damoti, Colomac, and Cass). Treasure Island is to be developed by underground methods only. The project will include mine, process, and services infrastructure as detailed in Section 18. From an environmental perspective, key facilities and processes include waste rock piles, process plant, tailings storage facilities, pipelines, roads, airstrip, water management areas, effluent streams to the receiving environment, water treatment plant, accommodations facility, potable and sanitary systems, crushing facilities and assay laboratory. Most of the major mine infrastructure and all processing will be located in the Colomac centre area (Colomac Main, Goldcrest, Grizzly Bear). Limited infrastructure is associated with the satellite sites (Kim, Cass, 24/27, Damoti,). There are opportunities for renewable energy for the project site that have been identified and incorporated in the design for the project that will improve the project carbon footprint.

The average altitude of the property is approximately 340 masl. The numerous lakes on the property drain south into Snare River. The property is located below the tree line and is covered by taiga vegetation mainly composed of conifers, lichens, mosses, and some deciduous trees, including birch. The property is home to an abundance of fish species including whitefish, lake trout and northern pike, as well as 20 confirmed mammal species and over 86 bird species.

20.2 Environmental and Social Setting

The project site was historically a gold mine (Colomac Mine) which operated between 1990–1992, and 1994–1997. After being forced into receivership, CIRNAC (formerly DIAND) assumed responsibility for the site in 1999 and began remediation activities. Remediation took place from 2000 to 2012 and subsequent post-closure monitoring produced a significant amount of data. Several monitoring programs were in place through CIRNAC, such as the geotechnical, the hydrological monitoring program, and the surveillance network monitoring program. Several relevant reports were developed during the reclamation and post-closure monitoring periods which provide useful baseline information for the proposed project (e.g., INAC 2004, SLR 2022, SRK 2004). However, the available data covers the areas in and around the Colomac central area of the property and does not include the more remote satellite sites. In addition, much of the data is not current and therefore not fully applicable for supporting future permitting efforts. Over the last several years, Nighthawk has commenced limited data collection in the areas of water quality, geochemistry, and archaeology, with much of this work is focused around the Damoti area (e.g., Golder 2019, Golder 2021, WSP-Golder 2022). Therefore, there are baseline data gaps that would require filling to support future regulatory applications and the Environmental Impact Assessment (EIA) process which is likely to be carried out by the Mackenzie Valley Environmental Impact Review Board (MVEIRB). Future baseline work will focus on current project development description and scope as presented in this report, herein.

WSP (2022) completed an Environmental Information Needs Assessment which identified gaps in baseline data which will help to support future regulatory applications for the project. Recommendations for future baseline work were put forward by WSP in that report. It is noted that for some baseline studies, both seasonal and multiple years of data collection are required to support regulatory applications and completion of these studies are a critical path for permitting.

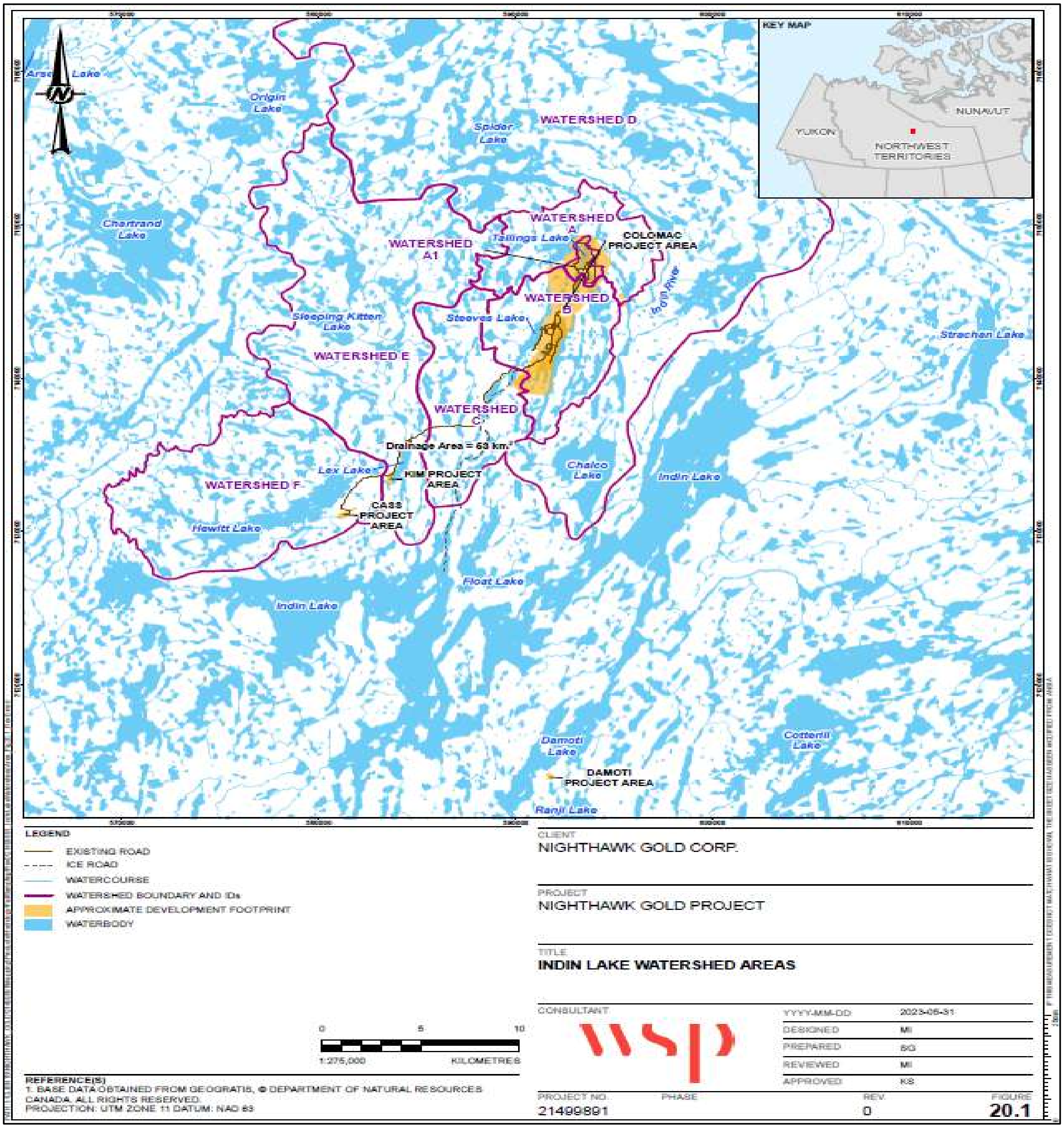
20.2.1 Hydrology and Climate

The Colomac central portion of the project is located within two major watersheds which both ultimately drain to Indin Lake. Watershed A includes Tailings Lake and drains 41 km^2 area to Indin Lake via the Indin River. Watershed B includes Steeves Lake and drains a 48 km^2 area to Indin Lake via Grizzly Bear Lake. Water levels have been monitored in ten lakes in the project area through CIRNAC's hydrological monitoring program, and four of the lakes (Tailings Lake, Steeves Lake, Baton Lake, and Zone 2.0 Pit Lake) were shown to be in steady state conditions (SLR, 2022). Two pit lakes, Zone 2.5 Pit Lake and Zone 3.0 Pit Lake, showed decreasing elevation trends that differed from the reference lake (Tailings Lake). A watershed map of the property that encompasses the key drainage areas for the proposed project is provided as Figure 20-1. A conceptual water balance for the Colomac Central area is provided in Section 18.8, Site Water Management.

The property experiences a continental subarctic climate. Overall, the climate is considered to be subarctic and semi-arid with an average annual precipitation of less than 35 cm. The property lies within the extensive discontinuous permafrost zone, where 50 to 90% of the land is underlain by frozen ground. Winters, predominantly polar, are long and very cold, and summers are short, and cold to mild. According to Environment Canada (climat.meteo.gc.ca/climatenormals), statistics for the closest city of Yellowknife during the 1981 to 2010 period show a daily average temperature in July of 17°C and a daily average temperature in January of -26°C. The record low was -51°C, and the record high was 32.5°C. On average, there are 115 days without frost and lakes are typically frozen from November to June. Hours of daylight are at a maximum between mid-May and early August, with a maximum of 20 hours per day. During winter, only about five or six hours of daylight occur at Yellowknife and less at the Property.

Weather stations have been established as part of the CIRNAC Project in the Colomac central area and these data may be available for future reference and use (SLR 2022).

Figure 20-1: Indin Lake Watershed Area



20.2.2 Surface Water and Sediment Quality

Recent surface water data from the Surveillance Network Program (SNP) from water licence W2021L8-0003 (CIRNAC) and previous SNP programs on the mine site can be used to inform future baseline data collection. In the "Colomac Mine Remediation Project 10-Year Long-Term Monitoring Performance Assessment Report" (SLR, 2022), several SNP stations are noted as still having site-specific criteria exceedance for various parameters. At several sampling locations, statistically significant increases for inorganic and metals parameters, and exceedances for metals such as cadmium, copper and lead were noted (SLR, 2022). CIRNAC's adaptive hydrocarbon monitoring program indicated potentially increasing mass flux trends from ethylbenzene and F1-BTEX in the program's sentinel well network and increasing trends for total xylenes in one sample location (SLR, 2022). The hydrocarbons originated from historical spills on the property during historical operations and were the focus of much remedial effort between the 2000 and 2012 period and subsequent monitoring since that time (SLR 2022).

Under its exploration water licence SNP programs, Nighthawk has collected detailed water quality data for the Damoti area. Recent site wide water quality data have been collected during under-ice locations throughout the Colomac centre and satellite site areas in March 2023 to support baseline studies. These data are not yet published in reports and are not currently available.

20.2.3 Hydrogeology

The project site includes hydrogeological characteristics such as permafrost overlain by an active layer that includes talik zones near Steeves Lake and other relatively deep lakes. The groundwater model mirrors the topographical surface and is affected by seasonal changes in the active layer. One possible aquatic exposure pathway from site is groundwater flow within the talik zone through bedrock fractures with resurgence at the lake bottom (SLR, 2022).

Several engineered structures within the site were monitored by CIRNAC as part of the geotechnical monitoring program, including: the Tailings Cap, Dam 2 Discharge Channel, Primary Crusher Cap, Zone 2.0 Pit Landfill, and the Steeves Lake Shoreline Restoration. Results showed that all structures show stability and have satisfied design objectives to retain tailings, reduce seepage, reduce shoreline erosion, and permanently cover components such as the landfill and primary crusher (SLR, 2022).

Extensive hydrogeological baseline studies will be required to further support future regulatory applications and the environmental assessment process. Historical data from CIRNAC's monitoring programs can be used to inform the scope of future baseline work. To support advanced feasibility studied, hydraulic testing utilizing methods such as the Westbay system can be used to access deep sub-permafrost groundwater and to measure corresponding hydrogeologic parameters such as hydraulic conductivity measurements and to collect deep groundwater samples for chemical analyses.

20.2.4 Fish and Fish Habitat

The property is home to an abundance of fish species including whitefish, lake trout and northern pike. A post-closure terrestrial and aquatic monitoring program was conducted in 2013 and studied potential mine-related effects on aquatic components such a plankton, benthic invertebrates, fish tissue, and physical limnology. The monitoring program had been planned for a 10-year cycle but was only completed once in 2013. The 2013 results showed that all components of the program had either recovered by 2013 or were never impacted by the former Colomac Mine in the first place (SLR, 2022).

Initially, crews will need to conduct further studies to identify fish-bearing waterbodies and water courses and where there is potential for a direct loss of habitat or harmful alteration, disruption, or destruction. Further sampling programs are required to characterize seasonal changes in phytoplankton, zooplankton, benthic invertebrate, and fish communities present in the receiving environment surrounding the mine site. Sampling stations will be based on the proposed discharge location(s) for the Colomac Gold Project.

20.2.5 Soils, Vegetation and Wildlife Monitoring

Historical surveys of site vegetation identified black spruce, paper birch and dwarf birch woodlands. Peat plateaus and ferns are observed along shorelines, and aquatic vegetation includes horsetail water sedge, water lily, and water milfoil (SLR, 2022). Nighthawk should engage with the Government of the Northwest Territories to determine if current vegetation data is sufficient or if further surveys should be conducted for land cover classifications, rare and exotic plants, and traditional use plants. Additional data is required for soil classification and mapping for closure purposes.

According to INAC (2004), there are 20 confirmed species of mammals in the project area. These include larger mammals such as black bears, wolves, caribou, moose and smaller mammals such as snowshoe hare, beavers, and mink. The project area includes at least 86 species of birds including the peregrine falcon, the only threatened species at site under the Species at Risk Act (INAC, 2004). Additional work such as auditory surveys for migratory birds, aerial or remote camera surveys for large mammals, and an environmental setting survey to describe current setting at the mine site may be required to fill information gaps for future regulatory applications and environmental assessments (WSP, 2022).

20.2.6 Geochemistry

The 2004 Colomac Site Remediation Plan highlights geochemical characterization that was conducted for the Colomac centre area. Surveys of roads, quarries, and storage yards were conducted in 2002 and found no evidence of sulphide mineralization or evidence of oxidation of sulphide minerals. Through a series of acid-base accounting tests, special waste extractive procedure (SWEP) tests, leach extraction tests, column tests and humidity cell test, no significant acid generating potential was identified for pit walls, mineralized material stockpiles, or tailings at site.

More recently, Golder (2015) completed work in the Damoti area that consisted of geochemical static testing on 24 waste rock and mineralized material samples. Twenty-two of the samples were classified as uncertain or potentially acid generating. All samples were considered to have a potential to generate acidic conditions. The short- and long-term metal leaching potential at Damoti was limited compared to laboratory results due to limited water flow at the site. At the time of the study (and to date) there had been minimal effect to the environment from seepage on site.

20.2.7 Socio-Economic, Cultural Baseline Studies and Community Engagement

The project is located across both federal and non-federal lands in the traditional territory of the Tłı̨chǫ. Traditionally, the Indin Lake area has been used for hunting, fishing, and trapping (SLR, 2022). The land is located in the Wek'èezhìi region and within the Môwhì Gogha Dè Nîîtåèè boundary and "major mining projects" require an agreement between the proponent and the Tłı̨chǫ Government before water licences or land use permits can be issued.

The Wek'èezhìi region is the management area of the Tłı̨chǫ Government, with the Wek'èezhìi Renewable Resources Board (WRRB) having the wildlife co-management authority for the region as established by the Tłı̨cho Agreement. The Tłı̨chǫ Government represents the communities of Behchokǫ̀, Gamètì, Wekweètì, and Whatì (refer to Figure 4-1 in Section 4 for the location of these communities). The North Slave Métis Alliance (NSMA) represents the rights of the Métis people of the Great Slave Lake area, primarily in the region north and east of Great Slave Lake, NWT

During the recent water licensing and land use permitting process for project advanced exploration, Nighthawk engaged with several community governments, including Tłı̨chǫ Government, North Slave Métis Alliance, Kitikmeot Inuit Association, Yellowknives Dene First Nation, Deninu Kue First Nation, and Łutsel K'e Dene First Nation. All parties were involved in the permitting process and are aware of intentions to conduct advanced exploration with the goal of ultimately developing a mine at the property. Tłı̨chǫ Government provided a closing argument following the Public Hearing expressing a desire to continue discussions with Nighthawk on topics such as green technologies and the continued protection of caribou in the area.

Since acquiring the property in 2012, Nighthawk has increasingly engaged especially with the Tłı̨chǫ Government, Wek'èezhìi Renewable Resources Board (WRRB) and with the North Slave Métis Alliance (NSMA). The focus of the engagement has been to discuss and seek input on ongoing exploration projects activities, environmental management plans, and monitoring programs, including organizing tours to the project site, and to identify employment and contracting opportunities for Indigenous peoples. Nighthawk has developed a system of tracking its engagement activities and follow-up actions/commitments.

Two archaeological overview assessments (AOAs) were conducted by Golder (2019) and WSP Golder (2022). The former study identified four known archaeological sites and areas of high potential with the property. Those sites are not in conflict with the project design as presented in this report. However, it is noted that the coverage of the AIAs were not comprehensive and were focused mainly on drilling targets and activities that were planned at that time.

Socio-economic data, Indigenous land and resource use information, and Traditional Knowledge pertaining to the Project area are not currently fully understood. While regional data and information are available for review, social and economic conditions in communities change rapidly. Indigenous land and resource use can evolve in response to changing environmental conditions and community practices. Traditional knowledge, if offered by the communities, should be specific to the Project area and relate to the project to be considered relevant for future regulatory processes.

20.3 Permitting

This section summarizes the existing permits in place for the project and the federal and territorial legislation and associated permits, licenses and approvals that will apply or potentially will apply to the construction and operations of the project, as currently proposed. A summary of major and minor federal and territorial authorizations required for the project is provided in Table 20-1.

20.3.1 Existing Authorizations

The project is located in both federal and non-federal areas in the Northwest Territories. As per the Waters Regulations, the Mackenzie Valley Federal Areas Waters Regulations, and Mackenzie Valley Regulations, the current use of land and water, and the current waste deposition, the Project requires a non-federal water licence, a federal water licence, and a land use permit. The Wek'èezhìi Land and Water Board issued non-federal water licence W2021L2-0004, federal licence W2021L2-0005, and land use permit W2021C0009 to Nighthawk Gold Corp. on January 13, 2023. These authorizations allow for advanced exploration activities such as drilling, bulk sampling, operation and maintenance of accommodations facilities and roads, and storage and use of explosives and fuel. Water licences W2021L2-0004 and W2021L2-0005 were both issued with a 15-year term and will expire in January 2038. Land use permit W2021C0009 was issued with a five-year term and is set to expire in January 2028. W2021C0009 can be extended for two years through a formal written request to the land and water board. The current exploration water licences require the development/revision and submission of a number of environmental management plans which are currently in various stages of review and approval by the Wek'èezhìi Land and Water Board. These plans include a spill contingency plan, a waste management plan, a water management plan, an engagement plan, and an updated interim closure and reclamation for the Damoti site and Colomac accommodations site (currently under review and being used to support exploration activities).

Nighthawk also holds land use permit W2018X0006 which authorizes remediation work within the Damoti Lake, Diversified, Spider Lake, and Chalco Lake sites. This authorization will expire in February 2024 and will be eligible for a two-year extension through a formal written request to the land and water board from Nighthawk.

Nighthawk controls 100% of subsurface mineral rights to the property and holds a valid NWT Prospector's Licence #33742, and federal Prospecting Licence NEF0012.

20.3.2 Anticipated Federal Environmental Approvals

The major federal legislation and associated processes and authorizations include an environmental assessment under the *Mackenzie Valley Resource Management Act* (MVRMA), a Fisheries Act Authorization(s) issued under the *Fisheries Act*, and potentially a Schedule 2 amendment to the Metal and Diamond Mining Effluent Regulations (MDMER).

20.3.2.1 Environmental Assessment

Proposed developments requiring a water licence or land use permit must apply to the applicable land and water board and go through a preliminary screening. The preliminary screening determines whether a development, or changes to an existing development, might cause significant adverse impacts to the environment or cause public concern. If so, projects will be referred to environmental assessment conducted by the Mackenzie Valley Environmental Impact Review Board (MVEIRB).

Nighthawk will need to apply for a new non-federal water licence, federal water licence, and land use permit to significantly change the project scope for mine development and production. Given the scope of the anticipated project at the mine development stage, the Wek'èezhìi Land and Water Board are likely to refer the project to MVIERB for environmental assessment. The environmental assessment begins with scoping, producing Terms of Reference and a workplan, and production of a Developer's Assessment Report (DAR) by the proponent. Following technical review of the DAR, information requests, and public hearings, MVIERB will release a Report of Environmental Assessment which is sent to the Minister of Crown-Indigenous Relations and Northern Affairs Canada for a decision. Approval from the minister will send the applications to the permitting and licensing phase with the applicable land and water board. The environmental assessment process can take anywhere from 12-24 months depending on the potential impacts of the project.

In 2022, MVEIRB issued a draft *Guideline for Major Project to Go Directly to Environmental Assessment* which describes the conceptual process and information requirements for a developer to skip the preliminary screening stage and request an environmental assessment. These direct referrals would require early meaningful community engagement and an "EA Initiation Package" from the proponent up front. This process is still in the development phase but, if implemented, the project would be a strong candidate for direct referral to environmental assessment.

Table 20-1: Federal and Territorial Environmental Approval Requirements for the Colomac Gold Project

Legislation	Issuing Agency	Authorization	Purpose
Territorial			
Northwest Territories Lands Act	Government of the Northwest Territories	Mineral claims	Subsurface rights to minerals in a defined area.
		Mineral leases	Conversion of mineral claim to mineral lease is necessary to commence production from a mine.
		Industrial lease	Exclusive surface rights to a defined area and the right to make improvements on the land.
Scientists Act	Aurora College	Scientific Research Licence	Licence for conducting scientific research in the NWT that is not covered under the Wildlife Act or archaeologist legislation.
Northwest Territories Wildlife Act	Government of the Northwest Territories	Wildlife Research Permit	Permit for researching, observing, and/or handling wildlife in the NWT.
Northwest Territories Environmental Protection Act	Government of the Northwest Territories	Hazardous Waste Generator registration	Authorization to generate hazardous waste and to ship to a licensed hazardous waste receiver in the NWT.
Northwest Territories Archaeological Sites Regulations	Prince of Wales Northern Heritage Centre	NWT Class 2 Archaeologist Permit	To allow for an Archaeological Impact Assessment to be conducted in the project area.
Federal			
Mackenzie Valley Resource Management Act (MVRMA)	Mackenzie Valley Environmental Impact Review Board (MVEIRB)	Minister's Decision on the Report of Environmental Assessment	The Environmental Assessment process is for complex projects that might have significant adverse impacts to the environment or might cause public concern. This is determined through a preliminary screening of development applications (Water Licence, Land Use Permit). If a project is referred for an Environmental Assessment, the process often takes between 12-18 months.
	Wek'èezhìi Land and Water Board	Type A Land Use Permit	Land Use Permits are required for certain activities on the land, such as: using explosives, using heavy machinery, storing fuel, moving earth, building lines, establishing campsites, and constructing buildings.
		Type A Water Licence	Required for the use of water and deposit of waste.
Tłįchǫ Agreement	Tłįchǫ Government, process overseen by the Wek'èezhìi Land and Water Board	Agreement between Nighthawk and the Tłįchǫ Government regarding the Colomac Gold Project	Section 23.4 of the Tłįchǫ Agreement mandates that an agreement must be reached between the proponent and the Tłįchǫ Government regarding all applications for "major mining projects" in the project region. This agreement must be in place for water licences or land use permits to be issued.
Fisheries Act	Fisheries and Oceans Canada (DFO)	Section 35 Authorization	Where works may cause the harmful alteration, disruption, or destruction of fish habitat.
		Scientific Licence	Licence required to harvest fish for experimental, scientific, educational or public display purposes.
	Metal and Diamond Mining Effluent Regulations, SOR/2002-222	Schedule 2 Amendment Authorization to deposit an effluent that contains a deleterious substance	Authorization for a tailings impoundment area in "waters frequented by fish". The definition of tailings in the case of the MDMER involves all mine related waste including mine rock and untreated effluent. Applies to mines that exceed an effluent flow rate of 50 m^3 per day, based on effluent deposited from all the final discharge points of the mine, and that deposit a deleterious substance in any water frequented by fish or in any place under any conditions where the deleterious substance or any other deleterious substance that results from the deposit of the deleterious substance may enter any such water.
Explosives Act and Explosives Regulation	NRCan (Explosives Regulatory Division) NWT Workers' Safety and Compensation Commission	Explosives Magazine Permits	Required for manufacturing and storing explosives
		Manufacturing Certificate	
Migratory Birds Convention Act	Canadian Wildlife Services	Damage or Danger Permit	Required for all activities with the potential to damage or danger migratory birds listed in the Migratory Bird Convention Act, 1994.
Canadian Navigable Waters Act (CNWA)	Transport Canada (TC)	Notice of works to the Minister under CNWA (Major and Minor Works in scheduled and unscheduled waters) Navigation Protection Program	Under CNWA, owners of works propose to construct, place, alter, rebuild, remove or decommission works that are in, on under, through or across any navigable waters may be required to apply to TC, for scheduled waterways, or go through public resolution for unscheduled waters.
Species at Risk Act (SARA)	Environment and Climate Change Canada (ECCC)	Species at Risk Permit	Required if the project crosses critical habitat, as designated under SARA. Requires regulatory consultation with ECCC.

20.3.2.2 Tłı̨chǫ Agreement

The Land Claims and Self-Government Agreement among the Tłı̨chǫ, the Government of the Northwest Territories, and the Government of Canada (the Tłı̨chǫ Agreement) provides rights and benefits to land, resources, and self-government to Tłı̨chǫ citizens. Under Section 23.4 of the Tłı̨chǫ Agreement, the proponent of a major mining project (as defined under the Tłı̨chǫ Agreement) must negotiate and come to an agreement with the Tłı̨chǫ Government regarding the project or agree that the project does not require an agreement. This agreement typically involves provisions for environmental protection, employment targets, training, and business opportunities for the Tłı̨chǫ.

The Wek'èezhìi Land and Water Board will issue a notice of a major mining project application requesting that the proponent and the Tłı̨chǫ negotiate under Section 23.4 of the Tłı̨chǫ agreement. The water licensing and land use permitting processes can proceed without an agreement in place, though an agreement must be reached before any water licences or land use permits can be issued.

Given the size and scope of the Colomac Gold Project as envisioned in this document, as well as the history and historical mining and closure activities at the site, it is highly likely the Tłı̨chǫ Government will consider this project to be major and will wish to negotiate an agreement with Nighthawk.

20.3.2.3 Water Licencing and Land Use Permitting

Upon completion of the environmental assessment, the project will require a federal water licence, a non-federal water licence, and a land use authorization prior to commencing mine development. Water licences allow for the use of water and the deposit of waste and a land use permit authorizes land use activities such as blasting, fuel storage, use of heavy machinery, and building construction. Nighthawk currently holds these three authorizations; however, the scope is limited to advanced exploration activities. Nighthawk will need to apply for new authorizations with expanded scopes authorizing extraction of mineralized material, tailings containment, and increased water use and waste deposition to align with the project as envisioned in this report. Water licences and land use permits are issued by the Wek'èezhìi Land and Water Board under the MVRMA and enforced by federal and territorial inspectors.

20.3.2.4 Fisheries Act Authorizations

In effect since June 2019, Canada's modernized *Fisheries Act*, RSC 1985, c. F-14, provides protection for all fish and fish habitats. Where works may cause the harmful alteration, disruption, or destruction of fish habitat, authorization from Fisheries and Oceans Canada (DFO) under Section 35 of the *Fisheries Act* may be required. If the proposed mine infrastructure associated with a proposed project, will impact fish-bearing water, then a Fisheries Authorization and Fish Habitat Compensation Plan may be required.

The project as envisioned in this report will require a Fisheries Authorization and Fish Habitat Compensation Plan. A Schedule 2 amendment to the Metal and Diamond Mining Effluent Regulations (MDMER) may also be required subject to further fish and fish habitat surveys required for areas where mine waste will be stored (waste rock, tailings, mineralized material, and untreated contact water / mine effluent).

20.3.3 Anticipated Territorial Environment Approvals

Nighthawk will require certain surface rights and a series of territorial permits for various aspects of mine operation and environmental monitoring.

20.3.3.1 Surface Rights

Pursuant to the *Northwest Territories Lands Act*, an industrial lease is required for development activities such as mining operations and fuel storage in the NWT. The industrial lease provides the occupant exclusive rights to use the land for a specified period and allows the lessee to make improvements on the land. Industrial leases are administered by the territorial government through the newly formed Department of Environment and Climate Change (merger of the Environment and Natural Resources and Lands Departments).

20.3.3.2 Research Authorizations

The Colomac Gold Project will require authorizations to conduct environmental sampling, wildlife research, and archaeological assessments of site. Under the *Scientists Act*, a Scientific Research Permit must be issued on an annual basis to authorize scientific research on site. This includes basic requirements such as water sampling which will be mandated under the site water licences. The project will require a Wildlife Research Permit, issued by the territorial government, for researching, observing, and/or handling wildlife in the NWT. Wildlife research will be a key regulatory requirement and will be necessary to complete a Wildlife Management and Monitoring Plan. The Prince of Wales Northern Heritage Centre issues NWT Class 2 Archaeologist Permits so the work area can be sufficiently assessed for significant archaeological sites and artifacts.

20.4 Environmental Management and Monitoring Plans

The project has been designed to minimize impacts to fish bearing waterbodies and to limit the overall footprint of the facilities. This has been achieved by means of conceptual level alternatives assessments for a range of infrastructure options. For example, the waste rock and tailings facilities have been sited to minimize impacts on undeveloped areas of the property (refer to Sections 16.8, 18.6, and 18.8). The preliminary selected option for preferred waste rock and tailings management facilities involves placing large portions of these structures on areas that were disturbed previously during past mining operations. The project will also require the dewatering and diversion of water around a portion of Baton Lake so as to enable access to the mineralized resources in the Colomac Centre area.

A study in 2022 by Green Cat (GCR, 2022) investigated various opportunities for renewable energy for the project site. The assumption is 60% of the power will come from site power (to be provided by solar and wind power) and the remaining will come 40% from diesel. The use of renewable energy offsets the expense of diesel generation at a remote location as well as improving the project carbon footprint.

As the project progresses through the EA/permitting stage, environmental management and monitoring plans will be required for the purpose of guiding the development and operation of the project and mitigating, limiting and measuring any impacts. These plans will be complementary to engineered designs that will be required for the storage of tailings, waste rock, mineralized material, and water management and treatment processes. Nighthawk already has several approved management plans in place to support their exploration programs including: Waste Management Plan, Spill Contingency Plan, Water Management Plan, and Engagement Plan. The development of additional plans has already been requested by the land and water board as part of recent permitting proceedings and recently issued permits. A preliminary list of the plans that may need to be developed, or existing plans that will require significant updates, are listed below.

- Wildlife Management and Monitoring Plan
- Aquatic Effects Monitoring Plan
- Erosion and Sedimentation Control Plan
- Surface Water Management and Monitoring Plan
- Air Quality Management and Monitoring Plan
- QA/QC Plan (for Surveillance Network Program sampling)
- Stakeholder and Indigenous Nations Communication Plan
- Occupational Health and Safety Plan
- Emergency Response Plan
- Closure and Reclamation Plan

- Waste Management Plan
- Spill Contingency Plan
- Groundwater Contingency and Monitoring Plan
- Heritage and Archaeological Management Plan
- Invasive Plant Management and Monitoring Plan
- Fish and Aquatic Effects Monitoring Plan
- Reclamation and Closure Plan
- Reclamation and Closure Plan
- Explosives Management Plan
- Waste Rock and Mineralized Material Management Plan
- Tailings Management Plan
- Vegetation Management and Monitoring Plan
- Water Treatment Plan
- Access Management Plan
- Mine Waste, Tailings, and ML/ARD Management Plan
- Ecosystems Management Plan

20.5 Other Potential Environmental and Social Concerns

The proposed project has been designed to minimize infrastructure permit and new impacts. This has resulted in a design footprint that interacts with areas of historical mining operations and corresponding mine closure features that have been constructed and advanced by CIRNAC from 2000 to 2012. Discussions with CIRNAC will need to be advanced regarding the potential disturbance of existing closed facilities such as the tailings management facility and any consequential security liabilities associated with post closure monitoring.

There are currently significant baseline data gaps that would require filling to support future regulatory applications and the Environmental Impact Assessment (EIA) process. WSP completed an Environmental Information Needs Assessment in 2022 which identified gaps in baseline data which will help to support of future regulatory applications for the project. Recommendations for future baseline work were put forward by WSP in that report. It is noted that for some baseline studies (e.g., hydrology, water quality, hydrogeology, and aquatics) both seasonal and multiple years of data collection are required to support regulatory applications and completion of these studies are a critical path for permitting.

In terms of water management, the main consideration for the project is related to changes to the flow regime of Baton Lake which will require diversion around the Colomac open pits and loss of fish habitat which will require fisheries authorization and habitat compensation measures. Mine contact water around all surface facilities will be managed in accordance with regulatory requirements and tested/treated as required prior to discharge to downstream receivers.

As the project progresses through the PFS and EA/permitting stage environmental management and monitoring plans will be required for the purpose of guiding the development and operation of the project and mitigating and limiting environmental impacts. These plans will be complementary to the engineered designs that will be required for the storage of tailings, waste rock, mineralized material, and conveyance/storage/treatment of mine contact water (refer to Section 18 of this report).

Traditional Knowledge, and its incorporation in the project design and environmental programs, will be a key requirement during the regulatory process. Traditional Knowledge studies and community workshops should be initiated early in the regulatory process so there can be meaningful integration with western science when developing environmental management programs. The availability and use of Traditional Knowledge and land use data around the Project area will be dependent on the development of an information sharing agreement with Tłı̨chǫ Government and the Wek’èezhìi Renewable Resources Board (WRRB). All community engagement activities such as workshops and community visits by Nighthawk will need to be planned well in advance given the relative lack of flights and accommodations available in smaller, remote communities. Timing of all engagement is also important, given that many community members spend the summer months travelling or on the land.

20.6 Conceptual Mine Closure and Reclamation Plans

The previous Colomac Mine, originally owned and operated by Royal Oaks Mines Incorporated, has been through active reclamation and over a decade of post-closure monitoring. After the owner went insolvent, CIRNAC assumed responsibility for the site in 1999 and began remediation activities. Remediation took place from 2000-2012, as well as post-closure monitoring activities from 2012-2022. Full results of post closure monitoring can be found in SLR's "10-Year Long-Term Monitoring Performance Assessment Report" from 2022.

In the NWT, proponents of advanced mineral exploration or mine sites requiring type A or B water licences must submit Closure and Reclamation Plans (CRPs) at various stages of development. The Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories outlines the key closure and reclamation planning concepts and specific requirements of a CRP. Some aspects of a typical CRP include:

- closure objectives and criteria
- preferred closure option for each project component
- design drawings for engineered structures
- water management and restoration of natural drainage
- predicted environmental effects during closure activities.

Nighthawk currently has an approved Interim Closure and Reclamation Plan (ICRP -Version 3.3) for the Damoti site only, and further requirements for an ICRP for advanced exploration are outlined in Schedule 5 of water licence W2021L2-0005 and a version 4 of that document is currently under review by regulators. Future water licences and land use permits for mine development will outline closure plan requirements for the Colomac Gold Project.

The current conceptual closure and reclamation plan for the project as outlined in this report includes the following potential measures:

- partial backfilling of open pits with waste rock, and flooding of the remaining open pits and underground workings
- mineralized material stockpile to be reclaimed, once depleted
- mine portals to be decommissioned, plugged and backfilled
- plant and infrastructure pad to be dismantled, removed, and re-contoured and revegetated
- tailings dam and beach to be reclaimed with an erosion resistant surface
- water treatment to be continued as required until the TMF and other contact water quality meets discharge criteria
- once TMF water quality meets discharge criteria, water treatment to cease, and the TFF will be allowed to discharge naturally via a closure spillway
- at closure, PAG rock will be managed by rehandling into the pits to keep it permanently submerged in the pit lakes and/or capping it with low permeability liner to reduce seepage and oxygen infiltration; NPAG waste rock stored on the surface will be stored to ensure stability and compatibility with existing landforms and wildlife usage.

The preliminary closure and reclamation costs are discussed in Section 21.2.9.

21 CAPITAL AND OPERATING COSTS

21.1 Introduction

The capital and operating cost estimates presented in this PEA provide substantiated costs that can be used to assess the preliminary economics of the Colomac Gold Project. The estimates are based on an open pit mining operation and the construction of a process plant, associated tailings storage and management facilities, a renewable energy and diesel-generated power plant, and infrastructure, as well as Owner's costs and provisions.

21.2 Capital Costs

The capital cost estimate conforms to Class 5 guidelines for a PEA-level estimate with ±50% accuracy according to the Association for the Advancement of Cost Engineering International (AACE International). The capital cost estimate was developed in Q1 2023 Canadian dollars based on Ausenco's in-house database of projects and studies, as well as experience from similar operations.

The estimate includes open pit and underground mining, processing, on-site infrastructure, tailings and waste rock facilities, off-site infrastructure, project indirect costs, project delivery, Owner's costs, and contingency. The capital cost summary is presented in Table 21-1. The total initial capital cost for the Colomac Gold Project is C$654 million; and life-of-mine sustaining costs are C$665 million. Closure costs are estimated at C$50 million, with salvage credits of C$32 million.

Table 21-1: Summary of Capital Costs

WBS	WBS Description	Initial Capital Cost (C$M)	Sustaining Capital Cost (C$M)	Total Capital Cost (C$M)
1000	Mining	161	547	708
2000	Process Plant	160	0	160
3000	On-Site Infrastructure	170	86	256
4000	Off-Site Infrastructure	9	0	9
	Total Directs	499	633	1,133
5000	Project Indirects	15	0	15
6000	Project Delivery	35	0	35
7000	Owner's Cost	9	0	9
	Total Indirects	59	0	59
8000	Contingency	96	32	127
	Closure (Net of Salvage)	-	18	18
	Kim & Cass NSR Buyback	-	3	3
	Project Totals	654	686	1,340

The following parameters and qualifications were considered:

- No allowance has been made for exchange rate fluctuations.
- There is no escalation added to the estimate.
- A growth allowance was included.

Data for the estimates have been obtained from numerous sources, including the following:

- mine schedules
- conceptual engineering design by Ausenco, MMTS and Green Cat
- mechanical equipment costs determined from sizing using first principles and pricing for supply and installation from Ausenco's database of recent Canadian studies and projects
- electrical equipment costs were determined from sizing using first principles and pricing for supply and installation from Ausenco's database of recent Canadian studies and projects
- material take-offs for concrete, steel, instrumentation, in-plant piping, and platework were factored by benchmarking against similar projects with equivalent technologies and unit operations
- engineering design at a preliminary economic assessment level
- topographical information from the site survey
- geotechnical investigations
- budgetary equipment quotes from suppliers based in the USA, Canada, Mexico and overseas
- data from similar recently completed studies and projects.

Major cost categories (permanent equipment, material purchase, installation, subcontracts, indirect costs, and Owner's costs) were identified and examined.

21.2.1 Basis of Estimate

Costs were developed based on Ausenco's in-house database of costs and labour rates. The estimate is prepared in the base currency of Canadian dollars (currency: CAD; symbol: C$)). Pricing has been converted to Canadian dollars using the exchange rates in Table 21-2.

Table 21-2: Estimate Exchange Rates

Currency Abbreviation	Symbol	Currency	Exchange Rate
AUD	AU$	Australian Dollar	0.90
CAD	C$	Canadian Dollar	1.00
EUR	€	Euro	1.47
USD	US$	United States Dollar	1.35

21.2.2 Mine Capital Costs (WBS 1000)

Mine capital costs have been derived from historic data collected by MMTS at other Canadian open pit and underground mining operations and applied to the Colomac Gold mine plan and PEA production schedule.

Pre-production open pit mine operating costs (i.e., all mine operating costs incurred before mill start-up) are capitalized and included in the capital cost estimate. Pre-production pit operating costs include drilling and blasting, loading and hauling, support, and general mine expense (GME) costs. All mine operations site development costs, such as clearing and grubbing, topsoil stripping, haul road construction, stockpile preparation, pit dewatering, and explosive pad preparation, are capitalized.

The mine equipment mobile fleet is planned to be purchased either through financing or lease agreements with the vendors. Down payments and monthly lease payments are capitalized through the initial and sustaining periods of the project.

Underground access development is planned to be completed by the contractor, and all estimated development meters for ramps, ventilation raises, and stope level access drifts are capitalized. A development meter cost input of $5,500 is used. Attack ramps into MCF cuts are included in mine operating costs.

The following items are also capitalized:

- mine fleet maintenance facilities and wash bay
- maintenance tooling and supplies
- spare parts inventory
- dispatch and mine fleet management system
- explosives mixing plant and magazine
- radio communications systems
- mine survey gear and supplies
- geology, grade control, and mine planning software licences
- geotechnical instrumentation
- mine rescue gear and safety supplies
- piping for pit dewatering
- underground contractor mobilization and demobilization
- underground portal development
- paste plant for backfilling stopes
- miscellaneous underground equipment (pumps, electrical supplies, etc.).

Table 21-3 summarizes the PEA-level mine area capital cost estimates for the Colomac Gold Project. It is the QP's opinion that these estimates are reasonable for the location and planned mine development at this project stage.

Table 21-3: Mine Area Capital Cost Summary

Item	Initial Capital C$M	Sustaining Capital C$M
Capitalized Pre-Production Open Pit Mining Costs	65	-
Open Pit Mine Fleet Capital	40	357
Open Pit Operations Infrastructure Capital	17	11
Underground Operations Infrastructure Capital	15	20
Underground Development Costs	25	160
Total Initial Mining Capital	161	547

21.2.3 Process Plant Capital Costs (WBS 2000)

Process plant costs are summarized in Table 21-4. Process equipment requirements are based on conceptual process flowsheets and process design criteria as defined in Section 17. All major equipment was sized based on the process design criteria in order to derive a mechanical equipment list. Mechanical equipment and building supply costs were based on recent and historical budget quotes from similar projects, adjusted to reflect the size of the project.

Major electrical equipment was also sized based on the project's equipment list. Electrical equipment costs were based on recent and historical budget quotes from similar projects, adjusted to reflect the size of the project.

In support of the major mechanical and electrical equipment packages, the process plant and infrastructure engineering designs were completed to a PEA study level of definition, allowing for the bulk material quantities (i.e., steel, concrete, earthworks) to be derived for the major commodities.

The materials and equipment total direct costs for other disciplines were developed by applying factors (percentages) to the total direct cost (supply and installation) of the mechanical equipment. The factors are based on Ausenco's historical data for similar types of work and are specific to both discipline and area.

Table 21-4: Summary of Process Capital Costs

WBS	WBS Description	Initial Capital Cost (C$M)	Sustaining Capital Cost (C$M)	Total Capital Cost (C$M)
2100	Crushing and Stockpiling	34	0	34
2200	Grinding	57	0	57
2300	Gravity Gold Recovery	2	0	2
2400	Gravity Tails / Leach Absorption	30	0	30
2500	Elution / Carbon Regeneration / Gold Room	16	0	16
2600	Cyanide Detoxification / Tailings Dewatering	7	0	7
2700	Reagents Offloading and Storage	9	0	9
2800	Plant Air Services	1	0	1
2900	Plant Water Services	3	0	3
	Process Plant Total	160	0	160

21.2.4 On-Site Infrastructure Capital Costs (WBS 3000)

On-site infrastructure costs are summarized in Table 21-5. The costs were developed based on Ausenco's in-house database of costs and labour rates and include the following:

- bulk earthworks
- power supply costs were generated from the study provided by Green Cat – costs were then scaled to accommodate the final plant throughput and power demand
- fuel storage
- warehousing, office and workshops
- site services/camp
- site water services
- site water management
- tailings storage and management facilities.

Table 21-5: On-Site Infrastructure Capital Costs

WBS	WBS Description	Initial Capital Cost (C$M)	Sustaining Capital Cost (C$M)	Total Capital Cost (C$M)
3100	Bulk Earthworks	11	0	11
3200	Power Supply	103	10	113
3300	Fuel Storage	6	17	23
3400	Warehousing, Office and Workshops	1	5	6
3500	Site Services / Camp	6	15	21
3600	Site Water Services	3	0	3
3700	Site Water Management	5	16	21
3800	Tailings Storage and Management Facilities	34	23	57
	On-Site Infrastructure Total	170	86	256

21.2.5 Off-Site Infrastructure Capital Costs (WBS 4000)

Off-site infrastructure costs are summarized in Table 21-6 and include the process site access road and airstrip. Costs were estimated from first principles and Ausenco's database of historical projects. A total of C$8.9 million was estimated for off-site infrastructure costs.

Table 21-6: Off-Site Infrastructure Capital Costs

WBS	WBS Description	Initial Capital Cost (C$M)	Total Capital Cost (C$M)
4100	Access Roads	5	5
4200	Airstrip	4	4
	Off-Site Infrastructure Total	9	9

21.2.6 Indirect Capital Costs

Indirect costs are summarized in Table 21-7 and described in the following subsections.

Table 21-7: Indirect costs.

WBS	WBS Description	Initial Capital Cost (C$M)	Total Capital Cost (C$M)
5000	Project Indirects	15	15
6000	Project Delivery	35	35
7000	Owner's Costs	9	9
	Indirects Total	59	59

21.2.6.1 Project Indirects (WBS 5000)

Project indirects are required during the project delivery period to enable and support construction activities. Indirect costs include the following:

- temporary construction facilities and services
- commissioning representatives and assistance
- on-site materials transportation and storage
- spares (commissioning, initial, and insurance)
- first fills and initial charges
- freight and logistics
- engineering, procurement, and construction management services.

The project indirect costs have been based on Ausenco's historical project costs of similar nature and have been included at a rate of 5% of the total non-mining direct cost, or C$15 million.

21.2.6.2 Project Delivery (WBS 6000)

The project delivery cost has been calculated at 12% of total non-mining direct costs based on Ausenco's historical project costs of similar nature. This includes the following:

- engineering, procurement, and construction management services (EPCM)
- commissioning services.

Project delivery costs are estimated at C$35 million.

21.2.6.3 Owner (Corporate) Capital Costs (WBS 6000)

Owner's costs were factored from total directs and are 3% of total non-mining direct costs (C$9 million) and include the following:

- project staffing and miscellaneous expenses
- pre-production labour
- home office project management
- home office finance, legal, and insurance.

21.2.7 Contingency (WBS 8000)

Contingency accounts for the difference in costs from the estimated and actual costs of materials and equipment. The level of contingency varies depending on the nature of the contract and the client's requirements. Due to uncertainties at the time the capital cost estimate was developed, it is essential that the estimate include a provision to cover the risk from these uncertainties.

The estimate contingency does not accommodate the following:

- abnormal weather conditions
- changes to market conditions affecting the cost of labour or materials
- changes of scope within the general production and operating parameters
- effects of industrial disputations
- financial modelling
- technical engineering refinement
- estimate inaccuracy.

The estimated contingency includes the following:

- 10% of total mining direct costs during construction
- 20% of total non-mining direct costs during construction
- 20% of total indirect costs during construction
- 5% of total direct costs during production
- 5% of total indirect costs during production.

The total estimated contingency for the project is C$127 million.

21.2.8 Sustaining Capital

The total life-of-mine sustaining costs for the project are C$665 million, as presented in Table 21-8.

Table 21-8: Sustaining Capital Costs (C$M)

WBS	WBS Description	C$M by Year										
		1	2	3	4	5	6	7	8	9	10	Total
1200	Open Pit Mining Fleet Capital Cost	57	39	71	69	46	28	32	14	--	--	357
1300	Open Pit Mine Operations Infrastructure	8	1	2	1	0	--	--	--	--	--	11
1500	Underground Mining Operations Infrastructure	10	--	--	5	--	--	--	5	--	--	20
1600	Underground Development Capital Cost	19	19	19	17	19	17	17	17	11	6	160
3200	Power Supply	10	--	--	--	--	--	--	--	--	--	10
3300	Fuel Storage	6	6	6	--	--	--	--	--	--	--	17
3400	Warehousing, Office and Workshops	4	4	4	4	4	--	--	--	--	--	20
3500	Site Services/Camp	4	4	4	4	4	--	--	--	--	--	20
3700	Site Water Management	5	--	5	--	5	--	--	--	--	--	16
3800	Tailings Storage and Management Facilities	--	--	6	6	6	6	--	--	--	--	23
8000	Contingency	6	3	6	5	4	3	2	2	1	0	32
	Total	125	72	119	106	85	53	51	38	12	6	665

21.2.8.1 Mining

Down payments and monthly lease payments for the mine equipment fleet purchased throughout the life of mine are capitalized through the sustaining periods of the project. The sustaining costs for mining also include the cost of open pit mining operation infrastructure, as well as underground mining development and operation infrastructure. A life-of-mine total of C$547 million was estimated for mine equipment lease charges and mine infrastructure costs.

21.2.8.2 Infrastructure and TMF

Infrastructure sustaining costs include power supply expansions, fuel storage expansions, financing payments for warehouse and office buildings, site services and accommodations, site water management structures, and tailings storage and management facilities. A life-of-mine total of C$86 million was estimated for infrastructure and TMF costs.

21.2.9 Closure Costs

The estimated total reclamation and closure costs, excluding taxes and contingency, is C$50 million. Closure costs have been benchmarked against recent projects in similar jurisdictions.

21.2.10 Salvage Value

Salvage value for project is estimated at C$32 million. Salvage value was calculated as 10% of the processing plant and mining initial capital cost.

21.2.11 Exclusions

The following costs and scope are excluded from the capital cost estimate:

- land acquisitions
- taxes not listed in the financial analysis
- sales taxes
- scope changes and project schedule changes and the associated costs
- any facilities/structures not mentioned in the project summary description
- geotechnical unknowns/risks
- any costs for demolition or decontamination for the current site
- further testwork and drilling programs
- environmental approvals
- this study or any future project studies, including environmental impact studies
- operating costs
- operational readiness costs
- working capital
- any facilities/structures not mentioned in the project summary description.

21.3 Operating Costs

The operating cost estimate is presented in Q1 2023 C$. The estimate was developed to have an accuracy of ±50%. The estimate includes mining, processing, and general and administration (G&A) costs.

The overall life-of-mine operating cost is C$2,952 million over 12 years, or an average of C$43.87/t of material milled in a typical year. Of this total, processing and G&A account for C$768 million and mining accounts for C$2,183 million. Table 21-9 provides a summary of the project operating costs.

Table 21-9: Operating Cost Summary

Cost Area	Life-of-Mine Total (C$M)	Per Mineralized Tonne (C$/t)	% of Total
Mining	2,183	3.5/t mined	74
Open Pit	*1,504*	*2.5/t mined*	*51*
Underground	*680*	*115/t mined*	*23*
Process	600	8.9/t milled	20
G&A	168	2.5/t milled	6
Total	$2,952	$43.9/t	100

21.3.1 Overview

Common to all operating cost estimates are the following assumptions:

- Cost estimates are based on Q1 2023 pricing without allowances for inflation.
- For material sourced in US dollars, an exchange rate of 1.35 Canadian dollar to 1.00 US dollar was assumed.
- Estimated cost for diesel is C$1.00/L.
- The annual power costs were calculated using a unit price of C$0.08/kWh. This is an average calculated using both renewable and diesel power generation sources.

21.3.2 Mine Operating Costs

21.3.2.1 Open Pit Mining

Open pit mine operating costs are built up from first principles and applied to the open pit mine production schedule. Cost inputs are derived from historical data collected by MMTS. This includes cost and consumption rates for such inputs as fuel, lube, explosives, tires, undercarriage, ground engaging tools (GET), drill bits/rods/strings, machine parts, machine major components, labour rates, and operating and maintenance labour ratios. Equipment and labour productivity inputs are estimated for the specific equipment fleet and rationalized to existing Canadian open pit mine operations. Simulated haul cycle times from source pit benches to planned destinations are utilized to inform haul productivities.

Annual production tonnes are taken from the mine production schedule. Drilling, loading, and hauling hours are calculated based on the capacities and parameters of the specified equipment fleet. The production tonnes and primary fleet hours also provide the basis for blasting consumables and support fleet inputs.

Estimated life-of-mine open pit unit mining costs are shown in Table 21-10. It is the QP's opinion that the estimates are reasonable for the location and planned mine operation activities and can be utilized for this level of study.

Table 21-10: Open Pit Mine Operating Cost Summary

Item	Unit Cost (C$/t Mined)	Unit Cost (C$/t Milled)	Life-of-Mine Cost (C$M)
Grade Control	0.02	0.24	15
Drilling	0.28	2.76	169
Blasting	0.38	3.72	228
Loading	0.27	2.63	162
Hauling	0.94	9.22	566
Support	0.36	3.54	217
Site Development	0.04	0.44	27
Unallocated Labour	0.03	0.26	16
Subtotal – Direct Costs	2.32	22.81	1,398
Subtotal – GME Costs	0.18	1.70	104
Total Open Pit Mine Operating Cost	2.49	24.50	1,504

21.3.2.2 Underground Mining

Underground mine operating unit costs for contractor-run MCF operations are applied to the underground mine production schedule. Cost inputs are derived from historical data collected by MMTS. It is the QP's opinion that the estimates are reasonable for the location and planned mine operation activities and can be utilized for a PEA (refer to Table 21-11).

Table 21-11: Underground Mine Operating Cost Summary

Item	Unit Cost (C$/t Mined)	Unit Cost (C$/t Milled)	Life-of-Mine Cost (C$M)
Total Underground Mine Operating Cost - Contractor	115.00	115.00	680

21.3.3 Process Operating Costs

The operating costs are estimated from benchmarks on available operational data for equivalent gold operations. The overall life of mine processing operating cost is C$ 768 million or C$11.36/t milled over the 12-year mine life. The average annual operating cost is shown on Table 21-12.

Table 21-12: Process Operating Cost Summary

Cost Area	Life-of-Mine Cost (C$M)	Annual Cost (C$M/a)	Unit Cost (C$/t Milled)
Power	151.5	13.7	2.25
Reagents	181.8	16.5	2.71
Consumables	138.2	12.5	2.06
Labour	75.7	6.8	1.11
Effluent Treatment Plant	20.0	1.8	0.29
Maintenance	26.3	2.4	0.39
Mobile Equipment	4.8	0.5	0.07
Laboratory Services	2.0	0.2	0.03
Processing Subtotal	600	54.4	8.91
General & Administration	168	15.0	2.46
Process and G&A Total	768	69.3	11.36

Source: Ausenco, 2023.

21.3.3.1 Power

The power cost is calculated from the estimated power draw determined from the preliminary mechanical equipment list plus an allowance for buildings, HVAC services, and other ancillary loads. The total installed power was estimated to be 29.3 MW with an estimated annual consumption of 168 GWh factoring in utilization at nominal rates.

When considering a full-scale diesel plant and assuming a diesel fuel cost of C$1.00/L and consumption of 0.20L/kWh, the cost of generating 1 kWh of energy is C$0.20. Comparatively, the cost of generating energy using a combination of wind, solar and diesel is C$0.08/kWh. The breakdown of this cost can be seen in Table 21-13. This unit electrical cost assumed power generation from renewable sources supplemented by diesel generators. The total annual cost is estimated at C$13.7 million or C$2.25/t per tonne milled.

Table 21-13: Power Unit Cost by Energy Source

Energy Source	Target Supply Power (MW)	% of Power Supply	Operating Cost (C$M)	Operating Cost (C$/t Milled)	Operating Cost (C$/kWh Produced)
Wind	11.0	53	0.99	0.16	0.011
Solar	2.0	10	0.16	0.03	0.010
Diesel	7.8	38	12.61	2.07	0.200
Total	20.8	100	13.75	2.25	0.080

21.3.3.2 Reagents

Reagent usage was estimated based on an interpretation of the available testwork as well as benchmarked usage from comparable operations. Reagent costs were based on internal data, which is developed from vendor quotations for other projects. The major reagent cost details are shown on Table 21-14.

Table 21-14: Reagent Cost Summary

Reagent	Annual Cost (C$M/a)	Unit Cost (C$/t Milled)
Cyanide	8.8	2.02
Lime	1.4	0.23
Sulphur	2.1	0.34
Copper Sulphate	1.8	0.29
Hydrochloric Acid	0.2	0.03
Sodium Hydroxide	0.3	0.05
Flocculant	0.6	0.10
Carbon	1.2	0.20
Subtotal	16.5	2.71

Source: Ausenco,2023.

21.3.3.3 Consumables

The consumables considered in this cost summary are crusher and mill liners; mill grinding media; and screening media. The usage was estimated from benchmarking databases of similar mineralization. The unit costs were based on a regression of internal data obtained from vendor quotations for similar projects. The details are shown on Table 21-15.

Table 21-15: Consumables Cost Summary

Consumable	Annual Cost (C$M/a)	Unit Cost (C$/t Milled)
Jaw Crusher Liners	0.5	0.07
Cone Crusher Liners	0.4	0.07
Secondary Screen Media	0.1	0.02
SAG Mill Liners	1.7	0.28
Ball Mill Liners	0.4	0.07
SAG Mill Media	3.8	0.63
Ball Mill Media	5.5	0.91
Subtotal	12.5	2.06

Source: Ausenco,2023.

21.3.3.4 Labour

Staffing levels were estimated based on benchmarks from comparable projects. The labour costs incorporate requirements for plant operation, such as management, metallurgy, operations, maintenance, site services, assay laboratory, and contractor allowance. The total management, maintenance and operations headcount (excluding contractors) is estimated to be 57 employees. Table 21-16 shows a breakdown of the labour complement by function.

Table 21-16: Processing Complement Summary

Description	Headcount
Mill Management	5
Plant Superintendent	1
Senior Metallurgist	1
Maintenance Superintendent	1
Chief Assayer	1
Mill Trainer	1
Mill Operations	32
Operations Shift Foreman	4
Crusher Operator	4
Grinding / Gravity Operator	4
Leach / Elution Operator	4
Reagents / Swing Operator	4
Gold Refining Foreman/Operator	4
Control Room Operator	4
Surface Crew/Tailings	4
Laboratory	3
Laboratory Manager	1
Laboratory Lead Hand	1
Laboratory Technician	1
Mill Maintenance	17
Maintenance Foreman	1
Maintenance Planner	1
Millwrights	4
Welder	2
Electrical Foreman	1
Electricians	2
Process Control/Instrument Technician	2
Apprentices	4
Project Total	52

Source: Ausenco,2023.

21.3.3.5 Effluent Water Treatment

The operating cost estimate for effluent water treatment plant was benchmarked against similar projects and is estimated at an annual cost of C$0.3 million or C$0.29/t per tonne milled.

21.3.3.6 Maintenance

The process plant annual maintenance costs, excluding labour, were factored from the mechanical equipment cost with an average 4% factor. These costs are estimated at C$2.4 million or C$0.39/t per tonne milled.

21.3.3.7 Mobile Equipment

The process plant mobile equipment operating costs are based on an estimate of mobile equipment and light vehicles required for operation, including fuel, maintenance, and all other spares and consumables. The annual costs are estimated at C$0.5 million or C$0.07/t per tonne milled.

21.3.3.8 Laboratory Services

The laboratory services cost was obtained by generating an assay requirement and unit cost based on a review of the flowsheet and benchmarking similar projects. The annual costs are estimated at C$0.2 million or C$0.03/t per tonne milled.

21.3.3.9 General & Administration

General and administrative costs are expenses not directly related to the operation of the process plant but required to support safe and effective operation of the facility and satisfy legislative requirements in some cases. These costs were developed using Ausenco's in-house data on existing operations, and include costs such as the following:

- human resources, including training, recruiting, and community relations
- site administration, maintenance, and security, including subscriptions, memberships, advertisement, office supplies and garbage disposal
- health and safety, including personal protective equipment, hospital service cost, and first aid
- environmental, including water sampling and tailings management facility operating costs
- IT & telecommunications, including hardware and support services
- contract services, including insurance, consulting, sanitation and cleaning, licence fees, and legal fees.

The annual costs are estimated at C$15.0 million or C$2.468/t per tonne milled.

22 ECONOMIC ANALYSIS

22.1 Forward-Looking Information Cautionary Statements

The results of the economic analyses discussed in this chapter represent forward-looking information as defined under Canadian securities law. The results depend on inputs that are subject to known and unknown risks, uncertainties, and other factors that may cause actual results to differ materially from those presented here.

Information that is forward-looking includes the following:

- mineral resource estimates
- assumed commodity prices and exchange rates
- proposed mine production plan
- projected mining and process recovery rates
- assumptions regarding mining dilution and estimated future production
- sustaining costs and proposed operating costs
- assumptions regarding closure costs and closure requirements
- assumptions regarding environmental, permitting, and social risks.

Additional risks to the forward-looking information include the following:

- changes to costs of production from what is assumed
- unrecognized environmental risks
- unanticipated reclamation expenses
- unexpected variations in quantity of mineralized material, grade, or recovery rates
- accidents, labour disputes, and other risks of the mining industry
- geotechnical or hydrogeological considerations during mining being different from what was assumed
- failure of mining methods to operate as anticipated
- failure of plant, equipment, or processes to operate as anticipated
- changes to assumptions as to the availability of electrical power, and the power rates used in the operating cost estimates and financial analysis

- changes to site access, use of water for mining purposes, and to time to obtain environment and other regulatory permits
- ability to maintain the social licence to operate
- changes to interest rates
- changes to tax rates.

Readers are cautioned that a preliminary economic analysis is preliminary in nature. It 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 PEA will be realized.

Mineral resources are not mineral reserves and do not have demonstrated economic viability.

22.2 Methodologies Used

The project was evaluated using a discounted cash flow analysis based on a 5% discount rate. Cash inflows consisted of annual revenue projections. Cash outflows consisted of capital expenditures, including pre-production costs; operating costs; treatment, refining and transport costs; taxes; and royalties. These were subtracted from the inflows to arrive at the annual cash flow projections.

Cash flows were taken to occur at the midpoint of each period. It must be noted that tax calculations involve complex variables that can only be accurately determined during operations and as such, actual post-tax results may differ from estimates. A sensitivity analysis was performed to assess the impact of variations in gold price, discount rate, exchange rate, capital costs, operating costs, mill head grades, and mill recoveries.

The capital and operating cost estimates are presented in Section 21 in Q1 2023 Canadian dollars. The economic analysis was run based on a constant dollar value with no inflation.

22.3 Financial Model Parameters

The economic analysis was performed assuming a gold price of US$1,600/oz, which was based on consensus analyst estimates. The forecasts are meant to reflect the average metals price expectation over the life of the project. No price inflation or escalation factors were taken into account. Commodity prices can be volatile, and there is the potential for deviation from the forecast.

The economic analysis also used the following assumptions:

- Construction will take 12 months.
- The project has a mine life of 11.2 years (last is a partial year), not including one year of preproduction.
- The results are based on 100% ownership.
- The project will be capital cost funded with 100% equity (no financing cost assumed).
- All cash flows are discounted to the start of construction using a mid-period discounting convention.

- All metal products will be sold in the same year they are produced.
- Project revenue will be derived from the sale of gold doré.
- No contractual arrangements for refining currently exist.

22.3.1 Taxes

The project has been evaluated on an after-tax basis to provide an approximate value of the potential economics. The tax model was compiled with assistance from third-party taxation professionals.

The calculations are based on the tax regime in place as of the date of the preliminary economic analysis. At the effective date of the cashflow, the project was assumed to be subject to the following tax regime:

- The project, located in the Northwest Territories, is subject to a combined (federal and territorial) income tax rate of 26.5%.
- Northwest Territories Mining Regulations require the payment of royalty taxes based on a "sliding scale" between 5% to 14% based on the output of the mine. A mine output of C$10,000 triggers 5% in royalty taxes and an output of C$45 million (and above) qualifies for the maximum 14% royalty tax rate.

At the base case gold price assumption, total tax payments are estimated to be C$938 million over the life of mine.

22.3.2 Working Capital

An estimation of working capital has been incorporated into the economic analysis based on the following assumptions:

- Accounts Receivable..0 days
- Inventories.. 30 days
- Accounts Payable .... 30 days

22.3.3 Closure Costs and Salvage Value

Closure costs and salvage value are applied at the end of the life of mine. Closure costs were estimated to be C$50 million, and salvage value was estimated to be C$32 million.

22.3.4 Royalties

There is a minor 2.5% net smelter royalty (NSR) on the Kim and Cass Properties. The NSR agreement gives Nighthawk Gold the right to buy back 100% of the NSR for C$2.5 million, which the Company intends to execute before the commencement of potential commercial production. For the purposes of the economic analysis, this royalty buyback has been assumed to take place prior to production.

22.4 Economic Analysis

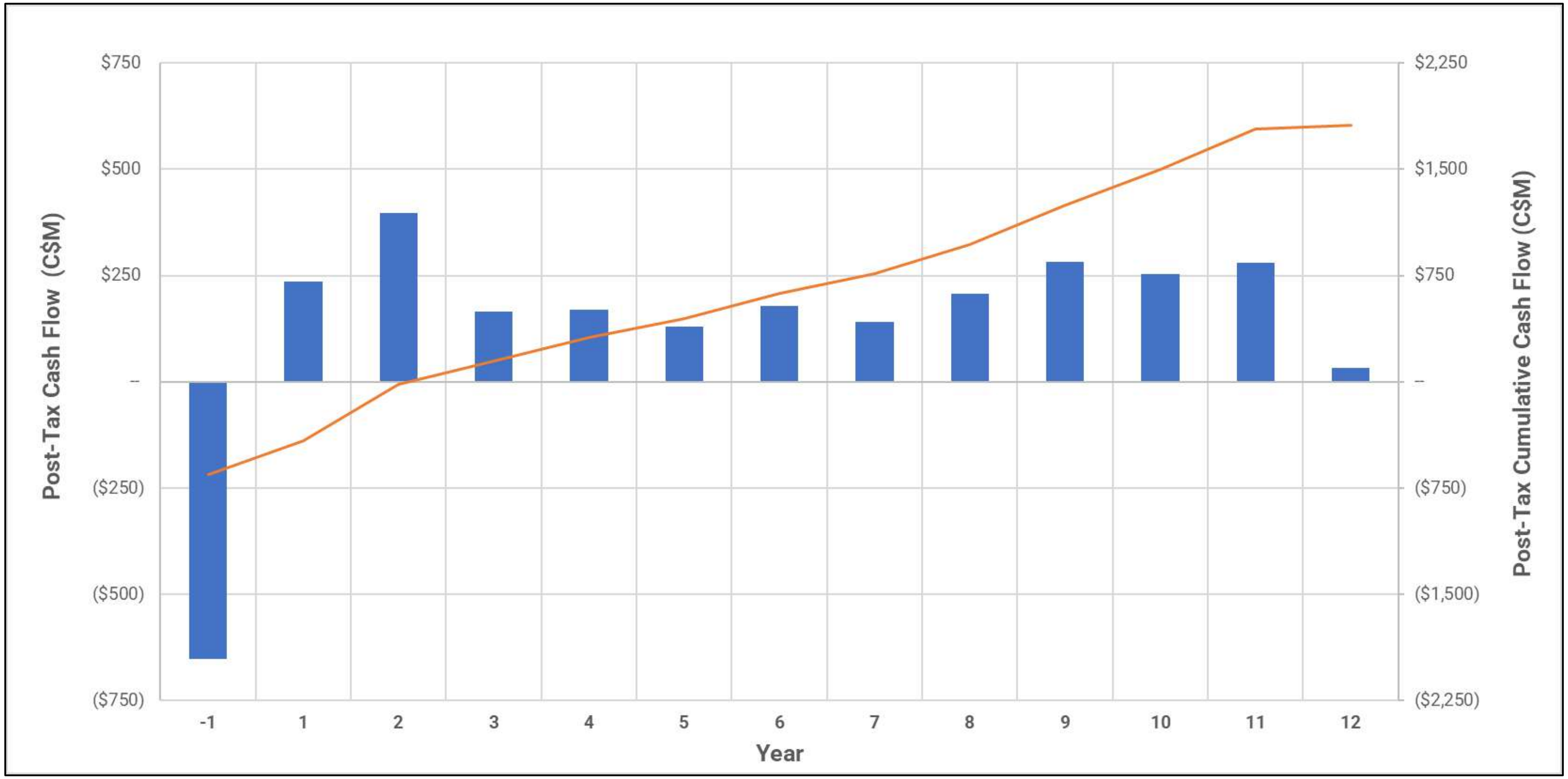
The pre-tax NPV discounted at 5% is C$1,800 million; the IRR is 42.4%; and payback period is 2.1 years. On a post-tax basis, the NPV discounted at 5% is C$1,170 million; the IRR is 34.6%; and payback period is 2.1 years. A summary of project economics is summarized in Table 22-1 and illustrated in Figure 22-1. The analysis was done on an annual cashflow basis; the cashflow output is shown Table 22-2.

Table 22-1: Economic Analysis Summary

General	Unit	Value
Gold Price	US$/oz	1,600
Exchange Rate	CAD:USD	0.74
Mine Life	years	11.2
Total Waste Tonnes Mined	kt	554,128
Total Mill Feed Tonnes	kt	67,203
Open Pit Strip Ratio	w:o	9.0
Production		
Mill Head Grade	g/t	1.57
Mill Recovery Rate	%	96.3%
Total Mill Ounces Recovered	koz	3,257
Total Average Annual Payable Production	koz	290
Operating Costs		
Open Pit Mining Cost	C$/t mined	2.49
Underground Mining Cost	C$/t mined	115.0
Overall Mining Cost (Open Pit and Underground)	C$/t mined	3.5
Overall Mining Cost (Open Pit and Underground)	C$/t milled	32.5
Processing Cost	C$/t milled	8.9
General & Administrative Cost	C$/t milled	2.5
Total Operating Costs	C$/t milled	43.9
Refining, Treatment & Transportation Cost	C$/oz	2.4
Net Smelter Royalty	%	0.0%
Cash Costs[1]	US$/oz Au	673
All-In Sustaining Costs[2]	US$/oz Au	828
All-In Costs[3]	US$/oz Au	977
Capital Costs		
Initial Capital	C$M	654
Sustaining Capital	C$M	665
Closure Costs	C$M	50
Salvage Costs	C$M	32
Financials – Pre-Tax		
Net Present Value (5%)	C$M	1,800
Internal Rate of Return	%	42.4%
Payback	years	2.1
Financials – Post-Tax		
Net Present Value (5%)	C$M	1,170
Internal Rate of Return	%	34.6%
Payback	years	2.1

Note: 1. Cash costs consist of mining costs, processing costs, mine-level G&A and refining charges. 2. All-in sustaining costs include cash costs plus sustaining capital, closure costs and salvage value. 3. All-In Costs consists of all-in sustaining costs plus initial capital.

Figure 22-1: Projected Life of Mine Post-Tax Unlevered Free Cash Flow



Source: Ausenco, 2023.

Table 22-2: Cash Flow Forecast on an Annual Basis

Dollar Figures in Real 2023 CAD unless Otherwise Noted Macro Assumptions	Units	Total / Avg.	Y-1	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13
Gold Price - Flat	US$/oz	$1,600	$0	$1,600	$1,600	$1,600	$1,600	$1,600	$1,600	$1,600	$1,600	$1,600	$1,600	$1,600	$1,600	$0
Exchange Rate	USD:CAD	$0.74	$0.00	$0.74	$0.74	$0.74	$0.74	$0.74	$0.74	$0.74	$0.74	$0.74	$0.74	$0.74	$0.74	$0.00
Free Cash Flow Valuation																
Revenue	**C$M**	**$7,039**	--	$600	$736	$714	$661	$616	$633	$595	$585	$629	$585	$540	$144	--
Operating Cost	C$M	($2,952)	--	($236)	($267)	($304)	($320)	($334)	($341)	($325)	($271)	($233)	($180)	($119)	($22)	--
Refining Charges	C$M	($8)	--	($1)	($1)	($1)	($1)	($1)	($1)	($1)	($1)	($1)	($1)	($1)	($0)	--
Royalties	C$M	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EBITDA	**C$M**	**$4,080**	**--**	**$364**	**$469**	**$409**	**$341**	**$282**	**$292**	**$269**	**$313**	**$395**	**$404**	**$421**	**$122**	**--**
Initial Capex	C$M	($654)	($654)	--	--	--	--	--	--	--	--	--	--	--	--	--
Sustaining Capex	C$M	($665)	--	($125)	($72)	($119)	($106)	($85)	($53)	($51)	($38)	($12)	($6)	--	--	--
Closure Capex	C$M	($50)	--	--	--	--	--	--	--	--	--	--	--	--	($50)	--
Salvage Value	C$M	$32	--	--	--	--	--	--	--	--	--	--	--	--	$32	--
Royalty Buyback	C$M	($3)	--	($3)	--	--	--	--	--	--	--	--	--	--	--	--
Change in Working Capital	C$M	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pre-Tax Unlevered Free Cash Flow	**C$M**	**$2,740**	**($654)**	**$237**	**$396**	**$290**	**$235**	**$197**	**$239**	**$218**	**$276**	**$383**	**$399**	**$421**	**$104**	**--**
Pre-Tax Cumulative Unlevered Free Cash Flow	C$M		($654)	($417)	($21)	$269	$504	$701	$940	$1,158	$1,434	$1,817	$2,216	$2,636	$2,740	$2,740
Unlevered Cash Taxes	C$M	($938)	--	--	--	($124)	($65)	($67)	($62)	($77)	($69)	($102)	($146)	($141)	($72)	($12)
Post-Tax Unlevered Free Cash Flow	**C$M**	**$1,802**	**($654)**	**$237**	**$396**	**$166**	**$170**	**$130**	**$177**	**$141**	**$206**	**$281**	**$252**	**$279**	**$31**	**($12)**
Post-Tax Cumulative Unlevered Free Cash Flow	C$M		($654)	($417)	($21)	$145	$315	$445	$622	$763	$969	$1,251	$1,503	$1,782	$1,813	$1,802
Production																
Total Resource Mined - Underground	kt	5,910	--	521	644	638	630	619	611	603	590	635	349	71	--	--
Total Resource Mined - Open Pit	kt	61,293	--	4,879	5,456	5,462	5,470	5,481	5,489	5,497	5,510	5,465	5,751	5,567	1,266	--
Total Waste - Open Pit	kt	554,128	12,276	41,978	47,751	74,094	75,581	76,549	73,741	72,035	43,600	19,457	11,729	5,211	127	--
Strip Ratio - Open Pit	w:o	9.04	--	8.60	8.75	13.56	13.82	13.97	13.43	13.10	7.91	3.56	2.04	0.94	0.10	--
Total Material Mined	kt	621,331	12,276	47,378	53,851	80,194	81,681	82,649	79,841	78,135	49,700	25,557	17,829	10,848	1,393	--
Mill Feed	kt	67,203	--	5,400	6,100	6,100	6,100	6,100	6,100	6,100	6,100	6,100	6,100	5,637	1,266	--
Mill Head Grade (Au)	g/t	1.57	--	1.66	1.80	1.74	1.62	1.51	1.55	1.46	1.44	1.54	1.44	1.44	1.69	--
Contained (Au)	koz	3,382	--	288	352	342	317	296	304	286	282	302	282	260	69	--
Mill Recovery (Au)	%	96.30%	--	96.48%	96.63%	96.58%	96.42%	96.23%	96.31%	96.12%	96.06%	96.28%	96.06%	96.06%	96.52%	--
Gold Production	koz	3,257	--	278	341	330	306	285	293	275	271	291	271	250	66	--
Gold % Payable	%	99.95%	--	99.95%	99.95%	99.95%	99.95%	99.95%	99.95%	99.95%	99.95%	99.95%	99.95%	99.95%	99.95%	--
Payable Gold	**koz**	**3,256**	**--**	**278**	**340**	**330**	**306**	**285**	**293**	**275**	**270**	**291**	**271**	**250**	**66**	**--**
Total Revenue	**C$M**	**$7,039**	**--**	**$600**	**$736**	**$714**	**$661**	**$616**	**$633**	**$595**	**$585**	**$629**	**$585**	**$540**	**$144**	**--**
Operating Costs																
Total Operating Costs	**C$M**	**$2,952**	**--**	**$236**	**$267**	**$304**	**$320**	**$334**	**$341**	**$325**	**$271**	**$233**	**$180**	**$119**	**$22**	**--**
Mine Operating Costs - Open Pit	C$M	$1,504	--	$111	$123	$162	$178	$193	$201	$187	$134	$91	$71	$45	$7	--
Mine Operating Costs - Underground	C$M	$680	--	$60	$74	$73	$72	$71	$70	$69	$68	$73	$40	$8	--	--
Mill Processing	C$M	$600	--	$49	$54	$54	$54	$54	$54	$54	$54	$54	$54	$51	$11	--
G&A Costs	C$M	$168	--	$15	$15	$15	$15	$15	$15	$15	$15	$15	$15	$15	$3	--
Operating Costs per Tonne Processed	C$/t Milled	$43.92	--	$43.62	$43.72	$49.90	$52.39	$54.76	$55.83	$53.35	$44.39	$38.27	$29.51	$21.15	$17.20	--
Refining & Royalties																
Treatment and Refining Charges	C$M	$8	--	$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	$0	--
Royalties	C$M	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Cash Costs																
Cash Cost *	US$/oz Au	$673	--	$636	$582	$684	$775	$869	$862	$877	$743	$596	$494	$355	$244	--
All-in Sustaining Cost (AISC) **	US$/oz Au	$828	--	$969	$738	$950	$1,032	$1,089	$995	$1,013	$846	$625	$510	$355	$444	--
Capital Expenditures																
Initial Capital	C$M	$654	$654	--	--	--	--	--	--	--	--	--	--	--	--	--
Mining	C$M	$161	$161	--	--	--	--	--	--	--	--	--	--	--	--	--
Processing	C$M	$160	$160	--	--	--	--	--	--	--	--	--	--	--	--	--
On-Site Infrastructure	C$M	$170	$170	--	--	--	--	--	--	--	--	--	--	--	--	--
Off-Site Infrastructure	C$M	$9	$9	--	--	--	--	--	--	--	--	--	--	--	--	--
Project Indirects	C$M	$15	$15	--	--	--	--	--	--	--	--	--	--	--	--	--
Project Delivery	C$M	$35	$35	--	--	--	--	--	--	--	--	--	--	--	--	--
Owners Costs	C$M	$9	$9	--	--	--	--	--	--	--	--	--	--	--	--	--
Contingency	C$M	$96	$96	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Sustaining Capital	C$M	$665	--	$125	$72	$119	$106	$85	$53	$51	$38	$12	$6	--	--	--
Mining	C$M	$547	--	$94	$59	$92	$91	$66	$44	$48	$36	$11	$6	--	--	--
Infrastructure Costs	C$M	$86	--	$25	$10	$21	$10	$15	$6	--	--	--	--	--	--	--
Contingency	C$M	$32	--	$6	$3	$6	$5	$4	$3	$2	$2	$1	$0	--	--	--
Closure Cost	C$M	$50	--	--	--	--	--	--	--	--	--	--	--	--	$50	--
Salvage Value	C$M	$32	--	--	--	--	--	--	--	--	--	--	--	--	$32	--
Total Capital Expenditures Including Salvage Value	C$M	$1,337	$654	$125	$72	$119	$106	$85	$53	$51	$38	$12	$6	--	$18	--

Note: * Cash costs consist of mining costs, processing costs, mine-level G&A and refining charges. ** AISC includes cash costs plus sustaining capital, closure cost and salvage value.

22.5 Sensitivity Analysis

A sensitivity analysis was conducted on the base case pre-tax and post-tax NPV, IRR of the project, using the following variables: gold price, discount rate, exchange rate, capital costs, operating costs, mill head grades, and mill recoveries.

Table 22-3 shows the pre-tax sensitivity analysis results; post-tax sensitivity results are shown in Table 22-4.

Table 22-3: Pre-Tax Sensitivity Analysis

Pre-Tax NPV (C$M) Sensitivity to Capex and Opex Change

Opex Change \ Total Capex Change	(20.0%)	(10.0%)	--	10.0%	20.0%
(20.0%)	$2,477	$2,360	$2,242	$2,124	$2,006
(10.0%)	$2,256	$2,139	$2,021	$1,903	$1,785
--	$2,035	$1,917	$1,800	$1,682	$1,564
10.0%	$1,814	$1,696	$1,579	$1,461	$1,343
20.0%	$1,593	$1,475	$1,358	$1,240	$1,122

Pre-Tax IRR Sensitivity to Capex and Opex Change

Opex Change \ Total Capex Change	(20.0%)	(10.0%)	--	10.0%	20.0%
(20.0%)	68.1%	58.6%	51.1%	44.9%	39.7%
(10.0%)	62.8%	53.9%	46.8%	40.9%	36.1%
--	57.5%	49.1%	42.4%	36.9%	32.3%
10.0%	52.0%	44.2%	37.9%	32.8%	28.6%
20.0%	46.5%	39.2%	33.4%	28.7%	24.7%

Pre-Tax NPV (C$M) Sensitivity to Head Grade and Recovery Change

Mill Recovery \ Head Grade Change	(10.0%)	(5.0%)	--	5.0%	10.0%
98.0%	$1,360	$1,625	$1,889	$2,154	$2,418
Base	$1,264	$1,532	$1,800	$2,066	$2,332
95.0%	$1,215	$1,471	$1,728	$1,984	$2,240
92.5%	$1,093	$1,343	$1,593	$1,842	$2,092

Pre-Tax IRR Sensitivity to Head Grade and Recovery Change

Mill Recovery \ Head Grade Change	(10.0%)	(5.0%)	--	5.0%	10.0%
98.0%	33.4%	38.7%	44.0%	49.3%	54.6%
Base	31.6%	37.0%	42.4%	47.7%	53.0%
95.0%	30.4%	35.6%	40.8%	45.9%	51.0%
92.5%	27.9%	33.0%	38.1%	43.1%	48.1%

Pre-Tax NPV (C$M) Sensitivity to Discount Rate and Gold Price

Discount Rate \ Gold Price	$1,300	$1,400	$1,600	$1,672	$2,000
1.0%	$1,276	$1,689	$2,515	$2,812	$4,166
3.0%	$1,028	$1,393	$2,124	$2,387	$3,585
5.0%	$824	$1,149	$1,800	$2,034	$3,101
8.0%	$582	$858	$1,411	$1,610	$2,516
10.0%	$454	$703	$1,202	$1,382	$2,200

Pre-Tax IRR Sensitivity to Discount Rate and Gold Price

Discount Rate \ Gold Price	$1,300	$1,400	$1,600	$1,672	$2,000
1.0%	22.5%	29.2%	42.4%	47.1%	68.1%
3.0%	22.5%	29.2%	42.4%	47.1%	68.1%
5.0%	22.5%	29.2%	42.4%	47.1%	68.1%
8.0%	22.5%	29.2%	42.4%	47.1%	68.1%
10.0%	22.5%	29.2%	42.4%	47.1%	68.1%

Pre-Tax NPV (C$M) Sensitivity to FX and Gold Price

FX (CAD/USD) Change \ Gold Price	$1,300	$1,400	$1,600	$1,672	$2,000
(20.0%)	$1,881	$2,288	$3,101	$3,394	$4,728
(10.0%)	$1,294	$1,655	$2,378	$2,638	$3,824
--	$824	$1,149	$1,800	$2,034	$3,101
10.0%	$439	$735	$1,327	$1,539	$2,510
20.0%	$119	$390	$932	$1,127	$2,017

Pre-Tax IRR Sensitivity to FX and Gold Price

FX (CAD/USD) Change \ Gold Price	$1,300	$1,400	$1,600	$1,672	$2,000
(20.0%)	44.0%	52.1%	68.1%	73.8%	99.3%
(10.0%)	32.1%	39.5%	53.9%	59.1%	82.1%
--	22.5%	29.2%	42.4%	47.1%	68.1%
10.0%	14.4%	20.6%	32.8%	37.1%	56.5%
20.0%	7.6%	13.4%	24.7%	28.7%	46.7%

Table 22-4: Post-Tax Sensitivity Analysis

Post-Tax NPV (C$M) Sensitivity to Capex and Opex Change

Opex Change \ Total Capex Change	(20.0%)	(10.0%)	--	10.0%	20.0%
(20.0%)	$1,621	$1,540	$1,457	$1,374	$1,292
(10.0%)	$1,479	$1,396	$1,313	$1,231	$1,148
--	$1,335	$1,252	$1,170	$1,087	$1,004
10.0%	$1,191	$1,109	$1,026	$943	$860
20.0%	$1,048	$965	$882	$799	$716

Post-Tax IRR Sensitivity to Capex and Opex Change

Opex Change \ Total Capex Change	(20.0%)	(10.0%)	--	10.0%	20.0%
(20.0%)	56.6%	48.5%	41.8%	36.5%	32.2%
(10.0%)	52.3%	44.4%	38.2%	33.3%	29.2%
--	47.7%	40.3%	34.6%	30.0%	26.2%
10.0%	43.0%	36.2%	31.0%	26.7%	23.2%
20.0%	38.3%	32.2%	27.3%	23.4%	20.1%

Post-Tax NPV (C$M) Sensitivity to Head Grade and Recovery Change

Mill Recovery \ Head Grade Change	(10.0%)	(5.0%)	--	5.0%	10.0%
98.0%	$883	$1,056	$1,228	$1,400	$1,573
Base	$821	$995	$1,170	$1,343	$1,516
95.0%	$788	$956	$1,123	$1,289	$1,456
92.5%	$709	$872	$1,035	$1,197	$1,360

Post-Tax IRR Sensitivity to Head Grade and Recovery Change

Mill Recovery \ Head Grade Change	(10.0%)	(5.0%)	--	5.0%	10.0%
98.0%	27.3%	31.6%	36.0%	40.4%	44.9%
Base	25.8%	30.2%	34.6%	39.0%	43.5%
95.0%	24.9%	29.1%	33.3%	37.5%	41.8%
92.5%	22.9%	27.0%	31.1%	35.2%	39.3%

Post-Tax NPV (C$M) Sensitivity to Discount Rate and Gold Price

Discount Rate \ Gold Price	$1,300	$1,400	$1,600	$1,672	$2,000
1.0%	$856	$1,121	$1,651	$1,842	$2,711
3.0%	$678	$916	$1,389	$1,559	$2,333
5.0%	$532	$745	$1,170	$1,322	$2,016
8.0%	$356	$540	$905	$1,036	$1,631
10.0%	$263	$430	$762	$881	$1,422

Post-Tax IRR Sensitivity to Discount Rate and Gold Price

Discount Rate \ Gold Price	$1,300	$1,400	$1,600	$1,672	$2,000
1.0%	18.4%	23.8%	34.6%	38.5%	56.2%
3.0%	18.4%	23.8%	34.6%	38.5%	56.2%
5.0%	18.4%	23.8%	34.6%	38.5%	56.2%
8.0%	18.4%	23.8%	34.6%	38.5%	56.2%
10.0%	18.4%	23.8%	34.6%	38.5%	56.2%

Post-Tax NPV (C$M) Sensitivity to FX and Gold Price

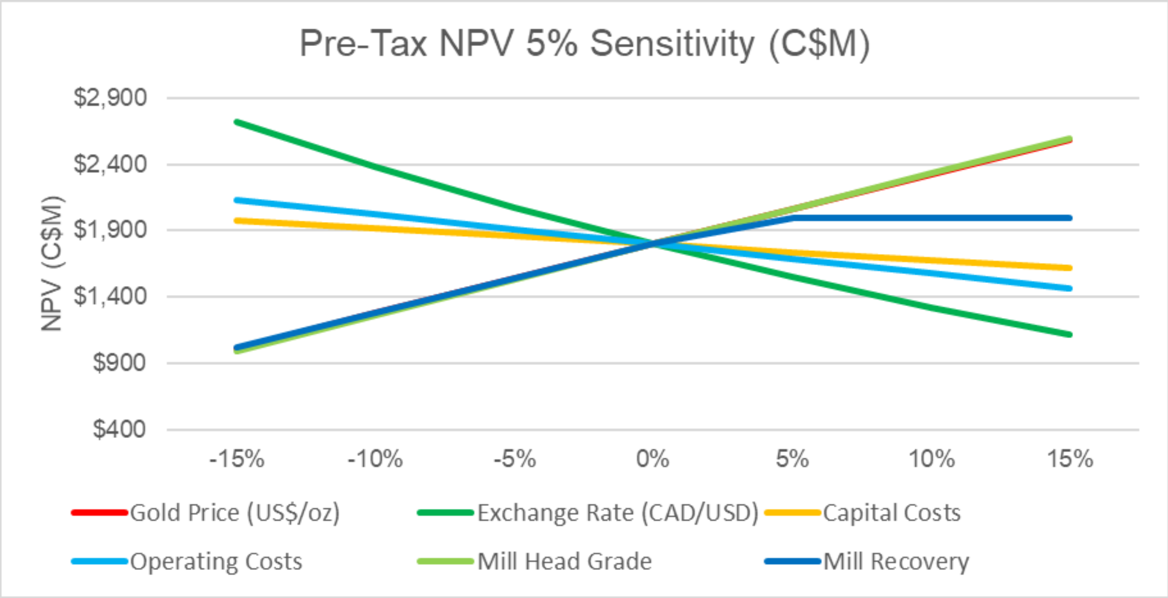
FX (CAD/USD) Change \ Gold Price	$1,300	$1,400	$1,600	$1,672	$2,000
(20.0%)	$1,222	$1,488	$2,016	$2,206	$3,071
(10.0%)	$840	$1,076	$1,546	$1,716	$2,485
--	$532	$745	$1,170	$1,322	$2,016
10.0%	$275	$473	$861	$1,000	$1,632
20.0%	$51	$242	$603	$731	$1,311

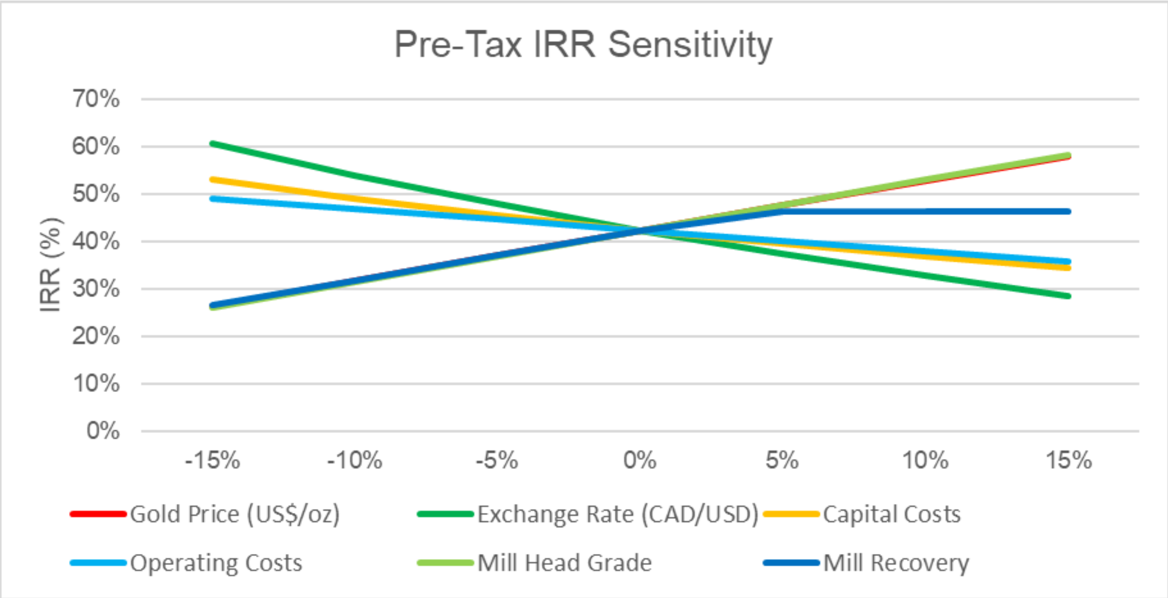
Post-Tax IRR Sensitivity to FX and Gold Price

FX (CAD/USD) Change \ Gold Price	$1,300	$1,400	$1,600	$1,672	$2,000
(20.0%)	35.9%	42.8%	56.2%	61.0%	82.7%
(10.0%)	26.2%	32.2%	44.3%	48.7%	68.0%
--	18.4%	23.8%	34.6%	38.5%	56.2%
10.0%	11.8%	16.9%	26.8%	30.3%	46.6%
20.0%	6.2%	11.0%	20.2%	23.5%	38.2%

As presented in Figures 22-2 and 22-3, the sensitivity analysis shows the project is most sensitive to changes in gold price, foreign exchange, mill recovery, and head grade.

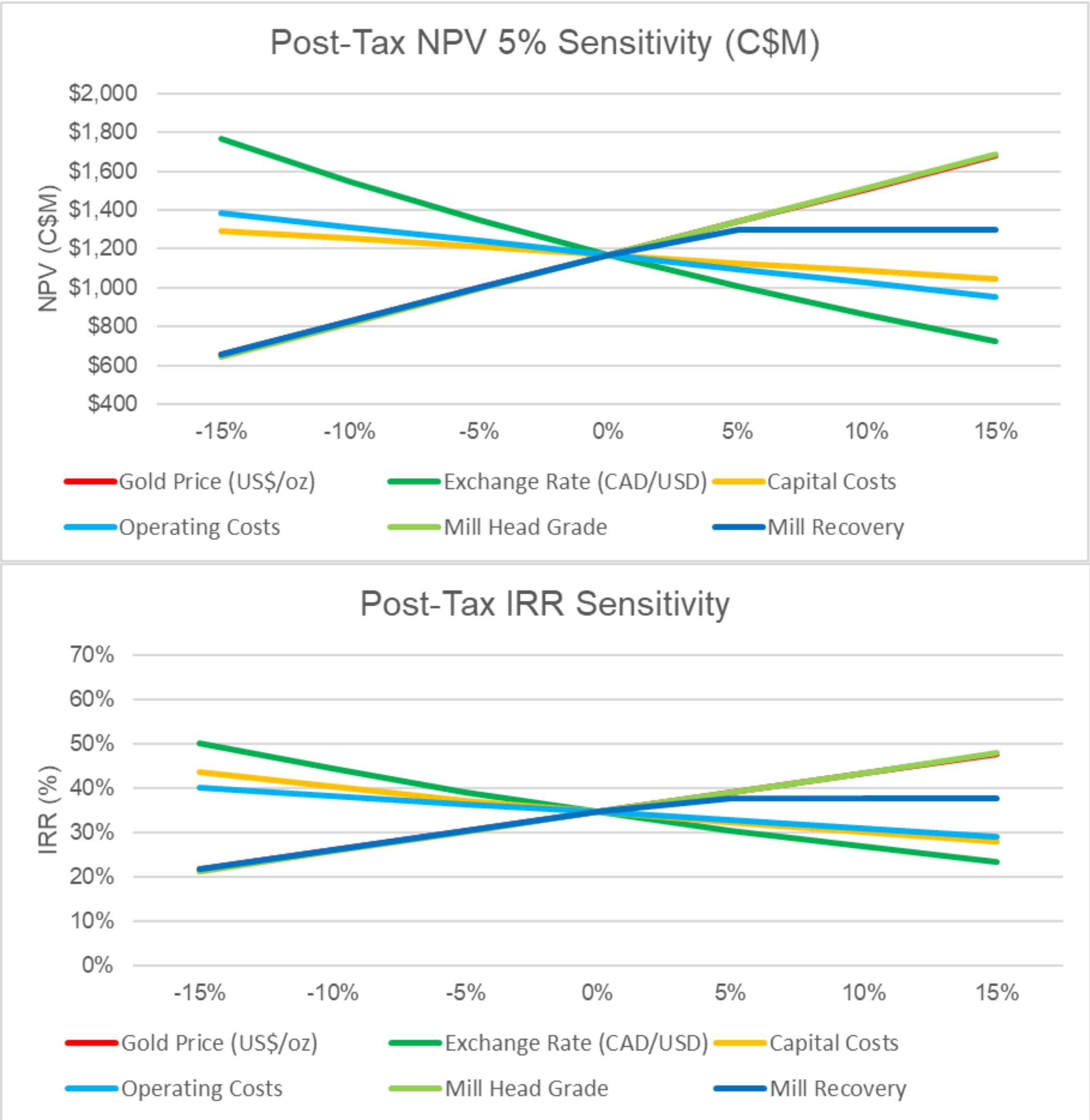
Figure 22-2: Pre-Tax NPV, IRR Sensitivity Results





Source: Ausenco, 2023.

Figure 22-3: Post-Tax NPV, IRR Sensitivity Results



Source: Ausenco, 2023.

23 ADJACENT PROPERTIES

At the effective date of this report, the Northwest Territories Geological Survey (NTGS) database does not contain any records for mineral exploration properties in the areas adjacent to the property that could influence the findings of this report.

All the information presented in this section comes from the public domain and has not been verified by the author. Information on nearby mines and deposits is not necessarily indicative that the property hosts similar types of mineralization.

The property is located approximately 125 km northeast of the NICO (Co-Au-Bi-Cu) and Sue-Dianne (Cu-Ag-Ag) deposits owned by Fortune Minerals Limited (Fortune, TSX: FT). Both deposits have been described as the only known significant Canadian examples of iron oxide copper gold style of mineralization, having similarities with the Olympic Dam deposit in Australia.

According to the NWT mineral exploration review conducted by the NTGS in 2018 (Falck et al., 2018), an active gold project, Luna 2, is located approximately 25 to 30 km east of the Colomac property and approximately 20 km north-northwest of the community of Wekweètì. The Luna 2 project was part of the 2017 Mining Incentive Program for prospectors. No additional information is available.

24 OTHER RELEVANT DATA AND INFORMATION

There is no other relevant data or information.

25 INTERPRETATION AND CONCLUSIONS

25.1 Mineral Tenure, Surface Rights, Water Rights, Royalties and Agreements

The authors recommend an environmental baseline study be part of the planning process. The authors also recommend continuing to maintain a pro-active and transparent strategy and communication plan with local communities and First Nations.

25.2 Mineral Processing and Metallurgical Testwork

Four metallurgical testing campaigns between 2016 and 2019 were conducted to quantify the metallurgical performance of the Colomac Main deposit, which is the major mineralized zone in the Colomac Gold property area. A sample from the Goldcrest deposit was tested as well. Several processing options including flotation, gravity concentration and cyanidation were considered.

All samples were found to be amenable to grinding through conventional SAG and ball mill grinding. The samples exhibited free milling gold recoveries amenable to gravity concentration, flotation, and cyanide leaching.

Gravity concentration and cyanide leaching at a grind size k_{80} of 150 µm was determined to be the optimum process option for this deposit. There is no evidence of any deleterious elements that would impair recovery or result in low quality doré. Gold recoveries are expected to be greater than 96% at design and average life-of-mine grades.

25.3 Mineral Resource Estimation

After conducting a detailed review of all pertinent information and completing the 2023 MRE mandate, the authors concluded the following:

- The database supporting the 2023 MRE is complete, valid and up to date.
- Geological and gold grade continuity has been demonstrated for all 115 mineralized zones and five low-grade envelopes.
- The key parameters of the 2023 MRE (density, capping, compositing, interpolation, search ellipsoid, etc.) are supported by data and statistical and/or geostatistical analysis.
- The 2023 MRE includes indicated and inferred mineral resources for a combination of three mining methods: open pit, underground bulk and underground room and pillar.
- Three cut-off grades were used: 0.45 to 0.57 g/t Au; 1.02 to 1.50 g/t Au; and 1.66 g/t Au. They respectively correspond to potential open pit, underground bulk and underground room-and-pillar mining scenarios.
- Cut-off grades were calculated at a gold price of US$1,660 per troy ounce, an exchange rate of 1.33 USD/CAD, and reasonable mining, processing and G&A costs.
- In a combined pit and bulk underground mining scenario, the Colomac property contains an estimated indicated mineral resource of 70,432,000 t at 1.50 g/t Au for 3,387,000 ounces of gold and an inferred mineral resource of 24,434,000 t at 2.17 g/t Au for 1,702,000 ounces of gold. 83% of the estimated indicated mineral resource is pit constrained.

- The results of the MRE 2023 represent a 26% increase in total indicated mineral resource estimate ounces and a 28% increase in the total inferred resource estimate ounces compared to the previous 2022 MRE (lund et al., 2022). This increase is mainly due to the adjustment of the economic parameters to reflect current economic condition; the addition of 40,086 m (182 drill holes) of drilling since the last MRE at the Colomac Main, Grizzly Bear, 24/27, Kim and Cass deposits, and the optimization of the interpolation parameters for the Colomac Main and Cass deposits.
- Based on preliminary metallurgical testwork, the Colomac Main deposit appears amenable to standard gold recovery processes. A combination of gravity and cyanide leach processes has shown a gold recovery ranging from 96.3% to 98.0%. However, no optimization or economic studies have been conducted to determine which potential process flowsheet is most appropriate.
- Additional diamond drilling on multiple zones could potentially upgrade some of the inferred mineral resource to the Indicated category and potentially add to the inferred mineral resource since most of the mineralized zones have not been fully explored along strike or to depth.

While the Colomac Main, Leta Arm Group, Treasure Island, Kim, Cass and Damoti Lake areas are at a more advanced stage of exploration, the majority of the property remains at an early stage of exploration.

The mineral resources defined in this section are not mineral reserves. Mineral resources that are not mineral reserves do not have demonstrated economic viability. The estimate of mineral resources may be materially affected by environmental, permitting, legal, title, market or other relevant issues.

25.4 Mining

Reasonable open pit and underground mine plans, mine production schedules, and mine capital and operating costs have been developed for the project.

Mine layouts and mine operations are typical of other regional open pit and underground precious metal operations, and the unit operations within the developed mine operating plan are proven to be effective for these other operations.

The mine plan and estimated mine capital and operations costs are reasonable at a scoping level of engineering and support the cash flow model and financials developed for this technical report.

25.5 Recovery Methods

The process plant is designed to process material at a rate of 6.1 Mt/a (16,715 t/d) to produce doré. The process plant flowsheet designs were based on testwork results and industry-standard practices. The flowsheet was developed for optimum recovery while minimizing capital expenditure and life-of-mine operating costs. The process methods are conventional to the industry. The comminution and recovery processes are widely used with no significant elements of technological innovation.

25.6 Project Infrastructure

25.6.1 General Project Infrastructure

The Colomac Gold Project is currently only accessed by a winter road. All-season roads within the project boundaries were built during the last project phase and exploration phases; these will be upgraded during pit exploitation. Access to site is also currently possible via an airstrip, which will need to be relocated once excavation begins on the Colomac pit. A hanger and small terminal will be built adjacent to the new airstrip to accommodate maintenance and passenger travel.

A study was conducted during the PEA phase of the study on the power source being a hybrid of renewable energy and diesel. The assumption is for 60% of the power to come from the site power to be provided by solar and wind power and the remaining 40% from diesel. During the project life cycle, nine months of fuel storage will be required due to seasonal access to site.

Other site infrastructure will include site offices, a 350-person accommodations facility, warehouses, gold room, maintenance buildings, gatehouse, stockpile covers, truck shop and truck wash.

25.6.2 Tailings Management Facility

The tailings storage for the project includes an above-ground TMF with containment embankments ranging from 4 m to 31 m and the mined-out Grizzly Bear open pits for a life-of-mine storage capacity of 67.2 Mt. Both facilities have been designed to NWT and CDA guidelines. Tailings will be slurried from the process plant to the TMF and Grizzly Bear open pits by way of a pipeline, which would extend two-thirds around each facility to evenly deposit tailings over each site. A water reclaim system has been designed to reclaim excess slurry water, rainfall runoff, and snowmelt for process water.

25.6.3 Water Management Facility

Water management facilities include diversion ditches, collection ditches, collection ponds, and diversion dams all accommodating a 1:100-year peak flow. Specifically, a diversion for Baton Lake is required and two diversion dams were sized to separate the pits from Baton and Lex Lake.

25.7 Environmental, Permitting and Social Considerations

The proposed project has been designed to minimize infrastructure permit and new impacts. This has resulted in a design footprint that interacts with areas of historical mining operations and corresponding mine closure features that have been constructed and advanced by CIRNAC from 2000 to 2012. Discussions with CIRNAC will need to be advanced regarding the potential disturbance of existing closed facilities and any consequential security liabilities associated with post closure monitoring.

A number of limited field and screening environmental baseline studies and reports were completed by CIRNAC within the Colomac centre area to support mine closure activities for the former mine. It is noted that for some baseline studies, both seasonal and multiple years of data collection are required to support regulatory applications and the completion of these studies is a critical path for permitting.

In terms of water management, the main consideration for the project is related to changes to the flow regime of Baton Lake which will require diversion around the Colomac Main open pits and loss of fish habitat, which will require fisheries authorization and habitat compensation measures. Mine contact water around all surface facilities will be managed in accordance with regulatory requirements and tested/treated as required prior to discharge to downstream receivers.

As the project progresses through the PFS and EA/permitting stages, environmental management and monitoring plans will be required to guide the development and operation of the project and to mitigate and limit environmental impacts. These plans will be complementary to the engineered designs that will be required for the storage of tailings, waste rock, mineralized material, and conveyance/storage/treatment of mine contact water (refer to Section 18).

A socio-economic baseline study should be developed with primary data collection that includes time spent in each impacted community. A full review of regional statistics, infrastructure, social conditions, and service capacity will be required. Community input and validation of baseline results will be critical to the success of this study.

Traditional Knowledge, and its incorporation in the project design and environmental programs, will be a key requirement during the regulatory process. Traditional Knowledge studies and community workshops should be initiated early in the regulatory process so there can be meaningful integration with western science when developing environmental management programs. The availability and use of Traditional Knowledge and land use data around the project area will be dependent on the development of an information sharing agreement with Tłı̨chǫ Government and the Wek'èezhìi Renewable Resources Board (WRRB).

25.8 Capital Cost Estimates

The capital cost estimate conforms to Class 5 guidelines for a PEA-level estimate with a ±50% accuracy according to the Association for the Advancement of Cost Engineering International (AACE International). The capital cost estimate was developed in Q1 2023 Canadian dollars based on Ausenco's in-house database of projects and studies as well as experience from similar operations.

The estimates are based on the following:

- open pit and underground mining operation
- construction of a process plant
- construction of associated tailings storage and management facilities
- additional on-site and off-site infrastructure
- Owner's costs and provisions.

The total initial capital cost for the Colomac Gold Project is C$654 million; and life-of-mine sustaining costs are C$665 million. Closure costs are estimated at C$50 million, with salvage credits of C$32 million. For more information, refer to Section 21.2.

25.9 Economic Analysis

The project was evaluated using a discounted cash flow (DCF) analysis based on a 5% discount rate. Cash inflows consisted of annual revenue projections. Cash outflows consisted of capital expenditures, including pre-production costs; operating costs; treatment, refining and transport costs; taxes; and royalties. These were subtracted from the inflows to arrive at the annual cash flow projections. Cash flows were taken to occur at the mid-point of each period. The economic analysis was run on a constant dollar basis with no inflation.

The pre-tax NPV discounted at 5% is C$1,800 million; the IRR is 42.4%; and payback period is 2.1 years. On a post-tax basis, the NPV discounted at 5% is C$1,170 million; the IRR is 34.6%; and payback period is 2.1 years.

A sensitivity analysis was conducted on the base case pre-tax and post-tax NPV and IRR using the following variables: gold price, discount rate, exchange rate, capital costs, operating costs, mill head grades, and mill recoveries. The sensitivity analysis showed that the project is most sensitive to changes in gold price, foreign exchange, mill recovery and head grade.

25.10 Risks and Opportunities

25.10.1 Geology and Exploration

25.10.1.1 Risks

- Difficulty in attracting experienced professionals – The ability to attract and retain competent, experienced professionals is a key success factor. The early search for professionals will help identify and attract critical people. It may be necessary to provide accommodation for key people (not included in project costs).
- Limited density data – Tonnage might be lower than currently assumed. A possible mitigation of this risk would be to conduct additional density tests on each deposit.
- Geological models for Damoti, Kim and Cass deposits – Geological complexity and unvalidated historical hole surveys and changes in the model could have a material impact. A possible mitigation of this risk would be to conduct infill drilling to improve confidence in the continuity of mineralization and check surveys on historical holes and the historical mine portal in the Damoti area.
- Metallurgical recoveries – Metallurgical tests are preliminary. Additional metallurgical testwork is required.
- Process design is preliminary and requires more development for a pre-feasibility study:
    - Grinding equipment was selected based on available non-standard comminution test data and may be undersized if actual hardness values are higher than the design values.
    - Crushing equipment design and circulation is based on an assumed typical run-of-mine particle size distribution and may be undersized should the run-of-mine particle size distribution be coarser than the design values.
    - The gold recovery flowsheet was selected based on the metallurgical testing data available and may not be optimal. The preferred processing method (gravity + L/CIP) was based on testing at finer grind size (k_{80} 105 µm). Testing at the preferred grind (k_{80} -150 µm) is recommended.
    - Process conditions, residence times, and reagent usage may change with further testing.
    - The cyanide detoxification design is based on typical values in the absence of test data. Testing may show that additional retention time or increased reagent additions may be required to achieve the target CN_{WAD} concentration.
- Assumptions around operating costs and comminution process selection – These were influenced by the estimated power cost assuming the use of renewable energy sources. Higher cost energy sources may impact the optimal flowsheet selection.

25.10.1.2 Opportunities

Significant opportunities that could improve the economics, timing, and permitting are identified below. Further information and study are required before these opportunities can be included in the project economics.

Opportunities for geology and exploration are as follows:

- Resource development potential – Potential for additional discoveries at depth and around the deposit by drilling. Potential to convert inferred mineral resources to a higher level of confidence. Adding indicated and inferred mineral resources increases the economic value of the mining project could benefit the project.
- Surface exploration drilling – Potential for additional inferred mineral resources by drilling targets in the known extensions of the deposits. Adding inferred mineral resources increases the economic value of the mining project.
- Exploration potential – Potential to confirm known satellite targets and identify new prospects on the property.
- Validation and exploration of Kim and Cass deposits – Potential for additional resources with review, validation, and drilling on the newly optioned Kim and Cass deposits. The potential benefit could be by adding near-surface resource and converting inferred mineral resources to indicated mineral resources.
- Damoti deposit historical survey data validation – Potential to upgrade inferred mineral resources to the indicated category if historical survey data are validated by a survey campaign; adding indicated mineral resources increases the economic value of the mining project.

25.10.2 Metallurgical Testing and Recovery Methods

25.10.2.1 Risks

This study was performed with limited metallurgical testing, potentially resulting in the following:

- Grinding equipment was selected based on available non-standard comminution test data and may be undersized if actual hardness values are higher than the design values.
- Crushing equipment design and circulation is based on an assumed typical run-of-mine particle size distribution and may be undersized should the run-of-mine particle size distribution be coarser than the design values
- The gold recovery flowsheet was selected based on the metallurgical testing data available and may not be optimal. The preferred processing method (gravity + L/CIP) was based on testing at finer grind size (k_{80} 105 µm). Testing at the preferred grind (k_{80} -150 µm) is recommended.
- Process conditions, residence times, and reagent usage may change with further testing.
- The cyanide detoxification design is based on typical values in the absence of test data. Testing may show that additional retention time or increased reagent additions may be required to achieve the target CN_{WAD} concentration.

Assumptions around operating costs and comminution process selection were influenced by the estimated power cost assuming the use of renewable energy sources. Higher cost energy sources may impact the optimal flowsheet selection.

Testing to date is based on limited samples from only two deposits which comprise the majority of the material expected to be processed. Testing on samples from the other deposits may have different metallurgical characteristics than assumed for this study.

25.10.2.2 Opportunities

Further opportunities exist to confirm that the gold recovery circuit selected in this process design is optimal for the life of mine with respect to both capital and operating costs, as well as maximizing gold recovery to doré.

25.10.3 Mining

The project is at a very early stage of scoping-level engineering. Further field work, laboratory work, and modelling are required to advance the engineering to the next project stage (pre-feasibility study). It can be anticipated that advancement of the project engineering will materially alter the existing mine plan, reducing the plan's risk and identifying and exploiting the potential opportunities that arise.

Risks and opportunities to the estimated mill feed quantities, gold grades, associated waste rock quantities, and costs in this technical report include changes to the following factors and assumptions:

- metal prices
- interpretations of mineralization geometry and grade continuity in mineralization zones
- exact dimensions of voids created by historic mining
- geotechnical and hydrogeological assumptions
- operating cost assumptions and cost creep
- mine operation and process plant recoveries
- ability to access funds to finance further project engineering.

25.10.4 Infrastructure

25.10.4.1 Risks

Using renewable energy generation to replace some of the energy that would otherwise be supplied by diesel generation may pose a risk to energy reliability. This risk is mitigated in multiple ways:

- ensuring that energy for critical users will be delivered by diesel generation
- diversifying the renewable energy generation sources and installing both wind and solar plants
- ensuring that the diesel plant will have the ability to power the entirety of the site, if necessary.

25.10.4.2 Opportunities

Renewable energy reliability can be improved upon by including a battery energy storage system. Excess energy generation from wind and solar plants that would otherwise be curtailed could instead be temporarily stored in a battery.

25.10.5 Tailings Management Facility

25.10.5.1 Risks

Historical geotechnical information was not available, so geotechnical considerations for site-wide infrastructure were estimated on a limited amount of data. Therefore, the conditions may be different than those assumed, and could increase the cost of the project. A geotechnical program is recommended to develop a better understanding of permafrost conditions, geotechnical foundation conditions, and construction material properties across the site.

There was no available geotechnical information on the tailings physical and mechanical properties, so geotechnical properties were estimated. Therefore, the material properties may be different than those assumed, which could increase the overall cost of tailings storage. A geotechnical program is being recommended to have better understanding of geotechnical properties of the tailings and their settling and consolidation characteristics.

The site is located in an area of extensive discontinuous (between 50% and 90% of the area) and degrading permafrost, which results in the design of all mining infrastructure is to account for not just for the stability and deformation of earth masses, and the control of surface/subsurface/processing water and their interaction with groundwater, but also for existing and future thermal regime of potential degradation of permafrost as it may potentially affect both short-term and long-term performance of infrastructure during operations and after closure. There is current information up to 2006 for the site, so the assumptions used in the design of the facility may be different than assumed, which could affect design and construction costs. A new program in the next phase needs to be carried out to establish the presence and depths of permafrost along with looking at the future potential affects due to climate change.

25.10.5.2 Opportunities

The TMF has significant expansion capability if additional mineralization is discovered. The capital and operating costs to expand the TMF are less than constructing a new storage facility. The opportunities are as follows:

- reduction of the TMF's environmental footprint
- encapsulation of the existing TMF along with its leaking dam 1
- no effect on Steeves Lake.

25.10.6 Environmental Studies & Permitting

25.10.6.1 Risks

The main risks associated with permitting the project include the following:

- delays to schedule if there is not a timely collection of adequate environmental baseline data for the project
- lack of cooperation and support of First Nations and delays in negotiating data sharing agreements and impact benefit agreements with the Tłı̨chǫ Government and the Wek'èezhìi Renewable Resources Board (WRRB)
- unanticipated impacts to fish and fish habitat that cannot be readily compensated for, resulting in difficulties in receiving Fisheries Authorization and/or MDMER Schedule 2 amendment.

The implementation of the recommendations presented in Section 26.7 will help to quantify, qualify and mitigate these risks.

25.10.6.2 Opportunities

Opportunities for improvements to overall permitting success and associated timelines as follows:

- Cost-effective opportunities for renewable energy for the project site can be fully assessed and realized to reduce and improve the project carbon footprint.
- Timelines for completion and submission of an environmental assessment for the project can be shortened by means of expediting the execution baseline studies and associated reports.
- Early discussions with Indigenous nations on the development and implementation of Impact Benefit Agreements that potentially provide the basis for a life-of-mine partnership.

25.10.7 Capital and Operating Costs

25.10.7.1 Risks

Estimates were based on recent quotes that may not reflect actual prices at the time of project execution. These costs should be updated as market conditions change.

Reagent and consumable consumption rates were estimated based on limited testwork.

25.10.7.2 Opportunities

The reagent and consumable consumption rates can be further optimized with more testwork on the mineralized material.

The renewable energy strategy can be further detailed to reduce unit power cost on site.

25.10.8 Project Economics

25.10.8.1 Risks

The economic analysis has not considered the risk of the project to volatility in gold price, inflation, or other unexpected events that can significantly impact production, economics, and schedule.

25.10.8.2 Opportunities

The results presented in this technical report demonstrate that the project is economically viable. It is recommended to continue developing the project through additional studies, including a prefeasibility study.

26 RECOMMENDATIONS

The authors have prepared a cost estimate for the recommended work program to serve as a guideline for the next project stage (pre-feasibility study). The budget for the proposed program is presented in Table 26-1. Expenditures are estimated at C$49,221,150 including 15% for contingency.

Table 26-1: Recommended Work Program Estimate (C$)

Work Program	Budget Cost
Conversion and Exploration Drilling (50,000 m)	20,000,000
Open Pit and Underground Geotechnical and Hydrogeological Testwork and Analysis for all Eight Deposits under Consideration	15,000,000
Condemnation Drilling for Waste Rock Storage Facilities and Site Infrastructure	3,000,000
Topographic Surveys of Planned Routes to all Satellite Deposits	500,000
Portal Siting study for Colomac and Treasure Island Deposits	250,000
Drill Penetration and Blast Fragmentation Studies for Mineralized Rock and Waste Rock in all Deposits	150,000
Updated PFS Mine Engineering	150,000
Mining Related Cost Trade-off Studies	50,000
Check Survey Campaign (Historical Holes)	250,000
Geophysics Works	500,000
Tailings Facility – Geotechnical Program	931,000
Tailings Storage and Waste Rock Storage Design	190,000
Licences and Permitting	400,000
Metallurgical Testwork and Density Program	500,000
Environmental Baseline Studies	1,020 ,000
Socio-Economic, Cultural Studies and Community Engagement	180,000
Litho-Structural and Alteration Study	100,000
Geological Models and MRE Update; PFS	700, 000
Engineering Trade-offs for Optimal Recovery Method	150,000
PFS Process Plant and Infrastructure Design	500,000
Total	42,810,000
Contingency (15%) Total With Contingency	6,420,150 49,221,150

26.1 Exploration and Geology

Additional diamond drilling on multiple zones could potentially upgrade some of the inferred mineral resource to the Indicated category and potentially add to the inferred mineral resource, since most of the mineralized zones have not been fully explored along strike or to depth.

Based on the results of the 2023 MRE, the authors make the recommendations listed below by area.

26.1.1 Colomac Centre Area

- Additional exploration drilling using a regularly-spaced drill grid to satisfy inferred mineral resource category criteria. The exploration drilling should be targeted in the dip extension of the mineralized shoots identified in the litho-structural models and in the resource block models to test the potential mainly in the depth extension of the deposits, but also in the lateral extensions.

26.1.2 Damoti Area

- Additional exploration drilling along the continuity of the BIF to discover additional favourable areas for gold mineralization and additional resources. The authors suggest to target the still-open northern part of the central fold, the underexplored eastern limb of the western third fold, and more generally, areas of the BIF with a low magnetic response as a good correspondence between low magnetism, alteration and gold values has been observed in the Damoti BIF.
- Metallurgical testwork to yield a better assessment of the recovery rate and milling cost assumptions in the cut-off grade calculation for a future MRE update.
- A survey program for historical drill hole collars and access to the ramp to confirm the exact location of the drill holes. This would allow some of the inferred mineral resources to be converted to the Indicated category.

26.1.3 Kim & Cass Area

- Additional exploration drilling using a regularly-spaced drill grid to satisfy inferred mineral resource category criteria. The exploration drilling should be targeted in the dip extension of the mineralized shoots identified in the litho-structural model and in the resource block model to test the potential mainly in the depth extension of the deposit, but also in the lateral extensions.
- Metallurgical testwork to yield a better assessment of the recovery rate and milling cost assumptions in the cut-off grade calculation for a future MRE update.
- A survey program for historical drill hole collars to confirm the exact location of the drill holes. This would allow some of the inferred mineral resources to be converted to the indicated category.
- An advance litho-structural study to increase the confidence in the geological models (in progress).

26.1.4 Treasure Island Area

- Additional exploration drilling using a regularly-spaced drill grid to satisfy inferred mineral resource category criteria. The exploration drilling should be targeted in the dip extension of the mineralized shoots identified in the litho-structural model and in the resource block model to test the potential mainly in the depth extension of the deposit, but also in the lateral extensions.
- Metallurgical testwork to yield a better assessment of the recovery rate and milling cost assumptions in the cut-off grade calculation for a future MRE update.

- A survey program for historical drill-hole collars to confirm the exact location of the drill holes. This would allow some of the inferred mineral resources to be converted to the indicated category.

26.1.5 Regional Exploration

- Regional exploration drilling on the more prominent satellite targets including Albatross, Nice Lake and Leta Arm Group. Conditional upon successful drilling, it could lead to a mineral resource estimate.
- Continued regional exploration work, including drilling, on a number of regional prospects while maintaining a similar scale of activity on many of the high-profile targets with the goal of advancing known deposits and showings and making new discoveries. Particular attention should be paid to near-surface mineralization proximal to the Colomac deposit.

26.2 Mineral Processing and Metallurgical Testwork

Work should be conducted to determine the optimal flowsheet and design criteria to potentially improve project economics as part of a pre-feasibility study. A pre-feasibility level metallurgical testwork program, using industry standard testwork procedures, focusing on the major deposits, is recommended. This includes the following work:

- Samples reflecting the different styles and geological settings of mineralization to test recoveries near cut-off grade, including samples from the other deposits in the Colomac Gold Project. Sampling should include flowsheet development composites and variability samples that address grade ranges and the major styles of mineralization.
- Bulk mineralogy studies and gold deportment studies of major lithological units, as well as any areas of specific interest noted by the geology team.
- Comprehensive comminution testing including Bond rod and ball mill work indices, SMC testing and abrasion index tests with the number of samples tested appropriate for a PFS study. These will validate the design assumptions on comminution equipment sizing and selection.
- Gravity concentration testing on appropriate composite samples using the E-GRG protocol to better estimate full scale recoveries.
- Gravity recovery and leach tests at the optimized grind size with appropriate kinetic solution sampling to optimize leach retention time.
- Cyanide detoxification testing to determine reagent usage, residence times and expected concentrations at discharge.
- Oxygen uptake testing to determine air/oxygen requirements.
- Acid/base accounting and kinetic testing of detoxified tailings including trace element background data collection for environmental base line studies.
- Solids liquid separation testing for thickener sizing and reagent usage.
- Multi-element ICP analysis with a focus on typical deleterious elements.

26.3 Mineral Resource Estimation

Based on the results of the 2023 MRE, the QPs make the recommendations outlined in the following subsections.

26.3.1 Colomac Centre Area

- Carry out additional exploration drilling using a regularly-spaced drill grid to satisfy inferred mineral resource category criteria. The exploration drilling should target the dip extension of the mineralized shoots identified in the litho-structural models and in the resource block models to test the potential of the deposits, mainly in the depth extension but also in the lateral extensions.

26.3.2 Damoti Area

- Carry out additional exploration drilling along the continuity of the BIF to discover additional favourable areas for gold mineralization and additional resources. The authors suggest targeting the still-open northern part of the central fold, the underexplored eastern limb of the western third fold, and more generally, areas of the BIF with a low magnetic response, because good correspondence between low magnetism, alteration, and gold values has been observed in the Damoti BIF.

- Carry out metallurgical testwork to yield a better assessment of the recovery rate and milling cost assumptions in the cut-off grade calculation for a future MRE update. A survey program for historical drill hole collars and access to the ramp to confirm the exact location of the drill holes should be completed. This would allow some of the inferred mineral resources to be converted to the indicated category.

26.3.3 Kim & Cass Area

- Carry out additional exploration drilling using a regularly-spaced drill grid to satisfy inferred mineral resource category criteria. The exploration drilling should target the dip extension of the mineralized shoots identified in the litho- structural model and in the resource block model to test the potential of the deposits, mainly in the depth extension but also in the lateral extensions.

- Complete metallurgical testwork to yield a better assessment of the recovery rate and milling cost assumptions in the cut-off grade calculation for a future MRE update.

- A survey program for historical drill-hole collars to confirm the exact location of the drill holes should be completed. This would allow some of the inferred mineral resources to be converted to the indicated category.

- An advance litho-structural study to increase the confidence in the geological models is in progress and should be completed.

26.3.4 Treasure Island Area

- Carry out additional exploration drilling using a regularly-spaced drill grid to satisfy inferred mineral resource category criteria. The exploration drilling should target the dip extension of the mineralized shoots identified in the litho-structural model and in the resource block model to test the potential of the deposit, mainly in the depth extension but also in the lateral extensions.

- Complete a metallurgical testwork to yield a better assessment of the recovery rate and milling cost assumptions in the cut-off grade calculation for a future MRE update.

- A survey program for historical drill-hole collars to confirm the exact location of the drill holes should be carried out. This would allow some of the inferred mineral resources to be converted to the indicated category.

26.3.5 Regional Exploration

- Carry out regional exploration drilling on the more prominent satellite targets, including Albatross, Nice Lake and Leta Arm Group. Conditional upon successful drilling, it could yield to a mineral resource estimate.
- Continue regional exploration work, including drilling, on a number of regional prospects while maintaining a similar scale of activity on many of the high-profile targets with the goal of advancing known deposits and showings and making new discoveries. Particular attention should be paid to near-surface mineralization proximal to the Colomac deposit.
- In addition to the work above, the authors recommend increasing the number of bulk density measurements at all deposits and to perform a PEA-level economic study. An environmental baseline study should be part of the planning process.

The authors also recommend continuing to maintain a pro-active and transparent strategy and communication plan with local communities and First Nations. The authors have prepared a cost estimate for the recommended work program to serve as a guideline. Expenditures are estimated at C$28,462,500 (including 15% for contingencies).

26.4 Mining

The following recommendations are made with regard to advancing the mine engineering of the Colomac Gold Project to the next project phase:

- geotechnical analysis of planned open pits and underground development, as follows:
    - targeted geotechnical drilling for each deposit's planned open pit walls, and within underground ramp/stope host rock.
    - laboratory testing for intact rock strength (unconfined compressive strength tests, point load tests, and indirect tensile strength tests) and for discontinuity strength (direct shear tests)
    - crown pillar analysis for underground mining below planned open pits
    - underground analysis of geotechnical information to determine appropriate spans that can be opened
    - hydrogeology and hydraulic conductivity testing to refine pit and underground water inflow estimates.
- condemnation drilling of the footprints identified for the waste rock storage facilities, as well as site infrastructure
- topographic surveys of all planned roads to satellite deposits
- portal siting studies for the Colomac and Treasure Island surface portals
- further analysis of underground mining method to be used
- analysis of backfill material (paste fill versus unconsolidated waste rock versus cemented rock fill)
- detailed stope planning should be carried out to estimate production rate of underground mining

- drill penetration and blast fragmentation studies for mineralized material and waste rock in all deposits
- updates to designs of open pits, waste storage piles, stockpiles, mine haul roads, underground stopes and underground development, incorporating results from all other recommended work programs
- mine operational and cost trade-off studies examining contractor vs. owner managed operations, lease vs. purchase of mine mobile equipment fleet, cost comparisons of various mobile fleet equipment class sizes.

26.5 Project Infrastructure

26.5.1 Tailings Management Facility – Site Geotechnical Field and Laboratory Program

The site is located in an area of extensive discontinuous and degradation of permafrost, which affects the design of all mining infrastructure not in terms of stability and deformation of earth masses, but also control of surface/subsurface/processing water and its interaction with existing and future thermal regime of the degrading permafrost as it may affect both short-term and long-term performance of these facilities. The existing database contains only data from the drilling program completed in 2006 and needs to be updated.

A comprehensive geotechnical site investigation program should be performed in the next phase of the project. The program should include a site field geotechnical investigation and laboratory testing program that includes the following facilities:

- tailings management facility
- waste rock storage facility
- primary crusher
- process plant
- mine infrastructure
- mine roads.

The main purposes of the recommended field investigation and laboratory program since historical geotechnical information is not available is as follows:

- provide detailed characterizations of the sites of waste rock storage facility, primary crusher, process plant and supporting infrastructure
- establish detailed foundation and groundwater conditions underneath the existing TMF and the proposed TMF that would bring it in line with current CDA guidelines and Canadian industry standards for tailing dam facilities
- establish the presence of permafrost and depth to permafrost for mine infrastructure (if present).

For the TMF, the site investigation includes total of 18 boreholes to a depth of 40 m or 10 m into bedrock and 15 test pits to a depth of 4 m or refusal. The boreholes should be drilled within the footprint of the impoundment, proposed embankments, and any potential faults (if present).

For the waste rock storage areas, the site investigation should include six boreholes to a depth of 40 m or 10 m into bedrock and 15 test pits to a depth of 4 m or refusal. For the process plant and primary crusher, the investigation should include four boreholes to a depth of 30 m or 10 m into bedrock and eight test pits to a depth of 4 m or refusal. An additional 15 test pits to a depth of 4 m or refusal should be performed for other site infrastructure.

Based on the above, the site investigation program for mine Infrastructure would include 28 boreholes and 55 test pits. The boreholes should be drilled using a geotechnical rig capable of performing standard penetration tests (SPT), packer testing (rock), and constant head test (soil), along with taking samples. The test pits should be performed using an excavator.

The field program should also include the installation of eight thermistors in selected boreholes and six vibrating wire piezometers in selected boreholes to measure pore water pressures. As part of the geotechnical program, a geophysical investigation would be performed to complement the borehole and test pit program. The program would consist of several geophysical lines for a total length of 1,500 m.

26.5.2 Tailings Storage and Waste Rock Storage Design

The design of the tailings storage area should include a conventional TMF and in-pit tailings storage. For the waste rock storage facility, Ausenco will provide the mine planner with the geotechnical design criteria. The following tasks will be performed:

- acquire LiDAR imagery for the site to improve topography for the project
- develop seepage predictions and seepage control measures for the TMF and WRSF
- perform stability analysis for TMF embankments and WRSF
- perform a liquefaction assessment with consideration of material properties for both the TMF embankments and WRSF foundations
- optimize the tailings deposition strategy
- provide mine planner with WRSF slope design criteria based on waste rock properties and foundation conditions
- develop PFS level design of TMF and in-pit tailings disposal (including surface water management, tailings water balance, seepage and sediment ponds)
- solicit additional budgetary quotes for earthworks and geosynthetics (i.e., geomembrane, geotextile, and piping) to get more accurate pricing for the next cost estimates
- develop cost estimates (i.e., capital, sustaining capital, and operating costs) for TMF and In-pit tailings storage

26.5.3 Energy Generation

More detailed data is required for the further development of renewable energy sources and should be included in future project phases. These include:

- determine hourly electrical demand, which will provide greater insight into the opportunities of renewable energy generation
- complete a detailed wind resource study based on a bankable energy yield assessment, which requires a minimum of 12 months of wind measurement data.
- investigate the opportunity of developing a hybrid solution, which includes flexible generation and/or storage to greatly increase the maximum proportion of demand met without the need to oversize the renewable

- complete a cost/benefit optimization exercise to determine the most cost-effective project scenario, considering the addition of renewables as an iterative process, scaling up over a period of time to lessen diesel consumption
- complete a detailed constraints analysis, consulting with the relevant authorities and stakeholders, to ensure that siting of any renewable energy technology would not be restricted and that it will not interfere with future mining opportunities
- complete a site and high-level ground investigation study to ensure adequate ground conditions for renewable energy development.

26.6 Recovery Methods

Additional studies to determine the optimal process flowsheet for the project should be conducted once suitable metallurgical testing is completed. These studies should include engineering trade-off studies to confirm the following:

- optimal grind size and comminution circuit selection
- optimal slurry thickening strategy, if any
- leaching configuration (carbon in leach/carbon in pulp/carousel)
- pre-aeration requirements and optimal leaching reagent dosing strategy
- optimal reagent supply strategy
- cyanide detoxification process/method
- review of plant layout and site infrastructure to incorporate any recommendations generated by the work described above.

26.7 Environmental, Permitting, Social and Community Recommendations

The recommendations in the following subsections are made regarding future studies and activities related to areas of environment, permitting and community engagement. These studies and activities will be necessary to support the project to the pre-feasibility stage and provide a strong basis for future environmental assessment preparation and permitting. The recommendations for baseline studies were derived partially from the 2022 WSP report entitled "Environmental Information Needs Assessment, Indin Lake Gold Project". The recommended studies, presented below, are sufficient to take the project through the next project stage, but not necessarily through the environmental assessment preparation and permitting. The recommended studies would provide a start to this work, but further scoping studies would be required. The estimated costs do not include transportation to/from the site, travel costs, site accommodation, and site helicopter and fixed-wing support (e.g., for aerial wildlife surveys).

26.7.1 Data Review

A comprehensive review of all pertinent data available from the CIRNAC database should be undertaken to identify useful data that can be used to support EIA and permitting applications. This would include identifying the horizontal and vertical extent of legacy contamination issues based on the desk top review. This information could then be used as a basis for planning and implementing an existing conditions environmental site assessment in the field.

26.7.2 Water Resources

The following activities are recommended:

- Development and implementation of the first year of a multiyear surface water and groundwater monitoring, sampling, and testing plan, focusing on areas that will be potentially affected by mine infrastructure based on current infrastructure plans (refer to Section 18). Surface water and sediment quality samples should be collected to establish reference areas, baseline conditions in the receiving environment, and source terms for a future water quality model.
- A series of monitoring wells should be installed in the active layer to better establish shallow groundwater levels and groundwater quality. Baseline groundwater data and hydraulic gradients can be collecting using vibrating wire piezometers beneath the permafrost and in possible talik zones.
- A professional grade meteorological station should be installed at the project site to monitor conditions, as opposed to relying on data from CIRNAC project or from Yellowknife.
- Dustfall monitoring stations and passive nitrogen dioxide monitoring and low-cost sensors should be used to establish baseline airborne dust and particulate levels.
- Surface and groundwater baseline and testing data will need to support the development of a future integrated predictive model and overall water balance model for the site.
- A permafrost characterization study should be carried out that involves installing thermistors into boreholes to identify the extent of permafrost and geothermal gradients associated with pits, underground workings, and proposed site infrastructure.
- Hydrogeological testing of monitoring wells should be carried out to support groundwater inflow estimates for pits and underground workings.
- A conceptual groundwater model should be developed.

26.7.3 Geochemistry

The geochemical testing results (from 2004) are currently available for the Colomac centre area and do not include all current deposits/pits being considered for development. Further work to update the Colomac centre deposits and for the satellite deposits are required. For proceeding to a PFS-level study, the general level of effort required to establish the ARD/ML risk, a Phase 1 program has been recommended. A more comprehensive characterization program will be developed in a Phase 2 of the program. These programs are to be executed in accordance to the Canadian Industry standard guidance for geochemical characterization described by MEND (2009). The Phase 1 part of the program to support the PFS to include the following:

- collection of 200 to 300 waste rock samples (from drill core) based on the site specific geological and structural models and the results of a gap analysis across all sites (sample intervals to be determined based on the results of a review of the geological mode)
- collection of 6 to 12 tailings samples (assuming variable compositions between deposits)
- collection of 6 to 12 mineralized rock samples
- collection of several overburden samples

- recommended range of analytical tests to include elemental analysis; acid base accounting; shake flask extraction (short-term leach); NAG pH; mineralogy; humidity cell testing (minimum 40 weeks)
- preliminary interpretation of results and assessment of requirement for special mine rock management practices and water treatment.

26.7.4 Aquatics and Fish and Fish Habitat

Additional fish and fish habitat sampling and assessments are recommended for the areas of proposed project disturbance. Crews will need to initially conduct further studies to identify fish-bearing waterbodies and watercourses and where there is potential for a direct loss of habitat or harmful alteration, disruption, or destruction.

26.7.5 Terrestrial and Wildlife Monitoring

Surveys will need to be completed related to the areas of vegetation/ecosystem and wildlife/wildlife habitat for the mine infrastructure presented in Section 18. The results of those surveys should be used to develop plans that will eliminate or mitigate environmental risk.

Wek'èezhìi Renewable Resources Board (WRRB) and other land users should be closely involved in developing and executing the wildlife baseline studies, especially as related to traditional and current use of the land for harvesting.

26.7.6 Socio-Economic, Cultural Baseline Studies and Community Engagement

The following activities are recommended for community engagement and the collection of socio-economic and cultural information:

- It is important that Nighthawk pursues cooperation, information sharing, and impact benefit agreements with impacted Indigenous nations and communities closest to the site.
- An archaeological overview or impact assessment should be completed on locations of proposed project infrastructure.
- Nighthawk should continue ongoing engagement activities as required in its current Engagement Management Plan.
- The practice of working closely with the Wek'èezhìi Renewable Resources Board (WRRB), the Tłı̨chǫ Government, and the local communities should continue regarding advertising and retaining Indigenous staff and Indigenous-owned businesses to support exploration activities, as well as Indigenous environmental monitors and technicians to help support drilling programs and environmental baseline programs.
- Available regional socioeconomic data and information should be reviewed. Nighthawk should work closely with Indigenous communities and organizations to develop data sharing agreements that will allow for an understanding of Indigenous land and resource use in the vicinity of the project site and seek out local Indigenous Knowledge relative to the site to support future regulatory processes.

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