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**FORM 6-K**  
**UNITED STATES**  
**SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

**Report of Foreign Private Issuer**

Pursuant to Rule 13a-16 or 15d-16  
of the Securities Exchange Act of 1934

Date: November 26, 2018  
Commission File Number 001-31528

**IAMGOLD Corporation**

(Translation of registrant's name into English)

**401 Bay Street Suite 3200, PO Box 153**  
**Toronto, Ontario, Canada M5H 2Y4**  
**Tel: (416) 360-4710**

(Address of principal executive offices)

Indicate by check mark whether the registrant files or will file annual reports under cover Form 20-F or Form 40-F.

Form 20-F [ ]      Form 40-F [X]

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(1): \_\_\_\_

**Note:** Regulation S-T Rule 101(b)(1) only permits the submission in paper of a Form 6-K if submitted solely to provide an attached annual report to security holders.

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(7): \_\_\_\_

**Note:** Regulation S-T Rule 101(b)(7) only permits the submission in paper of a Form 6-K if submitted to furnish a report or other document that the registrant foreign private issuer must furnish and make public under the laws of the jurisdiction in which the registrant is incorporated, domiciled or legally organized (the registrant's "home country"), or under the rules of the home country exchange on which the registrant's securities are traded, as long as the report or other document is not a press release, is not required to be and has not been distributed to the registrant's security holders, and, if discussing a material event, has already been the subject of a Form 6-K submission or other Commission filing on EDGAR.

Indicate by check mark whether by furnishing the information contained in this Form, the registrant is also thereby furnishing the information to the Commission pursuant to Rule 12g3-2(b) under the Securities Exchange Act of 1934.

Yes [ ]      No [X]

If "Yes" is marked, indicate below the file number assigned to the registrant in connection with Rule 12g3-2(b): 82-\_\_

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**Description of Exhibit**

Exhibit

Description of Exhibit

[99.1](#) [NI 43-101 Technical Report on the Feasibility Study of the Côté Gold Project](#)

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**Signatures**

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

**IAMGOLD CORPORATION**

Date: November 26, 2018

By: /s/ Tim Bradburn  
Vice President, Legal and Corporate Secretary

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Côté Gold Project  
Ontario  
NI 43-101 Technical Report on Feasibility Study



**Prepared for:**  
IAMGOLD Corporation

**Prepared by:**  
Mr. Peter Oshust, P.Geo., Wood  
Dr. Antonio Peralta, P.Eng., Wood  
Mr. Dustin Small, P.Eng., Wood

Mr. Paul O'Hara, P.Eng., Wood  
Ms. Debbie Dyck, P.Eng., Wood  
Dr. Bing Wang, P.Eng., Wood  
Mr. Paul Baluch, P.Eng., Wood  
Mr Ray Turenne, P.Eng., Wood  
Dr. Adam Coulson, P.Eng., Wood  
Ms Karen Besemann, P.Geo., Golder  
Ms. Marie-France Bugnon, P.Geo. IAMGOLD  
Mr. Alan Smith, P.Geo., IAMGOLD.

**Effective Date:**  
1 November, 2018

**Project Number:**  
195640

**CERTIFICATE OF QUALIFIED PERSON**

Peter Oshust, P.Geo.,  
111 Dunsmuir St., Suite 400  
Vancouver, British Columbia, V6B 5W3

I, Peter Oshust, P.Geo. am employed as a Senior Project Geologist.

This certificate applies to the technical report titled "Côté Gold Project, Ontario, NI 43-101 Technical Report on Feasibility Study" that has an effective date of 1 November, 2018 (the "Technical Report").

I am a member of Engineers and Geoscientists British Columbia and of the Association of Professional Geoscientists of Ontario. I graduated from Brandon University with a Bachelor of Science (Specialist) degree in Geology and Economics in 1987.

I have practiced in my profession since 1988 and have been involved in geological modelling and resource estimation for a variety of base and precious metals and diamond deposits across North and South America, and in Asia, since 2001.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43-101 *Standards of Disclosure for Mineral Projects* (NI 43-101).

I visited the Côté Gold Project from July 10 to 12, 2018.

I am responsible for Sections 1.8, 1.10, 1.11, 1.25; Sections 2.3, 2.4, 2.5; Section 12; Section 14; Sections 24.1.13, 24.1.15; Sections 25.1, 25.6; Sections 26.1, 26.2; and Section 27 of the Technical Report.

I am independent of IAMGOLD Corporation as independence is described by Section 1.5 of NI 43-101.

I have been involved with the Côté Gold Project since 2017, during the preparation of the feasibility study. 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 the Technical Report not misleading.

Dated: 26 November, 2018

*"Signed and sealed"*

Peter Oshust, P.Geo.

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**CERTIFICATE OF QUALIFIED PERSON**

Antonio Peralta Romero, P.Eng.  
400-111 Dunsmuir Street  
Vancouver, British Columbia V6B 5W3

I, Antonio Peralta Romero, P.Eng., am employed as a Principal Mining Engineer with Wood Canada Limited (Wood), formerly known as Amec Foster Wheeler Americas Limited.

This certificate applies to the technical report titled "Côté Gold Project, Ontario, NI 43-101 Technical Report on Feasibility Study" that has an effective date of 1 November, 2018 (the "Technical Report").

I am a Professional Engineer of The Association of Professional Engineers and Geoscientists of British Columbia and Professional Engineers Ontario. I graduated from the University of Guanajuato in 1984 with a B.S. in Mining Engineering, from Queen's University in 1991 with a M.Sc. in Mining Engineering, and from Colorado School of Mines in 2007 with a Ph.D. in Mining and Earth Systems Engineering.

I have practiced my profession for 33 years. I have been directly involved in mine planning and design, ore control, production forecasting and management, and slope stability monitoring, mainly for open-pit precious, base metal and iron ore mines.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43-101 *Standards of Disclosure for Mineral Projects* (NI 43-101).

I visited the Côté Gold Project on May 7-9, 2018.

I am responsible for Sections 1.12, 1.13, 1.14, 1.20, 1.23.2, 1.23.8, 1.25; Sections 2.3, 2.5; Section 3; Section 15; Section 16 (with the exception of Section 16.2); Sections 18.3, 18.4; Sections 21.2.1; Sections 24.1.16, 24.1.17, 24.1.19, 24.1.22; Sections 25.1, 25.7, 25.8, 25.10, 25.14, 25.16; Sections 26.1, 26.4; and Section 27 of the Technical Report.

I am independent of IAMGOLD Corporation as independence is described by Section 1.5 of NI 43-101.

I was involved with mine design in the Preliminary Economic Assessment for the Côté Gold Project in 2017. I have previously co-authored the following technical report on the Côté Gold Project:

- Peralta, A., Wang, B., Dyck, D., Smiley, D., Lipiec, I., Padilla J., Baluch, P., Smith, A., Bugnon, M- F., and Evans, L., 2017: NI 43-101 Technical Report on the Prefeasibility Study of the Côté Gold Project, Porcupine Mining Division, Ontario, Canada: report prepared by Amec Foster Wheeler and Roscoe Postle Associates Inc., effective date May 26, 2017.

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.

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Continued...

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 the Technical Report not misleading.

Dated: 26 November, 2018

*"Signed and sealed"*

Antonio Peralta Romero, P.Eng.

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**CERTIFICATE OF QUALIFIED PERSON**

Dustin Small, P.Eng.,  
111 Dunsmuir St., Suite 400  
Vancouver, British Columbia, V6B 5W3

I, Dustin Small, P.Eng., am employed as a Project Engineer with Wood Canada Limited (Wood), formerly known as Amec Foster Wheeler Americas Limited.

This certificate applies to the technical report titled "Côté Gold Project, Ontario, NI 43-101 Technical Report on Feasibility Study" that has an effective date of 1 November, 2018 (the "Technical Report").

I am a Professional Engineer and member in good standing with Professional Engineers Ontario. I am a graduate of Dalhousie University in 2001 with a degree in Mechanical Engineering.

I have practiced my profession for 12 years in the mining industry. My relevant experience includes engineering management, cash flow modelling, risk evaluation, financial analysis, project execution, and mine construction.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43-101 *Standards of Disclosure for Mineral Projects* (NI 43-101).

I visited the Côté Gold Project on May 22, 2018.

I am responsible for Sections 1.1, 1.2, 1.18, 1.19, 1.21, 1.22, 1.23.1, 1.23.6, 1.23.7, 1.23.9, 1.23.10, 1.24, 1.25; Section 2; Section 3; Section 19; Section 21.1, 21.2.4, 21.2.5, 21.3; Section 22; Sections 24.1.1, 24.1.2, 24.1.3, 24.1.4, 24.1.6, 24.1.20, 24.1.22, 24.1.23, 24.2; Sections 25.1, 25.12, 25.13, 25.14, 25.15, 25.16, 25.17; Section 26.1; and Section 27 of the Technical Report.

I am independent of IAMGOLD Corporation as independence is described by Section 1.5 of NI 43-101. I have been involved with the Côté Gold Project since 2017, during the preparation of the feasibility study. 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 the Technical Report not misleading.

Dated: 26 November, 2018

*"Signed and sealed"*

Dustin Small, P.Eng.

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**CERTIFICATE OF QUALIFIED PERSON**

Paul M. O'Hara, P.Eng.,  
301-121 Research Drive,  
Saskatoon, SK Canada, S7N 1K5

I, Paul M. O'Hara, P.Eng., am employed as a Mining Engineer with Wood Canada Limited (Wood), formerly known as Amec Foster Wheeler Americas Limited.

This certificate applies to the technical report titled "Côté Gold Project, Ontario, NI 43-101 Technical Report on Feasibility Study" that has an effective date of 1 November, 2018 (the "Technical Report").

I am a member of Association of Professional Engineers and Geologists of Saskatchewan (APEGS) member number 11687, and with the Professional Engineers Ontario license number 90543950. I graduated from the University of British Columbia, with a Bachelor of Science degree in Mining and Mineral Process Engineering in 1986. I have practiced my profession for 32 years.

I have been directly involved in the operation of copper, gold, and potash processing plants in Canada. I have also been involved in process design for gold plants in Canada.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43-101 *Standards of Disclosure for Mineral Projects* (NI 43-101).

I have not visited the Côté Gold Project.

I am responsible for Sections 1.9, 1.15, 1.20, 1.23.3, 1.23.8, 1.25; Section 2.3; Section 13; Section 17; Sections 21.2.2, 21.2.3; Sections 24.1.14, 24.1.18, 24.1.22; Sections 25.1, 25.5, 25.9, 25.14, 25.16; Sections 26.1, 26.3; and Section 27 of the Technical Report.

I am independent of IAMGOLD Corporation as independence is described by Section 1.5 of NI 43-101. I have been involved with the Côté Gold Project since 2018, during the preparation of the feasibility study. 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 the Technical Report not misleading.

Dated: 26 November, 2018

*"Signed and sealed"*

Paul M. O'Hara, P.Eng.

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**CERTIFICATE OF QUALIFIED PERSON**

Debbie Dyck, P.Eng.  
160 Traders Blvd. E., Suite 110  
Mississauga, Ontario L4W 3K7

I, Debbie Dyck, P.Eng., am employed as a Senior Associate Environmental Engineer with Wood Canada Limited (Wood), formerly known as Amec Foster Wheeler Americas Limited.

This certificate applies to the technical report titled "Côté Gold Project, Ontario, NI 43-101 Technical Report on Feasibility Study" that has an effective date of 1 November, 2018 (the "Technical Report").

I am a member of Professional Engineers Ontario. I graduated from the University of Waterloo in 1990. I have practiced my profession for 28 years. I have been directly involved in environmental studies, and permitting and approvals, including environmental assessments, specifically for the mining sector, for all phases of mine development, from exploration through to closure.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43-101 *Standards of Disclosure for Mineral Projects* (NI 43-101).

I visited the Côté Gold Project from April 13-14, 2017.

I am responsible for Sections 1.17.1, 1.17.4, 1.17.5, 1.17.6, 1.23.5 (excepting tailings and water management); Sections 2.3, 2.4; Section 3.2; Sections 20.1, 20.2, 20.3, 20.6, 20.7, 20.8, 20.9; Section 24.1.21 (excepting tailings and water management); Sections 25.1, 25.11, 25.16, and Section 27 of the Technical Report.

I am independent of IAMGOLD Corporation as independence is described by Section 1.5 of NI 43-101.

I was involved in the 2015 Environmental Assessment of the Cote Gold Project and the Preliminary Economic Assessment for the Côté Gold Project in 2017. I have previously co-authored a technical report on the Côté Gold Project entitled:

- Peralta, A., Wang, B., Dyck, D., Smiley, D., Lipiec, I., Padilla J., Baluch, P., Smith, A., Bugnon, M- F., and Evans, L., 2017: NI 43-101 Technical Report on the Prefeasibility Study of the Côté Gold Project, Porcupine Mining Division, Ontario, Canada: report prepared by Amec Foster Wheeler and Roscoe Postle Associates Inc., effective date May 26, 2017.

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 the Technical report not misleading.

Dated: 26 November, 2018

*"Signed and sealed"*

Debbie Dyck, P.Eng.

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**CERTIFICATE OF QUALIFIED PERSON**

Bing Wang, Ph.D., P.Eng.  
160 Traders Blvd. E., Suite 110  
Mississauga, Ontario L4W 3K7

I, Bing Wang, Ph.D., P.Eng., am employed as a Senior Associate, Technical Advisor with Wood Canada Limited (Wood), formerly known as Amec Foster Wheeler Americas Limited.

This certificate applies to the technical report titled "Côté Gold Project, Ontario, NI 43-101 Technical Report on Feasibility Study" that has an effective date of 1 November, 2018 (the "Technical Report").

I am a member of Professional Engineers Ontario (License No.: 90293754). I graduated from McGill University, Montreal, Canada, with Masters of Engineering and Doctor of Philosophy degrees in 1984 and 1990, respectively.

I have practiced my profession for 31 years since graduation. I have been directly involved in the field of geo-environmental engineering with site investigations, scoping, prefeasibility and feasibility studies, detailed design and construction for tailings and water management facilities, including geotechnical assessments and implementations for mining projects in the Canadian Shield.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43-101 *Standards of Disclosure for Mineral Projects* (NI 43-101).

I have visited the Côté Gold Project on a number of occasions, including May 16, October 4, and October 31 to November 4, 2016, April 13-14, 2017, and 6 June, 2018.

I am responsible for Sections 1.17.2, 1.17.3, tailings and water management aspects of 1.23.5, 1.25; and Sections 2.3 and 2.4; Sections 18.5, 18.7; Sections 20.4.1 to 20.4.5, 20.5 (excepting 20.5.4); Sections 24.1.21 (TMF aspects excepting the subsections entitled "Seepage Modelling", "TMF Water Quality Prediction", "Water Quality Monitoring" and "Water Quality Prediction"); Sections 25.1, 25.11, 25.16; Section 26.1, 26.5; and Section 27 of the Technical Report.

I am independent of IAMGOLD Corporation as independence is described by Section 1.5 of NI 43-101.

I have been involved with the Côté Gold Project since May, 2016 as a geotechnical lead. I have co-authored a technical report on the Côté Gold Project titled:

- Peralta, A., Wang, B., Dyck, D., Smiley, D., Lipiec, I., Padilla J., Baluch, P., Smith, A., Bugnon, M- F., and Evans, L., 2017: NI 43-101 Technical Report on the Prefeasibility Study of the Côté Gold Project, Porcupine Mining Division, Ontario, Canada: report prepared by Amec Foster Wheeler and Roscoe Postle Associates Inc., effective date May 26, 2017.

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.

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Continued...

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 the Technical Report not misleading.

Dated: 26 November, 2018

*"Signed and sealed"*

Bing Wang, Ph.D., P.Eng.

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**CERTIFICATE OF QUALIFIED PERSON**

Paul Baluch, P.Eng.  
111 Dunsmuir St., Suite 400  
Vancouver, British Columbia, V6B 5W3

I, Paul Baluch, P.Eng., am employed as the Technical Director, Civil with Wood Canada Limited (Wood), formerly known as Amec Foster Wheeler Americas Limited.

This certificate applies to the technical report titled "Côté Gold Project, Ontario, NI 43-101 Technical Report on Feasibility Study" that has an effective date of 1 November, 2018 (the "Technical Report").

I am a Professional Engineer of The Association of Professional Engineers and Geoscientists of British Columbia, Professional Engineers Ontario, The Association of Professional Engineers, Geologists and Geoscientists of Alberta, and The Association of Professional Engineers and Geoscientists of Saskatchewan. I graduated from the Slovak Technical University in Bratislava, Slovakia with a Diploma from Civil Engineering in 1980.

I have practiced my profession for 36 years. I have been directly involved in site investigations, site development, infrastructure and civil works on scoping studies, prefeasibility and feasibility studies, and detailed engineering on mining, infrastructure and other industry projects.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43-101 Standards of Disclosure for Mineral Projects (NI 43-101).

I have visited the Côté Gold Project on October 4, 2016, April 13-14, 2017 and June 6-7 2018.

I am responsible for Sections 1.16, 1.23.4; Sections 2.3, 2.4; Sections 18.1, 18.2, 18.6, 18.9; Section 24.1.19; and Sections 25.1, 25.10 of the Technical Report.

I am independent of IAMGOLD Corporation as independence is described by Section 1.5 of NI 43-101.

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 the Technical Report not misleading.

Dated: 26 November, 2018

*"signed and sealed"*

Paul Baluch, P.Eng.

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**CERTIFICATE OF QUALIFIED PERSON**

Raymond Turenne, P.Eng.  
111 Dunsmuir St., Suite 400  
Vancouver, British Columbia, V6B 5W3

I, Raymond (Ray) Turenne, P.Eng., am employed as the Department Manager, Electrical and Controls with Wood Canada Limited (Wood), formerly known as Amec Foster Wheeler Americas Limited.

This certificate applies to the technical report titled "Côté Gold Project, Ontario, NI 43-101 Technical Report on Feasibility Study" that has an effective date of 1 November, 2018 (the "Technical Report").

I am a Professional Engineer of the Association of Professional Engineers and Geoscientists of British Columbia, and the Professional Engineers Ontario. I graduated from the University of Calgary in Calgary, Alberta with a degree in Electrical Engineering in 1983.

I have practiced my profession for 35 years. I have been directly involved in the electrical and controls designs for scoping studies, prefeasibility and feasibility studies, and detailed engineering on mining and other industry projects.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43-101 Standards of Disclosure for Mineral Projects (NI 43-101).

I have not visited the Côté Gold Project.

I am responsible for Sections 1.16, 1.23.4; Section 2.3; Section 18.8; Section 24.1.19; Sections 25.1, 25.10, 25.16; and Section 27 of the Technical Report.

I am independent of IAMGOLD Corporation as independence is described by Section 1.5 of NI 43-101.

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 the Technical Report not misleading.

Date: 26 November, 2018

*"Signed and sealed"*

Raymond Turenne, P.Eng.

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**CERTIFICATE OF QUALIFIED PERSON**

Adam Coulson, PhD, P.Eng.  
160 Traders Blvd East, Suite 110,  
Mississauga, Ontario, L4Z 3K7

I, Adam Coulson, PhD, P.Eng., am employed as Senior Associate Rock Mechanics Specialist with Wood Canada Limited (Wood), formerly known as Amec Foster Wheeler Americas Limited.

This certificate applies to the technical report titled "Côté Gold Project, Ontario, NI 43-101 Technical Report on Feasibility Study" that has an effective date of 1 November, 2018 (the "Technical Report").

I am a member in good standing of the Professional Engineers of Ontario (Member No. 100049242). I graduated with a B.Eng. from Camborne School of Mines, UK in 1990; obtained a MSc. (Eng) from Queens University, Canada in 1996; and a Ph.D. from the University of Toronto, Canada in 2009.

I have practiced my profession continuously since my graduation. I have been employed in mining operations, consulting engineering and rock mechanics research for over 28 years.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43-101 *Standards of Disclosure for Mineral Projects* (NI 43-101).

I visited the Côté Gold Project from December 10 to 13, 2017.

I am responsible for Section 1.14; Sections 2.3, 2.4; Section 16.2; Section 24.1.17; and Section 27 of the Technical Report.

I am independent of IAMGOLD Corporation as independence is described by Section 1.5 of NI 43-101.

I have been involved with the Côté Gold Project since 2017, during the preparation of the feasibility study. 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 the Technical Report not misleading.

Dated: 26 November, 2018

*"Signed and sealed"*

Adam Coulson, PhD, P.Eng.

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**CERTIFICATE OF QUALIFIED PERSON**

Karen Besemann, P.Geol.  
Golder Associates Ltd.  
33 Mackenzie St., Sudbury, Ontario

I, Karen Besemann, am employed as a hydrogeologist with Golder Associates Ltd.

This certificate applies to the technical report titled "Côté Gold Project, Ontario, NI 43-101 Technical Report on Feasibility Study" that has an effective date of 1 November, 2018 (the "Technical Report").

I am a member of the Association of Professional Geoscientists of Ontario. I graduated from the University of Ottawa in Geological Sciences in 1993.

I have practiced my profession for 19 years, completing hydrogeological assessments, mine permitting, Environmental Assessments and site rehabilitation projects at numerous mine sites in Ontario.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43-101 *Standards of Disclosure for Mineral Projects* (NI 43-101).

I visited the Côté Gold Project in 2012 and 2013.

I am responsible for Sections 20.4.6, 20.4.7, 20.4.8, 20.5.4, and the subsections in Section 24.1.21 entitled "Seepage Modelling", "TMF Water Quality Prediction", "Water Quality Monitoring" and "Water Quality Prediction" of the Technical Report.

I am independent of IAMGOLD Corporation as independence is described by Section 1.5 of NI 43-101.

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 the Technical Report not misleading.

Dated: 26 November, 2018

*"Signed and sealed"*

Karen Besemann, P.Geol.

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**CERTIFICATE OF QUALIFIED PERSON**

Marie-France Bugnon M.Sc. P.Geo.  
General Manager Exploration, IAMGOLD Corporation  
Regional Exploration Office – Val-d’Or  
1740, Chemin Sullivan, suite 1300,  
Val-d’Or, Québec, Canada J9P 7H1  
T: (819) 825-7500 e-mail : [marie-france\\_bugnon@iamgold.com](mailto:marie-france_bugnon@iamgold.com)

I, Marie-France Bugnon, am employed as General Manager Exploration – Americas with IAMGOLD Corporation (IAMGOLD).

This certificate applies to the technical report entitled “Côté Gold Project, Ontario, NI 43-101 Technical Report on Feasibility Study” that has an effective date of 1 November, 2018 (the “Technical Report”).

I am a registered professional geologist of the Ordre des Géologues du Québec (OGQ # 137) and of Association of Professional Geoscientists of Ontario (APGO # 2820).

I graduated from the University of Montreal with a Bachelor’s degree in Geology in 1977 (B.Sc.) and a Master’s degree in Geology in 1981 (M.Sc.).

I have practiced my profession continuously since 1979 and have been involved in extensive exploration programs for gold, base metal and other commodities and have completed numerous property reviews in North America, in the Guiana Shield, in Burkina Faso and in South America.

I have been working for Cambior/IAMGOLD Corporation since 1996 as exploration manager for Canada and the Guiana Shield, as General Manager for the Brownfields activities and as General Manager Exploration - Americas.

As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 *Standards of Disclosure for Mineral Projects* (NI 43–101).

I have been involved in the Côté Gold Project and the exploration district as a General Manager since June 2012. My most recent site visit was September 13–14, 2018.

I am responsible for Sections 1.3, 1.4, 1.6; Sections 2.3, 2.4; Section 4; Section 5; Section 6; Section 24.1.5, 24.1.6, 24.1.7; Sections 25.1, 25.2; Section 27; and Appendix A.

I am a full-time employee of IAMGOLD and own shares of IAMGOLD.

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 26 November, 2018

“Signed and sealed”

Marie-France Bugnon, M.Sc. P.Geo.

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CERTIFICATE OF QUALIFIED PERSON

Alan Smith M.Sc., P.Geol.  
District Manager – Exploration, IAMGOLD Corporation  
Regional Exploration Office – Sudbury  
Unit 10 - 2140 Regent Street  
Sudbury, ON. P3E 5S8  
Tel: 705-222-1520 E-mail: alan\_smith@iamgold.com

I, Alan Smith, am employed as the District Manager – Exploration for IAMGOLD Corporation (IAMGOLD).

This certificate applies to the technical report entitled “Côté Gold Project, Ontario, NI 43-101 Technical Report on Feasibility Study” that has an effective date of 1 November, 2018 (the “Technical Report”).

I am a practicing member in good standing with the Association of Professional Geoscientists of Ontario (Membership Number 0201). I graduated with an Honors Bachelor of Science Degree in Geology from the University of Western Ontario in 1984. I completed a M.Sc. Degree in Geology at the University of Western Ontario in 1987. I have worked as a geologist for more than 33 years since graduation generally throughout Canada with completing some exploration work in the United States and Mexico.

In my role as District Manager – Exploration, I have been responsible for the supervision of all exploration activities on the Côté Gold Project and surrounding Regional Exploration projects and generally visit the site weekly. I have supervised Côté deposit prefeasibility and feasibility diamond drilling programs since February 2013 and have assisted with the supervision of later diamond drilling phases of the Côté deposit. My most recent site visit was October 9–11, 2018. I am responsible for Sections 1.5, 1.7; Sections 2.3, 2.4; Section 7; Section 8; Section 9; Section 10; Section 11; Section 23; Sections 24.1.8 to 24.1.12; Sections 25.1, 25.3, 25.4; and Section 27 of the Technical Report.

I am a full-time employee of IAMGOLD and own shares of IAMGOLD.

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 the Technical Report not misleading.

Dated: 26 November, 2018

“Signed and sealed”

Alan Smith, M.Sc. P.Geol.

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**IMPORTANT NOTICE**

This report was prepared as National Instrument 43-101 Technical Report for IAMGOLD Corporation (IAMGOLD) by Wood Canada Limited (Wood), formerly known as Amec Foster Wheeler Americas Limited (Amec Foster Wheeler). The quality of information, conclusions, and estimates contained herein is consistent with the level of effort involved in Wood's 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 IAMGOLD subject to terms and conditions of its contract with Wood. Except for the purposes legislated under Canadian provincial and territorial securities law, any other uses of this report by any third party is at that party's sole risk.

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## A P P E N D I C E S

### Appendix A: Claims List

**1.0 SUMMARY**

**1.1 Introduction**

Wood Canada Limited (Wood), formerly known as Amec Foster Wheeler Americas Limited (Amec Foster Wheeler) in conjunction with IAMGOLD Corp. (IAMGOLD), has prepared a technical report (the Report) on the results of a feasibility study (the 2018 Feasibility Study) completed on the Côté Gold Project (the Project), a gold development project located near Gogama, Ontario, Canada, approximately 125 km southwest of Timmins, Ontario.

IAMGOLD is operator of an unincorporated joint venture (JV) in respect of the Project, formed pursuant to the terms of a JV agreement dated 20 June 2017 among IAMGOLD, SMM Gold Côté Inc, and Sumitomo Metal Mining Co, Ltd.

**1.2 Terms of Reference**

The Report was prepared to support disclosures in the news release dated 1 November 2018 entitled “Feasibility Study for Côté Gold Yields Significantly Improved Project Economics” and the news release dated 26 November entitled “IAMGOLD Files NI 43-101 Technical Report For Previously Announced Feasibility Study For Côté Gold”.

Two development scenarios are presented in the Report, based on the 2018 Feasibility Study:

- Base Case Mine Plan (Base Case) that supports the current permitting process. The Base Case with a total of 203 Mt of Mineral Reserves processed over the life of mine (LOM) includes a 203 Mt capacity tailings management facility (TMF) that conforms with the current applications for permits
- Extended Case Mine Plan (Extended Case) that supports the total Mineral Reserves (presented in Section 24 of the Report). It will require an updated mine rock area (MRA) and TMF design that may require regulatory approval of amended permits to be submitted prior to its implementation.

The Report uses Canadian English and metric units unless otherwise indicated. Estimates are provided in US\$, based on an exchange rate of US\$1.00:CS\$ 1.30. Mineral Resources and Mineral Reserves are reported in accordance with the 2014 Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves (the 2014 CIM Definition Standards).

**1.3 Project Setting**

The Project is located in the Porcupine Mining Division, 25 km southwest of Gogama, Ontario and extends approximately 57 km from Esther Township in the west to Champagne Township in the east. It comprises a group of properties assembled through staking and option agreements covering a total area of about 521 km<sup>2</sup>. The 2018 Feasibility Study area is a portion of the overall claim area.

The Project is bisected by Highway 144 and is about 175 km by road north of Sudbury, along Highway 144 and approximately 125 km by road southwest of Timmins via Highways 101 and 144. Access to the Project area is by a network of logging roads and local bush roads accessed from Highway 144 and from the Sultan Industrial Road which runs east–west along, and below, the southern part of the Project area.

The Project area is characterized by long, cold winters and short, warm summers. Any future mining operations would be expected to be conducted year-round.

**1.4 Mineral Tenure, Surface Rights, Water Rights, Royalties and Agreements**

IAMGOLD holds a major tenement package consisting of 3,208 tenures covering an area of about 60,017 ha (Table 1-1). The tenure includes patented claims, mining leases, and a series of unpatented cell and boundary claims. All lease and patent boundaries for the property package have been surveyed. Boundary and corner posts defined existing claims.

On April 10, 2018, the Ministry of Energy, Northern Development and Mines (ENDM) converted Ontario's manual system of ground and paper staking, and maintaining unpatented mining claims to an online system, the Mining Land Administration System (MLAS). All active, unpatented claims were converted from their legally defined location by claim posts on the ground or by township survey to a cell-based provincial grid.

IAMGOLD has applied for a number of mining leases. IAMGOLD is of the opinion that there are no risks associated with actual issuance of the Côté Gold Project mining leases, and that the issuance will occur when the ENDM clears the backlog arising from the freeze period imposed as part of the MLAS implementation.

**Table 1-1: Mineral Tenure Summary Table**

| Agreement/Property       | Sub-area        | Number of Tenures/Claims | Approximate Area (ha) |
|--------------------------|-----------------|--------------------------|-----------------------|
| Chester 1                |                 | 2                        | 150                   |
| Chester 2                |                 | 28                       | 847                   |
| Chester 3                |                 | 56                       | 1,283                 |
| Clam Lake-Crown Minerals |                 | 20                       | 241                   |
| Clam Lake                |                 | 8                        | 80                    |
| Leliever                 |                 | 3                        | 54                    |
| Ontario 986813 Ltd       | North           | 20                       | 174                   |
|                          | Northeast       | 13                       | 107                   |
|                          | East            | 119                      | 1,901                 |
|                          | South           | 106                      | 1,446                 |
| Watershed                |                 | 510                      | 8,059                 |
| TAAC East                |                 | 32                       | 300                   |
| TAAC West                |                 | 854                      | 17,777                |
| Huffman Lake Option      |                 | 43                       | 629                   |
| Falcon Gold Option       |                 | 36                       | 623                   |
| GoldON                   | Chester         | 4                        | 29                    |
|                          | Neville-Pottier | 297                      | 6,563                 |
|                          | Mollie River    | 42                       | 677                   |
| TME                      | North           | 41                       | 891                   |
|                          | East            | 273                      | 4,717                 |
|                          | South           | 226                      | 4,819                 |
|                          | Makwa           | 24                       | 274                   |
|                          | Powerline       | 144                      | 3,044                 |
|                          | Champagne       | 90                       | 1,456                 |
| Sheridan Option          |                 | 217                      | 3,876                 |
| <b>TOTAL</b>             |                 | <b>3,208</b>             | <b>60,017</b>         |

Following an amalgamation on June 1, 2017, all of IAMGOLD's interests in the groups of properties are now owned by and registered in the name of IAMGOLD Corp., with the exception of the Ontario 986813 Ltd (Arimathaea Resources Inc) property, which is held in the name of Ontario 986813 Ltd (Ontario 986813), an IAMGOLD subsidiary.

On June 20, 2017, IAMGOLD completed a transaction with Sumitomo Metal Mining (Sumitomo) wherein Sumitomo agreed to acquire a 30% undivided participating joint-venture interest in the IAMGOLD's property interests in the property package. Sumitomo's interest in the property is held by the Sumitomo subsidiary SMM Gold Côté Inc.

The claims package consists of a number of agreements with third parties; these third parties may retain an interest in some of the properties within the property package either by way of an actual property interest or through royalty interests. Mineral claims subject to agreements are kept in good standing by IAMGOLD as a requirement of those agreements. Under Provincial requirements IAMGOLD regularly completes assessment work that is filed to renew or extend the claims for as much as five years of validity.

## 1.5 Geology and Mineralization

The Project area is located in the Swayze greenstone belt in the southwestern extension of the Abitibi greenstone belt of the Superior Province. Igneous lithologies predominate and include both volcanic and plutonic rocks. Sedimentary rocks occur mainly near the top of the succession.

The Chester Intrusive Complex (CIC), a crudely stratified tonalite-diorite laccolith containing numerous screens and inclusions of mafic volcanic rocks is host to the Côté Gold deposit. The CIC units formed from a number of pulses of several distinct and evolving dioritic and tonalitic magmas that display complex crosscutting relationships. The intrusive phases were followed by magmatic-hydrothermal brecciation and the emplacement of several stages of gold-bearing veins. Subsequently, the deposit was intruded by several types of dyke rocks, and was subjected to deformation, in the form of deformation zones and brittle faulting.

The Côté Gold deposit gold mineralization is centred on breccia bodies of magmatic and hydrothermal origin, but also occurs as veins (sheeted veins and stockworks) and disseminations in tonalitic and dioritic rocks. Disseminated mineralization in the hydrothermal matrix of the breccia is the most important style of the gold-copper mineralization. This style consists of disseminated pyrite, chalcopyrite, pyrrhotite, magnetite, gold (often in native form), and molybdenite in the breccia matrix.

Other mineralization styles that have been identified within the Project area include quartz vein and fracture associated, orogenic or structurally-hosted vein occurrences, and syenite intrusion-related gold zones. The syenite intrusion-related gold zones are considered attractive exploration targets.

## 1.6 History

Prospecting and exploration activity in the Project area began about 1900. Production records have not been compiled for the early mining efforts.

Prior to the discovery of the Côté Gold deposit, exploration activities had included geological mapping, outcrop stripping, numerous small-scale core drilling programs, and geophysical surveys. A number of small-scale shafts and associated development were excavated.

In 2007, Trelawney Augen Acquisition Corp (Trelawney; now an IAMGOLD subsidiary) commenced assembling the large land package. Trelawney undertook prospecting, till, channel, strip, and grab sampling; airborne geophysical surveys (magnetic, electromagnetic, radiometric), ground geophysical surveys (ground magnetics, very low frequency and induced polarization); core drill programs; bulk sampling programs; metallurgical testwork and mining studies.

IAMGOLD acquired Trelawney's interests in 2012. Subsequently, IAMGOLD have completed reconnaissance and mapping, outcrop stripping, geochemical surveys (TBA) and geophysical surveys (ground IP, pole-dipole IP/resistivity, and very-low frequency geophysical surveys), additional metallurgical testwork, environmental and baseline surveys, and mining and technical studies, including a pre-feasibility study (PFS) in 2017.

## 1.7 Drilling and Sampling

A total of 770 drill holes (321,875 m) were completed within the Côté Gold deposit area. Outside the Côté Gold deposit area, in the period 2008–2018, a total of 567 drill holes for about 159,078 m has been completed.

Core sizes have included HQ (63.5 mm core diameter), NQ (47.6 mm), BQ (36.4 mm), and BQTW (36 mm). Drill programs have included cores drilled for delineation, infill, condemnation, geotechnical and metallurgical purposes.

Geologists completed core logs, recording details of lithology, alteration, mineralization, and structure. The core was photographed. Technicians made meterage marks and logged rock quality designation (RQD). The mineralized and barren core is very competent, except for very local, multiple metre length intervals of blocky core where minor faults are encountered. Overall, the core recovery for the 2009–2018 programs was approximately 99%.

The collar azimuths for pre-2017 holes were established using front and back site markers located in the field with compass or GPS. The collars are subsequently resurveyed post-drilling. L. Labelle Surveys based in Timmins Ontario has been responsible for collecting the survey measurements for the Côté Gold Project since 2009.

IAMGOLD reports a FlexIT SmartTool instrument was used to collect down hole survey measurements for keyindex holes (drill holes used in the Mineral Resource estimate) drilled between 2009 and 2013. A Reflex EZ-TRAC tool was used to collect down hole survey measurements for holes drilled between 2014 and 2018.

Drilled thicknesses are generally greater than true thicknesses, depending on the dip of the mineralization, and the angle of the drilled hole.

The sampling interval was established by minimum or maximum sampling lengths determined by geological and/or structural criteria. The minimum sampling length was 50 cm, while the maximum was 1.5 m. The typical sample length in most of the mineralized zones is 1 m.

IAMGOLD determines the bulk density of samples by the water immersion method.

The primary laboratories used are independent of IAMGOLD and include:

- Accurassay (2011–2015), Timmins, Thunder Bay, (Ontario), accredited to ISO 17025 by the Standards Council of Canada, Scope of Accreditation 434
- ActLabs (2015–2018), Ancaster, Dryden, Timmins, Thunder Bay (Ontario), accredited to ISO 17025 by the Standards Council of Canada, Scope of Accreditation 266

At Accurassay, samples were crushed to -8 mesh and pulverized to 90% passing -150 mesh. Assays were completed using a standard fire assay (FA) and an atomic absorption (AA) finish. For samples that returned values of 2–5 g/t Au, another pulp was taken, and fire assayed with a gravimetric (FA-gravimetric) finish. Samples returning values >5 g/t Au were reanalyzed by pulp metallic analysis. All samples were subject to a 33-element inductively-coupled plasma (ICP) scan.

Initially at ActLabs, samples were crushed to 10 mesh and pulverized to 85% passing 200 mesh. Assays were completed using a standard FA and an AA finish. For samples that returned values between 2–5 g/t Au, another pulp was taken and assayed using the FA-gravimetric method. Samples returning values >5 g/t Au were reanalyzed by pulp screen metallic analysis. From 2017 onward, the entire sample had to be crushed to 95% passing 2.8 mm screen and a sample split pulverized to 95% passing 100 mesh. Samples analyzed using a standard FA with an AA finish. For samples that returned assay values >2.0 g/t, another cut was taken from the original pulp and subjected to FA-gravimetric analysis. For samples showing visible gold or samples which returned values >20.0 g/t; a reanalysis using pulp metallic methods had to be undertaken.

Umpire (check) laboratories were also independent of IAMGOLD and included:

- ActLabs (2012–2014): accredited to ISO 17025 by the Standards Council of Canada, Scope of Accreditation 266
- ALS Minerals (ALS), Val d'Or, Quebec (2015): accredited to ISO 17025 by the Standards Council of Canada, Scope of Accreditation 689.
- AGAT (2017–2018), Mississauga, Ontario, accredited to ISO 17025 by the Standards Council of Canada, Scope of Accreditation 665.

QA/QC insertion included standard reference materials (SRMs), blanks and pulp duplicates as a standard procedure. IAMGOLD inserted control samples after every 12<sup>th</sup> sample interval. Over the Project life, about 23 different SRMs and two types of blanks have been used. The IAMGOLD QA/QC protocol includes the use of blanks inserted in the sample stream at a frequency of approximately one in 24 samples.

Pre-2017 drill hole data previously stored in a Gems database was moved to acQuire. All new drill hole collars are provided by surveyors and imported into Gems and subsequently transferred to acQuire. All new logging is recorded directly into a Gems database and subsequently transferred to acQuire. All new assay results are imported directly into acQuire. Those assays are subsequently transferred to the Gems database.

Analytical samples are transported by company or laboratory personnel using corporately owned vehicles. Core boxes and samples are stored in safe, controlled areas. Chain-of-custody procedures are followed whenever samples are moved between locations, to and from the laboratory, by filling out sample submittal forms.

Drill core is stored at the property in wooden core boxes under open-sided roofed structures, arranged by year. All rejects and pulps from the laboratory are also stored on site. Pulps are categorized by batch number and are stored inside sea containers. Rejects are stored inside plastic crates under temporary shelter.

**1.8 Data Verification**

Internal data verification was performed by IAMGOLD staff over the Project history, and included: exploration data reviews, including exploration information, geological mapping, geological interpretations; drill collar position checks; downhole survey data reviews; examination of drill logging; review of sampling procedures, and assay data checks. Errors found in the database were reported to the database administrator and material errors were corrected as needed. Occasional inconsistencies found in the drill logs were addressed. Inconsistent sampling practices, with some samples crossing obvious contacts or lithological and mineralization limits were noted.

In 2012, staff from Roscoe Postle Associates Inc (RPA) completed site visits, and reviewed exploration, drilling, logging, and sampling procedures with Trelawney and IAMGOLD personnel. Witness core samples were collected, which independently confirmed the presence of gold mineralization. RPA also reviewed the available QA/QC data for the Côté Gold deposit. This included reviews of blank, CRM, pulp reject and check assays. Approximately 12% of the drill hole assay database was checked by comparing assay certificates to entries in the IAMGOLD database. Overall, the database was considered to be acceptable to support Mineral Resource estimation.

In December 2014, InnovExplo independently validated the entire assay database against laboratory certificates.

RPA's 2017 reviews included site visits, core reviews, field collar checks. Database checks included visual drill hole trace inspection and checks for extreme and zero assay values, unsampled or missing intervals, and overlapping intervals, routine database validation checks specific to Geovia GEMS to ensure the integrity of the database records, and comparison of about 5% of the assays from the 2015 drilling campaign against the assay certificates. RPA concluded that logging, sampling procedures, and data entry comply with industry standards and that the database that was reviewed was acceptable for Mineral Resource estimation.

Wood conducted data verification in 2018. This program included site visits during which Wood personnel reviewed drilling, sampling, and QA/QC procedures, and inspected outcrops, drill core, core photos, core logs, and QA/QC reports and specific gravity measurement procedures. Wood personnel reviewed collar, down-hole, and assay data in the database for transcription and other errors. Blank and CRM data were also evaluated. In the opinion of the QP, sufficient verification checks have been undertaken on the databases to provide confidence that the current database is reasonably error free and may be used to support Mineral Resource and Mineral Reserve estimation, and mine planning.

## 1.9 Metallurgical Testwork

Metallurgical laboratories involved with the testwork programs have included: SGS facilities in Lakefield, Ontario; COREM (a consortium composed of several mining companies and the Government of Quebec), in Quebec City, Quebec; and the University of British Columbia.

Metallurgical testwork completed since 2009 has included: comminution (Bond low-impact (crusher), rod mill and ball mill work indexes, Bond abrasion index, semi-autogenous grind (SAG) mill comminution (SMC), high-pressure grind-roll (HPGR), piston press, and Atwal) tests; gravity recoverable gold tests; cyanide leaching (effect of head grade, effect of grind, reagent usage, carbon-in-pulp (CIP) modelling, cyanide destruction, solid-liquid separation and barren solution analysis) testwork; development of recovery projections; and review of potential for deleterious elements.

The comminution testwork indicated that the material tested was very competent, and that the mineralization is well-suited to an HPGR circuit.

The mineralization is free-milling (non-refractory). A portion of the gold liberates during grinding and is amenable to gravity concentration and the response to gravity and leaching is relatively consistent across head grades. Therefore, the lower-grade gold material is expected to exhibit the same level of metal extraction. Individual lithologies follow the general trends for grind size sensitivity and cyanide consumption. However, there is evidence of differences in free gold content. Silver content is consistently reported under 2 g/t. The testwork does not report on silver recovery.

Overall gold recovery is estimated at 91.8% for the processing of 36,000 t/d using the proposed flowsheet.

Cyanide and lime consumptions are quite low in comparison to what is typically seen in the industry which reflects the lack of cyanicides and other cyanide consumers. Lime consumption is also positively impacted by the basic nature of the ore.

Metal dissolution during cyanide leaching was found to be low, and there are no obvious concerns with deleterious elements.

Overall metallurgical test results show that all the variability samples were readily amenable to gravity concentration and cyanide leach. Samples selected for metallurgical testing were representative of the various types and styles of mineralization within the different zones. Samples were selected from a range of locations within the deposit zones. Sufficient samples were taken so that tests were performed on sufficient sample mass.

#### 1.10 Mineral Resource Estimation

The drill hole database for the Côté Gold deposit consists of 713 core holes totalling over 300,000 m drilled by IAMGOLD and Trelawney Mining, between 2009 and 2018. Assay data are available for 711 of the completed holes.

At the resource estimate database cut-off date of 7 June 2018, assays were pending for two holes, CL11-13 and CL11-14. These intervals were excluded from the block grade estimation. In addition, two drill holes contained more than 10 m of consecutive unreported assays; these two intervals were also excluded from the resource update. A further 1,645 intervals amounting to over 16,500 m of core were not sampled due to lack of visible mineralization. Un-sampled intervals are assumed to represent un-mineralized material or diabase dyke. Assay intervals at 0.002 g/t Au were inserted for un-sampled core to prevent extrapolation of grade into the 'gaps'.

The lithological interpretation of the Côté Gold deposit was modelled in Leapfrog 3D by IAMGOLD exploration geologists. An extensive re-logging effort of drill core photos was conducted in early 2018 on all pre-2017 core holes. The re-logging effort resulted in a detailed and continuous geological model which added a significant amount of diorite breccia and hydrothermal breccia. This resulted in important improvements and a better overall understanding of the Côté deposit and of the distribution of mineralization, as well as a 30% increase in the volume of the Extended Breccia (Ext BX) shapes.

The geological model contains seven units: tonalite (TON), diorite (DR), diorite breccia (BXDR), hydrothermal breccia (HDBX), diabase dykes (DIA), fault zone (FLT), and overburden (OVB). Silica-sodic alteration envelopes were developed in Leapfrog 3D by IAMGOLD geologists based on a review of available core.

Wood reviewed the geology wireframes in 3D, and on vertical section and plan view maps, and concludes that the geological model is reasonable, honours the input data, and is suitable for resource modelling. The alteration envelopes were received late in the resource estimation process and were used for classification only.

Results of exploratory data analysis (EDA) indicate that the Ext BX units generally contain composite gold grades above 0.3 g/t. Higher-grade gold mineralization occurs chiefly within the two breccia units, BXDR and HDBX and to a lesser extent in TON and DR. The mean gold grade is higher in the south breccias. Box-and-whisker plots show that gold mineralization is higher in breccia units. However, mineralization occurs in all lithological packages inside the Ext BX unit (EDA envelope). The gold estimation domains are defined by lithology and the Ext BX units. Units were grouped where inspection showed similarities in the grade distributions or in cases of relatively low composite counts. Contact plots were inspected to determine the behaviour of composite grades across the geological boundaries. Contacts were assigned as either hard, firm, or soft boundaries.

Outlier analysis was undertaken on the original assay sample intervals prior to compositing. The assays were grouped by major lithology inside and outside the Ext BX (EDA envelope) for the analysis. Wood selected capping thresholds after analyzing four types of charts: cutting statistics, decile plots, histograms, probability plots, and Risk-Hi analysis. The number of composites capped was also taken into consideration.

The assay sample intervals were composited to regular 6 m intervals for the entire length of the drill holes. The composites were broken at lithological boundaries.

The drill hole database contains 785 records for density (specific gravity). The density data were analysed by lithology domain. High (>3) and low-density ( $\leq 2.4$ ) outliers were identified and filtered before calculating the means and variances of the distributions. The resulting mean density values were assigned to the blocks by lithology.

Variograms were calculated and modelled for grade for change-of-support (COS) analysis and sequential gaussian simulation for mining dig-line optimization and for a metal indicator for a drill hole spacing study. Variograms were modelled for the north and south domain groups.

A 10 x 10 x 12 m block size was selected for the resource block model. The resource block model was sub-blocked to 5 x 5 x 6 m to maintain geological boundary resolution. Various powers of inverse distance (ID) estimation were used for gold block grade estimation. A strategy was employed to adjust or 'tune' the estimator to achieve the selectivity of the target grade-tonnage curve obtained by change of support from a nearest-neighbour (NN) grade-tonnage curve. A three-pass estimation strategy was generally followed, except for the DIA domain, for which a single estimation pass was used. The first-pass sample search distances were adjusted to gather samples from adjacent holes on and off-section. The search criteria were relaxed for passes two and three. The sample search ellipse orientation was aligned to the variogram models. A strict octant search was used for the third pass outside of the Ext BX to mitigate grade smearing in relatively under-sampled areas with no clear geological controls.

The block grade estimates were validated using several methods: visual checks on vertical sections and plan views; statistical checks; swath plots and PRISM plots for local bias; Hermitian correction (HERCO) grade-tonnage curves for change-of-support analysis by domain, and conditional simulation for overall change-of-support analysis. The gold block grade estimate passed all validation checks and is considered suitable for mine planning.

A drill hole spacing study was undertaken for the five major gold estimation domains to establish the drill hole spacing (distance between holes) required to support confidence interval targets at a given production rate for estimated contained metal. Mineral Resources were assigned a block confidence classification based on drill hole spacing with consideration given to geological and grade continuity, and the quality of drill hole information. Blocks in an area with nominal drill hole spacing of 44 m were classified as Measured and blocks in an area with a nominal drill hole spacing of 66 m were classified as Indicated. Blocks outside of the Indicated limits were assigned as Inferred if the nominal spacing was 110 m or less. Smoothing using Vulcan was undertaken, and a number of block classifications were manually adjusted downward in confidence.

A conceptual pit shell was generated using Whittle software to constrain the Mineral Resources.

**1.11 Mineral Resource Statement**

Based on the input parameters used for the constraining conceptual resource pit, the marginal cut-off grade is calculated at 0.23 g/t Au, and the breakeven cut-off grade is 0.29 g/t Au with the mining costs included. Wood has used a 0.3 g/t Au cut-off for the Mineral Resource tabulation, as it meets the requirement for reasonable prospects of eventual economic extraction, and it supports the assumptions regarding grade continuity at that cut-off.

Mineral Resources are reported in Table 1-2 using the 2014 CIM Definition Standards. The Qualified Person for the estimate is Mr. Peter Oshust, P.Geo., a Wood employee. Mineral Resources summarized in Table 1-2 are reported inclusive of Mineral Reserves. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.

Areas of uncertainty that could affect the Mineral Resource estimates include the following: effect of alteration or other geological attributes as local controls on mineralization; lithological interpretations on a local scale, including fault zone modelling, D1A dyke modelling, and discrimination of breccias; assumptions of density (specific gravity) based on a low number of samples for the size of the deposit; commodity pricing; metal recovery assumptions; assumptions as to operating costs used when assessing reasonable prospects of eventual economic extraction.

Wood is not aware of any environmental, permitting, legal, title, taxation, socioeconomic, marketing, political, or other relevant factors that could materially affect the Mineral Resource estimate that are not discussed in this Report.

Geological controls of the mineralization of the Côté Gold deposit are still uncertain at the local scale. At the time of the resource estimate, ICP data required to complete a geological control study were not yet available. This lack of information is mitigated by good drill coverage, the use of an alteration model as one classification criterion, and an open pit operation. The QP does not believe this local uncertainty would materially affect the Mineral Resource estimates.

**Table 1-2: Mineral Resource Table**

| Classification                  | Cut-off<br>(g/t) | Tonnage<br>(Mt) | Gold Grade<br>(g/t Au) | Contained Gold<br>(koz Au) |
|---------------------------------|------------------|-----------------|------------------------|----------------------------|
| Measured                        | 0.3              | 171.9           | 0.96                   | 5,310                      |
| Indicated                       | 0.3              | 183.5           | 0.79                   | 4,660                      |
| <i>Measured &amp; Indicated</i> | <i>0.3</i>       | <i>355.4</i>    | <i>0.87</i>            | <i>9,970</i>               |
| Inferred                        | 0.3              | 112.8           | 0.67                   | 2,430                      |

Notes:

1. The effective date for the Mineral Resource estimate is 26 July, 2018. The Qualified Person for the estimate is Mr. Peter Oshust, P.Geo., a Wood employee.
2. Mineral Resources are constrained within a conceptual pit shell developed using Whittle™ software. Assumptions used to prepare the conceptual pit include: metal price of US\$1500/oz Au; base mining cost of US\$1.61 /t mined; stockpile reclaim cost of US\$0.87; overall processing cost of US\$10.17/t milled; treatment and refining cost of US\$1.75/oz; mining assumes 100% recovery with dyke dilution; pit slope angles are forecast to range from 41.3° to 48.1°; process recovery of 91.8%; and net smelter return royalty of 1.5%.
3. Based on the input parameters used for the constraining conceptual resource pit, the marginal cut-off grade is calculated at 0.23 g/t Au, and the breakeven cut-off grade is 0.29 g/t Au with the mining costs included. Wood has used a 0.3 g/t Au cut-off for the Mineral Resource tabulation, as it meets the requirement for reasonable prospects of eventual economic extraction, and it supports the assumptions regarding grade continuity at that cut-off.
4. Mineral Resources are reported using the 2014 CIM Definition Standards, and are stated inclusive of Mineral Reserves. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
5. Mineral Resources are reported on a 100% Project basis.
6. Numbers have been rounded. Totals may not sum due to rounding.

**1.12 Mineral Reserve Estimation**

Mineral Reserves were classified in accordance with the 2014 CIM Definition Standards. Only Mineral Resources that were classified as Measured and Indicated were given economic attributes in the mine design and when demonstrating economic viability. Mineral Reserves for the Côté Gold deposit incorporate appropriate mining dilution and mining recovery estimations for the open pit mining method.

The mine plan is based on the detailed mine design derived from the optimal pit shell produced by applying the Lerchs-Grossmann (LG) algorithm.

Wood imported the resource model, containing gold grades, block percentages, material density, slope sectors and rock types, and net smelter return, into the optimization software. The optimization run was carried out only using Measured and Indicated Mineral Resources to define the optimal mining limits.

The optimization run included 55 pit shells defined according to different revenue factors, where a revenue factor of 1 is the base case. To select the optimal pit shell that defines the ultimate pit limit, Wood conducted a pit-by-pit analysis to evaluate the contribution of each incremental shell to net present value (NPV), assuming a processing plant capacity of 36 kt/d and a discount rate of 6%.

The Mineral Reserve estimate incorporates considerations of dilution and ore losses on a block basis. As the mining cost increases with depth and the royalty percentage varies by zone, individual blocks captured within the final pit design were tagged as either ore or waste by applying the parameters shown in Table 1-3. Using the partial block percentages within the final pit design the ore tonnage and average grade were estimated.

#### **1.13 Mineral Reserve Statement**

The Mineral Reserves statement is shown in Table 1-4. The cut-off applied to the Mineral Reserves is variable with a range of 0.33 to 0.37 g/t Au and averages 0.35 g/t Au. The estimate has an effective date of 1 October, 2018. The QP for the estimate is Dr. Antonio Peralta Romero, P.Eng., a Wood employee.

#### **1.14 Mining Methods**

The Base Case mine plan is based on a subset of the Proven and Probable Mineral Reserves and this mine plan is used to support the permit application. Table 1-4 shows the subset of the Mineral Reserves included in the Base Case mine plan.

Geotechnical analyses are based on a combination of site visit inspections by Wood personnel, data processing and compilation of previously completed geomechanical investigations and site-specific resources supplied by IAMGOLD, kinematic analysis, limit equilibrium modelling, and overall slope stability analysis of the main pit walls including review of the hydrogeological conditions.

**Table 1-3: Optimization Inputs**

| Parameter                   | Unit        | Value                             |
|-----------------------------|-------------|-----------------------------------|
| Gold price                  | \$/oz       | 1,200                             |
| Discount rate               | %           | 6                                 |
| <i>Overall slope angles</i> |             |                                   |
| KS 1a                       | degrees     | 54.0                              |
| KS 1b                       | degrees     | 54.0                              |
| KS 2 Upper                  | degrees     | 54.0                              |
| KS 2 Lower                  | degrees     | 56.4                              |
| KS 3                        | degrees     | 53.4                              |
| KS 4a Upper                 | degrees     | 47.9                              |
| KS 4a Lower                 | degrees     | 49.2                              |
| KS 4b Upper                 | degrees     | 49.2                              |
| KS 4b Lower                 | degrees     | 45.8                              |
| KS 5 Upper                  | degrees     | 54.0                              |
| KS 5 Lower                  | degrees     | 56.4                              |
| Dilution                    | %           | Resource model is already diluted |
| Mine losses                 | %           | Taken into account by block       |
| <i>Mining Cost</i>          |             |                                   |
| Base elevation              | m           | 388                               |
| Base cost                   | \$/t        | 1.61                              |
| Incremental mining cost     | \$/t/bench  | 0.029                             |
| Stockpile reclaim cost      | \$/t        | 0.87                              |
| <i>Process Costs</i>        |             |                                   |
| Operating cost              | \$/t milled | 7.01                              |
| G&A cost                    | \$/t milled | 1.84                              |
| Process sustaining capital  | \$/t milled | 0.82                              |
| Closure                     | \$/t milled | 0.50                              |
| Processing rate             | kt/d        | 36                                |
| Process recovery            | %           | 91.80                             |
| Treatment and refining cost | \$/oz       | 1.75                              |

| Parameter        | Unit | Value |
|------------------|------|-------|
| <i>Royalties</i> |      |       |
| Zone 1           | %    | 0.75  |
| Zone 2           | %    | 1.00  |
| Zone 3           | %    | 0.00  |
| Zone 4           | %    | 1.50  |
| Zone 5           | %    | 0.75  |
| Zone 6           | %    | 1.50  |
| Zone 7           | %    | 0.75  |
| Zone 8           | %    | 0.75  |

**Table 1-4: Mineral Reserves Statement**

| Classification   | Tonnes<br>(Mt) | Grade<br>(g/t Au) | Contained Ounces<br>(oz x 1,000) |
|--|----------------|-------------------|----------------------------------|
| <i>Mineral Reserves within Base Case Mine Plan</i>                 |                |                   |                                  |
| Proven   | 134.3          | 1.03              | 4,440                            |
| Probable   | 68.7           | 0.88              | 1,950                            |
| Proven and Probable  | 203.0          | 0.98              | 6,391                            |
| Mine rock within Base Case pit                                     | 491.7          |                   |                                  |
| <i>Incremental Mineral Reserves within Extended Case Mine Plan</i> |                |                   |                                  |
| Proven   | 4.9            | 1.26              | 200                              |
| Probable   | 25.1           | 0.86              | 694                              |
| Proven and Probable  | 30.0           | 0.93              | 894                              |
| Incremental mine rock within Extended Case pit                     | 119.8          |                   |                                  |
| <i>Total Mineral Reserves</i>                                      |                |                   |                                  |
| Proven   | 139.2          | 1.04              | 4,640                            |
| Probable   | 93.8           | 0.88              | 2,644                            |
| Proven and Probable  | 233.0          | 0.97              | 7,284                            |
| Total mine rock within Extended Case pit                           | 611.5          |                   |                                  |
| Total tonnage within Extended Case pit                             | 844.5          |                   |                                  |

Notes to accompany Mineral Reserves Table:

- The effective date of the Mineral Reserves estimate is 1 October, 2018. The Qualified Person for the estimate is Dr. Antonio Peralta Romero, P.Eng., a Wood employee.
- The Mineral Reserves were estimated assuming open pit mining methods, and are reported on a 100% Project basis.
- Mineral Reserves used the following assumptions: gold price of \$1,200/oz; fixed process recovery of 91.8%; treatment and refining costs, including transport and selling costs of \$1.75/oz Au; variable royalty percentages by zone: 0.75% for Zone 1, 1.00% for zone 2, 0.00% for zone 3, 1.50% for zone 4, 0.75% for zone 5, 1.50% for zone 6, and 0.75% for zones 7 and 8; overall pit slope angles varying by sector with a range of 45.8° to 56.4°; processing costs of 10.17/t, which includes process operating costs of \$7.01/t, general and administrative costs of \$1.84/t, sustaining costs of \$0.82/t, and closure costs of \$0.50/t; mining costs of \$1.61/t incremented at \$0.029/t/12m below 388 elevation, life-of- mine average mining costs of \$2.01/t, and rehandling costs of \$0.87/t. The cut-off applied to the reserves is variable with a range of 0.33 to 0.37 g/t Au and averages 0.35 g/t Au.
- Numbers have been rounded. Totals may not sum due to rounding.

The pit has been sub-divided into five main structural domains related to the pit geometry and a major east–west-trending fault. Bench face angles of 60–75° were recommended. Bench widths in each sector were widened as necessary, based on the significance of toppling and wedge failures, from a minimum value of 9.5 m up to 12 m assuming double benching on the final pit wall. A 20 m wide geotechnical berm is recommended for midpoint between inter-ramp spacing greater than 150 m.

The Base Case is designed as a truck-shovel operation assuming 220 t autonomous trucks and 34 m<sup>3</sup> shovels. The pit design includes four phases to balance stripping requirements while satisfying the concentrator requirements. The design parameters include a ramp width of 35 m, road grades of 10%, bench height of 12 m, targeted mining width between 90 m, berm interval of 24 m, variable slope angles by sector and a minimum mining width of 40 m.

The smoothed final pit design contains approximately 203 Mt of mill feed and 492 Mt of waste for a resulting stripping ratio of 2.4:1. The 203 Mt processed fits within the maximum capacity of the TMF.

The Base Case production schedule includes the process plant ramp-up schedule. This schedule takes into account the inefficiencies related to start of operations, and includes the tonnage processed as well as the associated recoveries, which steadily increase to reach the design capacity after 10 months of operation. The mine will require one year of pre-production before the start of operations in the processing plant.

Although the mine requires one year of pre-stripping, mining starts in Year -2 to provide material for the TMF construction. The deposit is planned to be mined in four phases included within the ultimate pit limit. The schedule was developed in quarters for the pre-production period and for the first five years of production, then in yearly periods. Following evaluation of different rates, a maximum mining capacity of 62 Mt/a was selected to develop the detailed production schedule and the maximum number of benches mined per year was set at eight in each phase.

Additional constraints were used to guide the schedule, including feeding lower grades during the first months of the plant ramp-up schedule, the maximum stockpile capacity and reducing the mining capacity in later years to balance the number of truck requirements per period.

The final proposed Base Case schedule is shown in Figure 1-1. The schedule produced a Base Case life-of-mine (LOM) of 13 years with stockpile reclaim extending into Year 16. The amount of re-handled mill feed is 59 Mt, which requires a maximum stockpile capacity of 48 Mt when considering the reclaim.

The MRA will be constructed southeast of the planned open pit to store mine rock from the open pit excavation. In its ultimate configuration, the MRA will store 350 Mt of mine rock with its final crest elevation at an approximate elevation of 480 m. Collection ditches and six runoff collection ponds/sumps will be built at topographical low points around the MRA perimeter to collect runoff and seepage, which will then be pumped to the polishing pond.

The overburden storage, which will be located to the southwest of the pit, will have a storage capacity of approximately 8.2 Mm<sup>3</sup>. The ore stockpiles will be located on the north side of the pit and have a total storage capacity of 23 Mm<sup>3</sup>, which is enough to satisfy the maximum stockpiling capacity of approximately 48 Mt required in the production schedule.

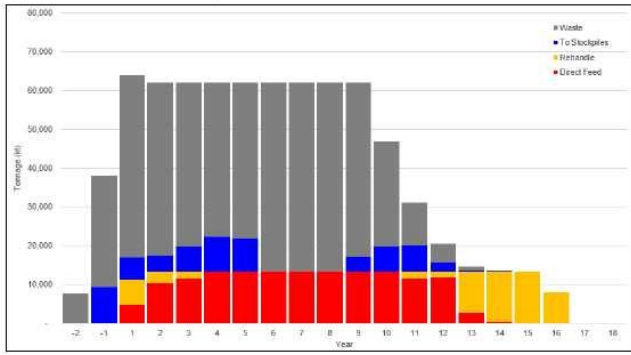
Blasting operations will be contracted to a blasting explosives provider. Drilling will be required for both ore control and blasting.

Base Case mining operations will use an autonomous truck and drill fleet, supported by a conventional manned loading fleet and a fleet of manned support equipment. The truck fleet will be diesel-powered with the capacity to mine approximately 60.0 Mt per year operating on 12 m benches. The hydraulic shovel fleet will be electric powered supported by two large diesel-powered front-end loaders (FELs).

The mine will be supported by multiple contractors. A contractor miner is assumed to mine all overburden within the mine plan and to develop the initial benches in the preproduction period for the autonomous fleet. A maintenance and repair contract (MARC) will be in place during pre-production and the first three years of operation. Blasting will be done by a contract down hole service during the LOM. A full-service contract tire provider will be used throughout the life of mine to supply, repair, and change tires at the mine site.

Equipment requirements are estimated on a quarterly basis during pre-production and the first five years of mining, and annually thereafter. Equipment sizing and numbers are based on the mine plan, maintenance availability assumptions, and a 24/hr, 7 d/wk work schedule.

Figure 1-1: Base Case Proposed Production Schedule



Note: Figure prepared by Wood, 2018.

### 1.15 Recovery Methods

The process plant design for the Base Case is conventional and uses conventional equipment. The process plant will consist of:

- Primary (gyratory) crushing
- Secondary cone crushing and coarse ore screening
- Coarse ore stockpile (COS)
- Tertiary HPGR crushing
- Fine ore screening and storage
- Two milling stages (ball mill followed by vertical stirred mills)
- Gravity concentration and intensive leaching
- Pre-leach thickening
- Whole ore cyanide leaching
- CIP recovery of precious metals from solution
- Cyanide destruction

- Tails thickening
- Elution of precious metals from carbon
- Recovery of precious metals by electrowinning (EW)
- Smelting to doré.

The plant will have facilities for carbon regeneration, tailings thickening and cyanide destruction. Plant throughput will be 36,000 t/d and it is expected that a ramp-up period of 10 months will be required to reach the design throughput. Tailings water from the reclaim pond will be the primary source of mill water, providing the majority of the process plant requirements, whereas the storm/mine water pond will be a secondary source of process water. Fresh water will be required for reagent mixing at the process plant which will be pumped from Mesomikenda Lake.

The major reagents required will include flocculant, caustic, cyanide, copper sulphate, molten sulphur, anti-scalant, lime, hydrochloric acid and oxygen. A dedicated, self-contained air service system will be provided.

The mill will require approximately 50.7 MW of power to operate at full capacity.

#### 1.16 Project Infrastructure

Infrastructure required to support Base Case operations will include: the open pit; MRA; stockpiles; TMF and associated ponds; access and internal roads; powerlines and power distribution networks; watercourse realignments, diversion channels, dams and ponds; a New Lake to replace Côté Lake; process facilities; accommodation facilities; and mine support facilities including offices, workshops and warehouses.

Power supply for the Base Case is assumed to be provided via an upgraded existing transmission line operated by Hydro One from Timmins to Shining Tree Junction and a new 44 km-long 115 kV electrical power transmission line from Shining Tree Junction to the Project site. The calculated electrical load for the Côté Gold site is as follows:

- 61 MW maximum demand load
- 59 MW average demand load
- 98% lagging (inductive) power factor.

This calculated load is based on the current electrical load list, and includes two electric shovels, mine dewatering, all ancillary loads, and a 10% allowance for growth during detailed design. Hydro One has allocated a total of 72 MW of capacity to the Project. Emergency back-up power will be available from four diesel standby generators.

The selected route to the plant is the existing Chester Logging Road which has already been upgraded from the Sultan Industrial Road to km 4.62 at the intersection with an existing road to the planned open pit area. At the corner of the planned TMF site, the existing road continues into the footprint of the TMF, and 4.28 km of new road construction will be required to extend the access to the construction/permanent camp entrance. This section of road will be constructed as part of the early works and will be used as a primary construction access to the plant site and the camp area. A mine bypass road will be constructed to allow the public to access Chester Logging Road north of the TMF without passing through the mine security gate and the mine site proper.

Base Case mine development will require three major haul roads, consisting of access to the MRA, the TMF, and the topsoil/overburden stockpile. In addition, a major intersection is required on the north side of the open pit to tie together the exit from the pit with the pit bypass road, the ramps to the ore stockpiles and the crusher and truck shop ramps.

#### 1.17 Environmental, Permitting and Social Considerations

##### 1.17.1 Environmental Considerations

IAMGOLD received Provincial ministerial approval of the 2015 Environmental Assessment (EA) for the Project. The EA states that no significant effects are anticipated after application of the proposed mitigation measures. Environment Canada stated in May 2016 that the Project is not likely to cause significant adverse environmental effects. The Project presented in the 2018 Feasibility Study has undergone optimizations since the 2015 EA, including: relocation of the TMF to minimize overprinting of fish-bearing waters, reduce the Project footprint, improve Project economics, reduce the need for watercourse realignments, and avoid effluent discharges to the Mesomikenda Lake watershed; smaller open pit; modifications to the process plant; reduction in transmission line voltage, and re-routing of the transmission line. IAMGOLD is of the opinion that there are no new net effects arising from the 2018 Feasibility Study. On October 19, 2018, CEAA confirmed that the proposed Project changes are not considered new designated physical activities and therefore a new environmental assessment is not required. On November 9, 2018, MECP also confirmed their concurrence with the conclusion in the EER report, that the proposed changes to the undertaking result in no new net effects.

Baseline environmental and social studies have been conducted addressing aspects of: water; air and noise; soils; geology and geochemistry; hydrology; hydrogeology; surface water quality; water sedimentation; groundwater quality; aquatic resources; wildlife; land use; cultural heritage and paleontological resources; and Aboriginal traditional land use. IAMGOLD has conducted additional baseline studies within the boundaries of the new TMF and topsoil/overburden stockpile, and new transmission line alignment, to infill the physical, biological and human environment characterizations conducted previously. These additional baseline data, together with design information for the site configuration, were used to prepare the Environmental Effects Review (EER) for the project, for submission to the Canadian Environmental Assessment Agency (CEAA) and the Ministry of the Environment, Conservation and Parks (MECP), thus informing the regulatory agencies of changes or improvements to the EA. As of November 9, 2018, both the CEAA and MECP concur with the conclusion in the EER report, which demonstrates that the proposed changes to the undertaking result in no new net effects.

#### 1.17.2 Tailings Management Facility

Over the proposed Base Case LOM of 16 years, tailings production is approximately 13.1 Mt/a from nominal mill throughput of 36,000 t/d, except in Year 1 when it is about 11 Mt due to ramp-up. The TMF will store 203 Mt of tailings over the LOM.

Tailings will be thickened with solids concentration in slurry at 62% and discharged from the TMF perimeter dams, forming an overall beach slope of approximately 1%. Tailings solids will settle in the TMF with pore water retained in the voids with supernatant water forming a pond. Based on recent rheology, drained and undrained column settling tests, an overall in-situ dry density of  $1.5 \text{ t/m}^3$  is expected.

Perimeter embankment dams, raised in stages, will be used for tailings management. Monitoring instrumentation will be used to monitor dam deformation and dam settlement during both operation and post-closure.

TMF water will be pumped from the tailings pond/reclaim pond directly to the mill for reuse and hence forms a closed circuit without contact with other water bodies. Collection ditches and ponds will be located at topographical low points around the TMF perimeter to collect runoff and seepage. In the ultimate TMF configuration there will be six collection ponds. The ponds will lead the seepage to the reclaim pond by gravity (or by pumping in some cases) for recirculation to the process plant.

Water quality will be monitored in the process water (before and after cyanide destruction) prior to discharge to the TMF. Water quality will also be monitored in the TMF settling pond, reclaim pond, and in the seepage collection system. Groundwater quality will be monitored at wells to be installed downgradient of the TMF seepage collection system to confirm that seepage from the TMF is being captured in the seepage collection system.

**1.17.3 Water Management**

A watercourse realignment system has been designed to redirect water around the mine facilities to enable excavation and dewatering of the open pit.

Four pit protection dams will be constructed either within existing lakes, in shallow water, or at currently dry locations along the eastern periphery of the Clam Lake. These dams will protect water from entering the pit area. Two realignment channels will reroute the existing watercourses running into the open pit.

A polishing pond east dam will be constructed in the Three Duck Lakes (Upper) area to delineate the lake from the polishing pond area. The Côté Lake dam is required to facilitate early dewatering of Côté Lake and separate the Three Duck Lakes system from Côté Lake. A storm/mine water pond near the process plant will receive pumped inflows from the pit, the polishing pond when required, and runoff from the process plant site. Runoff from the ore stockpiles and MRA will report to the polishing pond via perimeter ditches.

**1.17.4 Closure and Reclamation Planning**

Closure of the Côté Gold Project will be governed by the Ontario Mining Act and its associated regulations and codes. IAMGOLD has prepared a Closure Plan in accordance with the legislative requirements in tandem with the 2018 Feasibility Study. This plan details measures for temporary suspension, care and maintenance and closure of the Project, including determining financial assurance required to implement the Closure Plan.

Conventional methods of closure are expected to be employed at the site. The closure measures for the TMF will be designed to physically stabilize the tailings surface to prevent erosion and dust generation. The pit will be allowed to flood, and the natural flow of the realigned water bodies will be re-established to the extent practicable. Revegetation will be carried out using non-invasive native plant species. Monitoring at appropriate sampling locations, including those established during baseline studies and operations, will be conducted after closure to confirm performance.

MENDM requires financial assurance for implementation of the Closure Plan. A closure cost estimate is included in the Base Case operating cost estimate.

#### 1.17.5 Permitting Considerations

Most mining projects in Canada are reviewed under one or more EA processes whereby design choices, environmental impacts and proposed mitigation measures are compared and reviewed to determine how best to proceed through the environmental approvals and permitting stages. Entities involved in the review process normally include government agencies, municipalities, Aboriginal groups, the general public and other interested parties.

Three primary Provincial agencies will be involved with Project approvals/permits:

- Ministry of Energy, Northern Development and Mines (MENDM)
- Ministry of Natural Resources and Forestry (MNRF)
- Ministry of Environment, Conservation and Parks (MECP).

Additional agencies that may be involved in permitting include:

- Ontario Energy Board (OEB)
- Ministry of Transportation (MTO)
- Infrastructure Ontario (IO)
- Ministry of Tourism, Culture and Sport (MTCS)
- Fisheries and Oceans Canada (DFO)
- Environment and Climate Change Canada (ECCC; formerly Environment Canada)
- Natural Resources Canada (NRC)
- Transport Canada (TC)
- NAV CAN (NC).

**1.17.6 Social Considerations**

IAMGOLD has actively engaged local and regional communities, as well as other stakeholders, to gain a better understanding of their issues and interests, identify potential partnerships, and build social acceptance for the Project. Stakeholders involved in Project consultations to date include those with a direct interest in the Project, and those who provided data for the baseline studies. The involvement of stakeholders will continue throughout the various Project stages. The range of stakeholders is expected to increase and evolve over time, to reflect varying levels of interest and issues.

As part of the Provincial conditions of environmental assessment approval, IAMGOLD will develop and submit a Community Communication Plan to the responsible Provincial ministry, outlining its plan to communicate with stakeholders through all phases of the project.

IAMGOLD plans to work with the community of Gogama to collaborate on the development of a socio-economic management and monitoring plan to manage potential socio-economic effects of the project (both adverse and positive).

An understanding of the Indigenous communities potentially interested in the Côté Gold Project was first developed through advice from MENDM to Trelawney Mining and Exploration Inc. in a letter dated 19 August 2011, and through advice from CEEA based on information provided by Aboriginal Affairs and Northern Development Canada (now Indigenous and Northern Affairs Canada). IAMGOLD sought further direction from both Provincial and Federal Crown agencies on the potentially-affected communities.

Based on Federal and Provincial advice and information gathered through engagement activities, IAMGOLD engaged a range of Indigenous groups during the preparation of the EA. Based on consultation efforts since the start of the Project, and on groups expressing a continued interest, IAMGOLD has continued to engage the identified communities through information sharing (e.g., newsletters, notices, invitations to open houses), and has focused on actively engaging affected communities identified through the EA process. IAMGOLD continues to negotiate Impact Benefit Agreements with Mattagamí First Nation, Flying Post First Nation and the Métis Nation of Ontario (Region 3).

In addition, a Process and Funding Agreement has been reached between IAMGOLD, Mattagami First Nation and Flying Post First Nation related to the communities' involvement through the review of the EER and required regulatory permit applications to advance the Project.

As part of the Provincial and Federal conditions of approval, IAMGOLD will develop and submit an Indigenous Consultation Plan to the responsible government departments, outlining the Project's plan to consult with identified Indigenous groups throughout all phases of the Project. There is a requirement that IAMGOLD consult all identified Indigenous groups as part of the development of this Plan.

IAMGOLD has committed to work with the communities of Mattagami First Nation and Flying Post First Nation to collaboratively develop a socio-economic management and monitoring plan to manage potential socio-economic effects of the project (both adverse and positive).

**1.18 Markets and Contracts**

Gold doré bullion is typically sold through commercial banks and metals traders, with sales prices obtained from the World Spot or London fixes. These contracts are easily transacted, and standard terms apply. IAMGOLD expects that the terms of any sales contracts for the Base Case project would be typical of, and consistent with, standard industry practices, and would be similar to contracts for the supply of gold doré elsewhere in Canada.

The 2018 Feasibility Study assumes a gold price of US\$1,250/oz for the economic analysis. Wood considers this price to be an industry consensus long-term forecast price.

**1.19 Capital Cost Estimates**

The estimate addresses the Base Case mine, process facilities, ancillary buildings, infrastructure, water management and tailings facilities scope, and includes:

- Direct field costs of executing the Base Case including construction and commissioning of all structures, utilities, and equipment
- Indirect costs associated with design, construction and commissioning
- Provisions for contingency and Owner's costs.

The estimate was prepared in accordance with the AACE International Class 3 Estimate with an expected accuracy of +15%/-10% of the final Project cost.

Cost estimates are expressed in third-quarter 2018 US dollars with no allowances for escalation, currency fluctuation or interest during construction. Costs quoted in Canadian dollars were converted to US dollars at an exchange rate of US\$1 = C\$1.30.

Capital cost estimates for surface facilities include the construction and installation of all structures, utilities, materials, and equipment as well as all associated indirect and management costs. The capital cost includes contractor and engineering support to commission the process plant to ensure all systems are operational. At the point of hand-over of the plant to IAMGOLD's Operations group, all operational costs, including ramp-up to full production, are considered as operating costs. The capital cost estimate is based on a 30-month Project development schedule starting upon Closure Plan approval.

The construction capital cost, summarized in Table 1-5, for the Base Case is estimated to be \$1,236 M, inclusive of allowances for Owner's costs and contingency of \$27 M and \$100 M, respectively. Additional indirect costs for Operational Readiness and other owner's fees totalling \$45 M result in a total Base Case initial capital cost of \$1,281 M.

Some of the larger capital expenditures are amenable to capital financing. The majority of the initial mining fleet, having an approximate initial capital cost of \$142 M, can be financed using capital lease agreements with vendors. Inclusive of a down-payment of 0-15% of the purchase value paid at placement of order and interest payments incurred during the construction period, capital leases reduce the capital cost by approximately \$134 M, resulting in a total construction capital of \$1,101 M and a total initial capital cost of \$1,147 M net of mining equipment leasing. The Base Case capital cost taking into account leases of mining equipment is shown in Table 1-6.

Sustaining costs (including capital leases) over the LOM are estimated to total \$527 M.

Reclamation and closure costs are estimated at \$63 M, net of security bond fees and an allowance for equipment and materials salvage at the end of mine life.

**Table 1-5: Base Case Initial Capital Cost Estimate Summary**

| Area                              | Description            | Cost, US\$ M |
|-----------------------------------|------------------------|--------------|
| Direct costs                      | Mining                 | 323          |
|                                   | On-site infrastructure | 143          |
|                                   | Processing plant       | 346          |
|                                   | Tailings               | 67           |
|                                   | Off-site facilities    | 42           |
|                                   | Total direct costs     | 921          |
| Indirect costs                    | Indirects              | 188          |
|                                   | Owner's costs          | 27           |
|                                   | Contingency            | 100          |
|                                   | Total indirect costs   | 315          |
| <b>Total construction capital</b> |                        | <b>1,236</b> |
| Additional indirect costs         |                        | 45           |
| <b>Total initial capital cost</b> |                        | <b>1,281</b> |

**Table 1-6: Base Case Initial Capital Cost Estimate Summary With Leased Mining Equipment**

| Area                              | Description            | Cost, US\$ M |
|-----------------------------------|------------------------|--------------|
| Direct costs                      | Mining                 | 188          |
|                                   | On-site infrastructure | 143          |
|                                   | Processing plant       | 346          |
|                                   | Tailings               | 67           |
|                                   | Off-site facilities    | 42           |
|                                   | Total direct costs     | 786          |
| Indirect costs                    | Indirects              | 188          |
|                                   | Owner's costs          | 27           |
|                                   | Contingency            | 100          |
|                                   | Total indirect costs   | 315          |
| <b>Total construction capital</b> |                        | <b>1,101</b> |
| Additional indirect costs         |                        | 45           |
| <b>Total initial capital cost</b> |                        | <b>1,147</b> |

**1.20 Operating Cost Estimates**

Mining quantities were derived from first principles and mine-phased planning to achieve the planned production rates. Process operating costs estimates were developed from first principles, metallurgical testwork, IAMGOLD's salary/benefit guidelines and recent vendor quotations, and benchmarked against historical data for similar process plants. G&A costs were developed from first principles and benchmarked against similar projects. Reclamation and closure costs are estimated based on a detailed closure cost estimate prepared by SLR Consulting Canada Ltd., adjusted to include an allowance for security bond fees and a credit at the end of mine life to account for the estimated salvage value of equipment and materials.

Total operating costs for the Base Case over the LOM are estimated to be \$2,947 M (Table 1-7).

Mining and processing costs represent 46% and 44% of this total, respectively. Average operating costs are estimated at \$14.52/t of processed ore, as summarized in Table 1-8. Operating cost estimates exclude any allowances for contingencies.

**1.21 Economic Analysis**

The results of the economic analysis for the Base Case represent forward-looking information that is subject to a number of known and unknown risks, uncertainties and other factors that may cause actual results to differ materially from those presented here. Forward-looking statements in this Report include, but are not limited to, statements with respect to future gold prices, the estimation of Mineral Resources and Mineral Reserves, the estimated mine production and gold recovered, the estimated capital and operating costs, and the estimated cash flows generated from the planned mine production. Actual results may be affected by:

- Potential delays in the issuance of permits and any conditions imposed with the permits that are granted
- Differences in estimated initial capital costs and development time from what has been assumed in the 2018 Feasibility Study
- Unexpected variations in quantity of ore, grade or recovery rates, or presence of deleterious elements that would affect the process plant or waste disposal

**Table 1-7: Base Case Total Operating Costs**

| Cost Area        | Total, US\$ M | Percent of Total |
|------------------|---------------|------------------|
| Mining operating | 1,366         | 46               |
| Processing       | 1,283         | 44               |
| G&A              | 298           | 10               |
| <b>Total</b>     | <b>2,947</b>  | <b>100</b>       |

**Table 1-8: Base Case Average Unit Operating Costs**

| Cost Area    | US\$/t of processed ore |
|--------------|-------------------------|
| Mining       | 6.73                    |
| Processing   | 6.32                    |
| G&A          | 1.47                    |
| <b>Total</b> | <b>14.52</b>            |

- Unexpected geotechnical and hydrogeological conditions from what was assumed in the mine designs, including water management during construction, mine operations, and post mine closure
- Differences in the timing and amount of estimated future gold production, costs of future gold production, sustaining capital requirements, future operating costs, assumed currency exchange rate, requirements for additional capital, unexpected failure of plant, equipment or processes not operating as anticipated
- Changes in government regulation of mining operations, environment, and taxes
- Unexpected social risks, higher closure costs and unanticipated closure requirements, mineral title disputes or delays to obtaining surface access to the property.

The Base Case has been evaluated using discounted cash flow (DCF) analysis. Cash inflows consist of annual revenue projections. Cash outflows consist of initial capital expenditures, sustaining capital costs, operating costs, taxes, royalties, and commitments to other stakeholders. These are subtracted from revenues to arrive at the annual cash flow projections. Cash flows are taken to occur at the end of each period. To reflect the time value of money, annual net cash flow (NCF) projections are discounted back to the Base Case valuation date using the yearly discount rate. The discount rate appropriate to a specific project can depend on many factors, including the type of commodity, the cost of capital to the Base Case, and the level of Base Case risks (e.g. market risk, environmental risk, technical risk and political risk) in comparison to the expected return from the equity and money markets. The base case discount rate for the 2018 Feasibility Study is 5%, which has been commonly used to evaluate gold projects. The discounted present values of the cash flows are summed to arrive at the Project's NPV. In addition to the NPV, the internal rate of return (IRR) and the payback period are also calculated. The IRR is defined as the discount rate that results in an NPV equal to zero. The payback period is calculated as the time required to achieve positive cumulative cash flow for the Base Case from the start of production.

The 2018 Feasibility Study Base Case assumes that the doré will be picked up from site and delivered by the Royal Canadian Mint (the Mint) to their refinery in Ottawa. An indicative quote for transportation, insurance and refining was received from the Mint estimating costs at approximately \$1.75/oz Au, which has been used in the Base Case cashflow model.

Working capital modelling cash outflow and inflows are included in the Base Case model. The calculations are based on the assumptions that accounts payable will be paid within 45 days and accounts receivable received within 30 days, with an additional allowance for \$15 M in materials and supplies inventory, \$2 M in reagents inventory, and \$1.7 M in gold inventory held in carbon within the process plant. Initial working capital is estimated at approximately \$36 M in the first year of production.

Royalties range from 0% to a maximum of 1.5% depending on the source of the ore within the pit. They amount to approximately \$68 M over the life of the Base Case. Owner's other costs consist of allowances to meet commitments to stakeholders. They amount to approximately \$243 M over the Base Case LOM.

Taxation considerations included in the financial model comprise Provincial and Federal corporate income taxes and Ontario Mineral taxes. While the pre-tax results of the Côté Gold joint venture will be reported for income and mining tax purposes on a 70/30 basis, the after-tax results in the economic analysis should not be viewed on the basis of a 70/30 relationship. That is, differences in the underlying tax attributes of each of the corporate co-venturers will produce actual tax results for each co-venturer that differ from a simple 70/30 split of the total tax expenses generated in the model.

Two economic analysis scenarios for the Base Case have been considered, one which includes the leasing of mining equipment, and one that does not.

The scenario which does not assume that mining equipment will be leased has an after-tax NPV 5% of \$788 M (Table 1-9). The after-tax IRR is 14.5% . The after-tax payback of the initial capital investment is estimated to occur 4.5 years after the start of production.

The LOM total cash cost is \$594/oz Au derived from mining, processing, on-site G&A, refining, doré transportation and insurance, royalties, other owner's costs and Provincial mining tax costs per ounce payable.

The all-in sustaining cost (AISC) is \$668/oz Au derived from total cash costs plus sustaining capital (including interest on capital leases), and reclamation and remediation costs.

The scenario which includes the assumption that mining equipment will be leased has an after-tax NPV 5% of \$795 M (Table 1-10). The after-tax IRR is 15.2% . The after-tax payback of the initial capital investment is estimated to occur 4.4 years after the start of production.

The LOM total cash cost is \$594/oz Au derived from mining, processing, on-site G&A, refining, doré transportation and insurance, royalties, owner's other costs and Provincial mining tax costs per ounce payable.

The AISC is \$694/oz Au derived from total cash costs plus sustaining capital (including interest on capital leases), and reclamation and remediation costs.

In both AISC presentations, AISC as reported is based solely on costs associated with the Base Case and does not take into account any other corporate costs not directly associated with the Base Case.

#### **1.22 Sensitivity Analysis**

A sensitivity analysis was performed on the base case NPV 5% after taxes to examine the sensitivity to gold price, operating costs, capital costs (including sustaining), and US\$/C\$ exchange rate. The results of the sensitivity analysis are shown in Figure 1-2 for the after-tax scenario. In the pre-tax and after-tax evaluations, the Project is most sensitive to changes in gold price and gold head grade, and less sensitive to changes in exchange rate, operating costs and capital costs.

**Table 1-9: Summary–Base Case Financial Results Without Mine Equipment Leasing**

| Parameter            | Units | Pre-Tax | After-Tax |
|----------------------|-------|---------|-----------|
| Cumulative cash flow | US\$M | 2,348   | 1,612     |
| NPV 5%               | US\$M | 1,238   | 788       |
| NPV 8%               | US\$M | 803     | 462       |
| NPV 10%              | US\$M | 577     | 290       |
| Payback period*      | year  | 4.2     | 4.5       |
| IRR                  | %     | 17.8    | 14.5      |

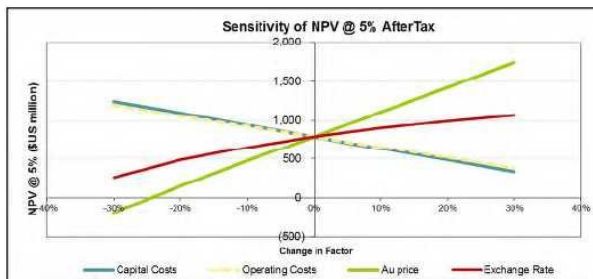
Note: Base case NPV is highlighted. \* Payback period is after two years of pre-production

**Table 1-10: Summary–Base Case Financial Results With Leasing of Mining Equipment**

| Parameter            | Units | Pre-Tax | After-Tax |
|----------------------|-------|---------|-----------|
| Cumulative cash flow | US\$M | 2,327   | 1,597     |
| NPV 5%               | US\$M | 1,242   | 795       |
| NPV 8%               | US\$M | 819     | 479       |
| NPV 10%              | US\$M | 599     | 313       |
| Payback period*      | year  | 4.2     | 4.4       |
| IRR                  | %     | 18.7    | 15.2      |

Note: base case NPV is highlighted. \* Payback period is after two years of pre-production

**Figure 1-2: NPV Sensitivity Analysis**



Note: Figure prepared by Wood, 2018. Gold head grade is not presented in the sensitivity graph because the impact of changes in the gold grade mirror the impact of changes in the gold price.

**1.23 Other Relevant Data and Information****1.23.1 Introduction**

The 2018 Feasibility Study Base Case supports the current permitting process with 203 Mt of the Reserves included in the mine plan. The Extended Case summary presented in this sub-section supports the total 233 Mt of Mineral Reserves. Should IAMGOLD pursue development of the additional ore reserves beyond the 203 Mt identified in the Environmental Effects Review, IAMGOLD will, through consultation with the regulatory authorities, confirm whether its environmental assessment coverage is sufficient or if new/amended environmental assessments are required. Development of additional ore would continue to be done in a manner that does not cause significant adverse environmental effects and would continue to extend socio-economic benefits to local communities and the region. The Extended Case adds approximately two years to the mine life with mill throughput remaining the same as the Base Case of 36,000 t/d, remains within the footprint of the current permit application to support the Base Case, but will require an additional 5m raise of the TMF to increase its capacity from 203 Mt to 233 Mt, and extend the height of the MRA.

**1.23.2 Mining Methods**

The Extended Case mine plan is based on the total Proven and Probable Mineral Reserves of 233 Mt (refer to Table 1-4), adding 30 Mt of additional ore to the mine plan used to support the permit application.

Geotechnical analyses are based on a combination of site visit inspections by Wood personnel, data processing and compilation of previously completed geomechanical investigations and site-specific resources supplied by IAMGOLD, kinematic analysis, limit equilibrium modelling, and overall slope stability analysis of the main pit walls including review of the hydrogeological conditions.

The pit has been sub-divided into five main structural domains related to the pit geometry and a major east–west-trending fault. Bench face angles of 60–75° were recommended. Bench widths in each sector were widened as necessary, based on the significance of toppling and wedge failures, from a minimum value of 9.5 m up to 12 m. A 20 m wide geotechnical berm is recommended for midpoint between inter-ramp spacing greater than 150 m.

The Extended Case is designed as a truck-shovel operation assuming 220 t autonomous trucks and 34 m<sup>3</sup> shovels. The pit design includes four phases to balance stripping requirements while satisfying the concentrator requirements. The design parameters include a ramp width of 35 m, road grades of 10%, bench height of 12 m, targeted mining width between 90 m, berm interval of 24 m, variable slope angles by sector and a minimum mining width of 40 m. The smoothed final pit design contains approximately 233 Mt of mill feed and 611 Mt of waste for a resulting stripping ratio of 2.62:1.

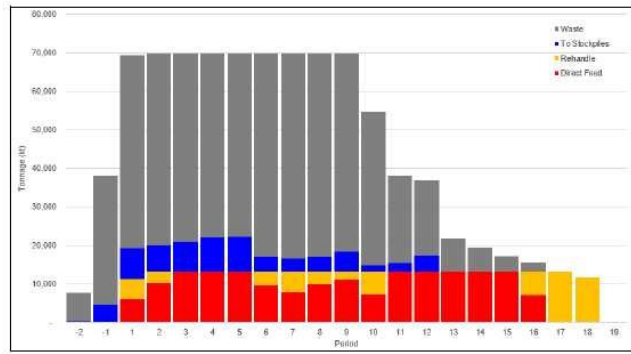
The Extended Case production schedule includes the process plant ramp-up schedule. This schedule takes into account the inefficiencies related to start of operations, and includes the tonnage processed as well as the associated recoveries, which steadily increase to reach the design capacity after 10 months of operation. The mine will require one year of pre-production before the start of operations in the processing plant. Although the mine requires one year of pre-stripping, mining starts in Year -2 to provide material for the TMF construction. The deposit is planned to be mined in four phases included within the ultimate pit limit. The schedule was developed in quarters for the pre-production period and for the first five years of production, then in yearly periods. Following evaluation of different rates, a maximum mining capacity of 70 Mt/a was selected to develop the detailed production schedule and the maximum number of benches mined per year was set at eight in each phase.

Additional constraints were used to guide the Extended Case schedule, including feeding lower grades during the first months of the plant ramp-up schedule, the maximum stockpile capacity and reducing the mining capacity in later years to balance the number of truck requirements per period.

The final proposed Extended Case schedule is shown in Figure 1-3. The schedule produced a Base Case life-of-mine (LOM) of 16 years with stockpile reclaim extending into Year 18. The amount of re-handled mill feed is 59 Mt, which requires a maximum stockpile capacity of 41 Mt when considering the reclaim.

The MRA will be constructed southeast of the planned open pit to store mine rock from the open pit excavation. In its ultimate configuration, the MRA will store 457 Mt of mine rock with its final crest elevation at an approximate elevation of 540 m. Collection ditches and six runoff collection ponds/sumps will be built at topographical low points around the MRA perimeter to collect runoff and seepage, which will then be pumped to the polishing pond.

Figure 1-3: Extended Case Proposed Production Schedule



Note: Figure prepared by Wood, 2018.

The overburden storage, which will be located to the southwest of the pit, will have a storage capacity of approximately 8.2 Mm<sup>3</sup>. The ore stockpiles will be located on the north side of the pit and have a total storage capacity of 20 Mm<sup>3</sup>, which is enough to satisfy the maximum stockpiling capacity of approximately 41 Mt required in the production schedule.

Blasting operations will be contracted to a blasting explosives provider. Drilling will be required for both ore control and blasting.

Mining operations will use an autonomous truck and drill fleet, supported by a conventional manned loading fleet and a fleet of manned support equipment. The truck fleet will be diesel-powered with the capacity to mine approximately 70 Mt/a operating on 12 m benches. The hydraulic shovel fleet will be electric powered supported by two large diesel-powered FELs.

The mine will be supported by multiple contractors. A contractor miner is assumed to mine all overburden within the mine plan and to develop the initial benches in the preproduction period for the autonomous fleet. A MARC will be in place during preproduction and the first three years of operation. Blasting will be done by a contract down hole service during the LOM. A full-service contract tire provider will be used throughout the life of mine to supply, repair, and change tires at the mine site.

Equipment requirements are estimated on a quarterly basis during pre-production and the first five years of mining, and annually thereafter. Equipment sizing and numbers are based on the mine plan, maintenance availability assumptions, and a 24/hr, 7 d/wk work schedule.

**1.23.3 Recovery Methods**

The process plant design for the Extended Case is conventional and uses conventional equipment. The process plant will consist of:

- Primary (gyratory) crushing
- Secondary cone crushing and coarse ore screening
- COS
- Tertiary HPGR crushing
- Fine ore screening and storage
- Two milling stages (ball mill followed by vertical stirred mills)
- Gravity concentration and intensive leaching
- Pre-leach thickening
- Whole ore cyanide leaching
- CIP recovery of precious metals from solution
- Cyanide destruction
- Tails thickening
- Elution of precious metals from carbon
- Recovery of precious metals by EW
- Smelting to doré.

The plant will have facilities for carbon regeneration, tailings thickening and cyanide destruction. Plant throughput will be 36,000 t/d and it is expected that a ramp-up period of 10 months will be required to reach the design throughput.

Tailings water from the reclaim pond will be the primary source of mill water, providing the majority of the process plant requirements, whereas the storm/mine water pond will be a secondary source of process water. Fresh water will be required for reagent mixing at the process plant which will be pumped from Mesomikenda Lake.

The major reagents required will include flocculant, caustic, cyanide, copper sulphate, molten sulphur, anti-scalant, lime, hydrochloric acid and oxygen. A dedicated, self-contained air service system will be provided.

The mill will require approximately 50.7 MW of power to operate at full capacity.

#### 1.23.4 Project Infrastructure

Infrastructure required to support operations in the Extended Case scenario will include: the open pit; MRA; stockpiles; TMF and associated ponds; access and internal roads; powerlines and power distribution networks; watercourse realignments, diversion channels, dams and ponds; a New Lake to replace Côté Lake; process facilities; accommodation facilities; and mine support facilities including offices, workshops and warehouses.

Power supply is assumed to be provided via an upgraded existing transmission line operated by Hydro One from Timmins to Shining Tree Junction and a new 44 km-long 115 kV electrical power transmission line from Shining Tree Junction to the Project site. The calculated electrical load for the Côté Gold site is as follows:

- 61 MW maximum demand load
- 59 MW average demand load
- 98% lagging (inductive) power factor.

This calculated load is based on the current electrical load list, and includes two electric shovels, mine dewatering, all ancillary loads, and a 10% allowance for growth during detailed design. Hydro One has allocated a total of 72 MW of capacity to the Project. Emergency back-up power will be available from four diesel standby generators.

The selected route to the plant is the existing Chester Logging Road which has already been upgraded from the Sultan Industrial Road to km 4.62 at the intersection with an existing road to the planned open pit area. At the corner of the planned TMF site, the existing road continues into the footprint of the TMF, and 4.28 km of new road construction will be required to extend the access to the construction/permanent camp used as a primary construction access to the plant site and the camp area. A mine bypass road will be constructed to allow the public to access Chester Logging Road north of the TMF without passing through the mine security gate and the mine site proper.

Mine development will require three major haul roads, consisting of access to the MRA, the TMF, and the topsoil/overburden stockpile. In addition, a major intersection is required on the north side of the open pit to tie together the exit from the pit with the pit bypass road, the ramps to the ore stockpiles and the crusher and truck shop ramps.

### 1.23.5 Environmental, Permitting and Social Considerations

#### Environmental Considerations

IAMGOLD received Provincial ministerial approval of the 2015 Environmental Assessment (EA) for the Project. The EA states that no significant effects are anticipated after application of the proposed mitigation measures. Environment Canada stated in May 2016 that the Project is not likely to cause significant adverse environmental effects. The project presented in the 2018 Feasibility Study has undergone optimizations since the 2015 EA, including: relocation of the TMF to minimize overprinting of fish-bearing waters, reduce the Project footprint, improve Project economics, reduce the need for watercourse realignments, and avoid effluent discharges to the Mesomikenda Lake watershed; smaller open pit; modifications to the process plant; and reduction in transmission line voltage, and re-routing of the line. IAMGOLD is of the opinion that there are no new net effects arising from the 2018 Feasibility Study. On October 19, 2018, CEAA confirmed that the proposed Project changes are not considered new designated physical activities and therefore a new environmental assessment is not required. On November 9, 2018, MECP also confirmed their concurrence with the conclusion in the EER report, that the proposed changes to the undertaking result in no new net effects.

Baseline environmental and social studies have been conducted addressing aspects of: water; air and noise; soils; geology and geochemistry; hydrology; hydrogeology; surface water quality; water sedimentation; groundwater quality; aquatic resources; wildlife; land use; cultural heritage and paleontological resources; and Aboriginal traditional land use. IAMGOLD has conducted additional baseline studies within the boundaries of the new TMF and topsoil/overburden stockpile, and new transmission line alignment, to infill the physical, biological and human environment characterizations conducted previously. These additional baseline data, together with design information for the site configuration, were used to prepare the EER for the project, for submission to the CEAA and the MECP, thus informing the regulatory agencies of changes or improvements to the EA. As of November 9, 2018, both the CEAA and MECP concur with the conclusion in the EER report, which demonstrates that the proposed changes to the undertaking result in no new net effects.

**Tailings Management Facility**

Over the proposed Extended Case LOM of 18 years, tailings production is approximately 13.1 Mt/a from nominal mill throughput of 36,000 t/d, except in Year 1 when it is about 11 Mt due to ramp-up. The TMF will store 233 Mt of tailings over the LOM.

To enhance the capacity of the TMF to 233 Mt, the entire perimeter dams will require raising by 5 m. Engineering for raising the TMF dams by 5 m will need to be conducted and the following additional engineering studies will be required: supplementary geotechnical and hydrogeological investigations; tailings deposition plan update; dam stability analyses; TMF 3D seepage model update; water quality predictions model update; seepage collection system update.

Tailings will be thickened with solids concentration in slurry at 62% and discharged from the TMF perimeter dams, forming an overall beach slope of approximately 1%. Tailings solids will settle in the TMF with pore water retained in the voids with supernatant water forming a pond. An overall in-situ dry density of 1.5 t/m<sup>3</sup> is expected.

Perimeter embankment dams, raised in stages, will be used for tailings management. Monitoring instrumentation will be used to monitor dam deformation and dam settlement during both operation and post-closure.

TMF water will be pumped from the tailings pond/reclaim pond directly to the mill for reuse and hence forms a closed circuit without contact with other water bodies. Collection ditches and ponds will be located at topographical low points around the TMF perimeter to collect runoff and seepage. In the ultimate TMF configuration there will be six collection ponds. The ponds will lead the seepage to the reclaim pond by gravity (or by pumping in some cases) for recirculation to the process plant.

Water quality will be monitored in the process water (before and after cyanide destruction) prior to discharge to the TMF. Water quality will also be monitored in the TMF settling pond, reclaim pond, and in the seepage collection system. Groundwater quality will be monitored at wells to be installed downgradient of the TMF seepage collection system to confirm that seepage from the TMF is being captured in the seepage collection system.

#### **Water Management**

A watercourse realignment system has been designed to redirect water around the mine facilities to enable excavation and dewatering of the open pit.

Four pit protection dams will be constructed either within existing lakes, in shallow water, or at currently dry locations along the eastern periphery of Clam Lake. These dams will protect water from entering the pit area. Two realignment channels will reroute the existing watercourses running into the open pit.

A polishing pond east dam will be constructed in the Three Duck Lakes (Upper) area to delineate the lake from the polishing pond area. The Côté Lake dam is required to facilitate early dewatering of Côté Lake and separate the Three Duck Lakes system from Côté Lake. A storm/mine water pond near the process plant will receive pumped inflows from the pit, the polishing pond when required, and runoff from the process plant site. Runoff from the ore stockpiles and MRA will report to the polishing pond via perimeter ditches.

#### **Closure and Reclamation Planning**

Closure of the Côté Gold Project will be governed by the Ontario Mining Act and its associated regulations and codes. IAMGOLD has prepared a Closure Plan in accordance with the legislative requirements in tandem with the 2018 Feasibility Study. This plan details measures for temporary suspension, care and maintenance and closure of the Project, including determining financial assurance required to implement the Closure Plan.

Conventional methods of closure are expected to be employed at the site. The closure measures for the TMF will be designed to physically stabilize the tailings surface to prevent erosion and dust generation. The pit will be allowed to flood, and the natural flow of the realigned water bodies will be re-established to the extent practicable. Revegetation will be carried out using non-invasive native plant species. Monitoring at appropriate sampling locations, including those established during baseline studies and operations, will be conducted after closure to confirm performance.

#### Permitting Considerations

MENDM requires financial assurance for implementation of the Closure Plan. A closure cost estimate is included in the Base Case operating cost estimate.

Most mining projects in Canada are reviewed under one or more EA processes whereby design choices, environmental impacts and proposed mitigation measures are compared and reviewed to determine how best to proceed through the environmental approvals and permitting stages. Entities involved in the review process normally include government agencies, municipalities, Aboriginal groups, the general public and other interested parties.

Three primary Provincial agencies will be involved with Project approvals/permits:

- MENDM
- MNRF
- MECP.

Additional agencies that may be involved in permitting include:

- OEB
- MTO
- IO
- MTCS
- DFO
- ECCC
- NRC
- TC
- NC.

#### Social Considerations

IAMGOLD has actively engaged local and regional communities, as well as other stakeholders, to gain a better understanding of their issues and interests, identify potential partnerships, and build social acceptance for the Project. Stakeholders involved in Project consultations to date include those with a direct interest in the Project, and those who provided data for the baseline studies. The involvement of stakeholders will continue throughout the various Project stages. The range of stakeholders is expected to increase and evolve over time, to reflect varying levels of interest and issues.

As part of the Provincial conditions of environmental assessment approval, IAMGOLD will develop and submit a Community Communication Plan to the responsible Provincial ministry, outlining its plan to communicate with stakeholders through all phases of the Project.

IAMGOLD plans to work with the community of Gogama to collaborate on the development of a socio-economic management and monitoring plan to manage potential socio-economic effects of the project (both adverse and positive).

An understanding of the Indigenous communities potentially interested in the Côté Gold Project was first developed through advice from MENDM to Trelawney Mining and Exploration Inc. in a letter dated 19 August 2011, and through advice from CEEA based on information provided by Aboriginal Affairs and Northern Development Canada (now Indigenous and Northern Affairs Canada). IAMGOLD sought further direction from both Provincial and Federal Crown agencies on the potentially-affected communities.

Based on Federal and Provincial advice and information gathered through engagement activities, IAMGOLD engaged a range of Indigenous groups during the preparation of the EA. Based on consultation efforts since the start of the Project, and on groups expressing a continued interest, IAMGOLD has continued to engage the identified communities through information sharing (e.g., newsletters, notices, invitations to open houses), and has focused on actively engaging affected communities identified through the EA process. IAMGOLD continues to negotiate Impact Benefit Agreements with Mattagami First Nation, Flying Post First Nation and the Métis Nation of Ontario (Region 3).

In addition, a Process and Funding Agreement has been reached between IAMGOLD, Mattagami First Nation and Flying Post First Nation related to the communities' involvement through the review of the EER and required regulatory permit applications to advance the Project.

As part of the Provincial and Federal conditions of approval, IAMGOLD will develop and submit an Indigenous Consultation Plan to the responsible government departments, outlining the Project's plan to consult with identified Indigenous groups throughout all phases of the Project. There is a requirement that IAMGOLD consult all identified Indigenous groups as part of the development of this Plan.

IAMGOLD has committed to work with the communities of Mattagami First Nation and Flying Post First Nation to collaboratively develop a socio-economic management and monitoring plan to manage potential socio-economic effects of the project (both adverse and positive).

#### 1.23.6 Markets and Contracts

Gold doré bullion is typically sold through commercial banks and metals traders, with sales prices obtained from the World Spot or London fixes. These contracts are easily transacted, and standard terms apply. IAMGOLD expects that the terms of any sales contracts for the Extended Case would be typical of, and consistent with, standard industry practices, and would be similar to contracts for the supply of gold doré elsewhere in Canada.

The 2018 Feasibility Study assumes a gold price of US\$1,250/oz for the economic analysis. Wood considers this price to be an industry consensus long-term forecast price.

#### 1.23.7 Capital Cost Estimates

The estimate addresses the Extended Case mine, process facilities, ancillary buildings, infrastructure, water management and tailings facilities scope, and includes:

- Direct field costs of executing the Extended Case including construction and commissioning of all structures, utilities, and equipment
- Indirect costs associated with design, construction and commissioning
- Provisions for contingency and Owner's costs.

The estimate was prepared in accordance with the AACE International Class 3 Estimate with an expected accuracy of +15%/-10% of the final Project cost.

Cost estimates are expressed in third-quarter 2018 US dollars with no allowances for escalation, currency fluctuation or interest during construction. Costs quoted in Canadian dollars were converted to US dollars at an exchange rate of US\$1 = C\$1.30.

Capital cost for surface facilities includes the construction and installation of all structures, utilities, materials, and equipment as well as all associated indirect and management costs. The capital cost includes contractor and engineering support to commission the process plant to ensure all systems are operational. At the point of hand-over of the plant to IAMGOLD's Operations group, all operational costs, including ramp-up to full production, are considered as operating costs. The capital cost estimate is based on a 30-month development schedule starting upon Closure Plan approval.

The Extended Case's construction capital cost, summarized in Table 1-11, is estimated to be \$1,236 M, inclusive of allowances for Owner's costs and contingency of \$27 M and \$100 M, respectively. Additional indirect costs for Operational Readiness and other owner's fees totalling \$45 M result in a total initial capital cost of \$1,281 M.

Some of the larger capital expenditures are amenable to capital financing. The majority of the initial mining fleet, having an approximate initial capital cost of \$142 M, can be financed using capital lease agreements with vendors. Inclusive of a down-payment of 0-15% of the purchase value paid at placement of order and interest payments incurred during the construction period, capital leases reduce the capital cost by approximately \$134 M, resulting in a total construction capital of \$1,101 M and a total initial capital cost of \$1,147 M net of mining equipment leasing.

The Extended Case's capital cost taking into account leases of mining equipment is shown in Table 1-12. Sustaining costs (including capital leases) costs over the LOM are estimated to total \$589 M.

Reclamation and closure costs are estimated at \$63 M, net of security bond fees and an allowance for equipment and materials salvage at the end of mine life.

#### **1.23.8 Operating Cost Estimates**

Mining quantities were derived from first principles and mine-phased planning to achieve the planned production rates. Process operating costs estimates were developed from first principles, metallurgical testwork, IAMGOLD's salary/benefit guidelines and recent vendor quotations, and benchmarked against historical data for similar process plants. G&A costs were developed from first principles and benchmarked against similar projects.

**Table 1-11: Extended Case Initial Capital Cost Estimate Summary**

| Area                              | Description            | Cost, US\$ M |
|-----------------------------------|------------------------|--------------|
| Direct costs                      | Mining                 | 323          |
|                                   | On-site infrastructure | 143          |
|                                   | Processing plant       | 346          |
|                                   | Tailings               | 67           |
|                                   | Off-site facilities    | 42           |
|                                   | Total direct costs     | 921          |
| Indirect cost                     | Indirects              | 188          |
|                                   | Owner's costs          | 27           |
|                                   | Contingency            | 100          |
|                                   | Total indirect costs   | 315          |
| <b>Total construction capital</b> |                        | <b>1,236</b> |
| Additional indirect costs         |                        | 45           |
| <b>Total initial capital cost</b> |                        | <b>1,281</b> |

**Table 1-12: Extended Case Initial Capital Cost Estimate Summary w/Leased Mining Equipment**

| Area                              | Description            | Cost, US\$ M |
|-----------------------------------|------------------------|--------------|
| Direct costs                      | Mining                 | 188          |
|                                   | On-site infrastructure | 143          |
|                                   | Processing plant       | 346          |
|                                   | Tailings               | 67           |
|                                   | Off-site facilities    | 42           |
|                                   | Total direct costs     | 786          |
| Indirect costs                    | Indirects              | 188          |
|                                   | Owner's costs          | 27           |
|                                   | Contingency            | 100          |
|                                   | Total indirect costs   | 315          |
| <b>Total construction capital</b> |                        | <b>1,101</b> |
| Additional indirect costs         |                        | 45           |
| <b>Total initial capital cost</b> |                        | <b>1,147</b> |

Reclamation and closure costs are estimated based on a detailed closure cost estimate prepared by SLR Consulting Canada Ltd., adjusted to include an allowance for security bond fees and a credit at the end of mine life to account for the estimated salvage value of equipment and materials.

Total operating costs over the Extended Case LOM are estimated to be \$3,441 M (Table 1-13). Mining and processing costs represent 47% and 43% of this total, respectively. Average operating costs are estimated at \$14.77/t of processed ore, as summarized in Table 1-14. Operating cost estimates exclude any allowances for contingencies.

#### 1.23.9 Economic Analysis

The results of the Extended Case economic analysis represent forward-looking information that is subject to a number of known and unknown risks, uncertainties and other factors that may cause actual results to differ materially from those presented here. Forward-looking statements in this Report include, but are not limited to, statements with respect to future gold prices, the estimation of Mineral Resources and Mineral Reserves, the estimated mine production and gold recovered, the estimated capital and operating costs, and the estimated cash flows generated from the planned mine production.

Actual results may be affected by:

- Potential delays in the issuance of permits and any conditions imposed with the permits that are granted
- Differences in estimated initial capital costs and development time from what has been assumed in the 2018 Feasibility Study
- Unexpected variations in quantity of ore, grade or recovery rates, or presence of deleterious elements that would affect the process plant or waste disposal
- Unexpected geotechnical and hydrogeological conditions from what was assumed in the mine designs, including water management during construction, mine operations, and post mine closure

**Table 1-13: Extended Case Total Operating Costs Over Project Life**

| Cost Area        | Total, US\$ M | Percent of Total |
|------------------|---------------|------------------|
| Mining operating | 1,627         | 47               |
| Processing       | 1,472         | 43               |
| G&A              | 342           | 10               |
| <b>Total</b>     | <b>3,441</b>  | <b>100</b>       |

**Table 1-14: Extended Case Average Unit Operating Costs**

| Cost Area    | US\$/t of processed ore |
|--------------|-------------------------|
| Mining       | 6.98                    |
| Processing   | 6.32                    |
| G&A          | 1.47                    |
| <b>Total</b> | <b>14.77</b>            |

- Differences in the timing and amount of estimated future gold production, costs of future gold production, sustaining capital requirements, future operating costs, assumed currency exchange rate, requirements for additional capital, unexpected failure of plant, equipment or processes not operating as anticipated
- Changes in government regulation of mining operations, environment, and taxes
- Unexpected social risks, higher closure costs and unanticipated closure requirements, mineral title disputes or delays to obtaining surface access to the property.

The Project has been evaluated using DCF analysis. Cash inflows consist of annual revenue projections. Cash outflows consist of initial capital expenditures, sustaining capital costs, operating costs, taxes, royalties, and commitments to other stakeholders. These are subtracted from revenues to arrive at the annual cash flow projections. Cash flows are taken to occur at the end of each period. To reflect the time value of money, annual NCF projections are discounted back to the Extended Case valuation date using the yearly discount rate. The discount rate appropriate to a specific project can depend on many factors, including the type of commodity, the cost of capital to the Extended Case, and the level of Extended Case risks (e.g. market risk, environmental risk, technical risk and political risk) in comparison to the expected return from the equity and money markets. The base case discount rate for the 2018 feasibility is 5%, which has been commonly used to evaluate gold projects. The discounted present values of the cash flows are summed to arrive at the Project's NPV. In addition to the NPV, the IRR and the payback period are also calculated. The IRR is defined as the discount rate that results in an NPV equal to zero. The payback period is calculated as the time required to achieve positive cumulative cash flow for the Extended Case from the start of production.

The Extended Case in the 2018 Feasibility Study assumes that the doré will be picked up from site and delivered by the Mint to their refinery in Ottawa. An indicative quote for transportation, insurance and refining was received from the Mint estimating costs at approximately \$1.75/oz Au, which has been used in the cashflow model for the Project.

Working capital modelling cash outflow and inflows are included in the Extended Case model. The calculations are based on the assumptions that accounts payable will be paid within 45 days and accounts receivable received within 30 days, with an additional allowance for \$15 M in materials and supplies inventory, \$2 M in reagents inventory, and \$1.7 M in gold inventory held in carbon within the process plant. Initial working capital is estimated at approximately \$33 M in the first year of production.

Royalties range from 0% to a maximum of 1.5% depending on the source of the ore within the pit. They amount to approximately \$76 M over the life of the Extended Case. Owner's other costs consist of allowances to meet commitments to stakeholders. They amount to approximately \$270 M over the Extended Case LOM.

Taxation considerations included in the Extended Case financial model comprise Provincial and Federal corporate income taxes and Ontario Mineral taxes. While the pre-tax results of the Côté Gold joint venture will be reported for income and mining tax purposes on a 70/30 basis, the after-tax results in the economic analysis should not be viewed on the basis of a 70/30 relationship. That is, differences in the underlying tax attributes of each of the corporate co-venturers will produce actual tax results for each co-venturer that differ from a simple 70/30 split of the total tax expenses generated in the model.

Two economic analysis scenarios for the Extended Case have been considered, one which includes the leasing of mining equipment, and one that does not.

The scenario which does not assume that mining equipment will be leased has an after-tax NPV 5% of \$898M (Table 1-15). The after-tax IRR is 14.7% . The after-tax payback of the initial capital investment is estimated to occur 4.4 years after the start of production. The LOM total cash cost is \$606/oz Au derived from mining, processing, on-site G&A, refining, doré transportation and insurance, royalties, other Owner's costs and Provincial mining tax costs per ounce payable. The AISC is \$681/oz Au derived from total cash costs plus sustaining capital (including interest on capital leases), and reclamation and remediation costs.

The scenario which includes the assumption that mining equipment will be leased has an after-tax NPV 5% of \$905 M (Table 1-16). The after-tax IRR is 15.4% . The after-tax payback of the initial capital investment is estimated to occur 4.4 years after the start of production. The LOM total cash cost is \$606/oz Au derived from mining, processing, on-site G&A, refining, doré transportation and insurance, royalties, owner's other costs and Provincial mining tax costs per ounce payable. The AISC is \$703/oz Au derived from total cash costs plus sustaining capital (including interest on capital leases), and reclamation and remediation costs.

In both AISC presentations, AISC as reported is based solely on costs associated with the Extended Case and does not take into account any other corporate costs not directly associated with the Extended Case.

#### **1.23.10 Sensitivity Analysis**

A sensitivity analysis was performed on the Extended Case base case NPV 5% after taxes to examine the sensitivity to gold price, operating costs, capital costs (including sustaining), and US\$/C\$ exchange rate. The results of the sensitivity analysis are shown in Figure 1-4 for the after-tax scenario.

#### **1.24 Interpretation and Conclusions**

The Base Case and the Extended Case show positive economics under the assumptions presented in the Report.

**Table 1-15: Summary-Extended Case Financial Results Without Mine Equipment Leasing**

| Parameter            | Unit | Pre-Tax | After-Tax |
|----------------------|------|---------|-----------|
| Cumulative cash flow | USSM | 2,780   | 1,906     |
| NPV 5%               | USSM | 1,400   | 898       |
| NPV 8%               | USSM | 891     | 520       |
| NPV 10%              | USSM | 635     | 328       |
| Payback period*      | year | 4.2     | 4.4       |
| IRR                  | %    | 18.0    | 14.7      |

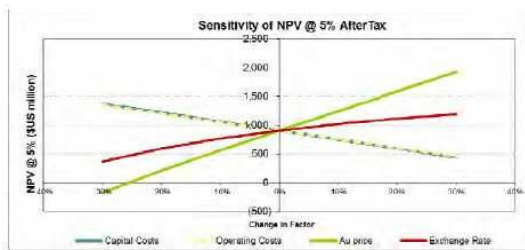
Note: base case NPV is highlighted. \* Payback period is after two years of pre-production

**Table 1-16: Summary-Extended Case Financial Results With Leasing of Mining Equipment**

| Parameter            | Units | Pre-Tax | After-Tax |
|----------------------|-------|---------|-----------|
| Cumulative cash flow | USSM  | 2,759   | 1,893     |
| NPV 5%               | USSM  | 1,404   | 905       |
| NPV 8%               | USSM  | 907     | 538       |
| NPV 10%              | USSM  | 656     | 351       |
| Payback period*      | year  | 4.1     | 4.4       |
| IRR                  | %     | 18.7    | 15.4      |

Note: Base case NPV is highlighted. \* Payback period is after two years of pre-production

**Figure 1-4: Extended Case NPV Sensitivity Analysis**



Note: Figure prepared by Wood, 2018. Gold head grade is not presented in the sensitivity graph because the impact of changes in the gold grade mirror the impact of changes in the gold price.

**1.25 Recommendations**

A one-phase work program has been developed to support design considerations for a future Côté Gold operation. The program has been developed by discipline area. The recommended work in each area can be completed concurrently as no aspect of the program are dependent on the results of another. The budget estimates are provided as a range, depending on whether IAMGOLD personnel or a third-party undertake the work program. The total program is estimated at US\$155,000 to \$215,000.

Recommendations include:

- Conduct a geological controls study of the mineralization of the Côté Gold deposit
- Complete additional HPGR and cyanidation tests
- Undertake trade-off studies, including assessment of autonomous haulage systems, blasthole sampling, and placement of overburden material
- Review of open pit phase designs, optimize feed grade to the processing plant, and assess variable cut-off grade
- Complete cone penetration tests at potentially-liquefiable locations under some dam structures and undertake liquefaction assessments
- Conduct supplementary field investigation and detailed hydrological and hydraulic evaluations to refine the TMF and reclaim pond dam design, freeboard, spillway, and drainage ditch designs
- Develop a water balance model for the TMF and reclaim ponds.

**2.0 INTRODUCTION****2.1 Introduction**

Wood Canada Limited (Wood), formerly known as Amec Foster Wheeler Americas Limited (Amec Foster Wheeler) in conjunction with IAMGOLD Corp. (IAMGOLD) has prepared a technical report (the Report) on the results of a feasibility study (the 2018 Feasibility Study) completed on the Côté Gold Project (the Project), a gold development project located near Gogama, Ontario, Canada, approximately 125 km southwest of Timmins, Ontario.

IAMGOLD is operator of an unincorporated joint venture (JV) in respect of the Project, formed pursuant to the terms of a JV agreement dated 20 June 2017 among IAMGOLD, SMM Gold Côté Inc, and Sumitomo Metal Mining Co, Ltd.

**2.2 Terms of Reference**

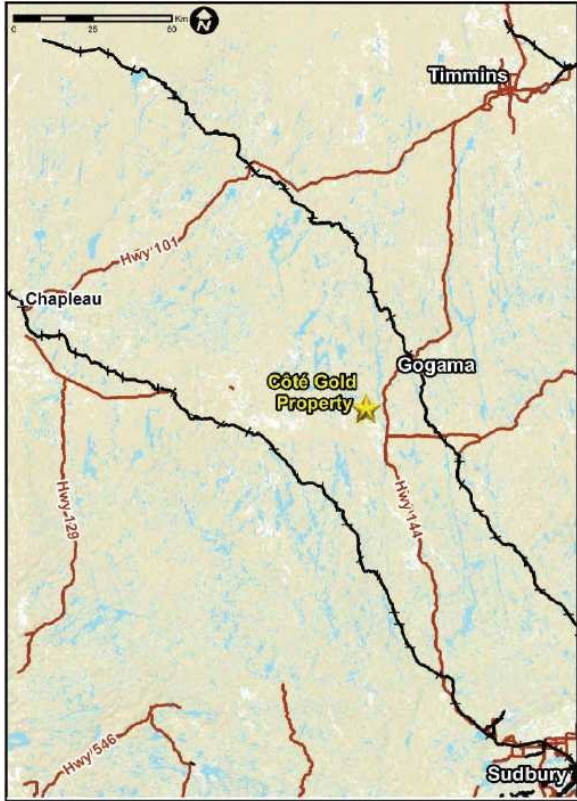
The Report was prepared to support disclosures in the news release dated 1 November 2018 entitled “Feasibility Study for Côté Gold Yields Significantly Improved Project Economics” and the news release dated 26 November entitled “IAMGOLD Files NI 43-101 Technical Report For Previously Announced Feasibility Study For Côté Gold”.

Two development scenarios are presented in the Report:

- Base Case Mine Plan (Base Case) that supports the current permitting process. The Base Case with a total of 203 Mt of Mineral Reserves processed over the Life of Mine (LOM) includes a 203 Mt capacity tailings management facility (TMF) that conforms with the current applications for permits
- Extended Case Mine Plan (Extended Case) that supports the total Mineral Reserves. The Extended Case is presented in Section 24 and considers mining and processing the full 233 Mt Mineral Reserve. It will require an updated mine rock area (MRA) and TMF design that may require regulatory approval of amended permits to be submitted prior to its implementation.

The Report uses Canadian English and metric units unless otherwise indicated. Estimates are provided in US\$, based on an exchange rate of US\$1.00:CAD 1.30. Mineral Resources and Mineral Reserves are reported in accordance with the 2014 Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves (the 2014 CIM Definition Standards).

Figure 2-1: Project Location Plan



Note: Figure courtesy IAMGOLD, 2018

### 2.3 Qualified Persons

The following persons serve as Qualified Persons (QPs) as defined in NI 43-101:

- Mr. Peter Oshust, P.Geo., Principal Geologist, Wood
- Dr. Antonio Peralta Romero, P.Eng., Principal Mining Engineer, Wood
- Mr. Dustin Small, P.Eng., Engineering Manager, Wood
- Mr. Paul O'Hara, P.Eng. Process Manager, Wood
- Ms. Debbie Dyck, P.Eng., Senior Associate Engineer Environmental, Wood
- Dr. Bing Wang, P.Eng., Senior Associate, Technical Advisor Environmental, Wood
- Mr. Paul Baluch, P.Eng., Technical Director, Civil, Wood
- Mr. Raymond Turenne, P.Eng., Department Manager, Electrical and Controls, Wood
- Dr. Adam Coulson, P.Eng., Senior Associate Rock Mechanics Specialist, Wood
- Ms Karen Besemann, P.Geo., Hydrogeologist, Golder
- Ms. Marie-France Bugnon, P.Geo. General Manager Exploration, IAMGOLD
- Mr. Alan Smith, P.Geo., District Manager Exploration, IAMGOLD.

### 2.4 Site Visits and Scope of Personal Inspection

Mr. Peter Oshust visited the Project site from July 10 to 12, 2018. During the visit, Mr. Oshust inspected outcrops, checked collar locations and orientations for selected drill holes, and reviewed drill core.

Ms. Debbie Dyck, P. Eng., has been involved in the Côté Gold Project baseline studies and EA process since 2012, and last visited the site from April 13–14, 2017.

Dr. Bing Wang visited the Côté Gold Project site on the following occasions: May 16, October 4, and October 31 to November 4, 2016, April 13–14, 2017, and 6 June, 2018. During these visits, Dr. Wang inspected property mineral lease boundaries, topographic and geographical features, prior mine excavations and outcrops, drill sites, drill core, and proposed infrastructure locations.

Mr. Paul Baluch visited the Côté Gold Project site on three occasions: October 4, 2016, April 13–14, 2017 and June 6–7 2018. Existing Project infrastructure locations and locations for proposed infrastructure were inspected.

Mr. Dustin Small visited the Côté Gold Project site on May 22, 2018 and inspected the camp areas, TMF and open pit areas and the proposed plant site area.

Dr. Antonio Peralta Romero visited the Côté Gold Project on May 7–9, 2018 and inspected the open pit area, the drill core relevant to the rock formations that would support the pit wall and observed a drilling test performed to determine rock penetration rates in the pit area.

Dr. Adam Coulson P.Eng., visited the site from December 10 to 13, 2017. During this visit Dr. Coulson inspected the previously drilled geotechnical cores used for mine design of the open pit, in order to validate the rock mass quality recorded in two previous geotechnical drilling campaigns performed by others.

Ms. Marie-France Bugnon has made site visits, exploration reviews and legal and claims updates to the Côté Gold Project between June 2012 and October 2018, the most recent site visit being on September 13–14, 2018, where the following activities were reviewed and inspected: 2018 winter and spring diamond drilling program results and observations for the Côté Gold geology program, on the geological model of the Côté Gold deposit, on Gosselin area of the Chester property and current regional exploration programs, and status on legal and assessment work requirements for the maintenance of the Côté Gold district exploration properties portfolio and updates.

Mr. Alan Smith has made numerous site visits to the Côté Gold Project and surrounding exploration projects between February 2013 and October 2018 for the supervision of Regional exploration activity and geological programs on the Côté Gold deposit. The most recent site visit was October 9–11, 2018, where the following exploration activities/areas were reviewed and visited: 2018 regional fall/winter exploration diamond drilling results and drill sites (Chester Gosselin Project), review of 2018 regional exploration activity including geological mapping, prospecting, outcrop clearing and channel sampling results (Watershed, Chester 2 and 3, and Ontario 986813 Ltd – Arimathaea properties), inspections of the Côté Gold Project and exploration core farms, and inspection of the lease surveying plan on the Côté Gold Project.

## 2.5 Effective Dates

The Report has the following effective dates:

- Date of database close-out for Mineral Resource estimation: 7 June 2018

- Date of Mineral Resource estimate: 26 July, 2018
- Date of Mineral Reserve estimate: 1 October, 2018
- Date of Base Case financial analysis: 1 November, 2018
- Date of Extended Case financial analysis: 1 November, 2018.

The overall effective date of the Report is the date of the Base and Extended Case financial analyses and is 1 November, 2018.

## 2.6 Information Sources and References

The key information source for the technical report is the 2018 Feasibility Study document:

- Amec Foster Wheeler, 2018: Feasibility Study: report prepared for IAMGOLD, 26 October, 2018, 569 p.

Reports and documents listed in Section 3.0 (Reliance on Other Experts) and Section 27.0 (References) of this Report were also used to support the preparation of the Report.

Additional information was sought from IAMGOLD personnel where required.

## 2.7 Previous Technical Reports

IAMGOLD has previously filed the following technical reports on the Project

- Cook, R. B., 2010: Technical Report on the Chester Township Properties, Ontario, Canada; report prepared for IAMGOLD Mining and Exploration Inc., effective date January 14, 2010.
- Cargill, D. G., and Gow, N. N., 2009: 2009 Technical Report on the Young-Shannon Property, Chester Township, Ontario: report prepared for IAMGOLD Corporation, effective date September 30, 2009.
- Roscoe, W. E., and Cook, R. B., 2011: Technical Report on the Côté Gold Deposit, Chester Property, Ontario, Canada: report prepared for IAMGOLD Mining and Exploration Inc., effective date April 21, 2011.
- Lavigne J, and Roscoe, W. E., 2012: Technical Report on the Côté Gold Project, Chester Township, Ontario, Canada: report prepared by Roscoe Postle Associates Inc. for IAMGOLD Corporation, effective date October 24, 2012.

- Peralta, A., Wang, B., Dyck, D., Smiley, D., Lipiec, I., Padilla J., Baluch, P., Smith, A., Bugnon, M-F., and Evans, L., 2017: NI 43-101 Technical Report on the Prefeasibility Study of the Côté Gold Project, Porcupine Mining Division, Ontario, Canada: report prepared by Amec Foster Wheeler and Roscoe Postle Associates Inc., effective date May 26, 2017.

Trelawney Mining & Exploration Inc. filed a technical report on properties that are now part of the Project as follows

- Roscoe, W. E., and Cook, R. B., 2012: Technical Report on the Côté Lake Resource Update, Chester Property, Ontario, Canada: report prepared by Roscoe Postle Associates Inc. for Trelawney Mining & Exploration Inc., effective date March 30, 2012.

Condor Gold Corp filed two technical report on properties that are now part of the Project as follows:

- McBride, D. E., 2002: Qualifying Report on the Chester Township Property for Northville Gold Corporation: report filed by Condor Gold Corp., effective date July 29, 2002

Augen Gold Corp filed a technical report on properties that are now part of the Project as follows:

- Burt, P. D, Chance, P. N., Burns, J. G., 2011: Technical Report on a Resource Estimate on the Jerome Mine Property: report prepared for Augen Gold Corp., effective date July 18, 2011.

**3.0 RELIANCE ON OTHER EXPERTS****3.1 Introduction**

The QPs have relied upon the following other expert reports, which provided information on mine closure and taxation as follows.

**3.2 Mine Closure**

The QPs have relied upon, and disclaim responsibility for mine closure information as applied in the financial model, which was sourced from IAMGOLD through the following document:

- Woolfenden, S., 2018: Reclamation and Closure Costs in the Côté Gold Project Feasibility Study: letter prepared by IAMGOLD for Wood, 14 November, 2018, 1 p.

This information is used in support of the financial analysis in Section 22 and Section 24.1.23, the Mineral Reserve estimate in Section 15, and the mine closure discussions in Section 20.6 and Section 24.1.21.

**3.3 Taxation**

The QPs have relied upon, and disclaim responsibility for taxation information as applied in the financial model, which was sourced from IAMGOLD through the following document:

- Wilson, A.R., 2018: Taxation Information and tax inputs to the financial model used in the Côté Gold Project Feasibility Study National Instrument 43-101 Technical Report prepared by Amec Foster Wheeler for IAMGOLD: letter prepared by IAMGOLD for Wood, 15 November, 2018, 2 p.

This information is used in support of the financial analysis in Section 22 and Section 24.1.23, and in support of the Mineral Reserve estimate in Section 15.

#### 4.0 PROPERTY DESCRIPTION AND LOCATION

##### 4.1 Location

The Project is located in the Porcupine Mining Division, 25 km southwest of Gogama, Ontario and extends approximately 57 km from Esther Township in the west to Champagne Township in the east. It comprises a group of properties assembled through staking and option agreements covering a total area of about 587 km<sup>2</sup>. The 2018 Feasibility Study area is a portion of the overall claim area.

The properties are bisected by Highway 144, and are approximately 175 km north of Sudbury via Highway 144 and about 125 km southwest of Timmins via Highways 101 and 144.

The Chester property is located in the central part of the 2018 Feasibility Study area, and hosts the Côté Gold deposit that is the subject of the 2018 Feasibility Study, as well as the Chester 1 zone and several other gold occurrences. Figure 4-1 provides an outline of the Chester property area. The Chester property is a subset of the overall tenement package of the Côté district as shown on Figure 4-2. The area included in the 2018 Feasibility Study is within the area demarcated by a thick black line on Figure 4-2.

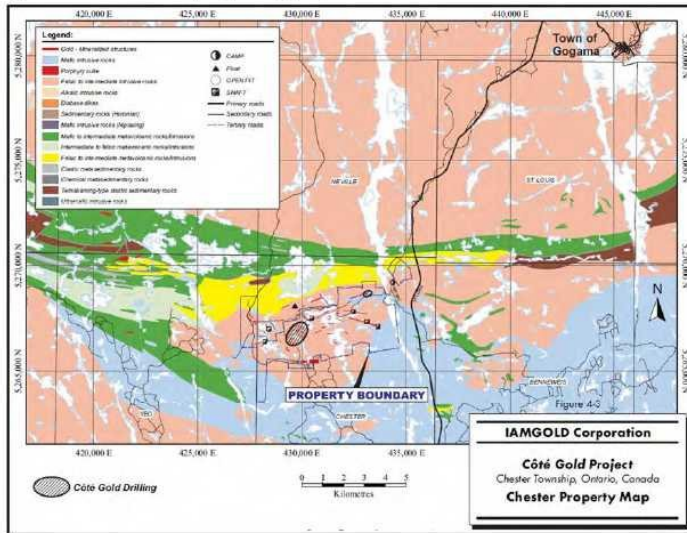
##### 4.2 Property and Title in Ontario

This section provides a general overview of mineral-related law and title in Ontario, sourced from public domain documentation, including Natural Resources Canada (2015), The Fraser Institute (2018), Norton Rose Fulbright, (2013), and the Ontario Mines Act (1990).

###### 4.2.1 Introduction

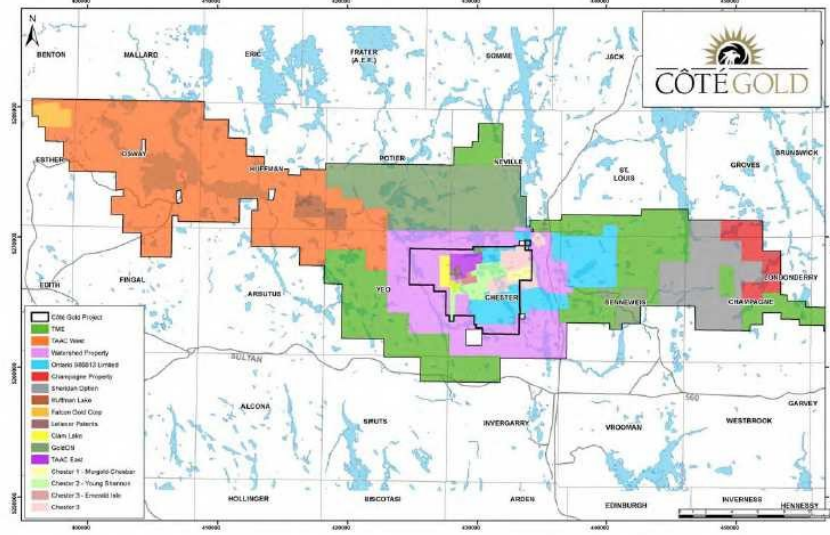
Until 1913, surface rights and mineral rights were acquired with land purchase. At that time, the Ontario Government enacted legislation reserving land mineral rights to the Crown and granting leases to individuals or companies seeking to extract minerals. Where mineral rights are privately owned due to granting prior to 1913, they can be sold independently of surface rights, so that surface and mineral rights on the same property can be held by different owners.

Figure 4-1: Chester Property Geology Map



Note: Figure prepared by IAMGOLD, 2018.

Figure 4-2: Côté Project Summary Tenure Plan



Note: Figure prepared by IAMGOLD, 2018.

The Ministry of Energy, Northern Development and Mines (ENDM) and the Ontario Ministry of Natural Resources and Forestry (MNRF) act as the two main regulatory bodies. The Canadian Federal Government may also be involved in the mining process where First Nations matters arise, or where the subject lands are federally regulated such as when the lands are classified as navigable bodies of water.

#### 4.2.2 Mineral Tenure

##### Mining Claim

Historically, a mining claim was a square or rectangular area of open Crown land (land that belongs to the Province of Ontario) or Crown mineral rights that a licenced prospector marks out with a series of claim posts and blazed lines which could range in size from 16 ha (a one-unit claim) to 256 ha (a 16-unit claim).

The mining claims in the Sudbury area are administered under Mining Act, R.S.O. 1990, c. M.14 as well as several regulations thereunder.

##### Mining Lease

A mining claim can be converted into a mining lease. To convert a mining claim into a lease an application letter must be submitted to the Provincial Recording Office's Technical Services Unit any time after the fifth unit of assessment work has been performed (cash payment may be made in lieu of the second to fifth unit of assessment work) on the land and the work has been submitted and approved. After submitting the application letter, the land covered by the mining claims must be surveyed. The applicant may also request that the surface rights be included in the Mining Lease where the surface rights are held by the Crown. Where the surface rights are privately held, the lessee of the mineral rights may need to acquire the surface rights if required for development or production purposes.

A lease grants its owner title and ownership to the land, permits the extracting and sale of extracted resources and removes the requirement to perform yearly assessment work.

To maintain a lease, rent must be paid annually. A lease expires after 21 years but can be renewed if the lease-holder can demonstrate continuous production of minerals for at least one year since the issuance or if the lease-holder can show that it has taken a reasonable effort to bring the property into production. A mining lease can also be renewed on the basis of contiguity with other mining leases where production has occurred.

A mining lease cannot be transferred or mortgaged by the lessee without the prior consent of the ENDM. Transfers require the lessee to submit various documentation and pay a fee.

#### **Patented Claims**

The owner of freehold lands in Ontario holds a fee-simple real property interest. Historically, the holder of a mining claim interested in removing minerals from the ground could, instead of obtaining a mining lease, apply to the MNR to acquire the freehold interest in the subject lands through the granting of a mining patent. Such patents can include surface and mining rights, or may only comprise mining rights. They give the patentee all of the Crown's title to the subject lands and to all mines and minerals relating to such lands, subject to any reservations set out in the patent. Patented claims are subject to annual Ontario mining taxes and, where surface rights are held, Ontario mineral land taxes.

No regulatory consent is required for the patentee to transfer or mortgage those lands other than Planning Act approval where the transferred lands are adjacent to other lands held by the same party.

#### **Mining Licence of Occupation**

These mining licences of occupation allow the holder to use the land in the manner specified in each licence, including the right to dig, excavate and remove ores and minerals from and under the land. The Province of Ontario has the right to revoke licences of occupation on 30 days prior notice.

#### **4.2.3 Ontario Modernizing the Mining Act Process**

Information in this section was derived from the ENDM website, and the QP has not independently verified the information.

Ontario has fully implemented the third phase of the Ontario government's Modernizing the Mining Act (MAM) process. This phase:

- Moves Ontario's mining lands administration systems from ground staking and paper map staking to online registration of mining claims

- Creates an online Mining Land Administration System (MLAS) that enhances client access to Ontario's mining lands data and improves their ability to manage their files online.

On April 10, 2018, Ontario converted Ontario's manual system of ground and paper staking, and maintaining unpatented mining claims to an online system. All active, unpatented claims were converted from their legally defined location by claim posts on the ground or by township survey to a cell-based provincial grid. Mining claims are now legally defined by their cell position on the grid and coordinate location in the MLAS Map Viewer. These changes bring greater accuracy and certainty to the location of mining claims, greater certainty of rights and interests, as well as flexible management of land assets.

Annual assessment work requirements remain unchanged, despite new cell sizes being 11% to 50% larger than the size of traditional claim units. Assessment work requirements are CS400 per cell claim and CS200 per boundary claim or any claim that is encumbered. Where work has not been completed ahead of the due date, claims forfeit to the Crown.

In the new MLAS system, registering a mining claim is now completed by paying a single registration fee of \$50 per cell. A number of fees, mostly related to leases and lease acquisition, did not change in April 2018, but will be the subject of further discussion with industry in 2018–2019.

#### 4.2.4 Surface Rights

Surface rights refer to any right in land that is not a mining right. The process of acquiring surface rights for mining purposes depends on the owner of the rights:

- If the surface rights are owned by the claim holder, then no action is required
- If the surface rights are owned by the Crown, then the ownership of the surface rights will be granted to the claim holder during the lease application process as requested by the claim holder
- If the surface rights are privately owned by an individual or company, then an agreement to allow the claim holder to use the land must be made with the surface rights holder. The agreement should outline the compensation given if the land covered by the surface rights sustains any damages.

Confirmation of an agreement with the surface rights owner is required for grant of a mining lease, or an order of the Mining Lands Commissioner indicating that surface rights compensation, if any, has been paid, secured or settled must be provided.

#### 4.2.5 Environmental Considerations

The Ontario Environmental Assessment Act is the legislation most often applied to environmental aspects of mining projects in Ontario. Mining project components may also be subject to the Federal Canadian Environmental Assessment Act.

Projects that are directly undertaken by a public agency; are undertaken on their behalf to fulfill a public agency responsibility or involve a public agency resource (for example, use of Crown lands, funding from a government agency, or impact on resources under government jurisdiction such as water bodies, fish habitat, timber or mineral resources) are required to follow an environmental assessment (EA) process. Both the Provincial and Federal EA acts generally apply. Both EA acts provide opportunities for varying levels of effort for conducting an EA, with the most intensive and longer-term processes required either for those projects that have the greatest potential to cause significant adverse environmental effects, or which are relatively unique, with perhaps the scope of potential impacts unknown.

A minimum amount of six months should be anticipated for completion of an environmental assessment, with a likely need of one year or more from the start of the process through to receipt of approval from the relevant agency.

#### 4.2.6 Closure Considerations

All land affected by mining development activity must be rehabilitated after the activity has finished. A closure plan must be developed and acknowledged by the ENDM before mine development can begin. The plan outlines how the affected land will be rehabilitated and the costs associated with doing so. A financial guarantee equal to the estimated cost of the rehabilitation work is held in trust by the ENDM that is included with the submission of a closure plan.

#### 4.2.7 First Nations Considerations

Section 35 of the Canadian Constitution Act, 1982, recognizes and protects aboriginal and treaty rights in Canada. The Crown has a legal duty to engage in meaningful consultation whenever it has reason to believe that its decisions or actions might infringe upon recognized aboriginal or treaty rights.

ENDM has the responsibility for coordinating the Crown's consultation efforts on decisions relating to mining and mineral exploration. If the project requires approvals or decisions by other Ministries with mineral development regulatory authority, there will be a coordinated approach to the government's consultation with aboriginal communities.

#### 4.2.8 **Fraser Institute Survey**

IAMGOLD and Wood have used the Investment Attractiveness Index from the 2017 Fraser Institute Annual Survey of Mining Companies report (the Fraser Institute survey) as a credible source for the assessment of the overall political risk facing an exploration or mining project in Ontario.

IAMGOLD and Wood have relied on the Fraser Institute survey because it is globally regarded as an independent report-card style assessment to governments on how attractive their policies are from the point of view of an exploration manager or mining company, and forms a proxy for the assessment by industry of political risk in Canada from the mining perspective.

Overall, Ontario ranked seventh out of the 91 jurisdictions in the survey in 2017 for investment attractiveness, 20<sup>th</sup> for policy perception, and ninth for best practices mineral potential.

#### 4.3 **Beneficial Ownership**

On April 27, 2012, IAMGOLD announced that it had entered into a definitive agreement with Trelawney Mining and Exploration Inc. (Trelawney) to acquire, through a wholly-owned subsidiary, all the issued and outstanding common shares of Trelawney through a plan of arrangement (the Trelawney transaction). On June 21, 2012, IAMGOLD announced the acquisition of all issued and outstanding common shares of Trelawney, which were subsequently delisted.

Trelawney Augen Acquisition Corporation (TAAC) was a subsidiary of Trelawney at the time of the Trelawney acquisition, and became an indirectly wholly-owned IAMGOLD subsidiary.

Following an amalgamation on June 1, 2017, all of IAMGOLD's interests in the groups of properties are now owned by and registered in the name of IAMGOLD Corp., with the exception of the Ontario 986813 Ltd (Arimathaea Resources Inc) property, which is held in the name of Ontario 986813 Ltd (Ontario 986813), an IAMGOLD subsidiary.

On June 20, 2017, IAMGOLD completed a transaction with Sumitomo Metal Mining (Sumitomo) wherein Sumitomo agreed to acquire a 30% undivided participating joint-venture interest in the IAMGOLD's property interests in the property package. Sumitomo's interest in the property is held by the Sumitomo subsidiary SMM Gold Côté Inc.

The properties acquired through the Trelawney transaction were the result of a number of agreements with third parties. These third parties may retain an interest in some of the properties within the property package either by way of an actual property interest or through royalty interests (see discussions on each agreement in Section 4.4) . Note that the ownership interests discussed in Section 4.4 may reflect the current registered ownership status, rather than the beneficial ownership status, as some of the leases are still in process of ownership name changes.

#### **4.4 Mineral Title**

##### **4.4.1 Overall Tenure Package**

IAMGOLD holds a significant ground package outside the 2018 Feasibility Study area (refer to Figure 4-2). Overall, the property package consists of 3,208 tenures covering an area of about 60,017 ha.

##### **4.4.2 Feasibility Study Property Package**

The mineral tenure for the 2018 Feasibility Study area consists of a mixture of patented claims, mining leases, and a series of unpatented cell and boundary claims (for which lease applications have been submitted), covering the area defined in the black outline in Figure 4-2.

All lease and patent boundaries for the property package have been surveyed. Boundary and corner posts define existing claims.

As noted in Section 4.4.1, the property package includes tenures with different ownership interests and royalty considerations. The following subsections describe each property included in the 2018 Feasibility Study property package using the property nomenclature of the map legend in Figure 4-2 and the properties shown on Figure 4-3.

The location of the Côté Gold deposit open pit boundary with respect to the underlying mineral tenure is provided for reference in Figure 4-4.

The Chester 1, Chester 2 and Chester 3 agreement/property areas are primarily held under patented lands and mining leases. This combined area can also be referred to as the Chester property. The remaining agreement/property areas are generally held as unpatented claims.

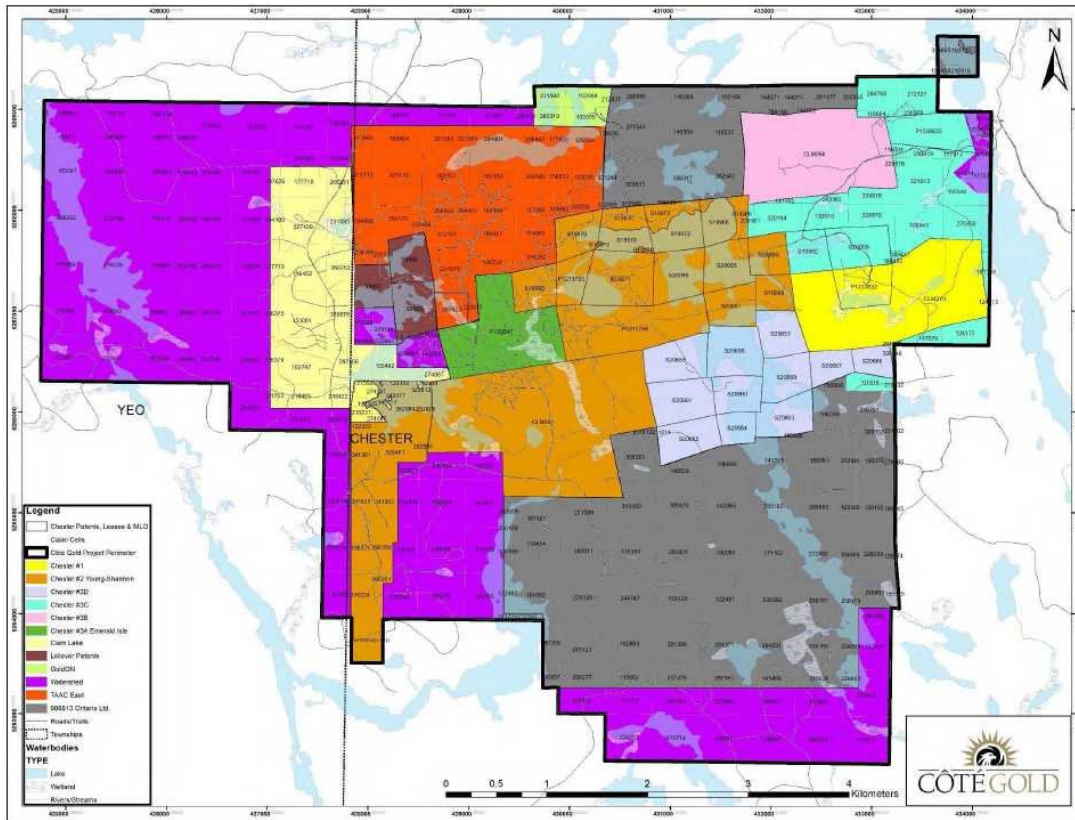
#### 4.4.3 Mining Lease Applications

The location of the areas where mining leases have been applied for are set out in Figure 4-5. In that figure:

- Claims coloured as orange are covered by existing patents and leases.
- Claims coloured as blue, and labelled as Phase 1, are where mining lease applications have been submitted and are awaiting final survey instructions from the office of the Surveyor General in order to advance with surveying and the issuance of mining leases.
- Claims coloured as grey, and labelled as Phase 2, are where mining lease applications have also been submitted. In the case of these lease applications, the ENDM has completed its consultation with MNRFF and a request has been made for survey instruction from the office of the Surveyor General in order to advance with surveying and the issuance of mining leases.

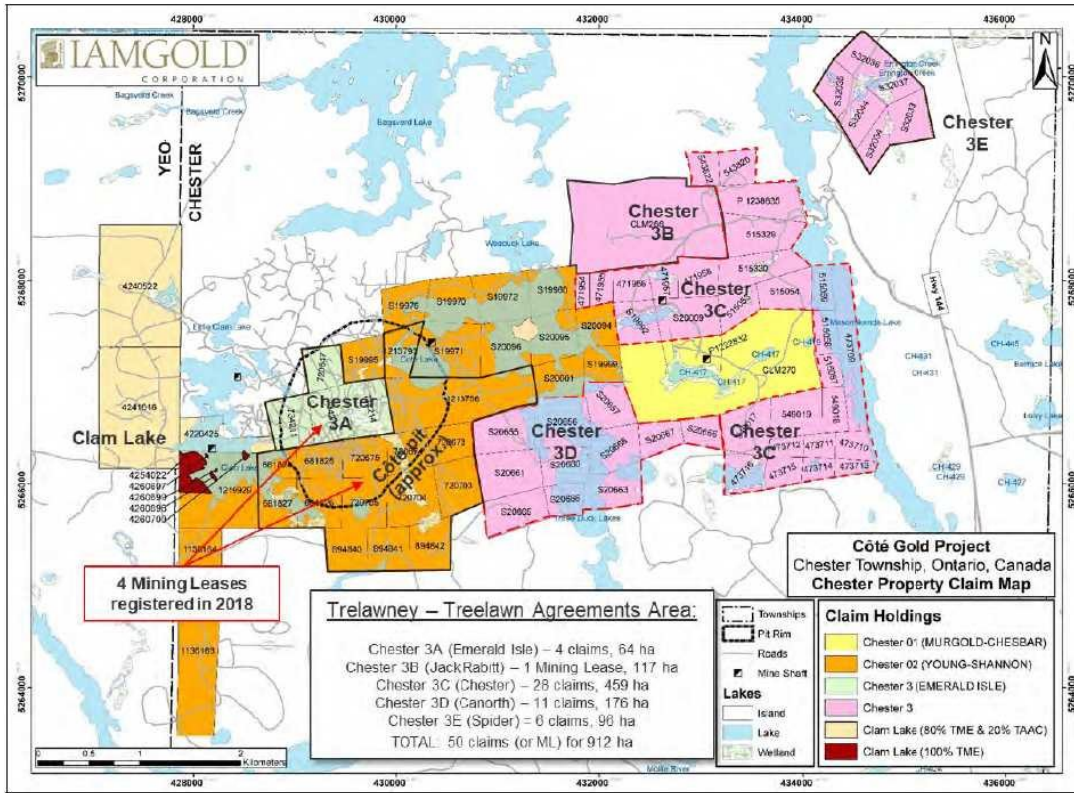
Due to the mining lease applications, the commitments on the underlying claims will be suspended once the surveys have been completed and the mining lease applications are in their final phases. The issuance of survey instructions and the new Mining Lease Applications were delayed by the MLAS implementation (see Section 4.2.3).

Figure 4-3: 2018 Feasibility Study Property Group Map



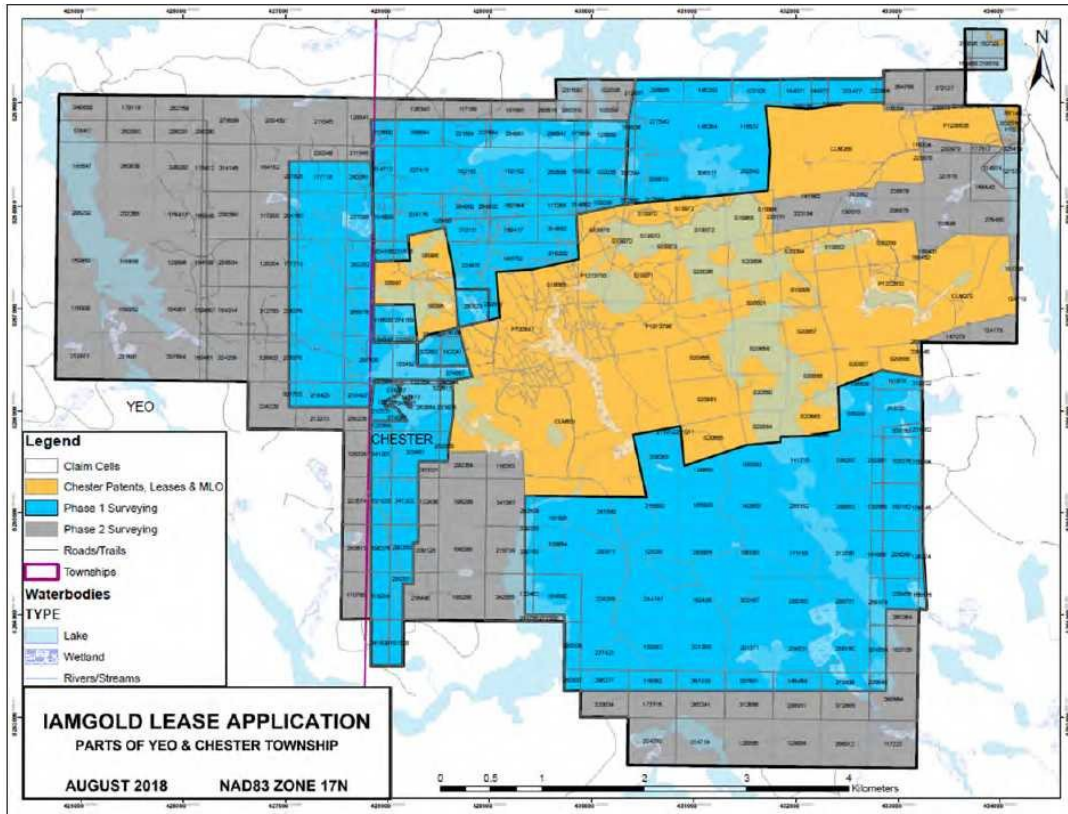
Note: Figure prepared by IAMGOLD, 2018.

Figure 4-4: Chester Property Location Plan and Proposed Côté Gold Deposit Open Pit



Note: Figure prepared by IAMGOLD, 2018.

Figure 4-5: Location Plan, Mining Lease Applications



Note: Figure prepared by IAMGOLD, 2018.

IAMGOLD is of the opinion that there are no risks associated with actual issuance of the Côté Gold Project mining leases, and that the issuance will occur when the ENDM clears the backlog arising from the freeze period imposed as part of the MLAS implementation.

#### 4.4.4 Option Agreements

Mineral claims subject to option agreements are kept in good standing by IAMGOLD as a requirement of those agreements. Under Provincial requirements IAMGOLD regularly completes assessment work that is filed to renew or extend the claims for as much as five years of validity.

The minimum assessment work a mining claim holder must do every year or distribute to the claim from work reserve banked on the claim or from other contiguous claims to keep the mining claim in good standing is C\$400 per claim unit or cell claim which corresponds to 16 ha and C\$200 per boundary claim or any claim that is encumbered as mentioned in Section 4.2.3.

IAMGOLD has no additional exploration expenses obligations in relation with the various option property agreements.

#### 4.4.5 Chester 1 Agreement

The Chester 1 (Murgold–Chesbar) claim locations are shown in Figure 4-3 and Figure 4-4.

##### Agreements

On August 11, 2009, Trelawney entered into a definitive option agreement with Treelawn Investment Corp. granting Trelawney the exclusive and irrevocable option to earn up to a 70% interest in the Chester 1 (Murgold-Chesbar) claims. Pursuant to the terms of this option agreement with Treelawn Investment, Trelawney had the option to acquire an initial 50% interest in the claims (the First Chester 1 Option) and an option to increase the 50% interest in 10% increments to 70% (the Second Chester 1 Option).

Treelawn Investment and the Treelawn Group Inc. (Treelawn Group) are sister companies owned by Mr Jeff Woods, and are companies that are independent of Trelawney.

Under the terms of an amending agreement dated November 22, 2011 between Trelawney and Treelawn Investment, Trelawney accelerated the terms of the Chester 1 Option Agreement dated August 11, 2009, and announced on November 23, 2011 that it had completed the exercise of the First Chester 1 Option and the Second Chester 1 Option, to earn 70% of Treelawn Investment's interest in the Chester 1 (Murgold–Chesbar) claims.

**Tenure**

The mineral tenure within the Chester 1 (Murgold–Chesbar) agreement area is summarized in Table 4-1 and cover an area of approximately 150 ha.

The registered ownership of the Chester 1 (Murgold–Chesbar) claims surface rights and mineral rights shown in Table 4-1 is:

- IAMGOLD: 70%
- Treelawn Capital: 30%.

An application to transfer a 30% interest in IAMGOLD's interest to SMM Gold CôtéInc. is currently pending.

**Royalties**

In addition, in consideration of waiving certain commercial production requirements under the Chester 1 Option Agreement, Treelawn Investment's residual 30% working interest in the Chester 1 (Murgold–Chesbar) claims was converted into a 30% net profits interest in November of 2011 and transferred to Treelawn Capital Corp. (Treelawn Capital) in October 2016.

Mining Lease 107446 covering CLM270 is subject to a 3% net smelter return (NSR) with IAMGOLD having the right to purchase 2% of the NSR for C\$2 M.

**4.4.6 Chester 2 Agreement**

The location of the Chester 2 agreement property package is provided in Figure 4-3.

**Table 4-1: Chester 1 (Murgold–Chesbar) Leases**

| Claim Number | Lease Number | PIN        | Recorded Date | Lease Expiry Date |
|--------------|--------------|------------|---------------|-------------------|
| P1222832     | 107447       | 73193-0072 | 01-Aug-03     | 31-Jul-23         |
| CLM270       | 107446       | 73193-0071 | 01-Aug-03     | 31-Jul-24         |

Note: P1222832 was granted as a 21 year lease but MENDM has a 20 year expiry date recorded.

**Agreements**

On October 27, 2009, Trelawney signed an amended and restated Mining Claim Acquisition Agreement with Metallum Resources Inc. (Metallum). This agreement allowed Trelawney to acquire a 92.5% interest in the Young–Shannon property (now part of the Chester 2 property package).

Trelawney exercised the option. At the time of the closing of the Metallum agreement, Trelawney held at least a 92.5% interest in the staked and patented claims and the remaining interest was held by Treelawn Investment.

On February 2, 2017, Metallum received final approval from the TSX Venture Exchange for to change its principal business from a Mining Issuer to an Investment Issuer (Torrent Capital Ltd). Metallum has no further rights or interests associated with the Chester 2 property packages.

Treelawn Investment acquired its undivided property interest as a result of a settlement of a charge on a minority owner of the property.

**Tenure**

The Chester 2 agreement property package consists of 11 patented claims, three mining leases, and 21 cell claims (historically three legacy claims comprising eight units). These claims cover the southern part of the Côté Gold deposit and its northeast and southwest geological extensions. The Chester 2 agreement tenure interests are contiguous, covering an area of approximately 655 ha.

Table 4-2 sets out the patented claims held in the Chester 2 agreement property package.

**Table 4-2: Chester 2 Agreement Patented Claims**

| Parcel Number | PIN        | Claim Number |
|---------------|------------|--------------|
| 9609 SWS      | 73193-0039 | S19966       |
| 9608 SWS      | 73193-0038 | S19970       |
| 8471 SWS      | 73193-0019 | S19971       |
| 9610 SWS      | 73193-0040 | S19972       |
| 10087 SWS     | 73193-0046 | S19976       |
| 9607 SWS      | 73193-0037 | S19995       |
| 10090 SWS     | 73193-0047 | S19995       |
| 10092 SWS     | 73193-0048 | S20001       |
| 8478 SWS      | 73193-0021 | S20096       |
| 8791 SWS      | 73193-0088 | S20094       |
| 8472 SWS      | 73193-0020 | S20095       |

In Table 4-2, the beneficial ownership is:

- IAMGOLD: 64.75%
- SMM Gold CôtéInc.: 27.75%
- Treelawn Group: 7.5%.

Table 4-3 summarizes the mining leases in the Chester 2 agreement property package. In Table 4-3, the beneficial ownership is:

- IAMGOLD: 64.75%
- SMM Gold CôtéInc.: 27.75%
- Treelawn Group: 7.5%.

Table 4-4 summarizes the legacy claims in relation to the new Ontario cell claims. All of the claims are within Chester township.

In Table 4-4, the beneficial ownership is:

- IAMGOLD: 64.75%
- SMM Gold CôtéInc.: 27.75%
- Treelawn Group: 7.5%.

Table 4-3: Chester 2 Property Mining Leases

| Claim Number  | Mining Lease Number | PIN              | Percent Option Owned (%) | Lease Expiry Date |
|---|---------------------|------------------|--------------------------|-------------------|
| CLM 501<br>(P-681825<br>P-681826<br>P-681827<br>P-720673<br>P-720674<br>P-720675<br>P-720703<br>P-720704<br>P-720705<br>P-894840<br>P-894841<br>P-894842) | 109689              | 73193-0080       | 92.5                     | 2038-May-31       |
|   |                     | 73193-0081       |                          |                   |
|   |                     | 73193-0082       |                          |                   |
|   |                     | 73193-0083       |                          |                   |
|   |                     | 73193-0084 (MRO) |                          |                   |
|   |                     | 73193-0085 (MRO) |                          |                   |
| P-1213793   | 109688              | 73193-0077       | 92.5                     | 2038-May-31       |
|   |                     | 73193-0078       |                          |                   |
|   |                     | 73193-0079       |                          |                   |
| P-1213796   | 109690              | 73193-0086       | 92.5                     | 2038-May-31       |
|   |                     | 73193-0087       |                          |                   |
|   |                     | 73193-0088       |                          |                   |

Note: Percent option owned is the combined ownership interest held by IAMGOLD and SMM Gold CôtéInc.; the application to transfer a 30% interest in IAMGOLD's interest to SMM Gold CôtéInc. is currently pending. MRO = mineral rights ownership.

Table 4-4: Chester 2 Property Cell Claims vs Legacy Claims

| Cell Claim | Legacy Claim | Grant Date     | Good To Date |
|------------|--------------|----------------|--------------|
| 101625     | 1136163      | 10 April, 2018 | #            |
| 116234     | 1136163      |                |              |
| 161528     | 1136163      |                |              |
| 196275     | 1136163      |                |              |
| 290350     | 1136163      |                |              |
| 290351     | 1136163      |                |              |
| 341302     | 1136163      |                |              |

| Cell Claim | Legacy Claim | Grant Date | Good To Date |
|------------|--------------|------------|--------------|
| 341939     | 1136163      |            |              |
| 101625     | 1136164      |            |              |
| 329461     | 1136164      |            |              |
| 341301     | 1136164      |            |              |
| 341302     | 1136164      |            |              |
| 122354     | 1210929      |            |              |
| 122355     | 1210929      |            |              |
| 180328     | 1210929      |            |              |
| 233678     | 1210929      |            |              |
| 262884     | 1210929      |            |              |
| 262885     | 1210929      |            |              |
| 282944     | 1210929      |            |              |
| 329461     | 1210929      |            |              |
| 341301     | 1210929      |            |              |

Note: The application to transfer a 30% interest in IAMGOLD's interest to SMM Gold CôtéInc. is currently pending. The implementation of online registration of mining claims and a new modernized electronic Mining Lands Administration System (MLAS) on April 10, 2018, has converted Ontario's manual system of ground and paper staking, and maintaining unpatented mining claims to an online system and as such all active, unpatented claims were converted from their legally defined location by claim posts on the ground or by township survey to a cell-based provincial grid. All claim numbers have changed. All claims have the same grant date, which corresponds to the date the claims were created in the MLAS. # = the claims are subject to mining lease applications and therefore work commitments will be suspended once the surveys have been completed and the mining lease applications are in their final phases.

**Royalties**

The Mining Claim Acquisition Agreement with Metallum was subject to a 1% NSR royalty payable when the monthly average gold price exceeds \$1,000 per ounce. This royalty was subsequently acquired by IAMGOLD in 2012.

The patented claims are subject to a 1.5% NSR under an agreement dated March 27, 1987. Sixteen of the 18 unpatented claims are subject to a 0.75% NSR under an agreement dated April 15, 1987.

**4.4.7 Chester 3 Agreements**

The properties within the Chester 3 tenure package are shown in Figure 4-3 and Figure 4-4.

**Agreements**

On December 21, 2009, Trelawney and Treelawn Group Inc. entered into a Mining Option Agreement, pursuant to which the Treelawn Group granted Trelawney the right to acquire up to a 92.5% interest in the Treelawn Group's interests (the Treelawn Interest) in the Chester 3 claims. Pursuant to the terms of the Mining Option Agreement, Trelawney had the option to acquire an initial 50% interest in Treelawn's Interest in these claims (First Chester 3 Option) and an option to increase such interest to 92.5% (the Second and Third Chester 3 Options). Under the terms of an amending agreement dated November 22, 2011, between Trelawney and Treelawn Group Inc., Trelawney accelerated the terms of the Second and Third Chester 3 Options of the Chester 3 Option Agreement dated 21 December 2009, and announced on November 23, 2011 that it had completed the exercise of the First Chester 1 Option and the Second Chester 1 Option, to earn 92.5% of the Treelawn Interest in the Chester 3 property.

On November 26, 2010, Trelawney entered into an agreement to purchase the 21.62% undivided interest in leased Mining Lease CLM266 held by Gold Bar Resources Inc. (Gold Bar). On September 9, 2011, Trelawney announced that it had completed the acquisition of the 21.62% undivided interest in leased Mining Lease CLM266 to hold a 94.1215% interest. Gold Bar retains no project interest.

**Tenure**

The Chester 3 agreement tenure package consists of three mining leases, 19 patented claims, and 35 boundary and cell unpatented claims (originally 25 unpatented mining claims covering approximately 804 ha. The tenure package hosts a large portion of the Côté Gold deposit (refer to Figure 4-4). A mining lease application has been submitted for the surface and mining rights over the unpatented claims area.

Table 4-5 summarizes the Emerald Isle claim block (recently granted as a mining lease) within the tenure package (claims shown in green, and labelled as Chester 3A on Figure 4-4). This lease hosts the northern portion of the Côté Gold deposit. The lease is entirely located within the Chester township.

In Table 4-5, the registered ownership interest is:

- IAMGOLD: 92.5%
- Treelawn Group: 7.5% net profits interest.

**Table 4-5: Chester 3A (Emerald Isle Block) Lease**

| Claim Number                                       | Lease Number | PIN  | Recording Date | Due Date    |
|--|--------------|--|----------------|-------------|
| CLM 501 (P720647<br>P734211<br>P734213<br>P734214) | 109687       | 73193-0073<br>73193-0074<br>73193-0075<br>73193-0076 | 1 June 2017    | 31 May 2038 |

The transfer of a 30% interest in IAMGOLD's interest to SMM Gold CôtéInc. has been completed.

Table 4-6 provides a list of the Chester 3 unpatented claims, surrounding the Chester 1 agreement property. These claims are adjacent to the north, east and south of tenure CLM 270 that falls within the Chester 1 claims package, and shown in Figure 4-4 as part of the Chester 3C package. All of the claims are within Chester township. A mining lease application has been submitted and these claims are being surveyed for the perimeter of the surface and mining rights. Some of these claims are requested for lease under historical applications and do not require work to retain ownership.

In Table 4-6, the registered ownership is:

- IAMGOLD: 38.85%
- SMM Gold CôtéInc.: 28.65%;
- Ontario 986813 Ltd: 28%
- Treelawn Group: 7.5%.

Ontario 986813 Ltd acquired Arimathaea Resources Inc.'s original property interest. An application to transfer a 30% interest in IAMGOLD's interest in the names of Trelawney and Ontario 986813 Ltd to SMM Gold CôtéInc. has been completed.

Table 4-7 is a list of the surface and mineral rights held under patented claim by beneficial owners IAMGOLD, SMM Gold CôtéInc and the Treelawn Group. All claims are in Chester township. The claim areas are included within the Chester 3E package in Figure 4-4.

Table 4-6: Chester 3C Claims

| Cell Claim | Legacy Claim | Grant Date     | Good To Date |
|------------|--------------|----------------|--------------|
| 284768     | 543820       | 10 April, 2018 | #            |
| 272127     | 543820       |                |              |
| 230979     | 543822       |                |              |
| 116004     | 543822       |                |              |
| 147079     | 549017       |                |              |
| 336646     | 549017       |                |              |
| 124173     | 549019       |                |              |
| 261899     | 549017       |                |              |
| 141562     | 471954       |                |              |
| 130010     | 471956       |                |              |
| 243382     | 471956       |                |              |
| 320194     | 471956       |                |              |
| 228878     | 471957       |                |              |
| 181388     | 515057       |                |              |
| 275450     | 515058       |                |              |
| 116004     | 515329       |                |              |
| 230979     | 515329       |                |              |
| 177617     | 515329       |                |              |
| 221615     | 515329       |                |              |
| 228879     | 515330       |                |              |
| 100645     | 515330       |                |              |
| 155540     | 515054       |                |              |
| 236161     | 471954       |                |              |
| 189431     | 515053       |                |              |
| 189432     | 515053       |                |              |

Note: The implementation of online registration of mining claims and a new modernized electronic Mining Lands Administration System (MLAS) on April 10, 2018, has converted Ontario's manual system of ground and paper staking, and maintaining unpatented mining claims to an online system and as such all active, unpatented claims were converted from their legally defined location by claim posts on the ground or by township survey to a cell-based provincial grid. All claim numbers have changed. Ontario 986813 Ltd acquired Arimathaea Resources Inc. interests. An application to transfer a 30% interest in IAMGOLD's interest in the names of Trelawney and Ontario 986813 Ltd to SMM Gold Côté Inc. is currently pending. All claims have the same grant date, which corresponds to the date the claims were created in the MLAS. # = the claims are subject to mining lease applications and therefore work commitments will be suspended once the surveys have been completed and the mining lease applications are in their final phases.

**Table 4-7: Chester 3E Patented Claims**

| Claim Number | Parcel Number   | PIN              |
|--------------|-----------------|------------------|
| S32033       | 9625 SWS (SRO)  | 73193-0041 (SRO) |
|              | 27911 SWS (MRO) | 73193-0066 (MRO) |
| S32034       | 9626 SWS        | 73193-0042 (SRO) |
|              | 27911 SWS (MRO) | 73193-0066 (MRO) |
| S32035       | 9627 SWS        | 73193-0043 (SRO) |
|              | 27911 SWS (MRO) | 73193-0066 (MRO) |
| S32036       | 9628 SWS        | 73193-0044 (SRO) |
|              | 27911 SWS (MRO) | 73193-0066 (MRO) |
| S32037       | 9629 SWS        | 73193-0045 (SRO) |
|              | 27911 SWS (MRO) | 73193-0066 (MRO) |
| S32044       | 9627 SWS        | 73193-0043 (SRO) |
|              | 27911 SWS (MRO) | 73193-0066 (MRO) |

Note: SRO = surface rights ownership, MRO = mineral rights ownership

The beneficial ownership interest for the claims shown in Table 4-7 is:

- IAMGOLD: 64.75%
- SMM Gold CôtéInc.: 27.75%
- Treelawn Group: 7.5%

Table 4-8 is a list of the surface and mineral rights held under patented claim by beneficial owners IAMGOLD, SMM Gold CôtéInc, the Treelawn Group, and Canorth Resources Inc. (Canorth). All claims are in Chester township. The claim areas are shown as the Chester 3D package in Figure 4-4.

In Table 4-8, there is a difference in ownership between the surface rights, and the mineral rights.

The beneficial surface rights ownership is:

- IAMGOLD: 64.75%
- SMM Gold CôtéInc.: 27.75%
- Treelawn Group: 7.5%

**Table 4-8: Chester 3D Patented Claims**

| Claim Number | Parcel Number | PIN              |
|--------------|---------------|------------------|
| S20655       | 8380 SWS      | 73193-0008 (SRO) |
|              | 29284 SWS     | 73193-0067 (MRO) |
| S20656       | 8381 SWS      | 73193-0009 (SRO) |
|              | 29284 SWS     | 73193-0067 (MRO) |
| S20657       | 8382 SWS      | 73193-0010 (SRO) |
|              | 29284 SWS     | 73193-0067 (MRO) |
| S20660       | 8383 SWS      | 73193-0011 (SRO) |
|              | 29284 SWS     | 73193-0067 (MRO) |
| S20661       | 8384 SWS      | 73193-0012 (SRO) |
|              | 29284 SWS     | 73193-0067 (MRO) |
| S20663       | 8377 SWS      | 73193-0005 (SRO) |
|              | 29284 SWS     | 73193-0067 (MRO) |
| S20664       | 8378 SWS      | 73193-0006 (SRO) |
|              | 29284 SWS     | 73193-0067 (MRO) |
| S20665       | 8379 SWS      | 73193-0007 (SRO) |
|              | 29284 SWS     | 73193-0067 (MRO) |
| S20666       | 8385 SWS      | 73193-0013 (SRO) |
|              | 29284 SWS     | 73193-0067 (MRO) |
| S20667       | 8386 SWS      | 73193-0014 (SRO) |
|              | 29284 SWS     | 73193-0067 (MRO) |
| S20668       | 8387 SWS      | 73193-0015 (SRO) |
|              | 29284 SWS     | 73193-0067 (MRO) |

Note: SRO = surface rights ownership, MRO = mineral rights ownership.

The beneficial mineral rights ownership is:

- IAMGOLD: 48.5625%
- SMM Gold CôtéInc.: 20.8125%
- Treelawn Group: 5.625%
- Canorth: 25%.

Table 4-9 provides the claims held under patent and lease by beneficial owners IAMGOLD, Murgold Resources Inc. (Murgold), SMM Gold CôtéInc., and the Treelawn Group. All claims are within Chester township. The claims are included within the Chester 3C package in Figure 4-4.

**Table 4-9: Chester 3C Patented Claims**

| Claim Number | PIN        | Approximate Area (ha) |
|--------------|------------|-----------------------|
| S19992       | 73193-0022 | 16.3                  |
| S20009       | 73193-0023 | 24.4                  |
| P1238635     | 73193-0070 | 27.4                  |
| <b>Total</b> |            | <b>68.1</b>           |

In Table 4-9, claim numbers S19992 and S20009 have the following beneficial ownership:

- IAMGOLD: 38.85%
- SMM Gold CôtéInc.: 16.65%
- Treelawn Group: 4.5%
- Murgold: 40%.

Claim P1238635 has the following registered ownership:

- IAMGOLD: 92.5%
- Treelawn Group.: 7.5%.

An application to transfer a 30% interest in IAMGOLD's interest to SMM Gold CôtéInc. is currently pending.

Table 4-10 summarizes the claims held under the grouping "Jack Rabbit" shown as Chester 3B in Figure 4-4. The claims are within Chester township.

The registered owners of the claims in Table 4-10 are:

- IAMGOLD: 65.88505%
- SMM Gold CôtéInc.: 28.23645%
- Treelawn Group: 5.8785%.

An application to transfer a 30% interest in IAMGOLD's interest to SMM Gold CôtéInc. has been completed.

**Table 4-10: Chester 3B - Jack Rabbit Group**

| Claim Number | PIN        | Approximate Area (ha) | Start Date | Lease Expiry Date |
|--------------|------------|-----------------------|------------|-------------------|
| CLM266       | 73193-0001 | 117.2                 | 01-Apr-05  | 31-Mar-26         |
| <b>Total</b> |            | <b>117.2</b>          |            |                   |

**Royalties**

In accordance with the Mining Option Agreement, after exercising the First Chester 3 Option, Trelawney granted the Treelawn Group a 1.5% NSR on the Treelawn Interest in the Chester 3 claims. During the 48 months following the grant of the royalty, Trelawney had the right to purchase 0.5% of the royalty from the Treelawn Group for the sum of C\$1 M. On May 20, 2015, Trelawney exercised its right to purchase 0.5% NSR by paying the Treelawn Group the sum of C\$1 M. This right reduces the total royalty to 1% NSR in the Chester 3 claims.

In consideration for accelerating the exercise of the Chester 3 Option Agreement, Treelawn Group Inc's residual interest in the Chester 3 property was converted into a free-carried interest of 7.5% on the Treelawn Interest (Amended Interest dated 22 November 2011). On 28 March 2012, Trelawney announced that it had entered into a restated amending agreement with Treelawn Group Inc. with respect to the Chester 3 property. Pursuant to the restated amending agreement, the Amended Interest was converted into a 7.5% net profits interest on the Treelawn Interest.

In addition to Treelawn Group's royalty under the Mining Option Agreement covering Chester 3, CLM266 is also subject to an additional 1.5% NSR.

**4.4.8 Clam Lake-Crown Minerals**

Figure 4-2 and Figure 4-3 show the location of the tenures included in the Clam Lake-Crown Minerals property area.

**Agreements**

On May 19, 2010, Trelawney announced that it had signed a letter of intent with Crown Minerals Inc. (Crown Minerals) on their Chester/Yeo property in close proximity to the Chester properties. Trelawney purchased an 80% interest in the Chester/Yeo property and Crown Minerals was to retain a 20% carried interest until the completion of a positive pre-feasibility study.

On June 13, 2013, TAAC signed an Acquisition Agreement with Crown Minerals to purchase its interest to earn a 100% interest in the Chester/Yeo property.

Under the Watershed Option and Joint Venture Agreement between Sanatana Resources Inc. (Sanatana) and TAAC, Sanatana exercised its right under the area of interest clause of 5 km from any portion of the Watershed property to acquire half of the acquired interest in the Chester/Yeo claims (the location of the Watershed property is included as the pale lavender claims shown in Figure 4-2). This 20% interest was then held 50:50 between Sanatana and TAAC. Following the purchase on March 9, 2016 of Sanatana's 50% interest of the 20% interest in the Watershed property, TAAC obtained control of the full 20% interest.

In July 2017, the TAAC and Trelawney interests were transferred into IAMGOLD's name.

#### **Tenure**

The Clam Lake property tenure package acquired from Crown Minerals is provided in Table 4-11. The claims are within the Chester and Yeo townships. The property is contiguous with, and to the west of, the Chester properties, and consists of 20 boundary and cell claims (historically three legacy claims with 14 units) covering an area of approximately 241 ha.

A mining lease application has been submitted and these claims are being surveyed for the perimeter of the surface and mining rights. As a result of the mining lease applications, work commitments will be suspended once the surveys have been completed and the mining lease applications are in their final phases.

The beneficial and registered ownership of the claim package in Table 4-11 is:

- IAMGOLD: 70%
- SMM Gold CôtéInc.: 30%

#### **Royalties**

There are no royalties payable on the Crown Minerals tenure package.

Table 4-11: Clam Lake–Crown Minerals Tenure

| Township/Area | Cell Claim | Legacy Claim |
|---------------|------------|--------------|
| Yeo           | 116452     | 4240522      |
|               | 177718     | 4240522      |
|               | 177719     | 4240522      |
|               | 204180     | 4240522      |
|               | 231585     | 4240522      |
|               | 260251     | 4240522      |
|               | 260252     | 4240522      |
|               | 297626     | 4240522      |
|               | 327426     | 4240522      |
|               | Yeo        | 102747       |
| 116452        |            | 4241016      |
| 153091        |            | 4241016      |
| 177719        |            | 4241016      |
| 218422        |            | 4241016      |
| 218423        |            | 4241016      |
| 226375        |            | 4241016      |
| 226376        |            | 4241016      |
| 260252        |            | 4241016      |
| 285676        |            | 4241016      |
| 287506        |            | 4241016      |
| 321723        |            | 4241016      |
| Chester       |            | 155482       |
|               | 287506     | 4220425      |
|               | 274867     | 4220425      |

Note: The implementation of online registration of mining claims and a new modernized electronic Mining Lands Administration System (MLAS) on April 10, 2018, has converted Ontario's manual system of ground and paper staking, and maintaining unpatented mining claims to an online system and as such all active, unpatented claims were converted from their legally defined location by claim posts on the ground or by township survey to a cell-based provincial grid. As such, all claim numbers have changed.

**4.4.9 Clam Lake**

Figure 4-3 included the location of the Clam Lake property within the overall Crown Minerals/Clam Lake property area.

**Agreements**

The Clam Lake property is not subject to any agreements.

**Tenure**

Trelawney staked four claims (4260697, 4260698, 4260699, and 4260700) covering four small islands in Clam Lake, on the western boundary of, and within, Chester township. A fifth claim was staked in 2011. The claims cover an area of approximately 80 ha. Claim details are provided in Table 4-12. A mining lease application has been submitted and these claims are being surveyed for the perimeter of the surface and mining rights.

The claims in Table 4-12 were registered 100% in Trelawney's name. In July 2017, the Trelawney interests were transferred into IAMGOLD's name. The transfer of a 30% interest in IAMGOLD's interest to SMM Gold CôtéInc. has been completed.

**Royalties**

The Clam Lake package is not subject to any royalty payments.

**4.4.10 Leliever Property**

The Leliever property is labelled as Leliever Patents in Figure 4-2 and Figure 4-3.

**Agreements**

Pursuant to an acquisition agreement between Trelawney and John Leliever, dated February 24, 2012, Trelawney purchased a 100% interest in the Leliever claims.

**Tenure**

The Leliever property is located in the central area of the 2018 Feasibility Study area. It lies immediately to the northwest of the Côté Gold deposit. The Leliever property is found exclusively within Chester township. It is a single contiguous block of three patented claims with an approximate area of 54.4 ha (Table 4-13).

**Table 4-12: Clam Lake Tenure**

| Township/Area | Cell Claim | Legacy Claim |
|---------------|------------|--------------|
| Yeo           | 127554     | 4254022      |
|               | 210231     | 4254022      |
|               | 274087     | 4254022      |
|               | 322812     | 4254022      |
|               | 271286     | 4260697      |
| Yeo           | 343177     | 4260697      |
|               | 343177     | 4260698      |
|               | 343177     | 4260699      |
|               | 274087     | 4260700      |
|               | 322812     | 4260700      |
|               | 320650     | 4260700      |
|               | 322813     | 4260700      |

**Table 4-13: Leliever Patented Claims**

| Claim Number | Parcel Number | PIN        |
|--------------|---------------|------------|
| S8995        | 8417 SWS      | 73193-0016 |
| S8996        | 8418 SWS      | 73193-0017 |
| S8997        | 8420 SWS      | 73193-0018 |

The claims in Table 4-13 were registered 100% in Trelawney's name. In July 2017, the Trelawney interests were transferred into IAMGOLD's name. The transfer of a 30% interest in IAMGOLD's interest to SMM Gold Côté Inc. has been completed.

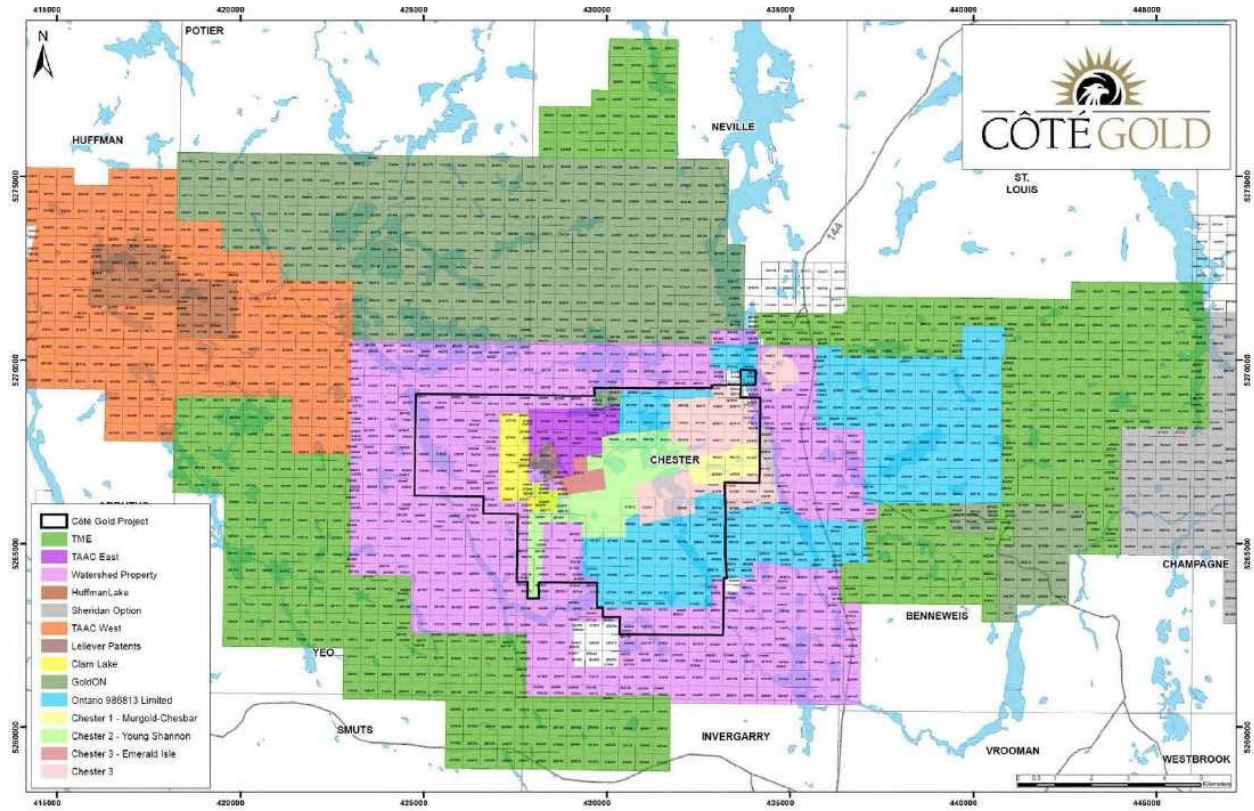
**Royalties**

The Leliever property is not currently subject to any royalty payments.

**4.4.11 Ontario 986813 Ltd. (Arimathaea Resources Inc.) Property**

The Ontario 986813 Ltd. property location is labelled as Ontario 986813 Ltd. in Figure 4-2 and Figure 4-6.

Figure 4-6: IAMGOLD Regional Property Interests – Central Area



Note: Figure prepared by IAMGOLD, 2018.

**Agreements**

Pursuant to an asset purchase agreement between Arimathaea and Ontario 986813 Ltd. (Ontario 986813) dated June 26, 1982, Ontario 986813 acquired the Arimathaea property. By an application to the Commissioner from Ontario 986813, dated December 26, 2011, several separate requests were made. These included vesting 100% interest in the claims comprising the Arimathaea property to Ontario 986813, an application for exclusions, and an application for extension of time.

An order by the Commissioner dated February 6, 2012 granted all of the relief sought with the effective date of transfer of the Arimathaea property to Ontario 986813 being June 26, 1992. Ontario 2294167 Inc. (Ontario 2294167) acquired ownership of 55% of Ontario 986813 on August 3, 2011. Ontario 2294167 was a wholly-owned Trelawney subsidiary.

**Tenure**

The entire Ontario 986813 Ltd property is separated into four, 100% Ontario 986813-owned distinct blocks in the Project area as illustrated on Figure 4-6, but the 2018 Feasibility Study property area includes only a portion of those claims. All of the claims for the study area are within Chester township while the entire property also extends in Benneweis township.

The number of claims forming the Ontario 986813 Ltd property (also referred as the Arimathaea property) are summarized in Table 4-14. They combine for a total of 258 unpatented boundary and cell claims (historically 233 legacy unpatented claims) and an approximate total area of 3,628 ha.

The Ontario 986813 Ltd property ownership was 100% in the name of Ontario 986813 Ltd. Ontario 986813 Ltd is a subsidiary of IAMGOLD (through Ontario 2294167 which acquired 55% of its ownership). The application to transfer a 30% interest in IAMGOLD's interest to SMM Gold CôtéInc. in the property has been completed.

**Royalties**

The Ontario 986813 Ltd property is not currently subject to any royalty payments.

**Table 4-14: Ontario 986813 Ltd Property Claims**

| Ontario 986813 Ltd Property - Block Name | Number of Legacy Unpatented Mining Claims | Estimated Number of Boundary and Cell Claims | Approximate Area (ha) |
|--|---|--|-----------------------|
| North                                    | 16  | 20   | 174                   |
| Northeast                                | 7   | 13   | 107                   |
| East                                     | 113                                       | 119  | 1,901                 |
| South                                    | 97  | 106  | 1,446                 |
| <b>Ontario 986813 Ltd Property Total</b> | <b>233</b>                                | <b>258</b>                                   | <b>3,628</b>          |

Note: The implementation of online registration of mining claims and a new modernized electronic Mining Lands Administration System (MLAS) on April 10, 2018, has converted Ontario's manual system of ground and paper staking, and maintaining unpatented mining claims to an online system and as such all active, unpatented claims were converted from their legally defined location by claim posts on the ground or by township survey to a cell-based provincial grid. All claim numbers have changed.

#### 4.4.12 Sanatana Option and Watershed Property

The Sanatana Option and Watershed property is identified as the Watershed property in Figure 4-2, and is shown in Figure 4-6.

##### Agreements

The Sanatana Option was under an earn-in agreement between TAAC and Sanatana signed on February 14, 2011. Under the terms of this agreement, Sanatana had the right to acquire a 50% interest in the originally 100% TAAC-owned claims (of the Sanatana Option property) by completing the following:

- Paying TAAC C\$150,000 within 10 days of February 14, 2011 (completed)
- Allotting and issuing to TAAC a total of 5,000,000 shares on or before February 14, 2013, as follows:
  - 2,000,000 Shares on or before February 24, 2011 (completed)
  - An additional 1,500,000 Shares on or before February 24, 2012 (completed)
  - An additional 1,500,000 Shares on or before February 24, 2013 (completed)
- Incurring work costs of not less than C\$5 M as follows:
  - C\$1 M on or before February 14, 2012 (completed)
  - An additional C\$1.5 M on or before February 14, 2013 (completed)
  - An additional C\$1.5 M on or before February 14, 2014 (completed).

This agreement included a provision of an Area of Interest (also termed the Sanatana right of first refusal or Sanatana ROFR) extending up to 5 km from any portion of the property. This required that any acquisition or staking of mineral claims by TAAC or its affiliates must be offered to Sanatana for the benefit of the parties. If exercised by Sanatana, the costs of such an acquisition must be reimbursed under the Option and Joint Venture (JV) terms and the interest will be included in the property for the benefit of Sanatana and TAAC.

Sanatana has:

- Paid TAAC C\$150,000 in cash
- Issued TAAC 5,000,000 common shares
- Incurred not less than C\$5 M in exploration expenditures, and Sanatana had therefore earned a 50% property interest.

Sanatana could have increased its interest to 51% in the Sanatana Option and Joint Venture property upon completion and delivery of a pre-feasibility study on or before March 23, 2016; however, on November 30, 2015, Sanatana announced that it had given TAAC notice to form a 50/50 joint venture (the JV) to manage the Watershed property. The JV would be formed pursuant to the terms of the option and joint venture agreement between Sanatana and TAAC, dated February 14, 2011, with Sanatana as the initial manager of the JV.

On March 9, 2016, Sanatana sold its 50% interest in the Watershed property to Trelawney Augen Acquisition Corp. in exchange for C\$2 M in cash consideration, C\$3 M in contingent consideration and a 1% NSR.

#### **Tenure**

The Sanatana Option property (or Watershed property) is located in part in the central and east-central portion of the 2018 Feasibility Study area and surrounds it. It is a single contiguous block with claims in Yeo, Chester, Neville, and Benneweis townships.

The entire Watershed property consists of 510 boundary and cell claims (or 46 unpatented legacy mining claims) with an approximate area of 8,059 ha. The Watershed Property claims presently located within the 2018 Feasibility Study area total 83 boundary and cell claims for an approximate 1,274 ha.

Details for the unpatented mining claims of the Watershed property are found in Appendix A.

The ownership interest was initially 100% TAAC. Subsequently, Sanatana obtained a 50% interest in the property; however, TAAC purchased Sanatana's 50% interest in 2016. In July 2017, the TAAC interests were transferred into IAMGOLD's name. The transfer of a 30% interest in IAMGOLD's interest to SMM Gold CôtéInc. has been completed.

#### **Royalties**

On March 9, 2016, Sanatana sold its 50% interest in the Watershed property to TAAC in exchange for C\$2 M in cash consideration, C\$3 M in contingent consideration and a 1% NSR. TAAC has the option to re-purchase 0.5% of the NSR for a C\$2 M cash payment. In addition, TAAC also has the right of refusal on any sale of the NSR to other parties.

Both the patented and unpatented claims that encompass the Watershed property and the area of the Sanatana ROFR were also subject to a 1% NSR payable to Trelawney based on an agreement signed between TAAC and Trelawney (pre-acquisition of TAAC). This NSR Royalty has been extinguished with the amalgamation of Trelawney in IAMGOLD.

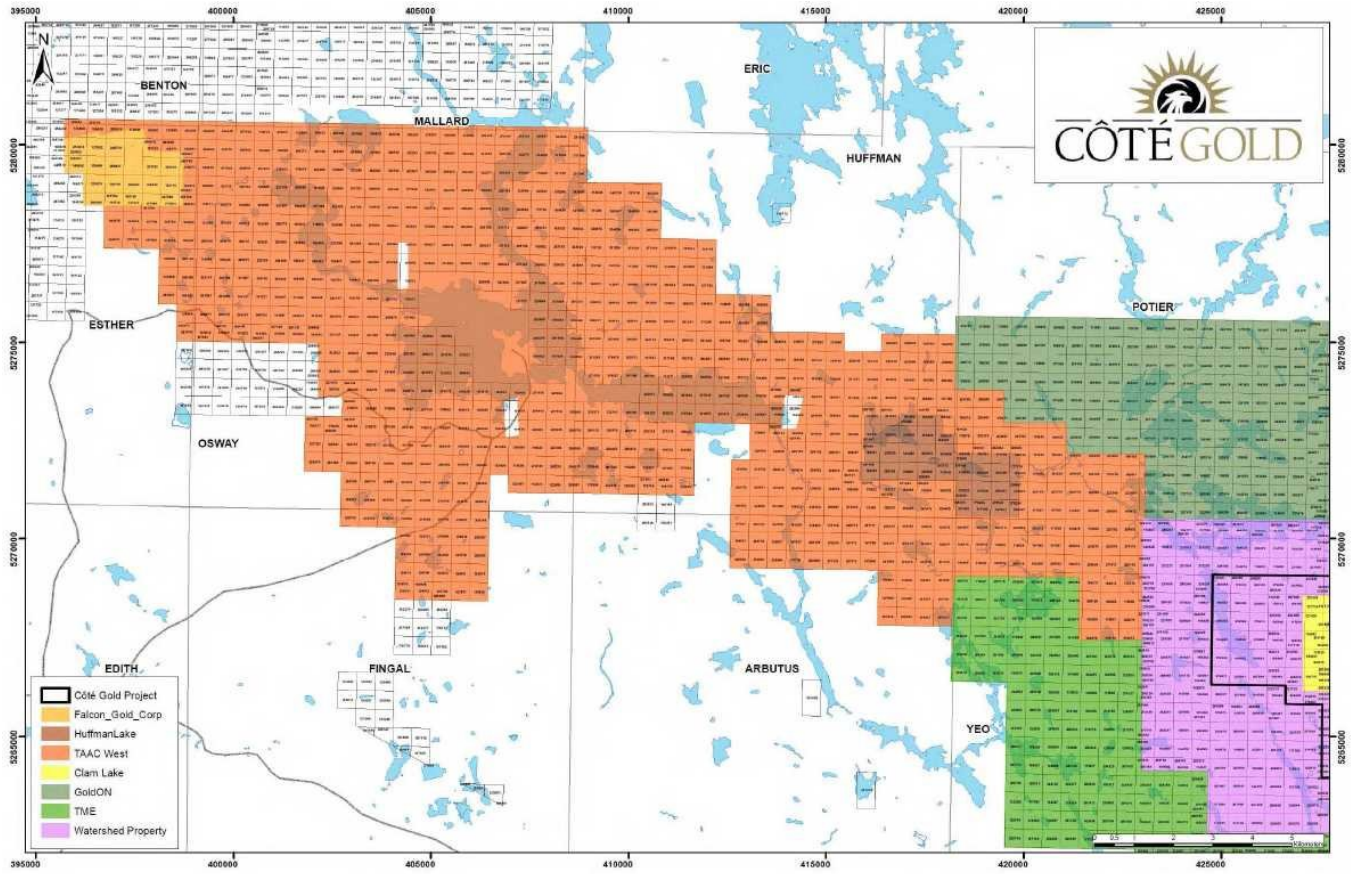
#### **4.4.13 Trelawney Augen Acquisition Corp. (TAAC) Properties**

The Trelawney Augen Acquisition Corp properties (TAAC) are separated into two distinct blocks in the regional project area, separated by the Watershed property. They are contiguous with the other property groups. The east block is referred to as the TAAC East property in Figure 4-2 and is illustrated in Figure 4-6. The west block is referred to as TAAC West property in Figure 4-2 and is illustrated in Figure 4-7.

#### **Agreements**

There are no agreements in place for the TAAC properties.

Figure 4-7: IAMGOLD Regional Property Interests – West Area



Note: Figure prepared by IAMGOLD, 2018.

**Tenure**

The TAAC properties originally consisted of two 100% TAAC-owned distinct blocks, the East and West blocks. Only the East block is located in the 2018 Feasibility Study area.

TAAC East is located directly to the north of the Côté Gold deposit and comprises a total of 32 unpatented boundary and cell claims (historically nine legacy unpatented claims) and an approximate total area of 300 hectares.

The TAAC West block is the largest property block in the Project area. It includes the majority of the western half of the regional Project area, covering ground in Benton, Esther, Osway, Huffman, Potier, Fingal, Arbutus, and Yeo townships. The TAAC West block consists of a combination of 40 patents, 50 mining licences of occupation (MLOs), and 822 unpatented boundary and cell claims (historically 83 unpatented mining claims) for an approximate total area of 17,477 ha.

The two blocks combine for a total of 854 boundary and cell claims, 40 patented mining claims and 50 mining licences of occupation, with a total area of 17,777 ha.

The claims are summarized in Table 4-15 and Table 4-16. The list of patented crown grants and mining licences of occupation is included in Table 4-17. Details on the patented and unpatented mining claims of the TAAC properties are included in Appendix A.

In July 2017, the TAAC interests were transferred into IAMGOLD's name. The transfer of a 30% interest in the unpatented mining claims and the patented claims to SMM Gold Côté Inc. has been completed.

**Royalties**

The TAAC properties are not currently subject to any royalty payments.

**4.4.14 Huffman Lake Option Property**

The Huffman Lake Option property is identified as the Huffman Lake property in Figure 4-2, and is shown in Figure 4-7.

**Table 4-15: Trelawney Augen Acquisition Corp. Claims**

| TAAC Property - Block Name | Patented Patents | MLOs      | Number of Legacy Unpatented Mining Claims | Estimated Number of Boundary and Cell Claims |
|----------------------------|------------------|-----------|---|--|
| East                       | 0                | 0         | 9   | 32   |
| West                       | 40               | 50        | 83  | 822  |
| <b>TAAC Property</b>       | <b>40</b>        | <b>50</b> | <b>92</b>                                 | <b>854</b>                                   |

Note: The implementation of online registration of mining claims and a new modernized electronic Mining Lands Administration System (MLAS) on April 10, 2018, has converted Ontario's manual system of ground and paper staking, and maintaining unpatented mining claims to an online system and as such all active, unpatented claims were converted from their legally defined location by claim posts on the ground or by township survey to a cell-based provincial grid. All claim numbers have changed.

**Table 4-16: Trelawney Augen Acquisition Corp. Property Surveyed Claims**

| TAAC Property Block Name   | Surveyed Patents (ha) | MLOs (ha)  | Approximate Unpatented Mining Claims (ha) | Total Surveyed + Approximate (ha) |
|----------------------------|-----------------------|------------|---|-----------------------------------|
| East                       | 0                     | 0          | 300                                       | 300                               |
| West                       | 485                   | 733        | 16,259                                    | 17,477                            |
| <b>TAAC Property Total</b> | <b>485</b>            | <b>733</b> | <b>16,559</b>                             | <b>17,777</b>                     |

**Table 4-17: Trelawney Augen Acquisition Corp. Patent Crown Grants and Mining Licences of Occupation**

| Patent Crown Grant Number | Mining Licence of Occupation Number | PIN              | Claim Number |
|---------------------------|-------------------------------------|------------------|--------------|
| 4916                      |                                     | 73176-0058 (SRO) | S32117       |
| 4916                      |                                     | 73176-0059 (MRO) | S32117       |
| 4918                      |                                     | 73176-0060 (SRO) | S32157       |
| 4918                      |                                     | 73176-0061 (MRO) | S32157       |
| 4919                      |                                     | 73176-0062 (SRO) | S32159       |
| 4919                      |                                     | 73176-0063 (MRO) | S32159       |
| 4920                      |                                     | 73176-0064 (SRO) | S32242       |
| 4920                      |                                     | 73176-0065 (MRO) | S32242       |

| Patent Crown Grant Number | Mining Licence of Occupation Number | PIN              | Claim Number |
|---------------------------|-------------------------------------|------------------|--------------|
| 4921                      |                                     | 73176-0066 (SRO) | S32268       |
| 4921                      |                                     | 73176-0067 (MRO) | S32268       |
| 4922                      |                                     | 73176-0068 (SRO) | S32160       |
| 4922                      |                                     | 73176-0069 (MRO) | S32160       |
| 4923                      |                                     | 73176-0070 (SRO) | S32070       |
| 4923                      |                                     | 73176-0071 (MRO) | S32070       |
| 4933                      |                                     | 73176-0072 (SRO) | S32073       |
| 4933                      |                                     | 73176-0073 (MRO) | S32073       |
| 4934                      |                                     | 73176-0074 (SRO) | S32074       |
| 4934                      |                                     | 73176-0075 (MRO) | S32074       |
| 4935                      |                                     | 73176-0076 (SRO) | S32113       |
| 4935                      |                                     | 73176-0077 (MRO) | S32113       |
| 4936                      |                                     | 73176-0078 (SRO) | S32162       |
| 4936                      |                                     | 73176-0079 (MRO) | S32162       |
| 4937                      |                                     | 73176-0080 (SRO) | S32215       |
| 4937                      |                                     | 73176-0081 (MRO) | S32215       |
| 4938                      |                                     | 73176-0082 (SRO) | S32216       |
| 4938                      |                                     | 73176-0083 (MRO) | S32216       |
| 4939                      |                                     | 73176-0084 (SRO) | S32218       |
| 4939                      |                                     | 73176-0085 (MRO) | S32218       |
| 4940                      |                                     | 73176-0086 (SRO) | S32264       |
| 4940                      |                                     | 73176-0087 (MRO) | S32264       |
| 4941                      |                                     | 73176-0088 (SRO) | S32265       |
| 4941                      |                                     | 73176-0089 (MRO) | S32265       |
| 4942                      |                                     | 73176-0090 (SRO) | S32266       |
| 4942                      |                                     | 73176-0091 (MRO) | S32266       |
| 4943                      |                                     | 73176-0092 (SRO) | S32366       |
| 4943                      |                                     | 73176-0093 (MRO) | S32366       |
| 4944                      |                                     | 73176-0094 (SRO) | S32367       |
| 4944                      |                                     | 73176-0095 (MRO) | S32367       |

| Patent Crown Grant Number | Mining Licence of Occupation Number | PIN              | Claim Number |
|---------------------------|-------------------------------------|------------------|--------------|
| 5066                      |                                     | 73176-0096 (SRO) | S32121       |
| 5066                      |                                     | 73176-0097 (MRO) | S32121       |
| 5067                      |                                     | 73176-0098 (SRO) | S32071       |
| 5067                      |                                     | 73176-0099 (MRO) | S32071       |
| 5411                      |                                     | 73176-0100 (SRO) | S31758       |
| 5411                      |                                     | 73176-0101 (MRO) | S31758       |
| 5570                      |                                     | 73176-0102 (SRO) | S32267       |
| 5570                      |                                     | 73176-0103 (MRO) | S32267       |
| 5571                      |                                     | 73176-0104 (SRO) | S32269       |
| 5571                      |                                     | 73176-0105 (MRO) | S32269       |
| 5573                      |                                     | 73176-0106 (SRO) | S32261       |
| 5573                      |                                     | 73176-0107 (MRO) | S32261       |
| 5574                      |                                     | 73176-0108 (SRO) | S32262       |
| 5574                      |                                     | 73176-0109 (MRO) | S32262       |
| 5575                      |                                     | 73176-0110 (SRO) | S32263       |
| 5575                      |                                     | 73176-0111 (MRO) | S32263       |
| 5584                      |                                     | 73176-0112 (SRO) | S32227       |
| 5584                      |                                     | 73176-0113 (MRO) | S32227       |
| 5585                      |                                     | 73176-0114 (SRO) | S32395       |
| 5585                      |                                     | 73176-0115 (MRO) | S32395       |
| 5587                      |                                     | 73176-0116 (SRO) | S32222       |
| 5587                      |                                     | 73176-0117 (MRO) | S32222       |
| 5588                      |                                     | 73176-0118 (SRO) | S32223       |
| 5588                      |                                     | 73176-0119 (MRO) | S32223       |
| 5594                      |                                     | 73176-0120 (SRO) | S32316       |
| 5594                      |                                     | 73176-0121 (MRO) | S32316       |
| 5136                      |                                     | 73177-0046 (SRO) | S29951       |
| 5136                      |                                     | 73177-0047 (MRO) | S29951       |
| 5137                      |                                     | 73177-0048 (SRO) | S29952       |
| 5137                      |                                     | 73177-0049 (MRO) | S29952       |

| Patent Crown Grant Number | Mining Licence of Occupation Number | PIN              | Claim Number |
|---------------------------|-------------------------------------|------------------|--------------|
| 5412                      |                                     | 73177-0050 (SRO) | S31759       |
| 5412                      |                                     | 73177-0051 (MRO) | S31759       |
| 5580                      |                                     | 73177-0052 (SRO) | S32219       |
| 5580                      |                                     | 73177-0053 (MRO) | S32219       |
| 5581                      |                                     | 73177-0054 (SRO) | S32220       |
| 5581                      |                                     | 73177-0055 (MRO) | S32220       |
| 5582                      |                                     | 73177-0056 (SRO) | S32224       |
| 5582                      |                                     | 73177-0057 (MRO) | S32224       |
| 5583                      |                                     | 73177-0058 (SRO) | S32225       |
| 5583                      |                                     | 73177-0059 (MRO) | S32225       |
| 5915                      |                                     | 73177-0060 (SRO) | S32386       |
| 5915                      |                                     | 73177-0061 (MRO) | S32386       |
| 5916                      |                                     | 73177-0062 (SRO) | S32387       |
| 5916                      |                                     | 73177-0063 (MRO) | S32387       |
|                           | 10390                               |                  | S32119       |
|                           | 10391                               |                  | S32118       |
|                           | 10392                               |                  | S32117       |
|                           | 10393                               |                  | S32116       |
|                           | 10394                               |                  | S32120       |
|                           | 10395                               |                  | S32121       |
|                           | 10396                               |                  | S32071       |
|                           | 10397                               |                  | S32073       |
|                           | 10398                               |                  | S32069       |
|                           | 10399                               |                  | S32070       |
|                           | 10400                               |                  | S32077       |
|                           | 10401                               |                  | S32076       |
|                           | 10402                               |                  | S32075       |
|                           | 10403                               |                  | S32115       |
|                           | 10404                               |                  | S32114       |

| Patent Crown Grant Number | Mining Licence of Occupation Number | PIN | Claim Number |
|---------------------------|-------------------------------------|-----|--------------|
|                           | 10408                               |     | S32160       |
|                           | 10409                               |     | S32159       |
|                           | 10410                               |     | S32158       |
|                           | 10411                               |     | S32157       |
|                           | 10414                               |     | S32072       |
|                           | 10415                               |     | S33641       |
|                           | 10416                               |     | S33640       |
|                           | 10417                               |     | S33642       |
|                           | 10418                               |     | S32367       |
|                           | 10419                               |     | S32368       |
|                           | 10420                               |     | S32369       |
|                           | 10421                               |     | S32364       |
|                           | 10422                               |     | S32365       |
|                           | 10423                               |     | S32366       |
|                           | 10424                               |     | S32161       |
|                           | 10425                               |     | S32162       |
|                           | 10426                               |     | S32113       |
|                           | 10427                               |     | S32216       |
|                           | 10428                               |     | S32215       |
|                           | 10429                               |     | S32265       |
|                           | 10430                               |     | S32264       |
|                           | 10560                               |     | S29951       |
|                           | 10561                               |     | S29952       |
|                           | 10692                               |     | S31759       |
|                           | 10693                               |     | S31758       |
|                           | 10746                               |     | S32395       |
|                           | 10748                               |     | S32224       |
|                           | 10749                               |     | S32226       |
|                           | 10750                               |     | S32225       |
|                           | 10751                               |     | S32227       |

| Patent Crown Grant Number | Mining Licence of Occupation Number | PIN | Claim Number |
|---------------------------|-------------------------------------|-----|--------------|
|                           | 10752                               |     | S32219       |
|                           | 10753                               |     | S32220       |
|                           | 10754                               |     | S32221       |
|                           | 10755                               |     | S32222       |
|                           | 10756                               |     | S32223       |

**Agreements**

The property is subject to an option agreement between TAAC and John Gregory Brady and Reginald James Charron, executed on August 10, 2009. TAAC completed all necessary payments and shares have been issued by previously acquired companies to fulfill the agreement. The optioned property has been transferred to TAAC.

**Tenure**

The Huffman Lake Option property is located in the west-central part of the project area. It is completely surrounded by the claims of the TAAC West block. The Huffman Lake Option straddles the border of Huffman and Potier townships. It is a single contiguous block of 43 boundary and cell claims (originally four unpatented mining claims) with an approximate area of 624 ha.

Details on the unpatented mining claims of the Huffman Lake Option Property are included in Appendix A.

The ownership interest was initially 100% TAAC. In July 2017, the TAAC interests were transferred into IAMGOLD's name. The transfer a 30% interest in IAMGOLD's interest to SMM Gold CôtéInc. has been completed.

**Royalties**

The property is subject to a 2% NSR. TAAC has the right to acquire half (50%) of the NSR at any time upon payment of C\$1 M. The royalty holders are also entitled to a non-refundable advance royalty payment (ARP) in the amount of C\$10,000 per year commencing August 10, 2013.

#### 4.4.15 Falcon Gold Option Property

The Falcon Gold Option property (or also referred as the Burton property) is identified as the Falcon Gold Corp Option property in Figure 4-2, and is shown in Figure 4-7.

##### Agreements

Under an option agreement dated February 16, 2012 between Trelawney and Falcon Gold, Trelawney was entitled to acquire a 51% interest in the Burton property if Trelawney made certain payments to Falcon Gold and completed expenditures on the property, both of which now have been done.

During this phase of the agreement, Falcon Gold acts as the operator. After completing all terms of this first option, Trelawney may elect to exercise the Falcon Gold Second Option to acquire a further 24% interest in the Burton property a further C\$0.6 M of expenditures was completed on or before February 16, 2014. During this phase of the agreement, Trelawney could become operator of the property. The conditions for the Falcon Gold First Option of the Agreement were completed and the Falcon Gold Second Option was not exercised. This gives Trelawney a 51% interest in the property and transfer of interest will be made.

After exercising either the Falcon Gold First or Falcon Gold Second Option, a joint venture may be created with each party to contribute to the pro rata of their interest.

##### Tenure

The Falcon Gold Option property is located in the far northwest corner of the project area. It is immediately west of the large group of claims of the TAAC West Block. The Falcon Gold Option is found exclusively within Esther township. It is a single contiguous block consisting of 30 boundary and cell claims (originally 16 unpatented mining claims and six patented claims) with an approximate total surface area of 472 ha. Falcon Gold was entitled to acquire a 100% interest in this property (the Burton property) under a Mineral Property Acquisition Agreement dated March 25, 2010 and amended on April 29, 2010. It was signed with the original owners Martin L. Burton, Cumming S. Burton, and Archie S. Burton.

Details for the patented and unpatented mining claims of the Falcon Gold Option property are included in Appendix A. Table 4-18 is a summary of the Falcon Gold Option patents.

**Table 4-18: Falcon Gold Option Patents**

| Parcel Number | PIN        | Claim Number |
|---------------|------------|--------------|
| 10034SWS      | 73175-0008 | S31116       |
| 10035SWS      | 73175-0007 | S31117       |
| 10036SWS      | 73175-0006 | S31226       |
| 10037SWS      | 73175-0005 | S31227       |
| 10038SWS      | 73175-0004 | S32578       |
| 10039SWS      | 73175-0003 | S32579       |

In July 2017, the Trelawney interests were transferred into IAMGOLD's name. The beneficial ownership interest for the unpatented claims is:

- IAMGOLD: 51%
- Falcon Gold Corp: 49%.

The application to transfer a 30% interest in IAMGOLD's interest to SMM Gold CôtéInc. in the unpatented and patented claims is currently pending.

**Royalties**

A joint venture may be created with each party to contribute to the pro rata of their interest. A dilution process will be applied if either party does not contribute and dilutes to less than 10% interest. The diluted party will then forfeit all of its interest and be entitled to a 2% NSR royalty from any future production.

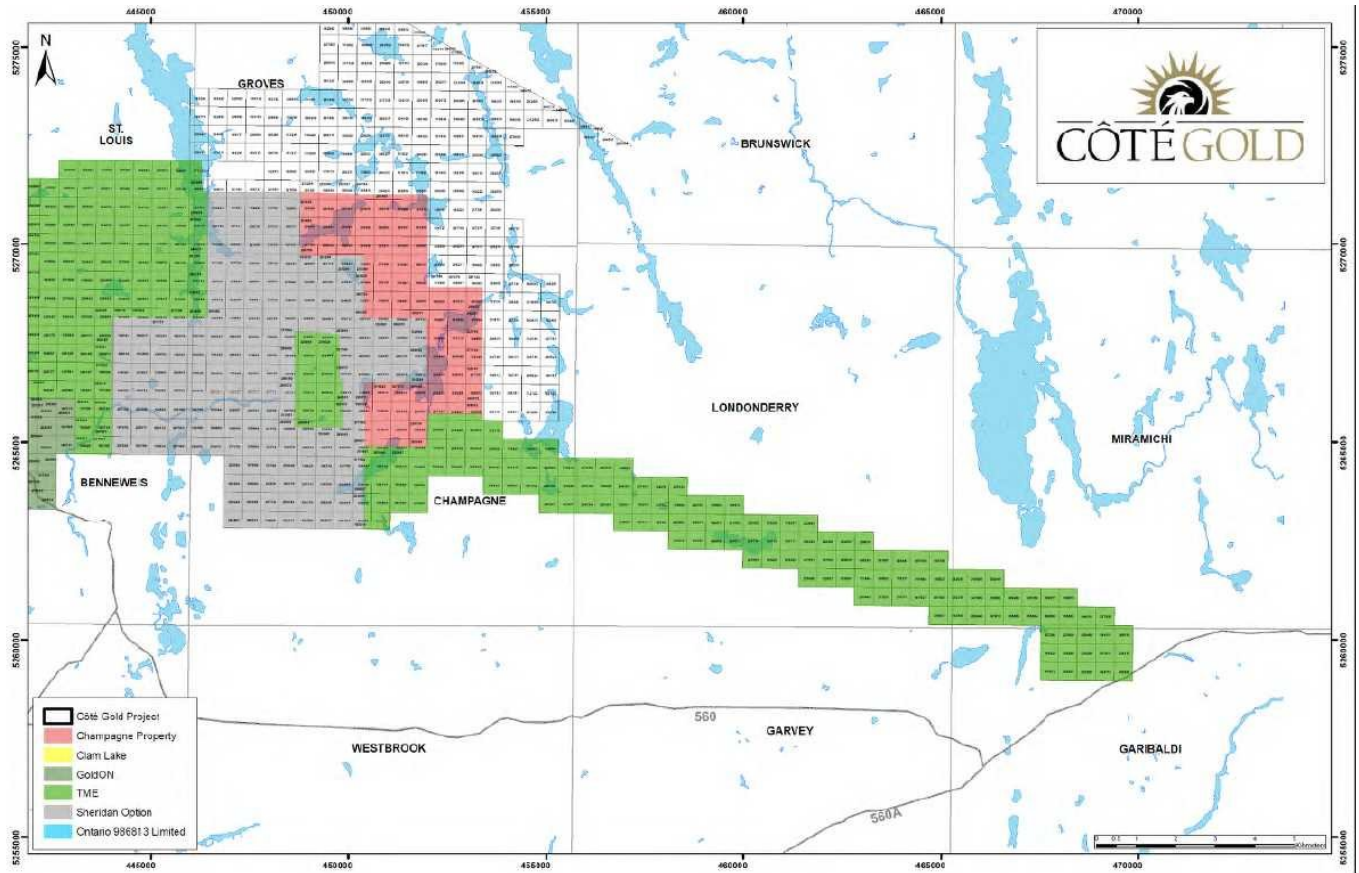
The original owners are entitled to a 2.5% NSR with the possibility to buy-back right 60% of the NSR (total 1.5% NSR) by increments of 0.3% for C\$0.5 M or for a 10% NPI.

Either party shall have a right of first refusal, which shall apply to any transfer of all or part of the party's participating interest (including royalties) in the joint venture.

**4.4.16 GoldON Swayze Properties**

The GoldON Swayze properties is labelled as GoldON in Figure 4-2, and illustrated in Figure 4-8.

Figure 4-8: IAMGOLD Regional Property Interests – East Area



Note: Figure prepared by IAMGOLD, 2018.

**Agreements**

Under the terms of a definitive agreement announced on September 29, 2016, and closed on December 30, 2016, Trelawney purchased a 100% interest in GoldON Resources' (GoldON) Swayze properties including the small block located in the 2018 Feasibility Study area for C\$300,000 in cash, forgiveness of the C\$125,000 promissory note issued by GoldON to Trelawney, and assignment of Trelawney's 1,170,544 GoldON shares. In addition, if a storage facility or pond of any nature is constructed on any of the the Swayze Claims for the purpose of storage of tailings derived from Trelawney's Côté Gold Project, Trelawney will pay to GoldON an additional C\$800,000.

**Tenure**

The GoldON Swayze properties are originally separated into three blocks that comprise the Chester township isolated claim, the Neville-Potier townships block, and the Mollie River block located in Benneweis township. Only the Chester block is located in the 2018 Feasibility Study area.

The Chester block consists of four boundary and cell claims (one original legacy mining claim) located approximately 2 km north of the Côté Gold deposit. This unpatented mining claim is situated in Chester township and covers a surface area of 29 ha.

The Neville-Potier block adjoins the north part of the Watershed property. It is centred 6 km north of the Chester property and spans Neville and Potier townships. It consists of 297 boundary and cell claims (historically 26 unpatented mining claims) for an approximate total area of 6,563 ha.

The Mollie River block is located in the eastern part of the regional project area and contiguous to the Trelawney (TME) East Block. It is centred 10 km east of the Chester property and entirely located in Benneweis township. It consists of 42 boundary and cell claims (originally three unpatented mining claims) for an approximate total area of 677 ha.

The claims are summarized in Table 4-19. Details for the patented and unpatented mining claims of the GoldON Swayze Property are found in Appendix A.

The claims were registered 100% in Trelawney's name. In July 2017, the Trelawney interests were transferred into IAMGOLD's name. The transfer of a 30% interest in IAMGOLD's interest to SMM Gold CôtéInc. has been completed.

**Table 4-19: GoldON Swayze Property Claims**

| <b>GoldON Swayze Properties - Block Name</b> | <b>Number of Legacy Unpatented Mining Claims</b> | <b>Estimated Number of Boundary and Cell Claims</b> | <b>Approximate Area (ha)</b> |
|--|--|---|------------------------------|
| Chester                                      | 1  | 4   | 29                           |
| Neville-Potier                               | 26   | 297   | 6,563                        |
| Mollie River                                 | 3  | 42  | 677                          |
| <b>GoldON Swayze Property Total</b>          | <b>30</b>  | <b>343</b>  | <b>7,269</b>                 |

Note: The implementation of online registration of mining claims and a new modernized electronic Mining Lands Administration System (MLAS) on April 10, 2018, has converted Ontario's manual system of ground and paper staking, and maintaining unpatented mining claims to an online system and as such all active, unpatented claims were converted from their legally defined location by claim posts on the ground or by township survey to a cell-based provincial grid. All claim numbers have changed. The Chester block claims are subject to a mining lease application and therefore work commitments will be suspended once the surveys have been completed and the mining lease applications are in their final phases.

**Royalties**

GoldON has acquired 100% interest of the Chester block and signed a Royalty Agreement dated May 12, 2010 with the original owner Pete Robert. The original owner is entitled to a 3.0% NSR with the possibility to buy-back one-third of the NSR (total 1.0% NSR) at any time within 25 years from the date of signature of the agreement, upon payment of C\$1 M.

GoldON acquired 100% interest in the Neville-Potier block and signed a Royalty Agreement dated August 12, 2010 with the original owners Pete Robert, Wade Kornik and 2125930 Ontario Limited. The original owners are entitled to a 3.0% NSR with the possibility to buy-back one-half of the NSR (total 1.5% NSR) at any time within 25 years from the date of signature of this agreement upon payment of C\$1 M.

GoldON has acquired 100% interest of the Mollie River block and signed a Royalty Agreement dated April 2nd, 2010 with the original owner Larry Salo. The original owner is entitled to a 3.0% NSR with the possibility to buy-back one-third of the NSR (total 1.0% NSR) at any time within 25 years from the date of signature of this agreement upon payment of C\$1 M.

**4.4.17 Trelawney Mining and Exploration Property**

The Trelawney Mining and Exploration Property is identified as the TME property in Figure 4-2, and is shown in Figure 4-8.

**Agreements**

There are no agreements in place for the Trelawney Mining and Exploration property. Most of the claims included in the property were staked by Trelawney. One block of claims (Champagne) was purchased for a fixed price from a prospector.

**Tenure**

The Trelawney Mining and Exploration property (Trelawney property) is separated into six blocks that are 100% Trelawney-owned. The northern block is the northernmost located block of the Project area properties. The eastern and southwestern blocks are contiguous with the Watershed property. The fourth, fifth and sixth blocks are the Makwa claims block, the Powerline Corridor block and Champagne block located in the easternmost area of the Project area properties. The Makwa claims block is surrounded by the Sheridan Option property (Table 4-20).

Trelawney North is located north of the rest of the property groups. It is centred 8 km due north of the Chester property in Neville township. It comprises 41 boundary and cell claims (originally three unpatented mining claims) for an approximate total area of 891 ha.

Trelawney East is located at the eastern end of the Project area, between the Ontario 986813 Ltd. (Arimathaea Resources Inc.) and the Sheridan Option properties. The eastern block of the Trelawney East is centred 10 km due east of the Chester property. Trelawney East is contiguous with the Project area, and has claims in Neville, Groves, St. Louis, and Benneweis townships. It consists of 273 boundary and cell claims (originally 21 unpatented mining claims) for an approximate total area of 4,717 ha.

Trelawney South is the southernmost component of the entire Project area. The South Block is contiguous with the remainder of the Project area. It is centred 10 km southwest of the Chester property. Trelawney South has claims in Yeo, Smuts, and Invergarry townships. It consists of 226 boundary and cell claims (originally 17 unpatented mining claims) for an approximate total area of 4,819 ha.

The Makwa Block consists of 24 boundary and cell claims (originally two mining claims) in the easternmost area of the Project area properties. It is centred approximately 18 km due east of the Chester property. These claims are situated in Champagne township and covers a surface area of 274 ha.

**Table 4-20: Trelawney Mining and Exploration Property Claims**

| <b>Trelawney Property Block Name</b> | <b>Number of Legacy Unpatented Mining Claims</b> | <b>Estimated Number of Boundary and Cell Claims</b> | <b>Approximate Area (ha)</b> |
|--------------------------------------|--|---|------------------------------|
| North                                | 3  | 41  | 891                          |
| East                                 | 21   | 273   | 4,717                        |
| South                                | 17   | 226   | 4,819                        |
| Makwa                                | 2  | 24  | 274                          |
| Powerline Corridor                   | 13   | 144   | 3,044                        |
| Champagne                            | 6  | 90  | 1,456                        |
| <b>Trelawney Property Total</b>      | <b>62</b>  | <b>798</b>  | <b>15,201</b>                |

Note: The implementation of online registration of mining claims and a new modernized electronic Mining Lands Administration System (MLAS) on April 10, 2018, has converted Ontario's manual system of ground and paper staking, and maintaining unpatented mining claims to an online system and as such all active, unpatented claims were converted from their legally defined location by claim posts on the ground or by township survey to a cell-based provincial grid. All claim numbers have changed.

The Powerline Corridor comprises 144 boundary and cell claims (originally 13 mining claims) in the easternmost area of the Project area properties. It is centred approximately 25 km due east of the Chester property. These 13 unpatented mining claims are situated in Champagne, Londonderry, Garibaldi and Miramichi townships and cover a surface area of 3,044 ha.

The Champagne Block consists of 90 boundary and cell claims (originally six mining claims) in the easternmost area of the Project area properties. It is centred approximately 21 km due east of the Chester property. These unpatented mining claims are situated in Champagne township and cover a surface area of 1,456 ha. The six blocks combine for a total of 798 boundary and cell claims and an approximate total area of 15,201 ha.

These six blocks of claims are all 100% IAMGOLD (Trelawney) owned, and are not subject to any joint ventures or option agreements.

Details on the unpatented mining claims of the Trelawney Property are included in Appendix A.

The ownership interest was initially 100% Trelawney. In July 2017, the TAAC interests were transferred into IAMGOLD's name. The transfer of a 30% interest in IAMGOLD's interest to SMM Gold CôtéInc. has been mostly completed with only the Champagne block pending.

**Royalties**

The Trelawney property is not currently subject to any royalty payments.

**4.4.18 Sheridan Option Property**

The Sheridan Option property is labelled as Sheridan Option in Figure 4-2, and is shown in Figure 4-8.

**Agreements**

The property is subject to an option agreement between Trelawney and John Patrick Sheridan dated March 28, 2012 and amended October 4, 2012. Under the terms of this agreement, Trelawney had the right to acquire a 51% undivided interest in the property by completing certain payments and work programs.

Trelawney was appointed as the operator, completed the necessary payment at signing of the agreement, and completed the necessary work expenditures by December 31, 2013. The exercise of the option has been confirmed, and a joint-venture will be created. The interest of John Patrick Sheridan was subsequently transferred to ET Gold Mining Company Ltd.

**Tenure**

The Sheridan Option property is located in the easternmost area of the Project. It is centred approximately 18 km due east of the Chester property. The Sheridan Option property is found within Groves, Benneweis, and Champagne townships. It is currently a single contiguous block of 217 boundary and cell claims (16 unpatented legacy mining claims) with an approximate total surface area of 3,876 ha.

In July 2017, the Trelawney interests were transferred into IAMGOLD's name. The beneficial ownership interest for the claims is:

- IAMGOLD: 35.7%
- SMM Gold CôtéInc.: 15.3%
- ET Gold Corp: 49%.

The transfer of a 30% interest in IAMGOLD's interest to SMM Gold CôtéInc. has been completed.

**Royalties**

The Sheridan Option property is not currently subject to any royalty payments.

**4.5 Surface Rights**

The owner of a mining claim does not hold the surface rights. At the time of application for a mining lease, the mining claims must be surveyed, and an application for surface rights submitted. IAMGOLD is currently in the process of applying for the necessary surface rights as part of the mining lease application and approval process.

**4.6 Water Rights**

On 23 February 2010, Trelawney announced that it had received a permit to take water (PTW for dewatering) from the Ontario Ministry of the Environment (MECP). The permit grants the taking of water from the Bates shaft on the Chester 1 property for construction dewatering. Trelawney initiated the process to begin dewatering the Chester 1 ramp in summer 2010. On 7 July 2010, Trelawney announced that the Mineral Development and Lands Branch of the Ministry of Northern Development, Mines and Forestry (ENDMF) acknowledgement the filing of its Advanced Exploration Closure Plan for the Chester 1 Project. Pursuant to approval for filing of the Closure Plan by the ENDMF, Trelawney began the planned underground exploration program.

Portal and underground rehabilitation began in the second half of 2010 and continued through early 2011. Trelawney recovered an underground bulk sample comprising ~10,000 t of mineralized material and on 25 May 2011, announced its intention to reduce underground operations at the Chester 1 Project. The Chester 1 Project has since been placed on care and maintenance.

**4.7 First Nations**

Trelawney entered into an Exploration Agreement with Mattagami First Nation; this agreement remains current and is administered by IAMGOLD. The agreement establishes a commitment to an ongoing relationship between Mattagami First Nation and IAMGOLD with respect to IAMGOLD's exploration activities on its Chester Township properties, located in the traditional territory of Mattagami First Nation.

The Exploration Agreement establishes the foundation for a cooperative and mutually-beneficial relationship between Mattagami First Nation and IAMGOLD, by setting out provisions that include training, ongoing communication, and opportunities for businesses within the community to participate in exploration activities.

In addition, Mattagami First Nation and IAMGOLD agreed to negotiate an Impact Benefit Agreement should the Project proceed to production.

#### **4.8 Environmental Site Remediation**

IAMGOLD is not aware of any environmental liabilities associated with or attributable to any of the subject property groups in the Project area, other than those that would normally be expected as a result of historical mining activities and associated mine workings.

Diamond drilling work conducted between 2013 and 2018 met all of IAMGOLD's environmental standards. The standards include back-blading of ruts, filling in of sumps, cutting of leaning trees, stacking of large pines, and marking of drill collars. All drill sites and water pump sites are subject to post-drilling inspection. In the event of any non-conformities with IAMGOLD standards, the contractors were notified, and corrective actions were taken.

Legacy site remediation has been ongoing since 2013. Legacy diamond drilling sites are visited for inspection and collars are marked and any debris removed. A total of 186 legacy drill sites have been remediated to date, and the work is still in progress.

#### **4.9 Access and Work Program Risks**

IAMGOLD is not aware of any other risks that could affect access, title, or the right or ability to perform work on the Project.

## 5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE, AND PHYSIOGRAPHY

### 5.1 Accessibility

The Côté Gold Project is located about 20 km southwest of Gogama, Ontario. Figure 5-1 shows the location in relation to the major road systems and regional centres.

The Project is bisected by Highway 144 and is about 175 km by road north of Sudbury, along Highway 144 and approximately 125 km by road southwest of Timmins via Highways 101 and 144.

Access to the Project area is by a network of logging roads and local bush roads accessed from Highway 144 and from the Sultan Industrial Road which runs east–west along, and below, the southern part of the Project area.

Additional information on Project access is provided in Section 18.

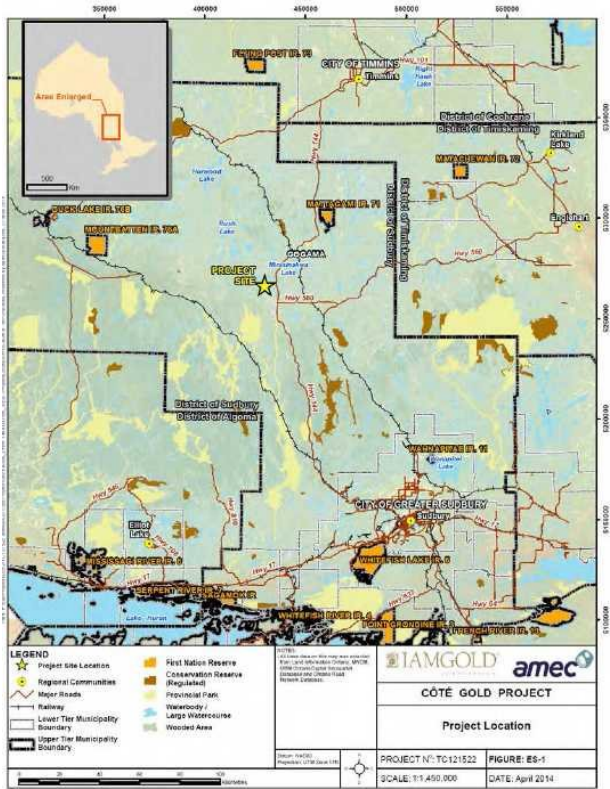
### 5.2 Climate

The Project is located in the Boreal Shield Ecozone of Ontario, which is itself characterized by long, cold winters and short, warm summers. Regional Environment Canada climate stations indicate climate norms in the range of 800–900 mm of total annual precipitation, and average temperatures in the range 1.3°C to 3.7°C with minimums occurring in January and maximums in June–July. Winds are generally from the south or southwest during the summer months and from the north and northwest during the winter months (IAMGOLD, 2015a).

Data collected from the Project site meteorological station indicates that precipitation at the Project site falls within the range of average annual precipitation for the region, as do daily average temperatures. Wind speeds at the Project site ranged from approximately 27 km/h to 5.4 km/h, based on readings taken from August, 2012 to August, 2013 (IAMGOLD and AMEC, 2015b).

Any future mining operations would be expected to be conducted year-round.

Figure 5-1: Project Access Plan



### 5.3 Local Resources and Infrastructure

Gogama is on the Canadian National Railway Company (CN Rail) line, is also connected to the regional electric power grid, but has few resources that could be used to support exploration and mining activity. However, Sudbury and Timmins are only about 175 km and 125 km distant by road, respectively. Each of these towns have mining suppliers and contractors plus experienced mining and general labor.

The existing mine infrastructure on the Chester 1 property is a 3 m by 5 m, 1,675 m decline to a final depth of 162 m plus 700 m of lateral drifting on five levels. There is a shallow shaft (Bates) on the east end of the main vein structure and 90 m of raises in mineralization. This infrastructure is located on Lease CLM 270 and Mining Lease P1222832 (Chester 1).

Development work was completed from 1986 to 1989, but no formal production was achieved (see Section 6). The site was closed in July 2015, and all infrastructure onsite was put on care and maintenance. All underground infrastructure was decommissioned.

Surface infrastructure at Chester 1 includes an electrical distribution system, warehouse, workshop, offices, various pieces of mobile equipment, and a mobile camp (not fully installed) that was intended to accommodate 1,000 people. The Chester 1 Project is currently connected to the 120 kV Provincial power grid. The surface electrical distribution system, a warehouse, workshop, offices, and various pieces of mobile equipment could be put back into service in a short time.

A facility located on Mesomikenda Lake Road includes a core shack, a kitchen, rooms for 55 people and a recreation hall. These can also be readily put back into service if required. A series of cabins and a lodge located by Mesomikenda Lake can sleep 15 people.

At the Chester 1 Project, there is also a mobile camp that can hold 1,000 people, which is not fully installed.

### 5.4 Physiography

The area is typical of glaciated terrain of the Canadian Shield.

The area is typical of glaciated terrain of the Canadian Shield. The topography is gently rolling, with glaciated high points seldom exceeding 50 m above local lake levels.

Elevations range from 375 masl to 425 masl in the general area; however, elevations within the Project are generally between 380 and 400 masl (IAMGOLD and AMEC, 2015d).

The higher ground usually has a veneer of glacial soil over bedrock, with peat and glaciolacustrine deposits present in the low-lying areas between the hills. Outcrop represents only a small percentage of the area and is mostly confined to higher ground.

The Project site is located within an area with moderately hilly boreal mixed wood (birch, pine, poplar and spruce) forest, bogs, fens and lakes commonly less than 10 m deep. Most of the area has been logged in the last 30 years, so vegetation is generally small and second-growth (IAMGOLD and AMEC, 2015c).

Watersheds at the Project site form part of the headwaters of the Mattagami River Watershed, just north of the divide that separates the James Bay Watershed from the Great Lakes Watershed. Surface water flows at the Project site are controlled by a number of lakes and creeks, which flow to the Mollie River and Mesomikenda Lake prior to discharging to Minisinakwa Lake and ultimately the Mattagami River (IAMGOLD and AMEC, 2015c).

#### 5.5 **Comments on Section 5**

There is sufficient space available in the Project area to locate the Project infrastructure envisaged in the 2018 Feasibility Study, including TMF, MRA, mine infrastructure, and a mineral processing plant.

## 6.0 HISTORY

### 6.1 Exploration History

Prospecting and exploration activity in the Project area began about 1900 and has continued sporadically to the present time, spurred on periodically from exploration in the Porcupine and Elk Lake–Gowganda–Shiningtree camps. The first discovery of note was the Lawrence copper prospect on the east shore of Mesomikenda Lake in 1910. Further interest in the area was sparked in 1930 when Alfred Gosselin found outcropping gold mineralization on the east shore of Three Duck Lakes (Laird, 1932). Historical work on the property was carried out in multiple stages:

- In the early 1940s activity was fairly intense, with a significant amount of prospecting and trenching plus the sinking of a few shallow shafts and some minor production
- Through to the late 1960s there was little or no work performed
- From the early 1970s to about 1990, there was a great deal of surface work performed along with some limited underground investigations
- From 1990 to 2009, fragmented property ownership precluded any major programs
- In 2009, a group of properties that became the Chester property was consolidated by Trelawney.

A significant number of gold showings have been discovered on the Project.

Table 6-1 summarizes the work completed in the general Project area prior to IAMGOLD's involvement in the Project. Exploration conducted by IAMGOLD is provided in Section 9.

Figure 6-1 shows the locations of the occurrences and prospects discussed in Table 6-1. In this figure, the numbered occurrences and the locality they correspond to are:

- Young Shannon: 58, 59, 82
- Jack Rabbit: 73, 76, 77
- Murgold–Chesbar: 67, 68, 69, 70.

**Table 6-1: Exploration History**

| Area                         | Year         | Operator  | Work Conducted  |
|------------------------------|--------------|---|---|
| Young-Shannon<br>(Chester 2) | 1930-1931    | Three Ducks Syndicate                             | Stripped the C-Zone are of the Young-Shannon property   |
|                              | 1931         | Consolidated Mining and Smelting Company Limited  | Optioned the original Young-Shannon claim group, however, after surface sampling of two veins the option was allowed to lapse   |
|                              | 1932         | Martin Syndicate                                  | Completed a core drilling program in 1932 on the A-Zone   |
|                              | 1932-1946    | Young-Shannon Gold Mines, Limited (Young-Shannon) | Developed an inclined shaft; lateral underground development; surface geophysical survey; limited core drilling   |
|                              | 1978         | Canadian Gold Crest Ltd                           | Constructed a steel headframe and 60 t/d flotation mill near the C-Zone shaft. Material for the mill came from underground workings on the C-Zone and from a small open pit on the B-Zone. Operations lasted for about seven months and a gold-copper concentrate was sold to Noranda Ltd |
|                              | 1984-1986    | Robert S. Middleton Exploration Services          | Very low frequency electromagnetic (VLF-EM) and induced polarization (IP) surveys. Several weak IP anomalies were delineated, both under the lake and on land. Several of the anomalies appeared to align with known gold zones   |
|                              | 1989         | Chesbar-Murgold                                   | Mined a 10,900 t sample and reportedly sent it for treatment to the mill of Giant Yellowknife Mines Limited in Timmins  |
|                              | 1987 to 1990 | Young-Shannon                                     | Completed 182 core holes (24,696 m) in four drill programs  |
|                              | 1997         | Nord Pacific Limited (Nord)                       | 23 core drill holes aggregating 3,650 m were completed to test the C-Zone. A further six drill holes (1,190 m) tested geophysical targets. Performed a mineral resource estimate that outlined 10 separate zones in the C- Prime area   |
|                              | 2002-2003    | Northville Gold Corp. (Northville)                | Completed 24 core drill holes, 12 drill holes in 2002, and 12 drill holes in 2003   |
|                              | 2004-2005    | Young-Shannon                                     | Drilled an additional six core drill holes in 2004 to extend the known mineralization laterally. Completed five holes in 2005. Both programs targeted the C-Prime Zone  |

| Area                           | Year      | Operator                               | Work Conducted   |
|--------------------------------|-----------|--|--|
| Jack Rabbit<br>(Chester 3)     | 1965      | Sulmac Exploration Services Limited    | Explored Zone 3 or Texas Gulf Zone   |
|                                | 1972      | Viewpoint Exploration Limited          | Zone 3, work program unknown   |
|                                | 1977–1979 | Texas Gulf Canada Limited (Texas Gulf) | Drilled nine holes on Zone 3 testing Cu anomalies                                    |
|                                | 1981      | Chester Resources                      | Zone 3, work program unknown   |
|                                | 1981      | Murgold Resources Inc. (Murgold)       | Discovered Zone 1  |
|                                | 1982      | Rockwell                               | Drilled approximately 6,000 ft in more than 20 holes on Zone 3 (exact total unknown) |
|                                | 1985      | Pamour Porcupine Mines                 | Percussion drilling program  |
|                                | 1987      | unknown                                | 7,118 t bulk sample from Zone 2 and sent to Diepdome mill in Timmins                 |
|                                | 1989?     | Rockwell Mining Corp. (Rockwell)       | 26 drill holes in Zones 1 and 2  |
|                                | 1989?     | Kidd Resources Ltd. (Kidd Resources)   | Three drill holes in Zones 1 and 2   |
|                                | 1989?     | Monte Carlo Resources/Canadian Gold    | Two drill holes in Zones 1 and 2   |
|                                | 1989      | Gold Bar                               | 34 drill holes totalling 17,028 ft on Zone 1; completed an IP survey                 |
|                                | 1989      | James Wade Engineering (Wade)          | Mineral resource estimate for Zones 1, and 3.  |
| Murgold–Chesbar<br>(Chester 1) | 1932–1938 | Gomak Mines                            | Shaft sinking, underground development.  |
|                                | 1938      | Strathy Basin Mines Limited            | Sank Strathmore shaft  |
|                                | 1945–1948 | Chesgo Mines                           | Drilled 4,786 ft in 16 holes in the No. 3 Vein System.                               |

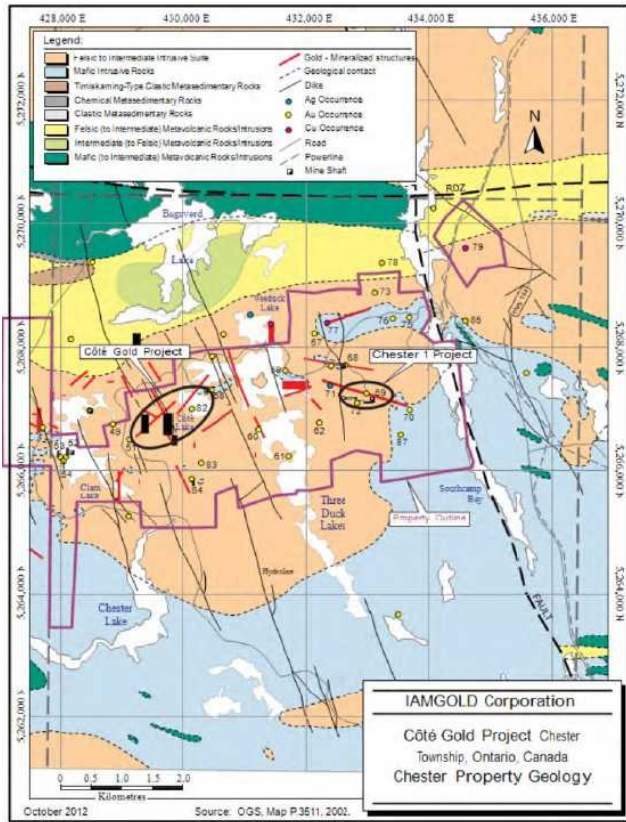
| Area           | Year      | Operator  | Work Conducted  |
|----------------|-----------|---|---|
|                |           | Limited (Chesgo)                                    | Drilled two surface holes for a total of 482 ft at the Strathmore zone.   |
|                | 1947      | Strathmore Mines Limited                            | Rehabilitated Strathmore shaft, underground drilling program.   |
|                | 1963      | Rinaldi Mines Limited                               | Four surface drill holes totalling 1,240 ft at Strathmore   |
|                | 1967–1971 | Kingsbridge Mines Limited                           | Work program unknown  |
|                | 1968–1969 | Three Duck Gold Mines Limited                       | Completed 252 ft in three drill holes in the No. 3 Vein System  |
|                | 1974–1975 | Olympian International Resources Limited (Olympian) | Drilled five holes totalling 1,340 ft and also collected two bulk samples of 47 tons and 49 tons which reportedly assayed 0.30 oz/st Au and 0.17 oz/st Au, respectively, over estimated widths of 6–10 ft   |
|                | 1979–1985 | Murgold   | Surface stripping and trenching were carried out over the main veins and the claims were covered by airborne magnetic and EM plus photo-geological surveys. On the ground, these results were followed up with geological, geophysical, geochemical surveys and surface diamond drilling. This work led to the discovery of 12 separate vein structures. No 1 and No 3 veins the main targets. Sampled Strathmore area from underground. Took a 656 ton bulk sample from a stope on the west drift. 42 holes were drilled in 1982 for a total of 12,776 ft and about two-thirds of this drilling was concentrated on the previously untested central section of the No. 3 Vein. Bates shaft (200 ft) commenced on the No. 3 Vein System in 1982, 1,250 ft to the northwest of the Strathmore shaft. Completed trenching and drilling in 1985. |
|                | 1986      | Chesbar Resources Inc. (Chesbar)                    | Drilled 56 holes totalling 19,040 ft on the No. 3 Vein System between 1986 and 1988. Constructed a decline to investigate the No. 3 Vein System. 45,000 ft of surface drilling and 53,000 ft of underground drilling had been completed by early 1989. In April 1989, an 11,000 t surface stockpile was shipped to a custom mill in Timmins   |
|                | 1988–1989 | Murgold   | Wade contracted to resample and re-evaluate the underground workings; completed mineral resource estimate. No further work was out on the decline until Trelawny began dewatering and underground rehabilitation in the summer of 2010.   |
| Crown Minerals | 1933–1934 | Chester Shannon Group; Young Shannon GML            | Test pitting, shaft sinking, underground lateral development on Shannon Island prospect; 3,000 ft of core drilling  |

| Area      | Year      | Operator                                       | Work Conducted  |
|-----------|-----------|--|---|
|           | 1965      | Chester Minerals Ltd                           | Geological mapping, magnetic and horizontal loop electromagnetic (HLEM) surveying. Based on this work, five holes were drilled to test targets east of Shannon Island   |
|           | 1973      | Park Precious Metals                           | Dewatered the Shannon Island shaft, extended the lateral development a short distance, and sampled the mineralized veins. Completed one core hole.  |
|           | 1980      | Hargor Resources; Canadian Gold and Metal Inc. | Completed a regional airborne magnetic and very low frequency (VLF) electromagnetic survey  |
|           | 1984      | Chester Minerals                               | Geological evaluation of the Shannon Island occurrence in combination with other known occurrences on Clam Lake   |
|           | 1987      | Young Shannon Gold Partnership                 | Completed a seven core hole drill program totalling 679 m to test the mineralization in a sheared and brecciated structure plus other targets   |
| TAAC East | 1981      | Canadian Crest Gold Mines (Canadian Crest)     | Completed two drill holes for 404.77 m.   |
|           | 1987–2001 | Emerald Isle Resources                         | During 1987, drilled seven holes for 379.48 m; and sited a further 2 holes (181.05 m) near the Canadian Crest drill holes. Conducted power stripping at two locations northwest and north of Côté Lake in 2001  |
|           | 2007–2011 | Trelawney Augen Acquisition Corp (TAAC)        | Prospecting, till, channel, strip, and grab sampling; airborne geophysical survey (magnetic, EM, radiometric); ground geophysical surveys (ground magnetics, VLF, IP) 32 drill holes (11,098.60 m); down-hole IP surveying of 9 drill holes petrography.                  |
| TAAC West | 1938      | Bert Jerome                                    | Jerome deposit discovered   |
|           | 1939–1945 | Jerome Gold Mines, Ltd                         | Shaft sinking, underground development with 6 levels, erection of 500 st/d mill and some production from 1941 to 1945.  |
|           | 1974      | E. B. Eddy (Eddy)                              | Surface diamond drilling program of 21 holes, for a total of 8,414 ft over Jerome deposit   |
|           | 1980-1981 | Bridgeview Resources Incorporated              | Exploration of Jerome deposit under option from Eddy. Shop construction, headframe and hoistroom rehabilitation, shaft rehabilitation to the 200 ft level, and underground sampling. Completed geophysical survey and eight holes totalling 2,710 ft to test IP anomalies |

| Area   | Year                       | Operator   | Work Conducted  |
|--------|----------------------------|--|---|
|        | 1983                       | Osway Explorations, Ltd. (Osway)                               | Hill-Goettler-De Laporte Ltd completed mineral reserve estimate for the Jerome deposit on Osway's behalf.   |
|        | 1984–1989                  | Muscocho Explorations, Ltd. (Muscocho)                         | Completed surface and underground diamond drilling, hoist installation, headframe and camp construction, dewatering, and shaft rehabilitation to the 500 ft level; exploration drifting on the 500 ft level east to test the South Zone 1-B; mapping and sampling on the 200 ft, 350 ft, and 500 ft levels; and property-wide geophysical surveys. Undertook mineral reserve estimates. |
|        | 1998                       | Domtar Inc. (Domtar)   | Purchased claims hosting the Jerome deposit from Eddy.  |
|        | 2004                       | Boardwalk Creations, Ltd. (Boardwalk)                          | Purchased claims from Domtar, added additional claims to property holdings.   |
|        | 2004                       | Osprey Gold Corp. (Osprey)                                     | Purchased property from Boardwalk. Completed 33 BQ sized diamond drill holes east-southeast of the Jerome Mine Shaft for a total of 18,780 ft   |
|        | 2006                       | Coldrock Resources Inc. (Coldrock)                             | Purchased property from Osprey.   |
|        | 2007–2011                  | Trelawney Augen Acquisition Corp                               | Completed check sampling of legacy core; conducted drill programs consisting of 21 holes (10,440 m) in 2008, 148 holes (32,728 m) from 2009–2011; soil, rock chip and grab sampling, and magnetic, VLF and IP surveys.  |
| Burton | circa 1928                 | Archie Burton Sr. and Northern Aerial Minerals Exploration Ltd | Gold discovered; shaft excavated  |
|        | late 1930s and early 1940s | Hollinger Consolidated Gold Mines Limited (Hollinger)          | Completed a 32 short holes diamond drill program in the immediate Shaft Zone area   |
|        | 1945                       | Burscott Mines Limited (Burscott).                             | 10-hole diamond drill program near the Shaft Zone   |
|        | 1982 to                    | Canadian Nickel  | Line cutting, mapping, geophysics, geochemistry, stripping, sampling, and drilling (total of 2,096 m in 29 holes)   |

| Area | Year      | Operator                                    | Work Conducted   |
|------|-----------|---|--|
|      | 1985      | Company Limited<br>(Canico)                 |  |
|      | 1987–1988 | Grandad Resources<br>Limited (Grandad)      | 31-hole core drill program totalling 3,077 m, primarily in the Shaft Zone area. Grandad also completed a limited humus sampling geochemical program and down-hole mise-à-la-masse geophysical surveys.   |
|      | 1989      | Northern Mining<br>Properties<br>(Northern) | Desktop data review.   |
|      | 1996–1997 | Rainbow Petroleum<br>Corp. (Rainbow)        | Re-established the project grid and completed 3,327 m of core drilling in 33 holes. The drilling completed by Rainbow included 22 drill holes centred over the Shaft Zone, six drill holes to the east of the Shaft zone, and five drill holes immediately west of the Shaft Zone. |
|      | 2010      | Apex Royalty<br>Corporation (Apex)          | Purchased 100% of project from Burton family. Line-cutting of a new grid over the Shaft Zone and East Zone; completed EarthProbe high resolution resistivity/IP survey   |
|      | 2011      | Falcon Gold Corp.<br>(Falcon Gold)          | Apex was acquired by Chesstow Capital Inc., which subsequently changed its name to Falcon Gold in May–July 2011, Falcon Gold drilled 24 holes on the Burton property totalling 2,755 m   |

Figure 6-1: Chester Property Geology



**6.2 Production**

Production records have not been compiled for the early mining efforts. As noted in Table 6-1, some bulk sampling has occurred as part of historical exploration efforts. No modern production has occurred.

## 7.0 GEOLOGICAL SETTING AND MINERALIZATION

### 7.1 Regional Geology

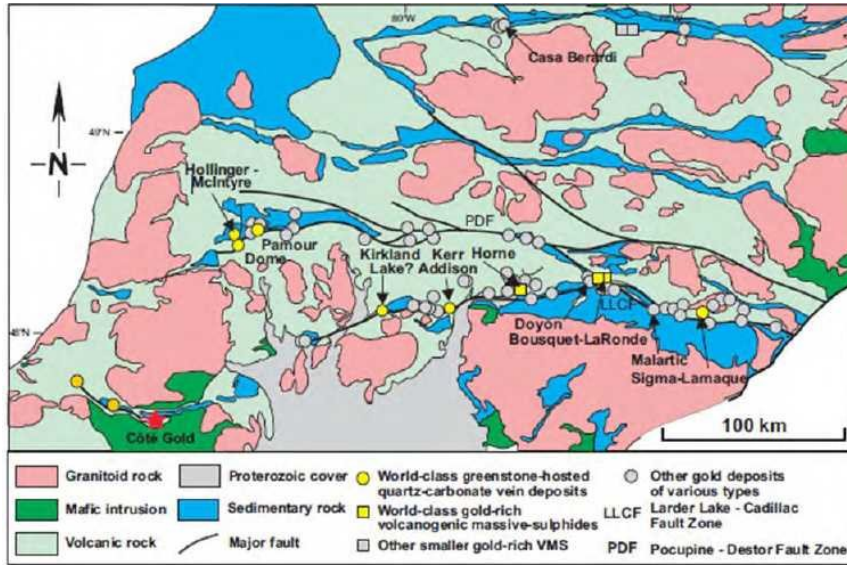
The Project area is in the Swayze greenstone belt in the southwestern extension of the Abitibi greenstone belt of the Superior Province. In very general terms, the Abitibi Subprovince comprises Late Archean metavolcanic rocks, related synvolcanic intrusions, and clastic metasedimentary rocks, intruded by Archean alkaline intrusions and Paleoproterozoic diabase dykes. Figure 7-1 shows the location of gold deposits and fault zones in the Abitibi Subprovince, modified from Dubé and Gosselin (2007), and Poulson et al. (2000). The traditional Abitibi greenstone belt stratigraphic model envisages lithostratigraphic units deposited in autochthonous successions, with their current complex map pattern distribution developed through the interplay of multiphase folding and faulting (Heather, 1998).

The Swayze belt, like the rest of the Abitibi greenstone belt, contains extrusive and intrusive rock types ranging from ultramafic through felsic in composition, as well as both chemical and clastic sedimentary rocks (Heather, 2001). The geology of the South Swayze belt underlying the Project area is illustrated in Figure 7-2 and Figure 7-3. All of the rock types within the Swayze belt are older than 2,680 Ma, with the oldest dates of 2748.2 Ma (Heather et al., 1996, Gemmill and MacDonald, 2017). Igneous lithologies predominate and include both volcanic and plutonic rocks. The latter are found both internally in the supracrustal belts and externally, in large granitoid complexes. Sedimentary rocks occur mainly near the top of the succession.

Heather (2001) recognized six supracrustal groups; from the oldest to the youngest these are the Chester, Marion, Biscotasing, Trailbreaker, Swayze, and Ridout groups. These groups have subsequently been correlated by Ayer et al. (2002) with coeval assemblages across the southern Abitibi greenstone belt having similar characteristic features, respectively named the Pacaud, Deloro, Kidd-Munro, Tisdale, Blake River, and Timiskaming assemblages.

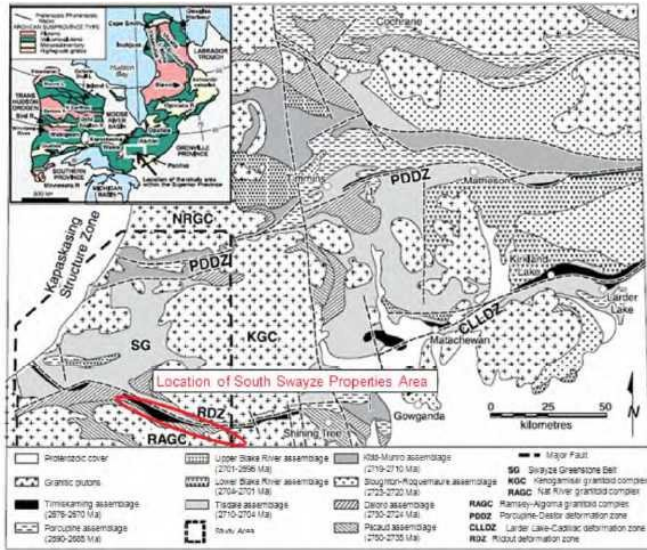
Plutonism in the Swayze belt lasted from 2,740 Ma to 2,660 Ma, during the entire period of volcanism and subsequent sedimentation. No geochronological evidence for pre-existing basement has been found. Plutonism continued after cessation of extensive volcanism. This was also a period of orogen-wide shortening across the entire Superior Province, an event that coincided with gold mineralization (van Breemen et al., 2006).

Figure 7-1: Simplified Geology Map of the Abitibi Subprovince (Dubé et al. 2007)



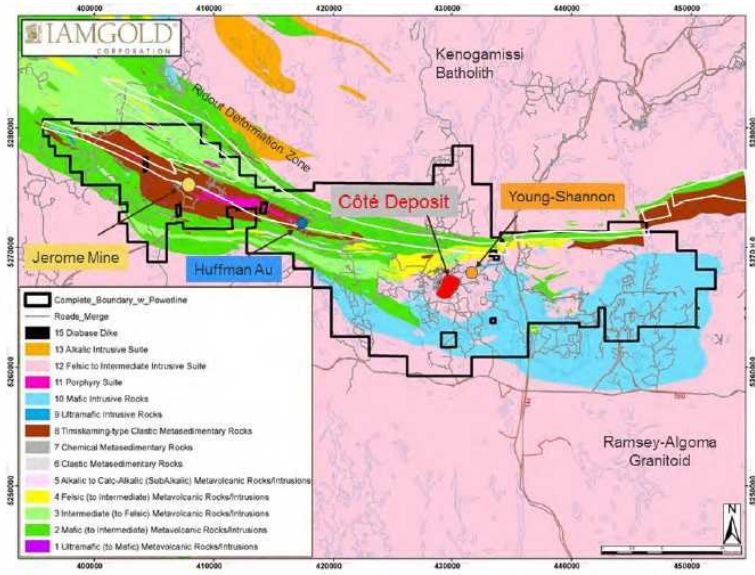
Note: Figure from Dubé et al. 2007. Deposits indicated other than Côté Gold are held by third parties.

Figure 7-2: Regional Geology of Swayze Belt



Note: Figure courtesy IAMGOLD, 2018

Figure 7-3: South Swayze Greenstone Belt Rock Units



Note: Figure courtesy IAMGOLD, 2016.

The Swayze area underwent a complex and protracted structural history of polyphase folding, development of multiple foliations, ductile high-strain zones, and late brittle faulting. The map pattern preserved within the Swayze belt is dominated by regional F2 folding, and anticlines and synclines with an associated S2 axial-planar foliation interpreted to have formed during orogen-wide shortening across the entire Superior Province. An important structural element is the Ridout Deformation Zone (RDZ), a major east–west high-strain zone that is interpreted to be the western extension of the Larder Lake-Cadillac deformation zone of the Abitibi belt (van Breemen et al., 2006). The F2 Ridout Synform coincides with the RDZ wherein intense deformation is characterized by intense flattening, tight to isoclinal folding, transposition, and locally a component of dextral simple shear in east–southeast-striking zones (Heather et al., 1996). The Côté Gold deposit is not located within the RDZ. Metamorphic grade within the southern Abitibi greenstone belt ranges from sub-greenschist to greenschist.

In the Swayze belt there are at least four separate diabase dyke swarms, ranging in age from late Archean to late Proterozoic:

- North-striking Matachewan dyke swarm
- Northwest-striking Sudbury dyke swarm
- East–northeast-striking Abitibi dyke swarm
- Late, southeast-striking dyke swarm.

## 7.2 Local and Chester Property Geology

### 7.2.1 Local Geology

The Chester township area overlies a narrow greenstone belt assemblage that extends easterly from the southeast corner of the Swayze belt proper to the Shining Tree area, approximately 60 km to the east. The greenstone (supracrustal) assemblage is part of the well-defined Ridout syncline that separates the Kenogamissi granitoid complex to the north from the Ramsey-Algoma granitoid complex to the south (refer to Figure 7-2). The Kenogamissi complex, yielding ages of 2,747 Ma, consists of sheet-like dioritic and tonalitic intrusions, which are interpreted locally to be synvolcanic. The Chester Intrusive Complex (CIC), which hosts the Côté Gold deposit, is also synvolcanic and was emplaced along what is now the southern margin of the Ridout syncline. The CIC is a crudely-stratified tonalite–diorite–quartz diorite laccolith containing numerous screens and inclusions of mafic volcanic rocks.

The oldest rocks found in the Swayze belt are assigned to the Chester Group, which occupies the bulk of the stratigraphy of the Ridout syncline through Chester township and Yeo township to the west. Ayer et al. (2002) correlated the Chester Group with the 2750 Ma to 2735 Ma Pacaud assemblage, which comprises the oldest volcanic rocks in the southern Abitibi belt. The Chester Group includes:

- A thin, basal felsic volcanic unit (ca. 2748.2 Ma; Gemmell and MacDonald, 2017) that is overlain by a thick sequence of massive mafic flows or sills, mafic pillows and amphibolite of the Arbutus Formation
- An overlying intermediate–felsic volcanic rocks with associated minor sedimentary rocks and iron formation of the Yeo Formation (ca. 2,739 to 2,734 Ma; refer to Figure 7-3).

Bedding and foliation are steep to vertical. Both formations are highly folded and flattened, presumably by the D2 and F2 events, between the diorite and tonalite intrusions of the Kenogamissi granitoid complex to the north and the synvolcanic CIC (ca. 2,741–2739 Ma, Katz, 2016) Ma) to the south (van Breemen et al., 2006) (refer to Figure 7-2 and Figure 7-3).

To the south of the Chester volcanic rocks is the CIC, a tonalite–diorite intrusion (Heather, 1993; Heather et al., 1996). Locally, within the tonalitic phase of the complex, there is strongly developed, fracture-controlled (stockwork) magnetite–chlorite–epidote ± quartz ± sericite alteration which Heather et al. (1996) interpreted as positive indications for base metal mineralization.

An important structural element in the area is the RDZ, a major zone of east–west high strain that more or less follows the north boundary of Chester township, and extends a further 22 km to the west to Osway township where it is associated with the former Jerome gold mine. The RDZ is described as an anastomosing zone, up to 2,500 m wide, of high strain with local strong carbonate (calcite and Fe-carbonate), chlorite, sericite, and silica alteration within a wide variety of rock types. Kinematic indicators in the RDZ suggest that it was initially a zone of extreme flattening, probably related to early folding, that with progressive strain became a zone of oblique simple shear. Kinematic information indicates an early component of sinistral shear followed by a dextral component. Z-shaped folds of the schistosity are common within the RDZ.

Elongation lineations and mineral lineations within high-strain zones are moderately to steeply plunging (Heather, 2001).

The RDZ high-strain zone is localized within the F2 Ridout syncline which extends for at least 80 km in a generally east–west direction across the southern Swayze greenstone belt. The Timiskaming-like, Ridout Series metasedimentary rocks are localized within the core of the F2 Ridout synform and are interpreted to unconformably overlie the older metavolcanic and metasedimentary rock packages. According to Furse (1932): “In the Swayze area, the Ridout assemblage consists of a narrow band (less than 2 km) of steeply dipping turbidites, arkose and conglomerate, containing well-rounded pebbles and boulders of “granite”, chert, vein quartz, mafic metavolcanic rock, porphyritic rhyolite and rare jasper fragments.”

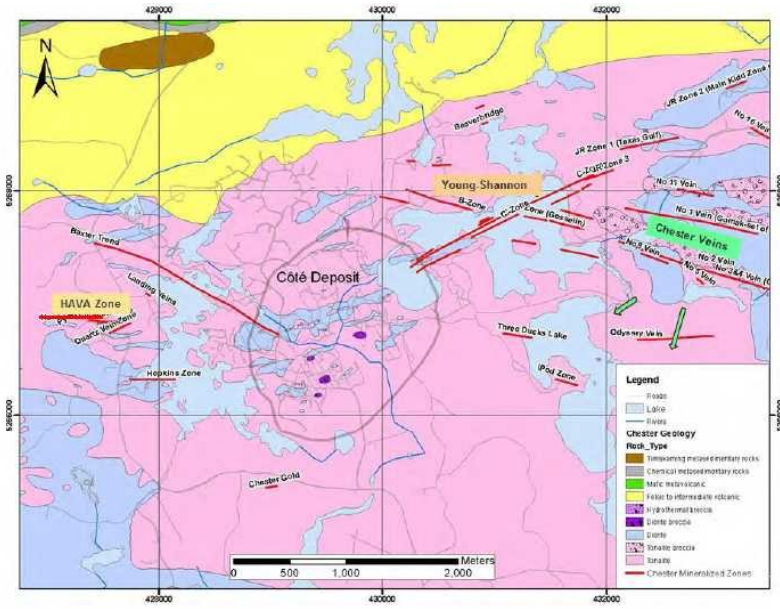
#### 7.2.2 Property Geology

The Chester property contains calc-alkalic pyroclastic metavolcanic rocks of felsic to intermediate composition, felsic to intermediate intrusive rocks (predominantly tonalite and diorite) of the CIC, and related migmatites. Siragusa’s remapping (1993) and the Ayer and Trowell (2002) Compilation Map P3511 depict granitoid rocks as the dominant lithology. Recent mapping by Gemmill and MacDonald (2017) provide the most up-to-date Geological Survey coverage of the Chester property. Laird (1932) noted that, locally, the granitoid varies considerably in texture and composition and contains inclusions of older rocks. The texture varies from granular to porphyritic, while in other places it has the appearance of a quartz porphyry phase of the granite.

Large north and north-northwest trending diabase dykes crosscut the intrusive and supracrustal rocks. An available detailed aeromagnetic map of Chester township (Timmins Assessment File, T-3183) clearly shows the prominent north–south and northwest–southeast trends of diabase dykes which overprint all other magnetic fabrics.

Map P 3511, Geological Compilation of the Swayze Area, Abitibi Greenstone Belt (Ayer and Trowell, 2002) displays a 2 km wide belt of felsic–intermediate tuff, lapilli tuff, tuff breccia and pyroclastic breccia (4bc) stretching across the northern end of Chester township and located just north of the Côté Gold property. Centred over the southern half of Bagsverd Lake (Figure 7-4) is an area mapped as intermediate to felsic, variolitic flows (3c).

Figure 7-4: Chester Property Geology



Note: Figure prepared by IAMGOLD, 2018.

West of Bagsverd Lake and straddling the western boundary of Chester township are two localized but interesting units mapped as 7db, chert and oxide and silicate facies iron formation, and 8db, Timiskaming-type mudstone, siltstone, and wacke. While stratigraphic relationships are not implied, units within 8db are most reasonably remnants of Ridout Series. Units 4bc and 7db are compatible with the Yeo Formation (Chester Group). Unit 3c is slightly more problematic as it could represent the basal Arbutus Formation of the Chester Group or the basal Rush River Formation of the Marion Group (which overlies the Chester Group).

### 7.2.3 Côté Deposit Geology

The Côté Gold deposit is hosted by the CIC. The deposit is centred on magmatic and hydrothermal breccia bodies that intrude tonalitic and dioritic rocks. The CIC intruded into the mafic volcanic rocks of the Arbutus Formation, which forms the basal formation in the Chester Group. The formation consists of low-K tholeiitic pillow basalts, mafic flows, and sills. The intrusive host rocks formed from a number of pulses of several distinct and evolving dioritic and tonalitic magmas that display complex crosscutting relationships (Katz et al., 2015).

A previous geochemical study by Berger (2012) suggested that tonalite and diorite phases of the CIC are genetically related; however, geochemical evidence from the Katz et al. (2015) study suggests otherwise. The diorite contains slightly elevated light rare earth element (LREE) patterns whereas the tonalite contains a relatively flat and less fractionated REE pattern. Although the tonalite and diorite have been demonstrated to be temporally related (Katz et al., 2015), the fractionation pattern suggests that they are genetically unrelated.

The diorite and quartz diorite phases are tholeiitic to transitional in nature, whereas the tonalitic phases have a calc-alkaline to transitional affinity. This spread of chemical affinity and, hence, petrogenetic associations for spatially associated rocks, in particular the quartz diorite-tonalite trondhjemite suites, has been previously documented and may indicate that the intrusive suite consists of a composite of differentiated lithospheric mantle and lower crust partial melts (Galley and Lafrance, 2014).

The evidence suggests a spread across petrogenetic origins for tonalitic and dioritic phases (Katz, 2016). Although petrogenetically unrelated, several high-precision U–Pb zircon geochronology dates for both the tonalite and diorite provide contemporaneous crystallization ages for these rocks. These results are supported by extensive observations in the field and in core both within the deposit area and regionally within the CIC. The deposit is hosted by several tonalite and diorite phases that are intruded by both magmatic and hydrothermal breccias. Each phase is distinguished by their relative crosscutting relationships, texture features and chemistry and include (Katz, 2016):

- Tonalite
- Diorite
- Quartz diorite
- Tonalite breccia
- Hornblende–plagioclase ± quartz pegmatite
- Diorite breccia
- Hydrothermal breccias.

The intrusive phases were followed by hydrothermal brecciation and the emplacement of several stages of gold-bearing veins. Subsequently, the deposit was intruded by several types of dyke rocks, and was subjected to deformation, in the form of deformation zones and brittle faulting.

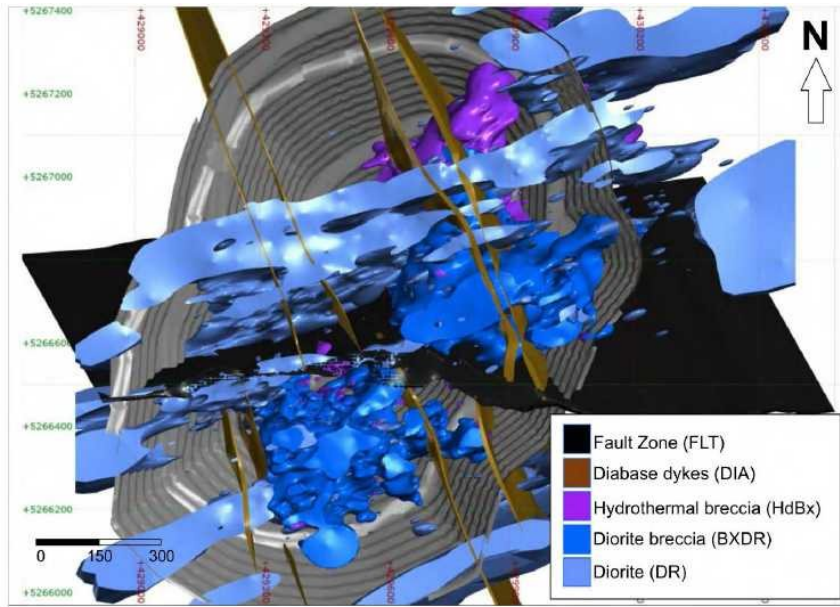
The gold mineralization envelope, the post-mineralization dykes, and the main east–west fault zone are shown in Figure 7-5.

#### **Lithology Description**

The following lithological descriptions correspond to the newest nomenclature developed by Katz (2016) and implemented in 2017 prior to the feasibility drill campaign. The objective of implementing the nomenclature is to merge various lithologies in order to simplify the database and facilitate the modelling process. An extensive photo relog of pre-2017 diamond drill holes was performed in 2018 to update the old database to the new nomenclature.

The relog effort resulted in building a detailed and continuous geological model and added a significant amount of diorite and hydrothermal breccia. Internal documents and an updated core library detailing various lithologies, alteration facies, and mineralization styles are available to aid the core logging and ensure consistency of the logs.

Figure 7-5: Côté Gold Deposit Geology



Note: Figure prepared by IAMGOLD, 2018.

*Major Lithologies***Tonalite**

Tonalite occurs as sill-like bodies and is a medium-grained, equigranular to inequigranular, light to dark grey, intermediate intrusive rock. Tonalite occurs as the earliest phase in the deposit into which dioritic phases intrude but also occurs as a later more voluminous phase that intrudes dioritic phases (Katz et al., 2016).

**Dioritic Phases**

In the deposit several co-temporal dioritic phases occur and include diorite, quartz diorite and hornblende-plagioclase  $\pm$  quartz pegmatite. Diorite is typically equigranular, although plagioclase porphyritic varieties occur, whereas quartz diorite is typically plagioclase  $\pm$  quartz porphyritic and rarely equigranular. The diorite and quartz diorite intrude tonalite and commonly exhibit chilled or brecciated margins. Both melanocratic and leucocratic varieties of the dioritic phases occur. The crosscutting relationship suggests that diorite evolved over time, fractionating to more leucocratic quartz diorite (Katz et al., 2016). Hornblende-plagioclase  $\pm$  quartz pegmatite is the least abundant magmatic phase and generally occurs as small dykes of less than one meter in apparent thickness.

**Tonalite Breccia**

This unit is a magmatic breccia and formed as a result of tonalite brecciating diorite and rarely tonalite along its intrusive margins. Therefore, the tonalite matrix is mineralogically and texture identical to the tonalite described above (Katz et al., 2016). The diorite fragments range from centimeter to meter scale and are angular to round with sharp to diffuse contacts. Nearly all tonalite breccia observed is matrix-supported. This breccia is also observed on the outside of the deposit area.

**Diorite Breccia**

A second type of magmatic breccia is present and formed as a result of dioritic magma brecciating tonalite and dioritic rocks (diorite, quartz diorite and hornblende-plagioclase  $\pm$  quartz pegmatite). This breccia contains several different types of dioritic matrices:

- Medium- to coarse-grained melanocratic diorite

- Fine- to medium-grained typically quartz porphyritic melanocratic quartz diorite.

The tonalite fragments range from centimeter to meter scale and are angular to round with sharp to diffuse contacts (Katz et al., 2016). Nearly all diorite breccia observed is matrix supported. The heterolithic nature of this unit, i.e., presence of both tonalitic and dioritic clasts, may suggest some transport of the clasts and late establishment. This breccia is also observed regionally.

#### **Hydrothermal Breccia**

Tonalite is intruded by a large, overall continuous hydrothermal breccia body on which the Au(-Cu) deposit is partially centred (refer to Figure 7-5). For the hydrothermal breccia, two matrix assemblages have been recognized:

- An amphibole-rich hydrothermal breccia
- A biotite-rich hydrothermal matrix breccia.

The amphibole-rich hydrothermal breccia unit (Figure 7-6) is the least abundant breccia type and it appears to be restricted to the southern and central parts of the deposit area. The unit contains millimeter to centimeter scale tonalite and rare diorite fragments in a hornblende-quartz-biotite-carbonate matrix. This breccia post-dates the magmatic events. Some gold mineralization does occur in amphibole-bearing breccias; however, significant sulphide mineralization is rare with only minor disseminated pyrite and chalcopyrite associated with amphibole or biotite (Katz et al., 2016). It is noted that due to the restricted nature of this breccia it was not included in the model.

The biotite-rich hydrothermal breccia (Figure 7-6) predominantly occurs in the northern and central parts of the deposit. The breccia is monolithic and contains millimeter to centimeter scale tonalite fragments.

The breccia matrix varies and consists of:

- Fine-grained biotite-quartz ± epidote ± carbonate ± pyrite ± chalcopyrite ± magnetite ± allanite ± titanite ± fluorite;
- Fine- to coarse-grained biotite-magnetite-quartz-carbonate-chalcopyrite-pyrite ± allanite ± bastnaesite ± apatite ± titanite with up to 50% magnetite;



- Biotite-carbonate-quartz-pyrite ± magnetite ± apatite ± chalcopyrite ± pyrrhotite with coarse biotite set in finer-grained quartz, carbonate and biotite groundmass (Katz et al., 2016).

This breccia type is characterized by an increase in the amount of disseminated sulphides (up to 15% pyrite and chalcopyrite) compared to the magmatic or amphibole-rich hydrothermal breccias.

The relative timing relationships suggest that hydrothermal brecciation post-date the magmatic brecciation. In addition, the breccia appears to be zoned such that the magmatic breccia dominates in the southern part of the deposit, whereas the biotite-rich hydrothermal breccia dominates in the northern part (refer to Figure 7-6).

#### *Minor Lithologies*

##### **Later Phases**

A few identifiable phases have been observed in the deposit that post-date the host rocks of the CIC.

##### **Quartz-Feldspar Porphyry**

This phase includes several types of plagioclase ± quartz porphyritic, grey to black, felsic to intermediate dykes.

##### **Diorite and Gabbro Dykes**

Occasionally melanocratic dioritic and gabbro dykes occur along with other more typical dioritic textures. These dykes have been demonstrated to be geochemically distinct from the dioritic phases of the CIC (Katz, 2016). They often display small or absent chill margins, differentiating them from most dykes.

##### **Lamprophyre**

Fine- to medium-grained, porphyritic dark green to black intrusive dykes. They are generally weakly to moderately foliated and occasionally display internal folding and crenulation.

##### **Diabase**

This dark grey to black mafic intrusive suite is part of the 2,452 Ma Matachewan Dyke Swarm. The dykes strike north-northwest and are sub-vertical to steeply-dipping northeast. They crosscut all rocks within the deposit and are offset by the late west-striking main fault. These dykes are distinctive on aeromagnetic survey maps.

**Fault Zone**

The main east–west trending fault offsets the Côté Gold deposit. The fault has been interpreted to offset the deposit in a normal (north-side down) dextral offset. The fault zone is varied and consists of the following units:

- From surface to 100 m depth a fault gouge comprises most of the fault zone. This zone is characterized by strong argillic alteration
- At depth, the fault zone width is reduced to 10–30 m and is often composed of a heterolithic quartz carbonate breccia. The unit is composed of angular to rounded tonalite, diorite, quartz diorite, quartz, carbonate, and mafic fragments set in a veined to flooded matrix of quartz-carbonate-chlorite material. It may also occur as zones of quartz-carbonate flooding without any brecciation.

**Post-Emplacement Veining and Alteration**

Several types of magmatic–hydrothermal alteration are spatially associated with mineralization at the Côté Gold deposit. In paragenetic sequence, the dominant minerals associated with these alterations are amphibole, biotite, sericite, silica–sodic, epidote, and chlorite (after biotite). Less frequent alterations such as hematite, leucoxene, fuchsite, and clay were also observed.

The study and description of alteration types at the Côté Gold deposit is complicated by syn-tectonic alteration associated with regional D2 deformation zones, including chlorite, sericite, silica, Fe- and Ca-carbonate, sulphidation, and tourmaline alteration (Heather, 2001). At the deposit scale, syn-tectonic silica and sericite alteration are associated with D2 deformation zones. Several discrete syn-tectonic shear zones, typically less than 3 m wide, cut through the deposit. Within the shear zones, there is the development of locally strong, pervasive sericite and silica alteration which overprints earlier syn-intrusion amphibole, biotite, sericite, silica-sodic and epidote alteration. Typically, these shear zones do not contain mineralization, however, they can be mineralized when cutting through previously mineralized zones, such as a breccia unit or sheeted veins (Katz et al., 2015).

*Major Alteration***Amphibole**

Amphibole alteration is rare in the deposit, and occurs as a variety of amphibole-rich veins and breccias. This assemblage consists of hornblende ± apatite ± titanite ± magnetite ± quartz ± albite ± biotite ± pyrite ± chalcopyrite. These amphibole-rich veins crosscut the tonalite, diorite, and the magmatic breccia and, therefore, post-date magmatic events. The veins appear to be spatially restricted to the south of the deposit and represent the earliest hydrothermal alteration type associated with gold mineralization (Katz et al., 2015).

**Biotite**

Biotite alteration is ubiquitous throughout the deposit and alters all intrusive phases. The biotite assemblage consists of biotite ± quartz ± magnetite ± epidote ± allanite ± carbonate ± pyrite ± chalcopyrite ± pyrrhotite ± titanite ± apatite ± bastnaesite ± fluorite. This assemblage occurs in the matrix of the hydrothermal biotite breccia, as disseminations in tonalite and diorite, in stockwork zones and in sheeted veins. The biotite assemblage in the matrix of the hydrothermal biotite breccia is not the result of alteration, but forms as a primary hydrothermal assemblage. Biotite occurs as disseminated anhedral to subhedral, fine-grained (<1% to >50%) disseminations that partly replace primary plagioclase and amphibole, as well as amphibole in veins and breccias (Katz et al., 2015; Katz, 2016).

Sheeted veins consist of east-west trending, planar, subparallel, moderately to steeply dipping, closely (centimeters to tens of centimeters apart) to widely (several meters apart) spaced veins that occur throughout the deposit. These sheeted veins are also found outside the deposit within the CIC. These veins contain quartz–biotite–pyrite ± chalcopyrite ± pyrrhotite ± carbonate ± titanite ± allanite, and are therefore inferred to be early, having formed during biotite alteration, but are typically overprinted by sericite alteration and deformation resulting in distinct sericite alteration haloes with or without shearing. The various types of biotite alteration are partially to wholly altered by chlorite (Katz et al., 2015).

**Sericite**

The sericite-bearing alteration assemblage consists of sericite–quartz ± carbonate ± pyrite ± chalcopyrite ± chlorite ± rutile and occurs throughout the deposit. Sericite is light grey to dark grey and rarely green-grey with fine-grained, elongated to stubby grains that replace primary plagioclase. Sericite alteration is generally fracture-controlled as veins, disseminations, and pervasive types. Sericite often forms alteration halos surrounding stockworks and sheeted veins, both of which contain an earlier biotite alteration assemblage. Although the extent of sericite alteration has not been fully determined, it is strongest within the centre of the deposit with its intensity decreasing with distance from the core of mineralization (Katz et al., 2015). Within the deposit area, the sericite alteration occurs as haloes marginal to veins with size varying from meter to decimeter scale (Figure 7-7).

**Silica-Sodic Alteration**

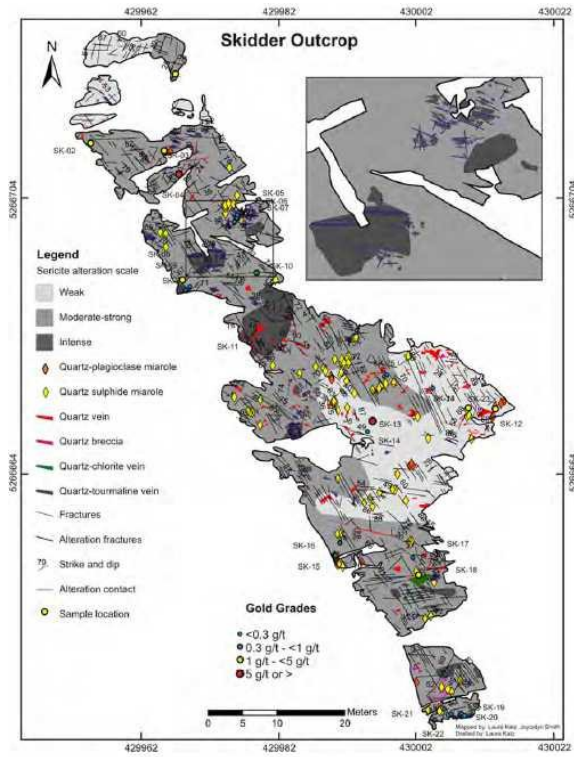
Silica-sodic alteration is a texturally-destructive alteration that occurs as vein-controlled alteration, as well as a pervasive type that overprints earlier biotite and sericite alteration. The alteration envelope can be up to 900 m wide, moderately to steeply dipping to the north or northwest, and is most intensely developed towards the centre of the deposit. Silica-sodic alteration on the outcrop scale is shown on the Skidder Outcrop (Figure 7-8). This alteration overprints the host rocks of the CIC, as well as biotite and silica-sodic alteration. In drill core, this alteration is characterized by bleaching, destruction of primary textures, including grain boundaries, and replacement of mafic minerals. In thin section, this alteration is characterized by replacement of plagioclase by albite, grain-size reduction, and sutured grain boundaries due to dissolution of plagioclase and quartz. Gold mineralization can be spatially associated with this alteration; however, no consistent correlation has been observed (Katz et al., 2015).

**Chlorite**

Chlorite is ubiquitous throughout the deposit and occurs as disseminated, replacement, and vein-controlled alteration. Petrographic observations indicate chlorite partially to wholly replacing plagioclase, amphibole, and secondary biotite.

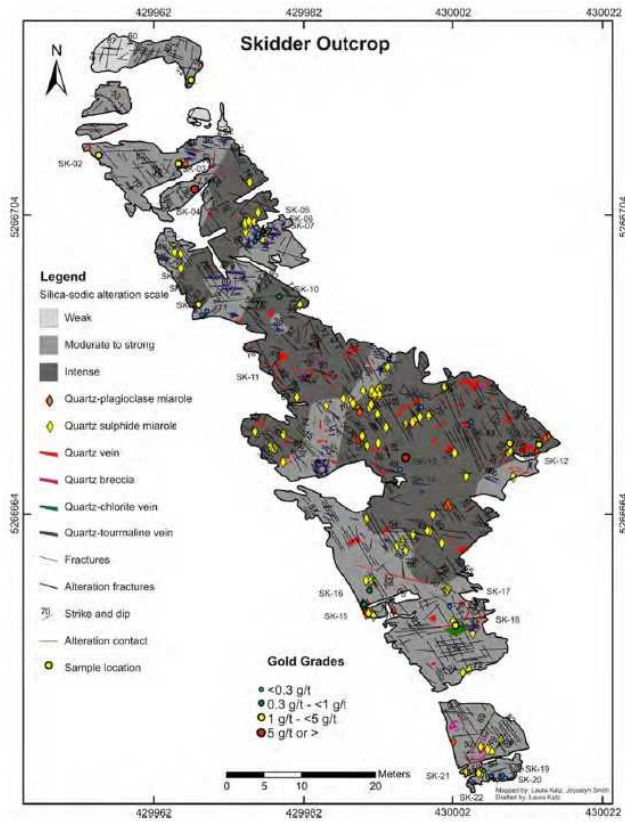
As a result of replacing biotite, titanium-bearing phases, such as rutile, form in association with chlorite. The timing of chlorite alteration is not fully constrained and therefore its importance in terms of deposit formation is unclear. Gold mineralization is spatially associated with hydrothermal chlorite alteration, but its genetic association is not fully understood as it pseudomorphs earlier, higher temperature hydrothermal biotite (Katz, 2015).

Figure 7-7: Sericite Alteration – Skidder Outcrop



Note: Figure courtesy IAMGOLD, 2018.

Figure 7-8: Silica-Sodic Alteration – Skidder Outcrop



*Minor Alteration***Hematite**

Hematite alteration is minor, and currently thought to be associated with the mafic dykes that crosscut the deposit. Fuchsite and leucoxene are secondary alterations observed to be associated with areas of strong silica–sodic alteration. Argillic alteration, which is not considered as a true alteration, is restricted to areas chiefly proximal to the main fault.

**Epidote**

The epidote-bearing alteration, consisting of an epidote ± quartz ± carbonate ± chlorite assemblage, occurs as both disseminated and vein-controlled alteration. Epidote occurs as fine-grained anhedral disseminations in the groundmass replacing primary plagioclase and amphibole. An area of vein-controlled epidote alteration is restricted to an approximately 300 m wide by 400 m long zone in the northernmost part of the deposit. Epidote alteration is rarely associated with gold mineralization. This alteration is inferred to be syn-intrusion due to its spatial distribution in the deposit (Katz et al., 2015). Not to be confused with this alteration is the presence of weakly developed, patchy disseminated epidote alteration that occurs throughout the deposit and is interpreted to be a result of later greenschist facies metamorphism.

**Mineralogy and Mineralization**

Two different types of gold mineralization are recognized on IAMGOLD's Chester township properties. The historically important mineralization can be termed quartz vein and fracture associated (Type 1), while the Côté Gold deposit is interpreted by Kontak et al. (2012) and Katz (2016) as an Archean intrusion-related gold (±copper) deposit (Type 2).

*Property Mineralization (Type 1)*

The Type 1 quartz vein and fracture mineralization occurs in the Chester 1, 2, and 3 areas on the Chester property and elsewhere in the Project area at the Shaft Zone on the Falcon Gold Option property.

*Côté Gold Deposit Mineralization (Type 2)*

The Côté Gold deposit-type gold mineralization consists of low- to moderate-grade gold ( $\pm$ copper) mineralization associated with brecciated and altered tonalite and diorite rocks.

Several styles of gold mineralization are recognized within the deposit, and include disseminated, breccia-hosted and vein-type, all of which are co-spatial with biotite ( $\pm$  chlorite), sericite and silica-sodic alteration.

Disseminated mineralization in the hydrothermal matrix of the breccia is the most important style of gold ( $\pm$ copper) mineralization. This style consists of disseminated pyrite, chalcopyrite, pyrrhotite, magnetite, gold (often in native form), and molybdenite in the matrix of the breccia and is associated with primary hydrothermal biotite and chlorite after biotite. In contrast, disseminated biotite and chlorite (after biotite) alteration are not typically associated with gold mineralization. However, when present, disseminated gold and chalcopyrite are intergrown with biotite–chlorite (Katz et al., 2015). Disseminated mineralization is typically associated with sericite or silica-sodic alteration (Katz, 2016).

The nature of the veins and fractures vary from stockworks to closely-spaced, planar, subparallel sheeted vein sets. Stockwork mineralization cuts through all major rock types, but is most prominent in the more brittle tonalitic phases compared to the dioritic phases and formed during the biotite alteration event (Katz et al., 2015; Katz, 2016). The mineralized sheeted veins and stockwork zones cut the hydrothermal breccia and therefore post-date the breccia-controlled mineralization. Mirolitic-like cavities, which consist of millimeter to centimeter size openings lined with feldspar, carbonate and sulphide, can also contain gold. Importantly, the gold-bearing sheeted veins have been shown to be syn-intrusion in timing based on a structural study in the deposit area (Smith, 2016). In addition, Re-Os molybdenite dating of one of these gold-bearing veins returned an age of  $2746.8 \pm 11.4$  Ma, which overlaps with the age of the intrusive events.

Visible gold is observed in several settings within the deposit:

- Quartz  $\pm$  carbonate  $\pm$  biotite–chlorite veins: gold is observed to be hosted within the vein quartz and also along fractures cutting the vein. Sulphides include pyrite, chalcopyrite and pyrrhotite

- Sheeted syn-intrusion-related veins: a set of subparallel, sheeted, millimeter to decimeter scale quartz ± carbonate ± chlorite veins with 0.5% to >50% pyrite ± chalcopyrite ± pyrrhotite that commonly contain millimeter to centimeter scale barren sericite alteration haloes. Gold is also observed marginal to these veins within sericite ± silica-sodic ± biotite-chlorite alteration halos. These veins have been interpreted to be syn-intrusion in timing (Smith, 2016) and are also found outside the deposit within the CIC (e.g., Chester 1)
- Magmatic-hydrothermal breccia: gold is more commonly observed in larger, well-developed breccia units but is also present in small, <1 m units. At hand-sample scale, gold appears to have some correlation with biotite-chlorite, sulphides, and magnetite
- Miaroles: gold is observed hosted within miarole quartz, in fractures cutting primary miarole minerals, and within the host rock, proximal to the host/miarole interface commonly within a moderate to intense silica and/or sericite alteration halo
- Alteration related/disseminated: gold is also observed in moderate to intense hydrothermally-altered tonalite and diorite. Typically, this mineralization occurs in silica-sodic and/or sericite alteration of the host, but it may also be associated with biotite/chlorite.

The hydrothermal breccia and the associated hydrothermal alteration zones are the material component of the mineralization providing the mineable widths and grades to the deposit. Areas outside of its significant development are likely not a significant contribution to economically important mineralization. The various gold-bearing quartz vein systems, also found immediately adjacent to the proposed open pit, serve to upgrade the hydrothermal envelope where they are present. The amount of gold contributed by these quartz vein systems to the deposit is difficult to determine but is thought to be of some significance to overall metal content.

### 7.3 Other Gold Mineralization Styles

Gold mineralization occurs in two other settings of significance on the IAMGOLD South Swayze property

- Orogenic (structurally-hosted vein occurrences)
- Syenite intrusion-related gold zones.

### 7.3.1 Orogenic (Vein-Hosted) Gold

Orogenic gold zones are the most abundant and take several forms, such as the quartz–carbonate–sulphide vein-hosted gold zones at Chester (#1 Vein, refer to Figure 7-4). Another example is the presence of narrow quartz–sulphide vein networks with subparallel veins containing sericite alteration haloes hosted in altered tonalite (Young-Shannon B and C Zones). Quartz–sulphide vein zones have been discovered throughout the property by historical exploration work and by recent IAMGOLD exploration (refer to Figure 7-4). Zones often display distinct orientations along zones of weakness, but are often difficult to trace over more significant strike lengths. Structural features such as the Ridout High Strain zone which strikes through the South Swayze belt (possible extension to the Larder Lake–Cadillac Deformation zone) provide ground preparation and fluid corridors which can help channel mineralizing fluids and act as depositional sites for gold-bearing solutions.

Several examples of this vein-style of Au mineralization include the following:

- Veins #1 to 8 known collectively as the Chester veins, located 2.5 km east of the Côté Gold deposit (Gomak Mines 1932–1938)
- B and C Zone Veins adjacent to, and extending for up to 800 m to the east northeast of the Côté Gold deposit (Young–Shannon Mines)
- Clam Lake gold zones including the HAVA deformation zone, the pyrite–sphalerite zone, and the quartz vein zone (IAMGOLD discoveries in 2013–2014).

Veins in the Chester area occupy zones of structural weakness generally oriented east–west, and are steeply-dipping. Despite the long strike length of the vein systems (Chester # 3 vein was traced over 1.77 km), the pinch-and-swell character of the veins make these deposits general small and discontinuous. Quartz–sulphide and quartz–carbonate–sulphide veins appear to contain higher gold concentrations when located immediately adjacent to the Côté Gold deposit and in a temporal sense may be part of the broader structural/alteration footprint of the Côté Gold breccia zones.

An interesting variant of the quartz–carbonate–sulphide veins occurs immediately west of Clam Lake (Hava Deformation Zone). Here, structural weakness in the form of a strong deformation zone along the contact of diorite/quartz diorite and tonalite breccia hosts gold-bearing quartz-sulphide veins. The zone has been traced for 300 m in strike length.

### 7.3.2 Syenite Intrusion-related Gold Zones

Syenite intrusion-related gold zones occur in the South Swayze property in lesser abundance than orogenic vein-deposits and represent good targets for gold exploration. Host rocks are typically syenite with strong potassic and hematitic alteration, and gold is contained in stockwork quartz and iron-carbonate vein systems. Veins are often concentrated on the outer margins of the porphyry bodies where they intrude Timiskaming conglomerates, and often the veins extend into the adjacent sediments. These veins typically contain unique mineral assemblages which may include arsenian pyrite, tetrahedrite and electrum. This style of gold mineralization represents an appealing target as syenite-intrusion hosted stockwork veins are often amenable for bulk mining techniques, such as at the Young-Davidson mine owned by Alamos Gold Inc. near Mattachewan Ontario, approximately 200 km east of the Côté Gold deposit.

The Jerome deposit located approximately 38 km northwest of the Côté Gold deposit (refer to Figure 7-3) is a syenite-intrusion related gold zone where the gold mineralization is spatially-associated with a quartz and iron-carbonate stockwork within and adjacent to a syenite porphyry. A zone of breccia is developed along the porphyry–sediment contact with mineralization consisting of native gold, chalcocopyrite, tetrahedrite, galena, sphalerite and molybdenite hosted by blue quartz.

The Huffman or Namex zone on the Huffman Option Property, located approximately 10 km to the south southeast of Jerome (refer to Figure 7-3), is another example of a syenite-intrusion hosted gold zone. Veins here are localized along the shear-zone contact between porphyry and mafic volcanic/sedimentary rocks, and gold is contained within tetrahedrite and tellurides in narrow quartz veins. An envelope of lower-grade gold appears associated with disseminated pyrite within the porphyry as well.

## 8.0 DEPOSIT TYPES

### 8.1 Côté Gold Deposit

The Côté Gold deposit is a new Archean low-grade, high-tonnage gold ( $\pm$  copper) discovery. It is described as a synvolcanic intrusion-related and stockwork disseminated gold deposit (Kontak et al., 2012, Katz et al., 2015, Dubé et al., 2015, Katz, 2016). Deposits of this type are commonly spatially associated with and/or hosted in intrusive rocks. They include porphyry Cu–Au, syenite-associated disseminated gold and reduced Au–Bi–Te–W intrusion-related deposits, as well as stockwork-disseminated gold.

Certain features of the Côté Gold deposit resemble those characteristic of gold-rich porphyry deposits (as described by Sillitoe, 2000). These include:

- Emplacement at shallow (1–2 km) crustal levels; frequently associated with coeval volcanic rocks
- Localized by major fault zones, although many deposits show only relatively minor structures in their immediate vicinities
- Hydrothermal breccias are commonly associated with the deposits, and consist of early orthomagmatic as well as later phreatic and phreatomagmatic breccias
- Gold is fine-grained, commonly  $<20 \mu\text{m}$ , generally  $<100 \mu\text{m}$ , and is closely associated with iron and copper–iron sulphides (pyrite, bornite, chalcopyrite).

### 8.2 Other Models

Two other gold deposit models are applicable in the Project area:

- Orogenic shear-zone hosted
- Syenite-intrusion related.

#### 8.2.1 Orogenic Shear-Zone Hosted

The discussion below is sourced from Moritz (2000), Goldfarb et al., (2005), and Groves et al., (1998; 2003). Orogenic deposits have many synonyms, including mesozonal and hypozonal deposits, lode gold, shear zone-related quartz–carbonate deposits, or gold-only deposits.

These deposits occur in metamorphic terranes of various ages. The host geological environments include volcano-plutonic and clastic sedimentary terranes that have been metamorphosed to greenschist facies conditions, and locally may reach amphibolite or even granulite facies conditions. Gold deposits can be hosted by any rock type. There is a consistent spatial and temporal association with granitoids of a variety of compositions.

Gold deposition typically occurs adjacent to first-order, deep-crustal fault zones. These first-order faults, which can be hundreds of kilometers long and kilometers wide, show complex structural histories. Economic mineralization typically formed as vein fill of second- and third-order shears and faults, particularly at jogs or changes in strike along the crustal fault zones. Mineralization styles vary from stockworks and breccias in shallow, brittle regimes, through laminated crack-seal veins and sigmoidal vein arrays in brittle-ductile crustal regions, to replacement- and disseminated-type orebodies in deeper, ductile environments.

#### 8.2.2 Syenite-Intrusion Related

The discussion below is sourced from Robert (2001), and Hart and Goldfarb (2005).

These deposits are spatially associated with quartz–monzonite to syenite stocks and dikes, and are located along major fault zones. Disseminated gold orebodies can occur within composite syenitic stocks or along their margins, along satellite dikes and sills, and along faults and lithologic contacts away from intrusions. Mineralized zones in these different positions are interpreted to represent proximal to distal components of large magmatic-hydrothermal systems centred on, and possibly genetically related to, composite syenitic stocks.

Mineralized zones consist of disseminated sulfide replacement zones with variably-developed stockworks of quartz–carbonate–K-feldspar veinlets, within zones of carbonate, albite, K-feldspar, and sericite alteration.

In known Canadian examples, the syenitic intrusions are broadly contemporaneous with deposition of Timiskaming sedimentary rocks, and are often found in association with preserved slivers of alluvial–fluvial sediments. Syenite intrusion-related gold zones develop either contemporaneous with or after emplacement of syenite intrusions, and may be hosted within shear zones developed in the syenite, along the contacts between syenite and Timiskaming sediments, or within Timiskaming sediment/volcanic host rocks.

### 8.3 Comments on Section 8

#### 8.3.1 Côté Gold Deposit

Katz (2016) completed a study of the deposit as a part of a PhD thesis, and made a number of observations / conclusions as summarized below:

- The Côté deposit is located in the southern limb of the Swayze greenstone belt part of the gold-rich Abitibi subprovince
- The zones of gold mineralization are centred on multi-phase magmatic and hydrothermal breccias, including a mineralized Au-Cu±Mo±Ag hydrothermal breccia that intrudes tonalitic and dioritic phases of the CIC (Katz et al., 2015)
- U–Pb zircon and titanite and Re–Os molybdenite dating highlights the co-temporal link between magmatism and hydrothermal events (Katz, 2016). The hydrothermal breccia is itself overprinted by several types of hydrothermal alteration associated with mineralization. The age of this syn-volcanic-hydrothermal system is ca. 2740 Ma (Katz, 2016)
- Age dating of a number of samples by Katz indicate that the gold mineralization is of hypogene origin and provides additional evidence that the deposit is syn- magmatic and supports a porphyry style model. Furthermore, this deposit now represents the oldest documented gold mineralization within the Abitibi Subprovince (Kontak et al., 2012).

The deposit model for the formation of the Côté Gold deposit proposed by Katz (2016) is included as Figure 8-1.

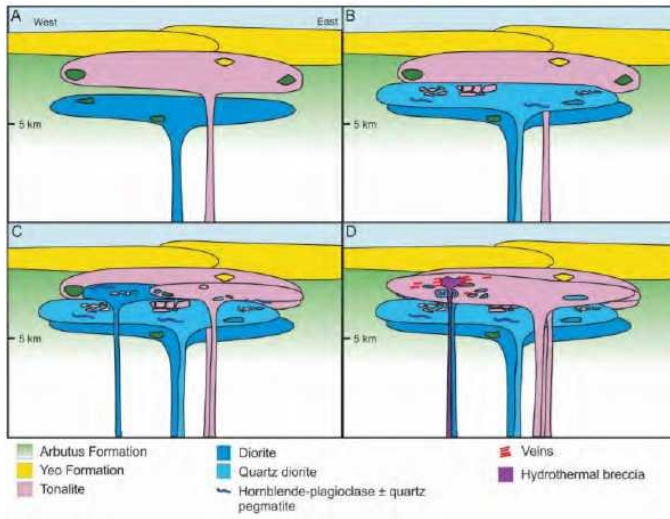
#### 8.3.2 Other Models

Orogenic-style gold zones have been identified in the form of quartz–sulphide vein systems (e.g. Chester veins). These veins formed during compressional to transpressional deformation processes and form narrow veins (generally <2 m width) with strike lengths varying from <500 m to 1,500 m.

Syenite intrusion-related gold zones are evident locally within the South Swayze project area with the most notable one being the Jerome deposit. At Jerome, quartz-carbonate veins host gold mineralization with altered syenite, along the sheared contacts between syenite and Timiskaming sediments, and along the contacts between syenite and Timiskaming sediments.

The QP considers that exploration programs that use these two deposit models, in addition to the synvolcanic-intrusion related gold model (Côté Gold deposit) would be entirely appropriate within the Project area.

Figure 8-1: Deposit Model, Côté Gold Deposit



Note: Figure from Katz (2016).

## 9.0 EXPLORATION

### 9.1 Overview

The Project area is divided into three sectors for exploration purposes:

- South Swayze West (western area)
- Chester (central area)
- South Swayze East (eastern area).

Exploration activity within these areas is summarized in the following tables and figures:

- South Swayze West (western area)
  - Table 9-1: South Swayze West Exploration Activities
  - Figure 9-1: South Swayze West Properties
- Chester (central area)
  - Table 9-2: Chester Exploration Activities
  - Figure 9-2: Chester area gold zones
  - Figure 9-3: Clam Lake Geology and Gold Zones updated figure in progress
  - Figure 9-4: Exploration on Other Chester Area Properties
- South Swayze East (eastern area).
  - Table 9-3: South Swayze East
  - Figure 9-5: South Swayze East Exploration Areas

### 9.2 Grids and Surveys

Exploration grids across the South Swayze properties have been established in a number of orientations and generally oriented with lines trending 340° to 360° to be perpendicular to lithological contacts and structure. Grid line spacings are typically 50 m to 100 m for detailed grids and 200 m to 400 m for reconnaissance grids.

### 9.3 Geological Mapping

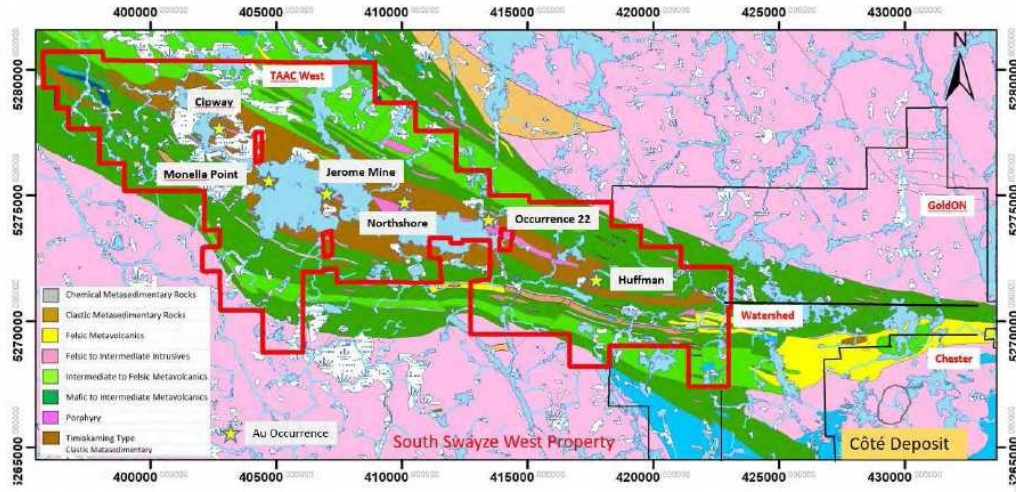
Geological mapping over the Côté Gold deposit key outcrop exposures has been ongoing over several field seasons. In the fall of 2013, a mapping program over the entire area within the proposed pit shell commenced. This mapping program assisted in validating the geological interpretations of the 3D deposit model.

Table 9-1: South Swayze West Exploration Activities

| Year | Area                | Activity  | Comment   |
|------|---------------------|---|---|
| 2013 | TAAC West           | Data reviews and compilation  | Data were compiled into ArcGIS and Geovia GEMS databases for four primary project areas including the Main North Shore, North Shore, Huffman and Schist Lake areas.   |
|      | Huffman Lake Option | Data reviews, geological mapping and sampling program   | Compilation of all historical work done on the area was carried out with all available information from TAAC and MNDM, compiled and organized into Geovia GEMS and Arc GIS projects. Geological mapping focused on a combination of prospective magnetic breaks, east-west-trending quartz feldspar porphyry intrusions, and mobile metal ion (MMI) soil anomalies identified by the TAAC 2011 MMI survey.  |
| 2014 | TAAC West           | Initial prospecting and geological mapping  |   |
|      | Huffman Lake Option | Geological mapping, modelling   | Small detailed mapping program over the Huffman Lake Zone to verify historical gold values, to check historical drilling collar locations, and to gain a better understanding on the controls of gold mineralization. Modelling in Geovia GEMS and a review of the model with grade and thickness criteria revealed a very low-grade zone that would require a significant upgrade to make it a viable economic zone.   |
|      | Schist Lake         | Initial prospecting and geological mapping  | Channel and grab samples revealed significant anomalous gold in proximity to known shear zones, and the stratigraphic sequence and position of major shear structures were determined. Other work included orientation soil and humus sampling.   |
| 2015 | TAAC West           | B-horizon soil sampling, geological mapping, prospecting, and sampling, core drilling                       | North Shore area subject to geological mapping, prospecting, mechanized stripping, channel sampling, orientation soil and humus sampling, and core drilling (14 holes, 4,300 m).  |
|      | Schist Lake         | Outcrop stripping, channel sampling, geological mapping, reconnaissance geophysical surveys, core drilling. | Mechanized stripping and channel sampling were completed to expose the main shear zones and subsequent sampling and mapping validated the stratabound nature of the shear zones. Semi- continuous pyrite and arsenopyrite mineralization was noted and often accompanied by moderate to strong alteration of host volcanic and Temiskaming conglomerate units. Reconnaissance VLF sampling was also completed as an orientation survey across the shear zone and also on reconnaissance lines to the east and west. A three-hole, 657 m drill program tested the main target shear zone as well as a secondary shear zone located immediately to the south. |
| 2016 | Watershed           | Data review, geophysical survey, core drilling  | Review of previous geological mapping and mechanized stripping in the Watershed East portion of the property led to reconnaissance IP surveying, geological mapping and four core holes (1,109 m). testing three altered, Au-bearing structures including the North Shear, the South Shear and the Hydro Zone.  |
|      | TAAC West           | Geological mapping, mechanized stripping, IP survey, core drilling  | Work focussed on geological and geophysical investigations to the NW of Jerome where favorable structures along porphyry / Timiskaming Sediment contacts were identified. The work culminated in a drilling of 9 core holes (2,806 m) on three target areas located in the corridor between Cipway and Occurrence 22.   |

| Year | Area             | Activity   | Comment   |
|------|------------------|--|---|
| 2017 | TAAC West        | Geological mapping, Airborne EM / Mag., prospecting, soil sampling, petrographic study, core drilling. | Geological mapping focussed on key mineralized trends identified in the 2016 program and also follow-up of the airborne surveying. Petrography / geochemical characterization of porphyry's with anomalous Au mineralization was completed. The program included 2 diamond drill holes (669 m).   |
|      | Watershed        | Prospecting, geological mapping, lithosampling, mechanized stripping, diamond drilling                 | Watershed exploration continued on Au-bearing structures with geological mapping, mechanized outcrop stripping, power-washing, and channel sampling. Geological mapping and core drilling (5 holes, 2,244 m) drilled on that portion of Watershed property just west of the Côté Gold deposit (Central Watershed). In the northwest part of the property, drilling of one hole (388 m) was completed. |
| 2018 | Watershed (West) | Geological mapping, prospecting, manual outcrop stripping, channel sampling                            | Geological mapping and prospecting work expanded to the western part of the Watershed property where efforts were accelerated to screen targets in the planned footprint of Côté Gold deposit infrastructure.   |
|      | Schist Lake      | Prospecting, geological mapping, manual outcrop stripping, channel sampling                            | Exploration focussed on evaluation of Au showings and structures in the area within and north of planned Côté Gold deposit infrastructure. Key work included geological mapping of showings, prospecting and sampling of favorable areas, and some manual stripping and channel-sampling of historic trenches   |

Figure 9-1: South Swayze West Properties



Note: Figure prepared by IAMGOLD, 2018

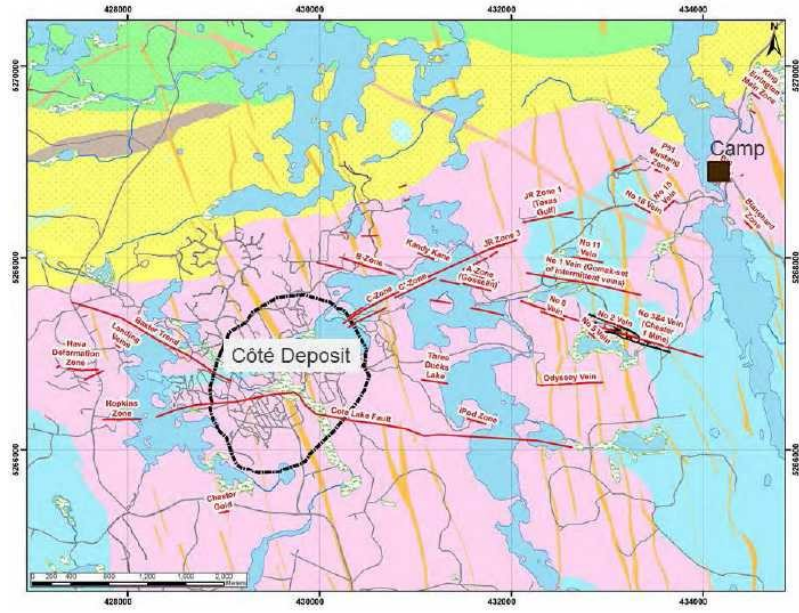
Table 9-2: Chester Exploration Activities

| Year | Area  | Activity   | Comment   |
|------|---|--|---|
| 2013 | Clam Lake, Leliever, West Côté                      | Detailed compilation, prospecting, geological mapping, core drilling, structural modelling | Compilation of all historical work in Geovia GEMS and Arc GIS platforms was first completed to highlight significant gold showings and to outline the most prospective targets for additional work. Exploration work focused within the Clam Lake property, the Leliever Option, and the West Côté property. Key targets included the previously discovered Baxter and Hopkins trends as well as several historical gold-bearing zones identified by surface grab sampling. A three-hole diamond drill program totaling 892.5 m was completed in late 2013 and was successful in discovering the HAVA Zone. Subsequent down-hole rock property surveying, geology and structural modelling were completed by DGI Geosciences to better understand the zone orientation and host stratigraphy. |
|      | Jack Rabbit   | Detailed compilation, geophysical interpretation, prospecting, and geological mapping      | Compilation of all historical work and geophysics data was completed in Geovia GEMS and Arc GIS platforms which helped define areas of interest and priority targets. Work focused within Jack Rabbit historical Zone 1 (No. 20 Vein), Zone 2, and Zone 3 (Texas Gulf Zone) followed by the Murgold Chesbar Zone as well as multiple surrounding surface showings. Geological mapping and prospecting were completed over approximately 75% of the property in 2013, and two drill holes (495.3 m) were completed in early December, targeting the western extension of Zone 2 and the north branch of Zone 1 (No. 20 Vein). Narrow sulphide-bearing mineralized zones comprising quartz-sulphide veins were delineated, with the most favourable results on the western extension of Zone 2  |
| 2014 | Clam Lake   | Geological mapping, surface sampling, core drilling  | Completed 12 hole (2,841 m) drill program. This program was successful in extending the strike length of the HAVA Zone and also outlined two additional zones: the gold-bearing Pyrite-Sphalerite Zone located to the north of the HAVA Zone; and the upper Quartz- Sulphide Zone parallel to the HAVA Zone.  |
|      | Jack Rabbit   | Geological mapping, reconnaissance sampling  | Continued geological mapping and sampling of prospective Au-sulphide shear zones in attempts to better define the stratigraphy and structures hosting the known gold zones  |
|      | South Côté Condemnation Area, Three Duck Lakes area | Geological mapping and sampling  | trace Au-bearing structures intersected in 2012 condemnation diamond drill holes. A two- hole, 634 m program was completed in 2015 to determine if these Au-bearing structures had strike continuity or depth extent.   |
|      | South Côté SGH target                               | Geological mapping and sampling  |   |
| 2015 | Clam Lake   | Outcrop stripping, core drilling, physical rock property analyses.                         | Mechanized stripping of the HAVA Zone c conducted. A seven-hole (1,659 m) drill program designed to test the HAVA Zone for easterly and down-plunge continuity and the Pyrite- Sphalerite Zone for its potential strike extent was undertaken. Drilling was successful in discovering narrow gold-rich intervals and effectively extending the HAVA Zone further to the east by 100 m. It also outlined narrow quartz-sulphide veins up to 10 cm wide with anomalous Au in the hanging wall.  |

| Year | Area   | Activity   | Comment  |
|------|--|--|--|
|      | Jack Rabbit  | Geological mapping, reconnaissance sampling, outcrop stripping, core drilling                                      | Identified the South Road Quartz Zone. The area northeast of Zone 2 was evaluated by manual stripping of historic trenches, resulting in the discovery of highly anomalous gold values within intensely altered shear zones in tonalite. A four-hole, 921 m core program evaluated the eastern strike extent and depth potential of Zone 2 and the South Road Quartz Vein in proximity to an IP chargeability anomaly.   |
|      | South Côté South Côté Condemnation Area, Three Duck Lakes area | Geological mapping, reconnaissance sampling, core drilling   | Exploration along the east shore of Three Duck Lakes helped to define the location and nature of four historic Au-bearing veins (Veins 1, 2, 2', and 8) with surface sampling yielding anomalous gold values in grab samples. Mapping served to identify a zone of strongly silicified and albitized tonalite (South Côté Alteration Zone) approximately 2 km to the southeast. Three core holes, (1,024 m) drilled, with the Three Duck Lakes vein systems tested for possible northwest strike extensions in an area of favorable IP chargeability. In addition, the South Côté Alteration Zone was tested with a single drill hole. |
|      | South Côté SGH target  | Geological mapping and sampling, core drilling   | Grab samples in proximity to the anomalies returned anomalous gold values from silicified tonalite containing quartz vein networks and fracture-fill quartz veins. The proximity of SGH geochemistry anomalies to the main Côté Gold deposit and the presence of elevated Au in B-horizon soils warranted additional follow-up, and a two-hole, 600 m core drill program was initiated to test each of these anomalies   |
| 2016 | Clam Lake  | Geological mapping, minor in- fill induced polarization (IP) surveying (on grid line extensions) and core drilling | Completed four core holes (1,331 m) to investigate for an eastern extension of the Hava Deformation Zone (HDZ), and to test south of the HDZ to investigate IP and magnetic responses in close proximity the HDZ.  |
|      | Leliever   | Desktop review   | Brief review of previous Auger lithosampling and core drilling   |
|      | Jack Rabbit  | Geological mapping, outcrop stripping, channel sampling, and core drilling   | Geological mapping and mechanized stripping were successful in extending the Au-bearing shear zones for 170 m east of the eastern edge of Zone 2. Diamond drilling (2 DDH, 590 m) was also completed on both the JR #2 Zone and the east extension.  |
|      | South Côté Condemnation Area, Three Duck Lakes area            | IP surveys   | Started to cover the East Chester grid area with the hopes of tracing favorable structures outlined in the Three Ducks Lake/South Chester areas. The work was needed to determine if these structures were associated with the Au mineralizing events in the Côté Gold deposit   |
|      | Gosselin (A-Zone) / B-Zone                                     | Mechanized stripping, core drilling  | Completed three core holes (801 m) to investigate anomalous IP responses in the B Zone and completed two core holes (589 m) to follow-up mechanized stripping / channel sampling results   |

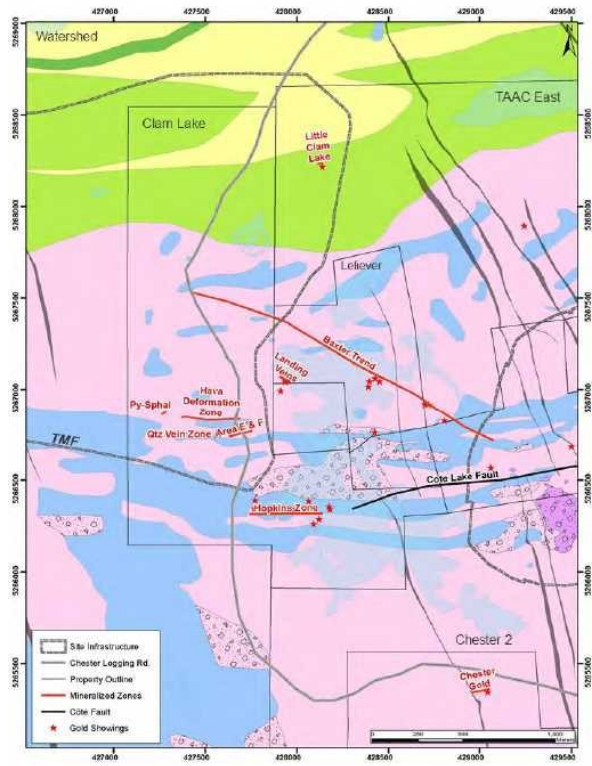
| Year | Area                            | Activity   | Comment  |
|------|---------------------------------|--|--|
| 2017 | South Côté                      | Geological mapping, Lithosampling                | Geological mapping south of the Côté deposit continued from the program started in 2016  |
|      | Gosselin (A-Zone)               | Mechanized stripping, core drilling              | Following the favorable 2016 results, mechanized stripping and diamond drilling (4 core holes, 1,692 m) continued to investigate the corridor between the Gosselin (A-Zone) and the B Zone |
|      | Odyssey Vein, Chester East Grid | Mechanized stripping, core drilling              | Prospecting, IP Surveying, Geological mapping, mechanized stripping and core drilling (2 holes – 487 m) was completed on the Odyssey vein  |
|      | Jack Rabbit                     | Geological mapping, prospecting                  | Geological mapping and prospecting work covered a small corridor north of Jack Rabbit towards Bagsverd Lake.   |
| 2018 | Gosselin (A-Zone)               | Geological mapping, core drilling                | Geological mapping, prospecting and core drilling of three drill holes (1,693 m) was completed up to the end of September 2018   |
|      | Bagsverd Lake                   | IP Surveying, geological mapping and prospecting | Exploration work focussed on the area north of the Côté deposit and included IP surveying, geological mapping and prospecting.   |

Figure 9-2: Chester Area Gold Zones



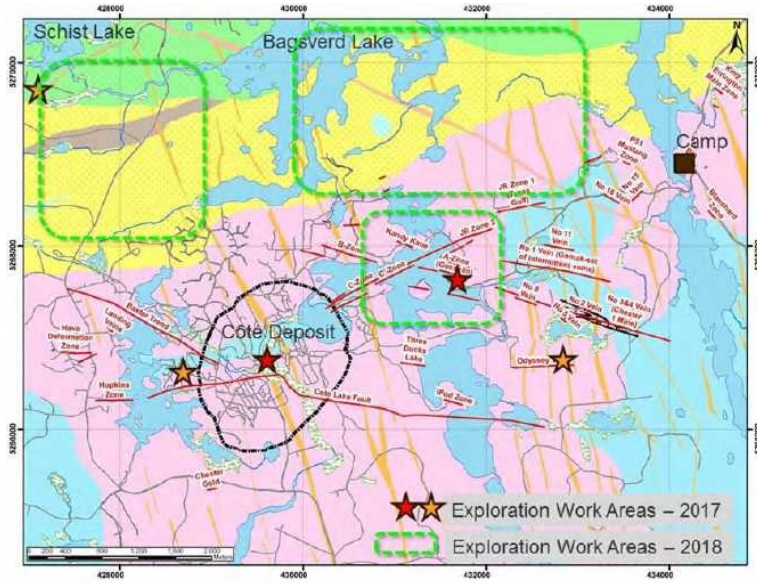
Note: Figure prepared by IAMGOLD, 2018

Figure 9-3: Clam Lake Geology and Gold Zones



Note: Figure prepared by IAMGOLD, 2016

Figure 9-4: Exploration on Other Chester Area Properties



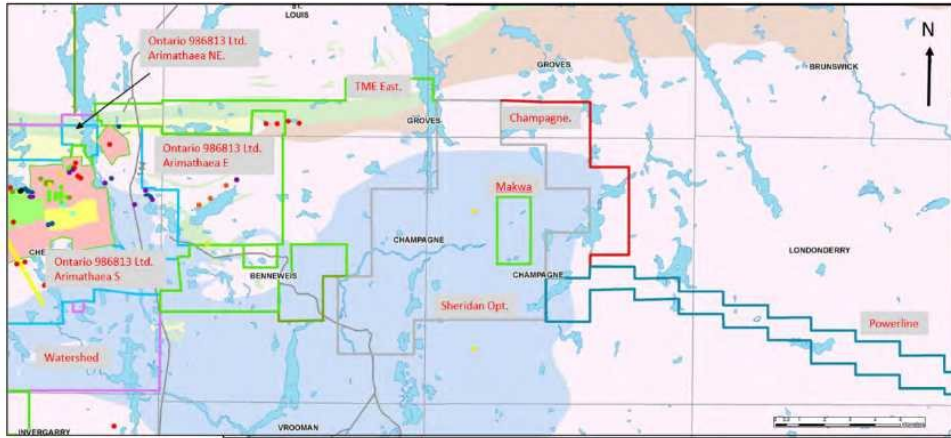
Note: Figure prepared by IAMGOLD, 2018

Table 9-3: South Swayze East Exploration Activities

| Year | Area  | Activity  | Comment  |
|------|---|---|--|
| 2013 | Sheridan Option   | Soil sampling, reconnaissance sampling, geological mapping, IP surveys, core drilling, geo-referencing. | 452 soil samples; 66 rock grab samples; 2.03 km <sup>2</sup> of geological mapping; 19.65 line-km of IP chargeability/resistivity surveying on the Sheridan Option (phase II); 545 m of BQTK size core   |
|      | Trelawney (North, South, and East blocks)                     | Georeferencing  | All claims within TME blocks were georeferenced and the work was submitted for assessment credit.  |
| 2014 | Sheridan Option   | Georeferencing  | All claims within the Sheridan Option property were georeferenced and the work was submitted for assessment credit.  |
|      | Ontario 986813 Ltd. Arimathaea NE                             | Georeferencing  | All claims within Ontario 986813 Ltd (Arimathaea North block) were georeferenced and the work was submitted for assessment credit.   |
|      | TME East (Benneweiss) and Ontario 986813 Ltd. Arimathaea East | IP surveys, geological mapping, core drilling   | Line cutting, IP geophysical surveying, geological mapping, sampling, and diamond drilling (three drill holes, 815 m) on the Arimathaea East portion   |
| 2015 | Sheridan Option   | Georeferencing, IP surveys  | South Sheridan grid was extended to the west and six lines of IP surveying were completed targeting an area with several B-Horizon soil anomalies  |
|      | Trelawney South (Yeo) Block                                   | Soil sampling   | A widely spaced reconnaissance B-horizon soil survey was completed over specific structurally interpreted features (geological contacts, folds, and magnetic breaks)   |
|      | Ontario 986813 Ltd. Arimathaea NE Block                       |   | Geological mapping and IP surveying as part of the larger Errington and Errington West grids   |
|      | TME East (Benneweiss) and Ontario 986813 Ltd Arimathaea East  | IP surveys, geological mapping, soil surveys, core drilling   | Recognition of significant magnetic breaks, possibly representing second order structural splays from the RDZ along the north margin of the property. Line cutting, IP surveying, geological mapping, prospecting, humus, and B-horizon soil sampling and core drilling (four drill holes, 1,547 m) completed. Targets included sheared geological contacts, favourable IP chargeability anomalies, magnetic breaks, and recently discovered quartz vein stockwork zones and sediment-hosted sulphide zones  |
|      | King Errington  | Geophysical surveys, geological mapping, soil surveys, core drilling                                    | Focused on the delineation of the King Errington main zone, which comprises a series of quartz-sulphide veins and veinlets in a highly silicified and fractured diorite. The zone is interpreted to be a third order growth structure and splay from a large northeast/southwest structure coincident with the Errington Creek drainage. Geological mapping, prospecting, soil sampling, reconnaissance VLF surveying, and diamond drilling (two holes, 637 m) to determine if the zone had strike or depth continuity and to examine the immediate stratigraphy for additional structurally controlled zones. |

| Year | Area   | Activity  | Comment   |
|------|--|---|---|
| 2016 | TME East (Benneweiss) and Ontario 986813 Ltd Arimathaea East | IP surveys, geological mapping, soil surveys, core drilling | Geological mapping and sampling with some prospecting, humus sampling, 28.7 km of gridding and pole-dipole IP surveys, and one core hole (506 m).   |
| 2017 | Watershed East   | IP Surveying, geological mapping, mechanized stripping      | Targets outline by IP surveying were further investigated by mechanized stripping and geological mapping. The work culminated in a three core hole (853 m) diamond drilling program.  |
|      | Makwa  | IP Surveying, prospecting                                   | Grid cutting, IP surveying and prospecting was completed on the Makwa Property, and reconnaissance prospecting was completed east of Makwa.   |
| 2018 | Ontario 986813 Ltd. Arimathaea S Block                       | Geological mapping, recon. Prospecting, litho-sampling      | The continuation of geological mapping to cover areas completely surrounding the Côté deposit progressed well, and areas with anomalous Au were subjected to prospecting.   |
|      | Makwa / Champagne  | Geological mapping, litho- sampling                         | Geological mapping and lithosampling was completed over the 2017 IP grid area. Reconnaissance prospecting was completed on the property adjacent to Makwa (Champagne) as part of an evaluation of the Champagne property prior to acquisition |
|      | Powerline  | Reconnaissance prospecting, road access scouting            | Early stage prospecting / litho-sampling was completed along access roads and in small areas of recent logging activity.  |

Figure 9-5: South Swayze East Property Locations



Note: Figure prepared by IAMGOLD, 2018

Reconnaissance mapping has been conducted for exploration purposes as outlined in Table 9-1, Table 9-2, and Table 9-3.

**9.4 Geochemical Sampling**

Geochemical has been conducted for exploration purposes as outlined in Table 9-1, Table 9-2, and Table 9-3.

**9.5 Geophysics**

Ground induced polarization (IP), pole-dipole IP/resistivity, and very-low frequency geophysical surveys were conducted as part of exploration activities (see Table 9-1, Table 9-2, and Table 9-3).

**9.6 Petrology, Mineralogy, and Research Studies**

A PhD thesis was completed on the Côté Gold deposit in 2016 (Katz, 2016), and a Master of Science thesis the same year (Smith, 2016). Petrography and geochemical characterization of porphyry's was completed as part of exploration activities (see Table 9-1).

**9.7 Exploration Potential**

The goal of the present exploration work is to outline new gold mineralization and to evaluate new and existing gold showings for the possibility of economic extraction. Targets with the highest potential to result in bulk-mineable gold will continue to be prioritized.

**9.8 Comments on Section 9**

Exploration programs to date have identified the Côté Gold deposit and have evaluated a number of nearby gold showings for their potential to be bulk-mineable gold deposits. To date, there have been no economic gold zones outlined. There are, however, gold zones situated near the Côté deposit that remain prospective, and active exploration programs will continue to evaluate these targets.

Exploration programs to date have been sufficient to screen many areas for the presence of a Côté-style deposit, with grid line spacing and general traverse spacing of <200 m (some areas <100 m spacing for traverse/grid line density). Litho-sampling and geological mapping is representative over much of the property land holdings, with some exceptions where glacial till and lacustrine deposits form thick mantels on the bedrock. In areas of thick overburden, IP geophysical surveys and diamond drilling has helped screen these overburden-covered areas.

General results and conclusions from ongoing exploration work is summarized below by target area:

- South Swayze West: Côté-style tonalite and diorite-hosted breccia zones have not been discovered to date. Exploration for syenite intrusion-hosted or shear-zone hosted gold zones continues. The presence of Timiskaming-style basin sediments cut by porphyry intrusions and broad structural deformation zones provide a good environment for gold-bearing vein networks.
- Chester Area: West of the Côté Gold deposit, the discovery of gold mineralization in the HAVA deformation zone (with associate breccia) reveals some similar host rocks and alteration styles to the Côté Gold deposit. East of the Côté Gold deposit, exploration work has revealed the presence of lower gold grades in the A-Zone (Gosselin) and B Zone (Young-Shannon). These programs will continue to explore for satellite gold deposits
- South Swayze East: Gold mineralization discovered and investigated to date reveals only narrow and discontinuous shear-zone hosted veins. The lack of Côté- style mineralization makes this area less favorable for the discovery of a bulk- tonnage gold zone.

**10.0 DRILLING****10.1 Introduction**

Core drilling on the Côté Gold deposit has included exploration, infill, metallurgical and condemnation drilling. Table 10-1 provides a list of the completed drill holes. Drill hole collars are shown in Figure 10-1.

Exploration drilling was conducted outside the Côté Gold deposit as summarized in Table 10-2. Drill collar locations are included as Figure 10-2, Figure 10-3, and Figure 10-4.

**10.2 Côté Gold Deposit Drilling****10.2.1 Drill Methods**

The drill contractors listed in Table 10-3 have been used for the Côté Gold programs. Core sizes have included the following: HQ (63.5 mm core diameter), NQ (47.6 mm), BQ (36.4 mm), and BQTW (36 mm).

For holes drilled on land, the casing was left in place and capped. Holes drilled on lakes were cemented and the casing was pulled.

**10.2.2 Logging Procedures**

Geologists checked all core boxes at their arrival at the core shack and ensured that no core was missing and that any reported drill hole orientation information was provided from the drilling contractor. Technicians made meterage marks and logged rock quality designation (RQD). All core was photographed.

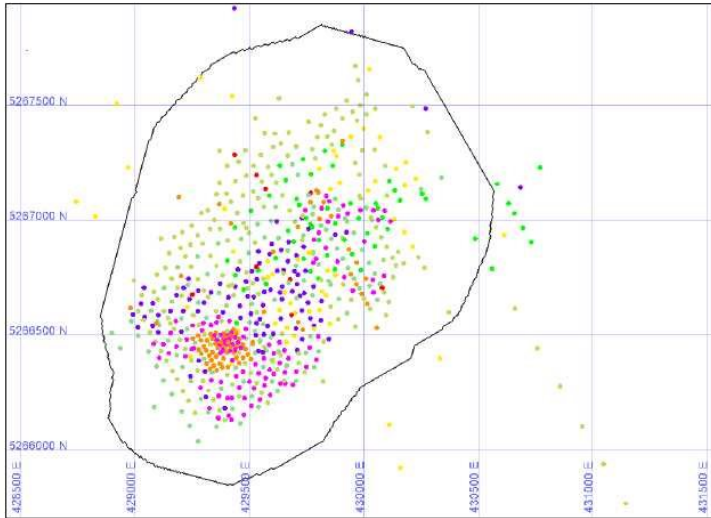
Geologists completed the core log, recording details of lithology, alteration, mineralization, and structure.

For oriented core, technicians drew the bottom of hole line on the core. A full line was drawn when orientation marks were perfectly aligned. Alpha and beta angles were measured for all veins and contacts when the bottom of the hole line was defined.

**Table 10-1: Côté Gold Deposit Drilling by Year**

| Year         | Diameter | Number of Drill Holes | Metres         | Max Length (m) | Min Length (m) |
|--------------|----------|-----------------------|----------------|----------------|----------------|
| 2009         | NQ       | 3                     | 1,049          | 582            | 141            |
| 2010         | BQ       | 1                     | 54             | 54             | 54             |
| 2010         | NQ       | 56                    | 25,802         | 683            | 134            |
| 2010         | NQ/BQ    | 1                     | 594            | 594            | 594            |
| 2011         | BQ       | 2                     | 1,261          | 672            | 589            |
| 2011         | NQ       | 116                   | 59,684         | 1,047          | 60             |
| 2011         | NQ/BQ    | 9                     | 5,682          | 814            | 503            |
| 2012         | BQ       | 8                     | 3,977          | 650            | 373            |
| 2012         | BQ/TW    | 81                    | 40,117         | 1,102          | 20             |
| 2012         | NQ       | 135                   | 87,427         | 1,613          | 15             |
| 2013         | BQ       | 1                     | 478            | 478            | 478            |
| 2013         | BQ/TW    | 41                    | 23,138         | 992            | 66             |
| 2014         | NQ       | 71                    | 19,140         | 693            | 21             |
| 2015         | NQ       | 11                    | 5,082          | 780            | 60             |
| 2016         | —        | —                     | —              | —              | —              |
| 2017         | NQ       | 140                   | 26,762         | 552            | 70             |
| 2018         | NQ       | 94                    | 21,628         | 597            | 70             |
| <b>Total</b> |          | <b>770</b>            | <b>321,875</b> |                |                |

Figure 10-1: Collar Location Plan, Côté Gold Drilling by Year



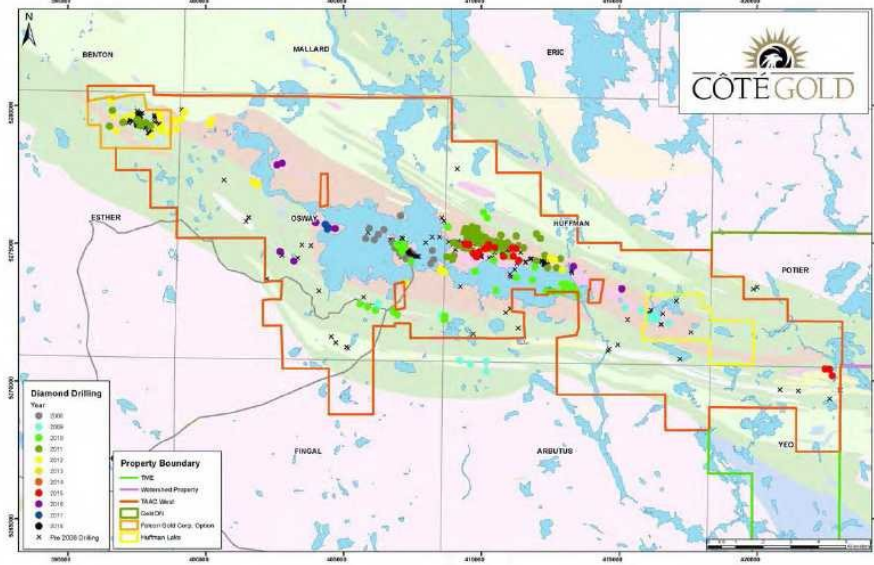
Note: Figure prepared by Wood, 2018. Pit shell outline is the 2018 Feasibility Study pit outline.

**Table 10-2: Exploration Drilling**

| Area                       | Year      | Company            | Number of Drill Holes | Metres | Property               |
|----------------------------|-----------|--------------------|-----------------------|--------|------------------------|
| Chester 1                  | 2009      | Trelawney          | 1                     | 130    | Chester 1              |
|                            | 2017      | IAMGOLD            | 2                     | 487    | Chester 1              |
| Chester 2                  | 2010      | Trelawney          | 13                    | 5,031  | Chester 2              |
|                            | 2011      | Trelawney          | 3                     | 703    | Chester 2              |
|                            | 2012      | Trelawney          | 18                    | 5,156  | Chester 2              |
|                            | 2015      | IAMGOLD            | 4                     | 1,370  | Chester 2              |
|                            | 2016      | IAMGOLD            | 5                     | 1,394  | Chester 2              |
|                            | 2017      | IAMGOLD            | 3                     | 2,122  | Chester 2              |
|                            | 2018      | IAMGOLD            | 6                     | 2,799  | Chester 2              |
| Chester 3                  | 2009      | Trelawney          | 5                     | 1,701  | Chester 3              |
|                            | 2010      | Trelawney          | 26                    | 5,350  | Chester 3              |
|                            | 2011      | Trelawney          | 7                     | 1,837  | Chester 3              |
|                            | 2012      | Trelawney          | 6                     | 1,578  | Chester 3              |
|                            | 2013      | IAMGOLD            | 2                     | 495    | Chester 3              |
|                            | 2015      | IAMGOLD            | 6                     | 1,559  | Chester 3              |
|                            | 2016      | IAMGOLD            | 2                     | 295    | Chester 3              |
|                            | 2017      | IAMGOLD            | 5                     | 2,245  | Chester 3 Emerald Isle |
| Clam Lake                  | 2013      | IAMGOLD            | 3                     | 893    | Clam Lake              |
|                            | 2014      | IAMGOLD            | 10                    | 2,181  | Clam Lake              |
|                            | 2015      | IAMGOLD            | 7                     | 1,659  | Clam Lake              |
|                            | 2016      | IAMGOLD            | 4                     | 1,332  | Clam Lake              |
|                            | 2014      | IAMGOLD            | 1                     | 435    | Leliever               |
| Leliever<br>Ontario 986813 | 2012      | IAMGOLD            | 10                    | 2,988  | Arimathaea South       |
|                            | 2013      | IAMGOLD            | 1                     | 186    | Arimathaea East        |
|                            | 2014      | IAMGOLD            | 3                     | 815    | Arimathaea East        |
|                            | 2015      | IAMGOLD            | 7                     | 2,478  | Arimathaea South, East |
|                            | 2016      | IAMGOLD            | 3                     | 1,054  | Arimathaea North       |
|                            | Watershed | 2009               | Augen Gold            | 9      | 927                    |
| 2011                       |           | Sanatana Resources | 4                     | 2,141  | Watershed              |
| 2012                       |           | Augen Gold         | 2                     | 1,606  | Watershed              |
| 2012                       |           | Trelawney          | 1                     | 654    | Watershed              |

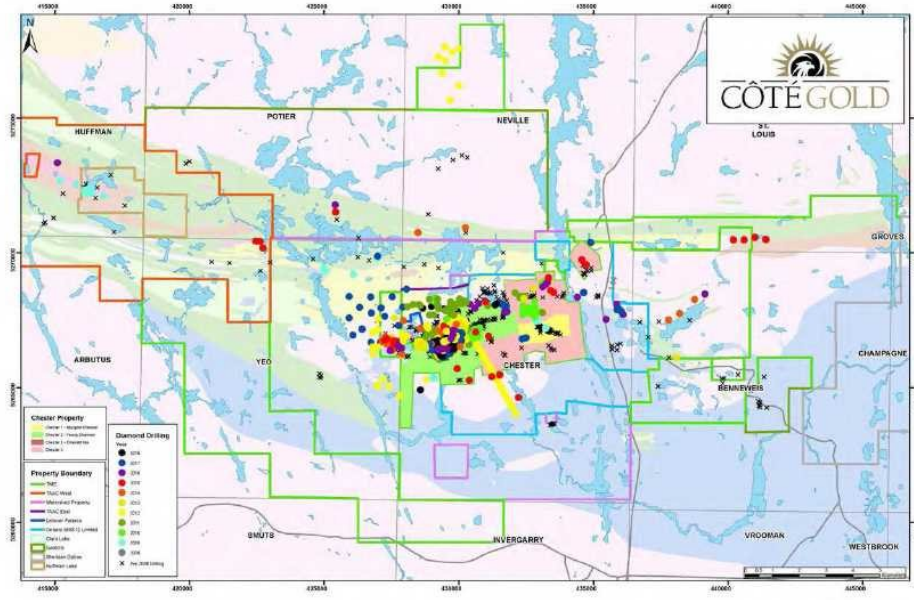
| Area            | Year | Company            | Number of Drill Holes | Metres         | Property        |
|-----------------|------|--------------------|-----------------------|----------------|-----------------|
|                 | 2012 | IAMGOLD            | 1                     | 953            | Watershed       |
|                 | 2012 | Sanatana Resources | 24                    | 10,423         | Watershed       |
|                 | 2013 | Sanatana Resources | 14                    | 3,906          | Watershed       |
|                 | 2014 | IAMGOLD            | 1                     | 225            | Watershed       |
|                 | 2016 | IAMGOLD            | 4                     | 1,109          | Watershed East  |
|                 | 2017 | IAMGOLD            | 18                    | 4,377          | Watershed       |
|                 | 2018 | IAMGOLD            | 4                     | 1,436          | Watershed       |
| TAAC East       | 2010 | Augen Gold         | 3                     | 716            | TAAC East       |
|                 | 2011 | Augen Gold         | 32                    | 11,510         | TAAC East       |
|                 | 2012 | Augen Gold         | 2                     | 1,606          | TAAC East       |
| TAAC West       | 2008 | Augen Gold         | 21                    | 10,175         | TAAC West       |
|                 | 2009 | Augen Gold         | 19                    | 3,592          | TAAC West       |
|                 | 2010 | Augen Gold         | 77                    | 14,922         | TAAC West       |
|                 | 2011 | Augen Gold         | 60                    | 16,533         | TAAC West       |
|                 | 2012 | Augen Gold         | 18                    | 4,882          | TAAC West       |
|                 | 2015 | IAMGOLD            | 17                    | 4,934          | TAAC West       |
|                 | 2016 | IAMGOLD            | 9                     | 2,806          | TAAC West       |
|                 | 2017 | IAMGOLD            | 2                     | 769            | TAAC West       |
| Falcon Option   | 2011 | Falcon Gold        | 26                    | 2,934          | Falcon Option   |
|                 | 2012 | Falcon Gold        | 13                    | 1,529          | Falcon Option   |
| GoldON          | 2008 | Trelawney          | 8                     | 1,678          | GoldON          |
|                 | 2009 | IAMGOLD            | 2                     | 402            | GoldON          |
|                 | 2010 | IAMGOLD            | 1                     | 210            | GoldON          |
|                 | 2010 | IAMGOLD            | 1                     | 254            | GoldON          |
| TME             | 2015 | IAMGOLD            | 6                     | 2,202          | TME East        |
|                 | 2017 | IAMGOLD            | 3                     | 853            | TME East        |
| Sheridan Option | 2013 | IAMGOLD            | 2                     | 545            | Sheridan Option |
|                 |      |                    | <b>567</b>            | <b>159,082</b> |                 |

Figure 10-2: South Swayze West Drill Collar Location Plan (western area)



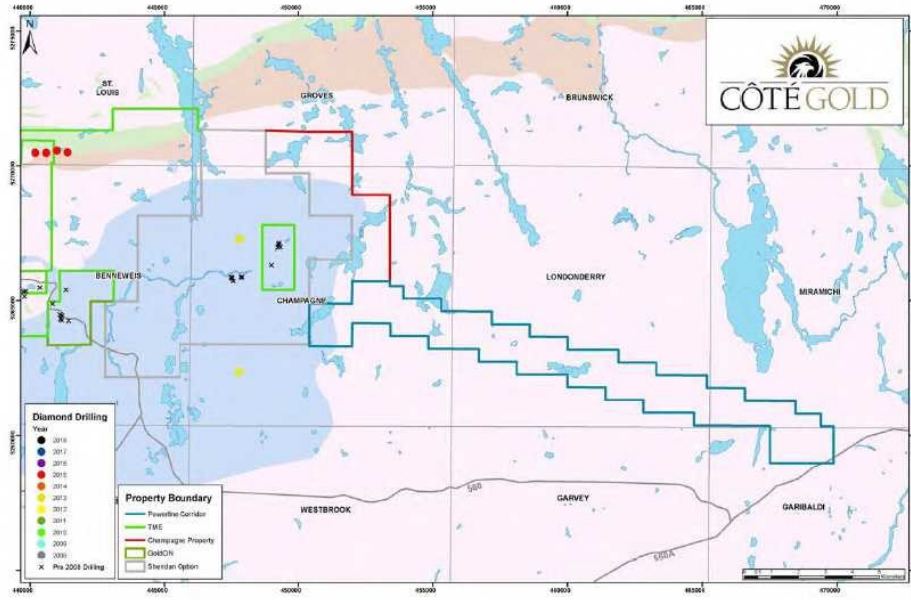
Note: Figure prepared by IAMGOLD, 2018.

Figure 10-3: Chester Drill Collar Location Plan (central area)



Note: Figure prepared by IAMGOLD, 2018.

Figure 10-4: South Swayze East Drill Collar Location Plan (eastern area)



Note: Figure prepared by IAMGOLD, 2018.

**Table 10-3: Côté Gold Drill Contractors**

| Year      | Purpose              | Contractor   |
|-----------|----------------------|--|
| 2010–2011 | Infill; delineation  | Ronkor Diamond Drilling Ltd., Sudbury, Ontario Marathon Drilling Company Ltd., Greely, Ontario Bradley Brothers Limited, Rouyn-Noranda, Quebec Landdrill International Inc., Moncton, New Brunswick Summit Drilling, Sudbury, Ontario. |
| 2012      | Condemnation         | Chenier Drilling, Val Caron, Ontario   |
| 2013      | Infill               | Chenier Drilling, Val Caron, Ontario   |
| 2014–2015 | Infill               | Chibougameau Drilling, Chibougameau, Québec  |
| 2017–2018 | Infill; condemnation | Norex Drilling, Timmins, Ontario   |

**10.2.3 Recovery**

The gold mineralization at the Côté Gold Project is mostly hosted by tonalite, diorite, and breccias. The mineralized and barren core is very competent, except for very local, multiple metre-length intervals of blocky core where minor faults are encountered. One larger fault has been encountered in the western portion of the Côté Gold deposit with true widths varying from 5 m to 10 m.

The Côté Gold database has core recovery measurements for 179 Trelawney drill holes and 423 IAMGOLD drill holes. Core recovery is generally good at 98.81%.

Overall, the core recovery from the 2009–2018 programs was approximately 99%.

**10.2.4 Collar Surveys**

The collar azimuths for pre-2017 holes were established using front and back site markers located in the field with compass or global positioning system (GPS) instruments. The collars are subsequently re-surveyed post-drilling.

L. Labelle Surveys based in Timmins Ontario has been responsible for collecting the survey measurements for the Côté Gold Project since 2009.

**10.2.5 Downhole Surveys**

IAMGOLD reports a FlexIT SmartTool instrument was used to collect down hole survey measurements for keyindex holes drilled between 2009 and 2013. The SmartTool contains triaxial accelerometers and magnetometers and is capable of single and multishot downhole measurements. The SmartTool records an azimuth to magnetic north for each measurement. This azimuth combined with the local magnetic declination values allow correction to true north coordinates. The measurements were collected in single shot mode at approximately 50 m down-hole intervals.

The 2010–2011 holes drilled by Bradley Brothers Limited were surveyed with a Flexit instrument in multishot mode, taking measurements of dip and azimuth at 50 m intervals down the hole.

A Reflex EZ-TRAC tool was used to collect down hole survey measurements for holes drilled between 2014 and 2018. The EZ-TRAC tool is a magnetic and gravimetric instrument with three fluxgate magnetometers to measure the local geomagnetic field and provide the azimuth relative to magnetic north. The measurements at the Côté Gold deposit were collected in multi-shot mode at 3 m down-hole intervals.

Collar azimuth and dip measurements for holes E14-420 to E17-537 were collected by geologists using a Reflex APS (Azimuth Pointing System) tool. The Reflex APS is a GPS-based tool that is not affected by local magnetic interference. Drillers measured collar azimuth and dip measurements for holes drilled after E17-537 using a Reflex TN14 tool. The Reflex TN14 is a gyroscopic tool that is also not affected by local magnetic interference.

#### 10.2.6 Definition Drilling

From December 2009 to September 2011, Trelawney completed a total of 129 core drill holes on the Côté Gold deposit (65,699 m). This program was used to delineate deposit extents and supported Mineral Resource estimation.

Between September 2011 and June 2012, 79 additional core holes (44,856 m) of infill drilling were completed; these data were used to support an updated Mineral Resource estimate.

Infill drilling continued from late 2012 to July 2014 to further delineate the Côté Gold deposit, adding 190 definition drill holes (263,247 m). All definition drilling performed between 2012 and 2014 was inside the then-proposed conceptual pit shell area aiming to achieve a 50 m drilling pattern. A drilling pattern of 25 m was completed inside a small area of 200 m x 200 m to test the short-range geological and grade continuity. Approximately 19,000 m of oriented NQ core was drilled in 2014.

The 2015 drilling campaign was completed by March 2015 and comprised 5,082 m of oriented diamond drill core. The program was intended to fill some gaps and aid the interpretation, resulting in a 50 m drill spacing all over the study zone.

No drilling was conducted in 2016.

The 2017–2018 drilling campaign was initiated in September 2017 and completed by March 2018. It consisted of 208 core drill holes (40,395 m). A 50 m centred drilling pattern was achieved over the bulk of the mineralisation within the conceptual pit shell outline at Year 3 in the pre-feasibility study design. Additionally, a 100 m x 100 m area was drilled at a 25 m drilling pattern, including a 25 m x 25 m area drilled at a 12.5 m drilling pattern. Areas outside the bulk of the mineralisation were also targeted at a 50 m drill pattern.

#### 10.2.7 Condemnation Drilling

Between February 2012 and April 2012, Trelawney completed eight drill holes (1,678 m) north of the Côté Gold deposit within Neville township. This campaign targeted potential MRA and TMF locations.

Throughout the condemnation drilling program, Chenier Drilling from Val Caron, Ontario, was the sole drilling contractor. An LC 3000 drilling rig was used, with the major criterion being the ability to drill to a depth of 300 m using BQW drill rods. The holes were cased northwest into bedrock and drilled at BQW size to depth. The holes were sited on a grid and collar sites surveyed by differential GPS instrument.

Holes drilled by Chenier Drilling were surveyed with a Reflex instrument in multi-shot mode, taking measurements of dip and azimuth at 50 m intervals down the hole. All holes were drilled on land, with the casing left in place and capped.

The 2017–2018 drill campaign added 26 condemnation core drill holes (7,757 m). These drill holes targeted the planned TMF area, the proposed mill site, the anticipated ore and overburden stockpile locations and the MRA. All 2017–2018 condemnation drilling was conducted by Norex drilling. All drill holes are NQ in size.

#### 10.2.8 Metallurgical/Geotechnical Drilling

From June 2012 to July 2012, Trelawney drilled six geotechnical (3,858 m) holes in various locations within the conceptual pit shell. The core was processed by Knight Piésold Engineering and Environmental Services, North Bay, Ontario and was also sent for metallurgical testing. This drilling campaign was focused on gathering structural information for open pit construction and design. The IAMGOLD exploration team completed core logging and incorporated the logging information into the database.

From August to September 2013, IAMGOLD completed seven metallurgical (1,185.5 m) drill holes in various locations within the conceptual pit shell of the Côté Gold deposit.

In July and August 2014, four core holes were completed by IAMGOLD and logged by Golder Associates Ltd. (Golder) on site. In 2014, a total of 1,404 m of HQ drill core was drilled targeting the wall of the then pit shell.

In November and December 2016, six HQ size holes (1,422 m) were drilled by Norex Drilling as part of a metallurgical testing program. Two of the drill holes twinned previous metallurgical holes such that the effect of core aging could be assessed. IAMGOLD personnel logged and sampled the core.

#### **10.2.9 Sample Length/True Thickness**

Figure 10-5 shows a plan view of the drilling in relation to the major geological units. Figure 10-6 is a long-section through the deposit. Figure 10-7 and Figure 10-8 are cross-sections through the mineralization.

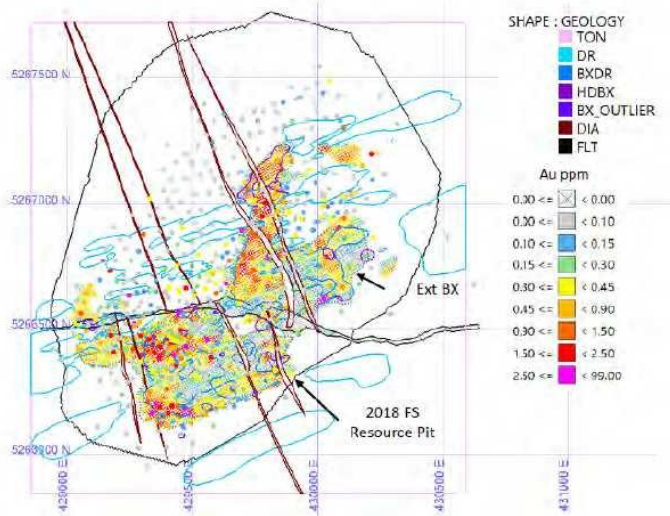
Drilling is normally oriented perpendicular to the strike of the mineralization. Depending on the dip of the drill hole and the dip of the mineralization, drill intercept widths are typically greater than true widths.

### **10.3 Exploration Drilling**

#### **10.3.1 Drill Methods**

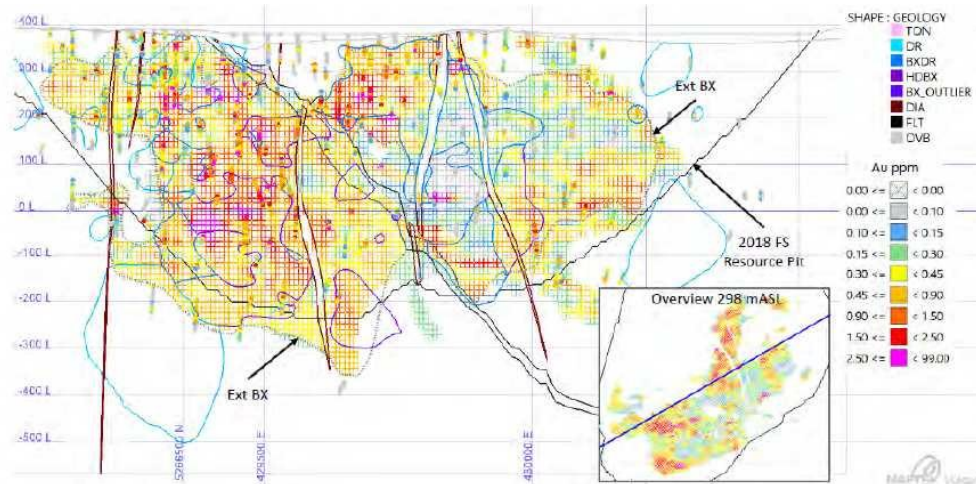
Diamond drilling methods employed for Exploration drilling remained the same as those employed in Côté Gold deposit drilling. The most commonly-drilled core size was NQ, and drill rigs employed wireline systems and generally oriented-core drilling techniques.

Figure 10-5: Plan View, Elevation 298 masl



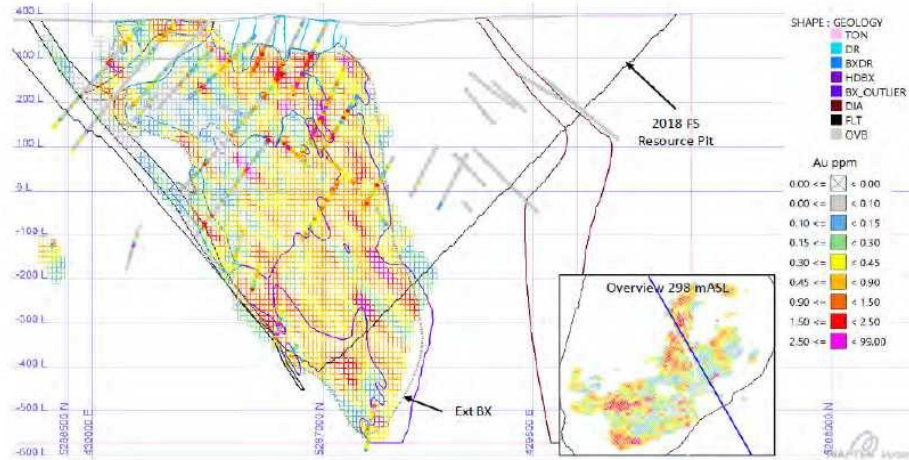
Note: Figure prepared by Wood, 2018. Geological abbreviations: TON = Tonalite; DR = Diorite; BXDR = Diorite Breccia; HDBX = Hydrothermal Breccia; BX\_OUTLIER = Breccia; DIA = Diabase Dyke; FLT = Fault Zone; OVB = Overburden. Lower legend is gold grade in g/t Au.

Figure 10-6: Long Section



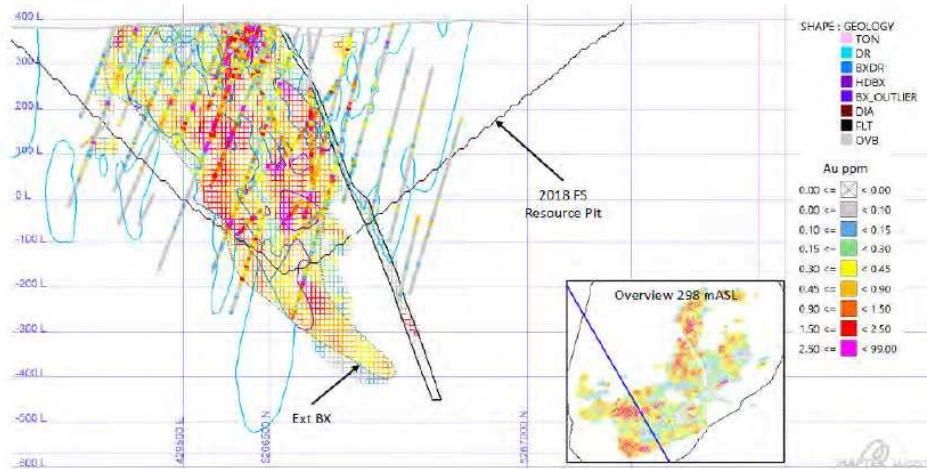
Note: Figure prepared by Wood, 2018. Figure is parallel to the block model and looks northwest. Geological abbreviations: TON = Tonalite; DR = Diorite; BXDR = Diorite Breccia; HDBX = Hydrothermal Breccia; BX\_OUTLIER = Breccia; DIA = Diabase Dyke; FLT = Fault Zone; OVB = Overburden. Lower legend is gold grade in g/t Au.

Figure 10-7: North Zone Cross Section



Note: Figure prepared by Wood, 2018. Figure is parallel to the block model, through the north breccia units, and looks southwest. Geological abbreviations: TON = Tonalite; DR = Diorite; BXDR = Diorite Breccia; HDBX = Hydrothermal Breccia; BX\_OUTLIER = Breccia; DIA = Diabase Dyke; FLT = Fault Zone; OVB = Overburden. Lower legend is gold grade in g/t Au.

Figure 10-8: South Zone Cross Section



Note: Figure prepared by Wood, 2018. Figure is parallel to the block model, through the south breccia units, and looks southwest. Geological abbreviations: TON = Tonalite; DR = Diorite; BXDR = Diorite Breccia; HDBX = Hydrothermal Breccia; BX\_OUTLIER = Breccia; DIA = Diabase Dyke; FLT = Fault Zone; OVB = Overburden. Lower legend is gold grade in g/t Au.

**10.3.2 Logging Procedures**

Drill core logging procedures and all aspects of drill core handling (including chain-of- custody), core cutting and sampling were the same as those employed for the Côte Gold deposit drilling.

**10.3.3 Recovery**

Drill core recovery for exploration drilling in general is very high, reaching 99% for drilling in the Chester Intrusive Complex. For areas outside of the CIC in volcanic and sedimentary lithologies, recoveries are slightly lower but remain high and are estimated at between 95–99%.

**10.3.4 Collar Surveys**

Drill collars for the exploration drill programs are spotted by GPS by the field Geologists. Collars are surveyed by differential GPS upon completion of the drill hole.

**10.3.5 Downhole Surveys**

Downhole survey measurements employ the identical techniques used in Côte Gold deposit drilling, with both REFLEX EZ-TRAC single-shot readings at fixed intervals as the drill hole progresses, followed by Multi-shot REFLEX EZ-TRAC readings at the culmination of drilling. Instruments are rented from Reflex Instruments NA.

**10.3.6 Sample Length/True Thickness**

Sample intervals are reported both as sample (core) length and estimated true length.

**10.3.7 Comments on Section 10**

In the opinion of the QP, the quantity and quality of the lithological, collar and down- hole survey data collected in the exploration and infill drill programs completed at the Côte Gold deposit are acceptable to support Mineral Resource estimation.

## 11.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY

### 11.1 Sampling Methods

The sampling interval was established by minimum or maximum sampling lengths determined by geological and/or structural criteria. The minimum sampling length was 50 cm, while the maximum was 1.5 m. The typical sample length in most of the mineralized zones is 1 m.

Sample intervals were tagged using a procedure requiring the geologist to clearly mark the start and end of each sample on the core with a grease pencil. The geologist or geological technician transferred all sample intervals to a sample book. Each page in the sample book represented a unique number with two identical sample tags. The borehole number and sample interval were transferred to one of the tags and recorded in the logs. One tag was placed in a plastic sample bag with the sample and the second was stapled in the core box beneath the representative half sample. This method of recording sample numbers was a quality control (QC) measure that ensured that the proper sample tag was inserted into the correct sample bag. During this procedure, the location for the insertion of standards and blanks into the sample sequence was noted.

IAMGOLD personnel sawed and sampled the entire length of a drill hole. Diabase dykes that occur within the sequence were not sampled except for two 1 m shoulder samples at the upper and lower contacts of the dyke. Prior to sawing, geotechnicians oriented the core for cutting to mitigate biased sampling procedures. For oriented core, the orientation line is used as the cut line. Sawn core was placed in the core box with the cut facing up and the top half of the core was sent for assay.

Samples and inserted quality assurance/quality control (QA/QC) samples were tagged and sealed in plastic bags, which were put into rice bags and sealed with security tags. The sealed rice bags were placed on pallets in a secure area of the camp. Personnel from Gardewine Transport or Manitoulin Transport collected the bagged samples from the IAMGOLD camp once or twice a week and delivered them to the primary laboratory (Accurassay until 2014, ActLabs from 2015 onward).

### 11.2 Density Determinations

Historically, density measurements were obtained using the immersion method from 2009 to 2012. For 2014 and 2015, density was measured on pulps at ActLabs using a pycnometer. In 2018, additional measurement by water immersion and a comparison between historical pycnometer and water immersion method was completed in order to validate the best method to be used for SG measurement. Lacquer-sealed and uncoated water immersion pair measurements were also completed in 2018.

It was demonstrated that there is little to no correlation between the pycnometer measurement over a selected sample interval and the average density measurement on three pieces of core using water immersion method over the same corresponding interval. Therefore, it was decided that SG measurements obtained using the pycnometer method should not be mixed with SG measurements obtained by water immersion in the Côté density database.

The water immersion and lacquer-sealed water immersion pair measurements compare well indicating minimal bias in the uncoated water immersion measurements.

The water immersion testing procedure involves two mass measurements; one in air, and the other while the sample is submerged in water. The procedure was executed according to the following steps:

- Dry the samples for a 24 hour period.
- Set up the balance and ensure it is both level and zeroed.
- Measure the mass of the sample in air. Make sure the balance is zeroed between samples.
- Measure the mass of the sample while submerged in water using the bottom-loading feature on the balance. Be sure to note the water temperature prior to each measurement.
- Calculate the volume of the sample. This is done by determining the difference in mass between the 'in air' and the submerged measurements. The difference in mass is equal to the volume of the sample assuming that the water has a density of 1t/m<sup>3</sup>.
- Calculate the bulk density of the sample by dividing the mass in air by the calculated volume.

### 11.3 Analytical and Test Laboratories

The primary laboratories used were:

- Accurassay (2011–2015), Timmins, Thunder Bay, (Ontario), accredited to ISO 17025 by the Standards Council of Canada, Scope of Accreditation 434
- ActLabs (2015–2018), Ancaster, Dryden, Timmins, Thunder Bay (Ontario), accredited to ISO 17025 by the Standards Council of Canada, Scope of Accreditation 266

Both laboratories are independent of IAMGOLD.

The umpire laboratories included:

- ActLabs (2012–2014): accredited to ISO 17025 by the Standards Council of Canada, Scope of Accreditation 266
- ALS Minerals (ALS), Val d'Or, Quebec (2015): accredited to ISO 17025 by the Standards Council of Canada, Scope of Accreditation 689.
- AGAT (2017–2018), Mississauga, Ontario, accredited to ISO 17025 by the Standards Council of Canada, Scope of Accreditation 665.

These laboratories are all independent of IAMGOLD.

#### 11.4 Sample Preparation and Analysis

Sample preparation and analysis at Accurassay comprised:

- Samples were crushed to -8 mesh after which a 1,000 g subset of each sample was pulverized to 90% passing -150 mesh
- Assays were completed using a standard fire assay (FA) with a 30 g aliquot and an atomic absorption (AA) finish
- For samples that returned values of 2–5 g/t Au, another pulp was taken, and fire assayed with a gravimetric (FA-gravimetric) finish
- Samples returning values >5 g/t Au were reanalyzed by pulp metallic analysis
- All samples were subject to a 33-element inductively-coupled plasma (ICP) scan, using Accurassay procedure ICP 580.

Sample preparation and analysis at Actlabs until 2018 consisted of:

- Samples were crushed to 10 mesh after which a 1,000 g subset of each sample was pulverized to 85% passing 200 mesh.
- Assays were completed using a standard FA with a 30 g aliquot and an AA finish

- For samples that return values between 2–5 g/t Au, another pulp was taken and assayed using the FA-gravimetric method
- Samples returning values >5 g/t Au were reanalyzed by pulp screen metallic analysis.

In 2017, the procedure changed to the protocols outlined in Figure 11-1, and included:

- Sample preparation consisted of coarse crushing to 95% passing 2.8 mm screen (7 mesh screen), and then a 750–850 g split was pulverized to 95% passing 100 mesh (150 µm). The entire sample had to be crushed
- Samples analyzed using a standard 50 g fire assay (50 g aliquot) with an AA finish
- For samples that returned assay values >2.0 g/t, another cut was taken from the original pulp and subjected to FA-gravimetric analysis.
- For samples showing visible gold or samples which returned values >20.0 g/t; a reanalysis using pulp metallic methods had to be undertaken. A second pulp (900– 1,000 g) was created from the reject. However, flagged visible gold samples still had to go through the entire assay process.

Umpire analysis at ALS and AGAT consisted of:

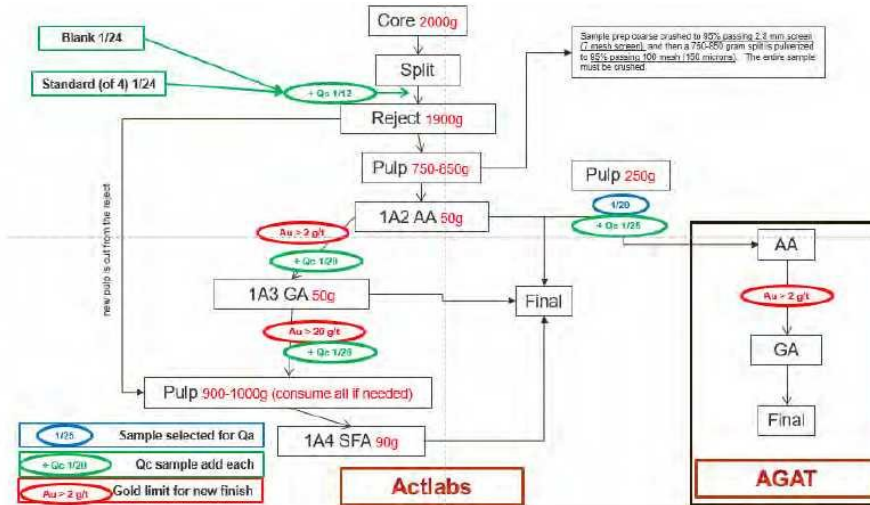
- Initial analysis using the FA-AA method
- Overlimits assays using the FA-gravimetric method.

#### 11.5 Quality Assurance and Quality Control

QA/QC insertion included standard reference materials (SRMs), blanks and pulp duplicates as a standard procedure. IAMGOLD inserted control samples after every 12<sup>th</sup> sample interval. Over the Project life, about 23 different SRMs and two blanks have been used.

The following subsections outline the results of evaluations undertaken on the control data since the discovery of the Côté Gold deposit.

Figure 11-1: Actlab Protocols 2017 To Date



Note: Figure courtesy IAMGOLD, 2018.

**11.5.1 SRMs****Roscoe Postle Associates Inc, 2011**

Seven OREAS gold standards ranging from 0.527 g/t Au to 7.15 g/t Au were acquired from Analytical Solutions Ltd. (Analytical Solutions) of Mulmur, Ontario.

RPA compiled and plotted SRM data from the 2011 Côté Gold deposit drilling program. In all cases, the average of the SRM analyses completed at Accurassay was lower than the certified SRM value and, in the case of five of the seven SRMs, the average value was less than the lowest individual mean value of the laboratories used in the testing to establish the SRM statistics. In addition, the Trelawney SRM analyses generally exhibited a considerable data spread.

All SRMs were analyzed by the FA-AA method at Accurassay. RPA recommended that the SRM analyses be consistent with the core sample analyses and what is used in the database; for example, if the SRM accepted value is <2 g/t Au, use the FA-AA analytical method and if the accepted value is >2 g/t Au, use the FA-gravimetric method. In conjunction with a full assessment of the QA/QC basis, RPA recommended that an apparent low bias in the SRM data be evaluated.

**11.5.2 Roscoe Postle Associates Inc, 2012**

For the 2012 program, IAMGOLD acquired nine SRMs from Analytical Solutions, which ranged from 0.116–8.79 g/t Au. During 2012 and 2013, IAMGOLD used about 16 different SRMs with gold values ranging from 0.334 g/t to 8.79 g/t.

**IAMGOLD, 2015**

Following recommendations made in RPA's 2012 report, IAMGOLD performed a follow-up on the QA/QC since 2013. A change of laboratory was made in 2015 to support a comparison between laboratories.

Overall, 4.2% of CRMs failed in 2015, out of 473 CRMs sent to the laboratory. Since 2014, follow-up on the laboratory has been undertaken on a bi-monthly basis, which allows for a better control on the final QA/QC.

**Wood, 2018**

Wood confirmed that the assay grade ranges within the SRMs used in 2017–2018 were acceptable.

Before 2015, a total of 11,332 SRMs were inserted in the sample stream, with an overall percentage of SRM samples passing quality control of 86%. In general, the IAMGOLD SRM analyses exhibit considerable spread of data. Of the 1,544 outliers, 349 were categorized as gross outliers and may represent SRM miss-identifications. It is impossible to clearly identify the source of error for the failed assays prior to 2014. The standard deviation recorded during those campaigns shows more dispersion than expected. Overall, SRM assay results do not appear to show a specific bias or any specific trend. The overall SRM performance from 2009–2015 is summarized in Figure 11-2.

**11.5.3 Blanks**

The IAMGOLD QA/QC protocol includes the use of blanks inserted in the sample stream at a frequency of approximately one in 24 samples. These blanks are assigned regular sample numbers and inserted in the sample numbering sequence prior to shipment to the laboratory. Until 2014, the blanks consisted of barren diabase, then both barren diabase and commercially-acquired silica blanks were used.

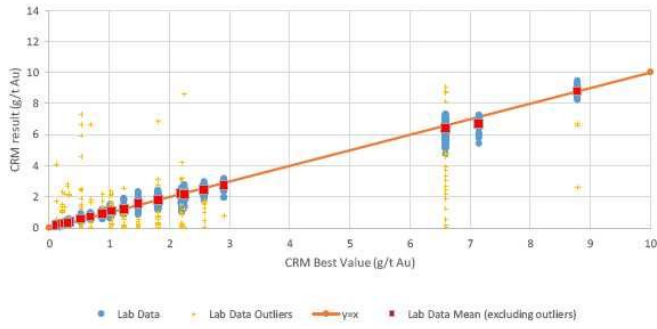
**Roscoe Postle Associates Inc, 2011**

Graphically, the analyses of the diabase blanks were described as falling into three groups:

- Analyses that returned less than detection limit values
- Analyses that over time had grades greater than the lower detection limit and generally <0.015 g/t Au
- Analyses that were >0.015 g/t Au and <0.1 g/t Au.

Of the 1,066 analyses of diabase blanks there were six samples with gold >0.1 g/t. The majority of the blank analyses were below an assumed upper control limit (UCL) of 0.015 g/t Au.

Figure 11-2: 2009–2015 SRM Results



Note: Figure prepared by Wood, 2018. CRM = SRM.

The diabase used as blank samples was from the Côté Lake drill holes. In the drill hole database, there were 216 samples of diabase. The average of all diabase samples in the database was 0.051 g/t Au with a maximum of 1.08 g/t Au and minimum analyses of <0.05 g/t Au. The average grade of all samples where gold was above the detection limit was 0.062 g/t Au. Diabase intrusion postdates emplacement of gold mineralization and, although Trelawney endeavored to sample only inclusion-free and even-textured diabase, the few samples that are above the UCL may be indicative of assimilation of pre-existing gold mineralization, given that the majority are below the UCL.

RPA recommended that Trelawney use an alternative to the diabase as blanks and that Trelawney independently test the selected material for Au content. RPA concurred with the frequency of use of the blanks but recommended that the blanks be inserted within, and immediately downstream of, clearly gold-mineralized core samples.

**Roscoe Postle Associates Inc, 2012**

In 2012, RPA received the results from 1,615 analyses of diabase blanks and 147 from standard silica blanks. The assay was considered a failure if the value was higher than the average plus two standard deviations.

In total, there were 18 failures for gold, 11 of which were in the diabase blanks (0.68%), and seven in the silica blanks (4.76%). Although the impact of these blank failures was considered to be of little consequence due to the low grades reported, they did indicate that minor sample contamination problems may exist. The higher percentage of failures in the silica blank may be due to the small number of silica blanks used. RPA recommended close monitoring of these blank results on a batch-by-batch basis.

**Wood, 2018**

Figure 11-3 shows all the blank results in the Côté Gold database. Overall, 99.5% of the blank results are under 0.1 g/t Au, which is the IAMGOLD maximum threshold. An improvement can be seen starting in 2014.

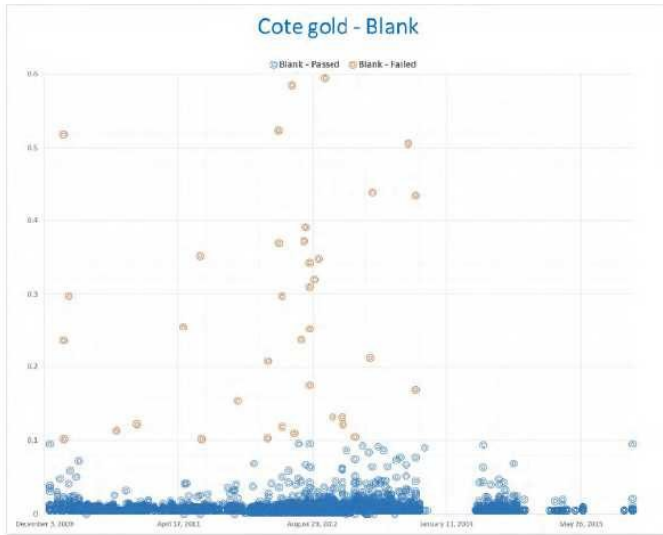
Overall, the blank results are acceptable and show no significant contamination from sample to sample during the preparation.

**11.5.4 Check Assays****Roscoe Postle Associates Inc, 2011**

RPA plotted the repeat data completed at SGS and compared it with the original assays from Accurassay. For the FA-AA data, the best-fit regression line had a coefficient of determination of 0.757. There were a limited number of FA-gravimetric checks which had a coefficient of determination of 0.853.

RPA recommended that Trelawney complete a minimum of 5% check assays on an ongoing basis as part of the QA/QC program. RPA also recommended that the number of check assays completed by FA-gravimetric method be increased to provide an initial baseline.

Figure 11-3: Blank Assay Results



Note: Figure prepared by Wood, 2018.

**Roscoe Postle Associates Inc, 2012**

Trelawney sent 1,044 pulp samples to ActLabs for check assay. In general, at higher grades, the results from the checks were higher than the results from the primary laboratory (Accurassay).

**IAMGOLD, 2014-2015**

Trelawney and IAMGOLD sent 9,772 pulp samples to ActLabs for check assay prior to 2014. In general, at higher grades, the results from the checks were slightly higher than the results from the primary laboratory (Accurassay). This shows bias between the two laboratories and the repeatability on pulps is relatively poor. Checks assays sent to ActLabs returned grades that appear to be approximately 10% higher than Accurassay.

In 2015, 921 pulp samples were sent to ALS Minerals for check assay. Correlation between both laboratories was considered to be good overall. Repeatability in 2015 was better than in the previous campaign. The low precision was considered to be associated with coarse gold particles.

**Wood, 2018**

In the absence of IAMGOLD sample duplicates, Actlab duplicates were assessed for precision using average relatedness density (ARD) and maximum/minimum (max/min) charts. Wood concluded that:

- The precision achieved for grades >20 times the detection limit ( $5 \times 20 = 100$  ppb) are reasonable
- The FA-AA results are likely to meet internal Actlabs precision requirements.

**11.5.5 Heterogeneity Test**

Agorateck International Consultants Inc. (AICI) reviewed the QA/QC data (AICI, 2016) and ran an ore heterogeneity test (AICI, 2017).

**QA/QC Review**

The QA/QC review analyzed the data generated throughout the various stages of the Côté Gold project. Based on check assays ran at ActLabs and Accurassay, the difference between ActLabs and Accurassay went from positive to negative, increasing in amplitude from 2011 to 2015. SRM samples confirmed the Accurassay change from slightly lower to higher values. The precision obtained from pulp duplicates was well related to gold particle size, in line with the findings of the heterogeneity study. The performance of the laboratories improved over time, as the control on the laboratories increased.

**Heterogeneity Test**

The reproducibility of the duplicate pulp samples was evaluated to compare sampling difficulty in four areas, which included:

- Inside South Breccia

- Outside South Breccia
- Inside North Breccia
- Outside North Breccia.

This step indicated that the analytical reproducibility within the breccia area warranted further study.

The gold liberation sizes from the available assay duplicate data were plotted to form a liberation curve. Visual observations of gold grains in core with the maximum size measurable on photos were plotted in addition. Gold appeared to progressively increase from very fine at low grades to the 2,000 µm range at high grades, with small inflexions that may or may not indicate mixed mineral populations.

Nomograms were prepared to describe the current core sample preparation in the worst sampling conditions, and more favourable core sampling conditions.

Overall, the heterogeneity study concluded that in order to bring the sampling precision within acceptable limits (32% maximum) and avoid grade under-reporting, an optimized sampling protocol should include:

- 15 kg primary field sample crushed to a P95 estimated at 2.55 mm
- A 1.5 kg split pulverized to 150 µm
- Use of a 50 g assay charge.

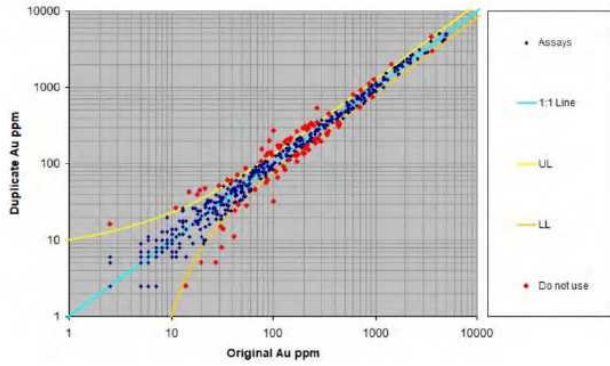
#### **Pulp Duplicate Test**

A set of coarse duplicate sample assays, collected since the heterogeneity study was undertaken, was made available to AICI. These samples were processed to compare the corresponding experimental sample precision to that predicted from the heterogeneity parameters.

The outcome (Figure 11-4) was considered to be excellent, with results of 16.8% (actual) versus 15.5% (predicted).

AICI considered that as a large part of the heterogeneity parameters relied on pulp duplicates, this match to the predicted average precision of a full set of coarse duplicates validated the heterogeneity study recommendations.

Figure 11-4: Coarse Duplicate Check on Heterogeneity



Note: Figure prepared by AICI, 2017. UL = upper limit; LL = lower limit.

#### 11.6 Databases

Pre-2017 drill hole data previously stored in a Gems database was moved to acQuire. All new drill hole collars are provided by surveyors and imported into Gems and subsequently transferred to acQuire. All new logging is recorded directly into a Gems database and subsequently transferred to acQuire. All new assay results are imported directly into acQuire. Those assays are subsequently transferred to the Gems database.

#### 11.7 Sample Security

Analytical samples are transported by company or laboratory personnel using corporately owned vehicles. Core boxes and samples are stored in safe, controlled areas.

Chain-of-custody procedures are followed whenever samples are moved between locations, to and from the laboratory, by filling out sample submittal forms.

**11.8 Sample Storage**

Drill core is stored at the property in wooden core boxes under open-sided roofed structures, arranged by year. A map of the core shack is available on site. Boxes are labelled with the hole number, box sequence number, and the interval in metres. Almost all boxes are labelled with an aluminum tag. All rejects and pulps from the laboratory are also stored on site. Pulps are categorized by batch number and are stored inside sea containers. Rejects are stored inside plastic crates under temporary shelter.

**11.9 Comments on Section 11**

Sample collection, preparation, analysis and security for drill programs conducted on the Côté Gold deposit since 2009 are in line with industry-standard methods for gold porphyry deposits.

Specific gravity data are measured from core samples using the water displacement method. There are sufficient estimates to support tonnage estimates for the various lithologies.

Drill programs included insertion of blank, duplicate and SRM samples.

QA/QC program results do not indicate any problems with the analytical programs (refer to discussion in Section 12).

The QP is of the opinion that the quality of the analytical data is sufficiently reliable to support Mineral Resource estimation without limitations on Mineral Resource confidence categories.

**12.0 DATA VERIFICATION****12.1 Internal Data Verification**

Internal data verification was performed by IAMGOLD staff over the Project history, and included:

- Exploration data reviews, including exploration information, geological mapping, geological interpretations
- Drill collar position checks
- Downhole survey data reviews
- Examination of drill logging
- Review of sampling procedures
- Assay data checks.

Errors found in the database were reported to the database administrator and material errors were corrected as needed. Occasional inconsistencies found in the drill logs were addressed. Inconsistent sampling practices, with some samples crossing obvious contacts or lithological and mineralization limits were noted.

**12.2 External Data Verification****12.2.1 Roscoe Postle Associates Inc, 2012**

Roscoe Postle Associates Inc (RPA) completed site visits, and reviewed exploration, drilling, logging, and sampling procedures with Trelawney and IAMGOLD personnel.

RPA reviewed the geology of the Côté Gold deposit by way of observation of core and outcrop during the site visits and through the independent review of reports and geological literature. Recommendations were made to improve consistency in recording rock types, and in sampling practice.

RPA also reviewed the available QA/QC data for the Côté Gold deposit. This included reviews of blank, CRM, pulp reject and check assays. Approximately 12% of the drill hole assay database was checked by comparing assay certificates to entries in the IAMGOLD database.

Overall, the database was considered to be acceptable to support Mineral Resource estimation.

RPA collected eight remaining half core samples for independent analytical verification, during a January 2012 site visit. These samples independently confirmed the presence of gold mineralization.

#### 12.2.2 **InnovExplo, 2014**

In December 2014, InnovExplo independently validated the entire assay database against laboratory certificates.

#### 12.2.3 **Roscoe Postle Associates Inc, 2017**

During a May 2017 site visit, RPA personnel used a handheld GPS to confirm the location of a small number of drill hole collars. RPA reviewed core samples from several drill holes and compared them against the geology and assay tables. RPA also performed routine database validation checks specific to Geovia GEMS to ensure the integrity of the database records.

RPA conducted visual drill hole trace inspection and checks for extreme and zero assay values, unsampled or missing intervals, and interval overlapping. Approximately 5% of the assays from the 2015 drilling campaign were checked against the assay certificates.

RPA concluded that logging, sampling procedures, and data entry comply with industry standards and that the database that was reviewed was acceptable for Mineral Resource estimation.

### 12.3 **Wood Data Verification**

#### 12.3.1 **Site Visits**

Mr. Greg Kulla, P.Geo., visited the site on September 26 and 27, 2017, and again from March 19 to 22, 2018. During these visits Mr. Kulla reviewed drilling, sampling, and QA/QC procedures, and inspected drill core, core photos, core logs, and QA/QC reports and specific gravity measurement procedures.

During the September 2017 site visit, Mr Kulla measured collar coordinates and orientation of eight drill holes using a hand-held Garmin GPS. Observed differences between these resurvey measurements were within expected ranges for a comparison between a hand-held GPS and DGPS measurements.

Mr. Peter Oshust, P.Geo., visited the Côté Gold site during July 10 to 12, 2018. As part of the visit he inspected five outcrops led by Simon Bachand, IAMGOLD Senior Geologist and Yu Yamato, Geology Manager. The outcrops were selected to provide examples of the main rock types and the range of silica-sodic alteration across the deposit. Mr. Oshust checked collar locations and orientations for 20 drill holes completed in 2017 and 2018 in the field with a handheld Garmin GPS instrument for positioning and a magnetic compass with inclinometer for direction and dip. The differences between the field measurements and drill hole database are within expected ranges.

Mr. Oshust, with Mr. Bachand, reviewed drill core from two drill holes which also provided examples of the main rock types, alteration, and gold mineralization. The drill core was compared to the core logs, assays, and drill core reference library. The drill core rock and alteration characterization recorded in the logs reasonably match the examples in the geological reference library.

### 12.3.2 Collar Database Transcription Error Check

Under Wood's direction, IAMGOLD compared the drill hole database collar coordinates with original records provided by Labelle Surveys Limited. This database transcription error check was limited to the 640 drill holes in the 31 March 2018 database keyindex file (drill holes used in the Mineral Resource estimate). No differences were observed for 622 of the 640 drill holes in the keyindex. No collar records were found for the remaining 18 drill holes. Seven of these were drilled on the lake when frozen and a final survey was likely not collected before the lake thawed.

IAMGOLD reported their intent to have a second independent surveyor resurvey a selection of collars in 2018. The results of this survey have not been reviewed.

Wood concluded that no significant issues are evident in the collar survey table. The collar survey location and orientation measurements have been collected using industry-accepted methods and tools. Transcription error checks found no errors. The original records have been reasonably well archived. Absence of supporting original records for a small number of keyindex holes is mitigated by the apparent good survey practices and no apparent transcription errors.

### 12.3.3 Downhole Survey Checks

Down-hole measurements were collected by drillers and submitted to project geologists in paper or digital format. These records have not been formally archived.

Wood inspected the down-hole survey data for excessive bends or local kinks. Using proprietary software (KinkCheck), Wood examined the surveys for excessive bends or kinks in the drill holes by looking for 3D deviations more than 5° in 30 m and more than 0.5° in 3 m.

Five suspect holes were flagged in the 30 m interval check. On inspection, two of these drill holes were just slightly over the allowed tolerance and three were identified to have suspect collar azimuths.

The KinkCheck program identified 1,464 intervals in 150 drill holes that exceed the allowed tolerance of 0.5° in 3 m, a majority of which were just slightly over the allowed tolerance.

Closer inspection shows 244 measurements in 55 holes have a measured deviation greater than or equal to 2 times allowed tolerance of 0.5° in 3 m (this represents 1.3% of the 18,315 keyindex hole downhole survey measurements). Most of the flagged measurements are in 10–12 drill holes. Examination of survey measurements within these holes indicates minor magnetic interference may be present but not enough to unequivocally exclude the measurements.

Wood concluded that no significant deviation or data transcription issues are evident in the down-hole database. The down hole survey measurements were collected at reasonable intervals using industry-accepted tools. The number of suspect intervals is low relative to the entire database.

### 12.3.4 Assay Database Transcription Error Check

Under Wood's guidance, IAMGOLD compared 276,676 keyindex hole assays in the database with archived laboratory certificates. This comparison showed an exact match for 99.6% of the selected assays and no matching certificate results for only 0.2% of the selected records. The check identified 281 assays using an assay method not in alignment with expected over limit assay methods and 236 records with incorrectly reported below detection limit values.

Wood notes that the observed error rate for 2009 (2.6%) and 2015 (7.6%) exceed a Wood guideline of 1%. The high rate in 2015 is mostly related to the incorrect assignment of below detection limit value. The total average error rate of 99.6% indicates minimal transcription errors in the assay database.

The over-limit value assigned by the Côté geologists is below the laboratory detection limit. The use of over-limit assay results not assayed using the expected over-limit method is not a major concern.

The assay database is considered reasonably free of transcription errors

#### **12.3.5 Certified Reference Materials**

Between 2009 and 2015, IAMGOLD and its predecessors submitted 257,567 samples to Accurassay for gold analysis. These primary samples were accompanied by 11,283 CRMs. This represents approximately a 4.5% insertion rate for CRMs each year.

A systematic low bias is evident in CRM results for 2009 and 2010. These samples represent approximately 10% of the 2009–2015 sample database. No significant bias is evident CRM results for 2011–2015.

#### **12.3.6 Blanks**

The samples submitted to Accurassay were also accompanied by 10,673 blanks, a 4.2% insertion rate. Unsampled diabase was inserted as blanks into the assay sequence until 2014. Blank used after 2014 were supplied by the laboratory.

Using a rule-of-thumb that 80% of coarse blanks should be less than two times the lower detection limit (LDL=5 ppb), a significant contamination is evident in the 2009 data and no significant contamination is evident in the 2010–2015 data. Some of the higher-grade outliers likely represent sample swaps at site or at the laboratory.

#### **12.4 Comments on Section 12**

In the opinion of the QP, sufficient verification checks have been undertaken on the databases to provide confidence that the current database is reasonably error free and may be used to support Mineral Resource and Mineral Reserve estimation, and mine planning.

### 13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

#### 13.1 Metallurgical Testwork

##### 13.1.1 Composites

Grinding and metallurgical testwork was conducted at SGS facilities in Lakefield, Ontario on mineralized material that was extracted during the 2009–2011 drilling campaigns (Table 13-1 and Table 13-2).

The metallurgical list comprises 93 composites (variability samples) labelled C25-01 to C25-93. Master composites A and B were prepared with the 93 variability samples. Master Composite A represents non-copper-bearing mineralization. Master Composite B represents high copper-content material, which represents approximately 10% of the deposit. Figure 13-1 shows the locations of the samples used to generate the composites.

A separate sampling set of composites for comminution tests was generated following the same controls as the metallurgical composites. This comminution characterization work was oriented towards semi-autogenous grind (SAG) milling.

In 2016, a metallurgical drilling program was undertaken to support the pre-feasibility study oriented towards high-pressure grind-roll (HPGR) milling. Six new holes were drilled, totalling 1,422 m. Sample intervals were chosen on the basis of the prevalent lithology–alteration groupings within the mineralized zones. Figure 13-2 shows the 2016 metallurgical drill holes.

##### 13.1.2 Mineralogy

As part of the 2011 testwork program, the mineral content of Composites 1 and 2 were determined using the RMS (Rapid Mineral Scan) function in QEMSCAN. SGS found that:

- The sulphide mineral content of Composite 1 accounted for about 1% of the sample weight and 0.06% for composite 2
- Sulphide minerals and their proportions in Composites 1 and 2, respectively, were:
  - Pyrite, 0.43% and 0.01%
  - Chalcopyrite, 0.57% and 0.01%
  - Other sulphides, 0.02% and 0.05%.

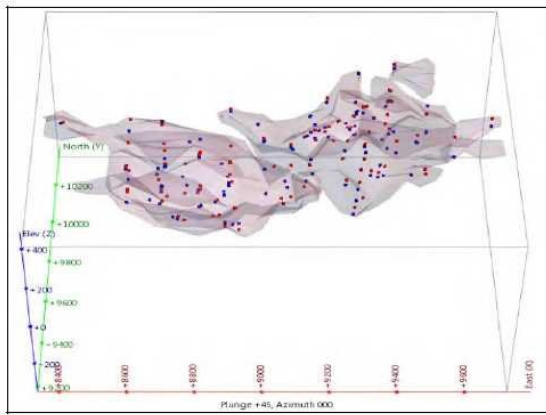
**Table 13-1: Comminution Testwork Programs**

| <b>Program No.</b>                | <b>Samples</b>   | <b>Purpose</b>  |
|-----------------------------------|--|---|
| 12589-001<br>(SGS, 2011)          | Composite 1 (Cu mineralization)<br>Composite 2 (Au mineralization)   | Bond ball mill grindability test  |
| 12589-003<br>(SGS, 2012)          | S-1 to S-3<br>(bulk material from surface)<br>G-1 to G-10<br><br>(geotechnical samples)<br>GR-01 to GR-92<br>(geometallurgy study) | JK Drop weight test, Bond low energy impact test, Bond rod mill and ball mill grindability test, Bond abrasion test, cyanidation tests  |
| 12589-004<br>(SGS, 2014)          | GR-2xx<br>17 samples<br><br>C25-2xx<br>31 samples  | JK Drop weight test, Bond low energy impact test, Bond rod mill and ball mill grindability test, Bond abrasion test<br><br>Variability, SAG mill comminution (SMC) test, Bond ball mill grindability test |
| T2127<br>(COREM, 2017)            | COR0001 to COR0004<br>COR0005 to COR0013<br><br>COR0014 – Design Composite<br>COR0014 – Design Composite<br>COR0016 – COR0021      | Effect of aging of drill core<br>Single pass high-pressure grind roll (HPGR) on lithologies<br>HPGR pilot plant<br>Atwal test<br>Crushing testwork  |
| UBC_CL17<br>(UBC, 2017)           | UBC0001 – UBC0031  | 31 piston press tests to determine relative ore hardness of 12 varying lithologies and alterations  |
| 2220-8975<br>(Thyssenkrupp, 2017) | WE 15367   | High-pressure grinding Atwal wear rate determination  |

**Table 13-2: Testwork Programs - Metallurgy**

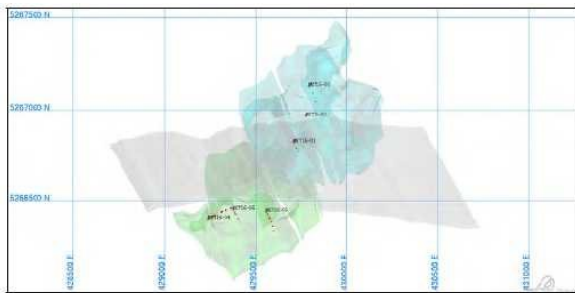
| <b>Program No.</b>                  | <b>Samples</b>   | <b>Purpose</b>  |
|-------------------------------------|--|---|
| 13345-001<br>(SGS, 2011)            | Composites 1, 2 & 3  | Gold deportment, flotation, leaching, heap leaching, acid base accounting (ABA) studies on whole ore & leach tailings   |
| 12589-001<br>(SGS, 2011)            | Composite 1 (Cu mineralization)<br>Composite 2 (Au mineralization) | Gravity, flotation on whole ore and gravity tailings. Leaching on whole ore, gravity tailings and flotation tailings. Non-acid generation and ABA studies. Qualitative mineralogical evaluation (QEMSCAN/RMS) |
| 12589-002<br>(SGS, 2012)            |  | Geometallurgical Investigation  |
| 12589-003<br>(SGS, 2012 -2013)      | S-1 to S-3<br>(bulk material from surface)                         | Gravity, leaching on gravity tailings   |
|                                     | G-1 to G-10<br>(geotechnical samples)                              | Gravity, leaching on gravity tailings   |
|                                     | Composite A & B<br>C25-01 to C25-93                                | Variability testwork program. Gravity, flotation, heap leaching. Leaching on whole ore, gravity tailings and flotation tailings. Optimization testwork  |
| T2193<br>(COREM, 2017)<br>(Phase I) | COR0014 – Design Composite   | Mineralogy, gravity, leaching of gravity tails, thickening.   |
| 16095-001<br>(SGS, 2017)            | COR0005 to COR0010   | Static settling, dynamic thickening, rheology, settling density tests   |
| 16529-001<br>(SGS, 2018)            | COR0014-Design Composite   | Optimization testing  |

Figure 13-1: Metallurgical and Comminution Composites Spatial Location



Note: Figure prepared by Wood, 2018. Locations relative to the 0.25 g/t Au grade shell (pink shades); metallurgical composites (blue); comminution composites (red).

Figure 13-2: Plan View, 2016 Metallurgical Drill Holes Location



Note: Figure prepared by Wood, 2018.

Based on these analyses, no obvious environmental concerns are indicated.

SGS undertook a gold deportment study in 2012. SGS reported that the main gold mineral was native gold, with an average composition of 86.9% Au and 9.8% Ag. The second-most abundant gold mineral was electrum, with an average composition of 64.8% Au and 30.8% Ag. Other gold minerals identified were kustelite, calaverite, petsite, and an unknown Te–Au–Bi alloy.

In processing a sample weighing approximately 753 g with a target size K80 of 150 µm, a total of 132 gold grains were observed. The grains ranged in size from 0.6 µm to 216.5 µm, with an average size of 12.5 µm.

The overall gold distribution analysis (ignoring the possible submicroscopic gold contribution to the head gold assay) showed that liberated gold accounts for approximately 19.8% of the total gold assay, with a size range of 1.1 µm to 216.5 µm and an average of 27.1 µm.

Gold attached to pyrite, chalcopyrite, Bi–Te, non-opaque and other minerals accounted for 1.0%, with a size range of 1.5 µm to 22.6 µm and an average of 7.8 µm. Gold that was observed “locked” (at K80 = 150 µm) in non-opaque minerals, pyrite and other minerals accounted for 54.0% of the total gold assay, with a size range of 0.6 µm to 51.7 µm and an average size of 3.9 µm.

The remaining 25% of the gold occurred in an unknown form. A leach test conducted on this fraction determined that 75% of the gold in this sub-sample was leachable. Since sulphides were not observed in this fraction, it was concluded that most of the gold in this fraction was associated with silicates.

Little mineralogical information was obtained on silver. Only traces of silver-bearing minerals, including electrum and silver–gold tellurides, were observed.

### 13.1.3 Comminution Testwork

Comminution data, which include Bond low-impact (crusher), rod mill and ball mill work indexes, and Bond abrasion index, were produced during several programs. Within these programs, SAG mill comminution (SMC) tests were completed to determine the ore hardness characteristics.

Most of the A x b values are below 30, which indicates very competent material and that the mineralization is well-suited to an HPGR circuit.

Work was also performed at the pilot plant level for HPGR testing at COREM. COREM is a consortium composed of several mining companies and the Government of Quebec, located in Quebec City, Quebec, which provides a wide range of mineral processing and analytical services.

For the design composite (2016 Metallurgical Drill Holes in 5-Year Pit Shell), the recycle HPGR test result showed the m-dot value to be 226.3 (t/h)/(m<sup>3</sup>/s). Net energy consumed was 1.63 kWh/t of HPGR feed. Specific pressure was 3.4 N/mm<sup>2</sup>. The closing screen was 4 mm. The screen undersize T80 value was 2.1 mm.

Atwal testwork was performed on the pilot plant sample used for HPGR sizing. The specific wear rate measured for the sample was classified as high with the wear rate from two tests averaging 54.26 g/t at a specific grinding force of 4 N/mm<sup>2</sup> and varying moisture contents between 1% and 3%.

Piston press testing was performed at the University of British Columbia (UBC) in Vancouver, British Columbia, as part of the mineralization variability assessments. Specific energy consumption in the piston press tests varied from 1.2 to 2.7 kWh/t, with an average of 1.81 kWh/t. Relating this to the pilot plant average specific energy of 1.63 kWh/t, it indicates that the net specific energy could rise to 2.4kWh/t. Although the variability indicates a risk to achieving throughput for the harder ores, it should be noted that piston press tests will always have the extremes of variability and are only used as an additional method to confirm the pilot plant results. With the estimated installed power of 7,776 kW, the design circulating throughput can be achieved at a specific energy of 2.2 kWh/t or approximately the 75<sup>th</sup> percentile ore specific energy level.

The COREM 2.5t design composite included proportional amounts of post mineralized dykes, namely, Proterozoic age diabase dykes, lamprophyre dykes, and Archean mafic dykes, whereas, the UBC piston tests did not include this softer barren mafic material. This is possibly an important reason why the average specific energy of the design composite is lower than the piston test results.

A summary of the comminution data is presented in Table 13-3.

**Table 13-3: Comminution Design Parameters**

| Metric                                       | Units              | 75 <sup>th</sup> Percentile |
|--|--------------------|-----------------------------|
| Ore specific gravity                         |                    | 2.7 * 1                     |
| Ore moisture content                         | %                  | 3 – 5 * 1                   |
| Bond abrasion index                          | g                  | 0.68 * 1                    |
| Bond low energy impact (crushing) work index | kWh/t              | 13.3 * 1                    |
| Bond rod mill work index                     | kWh/t              | 17.3 * 1                    |
| Bond ball mill work index                    | kWh/t              | 16.1 * 2                    |
| Drop-weight index                            | kWh/m <sup>3</sup> | 11.0 * 2                    |
| Mia (coarse particle component)              | kWh/t              | 28.9 * 2                    |
| Mib (fine particle component)                | kWh/t              | 19.7 * 2                    |
| Mih (HPGR component)                         | kWh/t              | 23.6 * 2                    |
| Mic (crusher component)                      | kWh/t              | 12.2 * 2                    |

Notes: \* <sup>1</sup> SGS 1589-003 and 004 and COREM. \* <sup>2</sup> Production Year 1-15 samples

These comminution data sets were used primarily for the following:

- Standard bond method for calculating gyratory crusher and secondary cone crusher
- HPGR sizing is based on the m-dot, or specific throughput value determined in the pilot plant work. Pilot plant testwork results were provided to 1<sup>st</sup> tier HPGR manufacturers for the purpose of applying their proprietary scale up tools and recommend an m-dot for machine sizing and power requirement calculation
- SMC method for ball mill and vertical stirred mill. SMC power was calculated from 80 samples, with adjustment from bulk sample (COR-014) as only Bond work was measured. No credits were taken for micro cracking.
- To add confidence in the use of HPGRs for this particular ore, external reviews were conducted at each stage of the project. The third-party reviewer was chosen on the basis of having supervised HPGR testwork and run operations at a HPGR facility. The third-party recommendations were implemented in the current circuit configuration.

#### 13.1.4 Gravity Testwork

Six Laplante extended gravity recoverable gold (E-GRG) tests were conducted on Côté composites. The bulk extended GRG results and the cumulative three-state GRG recoveries varied between 61% and 74% with a size classification of the GRG as fine to moderate using the AMIRA size classification scale.

Overall, the samples are moderate in GRG, and the GRG is fine to moderate. This characteristic, combined with the two-stage milling circuit configuration, makes gravity recovery more challenging.

Modelling was undertaken for several options for a gravity circuit installation, as follows:

- Primary grinding only
- Secondary grind only
- Primary and secondary grinding, combined.

A secondary-only gravity circuit resulted in the second-highest recovery at the lower cost, with the gravity in both circuits resulting in the highest recovery. Simulations estimate gravity recovery in the range of 20–30%. This estimate is considered indicative as the secondary gravity recovery results have a lower confidence level as any changes in upstream conditions will have a magnified effect on the downstream secondary model.

#### 13.1.5 Cyanide Leaching Testwork

Emphasis in the earlier testwork programs was on determining ultimate gold extraction, followed by variability work on geometallurgical samples and, most recently, optimization on several master composites. Table 13-4 lists the range of conditions of the whole ore leach (WOL) and gravity tailings leach tests performed to date. The results indicate that high recoveries are attainable by cyanide leaching, that gold recoveries are improved by finer grinding and that oxygen enhances the leaching kinetics and allows equivalent results using as low as 0.3 g/L of NaCN. All Côté samples leached with relatively consistent kinetics, with an average gravity recovery of 32% and overall extraction of 91% after 30 hours, reaching a plateau average extraction of 93% for these samples at 48 hours.

**Table 13-4: Test General Conditions**

|                                    | Program (Composite)                  | Residence Time, hr | Available NaCN, g/L | Nominal Grind P 80, $\mu\text{m}$ | Other                              |
|------------------------------------|--------------------------------------|--------------------|---------------------|-----------------------------------|------------------------------------|
| WOL tests                          | I2589-001 (1 & 2)                    | 48                 | 0.5                 | 75-150                            | Preconditioning - O2               |
|                                    | I3345 (1, 2 & 3)                     | 48                 | 0.5                 | 75-250                            | Preconditioning - O2 10 g/L carbon |
|                                    | I2589-003 (A)                        | 48                 | 0.5                 | 75-150                            | Preconditioning - O2               |
| Gravity tailings cyanidation tests | I2589-001 (1 & 2)                    | 48                 | 0.5                 | 75-150                            | O2                                 |
|                                    | I2589-003 (A)                        | 48                 | 0.5                 | 75-150                            | O2                                 |
|                                    | I2859-003 – Variability (C25, S & G) | 48                 | 0.5                 | 75-100                            | Preconditioning - O2               |
|                                    | I2859-004 – Variability (C25-RV)     | 48                 | 0.5                 | 85-120                            |                                    |
|                                    | I2127 (COR014)                       | 48                 | 0.3-0.7             | 75-212                            | O2                                 |
|                                    | I6529-001 (COR014)                   | 30-48              | 0.2-0.5             | 75-212                            | O2                                 |
|                                    |                                      |                    |                     |                                   |                                    |

Overall results also indicated that gold leached well in the levels of oxygen provided in the standard bottle-roll procedure.

**Effect of Head Grade**

The response of samples to the gravity leach circuit is relatively consistent through the head-grade range plotted ( $>0.25$  g/t Au). Grinding is a stronger driver of recovery than head grade. The variability work also indicated that ultimate recovery is not determined by lithology: all lithologies seem to behave similarly. However, this apparent uniformity in the mineralization may be a consequence of the gravity step ahead of leaching, which removes liberated gold to produce a more uniform leach feed sample highlighting the importance of the gravity step in achieving consistent plant recoveries.

**Effect of Grind**

The positive effect of grind on extraction was recognized early in the Project development. Each program to date has collected data on this aspect.

SGS Program 12589-003 compared the effect of grind for the WOL and gravity tailings leach flowsheet options. At coarser grinds, gravity concentration ahead of leaching can contribute to higher recovery by removing coarser gold that would take longer than the allocated leach residence time. The regression coefficients between grind size and extraction suggests that grind is indeed the main driver. Other factors, such as alteration, head grade and lithology, are not determinants. Similar trends were observed in the variability program.

In 2017, additional grind size vs. leach extraction work was performed on the five-year production composite used for HPGR pilot plant testing. The five-year composite follows the general trend but with better metallurgical extractions, likely related to the higher than average gravity recoverable gold content in the composite.

**Reagent Usage**

The laboratory tests indicate the following cyanide consumption trends:

- The mineralization is clean, and no cyanicides are present except for small amounts of S and Fe
- High NaCN concentrations result in increased NaCN consumption
- For in-plant practice, the optimal dosage range is 0.3–0.5 g/L
- The use of oxygen allows the dosage to be brought to the lower end of the range
- Cyanide consumption in the plant is anticipated to be in line with industrial practice, and for the gravity tailings leach is expected to be around 100 g/t of ore.

Laboratory results also indicate that both cyanide and lime consumptions are quite low in comparison to what is typically seen in industry, but this reflects the lack of cyanicides and other cyanide consumers. Lime consumption is also positively impacted by the basic nature of the ore. The use of oxygen further reduces cyanide and lime consumption.

The higher consumption reported by the five-year composite is thought to be caused by the aging of the sample. Moreover, the cyanide consumption in the test with sparged air was very likely a function of the large volume of air sparged into the pulp. Cyanide was likely volatilized into the air, and not consumed by the ore itself.

**Carbon-in Pulp Modelling**

The semi-empirical Mintek models were used to simulate the operating conditions and check the robustness of the carbon-in-pulp (CIP) option.

Carbon adsorption modelling testwork on the five-year composite gravity tails showed that the gravity tails respond well to the CIP process. Barren gold solutions losses of 0.006 mg/L were achieved based on a system comprising eight stages of 450 m<sup>3</sup> tanks, using 50 g/L carbon concentration and a 20 t/day carbon transfer rate with an estimated carbon loading of about 1,000 g/t.

**Cyanide Destruction**

The cyanide destruction continuous lab tests using the SO<sub>2</sub>/air process resulted in tailings containing less than 1 mg/L total cyanide (CNT). The best cyanide destruction results were achieved at the pulp density of 50% solids, pH of 8.8, using an SO<sub>2</sub>/weakly acid dissociable cyanide (CNWAD) ratio of 5 and a Cu/CNWAD ratio of 0.1. Retention time was estimated to be sufficient to achieve the target CNT of less than 1 mg/L.

**13.1.6 Solid-Liquid Separation****Thickening and Rheology**

Early solid-liquid separation testwork indicated that an underflow density of 62% was achievable at a unit area of 0.075 m<sup>2</sup>/t/d while still maintaining acceptable levels of suspended solids in the overflow. There was also a strong indication that operating at lower unit areas was possible as unit rate of 0.06 – 0.07 m<sup>2</sup>/t/d still produced acceptable underflow densities.

Optimization testwork was performed on a cyanide-destroyed (CND) five-year composite sample. Site water was not available for this test. Results indicated:

- The flocculant scoping tests confirmed that Magnafloc 333 was suitable at a dosage of 15 g/t to a diluted thickener feed at 15% w/w solids
- The thickener unit areas that were examined ranged from 0.1 to 0.05 m<sup>2</sup>/t/d

- The critical solids density reported was approximately 67.5%, which corresponds to a yield stress of 35 Pa under unsheared flow conditions. The fully-sheared whole tailings yield stress at 62% thickener underflow target was below 10 Pa yield stress.

In summary, high rate thickening should achieve the thickener underflow target of 62% w/w solids and laminar settling concerns are not expected.

#### 13.1.7 Barren Solution Analysis

The barren solution analysis performed in the early scoping programs on Composites 1, 2 and 3 suggest that metal dissolution during cyanide leaching is low, and there are no obvious environmental concerns.

#### 13.2 Recovery Estimates

The average recovery estimate remains as set during the pre-feasibility study at 91.8% (Table 13-5).

#### 13.3 Metallurgical Variability

Samples selected for metallurgical testing were representative of the various types and styles of mineralization within the different zones. Samples were selected from a range of locations within the deposit zones. Sufficient samples were taken so that tests were performed on sufficient sample mass.

Overall metallurgical test results show that all the variability samples were readily amenable to gravity concentration and cyanide leach. A total of 93 samples and 162 tests were performed.

#### 13.4 Deleterious Elements

Metal dissolution during cyanide leaching was found to be low, and there are no obvious concerns with deleterious elements.

#### 13.5 Comments on Section 13

The mineralization is free-milling (non-refractory). A portion of the gold liberates during grinding and is amenable to gravity concentration and the response to gravity and leaching is relatively consistent across head grades. Therefore, the lower-grade gold material is expected to exhibit the same level of metal extraction.

**Table 13-5: Gold Recovery Estimate for 36,000 kt/d and 100 µm Target Grind**

| Parameter                                      | Units  | Value |
|--|--------|-------|
| Head gold grade, average                       | g/t Au | 0.94  |
| Head silver grade, average                     | g/t Ag | <2    |
| Au Recovery by Gravity                         | %      | 23    |
| Intensive leach recovery                       | %      | 99    |
| Leach recovery                                 | %      | 90.9  |
| CIP Recovery (soluble and carbon fines losses) | %      | 99    |
| Desorption, regeneration and refining recovery | %      | 99.5  |
| Overall Au recovery                            | %      | 91.8  |

Individual lithologies follow the general trends for grind size sensitivity and cyanide consumption.

Overall recovery is estimated at 91.8% for the processing of 36,000 t/d using the proposed flowsheet.

Cyanide and lime consumptions are quite low in comparison to what is typically seen in the industry which reflects the lack of cyanicides and other cyanide consumers. Lime consumption is also positively impacted by the basic nature of the ore.

Metal dissolution during cyanide leaching was found to be low, and there are no obvious concerns with deleterious elements.

## 14.0 MINERAL RESOURCE ESTIMATES

### 14.1 Introduction

The drill hole database for the Côté Gold deposit consists of 713 core holes totalling over 300,000 m drilled by IAMGOLD and Trelawney Mining, between 2009 and 2018. Assay data are available for 711 of the completed holes.

At the resource estimate database cut-off date of 7 June 2018, assays were pending for two holes, CL11-13 and CL11-14. These intervals were excluded from the block grade estimation. In addition, two drill holes contained more than 10 m of consecutive unreported assays; these two intervals were also excluded from the resource update.

A further 1,645 intervals amounting to over 16,500 m of core were not sampled due to lack of visible mineralization. Un-sampled intervals are assumed to represent un-mineralized material or diabase dyke. Assay intervals at 0.002 g/t Au were inserted for un-sampled core to prevent extrapolation of grade into the 'gaps'.

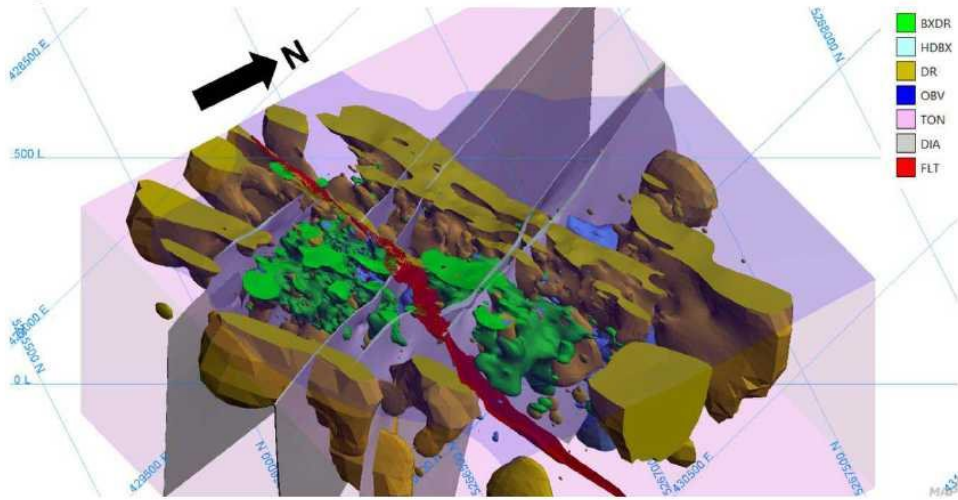
### 14.2 Geological Models

The lithological interpretation of the Côté Gold deposit was modelled in Leapfrog 3D by IAMGOLD exploration geologists. An extensive re-logging effort of drill core photos was conducted in early 2018 on all pre-2017 core holes. The re-logging effort resulted in a detailed and continuous geological model which added a significant amount of diorite breccia and hydrothermal breccia. This resulted in important improvements and a better overall understanding of the Côté deposit and of the distribution of mineralization, as well as a 30% increase in the volume of the Extended Breccia (Ext BX) shapes.

The Ext BX and fault zone wireframes were developed in GEMS by IAMGOLD geologists. The north and south Ext BX shapes were modelled deterministically by digitizing contours around breccia and sample grades  $\geq 0.3$  g/t Au. The Ext BX boundary is used in conjunction with lithology to define the Au estimation domain grouping and forms the exploratory data analysis (EDA) envelope.

The geological model contains seven units: tonalite (TON), diorite (DR), diorite breccia (BXDR), hydrothermal breccia (HDBX), diabase dykes (DIA), fault zone (FLT), and overburden (OVB). The 3D wireframe geological model is shown in Figure 14-1.

Figure 14-1: Three-Dimensional Model



Note: Figure prepared by Wood, 2018.

Wood reviewed the geology wireframes in 3D, and on vertical section and plan view maps, and concludes that the geological model is reasonable, honours the input data, and is suitable for resource modelling. Wood suggests that the Ext BX wireframes should be updated in Leapfrog to better define the 0.3 g/t Au grade shell contours and to make the lithological boundaries coincident.

Silica–sodic alteration envelopes were developed in Leapfrog 3D by IAMGOLD geologists based on a review of available core. Five alteration levels were recognized:

- Weak fracture-controlled
- Weak to moderate fracture-controlled
- Moderate to strong fracture-controlled/moderate pervasive
- Strong fracture-controlled/ strong pervasive
- Intense pervasive.

The alteration envelopes were received late in the resource estimation process and were used for classification only. Wood suggests that the alteration model be further developed using a combination of core observation and ICP data, and that model be used in subsequent resource modeling.

#### 14.3 Exploratory Data Analysis

The assay database contains over 295,000 samples of generally 1 m length. The assay database contains three different methods of gold fire assay (FA) types: FA AA, FA gravimetric and FA metallic screen. IAMGOLD geologists prioritized metallic screen over gravimetric, and gravimetric over AA, and populated the best assay values under a variable named “au\_ppm\_bestel” in the assay database.

The Ext BX wireframes were used to define an exploratory data analysis (EDA) envelope to limit the number of distal low-grade composites so as not to skew the analysis. There are just over 20,600 6 m gold composites in the EDA envelope.

The Ext BX units generally contain composite gold grades above 0.3 g/t. Higher-grade gold mineralization occurs chiefly within the two breccia units, BXDR and HDBX and to a lesser extent in TON and DR. The mean gold grade is higher in the south breccias.

Box-and-whisker plots show that the gold mineralization is higher in breccia units. However, mineralization occurs in all lithological packages inside the Ext BX unit (EDA envelope).

The gold estimation domains are defined by lithology and the Ext BX units. Units were grouped where inspection showed similarities in the grade distributions or in cases of relatively low composite counts.

Contact plots were prepared from the capped grade composites between gold estimation domains. The contact plots were inspected to determine the behaviour of composite grades across the geological boundaries. Contacts were assigned as either hard, firm, or soft boundaries.

#### 14.4 Grade Capping/Outlier Restrictions

The variability in the gold assay sample grade distribution is high, as seen in the coefficients of variation (CVs), which are typically much greater than 1.0. High CVs indicate the need for outlier analysis and possibly capping. Outlier analysis showed that capping is justified to prevent the extrapolation of high-grade outliers in the block grade estimate.

Outlier analysis was undertaken on the original assay sample intervals prior to compositing. The assays were grouped by major lithology inside and outside the Ext BX (EDA envelope) for the analysis. Wood selected capping thresholds after analyzing four types of charts: cutting statistics, decile plots, histograms, probability plots, and Risk-Hi analysis. The number of composites capped was also taken into consideration. The capping choices and impacts are presented in Table 14-1 and Table 14-2.

#### 14.5 Compositing

The assay sample intervals were composited to regular 6 m intervals for the entire length of the drill holes. The composites were broken at lithological boundaries. Short-length composites at the ends of the holes and lithology boundaries were retained. Short-length composites <3 m were stitched onto the previous composite interval. Short-length composites  $\geq 3.0$  m were considered useable composite intervals.

#### 14.6 Density Assignment

The drill hole database contains 785 records for density (specific gravity). The density data were analysed by lithology domain. High ( $> 3$ ) and low-density ( $\leq 2.4$ ) outliers were identified and filtered before calculating the means and variances of the distributions.

Table 14-1 : Summary of Metal Grade Capping Choices Inside the Ext BX Shapes

| Domain     | Sample Count   | Top Cut Value | Mean Before Top Cut | Mean after top cut | Number of Data Capped | Mean % Difference (uncap to cap) | % of Samples Top-cut |
|------------|----------------|---------------|---------------------|--------------------|-----------------------|----------------------------------|----------------------|
| North BXDR | 17,521         | 50            | 0.791               | 0.669              | 15                    | -1.5                             | 0.09                 |
| South BXDR | 22,022         | 50            | 1.197               | 0.948              | 32                    | -21                              | 0.15                 |
| North HDBX | 16,745         | 40            | 0.836               | 0.721              | 31                    | -14                              | 0.19                 |
| South HDBX | 8,307          | 40            | 0.944               | 0.885              | 11                    | -6                               | 0.13                 |
| North DR   | 2,209          | 15            | 0.535               | 0.484              | 6                     | -10                              | 0.27                 |
| South DR   | 2,609          | 15            | 0.675               | 0.511              | 9                     | -24                              | 0.34                 |
| North Ton  | 21,002         | 50            | 0.621               | 0.567              | 16                    | -9                               | 0.08                 |
| South Ton  | 35,553         | 50            | 0.888               | 0.734              | 49                    | -17                              | 0.14                 |
| <b>All</b> | <b>125,968</b> | <b>—</b>      | <b>0.871</b>        | <b>0.739</b>       | <b>169</b>            | <b>-17</b>                       | <b>0.13</b>          |

Table 14-2: Summary of Metal Grade Capping Choices Outside the Ext BX Shapes

| Domain     | Sample Count   | Top Cut Value | Mean Before Top-Cut | Mean After Top- Cut | Number of Data Capped | Mean % Difference (uncap to cap) | % of Samples Top-Cut |
|------------|----------------|---------------|---------------------|---------------------|-----------------------|----------------------------------|----------------------|
| North BXDR | 702            | 15            | 0.354               | 0.348               | 1                     | -2                               | 0.14                 |
| South BXDR | 399            | 15            | 0.310               | 0.307               | 1                     | -1                               | 0.25                 |
| North HDBX | 342            | 15            | 0.256               | 0.135               | 1                     | -47                              | 0.29                 |
| South HDBX | 132            | 15            | 0.176               | 0.176               | 0                     | 0                                | 0.00                 |
| North DR   | 23,197         | 15            | 0.155               | 0.128               | 21                    | -17                              | 0.09                 |
| South DR   | 10,512         | 15            | 0.163               | 0.133               | 12                    | -18                              | 0.11                 |
| North Ton  | 79,865         | 15            | 0.158               | 0.142               | 51                    | -10                              | 0.06                 |
| South Ton  | 42,633         | 15            | 0.140               | 0.127               | 26                    | -9                               | 0.06                 |
| <b>All</b> | <b>157,782</b> | <b>15</b>     | <b>0.154</b>        | <b>0.137</b>        | <b>-113</b>           | <b>-11</b>                       | <b>0.07</b>          |
| Fault      | 6,229          | 10            | 0.424               | 0.258               | 23                    | -39                              | 0.37                 |
| Dyke       | 4,822          | 7             | 0.106               | 0.08                | 18                    | -25                              | 0.37                 |

The resulting mean density values were assigned to the blocks by lithology. The CVs of the distributions are low. However, the predictions of contained metal will benefit from a local density estimate. It is recommended that additional density samples are collected for local block density estimation.

#### 14.7 Variography

Variograms were calculated and modelled for grade for change-of-support (COS) analysis and sequential gaussian simulation for mining dig-line optimization and for a metal indicator for a drill hole spacing study. A normal score (NSCO) transform was applied to the grade distribution prior to variography for sequential gaussian simulation. The back-transformed variogram models were used for COS analysis. The grade variograms were also used to inform the block grade estimation sample search orientation.

Variograms were modelled for the north and south domain groups. The south area data was filtered for drill holes from 2009 to 2013 to remove the cluster of holes drilled on the tight grid beginning in 2014. The tight grid drilling created a strong trend in the down-hole direction.

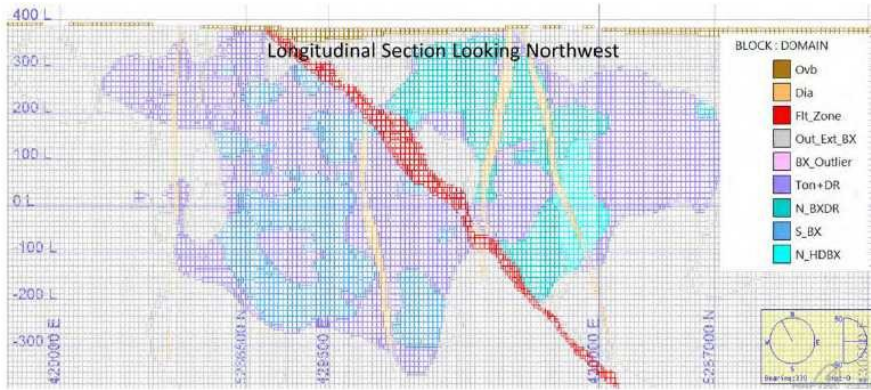
#### 14.8 Estimation/Interpolation Methods

A 10 x 10 x 12 m block size was selected for the resource block model. The resource block model was sub-blocked to 5 x 5 x 6 m to maintain geological boundary resolution. The block model is rotated left 30° (Vulcan X Axis = azimuth 60°). The block grade model was flagged for lithological and extended breccia wireframes from the geological model. A longitudinal projection of the block model lithology is shown in Figure 14-2.

Various powers of inverse distance (ID) estimation were used for gold block grade estimation. A strategy was employed to adjust or 'tune' the estimator to achieve the selectivity of the target grade-tonnage curve obtained by change of support from a nearest-neighbour (NN) grade-tonnage curve. A summary of ID powers by gold estimation domain is shown in Table 14-3.

A three-pass estimation strategy was generally followed, except for the DIA domain, for which a single estimation pass was used. The first-pass sample search distances were adjusted to gather samples from adjacent holes on and off-section. The search criteria were relaxed for passes two and three.

Figure 14-2: Longitudinal View of Block Model Lithology



Note: Figure prepared by Wood, 2018.

**Table 14-3: Inverse Distance Estimation Powers by Au Domain**

| Area         | Au Domain         |      | ID Power |
|--------------|-------------------|------|----------|
|              | Description       | Code |          |
| North        | Outside of Ext Bx | 101  | 3        |
|              | BX Outliers       | 561  | 3        |
|              | Ton+Dio           | 1201 | 3.3      |
|              | BXDR              | 5001 | 3.3      |
|              | HDBX              | 6001 | 4        |
| South        | Outside of Ext Bx | 102  | 3        |
|              | BX Outliers       | 562  | 3        |
|              | Ton+Dio           | 1202 | 2        |
|              | BXDR+HDBX         | 5602 | 2        |
|              | Fault Zone        | 50   | 3        |
| Deposit-wide | Diabase Dykes     | 40   | 3        |

The sample search ellipse orientation was aligned to the variogram models. A strict octant search was used for the third pass outside of the Ext BX to mitigate grade smearing in relatively under-sampled areas with no clear geological controls. The sample search criteria are shown in Table 14-4.

#### 14.9 Block Model Validation

The block grade estimates were validated using several methods:

- Visual checks on vertical sections and plan views
- Statistical checks
- Swath plots and PRISM plots for local bias
- Hermitian correction (HERCO) grade-tonnage curves for change-of-support analysis by domain
- Conditional simulation for overall change-of-support analysis.

The gold block grade estimate passed all validation checks and is considered suitable for mine planning.

Table 14-4: Gold Block Grade Estimation Sample Search Criteria

| Domain           | Estimation Pass | Number of Samples |         |          | Octant Search |         |         |              |
|------------------|-----------------|-------------------|---------|----------|---------------|---------|---------|--------------|
|                  |                 | Minimum           | Maximum | Max/Hole | Min Holes     | Max/Oct | Min Oct | Min Samp/Oct |
| 40               | 1               | 3                 | 8       | 3        | 1             |         |         |              |
| 50, 561,         | 1               | 9                 | 12      | 3        | 3             |         |         |              |
| 562,             | 2               | 6                 | 9       | 3        | 2             |         |         |              |
| 1201, 1202,      | 3               | 3                 | 8       | 2        | 2             |         |         |              |
| 5001, 5602, 6001 |                 |                   |         |          |               |         |         |              |
| 101,             | 1               | 9                 | 12      | 3        | 3             |         |         |              |
| 102              | 2               | 6                 | 9       | 3        | 2             |         |         |              |
|                  | 3               | 6                 | 8       | 2        | 6             | 2       | 6       | 1            |

#### 14.9.1 Visual Checks

Visual inspection shows that there is good agreement between 6 m composites and estimated block grades. A longitudinal view of the gold block grade model with 6 m composites is shown in Figure 14-3.

#### 14.9.2 Statistical Checks

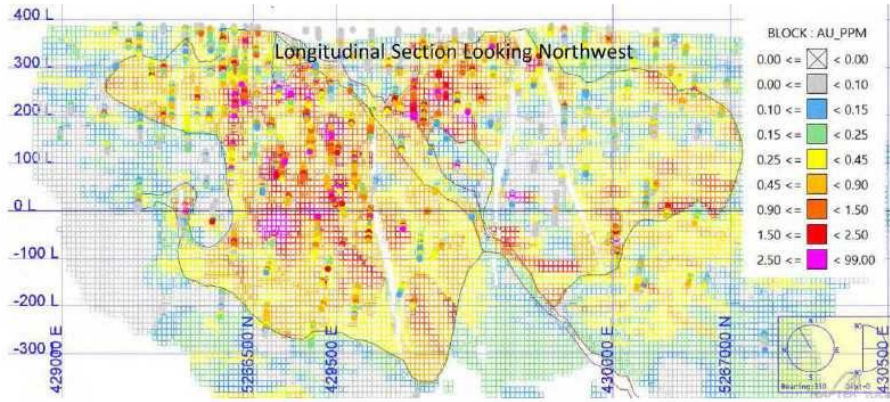
The reference composite grade distribution used for the statistical checks is a hard boundary NN declustered model of the capped gold composite values.

The estimated block grades are within  $\pm 5\%$  of the composite declustered mean grades for the main gold domains. The breccia outliers show a larger percent difference (14%) due to higher estimated grades. However, the volume of breccia outlier blocks is very low and pose little project risk. The controls of the breccia outliers should be revisited as part of the geological control study.

#### 14.9.3 Swath Plots

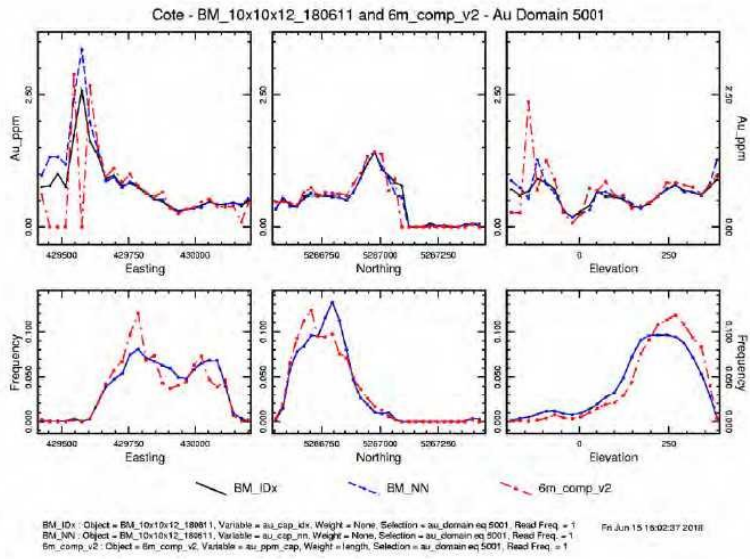
Swath plots or grade profiles of estimated blocks (black) compared to the NN declustered reference distribution (blue) show good agreement and no bias. An example plot for the north BXDR (domain 5001) is provided in Figure 14-4.

Figure 14-3: Longitudinal View of the Gold Block Grade Model with Composites



Note: Figure prepared by Wood, 2018.

Figure 14-4: Example Swath Plot, North BXDR (domain 5001)



Note: Figure prepared by Wood, 2018.

#### 14.9.4 PRISM Plots

PRISM plots, scatter plots of mean composite sample grade versus mean block grades in large (90 m x 90 m x 60 m) rectangular panels (prisms), were also used to check for bias. This check can be considered to be a form of cross-validation. Outliers on the scatter plots are inspected in 3D to determine the reason for the difference. In general, the outliers occur in areas of irregular boundary geometry and high sample variability.

#### 14.9.5 Selectivity Checks

The selective mining unit (SMU) is the smallest block of material that is selected as high grade, or stockpiled, or rejected as waste. A 15 x 15 x 12 m SMU size is appropriate for a 13 Mt/a mining scenario with 12 m benches and an approximate 5 x 5 m blast hole spacing.

Grade-tonnage curves were used to check for appropriate selectivity in the block grade estimate at a range of cut-offs. SMU target grade-tonnage curves were obtained by HERCO (discrete Gaussian) change-of-support corrections of reference composite grade distributions and were compared to block grade estimate grade-tonnage curves.

#### 14.9.6 Conditional Simulation

A sequential Gaussian simulation of the capped gold composite grades was completed to assess the ability of the estimated resource block model to predict recovered tonnes and grades at various cut-off grades. Another objective not discussed in this section was assessing the reasonableness of the high-grade/stockpile mining sequencing.

Twenty-five realizations of the composite gold grades were simulated on a 2.5 x 2.5 x 6 m resolution within five domains inside the extended breccia wireframe. The five domains are North BXDR, North HDBX, North TON + DR, South BXDR+HDBX and South TON + DR. Diabase grades were set to zero. Fault gold grades were not simulated and set to the estimated grades within the fault domain. Domain boundaries were hard.

The simulation was re-blocked from 2.5 x 2.5 x 6 m to 15 x 15 x 12 m to get a conditional simulation of SMU gold grades. Grade-tonnage curves were computed within the PFS Pit 10 and compared with preliminary resource block model grade-tonnage curves within the same envelope. There was good agreement between the estimated resource block model grade-tonnage curves and the simulated SMU grade-tonnage curves.

#### 14.9.7 Capped vs Uncapped Block Grades

Capped and uncapped estimated mean gold block grades were compared to assess the metal reduction due to the capping of sample assays. Measured and Indicated blocks were selected for the comparison. The reduction in block metal was similar to that predicted in the outlier analysis and capping study for assays.

#### 14.10 Classification of Mineral Resources

##### 14.10.1 Drill Spacing Study

A drill hole spacing study was undertaken to establish the drill hole spacing (distance between holes) required to support confidence interval targets at a given production rate for estimated contained metal. The drill hole spacing study was done for the five major gold estimation domains: 1201, 5001, 6001, 1202, and 5602. The drill hole spacing confidence is based on contained metal which is reflective of both tonnage and grade. A metal indicator was used as a proxy for contained metal. The drill hole spacing study was based on:

- Gold metal indicator of 12 m composites (0.7 g/t Au cut-off)
- Assumed production rate of 36,000 t/d
- Confidence interval based on ordinary kriging variance of the metal indicator within quarterly/yearly production blocks.

Drill hole spacing for classification was based on confidence intervals from the results of the five drill hole spacing study runs:

- For Measured Mineral Resources the  $\pm 15\%$  relative precision at the 90% confidence on a quarterly production volume is achieved when drill hole spacing is approximately 40 m.
- For Indicated Mineral Resources the  $\pm 15\%$  relative precision at the 90% confidence on a yearly production volume is achieved when drill hole spacing is approximately 60 m.

- An additional 10% of the distance was added to the drill hole spacing for distance-based classification. For Inferred Mineral Resources a distance of two times the approximate actual drill grid spacing of 50 m + 10%, or 110 m was used.

#### 14.10.2 Classification

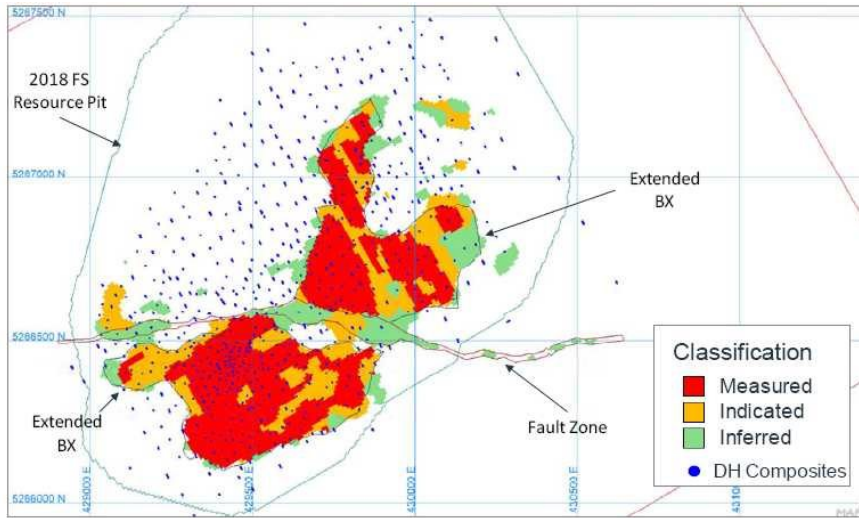
Mineral Resources were assigned a block confidence classification based on drill hole spacing with consideration given to geological and grade continuity, and the quality of drill hole information.

Nominal spacing around the blocks was established using calculations based on the distance from the block centroid to the three nearest drill holes. Blocks in an area with nominal drill hole spacing of 44 m were classified as Measured and nominal drill hole spacing of 66 m classified Indicated. Blocks outside of the Indicated limits were assigned as Inferred if the nominal spacing was 110 m or less. Five iterations of categorical smoothing were applied in Vulcan to remove 'spots' (regions of isolated or non-contiguous blocks of one class inside another). The resulting smoothed classification was adjusted such that:

- Blocks in the Fault Zone are Indicated at best
- Inside the Ext BX but outside the breccia wireframes
  - Blocks inside Alteration 1 and 2 are Indicated at best
  - Measured and Indicated blocks within unaltered areas are downgraded to Indicated and Inferred respectively
- Outside the Ext BX
  - Blocks inside Alteration 3/4/5 are Indicated at best
  - Blocks inside Alteration 2 are Inferred at best
  - Blocks inside Alteration 1 or 0 are zeroed out.
- Blocks in OVB or outside of the geological model are not classified.

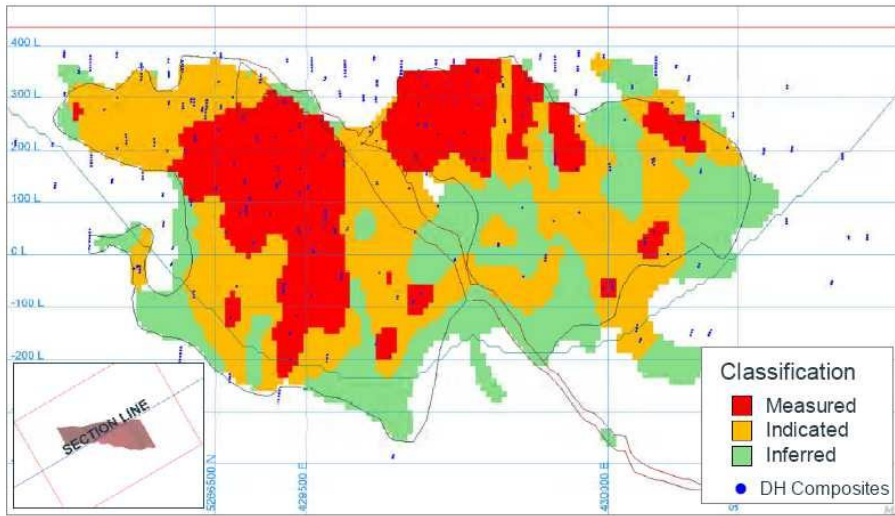
Block classification examples are provided in Figure 14-5, Figure 14-6, and Figure 14-7.

Figure 14-5: Block Classification Map at 310.0m RL



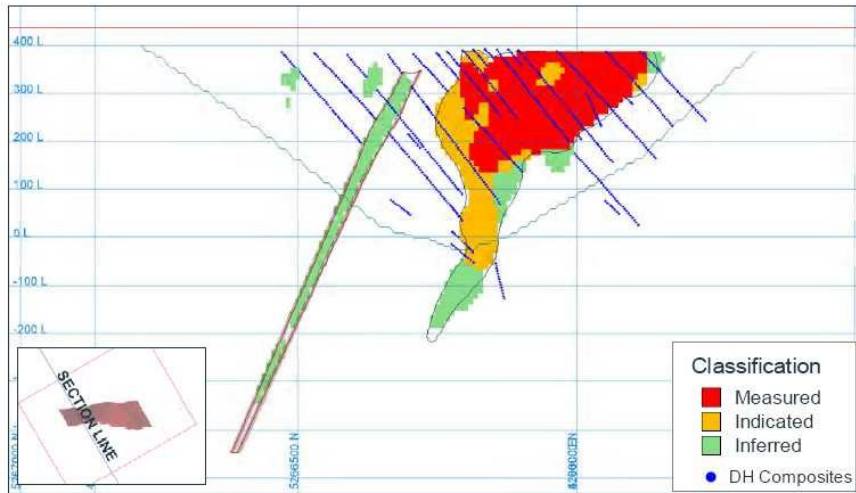
Note: Figure prepared by Wood, 2018.

Figure 14-6: Block Classification Map (southwest – northeast section)



Note: Figure prepared by Wood, 2018.

Figure 14-7: Block Classification Map (southwest – northeast section)



Note: Figure prepared by Wood, 2018.

**14.11 Reasonable Prospects of Eventual Economic Extraction**

A conceptual pit shell was generated using Whittle software to constrain Mineral Resources. The parameters used to define the conceptual pit shell are provided in Table 14-5.

**14.12 Mineral Resource Statement**

Mineral Resources are reported using the 2014 CIM Definition Standards. The Qualified Person for the estimate is Mr Peter Oshust, P.Geo., a Wood employee. Mineral Resources summarized in Table 14-6 are reported inclusive of Mineral Reserves. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.

Based on the input parameters used for the constraining conceptual resource pit, the marginal cut-off grade is calculated at 0.23 g/t Au, and the breakeven cut-off grade is 0.29 g/t Au with the mining costs included. Wood has used a 0.3 g/t Au cut-off for the Mineral Resource tabulation, as it meets the requirement for reasonable prospects of eventual economic extraction, and it supports the assumptions regarding grade continuity at that cut-off.

Table 14-7 is a table showing the sensitivity of the Mineral Resource estimate to variations in the gold cut-off grade. The reporting base case of 0.3 g/t Au is highlighted.

**14.13 Factors That May Affect the Mineral Resource Estimate**

Areas of uncertainty that could affect the Mineral Resource estimates include the following:

- Effect of alteration or other geological attributes as local controls on mineralization
- Lithological interpretations on a local scale, including fault zone modelling, DIA dyke modelling, and discrimination of breccias
- Assumptions of density (specific gravity) based on a low number of samples for the size of the deposit
- Commodity pricing, metal recovery assumptions, and assumptions as to operating costs used when assessing reasonable prospects of eventual economic extraction.

**Table 14-5: Input Parameters to Conceptual Resource Pit Shell**

| Description               | Units         | Value    | Comments                             |
|---------------------------|---------------|----------|--------------------------------------|
| Gold price                | US\$/oz       | 1,500    | For resource definition only         |
| Discount rate             | %             | 6        |                                      |
| Processing rate           | kt/a          | 13,140   |                                      |
| Mining dilution           | %             | Dykes    | Non-segregable diabase dykes         |
| Mining losses             | %             | Variable |                                      |
| Resource categories       |               | MII      | Measured, Indicated, Inferred        |
| Process recovery          |               | 91.8%    |                                      |
| Pit slopes                | degrees       | Variable | 41.3 to 48.1                         |
| <i>Operating costs</i>    |               |          |                                      |
| Base mining cost          | US\$/t        | 1.61     |                                      |
| Uphill incremental cost   | US\$/t/bench  | 0.029    |                                      |
| Stockpile reclaim cost    | US\$/t        | 0.87     |                                      |
| <i>Processing cost</i>    |               |          |                                      |
| Operating cost            | US\$/t milled | 7.01     |                                      |
| G&A                       | US\$/t milled | 1.84     |                                      |
| Sustaining capital        | US\$/t milled | 0.82     |                                      |
| Closure cost              | US\$/t milled | 0.50     |                                      |
| Treatment & refining cost | US\$/oz       | 1.75     | Includes transport and selling costs |
| Royalties                 | %             | 0 to 1.5 | Net smelter return                   |

**Table 14-6: Mineral Resource Table**

| Classification                  | Cut-off<br>(g/t) | Tonnage<br>(Mt) | Gold Grade<br>(g/t Au) | Contained Gold<br>(koz Au) |
|---------------------------------|------------------|-----------------|------------------------|----------------------------|
| Measured                        | 0.3              | 171.9           | 0.96                   | 5,310                      |
| Indicated                       | 0.3              | 183.5           | 0.79                   | 4,660                      |
| <b>Measured &amp; Indicated</b> | <b>0.3</b>       | <b>355.4</b>    | <b>0.87</b>            | <b>9,970</b>               |
| Inferred                        | 0.3              | 112.8           | 0.67                   | 2,430                      |

Notes:

1. The effective date for the Mineral Resource estimate is 26 July, 2018. The Qualified Person for the estimate is Mr Peter Oshust, P.Geo., a Wood employee.
2. Mineral Resources are constrained within a conceptual pit shell developed using Whittle™ software. Assumptions used to prepare the conceptual pit include: metal price of US\$1500/oz Au; base mining cost of US\$1.61 /t mined; stockpile reclaim cost of US\$0.87; overall processing cost of US\$10.17/t milled; treatment and refining cost of US\$1.75/oz; mining assumes 100% recovery with dyke dilution; pit slope angles are forecast to range from 41.3° to 48.1°; process recovery of 91.8%; and net smelter return royalty of 1.5%.
3. Based on the input parameters used for the constraining conceptual resource pit, the marginal cut-off grade is calculated at 0.23 g/t Au, and the breakeven cut-off grade is 0.29 g/t Au with the mining costs included. Wood has used a 0.3 g/t Au cut-off for the Mineral Resource tabulation, as it meets the requirement for reasonable prospects of eventual economic extraction, and it supports the assumptions regarding grade continuity at that cut-off.
4. Mineral Resources are reported using the 2014 CIM Definition Standards, and are stated inclusive of Mineral Reserves. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
5. Mineral Resources are reported on a 100% Project basis.
6. Numbers have been rounded. Totals may not sum due to rounding.

Table 14-7: Mineral Resource Sensitivity Table

| Classification | Au Cut-Off (g/t) | Tonnage (Mt) | Grade    |          | Classification       | Au Cut-Off (g/t) | Tonnage (Mt) | Grade    |          |
|----------------|------------------|--------------|----------|----------|----------------------|------------------|--------------|----------|----------|
|                |                  |              | Au (g/t) | Au (koz) |                      |                  |              | Au (g/t) | Au (koz) |
| Measured       | 0.2              | 193.8        | 0.88     | 5,483    | Measured & Indicated | 0.2              | 410.7        | 0.79     | 10,433   |
|                | 0.3              | 171.9        | 0.96     | 5,305    |                      | 0.3              | 355.4        | 0.87     | 9,965    |
|                | 0.4              | 148.9        | 1.06     | 5,074    |                      | 0.4              | 297.6        | 0.98     | 9,330    |
|                | 0.5              | 127.1        | 1.16     | 4,741    |                      | 0.5              | 245.1        | 1.09     | 8,572    |
|                | 0.6              | 107.7        | 1.28     | 4,433    |                      | 0.6              | 200.7        | 1.21     | 7,811    |
|                | 0.7              | 91.3         | 1.39     | 4,081    |                      | 0.7              | 164.9        | 1.33     | 7,064    |
|                | 0.8              | 77.4         | 1.50     | 3,733    |                      | 0.8              | 136.2        | 1.45     | 6,362    |
|                | 0.9              | 65.6         | 1.62     | 3,418    |                      | 0.9              | 113.1        | 1.58     | 5,739    |
|                | 1.0              | 55.7         | 1.74     | 3,117    |                      | 1.0              | 94.4         | 1.70     | 5,158    |
|                | Indicated        | 0.2          | 216.9    | 0.71     |                      | 4,950            | Inferred     | 0.2      | 146.7    |
| 0.3            |                  | 183.5        | 0.79     | 4,660    | 0.3                  | 112.8            |              | 0.67     | 2,431    |
| 0.4            |                  | 148.7        | 0.89     | 4,256    | 0.4                  | 85.1             |              | 0.77     | 2,106    |
| 0.5            |                  | 118.0        | 1.01     | 3,831    | 0.5                  | 62.5             |              | 0.89     | 1,787    |
| 0.6            |                  | 93.0         | 1.13     | 3,378    | 0.6                  | 46.7             |              | 1.01     | 1,517    |
| 0.7            |                  | 73.6         | 1.26     | 2,983    | 0.7                  | 35.3             |              | 1.13     | 1,281    |
| 0.8            |                  | 58.8         | 1.39     | 2,629    | 0.8                  | 26.8             |              | 1.25     | 1,078    |
| 0.9            |                  | 47.5         | 1.52     | 2,321    | 0.9                  | 20.9             |              | 1.36     | 913      |
| 1.0            |                  | 38.7         | 1.64     | 2,041    | 1.0                  | 16.4             |              | 1.47     | 774      |

Note: Footnotes to Table 14-6 also apply to this table.

**14.14 Comments on Section 14**

Wood is not aware of any environmental, permitting, legal, title, taxation, socioeconomic, marketing, political, or other relevant factors that could materially affect the Mineral Resource estimate that are not discussed in this Report.

Geological controls of the mineralization of the Côté Gold deposit are still uncertain at the local scale. At the time of this resource estimate, ICP data required to complete a geological control study were not yet available. This lack of information is mitigated by good drill coverage, the use of an alteration model as one classification criterion, and an open pit operation. Wood does not believe this local uncertainty would materially affect the Mineral Resource estimates.

## 15.0 MINERAL RESERVE ESTIMATES

### 15.1 Introduction

Mineral Reserves were classified in accordance with the 2014 CIM Definition Standards. Only Mineral Resources that were classified as Measured and Indicated were given economic attributes in the mine design and when demonstrating economic viability. Mineral Reserves for the Côté Gold deposit incorporate appropriate mining dilution and mining recovery estimations for the open pit mining method.

The Mineral Reserve estimate for the Côté Gold deposit is based on the resource block model estimated by Wood, as well as information provided by IAMGOLD and information generated by Wood based on the preceding pre-feasibility study.

Mineral Reserves are an estimate of the tonnage and grade of ore that can be economically mined and processed. To be considered Mineral Reserves the estimated material must pay for all costs incurred during mining.

The following subsections outline the procedures used to estimate the Mineral Reserves. The mine plan is based on the detailed mine design derived from the optimal pit shell produced by applying the Lerchs-Grossmann (LG) algorithm.

### 15.2 Pit Optimization

The pit shells that define the ultimate pit limit, as well as the internal phases, were derived using the LG pit optimization algorithm. This process takes into account the information stored in the geological block model, the pit slope angles by geotechnical sector, the commodity prices, and each of the inputs listed in Table 15-1. Figure 15-1 provides a graphic of the various royalty zones within the planned open pit area.

Wood imported the resource model, containing gold grades, block percentages, material density, slope sectors and rock types, and net smelter return, into the optimization software. The optimization run was carried out only using Measured and Indicated Mineral Resources to define the optimal mining limits.

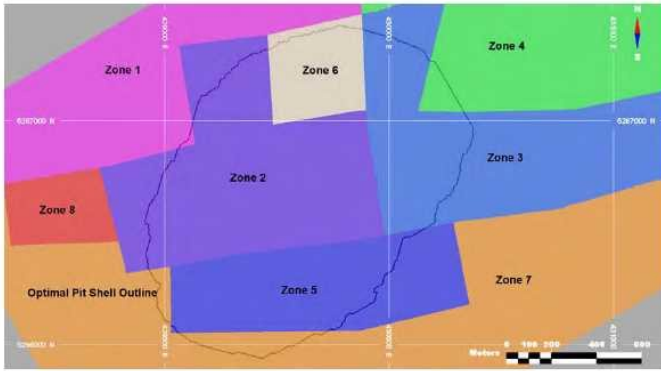
The optimization run included 55 pit shells defined according to different revenue factors, where a revenue factor of 1 is the base case. To select the optimal pit shell that defines the ultimate pit limit, Wood conducted a pit-by-pit analysis to evaluate the contribution of each incremental shell to NPV, assuming a processing plant capacity of 36 kt/d and a discount rate of 6% (Figure 15-2).

**Table 15-1: Optimization Inputs**

| Parameter                   | Unit        | Value                             |
|-----------------------------|-------------|-----------------------------------|
| Gold price                  | \$/oz       | 1,200                             |
| Discount rate               | %           | 6                                 |
| <b>Overall Slope Angles</b> |             |                                   |
| KS 1a                       | degrees     | 54.0                              |
| KS 1b                       | degrees     | 54.0                              |
| KS 2 Upper                  | degrees     | 54.0                              |
| KS 2 Lower                  | degrees     | 56.4                              |
| KS 3                        | degrees     | 53.4                              |
| KS 4a Upper                 | degrees     | 47.9                              |
| KS 4a Lower                 | degrees     | 49.2                              |
| KS 4b Upper                 | degrees     | 49.2                              |
| KS 4b Lower                 | degrees     | 45.8                              |
| KS 5 Upper                  | degrees     | 54.0                              |
| KS 5 Lower                  | degrees     | 56.4                              |
| Dilution                    | %           | Resource model is already diluted |
| Mine losses                 | %           | Taken into account by block       |
| <b>Mining Cost</b>          |             |                                   |
| Base elevation              | m           | 388                               |
| Base cost                   | \$/t        | 1.61                              |
| Incremental mining cost     | \$/t/bench  | 0.029                             |
| Stockpile reclaim cost      | \$/t        | 0.87                              |
| <b>Process Costs</b>        |             |                                   |
| Operating cost              | \$/t milled | 7.01                              |
| G&A cost                    | \$/t milled | 1.84                              |
| Process sustaining capital  | \$/t milled | 0.82                              |
| Closure                     | \$/t milled | 0.50                              |
| Processing rate             | kt/d        | 36                                |
| Process recovery            | %           | 91.80                             |
| Treatment and refining cost | \$/oz       | 1.75                              |
| <b>Royalties</b>            |             |                                   |
| Zone 1                      | %           | 0.75                              |

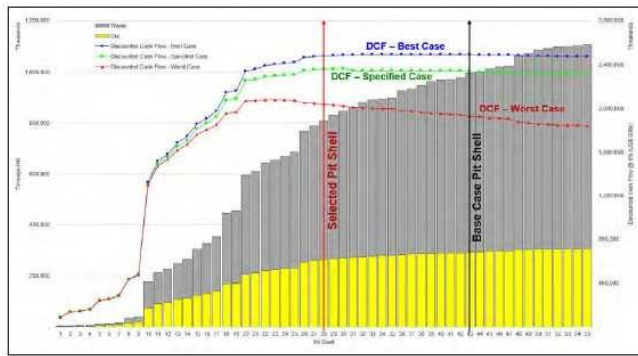
| Parameter | Unit | Value |
|-----------|------|-------|
| Zone 2    | %    | 1.00  |
| Zone 3    | %    | 0.00  |
| Zone 4    | %    | 1.50  |
| Zone 5    | %    | 0.75  |
| Zone 6    | %    | 1.50  |
| Zone 7    | %    | 0.75  |
| Zone 8    | %    | 0.75  |

Figure 15-1: Royalty Zones



Note: Figure prepared by Wood, 2018.

Figure 15-2: Pit-by-Pit Analysis



Note: Figure prepared by Wood, 2018.

Following this analysis, the selected pit shell is usually smaller than the base case pit shell. The selected pit shell is shown in Figure 15-3. This represents a net present value (NPV) improvement of US\$17.9 M over the base case pit shell.

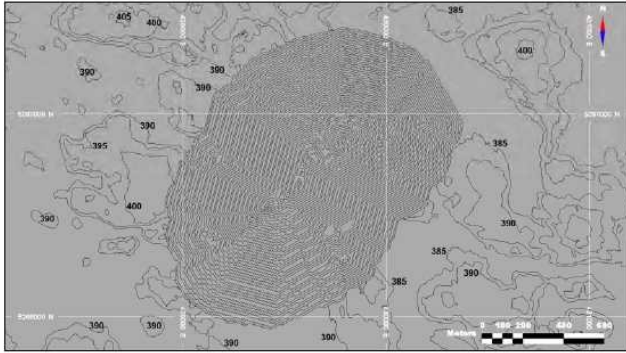
### 15.3 Dilution and Ore Losses

The resource model is diluted. However, ore losses during mining are accounted for by simulating the mixing of material from adjacent blocks. The procedure to determine ore losses during mining results in a reduction of gold grade but it does not reduce tonnage. The procedure is illustrated in Figure 15-4.

Ore losses were estimated using the following steps:

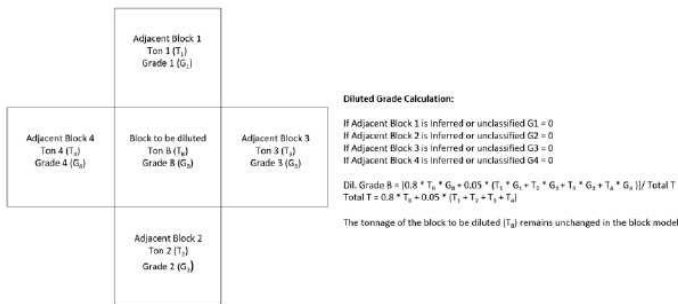
- The grade of a given block will be blended using 5% of the tonnage from each of the four adjacent blocks
- If an adjacent block is classified as Inferred Mineral Resource, its grade is considered to be zero. If the adjacent block is Measured or Indicated, but below cut-off, dilution is taken at the grade of the adjacent block
- The estimated average ore losses (gold) using this procedure is 0.7%.

Figure 15-3: Selected Pit Shell



Note: Figure prepared by Wood, 2018.

Figure 15-4: Ore Losses Estimation Procedure



Note: Figure prepared by Wood, 2018.

**15.4 Mineral Reserve Statement**

The Mineral Reserve estimate includes the tonnage and grade of ore that can be economically mined and processed. To be considered Mineral Reserves the mineralised material must pay for mining costs, processing costs, selling costs, royalties and rehandling costs.

As the mining cost increases with depth and the royalty percentage varies by zone, individual blocks captured within the final pit design were tagged as either ore or waste by applying the parameters shown in Table 15-1. Using the partial block percentages within the final pit design the ore tonnage and average grade were estimated.

The Mineral Reserves statement is shown in Table 15-2. The cut-off applied to the reserves is variable with a range of 0.33 to 0.37 g/t Au and averages 0.35 g/t Au. The effective date of the Mineral Reserves estimate is 1 October, 2018. The Qualified Person for the estimate is Dr. Antonio Peralta Romero, P.Eng., a Wood employee.

**15.5 Factors That May Affect the Mineral Reserve Estimate**

The Mineral Reserves estimated for the Côté Gold Project are subject to the types of risks common to most open pit gold mining operations that exist in Ontario. The risks are reasonably well understood at the feasibility level of study and should be manageable. Proper management of groundwater will be important to maintaining pit slope stability.

**15.6 Comments on Section 15**

The mine plan and financial analysis supporting the Mineral Reserves statement is included in Section 24 of this Report. Note that only 203 Mt of the Mineral Reserves are included in the Base Case mine plan in Section 16 and the financial analysis in Section 22 to support the permit application. The remaining 30 Mt of Mineral Reserves are included in the Extended Case mine plan discussed in Section 24.

**Table 15-2: Mineral Reserves Statement**

| Classification   | Tonnes (Mt) | Grade (g/t Au) | Total Contained<br>Ounces (oz x 1,000) |
|--|-------------|----------------|--|
| <i>Mineral Reserves within Base Case Mine Plan</i>                 |             |                |  |
| Proven   | 134.3       | 1.03           | 4,440                                  |
| Probable   | 68.7        | 0.88           | 1,950                                  |
| Proven and Probable  | 203.0       | 0.98           | 6,391                                  |
| Mine rock within Base Case pit                                     | 491.7       |                |  |
| <i>Incremental Mineral Reserves within Extended Case Mine Plan</i> |             |                |  |
| Proven   | 4.9         | 1.26           | 200                                    |
| Probable   | 25.1        | 0.86           | 694                                    |
| Proven and Probable  | 30.0        | 0.93           | 894                                    |
| Incremental mine rock within Extended Case pit                     | 119.8       |                |  |
| <i>Total Mineral Reserves</i>                                      |             |                |  |
| Proven   | 139.2       | 1.04           | 4,640                                  |
| Probable   | 93.8        | 0.88           | 2,644                                  |
| Proven and Probable  | 233.0       | 0.97           | 7,284                                  |
| Total mine rock within Extended Case pit                           | 611.5       |                |  |
| Total tonnage within Extended Case pit                             | 844.5       |                |  |

Notes to accompany Mineral Reserves Table:

- The effective date of the Mineral Reserves estimate is 1 October, 2018. The Qualified Person for the estimate is Dr. Antonio Peralta Romero, P.Eng., a Wood employee.
- The Mineral Reserves were estimated assuming open pit mining methods, and are reported on a 100% Project basis.
- Mineral Reserves used the following assumptions: gold price of \$1,200/oz; fixed process recovery of 91.8%; treatment and refining costs, including transport and selling costs of \$1.75/oz Au; variable royalty percentages by zone: 0.75% for Zone 1, 1.00% for zone 2, 0.00% for zone 3, 1.50% for zone 4, 0.75% for zone 5, 1.50% for zone 6, and 0.75% for zones 7 and 8; overall pit slope angles varying by sector with a range of 45.8 ° to 56.4 °; processing costs of 10.17/t, which includes process operating costs of \$7.01/t, general and administrative costs of \$1.84/t, sustaining costs of \$0.82/t, and closure costs of \$0.50/t; mining costs of \$1.61/t incrementally at \$0.029/t/12m below 388 elevation, life-of-mine average mining costs of \$2.01/t, and rehandling costs of \$0.87/t. The cut-off applied to the reserves is variable with a range of 0.33 to 0.37 g/t Au and averages 0.35 g/t Au.
- Numbers have been rounded. Totals may not sum due to rounding.

## 16.0 MINING METHODS

### 16.1 Overview

The Base Case mine plan is based on a subset of the Proven and Probable Mineral Reserves and this Base Case mine plan is used to support the permit application. The pit optimization steps were outlined in Section 15.2.

### 16.2 Geotechnical Considerations

Wood completed the following tasks to support and update the Base Case mine plan feasibility-level pit slope design:

- Site visit to perform geomechanical logging and reconciliation of previously drilled rock core for QA/QC (572 m of “GT” core and 335 m of “GA” core);
- Data processing and compilation of previously completed geomechanical investigations and site-specific resources supplied by IAMGOLD to produce the following data summary for subsequent analysis:
  - Sub-division of the structural and rock mass classification data into 5 design sectors
  - Main joint sets orientation and joint set number (Jn) per domain
  - Rock mass characterization per domain and lithology (RMR76, RMR89, GSI, Q)
  - Laboratory strength testing data per lithology (density, unconfined compressive strength or UCS)
  - Intact rock (m, s) or Joint (C, Phi) strength data per lithology
- Kinematic analysis establishing the potential mode of structural failures such as wedge, topple and planar failures
- Limit equilibrium modelling of the above modes of failure to determine factor of safety and criticality based on the probability of failure and wedge size
- Overall slope stability analysis of the main pit walls including review of the hydrogeological conditions (Limit Equilibrium and Finite Element)
- Evaluation and recommendation of the final pit walls geometry, by developing optimal bench design, bench face angles (BFA), bench widths (BW), inter-ramp angles (IRA), and overall slope angles (OSA) per sector.

Initial pit slope design criteria were based primarily on all the compiled, reconciled and updated geomechanical data using the PFS pit shell geometry defined by Amec Foster Wheeler (2017). Following pit optimization, the pit geometry was compared for changes in the slope orientation that may be impacted by different kinematic influences, and review using limit equilibrium modelling of the potential modes of failure to determine adequacy of the bench and inter-ramp design, with recommendations for adjustment.

The database of geomechanical features within each lithological unit was compiled based on comparison and review of the different data sources provided by IAMGOLD. This database was used for pit slope design. The assessment of various rock structural domains was based on the analysis of 26 HQ-3 sized inclined boreholes from three different drilling programs.

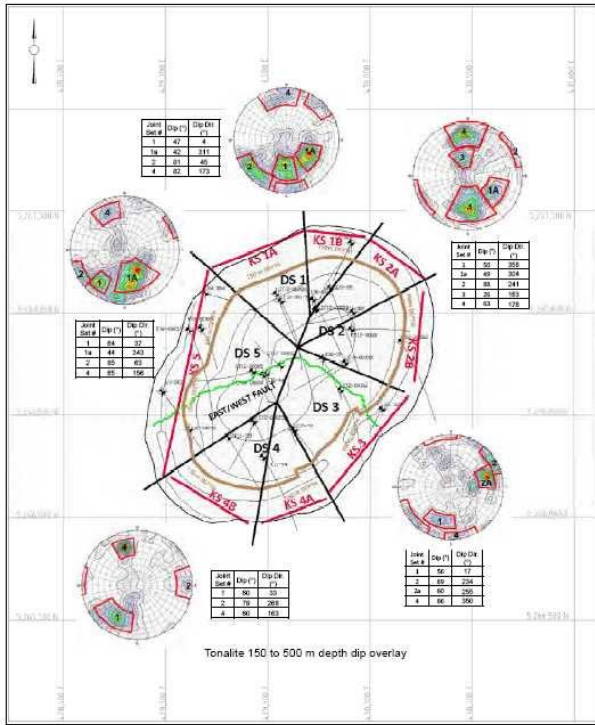
The pit has been sub-divided into five (5) main structural domains (design sectors) related to the pit geometry such that the structural joint fabric was analysed for each design sector with subdivision of the data into the upper (0–150 m below ground surface (bgs)) and lower (150–500 m bgs) zones of the pit to separate the near surface variation of the increased joint frequency. The predominant rock type that is expected to form the final walls is primarily tonalite, which is expected to form roughly 55–70% of the exposed wall.

It was found that the rock mass quality did not vary greatly with lithology, with an average weighted GSI for Tonalite of between 62 and 66. The uniaxial compressive strength of the tonalite was on average 166 MPa with a  $\sigma_{ci}$  of 11 for the Hoek and Brown (1980) intact failure parameter. From direct shear testing on open joints it was found the Mohr-Coulomb shear strength of a cohesion of 112 KPa and friction angle of 35° was determined for the tonalite joints.

This geotechnical model was used as the basis for kinematic stability analysis and failure criteria filtering. Wedge, plane and toppling limit equilibrium analysis of critical failure modes were used to develop appropriate BFAs and inter-ramp angles (IRA) that met an 80% reliability acceptance criterion. These slope design criteria were then used to perform pit optimization per design sector. A final evaluation of the slope stability and final OSA, was undertaken under various conditions.

The five main design sectors of the pit related to the geometry and the major east–west-trending fault can be seen in Figure 16-1.

Figure 16-1: Open Pit Design Sectors, Kinematic Segments and Joint Fabric (150 to 500 m) for the Base Case Pit Shell



Note: Figure prepared by Wood, 2018.

For most sectors, a BFA of 75° is achievable, resulting in an IRA between 54° and 56.4°. In southeast and south design sectors 3 and 4, which are controlled by planar and wedge failures associated with the dominant joint set 1, the BFA was adjusted to an appropriate value between 60° and 72°. Bench widths in each sector were widened as necessary, based on the significance of toppling and wedge failures, from a minimum value of 9.5 m up to 12 m assuming double benching on the final wall (single bench height of 12 m). A 20 m wide geotechnical berm is recommended for midpoint between inter-ramp spacing greater than 150 m.

The principal failure modes controlling bench and inter-ramp stability are toppling failure observed in the north and northeast walls (DS 1 and KS 2A). Wedge failure dominates in the east wall (DS 2 and 3) while planar failure controls bench face angles, with also some toppling failure in DS 4. In sector 5 again wedge failure dominates but at a lower likelihood of formation. Overall, wedge failure dominates the stability of the benches.

Overall slope stability analysis was performed using limit equilibrium and two-dimensional finite element modelling to determine a probabilistic assessment of the overall factor of safety and probability of failure. Hydraulic consideration based hydrogeological modelling were incorporated into static and pseudo-static analyses. The results indicate factor of safety ranges from a lowest of 1.3 to >3.0 for the highest and steepest slope sectors for the pseudo-static and static cases respectively. The acceptance criteria of 1.1 and 1.3 for pseudo-static and static cases are exceeded for all pit sectors with a probability of failure of <1%, indicating global stability is anticipated.

#### 16.3 Hydrogeological Considerations

Dewatering will be accomplished via in-pit pumping for both ground water inflows, and inflows from precipitation and runoff.

#### 16.4 Mine Design

The Base Case mine plan is designed as a truck-shovel operation assuming 220-t autonomous trucks and 34 m<sup>3</sup> shovels. The pit design includes four phases to balance stripping requirements while satisfying the concentrator requirements.

The design parameters include a ramp width of 35 m, road grades of 10%, bench height of 12 m, targeted mining width between 90 m, berm interval of 24 m, variable slope angles by sector and a minimum mining width of 40 m.

The smoothed final pit design contains approximately 203 Mt of mill feed and 492 Mt of waste for a resulting stripping ratio of 2.4:1. The 203 Mt processed fits within the maximum capacity of the TMF. The average grade of this material is 0.98 g/t Au. These tonnages and grades were derived by following an elevated cut-off strategy in the production schedule. Figure 16-2 shows the ultimate pit design. Figure 16-3 and Figure 16-4 are sections through the pit illustrating the LG shell vs the Base Case pit design.

## 16.5 Storage Facilities

The design and construction of the MRA, overburden stockpile and ore stockpiles for the Base Case should ensure physical and chemical stability during and after mining activities. To achieve this, the MRA and stockpiles were designed to account for benching, drainage, geotechnical stability, and concurrent reclamation.

### 16.5.1 Mine Rock Area

The MRA will be constructed southeast of the planned open pit to store mine rock from the open pit excavation. The rock piles will be built in 10 m lifts with 25.5 m benches to provide an overall safe slope of 2.6H:1V. The inter-bench slopes will be at the angle of repose of the rock. In its ultimate configuration, the MRA will store 350 Mt of mine rock with its final crest elevation at an approximate elevation of 480 m. Collection ditches and six runoff collection ponds/sumps will be built at topographical low points around the MRA perimeter to collect runoff and seepage, which will then be pumped to the polishing pond.

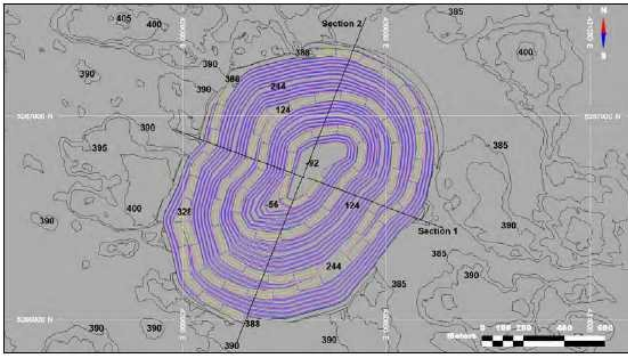
Figure 16-5 shows the proposed locations of the MRA and the overburden stockpile.

### 16.5.2 Topsoil/Overburden Storage

The overburden storage, which will be located to the southwest of the pit, will have a storage capacity of approximately 8.2 Mm<sup>3</sup>.

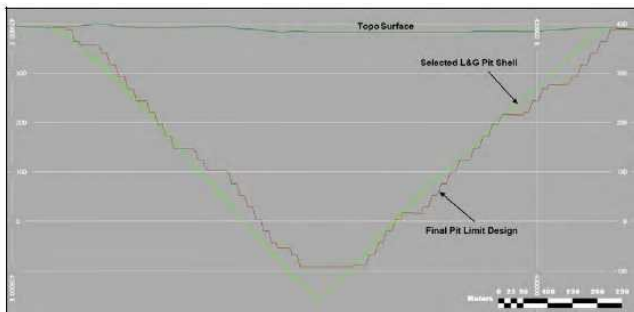
The stockpiles will contain stripped materials from all excavations from the project development. The stockpiled materials will be used for rehabilitation applications at closure. Sedimentation ponds will be built to settle out solids before release to the environment.

Figure 16-2: Ultimate Pit Design



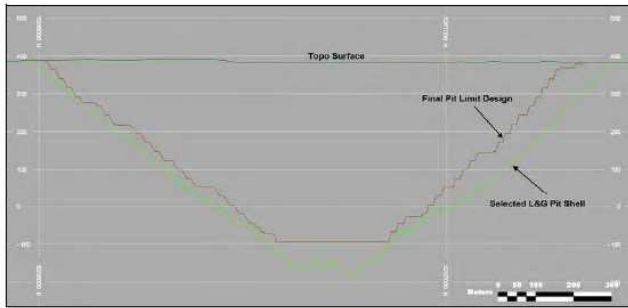
Note: Figure prepared by Wood, 2018.

Figure 16-3: Section 1 Showing Mine Design and Selected Pit Shell



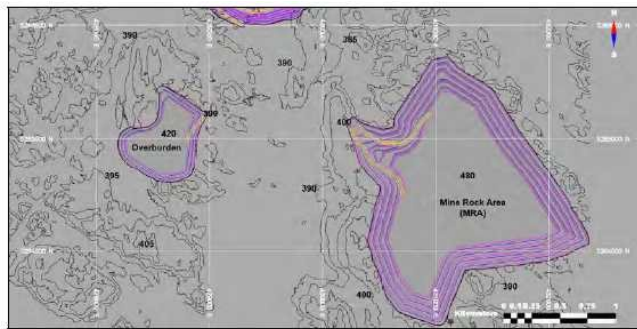
Note: Figure prepared by Wood, 2018.

Figure 16-4: Section 2 Showing Mine Design and Selected Pit Shell



Note: Figure prepared by Wood, 2018.

Figure 16-5: Mine Rock Area and Overburden Stockpile



Note: Figure prepared by Wood, 2018.

**16.5.3 Ore Stockpiles**

The ore stockpiles will be located on the north side of the pit and have a total storage capacity of 23 Mm<sup>3</sup>, which is enough to satisfy the maximum stockpiling capacity of approximately 48 Mt required in the production schedule. Figure 16-6 shows the stockpile design with respect to the Côté pit.

**16.6 Base Case Production Schedule****16.6.1 Throughput Analysis**

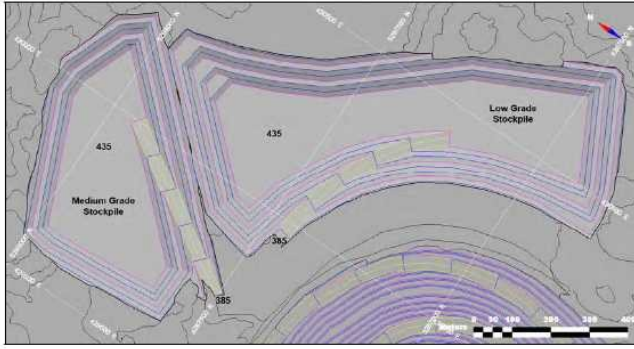
Prior to conducting a detailed production schedule, a series of high-level production scenarios were analyzed using SIMO. The designed ultimate pit limit and the operational phases were imported into SIMO. Mining capacities of 70, 72.5 and 75 Mt/a were analyzed for stockpiling capacities of 30, 40 and 50 Mt generating nine scenarios. The SIMO analysis shows that a stockpile capacity of 40 Mt or more maximizes the cash flow. In the same manner, the cash flow improves as the mining capacity increases. However, this analysis does not include capital expenditures and the excess mining capacity will require additional equipment. An additional high-level scenario was developed using MineSight Schedule Optimizer (MSSO). This analysis showed that the highest cash flow achieved by SIMO could be replicated using a lower mining capacity. As a result, a maximum mining capacity of 62 Mt/a was selected to develop the detailed production schedule.

**16.6.2 Production Schedule**

The production schedule includes the process plant ramp up schedule. This schedule takes into account the inefficiencies related to start of operations, and includes the tonnage processed as well as the associated recoveries, which steadily increase to reach the design capacity after 10 months of operation. The mine will require one year of pre-production before the start of operations in the processing plant. Although the mine requires one year of pre-stripping, mining starts in Year -2 to provide material for the TMF construction.

The deposit is planned to be mined in four phases included within the ultimate pit limit. The schedule was developed in quarters for the pre-production period and for the first five years of production, then in annual periods.

Figure 16-6: Ore Stockpiles

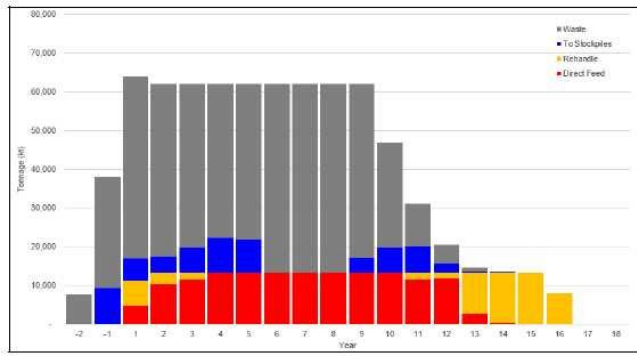


Note: Figure prepared by Wood, 2018.

The scheduling constraints set the maximum mining capacity at 62 Mt/a and the maximum number of benches mined per year at eight in each phase. Additional constraints were used to guide the schedule and to obtain the desired results. Examples of these additional constraints include feeding lower grades during the first months of the plant ramp-up schedule, the maximum stockpile capacity and reducing the mining capacity in later years to balance the number of truck requirements per period.

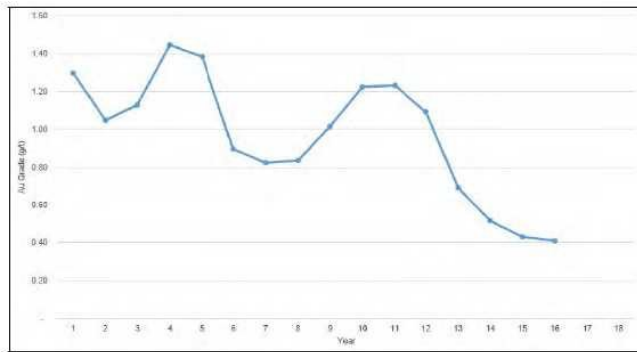
The schedule produced a life-of-mine (LOM) of 13 years with stockpile reclaim extending into Year 16. The amount of re-handled mill feed is 59 Mt, which requires a maximum stockpile capacity of 48 Mt when considering the reclaim. The average grade is 0.98 g/t Au. The proposed yearly LOM schedule is shown in Figure 16-7. Figure 16-8 shows the scheduled feed grade and Figure 16-9 shows the anticipated stockpile balance.

Figure 16-7: Production Schedule



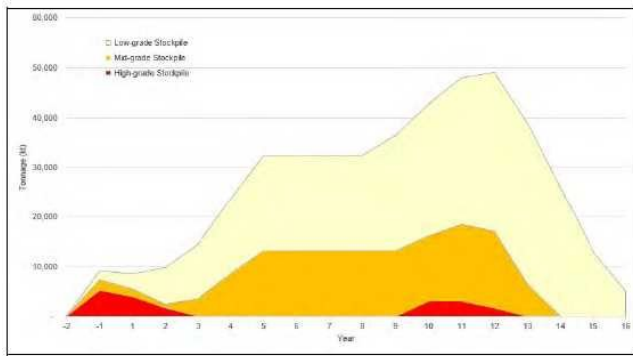
Note: Figure prepared by Wood, 2018.

Figure 16-8: Scheduled Total Feed Grade



Note: Figure prepared by Wood, 2018.

Figure 16-9: Stockpile Balance



Note: Figure prepared by Wood, 2018.

### 16.6.3 Mining Sequence

#### Waste Material Handling

Waste will be hauled to the MRA using 220 t trucks. The construction sequence starts at the bottom of the dump by dumping the material in 10-m lifts, leaving a 25.5-m berm every two lifts. The resulting overall slope angle of the dump face will be 2.6H:1V.

### 16.7 Base Case Operating Schedule

The Base Case mine plan is scheduled to operate 24 hr/d, seven d/wk using four rotating crews working 12 hr shifts. During the day, there are two 12 hr shifts scheduled, consisting of a day shift and a night shift.

Because the mine will support autonomous truck and drill operations, shovel, drill, and truck crews “hot change” or overlap between shifts to allow for continuous mine operations. Additionally, the autonomous trucks and drills do not require breaks, and the shovels will use relief operators to cover for breaks which should allow the equipment to achieve approximately 7,287 gross operating hours in a year. The autonomous equipment standby time per day includes 30 minutes (0.25 hours/shift) for fueling, 20 minutes (0.17 hours/shift) for blast delay, and 15 minutes (0.13 hours/shift) for shift change. Autonomous equipment is not affected by poor visibility due to inclement weather; consequently, only 30 hours per year are considered for weather delays.

For support equipment, approximately 3.25 hours are lost per day to standby time, inclusive of two hours for breaks, 30 minutes for fueling, 20 minutes for shift change, 20 minutes for blast delay, and five minutes for meetings. Over a year, approximately five days or 120 hours are assumed lost to poor weather conditions, predominantly in the winter time. It is assumed that the equipment is manned but delayed during these weather events.

Based on input from multiple equipment suppliers, productive utilization following ramp-up is estimated at 90% for the autonomous trucks and 80% for the autonomous drills. For all support equipment and the shovels, it is estimated that the equipment is in a productive cycle approximately 50 minutes each hour, or 83% of the time. During the pre-production period, the truck and shovel equipment's productive utilization has been de-rated to account for the autonomous commissioning, initial site conditions and operator skill level. On the advice of multiple equipment suppliers, the truck commissioning schedule allows for one year.

Like mine operations, mine maintenance is scheduled to work a 24/7 schedule to allow for continuous maintenance coverage. However, the majority of planned maintenance work is anticipated to be done during the day shift with a skeleton crew scheduled for the night shift.

Blasting is scheduled during the daylight hours. Two contract blasting crews will rotate on a 12 hr/d shift, for 7 d/wk coverage.

A number of duties only require work during the daylight hours. For these duties, two crews rotate to provide 7 d/wk day-shift coverage. Personnel not engaged in shift work, work a four-day on, three-day off schedule, for a 10-hr shift.

**16.8 Blasting and Explosives**

Blasting operations will be contracted to a blasting explosives provider who will be responsible for explosive supply, shot design, loading, stemming, and blast initiation.

Based on a bid analysis, EPC was selected to support the 2018 Feasibility Study, and will supply a 50/50 emulsion product from an off-site facility.

Drilling will be required for both ore control and blasting. Rock fragmentation achieved through blasting is the overriding design criteria for the drill hole pattern design.

Penetration rate assumptions are based on field tests conducted by Epiroc within the deposit area. The production drill equipment is likely to consist of a PV231 drill fleet. By the end of pre-production, the Project requires four large production drills. The four drills will be required until Year 9, after which production rates began to decline. Meters drilled assumptions include a 2% allowance for re-drills. Penetration rates are estimated to average 23.1 m/h.

In addition to production drilling, pre-split drilling will be required for all intermediate and final walls. A Smartroc D65 drill is likely to be used for pre-split drilling.

For highwall protection, a three-hole trim pattern will be shot adjacent to all walls. All material with the exception of overburden will be shot. The overburden material, consisting of peat and glacial till that overlies the deposit, will be free-dug by the contractor. For production ore shots, electronic detonators will be used. All other shots will use pyrotechnic detonators.

#### 16.9 Grade Control

Ore control will be conducted by sampling the bench drill cuttings, assaying these cuttings at an onsite laboratory, estimating ore grades from the assays, and then muck staking the ore polygons in the field. Ore and waste routing will be tracked via the MineStar fleet management system.

#### 16.10 Mining Equipment

##### 16.10.1 Overview

Mining operations for the Base Case will use an autonomous truck and drill fleet, supported by a conventional manned loading fleet and a fleet of manned support equipment. The truck fleet will be diesel-powered with the capacity to mine approximately 60.0 Mt per year operating on 12 m benches. The hydraulic shovel fleet will be electric powered supported by two large diesel-powered front-end loaders (FELs).

The mine will be supported by multiple contractors. A contractor miner is assumed to mine all overburden within the mine plan and to develop the initial benches in the preproduction period for the autonomous fleet. A maintenance and repair contract (MARC) will be in place during pre-production and the first three years of operation. Blasting will be done by a contract down hole service during the LOM. A full-service contract tire provider will be used throughout the LOM to supply, repair, and change tires at the mine site.

Equipment requirements are estimated on a quarterly basis during pre-production and the first five years of mining, and annually thereafter. Equipment sizing and numbers are based on the mine plan, maintenance availability assumptions, and a 24/hr, 7 d/wk work schedule.

#### 16.10.2 Loading

The selected primary loading unit is the CAT 6060 electric/hydraulic (6060E) shovel. Two are required at peak. To assist the CAT 6060E shovel, two CAT 994K high lift FELs are scheduled throughout the mine life. The CAT 994K FEL will also be used for stockpile re-handle, most of which is scheduled towards the end of mining. The FELs are also scheduled to supplement the shovel production on an as-needed basis and to dig shovel drop cuts. The mine is designed in an over-shoveled configuration.

#### 16.10.3 Hauling

The selected primary hauling unit is a CAT 793F mechanical drive truck operated in autonomous mode. It has a payload capacity of 217.6 t wet, assuming a standard body with a full set of liners. The dry capacity is estimated at 215 t, assuming 1.2% moisture and carry back.

Truck requirements during preproduction are based on a one-year commissioning period. One autonomous truck is assumed to be assembled and then commissioned every two weeks. During the first two months, the trucks would be operated on day shift only. The night shift would be introduced after the third month. Truck commissioning would be performed in a large rock bench located in phase 1 developed by the contract miner during pre-production Year -2. The autonomous trucks would be commissioned in isolation with no interference with contract miners or construction activities. Following the one-year commissioning period, the truck fleet will grow to 17 trucks and then steadily increase to a peak of 20 in Year 6. Truck requirements will then ramp down as production ramps down with two trucks remaining for stockpile re-handle in Years 15 and 16.

#### 16.10.4 Support

Support equipment includes excavators, track dozers, rubber-tired dozers (RTDs), sand trucks, graders, water trucks, fuel/lube trucks, and water trucks. The major tasks for the support equipment include:

- Bench and road maintenance
- Shovel support/clean-up
- Blasting support/clean-up
- MRA maintenance
- Stockpile construction/maintenance
- Road building/maintenance
- Field equipment servicing.

Support equipment requirements over the LOM are shown in Table 16-1.

#### 16.10.5 Auxiliary

To support mine maintenance and mine operation activities, a fleet of auxiliary equipment is required. The equipment to support mine maintenance is planned to be purchased in Year 4 following the three-year MARC contract and prior to starting Owner maintenance. The types and numbers of auxiliary equipment are listed in Table 16-2.

#### 16.11 Comments on Section 16

The Base Case mine plan is based on 203 Mt of the total 233 Mt of the Proven and Probable Mineral Reserves and this mine plan is used to support the permit application. The mine design is conventional.

Table 16-1: LOM Support Equipment Requirements

| Year | CAT 390F<br>Excavator | CAT 336F<br>Excavator | CAT D10<br>Dozer | CAT 834<br>RTD | CAT 777<br>Water Truck | CAT 16<br>Grader | CAT 740<br>Sand Truck | CAT 740<br>Fuel/Lube Truck |
|------|-----------------------|-----------------------|------------------|----------------|------------------------|------------------|-----------------------|----------------------------|
| PP-1 | 1                     | 1                     | 2                | 1              | 2                      | 2                | 1                     | 2                          |
| Yr1  | 1                     | 1                     | 4                | 2              | 2                      | 3                | 1                     | 2                          |
| Yr2  | 1                     | 1                     | 4                | 2              | 2                      | 3                | 1                     | 2                          |
| Yr3  | 1                     | 1                     | 4                | 2              | 2                      | 3                | 1                     | 2                          |
| Yr4  | 1                     | 1                     | 4                | 2              | 2                      | 3                | 1                     | 2                          |
| Yr5  | 1                     | 1                     | 4                | 2              | 2                      | 3                | 1                     | 2                          |
| Yr6  | 1                     | 1                     | 4                | 2              | 2                      | 3                | 1                     | 2                          |
| Yr7  | 1                     | 1                     | 4                | 2              | 2                      | 3                | 1                     | 2                          |
| Yr8  | 1                     | 1                     | 4                | 2              | 2                      | 3                | 1                     | 2                          |
| Yr9  | 1                     | 1                     | 4                | 2              | 2                      | 3                | 1                     | 2                          |
| Yr10 | 1                     | 1                     | 4                | 2              | 2                      | 3                | 1                     | 2                          |
| Yr11 | 1                     | 1                     | 3                | 1              | 2                      | 2                | 1                     | 2                          |
| Yr12 | 1                     | 1                     | 3                | 1              | 1                      | 2                | 1                     | 1                          |
| Yr13 | 1                     | 1                     | 2                | —              | 1                      | 1                | 1                     | 1                          |
| Yr14 | 1                     | 1                     | 2                | —              | 1                      | 1                | 1                     | 1                          |
| Yr15 | —                     | —                     | 1                | —              | 1                      | 1                | -                     | 1                          |
| Yr16 | —                     | —                     | 1                | —              | 1                      | 1                | -                     | 1                          |

**Table 16-2: Auxiliary Equipment**

| Item                                 | Q1 Yr-1 | Q2 Yr-1 | Q3 Yr-1 | Q4 Yr-1 | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | Yr10 | Yr15 | Yr16 |
|--------------------------------------|---------|---------|---------|---------|------|------|------|------|------|------|------|------|
| Truck-mounted 40 t crane             | —       | —       | 1       | 1       | 1    | 1    | 1    | 1    | 1    | 1    | -    | -    |
| 80 t rough terrain                   | —       | —       | 1       | 1       | 1    | 1    | 1    | 1    | 1    | 1    | -    | -    |
| 5 t forklift                         | —       | —       | —       | —       | —    | —    | —    | 2    | 2    | 2    | 1    | 1    |
| 10 t forklift                        | —       | —       | —       | —       | —    | —    | —    | 2    | 2    | 2    | 1    | 1    |
| Mechanic service truck               | —       | —       | —       | —       | —    | —    | —    | 3    | 3    | 3    | 1    | 1    |
| Small fuel/lube truck                | —       | —       | —       | —       | —    | —    | —    | 1    | 1    | 1    | 1    | 1    |
| CAT262 skid steer                    | —       | —       | —       | —       | —    | —    | —    | 1    | 1    | 1    | 1    | 1    |
| Flatbed truck                        | —       | —       | —       | —       | —    | —    | —    | 2    | 2    | 2    | 1    | 1    |
| CAT TL1255 telehandler               | —       | —       | —       | —       | —    | —    | —    | 1    | 1    | 1    | 1    | 1    |
| CAT 450F backhoe/loader              | 1       | 1       | 1       | 1       | 1    | 1    | 1    | 1    | 1    | 1    | —    | —    |
| Cat H180DS hydraulic hammer/impactor | 1       | 1       | 1       | 1       | 1    | 1    | 1    | 1    | 1    | 1    | —    | —    |
| 160t lowboy                          | 1       | 1       | 1       | 1       | 1    | 1    | 1    | 1    | 1    | 1    | —    | —    |
| Compactor                            | 1       | 1       | 1       | 1       | 1    | 1    | 1    | 1    | 1    | 1    | —    | —    |
| Light plant                          | 3       | 3       | 9       | 12      | 12   | 12   | 12   | 12   | 12   | 11   | 3    | 2    |
| 4,000 gallon water truck             | 1       | 1       | 1       | 1       | 1    | 1    | 1    | 1    | 1    | 1    | —    | —    |
| Small dump truck                     | 2       | 2       | 2       | 2       | 2    | 2    | 2    | 2    | 2    | 2    | —    | —    |
| 3/4 ton pickup                       | —       | —       | 3       | 3       | 3    | 3    | 3    | 5    | 5    | 5    | 2    | 2    |
| 1 ton pickup                         | 1       | 2       | 3       | 4       | 4    | 4    | 4    | 6    | 6    | 6    | 2    | 2    |
| Crew bus                             | 1       | 1       | 3       | 3       | 3    | 3    | 3    | 5    | 5    | 5    | 2    | 1    |
| Slope monitoring stations            | 2       | 2       | 2       | 2       | 2    | 2    | 2    | 2    | 2    | 2    | —    | —    |
| Mine and geology software            | 1       | 1       | 1       | 1       | 1    | 1    | 1    | 1    | 1    | 1    | —    | —    |
| Pumps                                | 1       | 1       | 1       | 1       | 1    | 1    | 1    | 1    | 1    | 1    | —    | —    |
| 980 k cable reeler                   | —       | —       | 1       | 1       | 1    | 1    | 1    | 1    | 1    | 1    | —    | —    |
| Communication system                 | 1       | 1       | 1       | 1       | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    |

**17.0 RECOVERY METHODS****17.1 Introduction**

The Base Case process circuits will include primary crushing, secondary crushing, HPGR, ball milling, vertical milling, gravity concentration and cyanide leaching, followed by gold recovery by CIP, stripping and electrowinning (EW). Tailings handling will incorporate cyanide destruction and tailings thickening.

Plant throughput will be 36,000 t/d and it is expected that a ramp-up period of 10 months will be required to reach the design throughput.

**17.2 Process Flow Sheet**

The Base Case process plant will consist of:

- Primary (gyratory) crushing
- Secondary cone crushing and coarse ore screening
- Coarse ore stockpile (COS)
- Tertiary HPGR crushing
- Fine ore screening and storage
- Two milling stages (ball mill followed by vertical stirred mills)
- Gravity concentration and intensive leaching
- Pre-leach thickening
- Whole ore cyanide leaching
- CIP recovery of precious metals from solution
- Cyanide destruction
- Tails thickening
- Elution of precious metals from carbon
- Recovery of precious metals by EW
- Smelting to doré.

The plant will have facilities for carbon regeneration, tailings thickening and cyanide destruction. The overall process flow diagram is shown in Figure 17-1. The process design criteria assumptions are included as Table 17-1. Unit operations are summarized in Table 17-2.

### 17.3 Base Case Plant Design

#### 17.3.1 Crushing and Coarse Ore Stockpile

Major comminution equipment parameters are shown in Table 17-3.

The 54 x 75 primary gyratory crusher will crush the ore at an average rate of 2,143 t/hr to a P80 of 140 mm. Selection of this crusher was based on volumetric throughput and power requirements.

Run-of-mine (ROM) ore from the trucks will be discharged to a dump pocket with a capacity of 330 t or the equivalent to 1.5 times the size of a truckload. The dump pockets will have an agglomerative dust suppression or “fogging” water spray system. The apron feeder discharge chute at the crusher exit will have a baghouse-type dust collector. Crushed ore product from the primary crusher will be transferred to the covered coarse ore conveyor and conveyed, approximately 300 m, to a coarse ore screen distributor located in the screening building.

Primary crusher product will be sized on the coarse ore screens consisting of two double-deck multi-slope vibrating screens. The coarse ore screen oversize will be sent to the 1,250 hp secondary cone crusher. Secondary crusher product will be sent back to the coarse ore screens through the coarse ore conveyor.

Coarse ore screen undersize will be conveyed to the covered COS, which will have a live capacity of 20,157 t, or 12 hr of nominal process plant operation. Total live and dead storage capacity will be 74,720 t, equivalent to 44 hr of normal operation. Using a bulldozer will enable the process plant to continue operating during primary/secondary crushing circuit maintenance shutdown or upset conditions.

The COS will be equipped with three reclaim apron feeders, sized in a way that two feeders can deliver the design rate. A 93 m diameter dome structure will cover the stockpile for weather and dust containment. Additionally, apron feeder discharge chutes will be equipped with filter cartridge-type dust collectors to control dust in the tunnel. Reclaim apron feeders will discharge onto an approximately 260 m long covered stockpile reclaim conveyor.



Table 17-1: Process Design Criteria

|                                 | Parameter  | Units                                | Value            |     |
|---------------------------------|--|--------------------------------------|------------------|-----|
| <b>Plant</b>                    | Shifts / Day                                     |                                      | 2                |     |
|                                 | Hours / Shift                                    | Hr                                   | 12               |     |
| <b>Feed</b>                     | Hours / Day                                      | Hr                                   | 24               |     |
|                                 | Days / Year                                      | Days                                 | 365              |     |
| <b>Rate</b>                     | Primary / Secondary crushing circuit Utilization | %                                    | 70               |     |
|                                 | Process Plant Availability (1)                   | %                                    | 94               |     |
|                                 | Annual Processing Rate                           | M tpy, dry                           | 13.1             |     |
|                                 | Daily Processing Rate                            | tpd, dry                             | 36,000           |     |
|                                 | Crushing Processing Rate, Nominal (2)            | tph, dry                             | 2,143            |     |
|                                 | Plant Processing Rate, Nominal (2)               | tph, dry                             | 1,596            |     |
|                                 | <b>Mill Feed Properties</b>                      | Specific Gravity                     |                  | 2.7 |
|                                 |  | ROM Bulk Density, Unpacked           | t/m <sup>3</sup> | 1.6 |
|                                 |  | Moisture Content                     | %, w/w           | 3-5 |
|                                 |  | Design (75 <sup>th</sup> percentile) |                  |     |
| Abrasion Index                  |  |                                      | 0.68             |     |
| Crusher Work Index              |  | kWh/t                                | 13.3             |     |
| Bond Ball Mill Work Index       |  | kWh/t                                | 16.1             |     |
| Bond Rod Mill Work Index        |  | kWh/t                                | 17.3             |     |
| Drop-Weight Index               |  | kWh/m <sup>3</sup>                   | 11               |     |
| Mia (coarse particle component) |  | kWh/t                                | 28.9             |     |
| Mib (fine particle component)   |  | kWh/t                                | 19.7             |     |
| Mih (HPGR component)            |  | kWh/t                                | 23.6             |     |
| Mic (crusher component)         |  | kWh/t                                | 12.2             |     |
| <b>Head</b>                     | Head Gold Grade, Average                         | g/t Au                               | 0.98             |     |
|                                 | Au Recovery by Gravity                           | %                                    | 23               |     |
| <b>Grades and Recoveries</b>    | Intensive Leach Recovery                         | %                                    | 99               |     |
|                                 | Leach Recovery                                   | %                                    | 91.2             |     |
|                                 | CIP Recovery                                     | %                                    | 99               |     |
|                                 | Desorption, Regeneration & Refining Recovery     | %                                    | 99.5             |     |
|                                 | Overall Au Recovery                              | %                                    | 91.8             |     |

Notes: 2018 Feasibility Study target availability, to be confirmed in design phase; Based on target availability to achieve daily processing rate

Table 17-2: Summary of Unit Operations

| Item                |  | Unit                | Design               |
|---------------------|--|---------------------|----------------------|
| Crushing            | Nominal throughput                               | t/hr                | 2,143                |
|                     | Primary / secondary crushing circuit utilization | %                   | 70                   |
|                     | Feed top particle size, maximum                  | mm                  | 1000                 |
|                     | Product particle size, P80                       | mm                  | 38                   |
|                     | Stockpile live capacity                          | t                   | 20,157               |
| Grinding            | Nominal throughput                               | tph                 | 1,596                |
|                     | HPGR feed, F80                                   | mm                  | 38                   |
|                     | HPGR product, P80                                | mm                  | 2.4                  |
|                     | Ball mill grind, P80                             | µm                  | 235                  |
|                     | Ball mill circulating load                       | %                   | 300                  |
|                     | Vertical mill grind, P80                         | µm                  | 100                  |
|                     | Vertical mill circulating load                   | %                   | 250                  |
|                     | Grinding circuit availability                    | %                   | 94                   |
| Leach               | Leach feed thickener unit area                   | m <sup>2</sup> /t/d | 0.075                |
|                     | Type of circuit                                  |                     | CIP                  |
|                     | Residence time, leach tanks                      | hr                  | 30                   |
|                     | Residence time, CIP tanks                        | hr                  | 1.6                  |
|                     | Cyanide consumption                              | kg/t                | 0.1                  |
|                     | Carbon concentration                             | g/L                 | 50                   |
| Elution             | Stripping method                                 |                     | Pressure Zadra       |
|                     | Number of carbon strip vessels                   |                     | 2                    |
|                     | Carbon strip vessel capacity                     | t                   | 11.3                 |
| Carbon Regeneration | Type   |                     | Indirect             |
|                     | Method of heating                                |                     | Electric             |
|                     | Number of kilns                                  |                     | 1                    |
|                     | Rate   | kg/hr               | 1,100                |
| Cyanide Destruction | Number of stages                                 |                     | 1                    |
|                     | Residence time                                   | min                 | 120                  |
|                     | Oxidant  |                     | SO <sub>2</sub> /air |
|                     | SO <sub>2</sub> addition                         | g/g CNwad           | 5                    |
|                     | Total residual cyanide                           | mg/L                | <2                   |
|                     | Leach tails thickener unit area                  | m <sup>2</sup> /t/d | 0.072                |

**Table 17-3: Major Comminution Equipment Parameters**

|                  | <b>Equipment</b>           | <b>Unit</b>         | <b>Value</b>    |        |
|------------------|----------------------------|---------------------|-----------------|--------|
| Gyratory Crusher | Number of units            | #                   | 1               |        |
|                  | Throughput                 | dry tph             | 2,143           |        |
|                  | Installed motor            | kW                  | 600             |        |
|                  | Product particle size, P80 | mm                  | 140             |        |
|                  | Size                       | mm                  | 1400 x 2100 TSU |        |
| Cone Crusher     | Number of units            | #                   | 1               |        |
|                  | Throughput                 | dry tph             | 2,250           |        |
|                  | Installed motor            | kW                  | 930             |        |
|                  | Product particle size, P80 | mm                  | 58              |        |
|                  | Number of units            | #                   | 1               |        |
| HPGR             | Throughput                 | dry tph             | 3,511           |        |
|                  | Installed motor            | kW                  | 7,800           |        |
|                  | Crusher Product, P80       | mm                  | 2.4             |        |
|                  | Size                       | mm Ø x mm W         | 2,400 x 2,400   |        |
|                  | Number of mills            | #                   | 1               |        |
|                  | Throughput (fresh)         | dry tph             | 1,596           |        |
|                  | Size                       | m (ø x length EGL)  | 7.93 x 12.34    |        |
|                  |                            | ft (ø x length EGL) | 26 x 40.5       |        |
|                  | Ball Mill                  | Installed motor     | kW              | 16,000 |
|                  |                            | Motor/mill          |                 | 2      |
| Drive type       |                            |                     | Dual pinion     |        |
| Cyclone O/F, P80 |                            | µm                  | 235             |        |
| Number of units  |                            | #                   | 2               |        |
| Vertical Mill    | Throughput (fresh)         | dry tph             | 1,596           |        |
|                  | Installed power (total)    | kW                  | 6,712           |        |
|                  | Cyclone O/F, P80           | µm                  | 100             |        |
|                  |                            |                     |                 |        |

Combined ore from HPGR screens' oversize will report into the HPGR feed bin via two covered transfer conveyors of approximately 90 m and 70 m long respectively.

The screening building will be an insulated structure. The screen building will contain two coarse ore and three fine ore screens, apron feeders to each screen, product transfer conveyors and chute works. Dedicated dust collectors for each set of screens will be located outside of the building.

The crushing building will also be an insulated structure. Equipment will include the secondary crusher and the HPGR with respective apron feeders and a shared 100 t/20 t crane. Dedicated feed bins and dust collectors will be located adjacent to the main building.

### 17.3.2 HPGR and Grinding Circuits

The selected flowsheet to achieve 36 kt/d with a final passing P80 product of 100 µm consists of a closed HPGR circuit, a primary grinding with ball mill circuit, and secondary grinding with vertical mills circuit.

The HPGR will have 2,400 mm diameter by 2,400 mm width rolls, and two variable speed motors with a total installed power of 7,776 kW. The HPGR discharge will fall into a discharge conveyor and feeds a scalping screen feed distributor. The crushed ore stream will be evenly split into three double-deck dry-scalping screens with 12 mm and 4 mm apertures, to achieve a transfer P80 of 2.4 mm. Oversized material will be recycled back to the HPGR feed, while undersize will be sent to the primary grind ball mill circuit via a 16 m diameter fine ore bin capable of storing two hours of plant feed. This bin will receive ore from the screening building via a 166 m long covered conveyor. A dust collector system will be installed in the discharge to the bin. Ore will be reclaimed from the bin using two reclaim feeders, which will discharge onto a 240 m long ball mill feed covered conveyor.

The 7.92 m diameter by 12.3 m EGL ball mill, powered by two motors of 8,000 kW each, will operate in a closed-circuit configuration with a 12-way radial cyclone cluster. Fresh circuit feed will be fed directly to the ball mill and the product will be discharged by gravity through the mill trommel to the cyclone feed pumpbox, where the slurry will then be pumped to the cyclone cluster. A total of ten 750 mm diameter cyclones will work in closed circuit with the ball mill, with two cyclones on stand-by. All coarse cyclone underflow material will report to the ball mill with an estimated circulating load of 300%. Overflow fine material from the primary cluster cyclones will report to the secondary grind cyclone feed pumpbox with a passing P80 of 235 µm

The secondary grind circuit will consist of two vertical stirred mills with a total installed power of 6,700 kW. Stirred mills will operate in closed circuit with the secondary grind cyclone cluster consisting of 13 operating 750 mm diameter cyclones. Underflow material from the cyclones will feed the stirred vertical mills. A 40% split from the cyclones underflow will feed the gravity concentrators for gold recovery. Tailings from the gravity circuit will be returned to feed the vertical mills. Secondary cyclone overflow will be directed to the whole ore leach circuit with a final passing P80 product size of 100 µm. A particle size analyzer will monitor the performance of the entire grinding circuit.

### 17.3.3 Gravity Concentration and Intensive Leach

Material from the secondary cyclone underflow up to a maximum of 1,600 t/hr will be directed to the gravity concentration circuit. The stream will be evenly split directly from the cyclone cluster into two gravity concentrators working in parallel, to separate high-density particles producing a high-grade-gold concentrate. The gravity concentrators will be equipped with feed by-pass arrangements to direct the slurry to the vertical mills during concentrate discharge cycles.

This high-grade concentrate will be discharged by batches every 45 minutes, and stored in the intensive cyanidation feed tank for further processing. The contents of the intensive cyanidation feed tank will be discharged into the intensive cyanidation reactor, to be leached with a high-cyanide concentration solution. Caustic will be added to maintain the pH between 10.5 and 11, along with a leaching aid to complete the gold dissolution process. Solids from this reactor will be discharged back to the secondary cyclone feed pumpbox, and the pregnant solution, containing dissolved valuable metals, will be forwarded to the pregnant solution holding tank located in the gold room area.

### 17.3.4 Whole Ore Leach and CIP

Secondary cyclone overflow will flow by gravity to a distribution box, where it will be split into two trash screens for the removal of organics, metal, and other miscellaneous tramp materials. The oversize will be diverted to a trash screen bin, which will be emptied periodically. Undersize from the two trash screens will flow by gravity to the pre-leach thickener feed de-aeration tank, where lime will be added to adjust pH as necessary before leaching.

The pre-leach feed thickener will be fed from the de-aeration tank. An auto dilution high-rate thickener of 45 m diameter will be used to thicken the slurry from 33% to 50% in the underflow. The speed of the underflow pumps beneath the thickener will be varied to control the density of the feed to the leach circuit.

Thickener overflow water will be reused as process water in the different mill circuits, as required.

The pre-leach thickener underflow stream will be pumped to a leach feed tank, where it will be mixed with cyanide to achieve a concentration of 300 mg/L. The slurry will then be distributed to two leach lines. Each leach line will consist of five tanks in series, each 19.3 m diameter x 26.1 m high (average). Each tank will have triple impeller agitators to maintain slurry solids in suspension in the high-aspect-ratio tanks. Oxygen will be injected into the tanks to enhance the leaching kinetics of gold. Slurry will overflow by gravity from one tank to the next as it makes its way through the line. Total residence time in the leaching circuit will be 30 hrs.

Once leaching is completed, the slurry from both leach lines will be recombined in the pump cell CIP circuit feed launder. The CIP circuit will consist of eight 450 m<sup>3</sup> tanks operating in carousel mode. In this mode of operation, each tank will have its own discrete batch of carbon, which will spend a defined period in the circuit before the entire batch is removed to elution. Each tank will contain a total of 22.5 t of activated carbon, and will use a 29 m<sup>2</sup> interstage screen, to prevent activated carbon from flowing with the slurry flow.

#### 17.3.5 Stripping Circuit

Slurry containing loaded carbon from the CIP circuit will be pumped to a vibrating loaded carbon screen. Carbon washed from the screen will fall through a chute into a storage bin, and then to the acid wash vessel with a capacity of 11.3 t each. The remaining slurry on the recovery screen will flow through the screen deck, to be collected in a screen undersize launder and pumped back to the CIP feed.

All loaded carbon will be acid-washed in two batches. While half of the carbon is being acid-washed, the other half will be stored in the loaded carbon storage bin on top of the acid-wash vessel. After four hours of acid-wash operation, the loaded carbon in the acid-wash vessel will be discharged and pumped to one of the elution vessels. The loaded carbon in the storage bin will be acid-washed and transferred to the second elution vessel.

Pressure Zadra elution will be applied to the carbon stripping process for 16 hrs, using two elution vessels with a capacity of 11.3 t each. Solution from the barren solution tank will be pumped to the carbon stripping vessels. Pregnant solution will overflow from the vessels and will be distributed to the EW cells. After stripping, the barren carbon will be pumped from the strip vessel to a carbon regeneration circuit, consisting of a vibrating carbon dewatering screen and a 1,100 kg/hr regeneration kiln. The screened carbon will be sent to the carbon regeneration kiln, and the undersize to a fines tank. Material from the fines tank will be pumped through a carbon fines filter press, and captured carbon will be stored in bags. Periodically, the carbon fines will be treated in an off-site smelter to recover credits for residual gold values.

#### 17.3.6 Electrowinning and Refining

Overflow pregnant solution from the stripping vessels will report to an EW cells distribution box and split in two. Four 3.5 m<sup>3</sup> EW sludging cells, arranged in two lines of two, will capture valuable metals in a sludge form. After EW, the eluate will flow to the barren solution tank, and be recycled to elution as part of the carbon stripping process.

Pregnant solution generated in the intensive leaching reactor and held in the pregnant solution holding tank will be treated in a dedicated EW cell. This cell will work in a closed loop with the holding tank. At the end of the EW process, this eluate will be discharged into the barren solution tank.

Sludge recovered periodically from the EW cells will be mixed with flux in an induction- style unit.

The melted metal will be poured into a series of moulds to produce doré bars, while the slag produced will be poured into slag moulds. After cooling, the slag will be broken up, with the high-grade slag material re-poured to increase recovery, and the low-grade slag recycled to the grinding circuit.

#### 17.3.7 Cyanide Destruction

Tailings generated in the CIP circuit will initially be screened through carbon safety screens, to capture any attritioned carbon particles remaining in the discharge slurry. Undersize from the screens will be sent to cyanide destruction.

Cyanide destruction will take place in two tanks in parallel, each 14 m in diameter x 17.5 m high. The process will involve the addition of sulphur dioxide to destroy the cyanide, lime to neutralize the sulphuric acid that is formed as by-product, and copper sulphate, which will act as a catalyst in the reaction. An on-line cyanide analyzer will measure levels of free and weakly acid dissociable cyanide (CNWAD) for the feed and product streams in the cyanide destruction circuit.

Molten sulphur will be the main source of sulphur dioxide. A complete back-up system using metabisulphite will also be installed.

After cyanide destruction, the slurry will be discharged into a tailings thickener feed tank, from where it will be routed to the tailings thickener.

#### **17.3.8 Tailings Thickening**

The tailings thickener will be 55 m in diameter, with a high-rate type mechanism with an auto-diluting feed well. The feed slurry density of 50% solids will be increased to a target of about 62% in the underflow after thickening.

Overflow water from the tailings thickener will be recycled back to the process-water tank. Underflow solids will be pumped to the TMF.

#### **17.3.9 Production Ramp-up Schedule**

The ramp-up period will be highly influenced by design considerations, especially relating to the grinding circuit. Current practice incorporates learnings from HPGR circuits installed in the last decade. At some sites, these have experienced ramp-up periods as long as one year, although expansions at other sites have reached nameplate throughput in only six months.

The Côté processing plant is expected to take 10 months to reach the design throughput of 36,000 t/d. Reliable modelling, a focus on engineering design, and equipment selection will be key to achieving full production in this timeframe.

### **17.4 Base Case Energy, Water, and Process Materials Requirements**

#### **17.4.1 Water**

Tailings water from the reclaim pond will be the primary source of mill water, providing the majority of the process plant requirements, whereas the storm/mine water pond will be a secondary source of process water. Fresh water will be required for reagent mixing at the process plant which will be pumped from Mesomikenda Lake.

Water from the polishing water pond will be filtered and stored for use in a filtered water tank, providing clean water for carbon handling, cooling, gland sealing, gravity concentration fluidization, and reagents preparation. Fresh lake water will be stored and used as fire water. Pumps will be installed to bring water to the process building and the truck shop. Some of this water will be treated in a potable-water treatment plant, and stored in a high tank.

#### 17.4.2 Reagent Preparation

The reagent preparation area will include receiving systems, mixing and holding tanks, and metering systems for flocculant, caustic, cyanide, copper sulphate, molten sulphur, anti-scalant, lime and hydrochloric acid. These systems will be in individually contained areas forming part of the plant main building, with easy access by delivery trucks. The molten sulphur burning facility will be adjacent to the reagent area next to the cyanide destruction tanks.

Oxygen for the leach circuit will be delivered to site in bulk, and managed in stationary storage units. Oxygen piping will run from the pad to the leach circuit.

#### 17.4.3 Air Services

A dedicated, self-contained air service system will be provided for the:

- Crusher area to service the primary, secondary and HPGR crusher facilities
- Reclaim area
- Screening building
- Storage bin
- Leaching circuit
- Cyanide destruction and reagent area.

The systems will consist of an air compressor with its own service-air receiver, air dryer, and instrument-air receiver.

Two additional air compressors, fitted with intake filters and silencers, will feed plant air into a receiver for distribution to different parts of the plant. Some of this air will be fed to a system to prepare it for use as instrument air.

#### 17.4.4 Cyanide Management

ISOtainers containing solid sodium cyanide will be offloaded from trucks, parked on a bermed concrete pad, and then stored within the reagent storage area. Bulk cyanide will be dissolved within the ISOtainers and transferred to a mix tank for further make-down with filtered water. The solution will then be pumped to a holding tank for distribution to the leach circuit, barren eluate tank, and intensive cyanidation unit. Secondary containment will be implemented in the reagent preparation, leach and CIP areas. Transportation, management and storage of cyanide will be consistent with the International Cyanide Management Code.

#### 17.4.5 Energy

The mill will require approximately 50.7 MW of power to operate at full capacity. Additional information on the power supply assumptions for the Project are provided in Section 18.8.

#### 17.5 Comments on Section 17

The process design uses a conventional flowsheet and conventional equipment.

The ramp-up period will be highly influenced by design considerations, especially relating to the grinding circuit. The plant is expected to take 10 months to reach the design throughput of 36,000 t/d. Reliable modelling, a focus on engineering design, and equipment selection will be key to achieving full production in this timeframe.

## 18.0 PROJECT INFRASTRUCTURE

### 18.1 Introduction

Base Case infrastructure will include:

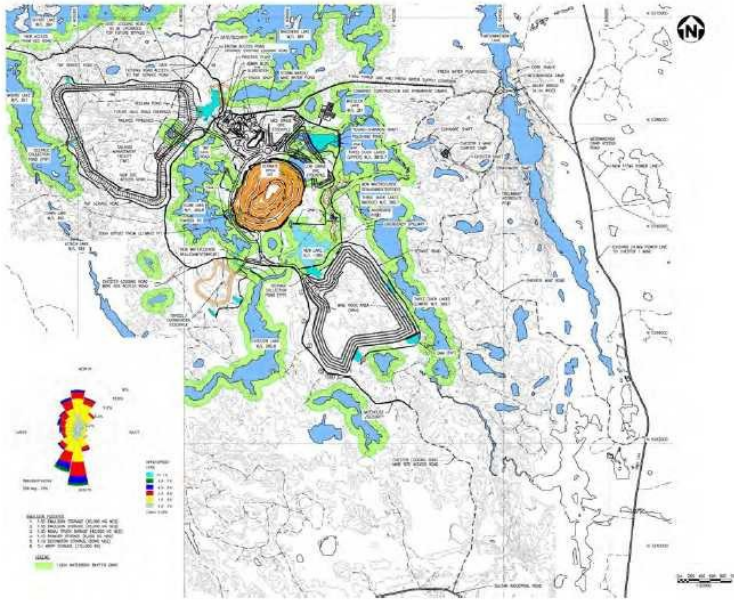
- Open pit
- RMA and stockpile facilities
- TMF
- Permanent camp and a temporary construction camp
- Emulsion plant
- Process facilities
- Workshop, offices, facilities and other services
- Watercourse realignment dams and channels
- New lake to be created to compensate the loss of Côté Lake
- Storm/mine water, polishing and tailings reclaim ponds
- Collection, surplus water discharge, and dispersion systems
- Two-lane gravel access road
- Upgraded existing transmission line from Timmins to Shining Tree Junction and a new 44 km-long 115 kV electrical power transmission line from Shining Tree Junction to the project site
- Electrical distribution network.

A layout plan is included as Figure 18-1.

### 18.2 Road and Logistics

Current access to the property is by a network of logging roads and local bush roads accessed from Highway 144 and from the Sultan Industrial Road, which runs east-west along and below the southern part of the Project area.

Figure 18-1: Infrastructure Layout Plan



Note: Figure prepared by Wood, 2018.

The selected route to the plant is the existing Chester Logging Road which has already been upgraded from the Sultan Industrial Road to km 4.62 at the intersection with an existing road to the planned open pit area. The upgraded road is 9 m wide and deemed to be sufficient to serve as the main access to the mine site. From here to approximately the southeast corner of the TMF, Chester Logging Road will require upgrading to 10 m design width, which is accounted for in the estimate. At the corner of the planned TMF site, the existing road continues into the footprint of the TMF, and 4.28 km of new road construction will be required to extend the access to the construction/permanent camp entrance. This section of road will be constructed as part of the early works and will be used as a primary construction access to the plant site and the camp area.

A mine site bypass route will use the existing Yeo Road, from the Sultan Industrial Road to a point opposite the northwest corner of the TMF, without upgrade. From there a new connector road of 3.94 km will be constructed to tie into an existing road which parallels the north dam of the TMF. This existing road requires upgrading. It will permit the public to access Chester Logging Road north of the TMF without passing through the mine security gate and the mine site proper.

Mine development will require three major haul roads, consisting of access to the MRA, the TMF, and the topsoil/overburden stockpile. In addition, a major intersection is required on the north side of the open pit to tie together the exit from the pit with the pit bypass road, the ramps to the ore stockpiles and the crusher and truck shop ramps.

Approximately 24.7 km of new 6 m wide service roads are required to access all site facilities, including many shorter spurs to dam locations, and perimeter roads around the TMF and the east side of the MRA.

The site layout includes three major watercourse crossings. Roads will be designed with a crossfall from side to side (as opposed to a central crown), such that the runoff from the entire road surface will be discharged to another developed drainage area on one side of the road, such as the process plant site, the reclaim water pond basin, the TMF, MRA, polishing pond, or the open pit itself.

### 18.3 Stockpiles

Stockpiles required for the mine plan are discussed in Section 16.5.

#### 18.4 Mine Rock Area Facilities

Mine rock area facilities required for the mine plan are discussed in Section 16.5.

#### 18.5 Tailings Management Facilities

The TMF is discussed in Section 20.4.

#### 18.6 Built Infrastructure

##### 18.6.1 Mine and Process Facilities

The buildings and structures that will be required for the mine plan are summarized in Table 18-1.

Three building design types are envisaged:

- Pre-engineered, such as the process building and truck shop. All process and internal platforms/structures inside these buildings will be stick-built and tied to pre-engineered building columns where possible
- Stick-built, such as secondary crusher/HPGR and screen buildings. Each building and its internal platforms/structures will be designed as one structure
- Modular structural steel, such as control rooms, with foundation or supporting steel structure provided.

All facilities will include the required electrical, HVAC, fire protection and other services.

##### 18.6.2 Accommodation Facilities

###### Permanent Accommodation Facilities

The permanent accommodations will be pre-fabricated modular buildings consisting of the core services facilities and the individual dormitories which will be manufactured offsite and transported, assembled, anchored on permanent foundations and commissioned at site.

Dormitories will consist of a one-storey dorm for 38 people and three, three-storey dorms to house 114 people each, connected by prefabricated, heated link/utility corridors to the one-storey core services building that will house recreation, dining, kitchen, food preparation and food storage facilities.

**Table 18-1: Buildings and Structures**

| Item   | Comment  |
|--|--|
| Primary crusher                                    | Cast-in-place concrete; a steel structure will support the control room and crane. The crusher discharge conveyor will be approximately 300 m long, extending from the primary crusher tower (tail pulley) to the coarse ore feed distributor (head pulley) located in the screening building  |
| Secondary crusher and HPGR building                | Insulated steel structure. Equipment will include the secondary crusher and the HPGR with respective apron feeders, and a shared 150 t/20 t area crane, access stairways and platforms   |
| Coarse ore conveyors and reclaim                   | Coarse product from the coarse ore screens will travel on a 174 m long conveyor back to the secondary crusher feed bin, while the fine product will travel on a 207 m long conveyor to the covered coarse ore stockpile  |
| Coarse ore screen building                         | Insulated steel structure. Equipment will include two coarse ore and three fine ore screens, apron feeder to each screen, products transfer conveyors and chute works, 35 t overhead crane, access stairways and platforms.  |
| Coarse ore stockpile and reclaim tunnel            | A 93 m diameter dome structure will cover the stockpile for weather protection and dust containment. The coarse ore reclaim tunnel will be approximately 190 m long overall, consisting of a reclaim section with a sump for pumping accumulated water, an escape tunnel, and a conveyor tunnel with varying cross-sectional areas for each.   |
| Fine ore feed bin                                  | A 16 m diameter fine ore feed bin capable of storing 2 hrs of ball mill feed material will be located south of the secondary crushing building. This bin will receive fine ore from the screening building via a 166.5 m long fine ore bin feed conveyor. Ore will be reclaimed from this bin using two reclaim feeders, which discharge on to a 240 m long ball mill feed conveyor, which will directly feed the ball mill. |
| Process building (includes the subset areas below) | Pre-engineered steel structure with a ridged sloping roof, completely enclosed with a building envelope that will comprise pre-painted, insulated sandwich wall and roof panels, personnel access doors, large- equipment access doors, air intake louvers, wall exhaust fans and variation cowlings.  |
| Grinding area                                      | One-storey structure that will house the ball mill, vertical mills, cyclones and feed pumps, ball bins, mill lube system, compressor room, gravity circuit and other associated equipment, including a traveling bridge 80/20 t crane  |
| Refinery, CIP and reagent areas                    | Form part of process building, and will house the CIP, carbon operations, compressor, EW and refinery, reagent and cyanide areas. These areas will contain related mechanical process equipment, piping, tanks and pumps, and will be provided with elevated platforms and stairs for maintenance  |

| Item                                   | Comment  |
|--|--|
| Metallurgical laboratory               | Two prefabricated, prefinished steel modules will house the metallurgical laboratory including a receiving/preparation area, metallurgical testing room, clean metallurgical room, and office  |
| Thickener and leaching area            | A pre-leach thickener, tailings thickener, and leach tanks will be located outdoors, south of the process building   |
| Assay laboratory                       | One-story pre-engineered steel building. Will house sample receiving and preparation, mill preparation, fire assay, wet chemical lab, weighing and fluxing, environmental laboratory and other functional areas to support sample analysis. Ancillaries will include offices, lunchroom, mechanical room, electrical room and washrooms  |
| Lube oil room                          | Will contain the lube-oil skid unit  |
| Mill maintenance workshop              | An enclosed room that will have an overhead 5 t crane to perform day- to-day mill maintenance equipment repair   |
| Mill offices, lunchrooms and washrooms | prefabricated modular steel assembly will comprise eight 4 m wide modules  |
| Mine dry                               | One-storey, pre-fabricated modular building. The facility will include 350-man "clean side" and 350-man "dirty side" locker rooms with a central washroom consisting of shower areas, wash fountain area, toilet cubicles, urinals, and vanity lavatories. A similar facility will be provided for up to 60 women.   |
| Administration offices                 | One-storey prefabricated modular building will house a few private managers' offices and mostly open offices. It will also house the central mine and mill control room, dispatch and training rooms, a large conference room with accordion partitions, washrooms, lunchroom and supporting services.   |
| Truck shop                             | Insulated pre-engineered steel building. Will have high and low bays. The high bays will house four heavy mine vehicle repair bays with an overhead 50 t bridge crane. These heavy repair bays will accommodate autonomous haul trucks and wheel loaders. The low bays will be dedicated to machine and electrical shops with an overhead 10 t bridge crane. Other functional areas will include lube storage, light-vehicle repair bays, compressor room, electrical and tool storage, women's and men's washrooms and changerooms, and office. A partial second floor will house building services, open maintenance offices, lunchroom and washrooms. |
| Warehouse                              | Pre-engineered insulated fabric building. Will store general-inventory parts to support maintenance of the mine equipment fleet  |

| Item                                    | Comment   |
|---|---|
| Truck wash                              | Insulated pre-engineered fabric building. Will house one drive-through wash bay and related equipment to accommodate mine haul trucks and wheeled and tracked vehicles including light vehicles. Modified modular containers will house washing equipment, and water storage and filtration equipment |
| Heated and cold storage                 | Pre-engineered insulated fabric structure. Will be divided into equal areas for heated storage, with an insulated double-skin fabric enclosure for palletized parts, and cold storage, unheated with a single-skin fabric enclosure   |
| Emergency vehicle storage and first aid | Pre-engineered insulated fabric facility. Will consist of two emergency vehicle storage bays to house the fire truck and mine rescue  |
| Gate house                              | Prefabricated modular building. Will house a security office, washrooms, and X-ray and search rooms   |

**Construction Accommodation Facilities**

Fifteen buildings, housing 44 people each, will be configured as “Jack and Jill” single- occupancy bedrooms with every two bedrooms sharing a shower and toilet. Five additional buildings, holding 37 people each, will be configured as “VIP” single-occupancy bedrooms with private washrooms. Each dorm will have a dedicated-entry mudroom, personnel laundry, janitorial services, furnace closets, mechanical room and other services. All dorms will be connected to the permanent core services facility by 1.5 m wide treated timber walkways, slightly above ground to allow for proper drainage.

To handle overflow during construction, an additional 670-person modular dining room will be assembled on skids.

**Chester Construction Camp**

Six one-storey dorms will house a total of 264 people, configured as “Jack and Jill” single occupancy bedrooms with shared shower and toilet between two rooms. Each dorm will have a dedicated-entry mudroom, personnel laundry, janitorial, furnace closets, mechanical room and other services. All dorms will be connected to the construction core services facility via treated timber walkways slightly above the ground. The core services facility will have with similar functional areas as the permanent core services facility at the mine site, including a 250-seat dining room.

**18.7 Water Management**

Water management for the Project is discussed in Section 20.5.

**18.8 Power and Electrical**

The power supply for the proposed mine site will be delivered at 115 kV by a new 44 km overhead line from the Hydro One's Shining Tree Junction. Upstream of the Shining Tree Junction is an 'idle' 118 km 115 kV line fed from Timmins Tie Station (TS) which will be refurbished and restrung. The independent electricity system operator (IESO) has completed a system impact assessment (SIA) and determined that the proposed connection to its power grid is technically feasible, that the system has sufficient capacity, and that it can meet the proposed in-service date of Q3 2020. Hydro One is currently completing a customer impact assessment (CIA), the next step to providing power at site on schedule.

The incoming 115 kV overhead line will terminate at the main substation north of the main process building. The substation will include incoming circuit breakers, motorized isolating disconnect switches, power transformers, switchgear, and protective equipment for the transformation of power from 115 kV to 13.8 kV. The site protection scheme will interface with Hydro One and will include a load-shedding scheme as identified in its SIA.

The calculated electrical load for the Côté Gold site is as follows:

- 61 MW maximum demand load
- 59 MW average demand load
- 98% lagging (inductive) power factor.

This calculated load is based on the current electrical load list, and includes two electric shovels, mine dewatering, all ancillary loads, and a 10% allowance for growth during detailed design.

Hydro One has allocated a total of 72 MW of capacity to the Project.

The main substation will be adjacent to the mill grinding building, which has the largest electrical loads, to minimize cabling costs and losses. The incoming transmission line from Shining Tree Junction will terminate at the substation, where incoming voltage will be stepped down from 115 kV to 13.8 kV for site distribution. The main power transformer secondaries will be connected to the main site 15kV switchgear to distribute power around the site. Feeders from the substation will be run in cable trenches, cable tray and/or on overhead lines to the area loads

The primary power supply to the open-pit mine will be a single 13.8 kV overhead pole line running from the switchgear at the main substation to the west side of the open pit. The system will comprise two portable skid mounted substations that transform the power from 13.8 kV to 7.2 kV for the mine's electric shovels and dewatering pumps.

Emergency back-up power will be available from four diesel standby generators, sized to provide essential power to the process and ancillary electrical equipment. The four 1 MW prime gensets will be located in the main substation area, will be 600 V rated and will be stepped up to 13.8 kV to be distributed around the site. During construction, these standby generators will be strategically located around the site to provide power to the construction and permanent camps, laydown areas, construction trailers, and for construction activities.

Uninterruptible power supplies (UPSs) will provide backup power to critical control systems including process control as well as autonomous fleet communications. The UPSs will be sized to permit operations to shut down, and back up the computer and control systems to facilitate start-up on restoration of normal (utility) power.

**18.9 Comments on Section 18**

Infrastructure required to support operations will include: the open pit; MRA; stockpiles; TSF and associated ponds; access and internal roads; powerlines and power distribution networks; watercourse realignments, diversion channels, dams and ponds; a New Lake to replace Côté Lake; process facilities; accommodation facilities; and mine support facilities including offices, workshops and warehouses.

**19.0 MARKET STUDIES AND CONTRACTS****19.1 Market Studies**

Gold doré bullion is typically sold through commercial banks and metals traders, with sales prices obtained from the World Spot or London fixes. These contracts are easily transacted, and standard terms apply.

IAMGOLD expects that the terms of any sales contracts would be typical of, and consistent with, standard industry practices, and would be similar to contracts for the supply of gold doré elsewhere in Canada.

Limited additional effort is considered to be required to develop a doré marketing strategy.

**19.2 Commodity Price Projections**

The 2018 Feasibility Study assumes a gold price of US\$1,250/oz for the economic analysis. Wood considers this price to be an industry consensus long-term forecast price, using:

- Bank analysts' long-term forecasts
- Historical metal price averages
- Prices used in publicly-disclosed comparable studies.

Gold prices were kept constant throughout the life of the project.

It is common industry practice to use higher metal prices for Mineral Resource estimates than Mineral Reserve estimates and the economic analysis. For the 2018 Feasibility Study, the following prices were used:

- Mineral Resources: US\$1,500/oz (cut-off grade and constraining shell)
- Mineral Reserves: US\$1,200 (cut-off grade)
- Cashflow analysis: US\$1,250 (financial analysis).

**19.3 Contracts**

No sales contracts are in place for the Project, however, once gold is refined by IAMGOLD's refiner (within five to seven days of receipt of the doré), the bullion is credited to IAMGOLD's bullion account and sales of IAMGOLD's bullion can be made immediately. Cash from the settlement of those bullion sales are then credited to IAMGOLD's bank account within two days.

IAMGOLD received indicative pricing for refining arrangements from the Royal Canadian Mint (the Mint). Total costs of \$1.75/oz gold for refining, transportation and insurance were used in the cashflow analysis.

Other key contracts that will be required in support of construction and operations include: MARC, open pit mining, operation of the assay laboratory, fuel supply to site, camp operations, and mine construction.

**19.4 Comments on Section 19**

Wood reviewed the information provided by IAMGOLD on marketing and contracts. In the QP's opinion, the information provided is consistent with that available in the public domain, and can be used to support the financial analysis

**20.0 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT****20.1 Introduction**

IAMGOLD received Provincial ministerial approval of the 2015 Environmental Assessment (EA) for the Project. The EA states that no significant effects are anticipated after application of the proposed mitigation measures.

Environment Canada stated in May 2016 that the Project is not likely to cause significant adverse environmental effects.

The project presented in the 2018 Feasibility Study has undergone optimizations since the 2015 EA, including:

- Relocation of the TMF to minimize overprinting of fish-bearing waters, reduce the Project footprint, improve Project economics, reduce the need for watercourse realignments, and avoid effluent discharges to the Mesomikenda Lake watershed
- Smaller open pit
- Modifications to the process plant
- Reduction in transmission line voltage, and re-routing of the transmission line; a new Provincial EA for the 44 km line is expected to be completed in 2018.

IAMGOLD is of the opinion that there are no new net effects arising from the 2018 Feasibility Study. On October 19, 2018, CEAA confirmed that the proposed Project changes are not considered new designated physical activities and therefore a new environmental assessment is not required. On November 9, 2018, MECP also confirmed their concurrence with the conclusion in the EER report, that the proposed changes to the undertaking result in no new net effects.

**20.2 Baseline Studies**

A list of the baseline studies completed to date is provided in Table 20-1.

**Table 20-1: Baseline Studies**

| Study                    | Comment   |
|--------------------------|---|
| Water                    | <p>The Project site is within the Mollie River and Neville Lake sub-watersheds. A number of lakes lie within the area, including Chester Lake, Clam Lake, Côté Lake, Three Duck Lakes, Moore Lake, Chain Lake, Attach Lake, Sawpeter Lake and Schist Lake. Small tributaries, including Clam Creek, Unnamed Pond and Mill Pond, drain from the site into the Mollie River.</p> <p>The open-water reach of the river between Chester Lake and Côté Lake ranges in width from 5–20 m, with a depth of 1–2 m, and is bordered by a flooded grassy marsh, interspersed with dead standing conifers. Numerous stands of planted jackpine occur adjacent to the marsh, and there is evidence of recent logging.</p>   |
| Air and noise            | <p>Air quality in the vicinity of the project site indicates no significant nearby anthropogenic sources of air emissions, and there are no significant emissions from the project site. Air quality in the project area is, however, affected by long- range transport of emissions from the south, and by natural sources such as fires and volatile organic emissions from vegetation.</p> <p>Noise in the vicinity reflects a rural environment, including sounds of nature and minimal road traffic.</p>   |
| Soils                    | <p>Overburden throughout the study area generally consists of an organic layer (peat in many cases) overlying silt and/or sand, with occasional till overlying bedrock. Bedrock is very close to or at surface in most areas, except for valley bottoms and low-lying wet areas. Overburden ranges in depth from 0–18 m. Soil pH values range from 6.8–7.3.</p>   |
| Geology and geochemistry | <p>A detailed assessment of the potential for metal leaching and acid rock drainage (ML/ARD) was completed for overburden, mine rock and tailings. The work included characterization (static testing) of overburden and bedrock in previous areas planned for construction, with results indicating little potential for ML/ARD. More extensive studies, including static and kinetic testing (humidity cells and field cells), were conducted for open-pit mine rock and tailings. The mine rock was characterized with a generally low sulphide content (&lt;0.3% sulphide), a low potential for ML/ARD, and an excess of neutralization potential overall. The tailings were determined to be non-potentially acid generating (NPAG), with a substantial excess of neutralization potential expected. Short-term leaching tests showed little evidence of concern for neutral metal leaching in mine rock or tailings. Field cell tests were continued to further confirm the low ML/ARD potential. Simulated tailings were subjected to rheology tests that characterized settling rates and density.</p> <p>The existing studies are largely expected to be representative of the proposed mine plan. Updated geological and metallurgical information is being evaluated with respect to the 2018 Feasibility Study designs (e.g., smaller pit design and ore processing modifications). If gaps are identified, further testing will be completed as necessary to support future permitting and detailed design. Additional confirmatory studies may be required for new construction areas requiring excavation (e.g., diversion channels outside the previous investigation footprint).</p> |

| Study        | Comment   |
|--------------|---|
| Hydrology    | <p>The Project is within the Upper Mattagami River watershed, which drains northward through the City of Timmins and ultimately to James Bay. Surface water flows are controlled by lakes and creeks that flow to the Mollie River and Mesomikenda Lake, before discharging to Minisinakwa Lake and ultimately the Mattagami River. The Mattagami River upstream of the City of Timmins water filtration plant is within Intake Protection Zone 3 in the context of the Mattagami River Source Water Protection Program; this zone does not prohibit the proposed mining activities.</p> <p>Water Survey of Canada maintains regional hydrological monitoring stations in the Mollie River (unregulated flow) and at Minisinakwa Lake (regulated flow), and Ontario Power Generation monitors the Mesomikenda Lake Dam (regulated flow). The regulated flow systems are governed by a Water Management Plan in place for the Mattagami River.</p> <p>Surface water flow-paths at the project site are currently monitored by 15 hydrological sampling stations selected and installed during 2012, and increased to 22 stations in 2016. In general, these stations are distributed throughout the Mollie River sub-watershed and Neville Lake sub-watershed. Automated water-level data loggers have been installed and will be used in conjunction with instantaneous discharge measurements to develop a characterization of the streamflow regime.</p>  |
| Hydrogeology | <p>Between 2012 and 2014, over 150 boreholes were drilled to characterize subsurface conditions. Groundwater monitoring wells (single and nested) were installed at 62 of these locations, and slug testing and packer testing was conducted to develop estimates of the hydraulic conductivity of various overburden materials and at a range of bedrock depths. In 2016, an additional 23 monitoring wells were installed in various locations within the proposed TMF footprint. An additional 29 boreholes were drilled in 2017 and 2018 to reflect the updated site configuration. In addition, six angled drill holes were advanced into the deep bedrock within the proposed open pit, to facilitate hydrogeological and geomechanical testing of major lithological units and structural features (e.g., dykes and faults) along ultimate pit walls.</p> <p>Wells were installed in many of the boreholes drilled with screens located in overburden, where present, and bedrock materials. Groundwater levels have been monitored at selected locations at various times.</p> <p>Hydraulic conductivity estimates for granular overburden materials range to a high of 2E-03 m/s, with a geomean value of about 9E-06 m/s. For fractured bedrock, hydraulic conductivity estimates ranged up to about 3E-04 m/s. Hydraulic conductivity values showed a trend to declining values with depth, generally independent of rock type and rock structure. Where unfractured, a hydraulic conductivity of about 1E-11 m/s has been inferred. The geomean hydraulic conductivity declined from 1E-07 m/s in the upper 10 m of the bedrock profile to about 2E-10 m/s below a depth of 200 m.</p> <p>The primary groundwater flow paths are inferred to occur through the granular materials within bedrock troughs. The bedrock troughs have limited lateral extent and an average depth of about 7 m, with a maximum observed depth of about 20 m.</p> |

| Study                 | Comment   |
|-----------------------|---|
| Surface water quality | <p>Quarterly or monthly surface water quality sampling was completed during the EA and feasibility baseline studies at 48 locations in the two main sub-watersheds of the site and in the vicinity of the site infrastructure, including lake outflow stations, lakewater column profile stations, and watercourse stations. The baseline monitoring program was modified in 2016 to reflect the updated site configuration.</p> <p>Results were typically consistent across seasons, with concentrations of copper, cadmium, iron, selenium, mercury, zinc, total phosphorus and dissolved aluminum occasionally exceeding Provincial Water Quality Objectives (PWQOs) and the Canadian Council of Ministers of the Environment's Canadian Water Quality Guidelines (CWQGs) for the Protection of Aquatic Life. Exceedances were generally interpreted to be naturally occurring. Surface water quality monitoring is ongoing.</p>   |
| Water sedimentation   | <p>Sampling results indicated good sediment quality, with most parameter concentrations below the 2008 MECP Provincial Sediment Quality Guidelines (PSQGs). PSQG lowest-effect levels (LELs) were exceeded for most of the total organic carbon results. A few results also exceeded PSQG severe-effect levels (SELs), but this is typical of lakes in northern Ontario. Provincial SELs were found to be exceeded for iron and manganese concentrations in the Mollie River. In some surface waters, Federal threshold effect level exceedances were observed in 2011 for copper.</p> <p>The PSQGs were developed for, and are strongly weighted by, data for sediments in the Great Lakes, which tend to have substantially lower content of many metals compared to Canadian Shield lakes (Prairie and McKee, 1994). Natural background concentrations, particularly in mineralized areas of the Canadian Shield lakes, can naturally exceed PSQG LELs. Further sediment quality evaluation will include a comparison to PSQG LELs, SELs, and reference area values.</p>   |
| Groundwater quality   | <p>In 2012, groundwater samples were collected three times at 37 wells, at sites of potential mine infrastructure development. In 2016, an additional 23 wells were added to cover the PEA/PFS TMF location. Groundwater chemistry was analyzed for major ions, metals, nutrients and physical parameters (e.g., conductivity and total dissolved solids). Results were compared to Ontario Drinking Water Standards (ODWS), PWQOs, and the Canadian Council of Ministers of the Environment CWQGs for the Protection of Aquatic Life. Results indicated that values occasionally exceeded these regulatory criteria, including but not limited to copper, zinc, molybdenum, aluminum, silver, arsenic, iron, free cyanide and cadmium. Additional investigations to verify these results were completed in 2013. With respect to groundwater quality, several values were measured above their applicable ODWSs or PWQOs during one or more monitoring events in 2012. Since there is currently limited development at the site (other than exploration and geotechnical drilling), these values are considered to represent background conditions, and will continue to be monitored to assess trends in water quality.</p> |

| Study             | Comment  |
|-------------------|--|
| Aquatic resources | <p>Aquatic assessments were conducted of water bodies within the boundaries of the proposed open pit and associated potential initial locations of the MRAs and TMF. Studies included characterization of fish habitat and community structure of the water bodies, as well as sport-fish populations in Côté Lake and Unnamed Lake. Additional data on aquatic resources were collected during the summer and fall of 2010. These studies included water quality/hydrogeology analysis, benthic invertebrate surveys, aquatic macrophyte community assessment, and fish community assessment and habitat characterization.</p> <p>Samplings did not provide evidence of any aquatic species at risk (such as lake sturgeon), either under the Federal Species at Risk Act (SARA) or Ontario's Endangered Species Act (ESA).</p>   |
| Wildlife          | <p>Sensitive species refers to those listed in the ESA, the SARA (Schedule 1), or those considered vulnerable or imperiled in the Province (Provincial ranking of S1-S3). Based on desktop studies, there is potential for 18 Provincially-listed wildlife species, one Federally-listed species, and two Provincially-tracked wildlife species to occur in the Project area. Seven of these species were documented: four are listed as Special Concern (bald eagle, Canada warbler, common nighthawk and olive-sided flycatcher); and one as Endangered (little brown myotis) under the Provincial ESA. One species listed as Special Concern under SARA (the rusty blackbird) was also observed during field surveys.</p> <p>Based on the habitat ranges provided by the Atlas of the Mammals of Ontario (Dobbyn, 1994), 49 mammals have potential to inhabit the project area. A winter aerial survey conducted between 27 February and 1 March 2013 observed 21 moose and one red fox along the alternative transmission line routes. In addition, tracks of moose, red fox, wolves, lynx, river otter, pine marten, mink, weasel, snowshoe hare, and porcupine were observed.</p> <p>In 2017, additional aerial and wildlife surveys were conducted at the new TMF and topsoil/overburden stockpile, and additional aerial surveys were conducted along the 44 km transmission line route from the Project site to Shining Tree distribution station. No additional Federally- or Provincially-listed species were identified during the 2017 studies.</p> |

| Study   | Comment  |
|---|--|
| Land use  | Studies completed included assessments of regional demographics, population, regional economy, agricultural, forestry and mining use, and recreation and tourism.  |
| Cultural heritage and paleontological resources | <p>The cultural landscape consists of a 1930s-era gold mining camp with associated sites and remains. Further documentation and assessment of this landscape was conducted in 2013. No built heritage resources other than ruins have been identified.</p> <p>Archaeological sites and features were recorded in the study area, including pre- contact sites, historical sites, ancient trails and portages. While many of these sites have been mitigated or are outside the area of development, several require further archaeological work.</p> <p>Almost all of the fieldwork undertaken on the Côté Gold property has directly involved members of Mattagami First Nation, and a member of Flying Post First Nation during the 2012 and 2013 field seasons.</p> |
| Aboriginal traditional land use                 | Traditional knowledge and traditional land-use studies were conducted by a consultant selected by Wabun Tribal Council, on behalf of the Wabun member communities of Mattagami First Nation and Flying Post First Nation. The Métis Nation of Ontario also conducted a traditional knowledge and traditional land-use study of the Project area. Both studies show some level of current use in the broader area around the site.  |

### 20.3 Environmental Considerations

Potential environmental effects associated with the construction, operation, and closure of the Côté Gold Project include:

- Changes in air quality
- Increases in noise
- Potential loss of aquatic habitat
- Disturbance of aquatic species
- Reduction of terrestrial habitat, and associated species disturbance
- Alteration of local groundwater infiltration rates and aquifers
- Changes in water quality in the Mollie River and Mesomikenda Lake watersheds
- Increased demands on community/regional infrastructure and social services

- Effects on cultural heritage resources
- Effects on local Aboriginal and Métis traditional land uses
- Alterations to local terrain and visual aesthetics.

The 2015 EA provides a complete assessment of potential environmental effects, and states that no significant adverse effects are anticipated after application of the proposed mitigation measures.

IAMGOLD has conducted additional baseline studies within the boundaries of the new TMF and topsoil/overburden stockpile, and new transmission line alignment, to infill the physical, biological and human environment characterizations conducted previously. These additional baseline data, together with design information for the site configuration, were used to prepare the Environmental Effects Review (EER) for the project, for submission to the Canadian Environmental Assessment Agency (CEAA) and the Ministry of the Environment, Conservation and Parks (MECP), thus informing the regulatory agencies of changes or improvements to the EA. On October 19, 2018, the CEAA confirmed that the proposed Project changes are not considered new designated physical activities and therefore a new environmental assessment is not required. On November 9, 2018, MECP also confirmed their concurrence with the conclusion in the EER report, that the proposed changes to the undertaking result in no new net effects.

Based on the Federal and Provincial Environmental Assessment processes, IAMGOLD has established a preliminary environmental monitoring program that includes monitoring parameters, methods, applicable standards, frequencies and locations for the physical, biological and human environments. The program will be updated to reflect conditions of various environmental approvals as they are received. Environmental baseline monitoring programs to date provide the basis for the monitoring frameworks, and may be modified to meet compliance and reporting requirements as the project moves through the permitting phase. The monitoring programs will apply to the construction, operation, closure and post-closure phases of the project, as appropriate, and will allow for compliance with anticipated environmental approvals and permits, while providing information to determine the effectiveness of proposed mitigation measures.

Follow-up monitoring is expected to provide for an adaptive management approach, should environmental effects vary from those predicted; if mitigation measures prove less effective than anticipated; or as new information becomes available. Mitigation strategies may be modified accordingly, and monitoring parameters, locations and/or frequencies will be adapted as appropriate.

## 20.4 Tailings Management Facility

### 20.4.1 Design Basis

Over the proposed LOM of 16 years, tailings production is approximately 13.1 Mt/a from nominal mill throughput of 36,000 t/d, except in Year 1 when it is about 11 Mt due to ramp-up. The TMF will store 203 Mt of tailings over the LOM.

Tailings will be thickened with solids concentration in slurry at 62% and discharged from the TMF perimeter dams, forming an overall beach slope of approximately 1%. Tailings solids will settle in the TMF with pore water retained in the voids with supernatant water forming a pond. Based on recent rheology, drained and undrained column settling tests (SGS, 2017), an overall in-situ dry density of  $1.5 \text{ t/m}^3$  is expected.

Additional tests on tailings which include confirmatory column settling tests, air drying tests and tailings consolidation tests are currently underway at the SGS laboratories in Vancouver. Most of the supernatant water from tailings will report to the reclaim pond, where it will be reclaimed for use as process water.

Both the tailings and mine rock have been classified as non-potentially acid-generating (NPAG) materials, with a low potential for metal leaching.

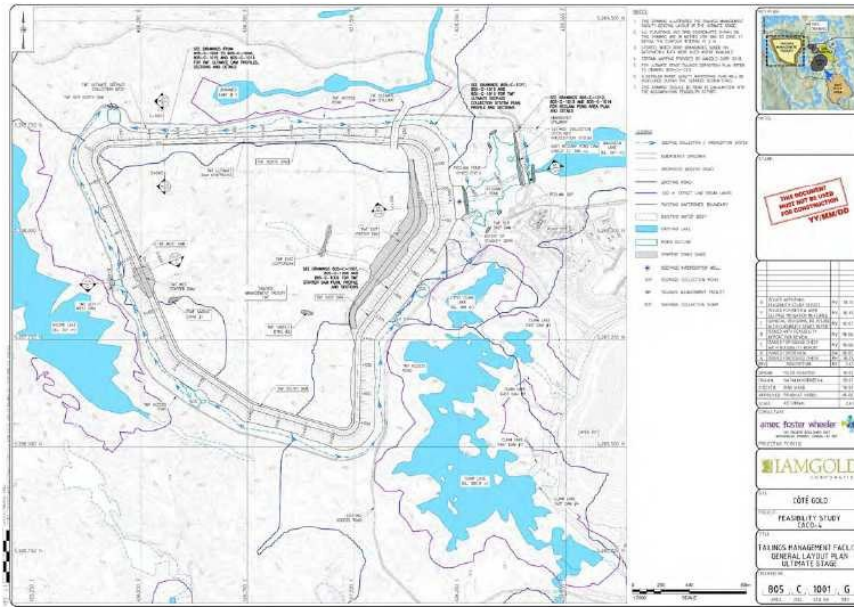
### 20.4.2 TMF Layout and Configuration

Perimeter embankment dams, raised in stages, will be used for tailings management. Figure 20-1 presents the general design layout of the TMF.

A minimum 120 m off-set has been provided from the TMF to the surrounding major water bodies in accordance with the mining act.

The dam rockfill will be primarily sourced from the open pit development. Mine rock will be hauled to the dam and end-dumped and compacted. The sand and gravel filter for the initial years of operation will be sourced from locally available commercial borrow pits. The transition material and abutting select rock fill material will be sourced from mine rock.

Figure 20-1: Tailings Management Facility Layout Plan



Note: Figure prepared by Wood, 2018.

The TMF dams will be constructed with a low permeability, high strength bituminous geomembrane liner (BGML) on the upstream slopes of the TMF starter dams and the TMF east dam only in the second year of operations. The BGML must be used because of the lack of low-permeability overburden materials onsite.

Water from the tailings pond will be recirculated to the process plant by pumping from the tailings pond. Starting from Year 3 of operations the tailings dams will be raised as pervious dams with transition and filter layers placed along the upstream slopes of TMF perimeter dams. To prevent potential erosion of the filter layer, a geotextile will be placed over the filter zone. The reclaim pond constructed downstream of the TMF footprint will be used to collect the TMF water and recirculate to the process plant from Year 3 of operations to the end of the mine life.

The dams' potential hazard classification is "HIGH", resulting from the risk of potential environmental impact on the surrounding lakes. However, the current design supports a higher classification, i.e., "VERY HIGH" with the necessary dam safety requirements for this classification "built-in" to the design.

In accordance with the guidelines the TMF will be designed to contain the Environmental Design Flood (EDF) of 1-in-100 year return period without direct discharge to the environment. An emergency spillway will be provided in the TMF to safely pass the inflow design flood corresponding to the probable maximum flood.

TMF dams have been designed for seismic events corresponding to maximum credible earthquake (MCE) with 1-in-10,000 year annual exceedance probability.

The upstream slopes of the dams are designed at 2.5H:1V and downstream slopes will be built at 2H:1V. Dam slope stability analyses have been performed for various loading combinations. The factors of safety of upstream and downstream slopes meet the required target factors of safety in accordance with the CDA guidelines.

Dam instrumentation will mainly include vibrating wire piezometers in the foundation, inclinometers in the downstream slope footprints, survey monuments along the downstream slopes to monitor dam deformation and dam settlement during both operation and post-closure.

Collection ditches and ponds will be located at topographical low points around the TMF perimeter to collect runoff and seepage. In the ultimate TMF configuration there will be six collection ponds. The ponds will lead the seepage to the reclaim pond by gravity (or by pumping in some cases) for recirculation to the process plant.

#### 20.4.3 Geotechnical Conditions

Geotechnical investigations indicate that the overall TMF site has very little overburden underlain by bedrock. The overburden units consist of generally free draining sand, sand and gravel and silty sand varying in thickness from 0–3 m. The high permeability overburden deposits in the central valley vary from 6 m thick at the east dam to about 13 m thick further east. The bedrock is at very shallow depths along the proposed TMF north dam site.

#### 20.4.4 Tailings Deposition

Tailings slurry will be pumped to the TMF and spigotted along the dam crest during operations throughout the year. In the winter the discharge locations will not be altered, to avoid buildup of ice on the beach. The TMF will be developed in stages for better water management and water balance and tailings deposited in a manner that optimizes dam raises and water management. The tailings deposition plan will provide flexibility and will facilitate progressive closure in the final years.

Tailings will be discharged from the west side initially, and later deposition will be done from the south and eventually from all three sides on the south, west, and north perimeter dams, to maintain the tailings pond to the east side of the impoundment for easy management during operation and closure.

#### 20.4.5 TMF Water Management

TMF water will be pumped from the tailings pond/reclaim pond directly to the mill for reuse and hence forms a closed circuit without contact with other water bodies.

TMF water management assumptions include:

- The TMF will accumulate approximately 2 Mm<sup>3</sup> of water prior to mill start up to ensure enough water for winter operation
- Significant amounts of mill make-up water will be provided by reclaim from the TMF in winter
- The TMF is the primary source of mill make-up water with additional sources being the polishing and storm/mine water ponds
- A sitewide water balance study has been performed for climate normal, 1-in-100 year wet and 1-in-100 year dry scenarios. The study indicates that the TMF would be able to supply significant volume of reclaim water to the mill for all scenarios supplemented by reclaim water from mine water pond or polishing pond when required.

All ponds, including the tailings reclaim pond, will have emergency spillways to safeguard the dams.

#### 20.4.6 Seepage Modelling

A preliminary 3D groundwater flow model of the Project site includes the proposed Project and regional surroundings, covering an area of approximately 167 km<sup>2</sup>. The active model domain is delineated based on hydrogeological boundaries such as major lakes, rivers and interpreted groundwater divides.

TMF seepage mitigation measures have been implemented in the model to reduce potential seepage by-pass and include seepage collection ditches and ponds ringing the TMF, the installation of geomembrane liner along the upstream flanks of starter dams adjacent to Moore and Clam Lakes, and the installation of interceptor wells to the north of the TMF.

Further modelling will be undertaken during design, and prior to the TMF north dam construction, which will consider sensitivity analyses, alternative engineering controls and future field investigation results and may alter some of the seepage control measure requirements.

#### 20.4.7 TMF Water Quality Prediction

Water quality predictions for the settling pond account for inputs from process water from the process plant and tailings runoff within the TMF. The water quality predictions for the reclaim pond account for inputs from the TMF (including runoff, seepage directly entering the reclaim pond, and seepage collected via the seepage collection system that is pumped to the reclaim pond). The resulting water quality model simulates the natural degradation of cyanide in the TMF tailings mass, TMF settling pond, and the reclaim pond.

The predicted maximum monthly average concentrations of total cyanide in the reclaim pond are above the MDMER maximum authorized monthly mean concentrations of prescribed deleterious substances for existing mines that come into force on June 1, 2021. However, the TMF water, including the water in the reclaim pond, will be pumped to the mill for reuse and will not be directly discharged to the receiving environment. All other predicted monthly average concentrations are below the MDMER.

The predicted monthly average concentrations at lakes receiving TMF seepage (Bagsverd Lake [south basin], Unnamed Lake #5 [tributary to Schist Lake outflow], Schist Lake, Moore Lake, Clam Lake and Little Clam Lake) are below the water quality guidelines for key seepage parameters (i.e., free cyanide, copper).

#### 20.4.8 Water Quality Monitoring

Water quality will be monitored in the process water (before and after cyanide destruction) prior to discharge to the TMF. Water quality will also be monitored in the TMF settling pond, reclaim pond, and in the seepage collection system.

With respect to completing monitoring to evaluate potential effects due to TMF seepage that bypasses the seepage collection system, water quality will be monitored at lakes surrounding the TMF and at those lakes further downstream. Monitoring points include:

- Lakes in the Mesomikenda Lake watershed: Bagsverd Lake, Unnamed Lake #6 (tributary to Schist Lake outflow), Schist Lake, Neville Lake, and Mesomikenda Lake
- Lakes in the Mollie River watershed: Moore Lake, Clam Lake, Little Clam Lake, Chester Lake, New Lake, Three Duck Lakes, Delaney Lake, and Dividing Lake.

Groundwater quality will be monitored at wells to be installed downgradient of the TMF seepage collection system to confirm that seepage from the TMF is being captured in the seepage collection system. The groundwater monitoring will assist with confirming water quality model and 3D groundwater model predictions and provide information as part of the adaptive management of TMF seepage. It is expected that the monitoring data will assist with determining the need for potential additional mitigation measures (i.e., pumping well system).

Monitoring well installations will be located downgradient of where the seepage collection systems are constructed with an increased focus on areas where there may be preferential groundwater flow pathways. The monitoring well locations will be (in part) selected based on the results of the 3D groundwater modelling.

The monitored water quality will be assessed relative to applicable effluent discharge requirements and water quality guidelines.

Should water quality monitoring in the vicinity of the TMF indicate unacceptable concentrations associated with site sources and/or seepage bypass rates, the contingency measure would be to further capture the TMF seepage followed by treatment to acceptable concentrations. An option for further capture of TMF seepage may include seepage interception using pumping wells installed upstream of the lakes that surround the TMF, as any additional mitigation would likely be localized in nature.

## **20.5 Water Management**

Infrastructure required for water management over the LOM is shown in Figure 20-2.

### **20.5.1 Watercourse Realignment Dams and Channels**

A watercourse realignment system has been designed to redirect water around the mine facilities to enable excavation and dewatering of the open pit.

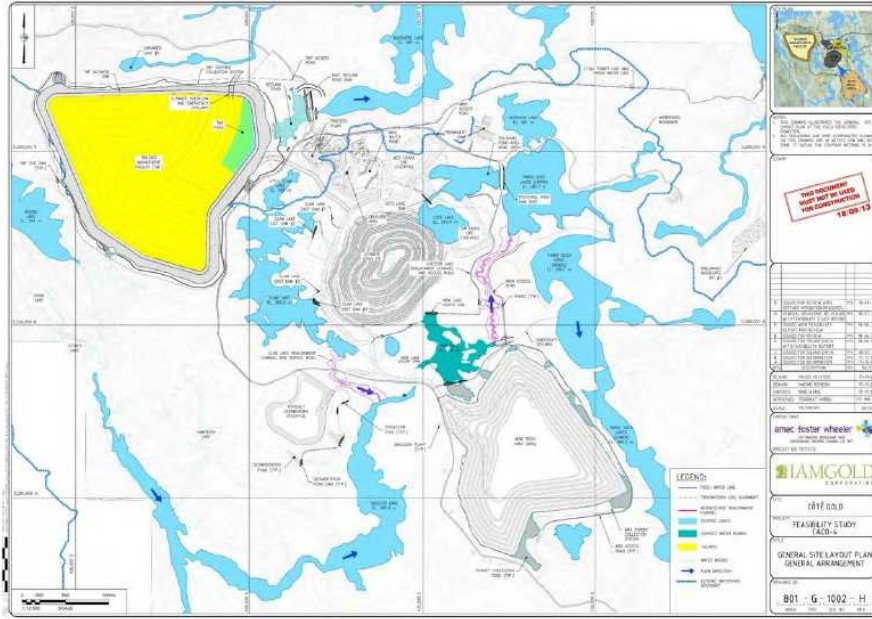
Four pit protection dams will be constructed either within existing lakes, in shallow water, or at currently dry locations along the eastern periphery of the Clam Lake. These dams will protect water from entering the pit area. Sufficient freeboard has been provided above the lake levels to avoid potential overtopping of the dams under flood conditions. Dam designs are based on the water and ground conditions at each location, and in accordance with the Canadian Dam Association Dam Safety Guideline (CDA, 2014) and the Ontario Lakes and Rivers Improvement Act (MNR, 2011).

Two realignment channels will reroute the existing watercourses running into the open pit: WRC 1 from Clam Lake to Chester Lake flowing south, and WRC 2 from the New Lake (built in compensation for the partial elimination of Côté Lake by the pit) to the Three Duck Lakes (Upper). The channels have been designed to provide fish migration and habitats under both low and high flow conditions. Routing the water to the Three Duck Lakes (Upper) will maintain fresh-water inflow, and the lakes will remain oxygenated for fish habitat.

### **20.5.2 Storm/Mine Water, Reclaim, and Polishing Ponds and Collection System**

The polishing pond east dam will be constructed in the Three Duck Lakes (Upper) area to delineate the lake from the polishing pond area. The Côté Lake dam is required to facilitate early dewatering of Côté Lake and separate the Three Duck Lakes system from Côté Lake.

Figure 20-2: Water Management Infrastructure Layout Plan



Note: Figure prepared by Wood, 2018.

The polishing pond to be located downstream of the ore stockpile will receive water from various sources before it is released to the environment after meeting discharge quality standards. The polishing pond will be controlled with a normal operating level at El. 380 m, i.e., about 0.8 m below the adjoining Three Duck Lakes (Upper) with normal operating level at El. 380.8, which will create a reverse hydraulic gradient, to mitigate migration of contact water to the lake.

A storm/mine water pond near the process plant will receive pumped inflows from the pit, the polishing pond when required during, and runoff from the process plant site. Runoff from the ore stockpiles and MRA will report to the polishing pond via perimeter ditches. Pit water will be routed to the storm/mine water pond due to the possible presence of ammonia from blasting operations in order to provide additional retention time before directing the water to the polishing pond.

### 20.5.3 Water Management Facility Dam Designs

All WMF dams, except the Polishing Pond East Dam, will be built out of mine rock with a low permeability central till core. In order to mitigate foundation seepage through the high permeability overburden layers, the central till core will be extended to low permeability silt or bedrock. The polishing pond dam will be built in the Three Duck Lakes (Upper) by construction of two rockfill shells and a central sand and gravel core. A cut-off wall will be constructed in the sand and gravel to provide a low permeability barrier. The cut-off wall will be extended into the foundation to mitigate seepage into polishing pond area. Dredging of the organic silt layer in the dam footprint will be necessary.

The WMF dams are designed as per guidelines set by Ministry of Natural Resources 'Lakes and Rivers Improvement act (LRIA Technical bulletin 2011) and the "Canadian Dam Association". In accordance with LRIA, the hazard potential classification for most of these dams is 'High'.

Dam slope stability analyses has been carried out for various loading conditions. The factors of safety for the dam slopes meet the stipulated target factors of safety by CDA for all loading conditions.

### 20.5.4 Water Quality Prediction

A water quality model was developed to predict the water quality of the polishing pond. Flow rates were used with baseline water quality and geochemistry inputs to derive mass loading rates for each of the model components. The model predicts water quality under average, 1:100-year dry and 1:100-year wet flow conditions.

The effluent quality predictions account for inputs to the polishing pond from watershed runoff, the storm/mine water pond, the MRA, the camp septic system, and drainage from the ore stockpile. The development of site-specific effluent water quality limits and objectives is currently underway as part of the permitting process.

The predicted maximum monthly average arsenic concentrations in Three Duck Lakes (0.0074 mg/L to 0.0087 mg/L) are less than the site-specific benchmark (0.0375 mg/L). Therefore, the predicted concentrations in Three Duck Lakes are expected to be protective of fish and other aquatic life. The predicted monthly average concentrations in Three Duck Lakes are below the water quality guidelines for all other parameters.

#### 20.5.5 Polishing Pond Water Discharge

Before discharging any excess water from the polishing pond to the environment, the accumulated water will be retained with sufficient residence time, estimated at approximately 15 days for settling of solids, so that the total suspended solids (TSS), among other parameters, meet the discharge water quality guidelines. Monitoring of water quality will be performed to ensure abatement. Treatment will be implemented if necessary.

#### 20.6 Closure Plan

Closure of the Côté Gold Project will be governed by the Ontario Mining Act and its associated regulations and codes under Ontario Regulation 240/00. The objective of closure is to return the project site to a naturalized and productive condition after mining is complete. "Naturalized and productive" is interpreted to mean a rehabilitated site without infrastructure (unless otherwise negotiated) and one that, while different from the existing environment, is capable of supporting plant, wildlife and fish communities, and other applicable land uses.

IAMGOLD has prepared a Closure Plan in accordance with the legislative requirements in tandem with the 2018 Feasibility Study. This plan details measures for temporary suspension, care and maintenance and closure of the Project, including determining financial assurance required to implement the Closure Plan.

Conventional methods of closure are expected to be employed at the site. The closure measures for the TMF will be designed to physically stabilize the tailings surface to prevent erosion and dust generation. The pit will be allowed to flood, and the natural flow of the realigned water bodies will be re-established to the extent practicable. Revegetation will be carried out using non-invasive native plant species. Monitoring at appropriate sampling locations, including those established during baseline studies and operations, will be conducted after closure to confirm performance.

MENDM requires financial assurance for implementation of the Closure Plan. Closure costs are described in Section 21.

## 20.7 Permitting

### 20.7.1 Environmental Permitting

Most mining projects in Canada are reviewed under one or more EA processes whereby design choices, environmental impacts and proposed mitigation measures are compared and reviewed to determine how best to proceed through the environmental approvals and permitting stages. Entities involved in the review process normally include government agencies, municipalities, Aboriginal groups, the general public and other interested parties.

On 3 May 2013, IAMGOLD entered into a Voluntary Agreement with the Ontario Ministry of the Environment and Climate Change (now MECP) to conduct a Provincial Individual EA for the entire Côté Gold project, to meet the requirements of the Ontario Environmental Assessment Act. Approval of the Provincial EA was received in January 2017.

The project as presented in the 2018 Feasibility Study differs only slightly from the project presented in the EA. Mine rock and tailings management areas have been relocated to minimize impacts on fish-bearing waters, and to reduce the need for retention dams and watercourse realignments. Improvements to the project since the EA are expected to be managed through Condition 26(1) of the EA approval, which states:

*26(1). Prior to implementing any proposed changes to the Undertaking, the Proponent shall determine what Environmental Assessment Act requirements are applicable to the proposed changes and shall fulfill those Environmental Assessment Act requirements. If a contemplated change to the Undertaking would result in no new net effects, it shall be considered a minor amendment. In such cases, the Proponent will be required to provide an Addendum to the Ministry to document the change and demonstrate that there are no new net effects associated with it. The Proponent shall consult with the Ministry about any consultation requirements that may apply, and whether any changes can be permitted without an amendment to the Environmental Assessment.*

In discussions with MECP, IAMGOLD has completed an Environmental Effects Review that assesses the potential for new net effects associated with the project improvements.

In addition to the Provincial EA, the project required completion of a Federal EA pursuant to the Canadian Environmental Assessment Act (CEAA 2012). CEAA 2012 identifies the physical activities that could require completion of a Federal EA. At the time of the EA preparation, the following sections (which have since been revised) were considered to apply to the Côté Gold project:

- Section 7: *"The construction, operation, decommissioning and abandonment of a structure for the diversion of 10,000,000 m<sup>3</sup> /a or more of water from a natural water body into another natural water body "*. However, it should be noted that most waters will be realigned and not diverted.
- Section 8: *"The construction, operation, decommissioning and abandonment of a facility for the extraction of 200,000 m<sup>3</sup> /a or more of ground water "*
- Section 15 (b): *"The construction, operation, decommissioning and abandonment of a metal mill with an ore input capacity of 4,000 t/d or more."*
- Section 15 (c): *" The construction, operation, decommissioning and abandonment of a gold mine, other than a placer mine, with an ore production capacity of 600 t/d or more."*

On 13 April 2016, the Federal Minister of the Environment issued a decision stating that the project is not likely to cause significant adverse environmental effects. Similar to the Provincial EA, the Federal EA addressed conditions regarding changes to the project as presented in the EA. The Environmental Effects Review prepared for the Provincial EA condition 26(1) also addressed Federal conditions 2.10 and 2.11:

- 2.10. *The Proponent shall consult with Indigenous groups prior to initiating any material change(s) to the Designated Project that may result in adverse environmental effects, and shall notify the Agency in writing no later than 60 days prior to initiating the change(s)*

- *2.11. In notifying the Agency pursuant to condition 2.10, the Proponent shall provide the Agency with an analysis of the adverse environmental effects of the change(s) to the Designated Project, as well as the results of the consultation with Indigenous groups.*

A new 115 kV, 44 km transmission line will be constructed by IAMGOLD from the Shining Tree distribution station along an unused corridor to provide power to the site. The routing of this line was considered as an alternative in the Federal and Provincial EAs, but not fully assessed as it had insufficient capacity to meet project needs at that time. In accordance with the Guide to Environmental Assessment Requirements for Electricity Projects (Ministry of the Environment 2011), and based on guidance from the Ministry of Environment, Conservation and Parks (2018), the proposed 44 km, 115 kV transmission line from the Shining Tree distribution station to the Côté Gold Project site is required to follow the process under the Class EA for Minor Transmission Facilities (Hydro One Networks, 2016).

IAMGOLD is undergoing the Class EA for Minor Transmission Facilities, and the EA process is expected to be completed in late 2018.

#### 20.7.2 Provincial Approvals

Three primary Provincial agencies will be involved with Project approvals/permits:

- Ministry of Energy, Northern Development and Mines (MENDM)
- Ministry of Natural Resources and Forestry (MNRF)
- Ministry of Environment, Conservation and Parks (MECP).

Additional agencies that may be involved in permitting include:

- Ontario Energy Board (OEB)
- Ministry of Transportation (MTO)
- Infrastructure Ontario (IO)
- Ministry of Tourism, Culture and Sport (MTCS).
- Fisheries and Oceans Canada (DFO)
- Environment and Climate Change Canada (ECCC; formerly Environment Canada)
- Natural Resources Canada (NRC)

- Transport Canada (TC)
- NAV CAN (NC).

Provincial environmental approvals that are expected to be required to construct and operate the Project include those shown in the preliminary list in Table 20-2.

#### 20.7.3 Federal Approvals

Additional Federal environmental approvals that are expected to be required to construct and operate the Project include those shown in the preliminary list in Table 20-3. In addition, engineering approvals related to explosives manufacturing and/or storage will be required.

### 20.8 Considerations of Social and Community Impacts

#### 20.8.1 Community Consultation

IAMGOLD has actively engaged local and regional communities, as well as other stakeholders, to gain a better understanding of their issues and interests, identify potential partnerships, and build social acceptance for the Project. Stakeholders involved in Project consultations to date include those with a direct interest in the Project, and those who provided data for the baseline studies.

The involvement of stakeholders will continue throughout the various Project stages. The range of stakeholders is expected to increase and evolve over time, to reflect varying levels of interest and issues.

IAMGOLD continues to engage stakeholders and interested individuals through:

- Open houses to share Project updates and seek feedback
- Quarterly *Let's Talk* Project newsletters
- The Project website ( [www.iamgold.com/Côté\\_gold](http://www.iamgold.com/Côté_gold) )
- Meetings and discussions.

As part of the Provincial conditions of environmental assessment approval, IAMGOLD will develop and submit a Community Communication Plan to the responsible Provincial ministry, outlining its plan to communicate with stakeholders through all phases of the Project.

Table 20-2: Expected Additional Provincial Environmental Approvals

| Agency | Permit/Approval   | Act   | Relevant Components  |
|--------|---|---|--|
| MNR    | Various Work Permits for Construction                       | <i>Lakes &amp; Rivers Improvement Act/ Public Lands Act</i> | For work/construction on Crown land. Could be required as part of construction of the transmission line.   |
|        | Lakes and Rivers Improvement Act (LRIA) Permit              | <i>Lakes &amp; Rivers Improvement Act</i>                   | Construction of a dam in/near any lake or river in circumstances set out in the regulations requires a written approval for location of the dam and its plans and specifications.  |
|        | Forest Resource Licence (Cutting Permit)                    | <i>Crown Forest Sustainability Act</i>                      | For clearing of Crown merchantable timber. Could be required as part of construction of the transmission line.   |
|        | Aggregate Permit  | <i>Aggregate Resources Act</i>                              | For extraction of aggregate (e.g., sand/gravel/ rock for tailings dam or other site construction).   |
|        | Land Use Permit, Easement                                   | <i>Public Lands Act</i>                                     | To obtain tenure for permanent facilities on Crown land, such as for the transmission line.  |
|        | Endangered Species Permit                                   | <i>Endangered Species Act</i>                               | For any activity that could adversely affect species or their habitat identified as 'Endangered' or 'Threatened' in the various schedules of the Act.  |
| MECP   | Environmental Compliance Approval – Industrial Sewage Works | <i>Ontario Water Resources Act</i>                          | For constructing a mine/mill water treatment system(s) discharging to the environment, such as for tailings, pit water, site stormwater and mine rock pile runoff.   |
|        | Permits to Take Water                                       | <i>Ontario Water Resources Act</i>                          | For taking of ground or surface water (in excess of 50 m <sup>3</sup> /day), such as for potable and processing needs and pit dewatering. During construction, a permit(s) may be required for dam and/or mill construction to keep excavations dry. |
|        | Environmental Compliance Approval – Air and Noise           | <i>Environmental Protection Act</i>                         | For discharge of air emissions and noise, such as from mill processes, on-site laboratory and haul trucks (road dust).   |
|        | Environmental Compliance Approval – Waste Disposal Site     | <i>Environmental Protection Act</i>                         | For operation of a landfill and/or waste transfer site.  |
|        | Environmental Compliance Approval                           | <i>Environmental Protection Act</i>                         | For establishment and operation of a domestic sewage treatment plant.  |
|        |   |   |  |

| Agency | Permit/Approval  | Act                 | Relevant Components  |
|--------|------------------|---------------------|--|
| MENDM  | Closure Plan     | <i>Mining Act</i>   | For mine construction/production and closure, including financial assurance.                               |
| MTCS   | Clearance Letter | <i>Heritage Act</i> | For confirmation that appropriate archaeological studies and mitigation, if required, have been completed. |

**Table 20-3: Expected Additional Federal Environmental Approvals**

| Agency | Permit/Approval   | Act  | Relevant Components  |
|--------|---|--|--|
| DFO    | Section 35 (2)b. Authorization for serious harm to fish that are part of a commercial, recreational or Aboriginal fishery, or to fish that support such a fishery | <i>Fisheries Act</i>   | For construction of the tailings facility, mine rock stockpiles, access road creek crossings, water works for water intake structures, and/or groundwater dewatering effects, that would cause disruption to creeks and/or ponds supporting fish that are part of, or support a fishery. |
| ECCC   | Schedule 2 Listing  | <i>Fisheries Act (Metal Mining Effluent Regulations; MMER)</i> | For overprinting of waters frequented by fish, by a deleterious mineral waste (tailings management facility).  |
| NRC    | Licence for an explosives factory   | <i>Explosives Act</i>  | For operation of an on-site facility to supply explosives for use in the open pit operations.  |
| TC     | Aeronautical obstruction clearance  |  | Marking and lighting for structures that could interfere with aeronautical navigation.   |
| NC     | Land-use clearance  | <i>Civil Air Navigation Services Commercialization Act</i>     | Construction of tall structures, use of cranes, high-voltage equipment, blasting.  |

IAMGOLD plans to work with the community of Gogama to collaborate on the development of a socio-economic management and monitoring plan to manage potential socio-economic effects of the Project (both adverse and positive).

#### 20.8.2 Indigenous Consultation and Communications

An understanding of the Indigenous communities potentially interested in the Côté Gold project was first developed through advice from MENDM to Trelawney Mining and Exploration Inc. in a letter dated 19 August 2011, and through advice from CEAA based on information provided by Aboriginal Affairs and Northern Development Canada (now Indigenous and Northern Affairs Canada). IAMGOLD sought further direction from both Provincial and Federal Crown agencies on the potentially-affected communities.

- On 6 March 2013, the Federal Crown agency informed IAMGOLD that Mattagami First Nation, Flying Post First Nation, Brunswick House First Nation, the Métis Nation - Region 3, and the Algonquin Anishinabeg Tribal Council should be consulted about the Project. They noted that as the Federal EA progresses, the Chapleau First Nation, Matachewan First Nation, and Beaverhouse First Nation would also be notified
- At a meeting on 23 May 2013, the Provincial Crown identified the Mattagami First Nation, Flying Post First Nation, Brunswick House First Nation, Matachewan First Nation and the Métis Nation of Ontario – Region 3 as groups that should be consulted.

Based on Federal and Provincial advice and information gathered through engagement activities, IAMGOLD engaged a range of Indigenous groups during the preparation of the EA. The Federal and Provincial conditions of approval for the project each included a list of Indigenous communities to be considered, where relevant, for the purpose of fulfilling specific conditions. These lists are considered to supersede any prior direction from Federal or Provincial authorities. The Federal list included:

- Mattagami First Nation
- Flying Post First Nation
- Brunswick House First Nation
- Métis represented by the Métis Nation of Ontario Region 3 Consultation Committee.

Based on consultation efforts since the start of the Project, and on groups expressing a continued interest, IAMGOLD has continued to engage the identified communities through information sharing (e.g., newsletters, notices, invitations to open houses), and has focused on actively engaging affected communities identified through the EA process, namely Mattagami First Nation, Flying Post First Nation and Métis Nation of Ontario – Region 3. IAMGOLD continues to negotiate Impact Benefit Agreements with Mattagami First Nation, Flying Post First Nation and the Métis Nation of Ontario (Region 3), with approximately 25 meetings between January 2017 and July 2018. The details of the negotiations are confidential, as per the agreement of all parties involved. In addition, a Process and Funding Agreement has been reached between IAMGOLD, Mattagami First Nation and Flying Post First Nation related to the communities' involvement through the review of the EER and required regulatory permit applications to advance the Project.

As part of the Provincial and Federal conditions of approval, IAMGOLD will develop and submit an Indigenous Consultation Plan to the responsible government departments, outlining the Project's plan to consult with identified Indigenous groups throughout all phases of the Project. There is a requirement that IAMGOLD consult all identified Indigenous groups as part of the development of this Plan.

IAMGOLD has committed to work with the communities of Mattagami First Nation and Flying Post First Nation to collaboratively develop a socio-economic management and monitoring plan to manage potential socio-economic effects of the Project (both adverse and positive).

#### **20.9 Comments on Section 20**

Wood and other consultants conducted environmental baseline studies on the Project to characterize the physical, biological, and human environment. This work applied standard field protocols and scientific methodologies, and addressed the information needs of regulatory agencies for the approval of Ontario mining projects. In addition, baseline studies were undertaken to infill data to characterize areas covered by the current FS site configuration.

IAMGOLD received Provincial ministerial approval of the 2015 EA for the Project. The EA states that no significant effects are anticipated after application of the proposed mitigation measures. Environment Canada stated in May 2016 that the Project is not likely to cause significant adverse environmental effects.

The Base Case project presented in the 2018 Feasibility Study has undergone optimizations since the 2015 EA, but there are no new net effects.

Based on the Federal and Provincial Environmental Assessment processes, IAMGOLD has established a preliminary environmental monitoring program that includes monitoring parameters, methods, applicable standards, frequencies and locations for the physical, biological and human environments. The program will be updated to reflect conditions of various environmental approvals as they are received. Environmental baseline monitoring programs to date provide the basis for the monitoring frameworks, and may be modified to meet compliance and reporting requirements as the project moves through the permitting phase. The monitoring programs will apply to the construction, operation, closure and post-closure phases of the project, as appropriate, and will allow for compliance with anticipated environmental approvals and permits, while providing information to determine the effectiveness of proposed mitigation measures.

Follow-up monitoring is expected to provide for an adaptive management approach, should environmental effects vary from those predicted; if mitigation measures prove less effective than anticipated; or as new information becomes available. Mitigation strategies may be modified accordingly, and monitoring parameters, locations and/or frequencies will be adapted as appropriate.

**21.0 CAPITAL AND OPERATING COSTS****21.1 Capital Cost Estimates****21.1.1 Basis of Estimate**

The estimate addresses the Base Case mine, process facilities, ancillary buildings, infrastructure, water management and tailings facilities scope, and includes:

- Direct field costs of executing the Base Case including construction and commissioning of all structures, utilities, and equipment
- Indirect costs associated with design, construction and commissioning
- Provisions for contingency and Owner's costs.

The estimate was prepared in accordance with the AACE International Class 3 Estimate with an expected accuracy of +15%/-10% of the final Project cost.

Cost estimates are expressed in third-quarter 2018 US dollars with no allowances for escalation, currency fluctuation or interest during construction. Costs quoted in Canadian dollars were converted to US dollars at an exchange rate of US\$1 = C\$1.30.

Capital cost for surface facilities includes the construction and installation of all structures, utilities, materials, and equipment as well as all associated indirect and management costs. The capital cost includes contractor and engineering support to commission the process plant to ensure all systems are operational. At the point of hand-over of the plant to IAMGOLD's Operations group, all operational costs, including ramp-up to full production, are considered as operating costs. The capital cost estimate is based on a 30-month Base Case development schedule starting upon Closure Plan approval.

The following documents were used as support for the estimate:

- General arrangement drawings
- Process flow diagrams (PFDs)
- Piping and instrumentation diagrams (P&IDs)
- Pre-production mining costs from the mine plan
- Equipment and electrical load lists

- Budgetary quotations for major equipment and buildings
- Firm quotations for ball mill, crushers, HPGR, and mining fleet
- Firm quotations for construction camps
- Budget quotations for power transmission lines
- Project work breakdown structure (WBS)
- Material take-offs (MTOs)
- Benchmarking against other projects

#### 21.1.2 Direct Costs

##### Mine Costs

The scope of the mining cost estimate includes the purchase of initial mining fleet, maintenance, and mine support equipment, wages for hourly and salary personnel for pre-production mine operation, haul road construction, and miscellaneous equipment. Estimates for mining equipment were based on mining fleet equipment schedules and equipment pricing provided by vendors for supply, delivery, assembly, and testing. Costs include pre-production stripping and haul road construction by a contractor fleet.

##### Labour

Wage rates for construction crews were established based on recent building trade labour and Christian Labour Association of Canada (CLAC) agreements.

Wood's North American unit work-hours are based on ideal working conditions which have been adjusted using a productivity factor to account for conditions at the Project site. These productivity factors were incorporated into the construction labour unit work-hours as multipliers on the base man-hours.

##### Construction Equipment

Estimates for contractors' construction equipment are included in the direct costs. These costs are estimated as dollars per direct work-hour by discipline account, and include equipment ownership, depreciation, insurance, fuel oil, lubricants, maintenance, and service and repair.

**Capital Leases**

The majority of the initial mining fleet is amenable to capital financing. The initial mining fleet, having an approximate initial capital cost of \$142 M, can be financed using capital lease agreements with vendors. Inclusive of a down-payment of 0–15% of the purchase value paid at placement of order and interest incurred during the construction period, capital leases reduce the initial capital cost by approximately \$134 M.

**21.1.3 Indirect Costs****Engineering Procurement and Construction Management**

The allowance for EPCM costs is \$59 M, and is based on a detailed estimate for these services.

**Construction Indirects**

Construction indirects are estimated based on a detailed indirects model prepared by Wood and IAMGOLD. First fills were estimated per specific equipment/process requirements.

**21.1.4 Owner's Costs**

An allowance of \$27 M has been made for Owner's costs based on a detailed estimate completed by IAMGOLD and was carried in the capital cost estimate as a component of the total construction capital cost.

An allowance of \$45 M for Operational Readiness and other Owner's fees was carried as additional indirect costs as a component to the total initial capital cost. Operational Readiness is the cost to allow operations personnel to mobilize, receive training, and prepare for the start of operations during the initial capital phase of the Project.

**21.1.5 Contingency**

The contingency has been applied based on the assignment of levels of confidence to each component of the estimate, and the running of a Monte-Carlo simulation to determine the appropriate level of contingency required.

The contingency on direct and indirect costs (not including mining, owner's costs, and the Hydro One transmission line) has been calculated at P50, using a Monte Carlo Simulation through the software @RISK and resulted in a 10% contingency of \$80 M.

A mining contingency of 10% of the contractor's portion of the pre-production mining scope has been applied, for a total of \$8 M.

A further mining contingency of \$12 M has been applied to the autonomous mining system.

The overall total contingency included in the capital cost estimate is \$100 M.

#### 21.1.6 Sustaining Capital Costs

Sustaining costs include the following:

- Purchase of mining fleet to maintain production
- Annual TMF build-out costs
- Capital lease payments on the initial mining fleet and permanent camp.

The basis for estimating the sustaining costs for capital leases of mining equipment are as follows:

- 0–15% down payment of purchase order value on placement of order depending on the equipment (included in capital cost)
- Lease rate of 3.85–4.5% per annum depending on the equipment (interest incurred during the construction period is included in capital cost)
- Lease term of 5–7 years depending on the equipment.

Sustaining capital costs are estimated at \$527 M. Without capital leasing of mining equipment, sustaining capital costs are estimated at \$371 M. An allocation of \$16 M has been made for the permanent camp.

#### 21.1.7 Capital Cost Summary

The construction capital cost, summarized in Table 21-1 for the Base Case, is estimated to be \$1,236 M, inclusive of allowances for Owner's costs and contingency of \$27 M and \$100 M, respectively. Additional indirect costs for Operational Readiness and other owner's fees totalling \$45 M result in a total initial capital cost of \$1,281 M.

**Table 21-1: Base Case Initial Capital Cost Estimate Summary**

| <b>Area</b>                       | <b>Description</b>          | <b>Cost, US\$ M</b> |
|-----------------------------------|-----------------------------|---------------------|
| Direct costs                      | Mining                      | 323                 |
|                                   | On-site infrastructure      | 143                 |
|                                   | Processing plant            | 346                 |
|                                   | Tailings                    | 67                  |
|                                   | Off-site facilities         | 42                  |
|                                   | <b>Total direct costs</b>   | <b>921</b>          |
| Indirect costs                    | Indirects                   | 188                 |
|                                   | Owner's costs               | 27                  |
|                                   | Contingency                 | 100                 |
|                                   | <b>Total indirect costs</b> | <b>315</b>          |
| <b>Total construction capital</b> |                             | <b>1,236</b>        |
| Additional indirect costs         |                             | 45                  |
| <b>Total initial capital cost</b> |                             | <b>1,281</b>        |

Some of the larger capital expenditures are amenable to capital financing. The majority of the initial mining fleet, having an approximate initial capital cost of \$142 M, can be financed using capital lease agreements with vendors. Inclusive of a down-payment of 0–15% of the purchase value paid at placement of order and interest payments incurred during the construction period, capital leases reduce the capital cost by approximately \$134 M, resulting in a total construction capital of \$1,101 M and a total initial capital cost of \$1,147 M net of mining equipment leasing. The capital cost taking into account leases of mining equipment for the Base Case is shown in Table 21-2.

Sustaining costs (including capital leases) over the LOM are estimated to total \$527 M.

Reclamation and closure costs are estimated at \$63 M, net of security bond fees and an allowance for equipment and materials salvage at the end of mine life.

**Table 21-2: Base Case Initial Capital Cost Estimate Summary With Leased Mining Equipment**

| Area                              | Description                 | Cost, US\$ M |
|-----------------------------------|-----------------------------|--------------|
| Direct costs                      | Mining                      | 188          |
|                                   | On-site infrastructure      | 143          |
|                                   | Processing plant            | 346          |
|                                   | Tailings                    | 67           |
|                                   | Off-site facilities         | 42           |
|                                   | <b>Total direct costs</b>   | <b>786</b>   |
| Indirect costs                    | Indirects                   | 188          |
|                                   | Owner's costs               | 27           |
|                                   | Contingency                 | 100          |
|                                   | <b>Total indirect costs</b> | <b>315</b>   |
| <b>Total construction capital</b> |                             | <b>1,101</b> |
| Additional indirect costs         |                             | 45           |
| <b>Total initial capital cost</b> |                             | <b>1,147</b> |

## 21.2 Operating Cost Estimates

### 21.2.1 Mine Operating Costs

Mining quantities were derived from first principles and mine-phased planning to achieve the planned production rates. Mining excavation estimates were based on geological studies, mine models, drawings, and sketches. Mine costs generally increase with time as the pit increases in depth and the MRAs increase in height.

Diesel fuel, maintenance parts and supplies, and personnel costs are the largest cost items for the mine, followed by contract services, autonomous licence fees, explosives, and tire costs.

A diesel price of \$0.89/L was used for operating cost estimate and was held constant over the LOM. Fuel consumption was estimated from vendor-supplied data for each type of equipment and equipment utilization factors, based upon calculated cycle times. Diesel fuel usage peaks in Year 9 at 32.3 ML consumed.

Equipment suppliers provided equipment maintenance and repair cost estimates in 6,000-hr increments for the equipment service lives as part of the 2018 request for quotation (RFQ). Maintenance costs were provided for both a three-year Maintenance and Repair Contract (MARC) and for LOM Owner maintenance. The 6,000-hr incremental MARC costs were applied in the cost model in Years 1–10 with the average costs applied thereafter.

IAMGOLD provided costs for both salaried and hourly mine personnel, which were applied to the mine staffing plan to estimate total labour costs.

Suppliers of the mining fleet charge annual licence fees for their autonomous systems. An allowance of \$65,000 per drill per year and while licence fees for the truck fleet vary, they are substantial, peaking at nearly \$253,000 per truck per year.

Also included in the mine operating cost estimate are costs associated with explosives, tires, drilling supplies, lubricants, contract services, electric power, and overhead.

On a cost by cost centre basis, mine haulage accounts for approximately half of the mine operating costs at 43%. Open pit services accounts for 12% of the mine costs, followed by loading, blasting, and drilling. Contract mining accounts for 7% of the costs and stockpile rehandle accounts for 5%. Other costs include costs for pit dewatering, engineering and geology, and operations and management overhead.

Mining costs over the LOM are estimated to average \$6.98/t of processed mill feed. Excluding the pre-production period, operating costs average \$2.04/primary tonne mined including stockpile rehandle, and \$1.90/total tonne moved.

#### 21.2.2 Process Operating Costs

Process operating costs estimates were developed from first principles, metallurgical testwork, IAMGOLD's salary/benefit guidelines and recent vendor quotations, and benchmarked against historical data for similar process plants. The operating costs includes reagents, consumables, personnel, electrical power and laboratory testing. The consumables accounted for in the operating costs include spare parts, grinding media and liner and screen components.

The main operating costs for the process plant are the grinding media, electrical power and reagents. The bulk of the reagent costs are associated with cyanide leaching and cyanide destruction.

Reagent consumptions were estimated based on testwork, industrial references, literature and assumed operational practice. Due to high SO<sub>2</sub> prices, the decision was made for the purposes of the 2018 Feasibility Study to buy molten sulphur to generate SO<sub>2</sub> on site. Molten sulphur pricing was obtained from vendors active in the Ontario market. Oxygen costs quoted by a local supplier were very similar in bulk and vapour pressure swing absorption (VPSA) options. Pricing for bulk delivery was used in the estimate.

Wear parts and maintenance allocations were calculated using a ratio of 7.5% against the value of purchased equipment, applied annually to project the cost of replacing mechanical equipment due to normal wear and tear.

The annual cost for grinding media for the ball mill and vertical mills was estimated based on the expected media consumption (g/kWh) and the cost per tonne of steel media. HPGR tires and mill liner costs are based on projected circuit wear times, with liners made out of appropriate material as required. The individual media costs (\$/t steel media) were established through vendor quotations.

A manpower estimate for a 36,000 t/d mill was developed and a 38% labour burden factor was applied. The personnel costs incorporate requirements for plant management, metallurgy, operations, maintenance, site services, as well as a contractor allowance. Salaries and benefits guidelines were provided by IAMGOLD. There is a total of 86 employees accounted for in the process operating costs.

A third party will be contracted to provide metallurgical laboratory services at site to assay the plant, mine, geology and environmental samples.

Power cost was estimated to be \$0.0538/kWh (C\$0.07/kWh), which takes into account a load-shedding strategy to reduce the Global Adjustment Fee imposed by the electric utility. Electrical power loads were developed by Wood based on the project equipment list.

Process operating costs over LOM are estimated to average \$6.32/t of processed ore and include the following:

- Reagents represent approximately 24% of the total process operating cost at \$1.53/t milled
- Wear parts and maintenance supplies represent approximately 13% of the total process operating cost at \$0.80/t milled

- Grinding media represent approximately 23% of the total process operating cost at \$1.49/t milled
- Personnel costs represent approximately 10% of the total process operating cost at \$0.64/t milled
- The cost of the assay laboratory contract represents approximately 3% of the total process operating costs at \$0.21/t milled
- Power costs represent approximately 26% of the total process operating cost at \$1.65/t milled.

#### 21.2.3 General and Administrative Operating Costs

G&A costs were developed from first principles and benchmarked against similar projects.

The camp and catering contract cost is based on 382 total employees on site at a rate of US\$60.99 per person per camp day.

Insurance, freight and logistics, and road, site and power line maintenance were provided by IAMGOLD based on benchmarking with their operations and similar projects.

Freight for components other than bulk materials were incorporated into bulk consumables costs (e.g. fuel, reagents, grinding media).

Costs for electrical power loads for the camp and administrative facilities were developed from a power usage estimate developed by Wood.

General and administrative costs over the LOM are estimated to average \$1.47/t of processed ore.

#### 21.2.4 Reclamation and Closure Costs

Reclamation and closure costs are estimated to total \$63 M, distributed annually from early in the mine life until post-closure. This is based on a detailed closure cost estimate prepared by SLR Consulting Canada Ltd., adjusted to include an allowance for security bond fees and a credit at the end of mine life to account for the estimated salvage value of equipment and materials.

**21.2.5 Operating Cost Summary**

Total operating costs over the LOM are estimated to be \$2,947 M (Table 21-3). Mining and processing costs represent 46% and 44% of this total, respectively. Average operating costs are estimated at \$14.52/t of processed ore, as summarized in Table 21-4.

Operating cost estimates exclude any allowances for contingencies.

**21.3 Comments on Section 21**

The Project's construction capital cost is estimated to be \$1,236 M, inclusive of allowances for Owner's costs and contingency of \$27 M and \$100 M, respectively. Additional indirect costs for Operational Readiness and other Owner's fees totalling \$45 M result in a total initial capital cost of \$1,281 M.

Some of the larger capital expenditures are amenable to capital financing. Capital leases of mining equipment reduce the capital cost by approximately \$134 M, resulting in a total construction capital of \$1,101 M and a total initial capital cost of \$1,147 M.

Total operating costs over the LOM are estimated to be \$2,947 M. Average operating costs are estimated at \$14.52/t of processed ore.

**Table 21-3: Base Case Total Operating Costs over Life of Project**

| Cost Area        | Total, US\$ M | Percent of Total |
|------------------|---------------|------------------|
| Mining operating | 1,366         | 46               |
| Processing       | 1,283         | 44               |
| G&A              | 298           | 10               |
| <b>Total</b>     | <b>2,947</b>  | <b>100</b>       |

**Table 21-4: Base Case Average Unit Operating Costs**

| Cost Area    | US\$/t of processed ore |
|--------------|-------------------------|
| Mining       | 6.73                    |
| Processing   | 6.32                    |
| G&A          | 1.47                    |
| <b>Total</b> | <b>14.52</b>            |

## 22.0 ECONOMIC ANALYSIS

### 22.1 Cautionary Statement

The results of the Base Case economic analysis represent forward-looking information that is subject to a number of known and unknown risks, uncertainties and other factors that may cause actual results to differ materially from those presented here. Forward-looking statements in this Report include, but are not limited to, statements with respect to future gold prices, the estimation of Mineral Resources and Mineral Reserves, the estimated mine production and gold recovered, the estimated capital and operating costs, and the estimated cash flows generated from the planned mine production. Actual results may be affected by:

- Potential delays in the issuance of permits and any conditions imposed with the permits that are granted
- Differences in estimated initial capital costs and development time from what has been assumed in the 2018 Feasibility Study
- Unexpected variations in quantity of ore, grade or recovery rates, or presence of deleterious elements that would affect the process plant or waste disposal
- Unexpected geotechnical and hydrogeological conditions from what was assumed in the mine designs, including water management during construction, mine operations, and post mine closure
- Differences in the timing and amount of estimated future gold production, costs of future gold production, sustaining capital requirements, future operating costs, assumed currency exchange rate, requirements for additional capital, unexpected failure of plant, equipment or processes not operating as anticipated
- Changes in government regulation of mining operations, environment, and taxes
- Unexpected social risks, higher closure costs and unanticipated closure requirements, mineral title disputes or delays to obtaining surface access to the property.

### 22.2 Methodology Used

The Base Case has been evaluated using discounted cash flow (DCF) analysis. Cash inflows consist of annual revenue projections. Cash outflows consist of initial capital expenditures, sustaining capital costs, operating costs, taxes, royalties, and commitments to other stakeholders. These are subtracted from revenues to arrive at the annual cash flow projections. Cash flows are taken to occur at the end of each period.

To reflect the time value of money, annual net cash flow (NCF) projections are discounted back to the Project valuation date using the yearly discount rate. The discount rate appropriate to a specific project can depend on many factors, including the type of commodity, the cost of capital to the Base Case, and the level of Base Case risks (e.g. market risk, environmental risk, technical risk and political risk) in comparison to the expected return from the equity and money markets. The base case discount rate for the Base Case in the 2018 Feasibility Study is 5%, which has been commonly used to evaluate gold projects. The discounted present values of the cash flows are summed to arrive at the Project's net present value (NPV).

In addition to the NPV, the internal rate of return (IRR) and the payback period are also calculated. The IRR is defined as the discount rate that results in an NPV equal to zero. The payback period is calculated as the time required to achieve positive cumulative cash flow for the Base Case from the start of production.

### 22.3 Financial Model Parameters

The financial analysis is based on:

- Royalty rates as described in Section 4
- The subset of the Mineral Reserves as included in the mine plan presented in Section 16
- Mill feed treated in the process plant described in Section 17
- Support from the projected infrastructure requirements outlined in Section 18
- Doré marketing assumptions described in Section 19
- Permitting, social and environmental regime discussions in Section 20
- Capital and operating cost estimates detailed in Section 21.

#### 22.3.1 Metal Prices

For the purposes of the financial analysis, the assumed gold price for the LOM is US\$1,250/oz. The gold price was what Wood considers the industry consensus price forecast of the following sources: bank analysts' long-term forecasts; historical metal price averages; and prices used in recent publicly-disclosed comparable studies.

**22.3.2 Exchange Rates**

For the purpose of the capital cost estimate, the operating cost estimate, and financial analysis, the assumed exchange rate for the LOM is US\$1.00:CAD\$1.30. The exchange rate was what Wood considers to be an industry consensus on the forecast of the following sources: bank analysts' long-term forecasts; historical exchange rate averages; and prices used in recent publicly-disclosed comparable studies.

**22.3.3 Transport, Insurance and Refining**

The 2018 Feasibility Study assumes that the doré will be picked up from site and delivered by the Royal Canadian Mint (the Mint) to their refinery in Ottawa. An indicative quote for transportation, insurance and refining was received from the Mint estimating costs at approximately \$1.75/oz Au, which has been used in the cashflow model for the Base Case.

**22.3.4 Working Capital**

Working capital modelling cash outflow and inflows are included in the Base Case model. The calculations are based on the assumptions that accounts payable will be paid within 45 days and accounts receivable received within 30 days, with an additional allowance for \$15 M in materials and supplies inventory, \$2 M in reagents inventory, and \$1.7 M in gold inventory held in carbon within the process plant.

Initial working capital is estimated at approximately \$36 M in the first year of production.

**22.3.5 Royalties and Owner's Other Costs**

The royalty rates are presented in Section 4. Royalties range from 0% to a maximum of 1.5% depending on the source of the ore within the pit. They amount to approximately \$68 M over the life of the Project.

Owner's other costs consist of allowances to meet commitments to stakeholders. They amount to approximately \$243 M over the life of the Project.

**22.3.6 Tax**

Taxation considerations included in the Base Case financial model comprise Provincial and Federal corporate income taxes and Ontario Mineral taxes. The following discussion outlines the main Federal and Provincial taxation considerations used in the economic model as provided by IAMGOLD:

- On a non-discounted basis LOM, the model provides for \$515 M of Federal and Provincial income taxes, and \$214 M of Ontario Mining Tax
- Income tax is payable to the Federal government of Canada, pursuant to the Income Tax Act (Canada). The applicable Federal income tax rate is 15% of taxable income
- Income tax is payable to the Province of Ontario at a tax rate of 11.5% of taxable income, which includes the manufacturing and processing tax credit. Ontario income tax is administered by the Canada Revenue Agency and, since 2008, Ontario's definition of taxable income is fully harmonized with the Federal definition
- Ontario Mining Tax (OMT) is levied at a rate of 10% on taxable profit in excess of C\$500,000 derived from mining operations in Ontario. OMT is deductible in calculating Federal income tax and a similar resource allowance is available as a deduction in calculating Ontario income tax. OMT is not affected by harmonization; accordingly, it is administered Provincially by Ontario.

While the before-tax results of the Côté Gold joint venture will be reported for income and mining tax purposes on a 70/30 basis, the after-tax results in the economic analysis should not be viewed on the basis of a 70/30 relationship. That is, differences in the underlying tax attributes of each of the corporate co-venturers will produce actual tax results for each co-venturer that differ from a simple 70/30 split of the total tax expenses generated in the Base Case model.

The tax calculations are underpinned by the following key assumptions:

- The Project is held 100% by two corporate entities and the after-tax analysis does not attempt to reflect any future changes in those corporate structures or property ownership

- Payments projected relating to royalties, as applicable, are allowed as a deduction for Federal and Provincial income tax purposes, but are added back for Provincial mining tax purposes
- Actual taxes payable will be affected by corporate activities, and future tax benefits have not been considered.

#### 22.3.7 Financing

The Base Case model does not include any costs associated with financing other than the capital leases as presented in Section 21.

#### 22.3.8 Inflation

There is no adjustment for inflation in the Base Case financial model; all cash flows are based on 2018 US dollars.

#### 22.4 Economic Analysis

Two economic analysis scenarios have been considered for the Base Case, one which includes the leasing of mining equipment, and one that does not.

##### 22.4.1 Results Without Lease of Mining Equipment

Table 21-1 summarizes the Base Case financial results with the base case NPV 5% highlighted in grey for the scenario that does not consider leasing of mining equipment.

The Base Case after-tax NPV 5% is \$788 M. The after-tax IRR is 14.5%. The after-tax payback of the initial capital investment is estimated to occur 4.5 years after the start of production. Table 22-2 shows the cashflow broken out on an annualized basis. Calendar years are shown for illustrative purposes only and may change.

The LOM total cash cost is \$594/oz Au derived from mining, processing, on-site G&A, refining, doré transportation and insurance, royalties, other owner's costs and Provincial mining tax costs per ounce payable. The all-in sustaining cost (AISC) is \$668/oz Au derived from total cash costs plus sustaining capital (including interest on capital leases), and reclamation and remediation costs. Note that AISC as reported is based solely on costs associated with the Base Case project and does not take into account any other corporate costs not directly associated with the Base Case.

**Table 22-1: Base Case Summary–Financial Results Without Mine Equipment Leasing**

| Parameter            | Units | Pre-Tax | After-Tax |
|----------------------|-------|---------|-----------|
| Cumulative cash flow | US\$M | 2,348   | 1,612     |
| NPV 5%               | US\$M | 1,238   | 788       |
| NPV 8%               | US\$M | 803     | 462       |
| NPV 10%              | US\$M | 577     | 290       |
| Payback period*      | year  | 4.2     | 4.5       |
| IRR                  | %     | 17.8    | 14.5      |

Note: base case NPV is highlighted. \* Payback period is after two years of pre-production

Table 22-2: Base Case Financial Model Without Mining Equipment Leasing

| CASHFLOW MODEL  |            |                   |           |         |         |         |         |         |          |         |         |         |         |         |         |          |         |         |         |         |       |        |        |  |  |
|---|------------|-------------------|-----------|---------|---------|---------|---------|---------|----------|---------|---------|---------|---------|---------|---------|----------|---------|---------|---------|---------|-------|--------|--------|--|--|
| Project Time line                                     |            | 2019              | 2020      | 2021    | 2022    | 2023    | 2024    | 2025    | 2026     | 2027    | 2028    | 2029    | 2030    | 2031    | 2032    | 2033     | 2034    | 2035    | 2036    | 2037    | 2038  | 2039   |        |  |  |
| Year  | Production | -2                | -1        | 1       | 2       | 3       | 4       | 5       | 6        | 7       | 8       | 9       | 10      | 11      | 12      | 13       | 14      | 15      | 16      | 17      | 18    | 19     |        |  |  |
| UNITs   | pv         | LOM               |           |         |         |         |         |         |          |         |         |         |         |         |         |          |         |         |         |         |       |        |        |  |  |
| <b>Metal Prices</b>                                   |            |                   |           |         |         |         |         |         |          |         |         |         |         |         |         |          |         |         |         |         |       |        |        |  |  |
| Gold  | US\$/oz    | 1,250             | 1,250     | 1,250   | 1,250   | 1,250   | 1,250   | 1,250   | 1,250    | 1,250   | 1,250   | 1,250   | 1,250   | 1,250   | 1,250   | 1,250    | 1,250   | 1,250   | 1,250   | 1,250   | 1,250 | 1,250  |        |  |  |
| <b>Ore mined</b>                                      |            |                   |           |         |         |         |         |         |          |         |         |         |         |         |         |          |         |         |         |         |       |        |        |  |  |
| Ore   | kmt        | 208,078           | 2         | 9,155   | 10,503  | 14,451  | 17,819  | 22,300  | 21,874   | 13,140  | 13,139  | 13,140  | 17,115  | 19,656  | 18,297  | 14,095   | 2,984   | 410     |         |         |       |        |        |  |  |
| <b>Waste Mined</b>                                    |            |                   |           |         |         |         |         |         |          |         |         |         |         |         |         |          |         |         |         |         |       |        |        |  |  |
| Waste   | kmt        | 486,663           | 7,733     | 28,862  | 47,021  | 44,660  | 42,446  | 39,750  | 40,176   | 48,910  | 48,911  | 48,910  | 44,935  | 27,229  | 11,103  | 4,902    | 955     | 159     |         |         |       |        |        |  |  |
| <b>Mill Feed</b>                                      |            |                   |           |         |         |         |         |         |          |         |         |         |         |         |         |          |         |         |         |         |       |        |        |  |  |
| Mill Direct Feed                                      | kmt        | 144,234           |           | 4,692   | 10,201  | 11,355  | 13,140  | 13,140  | 13,140   | 13,139  | 13,140  | 13,140  | 13,140  | 11,438  | 11,729  | 2,563    | 276     |         |         |         |       |        |        |  |  |
| Stockpile Mill Feed                                   | kmt        | 58,766            |           | 6,455   | 2,939   | 1,785   |         |         |          |         |         |         |         |         |         |          |         |         |         |         |       |        |        |  |  |
| <b>REVENUES</b>                                       |            |                   |           |         |         |         |         |         |          |         |         |         |         |         |         |          |         |         |         |         |       |        |        |  |  |
| <b>Dore</b>   |            |                   |           |         |         |         |         |         |          |         |         |         |         |         |         |          |         |         |         |         |       |        |        |  |  |
| Au recovered  | koz        | 5,868             |           | 427     | 408     | 439     | 560     | 537     | 349      | 319     | 325     | 394     | 475     | 479     | 425     | 269      | 201     | 167     | 95      |         |       |        |        |  |  |
| Au payable  | koz        | 5,866             |           | 425     | 408     | 439     | 560     | 537     | 349      | 319     | 325     | 394     | 475     | 479     | 425     | 269      | 201     | 167     | 95      |         |       |        |        |  |  |
| Au value  | 000 US\$   | 4,967,557,332,724 |           | 531,858 | 509,831 | 548,592 | 700,469 | 671,763 | 435,690  | 399,224 | 405,852 | 492,267 | 593,769 | 598,472 | 530,861 | 336,098  | 250,676 | 208,258 | 119,044 |         |       |        |        |  |  |
| <b>Transport and insurance</b>                        |            |                   |           |         |         |         |         |         |          |         |         |         |         |         |         |          |         |         |         |         |       |        |        |  |  |
| Dore refining, transport, insurance and other charges | 000 US\$   | 6,957             | 10,268    |         | 747     | 714     | 768     | 981     | 940      | 610     | 559     | 568     | 689     | 831     | 838     | 743      | 471     | 351     | 292     | 167     |       |        |        |  |  |
| Total Refining Transport and Insurance                | 000 US\$   | 6,957             | 10,268    |         | 747     | 714     | 768     | 981     | 940      | 610     | 559     | 568     | 689     | 831     | 838     | 743      | 471     | 351     | 292     | 167     |       |        |        |  |  |
| <b>NSR</b>  |            |                   |           |         |         |         |         |         |          |         |         |         |         |         |         |          |         |         |         |         |       |        |        |  |  |
| Dore  | 000 US\$   | 4,960,600,732,456 |           | 531,111 | 509,117 | 547,824 | 699,488 | 670,823 | 435,080  | 398,665 | 405,284 | 491,578 | 592,938 | 597,634 | 530,117 | 335,628  | 250,325 | 207,966 | 118,877 |         |       |        |        |  |  |
| Total   | 000 US\$   | 4,960,600,732,456 |           | 531,111 | 509,117 | 547,824 | 699,488 | 670,823 | 435,080  | 398,665 | 405,284 | 491,578 | 592,938 | 597,634 | 530,117 | 335,628  | 250,325 | 207,966 | 118,877 |         |       |        |        |  |  |
| <b>OPERATING COSTS ONSITE</b>                         |            |                   |           |         |         |         |         |         |          |         |         |         |         |         |         |          |         |         |         |         |       |        |        |  |  |
| Mining  | 000 US\$   | 943,666           | 1,366,205 |         | 95,774  | 102,138 | 119,049 | 106,067 | 106,979  | 132,475 | 107,995 | 107,060 | 122,779 | 104,592 | 84,629  | 63,054   | 41,220  | 32,793  | 21,598  | 18,003  |       |        |        |  |  |
| Process   | 000 US\$   | 833,130           | 1,283,229 |         | 76,622  | 82,640  | 82,640  | 82,640  | 82,640   | 82,640  | 82,640  | 82,640  | 82,640  | 82,640  | 82,640  | 82,640   | 82,640  | 82,640  | 82,640  | 49,649  |       |        |        |  |  |
| G&A   | 000 US\$   | 192,878           | 297,684   |         | 16,346  | 19,269  | 19,269  | 19,269  | 19,269   | 19,269  | 19,269  | 19,269  | 19,269  | 19,269  | 19,269  | 19,269   | 19,269  | 19,269  | 19,269  | 11,576  |       |        |        |  |  |
| Total onsite operating cost                           | 000 US\$   | 1,969,674,297,118 |           | 188,742 | 204,047 | 220,958 | 207,976 | 208,888 | 234,384  | 209,894 | 208,970 | 224,689 | 206,501 | 186,539 | 164,963 | 143,129  | 134,703 | 123,507 | 79,229  |         |       |        |        |  |  |
| <b>OPERATING COSTS OFF SITE</b>                       |            |                   |           |         |         |         |         |         |          |         |         |         |         |         |         |          |         |         |         |         |       |        |        |  |  |
| <b>Royalties and Owner's Other Costs</b>              |            |                   |           |         |         |         |         |         |          |         |         |         |         |         |         |          |         |         |         |         |       |        |        |  |  |
| Royalty   | 000 US\$   | 46,090            | 68,286    |         | 4,829   | 4,614   | 5,060   | 6,680   | 6,474    | 3,634   | 3,339   | 3,730   | 4,187   | 5,849   | 5,909   | 5,295    | 3,262   | 2,358   | 1,879   | 1,186   |       |        |        |  |  |
| Owner's Other Costs                                   | 000 US\$   | 167,171           | 243,418   |         | 19,644  | 15,798  | 18,371  | 30,564  | 28,696   | 10,611  | 9,921   | 9,165   | 10,774  | 25,326  | 27,626  | 23,353   | 9,789   | 4,502   | 2,072   | 1,205   |       |        |        |  |  |
| Total royalties and owner's other costs               | 000 US\$   | 213,261           | 311,705   |         | 24,473  | 20,412  | 23,430  | 37,245  | 35,170   | 14,245  | 9,260   | 12,896  | 14,961  | 31,176  | 33,535  | 28,648   | 13,051  | 6,861   | 3,951   | 2,391   |       |        |        |  |  |
| <b>OPERATING PROFIT</b>                               |            |                   |           |         |         |         |         |         |          |         |         |         |         |         |         |          |         |         |         |         |       |        |        |  |  |
| Operating profit                                      | 000 US\$   | 2,777,665,406,364 |           | 317,896 | 284,658 | 303,436 | 454,267 | 426,765 | 186,450  | 179,512 | 183,419 | 251,928 | 355,261 | 377,560 | 336,506 | 179,448  | 108,762 | 80,508  | 37,257  |         |       |        |        |  |  |
| Taxes   | 000 US\$   | 449,730           | 736,684   | -       | -       | -       | -       | 50,975  | 96,620   | 31,571  | 34,254  | 40,140  | 66,929  | 104,067 | 113,133 | 101,202  | 49,124  | 26,616  | 16,457  | 5,596   | -     | -      |        |  |  |
| <b>CAPITAL COSTS</b>                                  |            |                   |           |         |         |         |         |         |          |         |         |         |         |         |         |          |         |         |         |         |       |        |        |  |  |
| Total Initial Capital                                 | 000 US\$   | 1,241,630,128,138 | 446,594   | 834,789 |         |         |         |         |          |         |         |         |         |         |         |          |         |         |         |         |       |        |        |  |  |
| Sustaining Capital                                    | 000 US\$   | 254,831           | 371,027   |         | 35,086  | 30,066  | 30,172  | 35,641  | 18,436   | 23,852  | 19,382  | 28,337  | 40,027  | 22,541  | 17,337  | 21,223   | 16,026  | 15,980  | 16,903  | 19      |       |        |        |  |  |
| Closure Costs   | 000 US\$   | 26,666            | 62,952    |         | 73      | 146     | 576     | 285     | 358      | 467     | 845     | 927     | 636     | 2,179   | 1,126   | 3,510    | 848     | 3,966   | 967     | 4,058   | 1,229 | 40,757 |        |  |  |
| Total capital costs                                   | 000 US\$   | 1,523,127,171,536 | 446,594   | 834,789 | 35,086  | 30,139  | 30,317  | 36,217  | 18,721   | 24,209  | 19,849  | 29,182  | 40,954  | 23,177  | 19,515  | 22,348   | 19,536  | 16,827  | 20,869  | 986     | 4,058 | 1,229  | 40,757 |  |  |
| <b>Working Capital</b>                                |            |                   |           |         |         |         |         |         |          |         |         |         |         |         |         |          |         |         |         |         |       |        |        |  |  |
| Accounts receivable yearly                            | 000 US\$   | 7,322,456         |           | 531,111 | 509,117 | 547,824 | 699,488 | 670,823 | 435,080  | 398,665 | 405,284 | 491,578 | 592,938 | 597,634 | 530,117 | 335,628  | 250,325 | 207,966 | 118,877 |         |       |        |        |  |  |
| Accounts receivable adjusted                          | 000 US\$   | 601,846           |           | 43,653  | 41,845  | 45,027  | 57,492  | 55,136  | 35,760   | 32,767  | 33,311  | 40,404  | 48,735  | 49,121  | 43,571  | 27,586   | 20,575  | 17,093  | 9,771   |         |       |        |        |  |  |
| Change in accounts receivable                         | 000 US\$   |                   |           | 43,653  | (1,808) | 3,181   | 12,466  | (2,356) | (19,376) | (2,993) | 544     | 7,093   | 8,331   | 386     | (5,549) | (15,985) | (7,011) | (3,482) | (7,322) | (9,771) |       |        |        |  |  |

|                                  |            |                 |          |                 |              |              |                 |              |               |              |              |                |                |                |              |               |              |              |              |              |               |
|----------------------------------|------------|-----------------|----------|-----------------|--------------|--------------|-----------------|--------------|---------------|--------------|--------------|----------------|----------------|----------------|--------------|---------------|--------------|--------------|--------------|--------------|---------------|
| Accounts payable yearly          | 000        | 3,269,091       | 213,962  | 225,173         | 245,156      | 246,201      | 244,999         | 249,239      | 219,713       | 222,434      | 240,339      | 238,508        | 220,911        | 194,354        | 156,650      | 141,914       | 127,749      | 81,786       |              |              |               |
| Accounts payable adjusted        | 000        | 403,039         | 26,379   | 27,761          | 30,225       | 30,354       | 30,205          | 30,728       | 27,088        | 27,423       | 29,631       | 29,405         | 27,236         | 23,961         | 19,313       | 17,496        | 15,750       | 10,083       |              |              |               |
| Change in account payable        | 000        |                 | 26,379   | 1,382           | 2,464        | 129          | (148)           | 523          | (3,640)       | 335          | 2,208        | (226)          | (2,169)        | (3,274)        | (4,648)      | (1,817)       | (1,746)      | (5,667)      | (10,083)     |              |               |
| Working inventory                | 000        |                 | 18,905   | 18,905          | 18,905       | 18,905       | 18,905          | 18,905       | 18,905        | 18,905       | 18,905       | 18,905         | 18,905         | 18,905         | 18,905       | 18,905        | 18,905       | 18,905       | 18,905       | 18,905       |               |
| Change in working inventory      | 000        |                 | 18,905   |                 |              |              |                 |              |               |              |              |                |                |                |              |               |              |              |              | (18,905)     |               |
| <b>Change in working capital</b> | <b>000</b> | <b>(16,581)</b> | <b>0</b> | <b>(36,179)</b> | <b>3,190</b> | <b>(718)</b> | <b>(12,337)</b> | <b>2,208</b> | <b>19,899</b> | <b>(647)</b> | <b>(209)</b> | <b>(4,885)</b> | <b>(8,557)</b> | <b>(2,555)</b> | <b>2,275</b> | <b>11,337</b> | <b>5,194</b> | <b>1,735</b> | <b>1,656</b> | <b>(313)</b> | <b>18,905</b> |

**VALUATION INDICATORS**

|                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|-----------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Discount factor | 1.00 | 0.95 | 0.91 | 0.86 | 0.82 | 0.78 | 0.75 | 0.71 | 0.68 | 0.64 | 0.61 | 0.58 | 0.56 | 0.53 | 0.51 | 0.48 | 0.46 | 0.44 | 0.42 | 0.40 | 0.38 |
|-----------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|

**Pre Tax**

|                     |       |           |           |             |             |           |           |          |         |         |         |         |           |           |           |           |           |           |           |           |           |           |           |          |
|---------------------|-------|-----------|-----------|-------------|-------------|-----------|-----------|----------|---------|---------|---------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|
| Cash flow           | 000   | 1,237,957 | 2,348,273 | (446,594)   | (834,789)   | 246,631   | 257,709   | 272,401  | 405,713 | 410,251 | 182,140 | 159,016 | 154,028   | 206,089   | 323,527   | 355,489   | 316,433   | 171,249   | 97,129    | 61,374    | 37,926    | (4,370)   | (1,229)   | (21,852) |
| Cumulative cashflow | 000   |           | (446,594) | (1,281,382) | (1,034,752) | (777,043) | (504,641) | (98,928) | 311,323 | 493,463 | 652,479 | 806,507 | 1,012,596 | 1,336,123 | 1,691,612 | 2,008,045 | 2,179,294 | 2,276,423 | 2,337,797 | 2,375,724 | 2,371,353 | 2,370,125 | 2,348,273 |          |
| NPV 5%              | 000   |           | 1,237,957 |             |             |           |           |          |         |         |         |         |           |           |           |           |           |           |           |           |           |           |           |          |
| Payback period      | Years | 4.2       | 1.0       | 1.0         | 1.0         | 1.0       | 1.0       | 1.0      | 0.2     |         |         |         |           |           |           |           |           |           |           |           |           |           |           |          |
| IRR before tax      | %     | 17.8%     |           |             |             |           |           |          |         |         |         |         |           |           |           |           |           |           |           |           |           |           |           |          |

**After Tax**

|                     |       |         |           |             |             |           |           |           |         |         |         |         |         |         |           |           |           |           |           |           |           |           |           |          |
|---------------------|-------|---------|-----------|-------------|-------------|-----------|-----------|-----------|---------|---------|---------|---------|---------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|
| Cash flow           | 000   | 788,226 | 1,611,589 | (446,594)   | (834,789)   | 246,631   | 257,709   | 272,401   | 354,738 | 313,631 | 150,569 | 124,762 | 113,887 | 139,160 | 219,461   | 242,356   | 215,231   | 122,125   | 70,513    | 44,917    | 32,330    | (4,370)   | (1,229)   | (21,852) |
| Cumulative cashflow | 000   |         | (446,594) | (1,281,382) | (1,034,752) | (777,043) | (504,641) | (149,903) | 163,728 | 314,297 | 439,059 | 552,947 | 692,107 | 911,568 | 1,153,924 | 1,369,155 | 1,491,280 | 1,561,793 | 1,606,710 | 1,639,040 | 1,634,669 | 1,633,441 | 1,611,589 |          |
| NPV 5%              | 000   |         | 788,226   |             |             |           |           |           |         |         |         |         |         |         |           |           |           |           |           |           |           |           |           |          |
| Payback period      | Years | 4.5     | 1.0       | 1.0         | 1.0         | 1.0       | 1.0       | 1.0       | 0.5     |         |         |         |         |         |           |           |           |           |           |           |           |           |           |          |
| IRR after tax       | %     | 14.5%   |           |             |             |           |           |           |         |         |         |         |         |         |           |           |           |           |           |           |           |           |           |          |

#### 22.4.2 Results with Lease of Mining Equipment

Table 22-3 summarizes the financial results for the Base Case with the base case NPV 5% highlighted in grey for the scenario that does consider the leasing of mining equipment. The after-tax NPV 5% is \$795 M. The after-tax IRR is 15.2%. The after-tax payback of the initial capital investment is estimated to occur 4.4 years after the start of production. Table 22-4 shows the cashflow broken out on an annualized basis. Years are shown for illustrative purposes only and may change.

The LOM total cash cost is \$594/oz Au derived from mining, processing, on-site G&A, refining, doré transportation and insurance, royalties, owner's other costs and Provincial mining tax costs per ounce payable. The AISC is \$694/oz Au derived from total cash costs plus sustaining capital (including interest on capital leases), and reclamation and remediation costs. Note that AISC as reported is based solely on costs associated with this Base Case and does not take into account any other corporate costs not directly associated with this Base Case.

#### 22.5 Sensitivity Analysis

A sensitivity analysis was performed on the base case NPV 5% after taxes to examine the sensitivity to gold price, operating costs, capital costs (including sustaining), and US\$/C\$ exchange rate. The results of the sensitivity analysis are shown in Figure 22-1 for the after-tax scenario.

In the pre-tax and after-tax evaluations, the Base Case is most sensitive to changes in gold price and gold head grade, and less sensitive to changes in exchange rate, operating costs and capital costs.

Gold head grade is not presented in the sensitivity graph because the impact of changes in the gold grade mirror the impact of changes in the gold price.

**Table 22-3: Base Case Summary–Financial Results With Leasing of Mining Equipment**

| Parameter            | Units | Pre-Tax | After-Tax |
|----------------------|-------|---------|-----------|
| Cumulative cash flow | US\$M | 2,327   | 1,597     |
| NPV 5%               | US\$M | 1,242   | 795       |
| NPV 8%               | US\$M | 819     | 479       |
| NPV 10%              | US\$M | 599     | 313       |
| Payback period*      | year  | 4.2     | 4.4       |
| IRR                  | %     | 18.7    | 15.2      |

Note: base case NPV is highlighted. \* Payback period is after two years of pre-production

**Table 22-4: Base Case Financial Model With Leasing of Mining Equipment**

| CASHFLOW MODEL  |                 |                   |           |          |         |         |          |         |          |         |         |         |         |         |         |          |         |         |         |          |        |          |
|---|-----------------|-------------------|-----------|----------|---------|---------|----------|---------|----------|---------|---------|---------|---------|---------|---------|----------|---------|---------|---------|----------|--------|----------|
| Project Time Line                                     |                 | 2019              | 2020      | 2021     | 2022    | 2023    | 2024     | 2025    | 2026     | 2027    | 2028    | 2029    | 2030    | 2031    | 2032    | 2033     | 2034    | 2035    | 2036    | 2037     | 2038   | 2039     |
| Year  |                 | -2                | -1        | 1        | 2       | 3       | 4        | 5       | 6        | 7       | 8       | 9       | 10      | 11      | 12      | 13       | 14      | 15      | 16      | 17       | 18     | 19       |
| Project time (year)                                   |                 |                   |           |          |         |         |          |         |          |         |         |         |         |         |         |          |         |         |         |          |        |          |
| Production  |                 | 0                 | 0         | 1        | 1       | 1       | 1        | 1       | 1        | 1       | 1       | 1       | 1       | 1       | 1       | 1        | 1       | 0       | 0       | 0        | 0      | 0        |
| <b>Metal Prices</b>                                   |                 |                   |           |          |         |         |          |         |          |         |         |         |         |         |         |          |         |         |         |          |        |          |
| Gold  | US\$/oz         | 1,250             | 1,250     | 1,250    | 1,250   | 1,250   | 1,250    | 1,250   | 1,250    | 1,250   | 1,250   | 1,250   | 1,250   | 1,250   | 1,250   | 1,250    | 1,250   | 1,250   | 1,250   | 1,250    | 1,250  | 1,250    |
| <b>Ore mined</b>                                      |                 |                   |           |          |         |         |          |         |          |         |         |         |         |         |         |          |         |         |         |          |        |          |
| Ore   | km <sup>3</sup> | 208,078           | 2         | 9,155    | 10,503  | 14,451  | 17,819   | 22,300  | 21,874   | 13,140  | 13,139  | 13,140  | 17,115  | 19,656  | 18,297  | 14,095   | 2,984   | 410     |         |          |        |          |
| <b>Waste Mined</b>                                    |                 |                   |           |          |         |         |          |         |          |         |         |         |         |         |         |          |         |         |         |          |        |          |
| Waste   | km <sup>3</sup> | 486,663           | 7,733     | 28,862   | 47,021  | 44,660  | 42,446   | 39,750  | 40,176   | 48,910  | 48,911  | 48,910  | 44,935  | 27,229  | 11,103  | 4,902    | 955     | 159     |         |          |        |          |
| <b>Mill Feed</b>                                      |                 |                   |           |          |         |         |          |         |          |         |         |         |         |         |         |          |         |         |         |          |        |          |
| Mill Direct Feed                                      | km <sup>3</sup> | 144,234           |           | 4,692    | 10,201  | 11,355  | 13,140   | 13,140  | 13,140   | 13,139  | 13,140  | 13,140  | 13,140  | 13,140  | 11,438  | 11,729   | 2,563   | 276     |         |          |        |          |
| Stockpile Mill Feed                                   | km <sup>3</sup> | 58,766            |           | 6,455    | 2,939   | 1,785   |          |         |          |         |         |         |         | 1,702   | 1,411   | 10,577   | 12,864  | 13,140  | 7,894   |          |        |          |
| <b>REVENUES</b>                                       |                 |                   |           |          |         |         |          |         |          |         |         |         |         |         |         |          |         |         |         |          |        |          |
| <b>Dore</b>   |                 |                   |           |          |         |         |          |         |          |         |         |         |         |         |         |          |         |         |         |          |        |          |
| Au recovered  | koz             | 5,868             |           | 427      | 408     | 439     | 560      | 537     | 349      | 319     | 325     | 394     | 475     | 479     | 425     | 269      | 201     | 167     | 95      |          |        |          |
| Au payable  | koz             | 5,866             |           | 425      | 408     | 439     | 560      | 537     | 349      | 319     | 325     | 394     | 475     | 479     | 425     | 269      | 201     | 167     | 95      |          |        |          |
| Au value  | 000 US\$        | 4,967,557,332,724 |           | 531,858  | 509,831 | 548,592 | 700,469  | 671,763 | 435,690  | 399,224 | 405,852 | 492,267 | 593,769 | 598,472 | 530,861 | 336,098  | 250,676 | 208,258 | 119,044 |          |        |          |
| <b>Transport and insurance</b>                        |                 |                   |           |          |         |         |          |         |          |         |         |         |         |         |         |          |         |         |         |          |        |          |
| Dore refining, transport, insurance and other charges | 000 US\$        | 6,957             | 10,268    |          | 747     | 714     | 768      | 981     | 940      | 610     | 559     | 568     | 689     | 831     | 838     | 743      | 471     | 351     | 292     | 167      |        |          |
| Total Refining Transport and Insurance                | 000 US\$        | 6,957             | 10,268    |          | 747     | 714     | 768      | 981     | 940      | 610     | 559     | 568     | 689     | 831     | 838     | 743      | 471     | 351     | 292     | 167      |        |          |
| <b>NSR</b>  |                 |                   |           |          |         |         |          |         |          |         |         |         |         |         |         |          |         |         |         |          |        |          |
| Dore  | 000 US\$        | 4,960,600,732,456 |           | 531,111  | 509,117 | 547,824 | 699,488  | 670,823 | 435,080  | 398,665 | 405,284 | 491,578 | 592,938 | 597,634 | 530,117 | 335,628  | 250,325 | 207,966 | 118,877 |          |        |          |
| Total   | 000 US\$        | 4,960,600,732,456 |           | 531,111  | 509,117 | 547,824 | 699,488  | 670,823 | 435,080  | 398,665 | 405,284 | 491,578 | 592,938 | 597,634 | 530,117 | 335,628  | 250,325 | 207,966 | 118,877 |          |        |          |
| <b>OPERATING COSTS ONSITE</b>                         |                 |                   |           |          |         |         |          |         |          |         |         |         |         |         |         |          |         |         |         |          |        |          |
| Mining  | 000 US\$        | 943,666           | 1,366,205 |          | 95,774  | 102,138 | 119,049  | 106,067 | 106,979  | 132,475 | 107,995 | 107,060 | 122,779 | 104,592 | 84,629  | 63,054   | 41,220  | 32,793  | 21,598  | 18,003   |        |          |
| Process   | 000 US\$        | 833,130           | 1,283,229 |          | 76,622  | 82,640  | 82,640   | 82,640  | 82,640   | 82,640  | 82,632  | 82,640  | 82,640  | 82,640  | 82,640  | 82,640   | 82,640  | 82,640  | 82,640  | 82,640   | 49,649 |          |
| G&A   | 000 US\$        | 192,878           | 297,684   |          | 16,346  | 19,269  | 19,269   | 19,269  | 19,269   | 19,269  | 19,267  | 19,269  | 19,269  | 19,269  | 19,269  | 19,269   | 19,269  | 19,269  | 19,269  | 11,576   |        |          |
| Total onsite operating cost                           | 000 US\$        | 1,969,674,297,118 |           | 188,742  | 204,047 | 220,958 | 207,976  | 208,888 | 234,384  | 209,894 | 208,970 | 224,689 | 206,501 | 186,539 | 164,963 | 143,129  | 134,703 | 123,507 | 79,229  |          |        |          |
| <b>OPERATING COSTS OFF SITE</b>                       |                 |                   |           |          |         |         |          |         |          |         |         |         |         |         |         |          |         |         |         |          |        |          |
| <b>Royalties and Owner's Other Costs</b>              |                 |                   |           |          |         |         |          |         |          |         |         |         |         |         |         |          |         |         |         |          |        |          |
| Royalty   | 000 US\$        | 46,090            | 68,286    |          | 4,829   | 4,614   | 5,060    | 6,680   | 6,474    | 3,634   | 3,339   | 3,730   | 4,187   | 5,849   | 5,909   | 5,295    | 3,262   | 2,358   | 1,879   | 1,186    |        |          |
| Owner's Other Costs                                   | 000 US\$        | 167,171           | 243,418   |          | 19,644  | 15,798  | 18,371   | 30,564  | 28,696   | 10,611  | 5,921   | 9,165   | 10,774  | 25,326  | 27,626  | 23,353   | 9,789   | 4,502   | 2,072   | 1,205    |        |          |
| Total royalties and owner's other costs               | 000 US\$        | 213,261           | 311,705   |          | 24,473  | 20,412  | 23,430   | 37,245  | 35,170   | 14,245  | 9,260   | 12,896  | 14,961  | 31,176  | 33,553  | 28,648   | 13,051  | 6,861   | 3,951   | 2,391    |        |          |
| <b>OPERATING PROFIT</b>                               |                 |                   |           |          |         |         |          |         |          |         |         |         |         |         |         |          |         |         |         |          |        |          |
| Operating profit                                      | 000 US\$        | 2,777,665,406,634 |           | 317,896  | 284,658 | 303,436 | 454,267  | 426,765 | 186,450  | 179,512 | 183,419 | 251,928 | 355,261 | 377,560 | 336,506 | 179,448  | 108,762 | 80,508  | 37,257  |          |        |          |
| Taxes   | 000 US\$        | 446,512           | 729,629   | -        | -       | -       | -        | 60,277  | 95,688   | 28,405  | 30,374  | 37,343  | 65,097  | 102,915 | 112,350 | 100,611  | 48,678  | 26,280  | 16,204  | 5,406    | -      | -        |
| <b>CAPITAL COSTS</b>                                  |                 |                   |           |          |         |         |          |         |          |         |         |         |         |         |         |          |         |         |         |          |        |          |
| Total Initial Capital                                 | 000 US\$        | 1,113,548         | 1,146,896 | 446,594  | 700,302 |         |          |         |          |         |         |         |         |         |         |          |         |         |         |          |        |          |
| Sustaining Capital                                    | 000 US\$        | 378,937           | 526,977   |          | 60,512  | 54,677  | 53,967   | 58,621  | 40,601   | 42,688  | 37,520  | 28,337  | 40,027  | 22,541  | 17,337  | 21,223   | 16,026  | 15,980  | 16,903  | 19       |        |          |
| Closure Costs   | 000 US\$        | 26,666            | 62,952    |          | 73      | 146     | 576      | 285     | 358      | 467     | 845     | 927     | 636     | 2,179   | 1,126   | 3,510    | 848     | 3,966   | 967     | 4,058    | 1,229  | 40,757   |
| Total capital costs                                   | 000 US\$        | 1,519,151         | 1,736,825 | 446,594  | 700,302 | 60,512  | 54,749   | 54,112  | 59,197   | 40,886  | 43,046  | 37,987  | 29,182  | 40,954  | 23,177  | 19,515   | 22,348  | 19,536  | 16,827  | 20,869   | 986    | 4,058    |
| <b>Working Capital</b>                                |                 |                   |           |          |         |         |          |         |          |         |         |         |         |         |         |          |         |         |         |          |        |          |
| Accounts receivable                                   | 000 US\$        | 7,322,456         |           | 531,111  | 509,117 | 547,824 | 699,488  | 670,823 | 435,080  | 398,665 | 405,284 | 491,578 | 592,938 | 597,634 | 530,117 | 335,628  | 250,325 | 207,966 | 118,877 |          |        |          |
| Accounts receivable                                   | 000 US\$        | 601,846           |           | 43,653   | 41,845  | 45,027  | 57,492   | 55,136  | 35,760   | 32,767  | 33,311  | 40,404  | 48,735  | 49,121  | 43,571  | 27,586   | 20,575  | 17,093  | 9,771   |          |        |          |
| Change in accounts receivable                         | 000 US\$        |                   |           | 43,653   | (1,808) | 3,181   | 12,466   | (2,356) | (19,376) | (2,993) | 544     | 7,093   | 8,331   | 386     | (5,549) | (15,985) | (7,011) | (3,482) | (7,322) | (9,771)  |        |          |
| Accounts payable                                      | 000 US\$        | 3,269,091         |           | 213,962  | 225,173 | 245,156 | 246,201  | 244,999 | 249,239  | 219,713 | 222,434 | 240,339 | 238,508 | 220,911 | 194,354 | 156,650  | 141,914 | 127,749 | 81,786  |          |        |          |
| Accounts payable                                      | 000 US\$        | 403,039           |           | 26,379   | 27,761  | 30,225  | 30,354   | 30,205  | 30,728   | 27,088  | 27,423  | 29,631  | 29,405  | 27,236  | 23,961  | 19,313   | 17,496  | 15,750  | 10,083  |          |        |          |
| Change in account payable                             | 000 US\$        |                   |           | 26,379   | 1,382   | 2,464   | 129      | (148)   | 523      | (3,640) | 335     | 2,208   | (226)   | (2,169) | (3,274) | (4,648)  | (1,817) | (1,746) | (5,667) | (10,083) |        |          |
| Working inventory                                     | 000 US\$        |                   |           | 18,905   | 18,905  | 18,905  | 18,905   | 18,905  | 18,905   | 18,905  | 18,905  | 18,905  | 18,905  | 18,905  | 18,905  | 18,905   | 18,905  | 18,905  | 18,905  | 18,905   | 18,905 | 18,905   |
| Change in working inventory                           | 000 US\$        |                   |           | 18,905   |         |         |          |         |          |         |         |         |         |         |         |          |         |         |         |          |        | (18,905) |
| Change in working                                     | 000 US\$        | (16,581)          | 0         | (36,179) | 3,190   | (718)   | (12,337) | 2,208   | 19,899   | (647)   | (209)   | (4,885) | (8,557) | (2,555) | 2,275   | 11,337   | 5,194   | 1,735   | 1,656   | (313)    |        | 18,905   |

VALUATION INDICATORS

|                 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|-----------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Discount factor | 1.00 | 0.95 | 0.91 | 0.86 | 0.82 | 0.78 | 0.75 | 0.71 | 0.68 | 0.64 | 0.61 | 0.58 | 0.56 | 0.53 | 0.51 | 0.48 | 0.46 | 0.44 | 0.42 | 0.40 | 0.38 |
|-----------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|

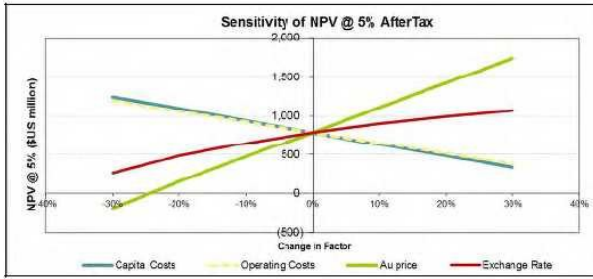
Pre Tax

|                                |           |            |             |           |           |           |          |         |         |         |         |         |           |           |           |           |           |           |           |           |           |           |          |
|--------------------------------|-----------|------------|-------------|-----------|-----------|-----------|----------|---------|---------|---------|---------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|
| Cash flow (000 US\$)           | 1,241,933 | 32,326,809 | (446,594)   | (700,302) | 221,205   | 233,098   | 248,606  | 382,734 | 388,087 | 163,303 | 140,877 | 154,028 | 206,089   | 323,527   | 355,489   | 316,433   | 171,249   | 97,129    | 61,374    | 37,926    | (4,370)   | (1,229)   | (21,852) |
| Cumulative cashflow (000 US\$) |           | (446,594)  | (1,146,896) | (925,691) | (692,593) | (443,986) | (61,253) | 326,834 | 490,137 | 631,015 | 785,042 | 991,132 | 1,314,659 | 1,670,148 | 1,986,581 | 2,157,830 | 2,254,959 | 2,316,333 | 2,354,260 | 2,349,889 | 2,348,661 | 2,326,809 |          |
| NPV 5% (000 US\$)              | 1,241,933 |            |             |           |           |           |          |         |         |         |         |         |           |           |           |           |           |           |           |           |           |           |          |
| Payback period (Years)         | 4.2       | 1.0        | 1.0         | 1.0       | 1.0       | 1.0       | 1.0      | 0.2     |         |         |         |         |           |           |           |           |           |           |           |           |           |           |          |
| IRR before tax (%)             | 18.7%     |            |             |           |           |           |          |         |         |         |         |         |           |           |           |           |           |           |           |           |           |           |          |

After Tax

|                                |         |           |             |           |           |           |           |         |         |         |         |         |         |           |           |           |           |           |           |           |           |           |          |
|--------------------------------|---------|-----------|-------------|-----------|-----------|-----------|-----------|---------|---------|---------|---------|---------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|
| Cash flow (000 US\$)           | 795,421 | 1,597,180 | (446,594)   | (700,302) | 221,205   | 233,098   | 248,606   | 322,456 | 292,399 | 134,898 | 110,503 | 116,685 | 140,992 | 220,612   | 243,139   | 215,822   | 122,571   | 70,849    | 45,170    | 32,521    | (4,370)   | (1,229)   | (21,852) |
| Cumulative cashflow (000 US\$) |         | (446,594) | (1,146,896) | (925,691) | (692,593) | (443,986) | (121,530) | 170,869 | 305,767 | 416,270 | 532,955 | 673,948 | 894,559 | 1,137,699 | 1,353,521 | 1,476,091 | 1,546,940 | 1,592,110 | 1,624,631 | 1,620,260 | 1,619,032 | 1,597,180 |          |
| NPV 5% (000 US\$)              | 795,421 |           |             |           |           |           |           |         |         |         |         |         |         |           |           |           |           |           |           |           |           |           |          |
| Payback period (Years)         | 4.4     | 1.0       | 1.0         | 1.0       | 1.0       | 1.0       | 1.0       | 0.4     |         |         |         |         |         |           |           |           |           |           |           |           |           |           |          |
| IRR after tax (%)              | 15.2%   |           |             |           |           |           |           |         |         |         |         |         |         |           |           |           |           |           |           |           |           |           |          |

Figure 22-1: Base Case NPV Sensitivity Analysis



Note: Figure prepared by Wood, 2018.

22.6 Comments on Section 22

Under the assumptions presented in this Report, the Base Case demonstrates positive economics for both the scenario that does not consider the lease of mining equipment, as well as the scenario that does consider the leasing of mining equipment; however, the latter scenario resulted in the most positive results from an economic perspective.

For the Base Case scenario that does not consider leasing of mining equipment, the after-tax NPV at a 5% discount rate is \$788 million, the after-tax IRR is 14.5%, and the after-tax payback of the initial capital investment is estimated to occur 4.5 years after the start of production.

For the Base Case scenario that does consider leasing of mining equipment, the after-tax NPV at a 5% discount rate is \$795 million, the after-tax IRR is 15.2%, and the after-tax payback of the initial capital investment is estimated to occur 4.4 years after the start of production.

In the pre-tax and after-tax evaluations, the Base Case is most sensitive to changes in gold price and gold head grade, and less sensitive to changes in mill recovery and operating and capital costs from the factors that were evaluated.

**23.0 ADJACENT PROPERTIES**

This section is not relevant to this Report.

**24.0 OTHER RELEVANT DATA AND INFORMATION****24.1 Extended Case****24.1.1 Introduction**

The Base Case used in the 2018 Feasibility Study, and outlined within the main body of this Report supports the current permitting process with 203 Mt of the Mineral Reserves included in the mine plan. The Extended Case included within this section supports the total 233 Mt of Mineral Reserves. Should IAMGOLD pursue development of the additional Mineral Reserves beyond the 203 Mt identified in the Environmental Effects Review, IAMGOLD will, through consultation with the regulatory authorities, confirm whether its environmental assessment coverage is sufficient or if new/amended environmental assessments are required. Development of additional ore would continue to be done in a manner that does not cause significant adverse environmental effects and would continue to extend socio-economic benefits to local communities and the region. The Extended Case adds approximately two years to the mine life with mill throughput remaining the same as the Base Case of 36,000 t/d, remains within the footprint of the current permit application to support the Base Case, but will require an additional 5m raise of the TMF to increase its capacity from 203 Mt to 233 Mt, and extend the height of the MRA.

Much of the technical information for the Extended Case remains the same as the material contained in other sections of this Report. The following sub-sections provide the changes made to the Base Case to accommodate the two-year mine life extension and treatment of an additional 30 Mt of Mineral Reserves. Sections common to the Base Case and Extended Case are referenced but not repeated in this section of the Report.

**24.1.2 Summary**

Refer to Section 1.0.

**24.1.3 Introduction**

Refer to Section 2.0.

**24.1.4 Reliance on Other Experts**

Refer to Section 3.0.

**24.1.5 Property, Description and Location**

Refer to Section 4.0.

**24.1.6 Accessibility, Climate, Local Resources, Infrastructure, and Physiography**

Refer to Section 5.0.

**24.1.7 History**

Refer to Section 6.0.

**24.1.8 Geological Setting and Mineralization**

Refer to Section 7.0.

**24.1.9 Deposit Types**

Refer to Section 8.0.

**24.1.10 Exploration**

Refer to Section 9.0.

**24.1.11 Drilling**

Refer to Section 10.0.

**24.1.12 Sample Preparation, Analyses, Quality Control and Security**

Refer to Section 11.0.

**24.1.13 Data Verification**

Refer to Section 12.0.

**24.1.14 Mineral Processing and Metallurgical Testing**

Refer to Section 13.0.

#### 24.1.15 Mineral Resource Estimates

Refer to Section 14.0

#### 24.1.16 Mineral Reserve Estimates

Refer to Section 15.0.

#### 24.1.17 Mining Methods

##### Overview

The Extended Case mine plan is based on the total Proven and Probable Mineral Reserves of 233 Mt (refer to Table 15-2), adding 30 Mt of additional ore to the mine plan used to support the permit application.

The pit optimization steps were outlined in Section 15.2.

##### Geotechnical Considerations

Wood completed the following tasks to support and update the Base Case mine plan feasibility-level pit slope design:

- Site visit to perform geomechanical logging and reconciliation of previously drilled rock core for QA/QC (572 m of “GT” core and 335 m of “GA” core);
- Data processing and compilation of previously completed geomechanical investigations and site-specific resources supplied by IAMGOLD to produce the following data summary for subsequent analysis:
  - Sub-division of the structural and rock mass classification data into 5 design sectors
  - Main joint sets orientation and joint set number (Jn) per domain
  - Rock mass characterization per domain and lithology (RMR76, RMR89, GSI, Q)
  - Laboratory strength testing data per lithology (density, unconfined compressive strength or UCS)
  - Intact rock (m, s) or Joint (C, Phi) strength data per lithology
- Kinematic analysis establishing the potential mode of structural failures such as wedge, topple and planar failures

- Limit equilibrium modelling of the above modes of failure to determine factor of safety and criticality based on the probability of failure and wedge size
- Overall slope stability analysis of the main pit walls including review of the hydrogeological conditions (Limit Equilibrium and Finite Element)
- Evaluation and recommendation of the final pit walls geometry, by developing optimal bench design, bench face angles (BFA), bench widths (BW), inter-ramp angles (IRA), and overall slope angles (OSA) per sector.

Initial pit slope design criteria were based primarily on all the compiled, reconciled and updated geomechanical data using the PFS pit shell geometry defined by Amec Foster Wheeler (2017). Following pit optimization, the pit geometry was compared for changes in the slope orientation that may be impacted by different kinematic influences, and review using limit equilibrium modelling of the potential modes of failure to determine adequacy of the bench and inter-ramp design, with recommendations for adjustment.

The database of geomechanical features within each lithological unit was compiled based on comparison and review of the different data sources provided by IAMGOLD. This database was used for pit slope design. The assessment of various rock structural domains was based on the analysis of 26 HQ-3 sized inclined boreholes from three different drilling programs.

The pit has been sub-divided into five main structural domains (design sectors) related to the pit geometry such that the structural joint fabric was analysed for each design sector with subdivision of the data into the upper (0–150 m bgs) and lower (150–500 m bgs) zones of the pit to separate the near surface variation of the increased joint frequency. The predominant rock type that is expected to form the final walls is primarily tonalite, which is expected to form roughly 55–70% of the exposed wall.

It was found that the rock mass quality did not vary greatly with lithology, with an average weighted GSI for Tonalite of between 62 and 66. The uniaxial compressive strength of the tonalite was on average 166 MPa with a  $m_i$  of 11 for the Hoek and Brown (1980) intact failure parameter. From direct shear testing on open joints it was found the Mohr-Coulomb shear strength of a cohesion of 112 KPa and friction angle of 35° was determined for the tonalite joints.

This geotechnical model was used as the basis for kinematic stability analysis and failure criteria filtering. Wedge, plane and toppling limit equilibrium analysis of critical failure modes were used to develop appropriate BFAs and inter-ramp angles (IRA) that met an 80% reliability acceptance criterion. These slope design criteria were then used to perform pit optimization per design sector. A final evaluation of the slope stability and final OSA, was undertaken under various conditions.

The five main design sectors of the pit related to the geometry and the major east–west-trending fault can be seen in Figure 24-1.

For most sectors, a BFA of 75° is achievable, resulting in an IRA between 54° and 56.4°. In southeast and south design sectors 3 and 4, which are controlled by planar and wedge failures associated with the dominant joint set 1, the BFA was adjusted to an appropriate value between 60° and 72°. Bench widths in each sector were widened as necessary, based on the significance of toppling and wedge failures, from a minimum value of 9.5 m up to 12 m assuming double benching on the final wall (single bench height of 12 m). A 20 m wide geotechnical berm is recommended for midpoint between inter-ramp spacing greater than 150 m.

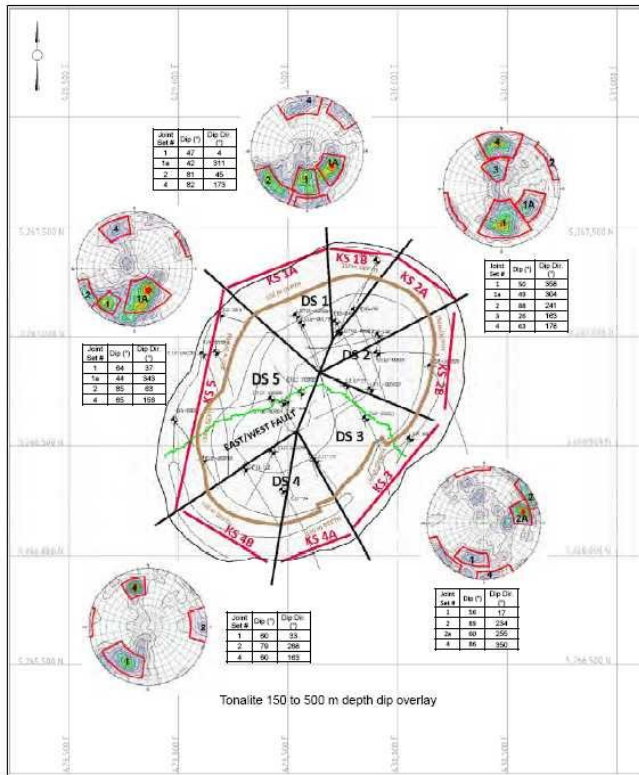
The principal failure modes controlling bench and inter-ramp stability are toppling failure observed in the north and northeast walls (DS 1 and KS 2A). Wedge failure dominates in the east wall (DS 2 and 3) while planar failure controls bench face angles, with also some toppling failure in DS 4. In sector 5 again wedge failure dominates but at a lower likelihood of formation. Overall, wedge failure dominates the stability of the benches.

Overall slope stability analysis was performed using limit equilibrium and two-dimensional finite element modelling to determine a probabilistic assessment of the overall factor of safety and probability of failure. Hydraulic consideration based hydrogeological modelling were incorporated into static and pseudo-static analyses. The results indicate factor of safety ranges from a lowest of 1.3 to >3.0 for the highest and steepest slope sectors for the pseudo-static and static cases respectively. The acceptance criteria of 1.1 and 1.3 for pseudo-static and static cases are exceeded for all pit sectors with a probability of failure of <1%, indicating global stability is anticipated.

#### Hydrogeological Considerations

Dewatering will be accomplished via in-pit pumping for both ground water inflows, and inflows from precipitation and runoff.

Figure 24-1: Open Pit Design Sectors, Kinematic Segments and Joint Fabric (150 to 500 m) for the Extended Case Pit Shell



Note: Figure prepared by Wood, 2018.

**Mine Design**

The Extended Case mine plan is designed as a truck-shovel operation assuming 220-t autonomous trucks and 34 m<sup>3</sup> shovels. The pit design includes four phases to balance stripping requirements while satisfying the concentrator requirements.

The design parameters include a ramp width of 35 m, road grades of 10%, bench height of 12 m, targeted mining width between 90 m, berm interval of 24 m, variable slope angles by sector and a minimum mining width of 40 m.

The smoothed final pit design contains approximately 233 Mt of mill feed and 611 Mt of waste for a resulting stripping ratio of 2.62:1. The average grade of this material is 0.97 g/t Au. These tonnages and grades were derived by following an elevated cut-off strategy in the production schedule. Figure 24-2 shows the ultimate pit design.

**Storage Facilities**

The design and construction of the MRA, overburden stockpile and ore stockpiles should ensure physical and chemical stability during and after mining activities. To achieve this, the MRA and stockpiles were designed to account for benching, drainage, geotechnical stability, and concurrent reclamation.

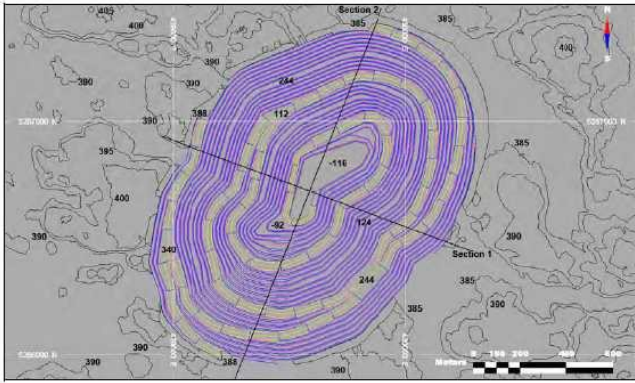
*Mine Rock Area*

The MRA will be constructed southeast of the planned open pit to store mine rock from the open pit excavation. The rock piles will be built in 20 m lifts with 25.5 m benches to provide an overall safe slope of 2.6H:1V. The inter-bench slopes will be at the angle of repose of the rock. The MRA will have a storage capacity of approximately 231 Mm<sup>3</sup> and a top elevation of 540 m. The maximum storage capacity that the MRA can grow to is 236 Mm<sup>3</sup> with a top elevation of 550 m. In its ultimate configuration, the MRA will store 457 Mt of waste rock with its final crest elevation at approximately an elevation of 540 m.

Collection ditches and six runoff collection ponds/sumps will be built at topographical low points around the MRA perimeter to collect runoff and seepage, which will then be pumped to the polishing pond.

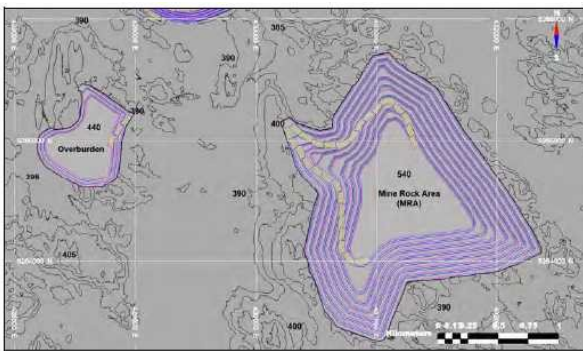
Figure 24-3 shows the proposed locations of the MRA and the overburden stockpile.

Figure 24-2: Ultimate Pit Design, Extended Case



Note: Figure prepared by Wood, 2018.

Figure 24-3: Mine Rock Area and Overburden Stockpile



Note: Figure prepared by Wood, 2018.

*Topsoil/Overburden Storage*

The overburden storage, which will be located to the southwest of the pit, will have a storage capacity of approximately 8.2 Mm<sup>3</sup>.

The stockpiles will contain stripped materials from all excavations from the project development. The stockpiled materials will be used for rehabilitation applications at closure. Sedimentation ponds will be built to settle out solids before release to the environment.

*Ore Stockpiles*

The ore stockpiles will be located on the north side of the pit and have a total storage capacity of 20 Mm<sup>3</sup>, which is enough to satisfy the maximum stockpiling capacity of approximately 41 Mt required in the production schedule. Figure 24-4 shows the stockpile design with respect to the Côté pit.

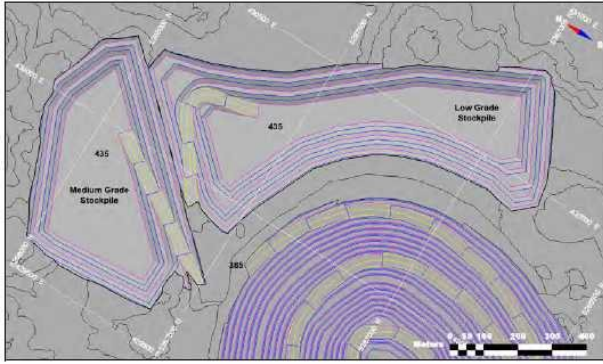
**Production Schedule***Throughput Analysis*

Prior to conducting a detailed production schedule, a series of high-level production scenarios were analyzed using SIMO. The designed ultimate pit limit and the operational phases were imported into SIMO. Mining capacities of 70, 72.5 and 75 Mt/a were analyzed for stockpiling capacities of 30, 40 and 50 Mt generating nine scenarios.

The SIMO analysis shows that a stockpile capacity of 40 Mt or more maximizes the cash flow. In the same manner, the cash flow improves as the mining capacity increases. However, this analysis does not include capital expenditures and the excess mining capacity will require additional equipment.

An additional high-level scenario was developed using MineSight Schedule Optimizer (MSSO). This analysis showed that the highest cash flow achieved by SIMO could be replicated using a lower mining capacity. As a result, a maximum mining capacity of 70 Mt/a was selected to develop the detailed production schedule.

Figure 24-4: Ore Stockpiles



Note: Figure prepared by Wood, 2018.

*Production Schedule*

The production schedule includes the process plant ramp up schedule. This schedule takes into account the inefficiencies related to start of operations, and includes the tonnage processed as well as the associated recoveries, which steadily increase to reach the design capacity after ten months of operation. The mine will require one year of preproduction before the start of operations in the processing plant. Although the mine requires one year of pre-stripping, mining starts in Year -2 to provide material for the TMF construction.

The deposit will be mined in four phases, included the ultimate pit limit. The schedule was developed in quarters for the pre-production period and for the first five years of production, then in yearly periods to the end of the mine life.

The scheduling constraints set the maximum mining capacity at 70 Mt per year and the maximum number of benches mined per year at eight in each phase. Additional constraints were used to guide the schedule and to obtain the desired results. Examples of these additional constraints include feeding lower grades during the first months of the plant ramp up schedule, the maximum stockpile capacity and reducing the mining capacity in later years during the LOM to balance the number of truck requirements per period.

The schedule produced shows a LOM of 16 years with stockpile reclaim extending into Year 18. The amount of re-handled mill feed is 59 Mt, which requires a maximum stockpile capacity of 41 Mt when considering the reclaim. The average grade is 0.97 g/t Au. The yearly LOM schedule is shown in Figure 24-5. Figure 24-6 shows the scheduled feed grade and Figure 24-7 shows the stockpile balance.

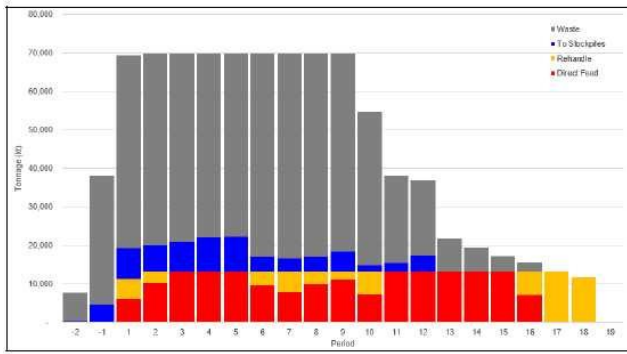
#### **Operating Schedule**

The mine is scheduled to operate 24 hr/d, 7 d/wk using four rotating crews working 12 hr shifts. During the day, there are two 12-hour shifts scheduled, consisting of a day shift and a night shift. Because the mine supports autonomous truck and drill operations, shovel, drill, and truck crews "hot change" or overlap between shifts to allow for continuous mine operations. Additionally, the autonomous trucks and drills do not require breaks, and the shovels utilize relief operators to cover for breaks which allows the equipment to achieve approximately 7,287 gross operating hours in a year.

The autonomous equipment standby time per day includes 30 minutes (0.25 hours/shift) for fueling, 20 minutes (0.17 hours/shift) for blast delay, and 15 minutes (0.13 hours/shift) for shift change. Autonomous equipment is not affected by poor visibility due to inclement weather; consequently, only 30 hours per year are considered for weather delays.

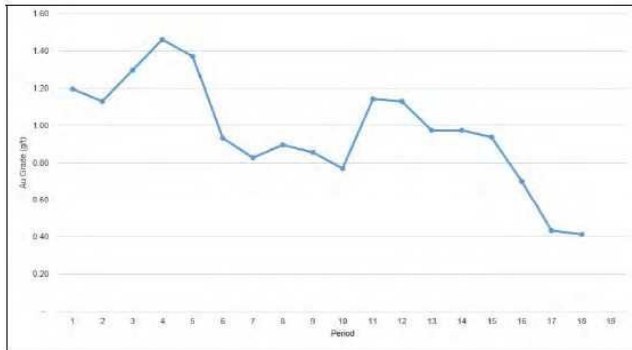
For support equipment, approximately 3.25 hours are lost per day to standby time, inclusive of two hours for breaks, 30 minutes for fueling, 20 minutes for shift change, 20 minutes for blast delay, and five minutes for meetings. Over a year, approximately five days or 120 hours are assumed lost to poor weather conditions, predominantly in the winter time. It is assumed that the equipment is manned but delayed during these weather events.

Figure 24-5: Extended Case Production Schedule



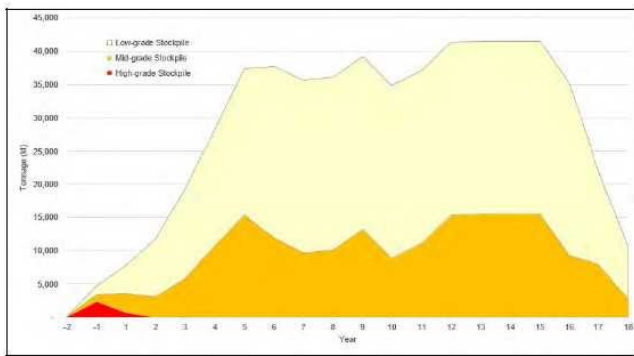
Note: Figure prepared by Wood, 2018.

Figure 24-6: Extended Case Scheduled Feed Grade



Note: Figure prepared by Wood, 2018.

Figure 24-7: Extended Case Stockpile Balance



Note: Figure prepared by Wood, 2018.

Based on input from multiple equipment suppliers, productive utilization following ramp-up is estimated at 90% for the autonomous trucks and 80% for the autonomous drills. For all support equipment and the shovels, it is estimated that the equipment is in a productive cycle approximately 50 minutes each hour, or 83% of the time. During the pre-production period, the truck and shovel equipment's productive utilization has been de-rated to account for the autonomous commissioning, initial site conditions and operator skill level. On the advice of multiple equipment suppliers, the truck commissioning schedule allows for one year.

Like mine operations, mine maintenance is scheduled to work a 24/7 schedule to allow for continuous maintenance coverage. However, the majority of planned maintenance work is anticipated to be done during the day shift with a skeleton crew scheduled for the night shift.

Blasting is scheduled during the daylight hours. Two contract blasting crews will rotate on a 12 hr/d shift, for 7 d/wk coverage.

A number of duties only require work during the daylight hours. For these duties, two crews rotate to provide 7 d/wk day-shift coverage. Personnel not engaged in shift work, work a four-day on, three-day off schedule, for a 10-hr shift.

**Blasting and Explosives**

Blasting operations will be contracted to a blasting explosives provider who will be responsible for explosive supply, shot design, loading, stemming, and blast initiation. Based on a bid analysis, EPC was selected to support the 2018 Feasibility Study, and will supply a 50/50 emulsion product from an off-site facility.

Drilling will be required for both ore control and blasting. Rock fragmentation achieved through blasting is the overriding design criteria for the drill hole pattern design.

Penetration rate assumptions are based on field tests conducted by Epiroc within the deposit area. The production drill equipment is likely to consist of a PV231 drill fleet. By the end of pre-production, the Project requires four large production drills. A fifth drill is added in Year 2. The drill fleet remains at five drills until Year 5, after which drilling requirements began to decline. Meters drilled assumptions include a 2% allowance for re-drills. Penetration rates are estimated to average 23.1 m/h.

In addition to production drilling, pre-split drilling will be required for all intermediate and final walls. A Smartroc D65 drill is likely to be used for pre-split drilling.

For highwall protection, a three-hole trim pattern will be shot adjacent to all walls. All material with the exception of overburden will be shot. The overburden material, consisting of peat and glacial till that overlies the deposit, will be free-dug by the contractor. For production ore shots, electronic detonators will be used. All other shots will use pyrotechnic detonators.

**Grade Control**

Ore control will be conducted by sampling the bench drill cuttings, assaying these cuttings at an onsite laboratory, estimating ore grades from the assays, and then muck staking the ore polygons in the field. Ore and waste routing will be tracked via the MineStar fleet management system.

**Mining Equipment**

The open pit will be mined using an autonomous truck and drill fleet, supported by a conventional manned loading fleet and a fleet of manned support equipment. The truck fleet will be diesel powered with the capacity to mine approximately 70.0 Mt per year operating on 12 m benches. The hydraulic shovel fleet will be electric powered supported by two large diesel-powered FELs.

The mine will be supported by multiple contractors. A contractor miner will be used to mine all overburden within the mine plan and to develop the initial benches in the preproduction period for the autonomous fleet. A MARC will be used during preproduction and the first three years of operation. Blasting is done by a contract down hole service during the LOM. A full-service contract tire provider will be used throughout the LOM to supply, repair, and change tires at the mine site. Equipment requirements are estimated quarterly during preproduction and the first five years of mining, and annually thereafter. Equipment sizing and numbers are based on the mine plan, the maintenance availabilities, and a 24 hr/d, 7 d/wk work schedule.

*Loading*

The selected primary loading unit is the CAT 6060 electric/hydraulic (6060E) shovel. Two are required at peak. To assist the CAT 6060E shovel, two CAT 994K high lift FELs are scheduled throughout the mine life. The loaders are scheduled as primary digging units for ore production and stockpile rehandle. They are also scheduled to supplement the shovel production on an as-needed basis and to dig shovel drop cuts. The mine is designed in an over-shoveled configuration.

*Hauling*

The primary hauling unit selected is a CAT 793F mechanical drive truck operated in autonomous mode. It has a payload capacity of 217.6 t wet, assuming a standard body with a full set of liners. The dry capacity is estimated at 215 t, assuming 1.2% moisture and carry back.

Truck requirements during preproduction are based on a one-year commissioning period. One autonomous truck will be assembled and then commissioned every two weeks. During the first two months, the trucks will be operated on day shift only. The night shift will be introduced after the third month. Truck commissioning will be performed in a large rock bench located in phase 1 developed by the contract miner during pre-production Year -2. The autonomous trucks will be commissioned in isolation with no interference with contract miners or construction activities. Following the one-year commissioning period, the truck fleet will grow to 16 trucks and then will steadily increase to the peak of 23 in Year 5. Truck requirements then ramp down as production ramps down with two remaining for stockpile re-handle in Years 17 and 18.

*Support*

Support equipment includes excavators, track dozers, rubber-tired dozers (RTDs), sand trucks, graders, water trucks, fuel/lube trucks, and water trucks. The major tasks for the support equipment include:

- Bench and road maintenance
- Shovel support/clean-up
- Blasting support/clean-up
- WRF maintenance
- Stockpile construction/maintenance
- Road building/maintenance
- Field equipment servicing.

Support equipment requirements are shown in Table 24-1.

*Auxiliary*

To support mine maintenance and mine operation activities, a fleet of auxiliary equipment is required. The equipment to support mine maintenance would be purchased in Year 4 following the three-year MARC contract and prior to starting Owner maintenance. The types and numbers of auxiliary equipment are listed in Table 24-2.

Table 24-1: Support Equipment

| Year  | CAT 390F<br>Excavator | CAT 336F<br>Excavator | CAT D10<br>Dozer | CAT 834<br>RTD | CAT 777<br>Water Truck | CAT 16<br>Grader | CAT 740<br>Sand Truck | CAT 740<br>Fuel/Lube Truck |
|-------|-----------------------|-----------------------|------------------|----------------|------------------------|------------------|-----------------------|----------------------------|
| PP-1  | 1                     | 1                     | 2                | 1              | 2                      | 2                | 1                     | 2                          |
| Yr 1  | 1                     | 1                     | 4                | 2              | 2                      | 2                | 1                     | 2                          |
| Yr 2  | 1                     | 1                     | 5                | 2              | 2                      | 3                | 1                     | 2                          |
| Yr 3  | 1                     | 1                     | 5                | 2              | 2                      | 3                | 1                     | 2                          |
| Yr 4  | 1                     | 1                     | 5                | 2              | 2                      | 3                | 1                     | 2                          |
| Yr 5  | 1                     | 1                     | 5                | 2              | 2                      | 3                | 1                     | 2                          |
| Yr 6  | 1                     | 1                     | 4                | 2              | 2                      | 3                | 1                     | 2                          |
| Yr 7  | 1                     | 1                     | 4                | 2              | 2                      | 3                | 1                     | 2                          |
| Yr 8  | 1                     | 1                     | 4                | 2              | 2                      | 3                | 1                     | 2                          |
| Yr 9  | 1                     | 1                     | 4                | 2              | 2                      | 3                | 1                     | 2                          |
| Yr 10 | 1                     | 1                     | 4                | 2              | 2                      | 3                | 1                     | 2                          |
| Yr 11 | 1                     | 1                     | 3                | 1              | 2                      | 2                | 1                     | 2                          |
| Yr 12 | 1                     | 1                     | 3                | 1              | 2                      | 2                | 1                     | 2                          |
| Yr 13 | 1                     | 1                     | 2                | —              | 1                      | 2                | 1                     | 1                          |
| Yr 14 | 1                     | 1                     | 2                | —              | 1                      | 2                | 1                     | 1                          |
| Yr 15 | 1                     | 1                     | 2                | —              | 1                      | 2                | 1                     | 1                          |
| Yr 16 | 1                     | 1                     | 2                | —              | 1                      | 1                | 1                     | 1                          |
| Yr 17 | —                     | —                     | 1                | —              | 1                      | 1                | —                     | 1                          |
| Yr 18 | —                     | —                     | 1                | —              | 1                      | 1                | —                     | 1                          |

Table 24-2: Auxiliary Equipment

| Auxiliary Equipment                  | Q1 Yr-1 | Q2 Yr-1 | Q3 Yr-1 | Q4 Yr-1 | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | Yr1 0 | Yr1 5 | Yr1 6 |
|--------------------------------------|---------|---------|---------|---------|------|------|------|------|------|-------|-------|-------|
| Truck mounted 40 t crane             | —       | —       | 1       | 1       | 1    | 1    | 1    | 1    | 1    | 1     | —     | —     |
| 80 t rough terrain                   | —       | —       | 1       | 1       | 1    | 1    | 1    | 1    | 1    | 1     | —     | —     |
| 5 t forklift                         | —       | —       | —       | —       | —    | —    | —    | 2    | 2    | 2     | 1     | 1     |
| 10 t forklift                        | —       | —       | —       | —       | —    | —    | —    | 2    | 2    | 2     | 1     | 1     |
| Mechanic service truck               | —       | —       | —       | —       | —    | —    | —    | 3    | 3    | 3     | 2     | 1     |
| Small fuel/lube truck                | —       | —       | —       | —       | —    | —    | —    | 1    | 1    | 1     | 1     | 1     |
| CAT262 skid steer                    | —       | —       | —       | —       | —    | —    | —    | 1    | 1    | 1     | 1     | 1     |
| Flatbed truck                        | —       | —       | —       | —       | —    | —    | —    | 2    | 2    | 2     | 1     | 1     |
| CAT TL1255 telehandler               | —       | —       | —       | —       | —    | —    | —    | 1    | 1    | 1     | 1     | 1     |
| CAT 450F backhoe/loader              | 1       | 1       | 1       | 1       | 1    | 1    | 1    | 1    | 1    | 1     | 1     | —     |
| Cat H180DS hydraulic hammer/impactor | 1       | 1       | 1       | 1       | 1    | 1    | 1    | 1    | 1    | 1     | 1     | —     |
| 160 t lowboy                         | 1       | 1       | 1       | 1       | 1    | 1    | 1    | 1    | 1    | 1     | 1     | —     |
| Compactor                            | 1       | 1       | 1       | 1       | 1    | 1    | 1    | 1    | 1    | 1     | 1     | —     |
| Light plant                          | 3       | 3       | 9       | 12      | 14   | 14   | 14   | 14   | 14   | 11    | 6     | 3     |
| 4,000 gallon water truck             | 1       | 1       | 1       | 1       | 1    | 1    | 1    | 1    | 1    | 1     | 1     | —     |
| Small dump truck                     | 2       | 2       | 2       | 2       | 2    | 2    | 2    | 2    | 2    | 2     | 2     | —     |
| 3/4 ton Pickup                       | —       | —       | 3       | 3       | 3    | 3    | 3    | 5    | 5    | 5     | 3     | 2     |
| 1 ton pickup                         | 1       | 2       | 3       | 4       | 4    | 4    | 4    | 6    | 6    | 6     | 3     | 2     |
| Crew bus                             | 1       | 1       | 3       | 3       | 3    | 3    | 3    | 5    | 5    | 5     | 3     | 2     |
| Slope monitoring stations            | 2       | 2       | 2       | 2       | 2    | 2    | 2    | 2    | 2    | 2     | 2     | —     |
| Mine and geology software            | 1       | 1       | 1       | 1       | 1    | 1    | 1    | 1    | 1    | 1     | 1     | —     |
| Pumps                                | 1       | 1       | 1       | 1       | 1    | 1    | 1    | 1    | 1    | 1     | 1     | —     |
| 980k cable reeler                    | —       | —       | 1       | 1       | 1    | 1    | 1    | 1    | 1    | 1     | -     | —     |
| Communication system                 | 1       | 1       | 1       | 1       | 1    | 1    | 1    | 1    | 1    | 1     | 1     | —     |

#### 24.1.18 Recovery Methods

##### Introduction

The Extended Case process plan will use a conventional flowsheet and conventional equipment.

The process circuits will include primary crushing, secondary crushing, HPGR, ball milling, vertical milling, gravity concentration and cyanide leaching, followed by gold recovery by CIP, stripping and EW. Tailings handling will incorporate cyanide destruction and tailings thickening.

Plant throughput will be 36,000 t/d and it is expected that a ramp-up period of 10 months will be required to reach the design throughput.

##### Process Flow Sheet

The Extended Case process plant will consist of:

- Primary (gyratory) crushing
- Secondary cone crushing and coarse ore screening
- COS
- Tertiary HPGR crushing
- Fine ore screening and storage
- Two milling stages (ball mill followed by vertical stirred mills)
- Gravity concentration and intensive leaching
- Pre-leach thickening
- Whole ore cyanide leaching
- CIP recovery of precious metals from solution
- Cyanide destruction
- Tails thickening
- Elution of precious metals from carbon
- Recovery of precious metals by EW

- Smelting to doré.

The plant will have facilities for carbon regeneration, tailings thickening and cyanide destruction. The overall process flow diagram is shown in Figure 24-8. Unit operations are summarized in Table 24-3.

#### **Plant Design**

##### *Crushing and Coarse Ore Stockpile*

Major comminution equipment parameters are shown in Table 24-4.

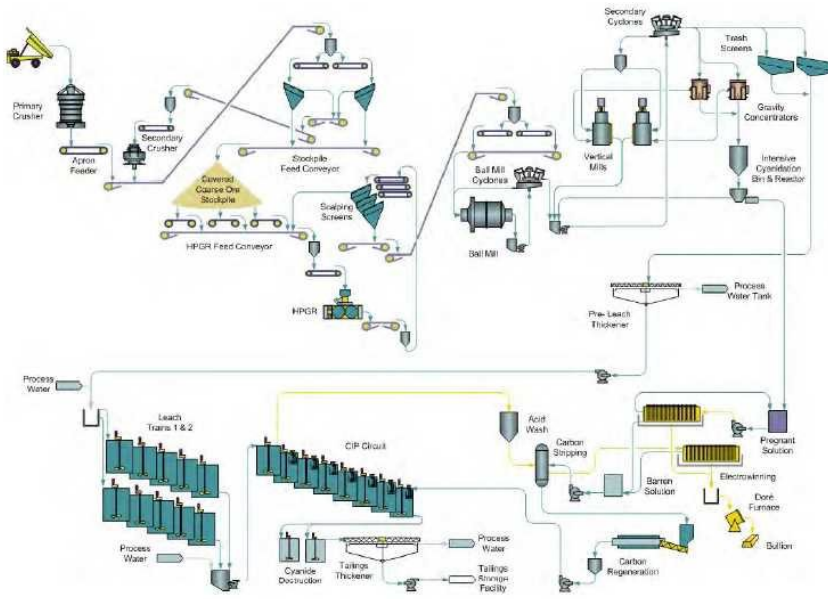
The 54 x 75 primary gyratory crusher will crush the ore at an average rate of 2,143 t/hr to a P80 of 140 mm. Selection of this crusher was based on volumetric throughput and power requirements.

Run-of-mine (ROM) ore from the trucks will be discharged to a dump pocket with a capacity of 330 t or the equivalent to 1.5 times the size of a truckload. The dump pockets will have an agglomerative dust suppression or “fogging” water spray system. The apron feeder discharge chute at the crusher exit will have a baghouse-type dust collector. Crushed ore product from the primary crusher will be transferred to the covered coarse ore conveyor and conveyed, approximately 300 m, to a coarse ore screen distributor located in the screening building.

Primary crusher product will be sized on the coarse ore screens consisting of two double-deck multi-slope vibrating screens. The coarse ore screen oversize will be sent to the 1,250 hp secondary cone crusher. Secondary crusher product will be sent back to the coarse ore screens through the coarse ore conveyor.

Coarse ore screen undersize will be conveyed to the covered COS, which will have a live capacity of 20,157 t, or 12 hr of nominal process plant operation. Total live and dead storage capacity will be 74,720 t, equivalent to 44 hr of normal operation. Using a bulldozer will enable the process plant to continue operating during primary/secondary crushing circuit maintenance shutdown or upset conditions.

Figure 24-8: Overall Process Flow Diagram



Note: Figure prepared by Wood, 2018.

Table 24-3: Summary of Unit Operations

| Item                |  | Unit                | Design         |
|---------------------|--|---------------------|----------------|
| Crushing            | Nominal throughput                               | t/hr                | 2,143          |
|                     | Primary / secondary crushing circuit utilization | %                   | 70             |
|                     | Feed top particle size, maximum                  | mm                  | 1000           |
|                     | Product particle size, P80                       | mm                  | 38             |
|                     | Stockpile live capacity                          | t                   | 20,157         |
| Grinding            | Nominal throughput                               | tph                 | 1,596          |
|                     | HPGR feed, F80                                   | mm                  | 38             |
|                     | HPGR product, P80                                | mm                  | 2.4            |
|                     | Ball mill grind, P80                             | um                  | 235            |
|                     | Ball mill circulating load                       | %                   | 300            |
|                     | Vertical mill grind, P80                         | um                  | 100            |
|                     | Vertical mill circulating load                   | %                   | 250            |
|                     | Grinding circuit availability                    | %                   | 94             |
| Leach               | Leach feed thickener unit area                   | m <sup>2</sup> /t/d | 0.075          |
|                     | Type of circuit                                  | -                   | CIP            |
|                     | Residence time, leach tanks                      | hr                  | 30             |
|                     | Residence time, CIP tanks                        | hr                  | 1.6            |
|                     | Cyanide consumption                              | kg/t                | 0.1            |
|                     | Carbon concentration                             | g/L                 | 50             |
| Elution             | Stripping method                                 |                     | Pressure Zadra |
|                     | Number of carbon strip vessels                   |                     | 2              |
|                     | Carbon strip vessel capacity                     | t                   | 11.3           |
| Carbon Regeneration | Type   |                     | Indirect       |
|                     | Method of heating                                |                     | Electric       |
|                     | Number of kilns                                  |                     | 1              |
|                     | Rate   | kg/hr               | 1,100          |
| Cyanide Destruction | Number of stages                                 |                     | 1              |
|                     | Residence time                                   | min                 | 120            |
|                     | Oxidant  |                     | SO2/air        |
|                     | SO2 addition                                     | g/g CNwad           | 5              |

| Item                            | Unit               | Design |
|---------------------------------|--------------------|--------|
| Total residual cyanide          | mg/L               | <2     |
| Leach tails thickener unit area | m <sup>2</sup> /td | 0.072  |

**Table 24-4: Major Comminution Equipment Parameters**

|                  | Equipment                  | Unit                | Value           |
|------------------|----------------------------|---------------------|-----------------|
| Gyratory Crusher | Number of units            | #                   | 1               |
|                  | Throughput                 | dry tph             | 2,143           |
|                  | Installed motor            | kW                  | 600             |
|                  | Product particle size, P80 | mm                  | 140             |
| Cone Crusher     | Size                       | mm                  | 1400 x 2100 TSU |
|                  | Number of units            | #                   | 1               |
|                  | Throughput                 | dry tph             | 2,250           |
|                  | Installed motor            | kW                  | 930             |
| HPGR             | Product particle size, P80 | mm                  | 38              |
|                  | Number of units            | #                   | 1               |
|                  | Throughput                 | dry tph             | 3,511           |
|                  | Installed motor            | kW                  | 7,800           |
|                  | Crusher Product, P80       | mm                  | 2.4             |
|                  | Size                       | mm Ø x mm W         | 2,400 x 2,400   |
|                  | Number of mills            | #                   | 1               |
|                  | Throughput (fresh)         | dry tph             | 1,596           |
|                  | Size                       | m (ø x length EGL)  | 7.93 x 12.34    |
|                  | Size                       | ft (ø x length EGL) | 26 x 40.5       |
| Ball Mill        | Installed motor            | kW                  | 16,000          |
|                  | Motor/mill                 |                     | 2               |
|                  | Drive type                 |                     | Dual pinion     |
|                  | Cyclone O/F, P80           | µm                  | 235             |
| Vertical Mill    | Number of units            | #                   | 2               |
|                  | Throughput (fresh)         | dry tph             | 1,596           |
|                  | Installed power (total)    | kW                  | 6,712           |
|                  | Cyclone O/F, P80           | µm                  | 100             |

The COS will be equipped with three reclaim apron feeders, sized in a way that two feeders can deliver the design rate. A 93 m diameter dome structure will cover the stockpile for weather and dust containment. Additionally, apron feeder discharge chutes will be equipped with filter cartridge-type dust collectors to control dust in the tunnel. Reclaim apron feeders will discharge onto an approximately 260 m long covered stockpile reclaim conveyor. Combined ore from HPGR screens' oversize will report into the HPGR feed bin via two covered transfer conveyors of approximately 90 m and 70 m long respectively.

The screening building will be an insulated structure. The screen building will contain two coarse ore and three fine ore screens, apron feeders to each screen, product transfer conveyors and chute works. Dedicated dust collectors for each set of screens will be located outside of the building.

The crushing building will also be an insulated structure. Equipment will include the secondary crusher and the HPGR with respective apron feeders and a shared 100 t/20 t crane. Dedicated feed bins and dust collectors will be located adjacent to the main building.

#### *HPGR and Grinding Circuits*

The selected flowsheet to achieve 36 kt/d with a final passing P80 product of 100 µm consists of a closed HPGR circuit, a primary grinding with ball mill circuit, and secondary grinding with vertical mills circuit.

The HPGR will have 2,400 mm diameter by 2,400 mm width rolls, and two variable speed motors with a total installed power of 7,776 kW. The HPGR discharge will fall into a discharge conveyor and feeds a scalping screen feed distributor. The crushed ore stream will be evenly split into three double-deck dry-scalping screens with 12 mm and 4 mm apertures, to achieve a transfer P80 of 2.4 mm. Oversized material will be recycled back to the HPGR feed, while undersize will be sent to the primary grind ball mill circuit via a 16 m diameter fine ore bin capable of storing two hours of plant feed. This bin will receive ore from the screening building via a 166 m long covered conveyor. A dust collector system will be installed in the discharge to the bin. Ore will be reclaimed from the bin using two reclaim feeders, which will discharge onto a 240 m long ball mill feed covered conveyor.

The 7.92 m diameter by 12.3 m EGL ball mill, powered by two motors of 8,000 kW each, will operate in a closed-circuit configuration with a 12-way radial cyclone cluster.

Fresh circuit feed will be fed directly to the ball mill and the product will be discharged by gravity through the mill trommel to the cyclone feed pumpbox, where the slurry will then be pumped to the cyclone cluster. A total of ten 750 mm diameter cyclones will work in closed circuit with the ball mill, with two cyclones on stand-by. All coarse cyclone underflow material will report to the ball mill with an estimated circulating load of 300%. Overflow fine material from the primary cluster cyclones will report to the secondary grind cyclone feed pumpbox with a passing P80 of 235 µm

The secondary grind circuit will consist of two vertical stirred mills with a total installed power of 6,700 kW. Stirred mills will operate in closed circuit with the secondary grind cyclone cluster consisting of 13 operating 750 mm diameter cyclones. Underflow material from the cyclones will feed the stirred vertical mills. A 40% split from the cyclones underflow will feed the gravity concentrators for gold recovery. Tailings from the gravity circuit will be returned to feed the vertical mills. Secondary cyclone overflow will be directed to the whole ore leach circuit with a final passing P80 product size of 100 µm. A particle size analyzer will monitor the performance of the entire grinding circuit.

*Gravity Concentration and Intensive Leach*

Material from the secondary cyclone underflow up to a maximum of 1600 t/hr will be directed to the gravity concentration circuit. The stream will be evenly split directly from the cyclone cluster into two gravity concentrators working in parallel, to separate high-density particles producing a high-grade-gold concentrate. The gravity concentrators will be equipped with feed by-pass arrangements to direct the slurry to the vertical mills during concentrate discharge cycles.

This high-grade concentrate will be discharged by batches every 45 minutes, and stored in the intensive cyanidation feed tank for further processing. The contents of the intensive cyanidation feed tank will be discharged into the intensive cyanidation reactor, to be leached with a high-cyanide concentration solution. Caustic will be added to maintain the pH between 10.5 and 11, along with a leaching aid to complete the gold dissolution process. Solids from this reactor will be discharged back to the secondary cyclone feed pumpbox, and the pregnant solution, containing dissolved valuable metals, will be forwarded to the pregnant solution holding tank located in the gold room area.

*Whole Ore Leach and CIP*

Secondary cyclone overflow will flow by gravity to a distribution box, where it will be split into two trash screens for the removal of organics, metal, and other miscellaneous tramp materials. The oversize will be diverted to a trash screen bin, which will be emptied periodically. Undersize from the two trash screens will flow by gravity to the pre-leach thickener feed de-aeration tank, where lime will be added to adjust pH as necessary before leaching.

The pre-leach feed thickener will be fed from the de-aeration tank. An auto dilution high-rate thickener of 45 m will be used to thicken the slurry from 33% to 50% in the underflow. The speed of the underflow pumps beneath the thickener will be varied to control the density of the feed to the leach circuit.

Thickener overflow water will be reused as process water in the different mill circuits, as required.

The pre-leach thickener underflow stream will be pumped to a leach feed tank, where it will be mixed with cyanide to achieve a concentration of 300 mg/L. The slurry will then be distributed to two leach lines. Each leach line will consist of five tanks in series, each 19.3 m diameter x 26.1 m high (average). Each tank will have triple impeller agitators to maintain slurry solids in suspension in the high-aspect-ratio tanks. Oxygen will be injected into the tanks to enhance the leaching kinetics of gold. Slurry will overflow by gravity from one tank to the next as it makes its way through the line. Total residence time in the leaching circuit will be 30 hrs.

Once leaching is completed, the slurry from both leach lines will be recombined in the pump cell CIP circuit feed launder. The CIP circuit will consist of eight 450 m<sup>3</sup> tanks operating in carousel mode. In this mode of operation, each tank will have its own discrete batch of carbon, which will spend a defined period in the circuit before the entire batch is removed to elution. Each tank will contain a total of 22.5 t of activated carbon, and will use a 29 m<sup>2</sup> interstage screen, to prevent activated carbon from flowing with the slurry flow.

*Stripping Circuit*

Slurry containing loaded carbon from the CIP circuit will be pumped to a vibrating loaded carbon screen. Carbon washed from the screen will fall through a chute into a storage bin, and then to the acid wash vessel with a capacity of 11.3 t each. The remaining slurry on the recovery screen will flow through the screen deck, to be collected in a screen undersize launder and pumped back to the CIP feed.

All loaded carbon will be acid-washed in two batches. While half of the carbon is being acid-washed, the other half will be storage in the loaded carbon storage bin on top of the acid-wash vessel. After four hours of acid-wash operation, the loaded carbon in the acid-wash vessel will be discharged and pumped to one of the elution vessels. The loaded carbon in the storage bin will be acid-washed and transferred to the second elution vessel.

Pressure Zadra elution will be applied to the carbon stripping process for 16 hrs, using two elution vessels with a capacity of 11.3 t each. Solution from the barren solution tank will be pumped to the carbon stripping vessels. Pregnant solution will overflow from the vessels and will be distributed to the EW cells. After stripping, the barren carbon will be pumped from the strip vessel to a carbon regeneration circuit, consisting of a vibrating carbon dewatering screen and a 1,100 kg/hr regeneration kiln. The screened carbon will be sent to the carbon regeneration kiln, and the undersize to a fines tank. Material from the fines tank will be pumped through a carbon fines filter press, and captured carbon will be stored in bags. Periodically, the carbon fines will be treated in an off-site smelter to recover credits for residual gold values.

#### *Electrowinning and Refining*

Overflow pregnant solution from the stripping vessels will report to an EW cells distribution box and split in two. Four 3.5 m<sup>3</sup> EW sludging cells, arranged in two lines of two, will capture valuable metals in a sludge form. After EW, the eluate will flow to the barren solution tank, and be recycled to elution as part of the carbon stripping process.

Pregnant solution generated in the intensive leaching reactor and held in the pregnant solution holding tank will be treated in a dedicated EW cell. This cell will work in a closed loop with the holding tank. At the end of the EW process, this eluate will be discharged into the barren solution tank.

Sludge recovered periodically from the EW cells will be mixed with flux in an induction-style unit.

The melted metal will be poured into a series of moulds to produce doré bars, while the slag produced will be poured into slag moulds. After cooling, the slag will be broken up, with the high-grade slag material re-poured to increase recovery, and the low-grade slag recycled to the grinding circuit.

#### *Cyanide Destruction*

Tailings generated in the CIP circuit will initially be screened through carbon safety screens, to capture any attritioned carbon particles remaining in the discharge slurry. Undersize from the screens will be sent to cyanide destruction.

Cyanide destruction will take place in two tanks in parallel, each 14 m in diameter x 17.5 m high. The process will involve the addition of sulphur dioxide to destroy the cyanide, lime to neutralize the sulphuric acid that is formed as by-product, and copper sulphate, which will act as a catalyst in the reaction. An on-line cyanide analyzer will measure levels of free and weakly acid dissociable cyanide (CNWAD) for the feed and product streams in the cyanide destruction circuit.

Molten sulphur will be the main source of sulphur dioxide. A complete back-up system using metabisulphite will also be installed.

After cyanide destruction, the slurry will be discharged into a tailings thickener feed tank, from where it will be routed to the tailings thickener.

#### *Tailings Thickening*

The tailings thickener will be 55 m in diameter, with a high-rate type mechanism with an auto-diluting feed well. The feed slurry density of 50% solids will be increased to a target of about 62% in the underflow after thickening.

Overflow water from the tailings thickener will be recycled back to the process-water tank. Underflow solids will be pumped to the TMF.

#### **Production Ramp-up Schedule**

The ramp-up period will be highly influenced by design considerations, especially relating to the grinding circuit. Current practice incorporates learnings from HPGR circuits installed in the last decade. At some sites, these have experienced ramp-up periods as long as one year, although expansions at other sites have reached nameplate throughput in only six months.

The Côté processing plant is expected to take 10 months to reach the design throughput of 36,000 t/d. Reliable modelling, a focus on engineering design, and equipment selection will be key to achieving full production in this timeframe.

#### **Energy, Water, and Process Materials Requirements**

##### *Water*

Tailings water from the reclaim pond will be the primary source of mill water, providing the majority of the process plant requirements, whereas the storm/mine water pond will be a secondary source of process water. Fresh water will be required for reagent mixing at the process plant which will be pumped from Mesomikenda Lake.

Water from the polishing water pond will be filtered and stored for use in a filtered water tank, providing clean water for carbon handling, cooling, gland sealing, gravity concentration fluidization, and reagents preparation. Fresh lake water will be stored and used as fire water. Pumps will be installed to bring water to the process building and the truck shop. Some of this water will be treated in a potable-water treatment plant, and stored in a high tank.

##### *Reagent Preparation*

The reagent preparation area will include receiving systems, mixing and holding tanks, and metering systems for flocculant, caustic, cyanide, copper sulphate, molten sulphur, anti-scalant, lime and hydrochloric acid. These systems will be in individually contained areas forming part of the plant main building, with easy access by delivery trucks. The molten sulphur burning facility will be adjacent to the reagent area next to the cyanide destruction tanks.

Oxygen for the leach circuit will be delivered to site in bulk, and managed in stationary storage units. Oxygen piping will run from the pad to the leach circuit.

##### *Air Services*

A dedicated, self-contained air service system will be provided for the:

- Crusher area to service the primary, secondary and HPGR crusher facilities
- Reclaim area
- Screening building

- Storage bin
- Leaching circuit
- Cyanide destruction and reagent area.

The systems will consist of an air compressor with its own service-air receiver, air dryer, and instrument-air receiver.

Two additional air compressors, fitted with intake filters and silencers, will feed plant air into a receiver for distribution to different parts of the plant. Some of this air will be fed to a system to prepare it for use as instrument air.

#### *Cyanide Management*

ISOtainers containing solid sodium cyanide will be offloaded from trucks, parked on a bermed concrete pad, and then stored within the reagent storage area. Bulk cyanide will be dissolved within the ISOtainers, and transferred to a mix tank for further make-down with filtered water. The solution will then be pumped to a holding tank for distribution to the leach circuit, barren eluate tank, and intensive cyanidation unit. Secondary containment will be implemented in the reagent preparation, leach and CIP areas. Transportation, management and storage of cyanide will be consistent with the International Cyanide Management Code.

#### *Energy*

The mill will require approximately 50.7 MW of power to operate at full capacity. Additional information on the power supply assumptions for the Project are provided in Section 24.1.19.

### **24.1.19 Project Infrastructure**

#### **Introduction**

Project infrastructure for the Extended Case will include:

- Open pit
- RMA and stockpile facilities
- TMF with an increase of approximately 5 m in height from the Base Case TMF design

- Permanent camp and a temporary construction camp
- Emulsion plant
- Process facilities
- Workshop, offices, facilities and other services
- Watercourse realignment dams and channels
- New Lake, to be created to compensate the loss of Côté Lake
- Storm/mine water, polishing and tailings reclaim ponds
- Collection, surplus water discharge, and dispersion systems
- Two-lane gravel access road
- Upgraded existing transmission line from Timmins to Shining Tree Junction and a new 44 km-long 115 kV electrical power transmission line from Shining Tree Junction to the project site
- Electrical distribution network.

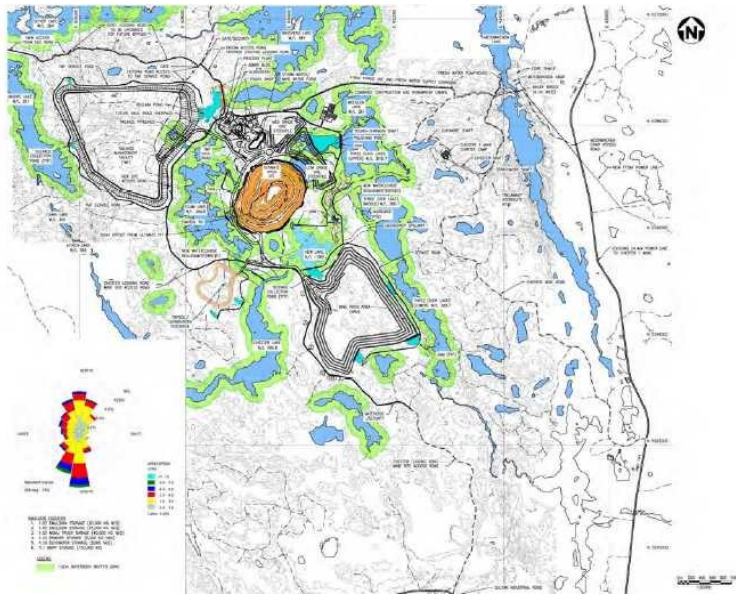
A layout plan is included as Figure 24-9.

#### **Road and Logistics**

Current access to the property is by a network of logging roads and local bush roads accessed from Highway 144 and from the Sultan Industrial Road, which runs east-west along and below the southern part of the Project area.

The selected route to the plant is the existing Chester Logging Road which has already been upgraded from the Sultan Industrial Road to km 4.62 at the intersection with an existing road to the planned open pit area. The upgraded road is 9 m wide and deemed to be sufficient to serve as the main access to the mine site. From here to approximately the southeast corner of the TMF, Chester Logging Road will require upgrading to 10 m design width, which is accounted for in the estimate. At the corner of the planned TMF site, the existing road continues into the footprint of the TMF, and 4.28 km of new road construction will be required to extend the access to the construction/permanent camp entrance.

Figure 24-9: Infrastructure Layout Plan



Note: Figure prepared by Wood, 2018.

This section of road will be constructed as part of the early works and will be used as a primary construction access to the plant site and the camp area.

A mine site bypass route will use the existing Yeo Road, from the Sultan Industrial Road to a point opposite the northwest corner of the TMF, without upgrade. From there a new connector road of 3.94 km will be constructed to tie into an existing road which parallels the north dam of the TMF. This existing road requires upgrading. It will permit the public to access Chester Logging Road north of the TMF without passing through the mine security gate and the mine site proper.

Mine development will require three major haul roads, consisting of access to the MRA, the TMF, and the topsoil/overburden stockpile. In addition, a major intersection is required on the north side of the open pit to tie together the exit from the pit with the pit bypass road, the ramps to the ore stockpiles and the crusher and truck shop ramps.

Approximately 24.7 km of new 6 m wide service roads are required to access all site facilities, including many shorter spurs to dam locations, and perimeter roads around the TMF and the east side of the MRA.

The site layout includes three major watercourse crossings. Roads will be designed with a crossfall from side to side (as opposed to a central crown), such that the runoff from the entire road surface will be discharged to another developed drainage area on one side of the road, such as the process plant site, the reclaim water pond basin, the TMF, MRA, polishing pond, or the open pit itself.

#### **Stockpiles**

Stockpiles required for the mine plan are discussed in Section 24.1.21.

#### **Built Infrastructure**

##### *Mine and Process Facilities*

The buildings and structures that will be required for the Extended Case mine plan are summarized in Table 24-5.

**Table 24-5: Buildings and Structures**

| Item   | Comment  |
|--|--|
| Primary crusher                                    | Cast-in-place concrete; a steel structure will support the control room and crane. The crusher discharge conveyor will be approximately 300 m long, extending from the primary crusher tower (tail pulley) to the coarse ore feed distributor (head pulley) located in the screening building  |
| Secondary crusher and HPGR building                | Insulated steel structure. Equipment will include the secondary crusher and the HPGR with respective apron feeders, and a shared 150 t/20 t area crane, access stairways and platforms   |
| Coarse ore conveyors and reclaim                   | Coarse product from the coarse ore screens will travel on a 174 m long conveyor back to the secondary crusher feed bin, while the fine product will travel on a 207 m long conveyor to the covered coarse ore stockpile  |
| Coarse ore screen building                         | Insulated steel structure. Equipment will include two coarse ore and three fine ore screens, apron feeder to each screen, products transfer conveyors and chute works, 35 t overhead crane, access stairways and platforms.  |
| Coarse ore stockpile and reclaim tunnel            | A 93 m diameter dome structure will cover the stockpile for weather protection and dust containment. The coarse ore reclaim tunnel will be approximately 190 m long overall, consisting of a reclaim section with a sump for pumping accumulated water, an escape tunnel, and a conveyor tunnel with varying cross-sectional areas for each.   |
| Fine ore feed bin                                  | A 16 m diameter fine ore feed bin capable of storing 2 hrs of ball mill feed material will be located south of the secondary crushing building. This bin will receive fine ore from the screening building via a 166.5 m long fine ore bin feed conveyor. Ore will be reclaimed from this bin using two reclaim feeders, which discharge on to a 240 m long ball mill feed conveyor, which will directly feed the ball mill. |
| Process building (includes the subset areas below) | Pre-engineered steel structure with a ridged sloping roof, completely enclosed with a building envelope that will comprise pre-painted, insulated sandwich wall and roof panels, personnel access doors, large- equipment access doors, air intake louvers, wall exhaust fans and variation cowlings.  |
| Grinding area                                      | One-storey structure that will house the ball mill, vertical mills, cyclones and feed pumps, ball bins, mill lube system, compressor room, gravity circuit and other associated equipment, including a traveling bridge 80/20 t crane  |
| Refinery, CIP and reagent areas                    | Form part of process building, and will house the CIP, carbon operations, compressor, EW and refinery, reagent and cyanide areas. These areas will contain related mechanical process equipment, piping,tanks and pumps, and will be provided with elevated platforms and stairs for maintenance   |

| Item                                   | Comment  |
|--|--|
| Metallurgical laboratory               | Two prefabricated, prefinished steel modules will house the metallurgical laboratory including a receiving/preparation area, metallurgical testing room, clean metallurgical room, and office  |
| Thickener and leaching area            | A pre-leach thickener, tailings thickener, and leach tanks will be located outdoors, south of the process building   |
| Assay laboratory                       | One-story pre-engineered steel building. Will house sample receiving and preparation, mill preparation, fire assay, wet chemical lab, weighing and fluxing, environmental laboratory and other functional areas to support sample analysis. Ancillaries will include offices, lunchroom, mechanical room, electrical room and washrooms  |
| Lube oil room                          | Will contain the lube-oil skid unit  |
| Mill maintenance workshop              | An enclosed room that will have an overhead 5 t crane to perform day- to-day mill maintenance equipment repair   |
| Mill offices, lunchrooms and washrooms | prefabricated modular steel assembly will comprise eight 4 m wide modules  |
| Mine dry                               | One-storey, pre-fabricated modular building. The facility will include 350-man "clean side" and 350-man "dirty side" locker rooms with a central washroom consisting of shower areas, wash fountain area, toilet cubicles, urinals, and vanity lavatories. A similar facility will be provided for up to 60 women.   |
| Administration offices                 | One-storey, prefabricated modular building will house a few private managers' offices and mostly open offices. It will also house the central mine and mill control room, dispatch and training rooms, a large conference room with accordion partitions, washrooms, lunchroom and supporting services.  |
| Truck shop                             | Insulated pre-engineered steel building. Will have high and low bays. The high bays will house four heavy mine vehicle repair bays with an overhead 50 t bridge crane. These heavy repair bays will accommodate autonomous haul trucks and wheel loaders. The low bays will be dedicated to machine and electrical shops with an overhead 10 t bridge crane. Other functional areas will include lube storage, light-vehicle repair bays, compressor room, electrical and tool storage, women's and men's washrooms and changerooms, and office. A partial second floor will house building services, open maintenance offices, lunchroom and washrooms. |
| Warehouse                              | Pre-engineered insulated fabric building. Will store general-inventory parts to support maintenance of the mine equipment fleet  |

| Item                                    | Comment   |
|---|---|
| Truck wash                              | Insulated pre-engineered fabric building. Will house one drive-through wash bay and related equipment to accommodate mine haul trucks and wheeled and tracked vehicles including light vehicles. Modified modular containers will house washing equipment, and water storage and filtration equipment |
| Heated and cold storage                 | Pre-engineered insulated fabric structure. Will be divided into equal areas for heated storage, with an insulated double-skin fabric enclosure for palletized parts, and cold storage, unheated with a single-skin fabric enclosure   |
| Emergency vehicle storage and first aid | Pre-engineered insulated fabric facility. Will consist of two emergency vehicle storage bays to house the fire truck and mine rescue  |
| Gate house                              | Prefabricated modular building. Will house a security office, washrooms, and X-ray and search rooms   |
|   |   |

Three building design types are envisaged:

- Pre-engineered, such as the process building and truck shop. All process and internal platforms/structures inside these buildings will be stick-built and tied to pre-engineered building columns where possible
- Stick-built, such as secondary crusher/HPGR and screen buildings. Each building and its internal platforms/structures will be designed as one structure
- Modular structural steel, such as control rooms, with foundation or supporting steel structure provided.

All facilities will include the required electrical, HVAC, fire protection and other services.

*Accommodation Camps*

Permanent Camp

The permanent accommodations will be pre-fabricated modular buildings consisting of the core services facilities and the individual dormitories which will be manufactured offsite and transported, assembled, anchored on permanent foundations and commissioned at site.

Dormitories will consist of a one-storey dorm for 38 people and three, three-storey dorms to house 114 people each, connected by prefabricated, heated link/utility corridors to the one-storey core services building that will house recreation, dining, kitchen, food preparation and food storage facilities.

#### Construction Camp

Fifteen buildings, housing 44 people each, will be configured as “Jack and Jill” single- occupancy bedrooms with every two bedrooms sharing a shower and toilet. Five additional buildings, holding 37 people each, will be configured as “VIP” single-occupancy bedrooms with private washrooms. Each dorm will have a dedicated-entry mudroom, personnel laundry, janitorial services, furnace closets, mechanical room and other services. All dorms will be connected to the permanent core services facility by 1.5 m wide treated timber walkways, slightly above ground to allow for proper drainage.

To handle overflow during construction, an additional 670-person modular dining room will be assembled on skids.

#### Chester Construction Camp

Six one-storey dorms will house a total of 264 people, configured as “Jack and Jill” single occupancy bedrooms with shared shower and toilet between two rooms. Each dorm will have a dedicated-entry mudroom, personnel laundry, janitorial, furnace closets, mechanical room and other services. All dorms will be connected to the construction core services facility via treated timber walkways slightly above the ground. The core services facility will have with similar functional areas as the permanent core services facility at the mine site, including a 250-seat dining room.

#### **Power and Electrical**

The power supply for the Côté Gold site will be delivered at 115 kV by a new 44 km overhead line from the Hydro One’s Shining Tree Junction. Upstream of the Shining Tree Junction is an ‘idle’ 118 km 115 kV line fed from Timmins Tie Station (TS) which will be refurbished and restrung. The independent electricity system operator (IESO) has completed a system impact assessment (SIA) and determined that the proposed connection to its power grid is technically feasible, that the system has sufficient capacity, and that it can meet the proposed in-service date of Q3 2020. Hydro One is currently completing a customer impact assessment (CIA), the next step to providing power at site on schedule.

The incoming 115 kV overhead line will terminate at the main substation north of the main process building. The substation will include incoming circuit breakers, motorized isolating disconnect switches, power transformers, switchgear, and protective equipment for the transformation of power from 115 kV to 13.8 kV. The site protection scheme will interface with Hydro One and will include a load-shedding scheme as identified in its SIA.

The calculated electrical load for the Côté Gold site is as follows:

- 61 MW maximum demand load
- 59 MW average demand load
- 98% lagging (inductive) power factor.

This calculated load is based on the current mechanical load list, and includes two electric shovels, mine dewatering, all ancillary loads, and a 10% allowance for growth during detailed design.

Hydro One has allocated a total of 72 MW of capacity to the Project.

The main substation will be adjacent to the mill grinding building, which has the largest electrical loads, to minimize cabling costs and losses. The incoming transmission line from Shining Tree Junction will terminate at the substation, where incoming voltage will be stepped down from 115 kV to 13.8 kV for site distribution. The main power transformer secondaries will be connected to the main site 15kV switchgear to distribute power around the site. Feeders from the substation will be run in cable trenches, cable tray and/or on overhead lines to the area loads

The primary power supply to the open-pit mine will be a single 13.8 kV overhead pole line running from the switchgear at the main substation to the west side of the open pit. The system will comprise two portable skid mounted substations that transform the power from 13.8 kV to 7.2 kV for the mine's electric shovels and dewatering pumps.

Emergency back-up power will be available from four diesel standby generators, sized to provide essential power to the process and ancillary electrical equipment. The four 1 MW prime gensets will be located in the main substation area, will be 600 V rated and will be stepped up to 13.8 kV to be distributed around the site. During construction, these standby generators will be strategically located around the site to provide power to the construction and permanent camps, laydown areas, construction trailers, and for construction activities.

Uninterruptible power supplies (UPSs) will provide backup power to critical control systems including process control as well as autonomous fleet communications. The UPSs will be sized to permit operations to shut down, and back up the computer and control systems to facilitate start-up on restoration of normal (utility) power.

#### 24.1.20 Market Studies and Contracts

##### Market Studies

Gold doré bullion is typically sold through commercial banks and metals traders, with sales prices obtained from the World Spot or London fixes. These contracts are easily transacted, and standard terms apply.

IAMGOLD expects that the terms of any sales contracts for the Extended Case would be typical of, and consistent with, standard industry practices, and would be similar to contracts for the supply of gold doré elsewhere in Canada.

Limited additional effort is considered to be required to develop a doré marketing strategy.

##### Commodity Price Projections

The Extended Case in the 2018 Feasibility Study assumes a gold price of US\$1,250/oz for the economic analysis. Wood considers this price to be an industry consensus long-term forecast price, using:

- Bank analysts' long-term forecasts
- Historical metal price averages
- Prices used in publicly-disclosed comparable studies.

Gold prices were kept constant throughout the life of the project.

It is common industry practice to use higher metal prices for Mineral Resource estimates than Mineral Reserve estimates and the economic analysis. For the 2018 Feasibility Study, the following prices were used:

- Mineral Resources: US\$1,500/oz (cut-off grade and constraining shell)
- Mineral Reserves: US\$1,200 (cut-off grade)

- Cashflow analysis: US\$1,250 (financial analysis).

#### **Contracts**

No sales contracts are in place for the Extended Case; however, once gold is refined by IAMGOLD's refiner (within five to seven days of receipt of the doré), the bullion is credited to IAMGOLD's bullion account and sales of IAMGOLD's bullion can be made immediately. Cash from the settlement of those bullion sales are then credited to IAMGOLD's bank account within in 2 days.

IAMGOLD received indicative pricing for refining arrangements from the Royal Canadian Mint. Total costs of \$1.75/oz gold for refining, transportation and insurance were used in the cashflow analysis.

Other key contracts that will be required in support of construction and operations include: MARC, open pit mining, operation of the assay laboratory, fuel supply to site, camp operations, and mine construction.

#### **Comments**

Wood reviewed the information provided by IAMGOLD on marketing and contracts. In the QP's opinion, the information provided is consistent with that available in the public domain, and can be used to support the Extended Case financial analysis.

### **24.1.21 Environmental Studies, Permitting, and Social or Community Impact**

#### **Introduction**

IAMGOLD received Provincial ministerial approval of the 2015 Environmental Assessment (EA) for the Project. The EA states that no significant effects are anticipated after application of the proposed mitigation measures.

Environment Canada stated in May 2016 that the Project is not likely to cause significant adverse environmental effects.

The project presented in the 2018 Feasibility Study has undergone optimizations since the 2015 EA, including:

- Relocation of the TMF to minimize overprinting of fish-bearing waters, reduce the Project footprint, improve Project economics, reduce the need for watercourse realignments, and avoid effluent discharges to the Mesomikenda Lake watershed

- Smaller open pit
- Modifications to the process plant
- Reduction in transmission line voltage, and re-routing of the transmission line; a new Provincial EA for the 44 km line is expected to be completed in 2018.

IAMGOLD is of the opinion that there are no new net effects arising from the 2018 Feasibility Study. On October 19, 2018, CEEA confirmed that the proposed Project changes are not considered new designated physical activities and therefore a new environmental assessment is not required. On November 9, 2018, MECP also confirmed their concurrence with the conclusion in the EER report, that the proposed changes to the undertaking result in no new net effects.

#### **Baseline Studies**

A list of the baseline studies completed to date is provided in Table 24-6.

#### **Environmental Considerations**

Potential environmental effects associated with the construction, operation, and closure of the Côté Gold Project include:

- Changes in air quality
- Increases in noise
- Potential loss of aquatic habitat
- Disturbance of aquatic species
- Reduction of terrestrial habitat, and associated species disturbance
- Alteration of local groundwater infiltration rates and aquifers
- Changes in water quality in the Mollie River and Mesomikenda Lake watersheds
- Increased demands on community/regional infrastructure and social services
- Effects on cultural heritage resources
- Effects on local Aboriginal and Métis traditional land uses
- Alterations to local terrain and visual aesthetics.

**Table 24-6: Baseline Studies**

| Study                    | Comment   |
|--------------------------|---|
| Water                    | <p>The Project site is within the Mollie River and Neville Lake sub-watersheds. A number of lakes lie within the area, including Chester Lake, Clam Lake, Côté Lake, Three Duck Lakes, Moore Lake, Chain Lake, Attach Lake, Sawpeter Lake and Schist Lake. Small tributaries, including Clam Creek, Unnamed Pond and Mill Pond, drain from the site into the Mollie River.</p> <p>The open-water reach of the river between Chester Lake and Côté Lake ranges in width from 5–20 m, with a depth of 1–2 m, and is bordered by a flooded grassy marsh, interspersed with dead standing conifers. Numerous stands of planted jackpine occur adjacent to the marsh, and there is evidence of recent logging.</p>   |
| Air and noise            | <p>Air quality in the vicinity of the project site indicates no significant nearby anthropogenic sources of air emissions, and there are no significant emissions from the project site. Air quality in the project area is, however, affected by long-range transport of emissions from the south, and by natural sources such as fires and volatile organic emissions from vegetation. Noise in the vicinity reflects a rural environment, including sounds of nature and minimal road traffic.</p>   |
| Soils                    | <p>Overburden throughout the study area generally consists of an organic layer (peat in many cases) overlying silt and/or sand, with occasional till overlying bedrock. Bedrock is very close to or at surface in most areas, except for valley bottoms and low-lying wet areas. Overburden ranges in depth from 0–18 m. Soil pH values range from 6.8–7.3.</p>   |
| Geology and geochemistry | <p>A detailed assessment of the potential for metal leaching and acid rock drainage (ML/ARD) was completed for overburden, mine rock and tailings. The work included characterization (static testing) of overburden and bedrock in previous areas planned for construction, with results indicating little potential for ML/ARD. More extensive studies, including static and kinetic testing (humidity cells and field cells), were conducted for open-pit mine rock and tailings. The mine rock was characterized with a generally low sulphide content (&lt;0.3% sulphide), a low potential for ML/ARD, and an excess of neutralization potential overall. The tailings were determined to be non-potentially acid generating (NPAG), with a substantial excess of neutralization potential expected. Short-term leaching tests showed little evidence of concern for neutral metal leaching in mine rock or tailings. Field cell tests were continued to further confirm the low ML/ARD potential. Simulated tailings were subjected to rheology tests that characterized settling rates and density.</p> <p>The existing studies are largely expected to be representative of the proposed mine plan. Updated geological and metallurgical information is being evaluated with respect to the 2018 Feasibility Study designs (e.g., smaller pit design and ore processing modifications). If gaps are identified, further testing will be completed as necessary to support future permitting and detailed design. Additional confirmatory studies may be required for new construction areas requiring excavation (e.g., diversion channels outside the previous investigation footprint).</p> |

| Study        | Comment   |
|--------------|---|
| Hydrology    | <p>The Project is within the Upper Mattagami River watershed, which drains northward through the City of Timmins and ultimately to James Bay. Surface water flows are controlled by lakes and creeks that flow to the Mollie River and Mesomikenda Lake, before discharging to Minisinakwa Lake and ultimately the Mattagami River. The Mattagami River upstream of the City of Timmins water filtration plant is within Intake Protection Zone 3 in the context of the Mattagami River Source Water Protection Program; this zone does not prohibit the proposed mining activities.</p> <p>Water Survey of Canada maintains regional hydrological monitoring stations in the Mollie River (unregulated flow) and at Minisinakwa Lake (regulated flow), and Ontario Power Generation monitors the Mesomikenda Lake Dam (regulated flow). The regulated flow systems are governed by a Water Management Plan in place for the Mattagami River.</p> <p>Surface water flow-paths at the project site are currently monitored by 15 hydrological sampling stations selected and installed during 2012, and increased to 22 stations in 2016. In general, these stations are distributed throughout the Mollie River sub-watershed and Neville Lake sub-watershed. Automated water-level data loggers have been installed and will be used in conjunction with instantaneous discharge measurements to develop a characterization of the streamflow regime.</p>  |
| Hydrogeology | <p>Between 2012 and 2014, over 150 boreholes were drilled to characterize subsurface conditions. Groundwater monitoring wells (single and nested) were installed at 62 of these locations, and slug testing and packer testing was conducted to develop estimates of the hydraulic conductivity of various overburden materials and at a range of bedrock depths. In 2016, an additional 23 monitoring wells were installed in various locations within the proposed TMF footprint. An additional 29 boreholes were drilled in 2017 and 2018 to reflect the updated site configuration. In addition, six angled drill holes were advanced into the deep bedrock within the proposed open pit, to facilitate hydrogeological and geomechanical testing of major lithological units and structural features (e.g., dykes and faults) along ultimate pit walls.</p> <p>Wells were installed in many of the boreholes drilled with screens located in overburden, where present, and bedrock materials. Groundwater levels have been monitored at selected locations at various times.</p> <p>Hydraulic conductivity estimates for granular overburden materials range to a high of 2E-03 m/s, with a geomean value of about 9E-06 m/s. For fractured bedrock, hydraulic conductivity estimates ranged up to about 3E-04 m/s. Hydraulic conductivity values showed a trend of declining values with depth, generally independent of rock type and rock structure. Where unfractured, a hydraulic conductivity of about 1E-11 m/s has been inferred. The geomean hydraulic conductivity declined from 1E-07 m/s in the upper 10 m of the bedrock profile to about 2E-10 m/s below a depth of 200 m.</p> <p>The primary groundwater flow paths are inferred to occur through the granular materials within bedrock troughs. The bedrock troughs have limited lateral extent and an average depth of about 7 m, with a maximum observed depth of about 20 m.</p> |

| Study                 | Comment   |
|-----------------------|---|
| Surface water quality | <p>Quarterly or monthly surface water quality sampling was completed during the EA and feasibility baseline studies at 48 locations in the two main sub-watersheds of the site and in the vicinity of the site infrastructure, including lake outflow stations, lakewater column profile stations, and watercourse stations. The baseline monitoring program was modified in 2016 to reflect the updated site configuration.</p> <p>Results were typically consistent across seasons, with concentrations of copper, cadmium, iron, selenium, mercury, zinc, total phosphorus and dissolved aluminum occasionally exceeding Provincial Water Quality Objectives (PWQOs) and the Canadian Council of Ministers of the Environment's Canadian Water Quality Guidelines (CWQGs) for the Protection of Aquatic Life. Exceedances were generally interpreted to be naturally occurring. Surface water quality monitoring is ongoing.</p>   |
| Water sedimentation   | <p>Sampling results indicated good sediment quality, with most parameter concentrations below the 2008 MECP Provincial Sediment Quality Guidelines (PSQGs). PSQG lowest-effect levels (LELs) were exceeded for most of the total organic carbon results. A few results also exceeded PSQG severe-effect levels (SELs), but this is typical of lakes in northern Ontario. Provincial SELs were found to be exceeded for iron and manganese concentrations in the Mollie River. In some surface waters, Federal threshold effect level exceedances were observed in 2011 for copper.</p> <p>The PSQGs were developed for, and are strongly weighted by, data for sediments in the Great Lakes, which tend to have substantially lower content of many metals compared to Canadian Shield lakes (Prairie and McKee, 1994). Natural background concentrations, particularly in mineralized areas of the Canadian Shield lakes, can naturally exceed PSQG LELs. Further sediment quality evaluation will include a comparison to PSQG LELs, SELs, and reference area values.</p>   |
| Groundwater quality   | <p>In 2012, groundwater samples were collected three times at 37 wells, at sites of potential mine infrastructure development. In 2016, an additional 23 wells were added to cover the PEA/PFS TMF location. Groundwater chemistry was analyzed for major ions, metals, nutrients and physical parameters (e.g., conductivity and total dissolved solids). Results were compared to Ontario Drinking Water Standards (ODWS), PWQOs, and the Canadian Council of Ministers of the Environment CWQGs for the Protection of Aquatic Life. Results indicated that values occasionally exceeded these regulatory criteria, including but not limited to copper, zinc, molybdenum, aluminum, silver, arsenic, iron, free cyanide and cadmium. Additional investigations to verify these results were completed in 2013. With respect to groundwater quality, several values were measured above their applicable ODWSs or PWQOs during one or more monitoring events in 2012. Since there is currently limited development at the site (other than exploration and geotechnical drilling), these values are considered to represent background conditions, and will continue to be monitored to assess trends in water quality.</p> |

| Study             | Comment   |
|-------------------|---|
| Aquatic resources | <p>Aquatic assessments were conducted of water bodies within the boundaries of the proposed open pit and associated potential initial locations of the MRAs and TMF. Studies included characterization of fish habitat and community structure of the water bodies, as well as sport-fish populations in Côté Lake and Unnamed Lake. Additional data on aquatic resources were collected during the summer and fall of 2010. These studies included water quality/hydrogeology analysis, benthic invertebrate surveys, aquatic macrophyte community assessment, and fish community assessment and habitat characterization.</p> <p>Samplings did not provide evidence of any aquatic species at risk (such as lake sturgeon), either under the Federal Species at Risk Act (SARA) or Ontario's Endangered Species Act (ESA).</p>  |
| Wildlife          | <p>Sensitive species refers to those listed in the ESA, the SARA (Schedule 1), or those considered vulnerable or imperiled in the Province (Provincial ranking of S1-S3). Based on desktop studies, there is potential for 18 Provincially-listed wildlife species, one Federally-listed species, and two Provincially-tracked wildlife species to occur in the Project area. Seven of these species were documented: four are listed as Special Concern (bald eagle, Canada warbler, common nighthawk and olive-sided flycatcher); and one as Endangered (little brown myotis) under the Provincial ESA. One species listed as Special Concern under SARA (the rusty blackbird) was also observed during field surveys.</p> <p>Based on the habitat ranges provided by the Atlas of the Mammals of Ontario (Dobbyn, 1994), 49 mammals have potential to inhabit the project area. A winter aerial survey conducted between 27 February and 1 March 2013 observed 21 moose and one red fox along the alternative transmission line routes. In addition, tracks of moose, red fox, wolves, lynx, river otter, pine marten, mink, weasel, snowshoe hare, and porcupine were observed.</p> <p>In 2017, additional aerial and wildlife surveys were conducted at the new TMF and topsoil/overburden stockpile, and additional aerial surveys were conducted along the 44 km transmission line route from the Project site to Shining Tree distribution station. No additional Federally or Provincially listed species were identified during the 2017 studies.</p> |

| Study   | Comment  |
|---|--|
| Land use  | Studies completed included assessments of regional demographics, population, regional economy, agricultural, forestry and mining use, and recreation and tourism.  |
| Cultural heritage and paleontological resources | <p>The cultural landscape consists of a 1930s-era gold mining camp with associated sites and remains. Further documentation and assessment of this landscape was conducted in 2013. No built heritage resources other than ruins have been identified.</p> <p>Archaeological sites and features were recorded in the study area, including pre- contact sites, historical sites, ancient trails and portages. While many of these sites have been mitigated or are outside the area of development, several require further archaeological work.</p> <p>Almost all of the fieldwork undertaken on the Côté Gold property has directly involved members of Mattagami First Nation, and a member of Flying Post First Nation during the 2012 and 2013 field seasons.</p> |
| Aboriginal traditional land use                 | Traditional knowledge and traditional land-use studies were conducted by a consultant selected by Wabun Tribal Council, on behalf of the Wabun member communities of Mattagami First Nation and Flying Post First Nation. The Métis Nation of Ontario also conducted a traditional knowledge and traditional land-use study of the Project area. Both studies show some level of current use in the broader area around the site.  |

The 2015 EA provides a complete assessment of potential environmental effects, and states that no significant adverse effects are anticipated after application of the proposed mitigation measures.

IAMGOLD has conducted additional baseline studies within the boundaries of the new TMF and topsoil/overburden stockpile, and new transmission line alignment, to infill the physical, biological and human environment characterizations conducted previously. These additional baseline data, together with design information for the site configuration, were used to prepare the EER for the project, for submission to the CEEA and the MECP, thus informing the regulatory agencies of changes or improvements to the EA. On October 19, 2018, CEEA confirmed that the proposed Project changes are not considered new designated physical activities and therefore a new environmental assessment is not required. On November 9, 2018, MECP also confirmed their concurrence with the conclusion in the EER report, that the proposed changes to the undertaking result in no new net effects.

Based on the Federal and Provincial Environmental Assessment processes, IAMGOLD has established a preliminary environmental monitoring program that includes monitoring parameters, methods, applicable standards, frequencies and locations for the physical, biological and human environments. The program will be updated to reflect conditions of various environmental approvals as they are received. Environmental baseline monitoring programs to date provide the basis for the monitoring frameworks and may be modified to meet compliance and reporting requirements as the project moves through the permitting phase. The monitoring programs will apply to the construction, operation, closure and post-closure phases of the project, as appropriate, and will allow for compliance with anticipated environmental approvals and permits, while providing information to determine the effectiveness of proposed mitigation measures.

Follow-up monitoring is expected to provide for an adaptive management approach, should environmental effects vary from those predicted; if mitigation measures prove less effective than anticipated; or as new information becomes available. Mitigation strategies may be modified accordingly, and monitoring parameters, locations and/or frequencies will be adapted as appropriate.

#### **Tailings Management Facility**

##### *Design Basis*

Over the proposed Extended Case LOM of 18 years, tailings production is approximately 13.1 Mt/a from nominal mill throughput of 36,000 t/d, except in Year 1 when it is about 11 Mt due to ramp-up. The TMF will store 233 Mt of tailings over the LOM.

Tailings will be thickened with solids concentration in slurry at 62% and discharged from the TMF perimeter dams, forming an overall beach slope of approximately 1%. Tailings solids will settle in the TMF with pore water retained in the voids with supernatant water forming a pond. Based on recent rheology, drained and undrained column settling tests (SGS, 2017), an overall in-situ dry density of  $1.5 \text{ t/m}^3$  is expected.

Additional tests on tailings which include confirmatory column settling tests, air drying tests and tailings consolidation tests are currently underway at the SGS laboratories in Vancouver. Most of the supernatant water from tailings will report to the reclaim pond, where it will be reclaimed for use as process water.

Both the tailings and mine rock have been classified as non-potentially acid-generating (NPAG) materials, with a low potential for metal leaching.

To enhance the capacity of the TMF to 233 Mt, the entire perimeter dams will require raising by 5 m. Engineering for raising the TMF dams by 5 m will need to be conducted and the following additional engineering studies will be required.

- Supplementary geotechnical and hydrogeological investigations
- Tailings deposition plan update
- Dam stability analyses
- TMF 3D seepage model update
- Water quality predictions model update
- Seepage collection system update.

*TMF Layout and Configuration*

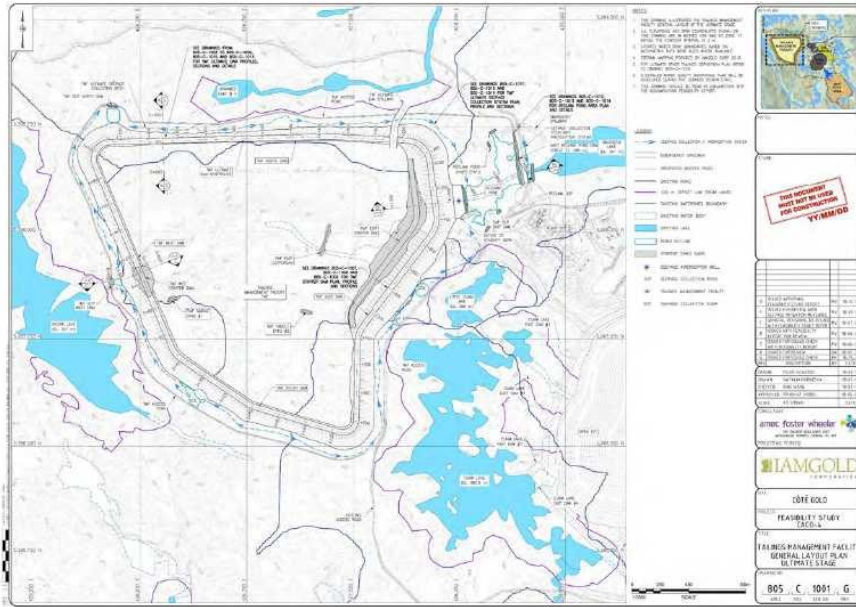
Perimeter embankment dams, raised in stages, will be used for tailings management. The Extended Case TMF will raise the final dam height by 5 m. Figure 24-10 presents the general design layout of the TMF.

A minimum 120 m off-set has been provided from the TMF to the surrounding major water bodies in accordance with the mining act.

The dam rockfill will be primarily sourced from the open pit development. Mine rock will be hauled to the dam and end-dumped and compacted. The sand and gravel filter for the initial years of operation will be sourced from locally available commercial borrow pits. The transition material and abutting select rock fill material will be sourced from mine rock.

The TMF dams will be constructed with a low permeability, high strength bituminous geomembrane liner (BGML) on the upstream slopes of the TMF starter dams and the TMF east dam only in the second year of operations. The BGML must be used because of the lack of low-permeability overburden materials onsite.

Figure 24-10: Tailings Management Facility Layout Plan



Note: Figure prepared by Wood, 2018.

Starting from Year 3 of operations the tailings dams will be raised as pervious dams with transition and filter layers placed along the upstream slopes of TMF perimeter dams. To prevent potential erosion of the filter layer, a geotextile will be placed over the filter zone. The reclaim pond constructed downstream of the TMF footprint will be used to collect the TMF water and recirculate to the process plant from Year 3 of operations to the end of the mine life.

The dams' potential hazard classification is "HIGH", resulting from the risk of potential environmental impact on the surrounding lakes. However, the current design supports a higher classification, i.e., "VERY HIGH" with the necessary dam safety requirements for this classification "built-in" to the design.

In accordance with the guidelines the TMF will be designed to contain the EDF of 1-in-100 year return period without direct discharge to the environment. An emergency spillway will be provided in the TMF to safely pass the inflow design flood corresponding to the probable maximum flood.

TMF dams have been designed for seismic events corresponding to MCE with 1-in-10,000 year annual exceedance probability.

TMF dam designs for the Extended Case will be required to confirm the dams are in accordance with the LRIA and CDA guidelines. The upstream slopes of the dams for the Extended Case are expected to be maintained at 2.5H:1V and downstream slopes at 2H:1V with an expanded downstream footprint to accommodate the increased final dam heights. Dam slope stability analyses will be required and the factors of safety of upstream and downstream slopes confirmed to meet the required target factors of safety in accordance with the CDA guidelines.

Dam instrumentation will mainly include vibrating wire piezometers in the foundation, inclinometers in the downstream slope footprints, survey monuments along the downstream slopes to monitor dam deformation and dam settlement during both operation and post-closure.

Collection ditches and ponds will be located at topographical low points around the TMF perimeter to collect runoff and seepage. In the ultimate TMF configuration there will be six collection ponds. The ponds will lead the seepage to the reclaim pond by gravity (or by pumping in some cases) for recirculation to the process plant.

#### *Geotechnical Conditions*

Geotechnical investigations indicate that the overall TMF site has very little overburden underlain by bedrock. The overburden units consist of generally free draining sand, sand and gravel and silty sand varying in thickness from 0–3 m. The high permeability overburden deposits in the central valley vary from 6 m thick at the east dam to about 13 m thick further east. The bedrock is at very shallow depths along the proposed TMF north dam site.

#### *Tailings Deposition*

Tailings slurry will be pumped to the TMF and spigotted along the dam crest during operations throughout the year. In the winter the discharge locations will not be altered, to avoid buildup of ice on the beach. The TMF will be developed in stages for better water management and water balance and tailings deposited in a manner that optimizes dam raises and water management. The tailings deposition plan will provide flexibility and will facilitate progressive closure in the final years.

Tailings will be discharged from the west side initially, and later deposition will be done from the south and eventually from all three sides on the south, west, and north perimeter dams, to maintain the tailings pond to the east side of the impoundment for easy management during operation and closure.

#### *TMF Water Management*

TMF water will be pumped from the tailings pond/reclaim pond directly to the mill for reuse and hence forms a closed circuit without contact with other water bodies. TMF water management assumptions include:

- The TMF will accumulate approximately 2 Mm<sup>3</sup> of water prior to mill start up to ensure enough water for winter operation
- Significant amounts of mill make-up water will be provided by reclaim from the TMF in winter
- The TMF is the primary source of mill make-up water with additional sources being the polishing and storm/mine water ponds
- A sitewide water balance study has been performed for climate normal, 1-in-100 year wet and 1-in-100 year dry scenarios. The study indicates that the TMF would be able to supply significant volume of reclaim water to the mill for all scenarios supplemented by reclaim water from mine water pond or polishing pond when required.

All ponds, including the tailings reclaim pond, will have emergency spillways to safeguard the dams.

#### *Seepage Modelling*

For the Extended Case, a preliminary 3D groundwater flow model of the Project site includes the proposed Project and regional surroundings, covering an area of approximately 167 km<sup>2</sup>. The active model domain is delineated based on hydrogeological boundaries such as major lakes, rivers and interpreted groundwater divides.

TMF seepage mitigation measures have been implemented in the model to reduce potential seepage by-pass and include seepage collection ditches and ponds ringing the TMF, the installation of geomembrane liner along the upstream flanks of starter dams adjacent to Moore and Clam Lakes, and the installation of interceptor wells to the north of the TMF.

Further modelling will be undertaken during design, and prior to the TMF north dam construction, which will consider sensitivity analyses, alternative engineering controls and future field investigation results and may alter some of the seepage control measure requirements.

The Extended Case will require an update of the 3D groundwater flow model of the Project site, which will also encompass the raised TMF. Numerous TMF seepage mitigation measures will need to be included to reduce potential seepage bypass and include seepage collection ditches and ponds, and installation of interceptor wells in select areas of the TMF. The updated groundwater seepage estimates will need to be applied to a revised process water balance during the next phase of design.

#### *TMF Water Quality Prediction*

Water quality predictions for the settling pond account for inputs from process water from the process plant and tailings runoff within the TMF. The water quality predictions for the reclaim pond account for inputs from the TMF (including runoff, seepage directly entering the reclaim pond, and seepage collected via the seepage collection system that is pumped to the reclaim pond). The resulting water quality model simulates the natural degradation of cyanide in the TMF tailings mass, TMF settling pond, and the reclaim pond.

The predicted maximum monthly average concentrations of total cyanide in the reclaim pond are above the MDMER maximum authorized monthly mean concentrations of prescribed deleterious substances for existing mines that come into force on June 1, 2021. However, the TMF water, including the water in the reclaim pond, will be pumped to the mill for reuse and will not be directly discharged to the receiving environment. All other predicted monthly average concentrations are below the MDMER.

The predicted monthly average concentrations at lakes receiving TMF seepage (Bagsverd Lake [south basin], Unnamed Lake #5 [tributary to Schist Lake outflow], Schist Lake, Moore Lake, Clam Lake and Little Clam Lake) are below the water quality guidelines for key seepage parameters (i.e., free cyanide, copper).

#### *Water Quality Monitoring*

Water quality will be monitored in the process water (before and after cyanide destruction) prior to discharge to the TMF. Water quality will also be monitored in the TMF settling pond, reclaim pond, and in the seepage collection system.

With respect to completing monitoring to evaluate potential effects due to TMF seepage that bypasses the seepage collection system, water quality will be monitored at lakes surrounding the TMF and at those lakes further downstream. Monitoring points include:

- Lakes in the Mesomikenda Lake watershed: Bagsverd Lake, Unnamed Lake #6 (tributary to Schist Lake outflow), Schist Lake, Neville Lake, and Mesomikenda Lake.
- Lakes in the Mollie River watershed: Moore Lake, Clam Lake, Little Clam Lake, Chester Lake, New Lake, Three Duck Lakes, Delaney Lake, and Dividing Lake.

Groundwater quality will be monitored at wells to be installed downgradient of the TMF seepage collection system to confirm that seepage from the TMF is being captured in the seepage collection system. The groundwater monitoring will assist with confirming water quality model and 3D groundwater model predictions and provide information as part of the adaptive management of TMF seepage. It is expected that the monitoring data will assist with determining the need for potential additional mitigation measures (i.e., pumping well system).

Monitoring well installations will be located downgradient of where the seepage collection systems are constructed with an increased focus on areas where there may be preferential groundwater flow pathways. The monitoring well locations will be (in part) selected based on the results of the 3D groundwater modelling.

The monitored water quality will be assessed relative to applicable effluent discharge requirements and water quality guidelines.

Should water quality monitoring in the vicinity of the TMF indicate unacceptable concentrations associated with site sources and/or seepage bypass rates, the contingency measure would be to further capture the TMF seepage followed by treatment to acceptable concentrations. An option for further capture of TMF seepage may include seepage interception using pumping wells installed upstream of the lakes that surround the TMF, as any additional mitigation would likely be localized in nature.

#### **Water Management**

Infrastructure required for water management over the LOM is shown in Figure 24-11.

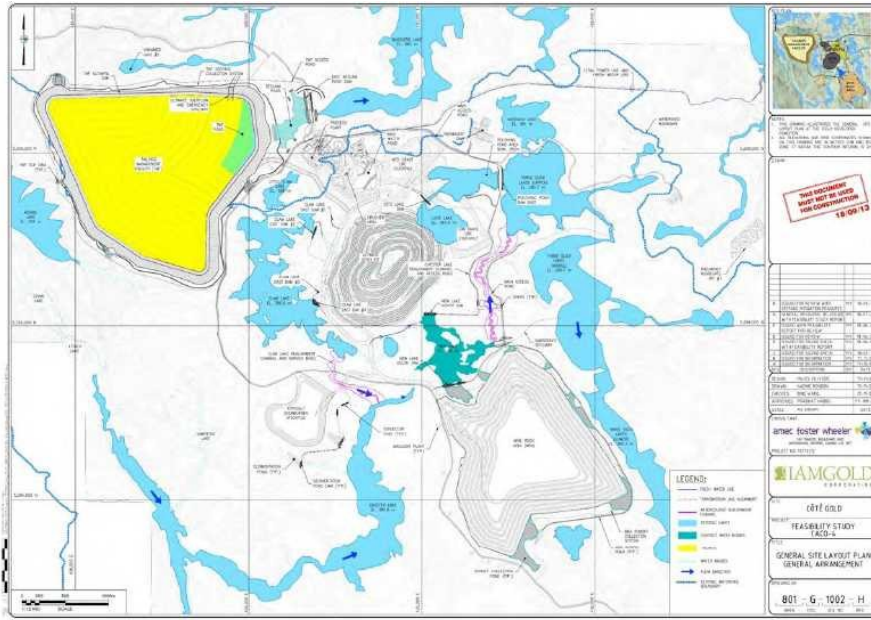
##### *Watercourse Realignment Dams and Channels*

A watercourse realignment system has been designed to redirect water around the mine facilities to enable excavation and dewatering of the open pit.

Four pit protection dams will be constructed either within existing lakes, in shallow water, or at currently dry locations along the eastern periphery of the Clam Lake. These dams will protect water from entering the pit area. Sufficient freeboard has been provided above the lake levels to avoid potential overtopping of the dams under flood conditions.

Dam designs are based on the water and ground conditions at each location, and in accordance with the Canadian Dam Association Dam Safety Guideline (CDA, 2014) and the Ontario Lakes and Rivers Improvement Act (MNR, 2011).

Figure 24-11: Water Management Infrastructure Layout Plan



Note: Figure prepared by Wood, 2018.

Two realignment channels will reroute the existing watercourses running into the open pit: WRC 1 from Clam Lake to Chester Lake flowing south, and WRC 2 from the New Lake (built in compensation for the partial elimination of Côté Lake by the pit) to the Three Duck Lakes (Upper). The channels have been designed to provide fish migration and habitats under both low and high flow conditions. Routing the water to the Three Duck Lakes (Upper) will maintain fresh-water inflow, and the lakes will remain oxygenated for fish habitat.

*Storm/Mine Water, Reclaim, and Polishing Ponds and Collection System*

The polishing pond east dam will be constructed in the Three Duck Lakes (Upper) area to delineate the lake from the polishing pond area. The Côté Lake dam is required to facilitate early dewatering of Côté Lake and separate the Three Duck Lakes system from Côté Lake.

The polishing pond to be located downstream of the ore stockpile will receive water from various sources before it is released to the environment after meeting discharge quality standards. The polishing pond will be controlled with a normal operating level at El. 380 m, i.e., about 0.8 m below the adjoining Three Duck Lakes (Upper) with normal operating level at El. 380.8, which will create a reverse hydraulic gradient, to mitigate migration of contact water to the lake. A storm/mine water pond near the process plant will receive pumped inflows from the pit, the polishing pond when required during, and runoff from the process plant site.

Runoff from the ore stockpiles and MRA will report to the polishing pond via perimeter ditches. Pit water will be routed to the storm/mine water pond due to the possible presence of ammonia from blasting operations in order to provide additional retention time before directing the water to the polishing pond.

*Water Management Facility Dam Designs*

All WMF dams, except the Polishing Pond East Dam, will be built out of mine rock with a low permeability central till core. In order to mitigate foundation seepage through the high permeability overburden layers, the central till core will be extended to low permeability silt or bedrock. The polishing pond dam will be built in the Three Duck Lakes (Upper) by construction of two rockfill shells and a central sand and gravel core. A cut-off wall will be constructed in the sand and gravel to provide a low permeability barrier. The cut-off wall will be extended into the foundation to mitigate seepage into polishing pond area. Dredging of the organic silt layer in the dam footprint will be necessary.

The WMF dams are designed as per guidelines set by Ministry of Natural Resources 'Lakes and Rivers Improvement act (LRIA Technical bulletin 2011) and the "Canadian Dam Association". In accordance with LRIA, the hazard potential classification for most of these dams is 'High'.

Dam slope stability analyses has been carried out for various loading conditions. The factors of safety for the dam slopes meet the stipulated target factors of safety by CDA for all loading conditions.

#### *Water Quality Prediction*

A water quality model was developed to predict the water quality of the polishing pond. Flow rates were used with baseline water quality and geochemistry inputs to derive mass loading rates for each of the model components. The model predicts water quality under average, 1:100-year dry and 1:100-year wet flow conditions.

The effluent quality predictions account for inputs to the polishing pond from watershed runoff, the storm/mine water pond, the MRA, the camp septic system, and drainage from the ore stockpile. The development of site-specific effluent water quality limits and objectives is currently underway as part of the permitting process.

The predicted maximum monthly average arsenic concentrations in Three Duck Lakes (0.0074 mg/L to 0.0087 mg/L) are less than the site-specific benchmark (0.0375 mg/L). Therefore, the predicted concentrations in Three Duck Lakes are expected to be protective of fish and other aquatic life. The predicted monthly average concentrations in Three Duck Lakes are below the water quality guidelines for all other parameters.

#### *Polishing Pond Water Discharge*

Before discharging any excess water from the polishing pond to the environment, the accumulated water will be retained with sufficient residence time, estimated at approximately 15 days for settling of solids, so that the TSS, among other parameters, meet the discharge water quality guidelines. Monitoring of water quality will be performed to ensure abatement. Treatment will be implemented if necessary.

**Closure Plan**

Closure of the Côté Gold Project will be governed by the Ontario Mining Act and its associated regulations and codes under Ontario Regulation 240/00. The objective of closure is to return the project site to a naturalized and productive condition after mining is complete. "Naturalized and productive" is interpreted to mean a rehabilitated site without infrastructure (unless otherwise negotiated) and one that, while different from the existing environment, is capable of supporting plant, wildlife and fish communities, and other applicable land uses.

IAMGOLD has prepared a Closure Plan in accordance with the legislative requirements in tandem with the 2018 Feasibility Study. This plan details measures for temporary suspension, care and maintenance and closure of the Project, including determining financial assurance required to implement the Closure Plan.

Conventional methods of closure are expected to be employed at the site. The closure measures for the TMF will be designed to physically stabilize the tailings surface to prevent erosion and dust generation. The pit will be allowed to flood, and the natural flow of the realigned water bodies will be re-established to the extent practicable. Revegetation will be carried out using non-invasive native plant species. Monitoring at appropriate sampling locations, including those established during baseline studies and operations, will be conducted after closure to confirm performance.

MENDM requires financial assurance for implementation of the Closure Plan. Closure costs are described in Section 24.1.22.

**Permitting***Environmental Permitting*

Most mining projects in Canada are reviewed under one or more EA processes whereby design choices, environmental impacts and proposed mitigation measures are compared and reviewed to determine how best to proceed through the environmental approvals and permitting stages. Entities involved in the review process normally include government agencies, municipalities, Aboriginal groups, the general public and other interested parties.

On 3 May 2013, IAMGOLD entered into a Voluntary Agreement with the Ontario Ministry of the Environment and Climate Change (now Ministry of the Environment, Conservation and Parks, or MECP) to conduct a Provincial Individual EA for the entire Côté Gold project, to meet the requirements of the Ontario Environmental Assessment Act. Approval of the Provincial EA was received in January 2017.

The project as presented in the 2018 Feasibility Study differs only slightly from the project presented in the EA. Mine rock and tailings management areas have been relocated to minimize impacts on fish-bearing waters, and to reduce the need for retention dams and watercourse realignments. Improvements to the project since the EA are expected to be managed through Condition 26(1) of the EA approval, which states:

*26(1). Prior to implementing any proposed changes to the Undertaking, the Proponent shall determine what Environmental Assessment Act requirements are applicable to the proposed changes and shall fulfill those Environmental Assessment Act requirements. If a contemplated change to the Undertaking would result in no new net effects, it shall be considered a minor amendment. In such cases, the Proponent will be required to provide an Addendum to the Ministry to document the change and demonstrate that there are no new net effects associated with it. The Proponent shall consult with the Ministry about any consultation requirements that may apply, and whether any changes can be permitted without an amendment to the Environmental Assessment.*

In discussions with MECP, IAMGOLD prepared an EER that assessed the potential for new net effects associated with the project improvements.

In addition to the Provincial EA, the project required completion of a Federal EA pursuant to the Canadian Environmental Assessment Act (CEAA 2012). CEAA 2012 identifies the physical activities that could require completion of a Federal EA. At the time of the EA preparation, the following sections (which have since been revised) were considered to apply to the Côté Gold project:

- Section 7: *"The construction, operation, decommissioning and abandonment of a structure for the diversion of 10,000,000 m<sup>3</sup>/a or more of water from a natural water body into another natural water body "*. However, it should be noted that most waters will be realigned and not diverted.
- Section 8: *"The construction, operation, decommissioning and abandonment of a facility for the extraction of 200,000 m<sup>3</sup>/a or more of ground water "*
- Section 15 (b): *"The construction, operation, decommissioning and abandonment of a metal mill with an ore input capacity of 4,000 t/d or more."*

- Section 15 (c): " *The construction, operation, decommissioning and abandonment of a gold mine, other than a placer mine, with an ore production capacity of 600 t/d or more.*"

On 13 April 2016, the Federal Minister of the Environment issued a decision stating that the project is not likely to cause significant adverse environmental effects. Similar to the Provincial EA, the Federal EA addressed conditions regarding changes to the project as presented in the EA. The Environmental Effects Review prepared for the Provincial EA condition 26(1) also addressed Federal conditions 2.10 and 2.11:

- 2.10. *The Proponent shall consult with Indigenous groups prior to initiating any material change(s) to the Designated Project that may result in adverse environmental effects, and shall notify the Agency in writing no later than 60 days prior to initiating the change(s)*
- 2.11. *In notifying the Agency pursuant to condition 2.10, the Proponent shall provide the Agency with an analysis of the adverse environmental effects of the change(s) to the Designated Project, as well as the results of the consultation with Indigenous groups.*

A new 115 kV, 44 km transmission line will be constructed by IAMGOLD from the Shining Tree distribution station along an unused corridor to provide power to the site. The routing of this line was considered as an alternative in the Federal and Provincial EAs, but not fully assessed as it had insufficient capacity to meet project needs at that time. In accordance with the Guide to Environmental Assessment Requirements for Electricity Projects (Ministry of the Environment 2011), and based on guidance from the Ministry of Environment, Conservation and Parks (2018), the proposed 44 km, 115 kV transmission line from the Shining Tree distribution station to the Côté Gold Project site is required to follow the process under the Class EA for Minor Transmission Facilities (Hydro One Networks 2016).

IAMGOLD is undergoing the Class EA for Minor Transmission Facilities, and the EA process is expected to be completed in late 2018.

#### *Provincial Approvals*

Three primary Provincial agencies will be involved with Project approvals/permits:

- MENDM
- MNRF

- MECP.

Additional agencies that may be involved in permitting include:

- OEB
- MTO
- IO
- MTCS
- DFO
- ECCC
- NRC
- TC
- NC.

Provincial environmental approvals that are expected to be required to construct and operate the Project include those shown in the preliminary list in Table 24-7.

#### *Federal Approvals*

Additional Federal environmental approvals that are expected to be required to construct and operate the Project include those shown in the preliminary list in Table 24-8. In addition, engineering approvals related to explosives manufacturing and/or storage will be required.

#### **Considerations of Social and Community Impacts**

##### *Community Consultation*

IAMGOLD has actively engaged local and regional communities, as well as other stakeholders, to gain a better understanding of their issues and interests, identify potential partnerships, and build social acceptance for the Project. Stakeholders involved in Project consultations to date include those with a direct interest in the Project, and those who provided data for the baseline studies. The involvement of stakeholders will continue throughout the various Project stages. The range of stakeholders is expected to increase and evolve over time, to reflect varying levels of interest and issues.

Table 24-7: Expected Additional Provincial Environmental Approvals

| Agency | Permit/Approval   | Act   | Relevant Components   |
|--------|---|---|---|
| MNR    | Various Work Permits for Construction                       | <i>Lakes &amp; Rivers Improvement Act/ Public Lands Act</i> | For work/construction on Crown land. Could be required as part of construction of the transmission line.  |
|        | Lakes and Rivers Improvement Act (LRIA) Permit              | <i>Lakes &amp; Rivers Improvement Act</i>                   | Construction of a dam in/near any lake or river in circumstances set out in the regulations requires a written approval for location of the dam and its plans and specifications.   |
|        | Forest Resource Licence (Cutting Permit)                    | <i>Crown Forest Sustainability Act</i>                      | For clearing of Crown merchantable timber. Could be required as part of construction of the transmission line.  |
|        | Aggregate Permit  | <i>Aggregate Resources Act</i>                              | For extraction of aggregate (e.g., sand/gravel/ rock for tailings dam or other site construction).  |
|        | Land Use Permit, Easement                                   | <i>Public Lands Act</i>                                     | To obtain tenure for permanent facilities on Crown land, such as for the transmission line.   |
|        | Endangered Species Permit                                   | <i>Endangered Species Act</i>                               | For any activity that could adversely affect species or their habitat identified as 'Endangered' or 'Threatened' in the various schedules of the Act.   |
| MECP   | Environmental Compliance Approval – Industrial Sewage Works | <i>Ontario Water Resources Act</i>                          | For constructing a mine/mill water treatment system(s) discharging to the environment, such as for tailings, pit water, site stormwater and mine rock pile runoff.  |
|        | Permits to Take Water                                       | <i>Ontario Water Resources Act</i>                          | For taking of ground or surface water (in excess of 50 m <sup>3</sup> /day), such as for potable needs and pit dewatering. During construction, a permit(s) may be required for dam and/or mill construction to keep excavations dry. |
|        | Environmental Compliance Approval – Air and Noise           | <i>Environmental Protection Act</i>                         | For discharge of air emissions and noise, such as from mill processes, on-site laboratory and haul trucks (road dust).  |
|        | Environmental Compliance Approval – Waste Disposal Site     | <i>Environmental Protection Act</i>                         | For operation of a landfill and/or waste transfer site.   |

| Agency | Permit/Approval                   | Act                                 | Relevant Components  |
|--------|-----------------------------------|-------------------------------------|--|
|        | Environmental Compliance Approval | <i>Environmental Protection Act</i> | For establishment and operation of a domestic sewage treatment plant, industrial sewage treatment facility (such as minewater pond, TMF), domestic landfill, construction water management, and management of air emissions. |
| MENDM  | Closure Plan                      | <i>Mining Act</i>                   | For mine construction/production and closure, including financial assurance.   |
| MTCS   | Clearance Letter                  | <i>Heritage Act</i>                 | For confirmation that appropriate archaeological studies and mitigation, if required, have been completed.   |

**Table 24-8: Expected Additional Federal Environmental Approvals**

| Agency | Permit/Approval   | Act  | Relevant Components  |
|--------|---|--|--|
| DFO    | Section 35 (2)b. Authorization for serious harm to fish that are part of a commercial, recreational or Aboriginal fishery, or to fish that support such a fishery | <i>Fisheries Act</i>   | For construction of the tailings facility, mine rock stockpiles, access road creek crossings, water works for water intake structures, and/or groundwater dewatering effects, that would cause disruption to creeks and/or ponds supporting fish that are part of, or support a fishery. |
| ECCC   | Schedule 2 Listing  | <i>Fisheries Act (Metal Mining Effluent Regulations; MMER)</i> | For overprinting of waters frequented by fish, by a deleterious mineral waste (tailings management facility).  |
| NRC    | Licence for an explosives factory   | <i>Explosives Act</i>  | For operation of an on-site facility to supply explosives for use in the open pit operations.  |
| TC     | Aeronautical obstruction clearance  |  | Marking and lighting for structures that could interfere with aeronautical navigation.   |
| NC     | Land-use clearance  | <i>Civil Air Navigation Services Commercialization Act</i>     | Construction of tall structures, use of cranes, high-voltage equipment, blasting.  |

IAMGOLD continues to engage stakeholders and interested individuals through:

- Open houses to share Project updates and seek feedback
- Quarterly *Let's Talk* Project newsletters
- The Project website ( [www.iamgold.com/Côté\\_gold](http://www.iamgold.com/Côté_gold) )
- Meetings and discussions.

As part of the Provincial conditions of environmental assessment approval, IAMGOLD will develop and submit a Community Communication Plan to the responsible Provincial ministry, outlining its plan to communicate with stakeholders through all phases of the Project.

IAMGOLD plans to work with the community of Gogama to collaborate on the development of a socio-economic management and monitoring plan to manage potential socio-economic effects of the Project (both adverse and positive).

#### *Indigenous Consultation and Communications*

An understanding of the Indigenous communities potentially interested in the Côté Gold project was first developed through advice from MENDM to Trelawney Mining and Exploration Inc. in a letter dated 19 August 2011, and through advice from CEEA based on information provided by Aboriginal Affairs and Northern Development Canada (now Indigenous and Northern Affairs Canada). IAMGOLD sought further direction from both Provincial and Federal Crown agencies on the potentially affected communities:

- On 6 March 2013, the Federal Crown agency informed IAMGOLD that Mattagami First Nation, Flying Post First Nation, Brunswick House First Nation, the Métis Nation - Region 3, and the Algonquin Anishinabeg Tribal Council should be consulted about the Project. They noted that as the Federal EA progresses, the Chapleau First Nation, Matachewan First Nation, and Beaverhouse First Nation would also be notified
- At a meeting on 23 May 2013, the Provincial Crown identified the Mattagami First Nation, Flying Post First Nation, Brunswick House First Nation, Matachewan First Nation and the Métis Nation of Ontario – Region 3 as groups that should be consulted.

Based on Federal and Provincial advice and information gathered through engagement activities, IAMGOLD engaged a range of Indigenous groups during the preparation of the EA. The Federal and Provincial conditions of approval for the Project each included a list of Indigenous communities to be considered, where relevant, for the purpose of fulfilling specific conditions. These lists are considered to supersede any prior direction from Federal or Provincial authorities. The Federal list included:

- Mattagami First Nation
- Flying Post First Nation
- Brunswick House First Nation
- Métis represented by the Métis Nation of Ontario Region 3 Consultation Committee.

Based on consultation efforts since the start of the Project, and on groups expressing a continued interest, IAMGOLD has continued to engage the identified communities through information sharing (e.g., newsletters, notices, invitations to open houses), and has focused on actively engaging affected communities identified through the EA process, namely Mattagami First Nation, Flying Post First Nation and Métis Nation of Ontario – Region 3. IAMGOLD continues to negotiate Impact Benefit Agreements with Mattagami First Nation, Flying Post First Nation and the Métis Nation of Ontario (Region 3), with approximately 25 meetings between January 2017 and July 2018. The details of the negotiations are confidential, as per the agreement of all parties involved. In addition, a Process and Funding Agreement has been reached between IAMGOLD, Mattagami First Nation and Flying Post First Nation related to the communities' involvement through the review of the EER and required regulatory permit applications to advance the Project.

As part of the Provincial and Federal conditions of approval, IAMGOLD will develop and submit an Indigenous Consultation Plan to the responsible government departments, outlining the Project's plan to consult with identified Indigenous groups throughout all phases of the Project. There is a requirement that IAMGOLD consult all identified Indigenous groups as part of the development of this Plan.

IAMGOLD has committed to work with the communities of Mattagami First Nation and Flying Post First Nation to collaboratively develop a socio-economic management and monitoring plan to manage potential socio-economic effects of the Project (both adverse and positive).

**Comment**

Should IAMGOLD pursue development of additional ore reserves beyond the 203 Mt identified in the Environmental Effects Review, IAMGOLD will confirm whether its environmental assessment coverage is sufficient or if new/amended environmental assessments are required. Regulatory approvals will be amended as required. Development of additional ore would continue to be done in a manner that does not cause significant adverse environmental effects and would continue to extend socioeconomic benefits to local communities and the region.

**24.1.22 Capital and Operating Costs**

**Capital Cost Estimates**

*Basis of Estimate*

The estimate addresses the Extended Case mine, process facilities, ancillary buildings, infrastructure, water management and tailings facilities scope and includes:

- Direct field costs of executing the Project including construction and commissioning of all structures, utilities, and equipment
- Indirect costs associated with design, construction and commissioning
- Provisions for contingency and Owner's costs.

The estimate was prepared in accordance with the AACE International Class 3 Estimate with an expected accuracy of +15%/-10% of the final Extended Case cost.

Cost estimates are expressed in third-quarter 2018 US dollars with no allowances for escalation, currency fluctuation or interest during construction. Costs quoted in Canadian dollars were converted to US dollars at an exchange rate of US\$1 = C\$1.30.

Capital cost for surface facilities includes the construction and installation of all structures, utilities, materials, and equipment as well as all associated indirect and management costs. The capital cost includes contractor and engineering support to commission the process plant to ensure all systems are operational. At the point of hand-over of the plant to IAMGOLD's Operations group, all operational costs, including ramp-up to full production, are considered as operating costs. The capital cost estimate is based on a 30-month Project development schedule starting upon Closure Plan approval.

The following documents were used as support for the estimate:

- General arrangement drawings
- PFDs
- P&IDs
- Pre-production mining costs from the mine plan
- Equipment and electrical load lists
- Budgetary quotations for major equipment and buildings
- Firm quotations for ball mill, crushers, HPGR, and mining fleet
- Firm quotations for construction camps
- Budget quotations for power transmission lines
- WBS
- MTOs
- Benchmarking against other projects.

*Direct Costs*

**Mine Costs**

The scope of the mining cost estimate includes the purchase of initial mining fleet, maintenance, and mine support equipment, wages for hourly and salary personnel for pre-production mine operation, haul road construction, and miscellaneous equipment. Estimates for mining equipment were based on mining fleet equipment schedules and equipment pricing provided by vendors for supply, delivery, assembly, and testing. Costs include pre-production stripping and haul road construction by a contractor fleet.

**Labour**

Wage rates for construction crews were established based on recent building trade labour and CLAC agreements.

Wood's North American unit work-hours are based on ideal working conditions which have been adjusted using a productivity factor to account for conditions at the Project site. These productivity factors were incorporated into the construction labour unit work-hours as multipliers on the base man-hours.

**Construction Equipment**

Estimates for contractors' construction equipment are included in the direct costs. These costs are estimated as dollars per direct work-hour by discipline account, and include equipment ownership, depreciation, insurance, fuel oil, lubricants, maintenance, and service and repair.

**Capital Leases**

The majority of the initial mining fleet is amenable to capital financing. The initial mining fleet, having an approximate initial capital cost of \$142 M, can be financed using capital lease agreements with vendors. Inclusive of a down-payment of 0–15% of the purchase value paid at placement of order and interest incurred during the construction period, capital leases reduce the initial capital cost by approximately \$134 M.

*Indirect Costs***Engineering Procurement and Construction Management**

The allowance for EPCM costs is \$59 M, and is based on a detailed estimate for these services.

**Construction Indirects**

Construction indirects are estimated based on a detailed indirects model prepared by Wood and IAMGOLD. First fills were estimated per specific equipment/process requirements.

*Owner's Costs*

An allowance of \$27 M has been made for Owner's costs based on a detailed estimate completed by IAMGOLD and was carried in the capital cost estimate as a component of the total construction capital cost.

An allowance of \$45 M for Operational Readiness and other Owner's fees was carried as additional indirect costs as a component to the total initial capital cost. Operational Readiness is the cost to allow operations personnel to mobilize, receive training, and prepare for the start of operations during the initial capital phase of the project.

#### *Contingency*

The contingency has been applied based on the assignment of levels of confidence to each component of the estimate, and the running of a Monte-Carlo simulation to determine the appropriate level of contingency required.

The contingency on direct and indirect costs (not including mining, owner's costs, and the Hydro One transmission line) has been calculated at P50, using a Monte Carlo Simulation through the software @RISK and resulted in a 10% contingency of \$80 M.

A mining contingency of 10% of the contractor's portion of the pre-production mining scope has been applied, for a total of \$8 M.

A further mining contingency of \$12 M has been applied to the autonomous mining system.

The overall total contingency included in the capital cost estimate is \$100 M.

#### *Sustaining Capital Costs*

Sustaining costs include the following:

- Purchase of mining fleet to maintain production
- Annual TMF build-out costs
- Capital lease payments on the initial mining fleet and permanent camp.

The basis for estimating the sustaining costs for capital leases of mining equipment are as follows:

- 0–15% down payment of purchase order value on placement of order depending on the equipment (included in capital cost)
- Lease rate of 3.85–4.5% per annum depending on the equipment (interest incurred during the construction period is included in capital cost)
- Lease term of 5–7 years depending on the equipment.

Sustaining capital costs are estimated at \$589 M. Without capital leasing of mining equipment, sustaining capital costs are estimated at \$433 M. An allocation of \$16 M has been made for the permanent camp.

#### *Capital Cost Summary*

The Extended Case's construction capital cost, summarized in Table 24-9, is estimated to be \$1,236 M, inclusive of allowances for Owner's costs and contingency of \$27 M and \$100 M, respectively. Additional indirect costs for Operational Readiness and other Owner's fees totalling \$45 M result in a total initial capital cost of \$1,281 M.

Some of the larger capital expenditures are amenable to capital financing. The majority of the initial mining fleet, having an approximate initial capital cost of \$142 M, can be financed using capital lease agreements with vendors. Inclusive of a down-payment of 0–15% of the purchase value paid at placement of order and interest payments incurred during the construction period, capital leases reduce the capital cost by approximately \$134 M, resulting in a total construction capital of \$1,101 M and a total initial capital cost of \$1,147 M net of mining equipment leasing. The Extended Case's capital cost taking into account leases of mining equipment is shown in

Table 24-10.

Sustaining costs (including capital leases) costs over the LOM are estimated to total \$589 M.

Reclamation and closure costs are estimated at \$63 M, net of security bond fees and an allowance for equipment and materials salvage at the end of mine life.

#### **Operating Cost Estimates**

##### *Mine Operating Costs*

Mining quantities were derived from first principles and mine-phased planning to achieve the planned production rates. Mining excavation estimates were based on geological studies, mine models, drawings, and sketches. Mine costs generally increase with time as the pit increases in depth and the MRAs increase in height. Diesel fuel, maintenance parts and supplies, and personnel costs are the largest cost items for the mine, followed by contract services, autonomous licence fees, explosives, and tire costs.

A diesel price of \$0.89/L was used for operating cost estimate and was held constant over the LOM. Fuel consumption was estimated from vendor-supplied data for each type of equipment and equipment utilization factors, based upon calculated cycle times. Diesel fuel usage peaks in Year 5 at 34.8 ML consumed.

**Table 24-9: Initial Capital Cost Estimate Summary**

| Area                              | Description            | Cost, US\$ M |
|-----------------------------------|------------------------|--------------|
| Direct costs                      | Mining                 | 323          |
|                                   | On-site infrastructure | 143          |
|                                   | Processing plant       | 346          |
|                                   | Tailings               | 67           |
|                                   | Off-site facilities    | 42           |
|                                   | Total direct costs     | 921          |
| Indirect costs                    | Indirects              | 188          |
|                                   | Owner's costs          | 27           |
|                                   | Contingency            | 100          |
|                                   | Total indirect costs   | 315          |
| <b>Total construction capital</b> |                        | <b>1,236</b> |
| Additional indirect costs         |                        | 45           |
| <b>Total initial capital cost</b> |                        | <b>1,281</b> |

**Table 24-10: Initial Capital Cost Estimate Summary w/Leased Mining Equipment**

| Area                              | Description            | Cost, US\$ M |
|-----------------------------------|------------------------|--------------|
| Direct costs                      | Mining                 | 188          |
|                                   | On-site infrastructure | 143          |
|                                   | Processing plant       | 346          |
|                                   | Tailings               | 67           |
|                                   | Off-site facilities    | 42           |
|                                   | Total direct costs     | 786          |
| Indirect costs                    | Indirects              | 188          |
|                                   | Owner's costs          | 27           |
|                                   | Contingency            | 100          |
|                                   | Total indirect costs   | 315          |
| <b>Total construction capital</b> |                        | <b>1,101</b> |
| Additional indirect costs         |                        | 45           |
| <b>Total initial capital cost</b> |                        | <b>1,147</b> |

Equipment suppliers provided equipment maintenance and repair cost estimates in 6,000-hr increments for the equipment service lives as part of the 2018 RFQ. Maintenance costs were provided for both a three-year MARC and for LOM Owner maintenance. The 6,000-hr incremental maintenance and repair costs were applied in the cost model in Years 1–10 with the average costs applied thereafter.

IAMGOLD provided costs for both salaried and hourly mine personnel, which were applied to the mine staffing plan to estimate total labour costs.

Suppliers of the mining fleet charge annual licence fees for their autonomous systems. An allowance of \$65,000 per drill per year and while licence fees for the truck fleet vary, they are substantial, peaking at nearly \$253,000 per truck per year.

Also included in the mine operating cost estimate are costs associated with explosives, tires, drilling supplies, lubricants, contract services, electric power, and overhead.

On a cost by cost centre basis, mine haulage accounts for approximately half of the mine operating costs at 46%. Open pit services accounts for 12% of the mine costs, followed by loading, blasting, and drilling. Contract mining accounts for 6% of the costs and stockpile rehandle accounts for 4%. Other costs include costs for pit dewatering, engineering and geology, and operations and management overhead.

Mining costs over the LOM are estimated to average \$6.98/t of processed mill feed. Excluding the pre-production period, operating costs average \$2.04/primary tonne mined including stockpile rehandle, and \$1.90/total tonne moved.

#### *Process Operating Costs*

Process operating costs estimates were developed from first principles, metallurgical testwork, IAMGOLD's salary/benefit guidelines and recent vendor quotations, and benchmarked against historical data for similar process plants. The operating costs includes reagents, consumables, personnel, electrical power and laboratory testing. The consumables accounted for in the operating costs include spare parts, grinding media and liner and screen components.

The main operating costs for the process plant are the grinding media, electrical power and reagents. The bulk of the reagent costs are associated with cyanide leaching and cyanide destruction.

Reagent consumptions were estimated based on testwork, industrial references, literature and assumed operational practice. Due to high SO<sub>2</sub> prices, the decision was made for the purposes of the 2018 Feasibility Study to buy molten sulphur to generate SO<sub>2</sub> on site. Molten sulphur pricing was obtained from vendors active in the Ontario market. Oxygen costs quoted by a local supplier were very similar in bulk and VPSA options. Pricing for bulk delivery was used in the estimate.

Wear parts and maintenance allocations were calculated using a ratio of 7.5% against the value of purchased equipment, applied annually to project the cost of replacing mechanical equipment due to normal wear and tear.

The annual cost for grinding media for the ball mill and vertical mills was estimated based on the expected media consumption (g/kWh) and the cost per tonne of steel media. HPGR tires and mill liner costs are based on projected circuit wear times, with liners made out of appropriate material as required. The individual media costs (\$/t steel media) were established through vendor quotations.

A manpower estimate for a 36,000 t/d mill was developed and a 38% labour burden factor was applied. The personnel costs incorporate requirements for plant management, metallurgy, operations, maintenance, site services, as well as a contractor allowance. Salaries and benefits guidelines were provided by IAMGOLD. There is a total of 86 employees accounted for in the process operating costs.

A third party will be contracted to provide metallurgical laboratory services at site to assay the plant, mine, geology and environmental samples.

Power cost was estimated to be \$0.0538/kWh (C\$0.07/kWh), which takes into account a load-shedding strategy to reduce the Global Adjustment Fee imposed by the electric utility. Electrical power loads were developed by Wood based on the project equipment list.

Process operating costs over LOM are estimated to average \$6.32/t of processed ore and include the following:

- Reagents represent approximately 24% of the total process operating cost at \$1.53/t milled
- Wear parts and maintenance represents approximately 13% of the total process operating cost at \$0.80/t milled
- Grinding media represent approximately 23% of the total process operating cost at \$1.49/t milled

- Personnel costs represent approximately 10% of the total process operating cost at \$0.64/t milled
- The cost of the assay laboratory contract represents approximately 3% of the total process operating costs at \$0.21/t milled
- Power costs represent approximately 26% of the total process operating cost at \$1.65/t milled.

#### *General and Administrative Operating Costs*

G&A costs were developed from first principles and benchmarked against similar projects.

The camp and catering contract cost is based on 382 total employees on site at a rate of US\$60.99 per person per camp day.

Insurance, freight and logistics, and road, site and power line maintenance were provided by IAMGOLD based on benchmarking with their operations and similar projects.

Freight for components other than bulk materials were incorporated into bulk consumables costs (e.g. fuel, reagents, grinding media).

Costs for electrical power loads for the camp and administrative facilities were developed from a power usage estimate developed by Wood.

General and administrative costs over the LOM are estimated to average \$1.47/t of processed ore.

#### *Reclamation and Closure Costs*

Reclamation and closure costs are estimated to total \$63 M, distributed annually from early in the mine life until post-closure. This is based on a detailed closure cost estimate prepared by SLR Consulting Canada Ltd., adjusted to include an allowance for security bond fees and a credit at the end of mine life to account for the estimated salvage value of equipment and materials.

#### *Operating Cost Summary*

Total operating costs for the Extended Case over the LOM are estimated to be \$3,441 M (Table 24-11).

**Table 24-11: Extended Case Total Operating Costs over Life of Project**

| Cost Area        | Total, US\$ M | Percent of Total |
|------------------|---------------|------------------|
| Mining operating | 1,627         | 47               |
| Processing       | 1,472         | 43               |
| G&A              | 342           | 10               |
| <b>Total</b>     | <b>3,441</b>  | <b>100</b>       |

Mining and processing costs represent 47% and 43% of this total, respectively. Average operating costs are estimated at \$14.77/t of processed ore, as summarized in Table 24-12. Operating cost estimates exclude any allowances for contingencies.

**Comments**

The construction capital cost for the Extended Case is estimated to be \$1,236 M, inclusive of allowances for Owner's costs and contingency of \$27 M and \$100 M, respectively. Additional indirect costs for Operational Readiness and other owner's fees totalling \$45 M result in a total initial capital cost of \$1,281 M.

Some of the larger capital expenditures are amenable to capital financing. Capital leases of mining equipment reduce the capital cost by approximately \$134 M, resulting in a total construction capital of \$1,101 M and a total initial capital cost of \$1,147 M. Total operating costs over the Extended Case LOM are estimated to be \$3,441 M. Average operating costs are estimated at \$14.77/t of processed ore.

**24.1.23 Economic Analysis**

**Forward-looking Information**

The results of the Extended Case economic analysis represent forward-looking information that is subject to a number of known and unknown risks, uncertainties and other factors that may cause actual results to differ materially from those presented here. Forward-looking statements in this Report include, but are not limited to, statements with respect to future gold prices, the estimation of Mineral Resources and Mineral Reserves, the estimated mine production and gold recovered, the estimated capital and operating costs, and the estimated cash flows generated from the planned mine production.

**Table 24-12: Extended Case Average Unit Operating Costs**

| Cost Area    | US\$/t of processed ore |
|--------------|-------------------------|
| Mining       | 6.98                    |
| Processing   | 6.32                    |
| G&A          | 1.47                    |
| <b>Total</b> | <b>14.77</b>            |

Actual results may be affected by:

- Potential delays in the issuance of permits and any conditions imposed with the permits that are granted
- Differences in estimated initial capital costs and development time from what has been assumed in the 2018 Feasibility Study
- Unexpected variations in quantity of ore, grade or recovery rates, or presence of deleterious elements that would affect the process plant or waste disposal
- Unexpected geotechnical and hydrogeological conditions from what was assumed in the mine designs, including water management during construction, mine operations, and post mine closure
- Differences in the timing and amount of estimated future gold production, costs of future gold production, sustaining capital requirements, future operating costs, assumed currency exchange rate, requirements for additional capital, unexpected failure of plant, equipment or processes not operating as anticipated
- Changes in government regulation of mining operations, environment, and taxes
- Unexpected social risks, higher closure costs and unanticipated closure requirements, mineral title disputes or delays to obtaining surface access to the property.

**Valuation Methodology**

The Extended Case has been evaluated using DCF analysis. Cash inflows consist of annual revenue projections. Cash outflows consist of initial capital expenditures, sustaining capital costs, operating costs, taxes, royalties, and commitments to other stakeholders. These are subtracted from revenues to arrive at the annual cash flow projections. Cash flows are taken to occur at the end of each period.

To reflect the time value of money, NCF projections are discounted back to the Project valuation date using the yearly discount rate. The discount rate appropriate to a specific project can depend on many factors, including the type of commodity, the cost of capital to the Extended Case, and the level of Extended Case risks (e.g. market risk, environmental risk, technical risk and political risk) in comparison to the expected return from the equity and money markets. The base case discount rate for the Extended Case in the 2018 Feasibility Study is 5%, which has been commonly used to evaluate gold projects. The discounted present values of the cash flows are summed to arrive at the Extended Case's NPV.

In addition to the NPV, the IRR and the payback period are also calculated. The IRR is defined as the discount rate that results in an NPV equal to zero. The payback period is calculated as the time required to achieve positive cumulative cash flow for the Extended Case from the start of production.

#### **Basis of Analysis**

The financial analysis was based on:

- Royalty rates as described in Section 4
- The Mineral Reserves outlined in Section 15
- Mill feed treated in the process plant as described in Section 24.1.18
- Support from the projected infrastructure requirements outlined in Section 24.1.19
- Doré marketing assumptions described in Section 24.1.20
- Permitting, social and environmental regime discussions in Section 24.1.21
- Capital and operating cost estimates detailed in Section 24.1.22.

#### *Metal Pricing*

For the purposes of the financial analysis, the assumed gold price for the Extended Case LOM is US\$1,250/oz. The gold price was what Wood considers the industry consensus price forecast of the following sources: bank analysts' long-term forecasts; historical metal price averages; and prices used in recent publicly-disclosed comparable studies.

#### *Exchange Rate*

For the purpose of the Extended Case capital cost estimate, the operating cost estimate, and financial analysis, the assumed exchange rate for the LOM is US\$1.00:CS 1.30. The exchange rate was what Wood considers to be an industry consensus on the forecast of the following sources: bank analysts' long-term forecasts; historical exchange rate averages; and prices used in recent publicly-disclosed comparable studies.

#### *Transport, Insurance and Refining*

The 2018 Feasibility Study assumes that the doré will be picked up from site by the Mint and transported to their refinery in Ottawa. An indicative quote for transportation, insurance and refining was received from the Mint estimating costs at approximately \$1.75/oz Au, which has been used in the cashflow model for the Extended Case.

#### *Working Capital*

Working capital modelling cash outflow and inflows are included in the Extended Case model. The calculations are based on the assumptions that accounts payable will be paid within 45 days and accounts receivable received within 30 days, with an additional allowance for \$15 M in materials and supplies inventory, \$2 M in reagents inventory, and \$1.7 M in gold inventory held in carbon within the process plant. Initial working capital is estimated at approximately \$33 M in the first year of production.

#### **Royalties and Owner's Other Costs**

The royalty rates are presented in Section 4 of the Report. Royalties range from 0% to a maximum of 1.5% depending on the source of the ore within the pit. They amount to approximately \$76 M over the life of the Extended Case.

Owner's other costs consist of allowances to meet commitments to stakeholders. They amount to approximately \$270 M over the life of the Extended Case.

#### **Tax**

Taxation considerations included in the financial model comprise Provincial and Federal corporate income taxes and Ontario Mineral taxes. The following discussion outlines the main Federal and Provincial taxation considerations used in the economic model as provided by IAMGOLD:

- On a non-discounted basis LOM, the model provides for \$614 M of Federal and Provincial income taxes, and \$252 M of Ontario Mining Tax
- Income tax is payable to the Federal government of Canada, pursuant to the Income Tax Act (Canada). The applicable Federal income tax rate is 15% of taxable income
- Income tax is payable to the Province of Ontario at a tax rate of 11.5% of taxable income, which includes the manufacturing and processing tax credit. Ontario income tax is administered by the Canada Revenue Agency and, since 2008, Ontario's definition of taxable income is fully harmonized with the Federal definition
- Ontario Mining Tax (OMT) is levied at a rate of 10% on taxable profit in excess of C\$500,000 derived from mining operations in Ontario. OMT is deductible in calculating Federal income tax and a similar resource allowance is available as a deduction in calculating Ontario income tax. OMT is not affected by harmonization; accordingly, it is administered Provincially by Ontario.

While the pre-tax results of the Côté Gold joint venture will be reported for income and mining tax purposes on a 70/30 basis, the after-tax results in the economic analysis should not be viewed on the basis of a 70/30 relationship. That is, differences in the underlying tax attributes of each of the corporate co-venturers will produce actual tax results for each co-venturer that differ from a simple 70/30 split of the total tax expenses generated in the model.

The tax calculations are underpinned by the following key assumptions:

- The Project is held 100% by two corporate entities and the after-tax analysis does not attempt to reflect any future changes in those corporate structures or property ownership
- Payments projected relating to royalties, as applicable, are allowed as a deduction for Federal and Provincial income tax purposes, but are added back for Provincial mining tax purposes
- Actual taxes payable will be affected by corporate activities, and future tax benefits have not been considered.

**Financing**

The Extended Case model does not include any costs associated with financing other than the capital leases as presented in Section 24.1.22.

**Inflation**

There is no adjustment for inflation in the Extended Case financial model; all cash flows are based on 2018 US dollars.

**Economic Analysis Results**

Two scenarios for the Extended Case economic analysis have been considered, one which includes the leasing of mining equipment, and one that does not. The results of each are presented in the following sections.

*Results Without Lease of Mining Equipment*

Table 24-13 summarizes the Extended Case financial results with the base case NPV 5% highlighted in grey for the scenario that does not consider leasing of mining equipment. The after-tax NPV 5% is \$898 M. The after-tax IRR is 14.7%. The after-tax payback of the initial capital investment is estimated to occur 4.4 years after the start of production.

Table 24-14 shows the Extended Case cashflow broken out on an annualized basis. Calendar years are shown for illustrative purposes only and may change.

The LOM total cash cost is \$606/oz Au derived from mining, processing, on-site G&A, refining, doré transportation and insurance, royalties, other owner's costs and Provincial mining tax costs per ounce payable. The AISC is \$681/oz Au derived from total cash costs plus sustaining capital (including interest on capital leases), and reclamation and remediation costs. Note that AISC as reported is based solely on costs associated with the Extended Case and does not take into account any other corporate costs not directly associated with this Extended Case.

**Table 24-13: Summary-Extended Case Financial Results Without Mine Equipment Leasing**

| Parameter            | Unit  | Pre-Tax | After-Tax |
|----------------------|-------|---------|-----------|
| Cumulative cash flow | US\$M | 2,780   | 1,906     |
| NPV 5%               | US\$M | 1,400   | 898       |
| NPV 8%               | US\$M | 891     | 520       |
| NPV 10%              | US\$M | 635     | 328       |
| Payback period*      | year  | 4.2     | 4.4       |
| IRR                  | %     | 18.0    | 14.7      |

Note: base case NPV is highlighted. \* Payback period is after two years of pre-production

Table 24-14: Financial Model Without Mining Equipment Leasing

| CASHFLOW MODEL  |          |           |           |           |             |             |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
|---|----------|-----------|-----------|-----------|-------------|-------------|-----------|-----------|-----------|---------|---------|---------|---------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Project Time line                                     |          |           |           |           |             |             |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Year  | 2019     | 2020      | 2021      | 2022      | 2023        | 2024        | 2025      | 2026      | 2027      | 2028    | 2029    | 2030    | 2031    | 2032     | 2033      | 2034      | 2035      | 2036      | 2037      | 2038      | 2039      |
| Project time (year)                                   | -2       | -1        | 1         | 2         | 3           | 4           | 5         | 6         | 7         | 8       | 9       | 10      | 11      | 12       | 13        | 14        | 15        | 16        | 17        | 18        | 19        |
| Production  | 0        | 0         | 1         | 1         | 1           | 1           | 1         | 1         | 1         | 1       | 1       | 1       | 1       | 1        | 1         | 1         | 1         | 1         | 0         | 0         | 0         |
| UNITS   |          | PV        | LOM       |           |             |             |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| <b>Metal Prices</b>                                   |          |           |           |           |             |             |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Gold  | US\$/oz  | 1,250     | 1,250     | 1,250     | 1,250       | 1,250       | 1,250     | 1,250     | 1,250     | 1,250   | 1,250   | 1,250   | 1,250   | 1,250    | 1,250     | 1,250     | 1,250     | 1,250     | 1,250     | 1,250     | 1,250     |
| <b>Ore mined</b>                                      |          |           |           |           |             |             |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Ore   | kmt      | 243,570   | 165       | 4,573     | 14,145      | 17,145      | 20,840    | 21,926    | 22,265    | 13,486  | 11,105  | 13,597  | 16,214  | 8,771    | 15,415    | 17,367    | 13,259    | 13,140    | 13,140    | 7,016     |           |
| <b>Waste Mined</b>                                    |          |           |           |           |             |             |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Waste   | kmt      | 600,974   | 7,569     | 33,445    | 50,033      | 49,914      | 49,160    | 48,074    | 47,735    | 53,096  | 53,541  | 53,181  | 51,696  | 39,827   | 22,625    | 19,641    | 8,607     | 6,337     | 4,044     | 2,449     |           |
| <b>Mill Feed</b>                                      |          |           |           |           |             |             |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Mill Direct Feed                                      | kmt      | 174,071   |           | 6,045     | 10,199      | 13,140      | 13,140    | 13,140    | 9,723     | 7,786   | 9,918   | 11,050  | 7,214   | 13,140   | 13,140    | 13,140    | 13,140    | 13,140    | 7,016     |           |           |
| Stockpile Mill Feed                                   | kmt      | 58,929    |           | 5,102     | 2,941       |             |           |           | 3,417     | 5,354   | 3,222   | 2,090   | 5,926   |          |           |           |           | 6,124     | 13,140    | 11,613    |           |
| <b>REVENUES</b>                                       |          |           |           |           |             |             |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| <b>Dore</b>   |          |           |           |           |             |             |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Au recovered  | koz      | 6,687     |           | 394       | 439         | 503         | 567       | 532       | 363       | 321     | 349     | 332     | 300     | 443      | 438       | 378       | 379       | 365       | 273       | 167       | 142       |
| Au payable  | koz      | 6,686     |           | 393       | 439         | 503         | 567       | 532       | 363       | 321     | 349     | 332     | 300     | 443      | 438       | 378       | 379       | 365       | 273       | 167       | 142       |
| Au value  | 000 US\$ | 5,418,888 | 8,357,174 | 490,720   | 548,715     | 629,014     | 708,988   | 665,337   | 453,967   | 401,310 | 436,014 | 415,178 | 374,391 | 553,862  | 548,093   | 473,093   | 473,889   | 456,367   | 341,386   | 209,357   | 177,493   |
| <b>Transport and insurance</b>                        |          |           |           |           |             |             |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Dore refining, transport, insurance and other charges | 000 US\$ | 7,589     | 11,702    | 689       | 768         | 881         | 993       | 931       | 636       | 562     | 610     | 581     | 524     | 775      | 767       | 662       | 663       | 639       | 478       | 293       | 248       |
| Total Refining Transport and Insurance                | 000 US\$ | 7,589     | 11,702    | 689       | 768         | 881         | 993       | 931       | 636       | 562     | 610     | 581     | 524     | 775      | 767       | 662       | 663       | 639       | 478       | 293       | 248       |
| <b>NSR</b>  |          |           |           |           |             |             |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Dore  | 000 US\$ | 5,411,299 | 8,345,472 | 490,030   | 547,946     | 628,133     | 707,996   | 664,405   | 453,331   | 400,748 | 435,404 | 414,597 | 373,867 | 553,086  | 547,326   | 472,431   | 473,226   | 455,728   | 340,908   | 209,064   | 177,244   |
| Total   | 000 US\$ | 5,411,299 | 8,345,472 | 490,030   | 547,946     | 628,133     | 707,996   | 664,405   | 453,331   | 400,748 | 435,404 | 414,597 | 373,867 | 553,086  | 547,326   | 472,431   | 473,226   | 455,728   | 340,908   | 209,064   | 177,244   |
| <b>OPERATING COSTS</b>                                |          |           |           |           |             |             |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| <b>ONSITE</b>   |          |           |           |           |             |             |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Mining  | 000 US\$ | 1,085,596 | 1,627,329 | 99,173    | 108,743     | 127,456     | 116,846   | 123,268   | 139,286   | 117,027 | 113,749 | 119,640 | 111,018 | 91,424   | 86,152    | 68,346    | 61,099    | 58,388    | 45,858    | 20,193    | 19,662    |
| Process   | 000 US\$ | 910,772   | 1,471,906 | 76,622    | 82,640      | 82,640      | 82,640    | 82,640    | 82,640    | 82,640  | 82,640  | 82,640  | 82,640  | 82,640   | 82,640    | 82,640    | 82,640    | 82,640    | 82,640    | 82,640    | 73,036    |
| G&A   | 000 US\$ | 210,981   | 341,677   | 16,346    | 19,269      | 19,269      | 19,269    | 19,269    | 19,269    | 19,269  | 19,269  | 19,269  | 19,269  | 19,269   | 19,269    | 19,269    | 19,269    | 19,269    | 19,269    | 19,269    | 17,029    |
| Total onsite operating cost                           | 000 US\$ | 2,207,349 | 3,440,912 | 192,141   | 210,652     | 229,366     | 218,755   | 225,177   | 241,196   | 218,936 | 215,659 | 221,549 | 212,927 | 193,334  | 188,062   | 170,255   | 163,008   | 160,298   | 147,767   | 122,102   | 109,728   |
| <b>OPERATING COSTS OFF SITE</b>                       |          |           |           |           |             |             |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| <b>Royalties and Owner's Other Costs</b>              |          |           |           |           |             |             |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Royalty   | 000 US\$ | 49,479    | 76,480    | 4,119     | 5,160       | 6,031       | 6,791     | 6,285     | 3,478     | 3,251   | 4,038   | 3,709   | 3,049   | 5,271    | 5,168     | 4,532     | 4,540     | 4,530     | 3,345     | 1,756     | 1,419     |
| Owner's Other Costs                                   | 000 US\$ | 175,451   | 269,997   | 16,194    | 17,714      | 23,737      | 30,320    | 26,733    | 8,184     | 6,510   | 7,849   | 7,813   | 6,465   | 20,285   | 21,718    | 18,332    | 18,659    | 18,159    | 11,423    | 5,070     | 4,831     |
| Total royalties and owner's other costs               | 000 US\$ | 224,930   | 346,477   | 20,313    | 22,874      | 29,768      | 37,111    | 33,018    | 11,662    | 9,761   | 11,887  | 11,522  | 9,514   | 25,556   | 26,886    | 22,864    | 23,208    | 22,689    | 14,767    | 6,826     | 6,250     |
| <b>OPERATING PROFIT</b>                               |          |           |           |           |             |             |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Operating profit                                      | 000 US\$ | 2,979,020 | 4,558,083 | 277,576   | 314,420     | 369,000     | 452,130   | 406,211   | 200,474   | 172,051 | 207,858 | 181,526 | 151,427 | 334,197  | 332,378   | 279,312   | 287,009   | 272,741   | 178,373   | 80,135    | 61,266    |
| Taxes   | 000 US\$ | 502,173   | 873,911   | -         | -           | -           | 60,680    | 91,086    | 35,782    | 31,603  | 48,251  | 43,345  | 35,175  | 97,765   | 98,672    | 81,243    | 85,122    | 79,843    | 51,594    | 18,769    | 14,982    |
| <b>CAPITAL COSTS</b>                                  |          |           |           |           |             |             |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Total Initial Capital                                 | 000 US\$ | 1,241,630 | 1,281,382 | 446,594   | 834,789     |             |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Sustaining Capital                                    | 000 US\$ | 293,910   | 433,432   | 40,680    | 35,037      | 35,467      | 45,370    | 18,807    | 19,501    | 20,064  | 28,957  | 37,694  | 23,546  | 25,293   | 27,237    | 23,926    | 26,393    | 25,441    | 19        |           |           |
| Closure Costs   | 000 US\$ | 26,666    | 62,932    | 16,194    | 73          | 146         | 576       | 285       | 358       | 467     | 845     | 927     | 636     | 2,179    | 1,126     | 3,510     | 848       | 3,966     | 967       | 4,058     | 1,229     |
| Total capital costs                                   | 000 US\$ | 1,562,206 | 1,777,766 | 446,594   | 834,789     | 40,680      | 35,110    | 35,613    | 45,946    | 19,092  | 19,859  | 20,531  | 29,802  | 38,621   | 24,182    | 27,472    | 28,362    | 27,436    | 27,241    | 29,407    | 986       |
| <b>Working Capital</b>                                |          |           |           |           |             |             |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Accounts receivable yearly                            | 000 US\$ | 8,345,472 |           | 490,030   | 547,946     | 628,133     | 707,996   | 664,405   | 453,331   | 400,748 | 435,404 | 414,597 | 373,867 | 553,086  | 547,326   | 472,431   | 473,226   | 455,728   | 340,908   | 209,064   | 177,244   |
| Accounts receivable adjusted                          | 000 US\$ | 685,929   |           | 40,276    | 45,037      | 51,627      | 58,191    | 54,609    | 37,260    | 32,938  | 35,787  | 34,076  | 30,729  | 45,459   | 44,986    | 38,830    | 38,895    | 37,457    | 28,020    | 17,183    | 14,568    |
| Change in accounts receivable                         | 000 US\$ |           |           | 40,276    | 4,760       | 6,591       | 6,564     | (3,583)   | (17,349)  | (4,322) | 2,848   | (1,710) | (3,348) | 14,730   | (473)     | (6,156)   | 65        | (1,438)   | (9,437)   | (10,837)  | (2,615)   |
| Accounts payable yearly                               | 000 US\$ | 3,799,091 |           | 213,144   | 234,294     | 260,014     | 256,859   | 259,126   | 253,493   | 229,259 | 228,156 | 233,653 | 222,965 | 219,665  | 215,715   | 193,781   | 186,880   | 183,626   | 163,012   | 129,221   | 116,227   |
| Accounts payable adjusted                             | 000 US\$ | 468,381   |           | 26,278    | 28,886      | 32,057      | 31,668    | 31,947    | 31,253    | 28,265  | 28,129  | 28,807  | 27,489  | 27,082   | 26,595    | 23,891    | 23,040    | 22,639    | 20,097    | 15,931    | 14,329    |
| Change in account payable                             | 000 US\$ |           |           | 26,278    | 2,608       | 3,171       | (389)     | 280       | (694)     | (2,988) | (136)   | 678     | (1,318) | (407)    | (487)     | (2,704)   | (851)     | (401)     | (2,541)   | (4,166)   | (14,329)  |
| Working inventory                                     | 000 US\$ |           |           | 18,905    | 18,905      | 18,905      | 18,905    | 18,905    | 18,905    | 18,905  | 18,905  | 18,905  | 18,905  | 18,905   | 18,905    | 18,905    | 18,905    | 18,905    | 18,905    | 18,905    | 18,905    |
| Change in working inventory                           | 000 US\$ |           |           | 18,905    | 18,905      | 18,905      | 18,905    | 18,905    | 18,905    | 18,905  | 18,905  | 18,905  | 18,905  | 18,905   | 18,905    | 18,905    | 18,905    | 18,905    | 18,905    | 18,905    | (18,905)  |
| Change in working capital                             | 000 US\$ | (16,878)  | 0         | (32,904)  | (2,153)     | (3,420)     | (6,953)   | 3,862     | 16,654    | 1,334   | (2,984) | 2,388   | 2,030   | (15,137) | (13)      | 3,452     | (916)     | 1,037     | 6,896     | 6,671     | 1,013     |
| <b>VALUATION INDICATORS</b>                           |          |           |           |           |             |             |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Discount factor                                       |          | 1.00      | 0.95      | 0.91      | 0.86        | 0.82        | 0.78      | 0.75      | 0.71      | 0.68    | 0.64    | 0.61    | 0.58    | 0.56     | 0.53      | 0.51      | 0.48      | 0.46      | 0.44      | 0.42      | 0.40      |
| <b>Pre Tax</b>  |          |           |           |           |             |             |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Cash flow   | 000 US\$ | 1,399,936 | 2,780,317 | (446,594) | (834,789)   | 203,993     | 277,158   | 329,967   | 399,230   | 390,981 | 197,269 | 152,854 | 175,072 | 145,293  | 129,275   | 291,588   | 304,002   | 255,327   | 258,852   | 244,371   | 184,283   |
| Cumulative cashflow                                   | 000 US\$ |           |           | (446,594) | (1,281,382) | (1,077,390) | (800,232) | (470,264) | (171,034) | 319,947 | 517,216 | 670,070 | 845,141 | 990,434  | 1,119,709 | 1,411,297 | 1,715,299 | 1,970,626 | 2,229,478 | 2,473,849 | 2,658,132 |
| NPV 5%  | 000 US\$ |           | 1,399,936 |           |             |             |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Payback period  | Years    |           | 4.2       | 1.0       | 1.0         | 1.0         | 1.0       | 1.0       | 0.2       |         |         |         |         |          |           |           |           |           |           |           |           |
| IRR before tax  | %        |           | 18.0%     |           |             |             |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| <b>After Tax</b>                                      |          |           |           |           |             |             |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Cash flow   | 000 US\$ | 897,763   | 1,906,406 | (446,594) | (834,789)   | 203,993     | 277,158   | 329,967   | 338,550   | 299,894 | 161,487 | 121,251 | 126,820 | 101,948  | 94,100    | 193,823   | 205,330   | 174,084   | 173,730   | 164,528   |           |
| Cumulative cashflow                                   | 000 US\$ |           |           | (446,594) | (1,281,382) | (1,077,390) | (800,232) | (470,264) | (131,714) | 168,180 | 329,667 | 450,919 | 577,739 | 679,687  | 773,787   | 967,610   | 1,172,940 | 1,347,025 | 1,520,755 | 1,685,283 |           |
| NPV 5%  | 000 US\$ |           | 897,763   |           |             |             |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Payback period  | Years    |           | 4.4       | 1.0       | 1.0         | 1.0         | 1.0       | 1.0       | 0.4       |         |         |         |         |          |           |           |           |           |           |           |           |
| IRR after tax   | %        |           | 14.7%     |           |             |             |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |

#### *Results with Lease of Mining Equipment*

Table 24-15 summarizes the financial results for the Extended Case with the base case NPV 5% highlighted in grey for the scenario that does consider the leasing of mining equipment. The after-tax NPV 5% is \$905 M. The after-tax IRR is 15.4%. The after-tax payback of the initial capital investment is estimated to occur 4.4 years after the start of production.

Table 24-16 shows the cashflow broken out on an annualized basis. Calendar years are shown for illustrative purposes only and may change.

The LOM total cash cost is \$606/oz Au derived from mining, processing, on-site G&A, refining, doré transportation and insurance, royalties, Owner's other costs and Provincial mining tax costs per ounce payable. The AISC is \$703/oz Au derived from total cash costs plus sustaining capital (including interest on capital leases), and reclamation and remediation costs. Note that AISC as reported is based solely on costs associated with the Extended Case and does not take into account any other corporate costs not directly associated with this Extended Case.

#### **Sensitivity Analysis**

A sensitivity analysis for the Extended Case was performed on the base case NPV after taxes to examine the sensitivity to gold price, operating costs, capital costs (including sustaining), and US\$/C\$ exchange rate. The results of the sensitivity analysis are shown in Figure 24-12 for the after-tax scenario.

In the pre-tax and after-tax evaluations, the Extended Case is most sensitive to changes in gold price and gold head grade, and less sensitive to changes in exchange rate, operating costs and capital costs.

#### **Comments**

Under the assumptions presented in this Report for the Extended Case, the Extended Case demonstrates positive economics for both the scenario that does not consider the lease of mining equipment, as well as the scenario that does consider the leasing of mining equipment; however, the latter scenario resulted in the most positive results from an economic perspective. The after-tax NPV at a 5% discount rate for the Extended Case is \$110 M more than that of the Base Case.

**Table 24-15: Summary-Extended Case Financial Results With Leasing of Mining Equipment**

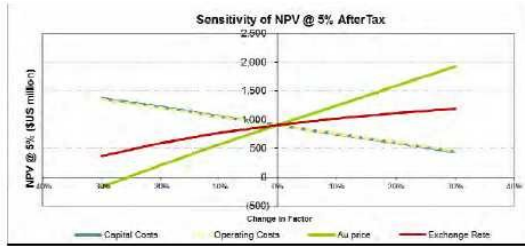
| Parameter            | Units | Pre-Tax | After-Tax |
|----------------------|-------|---------|-----------|
| Cumulative cash flow | US\$M | 2,759   | 1,893     |
| NPV 5%               | US\$M | 1,404   | 905       |
| NPV 8%               | US\$M | 907     | 538       |
| NPV 10%              | US\$M | 656     | 351       |
| Payback period*      | year  | 4.1     | 4.4       |
| IRR                  | %     | 18.7    | 15.4      |

Note: base case NPV is highlighted. \* Payback period is after two years of pre-production

Table 24-16: Financial Model With Leasing of Mining Equipment

| CASHFLOW MODEL                          |          |           |           |             |             |           |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
|---|----------|-----------|-----------|-------------|-------------|-----------|-----------|-----------|-----------|---------|---------|---------|---------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Project Time line                       |          |           |           |             |             |           |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Year                                    | 2019     | 2020      | 2021      | 2022        | 2023        | 2024      | 2025      | 2026      | 2027      | 2028    | 2029    | 2030    | 2031    | 2032     | 2033      | 2034      | 2035      | 2036      | 2037      | 2038      | 2039      |
| Project time (year)                     | -2       | -1        | 1         | 2           | 3           | 4         | 5         | 6         | 7         | 8       | 9       | 10      | 11      | 12       | 13        | 14        | 15        | 16        | 17        | 18        | 19        |
| Production                              | 0        | 0         | 1         | 1           | 1           | 1         | 1         | 1         | 1         | 1       | 1       | 1       | 1       | 1        | 1         | 1         | 1         | 1         | 0         | 0         | 0         |
| UNITS                                   |          | PV        | LOM       |             |             |           |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Metal Prices                            |          |           |           |             |             |           |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Gold                                    | US\$/oz  | 1,250     | 1,250     | 1,250       | 1,250       | 1,250     | 1,250     | 1,250     | 1,250     | 1,250   | 1,250   | 1,250   | 1,250   | 1,250    | 1,250     | 1,250     | 1,250     | 1,250     | 1,250     | 1,250     | 1,250     |
| Ore mined                               |          |           |           |             |             |           |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Ore                                     | kmt      | 243,570   | 165       | 4,573       | 14,145      | 17,145    | 20,840    | 21,926    | 22,265    | 13,486  | 11,105  | 13,597  | 16,214  | 8,771    | 15,415    | 17,367    | 13,259    | 13,140    | 13,140    | 7,016     |           |
| Waste Mined                             |          |           |           |             |             |           |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Waste                                   | kmt      | 600,974   | 7,569     | 33,445      | 50,033      | 49,914    | 49,160    | 48,074    | 47,735    | 53,096  | 53,541  | 53,181  | 51,696  | 39,827   | 22,625    | 19,641    | 8,607     | 6,337     | 4,044     | 2,449     |           |
| Mill Feed                               |          |           |           |             |             |           |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Mill Direct Feed                        | kmt      | 174,071   |           | 6,045       | 10,199      | 13,140    | 13,140    | 13,140    | 9,723     | 7,786   | 9,918   | 11,050  | 7,214   | 13,140   | 13,140    | 13,140    | 13,140    | 13,140    | 7,016     |           |           |
| Stockpile Mill Feed                     | kmt      | 58,929    |           | 5,102       | 2,941       |           |           |           | 3,417     | 5,354   | 3,222   | 2,090   | 5,926   |          |           |           |           | 6,124     | 13,140    | 11,613    |           |
| REVENUES                                |          |           |           |             |             |           |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Dore                                    |          |           |           |             |             |           |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Au recovered                            | koz      | 6,687     |           | 394         | 439         | 503       | 567       | 532       | 363       | 321     | 349     | 332     | 300     | 443      | 438       | 378       | 379       | 365       | 273       | 167       | 142       |
| Au payable                              | koz      | 6,686     |           | 393         | 439         | 503       | 567       | 532       | 363       | 321     | 349     | 332     | 300     | 443      | 438       | 378       | 379       | 365       | 273       | 167       | 142       |
| Au value                                | 000 US\$ | 5,418,888 | 8,357,174 | 490,720     | 548,715     | 629,014   | 708,988   | 665,337   | 453,967   | 401,310 | 436,014 | 415,178 | 374,391 | 553,862  | 548,093   | 473,093   | 473,889   | 456,367   | 341,386   | 209,357   | 177,493   |
| Transport and insurance                 |          |           |           |             |             |           |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Dore refining,                          | 000 US\$ | 7,589     | 11,702    | 689         | 768         | 881       | 993       | 931       | 636       | 562     | 610     | 581     | 524     | 775      | 767       | 662       | 663       | 639       | 478       | 293       | 248       |
| Transport, insurance and other charges  | 000 US\$ | 7,589     | 11,702    | 689         | 768         | 881       | 993       | 931       | 636       | 562     | 610     | 581     | 524     | 775      | 767       | 662       | 663       | 639       | 478       | 293       | 248       |
| Total Refining                          | 000 US\$ | 7,589     | 11,702    | 689         | 768         | 881       | 993       | 931       | 636       | 562     | 610     | 581     | 524     | 775      | 767       | 662       | 663       | 639       | 478       | 293       | 248       |
| Transport and Insurance                 | 000 US\$ | 7,589     | 11,702    | 689         | 768         | 881       | 993       | 931       | 636       | 562     | 610     | 581     | 524     | 775      | 767       | 662       | 663       | 639       | 478       | 293       | 248       |
| NSR                                     |          |           |           |             |             |           |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Dore                                    | 000 US\$ | 5,411,299 | 8,345,472 | 490,030     | 547,946     | 628,133   | 707,996   | 664,405   | 453,331   | 400,748 | 435,404 | 414,597 | 373,867 | 553,086  | 547,326   | 472,431   | 473,226   | 455,728   | 340,908   | 209,064   | 177,244   |
| Total                                   | 000 US\$ | 5,411,299 | 8,345,472 | 490,030     | 547,946     | 628,133   | 707,996   | 664,405   | 453,331   | 400,748 | 435,404 | 414,597 | 373,867 | 553,086  | 547,326   | 472,431   | 473,226   | 455,728   | 340,908   | 209,064   | 177,244   |
| OPERATING COSTS                         |          |           |           |             |             |           |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| ONSITE                                  |          |           |           |             |             |           |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Mining                                  | 000 US\$ | 1,085,596 | 1,627,329 | 99,173      | 108,743     | 127,456   | 116,846   | 123,268   | 139,286   | 117,027 | 113,749 | 119,640 | 111,018 | 91,424   | 86,152    | 68,346    | 61,099    | 58,388    | 45,858    | 20,193    | 19,662    |
| Process                                 | 000 US\$ | 175,451   | 1,471,906 | 76,622      | 82,640      | 82,640    | 82,640    | 82,640    | 82,640    | 82,640  | 82,640  | 82,640  | 82,640  | 82,640   | 82,640    | 82,640    | 82,640    | 82,640    | 82,640    | 82,640    | 73,036    |
| G&A                                     | 000 US\$ | 210,981   | 341,677   | 16,346      | 19,269      | 19,269    | 19,269    | 19,269    | 19,269    | 19,269  | 19,269  | 19,269  | 19,269  | 19,269   | 19,269    | 19,269    | 19,269    | 19,269    | 19,269    | 19,269    | 17,029    |
| Total onsite operating cost             | 000 US\$ | 2,207,349 | 3,440,912 | 192,141     | 210,652     | 229,366   | 218,755   | 225,177   | 241,196   | 218,936 | 215,659 | 221,549 | 212,927 | 193,334  | 188,062   | 170,255   | 163,008   | 160,298   | 147,767   | 122,102   | 109,728   |
| OPERATING COSTS OFF SITE                |          |           |           |             |             |           |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Royalties and Owner's Other Costs       |          |           |           |             |             |           |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Royalty                                 | 000 US\$ | 49,479    | 76,480    | 4,119       | 5,160       | 6,031     | 6,791     | 6,285     | 3,478     | 3,251   | 4,038   | 3,709   | 3,049   | 5,271    | 5,168     | 4,532     | 4,549     | 4,530     | 3,345     | 1,756     | 1,419     |
| Owner's Other Costs                     | 000 US\$ | 175,451   | 289,997   | 16,194      | 17,714      | 23,737    | 30,320    | 26,733    | 8,184     | 6,510   | 7,849   | 7,813   | 6,465   | 20,285   | 21,718    | 18,332    | 18,659    | 18,159    | 11,423    | 5,070     | 4,831     |
| Total royalties and owner's other costs | 000 US\$ | 224,930   | 346,477   | 20,313      | 22,874      | 29,768    | 37,111    | 33,018    | 11,662    | 9,761   | 11,887  | 11,522  | 9,514   | 25,556   | 26,886    | 22,864    | 23,208    | 22,689    | 14,767    | 6,826     | 6,250     |
| OPERATING PROFIT                        |          |           |           |             |             |           |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Operating profit                        | 000 US\$ | 2,979,020 | 4,558,083 | 277,576     | 314,420     | 369,000   | 452,130   | 406,211   | 200,474   | 172,051 | 207,858 | 181,526 | 151,427 | 334,197  | 332,378   | 279,312   | 287,009   | 272,741   | 178,373   | 80,135    | 61,266    |
| Taxes                                   | 000 US\$ | 498,525   | 866,144   | -           | -           | 268       | 69,092    | 90,467    | 32,637    | 27,727  | 45,450  | 41,423  | 33,994  | 96,971   | 98,072    | 80,789    | 84,779    | 79,584    | 51,399    | 18,621    | 14,871    |
| CAPITAL COSTS                           |          |           |           |             |             |           |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Total Initial Capital                   | 000 US\$ | 1,113,548 | 1,146,896 | 446,594     | 700,302     |           |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Sustaining Capital                      | 000 US\$ | 418,016   | 589,383   | 66,105      | 59,647      | 59,262    | 68,350    | 40,972    | 38,338    | 38,203  | 28,957  | 37,694  | 23,546  | 25,293   | 27,237    | 23,926    | 26,393    | 25,441    | 19        |           |           |
| Closure Costs                           | 000 US\$ | 26,666    | 62,952    |             |             |           |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Total capital costs                     | 000 US\$ | 1,558,230 | 1,799,230 | 446,594     | 700,302     | 66,105    | 59,720    | 59,408    | 68,926    | 41,257  | 38,696  | 38,670  | 29,802  | 38,621   | 24,182    | 27,472    | 28,362    | 27,436    | 27,241    | 29,407    | 986       |
| Working Capital                         |          |           |           |             |             |           |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Accounts receivable yearly              | 000 US\$ | 8,345,472 |           | 490,030     | 547,946     | 628,133   | 707,996   | 664,405   | 453,331   | 400,748 | 435,404 | 414,597 | 373,867 | 553,086  | 547,326   | 472,431   | 473,226   | 455,728   | 340,908   | 209,064   | 177,244   |
| Accounts receivable adjusted            | 000 US\$ | 685,929   |           | 40,276      | 45,037      | 51,627    | 58,191    | 54,609    | 37,260    | 32,938  | 35,787  | 34,076  | 30,729  | 45,459   | 44,986    | 38,830    | 38,895    | 37,457    | 28,020    | 17,183    | 14,568    |
| Change in accounts receivable           | 000 US\$ |           |           | 40,276      | 4,760       | 6,591     | 6,564     | (3,583)   | (17,349)  | (4,322) | 2,848   | (1,710) | (3,348) | 14,730   | (473)     | (6,156)   | 65        | (1,438)   | (9,437)   | (10,837)  | (2,615)   |
| Accounts payable yearly                 | 000 US\$ | 3,799,091 |           | 213,144     | 234,294     | 260,014   | 256,859   | 259,126   | 253,493   | 229,259 | 228,156 | 233,653 | 222,965 | 219,665  | 215,715   | 193,781   | 186,880   | 183,626   | 163,012   | 129,221   | 116,227   |
| Accounts payable adjusted               | 000 US\$ | 468,381   |           | 26,278      | 28,886      | 32,057    | 31,668    | 31,947    | 31,253    | 28,265  | 28,129  | 28,807  | 27,489  | 27,082   | 26,595    | 23,891    | 23,040    | 22,639    | 20,097    | 15,931    | 14,329    |
| Change in account payable               | 000 US\$ |           |           | 26,278      | 2,608       | 3,171     | (389)     | 280       | (694)     | (2,988) | (136)   | 678     | (1,318) | (407)    | (487)     | (2,704)   | (851)     | (401)     | (2,541)   | (4,166)   | (14,329)  |
| Working inventory                       | 000 US\$ |           |           | 18,905      | 18,905      | 18,905    | 18,905    | 18,905    | 18,905    | 18,905  | 18,905  | 18,905  | 18,905  | 18,905   | 18,905    | 18,905    | 18,905    | 18,905    | 18,905    | 18,905    | 18,905    |
| Change in working inventory             | 000 US\$ |           |           | 18,905      | 18,905      | 18,905    | 18,905    | 18,905    | 18,905    | 18,905  | 18,905  | 18,905  | 18,905  | 18,905   | 18,905    | 18,905    | 18,905    | 18,905    | 18,905    | 18,905    | (18,905)  |
| Change in working capital               | 000 US\$ | (16,878)  | 0         | (32,904)    | (2,153)     | (3,420)   | (6,953)   | 3,862     | 16,654    | 1,334   | (2,984) | 2,388   | 2,030   | (15,137) | (13)      | 3,452     | (916)     | 1,037     | 6,896     | 6,671     | 1,013     |
| VALUATION INDICATORS                    |          |           |           |             |             |           |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Discount factor                         |          | 1.00      | 0.95      | 0.91        | 0.86        | 0.82      | 0.78      | 0.75      | 0.71      | 0.68    | 0.64    | 0.61    | 0.58    | 0.56     | 0.53      | 0.51      | 0.48      | 0.46      | 0.44      | 0.42      | 0.40      |
| Pre Tax                                 |          |           |           |             |             |           |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Cash flow                               | 000 US\$ | 1,403,912 | 2,758,853 | (446,594)   | (700,302)   | 178,567   | 252,547   | 306,172   | 376,251   | 368,816 | 178,432 | 134,716 | 175,072 | 145,293  | 129,275   | 291,588   | 304,002   | 255,327   | 258,852   | 244,371   | 184,283   |
| Cumulative cashflow                     | 000 US\$ |           |           | (1,146,896) | (446,594)   | (968,329) | (715,781) | (409,609) | (33,359)  | 335,458 | 513,890 | 648,606 | 823,677 | 968,970  | 1,098,245 | 1,389,833 | 1,693,835 | 1,949,162 | 2,208,014 | 2,452,385 | 2,636,668 |
| NPV 5% 000 US\$                         |          | 1,403,912 |           |             |             |           |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Payback period                          | Years    | 4.1       | 1.0       | 1.0         | 1.0         | 1.0       | 1.0       | 1.0       | 0.1       |         |         |         |         |          |           |           |           |           |           |           |           |
| IRR before tax                          | %        | 18.7%     |           |             |             |           |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| After Tax                               |          |           |           |             |             |           |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Cash flow                               | 000 US\$ | 905,387   | 1,892,709 | (446,594)   | (700,302)   | 178,567   | 252,547   | 305,904   | 307,158   | 278,349 | 145,795 | 106,988 | 129,622 | 103,869  | 95,282    | 194,616   | 205,930   | 174,538   | 174,073   | 164,787   | 132,884   |
| Cumulative cash flow                    | 000 US\$ |           |           | (446,594)   | (1,146,896) | (968,329) | (715,781) | (409,877) | (102,719) | 175,630 | 321,425 | 428,413 | 558,035 | 661,904  | 757,186   | 951,802   | 1,157,733 | 1,332,271 | 1,506,344 | 1,671,131 | 1,804,015 |
| NPV 5% 000 US\$                         |          | 905,387   |           |             |             |           |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |
| Payback period                          | Years    | 4.4       | 1.0       | 1.0         | 1.0         | 1.0       | 1.0       | 1.0       | 0.4       |         |         |         |         |          |           |           |           |           |           |           |           |
| IRR after tax                           | %        | 15.4%     |           |             |             |           |           |           |           |         |         |         |         |          |           |           |           |           |           |           |           |

Figure 24-12: Extended Case NPV Sensitivity Analysis



Note: Figure prepared by Wood, 2018. Gold head grade is not presented in the sensitivity graph because the impact of changes in the gold grade mirror the impact of changes in the gold price.

For the Extended Case scenario that does not consider leasing of mining equipment, the after-tax NPV at a 5% discount rate is \$898 M, the after-tax IRR is 14.7%, and the after-tax payback of the initial capital investment is estimated to occur 4.4 years after the start of production.

For the Extended Case scenario that does consider leasing of mining equipment, the after-tax NPV at a 5% discount rate is \$905 M, the after-tax IRR is 15.4%, and the after-tax payback of the initial capital investment is estimated to occur 4.4 years after the start of production.

In the pre-tax and after-tax evaluations, the Extended Case is most sensitive to changes in gold price and gold head grade, and less sensitive to changes in mill recovery and operating and capital costs from the factors that were evaluated.

#### 24.2 Risk Analysis

A risk analysis was undertaken at the completion of the 2018 Feasibility Study process to determine the major risks that might face the Project during construction and operations. About a hundred different risks were identified, assessed, and mitigation procedures developed. At the end of the risk assessment process, the risks summarized in Table 24-17 were the highest ranked.

Table 24-17: Risk Analysis Results

| Risk Area                                    | Potential Impact                                   | Completed or Proposed Mitigation  |
|--|--|---|
| Regulatory                                   | Permit grants delayed or declined                  | Ongoing discussions with stakeholders; EA has been approved; consultation to date with regulators has not revealed significant issues   |
| Safety, security environment, sustainability | TMF incident                                       | Inclusion of cyanide destruction circuit in ore process plant; closed-loop water management; modelling and simulation tests of waste rock and tailings: environmental test work shows low potential for acid generation and metals leaching<br>TMF design supports a higher potential hazard classification than required by MNRF guidelines, with the necessary dam safety requirements for this classification "built-in" to the design   |
|  | Unauthorized site access                           | Control gates on access roads   |
| Mineral Resources                            | Sampling does not match resource model predictions | Completed preliminary blast hole sampling test and heterogeneity study to guide sample preparation Good stockpile management practices; stockpile sequencing adequately modelled  |
| Process/metallurgy                           | Throughput rate assumptions not met                | Design assumptions verified with laboratories.<br>Design assumptions underwent simulation examinations; dynamic simulation with only major equipment confirm the surge capacity is sufficient to achieve 94% availability<br>Design factor for ancillary material handling equipment is 15% or more<br>Confirm the sizing of equipment with supplier during selection of equipment; include performance warranties for throughout of equipment during negotiation of long lead packages |
| Finance                                      | Budget estimates and projections not met           | Monthly and quarterly reviews of construction; process for approval of scope changes; contracts with suppliers with negotiated rates  |

## 25.0 INTERPRETATION AND CONCLUSIONS

### 25.1 Introduction

The QPs note the following interpretations and conclusions in their respective areas of expertise, based on the review of data available for this Report.

### 25.2 Mineral Tenure, Surface Rights, Water Rights, Royalties and Agreements

The mineral tenure package includes patented claims, mining leases, and a series of unpatented cell and boundary claims.

The claims package consists of a number of agreements with third parties; these third parties may retain an interest in some of the properties within the property package either by way of an actual property interest or through royalty interests.

IAMGOLD has applied for a number of mining leases. IAMGOLD is of the opinion that there are no risks associated with actual issuance of the Côté Gold Project mining leases, and that the issuance will occur when the ENDM clears the backlog arising from the freeze period imposed as part of the MLAS implementation.

### 25.3 Geology and Mineralization

Mineralization at the Côté Gold deposit is interpreted to be intrusion-related.

The geological setting, mineralization style, and structural and stratigraphic controls are sufficiently well understood to provide useful guides to exploration and Mineral Resource estimation.

### 25.4 Exploration, Drilling and Analytical Data Collection in Support of Mineral Resource Estimation

Exploration completed to date has resulted in delineation of the Côté Gold deposit and a number of exploration targets. Work conducted by IAMGOLD has included geological reconnaissance and mapping, outcrop stripping, geochemical surveys (TBA) and geophysical surveys (ground IP, pole-dipole IP/resistivity, and very-low frequency geophysical surveys).

A total of 770 drill holes (321,875) have been completed within the Côté Gold deposit area.

Drilling equipment and procedures since 2009 are consistent with industry standards at the time the drill programs were conducted and are acceptable to support Mineral Resource and Mineral Reserve estimation and mine planning at the Côté Gold deposit.

The quantity and quality of the lithological, recovery, collar and downhole survey data collected are consistent with industry standards and are adequate to support Mineral Resource and Mineral Reserve estimation and mine planning.

Drilling is normally oriented perpendicular to the strike of the mineralization. Depending on the dip of the drill hole and the dip of the mineralization, drill intercept widths are typically greater than true widths.

Sampling methods are consistent with industry practices and adequate to support Mineral Resource and Mineral Reserve estimation and mine planning.

Sample preparation and analytical procedures since 2009 are consistent with typical industry practices at the time the samples were prepared and are adequate to support Mineral Resource and Mineral Reserve estimation and mine planning.

Density determinations are acceptable to support Mineral Resource and Mineral Reserve estimation and mine planning.

Sample security procedures met industry standards at the time the samples were collected. Current sample storage procedures and storage areas are consistent with industry standards.

Data verification was undertaken in support of technical reports on the Project by external consultants RPA (2012, 2017), and Innovexplo (2014). These consultants concluded, at the time of their examination, that the data were suitable to support Mineral Resource estimation.

Wood conducted data verification in 2018. This program included site visits during which Wood personnel reviewed drilling, sampling, and QA/QC procedures, and inspected outcrops, drill core, core photos, core logs, and QA/QC reports and specific gravity measurement procedures. Wood personnel reviewed collar, down-hole, and assay data in the database for transcription and other errors. Blank and CRM data were also evaluated. In the opinion of the QP, sufficient verification checks have been undertaken on the databases to provide confidence that the current database is reasonably error free and may be used to support Mineral Resource and Mineral Reserve estimation, and mine planning.

**25.5 Metallurgical Testwork**

Metallurgical testwork completed since 2009 has included: comminution (Bond low-impact (crusher), rod mill and ball mill work indexes, Bond abrasion index, SMC, HPGR, piston press and Atwal) tests; gravity recoverable gold tests; cyanide leaching (effect of head grade, effect of grind, reagent usage, CIP modelling, cyanide destruction, solid-liquid separation and barren solution analysis) testwork; development of recovery projections; and review of potential for deleterious elements.

The mineralization is free-milling (non-refractory). A portion of the gold liberates during grinding and is amenable to gravity concentration and the response to gravity and leaching is relatively consistent across head grades. Therefore, the lower-grade gold material is expected to exhibit the same level of metal extraction.

Individual lithologies follow the general trends for grind size sensitivity and cyanide consumption. However, there is evidence of differences in free gold content. Overall recovery is estimated at 91.8% for the processing of 36,000 t/d using the proposed flowsheet. Silver content is consistently reported under 2 g/t. The testwork does not report on silver recovery.

Cyanide and lime consumptions are quite low in comparison to what is typically seen in the industry which reflects the lack of cyanicides and other cyanide consumers. Lime consumption is also positively impacted by the basic nature of the ore.

Metal dissolution during cyanide leaching was found to be low, and there are no obvious concerns with deleterious elements.

Overall metallurgical test results show that all the variability samples were readily amenable to gravity concentration and cyanide leach. Samples selected for metallurgical testing were representative of the various types and styles of mineralization within the different zones. Samples were selected from a range of locations within the deposit zones. Sufficient samples were taken so that tests were performed on sufficient sample mass.

**25.6 Mineral Resource Estimates**

Mineral Resource estimation was performed by Wood staff. The resource estimate database cut-off date is 7 June 2018.

The estimate is based on lithology, fault, and breccia interpretations performed by IAMGOLD staff and modelled using wireframes. Wood completed EDA analysis, evaluated grade capping/outlier restriction thresholds, reviewed and selected appropriate compositing intervals, assigned bulk density values, modelled variograms, completed block estimates using various ID estimates, validated the model, and assigned confidence categories. A conceptual pit shell was generated using Whittle software to constrain the Mineral Resource estimate.

Areas of uncertainty that could affect the Mineral Resource estimates include the following: effect of alteration or other geological attributes as local controls on mineralization; lithological interpretations on a local scale, including fault zone modelling, DIA dyke modelling, and discrimination of breccias; assumptions of density (specific gravity) based on a low number of samples for the size of the deposit; commodity pricing; metal recovery assumptions; assumptions as to operating costs used when assessing reasonable prospects of eventual economic extraction.

Wood is not aware of any environmental, permitting, legal, title, taxation, socioeconomic, marketing, political, or other relevant factors that could materially affect the Mineral Resource estimate that are not discussed in this Report.

Geological controls of the mineralization of the Côté Gold deposit are still uncertain at the local scale. At the time of the resource estimate, ICP data required to complete a geological control study were not yet available. This lack of information is mitigated by good drill coverage, the use of an alteration model as one classification criterion, and an open pit operation. The QP does not believe this local uncertainty would materially affect the Mineral Resource estimates.

#### 25.7 Mineral Reserve Estimates

Mineral Reserve estimation was performed by Wood staff. Optimization runs were carried out only using Measured and Indicated Mineral Resources to define the optimal mining limits. Inferred Mineral Resources were set to waste.

Mineral Reserves incorporate appropriate mining dilution and mining recovery estimations for the proposed open pit mining method.

Wood is not aware of any environmental, permitting, legal, title, taxation, socioeconomic, marketing, political, or other relevant factors that could materially affect the Mineral Reserve estimate that are not discussed in this Report.

**25.8 Mine Plan**

The Base Case mine plan is based on 203 Mt of the total 233 Mt of the Proven and Probable Mineral Reserves. This mine plan is used to support the permit application.

The TMF capacity restricts the mine throughput design. The mine will require one year of pre-production before the start of operations in the processing plant. Although the mine requires one year of pre-stripping, mining starts in Year -2 to provide material for the TMF construction. The pit design includes four phases to balance stripping requirements while meeting the concentrator requirements. Stockpiling of lower-grade material is incorporated into the plan.

Scheduling constraints (e.g. feeding lower grades during the first months of the plant ramp up schedule, the maximum stockpile capacity and reducing the mining capacity in later years during the LOM to balance the number of truck requirements per period) set the maximum mining capacity at 62 Mt per year and the maximum number of benches mined per year at eight in each phase. The schedule produced a LOM of 13 years with stockpile reclaim extending into Year 16. The amount of rehandled mill feed is 59 Mt, which requires a maximum stockpile capacity of 48 Mt.

The Base Case mine plan uses a truck-shovel operation. The required support equipment is adequately considered in the design.

**25.9 Recovery Plan**

The Base Case process design uses conventional technology and equipment. The process circuits will include primary crushing, secondary crushing, HPGR, ball milling, vertical milling, gravity concentration and cyanide leaching, followed by gold recovery by CIP, stripping and EW.

Tailings handling will incorporate cyanide destruction and tailings thickening.

Equipment proposed is appropriate for the type of flowsheet.

Reagent usage and storage requirements are typical of the industry and require no specialist handling.

Plant throughput will be 36,000 t/d and it is expected that a ramp-up period of 10 months will be required to reach the design throughput.

The ramp-up period will be highly influenced by design considerations, especially relating to the grinding circuit. Current practice incorporates learnings from HPGR circuits installed in the last decade. At some sites, these have experienced ramp-up periods as long as one year, although expansions at other sites have reached nameplate throughput in only six months. The processing plant is expected to take 10 months to reach the design throughput of 36,000 t/d. Reliable modelling, a focus on engineering design, and equipment selection will be key to achieving full production in the timeframe projected.

**25.10 Infrastructure**

Infrastructure required to support Base Case operations will include: the open pit; MRA; stockpiles; TMF and associated ponds; access and internal roads; powerlines and power distribution networks; watercourse realignments, diversion channels, dams and ponds; a New Lake to replace Côté Lake; process facilities; accommodation facilities; and mine support facilities including offices, workshops and warehouses.

Power supply is assumed to be provided via an upgraded existing transmission line from Timmins to Shining Tree Junction and a new 44 km-long 115 kV electrical power transmission line from Shining Tree Junction to the Project site.

**25.11 Environmental, Permitting and Social Considerations**

The project presented in the 2018 Feasibility Study has undergone optimizations since the 2015 EA, including: relocation of the TMF to minimize overprinting of fish-bearing waters, reduce the Project footprint, improve Project economics, reduce the need for watercourse realignments, and avoid effluent discharges to the Mesomikenda Lake watershed; smaller open pit; modifications to the process plant; reduction in transmission line voltage, and re-routing of the line. IAMGOLD is of the opinion that there are no new net effects arising from the 2018 Feasibility Study. On October 19, 2018, CEAA confirmed that the proposed Project changes are not considered new designated physical activities and therefore a new environmental assessment is not required. On November 9, 2018, MECP also confirmed their concurrence with the conclusion in the EER report, that the proposed changes to the undertaking result in no new net effects.

Baseline environmental and social studies have been completed.

The Base Case TMF design is conventional. Over the proposed LOM of 16 years, tailings production is approximately 13.1 Mt/a from nominal mill throughput of 36,000 t/d, except in Year 1 when it is about 11 Mt due to ramp-up. The TMF will store 203 Mt of tailings over the LOM.

A watercourse realignment system has been designed to redirect water around the mine facilities to enable excavation and dewatering of the open pit. A system of dams and ponds will be used to capture, store, and where required treat, water from various sources before the water is released to the environment after meeting discharge quality standards.

Site closure will be governed by the Ontario Mining Act and its associated regulations and codes. A Closure Plan was prepared in accordance with the legislative requirements in tandem with the 2018 Feasibility Study. The plan assumes conventional closure measures. MENDM requires financial assurance for implementation of the Closure Plan; these costs were included in the economic analysis.

Provincial environmental approvals that are expected to be required to construct and operate the Project have been identified. Three primary Provincial agencies will be involved with Project approvals/permits. An additional nine agencies may be involved with some permitting aspects.

IAMGOLD has actively engaged local and regional communities, as well as other stakeholders, to gain a better understanding of their issues and interests, identify potential partnerships, and build social acceptance for the Project. Stakeholders involved in Project consultations to date include those with a direct interest in the Project, and those who provided data for the baseline studies.

Based on consultation efforts since the start of the Project, and on groups expressing a continued interest, IAMGOLD has continued to engage identified Indigenous communities. IAMGOLD continues to negotiate Impact Benefit Agreements with Mattagami First Nation, Flying Post First Nation and the Métis Nation of Ontario (Region 3). A Process and Funding Agreement has been reached between IAMGOLD, Mattagami First Nation and Flying Post First Nation related to the communities' involvement through the review of the EER and required regulatory permit applications to advance the Project.

IAMGOLD plans to work with the community of Gogama and with the communities of Mattagami First Nation and Flying Post First Nation to collaborate on the development of a socio-economic management and monitoring plan to manage potential socioeconomic effects of the Project (both adverse and positive).

**25.12 Markets and Contracts**

IAMGOLD expects that the terms of any sales contracts for the Base Case would be typical of, and consistent with, standard industry practices, and would be similar to contracts for the supply of gold doré elsewhere in Canada. No sales contracts are in place for the Project.

The 2018 Feasibility Study assumes a gold price of US\$1,250/oz for the Base Case economic analysis. Wood considers this price to be an industry consensus long-term forecast price.

Wood reviewed the information provided by IAMGOLD on marketing and contracts. In the QP's opinion, the information provided is consistent with that available in the public domain, and can be used to support the Base Case financial analysis.

**25.13 Capital Cost Estimates**

The Base Case's construction capital cost is estimated to be \$1,236 M, inclusive of allowances for Owner's costs and contingency of \$27 M and \$100 M, respectively. Additional indirect costs for Operational Readiness and other owner's fees totalling \$45 M result in a total initial capital cost of \$1,281 M.

Some of the larger capital expenditures are amenable to capital financing. The majority of the initial mining fleet, having an approximate initial capital cost of \$142 M, can be financed using capital lease agreements with vendors. Inclusive of a down-payment of 0–15% of the purchase value paid at placement of order and interest payments incurred during the construction period, capital leases reduce the capital cost by approximately \$134 M, resulting in a total construction capital of \$1,101 M and a total initial capital cost of \$1,147 M net of mining equipment leasing.

Sustaining costs (including capital leases) and operating costs over the LOM are estimated to total \$527 M and \$2,947 M, respectively.

Reclamation and closure costs are estimated at \$63 M, net of security bond fees and an allowance for equipment and materials salvage at the end of mine life.

**25.14 Operating Cost Estimates**

Total operating costs over the Base Case LOM are estimated to be \$2,947 M. Mining and processing costs represent 46% and 44% of this total, respectively. Average operating costs are estimated at \$14.52/t of processed ore.

**25.15 Economic Analysis**

Two economic analysis scenarios for the Base Case have been considered, one which includes the leasing of mining equipment, and one that does not.

The Base Case scenario which does not assume that mining equipment will be leased has an after-tax NPV 5% of \$788 M. The after-tax IRR is 14.5%. The after-tax payback of the initial capital investment is estimated to occur 4.5 years after the start of production. The LOM total cash cost is \$594/oz Au derived from mining, processing, on-site G&A, refining, doré transportation and insurance, royalties, other owner's costs and Provincial mining tax costs per ounce payable. The AISC is \$668/oz Au derived from total cash costs plus sustaining capital (including interest on capital leases), and reclamation and remediation costs.

The Base Case scenario which includes the assumption that mining equipment will be leased has an after-tax NPV 5% of \$795 M. The after-tax IRR is 15.2%. The after-tax payback of the initial capital investment is estimated to occur 4.4 years after the start of production. The LOM total cash cost is \$594/oz Au derived from mining, processing, on-site G&A, refining, doré transportation and insurance, royalties, owner's other costs and Provincial mining tax costs per ounce payable. The AISC is \$694/oz Au derived from total cash costs plus sustaining capital (including interest on capital leases), and reclamation and remediation costs.

In the pre-tax and after-tax evaluations, the Base Case is most sensitive to changes in gold price and gold head grade, and less sensitive to changes in exchange rate, operating costs and capital costs.

**25.16 Other Relevant Data and Information**

The Extended Case mine plan is based on the total Proven and Probable Mineral Reserves of 233 Mt, adding 30 Mt of additional ore to the Base Case mine plan used to support the permit application. Much of the technical information for the Extended Case remains the same as that presented for the Base Case.

The Extended Case mine plan uses a conventional truck-shovel operation. The mine will require one year of preproduction before the start of operations in the processing plant. Although the mine requires one year of pre-stripping, mining starts in Year -2 to provide material for construction of the TMF. The deposit will be mined in four phases, included the ultimate pit limit. Stockpiling of lower-grade material is incorporated into the plan. Scheduling constraints (e.g. feeding lower grades during the first months of the plant ramp up schedule, the maximum stockpile capacity and reducing the mining capacity in later years during the LOM to balance the number of truck requirements per period) set the maximum mining capacity at 70 Mt per year and the maximum number of benches mined per year at eight in each phase. The LOM is 16 years with stockpile reclaim extending into Year 18. The amount of rehandled mill feed is 59 Mt, which requires a maximum stockpile capacity of 41 Mt. The mine plan uses a truck-shovel operation. The required support equipment is adequately considered in the design.

The Extended Case process design uses conventional technology and equipment. The process circuits will include primary crushing, secondary crushing, HPGR, ball milling, vertical milling, gravity concentration and cyanide leaching, followed by gold recovery by CIP, stripping and EW. Tailings handling will incorporate cyanide destruction and tailings thickening. Equipment proposed is appropriate for the type of flowsheet. Reagent usage and storage requirements are typical of the industry and require no specialist handling.

Infrastructure required to support Extended Case operations will include: the open pit; MRA; stockpiles; TMF and associated ponds; access and internal roads; powerlines and power distribution networks; watercourse realignments, diversion channels, dams and ponds; a New Lake to replace Côté Lake; process facilities; accommodation facilities; and mine support facilities including offices, workshops and warehouses. Power supply is assumed to be provided via an upgraded existing transmission line from Timmins to Shining Tree Junction and a new 44 km-long 115 kV electrical power transmission line from Shining Tree Junction to the Project site.

The Extended Case adds approximately two years to the mine life with mill throughput remaining the same as the Base Case of 36,000 t/d, remains within the footprint of the current permit application to support the Base Case, but will require an additional 5 m raise of the TMF to increase its capacity from 203 Mt to 233 Mt, and extend the height of the MRA.

Should IAMGOLD pursue development of the additional Mineral Reserves beyond the 203 Mt identified in the Environmental Effects Review, IAMGOLD will, through consultation with the regulatory authorities, confirm whether its environmental assessment coverage is sufficient or if new/amended environmental assessments are required. Development of additional ore would continue to be done in a manner that does not cause significant adverse environmental effects and would continue to extend socio-economic benefits to local communities and the region.

Baseline environmental and social studies have been completed.

The Extended Case TMF design is conventional. Over the proposed LOM of 18 years, tailings production is approximately 13.1 Mt/a from nominal mill throughput of 36,000 t/d, except in Year 1 when it is about 11 Mt due to ramp-up. The TMF will store 233 Mt of tailings over the LOM.

A watercourse realignment system has been designed to redirect water around the mine facilities to enable excavation and dewatering of the open pit. A system of dams and ponds will be used to capture, store, and where required treat, water from various sources before the water is released to the environment after meeting discharge quality standards.

Site closure will be governed by the Ontario Mining Act and its associated regulations and codes. A Closure Plan was prepared in accordance with the legislative requirements in tandem with the 2018 Feasibility Study. The plan assumes conventional closure measures. MENDM requires financial assurance for implementation of the Closure Plan; these costs were included in the economic analysis for the Extended Case.

Provincial environmental approvals that are expected to be required to construct and operate the Project have been identified. Three primary Provincial agencies will be involved with Project approvals/permits. An additional nine agencies may be involved with some permitting aspects.

IAMGOLD has actively engaged local and regional communities, as well as other stakeholders, to gain a better understanding of their issues and interests, identify potential partnerships, and build social acceptance for the Project. Stakeholders involved in Project consultations to date include those with a direct interest in the Project, and those who provided data for the baseline studies.

Based on consultation efforts since the start of the Project, and on groups expressing a continued interest, IAMGOLD has continued to engage identified Indigenous communities. IAMGOLD continues to negotiate Impact Benefit Agreements with Mattagami First Nation, Flying Post First Nation and the Métis Nation of Ontario (Region 3). A Process and Funding Agreement has been reached between IAMGOLD, Mattagami First Nation and Flying Post First Nation related to the communities' involvement through the review of the EER and required regulatory permit applications to advance the Project.

IAMGOLD plans to work with the community of Gogama and with the communities of Mattagami First Nation and Flying Post First Nation to collaborate on the development of a socio-economic management and monitoring plan to manage potential socioeconomic effects of the Project (both adverse and positive).

IAMGOLD expects that the terms of any sales contracts would be typical of, and consistent with, standard industry practices, and would be similar to contracts for the supply of gold doré elsewhere in Canada. No sales contracts are in place for the Extended Case. The 2018 Feasibility Study Extended Case assumes a gold price of US\$1,250/oz for the economic analysis. Wood considers this price to be an industry consensus long-term forecast price. Wood reviewed the information provided by IAMGOLD on marketing and contracts. In the QP's opinion, the information provided is consistent with that available in the public domain, and can be used to support the Extended Case financial analysis.

The Extended Case construction capital cost is estimated to be \$1,236 M, inclusive of allowances for Owner's costs and contingency of \$27 M and \$100 M, respectively. Additional indirect costs for Operational Readiness and other owner's fees totalling \$45 M result in a total initial capital cost of \$1,281 M. Some of the larger capital expenditures are amenable to capital financing. The majority of the initial mining fleet, having an approximate initial capital cost of \$142 M, can be financed using capital lease agreements with vendors. Inclusive of a down-payment of 0–15% of the purchase value paid at placement of order and interest payments incurred during the construction period, capital leases reduce the capital cost by approximately \$134 M, resulting in a total construction capital of \$1,101 M and a total initial capital cost of \$1,147 M net of mining equipment leasing. Sustaining costs (including capital leases) costs over the LOM are estimated to total \$589 M. Reclamation and closure costs are estimated at \$63 M, net of security bond fees and an allowance for equipment and materials salvage at the end of mine life.

Total operating costs over the Extended Case LOM are estimated to be \$3,441 M. Mining and processing costs represent 47% and 43% of this total, respectively. Average operating costs are estimated at \$14.77/t of processed ore.

Two economic analysis scenarios were considered in the Extended Case, one which includes the leasing of mining equipment, and one that does not.

The Extended Case scenario which does not assume that mining equipment will be leased has an after-tax NPV 5% of \$898M. The after-tax IRR is 14.7%. The after-tax payback of the initial capital investment is estimated to occur 4.4 years after the start of production. The LOM total cash cost is \$606/oz Au derived from mining, processing, on-site G&A, refining, doré transportation and insurance, royalties, other Owner's costs and Provincial mining tax costs per ounce payable. The AISC is \$681/oz Au derived from total cash costs plus sustaining capital (including interest on capital leases), and reclamation and remediation costs.

The Extended Case scenario which includes the assumption that mining equipment will be leased has an after-tax NPV 5% of \$905 M. The after-tax IRR is 15.4%. The after-tax payback of the initial capital investment is estimated to occur 4.4 years after the start of production. The LOM total cash cost is \$606/oz Au derived from mining, processing, on-site G&A, refining, doré transportation and insurance, royalties, owner's other costs and Provincial mining tax costs per ounce payable. The AISC is \$703/oz Au derived from total cash costs plus sustaining capital (including interest on capital leases), and reclamation and remediation costs.

In the pre-tax and after-tax evaluations, the Extended Case is most sensitive to changes in gold price and gold head grade, and less sensitive to changes in exchange rate, operating costs and capital costs.

## 25.17 Conclusions

Each of the 2018 Feasibility Study Base Case and Extended Case show positive economics under the assumptions presented in the Report.

**26.0 RECOMMENDATIONS****26.1 Introduction**

A one-phase work program has been developed to support design considerations for a future CôtéGold operation. The program has been developed by discipline area. The recommended work in each area can be completed concurrently as no aspect of the program are dependent on the results of another. The budget estimates are provided as a range, depending on whether IAMGOLD personnel or a third-party undertake the work program. The total program is estimated at US\$155,000 to \$215,000.

**26.2 Geology and Mineral Resources**

Geological controls of the mineralization of the Côté Gold deposit are still uncertain at the local scale. A study should be undertaken using ICP data to determine if there are discernable controls that can be used to fine-tune the resource estimate, or potentially provide additional information for use in exploration vectoring.

This work is estimated at US\$20,000–\$30,000

**26.3 Metallurgy**

Additional HPGR and cyanidation tests should be conducted to better define the geometallurgical variability. Samples should consist of both domain and point composites.

This work is estimated at US\$30,000–\$50,000

**26.4 Mining**

Trade-off studies should be performed in support of detailed designs. These would include:

- Assessment of autonomous haulage systems on phase designs and pit in support of optimization of automated system processes
- Sampling for blast hole drilling in support of optimization of the sampling process
- Placement of overburden material for use at the end of the LOM

Further mine plan studies should be completed, including: a review of phase designs, feed grade optimization to the processing plant, and variable cut-off grade assessment.

This work is estimated at US\$35,000–\$45,000.

**26.5 Infrastructure**

Additional geotechnical investigations should be undertaken to further characterize foundation soils. Cone penetration tests should be conducted at potentially-liquefiable locations under some dam structures and liquefaction assessments performed based on the cone penetration test results.

Detailed hydrological and hydraulic evaluations should be undertaken to refine the TMF and reclaim pond dam freeboard, spillway, and drainage ditch designs. The 3D seepage model and dam core settlement analyses should be reviewed to confirm acceptable freeboard.

A water balance model should be developed that specifically addresses the TMF and reclaim ponds.

This assessment and evaluation work is estimated at US\$70,000–\$90,000.

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**Chester 2 Property**

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| <b>Chester 2</b> | Number of Claims = 17 |  | Surface Area = 655 Ha |  |  |  |  |
|------------------|-----------------------|--|-----------------------|--|--|--|--|
| <b>Claim</b>     | <b>Anniversary</b>    |  |                       |  |  |  |  |
| 101625           | July-03-22            |  |                       |  |  |  |  |
| 116234           | July-03-22            |  |                       |  |  |  |  |
| 122354           | October-25-22         |  |                       |  |  |  |  |
| 122355           | October-25-22         |  |                       |  |  |  |  |
| 161528           | July-03-22            |  |                       |  |  |  |  |
| 180328           | October-25-22         |  |                       |  |  |  |  |
| 196275           | July-03-22            |  |                       |  |  |  |  |
| 233678           | October-25-22         |  |                       |  |  |  |  |
| 262884           | October-25-22         |  |                       |  |  |  |  |
| 262885           | October-25-22         |  |                       |  |  |  |  |
| 282944           | October-25-22         |  |                       |  |  |  |  |
| 290350           | July-03-22            |  |                       |  |  |  |  |
| 290351           | July-03-22            |  |                       |  |  |  |  |
| 329461           | October-25-22         |  |                       |  |  |  |  |
| 341301           | October-25-22         |  |                       |  |  |  |  |
| 341302           | July-03-22            |  |                       |  |  |  |  |
| 341939           | July-03-22            |  |                       |  |  |  |  |
| 17               |                       |  |                       |  |  |  |  |

**Chester 3 Property**

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Clam Lake – Crown Minerals Property

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| Clam Lake - Crown Minerals |                | Number of Claims = 20 |  | Surface Area = 241 Ha |  |
|----------------------------|----------------|-----------------------|--|-----------------------|--|
| Claim                      | Anniversary    |                       |  |                       |  |
| 102747                     | May-26-22      |                       |  |                       |  |
| 116452                     | May-26-22      |                       |  |                       |  |
| 153091                     | May-26-22      |                       |  |                       |  |
| 155482                     | February-13-22 |                       |  |                       |  |
| 177718                     | May-07-22      |                       |  |                       |  |
| 177719                     | May-26-22      |                       |  |                       |  |
| 204180                     | May-07-22      |                       |  |                       |  |
| 218422                     | May-26-22      |                       |  |                       |  |
| 218423                     | May-26-22      |                       |  |                       |  |
| 226375                     | May-26-22      |                       |  |                       |  |
| 226376                     | May-26-22      |                       |  |                       |  |
| 231585                     | May-07-22      |                       |  |                       |  |
| 260251                     | May-07-22      |                       |  |                       |  |
| 260252                     | May-26-22      |                       |  |                       |  |
| 274867                     | February-13-22 |                       |  |                       |  |
| 285676                     | May-26-22      |                       |  |                       |  |
| 287506                     | May-26-22      |                       |  |                       |  |
| 297626                     | May-07-22      |                       |  |                       |  |
| 321723                     | May-26-22      |                       |  |                       |  |
| 327426                     | May-07-22      |                       |  |                       |  |
| 20                         |                |                       |  |                       |  |

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| Clam Lake |                | Number of Claims = 8 |  |  | Surface Area = 80 Ha |  |
|-----------|----------------|----------------------|--|--|----------------------|--|
| Claim     | Anniversary    |                      |  |  |                      |  |
| 127554    | March-08-22    |                      |  |  |                      |  |
| 210231    | March-08-22    |                      |  |  |                      |  |
| 271286    | December-03-22 |                      |  |  |                      |  |
| 274087    | December-03-22 |                      |  |  |                      |  |
| 320650    | December-03-22 |                      |  |  |                      |  |
| 322812    | December-03-22 |                      |  |  |                      |  |
| 322813    | December-03-22 |                      |  |  |                      |  |
|           |                |                      |  |  |                      |  |
| 343177    | December-03-22 |                      |  |  |                      |  |
|           |                |                      |  |  |                      |  |
| 8         |                |                      |  |  |                      |  |

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Ontario 986813 Ltd North Property

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| Ontario 986813 Ltd North |                | Number of Claims = 20 |  | Surface Area = 174 Ha |  |  |  |
|--------------------------|----------------|-----------------------|--|-----------------------|--|--|--|
| Claim                    | Anniversary    |                       |  |                       |  |  |  |
| 102106                   | April-24-19    |                       |  |                       |  |  |  |
| 116537                   | October-12-19  |                       |  |                       |  |  |  |
| 144071                   | April-24-19    |                       |  |                       |  |  |  |
| 144072                   | April-24-19    |                       |  |                       |  |  |  |
| 145393                   | April-24-19    |                       |  |                       |  |  |  |
| 145394                   | April-24-20    |                       |  |                       |  |  |  |
| 158936                   | June-05-19     |                       |  |                       |  |  |  |
| 168129                   | January-09-19  |                       |  |                       |  |  |  |
| 201477                   | April-24-19    |                       |  |                       |  |  |  |
| 212837                   | June-05-19     |                       |  |                       |  |  |  |
| 222955                   | April-24-19    |                       |  |                       |  |  |  |
| 262542                   | October-12-19  |                       |  |                       |  |  |  |
| 277540                   | April-24-20    |                       |  |                       |  |  |  |
| 288186                   | April-24-19    |                       |  |                       |  |  |  |
| 296885                   | June-05-19     |                       |  |                       |  |  |  |
| 306317                   | October-12-19  |                       |  |                       |  |  |  |
| 312589                   | February-09-19 |                       |  |                       |  |  |  |
| 312590                   | February-09-19 |                       |  |                       |  |  |  |
| 325813                   | February-09-19 |                       |  |                       |  |  |  |
| 331244                   | February-09-19 |                       |  |                       |  |  |  |
|                          |                |                       |  |                       |  |  |  |
| 20                       |                |                       |  |                       |  |  |  |

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Ontario 986813 Ltd Northeast Property

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| Ontario 986813 Ltd Northeast |             | Number of Claims = 13 |  | Surface Area = 107 Ha |  |
|------------------------------|-------------|-----------------------|--|-----------------------|--|
| Claim                        | Anniversary |                       |  |                       |  |
| 115329                       | April-24-22 |                       |  |                       |  |
| 133974                       | April-24-22 |                       |  |                       |  |
| 150723                       | April-24-22 |                       |  |                       |  |
| 153459                       | April-24-22 |                       |  |                       |  |
| 205527                       | April-24-22 |                       |  |                       |  |
| 218313                       | April-24-22 |                       |  |                       |  |
| 218919                       | April-24-22 |                       |  |                       |  |
| 234788                       | April-24-22 |                       |  |                       |  |
| 235559                       | April-24-22 |                       |  |                       |  |
| 272033                       | April-24-22 |                       |  |                       |  |
| 284831                       | April-24-22 |                       |  |                       |  |
| 319895                       | April-24-22 |                       |  |                       |  |
| 333844                       | April-24-22 |                       |  |                       |  |
| 13                           |             |                       |  |                       |  |

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Ontario 986813 East Property

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| Ontario 986813 Ltd East |             | Number of Claims = 119 |             | Surface Area = 1,901 Ha |             |
|-------------------------|-------------|------------------------|-------------|-------------------------|-------------|
| Claim                   | Anniversary | Claim                  | Anniversary | Claim                   | Anniversary |
| 103635                  | May-22-19   | 199122                 | May-16-19   | 298507                  | May-22-19   |
| 105265                  | May-16-19   | 201413                 | May-16-19   | 301446                  | May-22-19   |
| 105649                  | May-22-19   | 203446                 | May-16-19   | 302303                  | May-22-19   |
| 119781                  | July-05-19  | 209228                 | May-22-19   | 304698                  | July-05-19  |
| 119922                  | May-16-19   | 211872                 | July-05-19  | 306303                  | May-16-19   |
| 120310                  | May-16-19   | 219189                 | May-22-19   | 306898                  | May-16-19   |
| 121880                  | July-05-19  | 223601                 | May-16-19   | 310088                  | May-22-19   |
| 121881                  | May-22-19   | 223826                 | May-22-19   | 310089                  | May-22-19   |
| 123979                  | May-22-19   | 224906                 | May-16-19   | 315475                  | May-16-19   |
| 124683                  | May-16-19   | 227358                 | May-22-19   | 316133                  | May-22-19   |
| 127573                  | May-16-19   | 229571                 | May-16-19   | 324154                  | May-16-19   |
| 127574                  | May-16-19   | 230987                 | May-16-19   | 324155                  | May-16-19   |
| 130791                  | May-22-19   | 231079                 | May-16-19   | 324202                  | May-16-19   |
| 134359                  | May-22-19   | 231796                 | May-22-19   | 326182                  | May-22-19   |
| 135042                  | May-22-19   | 231959                 | May-16-19   | 326184                  | May-16-19   |
| 136184                  | May-22-19   | 235742                 | May-22-19   | 326342                  | May-16-19   |
| 141533                  | May-22-19   | 237570                 | May-22-19   | 330985                  | May-22-19   |
| 142813                  | May-16-19   | 238107                 | May-22-19   | 331064                  | May-22-19   |
| 142951                  | May-22-19   | 239984                 | May-22-19   | 335657                  | May-22-19   |
| 144766                  | May-16-19   | 259525                 | May-22-19   | 336955                  | May-22-19   |
| 144770                  | May-22-19   | 259638                 | July-05-19  | 344565                  | May-22-19   |
| 146846                  | July-05-19  | 259747                 | May-16-19   |                         |             |
| 147402                  | May-22-19   | 261465                 | May-16-19   |                         |             |
| 148055                  | May-16-19   | 268951                 | May-16-19   | 119                     |             |
| 156875                  | May-16-19   | 272423                 | May-22-19   |                         |             |
| 158947                  | May-22-19   | 275493                 | May-16-19   |                         |             |
| 158948                  | May-22-19   | 275494                 | May-16-19   |                         |             |
| 158998                  | May-22-19   | 276770                 | May-22-19   |                         |             |
| 160364                  | May-22-19   | 278067                 | May-16-19   |                         |             |
| 162886                  | May-16-19   | 278307                 | May-16-19   |                         |             |
| 163806                  | May-16-19   | 278448                 | July-05-19  |                         |             |
| 163817                  | May-16-19   | 278449                 | July-05-19  |                         |             |
| 164573                  | May-22-19   | 279073                 | May-16-19   |                         |             |
| 169172                  | May-16-19   | 279779                 | May-16-19   |                         |             |
| 176057                  | May-22-19   | 279858                 | May-22-19   |                         |             |
| 177622                  | May-16-19   | 283286                 | May-22-19   |                         |             |
| 178527                  | May-22-19   | 287600                 | May-16-19   |                         |             |
| 181860                  | May-22-19   | 289779                 | July-05-19  |                         |             |
| 182619                  | July-05-19  | 290245                 | May-22-19   |                         |             |
| 182809                  | July-05-19  | 290806                 | May-22-19   |                         |             |
| 183318                  | May-22-19   | 292546                 | July-05-19  |                         |             |
| 183955                  | May-16-19   | 292564                 | May-16-19   |                         |             |
| 183956                  | May-16-19   | 294845                 | May-16-19   |                         |             |
| 186993                  | May-22-19   | 294899                 | May-16-19   |                         |             |
| 190065                  | May-22-19   | 295380                 | May-22-19   |                         |             |
| 190872                  | May-16-19   | 295620                 | May-22-19   |                         |             |
| 193222                  | May-16-19   | 296907                 | May-16-19   |                         |             |
| 194235                  | May-16-19   | 297569                 | May-16-19   |                         |             |
| 195672                  | May-22-19   | 297910                 | May-22-19   |                         |             |

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Ontario 986813 Ltd South Property

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The logo for wood., consisting of the word "wood." in a bold, lowercase, sans-serif font.

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| Ontario 986813 Ltd South |             | Number of Claims = 106 |        |             | Surface Area = 1,446 Ha |        |             |
|--------------------------|-------------|------------------------|--------|-------------|-------------------------|--------|-------------|
| Claim                    | Anniversary |                        | Claim  | Anniversary |                         | Claim  | Anniversary |
| 102149                   | May-14-20   |                        | 211012 | May-29-20   |                         | 318791 | May-14-20   |
| 106039                   | May-29-20   |                        | 212780 | May-29-20   |                         | 319232 | May-14-20   |
| 106145                   | May-14-20   |                        | 221672 | May-14-20   |                         | 322497 | May-29-20   |
| 106376                   | May-14-20   |                        | 221673 | May-14-20   |                         | 324109 | May-14-20   |
| 106690                   | May-29-20   |                        | 224288 | May-29-20   |                         | 324838 | May-14-20   |
| 109568                   | May-14-20   |                        | 228289 | May-14-20   |                         | 330169 | May-29-20   |
| 111876                   | May-14-20   |                        | 229643 | May-14-20   |                         | 338366 | May-14-20   |
| 114889                   | May-14-20   |                        | 231902 | May-14-20   |                         | 511819 | April-10-20 |
| 114890                   | May-14-20   |                        | 239366 | May-29-20   |                         | 511820 | April-10-20 |
| 115082                   | May-29-20   |                        | 242891 | May-14-20   |                         | 511821 | April-10-20 |
| 115928                   | May-14-20   |                        | 244747 | May-29-20   |                         |        |             |
| 117187                   | May-14-20   |                        | 251589 | May-29-20   |                         | 106    |             |
| 122482                   | May-29-20   |                        | 252881 | May-14-20   |                         |        |             |
| 125391                   | May-29-20   |                        | 255182 | May-29-20   |                         |        |             |
| 126274                   | May-14-20   |                        | 257479 | May-29-20   |                         |        |             |
| 126962                   | May-14-20   |                        | 257553 | May-14-20   |                         |        |             |
| 129654                   | May-29-20   |                        | 258179 | May-14-20   |                         |        |             |
| 130185                   | May-14-20   |                        | 258180 | May-29-20   |                         |        |             |
| 141715                   | May-29-20   |                        | 259536 | May-14-20   |                         |        |             |
| 142865                   | May-29-20   |                        | 260811 | May-29-20   |                         |        |             |
| 143412                   | May-14-20   |                        | 260837 | May-29-20   |                         |        |             |
| 145464                   | May-29-20   |                        | 263509 | May-29-20   |                         |        |             |
| 148859                   | May-29-20   |                        | 267494 | May-14-20   |                         |        |             |
| 150162                   | May-14-20   |                        | 267495 | May-14-20   |                         |        |             |
| 152428                   | May-29-20   |                        | 276052 | May-14-20   |                         |        |             |
| 155575                   | May-14-20   |                        | 276079 | May-14-20   |                         |        |             |
| 156177                   | May-14-20   |                        | 277421 | May-29-20   |                         |        |             |
| 158132                   | May-14-20   |                        | 279905 | May-14-20   |                         |        |             |
| 158788                   | May-14-20   |                        | 280305 | May-29-20   |                         |        |             |
| 161591                   | May-29-20   |                        | 283825 | May-29-20   |                         |        |             |
| 162883                   | May-29-20   |                        | 287591 | May-29-20   |                         |        |             |
| 164869                   | May-14-20   |                        | 288187 | May-14-20   |                         |        |             |
| 164882                   | May-29-20   |                        | 288683 | May-29-20   |                         |        |             |
| 165920                   | May-29-20   |                        | 288781 | May-29-20   |                         |        |             |
| 171193                   | May-29-20   |                        | 292883 | May-14-20   |                         |        |             |
| 180286                   | May-29-20   |                        | 296273 | May-14-20   |                         |        |             |
| 186087                   | May-29-20   |                        | 296274 | May-14-20   |                         |        |             |
| 190081                   | May-29-20   |                        | 296277 | May-29-20   |                         |        |             |
| 196606                   | May-14-20   |                        | 296902 | May-14-20   |                         |        |             |
| 201371                   | May-29-20   |                        | 298048 | May-14-20   |                         |        |             |
| 201396                   | May-29-20   |                        | 300152 | May-14-20   |                         |        |             |
| 202072                   | May-14-20   |                        | 308263 | May-29-20   |                         |        |             |
| 202077                   | May-14-20   |                        | 311989 | May-14-20   |                         |        |             |
| 203437                   | May-14-20   |                        | 312018 | May-14-20   |                         |        |             |
| 204031                   | May-29-20   |                        | 312782 | May-14-20   |                         |        |             |
| 209455                   | May-14-20   |                        | 314148 | May-14-20   |                         |        |             |
| 210836                   | May-29-20   |                        | 315590 | May-29-20   |                         |        |             |
| 211011                   | May-29-20   |                        | 316972 | May-14-20   |                         |        |             |

**Watershed Property**

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Project Number: 195640

Appendix A



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| Watershed | Number of Claims = 510 |             |                 |             | Surface Area = 8,059 Ha |             |             |
|-----------|------------------------|-------------|-----------------|-------------|-------------------------|-------------|-------------|
|           | Claim                  | Anniversary | Claim           | Anniversary | Claim                   | Anniversary | Anniversary |
| 100022    | December-08-20         | 116538      | March-17-20     | 129602      | March-17-20             |             |             |
| 100208    | September-21-20        | 116579      | March-17-20     | 129603      | June-07-20              |             |             |
| 100209    | September-21-20        | 116580      | March-17-20     | 129608      | March-17-20             |             |             |
| 100210    | September-21-20        | 116621      | March-17-20     | 129621      | December-25-20          |             |             |
| 100339    | September-21-20        | 116825      | March-17-20     | 129685      | March-17-20             |             |             |
| 100408    | February-07-20         | 116981      | September-21-20 | 129686      | March-17-20             |             |             |
| 100536    | March-17-20            | 116982      | September-21-20 | 139039      | September-21-20         |             |             |
| 100642    | January-15-20          | 117050      | February-07-20  | 142041      | August-08-21            |             |             |
| 100649    | May-22-20              | 117180      | October-03-20   | 142679      | March-17-20             |             |             |
| 100650    | May-22-20              | 117188      | December-12-20  | 142766      | August-14-20            |             |             |
| 100683    | September-11-20        | 117189      | December-12-20  | 142767      | May-22-20               |             |             |
| 100753    | December-12-20         | 117200      | March-17-20     | 142768      | May-22-20               |             |             |
| 100754    | December-12-20         | 117215      | September-21-20 | 144036      | September-21-19         |             |             |
| 100823    | March-17-20            | 117216      | September-21-20 | 144069      | December-12-20          |             |             |
| 100871    | March-17-20            | 117217      | September-21-20 | 144070      | December-12-20          |             |             |
| 100872    | March-17-20            | 117222      | September-21-20 | 144674      | September-21-20         |             |             |
| 100943    | March-17-20            | 117234      | September-11-20 | 144675      | September-21-20         |             |             |
| 101859    | December-12-20         | 117235      | September-11-20 | 145049      | September-21-20         |             |             |
| 101860    | December-12-20         | 117783      | April-09-20     | 145387      | October-03-20           |             |             |
| 101861    | December-12-20         | 120332      | March-17-20     | 145388      | October-03-20           |             |             |
| 101898    | September-21-20        | 122436      | September-13-20 | 145436      | September-11-20         |             |             |
| 101899    | September-21-20        | 122455      | April-09-20     | 145488      | September-21-20         |             |             |
| 102012    | July-05-20             | 124964      | December-08-20  | 145489      | September-21-20         |             |             |
| 102023    | May-26-20              | 124965      | December-08-20  | 145490      | September-21-20         |             |             |
| 102024    | May-26-20              | 125661      | March-17-20     | 152323      | April-09-20             |             |             |
| 102025    | March-17-20            | 126258      | May-22-20       | 155441      | March-17-20             |             |             |
| 102081    | June-07-20             | 126329      | December-25-20  | 155543      | May-22-20               |             |             |
| 102086    | September-21-20        | 126330      | December-25-20  | 155584      | February-07-20          |             |             |
| 102104    | December-25-20         | 126331      | September-21-19 | 155585      | February-07-20          |             |             |
| 102105    | December-25-20         | 126883      | December-12-20  | 156140      | September-21-20         |             |             |
| 102107    | March-17-20            | 126982      | September-21-20 | 156847      | December-08-20          |             |             |
| 102108    | March-17-20            | 127571      | December-08-20  | 157524      | September-11-20         |             |             |
| 110076    | September-21-20        | 127572      | December-08-20  | 158116      | December-12-20          |             |             |
| 114841    | February-07-20         | 127648      | September-21-20 | 158149      | September-21-20         |             |             |
| 114883    | September-21-19        | 127649      | September-21-20 | 158168      | September-11-20         |             |             |
| 114884    | September-21-20        | 128336      | October-03-20   | 158211      | May-10-20               |             |             |
| 114974    | May-22-20              | 128339      | December-12-20  | 158212      | May-10-20               |             |             |
| 115616    | December-08-20         | 128340      | December-12-20  | 158245      | September-21-20         |             |             |
| 115937    | May-22-20              | 128341      | December-12-20  | 158781      | August-14-20            |             |             |
| 115972    | September-21-20        | 128354      | March-17-20     | 158803      | July-05-20              |             |             |
| 116012    | September-21-20        | 128884      | September-21-20 | 158811      | March-17-20             |             |             |
| 116022    | July-05-20             | 128885      | September-21-20 | 158906      | December-25-20          |             |             |
| 116263    | April-06-20            | 128895      | September-11-20 | 159459      | March-17-20             |             |             |
| 116282    | April-09-20            | 128896      | September-11-20 | 159460      | March-17-20             |             |             |
| 116283    | April-09-20            | 128975      | September-21-20 | 159461      | March-17-20             |             |             |
| 116463    | December-25-20         | 129028      | July-05-20      | 159462      | March-17-20             |             |             |
| 116464    | March-17-20            | 129029      | July-05-20      | 159463      | March-17-20             |             |             |
| 116465    | March-17-20            | 129548      | March-17-20     | 162202      | December-12-20          |             |             |
| 116529    | April-18-20            | 129601      | March-17-20     | 162936      | September-21-20         |             |             |

| Watershed | Claim  | Anniversary     | Claim  | Anniversary     | Claim  | Anniversary     |
|-----------|--------|-----------------|--------|-----------------|--------|-----------------|
|           | 162937 | September-21-20 | 195527 | March-17-20     | 212189 | July-05-20      |
|           | 162938 | September-21-20 | 196288 | September-13-20 | 212196 | September-21-20 |
|           | 162939 | September-21-20 | 196289 | September-13-20 | 212213 | March-17-20     |
|           | 163531 | February-07-20  | 200073 | December-08-20  | 212214 | March-17-20     |
|           | 163532 | February-07-20  | 200074 | December-08-20  | 212220 | March-17-20     |
|           | 163640 | October-03-20   | 200075 | December-08-20  | 212221 | March-17-20     |
|           | 163641 | October-03-20   | 200076 | December-08-20  | 212809 | December-25-20  |
|           | 163643 | December-12-20  | 201368 | May-22-20       | 212871 | March-17-20     |
|           | 163644 | December-12-20  | 201414 | February-07-20  | 212910 | March-17-20     |
|           | 163645 | December-12-20  | 201453 | December-25-20  | 212911 | March-17-20     |
|           | 164162 | March-17-20     | 201454 | September-21-19 | 214974 | March-17-20     |
|           | 164268 | September-21-20 | 202075 | May-22-20       | 215739 | September-13-20 |
|           | 164314 | March-17-20     | 202174 | December-08-20  | 216440 | September-13-20 |
|           | 164823 | May-26-20       | 202754 | September-21-20 | 217124 | April-09-20     |
|           | 164883 | March-17-20     | 202821 | February-07-20  | 220190 | December-08-20  |
|           | 164884 | March-17-20     | 203438 | December-12-20  | 220871 | March-17-20     |
|           | 164885 | June-07-20      | 203452 | March-17-20     | 220990 | May-22-20       |
|           | 164948 | April-18-20     | 203463 | September-21-20 | 220991 | May-22-20       |
|           | 164951 | March-17-20     | 203464 | September-21-20 | 221583 | September-21-19 |
|           | 164952 | March-17-20     | 204083 | September-21-20 | 221612 | December-12-20  |
|           | 164953 | March-17-20     | 204091 | July-05-20      | 221613 | December-12-20  |
|           | 165547 | March-17-20     | 204094 | September-21-20 | 221614 | December-12-20  |
|           | 165548 | March-17-20     | 204115 | March-17-20     | 222207 | September-21-20 |
|           | 166272 | March-17-20     | 204166 | March-17-20     | 222208 | September-21-20 |
|           | 167563 | September-13-20 | 204176 | September-21-20 | 222209 | September-21-20 |
|           | 167564 | April-09-20     | 204948 | April-09-20     | 222310 | December-08-20  |
|           | 168256 | September-13-20 | 206256 | April-09-20     | 222888 | September-21-20 |
|           | 170780 | December-08-20  | 208096 | December-08-20  | 222958 | February-07-20  |
|           | 170799 | December-08-20  | 209423 | December-12-20  | 223574 | October-03-20   |
|           | 172127 | January-15-20   | 209424 | May-22-20       | 223575 | October-03-20   |
|           | 172132 | May-22-20       | 209425 | May-22-20       | 224186 | September-21-20 |
|           | 172133 | May-22-20       | 209470 | September-11-20 | 224187 | September-21-20 |
|           | 172180 | February-07-20  | 209508 | September-21-19 | 224188 | September-21-20 |
|           | 172181 | February-07-20  | 209528 | December-12-20  | 224189 | September-21-20 |
|           | 173604 | September-21-20 | 209529 | December-12-20  | 224206 | September-21-20 |
|           | 177638 | July-05-20      | 209530 | December-12-20  | 224228 | March-17-20     |
|           | 177643 | March-17-20     | 209531 | December-12-20  | 224229 | March-17-20     |
|           | 177711 | March-17-20     | 210757 | December-08-20  | 224234 | March-17-20     |
|           | 177715 | September-21-20 | 210833 | September-21-20 | 224235 | March-17-20     |
|           | 178309 | March-17-20     | 210834 | September-21-20 | 224236 | March-17-20     |
|           | 178411 | March-17-20     | 210835 | September-21-20 | 224289 | March-17-20     |
|           | 178412 | March-17-20     | 211523 | December-12-20  | 224292 | September-21-20 |
|           | 178413 | March-17-20     | 211524 | December-12-20  | 224295 | March-17-20     |
|           | 179119 | March-17-20     | 211525 | December-12-20  | 226963 | December-08-20  |
|           | 181746 | April-09-20     | 211526 | December-12-20  | 226964 | December-08-20  |
|           | 191669 | September-21-20 | 211545 | March-17-20     | 226965 | December-08-20  |
|           | 194199 | March-17-20     | 211546 | March-17-20     | 226966 | December-08-20  |
|           | 194822 | August-14-20    | 212122 | May-10-20       | 227659 | March-17-20     |
|           | 195526 | March-17-20     | 212155 | September-21-20 | 228300 | September-11-20 |

| Watershed | Claim  | Anniversary     | Claim  | Anniversary     | Claim  | Anniversary     |
|-----------|--------|-----------------|--------|-----------------|--------|-----------------|
|           | 230334 | December-12-20  | 260166 | March-17-20     | 279606 | September-21-20 |
|           | 230335 | December-12-20  | 260167 | March-17-20     | 279621 | December-04-20  |
|           | 230349 | March-17-20     | 260237 | March-17-20     | 279690 | September-21-20 |
|           | 230350 | March-17-20     | 260241 | September-21-20 | 280221 | September-21-20 |
|           | 230960 | September-21-20 | 260262 | December-25-20  | 280233 | July-05-20      |
|           | 230986 | September-21-20 | 260263 | December-25-20  | 280235 | March-17-20     |
|           | 231001 | May-26-20       | 260264 | December-25-20  | 280237 | July-05-20      |
|           | 231002 | March-17-20     | 260936 | March-17-20     | 280246 | May-26-20       |
|           | 231003 | March-17-20     | 262159 | March-17-20     | 280247 | May-26-20       |
|           | 231004 | March-17-20     | 263482 | April-09-20     | 280248 | March-17-20     |
|           | 231005 | March-17-20     | 266688 | December-08-20  | 280306 | March-17-20     |
|           | 231006 | March-17-20     | 267391 | March-17-20     | 280326 | March-17-20     |
|           | 231007 | March-17-20     | 267497 | May-22-20       | 280886 | March-17-20     |
|           | 231574 | March-17-20     | 267498 | May-22-20       | 280930 | March-17-20     |
|           | 231577 | September-21-20 | 268189 | March-17-20     | 280989 | August-14-20    |
|           | 231578 | September-21-20 | 268190 | March-17-20     | 280990 | March-17-20     |
|           | 231598 | December-25-20  | 268191 | March-17-20     | 282226 | March-17-20     |
|           | 231599 | March-17-20     | 268192 | March-17-20     | 283021 | April-06-20     |
|           | 231600 | March-17-20     | 268270 | December-25-20  | 283046 | April-09-20     |
|           | 231601 | March-17-20     | 268271 | December-25-20  | 286956 | March-17-20     |
|           | 231681 | March-17-20     | 268337 | March-17-20     | 287465 | March-17-20     |
|           | 231682 | March-17-20     | 268842 | March-17-20     | 287610 | February-07-20  |
|           | 232268 | March-17-20     | 268888 | March-17-20     | 288184 | December-12-20  |
|           | 232269 | March-17-20     | 270942 | September-13-20 | 288185 | December-12-20  |
|           | 232975 | March-17-20     | 272320 | April-09-20     | 288779 | September-21-20 |
|           | 234289 | April-09-20     | 274188 | August-08-21    | 288780 | September-21-20 |
|           | 234290 | April-09-20     | 274189 | August-08-21    | 290364 | April-06-20     |
|           | 235663 | April-09-20     | 274821 | March-17-20     | 290382 | September-13-20 |
|           | 235664 | April-09-20     | 275509 | February-07-20  | 291725 | April-09-20     |
|           | 240305 | September-21-20 | 275510 | February-07-20  | 294203 | March-17-20     |
|           | 247863 | September-21-20 | 276049 | December-25-20  | 294294 | January-15-20   |
|           | 257498 | February-07-20  | 276170 | September-21-20 | 294295 | January-15-20   |
|           | 257550 | September-21-19 | 276769 | December-08-20  | 294304 | May-22-20       |
|           | 257551 | September-21-20 | 276836 | September-21-20 | 294305 | May-22-20       |
|           | 257585 | December-12-20  | 277039 | September-21-20 | 295531 | September-21-20 |
|           | 258177 | September-21-20 | 277420 | February-07-20  | 296275 | February-07-20  |
|           | 258178 | September-21-20 | 277536 | October-03-20   | 296276 | February-07-20  |
|           | 258816 | September-21-20 | 278069 | September-21-20 | 296906 | September-21-20 |
|           | 258817 | September-21-20 | 278070 | September-21-20 | 296911 | September-21-20 |
|           | 258884 | September-11-20 | 278091 | September-11-20 | 296912 | September-21-20 |
|           | 258885 | February-07-20  | 278143 | May-10-20       | 296922 | December-04-20  |
|           | 259513 | October-03-20   | 278180 | September-21-20 | 296923 | September-11-20 |
|           | 259516 | December-12-20  | 278203 | September-21-20 | 297523 | July-05-20      |
|           | 259534 | March-17-20     | 278880 | September-21-20 | 297546 | March-17-20     |
|           | 259548 | September-21-20 | 278881 | September-21-20 | 297612 | June-07-20      |
|           | 259549 | September-21-20 | 278882 | September-21-20 | 297684 | March-17-20     |
|           | 259554 | December-25-20  | 278956 | February-07-20  | 298290 | March-17-20     |
|           | 260120 | September-21-20 | 278957 | February-07-20  | 298291 | March-17-20     |
|           | 260164 | May-26-20       | 279599 | March-17-20     | 298292 | March-17-20     |

| Watershed | Claim  | Anniversary     | Claim  | Anniversary     |  |  |  |
|-----------|--------|-----------------|--------|-----------------|--|--|--|
|           | 299027 | March-17-20     | 326235 | August-14-20    |  |  |  |
|           | 307609 | September-21-20 | 326776 | September-21-20 |  |  |  |
|           | 310778 | March-17-20     | 326777 | September-21-20 |  |  |  |
|           | 310779 | March-17-20     | 326801 | September-21-20 |  |  |  |
|           | 310780 | March-17-20     | 326835 | July-05-20      |  |  |  |
|           | 310781 | March-17-20     | 326837 | March-17-20     |  |  |  |
|           | 311394 | May-22-20       | 326846 | March-17-20     |  |  |  |
|           | 311438 | February-07-20  | 327417 | September-21-20 |  |  |  |
|           | 311986 | September-21-19 | 327436 | December-25-20  |  |  |  |
|           | 312124 | September-21-20 | 327486 | March-17-20     |  |  |  |
|           | 312656 | September-21-20 | 327487 | March-17-20     |  |  |  |
|           | 312657 | September-21-20 | 328083 | March-17-20     |  |  |  |
|           | 312658 | September-21-20 | 328798 | March-17-20     |  |  |  |
|           | 312659 | September-21-20 | 330125 | September-13-20 |  |  |  |
|           | 312665 | September-21-20 | 335267 | September-21-20 |  |  |  |
|           | 312666 | September-21-20 | 335268 | September-21-20 |  |  |  |
|           | 312793 | March-17-20     | 339925 | March-17-20     |  |  |  |
|           | 312798 | May-26-20       | 340658 | March-17-20     |  |  |  |
|           | 312799 | March-17-20     | 341957 | September-13-20 |  |  |  |
|           | 313368 | December-08-20  | 342655 | September-13-20 |  |  |  |
|           | 313436 | September-21-20 |        |                 |  |  |  |
|           | 314116 | October-03-20   | 510    |                 |  |  |  |
|           | 314119 | December-12-20  |        |                 |  |  |  |
|           | 314120 | December-12-20  |        |                 |  |  |  |
|           | 314121 | December-12-20  |        |                 |  |  |  |
|           | 314145 | March-17-20     |        |                 |  |  |  |
|           | 314708 | March-17-20     |        |                 |  |  |  |
|           | 314714 | September-21-20 |        |                 |  |  |  |
|           | 314715 | September-21-20 |        |                 |  |  |  |
|           | 314731 | March-17-20     |        |                 |  |  |  |
|           | 314789 | March-17-20     |        |                 |  |  |  |
|           | 320668 | December-08-20  |        |                 |  |  |  |
|           | 320669 | December-08-20  |        |                 |  |  |  |
|           | 320934 | April-09-20     |        |                 |  |  |  |
|           | 322818 | December-08-20  |        |                 |  |  |  |
|           | 322897 | August-08-21    |        |                 |  |  |  |
|           | 323508 | March-17-20     |        |                 |  |  |  |
|           | 324116 | May-22-20       |        |                 |  |  |  |
|           | 324201 | September-21-19 |        |                 |  |  |  |
|           | 324231 | December-12-20  |        |                 |  |  |  |
|           | 324232 | December-12-20  |        |                 |  |  |  |
|           | 324233 | December-12-20  |        |                 |  |  |  |
|           | 325419 | December-08-20  |        |                 |  |  |  |
|           | 325420 | December-08-20  |        |                 |  |  |  |
|           | 325564 | September-11-20 |        |                 |  |  |  |
|           | 326155 | October-03-20   |        |                 |  |  |  |
|           | 326157 | December-12-20  |        |                 |  |  |  |
|           | 326158 | December-12-20  |        |                 |  |  |  |
|           | 326201 | September-11-20 |        |                 |  |  |  |

TAAC East Property

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November 2018  
Project Number: 195640

Appendix A







| TAAC West |                 | Number of Claims = 822 |        |                 |  | Surface Area = 17,447 Ha |                 |
|-----------|-----------------|------------------------|--------|-----------------|--|--------------------------|-----------------|
| Claim     | Anniversary     |                        | Claim  | Anniversary     |  | Claim                    | Anniversary     |
| 100008    | February-05-20  |                        | 111734 | October-20-20   |  | 121266                   | September-21-21 |
| 100009    | February-05-20  |                        | 111735 | September-21-21 |  | 121287                   | September-21-21 |
| 100182    | October-19-20   |                        | 111736 | April-14-20     |  | 122141                   | February-05-21  |
| 100374    | March-17-20     |                        | 111753 | March-24-21     |  | 122276                   | September-21-20 |
| 101889    | May-24-20       |                        | 111813 | May-26-20       |  | 122277                   | September-21-20 |
| 102369    | September-21-21 |                        | 112039 | August-04-20    |  | 124813                   | December-15-21  |
| 103341    | October-20-21   |                        | 112685 | March-01-21     |  | 124814                   | December-15-21  |
| 103405    | June-30-20      |                        | 112967 | October-20-21   |  | 124815                   | December-15-21  |
| 103406    | May-03-21       |                        | 114966 | October-19-20   |  | 124818                   | March-01-21     |
| 103940    | May-03-21       |                        | 114967 | March-24-21     |  | 124819                   | March-01-21     |
| 104115    | September-21-21 |                        | 115606 | February-05-20  |  | 124820                   | March-01-21     |
| 104130    | September-21-21 |                        | 115607 | February-05-20  |  | 125482                   | September-21-21 |
| 104131    | September-21-21 |                        | 117027 | June-05-20      |  | 125628                   | May-24-20       |
| 104448    | September-21-20 |                        | 117028 | March-17-20     |  | 125967                   | January-15-21   |
| 104449    | September-21-20 |                        | 117203 | May-24-20       |  | 126958                   | October-20-20   |
| 104450    | September-21-20 |                        | 117266 | January-20-20   |  | 127687                   | March-17-20     |
| 104574    | June-05-20      |                        | 118524 | June-05-20      |  | 128075                   | August-04-20    |
| 104575    | June-05-20      |                        | 118525 | June-05-20      |  | 128076                   | August-04-20    |
| 105564    | January-15-21   |                        | 118526 | June-05-20      |  | 128077                   | August-04-20    |
| 105565    | January-15-21   |                        | 118527 | June-05-20      |  | 128183                   | January-15-21   |
| 105566    | January-15-21   |                        | 118972 | September-21-20 |  | 128360                   | May-24-20       |
| 106012    | August-11-20    |                        | 118973 | September-21-20 |  | 128361                   | May-24-20       |
| 106783    | October-20-20   |                        | 118981 | November-17-21  |  | 128390                   | September-21-20 |
| 107112    | March-16-19     |                        | 119035 | May-03-21       |  | 129099                   | September-21-20 |
| 107113    | March-16-19     |                        | 119036 | May-03-21       |  | 131171                   | October-10-21   |
| 107460    | August-04-20    |                        | 119067 | September-21-20 |  | 131455                   | May-03-21       |
| 107461    | August-04-20    |                        | 119068 | January-15-21   |  | 131759                   | September-21-21 |
| 107870    | December-15-21  |                        | 119114 | May-24-20       |  | 131760                   | October-20-21   |
| 107871    | December-15-21  |                        | 119209 | May-03-21       |  | 131762                   | September-21-20 |
| 107874    | March-01-21     |                        | 119339 | September-21-21 |  | 131777                   | March-24-21     |
| 107875    | March-01-21     |                        | 119386 | September-21-21 |  | 131859                   | November-17-21  |
| 107881    | December-15-21  |                        | 119519 | September-21-20 |  | 131860                   | November-17-21  |
| 109010    | August-11-20    |                        | 119520 | October-20-20   |  | 131865                   | September-21-21 |
| 109223    | September-21-20 |                        | 119715 | September-21-20 |  | 131873                   | March-01-21     |
| 109224    | September-21-20 |                        | 119716 | September-21-20 |  | 132061                   | September-21-20 |
| 109239    | September-21-20 |                        | 119717 | September-21-20 |  | 132062                   | October-19-20   |
| 109240    | September-21-20 |                        | 119902 | September-21-20 |  | 132360                   | September-21-20 |
| 109726    | May-03-21       |                        | 119935 | May-24-20       |  | 132361                   | September-21-20 |
| 109764    | August-11-20    |                        | 120076 | September-21-20 |  | 132490                   | September-21-20 |
| 110600    | March-25-20     |                        | 120077 | September-21-20 |  | 133137                   | February-13-20  |
| 110938    | March-01-21     |                        | 120078 | September-21-20 |  | 133138                   | September-21-21 |
| 111246    | March-24-21     |                        | 120268 | August-11-20    |  | 133139                   | October-20-21   |
| 111259    | February-13-20  |                        | 120269 | August-11-20    |  | 133176                   | November-17-21  |
| 111260    | September-21-21 |                        | 120576 | May-03-21       |  | 133603                   | September-21-20 |
| 111261    | September-21-21 |                        | 120597 | March-01-21     |  | 133664                   | September-21-20 |
| 111262    | October-20-21   |                        | 120598 | March-01-21     |  | 133837                   | September-21-21 |
| 111661    | April-14-20     |                        | 120599 | March-01-21     |  | 134470                   | September-21-21 |
| 111666    | January-15-21   |                        | 120600 | March-01-21     |  | 134945                   | January-15-21   |
| 111667    | January-15-21   |                        | 121265 | September-21-21 |  | 136397                   | March-25-20     |

| TAAC West |                 |  |        |                 |  |        |                 |
|-----------|-----------------|--|--------|-----------------|--|--------|-----------------|
| Claim     | Anniversary     |  | Claim  | Anniversary     |  | Claim  | Anniversary     |
| 136819    | December-15-21  |  | 150100 | February-05-21  |  | 162425 | September-21-20 |
| 136820    | December-15-21  |  | 150333 | September-21-20 |  | 162956 | May-24-20       |
| 136823    | March-01-21     |  | 150478 | September-21-20 |  | 162988 | June-05-20      |
| 136833    | December-15-21  |  | 151936 | October-11-21   |  | 163114 | September-21-20 |
| 137467    | September-21-21 |  | 151964 | October-19-20   |  | 163115 | September-21-20 |
| 137521    | September-21-20 |  | 151968 | March-01-21     |  | 163773 | June-05-20      |
| 137745    | August-11-20    |  | 152702 | March-24-21     |  | 164165 | May-24-20       |
| 137746    | August-11-20    |  | 152703 | October-19-20   |  | 164166 | May-24-20       |
| 137747    | September-21-21 |  | 152704 | March-01-21     |  | 164396 | December-15-21  |
| 137748    | September-21-21 |  | 153136 | March-25-20     |  | 164397 | December-15-21  |
| 139613    | August-04-20    |  | 153137 | March-25-20     |  | 164414 | October-20-21   |
| 139614    | August-04-20    |  | 153410 | September-21-20 |  | 164415 | October-20-21   |
| 139694    | August-04-20    |  | 153806 | May-03-21       |  | 164475 | June-30-20      |
| 140410    | February-13-21  |  | 153882 | September-21-20 |  | 164476 | June-30-20      |
| 140411    | February-13-21  |  | 154216 | March-17-20     |  | 165010 | June-30-21      |
| 140412    | February-13-21  |  | 154217 | March-17-20     |  | 165032 | May-24-20       |
| 141021    | January-15-21   |  | 154218 | February-05-20  |  | 165179 | May-03-21       |
| 141022    | January-15-21   |  | 154219 | February-05-20  |  | 165247 | August-11-20    |
| 141123    | September-21-20 |  | 156250 | October-19-20   |  | 165248 | May-24-20       |
| 141439    | February-05-20  |  | 156347 | September-21-20 |  | 165281 | October-19-20   |
| 142130    | May-24-20       |  | 156581 | March-25-20     |  | 165820 | September-21-21 |
| 142454    | June-05-20      |  | 157460 | March-16-19     |  | 165821 | September-21-21 |
| 142455    | March-25-20     |  | 157491 | May-24-20       |  | 166327 | September-21-21 |
| 142852    | December-15-21  |  | 157492 | June-05-20      |  | 166328 | September-21-21 |
| 142973    | October-26-20   |  | 157687 | May-24-20       |  | 166343 | September-21-21 |
| 143373    | June-05-20      |  | 157870 | August-11-20    |  | 166496 | October-20-20   |
| 143743    | August-11-20    |  | 157884 | September-21-21 |  | 166497 | October-20-20   |
| 143757    | August-11-20    |  | 157885 | September-21-21 |  | 167931 | November-17-21  |
| 144216    | September-21-21 |  | 158243 | August-11-20    |  | 168652 | September-21-20 |
| 145411    | May-24-20       |  | 158287 | September-21-20 |  | 169731 | June-05-20      |
| 145412    | May-24-20       |  | 158288 | May-03-21       |  | 170506 | December-15-21  |
| 146368    | February-13-21  |  | 158289 | December-15-21  |  | 170775 | March-17-20     |
| 146369    | February-13-21  |  | 158362 | May-03-21       |  | 170776 | February-05-20  |
| 146774    | March-16-19     |  | 159052 | May-03-21       |  | 170801 | May-24-20       |
| 147460    | May-03-21       |  | 159053 | May-03-21       |  | 170802 | March-17-20     |
| 147759    | April-14-20     |  | 159258 | August-04-20    |  | 172575 | May-03-21       |
| 147833    | October-20-20   |  | 159259 | August-04-20    |  | 172634 | January-15-21   |
| 147836    | May-26-20       |  | 159260 | August-04-20    |  | 172648 | September-21-20 |
| 147837    | April-14-20     |  | 159702 | September-21-21 |  | 174958 | February-13-21  |
| 147840    | September-21-20 |  | 159731 | September-21-21 |  | 175038 | January-15-21   |
| 147856    | March-24-21     |  | 160471 | February-13-21  |  | 175604 | September-21-20 |
| 148052    | October-19-20   |  | 160472 | February-13-21  |  | 175605 | September-21-20 |
| 148321    | August-11-20    |  | 160541 | January-15-21   |  | 175632 | March-01-20     |
| 148452    | November-17-21  |  | 161866 | April-14-20     |  | 175723 | March-01-21     |
| 148453    | November-17-21  |  | 161934 | September-21-21 |  | 175724 | March-01-21     |
| 149217    | October-19-20   |  | 161935 | October-20-20   |  | 176703 | May-03-21       |
| 149436    | October-20-20   |  | 161936 | April-14-20     |  | 176704 | May-03-21       |
| 149437    | October-20-20   |  | 162162 | January-20-20   |  | 176920 | August-11-20    |
| 149739    | September-21-21 |  | 162164 | January-20-20   |  | 176921 | August-11-20    |

| TAAC West |                 |  |        |                 |  |        |                 |
|-----------|-----------------|--|--------|-----------------|--|--------|-----------------|
| Claim     | Anniversary     |  | Claim  | Anniversary     |  | Claim  | Anniversary     |
| 176976    | September-21-21 |  | 190361 | August-11-20    |  | 210847 | May-24-20       |
| 177169    | June-05-20      |  | 191808 | September-21-20 |  | 210877 | May-24-20       |
| 177174    | May-24-20       |  | 191809 | October-20-20   |  | 210878 | March-17-20     |
| 177289    | September-21-20 |  | 191810 | September-21-20 |  | 210974 | January-15-21   |
| 177599    | September-21-20 |  | 192218 | January-15-21   |  | 210975 | January-15-21   |
| 177798    | January-15-21   |  | 192219 | January-15-21   |  | 212498 | February-13-21  |
| 178471    | May-24-20       |  | 193036 | March-01-21     |  | 213918 | April-14-20     |
| 178478    | June-30-21      |  | 194480 | March-01-21     |  | 214380 | September-21-20 |
| 178479    | June-30-21      |  | 195892 | October-10-21   |  | 214391 | September-21-20 |
| 178584    | May-03-21       |  | 195962 | October-20-20   |  | 214493 | April-14-20     |
| 178601    | March-01-21     |  | 195973 | October-20-21   |  | 214494 | May-26-20       |
| 178709    | October-20-20   |  | 196539 | May-26-20       |  | 214495 | September-21-20 |
| 179515    | September-21-20 |  | 196575 | November-17-21  |  | 214599 | October-11-21   |
| 179603    | January-15-21   |  | 196588 | September-21-21 |  | 215371 | February-05-21  |
| 180224    | September-21-20 |  | 197235 | September-21-20 |  | 218697 | December-15-21  |
| 181578    | March-25-20     |  | 197236 | September-21-20 |  | 218698 | December-15-21  |
| 181579    | March-25-20     |  | 197851 | March-01-21     |  | 218699 | December-15-21  |
| 182031    | December-15-21  |  | 198385 | September-21-20 |  | 218700 | December-15-21  |
| 182032    | December-15-21  |  | 198386 | January-15-21   |  | 218701 | December-15-21  |
| 182039    | December-15-21  |  | 198669 | September-21-21 |  | 218702 | March-01-21     |
| 182734    | September-21-20 |  | 198670 | September-21-21 |  | 218703 | March-01-21     |
| 183941    | May-03-21       |  | 199895 | October-20-21   |  | 218708 | December-15-21  |
| 183975    | June-30-21      |  | 200080 | May-24-20       |  | 218709 | December-15-21  |
| 183976    | June-30-21      |  | 200500 | September-21-21 |  | 219304 | January-15-21   |
| 184029    | May-24-20       |  | 200992 | March-01-21     |  | 219348 | September-21-21 |
| 184030    | May-24-20       |  | 201616 | October-26-20   |  | 219349 | October-26-20   |
| 184361    | September-21-21 |  | 201617 | October-26-20   |  | 219405 | September-21-20 |
| 184438    | October-20-20   |  | 201618 | October-26-20   |  | 219406 | September-21-20 |
| 184501    | May-26-20       |  | 201668 | September-21-20 |  | 219670 | March-17-20     |
| 184520    | October-11-21   |  | 201701 | March-25-20     |  | 219671 | February-05-20  |
| 184628    | March-01-21     |  | 201702 | March-25-20     |  | 219672 | February-05-20  |
| 184629    | March-01-21     |  | 201703 | March-25-20     |  | 220192 | May-24-20       |
| 185007    | September-21-20 |  | 202069 | October-19-20   |  | 220193 | March-17-20     |
| 185008    | September-21-20 |  | 203048 | August-11-20    |  | 220326 | May-24-20       |
| 185044    | November-17-21  |  | 203065 | August-11-20    |  | 221703 | September-21-20 |
| 185058    | March-01-21     |  | 204228 | August-04-20    |  | 221704 | September-21-20 |
| 185171    | September-21-20 |  | 204498 | August-04-20    |  | 221705 | September-21-20 |
| 185497    | October-20-20   |  | 204570 | March-01-21     |  | 222900 | May-24-20       |
| 185738    | September-21-20 |  | 205314 | October-19-20   |  | 222934 | March-17-20     |
| 186157    | October-10-21   |  | 206599 | September-21-20 |  | 222935 | June-05-20      |
| 186231    | September-21-20 |  | 206600 | March-01-21     |  | 223174 | October-20-21   |
| 186482    | September-21-21 |  | 206659 | September-21-21 |  | 223595 | May-24-20       |
| 187563    | January-15-21   |  | 208078 | February-05-20  |  | 223596 | May-24-20       |
| 187896    | May-26-20       |  | 208098 | March-17-20     |  | 224183 | August-11-20    |
| 188811    | December-15-21  |  | 208533 | March-25-20     |  | 224435 | May-03-21       |
| 189463    | October-26-20   |  | 208757 | May-24-20       |  | 224436 | May-03-21       |
| 189515    | September-21-20 |  | 209855 | August-11-20    |  | 224458 | March-01-21     |
| 189981    | January-15-21   |  | 210113 | October-19-20   |  | 225109 | September-21-21 |
| 190360    | August-11-20    |  | 210382 | August-04-20    |  | 225130 | September-21-21 |

| TAAC West |                 |  |        |                 |  |        |                 |
|-----------|-----------------|--|--------|-----------------|--|--------|-----------------|
| Claim     | Anniversary     |  | Claim  | Anniversary     |  | Claim  | Anniversary     |
| 225131    | September-21-21 |  | 244639 | March-01-21     |  | 258852 | March-17-20     |
| 225282    | October-20-20   |  | 245023 | March-24-21     |  | 259537 | May-24-20       |
| 225283    | January-15-21   |  | 245040 | September-21-21 |  | 259538 | May-24-20       |
| 226160    | October-26-20   |  | 245041 | September-21-21 |  | 259585 | January-20-20   |
| 226944    | February-05-20  |  | 245464 | October-20-20   |  | 259718 | June-05-20      |
| 227206    | May-03-21       |  | 245465 | January-15-21   |  | 259719 | June-05-20      |
| 227273    | December-15-21  |  | 245749 | September-21-20 |  | 261029 | October-20-21   |
| 227274    | January-15-21   |  | 246324 | January-15-21   |  | 261059 | May-03-21       |
| 227622    | May-24-20       |  | 246381 | September-21-21 |  | 261178 | March-01-21     |
| 228959    | October-19-20   |  | 247084 | September-21-21 |  | 261179 | February-13-21  |
| 229409    | August-04-20    |  | 250108 | March-16-19     |  | 261260 | January-15-21   |
| 229410    | August-04-20    |  | 250847 | May-24-20       |  | 261782 | May-03-21       |
| 229411    | August-04-20    |  | 251067 | August-11-20    |  | 262513 | September-21-21 |
| 230524    | June-05-20      |  | 251101 | October-10-21   |  | 263191 | October-20-20   |
| 230957    | August-11-20    |  | 251111 | April-14-20     |  | 263192 | October-20-20   |
| 231141    | January-15-21   |  | 251112 | April-14-20     |  | 263193 | October-20-20   |
| 231318    | May-03-21       |  | 251113 | April-14-20     |  | 263196 | April-14-20     |
| 231730    | September-21-20 |  | 251115 | January-15-21   |  | 263275 | October-11-21   |
| 231762    | May-24-20       |  | 251195 | September-21-20 |  | 263294 | November-17-21  |
| 231896    | September-21-20 |  | 251196 | September-21-20 |  | 263807 | September-21-20 |
| 233288    | October-20-20   |  | 251209 | March-24-21     |  | 263947 | September-21-20 |
| 236067    | December-15-21  |  | 251210 | October-11-21   |  | 264581 | March-24-21     |
| 236070    | March-01-21     |  | 251772 | May-26-20       |  | 264582 | October-19-20   |
| 236071    | March-01-21     |  | 251788 | October-11-21   |  | 264583 | March-01-21     |
| 236332    | September-21-20 |  | 251807 | September-21-21 |  | 264603 | September-21-21 |
| 236333    | September-21-20 |  | 251816 | March-01-21     |  | 264604 | September-21-21 |
| 237453    | March-01-21     |  | 251817 | March-01-21     |  | 266155 | March-17-20     |
| 237679    | March-25-20     |  | 252549 | February-13-20  |  | 266156 | February-05-20  |
| 237680    | March-25-20     |  | 252796 | October-20-20   |  | 266372 | January-15-21   |
| 238885    | January-15-21   |  | 252797 | October-20-20   |  | 266373 | January-15-21   |
| 238982    | August-11-20    |  | 253060 | September-21-20 |  | 266691 | May-24-20       |
| 238983    | August-11-20    |  | 253801 | September-21-20 |  | 266692 | May-24-20       |
| 239393    | September-21-20 |  | 253802 | September-21-20 |  | 266693 | March-17-20     |
| 240287    | August-04-20    |  | 253803 | March-01-21     |  | 266694 | March-17-20     |
| 241141    | February-13-21  |  | 253841 | September-21-21 |  | 267814 | March-25-20     |
| 241142    | February-13-21  |  | 254290 | September-21-20 |  | 268348 | September-21-20 |
| 241730    | January-15-21   |  | 254387 | January-15-21   |  | 268361 | October-20-21   |
| 241851    | September-21-20 |  | 255583 | December-15-21  |  | 268362 | October-20-21   |
| 242578    | September-21-20 |  | 255584 | December-15-21  |  | 268485 | June-30-21      |
| 242579    | September-21-20 |  | 255585 | December-15-21  |  | 269114 | May-03-21       |
| 243071    | October-10-21   |  | 255587 | March-01-21     |  | 269115 | May-03-21       |
| 243238    | May-24-20       |  | 255611 | September-21-21 |  | 269141 | March-01-21     |
| 243665    | September-21-21 |  | 256114 | January-15-21   |  | 269142 | March-01-21     |
| 243666    | March-24-21     |  | 256115 | January-15-21   |  | 269818 | September-21-21 |
| 243668    | April-14-20     |  | 256637 | September-21-20 |  | 269819 | September-21-21 |
| 243739    | May-26-20       |  | 256791 | September-21-20 |  | 269925 | March-24-21     |
| 243785    | March-01-21     |  | 258154 | October-19-20   |  | 269948 | March-24-21     |
| 243997    | May-24-20       |  | 258155 | October-19-20   |  | 270001 | May-26-20       |
| 244615    | May-03-21       |  | 258156 | October-20-20   |  | 270560 | March-01-21     |

| TAAC West |                 |  |        |                 |  |        |                 |
|-----------|-----------------|--|--------|-----------------|--|--------|-----------------|
| Claim     | Anniversary     |  | Claim  | Anniversary     |  | Claim  | Anniversary     |
| 271315    | September-21-21 |  | 288251 | October-19-20   |  | 300149 | September-21-20 |
| 271331    | February-13-20  |  | 288252 | March-24-21     |  | 300150 | September-21-20 |
| 271332    | February-13-20  |  | 288939 | September-21-20 |  | 300350 | September-21-20 |
| 271333    | November-17-21  |  | 288940 | September-21-20 |  | 300432 | May-26-20       |
| 271334    | September-21-21 |  | 288941 | October-20-20   |  | 300455 | October-11-21   |
| 271879    | November-17-21  |  | 289138 | September-21-21 |  | 301188 | September-21-21 |
| 273104    | September-21-20 |  | 289168 | September-21-21 |  | 301209 | September-21-21 |
| 273105    | September-21-20 |  | 289180 | September-21-21 |  | 302455 | March-01-21     |
| 274089    | February-05-20  |  | 289383 | October-20-20   |  | 302456 | March-01-21     |
| 274114    | March-17-20     |  | 289384 | October-20-20   |  | 302523 | September-21-21 |
| 274115    | March-17-20     |  | 289385 | October-20-20   |  | 302524 | September-21-21 |
| 275752    | September-21-21 |  | 290023 | October-10-21   |  | 303682 | September-21-21 |
| 276143    | March-24-21     |  | 290273 | September-21-20 |  | 303778 | May-26-20       |
| 276904    | October-20-20   |  | 290871 | January-15-21   |  | 304794 | December-15-21  |
| 277578    | September-21-20 |  | 291505 | April-14-20     |  | 304795 | December-15-21  |
| 277579    | May-03-21       |  | 291506 | March-25-20     |  | 304796 | December-15-21  |
| 277632    | September-21-20 |  | 292179 | September-21-20 |  | 304799 | March-01-21     |
| 277633    | September-21-20 |  | 293348 | September-21-20 |  | 304819 | December-15-21  |
| 277634    | September-21-20 |  | 293349 | September-21-20 |  | 304927 | March-25-20     |
| 277853    | February-13-21  |  | 293897 | December-15-21  |  | 305454 | October-26-20   |
| 278254    | June-05-20      |  | 294901 | January-20-20   |  | 305955 | May-03-21       |
| 278261    | May-24-20       |  | 294992 | October-20-20   |  | 306259 | August-11-20    |
| 278262    | May-24-20       |  | 294993 | October-19-20   |  | 306260 | August-11-20    |
| 278411    | September-21-20 |  | 294994 | October-19-20   |  | 306281 | August-11-20    |
| 278412    | September-21-20 |  | 295775 | September-21-20 |  | 306282 | August-11-20    |
| 278544    | June-05-20      |  | 296232 | March-17-20     |  | 307752 | August-04-20    |
| 278545    | June-05-20      |  | 296443 | May-03-21       |  | 308974 | February-13-21  |
| 279159    | September-21-20 |  | 296502 | September-21-20 |  | 311042 | September-21-21 |
| 279160    | January-15-21   |  | 296503 | September-21-20 |  | 311561 | December-15-21  |
| 279314    | May-03-21       |  | 296504 | September-21-20 |  | 311575 | December-15-21  |
| 279376    | May-24-20       |  | 296505 | September-21-20 |  | 311576 | December-15-21  |
| 279738    | May-03-21       |  | 296840 | May-03-21       |  | 312087 | October-19-20   |
| 280419    | May-03-21       |  | 296947 | January-20-20   |  | 312201 | October-26-20   |
| 280430    | March-01-21     |  | 296988 | May-24-20       |  | 312202 | October-26-20   |
| 280796    | September-21-20 |  | 297178 | May-24-20       |  | 312203 | October-26-20   |
| 281080    | September-21-21 |  | 297179 | May-24-20       |  | 312256 | September-21-20 |
| 281081    | September-21-21 |  | 297805 | November-17-21  |  | 313076 | September-21-21 |
| 281298    | October-20-20   |  | 297806 | October-20-21   |  | 313450 | May-24-20       |
| 281519    | January-15-21   |  | 298162 | August-11-20    |  | 314150 | May-24-20       |
| 284612    | March-01-21     |  | 299079 | May-03-21       |  | 315677 | February-13-21  |
| 285215    | May-03-21       |  | 299080 | May-03-21       |  | 316701 | May-03-21       |
| 285273    | October-26-20   |  | 299081 | May-03-21       |  | 317027 | September-21-21 |
| 285320    | September-21-20 |  | 299101 | March-01-21     |  | 317102 | April-14-20     |
| 285795    | January-15-21   |  | 299102 | March-01-21     |  | 317103 | April-14-20     |
| 285796    | January-15-21   |  | 299420 | September-21-20 |  | 317105 | January-15-21   |
| 285819    | September-21-20 |  | 299773 | April-14-20     |  | 317168 | September-21-20 |
| 287412    | August-04-20    |  | 299852 | March-24-21     |  | 317696 | March-24-21     |
| 287413    | August-04-20    |  | 299857 | September-21-20 |  | 317697 | March-24-21     |
| 288250    | October-19-20   |  | 300121 | May-24-20       |  | 317698 | October-11-21   |

| TAAC West |                 |  |        |                 |  |  |  |
|-----------|-----------------|--|--------|-----------------|--|--|--|
| Claim     | Anniversary     |  | Claim  | Anniversary     |  |  |  |
| 317792    | November-17-21  |  | 333127 | September-21-21 |  |  |  |
| 317794    | March-25-21     |  | 333358 | September-21-20 |  |  |  |
| 317815    | March-01-21     |  | 335895 | August-04-20    |  |  |  |
| 318527    | September-21-21 |  | 337183 | January-15-21   |  |  |  |
| 318528    | October-19-20   |  | 337344 | September-21-20 |  |  |  |
| 318529    | March-01-21     |  | 337858 | November-17-21  |  |  |  |
| 319045    | September-21-21 |  | 337859 | November-17-21  |  |  |  |
| 319817    | September-21-20 |  | 338487 | August-11-20    |  |  |  |
| 320674    | March-17-20     |  | 338697 | May-24-20       |  |  |  |
| 320675    | March-17-20     |  | 338816 | October-20-21   |  |  |  |
| 321390    | September-21-21 |  | 338817 | October-20-21   |  |  |  |
| 321976    | March-01-21     |  | 339200 | April-14-20     |  |  |  |
| 322456    | May-03-21       |  | 339207 | January-15-21   |  |  |  |
| 322457    | May-03-21       |  | 339269 | October-20-20   |  |  |  |
| 322531    | September-21-20 |  | 339348 | October-11-21   |  |  |  |
| 322816    | February-05-20  |  | 339388 | June-30-20      |  |  |  |
| 324807    | October-20-20   |  | 339716 | September-21-20 |  |  |  |
| 324984    | September-21-20 |  | 340089 | March-01-21     |  |  |  |
| 324985    | September-21-20 |  | 340274 | October-20-20   |  |  |  |
| 324986    | October-20-20   |  | 340424 | January-15-21   |  |  |  |
| 325622    | September-21-20 |  | 340768 | September-21-21 |  |  |  |
| 325663    | September-21-20 |  | 340947 | September-21-21 |  |  |  |
| 325781    | August-11-20    |  | 341130 | September-21-20 |  |  |  |
| 325782    | September-21-21 |  | 343042 | December-15-21  |  |  |  |
| 325783    | September-21-21 |  | 343693 | October-26-20   |  |  |  |
| 326172    | May-24-20       |  | 344244 | September-21-20 |  |  |  |
| 326298    | June-05-20      |  | 344559 | August-11-20    |  |  |  |
| 326302    | May-24-20       |  | 344574 | September-21-21 |  |  |  |
| 326402    | December-15-21  |  | 344575 | September-21-21 |  |  |  |
| 326772    | August-11-20    |  | 344576 | September-21-21 |  |  |  |
| 326773    | May-24-20       |  | 200124 | October-31-19   |  |  |  |
| 326918    | October-20-21   |  | 200778 | October-31-19   |  |  |  |
| 326919    | October-20-21   |  | 227676 | October-31-19   |  |  |  |
| 326920    | October-20-21   |  | 227677 | October-31-19   |  |  |  |
| 326981    | May-03-21       |  | 266739 | October-31-19   |  |  |  |
| 327890    | February-13-21  |  | 274162 | October-31-19   |  |  |  |
| 328478    | January-15-21   |  | 286813 | October-31-19   |  |  |  |
| 329814    | January-15-21   |  | 115829 | October-31-19   |  |  |  |
| 329875    | September-21-21 |  |        |                 |  |  |  |
| 329877    | May-26-20       |  | 822    |                 |  |  |  |
| 329894    | October-11-21   |  |        |                 |  |  |  |
| 330484    | October-11-21   |  |        |                 |  |  |  |
| 330485    | October-11-21   |  |        |                 |  |  |  |
| 330524    | March-01-21     |  |        |                 |  |  |  |
| 331241    | March-24-21     |  |        |                 |  |  |  |
| 331242    | March-24-21     |  |        |                 |  |  |  |
| 331243    | September-21-21 |  |        |                 |  |  |  |
| 331263    | February-13-20  |  |        |                 |  |  |  |
| 331264    | September-21-21 |  |        |                 |  |  |  |

Huffman Lake Option Property

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November 2018  
Project Number: 195640

Appendix A



| Huffman Lake Option |                | Number of Claims = 43 |  |  | Surface Area = 629 Ha |  |  |
|---------------------|----------------|-----------------------|--|--|-----------------------|--|--|
| Claim               | Anniversary    |                       |  |  |                       |  |  |
| 110078              | August-23-20   |                       |  |  |                       |  |  |
| 123489              | November-13-20 |                       |  |  |                       |  |  |
| 130134              | August-23-20   |                       |  |  |                       |  |  |
| 130922              | August-23-20   |                       |  |  |                       |  |  |
| 133113              | August-23-20   |                       |  |  |                       |  |  |
| 135491              | November-13-20 |                       |  |  |                       |  |  |
| 139061              | August-23-20   |                       |  |  |                       |  |  |
| 141529              | November-13-20 |                       |  |  |                       |  |  |
| 141530              | November-13-20 |                       |  |  |                       |  |  |
| 141531              | November-13-20 |                       |  |  |                       |  |  |
| 147628              | August-23-20   |                       |  |  |                       |  |  |
| 149194              | August-23-20   |                       |  |  |                       |  |  |
| 176242              | August-23-20   |                       |  |  |                       |  |  |
| 180694              | November-13-20 |                       |  |  |                       |  |  |
| 183601              | August-23-20   |                       |  |  |                       |  |  |
| 187452              | November-13-20 |                       |  |  |                       |  |  |
| 187453              | November-13-20 |                       |  |  |                       |  |  |
| 187454              | November-13-20 |                       |  |  |                       |  |  |
| 187455              | November-13-20 |                       |  |  |                       |  |  |
| 195740              | August-23-20   |                       |  |  |                       |  |  |
| 195741              | August-23-20   |                       |  |  |                       |  |  |
| 195751              | August-23-20   |                       |  |  |                       |  |  |
| 199674              | November-13-20 |                       |  |  |                       |  |  |
| 216662              | November-13-20 |                       |  |  |                       |  |  |
| 235281              | November-13-20 |                       |  |  |                       |  |  |
| 236129              | November-13-20 |                       |  |  |                       |  |  |
| 250331              | August-23-20   |                       |  |  |                       |  |  |
| 250347              | August-23-20   |                       |  |  |                       |  |  |
| 259880              | August-23-20   |                       |  |  |                       |  |  |
| 262384              | August-23-20   |                       |  |  |                       |  |  |
| 262385              | August-23-20   |                       |  |  |                       |  |  |
| 262386              | August-23-20   |                       |  |  |                       |  |  |
| 271293              | August-23-20   |                       |  |  |                       |  |  |
| 278863              | August-23-20   |                       |  |  |                       |  |  |
| 291331              | November-13-20 |                       |  |  |                       |  |  |
| 301171              | August-23-20   |                       |  |  |                       |  |  |
| 303466              | November-13-20 |                       |  |  |                       |  |  |
| 307615              | August-23-20   |                       |  |  |                       |  |  |
| 316906              | August-23-20   |                       |  |  |                       |  |  |
| 316907              | August-23-20   |                       |  |  |                       |  |  |
| 320156              | November-13-20 |                       |  |  |                       |  |  |
| 332744              | August-23-20   |                       |  |  |                       |  |  |
| 342225              | November-13-20 |                       |  |  |                       |  |  |
| 43                  |                |                       |  |  |                       |  |  |

Falcon Gold Option Property

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November 2018  
Project Number: 195640

Appendix A



| Falcon Gold Option |                 | Number of Claims = 30 |  |  | Surface Area = 472 Ha |  |
|--------------------|-----------------|-----------------------|--|--|-----------------------|--|
| Claim              | Anniversary     |                       |  |  |                       |  |
| 103496             | September-23-20 |                       |  |  |                       |  |
| 109931             | September-14-20 |                       |  |  |                       |  |
| 119734             | November-02-20  |                       |  |  |                       |  |
| 122718             | November-02-20  |                       |  |  |                       |  |
| 129116             | November-02-20  |                       |  |  |                       |  |
| 133589             | August-19-20    |                       |  |  |                       |  |
| 137582             | August-19-20    |                       |  |  |                       |  |
| 165062             | September-23-20 |                       |  |  |                       |  |
| 174204             | November-02-20  |                       |  |  |                       |  |
| 193139             | November-02-20  |                       |  |  |                       |  |
| 194534             | September-23-20 |                       |  |  |                       |  |
| 198930             | November-02-20  |                       |  |  |                       |  |
| 209873             | September-14-20 |                       |  |  |                       |  |
| 210921             | November-02-20  |                       |  |  |                       |  |
| 219473             | August-19-20    |                       |  |  |                       |  |
| 226770             | July-09-20      |                       |  |  |                       |  |
| 243810             | August-19-20    |                       |  |  |                       |  |
| 254720             | October-17-20   |                       |  |  |                       |  |
| 256837             | September-23-20 |                       |  |  |                       |  |
| 259080             | September-23-20 |                       |  |  |                       |  |
| 259689             | November-02-20  |                       |  |  |                       |  |
| 269010             | September-23-20 |                       |  |  |                       |  |
| 282736             | July-09-20      |                       |  |  |                       |  |
| 283858             | September-14-20 |                       |  |  |                       |  |
| 291934             | October-17-20   |                       |  |  |                       |  |
| 301706             | November-02-20  |                       |  |  |                       |  |
| 304615             | September-14-20 |                       |  |  |                       |  |
| 308190             | November-02-20  |                       |  |  |                       |  |
| 317833             | August-19-20    |                       |  |  |                       |  |
| 325675             | September-23-20 |                       |  |  |                       |  |
|                    |                 |                       |  |  |                       |  |
| 30                 |                 |                       |  |  |                       |  |

GoldON Chester Property

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November 2018  
Project Number: 195640

Appendix A



| GoldON Chester |             | Number of Claims = 4 |  |  | Surface Area = 29 Ha |  |  |
|----------------|-------------|----------------------|--|--|----------------------|--|--|
| Claim          | Anniversary |                      |  |  |                      |  |  |
| 102098         | June-04-19  |                      |  |  |                      |  |  |
| 102099         | June-04-19  |                      |  |  |                      |  |  |
| 231590         | June-04-19  |                      |  |  |                      |  |  |
| 280319         | June-04-19  |                      |  |  |                      |  |  |
|                |             |                      |  |  |                      |  |  |
| 4              |             |                      |  |  |                      |  |  |



| GoldON Neville-Potier |             | Number of Claims = 297 |        | Surface Area = 6,563 Ha |  |        |             |
|-----------------------|-------------|------------------------|--------|-------------------------|--|--------|-------------|
| Claim                 | Anniversary |                        | Claim  | Anniversary             |  | Claim  | Anniversary |
| 100159                | March-16-19 |                        | 128387 | March-16-19             |  | 175246 | March-16-19 |
| 100363                | March-16-19 |                        | 128969 | March-16-19             |  | 175247 | March-16-19 |
| 100364                | March-16-19 |                        | 128970 | March-16-19             |  | 175248 | March-16-19 |
| 100949                | March-16-19 |                        | 129803 | March-16-19             |  | 175787 | March-16-19 |
| 102083                | March-16-19 |                        | 129804 | March-16-19             |  | 175788 | March-16-19 |
| 102084                | March-16-19 |                        | 129909 | March-16-19             |  | 177065 | March-16-19 |
| 102085                | March-16-19 |                        | 131207 | March-16-19             |  | 177078 | March-16-19 |
| 102335                | March-16-19 |                        | 135492 | March-16-19             |  | 177079 | March-16-19 |
| 102336                | March-16-19 |                        | 135956 | March-16-19             |  | 177228 | March-16-19 |
| 104627                | March-16-19 |                        | 141532 | March-16-19             |  | 177229 | March-16-19 |
| 105073                | March-16-19 |                        | 143362 | March-16-19             |  | 177713 | March-16-19 |
| 106326                | March-16-19 |                        | 143415 | March-16-19             |  | 178795 | March-16-19 |
| 106327                | March-16-19 |                        | 143416 | March-16-19             |  | 180117 | March-16-19 |
| 106328                | March-16-19 |                        | 145483 | March-16-19             |  | 181920 | March-16-19 |
| 106329                | March-16-19 |                        | 145807 | March-16-19             |  | 184384 | March-16-19 |
| 108284                | March-16-19 |                        | 147800 | March-16-19             |  | 184385 | March-16-19 |
| 110088                | March-16-19 |                        | 150875 | March-16-19             |  | 184386 | March-16-19 |
| 111691                | March-16-19 |                        | 150876 | March-16-19             |  | 184394 | March-16-19 |
| 112212                | March-16-19 |                        | 151864 | March-16-19             |  | 184395 | March-16-19 |
| 115969                | March-16-19 |                        | 156281 | March-16-19             |  | 185703 | March-16-19 |
| 116095                | March-16-19 |                        | 156313 | March-16-19             |  | 187456 | March-16-19 |
| 116096                | March-16-19 |                        | 156314 | March-16-19             |  | 191228 | March-16-19 |
| 116097                | March-16-19 |                        | 156344 | March-16-19             |  | 191769 | March-16-19 |
| 116604                | March-16-19 |                        | 156345 | March-16-19             |  | 191770 | March-16-19 |
| 116605                | March-16-19 |                        | 157459 | March-16-19             |  | 191771 | March-16-19 |
| 116606                | March-16-19 |                        | 157473 | March-16-19             |  | 194826 | March-16-19 |
| 116990                | March-16-19 |                        | 157474 | March-16-19             |  | 195916 | March-16-19 |
| 117011                | March-16-19 |                        | 157475 | March-16-19             |  | 202333 | March-16-19 |
| 117012                | March-16-19 |                        | 157476 | March-16-19             |  | 202334 | March-16-19 |
| 117055                | March-16-19 |                        | 157477 | March-16-19             |  | 202769 | March-16-19 |
| 117605                | March-16-19 |                        | 157527 | March-16-19             |  | 202770 | March-16-19 |
| 118581                | March-16-19 |                        | 157528 | March-16-19             |  | 202771 | March-16-19 |
| 118586                | March-16-19 |                        | 158241 | March-16-19             |  | 202823 | March-16-19 |
| 119497                | March-16-19 |                        | 158242 | March-16-19             |  | 202824 | March-16-19 |
| 119517                | March-16-19 |                        | 161894 | March-16-19             |  | 202825 | March-16-19 |
| 122833                | March-16-19 |                        | 161901 | March-16-19             |  | 204056 | March-16-19 |
| 123627                | March-16-19 |                        | 162955 | March-16-19             |  | 204170 | March-16-19 |
| 123628                | March-16-19 |                        | 162971 | March-16-19             |  | 204171 | March-16-19 |
| 123629                | March-16-19 |                        | 163535 | March-16-19             |  | 210861 | March-16-19 |
| 123963                | March-16-19 |                        | 163858 | March-16-19             |  | 210862 | March-16-19 |
| 123964                | March-16-19 |                        | 163859 | March-16-19             |  | 211420 | March-16-19 |
| 126185                | March-16-19 |                        | 164265 | March-16-19             |  | 212442 | March-16-19 |
| 127672                | March-16-19 |                        | 164266 | March-16-19             |  | 212443 | March-16-19 |
| 127673                | March-16-19 |                        | 164887 | March-16-19             |  | 212799 | March-16-19 |
| 127674                | March-16-19 |                        | 165523 | March-16-19             |  | 213444 | March-16-19 |
| 127836                | March-16-19 |                        | 165554 | March-16-19             |  | 213445 | March-16-19 |
| 127837                | March-16-19 |                        | 168479 | March-16-19             |  | 214448 | March-16-19 |
| 128225                | March-16-19 |                        | 168480 | March-16-19             |  | 214461 | March-16-19 |
| 128365                | March-16-19 |                        | 171459 | March-16-19             |  | 214462 | March-16-19 |

| Goldon Neville Potter |             |  |        |             |  |        |             |
|-----------------------|-------------|--|--------|-------------|--|--------|-------------|
| Claim                 | Anniversary |  | Claim  | Anniversary |  | Claim  | Anniversary |
| 216082                | March-16-19 |  | 253022 | March-16-19 |  | 295769 | March-16-19 |
| 217282                | March-16-19 |  | 254185 | June-14-19  |  | 296211 | March-16-19 |
| 218096                | March-16-19 |  | 254327 | March-16-19 |  | 296218 | March-16-19 |
| 221138                | March-16-19 |  | 258353 | March-16-19 |  | 296220 | March-16-19 |
| 221139                | March-16-19 |  | 258354 | March-16-19 |  | 296221 | March-16-19 |
| 221172                | March-16-19 |  | 258382 | March-16-19 |  | 296280 | March-16-19 |
| 221701                | March-16-19 |  | 258383 | March-16-19 |  | 296281 | March-16-19 |
| 222917                | March-16-19 |  | 258839 | March-16-19 |  | 296282 | March-16-19 |
| 222918                | March-16-19 |  | 258840 | March-16-19 |  | 297317 | March-16-19 |
| 222919                | March-16-19 |  | 258841 | March-16-19 |  | 297613 | March-16-19 |
| 222959                | March-16-19 |  | 259764 | March-16-19 |  | 297614 | March-16-19 |
| 223119                | March-16-19 |  | 260238 | March-16-19 |  | 298295 | March-16-19 |
| 224182                | March-16-19 |  | 260239 | March-16-19 |  | 298296 | March-16-19 |
| 224949                | March-16-19 |  | 260240 | March-16-19 |  | 299113 | June-14-19  |
| 224950                | March-16-19 |  | 260944 | March-16-19 |  | 299801 | March-16-19 |
| 224951                | March-16-19 |  | 268256 | March-16-19 |  | 299802 | March-16-19 |
| 224974                | March-16-19 |  | 268257 | March-16-19 |  | 302382 | March-16-19 |
| 227384                | March-16-19 |  | 269892 | March-16-19 |  | 302892 | March-16-19 |
| 229175                | March-16-19 |  | 272484 | March-16-19 |  | 303467 | March-16-19 |
| 229176                | March-16-19 |  | 276352 | March-16-19 |  | 303468 | March-16-19 |
| 229681                | March-16-19 |  | 276850 | March-16-19 |  | 310741 | March-16-19 |
| 229682                | March-16-19 |  | 276867 | March-16-19 |  | 310893 | June-14-19  |
| 230242                | March-16-19 |  | 276868 | March-16-19 |  | 312717 | March-16-19 |
| 230645                | March-16-19 |  | 276869 | March-16-19 |  | 312750 | March-16-19 |
| 230646                | March-16-19 |  | 276878 | March-16-19 |  | 314710 | March-16-19 |
| 230647                | March-16-19 |  | 277424 | March-16-19 |  | 314711 | March-16-19 |
| 231575                | March-16-19 |  | 278916 | March-16-19 |  | 314712 | March-16-19 |
| 232248                | March-16-19 |  | 278962 | March-16-19 |  | 316052 | March-16-19 |
| 232440                | June-14-19  |  | 279096 | March-16-19 |  | 317137 | March-16-19 |
| 234698                | March-16-19 |  | 279685 | March-16-19 |  | 319014 | March-16-19 |
| 234699                | March-16-19 |  | 279686 | March-16-19 |  | 320157 | March-16-19 |
| 236130                | March-16-19 |  | 281464 | March-16-19 |  | 320316 | March-16-19 |
| 237356                | March-16-19 |  | 282196 | March-16-19 |  | 324918 | March-16-19 |
| 237357                | March-16-19 |  | 282705 | March-16-19 |  | 324919 | March-16-19 |
| 238857                | March-16-19 |  | 282706 | March-16-19 |  | 324957 | March-16-19 |
| 238858                | March-16-19 |  | 283284 | March-16-19 |  | 325508 | March-16-19 |
| 241275                | June-14-19  |  | 283285 | March-16-19 |  | 326350 | March-16-19 |
| 241276                | March-16-19 |  | 283758 | March-16-19 |  | 327413 | March-16-19 |
| 241277                | March-16-19 |  | 283759 | March-16-19 |  | 327414 | March-16-19 |
| 241278                | March-16-19 |  | 288393 | March-16-19 |  | 327415 | March-16-19 |
| 241313                | March-16-19 |  | 288394 | March-16-19 |  | 338743 | March-16-19 |
| 242753                | March-16-19 |  | 288429 | March-16-19 |  | 338744 | March-16-19 |
| 242778                | March-16-19 |  | 289517 | March-16-19 |  | 339239 | March-16-19 |
| 246256                | March-16-19 |  | 289518 | March-16-19 |  | 339928 | March-16-19 |
| 246257                | March-16-19 |  | 289519 | March-16-19 |  | 340095 | June-14-19  |
| 251145                | March-16-19 |  | 291332 | March-16-19 |  | 340096 | June-14-19  |
| 253019                | March-16-19 |  | 291333 | March-16-19 |  | 341172 | March-16-19 |
| 253020                | March-16-19 |  | 291981 | June-14-19  |  | 341652 | March-16-19 |
| 253021                | March-16-19 |  | 295743 | March-16-19 |  | 341653 | March-16-19 |





| GoldON Mollie River |                 | Number of Claims = 42 |  |  | Surface Area = 677 Ha |  |  |
|---------------------|-----------------|-----------------------|--|--|-----------------------|--|--|
| Claim               | Anniversary     |                       |  |  |                       |  |  |
| 106927              | June-18-19      |                       |  |  |                       |  |  |
| 106928              | June-18-19      |                       |  |  |                       |  |  |
| 107100              | June-18-19      |                       |  |  |                       |  |  |
| 129229              | June-18-19      |                       |  |  |                       |  |  |
| 129230              | June-18-19      |                       |  |  |                       |  |  |
| 129231              | June-18-19      |                       |  |  |                       |  |  |
| 140710              | June-18-19      |                       |  |  |                       |  |  |
| 140711              | June-18-19      |                       |  |  |                       |  |  |
| 146770              | June-18-19      |                       |  |  |                       |  |  |
| 175376              | June-18-19      |                       |  |  |                       |  |  |
| 193390              | June-18-19      |                       |  |  |                       |  |  |
| 221957              | June-18-19      |                       |  |  |                       |  |  |
| 221958              | June-18-19      |                       |  |  |                       |  |  |
| 221959              | June-18-19      |                       |  |  |                       |  |  |
| 222605              | June-18-19      |                       |  |  |                       |  |  |
| 229943              | June-18-19      |                       |  |  |                       |  |  |
| 229944              | June-18-19      |                       |  |  |                       |  |  |
| 230612              | June-18-19      |                       |  |  |                       |  |  |
| 230613              | June-18-19      |                       |  |  |                       |  |  |
| 230614              | June-18-19      |                       |  |  |                       |  |  |
| 242101              | June-18-19      |                       |  |  |                       |  |  |
| 242745              | June-18-19      |                       |  |  |                       |  |  |
| 242746              | June-18-19      |                       |  |  |                       |  |  |
| 250096              | June-18-19      |                       |  |  |                       |  |  |
| 250097              | June-18-19      |                       |  |  |                       |  |  |
| 278632              | June-18-19      |                       |  |  |                       |  |  |
| 278633              | June-18-19      |                       |  |  |                       |  |  |
| 288539              | June-18-19      |                       |  |  |                       |  |  |
| 297302              | June-18-19      |                       |  |  |                       |  |  |
| 309978              | June-18-19      |                       |  |  |                       |  |  |
| 315346              | June-18-19      |                       |  |  |                       |  |  |
| 316021              | June-18-19      |                       |  |  |                       |  |  |
| 316022              | June-18-19      |                       |  |  |                       |  |  |
| 316023              | June-18-19      |                       |  |  |                       |  |  |
| 336906              | June-18-19      |                       |  |  |                       |  |  |
| 336907              | June-18-19      |                       |  |  |                       |  |  |
| 187019              | September-09-19 |                       |  |  |                       |  |  |
| 199709              | September-09-19 |                       |  |  |                       |  |  |
| 199710              | September-09-19 |                       |  |  |                       |  |  |
| 254341              | September-09-19 |                       |  |  |                       |  |  |
| 254342              | September-09-19 |                       |  |  |                       |  |  |
| 302395              | September-09-19 |                       |  |  |                       |  |  |
|                     |                 |                       |  |  |                       |  |  |
| 42                  |                 |                       |  |  |                       |  |  |

TME North Property

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November 2018  
Project Number: 195640

Appendix A



| TME North |             | Number of Claims = 41 |  |  | Surface Area = 891 Ha |  |  |
|-----------|-------------|-----------------------|--|--|-----------------------|--|--|
| Claim     | Anniversary |                       |  |  |                       |  |  |
| 103966    | June-14-19  |                       |  |  |                       |  |  |
| 103967    | June-14-19  |                       |  |  |                       |  |  |
| 103968    | June-14-19  |                       |  |  |                       |  |  |
| 103969    | June-14-19  |                       |  |  |                       |  |  |
| 107089    | June-14-19  |                       |  |  |                       |  |  |
| 107713    | June-14-19  |                       |  |  |                       |  |  |
| 119236    | June-14-19  |                       |  |  |                       |  |  |
| 120603    | June-14-19  |                       |  |  |                       |  |  |
| 120604    | June-14-19  |                       |  |  |                       |  |  |
| 129874    | June-14-19  |                       |  |  |                       |  |  |
| 129875    | June-14-19  |                       |  |  |                       |  |  |
| 129876    | June-14-19  |                       |  |  |                       |  |  |
| 129877    | June-14-19  |                       |  |  |                       |  |  |
| 130755    | June-14-19  |                       |  |  |                       |  |  |
| 136142    | June-14-19  |                       |  |  |                       |  |  |
| 136143    | June-14-19  |                       |  |  |                       |  |  |
| 146755    | June-14-19  |                       |  |  |                       |  |  |
| 159076    | June-14-19  |                       |  |  |                       |  |  |
| 176011    | June-14-19  |                       |  |  |                       |  |  |
| 178610    | June-14-19  |                       |  |  |                       |  |  |
| 188121    | June-14-19  |                       |  |  |                       |  |  |
| 193377    | June-14-19  |                       |  |  |                       |  |  |
| 222594    | June-14-19  |                       |  |  |                       |  |  |
| 224468    | June-14-19  |                       |  |  |                       |  |  |
| 232437    | June-14-19  |                       |  |  |                       |  |  |
| 232438    | June-14-19  |                       |  |  |                       |  |  |
| 232439    | June-14-19  |                       |  |  |                       |  |  |
| 236768    | June-14-19  |                       |  |  |                       |  |  |
| 236769    | June-14-19  |                       |  |  |                       |  |  |
| 236770    | June-14-19  |                       |  |  |                       |  |  |
| 250081    | June-14-19  |                       |  |  |                       |  |  |
| 250082    | June-14-19  |                       |  |  |                       |  |  |
| 250083    | June-14-19  |                       |  |  |                       |  |  |
| 269148    | June-14-19  |                       |  |  |                       |  |  |
| 280436    | June-14-19  |                       |  |  |                       |  |  |
| 280437    | June-14-19  |                       |  |  |                       |  |  |
| 283929    | June-14-19  |                       |  |  |                       |  |  |
| 299112    | June-14-19  |                       |  |  |                       |  |  |
| 304112    | June-14-19  |                       |  |  |                       |  |  |
| 309969    | June-14-19  |                       |  |  |                       |  |  |
| 316012    | June-14-19  |                       |  |  |                       |  |  |
|           |             |                       |  |  |                       |  |  |
| 41        |             |                       |  |  |                       |  |  |

TME East Property

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November 2018  
Project Number: 195640

Appendix A



| TME East | Number of Claims = 273 |  | Surface Area = 4,717 Ha |                |  |        |                |
|----------|------------------------|--|-------------------------|----------------|--|--------|----------------|
| Claim    | Anniversary            |  | Claim                   | Anniversary    |  | Claim  | Anniversary    |
| 101925   | February-03-19         |  | 155482                  | February-13-22 |  | 209646 | February-03-20 |
| 102747   | May-26-22              |  | 157005                  | February-03-20 |  | 210231 | March-08-22    |
| 104412   | February-03-21         |  | 157061                  | February-03-20 |  | 212909 | February-03-22 |
| 107582   | February-03-19         |  | 163087                  | February-03-21 |  | 214328 | February-03-20 |
| 107887   | February-03-22         |  | 163143                  | February-03-22 |  | 214519 | October-17-20  |
| 107888   | February-03-22         |  | 163144                  | February-03-20 |  | 216672 | February-03-19 |
| 107889   | February-03-22         |  | 163145                  | February-03-20 |  | 216710 | February-03-19 |
| 107890   | February-03-22         |  | 164198                  | February-03-19 |  | 216711 | February-03-19 |
| 109161   | February-03-20         |  | 164199                  | February-03-19 |  | 218422 | May-26-22      |
| 109162   | February-03-20         |  | 165491                  | February-03-22 |  | 218423 | May-26-22      |
| 109163   | February-03-20         |  | 165492                  | February-03-22 |  | 222452 | February-03-20 |
| 111581   | February-03-22         |  | 170472                  | February-03-19 |  | 222453 | February-03-20 |
| 111759   | October-17-20          |  | 175726                  | February-03-22 |  | 224922 | February-03-22 |
| 111865   | February-03-22         |  | 175727                  | February-03-22 |  | 226033 | February-03-22 |
| 116452   | May-26-22              |  | 176360                  | February-03-19 |  | 226375 | May-26-22      |
| 117243   | February-03-19         |  | 176361                  | October-17-20  |  | 226376 | May-26-22      |
| 117244   | February-03-19         |  | 176526                  | February-03-20 |  | 228693 | February-03-20 |
| 119684   | February-03-20         |  | 176959                  | February-03-22 |  | 229841 | February-03-20 |
| 119748   | February-03-20         |  | 177554                  | February-03-20 |  | 229842 | February-03-20 |
| 119749   | February-03-20         |  | 177555                  | February-03-20 |  | 229843 | February-03-20 |
| 120329   | February-03-22         |  | 177556                  | February-03-20 |  | 230408 | February-03-20 |
| 120330   | February-03-22         |  | 177714                  | February-03-20 |  | 230888 | February-03-19 |
| 121484   | February-03-20         |  | 177718                  | May-07-22      |  | 230889 | February-03-19 |
| 123498   | February-03-19         |  | 177719                  | May-26-22      |  | 231585 | May-07-22      |
| 124268   | February-03-19         |  | 184931                  | February-03-20 |  | 235297 | February-03-20 |
| 124269   | February-03-19         |  | 187473                  | February-03-19 |  | 235298 | February-03-19 |
| 124835   | February-03-22         |  | 187474                  | February-03-19 |  | 236139 | February-03-19 |
| 127554   | March-08-22            |  | 187475                  | February-03-19 |  | 236140 | February-03-19 |
| 128900   | February-03-19         |  | 187476                  | February-03-19 |  | 236145 | February-03-19 |
| 128901   | February-03-20         |  | 187494                  | February-03-19 |  | 236945 | February-03-19 |
| 128902   | February-03-19         |  | 192483                  | February-03-21 |  | 242379 | October-17-20  |
| 131872   | February-03-19         |  | 194258                  | February-03-22 |  | 242380 | October-17-20  |
| 131874   | February-03-22         |  | 195226                  | February-03-19 |  | 242469 | February-03-22 |
| 132333   | February-03-22         |  | 195820                  | February-03-22 |  | 242541 | February-03-20 |
| 132345   | February-03-20         |  | 196598                  | February-03-19 |  | 242542 | February-03-20 |
| 132346   | February-03-20         |  | 197136                  | February-03-20 |  | 242552 | February-03-21 |
| 135504   | February-03-19         |  | 197137                  | February-03-20 |  | 242608 | February-03-20 |
| 135534   | February-03-19         |  | 199685                  | February-03-19 |  | 242609 | February-03-20 |
| 136842   | February-03-22         |  | 199697                  | February-03-19 |  | 242610 | February-03-20 |
| 138877   | February-03-20         |  | 200475                  | February-03-19 |  | 243693 | October-17-20  |
| 141540   | February-03-19         |  | 201008                  | February-03-22 |  | 243694 | October-17-20  |
| 144837   | February-03-20         |  | 201009                  | February-03-22 |  | 243786 | February-03-22 |
| 145442   | February-03-19         |  | 201010                  | February-03-22 |  | 243787 | February-03-22 |
| 147091   | February-03-19         |  | 203499                  | February-03-19 |  | 244195 | February-03-20 |
| 148470   | February-03-22         |  | 204172                  | February-03-20 |  | 244196 | February-03-20 |
| 149008   | February-03-22         |  | 204173                  | February-03-20 |  | 244917 | February-03-20 |
| 149680   | February-03-20         |  | 204174                  | February-03-20 |  | 244918 | February-03-20 |
| 151965   | February-03-19         |  | 204180                  | May-07-22      |  | 251737 | February-03-20 |
| 153091   | May-26-22              |  | 205125                  | February-03-20 |  | 251815 | February-03-19 |

| TME East |                |  |        |                |  |        |                |
|----------|----------------|--|--------|----------------|--|--------|----------------|
| Claim    | Anniversary    |  | Claim  | Anniversary    |  | Claim  | Anniversary    |
| 251819   | February-03-22 |  | 285676 | May-26-22      |  | 325639 | February-03-20 |
| 254264   | February-03-19 |  | 286669 | February-03-20 |  | 325687 | February-03-20 |
| 256116   | February-03-22 |  | 287506 | May-26-22      |  | 325688 | February-03-20 |
| 256117   | February-03-22 |  | 292287 | February-03-19 |  | 326205 | February-03-19 |
| 256118   | February-03-22 |  | 292680 | February-03-22 |  | 326206 | February-03-19 |
| 259036   | February-03-20 |  | 293849 | February-03-19 |  | 327426 | May-07-22      |
| 259037   | February-03-20 |  | 293850 | February-03-19 |  | 327538 | February-03-22 |
| 259097   | February-03-22 |  | 294677 | February-03-20 |  | 329125 | February-03-19 |
| 259098   | February-03-20 |  | 294678 | February-03-20 |  | 329126 | February-03-19 |
| 259566   | February-03-19 |  | 294679 | February-03-20 |  | 329127 | February-03-19 |
| 259567   | February-03-19 |  | 294680 | February-03-20 |  | 330521 | February-03-19 |
| 260251   | May-07-22      |  | 296468 | February-03-20 |  | 330522 | February-03-19 |
| 260252   | May-26-22      |  | 297036 | February-03-20 |  | 337498 | February-03-20 |
| 260885   | February-03-22 |  | 297615 | February-03-20 |  | 337503 | February-03-21 |
| 260886   | February-03-22 |  | 297626 | May-07-22      |  | 337873 | February-03-22 |
| 263741   | February-03-20 |  | 300283 | February-03-20 |  | 338059 | February-03-20 |
| 263742   | February-03-20 |  | 300284 | February-03-20 |  | 339144 | February-03-20 |
| 263743   | February-03-20 |  | 300328 | February-03-22 |  | 339297 | October-17-20  |
| 264460   | February-03-20 |  | 300382 | October-17-20  |  | 339845 | February-03-20 |
| 269185   | February-03-19 |  | 301000 | February-03-20 |  | 339846 | February-03-20 |
| 269953   | October-17-20  |  | 303473 | February-03-19 |  | 339883 | February-03-22 |
| 270557   | February-03-19 |  | 303474 | February-03-19 |  | 342244 | February-03-19 |
| 270558   | February-03-19 |  | 303484 | February-03-20 |  | 342262 | February-03-19 |
| 271286   | December-03-22 |  | 303485 | February-03-19 |  | 342454 | February-03-19 |
| 273195   | February-03-19 |  | 306864 | February-03-20 |  | 343177 | December-03-22 |
| 274087   | December-03-22 |  | 309717 | February-03-19 |  | 343572 | February-03-22 |
| 274867   | February-13-22 |  | 311026 | February-03-19 |  | 345074 | February-03-20 |
| 277604   | February-03-20 |  | 312681 | February-03-20 |  | 345075 | February-03-20 |
| 277605   | February-03-20 |  | 312682 | February-03-19 |  |        |                |
| 277606   | February-03-20 |  | 312683 | February-03-19 |  | 273    |                |
| 277612   | February-03-21 |  | 312684 | February-03-19 |  |        |                |
| 277613   | February-03-21 |  | 316421 | February-03-19 |  |        |                |
| 278103   | February-03-19 |  | 317813 | February-03-19 |  |        |                |
| 278104   | February-03-19 |  | 317816 | February-03-22 |  |        |                |
| 278393   | February-03-21 |  | 318271 | February-03-20 |  |        |                |
| 279625   | February-03-19 |  | 318272 | February-03-20 |  |        |                |
| 279626   | February-03-19 |  | 318954 | February-03-20 |  |        |                |
| 280307   | February-03-20 |  | 318955 | February-03-20 |  |        |                |
| 280728   | February-03-20 |  | 320175 | February-03-19 |  |        |                |
| 280767   | February-03-22 |  | 320176 | February-03-19 |  |        |                |
| 280780   | February-03-20 |  | 320177 | February-03-19 |  |        |                |
| 280928   | February-03-22 |  | 320198 | February-03-19 |  |        |                |
| 282135   | February-03-20 |  | 320199 | February-03-19 |  |        |                |
| 282136   | February-03-20 |  | 320650 | December-03-22 |  |        |                |
| 283293   | February-03-19 |  | 321723 | May-26-22      |  |        |                |
| 283302   | February-03-20 |  | 322478 | February-03-19 |  |        |                |
| 283322   | February-03-19 |  | 322812 | December-03-22 |  |        |                |
| 284636   | February-03-22 |  | 322813 | December-03-22 |  |        |                |
| 285240   | February-03-19 |  | 325638 | February-03-20 |  |        |                |

TME South Property

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November 2018  
Project Number: 195640

Appendix A



| TME South |                | Number of Claims = 226 |        | Surface Area = 4,818 Ha |  |        |                |
|-----------|----------------|------------------------|--------|-------------------------|--|--------|----------------|
| Claim     | Anniversary    |                        | Claim  | Anniversary             |  | Claim  | Anniversary    |
| 100039    | May-30-19      |                        | 155442 | May-30-19               |  | 208794 | May-30-19      |
| 100092    | May-30-19      |                        | 155443 | May-30-19               |  | 208822 | May-30-19      |
| 100093    | May-30-19      |                        | 158122 | May-30-19               |  | 214324 | May-30-19      |
| 100513    | May-30-19      |                        | 158123 | May-30-19               |  | 215071 | May-30-19      |
| 100529    | May-30-19      |                        | 158124 | May-30-19               |  | 216379 | May-30-19      |
| 100530    | May-30-19      |                        | 158209 | May-30-19               |  | 220216 | February-03-19 |
| 100535    | May-30-19      |                        | 163652 | May-30-19               |  | 220273 | May-30-19      |
| 100537    | May-30-19      |                        | 164889 | May-30-19               |  | 220274 | May-30-19      |
| 100557    | May-30-19      |                        | 166890 | May-30-19               |  | 220275 | May-30-19      |
| 100558    | May-30-19      |                        | 170832 | February-03-19          |  | 220872 | May-30-19      |
| 101063    | May-30-19      |                        | 170833 | February-03-19          |  | 220873 | May-30-19      |
| 101873    | May-30-19      |                        | 171501 | May-30-19               |  | 220895 | May-30-19      |
| 101874    | May-30-19      |                        | 171502 | May-30-19               |  | 224293 | May-30-19      |
| 101875    | May-30-19      |                        | 171506 | May-30-19               |  | 227001 | February-03-19 |
| 104206    | February-03-19 |                        | 171525 | May-30-19               |  | 227654 | May-30-19      |
| 109110    | February-03-19 |                        | 175473 | February-03-19          |  | 227655 | May-30-19      |
| 115645    | February-03-19 |                        | 176265 | May-30-19               |  | 227656 | May-30-19      |
| 115725    | May-30-19      |                        | 179666 | May-30-19               |  | 227657 | May-30-19      |
| 115726    | May-30-19      |                        | 179840 | February-03-19          |  | 227658 | May-30-19      |
| 115727    | May-30-19      |                        | 184892 | February-03-19          |  | 227661 | May-30-19      |
| 115813    | May-30-19      |                        | 184893 | February-03-19          |  | 227683 | May-30-19      |
| 115837    | May-30-19      |                        | 185874 | February-03-19          |  | 230339 | May-30-19      |
| 116098    | May-30-19      |                        | 185875 | February-03-19          |  | 230340 | May-30-19      |
| 116859    | May-30-19      |                        | 185876 | February-03-19          |  | 230922 | May-30-19      |
| 117271    | May-30-19      |                        | 192942 | February-03-19          |  | 231579 | May-30-19      |
| 120915    | May-30-19      |                        | 193653 | May-30-19               |  | 233190 | February-03-19 |
| 120916    | May-30-19      |                        | 194597 | May-30-19               |  | 233596 | May-30-19      |
| 123081    | May-30-19      |                        | 195638 | May-30-19               |  | 241772 | May-30-19      |
| 124996    | February-03-19 |                        | 195639 | May-30-19               |  | 243657 | May-30-19      |
| 124997    | May-30-19      |                        | 197086 | May-30-19               |  | 243658 | May-30-19      |
| 125569    | May-30-19      |                        | 197105 | May-30-19               |  | 244192 | May-30-19      |
| 125659    | May-30-19      |                        | 200102 | February-03-19          |  | 244193 | May-30-19      |
| 125660    | May-30-19      |                        | 200153 | May-30-19               |  | 245889 | February-03-19 |
| 128347    | May-30-19      |                        | 200154 | May-30-19               |  | 249587 | February-03-19 |
| 128348    | May-30-19      |                        | 200155 | May-30-19               |  | 249836 | May-30-19      |
| 129409    | February-03-19 |                        | 200156 | May-30-19               |  | 251728 | May-30-19      |
| 129605    | May-30-19      |                        | 200748 | May-30-19               |  | 252019 | February-03-19 |
| 129606    | May-30-19      |                        | 200749 | May-30-19               |  | 252020 | February-03-19 |
| 132287    | May-30-19      |                        | 200750 | May-30-19               |  | 252250 | May-30-19      |
| 132288    | May-30-19      |                        | 200757 | May-30-19               |  | 255362 | February-03-19 |
| 141486    | February-03-19 |                        | 200758 | May-30-19               |  | 259523 | May-30-19      |
| 142674    | May-30-19      |                        | 200760 | May-30-19               |  | 260242 | May-30-19      |
| 142675    | May-30-19      |                        | 200784 | May-30-19               |  | 260243 | May-30-19      |
| 142680    | May-30-19      |                        | 203523 | May-30-19               |  | 260244 | May-30-19      |
| 142698    | May-30-19      |                        | 208188 | May-30-19               |  | 262208 | May-30-19      |
| 145462    | May-30-19      |                        | 208189 | May-30-19               |  | 263696 | February-03-19 |
| 148968    | May-30-19      |                        | 208791 | May-30-19               |  | 266781 | May-30-19      |
| 154840    | May-30-19      |                        | 208792 | May-30-19               |  | 266782 | May-30-19      |
| 154841    | May-30-19      |                        | 208793 | May-30-19               |  | 266783 | May-30-19      |

| TME South |                |  |        |                |  |  |  |
|-----------|----------------|--|--------|----------------|--|--|--|
| Claim     | Anniversary    |  | Claim  | Anniversary    |  |  |  |
| 267386    | May-30-19      |  | 302596 | February-03-19 |  |  |  |
| 267389    | May-30-19      |  | 302597 | February-03-19 |  |  |  |
| 267390    | May-30-19      |  | 305270 | February-03-19 |  |  |  |
| 267392    | May-30-19      |  | 309094 | May-30-19      |  |  |  |
| 267410    | May-30-19      |  | 310758 | May-30-19      |  |  |  |
| 267411    | May-30-19      |  | 310777 | May-30-19      |  |  |  |
| 267412    | May-30-19      |  | 314128 | May-30-19      |  |  |  |
| 270252    | May-30-19      |  | 314129 | May-30-19      |  |  |  |
| 274137    | February-03-19 |  | 314716 | May-30-19      |  |  |  |
| 274138    | May-30-19      |  | 318267 | May-30-19      |  |  |  |
| 274139    | May-30-19      |  | 318268 | May-30-19      |  |  |  |
| 274140    | May-30-19      |  | 320690 | February-03-19 |  |  |  |
| 274801    | May-30-19      |  | 321765 | February-03-19 |  |  |  |
| 274815    | May-30-19      |  | 321766 | February-03-19 |  |  |  |
| 274816    | May-30-19      |  | 321767 | February-03-19 |  |  |  |
| 274817    | May-30-19      |  | 322856 | February-03-19 |  |  |  |
| 274818    | May-30-19      |  | 322857 | February-03-19 |  |  |  |
| 274820    | May-30-19      |  | 323503 | May-30-19      |  |  |  |
| 274822    | May-30-19      |  | 323507 | May-30-19      |  |  |  |
| 278049    | May-30-19      |  | 323510 | May-30-19      |  |  |  |
| 278050    | May-30-19      |  | 323537 | May-30-19      |  |  |  |
| 279587    | May-30-19      |  | 328507 | May-30-19      |  |  |  |
| 279588    | May-30-19      |  | 328840 | May-30-19      |  |  |  |
| 279589    | May-30-19      |  | 337050 | February-03-19 |  |  |  |
| 280194    | February-03-19 |  | 337225 | May-30-19      |  |  |  |
| 280726    | May-30-19      |  | 339100 | February-03-19 |  |  |  |
| 280734    | May-30-19      |  | 339165 | May-30-19      |  |  |  |
| 281168    | February-03-19 |  | 340839 | February-03-19 |  |  |  |
| 281169    | February-03-19 |  | 341285 | May-30-19      |  |  |  |
| 284511    | February-03-19 |  | 286814 | October-31-19  |  |  |  |
| 286275    | February-03-19 |  |        |                |  |  |  |
| 286953    | May-30-19      |  | 226    |                |  |  |  |
| 286955    | May-30-19      |  |        |                |  |  |  |
| 287466    | May-30-19      |  |        |                |  |  |  |
| 287467    | May-30-19      |  |        |                |  |  |  |
| 287490    | May-30-19      |  |        |                |  |  |  |
| 289649    | May-30-19      |  |        |                |  |  |  |
| 289650    | May-30-19      |  |        |                |  |  |  |
| 289714    | May-30-19      |  |        |                |  |  |  |
| 289715    | May-30-19      |  |        |                |  |  |  |
| 294197    | May-30-19      |  |        |                |  |  |  |
| 294198    | May-30-19      |  |        |                |  |  |  |
| 294202    | May-30-19      |  |        |                |  |  |  |
| 294223    | May-30-19      |  |        |                |  |  |  |
| 296724    | February-03-19 |  |        |                |  |  |  |
| 296891    | May-30-19      |  |        |                |  |  |  |
| 298790    | May-30-19      |  |        |                |  |  |  |
| 300248    | February-03-19 |  |        |                |  |  |  |
| 300277    | May-30-19      |  |        |                |  |  |  |

TME Makwa Property

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| <b>TME Makwa</b> | <b>Number of Claims = 24</b> |  | <b>Surface Area = 274 Ha</b> |  |  |  |  |
|------------------|------------------------------|--|------------------------------|--|--|--|--|
| <b>Claim</b>     | <b>Anniversary</b>           |  |                              |  |  |  |  |
| 108743           | November-09-18               |  |                              |  |  |  |  |
| 108744           | November-09-18               |  |                              |  |  |  |  |
| 111634           | February-12-19               |  |                              |  |  |  |  |
| 131169           | February-12-19               |  |                              |  |  |  |  |
| 131170           | February-12-19               |  |                              |  |  |  |  |
| 133700           | November-09-18               |  |                              |  |  |  |  |
| 133701           | February-12-19               |  |                              |  |  |  |  |
| 150369           | November-09-18               |  |                              |  |  |  |  |
| 178913           | February-12-19               |  |                              |  |  |  |  |
| 178914           | February-12-19               |  |                              |  |  |  |  |
| 195868           | February-12-19               |  |                              |  |  |  |  |
| 205832           | February-12-19               |  |                              |  |  |  |  |
| 245596           | November-09-18               |  |                              |  |  |  |  |
| 253665           | November-09-18               |  |                              |  |  |  |  |
| 253666           | November-09-18               |  |                              |  |  |  |  |
| 262568           | February-12-19               |  |                              |  |  |  |  |
| 265159           | November-09-18               |  |                              |  |  |  |  |
| 282844           | November-09-18               |  |                              |  |  |  |  |
| 282845           | November-09-18               |  |                              |  |  |  |  |
| 317087           | February-12-19               |  |                              |  |  |  |  |
| 319651           | November-09-18               |  |                              |  |  |  |  |
| 338662           | February-12-19               |  |                              |  |  |  |  |
| 338663           | February-12-19               |  |                              |  |  |  |  |
| 340522           | November-09-18               |  |                              |  |  |  |  |
| 24               |                              |  |                              |  |  |  |  |

TME Powerline Property

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| TME Powerline |               | Number of Claims = 144 |        |               | Surface Area = 3,044 Ha |        |               |
|---------------|---------------|------------------------|--------|---------------|-------------------------|--------|---------------|
| Claim         | Anniversary   |                        | Claim  | Anniversary   |                         | Claim  | Anniversary   |
| 104088        | January-24-19 |                        | 223509 | January-27-19 |                         | 331811 | March-03-19   |
| 108570        | January-24-19 |                        | 224733 | March-03-19   |                         | 331812 | January-27-19 |
| 108571        | January-24-19 |                        | 225081 | January-24-19 |                         | 338525 | January-24-19 |
| 111483        | January-24-19 |                        | 231052 | January-24-19 |                         | 338717 | January-24-19 |
| 111484        | January-24-19 |                        | 231053 | January-24-19 |                         | 340502 | January-24-19 |
| 121241        | January-24-19 |                        | 231054 | January-24-19 |                         | 131864 | January-24-19 |
| 124216        | January-24-19 |                        | 232759 | January-24-19 |                         | 132991 | January-24-19 |
| 129766        | January-24-19 |                        | 239256 | January-27-19 |                         | 132992 | January-24-19 |
| 130527        | January-24-19 |                        | 239257 | January-27-19 |                         | 149664 | January-24-19 |
| 133675        | January-24-19 |                        | 239810 | January-24-19 |                         | 151113 | January-24-19 |
| 137836        | January-24-19 |                        | 245573 | January-24-19 |                         | 151954 | January-24-19 |
| 140525        | March-03-19   |                        | 250447 | January-24-19 |                         | 151955 | January-24-19 |
| 147100        | January-24-19 |                        | 250448 | January-24-19 |                         | 151956 | January-24-19 |
| 147889        | January-24-19 |                        | 252968 | January-27-19 |                         | 175712 | January-24-19 |
| 147890        | January-24-19 |                        | 258036 | January-24-19 |                         | 175713 | January-24-19 |
| 150348        | January-24-19 |                        | 259450 | January-27-19 |                         | 178220 | January-24-19 |
| 159286        | January-27-19 |                        | 259739 | January-24-19 |                         | 178221 | January-24-19 |
| 164110        | January-27-19 |                        | 260436 | January-24-19 |                         | 185053 | January-24-19 |
| 164111        | March-03-19   |                        | 260437 | January-24-19 |                         | 196586 | January-24-19 |
| 164112        | March-03-19   |                        | 261925 | January-24-19 |                         | 196587 | January-24-19 |
| 176377        | January-24-19 |                        | 261926 | January-24-19 |                         | 197772 | January-24-19 |
| 176378        | January-24-19 |                        | 261927 | January-24-19 |                         | 199235 | January-24-19 |
| 178883        | January-24-19 |                        | 262046 | January-24-19 |                         | 199236 | January-24-19 |
| 178884        | January-24-19 |                        | 262047 | January-24-19 |                         | 207236 | January-24-19 |
| 179219        | January-24-19 |                        | 262048 | January-24-19 |                         | 225080 | January-24-19 |
| 180270        | January-24-19 |                        | 265147 | January-24-19 |                         | 246444 | January-24-19 |
| 180271        | January-24-19 |                        | 267032 | January-24-19 |                         | 263309 | January-24-19 |
| 185248        | January-24-19 |                        | 267033 | January-24-19 |                         | 263816 | January-24-19 |
| 185249        | January-24-19 |                        | 268114 | March-03-19   |                         | 264440 | January-24-19 |
| 185663        | January-27-19 |                        | 269783 | January-24-19 |                         | 265980 | January-24-19 |
| 185664        | January-24-19 |                        | 269784 | January-24-19 |                         | 270547 | January-24-19 |
| 185665        | January-24-19 |                        | 275997 | January-24-19 |                         | 273225 | January-24-19 |
| 187733        | January-24-19 |                        | 275998 | January-24-19 |                         | 273226 | January-24-19 |
| 193200        | January-24-19 |                        | 277932 | January-27-19 |                         | 282116 | January-24-19 |
| 193789        | January-24-19 |                        | 278291 | January-24-19 |                         | 289140 | January-24-19 |
| 195238        | January-24-19 |                        | 278292 | January-24-19 |                         | 299523 | January-24-19 |
| 197818        | January-24-19 |                        | 278293 | January-24-19 |                         | 300473 | January-24-19 |
| 198476        | January-24-19 |                        | 281045 | January-24-19 |                         | 303092 | January-24-19 |
| 198477        | January-24-19 |                        | 289139 | January-24-19 |                         | 317801 | January-24-19 |
| 198478        | January-24-19 |                        | 289482 | January-24-19 |                         | 317802 | January-24-19 |
| 202003        | January-24-19 |                        | 303624 | January-24-19 |                         | 317803 | January-24-19 |
| 205156        | January-24-19 |                        | 312612 | January-24-19 |                         | 320432 | January-24-19 |
| 205803        | January-24-19 |                        | 314523 | January-27-19 |                         | 330512 | January-24-19 |
| 207752        | January-24-19 |                        | 318982 | January-24-19 |                         | 330513 | January-24-19 |
| 213233        | January-24-19 |                        | 325326 | January-24-19 |                         | 333667 | January-24-19 |
| 215606        | January-24-19 |                        | 326328 | January-24-19 |                         | 109353 | January-24-19 |
| 215607        | January-24-19 |                        | 326329 | January-24-19 |                         |        |               |
| 223084        | January-24-19 |                        | 327280 | January-27-19 |                         | 144    |               |
| 223508        | January-27-19 |                        | 328301 | January-24-19 |                         |        |               |

**Champagne Property**

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| TME Champagne |             | Number of Claims = 90 |        |             | Surface Area = 1,456 Ha |  |  |
|---------------|-------------|-----------------------|--------|-------------|-------------------------|--|--|
| Claim         | Anniversary |                       | Claim  | Anniversary |                         |  |  |
| 103656        | May-05-19   |                       | 234533 | May-05-19   |                         |  |  |
| 104310        | May-05-19   |                       | 236583 | May-05-19   |                         |  |  |
| 109092        | May-05-19   |                       | 241629 | May-05-19   |                         |  |  |
| 109093        | May-05-19   |                       | 243623 | May-05-19   |                         |  |  |
| 109094        | May-05-19   |                       | 243624 | May-05-19   |                         |  |  |
| 109155        | May-05-19   |                       | 245989 | May-05-19   |                         |  |  |
| 113464        | May-05-19   |                       | 249629 | May-05-19   |                         |  |  |
| 120847        | May-05-19   |                       | 249630 | May-05-19   |                         |  |  |
| 120848        | May-05-19   |                       | 251660 | May-05-19   |                         |  |  |
| 123210        | May-05-19   |                       | 252645 | May-05-19   |                         |  |  |
| 123211        | May-05-19   |                       | 252646 | May-05-19   |                         |  |  |
| 129453        | May-05-19   |                       | 253356 | May-05-19   |                         |  |  |
| 130232        | May-05-19   |                       | 253357 | May-05-19   |                         |  |  |
| 131719        | May-05-19   |                       | 260065 | May-05-19   |                         |  |  |
| 131720        | May-05-19   |                       | 270382 | May-05-19   |                         |  |  |
| 132285        | May-05-19   |                       | 270383 | May-05-19   |                         |  |  |
| 139900        | May-05-19   |                       | 270384 | May-05-19   |                         |  |  |
| 145858        | May-05-19   |                       | 270385 | May-05-19   |                         |  |  |
| 145859        | May-05-19   |                       | 271705 | May-05-19   |                         |  |  |
| 148901        | May-05-19   |                       | 280168 | May-05-19   |                         |  |  |
| 148967        | May-05-19   |                       | 280723 | May-05-19   |                         |  |  |
| 159397        | May-05-19   |                       | 281783 | May-05-19   |                         |  |  |
| 160448        | May-05-19   |                       | 281784 | May-05-19   |                         |  |  |
| 161694        | May-05-19   |                       | 282504 | May-05-19   |                         |  |  |
| 161695        | May-05-19   |                       | 282505 | May-05-19   |                         |  |  |
| 161696        | May-05-19   |                       | 288756 | May-05-19   |                         |  |  |
| 184867        | May-05-19   |                       | 300211 | May-05-19   |                         |  |  |
| 184868        | May-05-19   |                       | 307884 | May-05-19   |                         |  |  |
| 184924        | May-05-19   |                       | 309488 | May-05-19   |                         |  |  |
| 185974        | May-05-19   |                       | 314623 | May-05-19   |                         |  |  |
| 186706        | May-05-19   |                       | 316230 | May-05-19   |                         |  |  |
| 186707        | May-05-19   |                       | 318265 | May-05-19   |                         |  |  |
| 194011        | May-05-19   |                       | 327913 | May-05-19   |                         |  |  |
| 195048        | May-05-19   |                       | 329062 | May-05-19   |                         |  |  |
| 195049        | May-05-19   |                       | 331915 | May-05-19   |                         |  |  |
| 195050        | May-05-19   |                       | 331916 | May-05-19   |                         |  |  |
| 197019        | May-05-19   |                       | 337115 | May-05-19   |                         |  |  |
| 197083        | May-05-19   |                       | 337116 | May-05-19   |                         |  |  |
| 197084        | May-05-19   |                       | 339136 | May-05-19   |                         |  |  |
| 212063        | May-05-19   |                       | 341438 | May-05-19   |                         |  |  |
| 212244        | May-05-19   |                       | 342154 | May-05-19   |                         |  |  |
| 215254        | May-05-19   |                       |        |             |                         |  |  |
| 215255        | May-05-19   |                       | 90     |             |                         |  |  |
| 215256        | May-05-19   |                       |        |             |                         |  |  |
| 215257        | May-05-19   |                       |        |             |                         |  |  |
| 216500        | May-05-19   |                       |        |             |                         |  |  |
| 230098        | May-05-19   |                       |        |             |                         |  |  |
| 230774        | May-05-19   |                       |        |             |                         |  |  |
| 233807        | May-05-19   |                       |        |             |                         |  |  |

Sheridan Option Property

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| Sheridan Option |             | Number of Claims = 217 |        |             | Surface Area = 3,876 Ha |        |             |
|-----------------|-------------|------------------------|--------|-------------|-------------------------|--------|-------------|
| Claim           | Anniversary |                        | Claim  | Anniversary |                         | Claim  | Anniversary |
| 102263          | April-18-19 |                        | 158961 | April-06-19 |                         | 209307 | April-06-19 |
| 102264          | April-18-19 |                        | 159004 | April-06-19 |                         | 209308 | April-06-19 |
| 103847          | April-06-19 |                        | 159860 | April-06-19 |                         | 210233 | April-06-19 |
| 103848          | April-06-19 |                        | 163048 | April-06-19 |                         | 211873 | April-06-19 |
| 104372          | April-06-19 |                        | 163765 | April-06-19 |                         | 215800 | April-18-19 |
| 104563          | April-06-19 |                        | 163774 | April-06-19 |                         | 215801 | April-18-19 |
| 104576          | April-06-19 |                        | 167047 | April-18-19 |                         | 215802 | April-18-19 |
| 105345          | April-06-19 |                        | 168425 | April-06-19 |                         | 215808 | April-06-19 |
| 107324          | April-06-19 |                        | 169199 | April-06-19 |                         | 217221 | April-06-19 |
| 109360          | April-06-19 |                        | 169713 | April-06-19 |                         | 218525 | April-06-19 |
| 113350          | April-06-19 |                        | 173512 | April-06-19 |                         | 218526 | April-06-19 |
| 113351          | April-06-19 |                        | 174344 | April-06-19 |                         | 218572 | April-06-19 |
| 117561          | April-18-19 |                        | 176245 | April-06-19 |                         | 221094 | April-18-19 |
| 118514          | April-06-19 |                        | 176246 | April-06-19 |                         | 221095 | April-18-19 |
| 118528          | April-06-19 |                        | 177158 | April-18-19 |                         | 221096 | April-18-19 |
| 118741          | April-18-19 |                        | 177170 | April-06-19 |                         | 223057 | April-18-19 |
| 118742          | April-18-19 |                        | 177894 | April-06-19 |                         | 223063 | April-06-19 |
| 118743          | April-18-19 |                        | 177895 | April-06-19 |                         | 223739 | April-06-19 |
| 119038          | April-06-19 |                        | 179956 | April-18-19 |                         | 223844 | April-06-19 |
| 119867          | April-06-19 |                        | 181859 | April-06-19 |                         | 224370 | April-06-19 |
| 119868          | April-06-19 |                        | 183217 | April-06-19 |                         | 225985 | April-06-19 |
| 119869          | April-06-19 |                        | 183218 | April-06-19 |                         | 229064 | April-18-19 |
| 120480          | April-06-19 |                        | 183604 | April-06-19 |                         | 229065 | April-18-19 |
| 125252          | April-06-19 |                        | 183921 | April-06-19 |                         | 229811 | April-06-19 |
| 127411          | April-06-19 |                        | 184009 | April-06-19 |                         | 230517 | April-06-19 |
| 129732          | April-18-19 |                        | 186015 | April-18-19 |                         | 230525 | April-06-19 |
| 129733          | April-18-19 |                        | 186016 | April-18-19 |                         | 231021 | April-06-19 |
| 129734          | April-06-19 |                        | 186017 | April-18-19 |                         | 231706 | April-06-19 |
| 129742          | April-06-19 |                        | 186018 | April-18-19 |                         | 231813 | April-06-19 |
| 130151          | April-06-19 |                        | 186031 | April-06-19 |                         | 235741 | April-06-19 |
| 132994          | April-06-19 |                        | 187911 | April-06-19 |                         | 238623 | April-06-19 |
| 132995          | April-06-19 |                        | 187912 | April-06-19 |                         | 238660 | April-06-19 |
| 132996          | April-06-19 |                        | 188736 | April-06-19 |                         | 240140 | April-06-19 |
| 136675          | April-06-19 |                        | 191167 | April-18-19 |                         | 241225 | April-18-19 |
| 136709          | April-06-19 |                        | 191168 | April-18-19 |                         | 242501 | April-06-19 |
| 139795          | April-06-19 |                        | 191169 | April-18-19 |                         | 242502 | April-06-19 |
| 144915          | April-06-19 |                        | 191170 | April-18-19 |                         | 242503 | April-06-19 |
| 145738          | April-06-19 |                        | 191171 | April-18-19 |                         | 242847 | April-06-19 |
| 149672          | April-06-19 |                        | 191172 | April-18-19 |                         | 243226 | April-06-19 |
| 151790          | April-06-19 |                        | 191173 | April-18-19 |                         | 243912 | April-06-19 |
| 153160          | April-06-19 |                        | 193165 | April-06-19 |                         | 244556 | April-06-19 |
| 155737          | April-18-19 |                        | 193166 | April-06-19 |                         | 244557 | April-06-19 |
| 155738          | April-18-19 |                        | 193175 | April-06-19 |                         | 244558 | April-06-19 |
| 156975          | April-06-19 |                        | 193176 | April-06-19 |                         | 244892 | April-06-19 |
| 157678          | April-06-19 |                        | 201288 | April-06-19 |                         | 246529 | April-18-19 |
| 157684          | April-06-19 |                        | 203586 | April-06-19 |                         | 246530 | April-18-19 |
| 157685          | April-06-19 |                        | 205103 | April-06-19 |                         | 250351 | April-06-19 |
| 158364          | April-06-19 |                        | 205104 | April-06-19 |                         | 252673 | April-18-19 |
| 158365          | April-06-19 |                        | 209306 | April-06-19 |                         | 252932 | April-06-19 |

| Sheridan Option |             |  |        |             |  |  |  |
|-----------------|-------------|--|--------|-------------|--|--|--|
| Claim           | Anniversary |  | Claim  | Anniversary |  |  |  |
| 255344          | April-06-19 |  | 324626 | April-06-19 |  |  |  |
| 257785          | April-18-19 |  | 324627 | April-06-19 |  |  |  |
| 257786          | April-18-19 |  | 325613 | April-06-19 |  |  |  |
| 259711          | April-06-19 |  | 326292 | April-18-19 |  |  |  |
| 259712          | April-06-19 |  | 326299 | April-06-19 |  |  |  |
| 261719          | April-06-19 |  | 326300 | April-06-19 |  |  |  |
| 262399          | April-06-19 |  | 326984 | April-06-19 |  |  |  |
| 268420          | April-06-19 |  | 326985 | April-06-19 |  |  |  |
| 268421          | April-06-19 |  | 326986 | April-06-19 |  |  |  |
| 269052          | April-06-19 |  | 326987 | April-06-19 |  |  |  |
| 271736          | April-18-19 |  | 329603 | April-18-19 |  |  |  |
| 271737          | April-18-19 |  | 334530 | April-06-19 |  |  |  |
| 276304          | April-18-19 |  | 335978 | April-06-19 |  |  |  |
| 277562          | April-06-19 |  | 336731 | April-18-19 |  |  |  |
| 278255          | April-06-19 |  | 336732 | April-18-19 |  |  |  |
| 278535          | April-06-19 |  | 336733 | April-18-19 |  |  |  |
| 279042          | April-06-19 |  | 338692 | April-06-19 |  |  |  |
| 279043          | April-06-19 |  | 339391 | April-06-19 |  |  |  |
| 279044          | April-06-19 |  | 339830 | April-06-19 |  |  |  |
| 279382          | April-06-19 |  | 341468 | April-18-19 |  |  |  |
| 279740          | April-06-19 |  | 341482 | April-06-19 |  |  |  |
| 279741          | April-06-19 |  |        |             |  |  |  |
| 279825          | April-06-19 |  | 217    |             |  |  |  |
| 279864          | April-06-19 |  |        |             |  |  |  |
| 282119          | April-06-19 |  |        |             |  |  |  |
| 284497          | April-06-19 |  |        |             |  |  |  |
| 284528          | April-06-19 |  |        |             |  |  |  |
| 288347          | April-18-19 |  |        |             |  |  |  |
| 289063          | April-06-19 |  |        |             |  |  |  |
| 289064          | April-06-19 |  |        |             |  |  |  |
| 289885          | April-18-19 |  |        |             |  |  |  |
| 291261          | April-06-19 |  |        |             |  |  |  |
| 292627          | April-06-19 |  |        |             |  |  |  |
| 296431          | April-06-19 |  |        |             |  |  |  |
| 297162          | April-06-19 |  |        |             |  |  |  |
| 297163          | April-06-19 |  |        |             |  |  |  |
| 297164          | April-06-19 |  |        |             |  |  |  |
| 297173          | April-06-19 |  |        |             |  |  |  |
| 297174          | April-06-19 |  |        |             |  |  |  |
| 298370          | April-06-19 |  |        |             |  |  |  |
| 298474          | April-06-19 |  |        |             |  |  |  |
| 298475          | April-06-19 |  |        |             |  |  |  |
| 300975          | April-06-19 |  |        |             |  |  |  |
| 300976          | April-06-19 |  |        |             |  |  |  |
| 300977          | April-06-19 |  |        |             |  |  |  |
| 300978          | April-06-19 |  |        |             |  |  |  |
| 307462          | April-06-19 |  |        |             |  |  |  |
| 321749          | April-06-19 |  |        |             |  |  |  |
| 321789          | April-06-19 |  |        |             |  |  |  |