



**GOLDEN STAR RESOURCES LTD.**

**Annual Information Form**

**For the Year Ended December 31, 2020**

**DATED: March 25, 2021**

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## ABOUT INFORMATION IN THIS ANNUAL INFORMATION FORM

Unless specifically stated otherwise in this Annual Information Form:

- all dollar amounts are in United States dollars;
- information is presented as of December 31, 2020; and
- references to “Golden Star”, the “Company”, “us”, “our” and “we”, or related or similar terms, refer to Golden Star Resources Ltd., its predecessors and consolidated subsidiaries, or any one or more of them, as the context requires.

## GLOSSARY OF UNIT ABBREVIATIONS

The following is a glossary of the unit abbreviations used in this Annual Information Form.

### ABBREVIATION UNIT

/oz	per ounce
°	degrees
°C	degrees Celsius
Au	gold
g/t	grams per tonne
ha	hectare
km	kilometre
km <sup>2</sup>	square kilometre
koz	thousand ounces
m	metre
mm	millimetre
Mt	million tonnes
Mtpa	million tonnes per annum
oz	ounces
t	tonnes
tpd	tonnes per day

## CAUTIONARY NOTE REGARDING FORWARD-LOOKING INFORMATION

This Annual Information Form contains “forward-looking information” within the meaning of applicable Canadian securities laws and “forward-looking statements” within the meaning of the United States Private Securities Litigation Reform Act of 1995, concerning the business, operations and financial performance and condition of Golden Star that are based on expectations, estimates and projections as of the date of this Annual Information Form. Generally, forward-looking information and statements can be identified by the use of forward-looking terminology such as “plans”, “expects”, “is expected”, “budget”, “scheduled”, “estimates”, “forecasts”, “intends”, “anticipates”, “believes” or variations of such words and phrases (including negative or grammatical variations) or statements that certain actions, events or results “may”, “could”, “would”, “might”, or “will” “be taken”, “occur”, or “be achieved” or the negative connotation or grammatical variation thereof. Forward-looking information and statements in this Annual Information Form include, but are not limited to, information or statements with respect to: capital cost, operating cost, all-in sustaining cost, mineral reserve, mineral resource, and gold production estimates; the realization of the PEA

(as defined hereafter) and the mineral reserve plan; challenges to the Company's title to its mineral properties; the ability to expand the Company and its production profile through the exploration and development of the Wassa mine; expected grade and mining rates for the Wassa mine; estimated costs and timing of the development of new mineral deposits and sources of funding for such development; the sources of gold production at Wassa Underground; the anticipated delivery of ore pursuant to delivery obligations under the Stream Transaction; the ability to ship gold across borders and continue to refine doré at the refinery in South Africa; expectations regarding the sustainability of current gold prices and the success of hedging activities; expectations regarding the volatility of currency exchange rates and stock prices, including the Company's stock price; the Company's plans related to the payment of dividends; the ability of investors to enforce certain civil liabilities on the Company; implementation of exploration programs at Wassa, including the focus on near mine targets in and around Wassa and on regional exploration targets within the Wassa-HBB area, and the timing thereof; the acceleration of the growth and development of the resource base at Wassa; timing for the paste fill plant project to become operational; the ability to identify opportunities to further expand Golden Star's business; the ability to materially increase production at Wassa through development capital investments; the ability of the Company to maintain sufficient working capital; the delivery of a range of operational initiatives that improve the consistency of the operations and visibility of the longer-term potential of the operations; the timing and costs for rehabilitation work; the ability of the Company to repay or repurchase the 7% Convertible Debentures when due or to restructure them or make alternate arrangements; the impact of the 7% Convertible Debentures' prohibition on certain types of transactions; the sufficiency of insurance coverage, cybersecurity systems, and internal controls; litigation involving the Company; the Company increasing exploration activities in the wider Wassa-HBB project area and looking for other opportunities to further expand our business; the ability to generate sufficient free cash flow, raise additional financing or establish refinancing options for the Company's current debt; the timing, duration and overall impact of the COVID-19 pandemic ("**COVID-19**") and other regional and global public health crises on the Company's operations, and the ability to mitigate such impacts; climate change; the quantum of cash flow from the sale by the Company of its interest in Prestea and the anticipated receipt and timing thereof; the receipt of the Contingent Payment (as defined hereinafter), and the timing and amount thereof; Future Global Resources' ability to deliver the Bogoso Sulfide Project; availability of mineral reserves in 2021 based on the accuracy of the Company's updated mineral reserve and resource models; the ability of the Company to realize the results and recommendations set out in the PEA; the ability to expand the mineral reserves of the Company through further drilling; the potential to increase the Company's mineral resources outside of its existing mineral resources footprint; the anticipated impact of increased exploration on current mineral resources and mineral reserves; identification of acquisition and growth opportunities; director conflicts of interest; challenges relating to employment practices, including the reliance on contractors and the hiring and retention of key management personnel; the impact of the loss of any current customers; and compliance under all applicable government laws, regulations, and policies, including those of the United States, Canada, and Ghana. Forward-looking information and statements are made based upon certain assumptions and other important factors that, if untrue, could cause the actual results, performance or achievements of Golden Star to be materially different from future results, performance or achievements expressed or implied by such statements. Such statements and information are based on numerous assumptions regarding present and future business strategies and the environment in which Golden Star will operate in the future, including the price of gold, anticipated costs and ability to achieve goals.

Forward-looking information and statements are subject to known and unknown risks, uncertainties, unexpected occurrences, and other important factors that may cause the actual results, performance or achievements of Golden Star to be materially different from those expressed or implied by such forward-looking information and statements. The following, in addition to the

factors described under “Risk Factors”, are among the factors that could cause actual results, performance or achievements to differ materially from the forward-looking statements:

- significant increases or decreases in gold prices and the speculative nature of gold exploration;
- losses or gains in mineral reserves and mineral resources from changes in operating costs and/or gold prices;
- failure of exploration efforts to expand mineral reserves and mineral resources around the Company’s existing mines;
- unexpected changes in business and economic conditions;
- inaccuracies in mineral reserve and mineral resource estimates;
- changes in interest and currency exchange rates;
- possible hedging activities;
- timing and amount of gold production;
- unanticipated variations in ore grade, and tonnes mined and crushed or milled;
- unanticipated recovery or production problems, including increased mining of waste material;
- effects of illegal mining on the Company’s properties;
- ability to, and cost of, dewatering the Company’s underground mines;
- changes in mining and processing costs, including changes to costs of raw materials, supplies, services and personnel;
- changes in metallurgy and processing;
- availability of skilled personnel, contractors, materials, equipment, supplies, power and water;
- changes in project parameters or mine plans;
- costs and timing of development of mineral reserves;
- weather, including drought or excessive rainfall in West Africa;
- results of current and future exploration activities;
- results of pending and future feasibility studies;
- acquisitions and joint venture relationships;
- political or economic instability, either globally or in the countries in which the Company operates;
- changes in regulatory frameworks or regulations affecting the Company’s operations, particularly in Ghana, where its producing properties are located;
- local and community impacts and issues;
- availability and cost of replacing mineral reserves;
- timing of receipt and maintenance of government approvals and permits;
- unanticipated transportation costs including shipping incidents and losses;
- accidents, labour disputes and other operational hazards;
- delays in obtaining government approvals and/or financing for the completion of development or construction activities;
- inability to obtain power for operations on favorable terms or at all;
- environmental (including reclamation) costs and risks;
- changes in tax or labour laws;
- changes in the regulatory environment, including in the area of climate change;
- physical risks from climate change;
- title issues;
- competitive factors, including competition for property acquisitions and for skilled personnel;
- possible litigation;
- availability of capital at reasonable rates or at all;

- the quantum and timing of receipt of the proceeds (differed payments and Contingent Payment) from the sale by the Company of its interest in Prestea;
- risks related to indebtedness and the service of such indebtedness;
- changes in the exchange rates of the Ghanaian Cedi and government policies regarding payments in foreign currency;
- public health pandemics such as COVID-19, including risks associated with reliance on suppliers, uncertainties relating to its ultimate spread, severity and duration of COVID-19, and related adverse effects on the economies and financial markets of many countries; and
- changes to Golden Star’s mining licences, including revocation.

Although Golden Star has attempted to identify important factors that could cause actual results, performance or achievements to differ materially from those described in forward-looking information and statements, there may be other factors that cause results, performance or achievements not to be as anticipated, estimated or intended. There can be no assurance that such statements will prove to be accurate, as actual results and future events could differ materially from those anticipated in such statements. Accordingly, readers should not place undue reliance on forward-looking information and statements. Forward-looking information and statements are made as of the date hereof and accordingly are subject to change after such date. Except as otherwise indicated by Golden Star, these statements do not reflect the potential impact of any non-recurring or other special items or of any dispositions, monetizations, mergers, acquisitions, other business combinations or other transactions that may be announced or that may occur after the date hereof. Forward-looking information and statements are provided for the purpose of providing information about management’s current expectations and plans and allowing investors and others to better understand of the Company’s operating environment. Golden Star does not undertake to update any forward-looking information and statements that are included in this Annual Information Form, except in accordance with and as required by applicable securities laws.

#### ***CAUTIONARY NOTE REGARDING MINERAL RESERVES AND MINERAL RESOURCES***

Scientific and technical information contained in this Annual Information Form was reviewed and approved by Philipa Varris, Executive Vice President, Head of Sustainability of Golden Star, Matthew Varvari, Vice President, Technical Services of Golden Star and S. Mitchel Wasel, Vice President, Exploration of Golden Star, each of whom is a “qualified person” (“QP”) as defined by National Instrument 43-101 - *Standards of Disclosure for Mineral Projects* (“NI 43-101”). All mineral reserves and mineral resources have been prepared in accordance with the standards of the Canadian Institute of Mining, Metallurgy and Petroleum (“CIM”) and in accordance with the requirements of NI 43-101. All mineral resources are reported inclusive of mineral reserves. Mineral resources which are not mineral reserves do not have demonstrated economic viability. Information regarding the Company’s mineral property mentioned in this Annual Information Form, including as to the technical report relating to such property, is described under the heading “Description of the Property - Golden Star Material Property”.

#### ***CAUTIONARY NOTE TO U.S. INVESTORS***

This Annual Information Form has been prepared in accordance with the requirements of the securities laws in effect in Canada which differ materially from the requirements of United States securities laws applicable to U.S. companies. Information concerning the Company’s mineral properties has been prepared in accordance with the requirements of Canadian securities laws, which differ in material respects from the requirements of the United States Securities and Exchange Commission (the “SEC”) set forth in Industry Guide 7. Under the SEC’s Industry Guide 7, mineralization may not be classified as a “reserve” unless the determination has been made that the mineralization could be economically and legally produced or extracted at the time of the

reserve determination, and the SEC does not recognize the reporting of mineral deposits which do not meet the SEC Industry Guide 7 definition of “Reserve”. Pursuant to NI 43-101, the terms “mineral reserve”, “proven mineral reserve”, “probable mineral reserve”, “mineral resource”, “measured mineral resource”, “indicated mineral resource” and “inferred mineral resource” are defined in accordance with CIM standards. While the terms “mineral resource”, “measured mineral resource”, “indicated mineral resource” and “inferred mineral resource” are recognized and required by NI 43-101, the SEC does not recognize them under SEC Industry Guide 7. You are cautioned that, except for that portion of mineral resources classified as mineral reserves, mineral resources do not have demonstrated economic value. Inferred mineral resources have a high degree of uncertainty as to their existence and as to whether they can be economically or legally mined. It cannot be assumed that all or any part of an inferred mineral resource will ever be upgraded to a higher category. Therefore, you are cautioned not to assume that all or any part of an inferred mineral resource exists, that it can be economically or legally mined, or that it will ever be upgraded to a higher category. Likewise, you are cautioned not to assume that all or any part of measured or indicated mineral resources will ever be upgraded into mineral reserves. In addition, disclosure of “contained ounces” is permitted under Canadian securities laws; however, the SEC only permits registrants to report SEC compliant reserves in ounces and requires reporting of mineralization that does not qualify as reserves as in place tonnage and grade without reference to unit measures. As such, certain information contained herein concerning descriptions of mineralization and resources under Canadian securities laws may not be comparable to similar information made public by United States companies subject to reporting and disclosure requirements of the SEC.

SEC Industry Guide 7, the existing disclosure standard for the SEC, is in the process of being replaced by new sub-part 1300 of Regulation S-K under the United States Securities Act of 1933, as amended, which will be mandatory for most issuers subject to U.S. reporting standards for the first fiscal year beginning on or after January 1, 2021. None of the reserve or resource estimates presented in this Annual Information Form have been prepared in accordance with the new SEC disclosure standards.

#### **CURRENCY PRESENTATION AND EXCHANGE RATE INFORMATION**

We report in United States dollars. Accordingly, all references to “\$”, “U.S.\$” or “United States dollars” in this Annual Information Form refer to United States dollar values. References to “Cdn.\$” or “Canadian dollars” are used to indicate Canadian dollar values.

The daily rate of exchange on December 31, 2020, as reported by the Bank of Canada for the conversion of Canadian dollars into United States dollars was Cdn.\$1.00 equals U.S.\$ 0.7455 and for the conversion of United States dollars into Canadian dollars was U.S.\$1.00 equals Cdn\$1.3415.

The following table sets forth, for 2020 and 2019, the high, low and average of the daily exchange rates for that year, each for Cdn.\$1.00 dollar in terms of U.S. dollars as reported by the Bank of Canada.

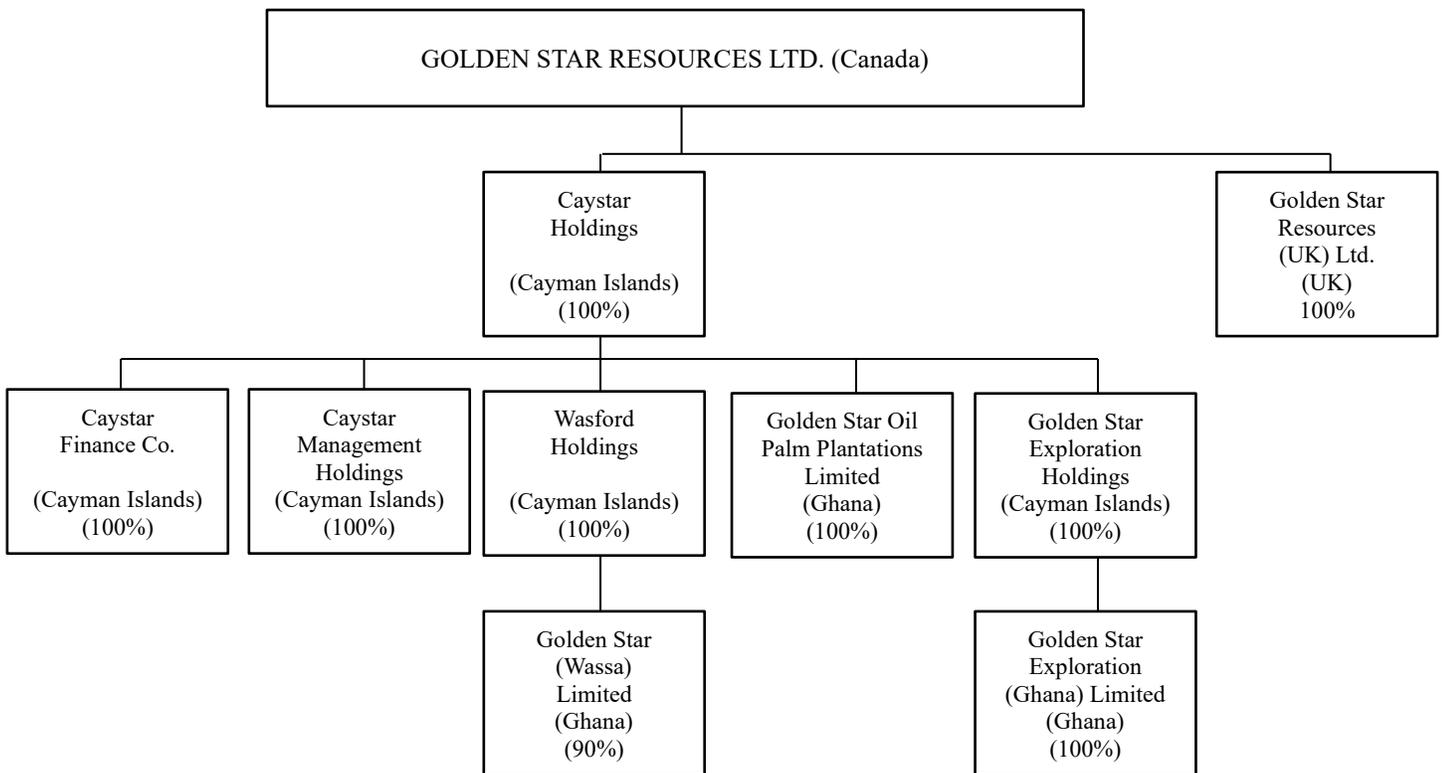
	<b>Year ended Dec. 31, 2020</b>	<b>Year ended Dec. 31, 2019</b>
	<b>(U.S. \$)</b>	<b>(U.S. \$)</b>
High	0.7863	0.7699
Low	0.6898	0.7353
Average	0.7455	0.7537



## CORPORATE STRUCTURE

Golden Star Resources Ltd. (“**Golden Star**” or the “**Company**”) was established under the *Canada Business Corporations Act* on May 15, 1992, as a result of the amalgamation of South American Goldfields Inc., a corporation incorporated under the federal laws of Canada, and Golden Star Resources Ltd., a corporation originally incorporated under the provisions of the *Business Corporations Act* (Alberta) on March 7, 1984 as Southern Star Resources Ltd. On October 18, 2018, the Company consolidated its common shares (the “**Consolidation**”) on the basis of one post-Consolidation common share for every five pre-Consolidation common shares. Golden Star’s registered office is located at 333 Bay Street, Suite 2400, Bay Adelaide Centre, Toronto, Ontario, Canada, M5H 2T6 and its head office is located at 161 Brompton Road, London, SW3 1QP, United Kingdom. Golden Star also maintains a corporate office in Ghana (located at Deila Court, House No. 19, Patrice Lumumba Street, Airport Residential Area, Accra).

The following diagram depicts the organizational structure of Golden Star and its principal subsidiaries:



### NOTE ON SHARE REFERENCES

In October of 2018, the Company implemented the Consolidation of its common shares on the basis of one post-Consolidation common share for every five pre-Consolidation common shares. The Consolidation reduced the number of the Company’s issued and outstanding common shares from approximately 544.0 million common shares pre-Consolidation to approximately 108.8 million common shares post-Consolidation. The Company’s shares commenced trading on a post-Consolidation basis on the Toronto Stock Exchange (“**TSX**”) and the NYSE American (“**NYSE**”) on October 30, 2018. References in this annual information form to common shares and per-share amounts are on a post-Consolidation basis unless otherwise specified.

## GENERAL DEVELOPMENT OF THE BUSINESS

### **OVERVIEW OF GOLDEN STAR**

Golden Star indirectly holds a 90% equity interest in Golden Star (Wassa) Limited (“**GSWL**”). GSWL owns the Wassa property (“**Wassa**”) which contains the Wassa underground gold mine (“**Wassa Underground**”) and the Wassa processing plant. In this Annual Information Form, GSWL is referred to as the “**Foreign Operating Entity.**” Golden Star also holds gold exploration interests elsewhere in Ghana.

Until September 30, 2020, the Company also held a 90% interest in Golden Star (Bogoso/Prestea) Limited which subsequently changed its name to FGR Bogoso Prestea Limited (“**GSBPL**”). GSBPL owns and operates the Bogoso/Prestea property (“**Prestea**”) which contains the Prestea underground gold mine (“**Prestea Underground**”), the Prestea open pit gold mine and satellite pits including Prestea South and Mampon, the Bogoso/Prestea refractory deposits (which have been on care and maintenance since the third quarter of 2015) and the Bogoso/Prestea processing plants. On September 30, 2020, Golden Star completed the sale of its interest in Prestea to Future Global Resources Limited (“**FGR**”). Further details relating to the sale by the Company of its interest in Prestea are set out below under “Corporate Developments.”

Golden Star aims to become a high-grade, margin-focused gold mining company through the development of Wassa Underground and its wider exploration portfolio, as well as through acquisition and growth opportunities.

The Company’s operations transact business in U.S. dollars and other currencies and keep financial records in U.S. dollars. Golden Star’s accounting records are kept in accordance with International Financial Reporting Standards (“**IFRS**”) as issued by the International Accounting Standards Board. The Company’s fiscal year end is December 31. The Company is a reporting issuer or the equivalent in all provinces of Canada, in Ghana and in the United States, and files disclosure documents with securities regulatory authorities in Canada and Ghana, and with the SEC.

### **THREE YEAR HISTORY**

#### **2018**

- February 1                      Commercial production was achieved at Prestea Underground.
- June 28                         The Company announced that GSWL had signed a commitment letter for a \$20 million secured loan facility (the “**Ecobank Loan IV**”) with Ecobank. The Ecobank Loan IV was repayable within 60 months of initial drawdown. The interest rate was equal to the three-month LIBOR plus a spread of 7.5% per annum. The Company used the facility to repay a \$20 million term loan (the “**Term Loan**”) it had with Royal Gold, Inc. (“**Royal Gold**”). The Term Loan was part of a \$150 million funding arrangement with Royal Gold and its wholly owned subsidiary RGLD Gold AG (“**RGLD**”), which was secured on May 7, 2015. The remaining \$130 million constitutes a stream transaction (“**Stream Transaction**”) pursuant to which RGLD paid to Caystar Finance Co. (“**Caystar Finance**”), a wholly owned subsidiary of Golden Star, a \$130 million advance payment in exchange for a gold stream on the Bogoso/Prestea, Prestea Underground, Wassa and Wassa Underground mines. The Ecobank Loan IV was repaid in October 2019.

- October 1                   The Company closed a \$125.7 million strategic investment by La Mancha Holding S.à r.l. (“**La Mancha**”), a Luxembourg-incorporated private gold investment company, through a private placement of common shares. Following receipt of the funds, La Mancha was issued 32,642,100 common shares on a post-Consolidation basis, representing approximately 30% of the outstanding share capital (on a non-diluted basis) after giving effect to La Mancha’s investment. Pursuant to the transaction, La Mancha received customary anti-dilution and demand registration rights, and was subject to a two-year equity lock-up, as well as to certain customary standstill provisions until October 1, 2020. Two new directors were also appointed to the Company’s board of directors (the “**Board**”) pursuant to La Mancha’s right to appoint up to three nominees. Andrew Wray, former Chief Executive Officer of La Mancha, and Graham Crew, La Mancha’s second nominee, joined the Board effective October 1, 2018. This relationship secured the Company’s platform for growth in Africa, while also strengthening the Company’s balance sheet.
- October 18                 The Company consolidated its common shares on the basis of one post-Consolidation common share for every five pre-Consolidation common shares. The Consolidation reduced the Company’s common share count from approximately 544 million outstanding common shares pre-Consolidation to approximately 108.8 million outstanding common shares post-Consolidation. The Company’s shares commenced trading on a post-Consolidation basis on the TSX and NYSE on October 30, 2018.
- 2019**
- February 19               The Company announced an updated mineral resource estimate at Father Brown consisting of the Father Brown Zone and Adoikrom Zone. Inferred mineral resources increased from 246,000 ounces at year end 2017, to 474,743 ounces, representing a 93% increase.
- May 1                       Andrew Wray was appointed President and Chief Executive Officer of Golden Star.
- June 24                    An updated technical report entitled "NI 43-101 Technical Report on Resources and Reserves, Golden Star Resources, Wassa Gold Mine, Ghana" effective December 31, 2018 was filed.
- July 8                      Graham Crew was appointed Executive Vice President and Chief Operating Officer of Golden Star.
- August 8                  The Company established a discretionary gold price protection program (the “**Hedging Program**”) to provide gold price protection for the projected production from Prestea over the following next 12 months as the results of the ongoing operational review were implemented at the operation. Zero cost collars, with a \$1,400 per ounce floor and a \$1,750 per ounce ceiling, were put into place for 50,000 ounces of gold over a 12-month period. The gold hedges, which were arranged through Macquarie Bank Limited (“**Macquarie**”), matured on a monthly basis at a frequency of approximately 4,167 ounces per month.

September 10	The Company consented to La Mancha acquiring up to an additional 5% of the issued and outstanding common shares of the Company through ordinary market or block trade purchases. The investor rights agreement entered into between Golden Star and La Mancha on August 1, 2018 (the “ <b>Investor Rights Agreement</b> ”) in connection with La Mancha’s equity investment of US\$125.7 million to acquire a 30% stake in Golden Star, restricted La Mancha from acquiring any additional common shares beyond 30% until October 2020 without the prior consent of Golden Star. Accordingly, Golden Star and La Mancha agreed to amend the Investor Rights Agreement to increase the 30% threshold to 35%. All of the other terms of the Investor Rights Agreement continue to be in force in accordance with their terms.
October 17	The Company closed a \$60 million senior secured credit facility with Macquarie (the “ <b>Credit Facility</b> ”), with a final maturity date of March 31, 2023, an interest rate of 4.5% plus the applicable USD LIBOR, and normal course financial covenants including a Debt Service Coverage Ratio of greater than 1.20:1 and a Net Debt to EBITDA ratio of less than 3.00:1. Golden Star used the proceeds to refinance the Ecobank Loan III, Ecobank Loan IV, and a long-term payable under a vendor agreement with Volta River Authority, and for general corporate purposes. The principal amount of the Credit Facility was repayable as to \$5 million quarterly, commencing on June 30, 2020.
October 22	The Company announced that it planned to close its Toronto office by April 30, 2020, that its executive team would be located in London, England and that André van Niekerk, Executive Vice President and Chief Financial Officer, had decided not to accept the offer to move to London and would leave the Company by April 30, 2020. The Company also announced the appointment of Nathalie Lion Haddad as Executive Vice President, Head of People and Peter Spora as Executive Vice President, Growth and Exploration.
November 25	The Company announced the appointment of Philipa Varris as Executive Vice President, Head of Sustainability of Golden Star.
<b>2020</b>	
January 22	The Company announced its preliminary production results for the fourth quarter, with production for the full year 2019 totalling 204koz, delivering on the upper end of the 190-205koz revised guidance range for 2019. The Company ended 2019 with \$53.4 million of cash. Additionally, the Company announced that Paul Thomson would join the Company as Executive Vice President and Chief Financial Officer on January 27, 2020 and would work with André van Niekerk during the transition period.
February 3	The Company announced the appointment of Karim Nasr to the Board, replacing Naguib Sawiris as a nominee of La Mancha.
February 24	The Company announced the appointment of Paul Thomson as Executive Vice President and Chief Financial Officer of Golden Star.
March 6	The Company announced its Policy on Inclusion and Diversity to mark International Women’s Day and the 25 <sup>th</sup> anniversary of the adoption of the Beijing Declaration and Platform for Action.

- March 16 The Company announced the implementation of procedures and controls to protect its employees and ensure business continuity with respect to the potential risks posed by the COVID-19 outbreak.
- July 27 The Company announced it had entered into a share sale and purchase (the “**Bogoso SPA**”) for the sale of the shares of its former wholly-owned subsidiary, Bogoso Holdings – which in turn holds 90% of GSBPL – to FGR for a purchase price payable in stages as follows: consideration of \$30 million comprising of \$5 million of cash and the assumption by FGR of approximately \$25 million of negative working capital is payable at closing; \$10 million of cash is payable on July 31, 2021; and \$15 million of cash is payable on July 31, 2023. In addition to the consideration payable at Closing and the deferred payments, a contingent payment of up to \$40 million conditional upon the occurrence of certain milestones in respect of the development of the Bogoso Sulfide Project (the “**Contingent Payment**”) may become payable by FGR to the Company. The trigger point for the Contingent Payment is either (i) FGR’s formal decision to proceed with the Bogoso Sulfide Project or (ii) the extraction of an aggregate of 5% of the sulfide resources as stated at the end of 2019, being 1.76 million ounces of measured and indicated resources and 0.07 million ounces of inferred resource.
- October 1 The Company announced closing of the sale transaction contemplated by the Bogoso SPA. The initial \$5 million cash consideration due at closing was deferred by up to six months to March 30, 2021. Concurrent with the completion of the sale by Golden Star of its interest in Prestea, Caystar Finance and RGLD entered into an amended and restated streaming agreement to separate Prestea from the Stream Transaction. Wassa now retains the remaining Tier One streaming obligation which relates to the delivery of gold at a rate of 10.5% of production for a 20% delivery payment (the “**Tier One Streaming Obligation**”). As of December 31, 2020, there were approximately 120koz remaining to deliver under the Tier One Streaming Obligation. Following the delivery of the ounces remaining due under the Tier One Streaming Obligation, the streaming obligation at Wassa will transition into Tier Two which delivers 5.5% of gold production for a 30% delivery payment.
- October 9 The Company announced the amending and upsizing to \$70 million of the Credit Facility with Macquarie. The \$5 million quarterly principal repayments were deferred to commence in September 2021. Interest charge remains unchanged at LIBOR plus 4.5%. As part of the amendment of the Credit Facility, the Company extended its Hedging Program into 2021 and 2022 by entering into zero cost collars with Macquarie for an additional 87,500 ounces with a floor price of \$1,600/oz and a ceiling of \$2,176/oz in 2021 and a ceiling of \$2,188/oz in 2022. These additional positions will mature at a rate of 10,937.5 ounces per quarter from March 2021 to December 2022.
- October 28 The Company entered into an “at the market” sales agreement (the “**Sales Agreement**”) with BMO Capital Markets Corp. (“**BMO**”) relating to Golden Star common shares. In accordance with the terms of the Sales Agreement, Golden Star may distribute common shares of Golden Star having a maximum aggregate sales price of up to a \$50 million from time to time through BMO as agent for the distribution of shares or as principal. As at the March 24, 2021, 2,628,719 common shares have been sold under the Sales Agreement.

## ***2021 to date***

- January 20                    The Company announced its preliminary production results for the fourth quarter of 2020, with production for the full year 2020 totalling 168koz for the continuing operations (Wassa), delivering on the upper end of the 165-170koz revised guidance range for Wassa for the full year 2020. The Company ended 2020 with \$60.8 million of cash.
- March 1                      The Company announced the filing of a technical report titled “NI 43-101 Technical Report on the Wassa Gold Mine, Mineral Resource & Mineral Reserve Update and Preliminary Economic Assessment of the Southern Extension Zone, Western Region, Ghana” dated March 1, 2021 and having an effective date of December 31, 2020, which includes a mineral reserve and resource update and a preliminary economic assessment (“PEA”) of the potential expansion of the Southern Extension zone in the Wassa Underground. Measured mineral resources and proven mineral reserves increased by 86% and 98%, respectively, at Wassa Underground.

## **DESCRIPTION OF THE BUSINESS**

### ***GOLD SALES AND PRODUCTION***

In 2020, Golden Star produced 189,976 ounces of gold from its operations, with 167,648 ounces originating from Wassa. In 2019, Golden Star had produced a total of 203,769 ounces of gold. Currently, approximately 90% of the Company’s gold production is sold through a South African gold refinery. Except for the sales to RGLD as part of the Stream Transaction, the refinery arranges for sale of gold. The Company’s gold is sold in the form of doré bars that average approximately 90% gold by weight with the remaining portion being silver and other metals. The sales price for spot sales is typically based on the London A.M. fix on the day of arrival at the refinery.

Since 2018 and until a total of 240,000 ounces of gold have been delivered to RGLD pursuant to the Stream Transaction, the Company sells 10.5% of its gold production to RGLD at 20% of the spot gold price. As of December 31, 2020, 119,997 ounces had been delivered to RGLD. Once 240,000 ounces have been delivered, Golden Star will commence selling 5.5% of its gold production at 30% of the spot gold price to RGLD, subject to certain potential adjustments that the parties may implement in accordance with the terms of the Stream Transaction. (See “Three Year History” section for more information on the Stream Transaction).

Concurrent with the completion of the sale by Golden Star of its interest in Prestea, Caystar Finance and RGLD entered into an amended and restated streaming agreement to separate Prestea from the Stream Transaction. Wassa now retains the remaining Tier One Streaming Obligation which relates to the delivery of gold at a rate of 10.5% of production for a 20% delivery payment. Following the delivery of the remaining Tier One Streaming Obligation, the streaming obligation at Wassa will transition into Tier Two which delivers 5.5% of gold production for a 30% delivery payment.

### ***GOLD PRICE HISTORY***

The price of gold is volatile and is affected by numerous factors all of which are beyond the Company’s control such as the sale or purchase of gold by various central banks and financial institutions, inflation, fluctuation in the relative values of the U.S. dollar and foreign currencies, changes in global and regional gold demand, and the political and economic conditions of major gold-producing countries throughout the world.

The following table presents the high, low and average London P.M. fixed prices for gold per ounce on the London Bullion Market over the past ten years, as well as the average gold price received by Golden Star after giving effect to the Stream Transaction.

Year	High	Low	Average	Average Price Received by Golden Star <sup>1</sup>
2010	1,421	1,058	1,225	1,219
2011	1,895	1,319	1,572	1,564
2012	1,792	1,540	1,670	1,662
2013	1,694	1,192	1,411	1,414
2014	1,385	1,142	1,266	1,261
2015	1,297	1,049	1,160	1,151
2016	1,366	1,077	1,251	1,211
2017	1,346	1,151	1,257	1,219
2018	1,355	1,178	1,268	1,225
2019	1,546	1,270	1,393	1,342
2020	2,067	1,474	1,770	1,627

### ***BUSINESS STRATEGY AND DEVELOPMENT***

The Company's business and development strategy is focused primarily on the exploration, development and operation of gold properties in Ghana and the broader West African region.

In late 2002, the Company acquired Wassa and constructed the Wassa processing plant, which began commercial operation in April 2005. In July 2007, the Company completed construction and development of the Bogoso/Prestea refractory plant. The refractory operation at Bogoso was suspended in the third quarter of 2015.

From 2016 to 2018, the company focussed on developing higher grade deposits such as the Mampon open pit and underground mines at Prestea and Wassa.

Wassa achieved commercial production in 2017 and continued operations throughout 2020. Wassa has continued focus on operational efficiencies within the defined reserve through projects such as the paste backfill plant, as well as progressing development of the large, inferred resource being defined south of current operations to build a long and low-cost mine life.

Since declaring commercial production in 2018, Prestea Underground under-performed. On September 30, 2020, the Company closed a transaction for the sale of its interest in Prestea.

Given the resulting improvement in its financial position, the Company is planning to accelerate the growth and development of the large resource base at Wassa, increase exploration activities within its Wassa, Hwini Butre and Benso (Hwini Butre and Benso, together "HBB") concession areas and focus additional resources on identifying opportunities to further expand the business.

#### *Customers*

Gold can be readily sold on numerous markets throughout the world and its market price can be readily ascertained at any time. Because there are a large number of gold purchasers, the Company is not economically dependent upon the sale of gold to any one customer.

During 2020, approximately 90% of the Company's gold production was sold through a gold refinery located in South Africa. Except for the sales to RGLD pursuant to the Stream Transaction, the refinery arranges for the sale of gold typically on the day

the gold doré arrives at the refinery and the Company typically receives payment for the refined gold sold two working days after the gold doré arrives at the refinery. Previously, the sale of gold completed on the same day the gold was shipped from the mine site.

The global gold market is competitive with numerous banks and gold refineries willing to buy refined gold and gold doré on short notice. Therefore, we believe that the loss of one of our current customers would not materially delay or disrupt revenue.

### *Employees*

As of December 31, 2020, Golden Star, including its majority-owned subsidiaries, had 1,626 employees (this includes permanent, fixed term, temporary, national service and graduate employees) and 947 contract employees, for a total of 2,573. This represents a 28% decrease from a total of 3,565 employees (2,246 employees and 1,319 contract employees) at the end of 2019, mainly due to the sale of its interest in Prestea.

### *Competition*

The Company's competitive position depends upon its ability to successfully and economically, acquire, explore, develop and operate new and existing gold properties. Factors that allow gold producers to remain competitive in the market over the long term include the quality and size of ore bodies, cost of operations, and the acquisition and retention of qualified employees. The Company competes with other mining companies in the acquisition, exploration, financing and development of new mineral properties. There is significant competition for a limited number of gold acquisition and exploration opportunities. The Company also competes with other mining companies for skilled mining engineers, mine and processing plant operators and mechanics, geologists, geophysicists and other experienced technical personnel, as well as for mining equipment.

### *Seasonality*

All of the Company's operations are in tropical climates that experience annual rainy seasons. During periods when the Company is mining from the surface, ore output from the Company's surface mining operations can be reduced during wet periods. The Company's mine plans anticipate periods of high rain fall each year. Exploration activities are generally timed to avoid the rainy periods to ease transportation logistics associated with wet roads and swollen rivers.

## **MINING IN GHANA**

### ***OPERATIONS IN GHANA***

Ghana is situated on the west coast of Africa, approximately 600 km north of the Equator on the Gulf of Guinea.

Accra, the capital city of Ghana, is located almost exactly on the Prime Meridian. The former British colony changed its name from the Gold Coast to Ghana on achieving independence on March 6, 1957. Ghana is now a republic with a population of approximately 28 million people and a democratically elected government. English remains the official and commercial language.

The total area of the country is approximately 238,000 km<sup>2</sup> and the topography is relatively flat. Ghana has a tropical climate with two rainy seasons and two dry seasons each year. The natural vegetation in the Western Region, where Wassa is located, is moist tropical forest, now found only in forest reserves, with a majority of the land converted into agricultural pursuits.

The Ghanaian legal system is generally modelled after and based on the British common law. The laws of Ghana include the Constitution, national laws passed by Parliament (or under authority granted by Parliament) and the common law of Ghana. The common law of Ghana includes customary rules which apply to particular communities in Ghana, and which may or may not be consistent with the Constitution or a specific national law.

During the time in which the Company has carried out mining operations at Wassa and Prestea, Ghana has generally been a politically and economically stable country. Furthermore, in the Company's experience, Ghanaian customs do not materially impact its operations in Ghana.

#### ***GHANAIAN OWNERSHIP AND SPECIAL RIGHTS***

The Constitution of Ghana vests title in every mineral in its natural state to the Government of Ghana. The exercise of any mineral right in the form of reconnaissance, exploration or exploitation of any mineral in Ghana requires an appropriate licence or mineral right to be issued by the Government of Ghana acting through the Minister responsible for Lands and Natural Resources. The Minister responsible for Lands and Natural Resources administers, promotes and regulates Ghana's mineral wealth through the Minerals Commission, a governmental organization designed in accordance with the Minerals Commission Act 1993 and the Minerals and Mining Act 2006 (the "**2006 Mining Act**").

Pursuant to the 2006 Mining Act, a number of regulations were passed in 2012 to clarify and implement provisions of the 2006 Mining Act. These regulations relate to matters such as licensing, local content, technical issues, mineral right holding costs, mine support services and payment of compensation to persons impacted by mining operations.

A corporate body duly registered in Ghana can apply to the Minerals Commission for a renewable prospecting licence granting exclusive rights to explore for a particular mineral in a selected area for an initial period not exceeding three years. When exploration has successfully delineated a mineral reserve, an application may be made to the Minerals Commission for conversion to a mining lease, granting a company the right to produce a specific product from the concession area.

Once a licence or mineral right is issued to an entity by the Government of Ghana, Ghanaian mining laws prevent that licence or mineral right from being transferred, assigned or mortgaged by the licensee or mineral right holder without the prior written approval of the Government of Ghana. The Ghana Minerals Commission is also required to maintain a public register of all applications, grants, variations, transfers, suspensions and cancellations of such licences or mineral rights. Official searches may be conducted in the public register to obtain information regarding any licence or mineral right granted by the Government of Ghana.

In order to confirm the Company's title in its material mineral properties, the Company will, from time to time, obtain legal opinions from its local Ghanaian counsel regarding such title. With respect to Wassa, on February 26, 2021, the Company received a title opinion from legal counsel in Ghana confirming that GSWL is the legal holder of the mineral rights to Wassa and that such mineral rights are in good standing and are subject only to those statutory rights and options conferred on the Government of Ghana by the 2006 Mining Act. In order to render such opinion, Ghanaian counsel reviewed, among other things, the mining leases relating to the material resource properties, and conducted official title searches at appropriate governmental registries. In addition, the Company relies on its in-house tenement officers and the services of local experts, including local external legal counsel, to ensure that its operating subsidiaries in Ghana comply with applicable legal and regulatory requirements relating to the ownership and operation of its material mineral properties and assets in Ghana.

The Company has obtained the following leases from the Government of Ghana: (i) the Wassa mining lease issued on September 17, 1992 for a term of 30 years, subject to renewal; (ii) the Hwini Butre mining lease issued on August 25, 2020 for a term of 11 years, subject to renewal; and (iii) the Benso mining lease issued on August 25, 2020 for a term of 11 years, subject to renewal.

With respect to Wassa, the Company requires, in addition to mining leases, the following permits, licences or other regulatory approvals to be able to carry out business operations in Ghana: (i) mining operating permit (ii) environmental permit; (iii) approved environmental management plan and environmental certificate; (iv) reclamation bond and approved reclamation plan; (v) water usage permit; (vi) business operating permit; (vii) licence to export, sell or dispose of minerals; (viii) permit/licence to retain a specified percentage of mineral export proceeds for purposes of debt servicing, dividend payment to foreign shareholders and acquisition of plant and machinery for the mining project; (ix) permit to operate foreign exchange retention accounts with a trustee bank; and (x) immigration quotas to employ a specified number of non-Ghanaians to work on mining projects.

Golden Star, through its applicable subsidiaries, holds all licences, permits, and regulatory approvals necessary in order to carry on mining operations at or in relation to the mines located on the Wassa and Wassa Underground properties as currently carried out, and to transport, handle, export and sell the gold produced from such mines. The Company is not aware of significant factors unique to it or its properties that may affect access, title, or the right or ability of Golden Star to perform its proposed work in respect of its mineral project. The Company conducts its operations in all material respects in compliance with applicable Ghanaian laws.

The 2006 Mining Act requires that any person who intends to acquire a controlling share of the equity of any mining company that has been granted a mineral right, must first give notice of its intent to the Government of Ghana and also obtain its consent prior to acquiring a controlling share.

Under the 2006 Mining Act, the Government of Ghana holds a 10% free-carried interest in all companies that hold mining leases. The 10% free-carried interest entitles the Government to a pro-rata share of future dividends. The Government has no obligation to contribute development capital or operating expenses. As of December 31, 2020, GSWL owes \$70 million to Golden Star or other Golden Star subsidiaries for past advances and these amounts would be repaid before payment of any dividends to the Government of Ghana.

Under the 2006 Mining Act, the Government of Ghana is empowered to acquire a special or golden share in any mining company. The special share would constitute a separate class of shares with such rights as the Government and the mining company might agree. Though deemed a preference share, it could be redeemed without any consideration or for a consideration determined by the mining company and payable to the holder on behalf of the Government of Ghana.

In the absence of such agreement, the special share would have the following rights:

- it would carry no voting rights, but the holder would be entitled to receive notice of, and to attend and speak at, any general meeting of the members or any separate meeting of the holders of any class of shares;
- it could only be issued to, held by, or transferred to the Government of Ghana or a person acting on behalf of the Government;
- the written consent of the holder would be required for all amendments to the organizational documents of the company, the voluntary winding-up or liquidation of the company, or the disposal of any mining lease, or the whole or any material part of the assets of the company;

- it would not confer a right to participate in the dividends, profits or assets of the company or a return of assets in a winding up or liquidation of the company; and
- the holder of a special share may require the company to redeem the special share at any time for no consideration or for a consideration determined by the company.

GSWL has not issued, nor to date has it been requested to issue, a special share to the Government of Ghana. To Golden Star's knowledge, for as long as Golden Star has been operating in Ghana, no mining company has been requested to issue a special share.

The Government of Ghana has a pre-emptive right to purchase all gold and other minerals produced by mines in Ghana. The purchase price would be agreed by the Government of Ghana and the mining company, or the price established by any gold hedging arrangement between the Company and any third party approved by the Government, or the publicly quoted market price prevailing for the minerals or products as delivered at the mine or plant where the right of pre-emption was exercised. The Government of Ghana has agreed to take no pre-emptive action pursuant to its right to purchase gold or other minerals so long as mining companies sell gold in accordance with certain procedures approved by the Bank of Ghana. The Company sells its gold in compliance with these procedures.

#### ***OVERSIGHT OF FOREIGN OPERATING ENTITY***

The Board and senior management team have considerable experience conducting business in Ghana and elsewhere in Africa, and certain members of the Company's senior management team reside in Ghana. In addition, Mr. Andrew Wray, the President, Chief Executive Officer and a director of Golden Star, and Mr. Crew, the Chief Operating Officer of Golden Star, are also directors of GSWL, the Foreign Operating Entity. Golden Star maintains oversight over the operations and assets of the Foreign Operating Entity by electing the directors and appointing the officers of GSWL, as well as removing such directors and officers from time to time. Golden Star, as the parent entity, holds the majority of the funds of the consolidated corporate group in its North American bank accounts. Golden Star generally provides funds to the Foreign Operating Entity as needed through intercompany loans and receives funds from its foreign subsidiary as loan repayments. In addition, Golden Star provides management and other services to the Foreign Operating Entity and is reimbursed for those expenses and services. Management of Golden Star directs, and must consent to, all material decisions being made at the Foreign Operating Entity level. As a result, the operations and business objectives of Golden Star and the Foreign Operating Entity are effectively aligned.

As a reporting issuer in the United States, the Company must comply with the controls and reporting provisions set out in the Sarbanes-Oxley Act of 2002. As such, the Company has established a control matrix for the mining site and controls at the corporate level. The Company's internal controls include policies and procedures that pertain to the maintenance of records that accurately and fairly reflect, in reasonable detail, the transactions and dispositions of assets of the Company and that are intended to provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the Company's assets that could have a material effect on the Company's consolidated financial statements. The minute books and corporate records of the Foreign Operating Entity are maintained with that subsidiary and are under the indirect control of Golden Star.

The Company hires and engages local experts and professionals (i.e., legal and tax consultants) to advise the Company with respect to current and new regulations in Ghana in respect of banking, financial and tax matters. The Company utilizes established and well recognized financial institutions in both Canada and Ghana. There are no material differences between day-to-day banking operations in Ghana and those in Canada. The Company also uses local counsel and local consultants to assist it with its

government relations. Members of management of the Company also have direct contacts and good relationships at all relevant levels of Government in Ghana.

As a result of the foregoing, the Company is of the view that any risks associated with its corporate structure and its foreign operations are minimal and effectively managed by Golden Star based on the controls described above.

### ***GHANAIAN ROYALTY***

Ghanaian law sets mineral royalties at a flat rate of 5% of mineral revenues. The Company incurred royalty expense of \$16.8 million and \$14.2 million in 2020 and 2019, respectively.

### ***GHANAIAN CORPORATE TAX***

The Ghana corporate income tax rate for 2020 for mining companies was 35%, which remains unchanged from 2018. Additionally, the use of capital allowances (tax depreciation) may be claimed at a flat rate of 20% per year over a five-year period, which remains unchanged from 2019. The Ghana tax regime taxes each mineral operation as a separate business and does not allow expenditures from one mining area to be deducted from revenues in a separate mining area, even if the mineral operations are owned by the same entity.

The current Income Tax Act (“**ITA**”) was passed by Ghana’s Parliament and assented to by the President of Ghana on September 1, 2015, on which date the ITA came into force. Changes resulting from the ITA may impact the Company by accelerating the expiry of some of the Company’s tax attributes.

### ***ENVIRONMENTAL AND OTHER LAWS AND REGULATIONS***

In the jurisdictions where the Company operates, all phases of its exploration, project development, and operations are subject to environmental laws and regulations. These laws and regulations may define, among other things, air and water quality standards, waste management requirements, and closure and rehabilitation obligations. In general, environmental legislation is evolving to require stricter operating standards, more detailed socio-economic and environmental impact assessments for proposed projects, and a heightened degree of accountability for companies and their officers, directors, and employees for corporate social responsibility, and health and safety. Changes in environmental regulations, and the way they are interpreted by the regulatory authorities, could affect the way Golden Star operates, resulting in higher environmental and social operating costs that may affect the viability of the Company’s operations.

Environmental matters in Ghana, including those related to mining, fall primarily under the oversight of the Environmental Protection Agency (“**EPA**”), as well as the Minerals Commission and its Mines Inspectorate Division. The EPA has acts and regulations that govern, among other things, environmental and socioeconomic impact assessments and statements, environmental management plans, emissions to the environment, environmental auditing and review, and mine closure and reclamation, to which the Company’s operations are subject. Additional provisions governing mine environmental management are provided in the 2006 Mining Act and Minerals and Mining Regulations, 2012.

The Company has noted a continuing trend toward substantially increased environmental requirements and evolving corporate social responsibility expectations in Ghana, including the requirement for more permits, analyses, data gathering, community hearings, and negotiations than have been required in the past for both routine operational needs and for new development projects. The trend to longer lead times in obtaining environmental permits has reached a point where the Company is no longer

able to accurately estimate permitting times for the Company's planning purposes. The increases in permitting requirements could affect the Company's environmental management activities including, but not limited to, new projects, tailings storage facilities, water management, and rehabilitation and closure planning implementation at its mines.

The Company's mining, processing, development, and mineral exploration activities are also subject to various laws governing prospecting, development, production, taxes, labour standards, occupational health and safety, land rights of local people and other matters. New rules and regulations may be enacted or existing rules and regulations may be modified and applied in a manner that could have an adverse effect on the Company's financial position and results of operations.

The Company uses hazardous chemicals in the Company's gold recovery activities, and thus generates environmental contaminants that may adversely affect air, land and water quality. To mitigate these effects, the Company has established objectives to achieve regulatory requirements in the Company's exploration, development, operation, closure, and post-closure activities so that its employees, the local environment, and its stakeholder communities are protected, and that the next land use contributes to the sustainability of the local economy. In order to meet these objectives, Golden Star:

- educates its managers so that they are committed to creating a culture that makes social and environmental matters an integral part of short-term and long-term operations and performance management systems;
- works with its employees so they understand and accept environmental and social policies and procedures as a fundamental part of the business;
- signed and publicly stated its support for the UN Global Compact, completed its commitments that are provided in the Company's communications on progress, and continues to implement actions in support of the UN Sustainable Development Goals;
- establishes and continues to improve operating standards and procedures that aim to meet or exceed requirements in relevant laws and regulations, the commitments made in the Company's environmental impact statements, environmental and socioeconomic management plans, rehabilitation and closure plans, and any international protocols to which it is a signatory;
- incorporated environmental and human rights performance requirements into relevant contracts;
- provides training to employees and contractors in environmental matters;
- regularly prepares, reviews, updates, and implements site-specific environmental management and rehabilitation and closure plans;
- works to progressively rehabilitate disturbed areas in conformance with site-specific environmental plans, in the context of the life of mine plans;
- consults with local communities and regulators to inform on its environmental management policies and procedures;
- regularly reviews its environmental performance;
- conducts quarterly audits to review performance and safety of its tailings storage facilities ("TSFs") by the engineer of record as well as quarterly audits by a third party auditor;
- participates in audits by both the EPA and Minerals Commission of health, safety and environment;
- completes its resettlement projects in accordance with the International Finance Corporation Performance Standard 5 on Land Acquisition and Involuntary Resettlement; and
- publicly reports its social, health, safety and environmental performance, including through specific disclosures to adopted international standards.

Rehabilitation activities were ongoing at Wassa during 2020 with activities continuing in the reclamation of the GSBPL former Mampon and PSMNP operational areas and the GSWL TSF 1. The Company's ongoing rehabilitation includes re-profiling waste dumps, topsoil spreading, and planting for both slope stabilization and long-term rehabilitation. The Company's consolidated reclamation expenditures totaled \$2.6 million and \$3.2 million in 2020 and 2019, respectively.

In 2018, Golden Star was recognized by the Prospectors and Developers Association of Canada ("PDAC") with the PDAC Environmental and Social Responsibility Award. In 2020, GSWL was recognized at the Ghana Mining Industry Awards with the award for Best Performer in Health and Safety – Wassa has won this award in three of the last four years. Also, at the Ghana Mining Industry Awards, GSWL has attained frequent recognition in the category of Corporate Social Investment Project of the Year. Golden Star continues to communicate its environmental, social and governance activities via the Golden Star Corporate Responsibility Report which is published by the Company annually, social media and a corporate social responsibility blog: [www.goldenstarinthecommunity.blogspot.com](http://www.goldenstarinthecommunity.blogspot.com). The contents of the Company's corporate social responsibility blog are not incorporated into, and do not form part of, this Annual Information Form.

### ***CORPORATE SOCIAL RESPONSIBILITY***

In keeping with the Company's health, safety and well-being, environmental, community relations, community development and support and human rights policies, the Company strives to conduct its business as a responsible corporate citizen. Golden Star believes its ongoing success in Ghana depends on its continuing efforts to build good relations with its local stakeholder communities, and by reviewing broader stakeholder comments and addressing stakeholder concerns in its developing projects and ongoing operational activities. Golden Star also believes its success as an employer, as a neighbor, and as an important part of the local and national economy is furthered by contributing to the diversification of the local economy with initiatives such as its Golden Star Oil Palm Plantations ("GSOPP") and by its support of community-driven development projects through its Golden Star Development Foundation (the "**Foundation**"). During 2019, GSWL signed a memorandum of understanding ("MoU") with its host communities to formalize approaches on relationship and sustainable livelihoods, Development Foundation support, as well as local employment and procurement participation. In 2020, the Company collaborated with host communities in the re-constitution of the community structures that will institutionalize the MoUs in place. These structures now incorporate modalities for greater participation and involvement by women and youth.

In recognition of our long-running commitment to community development, our Standard for Discretionary Payments, which operationalizes the Golden Star Policy on Community Development and Support, was the subject of training for all key leaders in 2020. Critically, this standard supports the Company's intent to ensure that our support is culturally and traditionally acceptable while upholding the tenants of national and international applicable anti-corruption laws. In 2020, the Company's anti-corruption programs were expanded to incorporate training of a wider group of workforce participants and the conduct of a conflict of interest survey.

Golden Star's multi-award winning, social enterprise initiative, GSOPP, has now successfully incubated over 1,500 ha of plantations, 355 ha of which were on former mined lands. In 2020, GSOPP employed 317 small holder or out-grower farmers, and 425 contract workers. The majority of the plantations are now in fruiting maturity, with over 89,000 t of fresh fruit bunches produced since inception. Yields remain higher than national averages, and farmer incomes are optimal as palms have reached maturity. Socioeconomic surveys of GSOPP beneficiaries in 2018 illustrate the importance of this social enterprise initiative to sustainable poverty reduction and wealth creation for local host communities.

Golden Star also supports a skills training program for stakeholders aimed at local economic development. The Golden Star Skills Training and Employability Program (“GSSTEP”) has, since its inauguration in 2009, provided employable skills to 680 youth in skills ranging from commercial cookery and carpentry to mobile phone repairs and mining disciplines. Following the success of an earlier evolution of GSSTEP in 2020, the Wassa team commenced planning towards the roll out in 2021 of a second Community Youth Apprenticeship Program (CYAP).

Golden Star’s objectives for community development align closely with the objectives of the Deutsche Gesellschaft für Internationale Zusammenarbeit (“GIZ”), and in 2019 an MoU was reached for a new partnership collaboration to retain and enhance shared value through skills and enterprise development. This program continued in 2020 with some programs delayed due to the implementation of COVID related controls to protect host communities.

In 2020, the Company continued its focus on increasing local procurement participation and local content at its sites. Following the successful pilot initiative that gave rise to a local contracting collaboration (“LOCOMS”) where 18 local companies supply haulage trucks, hire equipment and provide dust suppression and sanitation services to the Company’s operations, the Company started in 2020 new programs to leverage this model to enhance local procurement at Wassa. The MoU signed with the Wassa host communities allocates specific contract opportunities to the local communities.

In 2020, Golden Star continued focus on enhancing local content with 60% of employees and 59% of contractors at Wassa hailing from the host communities. Of Golden Star’s Ghana workforce for the continuing operations, 69% come from the Western Region of Ghana where the Wassa operations are located, and 99% are Ghanaian.

COVID-19 was declared a worldwide pandemic by the World Health Organization (the “WHO”) on March 11, 2020. In respect of the Company’s operations, Golden Star has been proactive in its response to the potential threats posed by COVID-19 and has established measures to best ensure the wellness of employees and surrounding communities while continuing to operate. Currently, all corporate personnel are working from home and corporate travel has been reduced to business critical travel only. Management controls include the update of our Epidemic and Pandemic Management Plan, site access screening protocols (including contact tracing, temperature and oxygen saturation screening, and testing using in house lateral flow devices and PCR), strict management of international inbound travel to Ghana, isolation and holding centres, as well as the implementation of education and awareness programs and enhanced hygiene and sanitation controls amongst others. To reduce risk to potentially vulnerable individuals, the Company has implemented a major program of workforce medical surveillance for potentially at-risk personnel, with 107 personnel medically assessed and 77 placed under individual management plans. Of these, 28 individuals were required to work from home (2) or shelter (26) for case management and all have now returned to work as a result of management of their pre-existing conditions and associated improvement in health status. The implementation of controls will continue to evolve in response to the predefined triggers identified through situation monitoring conducted by our medical services providers and monitoring of reports from the WHO and the Center for Disease Control as more becomes known about the virus, transmission, variants and vaccines.

In 2020, our operations in Ghana experienced a relatively low number of suspect COVID-19 cases in the Company’s workforce – there were some 320 personnel that were suspected or volunteered for COVID-19 testing with 63 confirmed cases (including GSBPL employees until the time of sale to FGR); six personnel from the Wassa operations were admitted to hospital for COVID-19 case management and all have recovered. The Company’s in-house PCR testing capability allows for rapid diagnosis and management response. This significantly reduced the number of people required to isolate as a result of contact tracing, supporting business continuity throughout the pandemic. As a major employer and therefore catalyst for rural economic stimulus in the host

communities, we understand that our continuing operations are critical to the health and well-being of our workforce and the thousands of people that they support, both directly and indirectly.

## DESCRIPTION OF THE PROPERTY

### **MAP OF OPERATIONS AND PROPERTIES**

Figure 1 shows the location of Wassa among other mineral concessions. These properties are described in further detail below.



**Figure 1: Wassa Mine Location in Ghana, West Africa**

### **GOLDEN STAR MATERIAL PROPERTY**

The technical and scientific information in this Annual Information Form has been prepared under the supervision of, or reviewed by Philipa Varris, Matthew Varvari and S. Mitchel Wasel., each a QP under NI 43-101 and an officer of the Company.

#### *Technical Report*

Certain information in this section in respect of Wassa is based upon the technical report titled “NI 43-101 Technical Report on the Wassa Gold Mine, Mineral Resource & Mineral Reserve Update and Preliminary Economic Assessment of the Southern Extension Zone, Western Region, Ghana” having an effective date of December 31, 2020, and filed on March 1, 2021, and prepared by Philipa Varris, MAusIMM CP(Env), Matthew Varvari, FAusIMM, S. Mitchel Wasel, MAusIMM CP(Geo), each of whom is a QP for the purposes of NI 43-101 (the “**Wassa Technical Report**”).

The Wassa Technical Report has been filed with the Canadian securities regulatory authorities pursuant to NI 43-101 and is available for review electronically on SEDAR at [www.sedar.com](http://www.sedar.com).

### *Wassa Gold Mine*

#### **Project Description, Location and Access**

Wassa is located near the village of Akyempim in the Wassa East District in the Western Region of Ghana, approximately 80 km north of Cape Coast and 150 km west of the capital, Accra. It lies between latitudes 5°25' and 5°30' N and longitudes 1°42' and 1°46' E. The location of the Wassa mine is shown in Figure 2.

The main access to the site is via public road, from the east, via the Cape Coast to Twifo-Praso road, then over the combined road-rail bridge on the Pra River. There is also an access road from Takoradi in the south via Mpohor. Roads are sealed from Accra to within 15 km from site, then access is via formed, unsealed road. From site, travel by road to Takoradi is generally 1.5 to 2 hours, and 4 to 5 hours to Accra.

The satellite sites of Hwini Butre and Benso are 60 km and 35 km, respectively, southeast of the main Wassa site. They are accessible from Wassa via an unsealed access and haulage road. All sites lie within 15 km of the sealed public road but generally, the haul road to Wassa is the most reliable access.

Wassa is operated under the Wassa mining lease which was issued on September 17, 1992. The total surface area of the Wassa Mining Lease is 5,289 ha, with approximately 595 ha of disturbance from GSWL's activities. GSWL has applied for a reshape of the concession boundary to comply with recent changes to cadastre grid requirements by the Minerals Commission, which is expected to modify the total area of the concession to 6,496 ha.

In addition to the Wassa mining lease, Golden Star holds the Hwini Butre and Benso mining leases, and several prospecting licences in the Western Region of Ghana. Figure 1 shows the location of Golden Star's concessions and operations:

- Wassa mining lease comprising the following mineralization domains: F Shoot, 419, B Shoot, 242, Starter, South-East, Mid-East and Dead Man's Hill. The SAK deposits comprise several deposits to the west;
- Benso mining lease comprising the Subriso East, Subriso West, G-Zone, C-Zone and I-Zone deposits;
- Hwini Butre mining lease comprising the Father Brown, Adoikrom and Dabokrom deposits;
- Benso (Chichiwelli) prospecting license comprising two mineralized zones, Chichiwelli West and Chichiwelli East; and
- Manso prospecting license which is located east of Benso and Hwini Butre.

The mineral properties are spread along a trend of approximately 80 km, southwest of Wassa, and there are sufficient access and surface rights for Golden Star's operations.



Figure 2: Wassu Mine Location in Ghana, West Africa

## History

The Wassa area has experienced local small-scale and colonial mining activity since the beginning of the 20<sup>th</sup> century with numerous small pits and adits evident.

From 1988, the property was operated as a small-scale mining operation with a gravity gold recovery circuit by a Ghanaian company which, in 1993, formed Satellite Goldfields Limited (“SGL”) with the Glencar Mining PLC (“Glencar”) and Moydow Mines International Inc. (“Moydow”), and assigned the Wassa mining lease to SGL.

In September 2002, Golden Star acquired the 90% ownership interest in Wassa from Standard Bank after the foreclosure of Glencar and Moydow’s combined ownership interest in SGL. Golden Star acquired the mineral rights to the Hwini Butre and Benso concessions through the acquisition of St Jude Resources Ltd. (“SJR”) in late 2005 and commenced exploration work in early 2006.

At the time of its acquisition by Golden Star, Wassa was an open pit operation treating 3 Mtpa through heap leach, with gold recovery of 55-60%. Under the management of Golden Star, the following milestones were achieved:

- 2003: definition drilling ahead of feasibility study for Carbon-In-Leach (“CIL”) gold recovery plant.
- 2004: feasibility study completed, and construction commenced on CIL plant with open pit mining.
- 2005: CIL plant commissioned.
- 2006: acquired SJR (Hwini Butre and Benso concessions). Connected to grid power.
- 2007: commenced open pit mining at South Akyempim. Construction of haul road to Hwini Butre.
- 2008: commenced open pit mining at Benso, and processing at Wassa.
- 2009: commenced open pit mining at Hwini Butre and drilling to test underground potential.
- 2011: Hwini Butre mining moves from Adoikrom to Father Brown pit.
- 2012: commenced drilling to test underground potential below Wassa.
- 2013: upgraded plant to 2.7 Mtpa capacity with fresh ore, consolidated mining at Wassa Main pit.
- 2014: released positive preliminary economic assessment for Wassa Underground and completed Hwini Butre mining at Father Brown.
- 2015: completed feasibility study for Wassa Underground and commenced development, along with starting construction of TSF 2.
- 2016: mined first stope ore from Wassa Underground and definition drilling continued to define wide zones of mineralization in B-Shoot.
- 2017: commercial production declared at Wassa Underground and deep definition drilling program defined what was later to become the Southern Extension zone. Wassa Underground averaged 1,865 tpd.
- 2018: open pit mining of Wassa Main pit completed and Underground ore mining rate increased to 2,945 tpd. Wassa Underground inferred mineral resource reported growth to 5.2 Moz with addition of Southern Extension zone.
- 2019: completed feasibility study for paste backfill and commenced development. Underground ore mining rate increased to 3,895 tpd (1.4 Mtpa).
- 2020: completed construction of paste backfill plant and on-site gas-fired power generation. Underground ore mining rate increased to 4,480 tpd (1.6 Mtpa).

Since acquiring Wassa in 2003, Golden Star has produced 2.4 Moz of gold and the mine has a remaining life of six years as defined by the current mineral reserve. Production has varied from 184 koz in 2009 to 104 koz in 2016 and has averaged 157 koz per year for the past three years (2018-2020). Production peaked in 2013 at 187 koz with the plant operating at full capacity and high grade ore being mined from the Father Brown pit at Hwini Butre. From 2014, open pit ore was sourced solely from the Wassa Main pit until its completion in 2017. Lower grades resulted in production of around 100 koz per year. Mining transitioned to underground from 2016, with commercial production realized in 2017 and the underground mine became the main production source by 2018. Since 2018, underground production has steadily increased to maintain and exceed 150 koz per year, with the addition of minor amounts of low-grade ore from open pit stockpiles.

### **Geological Setting, Mineralization and Deposit Types**

The Ashanti greenstone belt in the Western Region of Ghana is composed primarily of paleoproterozoic metavolcanic and metasedimentary rocks that are divided into the Birimian Supergroup (Sefwi and Kumasi Groups) and the Tarkwa Group. Both units are intruded by abundant granitoids and host numerous hydrothermal gold deposits such as the Wassa, Obuasi, Bogoso and Prestea mines and paleoplacer deposits such as the Tarkwa and Teberebie mines.

The Wassa property lies within the southern portion of the Ashanti Greenstone Belt along the eastern margin and within a volcano-sedimentary assemblage located close to the Tarkwaian basin contact. Wassa lithology is characterized by lithologies of the Sefwi Group, consisting of intercalated meta-mafic volcanic and meta-diorite dykes with altered meta-mafic volcanic and meta-sediments which are locally characterized as magnetite rich, banded iron formation like horizons. The sequence is characterized by the presence of multiple ankerite-quartz veins, sub-parallel to the main penetrative foliation and Eburnean felsic porphyry intrusions on the south-eastern flank of the Wassa mine fold.

Wassa mineralization is subdivided into several domains: F Shoot, B Shoot, 242, South East, Starter, 419, Mid East, and Dead Man's Hill. Each of these represents discontinuous segments of the main mineralized system. The South-Akyempim deposits are located 2 km southwest of the Wassa Main deposit on the northern end of a mineralized trend parallel to the Wassa Main trend. Mineralization is hosted in highly altered multi-phased greenstone-hosted quartz-carbonate veins interlaced with sedimentary pelitic units. It is structurally controlled and related to vein densities and sulphide contents.

Wassa mineralization is quite old and has been affected by several phases of deformation since emplacement. Two major folding events were likely emplaced early in the deposit's deformational history, with gold mineralization later remobilized into the hinges of a tight folding event and finally, the deposit scale fold which influences the open pit configuration. Remobilized gold in the hinges of the tight folding event are the primary underground mining targets and B-Shoot and F-Shoot are the two main zones. These zones plunge to the south at approximately 20° with mineral resources now defined more than 800 m south of the current underground mineral reserve.

The Adoikrom, Dabokrom and Father Brown deposits underlying the Hwini Butre concession are all characterized by different styles of mineralization within the Mpohor mafic complex, which consists mainly of gabbroic and gabbro-dioritic intrusive horizons. At Father Brown and Dabokrom, mineralization is associated with quartz vein systems that are locally surrounded by extensive, lower grade, disseminated quartz stockwork bodies, especially at Dabokrom. At Adoikrom, the mineralization is shear hosted and characterized by the absence of quartz veins; gold is associated with fine grained pyrite and intense potassic alteration.

The Benso concession is underlain by four main deposits: Subriso East, Subriso West, G Zone and I Zone which all have a similar style of mineralization. These deposits are hosted in two dominant rock types: Subriso West and I Zone are hosted within Intermediate feldspar porphyry intrusives and meta-volcanics, whereas Subriso East occurs along the contact between carbonaceous phyllites and meta volcanics. Mineralization at Benso is associated with late deformational stages of the Eburnean orogeny and deposits are shear hosted along subsidiary structures.

The Chichiwelli deposit consists of two sub-parallel mineralized trends hosting two distinct types of mineralization. The Chichiwelli West trend is a shear zone hosted deposit with a quartz, carbonate, sericite and potassic alteration assemblage, the mineralization is associated with pyrite. The Chichiwelli East trend is a quartz vein associated deposit with an ankerite and sericite alteration assemblage. Mineralization is also associated with pyrite along vein selvages and in the wall rocks.

## **Exploration**

Extensive exploration work has been conducted on and around Wassa. Previously, several airborne and ground geophysical surveys (aero-magnetics, radiometrics and induced polarization) were conducted, targeting geochemical anomalies previously identified following multiple stream and soil geochemical sampling programs.

Modern exploration programs on the Wassa concession began in the early 1990s with satellite imagery and geophysical surveys which identified geophysical lineaments and anomalies over small scale and colonial mining areas. Stream and soil geochemistry sampling programs were conducted over the geophysical anomalies and identified two linear gold in-soil anomalies. Exploration drilling commenced in February 1994 and, by March 1997, a total of 58,709 m of reverse circulation and diamond drilling had been completed. In September 1997, consulting engineers Pincock, Allen and Holt completed a feasibility study. Only minimal exploration work was conducted by SGL between the completion of the feasibility study in 1997 and 2002.

In March 2002, Golden Star started an exploration program as part of a due diligence exercise following the execution of a confidentiality agreement with the creditors of SGL. The exploration program consisted mainly of pit mapping and drilling below the pits to test the continuity of mineralization at depth. The concession was acquired later that year by Golden Star and exploration drilling resumed in November 2002 with the aim to increase the quoted reserves and resources for the feasibility study which was completed in 2003.

Simultaneously to the resource drilling program that targeted resource increases in the pit areas, Golden Star undertook grass roots exploration along two previously identified mineralized trends. Deep auger campaigns were also undertaken in the Subri forest Reserve. In March and April 2004, a high resolution, helicopter geophysical survey was carried out over the Wassa concession and surrounding reconnaissance and prospecting licenses. Five different survey types were conducted, namely: electromagnetic, resistivity, magnetic, radiometric and magnetic horizontal gradient. The surveys consisted of 9,085 km of flown lines covering a total area of 450 km<sup>2</sup>. Flight lines were flown at various line spacing varying between 50 to 100 m depending on the survey type. The geophysical surveys identified several anomalies with targets being prioritized on the basis of supporting geochemical and geological evidence.

The exploration program in 2005 continued to focus on drill testing anomalies identified by the airborne geophysical survey as well as infill drilling within the pit area to expand the reserve and resource base. The resource definition drilling program focused mainly on the SAK, South-East and 419 areas. Additional infill and resource definition drilling was completed in the following years in the pit areas at Wassa.

Between 2011 and 2015, exploration drilling programs shifted towards drilling deep high grade targets below the pits. Drilling was limited in 2016 with rigs in filling the first planned stoping areas to increase confidence in the resource prior to underground mining. The 2017 drilling programs were two-fold, infilling gaps in the previous drilling with in the proposed expanded open pit as well as testing the B shoot underground mineralization both north and south, up and down plunge respectively. The southern extension drilling initiated in 2017 continued into 2019 and utilized larger drill rigs to conduct directional wedging and downhole motor work to delineate the deeper southern extensions of B and F shoot high grade mineralization.

Golden Star commenced exploration work at Hwini Butre in early 2006 following its acquisition in late 2005. Exploration activities concentrated on the previously defined mineralization at Adoikrom North, Adoikrom, Dabokrom and Father Brown. The drilling program focused mainly on infill drilling and extending the continuity of the deposits at depth. The previous drilling by SJR reached a maximum vertical depth of approximately 130 m, whereas Golden Star extended the modelled mineralization at vertical depths of over 250 m.

Regional exploration programs were also undertaken by Golden Star over the concession by targeting a number of geochemical and geophysical anomalies previously identified by SJR, which were mainly tested by use of rotary air blast (“**RAB**”) drilling. A combination of 4 m deep auger and shallow auger at a grid spacing of 400 m by 50 m was also carried out to further test the existing gold in soil anomalies and gaps in the geochemistry sampling over the Hwini Butre concession.

In 2007 and 2008, GSR focused its Hwini Butre exploration activities on the northern portion of the concession where several colonial gold occurrences such as Breminsu, Apotunso, Abada, Whinnie and Guadium are located. Previous soil sampling in these areas identified several anomalies and the follow up programs included deep auger and RAB drilling. A total of 1,384 auger holes and 41 RAB holes totalling 725 m were completed. In 2009, 5,992 m of reverse circulation drilling (83 holes) and 2,100 m of diamond drilling (21 holes) were completed within the Hwini Butre concession area to test the strike extensions of the zones and also upgrade the existing quoted mineral resource estimate. The drilling program also identified potential underground target beneath the Subriso West pit. Induced polarization geophysical surveys were conducted over the Hwini Butre and Benso concessions in 2009. The program generated targets that were coincidental with lithological trends and gold in soil anomalies.

The resource definition drilling program continued in 2010 at Father Brown, Adoikrom and Dabokrom where 5,075 m of reverse circulation drilling (72 holes) and 5,207.3 m of diamond drilling (24 holes) were completed. The drilling program also tested the underground potential of the deposits with significant success. A deep auger program totalling 746 m over 205 holes to test induced polarization geophysical anomalies at Essaman was also completed. In 2011, the deeper targets at Father Brown and Adoikrom were tested to evaluate the underground potential of the deposits. In all, 13 diamond drill holes totalling 3,689.6 m were drilled at Father Brown and Adoikrom. RAB drilling totalling 2,941 m (174 holes) was undertaken at Semkrom to test induced polarization and aeromagnetic/radiometric anomalies. In 2012, exploration concentrated on Father Brown and Adoikrom infill and step out underground drilling program, with 33 diamond drill holes totalling 10,094 m being completed. In 2018, exploration drilling resumed at Father Brown and Adoikrom to continue evaluating the underground potential. The program combined reverse circulation and diamond drilling totalling 8,236.2 m. The 2018 drilling programs rolled over into 2019 where another 28 holes were completed totaling 14,526.9 m (reverse circulation and diamond drilling).

Exploration work at the Benso and Chichiwelli concessions also commenced in 2006, with exploration activities focusing on the previously defined mineralization at Subriso East, Subriso West, I Zone and G Zone. The drilling program focused mainly on infill drilling and extending the continuity of the deposits at depth. The 2006 exploration activities were also the focus of regional exploration programs over the concession by targeting several geochemical and geophysical anomalies previously identified by

SJR; these anomalies were mainly tested by use of RAB drilling. A combination of 4 m deep auger and shallow auger at a grid spacing of 400 m by 50 m was also carried out to further test the existing gold in soil anomalies and gaps in the geochemistry sampling over the Hwini Butre concessions.

Exploration on the Benso property in 2007 and 2008 concentrated on drill testing new zones of mineralization delineated by the RAB drilling in 2006. A total of 81 holes and 10,232.3 m of reverse circulation and diamond drilling were completed at Subriso East, Subriso West, G Zone and I Zone. At Amantin, follow-up programs included deep auger sampling on a 200 by 50 m grid and RAB drilling was undertaken to test the previously defined soil anomalies. A total of 3,717 m of RAB drilling from 178 holes and 1,683.9 m of deep auger drilling over 487 holes were completed at Amantin. The 2009 exploration program at the Benso concession focused on resource delineation and definition drilling at the Subriso East, Subriso West and G Zone deposits. A total of 3,159 m of reverse circulation drilling (35 holes) and 2,538.4 m of diamond drilling were completed. Induced polarization geophysical surveys were conducted over the Benso concessions in 2009 and the program generated targets that were coincidental with lithological trends and gold in soil anomalies.

The 2010 exploration activities at Benso included the continuation of the resource delineation and definition drilling in and around the pits and drilling of the potential underground target at Subriso West. A total of 8,815 m of reverse circulation drilling (112 holes) and 8,286.2 m of diamond drilling (18 holes) were completed. A deep auger program totalling 1,114 m over 319 holes was undertaken to test induced polarization targets at Subriso West. In 2011, 12 diamond drill holes, totalling 4,557 m, were drilled on the Benso property at Subriso West to close up the spacing along strike and down dip of the high grade zone of mineralization intersected beneath the pit. At Amantin, a shallow reverse circulation drilling program totalling 1,177 m (22 holes) was completed to follow up on widely spaced RAB and reverse circulation intersections from earlier drilling programs. A deep auger (6 m) program totalling 907.5 m from 174 holes were completed at K Zone and I Zone to test additional targets generated by the induced polarization survey program. Exploration activity at Benso in 2012 was limited to structural interpretation of the controls on mineralization to determine the underground potential at Subriso West.

## **Drilling**

Surface drilling is carried out by a combination of diamond core, reverse circulation and RAB/air-core techniques. Surveys are conducted on drill hole collars (by total station) and downhole (by either multi-shot downhole camera, or gyro instrument for deeper holes). In general, RAB/air core drilling, which has a maximum drilling depth of 30 m is used at early stages for follow up to soil geochemical sampling and, during production, for testing contacts and mineralization extensions around the production areas. Reverse circulation pre-collar with diamond core tails drilling is used as the main method for obtaining samples for mineral resource estimation and is carried out along drill lines spaced between 25 and 50 m along prospective structures and anomalies defined from soil geochemistry and RAB drilling. Reverse circulation drilling is typically extended to depths of in the order of 100-125 m. The diamond drilling method is used to provide more detailed geological data and where more structural and geotechnical information is required. Generally, the deeper intersections are also drilled using diamond drilling and, as a result, most section lines contain a combination of reverse circulation and diamond drilling.

The majority of surface drilling has been conducted by Golden Star, although there are some drill holes completed by previous concession owners that have been used to inform the Wassa long-range model (by SGL) and Hwini Butre and Benso models (by SJR). Where drill data by prior ownership is used, the data has been validated and checked to the satisfaction of the QPs for inclusion to inform interpretation and grade estimates.

Underground diamond drilling is performed using electric-hydraulic diamond drills utilizing the underground mine's 1,000 volt power supply. Core drilled underground is HQ (63.5mm), NQ (47.6 mm) or NQ2 (50.6 mm) in core size. The final drilling density for classification as measured mineral resource is designed to be 15 m along strike and 13 m down dip, or tighter. With the orebody generally striking north-south (on the mine grid), typical drilling azimuths range +/-30 degrees each side of 090° or 270° azimuth, depending on whether the drills are set up on the hangingwall or footwall side of the orebody. Dips generally range between +30° to -60°.

Downhole surveying is conducted using a Reflex multi-shot downhole surveying tool. When collaring, a single survey is taken at 10-12m depth. At the first survey, the drill hole orientation must fall within  $\pm 2^\circ$  azimuth and  $\pm 1.5^\circ$  dip tolerance, when compared to design. For any hole where the first survey falls outside of tolerance, the geologist has the discretion to either terminate the drill hole and re-collar at the drilling company's expense, or to continue the hole. At the completion of the drill hole, multi-shot surveys are collected at 15 m intervals on the way out. All downhole surveys are collected by the underground mine geologists. The drilling crews do not perform the surveys themselves.

Drill hole collar locations are captured by the underground mine surveying team. The surveyors use either a Leica TS15 total station, or a Leica TS16 total station to record the collar position in X, Y, Z location. The total station is accurate to less than two seconds in azimuth. In cases where the mine surveyors cannot identify the drill hole collar site, the designed collar coordinates are recorded in the databases.

### **Sampling, Analysis and Data Verification**

A standardized approach to sampling is applied where, typically, sampling is carried out along the entire mineralized drilled length. Sampled spacing is 1.0 m for reverse circulation and for diamond drilling samples according to mineralization, alteration or lithology. Core is split into equal parts along a median to the foliation plane to ensure representative samples for assaying. The remaining half core is retained for reference and additional sampling if required.

Sample preparation on site is restricted to core logging and cutting, or reverse circulation and RAB/air core sample splitting. Facilities consist of enclosed core and coarse reject storage facilities, covered logging sheds and areas for the splitting of reverse circulation and RAB/air core samples (with Jones riffle splitter).

From site, samples are transported by road to the primary laboratory in Tarkwa for sample preparation and chemical analysis. Sample security involves:

- chain of custody of samples to prevent inadvertent contamination or mixing of samples; and
- rendering active tampering of samples to be as difficult as practicable.

Samples are checked as they are loaded and the sample numbers are validated. The sample dispatch forms are signed off by the transport driver (dispatched by the laboratory) and a Golden Star representative. Sample dispatch dates are recorded in the sample database as well as the date when results are received.

Sample assays are performed at either the Wassa site laboratory, SGS or Intertek (formerly TWL), with both independent laboratories located in Tarkwa, Ghana. Golden Star submits quality control samples to each laboratory for testing purposes. Both SGS and Intertek laboratories are independent of Golden Star and are accredited for international certification for testing and analysis.

Core logging and sampling procedures adopted by Golden Star are consistent with industry standards and validated by external consultants checking the logging against the remaining half-core with no major errors identified.

Procedures are in place, with several steps, to verify the collection of drill hole data and minimize potential for data entry errors. Data entry and database management involves the logging of holes directly into an SQL Acquire database via laptop computers linked to the main database, with built-in validation tools designed to eliminate erroneous data entry.

Analytical data is checked for consistency by Golden Star personnel:

- upon receipt of digital assay certificates, the assay results, along with the control sample values, are extracted from the certificates and imported into the SQL Acquire database;
- failures and potential failures are examined and depending on the nature of the failure, re-assaying is requested from the primary laboratory; and
- analysis of quality control data is documented, along with relevant comments or actions undertaken to either investigate or mitigate problematic control samples.

Golden Star relies on the laboratory operators' quality assurance and quality control ("QA/QC") processes for assaying, as well as Golden Star's own independent QA/QC program which includes written field procedures and independent verifications of aspects such as drilling, surveying, sampling and assaying, data management and database integrity, and inserting blanks, certified reference materials (aka: standards) and pulp or coarse reject duplicates into sample batches before sample laboratory submission.

Golden Star's quality control measures are set in place to ensure the reliability and trustworthiness of assay data, and to ensure that it is of sufficient quality for inclusion in the subsequent mineral resource estimates. Appropriate documentation of quality control measures and analysis of quality control data are an integral component of Golden Star's comprehensive quality assurance program and an important safeguard of project data.

### **Mineral Processing and Metallurgical Test Work**

Metallurgical test work for underground ore was completed as part of the Wassa Underground feasibility study completed in 2015. The test work program showed general consistency with ores previously treated from the open pits. This has subsequently been confirmed by actual processing results where, since 2015, overall plant recoveries between 94-96% have been achieved.

The 2015 metallurgical test work program for the Wassa Underground feasibility study remains relevant to, and reflective of, the processing plant's metallurgical performance. The locations of the test work samples reasonably represent the blend of mineralization in the plant feed scheduled in the mineral reserve estimate. The 2015 metallurgical test work did not identify any significant issues for processing plant performance, which has been validated by the plant's performance in the years since the test work program.

## Mineral Reserve and Mineral Resource Estimates

### Mineral Reserves

Proven and probable mineral reserves are estimated as 11.5 Mt at 2.94 g/t, containing 1.09 Moz. The mineral reserve estimate has been prepared in accordance with the 2014 CIM Definition Standards and 2019 Best Practice Guidelines. Mining will be by underground long hole open stoping. The former open pit component of the mineral reserve has been replaced by underground extraction. Mineral reserves are supported by a positive economic test assuming \$1,300 /oz gold selling price.

**Table 1: Wassa Reserve Estimate as at December 31, 2020**

	Mineral Reserve as at December 31, 2020									Mineral Reserve as at December 31, 2019		
	Proven Reserve			Probable Reserve			Mineral Reserve			Mt	Au g/t	koz
	Mt	Au g/t	koz	Mt	Au g/t	koz	Mt	Au g/t	koz			
Underground, Panels 1 & 2	4.28	3.28	451	4.48	2.99	430	8.75	3.13	881	7.42	3.72	889
Underground, Panel 3	-	-	-	2.06	2.94	195	2.06	2.94	195	-	-	-
Open Pit	-	-	-	-	-	-	-	-	-	9.92	1.57	500
Stockpiles	0.69	0.58	13	-	-	-	0.69	0.58	13	1.06	0.62	21
<b>TOTAL</b>	<b>4.97</b>	<b>2.91</b>	<b>464</b>	<b>6.54</b>	<b>2.97</b>	<b>625</b>	<b>11.50</b>	<b>2.94</b>	<b>1,089</b>	<b>18.41</b>	<b>2.38</b>	<b>1,410</b>

#### Notes:

- The stated mineral reserves have been prepared in accordance with the requirements of NI 43-101 and are classified in accordance with the 2014 “CIM Definition Standards on Mineral Resources and Reserves” and 2019 Best Practice Guidelines.
- Mineral reserve estimates reflect the Company’s reasonable expectation that all necessary permits and approvals will be obtained and maintained.
- Material based on measured mineral resources are reported as proven mineral reserves.
- Material based on indicated mineral resources are reported as probable mineral reserves.
- Material based on inferred mineral resources are excluded from mineral reserves.
- Economic analysis of the mineral reserve demonstrates economic viability at \$1,300 /oz gold price.
- The mineral reserve is reported at a cut-off grade of 1.9 g/t, below the 2.4 g/t previously applied. This change is driven by lower operating costs, achieved through increasing underground mining rates that have been sustained through 2019 and 2020 and validated by an assessment during 2020, which showed the optimal net present value (“NPV”) for the mineral reserve would be achieved at a cut-off of 1.9 g/t and ore mining rate of 5,000 tpd (1.8 Mtpa).
- The mineral reserve has been calculated at a \$1,300 /oz gold selling price.
- Modifying factors are applied as 5.0% dilution and 96.1% recovery for stopes.
- Cut-off grades have been estimated based on operating cost projections, mining dilution and recovery, royalty and stream payment requirements.
- The 2020 mineral reserve estimate was prepared under the supervision of Mr. Matthew Varvari, Vice President, Technical Services for the Company. Mr. Varvari is a QP as defined by NI 43-101.
- All figures are rounded to reflect the relative accuracy of the estimate.

### Mineral Resources

Mineral resources are estimated as:

- measured and indicated mineral resource: 29.3 Mt at 3.76 g/t, containing 3.54 Moz; and
- inferred mineral resource: 74 Mt at 3.44 g/t, containing 8.18 Moz.

The mineral resource estimate has been prepared in accordance with the 2014 CIM Definition Standards and 2019 Best Practice Guideline. Mining is assumed by underground methods at Wassa and Hwini Butre, and open pit methods at all other locations. Measured mineral resources have reasonable prospects for eventual economic extraction, with estimates constrained as follows (assuming \$1,500 /oz gold selling price):

- open pit: constrained by open pit optimization shell based on a \$1,500 /oz gold selling price and cut-off grade (0.55 g/t); and
- underground: constrained by cut-off grade (1.4 g/t).

**Table 2: Wassa Measured & Indicated Mineral Resource Estimate as at December 31, 2020**

	Measured & Indicated Mineral Resource as at December 31, 2020									Measured & Indicated Mineral Resource as at December 31, 2019		
	Measured Resource			Indicated Resource			Measured & Indicated Resource			Mt	Au g/t	koz
	Mt	Au g/t	koz	Mt	Au g/t	koz	Mt	Au g/t	koz			
Wassa Open Pit	-	-	-	-	-	-	-	-	-	29.18	1.29	1,206
Wassa Underground	5.90	4.45	843	18.96	3.55	2,162	24.85	3.76	3,005	16.20	3.89	2,027
Father Brown / Adoikrom Underground	-	-	-	1.31	7.96	335	1.31	7.96	335	0.91	8.67	254
Regional Open Pit	-	-	-	3.10	1.98	197	3.10	1.98	197	2.51	2.32	187
<b>TOTAL</b>	<b>5.90</b>	<b>4.45</b>	<b>843</b>	<b>23.37</b>	<b>3.59</b>	<b>2,694</b>	<b>29.26</b>	<b>3.76</b>	<b>3,537</b>	<b>48.81</b>	<b>2.34</b>	<b>3,675</b>

**Table 3: Wassa Inferred Mineral Resource Estimate as at December 31, 2020**

	Inferred Mineral Resource as at December 31, 2020			Inferred Mineral Resource as at December 31, 2019		
	Mt	Au g/t	Koz	Mt	Au g/t	koz
Wassa Open Pit	-	-	-	0.62	1.31	26
Wassa Underground	70.50	3.39	7,689	58.82	3.75	7,097
Father Brown / Adoikrom Underground	2.66	5.30	453	1.88	6.07	367
Regional Open Pit	0.87	1.47	41	0.42	2.14	29
<b>TOTAL</b>	<b>74.02</b>	<b>3.44</b>	<b>8,183</b>	<b>61.74</b>	<b>3.79</b>	<b>7,518</b>

Notes Tables 2 and 3:

1. The mineral resource estimates have been prepared in accordance with the requirements of NI 43-101 and are classified in accordance with the 2014 “CIM Definition Standards on Mineral Resources and Reserves” and 2019 Best Practice Guidelines.
2. The mineral resource estimate has been updated on the basis of reverse circulation and diamond drilling within the Wassa, Hwini Butre, Benso and Chichiwelli concession areas.
3. Measured and indicated mineral resources are reported inclusive of mineral reserves. Mineral resources which are not mineral reserves do not have demonstrated economic viability.
4. Reasonable prospects for eventual economic extraction was informed via pit shell optimization for the open pit mineral Resources (Hwini Butre, Benso, Chichiwelli, and others) and cut off grade estimation for underground mineral resources (Wassa, Father Brown, Adoikrom). A gold price of US\$1500 /oz and costs from the operations were used in pit shell optimization and cut off grade estimation.
5. Open pit deposits within the mineral resource are reported at a cut-off grade of 0.55 g/t, within optimized pit shells calculated at a \$1,500 /oz gold selling price.
6. Underground deposits within the mineral resource are reported at a cut-off grade of 1.4 g/t.
7. The mineral resource models have been depleted using appropriate topographic surveys.
8. Regional open pit includes deposits at Hwini Butre, Benso, Chichiwelli and others.
9. Mineral resources are reported in-situ without modifying factors.
10. No open pit resource has been reported for the Wassa deposit, as engineering studies have determined Wassa will be mined by underground methods only.
11. Inferred is the lowest level of confidence for a mineral resource and there is no certainty that further geological drilling will result in the determination of higher mineral resource classification, nor that production and financial outcomes will be realized.
12. All figures are rounded to reflect the relative accuracy of the estimate.

## **Preliminary Economic Assessment of the Southern Extension Zone**

The PEA of the Southern Extension zone is entirely based on an inferred mineral resource and there is no certainty that further geological drilling will result in the determination of higher mineral resource classification, nor that production and financial outcomes will be realized.

The PEA has been completed with the following limits and scope:

- inferred mineral resource south of 19,240 mN;
- scoping level mining study;
- mining method selection and methodology;
- stope optimization;
- mine design to determine development quantities which inform cost estimate;
- ventilation design and modelling;
- simulation of truck haulage to validate production rate;
- definition drilling strategy;
- preliminary scheduling;
- review of metallurgical test work and processing capacity;
- review of permitting requirements;
- estimation of capital and operating cost; and
- economic analysis.

The PEA shows the Southern Extension project is potentially economically viable with an after-tax NPV at a 5% discount rate of \$783.5 million (100% basis).

**Table 4: PEA Economic Analysis (Base Case)**

	Total/avg	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	Y15	Y16	Y17	Y18	Y19	Y20	Y21	Y22	Y23	
<b>PRODUCTION</b>																									
<b>Mining</b>																									
Mined to ROM	kt	29,632		14	53	108	748	1,282	2,700	2,700	2,700	2,700	2,675	2,634	2,644	2,507	2,445	2,518	1,203						
ROM Grade	g/t	3.83	-	3.30	3.30	3.13	3.23	3.48	3.49	3.59	3.51	3.50	4.46	4.22	3.83	3.84	4.36	3.86	3.88	-	-	-	-	-	-
Mining Rate, to ROM	tpd	6,826	-	39	145	296	2,049	3,512	7,397	7,377	7,397	7,397	7,330	7,195	7,245	6,868	6,699	6,880	3,295	-	-	-	-	-	-
Mined to Waste	kt	29,632		79	292	426	1,058	916	948	948	948	948	948	948	790	474	316	316	316						
Mining Rate, Total Material	tpd	8,791	-	256	946	1,461	4,948	6,021	9,993	9,966	9,993	9,993	9,926	9,784	9,408	8,166	7,565	7,743	4,160	-	-	-	-	-	-
<b>Processing</b>																									
LG Stockpile	kt	29,632																							
LG Stockpile Grade	g/t	3.83	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Processed</b>	<b>kt</b>	<b>29,632</b>	-	<b>14</b>	<b>53</b>	<b>108</b>	<b>748</b>	<b>1,282</b>	<b>2,700</b>	<b>2,700</b>	<b>2,700</b>	<b>2,700</b>	<b>2,675</b>	<b>2,634</b>	<b>2,644</b>	<b>2,507</b>	<b>2,445</b>	<b>2,518</b>	<b>1,203</b>	-	-	-	-	-	-
Feed Grade	g/t	3.83	-	3.30	3.30	3.13	3.23	3.48	3.49	3.59	3.51	3.50	4.46	4.22	3.83	3.84	4.36	3.86	3.88	-	-	-	-	-	-
Recovery		94.8%	-	95.0%	94.7%	94.2%	94.3%	95.4%	94.6%	94.7%	94.6%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%	94.3%	-	-	-	-	-	-
<b>Au Produced</b>	<b>koz</b>	<b>3,456</b>	-	<b>1</b>	<b>5</b>	<b>10</b>	<b>73</b>	<b>137</b>	<b>287</b>	<b>295</b>	<b>289</b>	<b>287</b>	<b>364</b>	<b>340</b>	<b>309</b>	<b>294</b>	<b>326</b>	<b>297</b>	<b>142</b>	-	-	-	-	-	-
<b>REVENUE</b>																									
Au Selling Price	\$/oz		-	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	-	-	-	-	-	-
<b>Gross Revenue</b>	<b>\$M</b>	<b>4,493.2</b>	-	<b>1.9</b>	<b>6.9</b>	<b>13.3</b>	<b>95.2</b>	<b>177.7</b>	<b>372.9</b>	<b>383.4</b>	<b>375.1</b>	<b>473.4</b>	<b>441.5</b>	<b>402.1</b>	<b>382.5</b>	<b>423.6</b>	<b>386.3</b>	<b>184.2</b>	-	-	-	-	-	-	-
Less RG Stream, Tier 1	\$M	12.9	-	0.2	0.6	1.1	8.0	3.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Less RG Stream, Tier 2	\$M	167.1	-	-	-	-	-	5.4	14.4	14.8	14.4	14.4	18.2	17.0	15.5	14.7	16.3	14.9	7.1	-	-	-	-	-	-
<b>Net Revenue After Stream</b>	<b>\$M</b>	<b>4,313.2</b>	-	<b>1.7</b>	<b>6.3</b>	<b>12.2</b>	<b>87.2</b>	<b>169.2</b>	<b>358.6</b>	<b>368.6</b>	<b>360.7</b>	<b>358.8</b>	<b>455.1</b>	<b>424.5</b>	<b>386.6</b>	<b>367.7</b>	<b>407.3</b>	<b>371.4</b>	<b>177.1</b>	-	-	-	-	-	-
<b>OPERATING COSTS &amp; ROYALTIES</b>																									
<b>Operating Unit Costs</b>																									
Mining	\$/t.mined	39.34	-	20.57	35.96	54.38	32.91	37.76	35.49	36.73	37.92	37.57	40.03	41.82	41.33	40.12	40.15	39.00	51.70	-	-	-	-	-	-
Processing	\$/t.proc	17.58	-	13.67	13.67	13.67	13.67	11.27	17.57	17.57	17.57	17.57	17.60	17.66	17.65	17.87	17.97	17.85	24.98	-	-	-	-	-	-
G&A (excl. Refining)	\$/t.proc	7.38	-	2.78	2.78	2.76	2.77	2.38	7.32	7.34	7.33	7.32	7.50	7.54	7.47	7.72	7.91	7.70	13.45	-	-	-	-	-	-
<b>Total Cost per Tonne</b>	<b>\$/t.proc</b>	<b>64.29</b>	-	<b>37.02</b>	<b>52.42</b>	<b>70.81</b>	<b>49.35</b>	<b>51.41</b>	<b>60.38</b>	<b>61.63</b>	<b>62.81</b>	<b>62.46</b>	<b>65.13</b>	<b>67.03</b>	<b>66.45</b>	<b>65.71</b>	<b>66.04</b>	<b>64.55</b>	<b>90.12</b>	-	-	-	-	-	-
<b>Operating Costs</b>																									
Mining	\$M	1,165.6	-	0.3	1.9	5.9	24.6	48.4	95.8	99.2	102.4	101.5	107.1	110.1	109.3	100.6	98.2	98.2	62.2	-	-	-	-	-	-
Processing	\$M	520.8	-	0.2	0.7	1.5	10.2	14.4	47.4	47.4	47.4	47.1	46.5	46.7	44.8	44.0	44.9	30.0	-	-	-	-	-	-	-
G&A (excl. Refining)	\$M	203.1	-	0.0	0.1	0.3	1.7	2.5	18.5	18.5	18.5	18.5	18.4	18.3	18.4	18.0	17.9	18.1	15.5	-	-	-	-	-	-
Refining	\$M	15.6	-	0.0	0.0	0.1	0.3	0.6	1.3	1.3	1.3	1.3	1.6	1.5	1.4	1.3	1.5	1.3	0.7	-	-	-	-	-	-
<b>Direct Cash Operating Costs</b>	<b>\$M</b>	<b>1,905.0</b>	-	<b>0.5</b>	<b>2.8</b>	<b>7.7</b>	<b>36.9</b>	<b>65.9</b>	<b>163.0</b>	<b>166.4</b>	<b>169.6</b>	<b>168.7</b>	<b>174.2</b>	<b>176.5</b>	<b>175.7</b>	<b>164.7</b>	<b>161.5</b>	<b>162.6</b>	<b>108.4</b>	-	-	-	-	-	-
Royalty	\$M	224.7	-	0.1	0.3	0.7	4.8	8.6	18.6	19.2	18.8	18.7	23.7	22.1	20.1	19.1	21.2	19.3	9.5	-	-	-	-	-	-
<b>EBITDA</b>	<b>\$M</b>	<b>2,183.5</b>	-	<b>1.1</b>	<b>3.2</b>	<b>3.9</b>	<b>45.5</b>	<b>94.7</b>	<b>176.9</b>	<b>183.0</b>	<b>172.4</b>	<b>171.5</b>	<b>257.2</b>	<b>225.9</b>	<b>190.8</b>	<b>183.9</b>	<b>224.6</b>	<b>189.5</b>	<b>59.3</b>	-	-	-	-	-	-
<b>TAX</b>																									
Income Tax	\$M	527.2	-	-	-	-	-	-	35.9	45.4	39.5	39.7	72.2	61.1	49.7	49.4	66.8	56.1	11.3	-	-	-	-	-	-
<b>Total Cash After Tax</b>	<b>\$M</b>	<b>1,656.2</b>	-	<b>1.1</b>	<b>3.2</b>	<b>3.9</b>	<b>45.5</b>	<b>94.7</b>	<b>141.0</b>	<b>137.6</b>	<b>132.8</b>	<b>131.8</b>	<b>185.0</b>	<b>164.8</b>	<b>141.1</b>	<b>134.5</b>	<b>157.9</b>	<b>133.4</b>	<b>48.0</b>	-	-	-	-	-	-
<b>CAPITAL COST</b>																									
Growth Capital	\$M	228.8	4.9	12.9	25.2	37.1	73.5	64.4	-	10.0	-	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-
Sustaining Capital	\$M	560.7	-	-	-	-	-	15.1	65.1	64.9	66.2	65.8	62.5	61.2	54.9	31.7	30.9	31.6	11.0	-	-	-	-	-	-
Closure	\$M	14.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.2	3.7	3.7	2.2	1.5	0.7	0.7	
<b>Total Capital Costs</b>	<b>\$M</b>	<b>804.1</b>	<b>4.9</b>	<b>12.9</b>	<b>25.2</b>	<b>37.1</b>	<b>73.5</b>	<b>79.5</b>	<b>65.1</b>	<b>74.9</b>	<b>66.2</b>	<b>66.6</b>	<b>62.5</b>	<b>61.2</b>	<b>54.9</b>	<b>31.7</b>	<b>30.9</b>	<b>31.6</b>	<b>13.2</b>	<b>3.7</b>	<b>3.7</b>	<b>2.2</b>	<b>1.5</b>	<b>0.7</b>	<b>0.7</b>
<b>PROJECT CASH FLOW</b>	<b>\$M</b>	<b>852.1</b>	<b>-4.9</b>	<b>-11.8</b>	<b>-21.9</b>	<b>-33.2</b>	<b>-28.0</b>	<b>15.2</b>	<b>75.9</b>	<b>62.7</b>	<b>66.7</b>	<b>65.2</b>	<b>122.5</b>	<b>103.6</b>	<b>86.2</b>	<b>102.7</b>	<b>127.0</b>	<b>101.9</b>	<b>34.7</b>	<b>-3.7</b>	<b>-3.7</b>	<b>-2.2</b>	<b>-1.5</b>	<b>-0.7</b>	<b>-0.7</b>
<b>DCF SUMMARY</b>																									
EBITDA before taxes & capital	\$M	2,183.5	-	1.1	3.2	3.9	45.5	94.7	176.9	183.0	172.4	171.5	257.2	225.9	190.8	183.9	224.6	189.5	59.3	-	-	-	-	-	-
Growth Capital	\$M	228.8	4.9	12.9	25.2	37.1	73.5	64.4	-	10.0	-	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-
Sustaining Capital	\$M	560.7	-	-	-	-	-	15.1	65.1	64.9	66.2	65.8	62.5	61.2	54.9	31.7	30.9	31.6	11.0	-	-	-	-	-	-
Closure	\$M	14.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.2	3.7	3.7	2.2	1.5	0.7	0.7	
<b>Pre-tax Project Cash Flow</b>	<b>\$M</b>	<b>1,379.4</b>	<b>-4.9</b>	<b>-11.8</b>	<b>-21.9</b>	<b>-33.2</b>	<b>-28.0</b>	<b>15.2</b>	<b>111.7</b>	<b>108.2</b>	<b>106.2</b>	<b>104.9</b>	<b>194.8</b>	<b>164.7</b>	<b>135.9</b>	<b>152.2</b>	<b>193.7</b>	<b>158.0</b>	<b>46.1</b>	<b>-3.7</b>	<b>-3.7</b>	<b>-2.2</b>	<b>-1.5</b>	<b>-0.7</b>	<b>-0.7</b>
Tax	\$M	527.2	-	-	-	-	-	-	35.9	45.4	39.5	39.7	72.2	61.1	49.7	49.4	66.8	56.1	11.3	-	-	-	-	-	-
<b>FREE CASH FLOW</b>	<b>\$M</b>	<b>852.1</b>	<b>-4.9</b>	<b>-11.8</b>	<b>-21.9</b>	<b>-33.2</b>	<b>-28.0</b>	<b>15.2</b>	<b>75.9</b>	<b>62.7</b>	<b>66.7</b>	<b>65.2</b>	<b>122.5</b>	<b>103.6</b>	<b>86.2</b>	<b>102.7</b>	<b>127.0</b>	<b>101.9</b>	<b>34.7</b>	<b>-3.7</b>	<b>-3.7</b>	<b>-2.2</b>	<b>-1.5</b>	<b>-0.7</b>	<b>-0.7</b>
Pre-tax NPV5%, 100% basis		<b>748.7</b>																							
After Tax-tax NPV5%, 100% basis		<b>452.2</b>																							
Pre-tax IRR, 100% basis		<b>+46.7%</b>																							
After Tax-tax IRR, 100% basis		<b>+36.8%</b>																							
<b>UNIT COSTS</b>																									
Direct Cash Operating Cost	\$/oz	551	-	367	520	746	504	482	568	564	588	588	479	520	568	560	496	547	765	-	-	-	-	-	-
All-in Sustaining Cost, Site	\$/oz	778	-	432	585	811	569	655	860	849	882	882	715	765	810	733	655	718	909	-	-	-	-	-	-

Key highlights of the PEA include:

- growth capital: \$228.8 million
- total capital: \$804.1 million
- development duration: 6 years (Y1-Y6)
- production phase life: 11 years (Y7-Y17)
- production phase rate: 294 koz per year
- all-in sustaining cost: \$778/oz
- after-tax NPV using a 5% discount rate: base case (\$1,300 /oz): \$452.2 M (100% basis) and a post-tax IRR of 37% / consensus case (\$1,585 /oz): \$783.5 M (100% basis) and a post-tax IRR of 53%

Conversion risk of the inferred mineral resource has been addressed through application of cut-off grades and modifying factors in the different mining panels. 54% of metal is included in the PEA inventory for Panels 4 and 5 where there is more definition drilling, and the inclusion factor decreases to 48% for the deeper Panels 7 and 8 where definition drilling is more widely spaced.

**Table 5: Conversion of Inferred Mineral Resource to PEA Inventory**

	Units	Panel 4	Panel 5	Panel 6	Panel 7	Panel 8	Total
Inferred Mineral Resource, In-Situ	Mt	7.8	11.5	8.6	19.6	18.6	66
	Au g/t	3.0	3.1	2.7	4.0	3.6	3.4
	Moz	0.76	1.14	2.52	2.52	2.14	7.3
PEA Inventory	Mt	4.1	5.5	3.1	9.4	7.8	30
	Au g/t	3.3	3.5	3.7	4.3	3.8	3.8
	Moz	0.42	0.61	0.37	1.31	0.94	3.6
Conversion to PEA Inventory	% Moz	54%		49%	48%		50%
Cut-Off Grade	Au g/t	2.3 g/t			2.9 g/t		-
Modifying Factors, Stopes		7.5% Dilution 95.0% Recovery			13.0% Dilution 75.0% Recovery		-

Realization of the production schedule from the PEA carries a number of risks in addition to those defined further below, relating to:

- *Geology* – the primary risk is that the PEA is based on an inferred mineral resource. As further definition drilling is completed, current interpretations and estimates of geological continuity, gold grade, and mineralization volumes may not be realized.
- *Mining* – the PEA is based on a scoping level study and assumes increased productivity rates which are planned but not yet achieved. The main risks to achieving the PEA outcomes are that geotechnical conditions result in slower production and if operations are unable to achieve development advance and stope turnover rates.
- *Processing* – limited metallurgical test work has been completed for the PEA mining area. Results generally suggest processing will be consistent with current operations, but there is minor variability and further test work may identify that planned recoveries and throughput rates may not be achieved.
- *Capital and Operating Costs* – the PEA is based on a scoping level study and with further studies, capital and operating costs, which are based on current costs and increased productivity, may increase.

There are a number of opportunities specific to the PEA plan as studies progress:

- *Geology* – the inferred mineral resource which informs the PEA is open to the north, south and up and down-dip. Should further drilling increase the defined mineralization, project life and production rates may be increased. Further drilling may also confirm the materially higher grades and mineralization continuity in the deeper Panels 7 and 8 so that less conservative modifying factors can be applied.
- *Mining* – stope size and level intervals are consistent with current operations and may be increased as studies progress, which would reduce development quantities and cost. Haulage optimization studies and emerging electrification technology may confirm an alternative to the planned diesel truck system which would result in reduced costs (mostly ventilation related) and emissions.

Based on the positive results of the PEA, the risks and opportunities identified, and conclusions made, the following actions are recommended to progress the project:

- continue definition drilling to increase geological confidence to enable upgrading classification of the inferred mineral resource for Panels 4 and 5;
- commence technical studies to feasibility study level for the disciplines of metallurgy, geotechnics, ventilation and mine design;
- complete option and trade-off studies to optimize the project plan, including assessment of alternative haulage options (e.g., shaft, conveyor), equipment selection (e.g., semi/full automation, battery electric) and mine design (level interval);
- conduct trials in the current operation to validate the proposed stoping methodology in Panels 4 to 8;
- investigate electrification and renewable energy options to reduce emissions;
- complete site water balance model and assess opportunities to improve water efficiency and reduce discharged contaminants; and
- review the crushing and grinding circuit to optimize comminution efficiency.

The progressive development plan proposed for the Southern Extension zone has the project being developed in three major phases of definition drilling and capital investment:

- Panels 4 and 5: resource development drilling is in progress and studies are planned to inform an investment decision at the end of project year 2 (Y2).
- Panels 6 and 7: resource development drilling is planned in Y6-7, with the decline development expected to start in Y6 and stope production, in Y8.
- Panel 8: resource development is planned in Y10, with the decline development starting in Y10 and stope production, in Y12.

## Mining Operations

Wassa commenced underground development in 2015 and stoping production in 2017. During the establishment of Wassa Underground, open pit mining was occurring in parallel to deplete the Wassa Main pit and 242 pit. Open pit mining was completed in 2017 and Wassa transformed into an underground-only operation in late January 2018. Wassa Underground has a mine life of six years based on its December 2020 mineral reserve estimate.

Mining is by underground with trackless access by decline (1:7 gradient), operated by GSWL personnel. The mine plan and schedule use conventional underground mining practices and equipment to carry out long hole open stoping, consistent with currently employed techniques, and demonstrated mining rates based on recent development and stoping performance. The mine plan includes appropriate consideration of geotechnical conditions, stope modifying factors, mine ventilation, mine dewatering, scheduling interactions and rates, and mobile fleet capacities. The introduction of paste fill will require integrating into the stope cycle sequence to enable secondary stoping to commence.

Recovery methods in the processing plant and forward recovery assumptions (average 94.1%) are supported by test work and plant history. The processing plant capacity exceeds mine production in all years for the mineral reserve plan.

The mine is divided into Panels, which reflect progressive stages of capital development. The mineral reserve includes Panels 1, 2 and 3, which lie between 150-650 m depth.

The December 2019 mineral reserve and resource estimate proposed to extract material below the B-Main and 242 pits by open pit methods. This has changed to underground extraction (Panel 3) based on trade off studies during 2020 which concluded underground extraction provided improved selectivity and reduced capital demand. Panels 1 and 2 contain proven and probable mineral reserves. Panel 3 contains only probable mineral reserves, plus inferred mineral resources which are excluded from the plan informing the mineral reserve.

Panels 1 and 3 leave 6-10 m intact rock pillars between stopes, with ad-hoc waste rock fill to enable pillar recovery or for simple waste disposal. Panel 2 is planned for paste backfill. Primary stopes have been extracted, with voids awaiting commissioning of the paste fill plant in early 2021. Once primary stopes are filled, secondary stope extraction will commence. Stopes are up to 100 m high and are separated vertically by sill pillars which will be recovered after stopes above and below are extracted and filled.

Gold recovery is achieved at Wassa through the use of conventional CIL technology. The CIL circuit consists of six stages of agitated leach with a residence time of 18-20 h at full capacity. Loaded carbon is acid washed and stripped and gold is electrowon onto steel mesh prior to smelting to produce doré bars.

There are two TSFs at Wassa:

- TSF 1 is located northwest of the processing plant at the head of a southerly draining valley and immediately adjacent to the historical leach pad area. Ground levels range from 1000 m (relative level) on the valley floor to above 1,060 m (relative level) on the surrounding hills. It is a cross valley impoundment created by the construction of a main embankment in the south with confining saddle embankments at the north of the facility. Containment to the east and west is provided by natural ridges. Access is via an unsealed access road west of the plant site area. The catchment area of TSF 1 is estimated to be approximately 140 ha, of which 124 ha are covered with tailings as the facility proceeds through closure revegetation trials. Deposition into TSF 1 ceased in 2019 with paddock deposition completed to achieve

the approximate closure surface topography requirements of the closure landform. Re-vegetation trials commenced in 2017 towards the next land use and by the end of 2020 revegetation planting was mostly complete.

- TSF 2 is located in the valley system that trends eastward from the north embankment of TSF 1. It is approximately 2.5 km from the processing plant and 1.3 km downstream of TSF 1 Saddle Dam 5. TSF 2 has a footprint of 260 ha, of which 72 ha have been developed as of 2020, and lies within a total project area of 340 ha including buffer zones. TSF 2 has a current design capacity of some 41 Mt of tailings, which provides approximately 15 years capacity at 2.7 Mtpa throughput, well in excess of that required for processing of ore defined by the mineral reserve, both before and after allowing for use of tails solids in paste backfill. TSF 2 will be constructed in three cells and 11 stages. The cellular design provides flexibility to modify stage raises and enable dry season construction for various throughput rates. At the time of permit renewal, the TSF 2 design had been revised to a cellular arrangement with lining of the entire basin with HDPE geomembrane. In February 2016, the Mines Inspectorate Division of the Minerals Commission directed that, as per the Minerals and Mining Regulations, 2012 (L.I. 2182), the TSF 2 design be constructed with a compacted soil liner (CSL). As GSWL was well advanced with development of TSF 2 at the time, dispensation was granted for HDPE lining of TSF 2 Cell 1, with all future cells and stage raises to incorporate a compacted soil liner. TSF 2 Cell 1 construction commenced in July 2016. Verbal approval from the Inspectorate Division to start deposition was given in February 2017 and EPA approval followed in April. Deposition started in May 2017. In July 2017, the Mines Inspectorate Division had completed their review and recommended the re-design of TSF 2 with a compacted soil liner to the Chief Inspector of Mines for approval. In 2017, GSWL commenced an EIA to support the submission of a Supplementary EIS for TSF 2 Cell 2. The Supplementary EIS was submitted to the EPA in October 2018 with the compacted soil liner design. The TSF 2 Cell 2 Supplementary EIS was permitted in August 2020 and Environmental Permit issued in November 2020 (EPA/EIA/533).

### Operations Capital and Operating Costs

Capital and operating costs have been estimated based on actual 2020 activity costs and 2021 budget costs, projected through the mine plan. The growth capital cost for the life of mine is \$47.7 million and the sustaining capital cost for the life of mine is \$136.5 million. Unit production costs estimated for the mineral reserve are:

- direct operating cost: \$682 /oz;
- all-in sustaining cost: \$902 /oz; and
- all-in cost: \$964 /oz.

Capital costs have been classified into growth capital (to expand or increase capacity of the operation from the current established base) and sustaining capital (to sustain the established base).

**Table 6: Capital Cost Summary for Mineral Reserve Plan**

		Total/Average	Growth Capital	Sustaining Capital
Mine Development	\$M	78.3	26.6	51.7
Mining Underground	\$M	33.2	-	33.2
Definition Drilling	\$M	8.6	8.6	-
Processing	\$M	5.5	-	5.5
Site G&A	\$M	18.3	-	18.3
TSF	\$M	9.8	-	9.8
Mobile Fleet	\$M	18.2	-	18.2

		Total/Average	Growth Capital	Sustaining Capital
Projects, Ventilation	\$M	7.5	7.5	-
Projects, Other	\$M	5.0	5.0	-
<b>Total</b>	<b>\$M</b>	<b>184.3</b>	<b>47.7</b>	<b>136.5</b>
Unit cost per production tonne	\$/t	16.02	4.15	11.87
Unit cost per recovered ounce	\$/oz	180	47	133

**Table 7: Operating Cost Summary for Mineral Reserve Plan**

		Total / Average	CY 21	CY 22	CY 23	CY 24	CY 25	CY 26
Total Operating								
Mining	\$M	374.0	70.1	65.5	66.4	70.5	60.8	40.7
Processing	\$M	220.4	37.1	39.6	35.2	37.0	38.1	33.4
Site G&A	\$M	104.6	17.5	17.9	17.2	17.5	17.7	16.7
<b>Total Operating</b>	<b>\$M</b>	<b>699.0</b>	<b>124.7</b>	<b>123.1</b>	<b>118.8</b>	<b>125.1</b>	<b>116.6</b>	<b>90.7</b>
Unit cost per production tonne	\$/t	60.76	64.11	57.89	65.85	64.48	57.74	54.32
Unit cost per recovered ounce	\$/oz	682	733	696	658	694	652	657

Notes:

Operating costs have been estimated as follows:

- analysis of 2020 actual spend;
- analysis of share of fixed and variable cost for each activity, at the cost element level (e.g., fuel, labour, consumables);
- calculation of periodic spend, driven by scheduled units of a physical activity; and
- review of step change fixed costs where higher physical rates are planned.

## Economic Analysis

An economic analysis to support the declared mineral reserve was prepared. Using the assumptions outlined in the Wassa Technical Report, the operations show a positive cash flow at the \$1,300/oz reserve selling price and support the declaration of a mineral reserve:

- growth Capital: \$47.7 million
- development duration: nil (in production)
- production phase: six years, averaging 171 koz per year
- all-in sustaining cost: \$881 /oz
- after-tax NPV5%:
  - base case (\$1,300 /oz): \$121.1 million (100% basis)
  - consensus case (av \$1,751 /oz): \$335.6 Golden Star had total consolidated debt and liabilities million (100% basis)

Table 8 shows the detailed results of the economic analysis (IRR cannot be calculated as all year cash flow are positive).

**Table 8: Mineral Reserve Economic Analysis (base case)**

	Total/avg	CY21	CY22	CY23	CY24	CY25	CY26	CY27	CY28	CY29	CY30	CY31
<b>PRODUCTION</b>												
<b>Mining</b>												
Mined to ROM	kt	10,818	1,784	1,826	1,804	1,939	2,020	1,445	-	-	-	-
ROM Grade	g/t	3.09	3.08	3.11	3.29	3.07	2.94	3.10	-	-	-	-
Mining Rate, to ROM	tpd	4,937	4,888	5,003	4,943	5,299	5,534	3,958	-	-	-	-
Mined to Waste	kt	10,818	463	657	737	609	3	-	-	-	-	-
Mining Rate, Total Material	tpd	6,064	6,155	6,804	6,961	6,964	5,542	3,958	-	-	-	-
<b>Processing</b>												
LG Stockpile	kt	10,818	161	300	-	-	-	225	-	-	-	-
LG Stockpile Grade	g/t	3.09	0.58	0.58	-	-	-	0.58	-	-	-	-
<b>Total Processed</b>	<b>kt</b>	<b>11,504</b>	<b>1,945</b>	<b>2,126</b>	<b>1,804</b>	<b>1,939</b>	<b>2,020</b>	<b>1,670</b>	-	-	-	-
Feed Grade	g/t	2.94	2.87	2.75	3.29	3.07	2.94	2.76	-	-	-	-
Recovery		94.1%	94.6%	94.0%	94.7%	94.1%	93.7%	93.1%	-	-	-	-
<b>Au Produced</b>	<b>koz</b>	<b>1,024</b>	<b>170</b>	<b>177</b>	<b>180</b>	<b>180</b>	<b>179</b>	<b>138</b>	-	-	-	-
<b>REVENUE</b>												
Au Selling Price	\$/oz		1,300	1,300	1,300	1,300	1,300	1,300	-	-	-	-
<b>Gross Revenue</b>	<b>\$M</b>	<b>1,331.8</b>	<b>221.1</b>	<b>229.9</b>	<b>234.6</b>	<b>234.1</b>	<b>232.6</b>	<b>179.5</b>	-	-	-	-
Less RG Stream, Tier 1	\$M	111.9	18.6	19.3	19.7	19.7	19.5	15.1	-	-	-	-
Less RG Stream, Tier 2	\$M	-	-	-	-	-	-	-	-	-	-	-
<b>Net Revenue After Stream</b>	<b>\$M</b>	<b>1,219.9</b>	<b>202.5</b>	<b>210.6</b>	<b>214.9</b>	<b>214.5</b>	<b>213.1</b>	<b>164.4</b>	-	-	-	-
<b>OPERATING COSTS &amp; ROYALTIES</b>												
<b>Operating Unit Costs</b>												
Mining	\$/t.mined	34.57	39.29	35.89	36.82	36.35	30.09	28.15	-	-	-	-
Processing	\$/t.proc	19.16	19.08	18.62	19.50	19.09	18.88	19.97	-	-	-	-
G&A (excl. Refining)	\$/t.proc	9.09	8.99	8.44	9.54	9.03	8.76	10.00	-	-	-	-
<b>Total Cost per Tonne</b>	<b>\$/t.proc</b>	<b>60.75</b>	<b>64.11</b>	<b>57.88</b>	<b>65.86</b>	<b>64.48</b>	<b>57.73</b>	<b>54.32</b>	-	-	-	-
<b>Operating Costs</b>												
Mining	\$M	374.0	70.1	65.5	66.4	70.5	60.8	40.7	-	-	-	-
Processing	\$M	220.4	37.1	39.6	35.2	37.0	38.1	33.4	-	-	-	-
G&A (excl. Refining)	\$M	99.9	16.7	17.1	16.4	16.7	16.9	16.1	-	-	-	-
Refining	\$M	4.6	0.8	0.8	0.8	0.8	0.8	0.6	-	-	-	-
<b>Direct Cash Operating Costs</b>	<b>\$M</b>	<b>698.9</b>	<b>124.7</b>	<b>123.0</b>	<b>118.8</b>	<b>125.1</b>	<b>116.6</b>	<b>90.7</b>	-	-	-	-
Royalty	\$M	66.6	11.1	11.5	11.7	11.7	11.6	9.0	-	-	-	-
<b>EBITDA</b>	<b>\$M</b>	<b>454.4</b>	<b>66.7</b>	<b>76.0</b>	<b>84.4</b>	<b>77.7</b>	<b>84.8</b>	<b>64.8</b>	-	-	-	-
<b>TAX</b>												
Income Tax	\$M	108.4	14.8	16.1	19.1	18.3	23.0	17.2	-	-	-	-
<b>Total Cash After Tax</b>	<b>\$M</b>	<b>346.0</b>	<b>52.0</b>	<b>60.0</b>	<b>65.2</b>	<b>59.4</b>	<b>61.8</b>	<b>47.6</b>	-	-	-	-
<b>CAPITAL COST</b>												
Growth Capital	\$M	47.7	14.9	17.4	11.1	4.3	-	-	-	-	-	-
Sustaining Capital	\$M	136.5	25.3	33.9	29.9	34.5	12.2	0.8	-	-	-	-
Closure	\$M	14.3	-	-	0.3	0.8	0.8	0.5	1.4	3.5	3.5	2.3
<b>Total Capital Costs</b>	<b>\$M</b>	<b>198.5</b>	<b>40.2</b>	<b>51.3</b>	<b>41.3</b>	<b>39.6</b>	<b>13.0</b>	<b>1.3</b>	<b>1.4</b>	<b>3.5</b>	<b>3.5</b>	<b>2.3</b>
<b>PROJECT CASH FLOW</b>	<b>\$M</b>	<b>147.5</b>	<b>11.7</b>	<b>8.7</b>	<b>24.0</b>	<b>19.9</b>	<b>48.8</b>	<b>46.3</b>	<b>-1.4</b>	<b>-3.5</b>	<b>-3.5</b>	<b>-2.3</b>
<b>DCF SUMMARY</b>												
EBITDA before taxes & capital	\$M	454.4	66.7	76.0	84.4	77.7	84.8	64.8	-	-	-	-
Growth Capital	\$M	47.7	14.9	17.4	11.1	4.3	-	-	-	-	-	-
Sustaining Capital	\$M	136.5	25.3	33.9	29.9	34.5	12.2	0.8	-	-	-	-
Closure	\$M	14.3	-	-	0.3	0.8	0.8	0.5	1.4	3.5	3.5	2.3
<b>Pre-tax Project Cash Flow</b>	<b>\$M</b>	<b>255.9</b>	<b>26.5</b>	<b>24.8</b>	<b>43.1</b>	<b>38.1</b>	<b>71.8</b>	<b>63.4</b>	<b>-1.4</b>	<b>-3.5</b>	<b>-3.5</b>	<b>-2.3</b>
Tax	\$M	108.4	14.8	16.1	19.1	18.3	23.0	17.2	-	-	-	-
<b>FREE CASH FLOW</b>	<b>\$M</b>	<b>147.5</b>	<b>11.7</b>	<b>8.7</b>	<b>24.0</b>	<b>19.9</b>	<b>48.8</b>	<b>46.3</b>	<b>-1.4</b>	<b>-3.5</b>	<b>-3.5</b>	<b>-2.3</b>
Pre-tax NPV5%, 100% basis		<b>212.2</b>										
After Tax-tax NPV5%, 100% basis		<b>121.2</b>										
Pre-tax IRR, 100% basis		<b>n/a</b>										
After Tax-tax IRR, 100% basis		<b>n/a</b>										
<b>UNIT COSTS</b>												
Direct Cash Operating Cost	\$/oz	682	733	696	658	694	652	657	-	-	-	-
All-in Sustaining Cost, Site	\$/oz	881	947	952	889	951	785	728	-	-	-	-

## Exploration, Development and Production

The current Wassa mineral reserve mine plan includes mining and processing of ore defined by the mineral reserve only. It outlines a six-year life for Wassa Underground (2021-2026), with average annual production of 177 koz at a mine site all in sustaining cost of \$881/oz. The Wassa mineral reserve plan is a continuation of the current operating strategy with no material change to the mining methodology, underground infrastructure or processing plant. The recent investments in infrastructure, such as the paste fill plant and electrical upgrades, are expected to support the increased mining rates outlined in the mineral reserve mine plan.

The mineral reserve mine plan includes mining of:

- Panels 1 and 2: the current operating areas extracting B-shoot, F-shoot and Hanging-wall zones; and
- Panel 3: Upper Mine B-Shoot and 242 areas, formerly planned for open pit extraction, will now be mined from underground, which is expected to generate higher returns by removing low-grade low-margin material from the plan and allow for earlier access for production to support increased underground ore mining rates.

Capital expenditure is expected to total approximately \$184m over the six-year life of the mineral reserve mine plan. Of this total, 26% is growth capital and 74% sustaining capital. The most significant component of the growth capital is the \$26.6m (including \$4.5m for ventilation shafts) investment in underground development to access the mining areas, \$8.6m for definition drilling of the Panel 3 areas in the Upper Mine and \$12m for the ventilation upgrade (\$7.5m in projects plus the \$4.5m in mine development referenced above), which will commence in 2021. In addition to the above capital estimates, closure costs are expected to total \$14.3m.

Opportunities have been identified with potential to add value to the mineral reserve plan:

- Mineral resource: upside potential exists for the mineral resource from definition drilling to upgrade the large inferred mineral resource which is the Southern Extension zone and various targets to grow the defined mineralization which are not yet tested.
- Productivity and mine design: mining practices could deliver improved cost and productivity outcomes through application of technology, geotechnical design optimization and improvements to the paste backfill system after it reaches steady-state operation.
- Sustainability: opportunities have been identified for emissions reduction (electrification, haulage optimization and application of renewables), and water (efficiency and quality preservation) and energy efficiency (comminution optimization).

Based on the positive results of the technical and economic analysis of the Wassa mineral reserve, the following actions have been recommended:

- continue definition drilling to support production in Panels 1 and 2 and increase geological confidence in Panel 3;

- complete drilling programs with potential to increase the defined mineralization (main Wassa orebody, local soil sampling anomalies and regional including Father Brown/Adoikrom underground);
- continue extraction of the mineral reserve by underground methods, at the optimized cut-off grade of 1.9 g/t and transition the upper areas previously planned for open pit mining, to more selective underground extraction to improve margins and bring forward production;
- continue delivery of major capital projects (paste backfill plant and system, ventilation upgrade with two new shafts to surface, development of Panel 3 underground);
- continue processing using CIL treatment in the Wassa processing plant;
- continue current governance practices to ensure ongoing statutory compliance and license to operate is maintained, including management systems, social investment programs and corporate responsibility programs; and
- investigate potential to expedite stoping from the Panel 3 (242 and B-Shoot).

## **RISK FACTORS**

The following sets forth certain risks and uncertainties that could have a material adverse effect on the Company's business, financial condition and/or results of operations and the trading price of its common shares, which may decline, and investors may lose all or part of their investment. Additional risks and uncertainties that the Company does not presently know or that it currently deems immaterial also may impair its business operations. Golden Star cannot assure you that we will successfully address these risks. In addition, other currently unknown risks exist that may affect the Company's business.

### *General Risks*

#### **Working capital may not be sufficient to meet future obligations**

As at December 31, 2020, the Company had current assets of \$121.7 million and current liabilities of \$117.1 million. Removing the non-cash deferred revenue current liability of \$7.6 million, this resulted in a working capital of \$12.2 million as at December 31, 2020. The Company's ability to maintain the working capital will depend on whether gold prices increase to levels significantly beyond the average realized gold price and/or whether the Company's operating costs are such that its operations generate sufficient cash flows to improve working capital.

In addition to cash operating costs, the Company's obligations also include a 5% royalty to the Government of Ghana, reclamation expenditures, corporate general and administration expenditures, interest and principal payments on long term debt and capital expenditures.

The Company's ability to repay or refinance its future obligations depend on a number of factors, some of which are beyond its control. Factors that influence the Company's ability to meet these obligations include general global economic conditions, credit and capital market conditions, results of operations, mineral reserves and resources and the price of gold. There is no guarantee that the Company will have positive working capital in the future, or that the working capital generated from operations will be sufficient to cover its expansion plans or for future operations.

**The Company has pledged substantially all of its assets as security and may not be able to raise additional debt as a result**

As part of the Stream Transaction and Credit Facility, the Company has pledged substantially all of its assets as security to Royal Gold, RGLD and Macquarie. If an event of default occurs under either the Stream Transaction or the Credit Facility which is not remedied, the counterparty or counterparties could seek to realize their security over the assets of the Company. In addition, should Golden Star require additional funds to service debt or general and administrative costs, it may be unable to raise additional debt financing without available collateral.

**A substantial or prolonged decline in gold prices would have a material adverse effect on the Company**

The price of the common shares, the Company's results of operations and financial condition, and its exploration, development and mining activities have previously been, and would in the future be significantly adversely affected by a substantial or prolonged decline in the price of gold. The price of gold is volatile and is affected by numerous factors beyond the Company's control such as the sale or purchase of gold by various central banks and financial institutions, inflation or deflation, fluctuation in the value of the United States dollar and foreign currencies, global and regional demand, and the political and economic conditions of major gold-producing countries throughout the world, including as a result of a pandemic such as COVID-19. Any drop in the price of gold would adversely impact the Company's revenues, profits and cash flows. In particular, a sustained low gold price could:

- cause suspension of the Company's mining operations at Wassa if this operation becomes uneconomic at the then-prevailing gold price, thus further reducing revenues;
- cause the Company to be unable to fulfill its obligations under agreements with its partners or under its permits and licences which could cause it to lose its interests in, or be forced to sell, some of its properties;
- cause Golden Star to be unable to fulfill its debt repayment obligations; and
- reduce funds available for exploration and/or development activities, with the result that depleted mineral reserves may not be replaced by new exploration activities.

Furthermore, the need to reassess the feasibility of any of the Company's projects because of declining gold prices could cause substantial delays or could interrupt mining, exploration and development activities until a reassessment could be completed. Life-of-mine plans incorporating significantly lower gold prices could result in reduced estimates of mineral reserves and mineral resources and in material write-downs of the Company's investments in mining properties and increased amortization, reclamation and closure charges.

**The Company may in the future incur substantial losses that could make financing its operations and business strategy more difficult and that may affect its ability to service its debts as they become due**

The net loss attributable to Golden Star shareholders was \$52.1 million in 2020, compared to a net loss of \$67.4 million attributable to Golden Star shareholders in 2019 and a net income of \$18.1 million attributable to Golden Star shareholders in 2018. In certain years, lower ore grades from the Company's mines, lower gold recovery rates and impairment write-offs of mine property and/or exploration property costs and loss from sale of the Company's interest in Prestea contributed to net losses. In the future, these factors, as well as declining gold prices, could cause the Company to continue to be unprofitable. Future operating losses could adversely affect the Company's ability to raise additional capital if needed and could materially and adversely affect

its operating results and financial condition. In addition, operating losses could affect the Company's ability to meet its debt repayment obligations.

**The Company's obligations could strain its financial position and impede its business strategy**

Golden Star had total consolidated debt and liabilities (excluding deferred revenue) as of December 31, 2020, of \$213.5 million, including \$1.5 million in leases; \$49.7 (\$51.5 million face value) pursuant to the Company's outstanding \$65 million aggregate principal amount of 7% convertible senior notes due in August 2021 (the "7% Convertible Debentures"); \$54.5 million principal amount (\$60 million face value) under the Credit Facility; \$41.3 million of current trade payables and accrued liabilities; \$2 million accrual for environmental rehabilitation liabilities; \$12.8 million of current income tax liabilities and \$3.3 million of derivatives liabilities. The Company's indebtedness and other liabilities may increase as a result of general corporate activities. These liabilities could have important consequences, including the following:

- increasing the Company's vulnerability to depressed gold prices, as applicable, and general adverse economic and industry conditions;
- limiting the Company's ability to obtain additional financing to fund future working capital, capital expenditures, exploration and development projects and other general corporate requirements;
- requiring Golden Star to dedicate a significant portion of its cash flow from operations to make debt service payments, which would reduce its ability to fund working capital, mining operations, capital expenditures, exploration and development projects and other general corporate requirements;
- limiting the Company's flexibility in planning for, or reacting to, changes in its business and industry; and
- placing the Company at a disadvantage when compared to its competitors that have less debt relative to their market capitalization.

**The conversion or repayment of the 7% Convertible Debentures may result in additional dilution and/or a decrease in cash available for other purposes**

The 7% Convertible Debentures will mature on August 15, 2021. Accordingly, upon a conversion of the 7% Convertible Debentures, holders of common shares may be subject to additional dilution and/or repayment of the 7% Convertible Debentures which may reduce the amount of cash available to the Company for other purposes. If the Company does not have sufficient liquidity to repay the 7% Convertible Debentures in cash on maturity and cannot secure additional financing to do so, there is a risk that Golden Star may default in repaying the 7% Convertible Debentures and/or that settling the obligation in shares will lead to significant dilution of the common shares of existing and prospective shareholders.

**The Company may not be able to refinance the 7% Convertible Debentures if required or if it so desires**

The Company may need or desire to refinance all or a portion of the 7% Convertible Debentures or any other future indebtedness that it incurs on or before the maturity of the 7% Convertible Debentures. Golden Star cannot make any assurances that it will be able to refinance any of its indebtedness on commercially reasonable terms or at all.

**The Company may not have sufficient funds or the ability to raise the funds to pay interest on the 7% Convertible Debentures or purchase the 7% Convertible Debentures upon a fundamental change**

The 7% Convertible Debentures bear interest semi-annually at a rate of 7% per year. If a fundamental change occurs, the Company will be required to offer to purchase, for cash, all of the outstanding 7% Convertible Debentures at a purchase price in cash equal

to 100% of the principal amount, plus any accrued and unpaid interest. Golden Star may not have sufficient funds to pay the interest or purchase price when due. In addition, the terms of any borrowing agreements which Golden Star may enter into from time to time may require early repayment of borrowings under circumstances similar to those constituting a fundamental change. Such agreements may also make the Company's purchase of 7% Convertible Debentures an event of default under such agreements. If Golden Star fails to pay interest on the 7% Convertible Debentures or purchase the 7% Convertible Debentures when required, it will be in default under the indenture governing the 7% Convertible Debentures. In addition, a fundamental change may also constitute an event of default or require prepayment under, or result in the acceleration of the maturity of, the Company's other indebtedness, including under the Stream Facility or the Credit Facility, outstanding at the time.

**The Company may not receive the consideration payments for the sale of its interest in Prestea in a timely manner or at all**

On September 30, 2020, the Company completed the sale of its interest in Prestea to FGR pursuant to the Bogoso SPA, as amended, for a purchase price payable as follows: consideration of \$30 million (comprising of \$5 million of cash (plus certain closing adjustments) which is payable by March 30, 2021, and the assumption by FGR of approximately \$25 million of negative working capital); \$10 million of cash which is payable on July 31, 2021; and \$15 million of cash which is payable on July 31, 2023. In addition to these deferred payments, the Contingent Payment may also become payable by FGR to the Company.

The payments owing to Golden Star by FGR are not secured and there is no assurance that FGR will not default on its payment obligations. In addition to the uncertainties relating to the quantum of cash flow from the sale of the Company's interest in Prestea and the anticipated receipt and timing thereof, there are uncertainties as to FGR's ability to deliver the Bogoso Sulfide Project and therefore as to the receipt by Golden Star of the Contingent Payment, and the timing and amount thereof. Such uncertainties could have a material adverse effect on the Company's financial condition.

**Estimates of the Company's mineral reserves and mineral resources could be inaccurate, which could cause actual production and costs to differ from estimates**

There are numerous uncertainties inherent in estimating proven and probable mineral reserves and measured, indicated and inferred mineral resources, including many factors beyond the Company's control. The accuracy of estimates of mineral reserves and mineral resources is a function of the quantity and quality of available data and of the assumptions made and judgments used in engineering and geological interpretation, which could prove to be unreliable. These estimates of mineral reserves and mineral resources may not be accurate, and mineral reserves and mineral resources may not be able to be mined or processed profitably or at all.

Fluctuations in gold prices, results of drilling, metallurgical testing, changes in operating costs, production, and the evaluation of mine plans subsequent to the date of any mineral reserve or mineral resource estimate could require a revision of the estimates. The volume and grade of mineral reserves mined and processed, and recovery rates, might not be the same as currently anticipated. Any material reductions in estimates of the Company's mineral reserves and mineral resources, or of its ability to extract these mineral reserves and mineral resources, could have a material adverse effect on its results of operations and financial condition.

### **The Company's processing ability may be adversely impacted by certain circumstances**

A number of factors could affect our ability to process the quantities of metals that we recover and our ability to efficiently handle certain quantities of processed materials, including, but not limited to, the presence of oversized material at the crushing stage; material showing breakage characteristics different to those planned; material with grades outside of planned grade range; the presence of deleterious materials in ratios different than expected; material drier or wetter than expected, due to natural or environmental effects; and materials having viscosity or density different than expected.

The occurrence of one or more of the circumstances described above could affect our ability to process the number of tonnes planned, recover valuable materials, remove deleterious materials, and produce planned quantities of concentrates. In turn, this may result in lower throughput, lower recoveries, increased downtime or some combination of all of the foregoing. While minor issues of this nature are part of normal operations, there is no assurance that unexpected conditions may not materially and adversely affect our business, results of operations or financial condition.

### **The Company currently has only one source of operational cash flows, which could be insufficient by itself to fund the Company's continuing exploration and development activities**

The Company's only current significant internal sources of funds are operational cash flows from Wassa Underground. The anticipated continuing exploration and development of the Company's properties are expected to require expenditures over the next several years. If cash on hand, free cash flows generated by Wassa and any other available facilities are insufficient to cover all of the Company's capital investment needs, it may require additional financing or it may consider rescheduling capital spending. Furthermore, the Company is obligated under the Stream Transaction to sell a certain percentage of gold production at a reduced gold price, which could limit its future cash flows. Golden Star's ability to raise significant new capital will be a function of macroeconomic conditions, future gold price, its operational performance and its then current cash flow and debt position, among other factors. Continued uncertainty in the global economy, including as a result of the economic impact of the COVID-19 pandemic, may affect lending practices and the Company's ability to access capital. In addition, the Company has granted RGLD and Royal Gold a security interest over the assets of Wassa and Wassa Underground in connection with the Stream Transaction, which could make debt financing on favourable terms more difficult to arrange. Furthermore, there is no certainty that Golden Star will be able to meet its gold delivery obligation under the Stream Transaction or otherwise meet its obligations. As a result, the Company may not be able to obtain adequate financing on acceptable terms or at all, which could cause the Company to delay or indefinitely postpone further exploration and development of its properties. Consequently, Golden Star could lose its interest in, or could be forced to sell, some or all of its properties. If the Company raises additional funds through the sale of equity securities or securities convertible into equity securities, shareholders may have their equity interest in the Company diluted.

### **The Company is subject to fluctuations in currency exchange rates and policies on foreign currencies, which could materially adversely affect its financial position**

The Company's revenues are in United States dollars, and it maintains most of its cash and cash equivalents in United States dollars or United States dollar-denominated securities. Golden Star converts its United States funds to foreign currencies as certain payment obligations become due. Accordingly, the Company is subject to fluctuations in the rates of currency exchange between the United States dollar and these foreign currencies, and these fluctuations could materially affect the Company's financial position and results of operations. A portion of the operating costs at Wassa are based on the Ghanaian currency, the

Cedi. The Company is required by the Government of Ghana to convert into Cedis 20% of the foreign exchange proceeds that it receives from selling gold, but the Government could require the Company to convert a higher percentage of gold sales proceeds into Cedis in the future. Golden Star obtains construction and other services and materials and supplies from providers in Australia, South Africa and other countries. The costs of goods and services could increase or decrease due to changes in the value of the United States dollar or the Cedi, the Euro, the Australian dollar, the British Pound, the South African Rand or other currencies. Consequently, operation and development of the Company's properties could be more costly than anticipated.

#### **Any hedging activities might be unsuccessful and incur losses**

Golden Star entered into new hedging arrangements in 2020 and may do so in the future. The Company's current and future hedging activities might not protect the Company adequately against declines in the price of gold. In addition, although a hedging program could protect the Company from a decline in the price of gold, it might also prevent the Company from benefiting fully from gold price increases. For example, as part of a hedging program, the Company could be obligated to sell gold at a price lower than the then-current market price.

#### **Risks inherent in acquisitions that Golden Star might undertake could adversely affect its current business, financial condition, and growth**

The Company plans to continue to pursue the acquisition of producing, development and advanced stage exploration properties and companies. The search for attractive acquisition opportunities and the completion of suitable transactions are time consuming and expensive, divert management attention from the Company's existing business and may be unsuccessful. Success in the Company's acquisition activities depends on its ability to complete acquisitions on acceptable terms and integrate the acquired operations successfully with its operations. Any acquisition would be accompanied by risks. For example, there may be a significant change in commodity prices after the Company has committed to complete a transaction and established the purchase price or exchange ratio, a material mineral deposit may prove to be below expectations or the acquired business or assets may have unknown liabilities which may be significant. Golden Star may lose the services of its key employees or the key employees of any business the Company acquires, or have difficulty integrating operations and personnel. The integration of an acquired business or assets may disrupt the Company's ongoing business and its relationships with employees, suppliers and contractors. Any one or more of these factors or other risks could cause the Company to not realize the anticipated benefits of an acquisition of properties or companies and could have a material adverse effect on the Company's current business, financial condition, results of operations and on its ability to grow.

#### **The Company is subject to litigation risks**

All industries, including the mining industry, are subject to legal claims, with and without merit. As such, Golden Star is involved in various routine legal proceedings incidental to its business. Defense and settlement costs can be substantial, even with respect to claims that have no merit. Due to the inherent uncertainty of the litigation process, the resolution of any particular legal proceeding could have a material effect on the Company's future financial position and results of operations.

#### **The Company is subject to operational risks**

The Company is subject to a number of operational hazards that can delay production or result in liability to the Company. The Company's activities are subject to a number of risks and hazards including:

- power shortages from the national grid;

- mechanical and electrical equipment failures;
- parts availability;
- unexpected changes in mineralization grades;
- unexpected changes in mineralization chemistry and gold recoverability;
- environmental hazards;
- discharge of pollutants or hazardous chemicals;
- industrial accidents;
- labour disputes and shortages;
- supply and shipping problems and delays;
- shortage of equipment and contractor availability;
- unusual or unexpected geological or operating conditions;
- blockage of access to the underground operations;
- inadequate ventilation at the underground operations;
- cave-ins of underground workings;
- failure of pit walls or tailings storage facilities;
- fire;
- marine and transit damage and/or loss;
- changes in the regulatory environment, including in the area of climate change;
- delayed or restricted access to mineral deposits and/or properties due to community interventions;
- members of the workforce contracting COVID-19 and being unable to provide services to the Company; and
- natural phenomena such as inclement weather conditions, floods, droughts and earthquakes.

These or other occurrences could result in damage to, or destruction of, mineral properties or production facilities, personal injury or death, environmental damage, delays in mining, delayed production, monetary losses and possible legal liability. Satisfying such liabilities could be very costly and could have a material adverse effect on the Company's financial position and results of operations.

**The Company's mining operations are subject to numerous environmental laws, regulations and permitting requirements and bonding requirements that can delay production and adversely affect operating and development costs**

Compliance with existing regulations governing the discharge of materials into the environment, or otherwise relating to environmental protection, in the jurisdictions where the Company has projects, may have a material adverse effect on its exploration activities, results of operations and competitive position. New or expanded regulations, if adopted, could affect the exploration, development, or operation of the Company's projects or otherwise have a material adverse effect on its operations.

Portions of the GSWL concessions are located within certain forest reserve areas which, although they have in the past been approved by the Government of Ghana as eligible for mining permits, permits for projects in forest reserve areas may not be issued in a timely fashion, or at all, and such permits may contain special requirements that may be burdensome or uneconomic to comply with.

Mining and processing gold from the Company's future development projects in Ghana will require mining, environmental, and other permits and approvals from the Government of Ghana. The trend to longer lead times and a higher cost in obtaining environmental permits has reached a point where the Company is no longer able to accurately estimate permitting times for its

planning purposes. The increases in permitting requirements could affect the Company's environmental management activities including, but not limited to, tailings disposal facilities and water management projects at its mines.

Due to an increased level of non-governmental organization activity targeting the mining industry in Ghana, the potential for the Government of Ghana to delay the issuance of permits or impose new requirements or conditions upon mining operations in Ghana may increase. Any changes in the Government of Ghana's policies, or their application, may be costly to comply with and may delay mining operations. The exact nature of other environmental control problems, if any, which the Company may encounter in the future, cannot be predicted primarily because of the changing character of environmental requirements that may be enacted within the various jurisdictions where the Company operates.

As a result of the foregoing risks, project expenditures, production quantities and rates, estimates of rehabilitation expenditures and cash operating costs, among other things, could be materially and adversely affected and could differ materially from anticipated expenditures, production quantities and rates, and costs. In addition, estimated production dates could be delayed materially. Any such events could have a materially adverse effect on the Company's business, financial condition, results of operations and cash flows.

#### **The Company's success depends on developing and maintaining relationships with local communities and stakeholders**

Our ongoing and future success depends on developing and maintaining productive relationships with the communities surrounding our operations, including local peoples who may have rights or may assert rights to certain of our properties, and other stakeholders in our operating locations. We believe our operations can provide valuable benefits to surrounding communities, in terms of direct employment, training and skills development and other benefits associated with ongoing payment of taxes. In addition, we seek to maintain partnerships and relationships with local communities. Notwithstanding our ongoing efforts, local communities and stakeholders can become dissatisfied with our activities or the level of benefits provided, which may result in legal or administrative proceedings, civil unrest, protests, direct action or campaigns against us. Any such occurrence could materially and adversely affect our business, financial condition or results of operations.

#### **The continuing development and operation of the Company's mining operations involves numerous uncertainties that could affect the feasibility, profitability or timing of such projects**

Mine development projects typically require a number of years and significant expenditures during the development phase before production is possible.

Development projects are subject to the completion of successful feasibility studies and environmental and socioeconomic assessments, the issuance of necessary governmental permits and receipt of adequate financing. The economic feasibility of development projects is based on many factors such as:

- estimation of mineral reserves and mineral resources;
- mining rate, dilution and recovery;
- anticipated metallurgical characteristics of the ore and gold recovery rates;
- environmental and community considerations including resettlement, permitting and approvals;
- future gold prices; and
- anticipated capital and operating costs.

Estimates of proven and probable mineral reserves and operating costs developed in feasibility studies are based on reasonable assumptions including geologic and engineering analyses and may not prove to be accurate.

The management of mine development projects and the start-up of new operations are complex. Completion of development and the commencement of production may be subject to delays and cost overruns. Any of the following events, among others, could affect the profitability or economic feasibility of a project:

- unanticipated changes in grade and tonnage of ore to be mined and processed;
- unanticipated adverse geotechnical conditions;
- incorrect data on which engineering assumptions are made;
- costs of constructing and operating a mine in a specific environment;
- delays on delivery of equipment required for the development and start-up of the projects;
- unexpected breakdowns of equipment critical to the development process;
- unexpected increases in the cost of equipment and services related to the mine development projects;
- cost of processing and refining;
- availability of economic sources of power and fuel;
- availability of qualified staff and/or contractors;
- adequacy of water supply;
- adequate access to the site including competing land uses (such as agriculture and illegal mining);
- unanticipated transportation costs and shipping incidents and losses;
- significant increases in the cost of diesel fuel, cyanide or other major components of operating costs;
- government regulations and changes to existing regulations (including regulations relating to prices, royalties, duties, taxes, permitting, restrictions on production, quotas on exportation of minerals, protection of the environment and agricultural lands, including bonding requirements);
- fluctuations in gold prices; and
- accidents, labour actions and force majeure events.

Adverse effects on the operations of Wassa Underground, or the further development of this underground mine, could also adversely affect the Company's business (including the Company's ability to achieve its production estimates), financial condition, results of operations and cash flow.

**The Company needs to continually discover, develop or acquire additional mineral reserves for gold production and a failure to do so would adversely affect its business and financial position in the future**

Because mines have limited lives based on proven and probable mineral reserves, Golden Star must continually replace and expand mineral reserves as its mines produce gold. The Company is required to estimate mine life in connection with its estimation of mineral reserves, but its estimates may not be correct. In addition, mine life would be shortened if Golden Star expands production or if it loses mineral reserves due to changes in gold price or operating costs. The Company's ability to maintain or increase its annual production of gold will be dependent in part on its ability to bring new mines into production and to expand or extend the life of existing mines.

### **Gold exploration is highly speculative, involves substantial expenditures, and is frequently non-productive**

Gold exploration involves a high degree of risk. Exploration projects are frequently unsuccessful. Few prospects that are explored are ultimately developed into producing mines. The Company cannot assure you that its gold exploration efforts will be successful.

The success of gold exploration is dependent in part on the following factors:

- the identification of potential gold mineralization based on surface analysis;
- availability of prospective land;
- availability of government-granted exploration and exploitation permits;
- the quality of the Company's management and its geological and technical expertise; and
- the funding available for exploration and development.

Substantial expenditures are required to determine if a project has economically mineable mineralization. It could take several years to establish proven and probable mineral reserves and to develop and construct mining and processing facilities. Because of these uncertainties, the Company cannot assure you that current and future exploration programs will result in the discovery of mineral reserves, the expansion of its existing mineral reserves or the development of mines.

### **The Company faces competition from other mining companies in connection with the acquisition of properties**

Golden Star faces strong competition from other mining companies in connection with the acquisition of producing properties or properties capable of producing gold. Many of these companies have greater financial resources, operational experience and technical capabilities. As a result of this competition, the Company might be unable to maintain or acquire attractive mining properties on terms it considers acceptable or at all. Consequently, the Company's future revenues, operations and financial condition could be materially adversely affected.

### **Title to the Company's mineral properties could be challenged**

Golden Star seeks to confirm the validity of its rights to title to, or contract rights with respect to, each mineral property in which the Company has a material interest. The Company through GSWL holds mining leases with respect to its Wassa, Benso and Hwini Butre properties. Title insurance generally is not available, and the Company's ability to ensure that it has obtained a secure claim to individual mineral properties or mining concessions is limited.

Golden Star generally does not conduct surveys of its properties until such properties have reached the development stage, and therefore, the precise area and location of such properties could be in doubt. Accordingly, the Company's mineral properties could be subject to prior unregistered agreements, transfers or claims, and title could be affected by, among other things, undetected defects. In addition, the Company might be unable to operate its properties as permitted or to enforce its rights with respect to its properties.

### **The Company may be materially and adversely affected by challenges relating to slope and stability of underground openings**

As Wassa Underground gets deeper and waste and tailings deposits increase in size as mining activities continue and expand, certain geotechnical challenges may arise, including the possibility of failure of Wassa Underground's openings or voids. If additional actions are required to prevent such a failure, additional expenses could be incurred, and stated mineral reserves could

be negatively affected. Golden Star has undertaken industry standard tests, studies and actions to maintain the stability of Wassa Underground and associated waste infrastructure, however adverse conditions could be encountered, and additional actions may be required in the future.

### **The Company depends on the services of key executives**

The Company is dependent on the services of key executives including its President and Chief Executive Officer, Chief Operating Officer and Chief Financial Officer, and other highly skilled and experienced executive personnel. Due to the relatively small size of the Company's management team, the loss of one or more of these persons or the Company's inability to attract and retain additional highly skilled employees could have an adverse effect on the Company's business and future operations. Additionally, COVID-19 imposes a high risk to all the Company's employees, contractors and executives. The Company has established a policy to diligently manage known risks and monitor developments. Because the situation is fluid and rapidly changing, the Company plans to update its staff whenever necessary. The Company has implemented and communicated a policy to all employees, contractors and executives in order mitigate any potential risk.

### **The Company's use of contractors may expose it to a number of risks and increase its mining costs**

Golden Star uses contractors in connection with its mining operations. The use of contractors subjects Golden Star to certain risks, some of which are outside its control, including:

- the Company's ability to negotiate agreements with contractors on acceptable terms;
- reduced control over those aspects of operations which are the responsibility of the contractor;
- failure of a contractor to perform under its agreement;
- interruption of operations or increased costs in the event that a contractor ceases to do business due to insolvency or other unforeseen events;
- failure of a contractor to comply with applicable legal and regulatory requirements;
- labour relation issues from a contractor's workforce or a contractor contracting COVID-19; and
- the potential to incur liability to third parties as a result of the actions of the Company's contractors.

The occurrence of one or more of these risks could adversely affect the Company's financial position and results of operations.

### **The Company's insurance coverage could be insufficient**

The Company's business is subject to a number of risks and hazards generally, including:

- adverse environmental conditions;
- industrial accidents;
- labour disputes;
- unusual or unexpected geological conditions;
- ground or slope failures;
- cave-ins;
- fire damage;
- changes in the regulatory environment;
- marine transit and shipping damage and/or losses;
- natural phenomena such as inclement weather conditions, floods and earthquakes; and
- political risks including expropriation and civil war.

Such occurrences could result in:

- damage to mineral properties or production facilities and equipment;
- personal injury or death;
- loss of legitimate title to properties;
- environmental damage to the Company's properties or the properties of others;
- delays in mining, processing and development;
- monetary losses; and
- possible legal liability.

Although Golden Star maintains insurance in amounts that it believes to be reasonable, the Company's insurance might not cover all the potential risks associated with its business. Golden Star might also be unable to maintain insurance to cover these risks at economically feasible premiums or at all. Insurance coverage might not continue to be available or might not be adequate to cover any resulting liability. In particular in connection with any impacts caused by COVID-19, the extent to which the novel coronavirus impacts the Company's business, including its operations and the market for its securities, will depend on future developments, which are highly uncertain and cannot be predicted at this time, and include the duration, severity and scope of the outbreak and the actions taken to contain or treat the coronavirus outbreak. Moreover, insurance against risks such as environmental pollution or other hazards as a result of exploration and production is not generally available to Golden Star or to other companies in the mining industry on acceptable terms. The Company might also become subject to liability for pollution or other hazards which it cannot insure against or which it might elect not to insure against because of premium costs or other reasons. Losses from these events might cause Golden Star to incur significant costs that could have a material adverse effect upon its business, results of operations or financial condition.

**The Company is dependent on information technology systems, which are subject to certain risks, including cybersecurity risks and data leakage risks**

The Company is dependent upon information technology systems in the conduct of its operations. Any significant breakdown, invasion, virus, cyber attack, security breach, destruction or interruption of these systems by employees, others with authorized access to the Company's systems, or unauthorized persons could negatively impact its operations. To the extent any invasion, cyber attack or security breach results in disruption to the Company's operations, loss or disclosure of, or damage to, its data or confidential information, its reputation, business, results of operations and financial condition could be materially adversely affected. The Company's systems and insurance coverage for protecting against cyber security risks may not be sufficient. Although to date the Company has not experienced any material losses relating to cyber attacks, it may suffer such losses in the future. Golden Star may be required to expend significant additional resources to continue to modify or enhance its protective measures or to investigate and remediate any information security vulnerabilities.

**Public health crises, including COVID-19, could adversely affect our business**

Golden Star's business, operations and financial condition could be materially adversely affected by the outbreak of epidemics, pandemics or other health crises, such as the outbreak of the novel coronavirus COVID-19 that was first reported in China in December, 2019 and designated as a pandemic by the WHO on March 11, 2020. The international response to the spread of COVID-19 has led to significant restrictions on travel, temporary business closures, quarantines, global stock market volatility and a general reduction in consumer activity. Such public health crises can result in operating, supply chain and project operations or development delays and disruptions, global stock market and financial market volatility, declining trade and market sentiment,

reduced movement of people and labour shortages, and travel and shipping disruption and shutdowns, including as a result of government regulation and prevention measures, or a fear of any of the foregoing, all of which could affect commodity prices, interest rates, credit risk and inflation.

The Company may experience business interruptions, including in or reduced operations at our mines, expenses and delays, relating to COVID-19 and other such events outside of our control, which could have a material adverse impact on our business, operating results, financial condition and the market for our securities. As at the date of this Annual Information Form, the duration of the business disruptions internationally and related financial impact of COVID-19 cannot be reasonably estimated. The effects are unknown should the pandemic persist for an extended period of time. In particular, an impacted country or region in which Golden Star operates or is headquartered in may not have sufficient public infrastructure to adequately respond or efficiently and quickly recover from the continuation of the COVID-19 pandemic, which could have a materially adverse effect on our operations, financial condition and/or results of operations. Our exposure to such public health crises also includes risks to employee health and safety. Our operations are located in relatively remote and isolated areas and represent a concentration of personnel working and residing in close proximity to one another. Should an employee or visitor become infected with a serious illness that has the potential to spread rapidly, this could place the workforce at risk.

#### **The Company's operations may be disrupted by labour activity or new and existing labour laws**

The Company is dependent on its workforce to extract and process minerals and the operations may be impacted by labour activity. In particular, there can be no guarantee that labour disruptions introduced by unions, employee groups, governmental authorities, among other groups, will not impact on the Company's operations or those of the related industries or suppliers. Labour disruptions at the Company's properties could have a material adverse impact on its business, operating results and financial condition. A significant portion of the Company's employees are represented by various labour unions under various collective bargaining agreements. Any work stoppage at the Company's facilities as a result of labour disruption could have a material adverse effect on the Company's earnings and financial condition.

#### **Any restrictions in our ability to access a refinery in South Africa could impact our profitability and the operations at our projects**

Currently, all of the Company's gold production is transported to and refined by a South African gold refinery. The refinery arranges for the sale of the gold and the Company receives payment for the gold. A percentage of the Company's gold production is also sold to RGLD pursuant to the Stream Transaction. As of the date hereof, the refinery remains in operation, however, uncertainty remains as to whether the refinery will be able to continue to operate as a result of the South African government's enforcement measures implemented in connection with COVID-19. The refinery does have additional back-up facilities located in other continents which, to the extent they continue to operate in light of COVID-19, could be used should the Company be unable to access the South African refinery, and there is significant refining capacity located outside of South Africa. Any inability to access one or more refineries could impact our operations, as well as our financial position, results of operations and cash flows.

#### **Outbreak, or threatened outbreak, of any severe communicable disease in West Africa**

Malaria, Ebola, COVID-19 and other diseases such as HIV/AIDS represent a serious threat to maintaining a skilled workforce in the mining industry throughout Africa and are a major healthcare challenge faced by the operations of the Company. There can

be no assurance that the Company will not lose members of its workforce or see its workforce man-hours reduced or incur increased medical costs as a result of these health risks, which could materially and adversely affect the business and results of operations of the Company.

**The Company’s directors may have conflicts of interest as a result of their relationships with other mining companies**

Our directors are also directors, officers and shareholders of other companies, including of La Mancha, that are similarly engaged in the business of developing and exploiting natural resource properties. Consequently, there is a possibility that our directors may be in a position of conflict in the future. The Company has corporate policies in place to manage any such issues.

**The Company’s operations may be affected by climate change regulations and climate change may present physical risks to the operations**

Greenhouse gases are emitted by Golden Star’s operations as a result of fuel and energy consumption. While the Company’s operations are not presently subject to specific regulatory measures to address or limit greenhouse gas emissions, the Ghanaian Government ratified the 2015 UN Framework Convention on Climate Change also known as the Paris Agreement. The Paris Agreement, which requires developed countries to set targets for emissions reductions, came into force on November 4, 2016 and, as a result, a number of jurisdictions have commenced implementation of measures for greenhouse emissions reduction, including carbon-based economy drivers. As regulatory requirements in respect of climate change evolve, compliance with such requirements may require additional costs and involve other unexpected effects, which could have a material adverse effect on the Company’s operations, financial condition and its results of operations.

In addition, Golden Star’s operations could be exposed to a number of physical risks from climate change, such as changes in rainfall rates or patterns, reduced water availability, higher temperatures and extreme weather events. Such events or conditions, including floodings or inadequate water supplies, could disrupt mining and transport operations, mineral processing and rehabilitation efforts, create resource or energy shortages or damage the Company’s property or equipment and increase health and safety risks on site. Such events or conditions could have other adverse effects on the Company’s workforce and on the communities around its mines, such as an increased risk of food insecurity, water scarcity and prevalence of disease, all of which could have a material adverse effect on the Company’s results of operations and financial condition.

**Compliance with industry standards and ESG disclosures and reporting could result in increasing cost**

Compliance with gold industry standards and reporting against multiple sustainability and environment, social and governance (“ESG”) indices could result in significant costs. Stringent standards relating to responsible gold, including, but not limited to the U.S. Dodd-Frank Wall Street Reform and Consumer Protection Act, the World Gold Council Conflict-Free Gold Standard and the World Gold Council Responsible Gold Mining Principles have been introduced. Additionally, the increasing demand for disclosure on performance in regard to ESG and the plethora of disclosure formats and indices being demanded, may result in significant costs to ensure and demonstrate compliance (particularly where standards change rapidly or duplication in reporting is required).

**The Company is subject to risks from operating in a single jurisdiction**

The Company’s mining operations are located in Ghana, which has at times in its history experienced political and economic instability and other uncertainty, including localised civil unrest, terrorist incursions from neighbouring countries, exposure to epidemic and pandemic illnesses, efforts at resource nationalization, illegal mining and difficult security environments.

In Ghana and West Africa more generally, there is an ongoing focus by governments to enhance economic benefit and increase financial and social benefits from extractive industries and mining in particular.

In 2019 the Ghanaian Government declared its interest in the proposed West African monetary zone currency, the Eco.

The Ghanaian Government has sought in the past to institute a mining “windfall” tax. With escalating gold price and the election cycle juncture, this plan may be revived. Additionally, the Ghanaian energy sector has a mounting debt, which the Government may seek to minimise through taxes or levies to industry.

#### *Governmental and Regulatory Risks*

#### **As a holding company, limitations on the ability of the Company’s operating subsidiaries to make distributions to it could adversely affect the funding of the Company’s operations**

Golden Star is a holding company organized under the federal laws of Canada that conducts operations primarily through foreign (principally Ghanaian) subsidiaries, and substantially all of the Company’s assets consist of equity in these entities. Accordingly, any limitation on the transfer of cash or other assets between the parent corporation and these entities, or among these entities, could restrict the Company’s ability to fund its operations efficiently, or to repay the 7% Convertible Debentures, the Credit Facility, or other debt, or on its ability to fulfill its obligations under the Stream Transaction. Any such limitations or the perception that such limitations might exist now or in the future, could have an adverse impact on available credit and the valuation and share price of Golden Star.

#### **The Government of Ghana may make or propose changes to the mining fiscal regime that will have a significant impact on the Company’s overall costs**

In 2012, the Government of Ghana announced its intention to introduce a 10% windfall profit tax on mining companies. In 2013, as a result of the decline in spot gold prices, the Government of Ghana suspended its implementation of the proposed windfall profit tax. However, if gold prices increase the Government of Ghana may proceed with its plan to implement the proposed 10% windfall profit tax.

The ITA was passed by Ghana’s Parliament and assented to by the President on September 1, 2015, on which date the ITA entered into force. The implementation of the ITA commenced on January 1, 2016. The significant change in the ITA that may affect the Company is that tax depreciation claims on plant, equipment and mining properties will be included in losses which expire after five years rather than being included in a capital allowance balance that carries forward indefinitely.

The Government of Ghana could review the existing tax stability agreements of mining companies operating in Ghana. While the Company’s mines do not have tax stability agreements, the Government of Ghana could decide to review the Company’s Deed of Warranty which specifies certain tax agreements for its properties. Such a review could result in some of the Company’s financial concessions being revoked or in changes which could have a significant impact on its business, results of operations or financial condition. Changes to the mining list may also have an adverse impact on the financial concessions benefitting GSWL in relation to customs duties.

The Government of Ghana announced in February 2018 that it would implement a new audit program targeted at mining companies in Ghana. In 2020, the Ghana Revenue Authority established a specific mining directorate/task force. As a result, the

Company may be subject to additional audits during the year that could result in the reversal of currently recorded tax losses or additional tax expense.

**The Company faces several risks inherent in conducting business internationally, including compliance with U.S., Canadian and international laws and regulations that apply to the Company's international operations**

The Company has offices or activities in several jurisdictions, including Canada, the U.K., the U.S. and Ghana. Accordingly, Golden Star faces several risks inherent in conducting business internationally, including compliance with U.S., Canadian and international laws and regulations that apply to the Company's international operations. These laws and regulations include data privacy requirements, labour relations laws, tax laws, anti-competition regulations, import and trade restrictions, export requirements, the Canadian *Corruption of Foreign Public Officials Act*, the U.K. *Bribery Act*, the U.S. *Foreign Corrupt Practices Act* and other U.S. federal laws and regulations established by the Office of Foreign Assets Control, as well as similar laws in the countries in which Golden Star conducts its business, which laws prohibit corrupt payments to governmental officials or certain payments or remunerations to customers. Given the high level of complexity of these laws, however, there is a risk that some provisions may be inadvertently breached by Golden Star, for example through fraudulent or negligent behavior of individual employees, the Company's failure to comply with certain formal documentation requirements, or otherwise. Violations of these laws and regulations could result in fines, criminal sanctions against the Company, its officers or its employees, requirements to obtain export licences, cessation of business activities in sanctioned countries, implementation of compliance programs, and prohibitions on the conduct of the Company's business. Any such violations could include prohibitions on the Company's ability to conduct business in one or more countries and could materially damage its reputation, its international expansion efforts, its ability to attract and retain employees, its business and its operating results. The Company's success depends, in part, on its ability to anticipate these risks and manage these challenges. These factors or any combination of these factors may adversely affect the Company's revenue or its overall financial performance.

**The Company is subject to changes in the regulatory environment where it operates which may increase its costs of compliance**

The Company's mining operations and exploration activities are subject to extensive regulation governing various matters, including:

- licensing;
- production;
- taxes;
- disposal of process water or waste rock;
- toxic substances;
- development and permitting;
- exports and imports;
- labour standards;
- mine and occupational health and safety;
- environmental protection and corporate responsibility, and
- mine rehabilitation and closure plans.

Compliance with these regulations increases the costs of the following:

- planning;

- designing;
- drilling;
- operating;
- developing;
- constructing; and
- closure, reclamation and post closure.

Golden Star believes that it is in compliance with current laws and regulations in Ghana and elsewhere. However, these laws and regulations are subject to frequent change and reinterpretation. Amendments to current laws and regulations governing operations and activities of mining companies or more stringent implementation or interpretation of these laws and regulations could have a material adverse impact on Golden Star. These factors could cause a reduction in levels of production and delay or prevent the development or expansion of the Company's properties in Ghana.

The implementation of changes in regulations that limit the amount of proceeds from gold sales that could be withdrawn from Ghana could also have a material adverse impact on the Company, as Wassa is currently the only source of internally generated operating cash flows.

#### **Environmental bonding requirements are under review in Ghana and bonding requirements may be increased**

As part of its periodic assessment of mine reclamation and closure costs, the EPA reviews the adequacy of reclamation bonds and guarantees. In certain cases, it has requested higher levels of bonding based on its findings. If the EPA were to require additional bonding at the Company's properties, it may be difficult, if not impossible, to provide sufficient bonding. If the Company is unable to meet any such increased bonding requirements or negotiate an acceptable solution with the Government of Ghana, its operations and exploration and development activities in Ghana may be materially adversely affected.

#### **The Government of Ghana has the right to increase its interest in certain subsidiaries**

The Government of Ghana has a 10% carried interest in the mineral operations of Ghanaian mining companies. The carried interest comes into existence at the time the Government issues a mining licence. As such, the Government of Ghana currently has a 10% carried interest in the Company's subsidiary that owns Wassa and Wassa Underground.

The Government of Ghana has the right to acquire a special share or "golden share" in such subsidiaries at any time for no consideration or such consideration as the Government of Ghana and such subsidiaries might agree, and a pre-emptive right to purchase all gold and other minerals produced by such subsidiaries. A "golden share" carries no voting rights and does not participate in dividends, profits or assets. While the Government of Ghana has not sought to exercise any of these rights at the Company's properties, any such attempts to do so in the future could adversely affect the Company's business, results of operations or financial condition.

#### **The Company is subject to risks relating to exploration, development and operations in foreign countries**

The Company's business assets and operations are affected by various political and economic uncertainties in the countries where it operates, including:

- war, civil unrest, terrorism, coups or other violent or unexpected changes in government;
- political instability and violence;
- expropriation and nationalization;

- renegotiation or nullification of existing concessions, licences, permits, and contracts;
- illegal mining;
- increase in fees, levies or other indirect taxes;
- changes in taxation policies;
- unilaterally imposed increases in royalty rates, such as the increase in royalty rates imposed by the Government of Ghana, effective March 2011, which changed the method of calculating the royalties from not less than 3% and not more than 6% of a mine's total mineral revenues to a flat rate of 5% of mineral revenues;
- restrictions on foreign exchange and repatriation; and
- changing political conditions, currency controls, and governmental regulations that favor or require the awarding of contracts to local contractors or require foreign contractors to employ citizens of, or purchase supplies from, a particular jurisdiction.

**Illegal mining, which has occurred on the Company's properties and is difficult to control, can disrupt its business and can expose the Company to liability**

The Company continues to experience illegal mining activity on its mining and exploration properties. While Golden Star is proactively working with local, regional and national governmental authorities to obtain protection of the Company's property rights, any action on the part of such authorities may not occur, may not fully address the Company's problems or may be delayed.

In addition to the impact on the Company's mineral reserves and mineral resources, the presence of illegal miners can lead to project delays and disputes and delays regarding the development or operation of commercial gold deposits. Illegal miners could cause environmental damage or other damage to the Company's properties, or personal injury or death, or security incidents or conflicts, for which the Company could potentially be held responsible. Illegal miners may work on other of the Company's properties from time to time, and they may in the future increase their presence and have increased negative impacts such as those described above on such other properties.

**The Company's activities are subject to complex laws, regulations and accounting standards that can adversely affect operating and development costs, the timing of operations, the ability to operate its mines and the Company's financial results**

The Company's business, mining operations and exploration and development activities are subject to extensive Canadian, United States, Ghanaian and other foreign, federal, state, provincial, territorial and local laws and regulations governing exploration, development, production, exports, taxes, labour standards, waste disposal, protection of the environment, reclamation, historic and cultural resource preservation, mine safety and occupational health, toxic substances, reporting and other matters, as well as accounting standards. Compliance with these laws, regulations and standards or the imposition of new requirements could adversely affect exploration, operating and development costs, the timing of operations and the ability to operate, as well as the Company's financial results.

**Failure to maintain effective internal controls could have a material adverse effect on the Company's business and share price**

Annually, Golden Star is required to test its internal controls over financial reporting to satisfy the requirements of applicable securities laws, which requires annual management assessments of the effectiveness of the Company's internal controls over

financial reporting. Failure to maintain effective internal controls could have a material adverse effect on the business and share price of Golden Star.

**The Company's properties and mining operations may be subject to rights or claims of indigenous groups and the assertion of such rights or claims may impact the Company's ability to develop or operate its mining properties**

The Company currently operates in, and in the future may operate in or explore additional, areas currently or traditionally inhabited or used by indigenous peoples and subject to indigenous rights or claims. Operating in such areas may trigger various international and national laws, codes, resolutions, conventions, guidelines, and impose obligations on the Company with respect to respect the rights of indigenous people. These obligations may, among other things, require the Company to consult, or enter into agreements, with communities near the Company's mine, development projects or exploration activities regarding actions affecting local stakeholders, prior to the Company being granted mining rights, permits, approvals or other authorizations.

There is an increasing level of public concern relating to the perceived effect of mining activities on indigenous communities. The evolving expectations related to human rights, indigenous rights and environmental protection may result in opposition to the Company's current or future activities. Such opposition may be directed through legal or administrative proceedings against the Company or by way of governmental action imposed on the Company, or expressed in manifestations such as protests, delayed or protracted consultations, blockades or other forms of public expression against the Company's activities or against the government's position toward mining companies or the Company. There can be no assurance that these relationships can be successfully managed. Intervention by the aforementioned groups may have a material adverse effect on the Company's reputation, operations, financial condition and results of operations.

*Market Risks*

**The market price of the Company's common shares has experienced volatility and could continue to do so in the future**

The Company's common shares are listed on NYSE, the TSX and the GSE. Companies with market capitalizations similar to Golden Star have experienced substantial volatility in the past, often based on factors unrelated to the financial performance or prospects of the companies involved. These factors include macroeconomic developments in North America and globally and market perceptions of the attractiveness of particular industries. The Company's share price is also likely to be significantly affected by short-term changes in gold prices or in its financial condition or results of operations as reflected in its quarterly earnings reports. Other factors unrelated to the Company's performance that could have an effect on the price of its common shares include the following:

- the extent of analytical coverage available to investors concerning the Company's business could be limited if investment banks with research capabilities do not continue to follow the Company's securities;
- the trading volume and general market interest in the Company's securities could affect an investor's ability to trade significant numbers of the Company's common shares;
- the size of the public float in the Company's common shares may limit the ability of some institutions to invest in the Company's securities; and
- a substantial decline in the Company's share price that persists for a significant period of time which could cause the Company's securities to be delisted from NYSE, the TSX and/or the GSE, further reducing market liquidity.

As a result of any of these or other additional factors, the market price of the Company's common shares at any given point in time might not accurately reflect its long-term value. Stock markets in general have recently experienced higher levels of volatility. Additionally, any negative change in the public's perception of the Company's prospects could cause the price of the Company's common shares to decrease dramatically. Furthermore, any negative change in the public's perception of the prospects of mining companies in general could depress the price of the Company's securities regardless of the Company's results.

**Investors could have difficulty or be unable to enforce certain civil liabilities on the Company**

A majority of the Company's assets are located outside of Canada and the United States. Accordingly, it may not be possible for investors to collect judgments obtained in Canadian courts predicated on the civil liability provisions of Canadian securities legislation or other laws, or to realize upon the Company's assets in connection with such judgments. Similarly, it may not be possible for investors to collect judgments obtained in U.S. courts predicated on the civil liability provisions of U.S. securities legislation or to realize upon the Company's assets in connection with such judgments.

The Company has subsidiaries located in Ghana and the Cayman Islands, among other places, and carries on the majority of its operations in Ghana. It may be difficult for an investor to assert Canadian securities law or other law claims in original actions instituted in Ghana or the Cayman Islands. Courts in these jurisdictions may refuse to hear a claim based on a violation of Canadian securities law or other laws on the grounds that such jurisdiction is not the most appropriate forum to bring such a claim. Even if a foreign court agrees to hear a claim, it may determine that the local law, and not Canadian law, is applicable to the claim. If Canadian law is found to be applicable, the content of applicable Canadian law must be proven as a fact, which can be a time-consuming and costly process. Certain matters of procedure will also be governed by foreign law.

Canadian investors should be aware that Craig Nelsen, Gil Clausen, Karim Nasr, Mona Quartey and Andrew Wray, each a director of the Company, are located outside of Canada and, as a result, it may not be possible for Canadian investors to effect service of process within Canada upon these persons. All or a substantial portion of the assets of these persons are likely to be located outside of Canada and, as a result, it may not be possible to satisfy a judgment against such persons in Canada or to enforce a judgment obtained in Canadian courts against such persons outside of Canada.

**There are certain U.S. federal income tax risks associated with ownership of Golden Star common shares**

**To ensure compliance with requirements imposed by the Internal Revenue Service, any U.S. federal tax advice contained in this communication (including any attachments) is not intended or written to be used, and cannot be used, for the purpose of avoiding penalties under the Internal Revenue Code. This communication is used to promote the marketing of the securities described herein, and each potential investor should seek advice based on the investor's particular circumstances from an independent tax advisor.**

Holders of the Company's common shares who are U.S. persons for U.S. federal income tax purposes ("U.S. Holders") should consider that Golden Star may be or could become a "passive foreign investment company" ("PFIC") for U.S. federal income tax purposes. The tests for determining PFIC status depend upon a number of factors, some of which are beyond the Company's control, and can be subject to uncertainties, and the Company cannot assure you that it will not be a PFIC for the year ending December 31, 2020, or any future year. The Company undertakes no obligation to advise holders of its common shares as to its PFIC status for the year ending December 31, 2020, or any future year.

If the Company is a PFIC for any year, a U.S. Holder whose holding period for common shares of the Company includes any portion of a year in which the Company is a PFIC generally would be subject to a special adverse tax regime in respect of “excess distributions.” Excess distributions include certain distributions received with respect to PFIC shares in a taxable year. Gains recognized by a U.S. Holder on a sale or other transfer of the Company’s common shares (including certain transfers that would otherwise be tax free) also would be treated as excess distributions. Such excess distributions and gains would be allocated ratably to the U.S. Holder’s holding period. For these purposes, the holding period of shares acquired either through an exercise of options or the conversion of convertible debentures includes the U.S. Holder’s holding period in the option or convertible debt.

The portion of any excess distribution (including gains treated as excess distributions) allocated to the current year or to a year prior to the first year in which the Company was a PFIC would be includable as ordinary income in the current year. The portion of any excess distribution allocated to the first year in the U.S. Holder’s holding period in which the Company was a PFIC and any subsequent year or years (excluding the current year) would be taxed at the highest marginal rate applicable to ordinary income for each such year (regardless of the taxpayer’s actual marginal rate for that year and without reduction by any losses or loss carry forwards) and would be subject to interest charges to reflect the value of the U.S. income tax deferral.

Elections may be available to mitigate the adverse tax rules that apply to PFICs (the so-called “QEF” and “mark-to-market” elections), but these elections may cause the recognition of taxable income or gain. The QEF and mark-to-market elections are not available to U.S. Holders with respect to options or convertible securities. The Company has not decided whether it would provide to U.S. holders of its common shares the annual information that would be necessary to make the QEF election.

Additional special adverse rules also apply to U.S. Holders who own the Company’s common shares if the Company is a PFIC and has a non-U.S. subsidiary that is also a PFIC. Special adverse rules that impact certain estate planning goals could apply to the Company’s common shares if the Company is a PFIC.

**The conversion feature of the Company’s 7% Convertible Debentures could limit increases in the trading price of the Company’s common shares**

The conversion price of the Company’s outstanding 7% Convertible Debentures is \$4.50 per share. During periods when the Company’s share price is greater than the conversion price, such conversion price may limit the increase in the price of the common shares, since any increase in the price of the common shares above the conversion price will make it more likely that the 7% Convertible Debentures will be converted, thereby exerting a downward pressure on the market price of the common shares.

**The existence of outstanding rights to purchase or acquire common shares could impair the Company’s ability to raise capital**

As of March 24, 2021, there were options outstanding to purchase up to 806,912 common shares at exercise prices ranging from Cdn.\$4.09 to Cdn.\$14.15 per share; in addition, 1,998,548 common shares are available for future issuance under the Company’s U.K. performance share unit plan. Finally, approximately 11,444,000 common shares are currently issuable upon the full conversion of the Company’s outstanding 7% Convertible Debentures (additional shares may be issuable to debenture holders in certain circumstances). During the life of the options, 7% Convertible Debentures, warrants and other rights, the holders are given an opportunity to profit from a rise in the market price of the Company’s common shares, with a resulting dilution in the interest of the other shareholders. The Company’s ability to obtain additional financing, during the period such rights are outstanding, could be adversely affected, and the existence of such rights could have an adverse effect on the price of the Company’s common

shares. The holders of the options, 7% Convertible Debentures, warrants and other rights can be expected to exercise or convert them at a time when the Company would, in all likelihood, be able to obtain any needed capital by a new offering of securities on terms more favorable than those provided by the outstanding rights.

**Current global financial conditions may affect the Company's ability to obtain financing and may negatively affect its asset values and results of operations**

Global financial conditions during recent years, and during the current and prior year as a result of the COVID-19 pandemic, have been characterized by heightened volatility and uncertainty. As a result, access to financing has been negatively impacted, which may affect the Company's ability to obtain equity or debt financing in the future on favorable terms or at all. Additionally, these factors, as well as other related factors, may cause decreases in asset values that are deemed to be other than temporary, which may result in impairment losses. If such increased levels of volatility and market turmoil continue or worsen, the Company's operations could be adversely impacted and the trading price of the common shares may be adversely affected.

**Shareholders are subject to potential dilution from future financings**

Future sales or issuances of debt or equity securities could decrease the value of any existing common shares, dilute investors' voting power, reduce the Company's earnings per share and make future sales of the Company's equity securities more difficult. With any additional sale or issuance of equity securities, investors will suffer dilution of their voting power and may experience dilution in the Company's earnings per share. Sales of common shares by shareholders might also make it more difficult for the Company to sell equity securities at a time and price that it deems appropriate.

Golden Star may sell or issue additional debt or equity securities in offerings to finance its operations, exploration, development, acquisitions or other projects. Golden Star cannot predict the size of future sales and issuances of debt or equity securities or the effect, if any, that future sales and issuances of debt or equity securities will have on the market price of the common shares.

Sales or issuances of a substantial number of equity securities, or the perception that such sales could occur, may adversely affect prevailing market prices for the common shares.

**The common share price has experienced volatility and may be subject to fluctuation in the future based on market conditions**

The market prices for the securities of mining companies, including securities of the Company, have historically been highly volatile. The market has from time to time experienced significant price and volume fluctuations that are unrelated to the operating performance of any particular company. In addition, because of the nature of the Company's business, certain factors such as its announcements and the public's reaction, its operating performance and the performance of competitors and other similar companies, fluctuations in the market prices of the Company's resources, government regulations, changes in earnings estimates or recommendations by research analysts who track the Company's securities or securities of other companies in the resource sector, general market conditions, announcements relating to litigation, the arrival or departure of key personnel and the factors listed under the heading "Cautionary Statement Regarding Forward-Looking Statements" can have an adverse impact on the market price of the common shares.

Any negative change in the public's perception of Golden Star's prospects could cause the price of the Company's securities, including the price of the common shares, to decrease dramatically. Furthermore, any negative change in the public's perception of the prospects of mining companies in general could depress the price of the Company's securities, including the price of the

common shares, regardless of the Company's results. Following declines in the market price of a company's securities, securities class-action litigation could be instituted. Litigation of this type, if instituted, could result in substantial costs and a diversion of the Company's management's attention and resources.

**The Company does not intend to pay dividends in the foreseeable future**

Golden Star has never declared or paid any dividends on the common shares. The Company intends, for the foreseeable future, to retain its future earnings, if any, to finance its development and exploration activities. The payment of future dividends, if any, will be reviewed periodically by the Board and will depend upon, among other things, conditions then existing including earnings, financial condition, cash on hand, financial requirements to fund the Company's exploration activities, development and growth, and other factors that the Board may consider appropriate in the circumstances.

The Company's ability to generate the cash needed to pay interest and other amounts due on the 7% Convertible Debentures and service any other debt depends on many factors, some of which are beyond the Company's control.

In order to fund the Company's debt service obligations and to pay amounts due on the 7% Convertible Debentures, it will require significant amounts of cash. Golden Star's ability to generate cash from its operations to meet scheduled payments, to satisfy other amounts due on the 7% Convertible Debentures or to refinance its debt will depend on the Company's financial and operating performance, which, in turn, is subject to the risk factors described in this Annual Information Form. Some of these risks are beyond the Company's control. If the Company's cash flow and capital resources are insufficient to fund its debt obligations, the Company may be forced to reduce or delay expenditures, sell assets, seek to obtain additional equity capital or restructure its debt.

**The ability of the Company's subsidiaries to pay dividends to it could be restricted**

Substantially all of Golden Star's assets consist of equity in its subsidiaries. Future borrowings by the Company's subsidiaries could contain restrictions or prohibitions on the payment of dividends to the Company. In addition, under applicable law, the Company's subsidiaries could be limited in the amounts that they are permitted to pay the Company as dividends on their capital stock. As a result, Golden Star may not be able to receive funds from its subsidiaries to service the Company's debt.

**Provisions in the indenture for the 7% Convertible Debentures could discourage an acquisition of the Company by a third party, even if the acquisition would be favorable to shareholders**

If a "fundamental change" (as defined in the indenture for the 7% Convertible Debentures) occurs, the Company will be required to offer to purchase all of the outstanding 7% Convertible Debentures. In the event of a "make-whole fundamental change," the Company may also be required to increase the conversion rate applicable to the 7% Convertible Debentures surrendered for conversion in connection with such make-whole fundamental change. In addition, the indenture for the 7% Convertible Debentures prohibits Golden Star from engaging in certain mergers or acquisitions unless, among other things, the surviving entity assumes the Company's obligations under the 7% Convertible Debentures. These provisions could prevent or deter a third party from acquiring Golden Star even where the acquisition could be beneficial to shareholders.

## **DIVIDEND POLICY AND PAYMENT**

We have not declared or paid cash dividends on the Company's common shares since its inception and the Company expects for the foreseeable future to retain all of its earnings from operations for use in expanding and developing its business. Future dividend decisions will consider then current business results, cash requirements and the Company's financial condition.

## **LEGAL PROCEEDINGS AND REGULATORY ACTIONS**

There are currently no material pending legal proceedings or regulatory actions to which the Company or any of its subsidiaries is a party or to which any of its properties or those of any of its subsidiaries is subject. The Company and its subsidiaries are, however, engaged in routine litigation incidental to their business. No material legal proceedings or regulatory actions involving the Company are pending, or, to the knowledge of the Company, contemplated, by any governmental authority. The Company is not aware of any material events of non-compliance with environmental laws and regulations. The exact nature of environmental control problems, if any, which the Company may encounter in the future cannot be predicted, primarily because of the changing character of environmental requirements that may be enacted within foreign jurisdictions.

## **CAPITAL STRUCTURE**

The Company is authorized to issue an unlimited number of common shares. As at December 31, 2020, there were 111,313,595 common shares issued and outstanding. As of March 24, 2021, 113,899,737 common shares were issued and outstanding.

The Company is also authorized to issue an unlimited number of first preferred shares. As at December 31, 2020, there were no first preferred shares issued and outstanding. As of March 24, 2021, there were no first preferred shares issued and outstanding.

### **Description of common shares**

All common shares are of the same class and, once issued, rank equally as to dividends, voting powers, and participation in assets.

#### *Dividend Rights*

Holders of common shares are entitled to receive such dividends as may be declared from time to time by the Board, in its discretion, subject to the preferential dividend rights of any other classes or series of shares of the Company. In no event may a dividend be declared or paid on the common shares if payment of the dividend would cause the realizable value of Golden Star's assets to be less than the aggregate of its liabilities and the amount required to redeem all of the shares having redemption or retraction rights, which are then outstanding.

#### *Voting Rights*

Holders of common shares are entitled to one vote for each share held of record on all matters to be acted upon by the shareholders.

#### *Liquidation*

In the event of any liquidation, dissolution or winding up of Golden Star, holders of common shares have the right to a ratable portion of the assets remaining after payment of liabilities and liquidation preferences of any preferred shares or other securities that may then be outstanding.

### *Redemption*

No shares have been issued subject to call or assessment. There are no pre-emptive or conversion rights and no provisions for redemption or purchase for cancellation, surrender, or sinking or purchase funds.

### *Other Provisions*

All outstanding common shares are fully paid and non-assessable.

This section is a summary and may not describe every aspect of the Company's common shares or preferred shares that may be important to you. We urge you to read the *Canada Business Corporations Act* and the Company's articles of arrangement, because they, and not this description, define the rights of a holder of Golden Star's common shares or preferred shares.

### **Description of Preferred Shares**

The Company is authorized to issue an unlimited number of preferred shares. Preferred shares are issuable in such classes or series as are determined by the Board, who has the authority to determine the relative rights and preferences of each such class or series. The Board has not designated any class or series of preferred shares.

### **Description of 7% Convertible Debentures**

The 7% Convertible Debentures were issued on August 3, 2016, in the aggregate principal amount of \$65.0 million (current balance \$51.5 million). The 7% Convertible Debentures were issued in denominations of integral multiples of \$1,000 principal amount.

The 7% Convertible Debentures are governed by the terms of an indenture dated August 3, 2016, by and between the Company and The Bank of New York Mellon, as Indenture Trustee.

Interest on the 7% Convertible Debentures is payable semi-annually in arrears on February 1 and August 1 of each year until maturity on August 15, 2021. The 7% Convertible Debentures are, subject to certain limitations, convertible into common shares at a conversion rate of 222.2222 common shares per \$1,000 principal amount of the 7% Convertible Debentures (equal to an initial conversion price of \$4.50 per share).

All or a portion of the 7% Convertible Debentures are redeemable at the Company's option, on or after August 15, 2019, if the daily volume weighted average price of the common shares for 20 or more trading days in a period of 30 consecutive trading days (ending on the trading day prior to the date the Company exercises its option to redeem) exceeds 130% of the initial conversion price. The redemption price includes a redemption make-whole payment in cash, common shares or a combination thereof, at the Company's election, to the converting holder equal to the sum of the present value of the scheduled payments of interest that would have been made on the 7% Convertible Debentures from the conversion date to August 15, 2021, subject to certain limitations.

If a "fundamental change" (as defined in the indenture for the 7% Convertible Debentures) occurs, the Company will be required to offer to purchase all of the outstanding 7% Convertible Debentures for cash for 100% of the principal amount. In the event of a "make-whole fundamental change," the Company may also be required to increase the conversion rate applicable to the 7% Convertible Debentures surrendered for conversion in connection with such make-whole fundamental change. In addition, the

indenture for the 7% Convertible Debentures prohibits Golden Star from engaging in certain mergers or acquisitions unless, among other things, the surviving entity assumes the Company's obligations under the 7% Convertible Debentures.

### MARKET FOR GOLDEN STAR SECURITIES

The Company's common shares trade on the TSX under the trading symbol GSC, on NYSE under the symbol GSS and on the Ghana Stock Exchange under the symbol GSR.

The following table sets forth the high, low and market closing prices per common share on a monthly basis as reported by, and monthly trading volume on, the TSX and NYSE during the financial year ending December 31, 2020.

<b>TSX: GSC</b>	<b>Cdn.\$ High</b>	<b>Cdn.\$ Low</b>	<b>Cdn.\$ Close</b>	<b>Volume</b>
January	4.77	3.85	3.89	880,656
February	4.05	3.46	3.46	563,885
March	4.10	3.03	3.60	1,472,813
April	3.82	3.15	3.28	982,393
May	4.15	3.25	3.95	747,497
June	4.08	3.32	3.95	804,118
July	5.98	3.71	5.98	1,411,056
August	6.55	5.99	6.08	2,187,918
September	6.58	5.59	5.74	1,933,614
October	6.06	5.26	5.43	527,910
November	5.55	4.62	4.97	553,789
December	5.38	4.67	4.71	482,426

<b>NYSE: GSS</b>	<b>US\$ High</b>	<b>US\$ Low</b>	<b>US\$ Close</b>	<b>Volume</b>
January	3.67	2.94	2.94	9,011,256
February	3.06	2.71	2.72	8,571,270
March	3.06	2.17	2.49	17,816,124
April	2.74	2.19	2.34	23,031,701
May	2.96	2.32	2.95	17,211,316
June	3.01	2.42	2.90	11,423,294
July	4.50	2.72	4.50	22,609,899
August	4.92	4.41	4.65	15,977,392
September	5.01	4.19	4.31	9,886,951
October	4.59	3.95	4.06	7,008,641
November	4.22	3.57	3.85	7,004,976
December	4.20	3.66	3.71	9,530,419

## DIRECTORS AND OFFICERS

As of March 24, 2021, executive officers and directors of the Company beneficially owned, or controlled or directed, directly or indirectly, 319,302 common shares of the Company, representing approximately 0.3% of the issued and outstanding common shares of the Company.

### ***DIRECTORS***

The Company's Board and senior management team have considerable experience conducting business in Ghana and elsewhere in Africa and certain members of the Company's senior management team reside in Ghana.

Set forth below is information regarding the directors of Golden Star as of the date of this Annual Information Form.

<b>Name and place of residence</b>	<b>Director since</b>
TIM BAKER, Vancouver, British Columbia, Canada <sup>1</sup>	<b>January 1, 2013</b>
GILMOUR CLAUSEN, Denver, Colorado, USA <sup>2,3</sup>	<b>July 18, 2016</b>
ANU DHIR, Toronto, Ontario, Canada <sup>2,4</sup>	<b>February 21, 2014</b>
ROBERT DOYLE, Toronto, Ontario, Canada <sup>5,6</sup>	<b>February 2, 2010</b>
ANI MARKOVA, Toronto, Ontario, Canada <sup>4,6</sup>	<b>September 5, 2019</b>
KARIM NASR, London, England <sup>4</sup>	<b>February 3, 2020</b>
CRAIG NELSEN, Centennial, Colorado, USA <sup>2,3,5</sup>	<b>May 11, 2011</b>
MONA QUARTEY, Accra, Ghana <sup>5,6</sup>	<b>May 4, 2017</b>
ANDREW WRAY, London, England	<b>October 1, 2018</b>

Notes:

1. Chairman of the Board
2. Member of the Nominating and Corporate Governance Committee
3. Member of the Technical Committee
4. Member of the Corporate Responsibility Committee
5. Member of the Compensation Committee
6. Member of the Audit Committee

The terms of office of each director of the Company will expire at the next annual meeting of shareholders of the Company or when their successors are duly elected or appointed.

At the annual general meeting of shareholders of the Company to be held on May 6, 2021 (the "2021 AGM"), Mr. Doyle will be retiring from the Board. The Company has nominated for election the remaining eight current directors, and two new directors, namely, Ms. Karen Akiwumi-Tanoh and Mr. Gerard de Hert.

Below is a biography of each of the directors of Golden Star:

#### **Timothy Baker**

Mr. Baker was appointed Executive Chairman of the Company effective January 1, 2013. Mr. Baker's title was amended to non-Executive Chairman on November 1, 2013. Mr. Baker served as the Chief Operating Officer and Executive Vice President of Kinross Gold Corporation from June 2006 to November 2010. Mr. Baker, who earned his BSc in Geology from Edinburgh University in 1974, has substantial experience in operating mines and projects, including projects in Chile, the United States, Africa and the Dominican Republic. Prior to working with Kinross Gold Corporation, Mr. Baker served as an Executive General Manager of Placer Dome Chile, where he was responsible for the Placer Dome operations, including at the Zaldivar mine and Kinross-Placer joint venture at La Coipa as well as the Pueblo Viejo project in the Dominican Republic. Mr. Baker has been a

non-executive director of Sherritt International Corporation since 2014. Previously, Mr. Baker was a non-executive director of Antofagasta PLC from March 2011 to May 2020, Aurelian Resources Inc. from September 2008 to October 2010, Augusta Resources Corporation from September 2008 to September 2014, Underworld Resources Inc from May 2010 to January 2011, Eldorado Gold Corporation from May 2011 to December 2012, Pacific Rim Mining Corp. from March 2012 to November 2013, and Rye Patch Gold Corp. from December 2016 until its acquisition in May 2018 by Alio Gold, following which Mr. Baker joined the board of directors of Alio Gold until June 2019. Mr. Baker's extensive and ongoing experience as a director of a wide spectrum of companies and as an executive of various mining companies makes him a vital part of the Board.

### **Gilmour Clausen**

Mr. Clausen is a mining executive with more than 30 years' experience in the areas of management, finance, development and operations in the precious and base metals industry. He has led major mining operations and managed large engineering and construction projects. Mr. Clausen is currently President, Chief Executive Officer and director of Copper Mountain Mining Corporation. Prior to this, Mr. Clausen was President, CEO and director of Brio Gold Inc. from its inception in December 2014 until its acquisition by Leagold Mining in May 2018. Mr. Clausen was the President, Chief Executive Officer and a director of Augusta Resource Corporation from March 28, 2005 until Augusta was taken over by HudBay Minerals in July 2014. Mr. Clausen was the Executive Vice President, Mining at Washington Group International, Inc. from 2001 to 2005 and served as the Vice President of Operations at Stillwater Mining Company from 1995 to 1999. Mr. Clausen is a Professional Engineer with Bachelor's and Master's degrees in Mining Engineering from Queen's University. He is a graduate of Queen's University's executive business program. Mr. Clausen served as a director of Arizona Mining Inc. from December 2010 to February 2015. He brings intimate knowledge of board governance, corporate and project finance, strategic planning, operations as well as strengths in investor and public relations.

### **Anu Dhir**

Ms. Anu Dhir is a co-founder and executive of ZinQ Mining, a private base metals and precious metals royalty company that focuses on the Latin America region. Ms. Dhir is also the Managing Director of Miniqs Limited, a private group primarily interested in developing resource projects. Prior to Miniqs and ZinQ Mining, Ms. Dhir was Vice President, Corporate Development and Company Secretary at Katanga Mining Limited. Ms. Dhir is a graduate of the General Management Program (GMP) at Harvard Business School, she has a law degree (Juris Doctor) from Quinnipiac University and a Bachelor of Arts from the University of Toronto.

### **Robert Doyle**

From January 2008 to October 2009, Mr. Doyle was Chief Executive Officer of Medoro Resources Ltd. (pursuant to a merger in June 2011, Medoro is now known as Gran Colombia Gold Corp.), a Canadian gold exploration and development company with activities in Africa and South America. Mr. Doyle was with Pacific Stratus Energy as Executive Vice President from 2005 through 2006, Chief Financial Officer from October 2006 to May 2007 and Vice President from March 2006 to May 2007. He also was Chief Financial Officer of Coalcorp Mining Inc. from November 2005 to May 2007 and Chief Financial Officer of Bolivar Gold Corp. from January 2003 to February 2006. Mr. Doyle formerly served as a director of Gran Colombia Gold Corp and as a director and member of the Audit and Technical Committees of Detour Gold Corporation. Mr. Doyle, a chartered accountant and a chartered director, has over 30 years' experience in all facets of international resource exploration, development and production.

Mr. Doyle brings a broad skill set of the Board of Directors, including a thorough understanding of operations, accounting and financial strategy of international mining companies.

### **Ani Markova**

Ms. Markova is a Senior Executive with over 20 years of capital markets involvement and more than 25 years of overall work experience with predominant focus on qualitative and quantitative financial analysis, capital allocation and marketing. Ms. Markova is an award-winning portfolio manager and has spent more than 15 years investing in the global mining sector and commodity markets while at AGF Investments Inc. from August 2003 until January 2019. She is actively engaged with public companies on Environmental, Social and Governance (ESG) topics and the integration of such factors in investment decision making processes. Ms. Markova is currently also an independent director of SilverCrest Metals Inc. Ms. Markova holds an MBA from George Washington University in Washington DC, Chartered Financial Analyst (CFA), Canadian Investment Management (CIM) and Corporate Board International (CDI.D) designations.

### **Karim Nasr**

Mr. Nasr was appointed CEO of La Mancha, a privately held gold mining investment company with a portfolio of assets of over US\$1bn in Australia and West Africa, in May 2019 after having served as its CFO from February 2018. From November 2011 to January 2018, Mr. Nasr was the CEO and Chief Investment Officer of Digital World Capital, an FCA regulated investment manager investing globally and across the capital structure in telecom and media companies. From 2001 to 2011, Mr. Nasr oversaw the corporate finance function of Wind Telecom, one of the largest mobile operators by subscribers, where he led over 225 financing and investment projects in the telecom sector. From 1996 to 1999, Mr. Nasr was the CEO of Anzima s.a.l., a Lebanese IT consulting and software firm. He started his career in 1995 at An-Nahar s.a.l., a Lebanese print media group.

### **Craig Nelsen**

Mr. Nelsen was a founder, and has served as President, Chief Executive Officer and a member of the Board of Directors, of Avanti Mining Inc. from May 2007 until October 1, 2013. He served as Executive Chairman of Avanti Mining Inc until his retirement in May 2015. From 1999 to June 2007, Mr. Nelsen served as the Executive Vice President, Exploration, for Gold Fields Limited, one of the world's largest gold mining companies. Mr. Nelsen was the founder, and served as Chairman of the board of directors, of Metallica Resources Inc. from 1994 to 2008, and was Metallica's Chief Executive Officer from 1994 to 1999. In June 2008, a three-company merger between Metallica, Peak Gold, and New Gold Inc. was finalized, forming the new, larger gold producer known as New Gold Inc., which is listed on both the TSX and NYSE. From June 2008 to May 2012, Mr. Nelsen served as a member of the board of directors of New Gold Inc. Mr. Nelsen holds a M.S. degree in geology from the University of New Mexico and a B.A. degree in geology from the University of Montana. Mr. Nelsen's experience includes, among other things, his knowledge in mineral property evaluation, including resource and reserve assessment; international mining; mergers and acquisitions; exploration and mine operations; health, safety, environment and community relations; company formation and strategic planning.

### **Mona Quartey**

The Honorable Mrs. Quartey is Managing Partner and Founding Director of BVM Advisory Services (GH) Ltd and has been with BVM Advisory since its inception in January 2000. She is also currently a director of BVM Advisory. She is a finance executive with more than 26 years' experience in the areas of management, finance, development and operations in the precious

metals industry, banking and public finance. She has led major mining treasury, corporate and project finance operations, and recently managed the real sector, revenue and tax policies of the government of Ghana. Mrs. Quartey was the Group Treasurer of Ashanti Goldfields Company from October 1991 until 1999, following which she set up her advisory firm. She worked for Citibank NA in the USA from 2004 until 2008 when she returned to Ghana to continue running her advisory firm. Mrs. Quartey was the Deputy Finance Minister of the Republic of Ghana from 2014 to 2017 and served as alternate Governor to the World Bank Board and African Development Bank Board during same time. Mrs. Quartey holds a Bachelor’s degree in Development Planning from Kwame Nkrumah University of Science and Technology and a Master’s degree in Business Administration (Finance) from Dalhousie University. She received a LLM (International Commerce) degree from Salford University, U.K in July 2018. Mrs. Quartey served as a director of GCB Bank Ghana Ltd. from July 2014 to January 2017, Ghana Water Company Ltd. from January 2013 to January 2017, Ghana Investment Promotion Centre, GH from July 2014 to January 2017, Social Security National Investment Trust, GH from July 2014 to January 2017 and SIMNET Ghana Ltd. July 2013 to August 2016. She is also a director of Mona Foods (GH) Ltd., an agricultural processing company. Mrs. Quartey is also currently a director of Golden Star (Wassa), MOKASA Women’s Trust Foundation (Ghana) and Green Pastures & Still Waters (GH) Ltd. Since July 2020, Ms. Quartey is a fellow of the West African Institute of Mining, Metallurgy and Petroleum (WAIMM).

### **Andrew Wray**

Mr. Wray is the President and Chief Executive Officer of Golden Star. Prior to being appointed the Company’s President and Chief Executive Officer on May 1, 2019, Mr. Wray was the Chief Executive Officer of the La Mancha Group, one of the largest direct investors in the gold mining sector. Prior to that, he was Chief Financial Officer of Acacia Mining Plc, a UK listed company and one of the largest African gold producers. He also has significant experience advising companies in capital-raising activities and other strategic objectives in a range of sectors, including mining, from his time in the Corporate Finance team at JP Morgan Cazenove. He is a fluent Spanish speaker and spent several years at the Kuwait Investment Office in London dealing with its portfolio of investments in Spain. He holds an Honours Degree from University College London as well as postgraduate studies in Finance and Investment from South Bank University Business School.

### ***EXECUTIVE OFFICERS***

The following table sets forth the names of each of the executive officers of Golden Star and all offices held by each of them as of the date of this Annual Information Form.

<b>Name <sup>1</sup></b>	<b>Office Held</b>
ANDREW WRAY, London, England	President and Chief Executive Officer
GRAHAM CREW, London, England	Executive Vice President and Chief Operating Officer
PAUL THOMSON, London, England	Executive Vice President and Chief Financial Officer
NATHALIE LION HADDAD, London, England	Executive Vice President, Head of People
PHILIPA VARRIS, London, England	Executive Vice President, Head of Sustainability

Below is a biography of each of the executive officers of Golden Star who is not also a director of Golden Star:

### **Graham Crew**

Mr. Crew has over 25 years of operational, technical and corporate experience in the mining industry. Mr. Crew was appointed as one of La Mancha’s director nominees of Golden Star in October 2018. In July 2019, Mr. Crew stepped down from the Board and was appointed Executive Vice President, Chief Operating Officer. A mining engineer by background, he was most recently General Manager Mining for Barmenco Limited, a global underground mining services company. He previously held the

positions of General Manager of the Bulyanhulu mine for Acacia Mining, Operations Manager for La Mancha's Australian operations and has held a number of other technical and operational positions for mining companies in various geographies. Graham has a strong track record of transforming operations through the development of vision and strategy with disciplined implementation. His broad experience, which also includes construction projects, due diligence, project evaluation and project financing, is expected to significantly contribute to optimization of Golden Star's current assets, and in developing the future growth and success of the Company. Mr. Crew holds a bachelor's degree in Mining Engineering from West Australian School of Mines and is a Fellow of the AusIMM.

#### **Paul Thomson**

Mr. Thomson joined Golden Star in February 2020. Mr. Thomson has over 25 years of finance and capital markets experience, predominantly in the mining industry. He has held a number of finance, corporate finance and business development roles at mining companies including Aureus Mining, Berkeley Energia and Kazakhmys. At Aureus Mining and Berkeley Energia, he held the position of Chief Financial Officer. He is a chartered accountant and started his career at Ernst & Young. Mr. Thomson is a member of the Institute of Chartered Accountants of Scotland and holds an Advance Diploma in Corporate Finance with the Institute of Chartered Accountants in England and Wales.

#### **Nathalie Lion Haddad**

Ms. Lion Haddad has over 25 years of experience in the human resources field. Ms. Lion Haddad joined Golden Star in September 2019, prior to which she was the Vice President, Human Resources with Sherritt International Corporation and, prior to that, Director, Human Resources of the Ambatovy Joint Venture in Madagascar from 2012 to 2016. Previous positions include Director, Human Resources with LG Electronics (France), BHP Billiton (Algeria), The Executive Office (Dubai), Mead Packaging Europe, Shell Gabon and the University of North London. Ms. Lion Haddad has a Masters Degree in English Language and Business from the New Sorbonne University Paris University, a Certificate in Training Practice (from the Chartered Institute for Personnel Development, England) and is an MBTI® certified practitioner.

#### **Philipa Varris**

Ms. Varris has over 25 years of environmental, communities, health and safety experience in the mining industry. Ms. Varris joined Golden Star in 2011 and most recently held the role of Vice President, Corporate Responsibility prior to which she held roles managing environment, safety, health and communities functions for Rio Tinto's Energy Resources of Australia, Harmony Gold's Hidden Valley operations, Bendigo Mining and Goldfields Australia. Ms. Varris holds Honours and Masters degrees in Natural Resources from Curtin University of Technology, is a Chartered Professional (Environment) with the AusIMM, a Corporate Directors International certified board candidate and certified trainer, assessor and HSE auditor. In 2001, Ms. Varris was awarded the Centenary Medal by the Prime Minister of Australia for leadership in Australia's largest community consultation and strategic vision development exercise. In 2020, she was recognized in the Women in Mining UK 100 most inspirational women in mining.

#### ***CEASE TRADE ORDERS, BANKRUPTCIES, PENALTIES OR SANCTIONS***

Except as described below, to the best of Golden Star's knowledge, no director or executive officer of Golden Star or a shareholder holding a sufficient number of securities to affect materially the control of Golden Star is, or within the ten years prior to the date hereof has been, a director or executive officer of any company (including Golden Star) that, while that person was acting in that

capacity: (i) was the subject of a cease trade or similar order or an order that denied the relevant company access to any exemption under securities legislation, for a period of more than 30 consecutive days; (ii) was subject to an event that resulted, after the director or executive officer ceased to be a director or executive officer, in the company being the subject of a cease trade or similar order or an order that denied the relevant company access to any exemption under securities legislation for a period of more than 30 consecutive days; or (iii) within a year of that person ceasing to act in that capacity, became bankrupt, made a proposal under any legislation relating to bankruptcy or insolvency or was subject to or instituted any proceedings, arrangement or compromise with creditors or had a receiver, receiver manager or trustee appointed to hold its assets.

Ms. Dhir, a director of the Company, served as a director of Great Basin Gold Ltd. (“**Great Basin**”) in 2011, a publicly listed mining company. Prior to Ms. Dhir becoming a director of Great Basin, Great Basin had issued certain loans and debentures which ultimately caused its insolvency in 2012 (disclosed under Great Basin’s profile at [www.sedar.com](http://www.sedar.com)). Ms. Dhir resigned in mid-2013 after Great Basin and certain affiliates had sought creditor protection in connection with these loans and debentures.

Mr. Clausen, a director of the Company, served as a director of Jaguar Mining Inc. (“**Jaguar**”) from September 2005 to June 2013, a publicly listed mining company. On December 23, 2013, approximately nine months after Mr. Clausen notified the board of directors of Jaguar that he would not stand for re-election at its annual shareholders’ meeting in June 2013, Jaguar commenced proceedings under the *Companies’ Creditors Arrangement Act* (Canada) in respect of a restructuring of its debt (the “**CCAA Proceedings**”). In December 2014, the Ontario Superior Court of Justice ordered that the CCAA Proceedings be terminated.

### ***CONFLICT OF INTEREST***

To the best of Golden Star’s knowledge, and other than as disclosed in this Annual Information Form, in the notes to Golden Star’s financial statements and in management’s discussion and analysis of financial condition and results of operations (“**MD&A**”), there are no known existing or potential conflicts of interest between Golden Star and any director or officer of Golden Star. Certain of the directors and officers of Golden Star serve as directors and officers of other public companies and therefore it is possible that a conflict may arise between their duties as a director or officer of Golden Star and their duties as a director or officer of such other companies.

The directors and officers of Golden Star are aware of the existence of laws governing accountability of directors and officers for corporate opportunity and requiring disclosure by directors of conflicts of interest and Golden Star will rely upon such laws in respect of any directors’ and officers’ conflicts of interest or in respect of any breaches of duty by any of its directors or officers. All such conflicts will be disclosed by such directors or officers in accordance with the *Canada Business Corporations Act* and they will govern themselves in respect thereof to the best of their ability in accordance with the obligations imposed upon them by law.

### ***INTERNAL CONTROLS***

As a reporting issuer in the United States, the Company must comply with the controls and reporting provisions set out in the *Sarbanes-Oxley Act of 2002*. As such, the Company has established a control matrix for each mining site (and controls at each corporate level). The Company’s internal controls include policies and procedures that pertain to the maintenance of records that accurately and fairly reflect, in reasonable detail, the transactions and dispositions of assets of the Company and that are intended to provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the Company’s assets that could have a material effect on the Company’s consolidated financial statements.

## **AUDIT COMMITTEE**

### ***AUDIT COMMITTEE CHARTER***

The written charter of the Audit Committee is disclosed as Schedule “A” to this Annual Information Form.

### ***COMPOSITION OF THE AUDIT COMMITTEE***

The Audit Committee currently has three members: Mr. Robert Doyle, Ms. Ani Markova and Ms. Mona Quartey. All members of the Audit Committee are financially literate and independent for the purposes of National Instrument 52-110 - *Audit Committee* (“NI-52-110”).

### ***RELEVANT EDUCATION AND EXPERIENCE***

See “Directors and Officers - Directors” for the biography of each Audit Committee member, including the education and experience of each Audit Committee member that is relevant to the performance of responsibilities as an Audit Committee member. Each committee member maintains an understanding of the detailed responsibilities of committee membership and the Company’s business, operations and risks.

### ***RELIANCE ON CERTAIN EXEMPTIONS***

At no time since the commencement of the Company’s most recently completed financial year has the Company relied on an exemption in Section 2.4 of NI 52-110 (De Minimis Non-audit Services), Section 3.2 of NI 52-110 (Initial Public Offerings), Section 3.3(2) of NI 52-110 (Controlled Companies), Section 3.4 of NI 52-110 (Events Outside Control of Member), Section 3.5 of NI 52-110 (Death, Disability or Resignation of Audit Committee Member) or Section 3.6 of NI 52-110 (Temporary Exemption for Limited and Exceptional Circumstances), or an exemption from NI 52-110, in whole or in part, granted under Part 8 of NI 52-110 (Exemptions) or on Section 3.8 of NI 52-110 (Acquisition of Financial Literacy).

### ***AUDIT COMMITTEE OVERSIGHT***

At no time since the commencement of the Company’s most recently completed financial year was there a recommendation of the Audit Committee to nominate or compensate an external auditor not adopted by the Board.

### ***PRE-APPROVAL POLICIES AND PROCEDURES***

The Audit Committee has established a policy requiring pre-approval of all permissible non-audit services performed by the independent auditors. Such services may be approved at a meeting or by unanimous written consent of the Audit Committee, or the Audit Committee may delegate to one or more of its members the pre-approval of audit services and permissible non-audit services provided that any pre-approval by such member or members shall be presented to the Audit Committee at each of its scheduled meetings.

### ***EXTERNAL AUDITOR SERVICE FEES***

The aggregate fees billed by the Company’s external auditor in the fiscal years ended December 31 of each of 2020 and 2019 are as follows:

<b>Year</b>	<b>Audit Fees<sup>1</sup></b>	<b>Audit-Related Fees<sup>2</sup></b>	<b>Tax-Related Fees<sup>3</sup></b>	<b>All Other Fees<sup>4</sup></b>	<b>Total</b>
2020	Cdn.\$786,856	Cdn.\$139,806	-	Cdn.\$85,846	Cdn.\$1,012,508
2019	Cdn.\$959,028	Cdn.\$50,400	-	-	Cdn.\$1,009,428

<sup>1</sup> Includes aggregate audit fees billed for the audit of the financial statements for the financial year indicated, including with respect to the Company’s internal control over financial reporting, quarterly review of financial statements, fees related to review of prospectus and other registration statements, and services rendered with respect to the audit of the Company’s subsidiaries pursuant to statutory financial statement requirements in Ghana.

<sup>2</sup> Includes fees related to the services provided by PwC that are reasonably related to the performance of the audit or review of financial statements.

<sup>3</sup> Includes fees related to assistance in filing annual tax returns and tax planning and any other fees billed for professional services rendered by PwC for tax compliance, tax advice, and tax planning.

<sup>4</sup> Includes fees related to products and services provided by PwC other than services reported above.

### **INTEREST OF MANAGEMENT AND OTHERS IN MATERIAL TRANSACTIONS**

There are no material interests, direct or indirect, of any director, executive officer, or any shareholder who beneficially owns, directly or indirectly, more than 10% of the outstanding common shares or any known associate or affiliate of such persons, in any transaction during the three most recently completed financial years or during the current financial year which has materially affected or would materially affect the Company or a subsidiary of the Company.

### **TRANSFER AGENT AND REGISTRAR**

The transfer agent and registrar for Golden Star’s common shares is AST Trust Company (Canada), having its principal offices at 1066 West Hastings Street, Suite 1600, Vancouver, British Columbia, Canada V6E 3X1 and Suite 1200, 1 Toronto Street, Ontario, Canada M5C 2V6, and telephone number 1-800-387-0825.

### **MATERIAL CONTRACTS**

The material contracts entered into by the Company within the financial year ended December 31, 2020 or before such time that are still in effect, other than in the ordinary course of business, are as follows:

- The 7% Convertible Debentures. See “Risk Factors - General Risks”.
- The Stream Transaction. See “General Development of the Business - Three Year History”.
- The Credit Facility. See “General Development of the Business - Three Year History”.
- The Bogoso SPA. See “General Development of the Business - Three Year History”.

### **INTEREST OF EXPERTS**

The Company’s independent auditors for the fiscal year 2020, PricewaterhouseCoopers LLP, Chartered Professional Accountants (“PwC”), have audited the consolidated financial statements of Golden Star for the year ended December 31, 2020. In connection with their audit, PwC has confirmed that they are independent with respect to Golden Star within the meaning of the Chartered Professional Accountants of Ontario CPA Code of Professional Conduct and Public Company Accounting Oversight Board Rule 3520 Auditor Independence.

The Wassa Technical Report was prepared by Ms. Varris and Messrs. Varvari and Wasel, each of whom is a “qualified person” for the purposes of NI 43-101.

Ms. Varris is the QP who supervised the preparation of the property descriptions contained herein. Ms. Varris is an officer of the Company and beneficially owned, directly or indirectly, less than 1% of any class of shares of the Company’s outstanding shares at the time of the preparation of the Wassa Technical Report.

Mr. Varvari is the QP who supervised the preparation of the property descriptions contained herein and the Company’s mineral reserve and resource estimates as at December 31, 2020. Mr. Varvari is an officer of the Company and beneficially owned, directly or indirectly, less than 1% of any class of shares of the Company’s outstanding shares at the time of the preparation of the mineral reserve and resource estimates.

Mr. Wasel is the QP who supervised the preparation of the property descriptions contained herein and the Company’s mineral reserve and resource estimates as at December 31, 2020. Mr. Wasel is an officer of the Company and beneficially owned, directly or indirectly, less than 1% of any class of shares of the Company’s outstanding shares at the time of the preparation of the mineral reserve and resource estimates and the Technical Reports.

#### **ADDITIONAL INFORMATION**

Additional information relating to the Company can be found on SEDAR at [www.sedar.com](http://www.sedar.com). Additional information, including directors’ and officers’ remuneration and indebtedness, principal holders of the Company’s securities and securities authorized for issuance under equity compensation plans is contained in the management information circular of the Company filed for its most recent annual meeting of shareholders. Additional financial information is provided in the Company’s audited consolidated financial statements and the MD&A for the financial year ended December 31, 2020.

**SCHEDULE “A”**  
**AUDIT COMMITTEE CHARTER**

The Board of Directors (the “**Board**”) of Golden Star Resources Ltd. (“**Golden Star**” or the “**Company**”) has established an Audit Committee (the “**Committee**”) whose membership, authority and responsibilities shall be as set out in this Charter, as it may be amended from time to time by the Board.

**FUNCTION**

The Committee’s primary functions are to (a) assist the Board in its oversight of the integrity of the Company’s financial statements and financial reporting process, the Company’s compliance with legal and regulatory requirements and corporate policies and controls, the selection, retention, qualifications, objectivity and independence of the independent auditor, and the performance of the Company’s internal audit function; and (b) prepare the “Report of the Audit Committee” to be included in the Company’s annual proxy statement.

**MEMBERSHIP**

Following each annual meeting of shareholders of Golden Star, the Board shall appoint no fewer than three directors to the Committee (the “**Members**”), all of whom shall be “independent” within the meaning of applicable rules of securities regulatory authorities and stock exchanges (the “**Listing Rules**”), and shall appoint one of the Members to chair the Committee.

Members shall serve until the next annual meeting of shareholders or until their successors are duly appointed or until such member resigns, retires or is removed from the Committee by the Board. The Board may fill any vacancy in the Committee by appointment from among the directors of the Company.

All Members shall, from and after the time of their respective appointments to the Committee, have a practical knowledge of finance and accounting and be able to read and understand financial statements that present a breadth and level of complexity of accounting issues that are generally comparable to the breadth and complexity that can reasonably be expected to be raised by Golden Star’s financial statements. In addition, Members may be required to participate in continuing education if required by applicable law or the Listing Rules.

At least one of the Members shall be a “financial expert” as defined in the applicable SEC and NYSE rules and regulations, and at least one of the Members shall meet the financial sophistication standards under the Listing Rules.

The Committee may form and delegate authority to subcommittees when appropriate.

**MEETINGS**

The Committee shall meet as frequently as is necessary to carry out its responsibilities, but at least quarterly. All Committee meetings shall take place [in Canada, whenever possible, and otherwise] at such times and locations determined by the Committee.

Each meeting will include an *in camera* session of (a) the Committee without members of management present and (b) the Committee with the independent auditor. At least annually, the Committee shall also hold *in camera* sessions with each of Golden Star’s Chief Financial Officer (“**CFO**”), internal auditor and controller.

The Committee is governed by the rules regarding meetings (including meetings by conference telephone or similar communications equipment), action without meetings, notice, waiver of notice, and quorum and voting requirements as are applicable to the Board. The Committee is authorized and empowered to adopt its own rules of procedure not inconsistent with (a) any

provision of this Charter, (b) any provision of the constating documents or bylaws of Golden Star, or (c) applicable law and Listing Rules.

In the absence of the Committee chair for any meeting, the Members shall elect a chair from those in attendance to act as chair of that meeting.

The Corporate Secretary shall maintain minutes of all meetings and deliberations of the Committee and shall ensure that minutes of Committee meetings are recorded with clear indication of where the Committee meeting took place, the Members who were present in person and each of their various locations. Committee minutes shall be retained at the Company's registered office in Canada.

## **REPORTING**

Following each meeting of the Committee, the Committee shall report to the Board on the issues considered by the Committee, any recommendations being made by the Committee for approval by the Board and on any actions taken by the Committee.

## **RESPONSIBILITIES, DUTIES AND POWERS**

The Committee's principal responsibility is one of oversight. Golden Star's management is responsible for preparing Golden Star's financial statements, and Golden Star's independent auditor is responsible for auditing and reviewing those financial statements. In carrying out these oversight responsibilities, the Committee is not providing any expert or special assurance as to Golden Star's financial statements or any professional certification as to the independent auditor's work. The designation or identification of a Member as a "financial expert" or "financially literate" does not impose on such person any duties, obligations, or liability that are greater than the duties, obligations, and liability imposed on such person as a Member of the Committee and Board in the absence of such designation or identification; and the designation or identification of a Member as a "financial expert" or "financially literate" does not affect the duties, obligations, or liability of any other Member or Board member.

### **Independent Auditor**

The independent auditor reports to the Committee. In carrying out its responsibilities with respect to the independent auditor, the Committee shall:

1. subject to the laws of Canada as to the role of the shareholders in the appointment of independent auditors, recommend to the Board the appointment, compensation and replacement of the independent auditor;
2. communicate to the independent auditor that it is ultimately accountable to the Board and the Committee;
3. oversee the work of the independent auditor (including the resolution of disagreements between management and the independent auditor regarding financial reporting);
4. review the performance of the independent auditor, including the lead partner, on an annual basis;
5. review the plan and scope of the quarterly review and annual audit engagements with the independent auditor;
6. consult with the independent auditor about the quality of the Company's accounting principles, internal controls and the completeness and accuracy of the Company's financial statements;
7. obtain annual assurance from the independent auditor that they (a) have complied with Section 10A (Audit Requirements), of the Exchange Act and the rules promulgated thereunder; and (b) they know of no violation of Rule 13b2-2 (Representations and Conduct in Connection with the

Preparation of Required Reports and Documents) of the Exchange Act having occurred;

8. on an annual basis, obtain and review a report from the independent auditor regarding (a) the independent auditor's internal quality-control procedures; and (b) any material issues raised by the most recent internal quality-control review, peer review or Public Company Accounting Oversight Board review, of the independent auditor, or by any inquiry or investigation by governmental or professional authorities, within the preceding five years, with respect to any independent audit carried out by the independent auditor, and any steps taken to deal with any such issues;
9. at least annually, evaluate the independence of the independent auditor, and any potential conflicts of interest and all relationships between the independent auditor and the Company, including obtaining and reviewing a report prepared by the independent auditor describing all relationships between the independent auditor and the Company;
10. ensure the rotation of the lead audit partner having primary responsibility for the audit, the concurring partner responsible for reviewing the audit, and other audit partners at least every five years or such other period as may be required under applicable law;
11. approve, or recommend to the Board for approval, all audit, audit-related and non-audit engagement fees and terms of the engagement of the independent auditor prior to the commencement of the engagement (the Committee may delegate to one or more Committee members the authority to pre-approve engagements, provided that the decision to do so is presented to the full Committee at its next scheduled meeting); and
12. set hiring policies for employees or former employees of the independent auditor in accordance with applicable laws and regulations.

### **Internal Auditor**

The internal auditor reports to the Committee. In carrying out its responsibilities with respect to the internal auditor, the Committee shall:

1. adopt an Internal Audit Mandate which sets out the role, responsibilities and authority of the internal auditor;
2. approve the appointment, compensation and replacement of the internal auditor;
3. communicate to the internal auditor that he or she is ultimately accountable to the Board and the Committee;
4. oversee the work of the internal auditor (including the resolution of disagreements between management and the internal auditor);
5. review the performance of the internal auditor, on an annual basis;
6. consult with the internal auditor about the quality of the Company's internal controls;
7. review with management and the internal auditor, the activities, staffing, and organizational structure of the internal audit function;
8. ensure there are no unjustified restrictions or limitations placed on the internal auditor in the carrying out of his or her functions; and
9. review the effectiveness of the internal audit function, including compliance with The Institute of Internal Auditors' International Professional Practices Framework for Internal Auditing consisting of the Definition of Internal Auditing, Code of Ethics and the Standards.

## Financial Reporting

The Committee plays a critical role in the review and public release of the Company's financial information. In this regard, the Committee shall:

1. review the annual and interim financial statements and related "management's discussion and analysis of financial and operating results" prior to recommending the same for approval by the Board and filing with securities regulatory authorities. The Committee shall, in conducting this review, discuss with management, the independent auditor and the internal auditor:
  - (a) the results of the independent auditor's reviews and audit, any issues arising and management's response, including any restrictions on the scope of the independent auditor's activities or requested information and any significant disagreements with management; the Company's critical accounting policies and practices (and any proposed or actual changes), alternative accounting treatments (including any ramifications of the use of such alternative disclosures and treatments, the treatment preferred by the independent auditor, and an explanation of why the independent auditor's preferred method was not adopted), significant accounting and reporting issues and judgments; material written communications between the independent auditor and management (including management representation letters and any schedule of unadjusted differences) and significant adjustments resulting from the independent auditor's review;
  - (b) the effect of regulatory and accounting initiatives, as well as off-balance sheet structures, on the financial statements of the Company;
  - (c) whether actual results for the period varied significantly from budgeted, projected or previous results;
  - (d) any significant or unusual events or transactions that require disclosure;
  - (e) any correspondence with regulators or governmental agencies or any employee complaints which raise material issues with respect to the Company's financial statements or accounting policies;
  - (f) the impact of any regulatory and accounting initiatives, as well as any off balance sheet structures, on the Company's financial statements;
  - (g) the independent auditor's perception of the Company's financial and accounting personnel, records and systems, the cooperation which the independent auditor received during the course of its review or audit and the availability of records, data and other requested information and any recommendations with respect thereto;
  - (h) any legal or business matters that may have a material impact on the financial statements or the Company's compliance policies; and
  - (i) whether the independent auditor, the internal auditor and management are satisfied that adequate procedures are in place for the review of the Company's public disclosure of financial information, including information extracted or derived from the financial statements and assess the adequacy of such procedures;
2. review, with management, the independent auditor and the internal auditor, risks of material misstatement due to fraud, and the processes and controls implemented by the Company to manage the risks;
3. discuss with management generally the types of information (including financial information and earnings guidance) to be disclosed in earnings press releases and earnings calls, as well as to analysts and rating agencies;

4. prior to each annual news release reporting proven and probable reserves, review with the members of management reporting the Company 's policies, procedures and methodology regarding the reporting of proven and probable reserves and non-reserve mineralized material;
5. receive confirmation from the Chief Executive Officer (the "CEO") and CFO that reports to be filed have been prepared in accordance with the Company's disclosure controls and procedures and contain no material misrepresentations or omissions and fairly present, in all material respects, the financial condition, results of operations and cash flow as of and for the period covered by such reports; and receive confirmation from the CEO and CFO that they have concluded that the disclosure controls and procedures are effective as of the end of the period covered by the reports; and
6. prepare the "Report of the Audit Committee" included in the Company's annual proxy statement.

### **Conduct of the Annual Audit**

The Committee shall oversee the annual audit and, in the course of such oversight, the Committee shall:

1. review the scope, plan and procedures to be used on the annual audit and receive confirmation from the independent auditor that no limitations have been placed on the scope or nature of their audit scope, plan or procedures;
2. meet with the independent auditor as may be necessary or appropriate in connection with the audit;
3. ascertain that the independent auditor is registered and in good standing with the Canadian Public Accounting Board and that the independent auditor satisfies all applicable Canadian independence standards; and
4. make such inquiries of management, the internal auditor and the independent auditor as it deems necessary or appropriate to satisfy itself of the efficacy of the Company's financial and internal controls and procedures and the auditing process.

### **Internal Control Over Financial Reporting**

To ensure the integrity of the Company's internal control over financial reporting, the Committee shall:

1. review annually, evaluate and discuss with the independent auditor, management and internal auditor the adequacy and effectiveness of the Company's internal controls over financial reporting, including reviewing and discussing any significant deficiencies or significant changes in the design or operation of the Company's internal controls (including controls over interim and annual financial reporting, computerized information systems and cybersecurity), material weaknesses in internal controls and any fraud (whether or not material), and determine whether any internal control recommendations made by independent auditor have been implemented by management;
2. review and discuss with independent auditor, management and internal auditor the Company's process with respect to risk assessment (including fraud risk), risk management and the Company's major financial risks and financial reporting exposures, all as they relate to internal controls over financial reporting, and the steps management has taken to monitor and control such risks;
3. review the Company's Code of Ethics for Directors and Officers and its Business Conduct & Code of Ethics and, in particular, the actions taken to monitor and enforce compliance; and
4. establish procedures for the receipt, retention and treatment of complaints regarding accounting,

internal controls or auditing matters, and the confidential, anonymous submission by employees of concerns regarding questionable accounting or auditing matters.

## **Compliance and Risk Management**

The Committee plays a critical role in ensuring the Company's compliance with applicable laws and policies and the management of risks facing the Company. In this regard, the Committee shall:

1. discuss with management, the independent auditor and the internal auditor the Company's policies, procedures and programs regarding compliance with established standards of corporate conduct and applicable laws and regulations;
2. evaluate whether management is setting the appropriate tone at the top by communicating the importance of internal controls, ethics and conduct codes and ensuring that all supervisory and accounting employees understand their roles and responsibilities with respect to internal controls;
3. review with management, the independent auditor and the internal auditor:
  - (a) the Company's policies with respect to risk assessment and risk management;
  - (b) the Company's major financial risk exposures (including risks related to the Company's financial statements, legal and regulatory compliance matters, the oversight of the independent auditor and the performance of the internal audit function);
  - (c) the steps management has taken to monitor and control such exposures (including guidelines, policies and insurance); and
  - (d) the processes followed for assessment of internal controls over financial reporting;
4. review and evaluate at least annually Golden Star's policies and procedures for maintaining and investing cash funds and for hedging (metals, foreign currency, etc.) as detailed in the corporate treasury policy and approve any variations from the corporate treasury policy that may be required from time to time;
5. ensure the implementation of procedures for the receipt, retention and treatment of complaints regarding accounting, internal controls or auditing matters, and the confidential, anonymous submission by employees of concerns regarding questionable accounting or auditing matters;
6. at least annually, review the reports with respect to the Company's programs for compliance with legal and regulatory requirements;
7. review and approve related-party transactions, if any, required to be disclosed and discuss with management the business rationale for the transactions and whether appropriate disclosures have been made; and
8. review the results of reviews of executive officers' expense accounts and use of corporate assets.

## **Financial Management**

The Committee shall recommend the appointment of the CFO to the Board and will review with the CFO the qualifications of new key financial executives involved in the financial reporting process.

On an annual basis, the Committee shall (a) review the adequacy and quality of Golden Star's financial and accounting staff; (b) evaluate the performance of the internal auditor; and (c) review succession plans for the CFO, internal auditor and the controller.

## **Director and Officer Liability**

The Committee shall review the Company's insurance program on an annual basis, including the directors' and officers' insurance and indemnities, and consider the adequacy of such coverage.

## **Related Party Transactions**

The Committee shall review and oversee any proposed related party transaction or situation involving a director's or officer's potential or actual conflict of interest, other than routine transactions and situations arising in the ordinary course of business, and make recommendations to the Board as to whether any such transaction, contract or other arrangement should be approved or continued.

## **Risk Management**

The Committee shall assist the Board in fulfilling its risk oversight responsibilities by, among other things, ensuring that processes are in place to enable management to identify significant financial related risks; ensuring that management establishes appropriate action plans to mitigate against such risks; and monitoring management's implementation of such action plans.

## **Public Disclosure**

In addition to the public disclosures specifically referenced elsewhere in this Charter, the Committee shall review and approve (or recommend to the Board for approval), prior to public release, such other public disclosures containing financial information including guidance with respect to earnings per share, financial information contained in any prospectus, annual information form, annual report, management information circular, material change disclosure of a financial nature, as the Committee considers appropriate.

## **Access to Management & Information**

The Committee will have full and free access to officers and employees of the Company and the Company's books and records. Any meetings or contacts that the Committee wishes to initiate may be arranged through the CEO or the Corporate Secretary or directly by the chair or other member of the Committee. The Committee will use its judgment to ensure that any such contact is not disruptive to the business operations of the Company.

## **Advisors**

The Committee has the authority to retain, obtain the advice of, and terminate any consultant, external legal counsel or other advisor, to assist it in the performance of its duties. Golden Star will provide appropriate funding, as determined by the Committee, for payment of reasonable compensation to any advisor retained by the Committee. The Committee shall have sole authority to approve such consultants' fees and retention terms, and shall be directly responsible for the selection, compensation and oversight of the advisors it retains.

## **Investigations**

The Committee shall direct and supervise the investigation into any matter brought to its attention within the scope of its duties.

## **Committee Evaluation**

The Committee shall review, at least annually, the Committee's duties, responsibilities and performance and determine if any changes in practices of the Committee or amendments to this Charter are necessary or otherwise deemed appropriate by the Committee. This review shall include reviewing with management and the independent auditor the applicable law and the Listing Rules relating to the qualifications, activities, responsibilities and duties of audit committees and compliance therewith.

## **Additional Assignments**

The Committee shall undertake such additional responsibilities as from time to time may be delegated to the Committee by the Board, required by Golden Star's incorporation documents or bylaws or required by applicable law or stock exchange rules.

Last Approved by the Board of Directors: February 22, 2020.