



GOLDEN STAR

CREATING A LEADING AFRICAN GOLD PRODUCER

NI 43-101 Technical Report & PEA | March 2021

DISCLAIMER

SAFE HARBOUR: Some statements contained in this presentation are forward-looking statements or forward-looking information (collectively, "forward-looking statements") within the meaning of the United States Private Securities Litigation Reform Act of 1995 and applicable Canadian securities laws, respectively. Investors are cautioned that forward-looking statements are inherently uncertain and involve risks and uncertainties that could cause actual results to differ materially. Such statements include comments regarding: estimated post-tax internal rate of return and net present value of the Mineral Reserve mine plan and with respect to the PEA mine plan; the timing for production from Wassa mineral reserve mine plan and from the PEA mine plan; the life of mine for Wassa based on the mineral reserve mine plan; the life of mine based on the PEA mine plan; estimates of capital costs, and the allocation among growth capital and sustaining capital, for the Wassa mineral reserve mine plan and the PEA mine plan; estimates of remediation costs; Wassa's ability to deliver increased value with cut-off grades optimized for the higher mining rates achieved in 2020 and the resulting unit cost reductions; the PEA's development pathway to increase the underground mining rate to fully utilize the plant's processing capacity; estimates of production, AISC and cash operating costs; estimates of consensus gold price; the Company's ability to add value to the mineral reserve mine plan; the Company's ability to realize on opportunities to add value to the PEA mine plan; and the future work plan with respect to the PEA. 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 thereof. Investors are cautioned that forward-looking statements and information are inherently uncertain and involve risks, assumptions and uncertainties that could cause actual facts to differ materially. 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. Forward-looking information and statements are subject to known and unknown risks, uncertainties 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, including but not limited to: gold price volatility; discrepancies between actual and estimated production; mineral reserves and resources and metallurgical recoveries; mining operational and development risks; liquidity risks; suppliers suspending or denying delivery of products or services; regulatory restrictions (including environmental regulatory restrictions and liability); actions by governmental authorities; the speculative nature of gold exploration; ore type; the global economic climate; share price volatility; the availability of capital on reasonable terms or at all; risks related to international operations, including economic and political instability in foreign jurisdictions in which Golden Star operates; risks related to current global financial conditions; actual results of current exploration activities; environmental risks; future prices of gold; possible variations in mineral reserves and mineral resources, grade or recovery rates; mine development and operating risks; an inability to obtain power for operations on favourable terms or at all; mining plant or equipment breakdowns or failures; an inability to obtain products or services for operations or mine development from vendors and suppliers on reasonable terms, including pricing, or at all; public health pandemics such as COVID-19, including risks associated with reliance on suppliers, the cost, scheduling and timing of gold shipments, uncertainties relating to its ultimate spread, severity and duration, and related adverse effects on the global economy and financial markets; accidents, labor disputes and other risks of the mining industry; delays in obtaining governmental approvals or financing or in the completion of development or construction activities; litigation risks; and risks related to indebtedness and the service of such indebtedness. Although Golden Star has attempted to identify important factors that could cause actual results to differ materially from those contained in forward-looking information and statements, there may be other factors that cause results not to be as anticipated, estimated or intended. There can be no assurance that future developments affecting the Company will be those anticipated by management. Please refer to the discussion of these and other factors in management's discussion and analysis of financial conditions and results of operations for the year ended December 31, 2020, and in our annual information form for the year ended December 31, 2019 as filed on SEDAR at www.sedar.com. The forecasts contained in this presentation constitute management's current estimates, as of the date of this presentation, with respect to the matters covered therein. We expect that these estimates will change as new information is received and that actual results will vary from these estimates, possibly by material amounts. While we may elect to update these estimates at any time, we do not undertake to update any estimate at any particular time or in response to any particular event. Investors and others should not assume that any forecasts in this presentation represent management's estimate as of any date other than the date of this presentation.

In this presentation, we use the terms "cash operating cost per ounce", "All-In Sustaining Cost per ounce" and "AISC per ounce". These terms should be considered as Non-GAAP Financial Measures as defined in applicable Canadian and United States securities laws and should not be considered in isolation or as a substitute for measures of performance prepared in accordance with International Financial Reporting Standards ("IFRS"). "Cash operating cost per ounce" for a period is equal to the cost of sales excluding depreciation and amortization for the period less royalties, the cash component of metals

inventory net realizable value adjustments and severance charges divided by the number of ounces of gold sold (excluding pre-commercial production ounces) during the period. "All-In Sustaining Costs per ounce" commences with cash operating costs and then adds sustaining capital expenditures, corporate general and administrative costs, mine site exploratory drilling and greenfield evaluation costs and environmental rehabilitation costs, divided by the number of ounces of gold sold (excluding pre-commercial production ounces) during the period. This measure seeks to represent the total costs of producing gold from operations. These measures are not representative of all cash expenditures as they do not include income tax payments or interest costs. Changes in numerous factors including, but not limited to, mining rates, milling rates, gold grade, gold recovery, and the costs of labor, consumables and mine site general and administrative activities can cause these measures to increase or decrease. We believe that these measures are the same or similar to the measures of other gold mining companies but may not be comparable to similarly totaled measures in every instance. Please see our "Management's Discussion and Analysis of Financial Condition and Results of Operations for the year ended December 31, 2020" for a reconciliation of these Non-GAAP measures to the nearest IFRS measure.

INFORMATION: The information contained in this presentation has been obtained by Golden Star from its own records and from other sources deemed reliable, however no representation or warranty is made as to its accuracy or completeness. The mineral reserve and mineral resource estimates have been compiled by the Company's technical personnel in accordance with definitions and guidelines set out in the Definition Standards for Mineral Resources and Mineral Reserves adopted by the Canadian Institute of Mining, Metallurgy, and Petroleum and as required by Canada's National Instrument 43-101 – Standards of Disclosure for Mineral Projects ("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. Mineral reserve estimates reflect the Company's reasonable expectation that all necessary permits and approvals will be obtained and maintained. Mining dilution and mining recovery vary by deposit and have been applied in estimating the mineral reserves. Additional scientific and technical information relating to the mineral properties referenced in this news release are contained in the following current technical reports for those properties available at www.sedar.com: (i) Wassa - "NI 43-101 Technical Report on the Wassa Gold Mine, Mineral Resource and Mineral Reserve Update and Preliminary Economic Assessment of the Southern Extension Zone, Western Region, Ghana" effective December 31, 2020;

CAUTIONARY NOTE TO US INVESTORS: This presentation uses the terms "measured mineral resources", "indicated mineral resources" and "inferred mineral resources." The Company advises US investors that while these terms are recognized and required by NI 43-101, the US Securities and Exchange Commission ("SEC") does not recognize them. Also, although disclosure of contained ounces is permitted under Canadian regulations, the SEC generally requires mineral resource information to be reported as in-place tonnage and grade. US Investors are cautioned not to assume that any part or all of the mineral deposits in the measured and indicated categories will ever be converted into mineral reserves. US investors should also note that "Inferred mineral resources" have a great amount of uncertainty as to their existence, and great uncertainty as to their economic and legal feasibility. It cannot be assumed that all or any part of inferred mineral resources will ever be upgraded to a higher category. In accordance with Canadian rules, estimates of inferred mineral resources cannot form the basis of feasibility or other economic studies. US investors are cautioned not to assume that any part or all of the inferred mineral resource exists or is economically or legally mineable.

CURRENCY: All monetary amounts refer to United States dollars unless otherwise indicated.

PARTICIPATING MANAGEMENT



Andrew Wray
Chief Executive Officer



Graham Crew
Chief Operating Officer



Paul Thomson
Chief Financial Officer



Philipa Varris
Head of Sustainability



**Shaddrack
Adjetey-Sowah**
Managing Director, GSWL



Matt Varvari
VP, Technical Services



Mitch Wasel
VP, Exploration





CORPORATE OVERVIEW

Defining the Golden Star Way

**"IF IT IS NOT SAFE,
MAKE IT SAFE"**

GOLDEN STAR - Overview

Wassa | Underground gold mine in Ghana



Positioning for Organic Growth Opportunity

2020 Business Transformation

Corporate Transition

Corporate office relocated to London
New management team

Increasing Mining Rates & Delivering On Guidance

Delivered on increased guidance range
Delivered record underground mining rates

Balance Sheet Transformation

Bogoso-Prestea – Sale removed liabilities and improved cash generation
Macquarie facility amendments – Adds liquidity
At The Market program – Up to \$50m of additional liquidity

Wassa Growth Opportunity

Reserve Mine Plan



Ave. production
177 koz/year



Average AISC^{1,2}
\$881 /oz



Mine life
6 years



NPV³
\$336 M

PEA Life of Mine Extension (excludes Reserve plan)



Ave. production
294 koz/year



Average AISC^{1,2}
\$778 /oz



Mine life
11 years



NPV⁴
\$783 M

GOLDEN STAR – Our Vision to 2025 & Beyond

Vision

A SUSTAINABLE AND DIVERSIFIED GOLD MINING COMPANY THAT OUR STAKEHOLDERS ARE PROUD OF

Pillars

PEOPLE, CULTURE & LEADERSHIP

SUSTAINABILITY

OPERATIONAL EXCELLENCE

FINANCIAL EXCELLENCE

GROWTH

Mission

Providing a safe, inclusive & rewarding work environment

Creating lasting value for our host communities

Consistently delivering & improving our plans

Responsibly generating superior financial returns

Developing & growing our asset base

Measures

20% female representation
-
↑ Production per employee

Zero fatalities & serious injuries
-
↓ Environmental impact

AISC below midpoint of cost curve
-
↑ Reserve life

Maintain conservative Net Debt/EBITDA ratio
-
↑ Balance sheet flexibility

↑ Wassa production
-
Discover 5Moz over 5 years
-
Create project pipeline

Values



Fairness



Collaboration



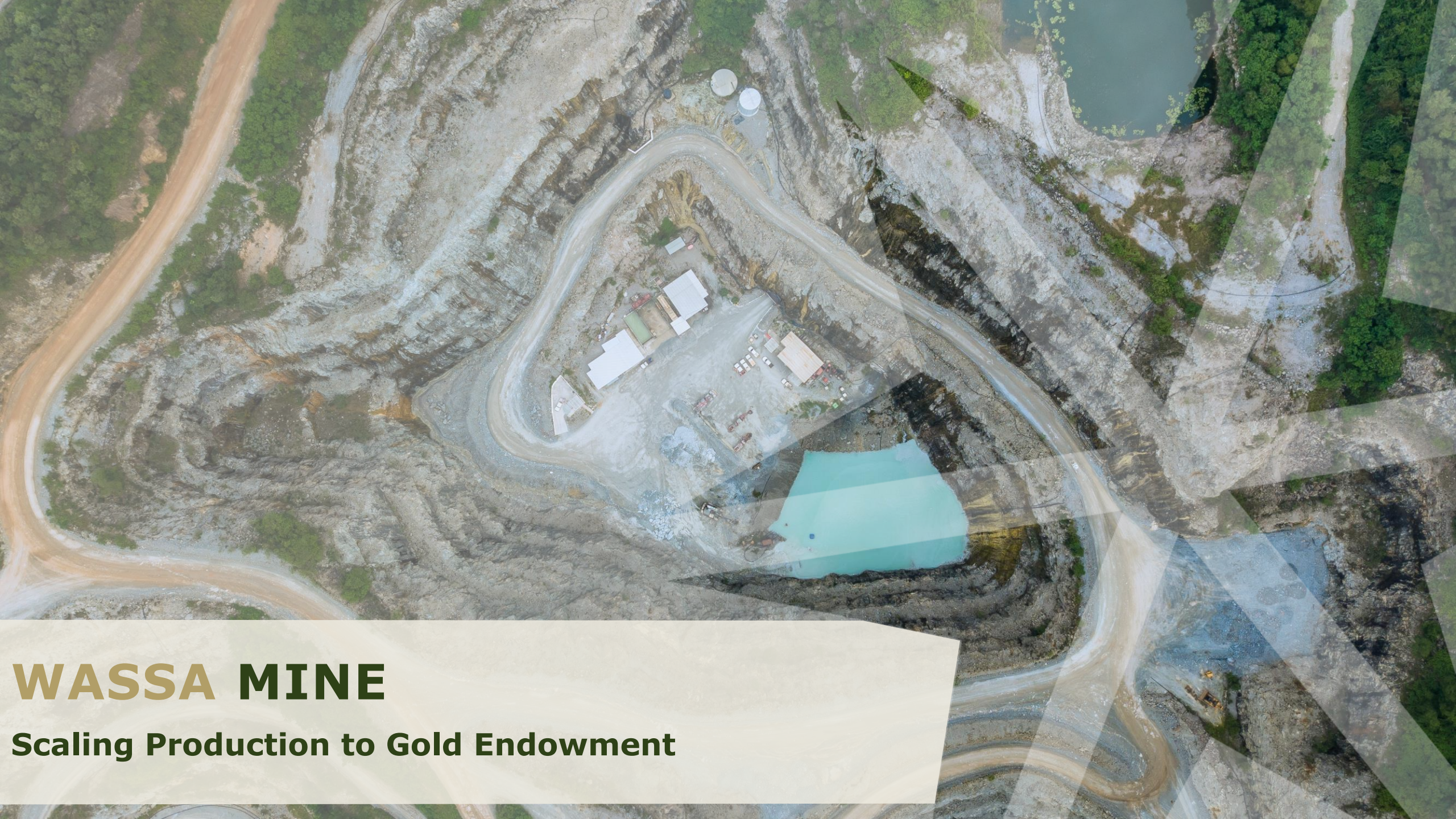
Caring



Honesty



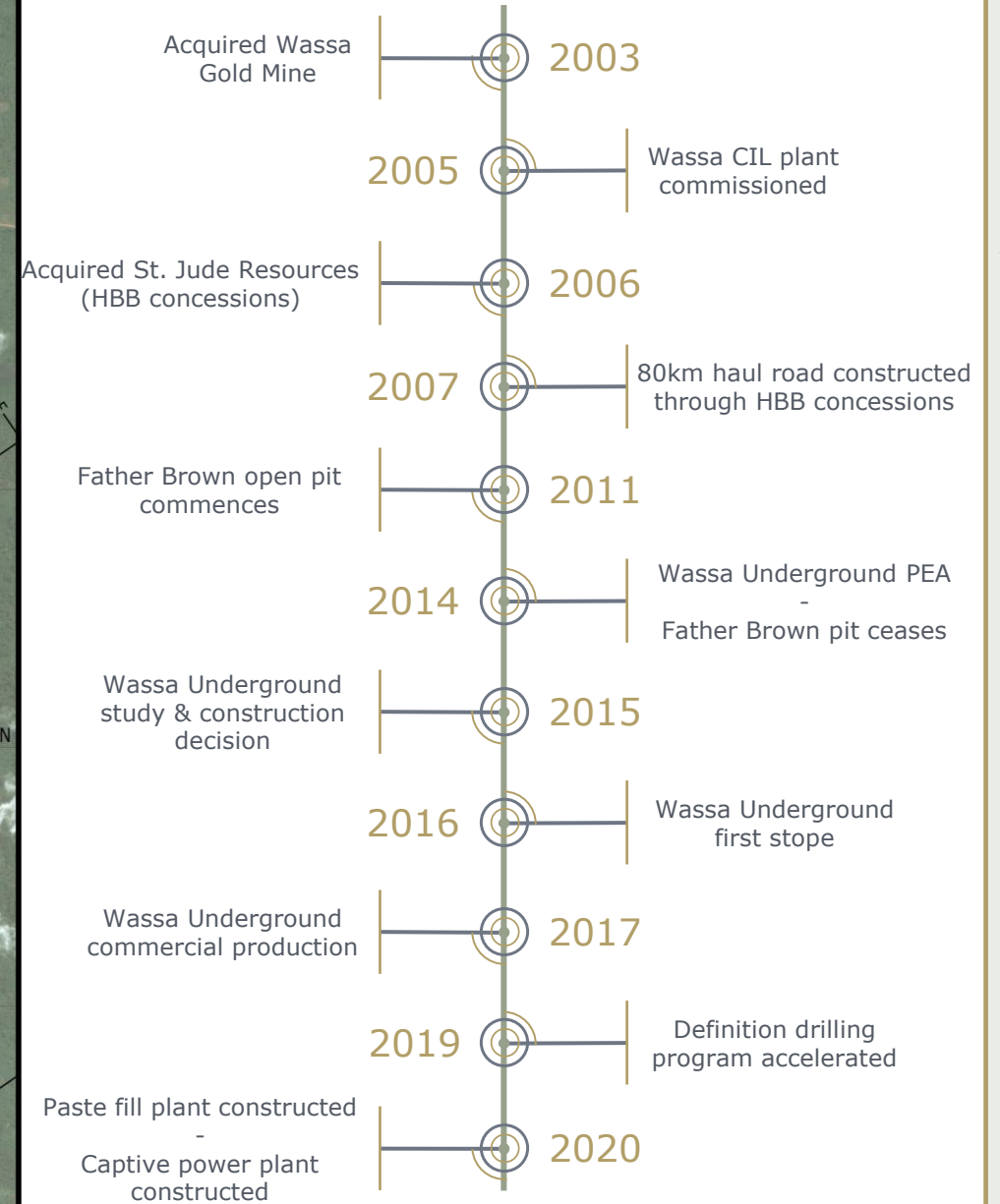
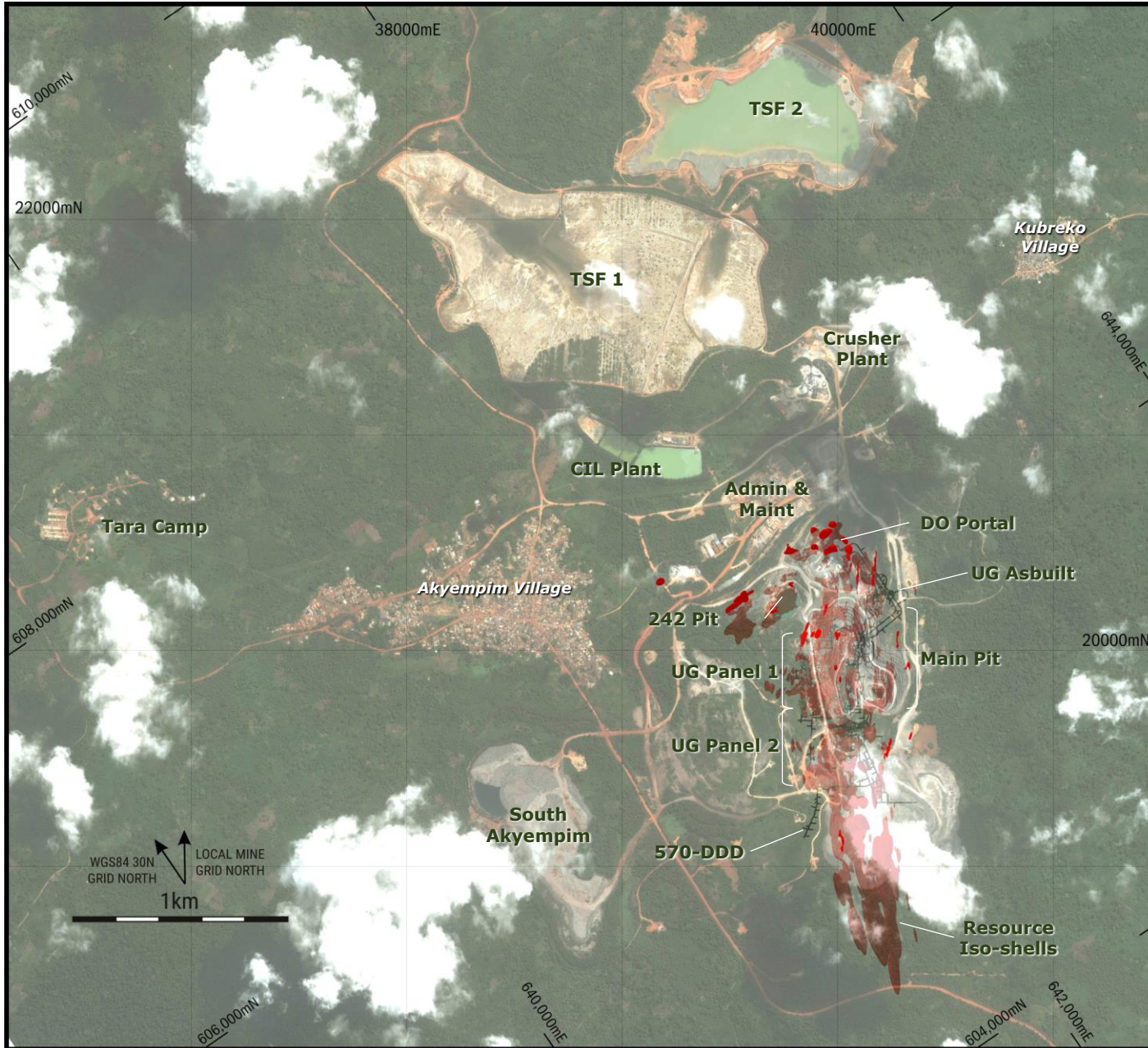
Respect



WASSA MINE

Scaling Production to Gold Endowment

WASSA – Site Layout & Mining History



2021 OUTLOOK – Investing for Continued Growth

2021 Focus	Infill Drilling	Development	Exploration
	Resource to reserve conversion drilling	Accelerating development rates to support future increases in mining rates	Increased budget to enable systematic testing of exploration targets

2021 Guidance

Production

- Wassa is expected to produce 165-175koz in 2021
- Mining rates expected to exceed 4,500tpd
- Underground grades expected to remain in line with 2020 performance (3.1g/t)
- Approximately 80% of the 2021 plan is expected to be ounces from the measured resource category
- The processing of low grade stockpiles expected to average 1,000tpd at a grade of approximately 0.6g/t to produce approximately 7koz

Costs

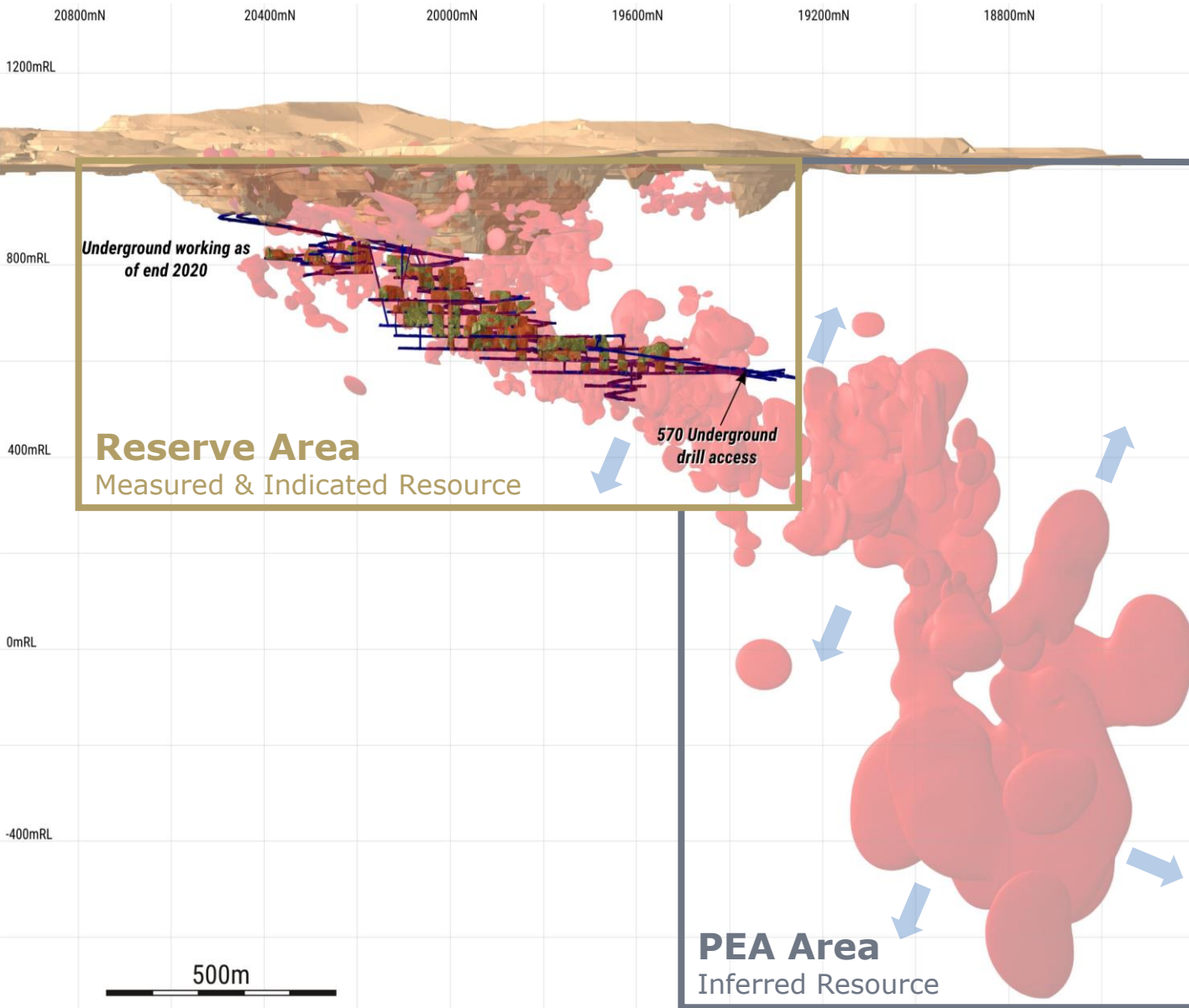
- Cash operating costs increase a little on 2020 due to the commissioning of the paste fill plant in Q1 2021. This adds \$3-4/t to the mining cost for the year
- AISC increases as a result of the paste fill plant, a step up in the investment in sustaining capital and the impact of the processing of low grade stockpiles (\$15/oz non-cash impact)

Capital Expenditure

- Sustaining capital of \$26-28m includes \$10m of capitalized development and \$4-5m for the expansion of the TSF
- Expansion capital includes \$7-8m of capitalized drilling, \$5m of capitalized development and \$7m of ventilation infrastructure

		Guidance	2020 Performance	YoY variance
		2021	Actuals	%
Production and cost highlights				
Production - Wassa	koz	165-175	167.6	1%
Cash operating cost – Wassa ¹	\$/oz	660-700	653	4%
All-in sustaining cost – Wassa ¹	\$/oz	1,000-1,075	1,003	3%
Capital Expenditure				
Sustaining capital – Wassa	\$m	26-28	24.7	9%
Expansion capital – Wassa	\$m	19-22	19.0	8%
Total Capital – Wassa (excluding capitalized exploration)	\$m	45-50	43.7	9%
Exploration	\$m	15	4.2⁵	257%
Total capital and exploration	\$m	60-65	47.9	30%

WASSA – Resource Potential & Infrastructure Capacity

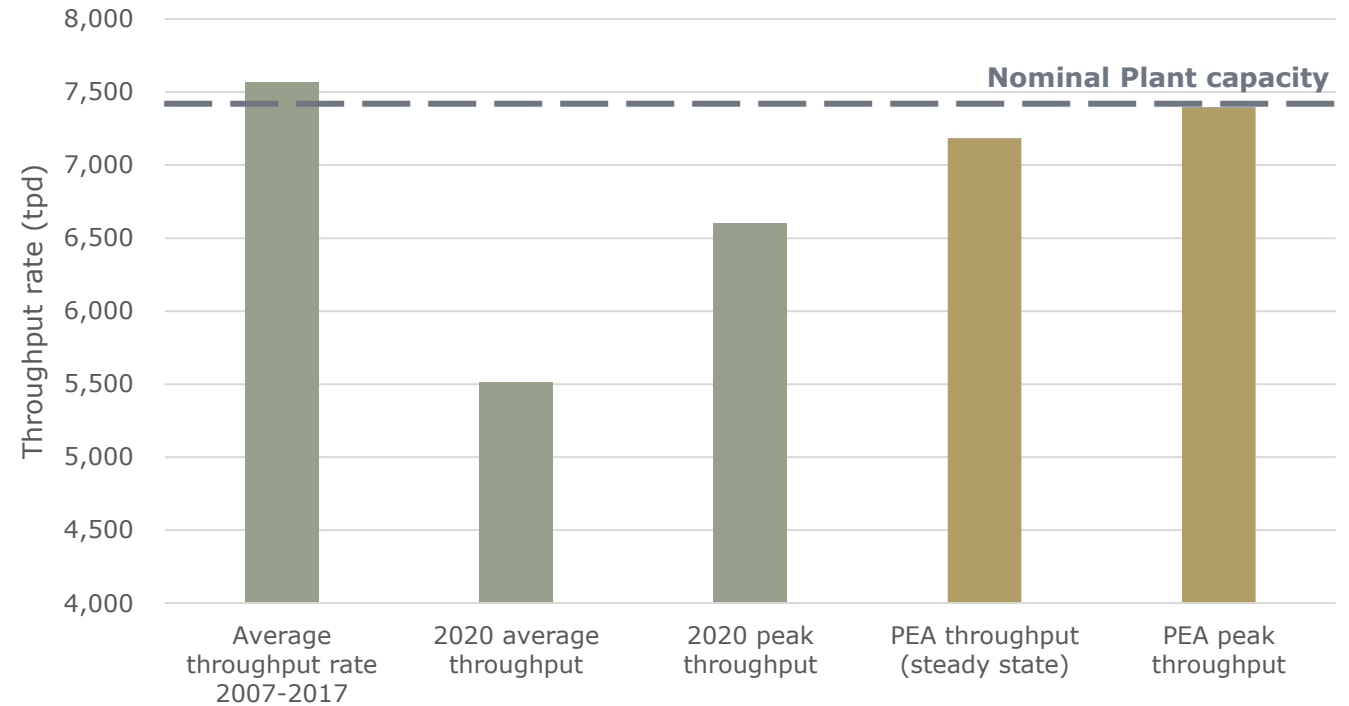


Resource – Scale supports growth	
Measured & indicated resource ⁶ 3.0Moz	Inferred resource ⁶ 7.7Moz
Next steps – Infill drilling targeting resource-reserve conversion	
Infrastructure – Available capacity	
Decline Capacity 5,000tpd	Commission paste fill plant in Q1 2021
Plant Capacity 7,400tpd	Transition to 60 tonne trucks as 40 tonne trucks are decommissioned
Projected Mine Plan	
Reserve Plan ⁷	Panels 1-2 (B-Shoot, H/W), Panel 3 (B-Shoot, 242) 1.1 Moz 3.1 g/t⁹
PEA Plan ⁸	Southern Extensions (inferred resource) 3.6 Moz 3.8 g/t

WASSA – Platform of Existing Infrastructure & Permitting



Plant Throughput (tpd) – Operating Within Existing Capacity



Brownfield Expansion – Lower Risk Proposition

Fully Permitted

Grid & Captive Power Supply

Proven Processing Plant

Skilled Workforce in Place

WASSA – PEA Scope & Development Strategy

Conservative Approach to PEA Planning

Goal	Identify opportunity to access southern extensions of Wassa ore body	
Objective	Minimize upfront capital demand	Reduce delivery risk
Solution	Infrastructure options Decline chose over shaft	Apply existing conventional mining methodologies
		Apply proven haulage solution (diesel fleet)
	Utilize existing mill capacity	Risking of grade assumptions for Inferred Resource
		Exclude exploration targets & upside from scope

Development Flexibility Retained

Optimize PEA through option studies Haulage study Electrification study
De-risk PEA plan through infill drilling
Target feasibility study in 2 years
Upside opportunities
Exploration success could defer the need to develop the southern extensions
Resource growth could justify future expansion of the mill

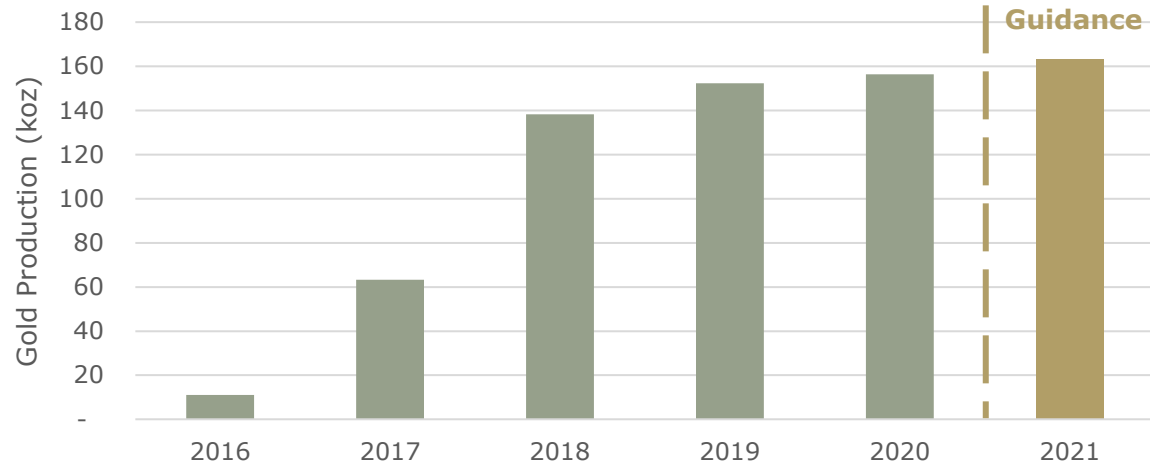


DELIVERY - THE WASSA WAY

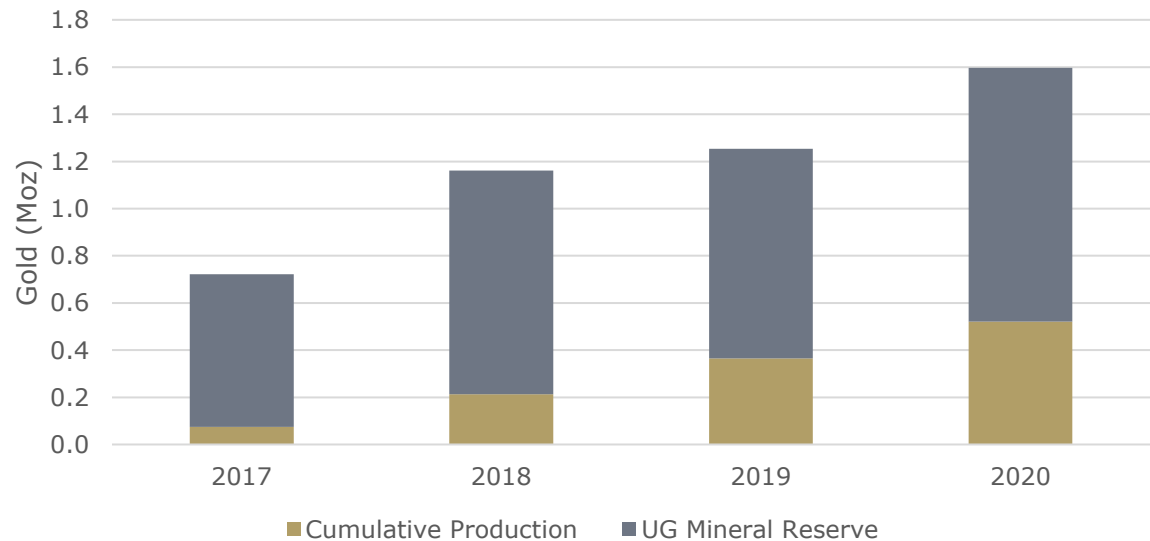
Equipping the Long-Term Potential of Wasssa

WASSA – Track Record of Delivering Growth

Underground Production Growth Delivered



Record of Growing Underground Endowment (net of depletion)



Demonstrating a Track Record

- Delivered 7% production growth in 2020 despite COVID-19 pandemic (achieved increased production guidance)
- Consistently delivering reserve growth (net of depletion)
 - Reserve was 0.7Moz in 2016
 - Reserve 1.1Moz at end of 2020, after 520koz of production
- Paste fill plant delivered under budget through COVID-19 pandemic
- Electrical upgrades delivered locally while Ghana border closed



2020 DELIVERY – Paste Backfill System



Overview

- First paste plant constructed in Ghana
- Construction led by site team with limited expat presence due to COVID-19 pandemic
- Leading practice design and technology
- Pillar extraction increases ore recovery and rates
- Commissioning in Q1 2021

Integrated Sustainability

- Improved efficiency – less development per ore tonne
- Enhanced safety – increased stability, reduced voids
- Beneficial reuse of waste material
- No impact to TSF stability – all tailings fractions reused
- Reduce TSF volume, footprint and risk
- Reduced emissions than rehandling waste rock for backfill

Value Retention

- Capital - Budget: \$21m budget (+ contingency)
- Capital - Actual: \$19m – Tracking below budget
- Operating cost: \$5-7 per tonne, +20-30% ore recovery



2020 DELIVERY – Power Infrastructure



Overview

Gas-fired power generation

- Provide energy supply security for Wassa

Underground electrical upgrade

- Distribution capacity to support underground expansion
- Longest single line suspension in Africa – installed by local team

Integrated Sustainability

Gas powered generation

- Flatten load profile
- Excess generation fed back to the grid

Underground electrical upgrade

- Reduce cable length – cost and product stewardship benefits
- Reduce line losses - improved energy efficiency
- Parallel programs - energy framework, energy audits, opportunities identification and carbon cost abatement curve

Value Retention

- Power purchase agreement at discount to grid (~\$0.01/kWh)
- Reduces burden on Government supply network
- Supplier committed to further energy transition

2020 DELIVERY – Dewatering Infrastructure



Overview

- Replaced staged system to infrastructure with single-lift pumping
- Construction completed Q3 2020, commissioning Q1 2021
- Pump station design will enhance operability and maintainability

Integrated Sustainability

- Consolidated infrastructure increases energy efficiency
- New system reduces contact of water with contamination sources – pollution avoidance
- Treatment of contaminants at source – enhances discharge management, reduces wear and optimises pump efficiency
- Increased reliability – lower water risk to operations

Value Retention

- Capital - Budget: \$1.8m budget
- Capital - Actual: \$1.6m
- Operating cost: lower maintenance cost and energy consumption



RESOURCE & RESERVE UPDATE

Reserve life of mine plan

Mineral Resources – Quality Improving

Mineral Resource Estimate (Effective Date, December 31, 2020)

	Measured Mineral Resource 2020			Measured Mineral Resource 2019			Change
	Mt	g/t	koz	Mt	g/t	koz	% cont.Au
Wassa Open Pit	-	-	-	-	-	-	-
Wassa Underground	5.90	4.45	843	2.83	4.99	454	+86%
Father Brown/Adoikrom UG	-	-	-	-	-	-	-
Regional Open Pit	-	-	-	-	-	-	-
Total Wassa, Measured	5.90	4.45	843	2.83	4.99	454	+86%

	Measured & Indicated Resource 2020			Measured & Indicated Resource 2019			Change
	Mt	g/t	koz	Mt	g/t	koz	% cont.Au
Wassa Open Pit	-	-	-	29.18	1.29	1,206	-100%
Wassa Underground	24.85	3.76	3,005	16.20	3.89	2,027	+48%
Father Brown/Adoikrom UG	1.31	7.96	335	0.91	8.67	254	+32%
Regional Open Pit	3.10	1.98	197	2.51	2.32	187	+5%
Total Wassa, M&I	29.26	3.76	3,537	48.81	2.34	3,675	-4%

	Inferred Mineral Resource 2020			Inferred Mineral Resource 2019			Change
	Mt	g/t	koz	Mt	g/t	koz	% cont.Au
Wassa Open Pit	-	-	-	0.62	1.31	26	-100%
Wassa Underground	70.50	3.39	7,689	58.82	3.75	7,097	+8%
Father Brown/Adoikrom UG	2.66	5.30	453	1.88	6.07	367	+23%
Regional Open Pit	0.87	1.47	41	0.42	2.14	29	+41%
Total Wassa	74.02	3.44	8,183	61.74	3.79	7,518	+9%

Resource gold price

Unchanged at \$1,500 /oz

Improving geological confidence

86% increase in measured resource

Open Pit transitioned to Underground

978 koz increase in Underground M&I resource

61% increase of M&I average grade

Removes access constraints

Operating efficiency flowing through

Reduced cut-off (1.9 to 1.4 g/t) enabled by reducing unit costs from higher throughput

Father Brown / Adoikrom re-modelled

Mineralisation re-interpreted to separate HG/FW/HW zones

Mineral Reserves – Optimizing Underground Capacity

Mineral Reserve Estimate (Effective Date, December 31, 2020)

	Proven Mineral Reserve 2020			Proven Mineral Reserve 2019			Change
	Mt	g/t	koz	Mt	g/t	koz	
Wassa Open Pit	-	-	-	-	-	-	
Wassa Underground	4.28	3.28	451	1.72	4.11	228	+98%
Stockpiles	0.69	0.58	13	1.06	0.62	21	-38%
Total Wassa	4.97	2.91	464	2.79	2.78	249	+86%

	Probable Mineral Reserve 2020			Probable Mineral Reserve 2019			Change
	Mt	g/t	koz	Mt	g/t	koz	
Wassa Open Pit	-	-	-	9.92	1.57	500	-100%
Wassa Underground	6.54	2.97	625	5.70	3.61	661	-5%
Stockpiles	-	-	-	-	-	-	-
Total Wassa	6.54	2.97	625	15.62	2.31	1,160	-46%

	P&P Mineral Reserve 2020			P&P Mineral Reserve 2019			Change
	Mt	g/t	koz	Mt	g/t	koz	
Wassa Open Pit	-	-	-	9.92	1.57	500	-100%
Wassa Underground	10.82	3.09	1,076	7.42	3.72	889	+21%
Stockpiles	0.69	0.58	13	1.06	0.62	21	-38%
Total Wassa	11.50	2.94	1,089	18.41	2.38	1,410	-23%

Reserve gold price

Unchanged at \$1,300 /oz

2020 drilling – has de-risked production

98% increase in Proven Reserve

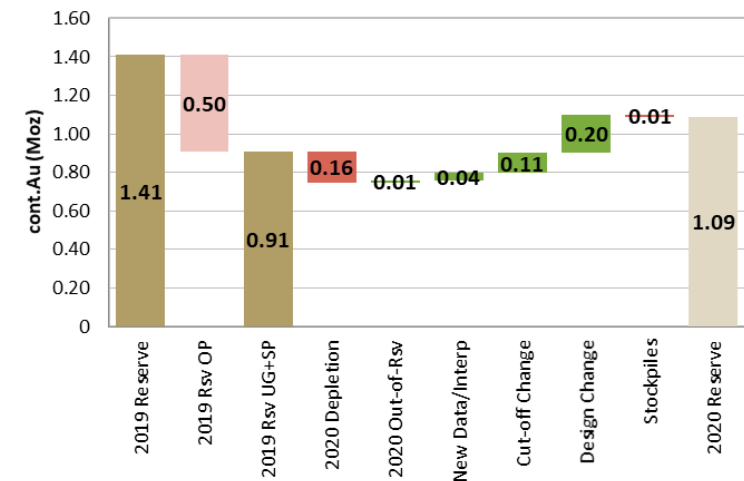
Open Pit transitioned to Underground

Earlier access, reduced capital demand and avoid low-margin ounces (-305 koz at 1.21 g/t)

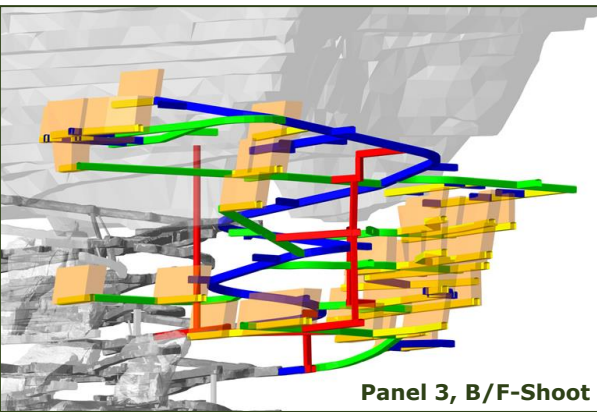
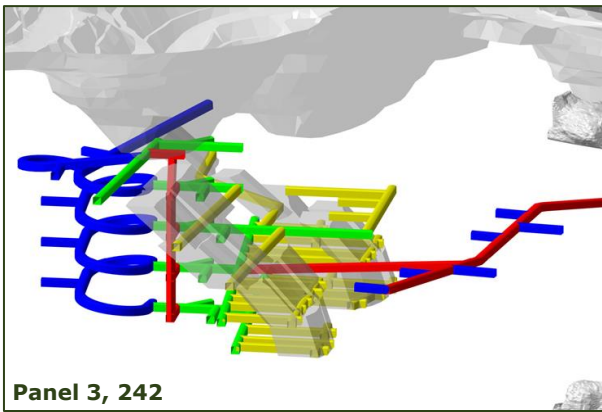
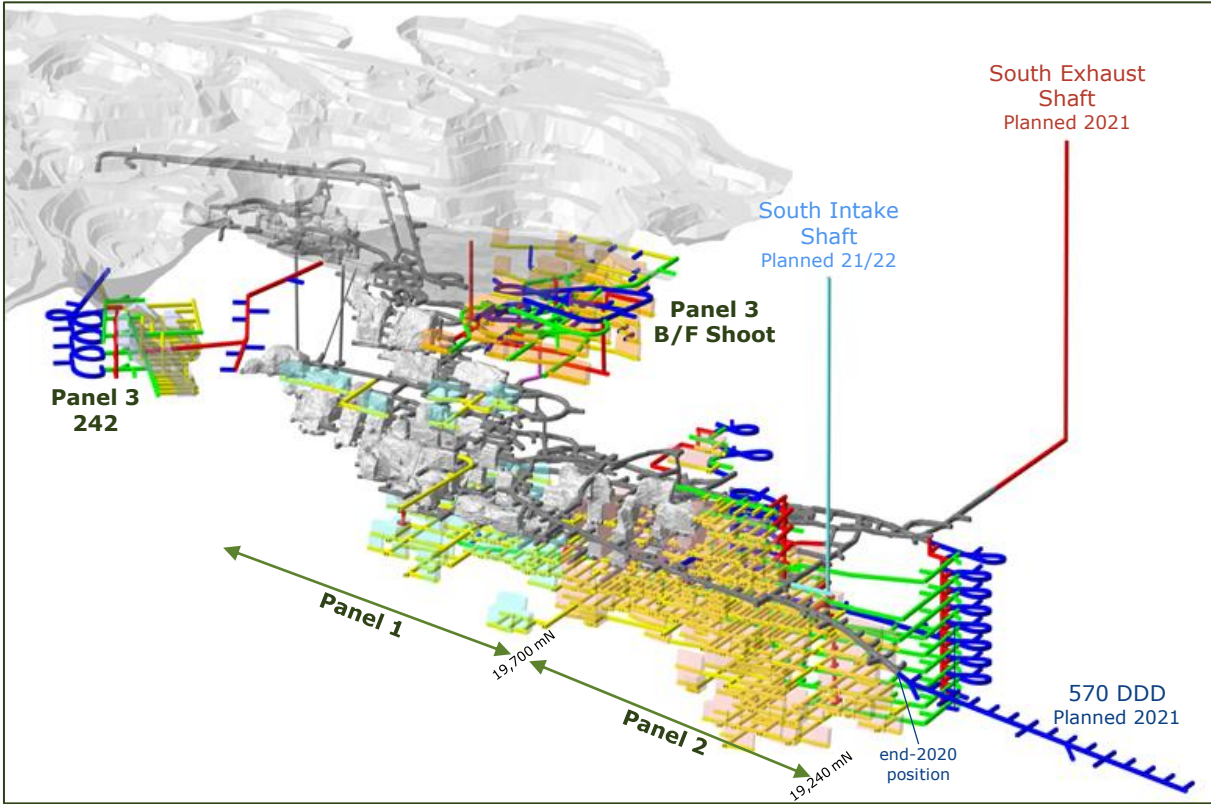
Operating efficiency flowing through

Cut-off reduced to 1.9 from 2.4 g/t (+129 koz at 1.98 g/t)

Wassa Reserve Changes, Dec-2019 to Dec-2020



WASSA RESERVE MINE PLAN – Highlights



Production – 7% Growth¹⁰

	Ave. Rate	LOM production
	177 koz/yr <i>6 year life</i>	1.02 Moz

Unit Costs – Consistent AISC²

	Ave. Cash opex/oz ¹	Ave. AISC/oz ^{1,2}
	\$682 /oz	\$881 /oz

Increased Use of Installed Capacity

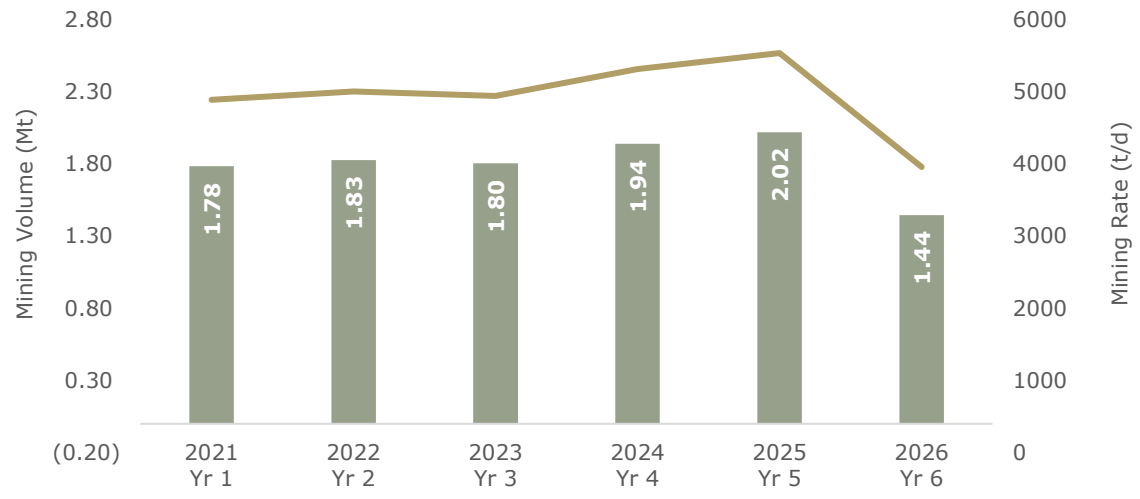
	Mining Rate	Processing Capacity
	1.8 – 2.0 Mtpa <i>4,900 – 5,500 t/d</i>	2.7 Mtpa <i>7,400 t/d</i>

Valuation

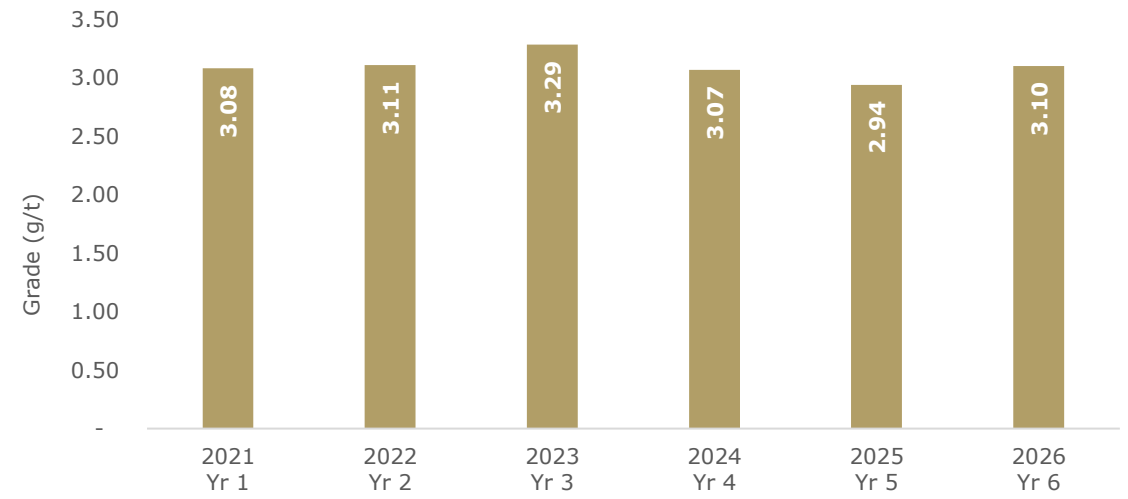
	NPV ¹¹ 5% <i>Base case (\$1,300 /oz)</i>	NPV ⁴¹¹ 5% <i>Consensus case (ave. \$1,751 /oz)³</i>
	\$121 M	\$336 M

WASSA RESERVE MINE PLAN – Key Statistics

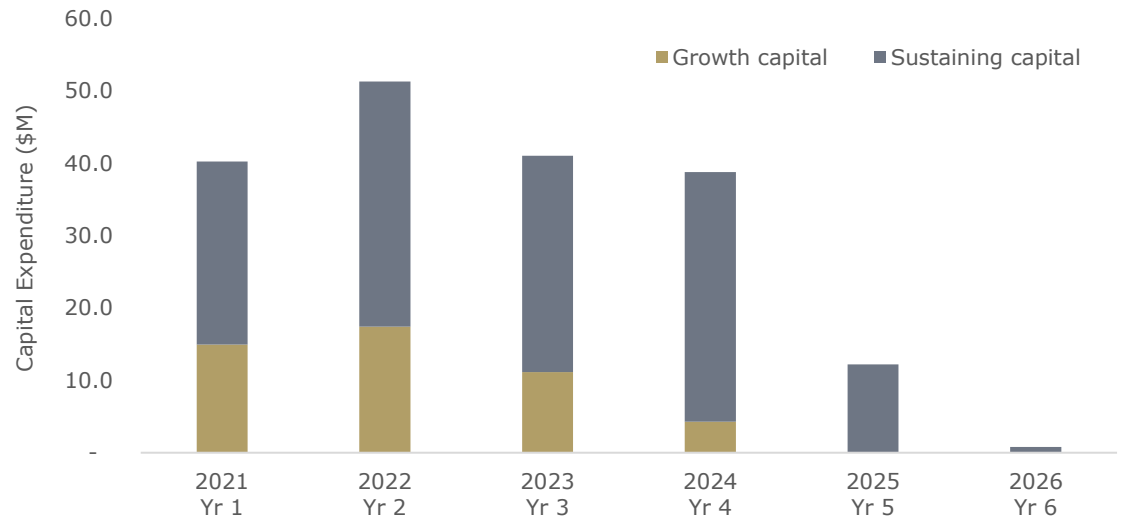
Mining Volumes (Mt & t/d) – 1.8-2.0 Mtpa



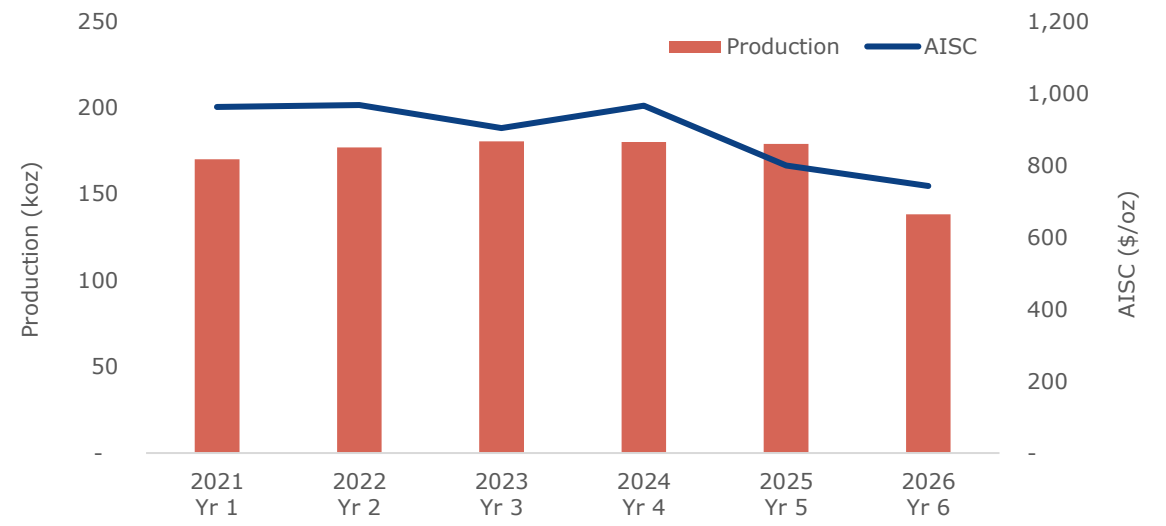
Grade (g/t) – LOM average mined grade 3.1g/t



Capex (\$M) – \$48 M Growth / \$137 M Sust.

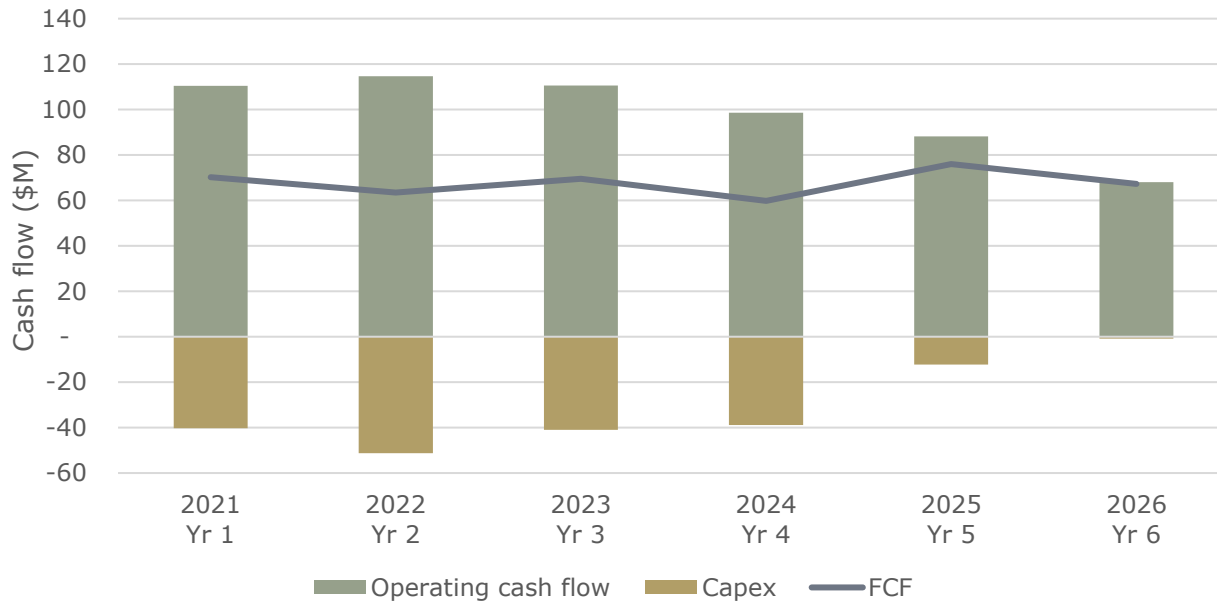


Production (koz) – 190 koz/yr steady state



WASSA RESERVE MINE PLAN – Economic Outcomes

Cash Flow Profile^{3,11}



Base Case
\$1,300/oz

Consensus Gold³
ave. \$1,751/oz

NPV¹¹ 5%
\$121 M

NPV¹¹ 5%
\$336 M

LOM AISC MARGIN¹²
35.2%

LOM AISC MARGIN¹²
77.7%

LOM FCF
\$148 M

LOM FCF
\$394 M

Projected Cash Flows – Mineral Reserve

- Life of mine totals for the mineral reserve

Scenario:	Base	Consensus
Gold price /oz:	\$1,300	\$1,751 avg.
Total operating cash flow:	\$346 M	\$593 M
Total capital expenditure:	\$199 M	\$199 M
Total free cash flow:	\$147 M	\$394 M

- Cash generative down to \$1,039/oz gold price

Shared Value – Benefits to Ghana

Direct life of mine contribution to Government of Ghana³

- Corporate tax \$262 M
- Royalties \$90 M

Other local & national participation:

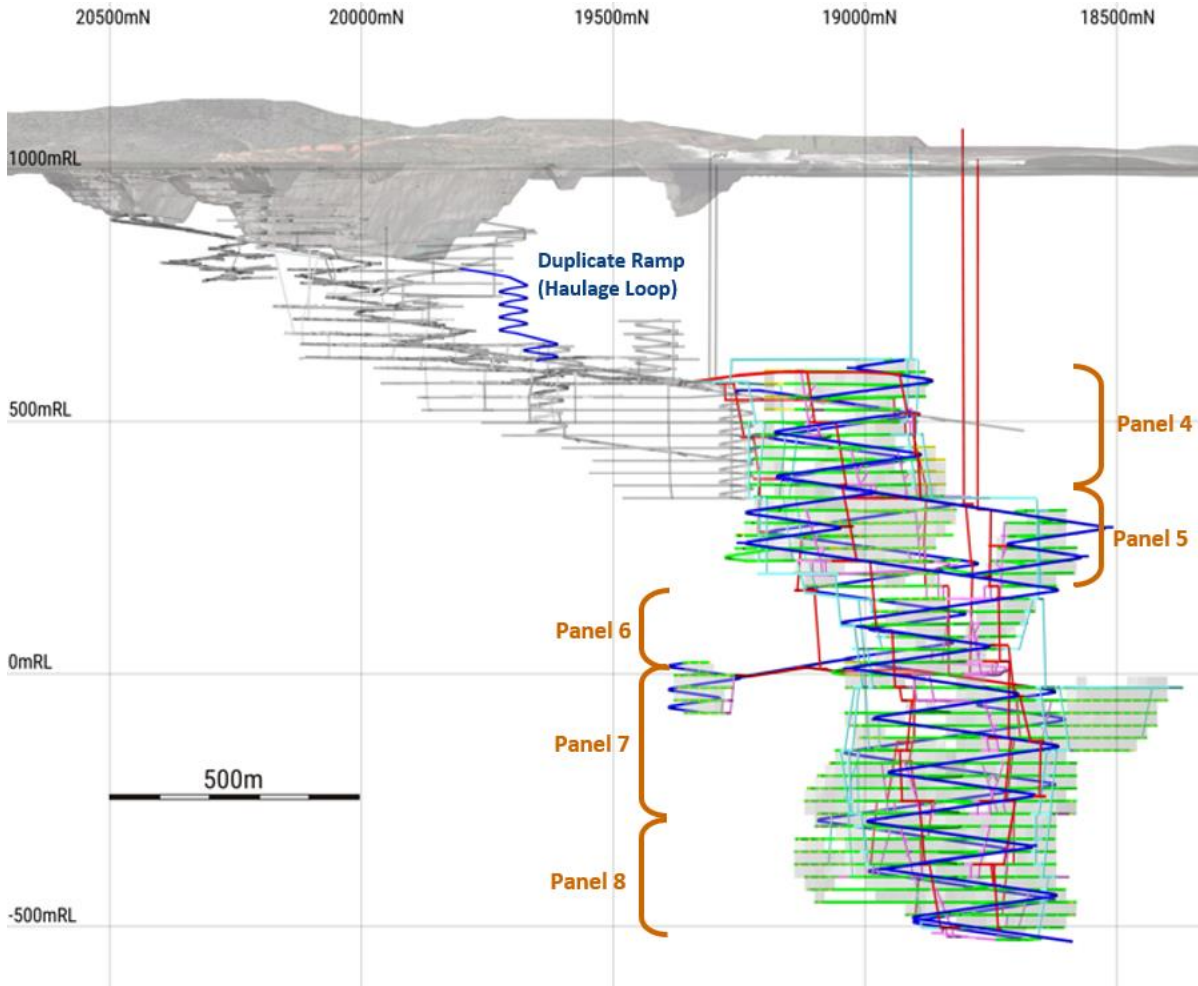
- Local procurement (>80% in 2020)
- Payroll taxes
- Community development fund
- Investment in Golden Star Palm Oil Plantations



PRELIMINARY ECONOMIC ASSESSMENT

Planning Production Growth at Wassa

WASSA PEA – Highlights



Production – >70% Production Growth¹⁰



Ave. Rate
294 koz/yr
11 yr life / 6 yr dev't

LOM production
3.46 Moz

Unit Costs – 13% Reduction AISC^{2,10}



Ave. Cash opex/oz
\$551 /oz

Ave. AISC/oz²
\$778 /oz

Utilize Installed Capacity – No Additional Permitting



Mining Rate
2.4 – 2.7 Mtpa
6,700 – 7,400 t/d

Processing Capacity
2.7 Mtpa
7,400 t/d

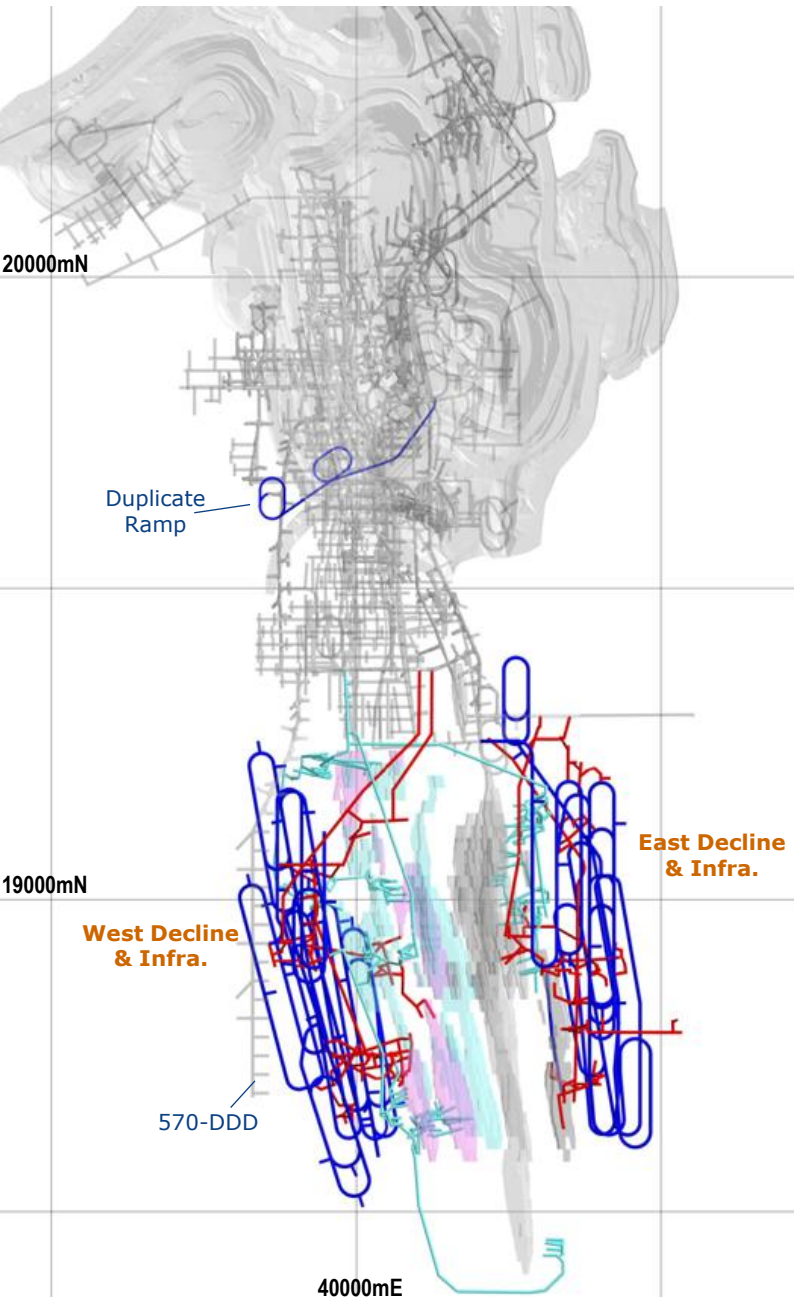
Valuation



NPV¹¹ 5%
Base case
(\$1,300 /oz)
\$452 M

NPV¹¹ 5%
Consensus case
(\$1,585 /oz)⁴
\$783 M

WASSA PEA – Underground Production System



Infrastructure

Duplicated infrastructure – effectively building two neighbouring mines to remove production constraints:

- **Access, Definition:** initial drilling can be done from either side of mineralization without having to establish development for step-out drill platforms.
- **Access, Production:** allows establishment of multiple fronts over large footprint (c.600x400 m).
- **Ventilation:** networks on each side minimize interactions and gets fresh air to working faces first.
- **Haulage:** two declines provide one-way traffic loop, improving efficiency. Trucking capacity delivers plan (confirmed by simulation) with reduced upfront capital demand than infrastructure solutions.
- **Egress:** provided by the two access ramps.

Key Risks & Mitigations

RISK: Understanding of Mineral Resource
PEA is based entirely on an inferred resource.

- Definition drilling is integrated to PEA plan and drilling of Panels 4-5 has commenced in 2021.

RISK: Underground Ore Production Rate
+65% ore rate, from depth with PEA level studies

- PEA plan effectively duplicates accesses currently in place, plus additional capacity for ventilation (volume & refrigeration) and materials handling.

RISK: Capital and Operating Costs
PEA level estimate for large expenditure over long life.

- Most costs estimated from performance of established operations, although PEA extends beyond current mine operating limits (rate and depth).

Flexible Methodology

Panels include multiple production blocks which will drive the production rate:

- Independent Infrastructure allows production from multiple blocks in parallel.
- Flexible layout – can fit to mineralization geometry.

Additional Opportunities

OPP: Expedite Definition Drilling
Geological risk included in PEA plan. Growth potential.

- Lower conversion assumed for deeper panels – more geological knowledge will remove this risk constraint.

OPP: Design Optimization
Improvements identified during PEA.

- Reduce development through increased level spacing and improve efficiency with larger stope dimensions and optimising vent system (design and haul opti.)

OPP: Haulage Optimization
PEA assumes continuing established haulage system.

- Improve value and emissions by with infrastructure investment (shaft/conveyor/etc) and/or technology application (automation, electrification).

WASSA PEA – Geological Knowledge is Key

Geological Risk in PEA

PEA is based entirely on inferred mineral resource, risk has been considered

- Moderate conversion of inferred resource assumed
- More conservative factors applied in deeper panels to match risk where inferred resource is less defined.

	Units	Panel 4	Panel 5	Panel 6	Panel 7	Panel 8	Total	
Mineral Resource, Inferred	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	0.74	2.52	2.14	7.3	
PEA Inventory	Mt	4.0	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 Inv.		54%	49%	48%			50%	
Cut-off		2.3 g/t		2.9 g/t			-	
Modifying		7.5% Dilution, 95.0% Recovery			13.0% Dil, 75% Rec.			-

Drilling to Secure and Add Value

Within the PEA Plan:

- De-risk production by sufficient definition of mining blocks before commencement of development and stoping.

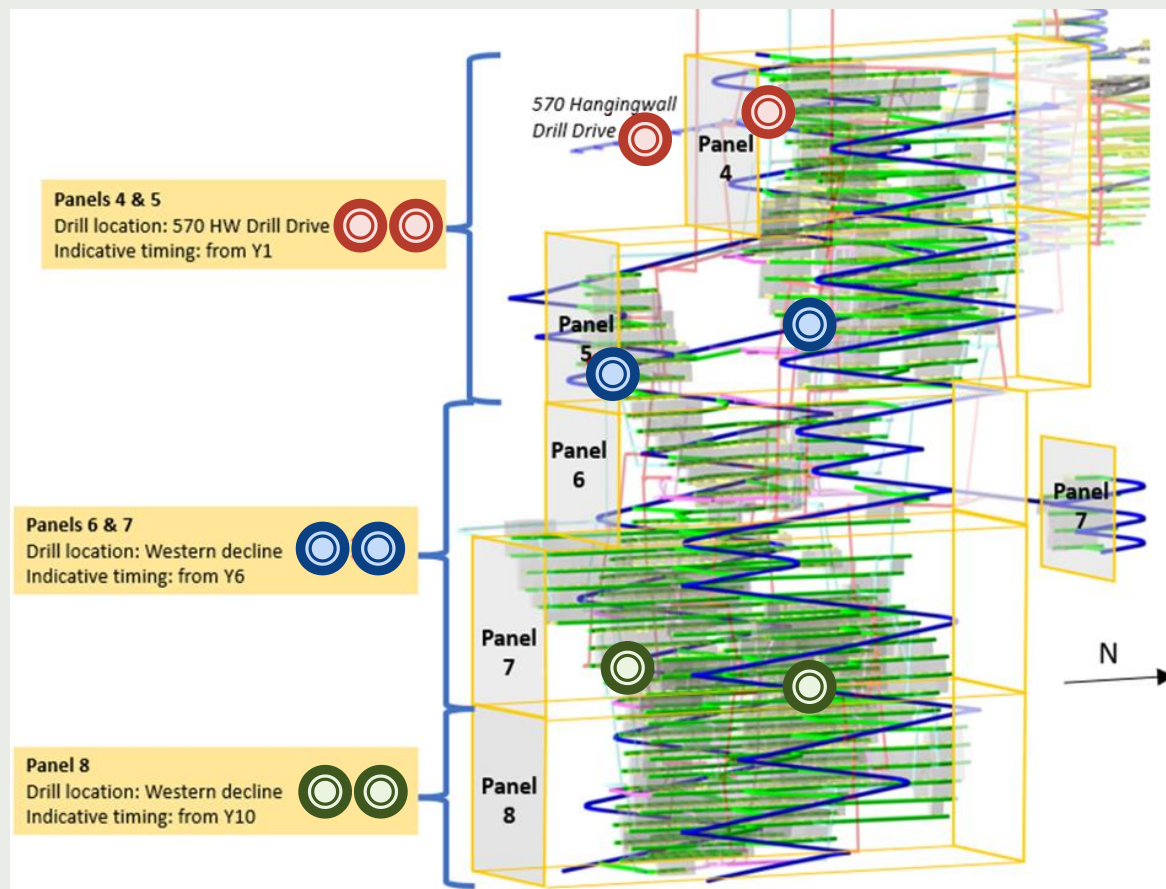
Opportunity outside the PEA Plan:

- Expedite understanding of the deeper blocks to fill gaps in Panel 6 and confirm nature of mineralization in Panels 7 and 8.
- Test extensions (south/up/down-dip) to define more mineralization.

Progressive Drilling of Inferred Mineral Resource

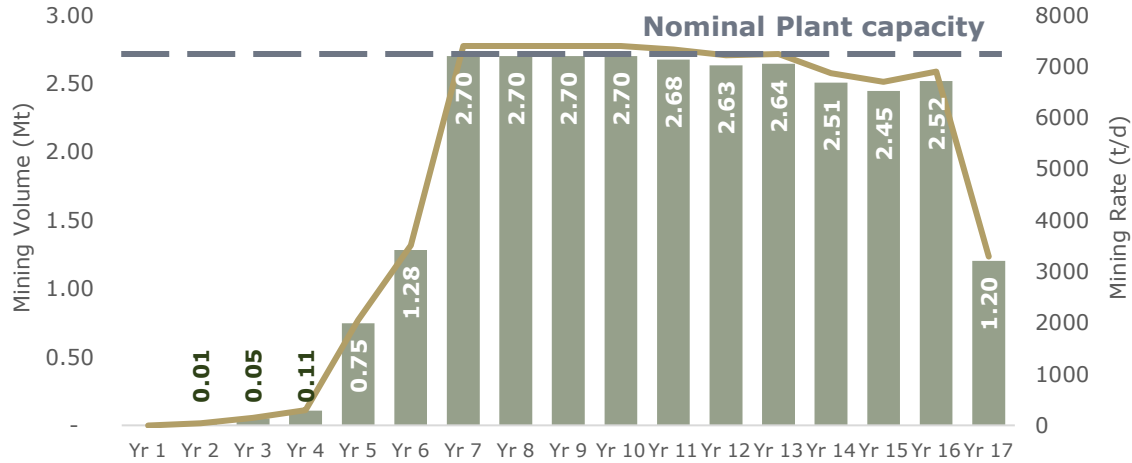
Drilling from Underground development enables progressive definition of resource.

- Panels 4-5 from Year 1 – commenced program in 2021 (570-DDD)
- Panels 6-7 from Year 6
- Panel 8 from Year 10

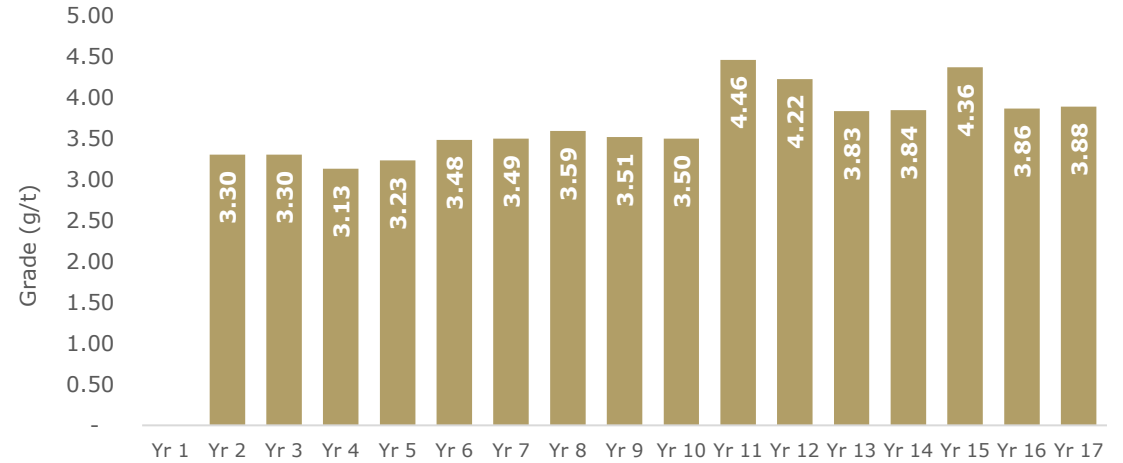


WASSA PEA – Key Statistics

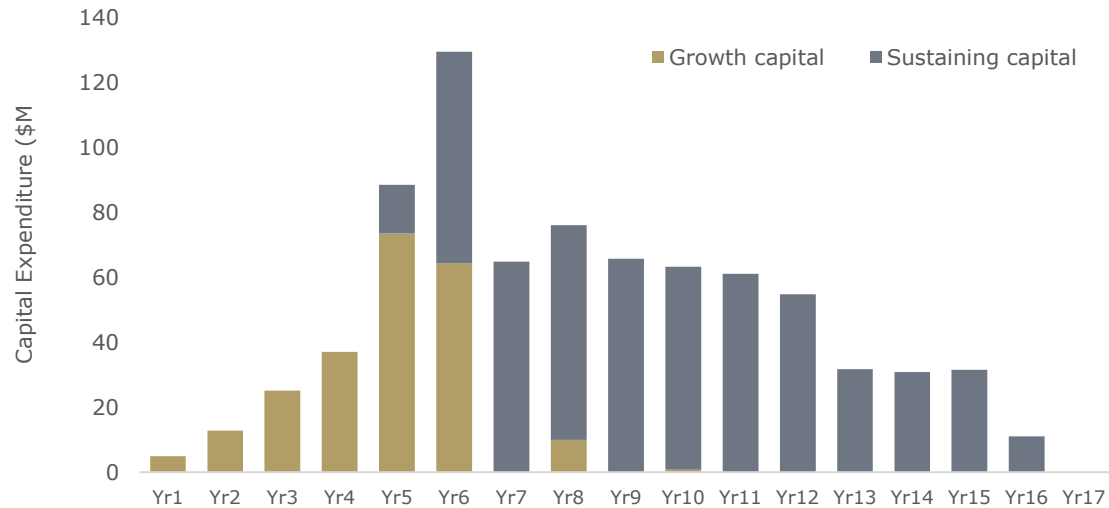
Mining Volumes (Mt & t/d) – Increasing volumes to fill mill



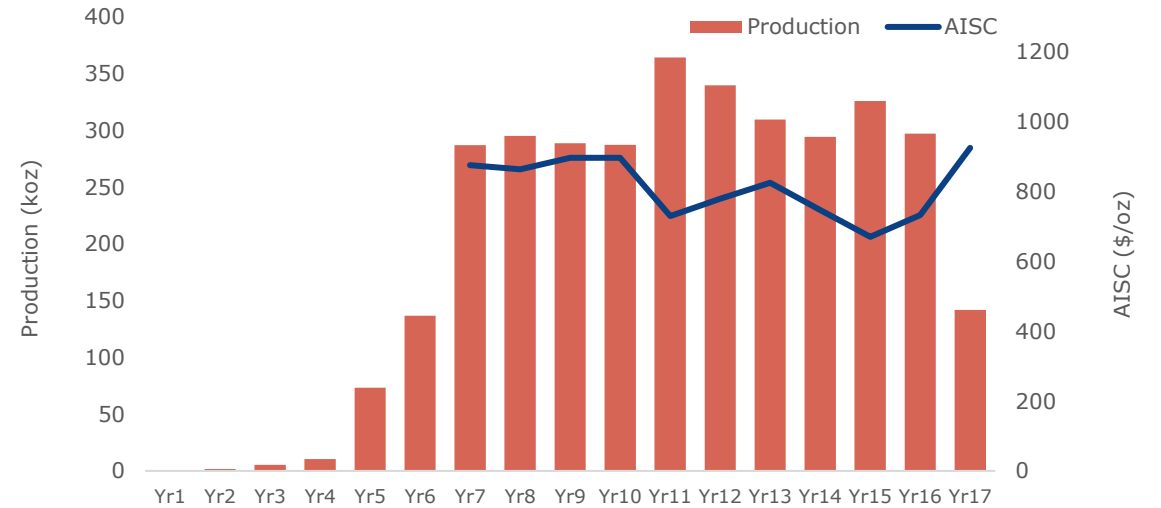
Grade (g/t) – LOM average grade 3.6g/t



Capex (\$M) – Total Growth Capex \$229m

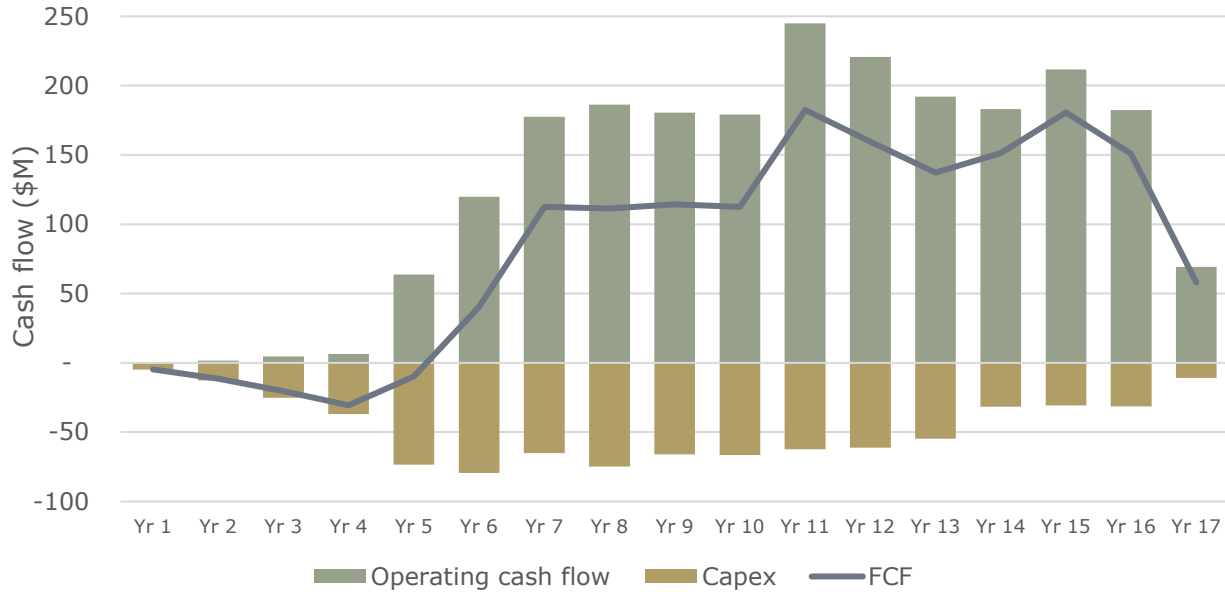


Production (koz) – 11 years av. 294 koz/yr



WASSA PEA – Economic Outcomes

Cash Flow Profile¹²



Projected Cash Flows - PEA

- Life of mine totals for the mineral reserve

Scenario:	Base	Consensus
Gold price /oz:	\$1,300	\$1,585
Total operating cash flow:	\$1,656 M	\$2,225 M
Total capital expenditure:	\$804 M	\$804 M
Total free cash flow:	\$852 M	\$1,421 M

- Cash generative down to \$917 /oz gold price

Base Case
\$1,300/oz

Consensus Gold⁴
\$1,585/oz

NPV¹¹ 5%
\$452 M

NPV¹¹ 5%
\$783 M

IRR¹¹
37%

IRR¹¹
53%

LOM FCF
\$852 M

LOM FCF
\$1,421 M

Shared Value – Local Benefits of Growth Investment

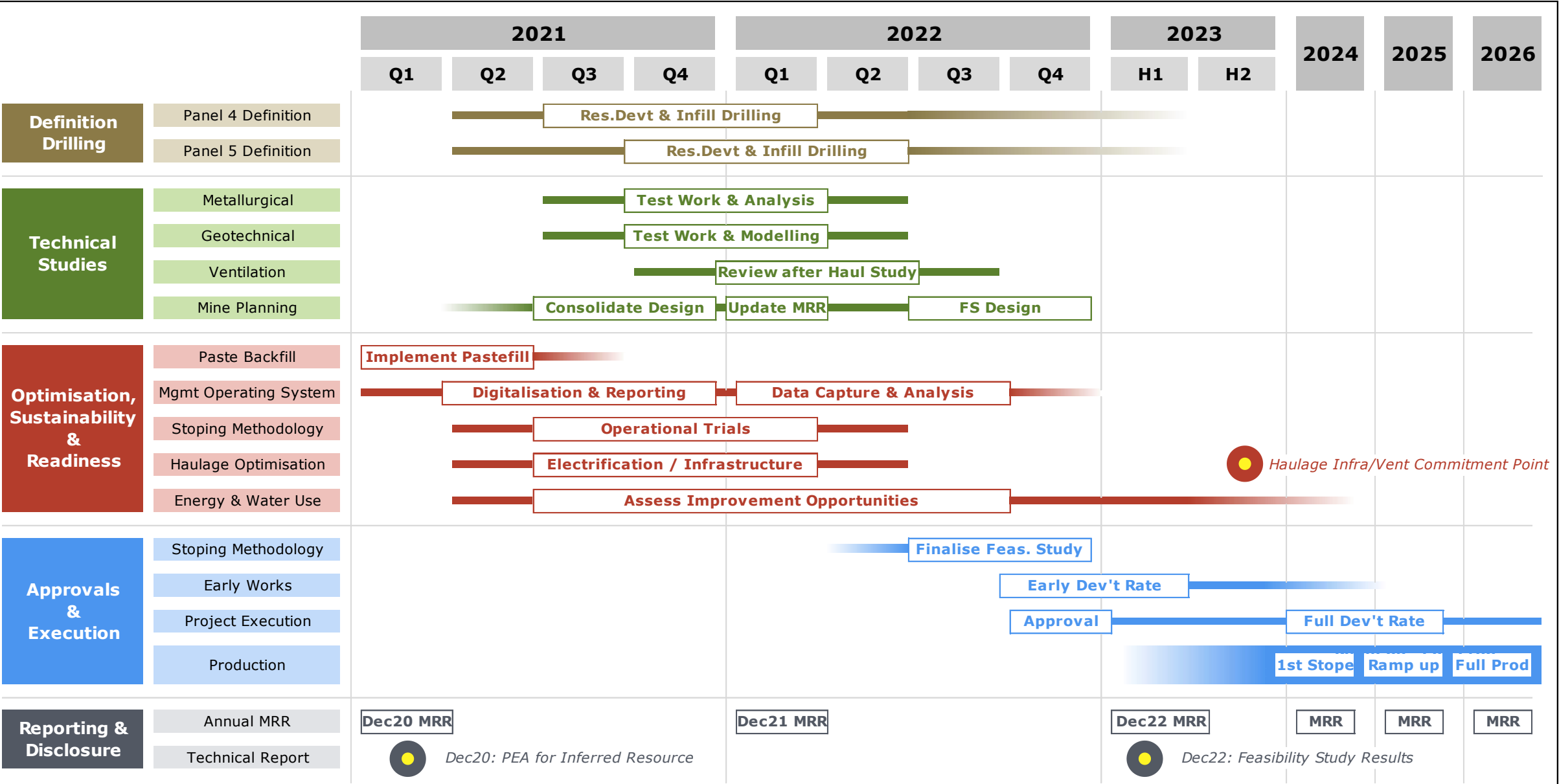
Direct life of mine contribution to Government of Ghana⁴

- Corporate tax \$854 M
- Royalties \$274 M

Other local & national participation:

- Local procurement (>80% in 2020)
- Payroll taxes
- Community development fund
- Investment in Golden Star Palm Oil Plantations

WASSA PEA – Forward Work Plan & Decision Points

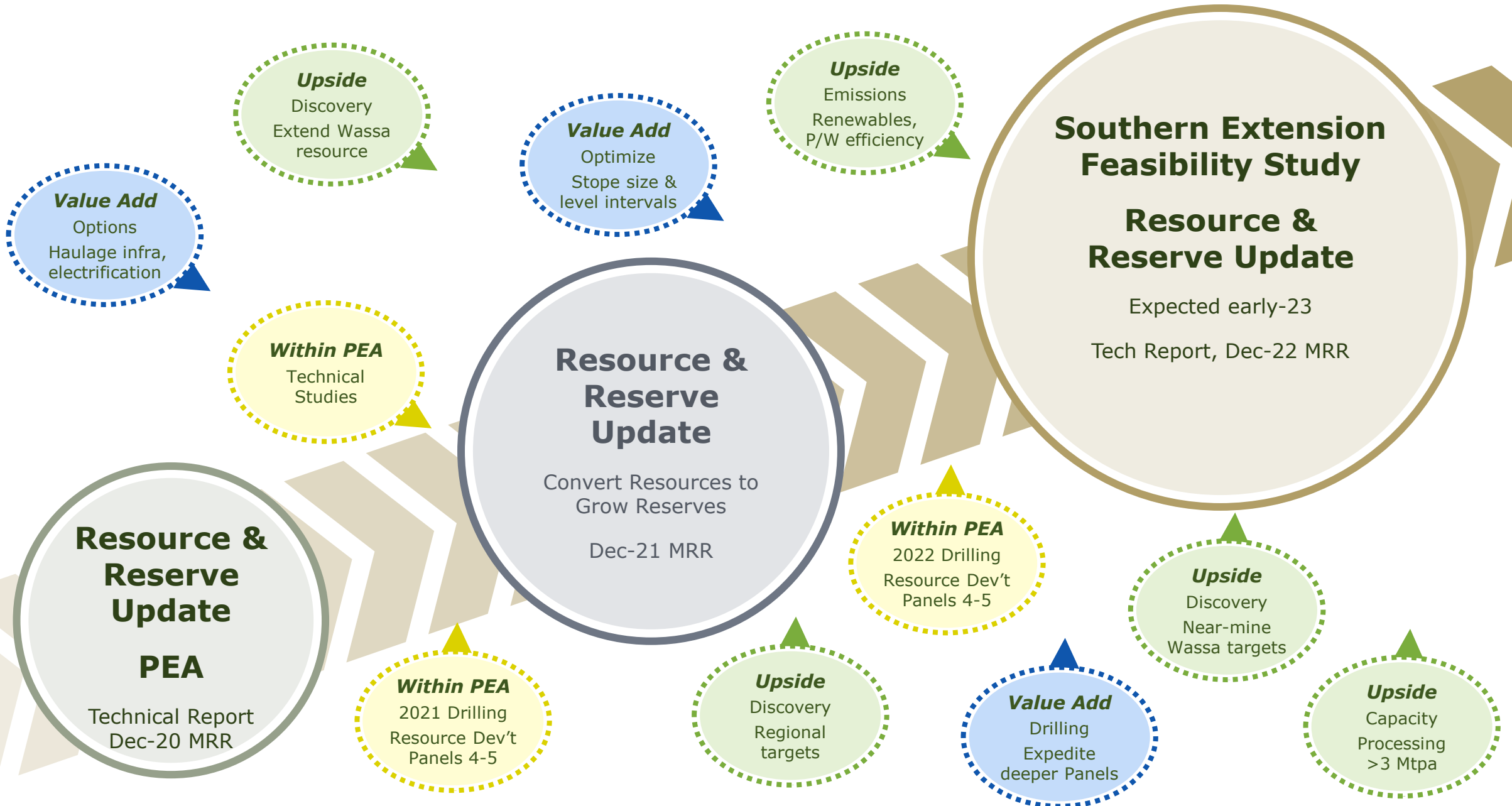


● Haulage Infra/Vent Commitment Point

● Dec20: PEA for Inferred Resource

● Dec22: Feasibility Study Results

WASSA – Development Strategy & Future Work

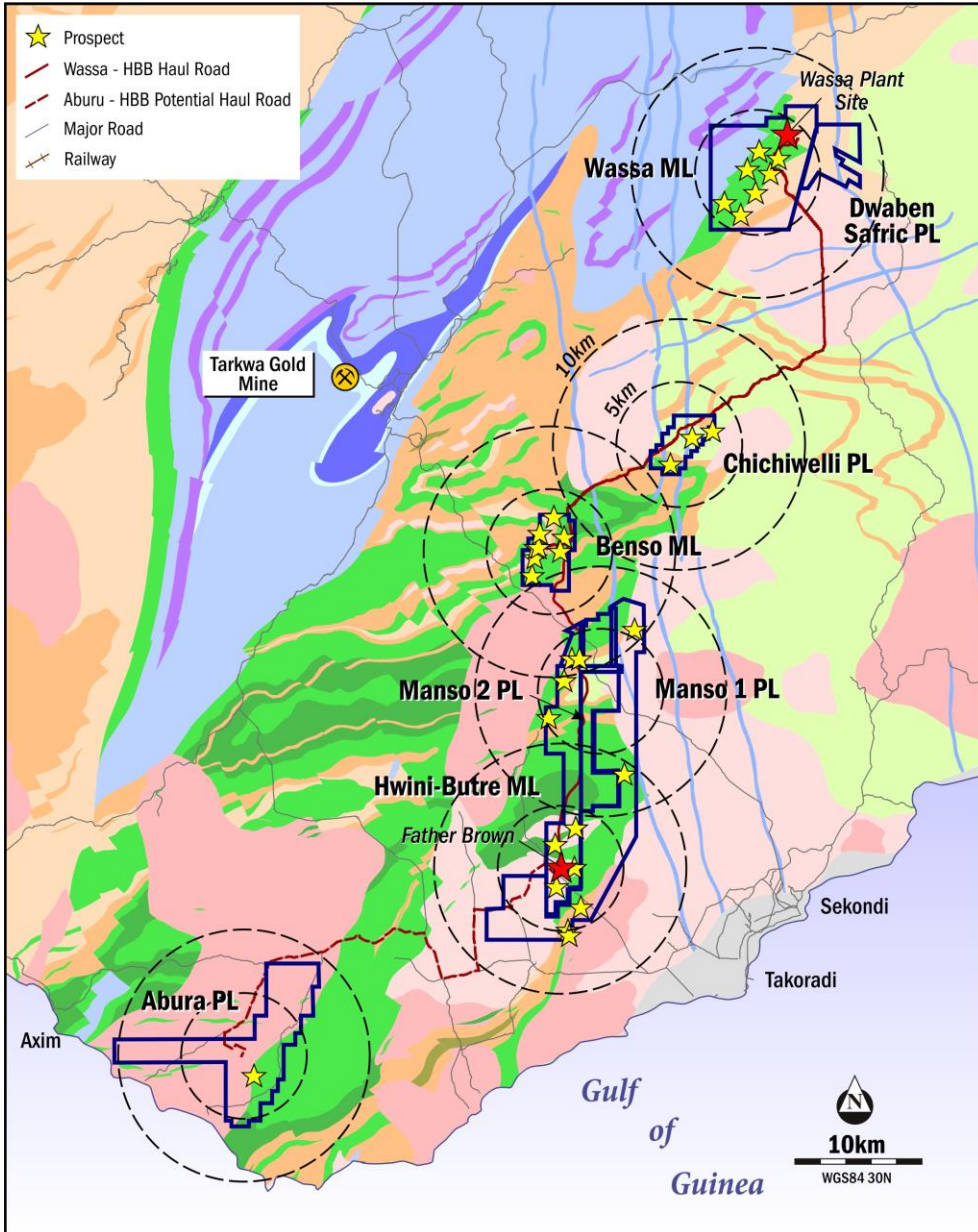




EXPLORATION & GEOLOGY

Re-evaluating a Prospective Land Package

EXPLORATION – Redefining the Exploration Strategy



History of Discovery through Exploration

In last 10 years, added 2.5 Moz M&I and 8 Moz inferred at c.\$7.30 /oz

Exploration Focus – Accelerating Activity in 2021

Exploration Guidance

\$

\$15 M

2021 Exploration budget

Exploration Strategy

- Identify opportunities to expand resources in and around the Wassa mill and accelerate those opportunities towards production
- Regional targets - Focus on standalone targets along mineralized trend south of Wassa

Exploration Opportunities

In-mine

Target extensions of mineralization around current mining areas

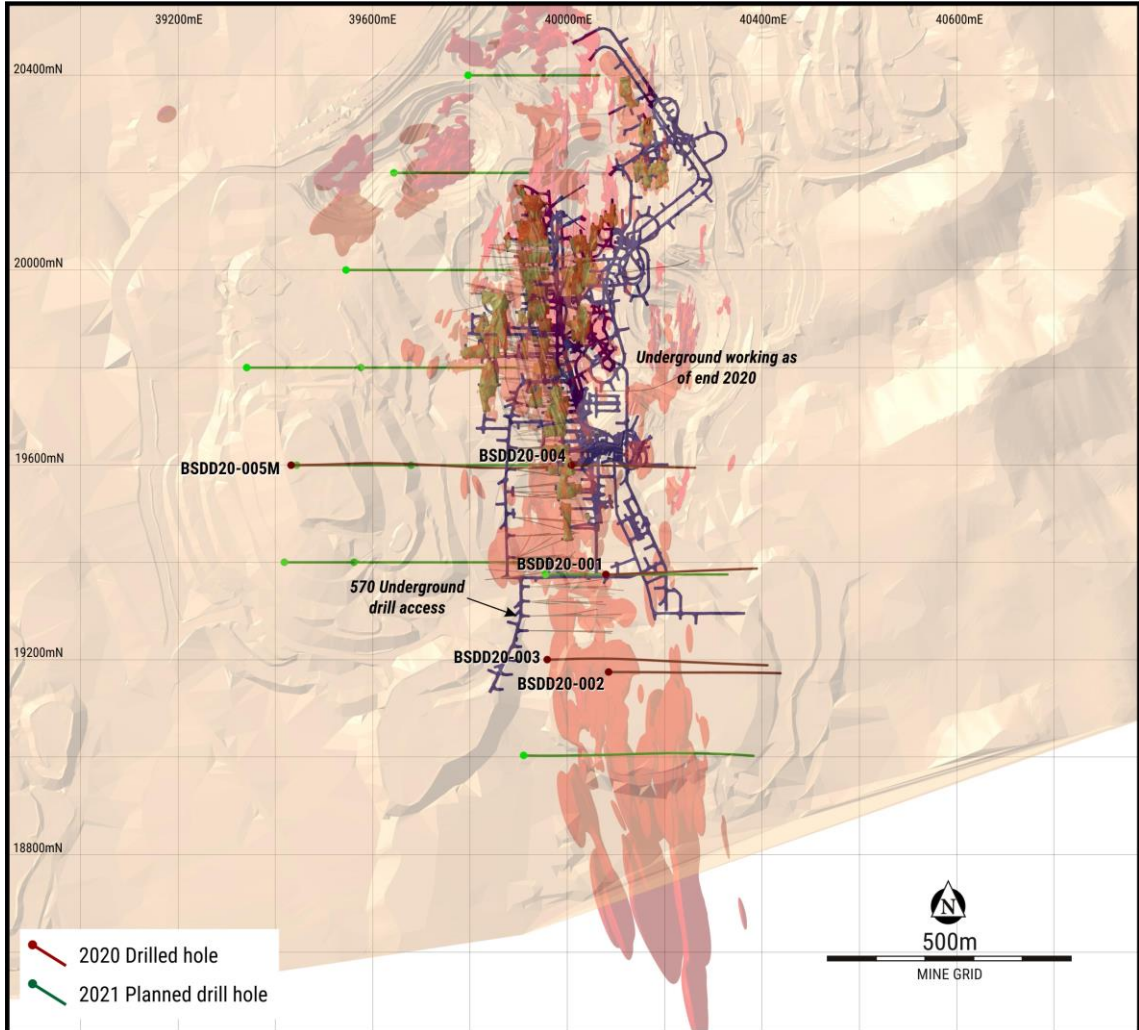
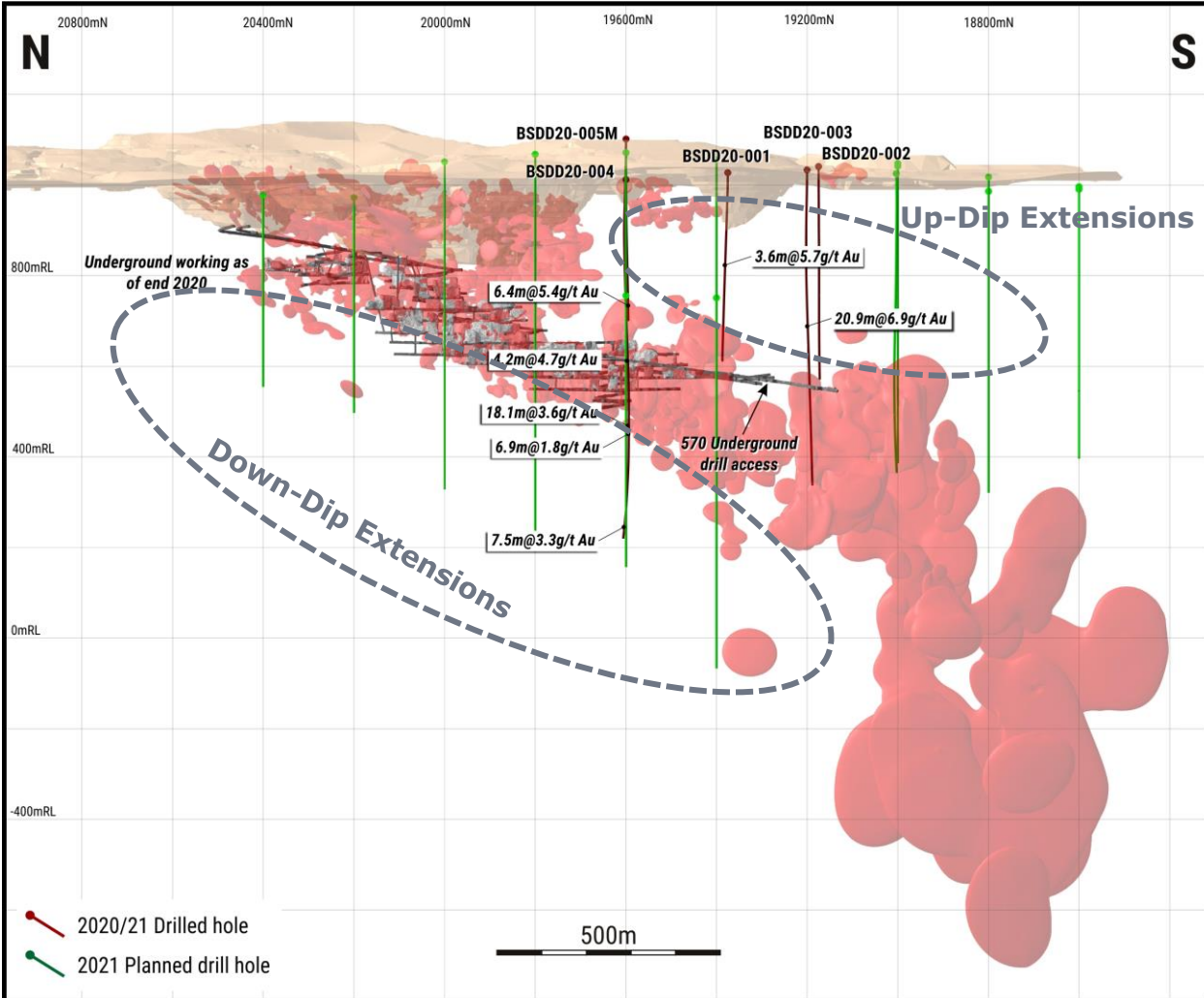
Near-mine

Target open pit mineralization within 2-10km of the Wassa mill

Regional

Target standalone deposits to generate development opportunities

EXPLORATION – In-mine Extension Opportunities

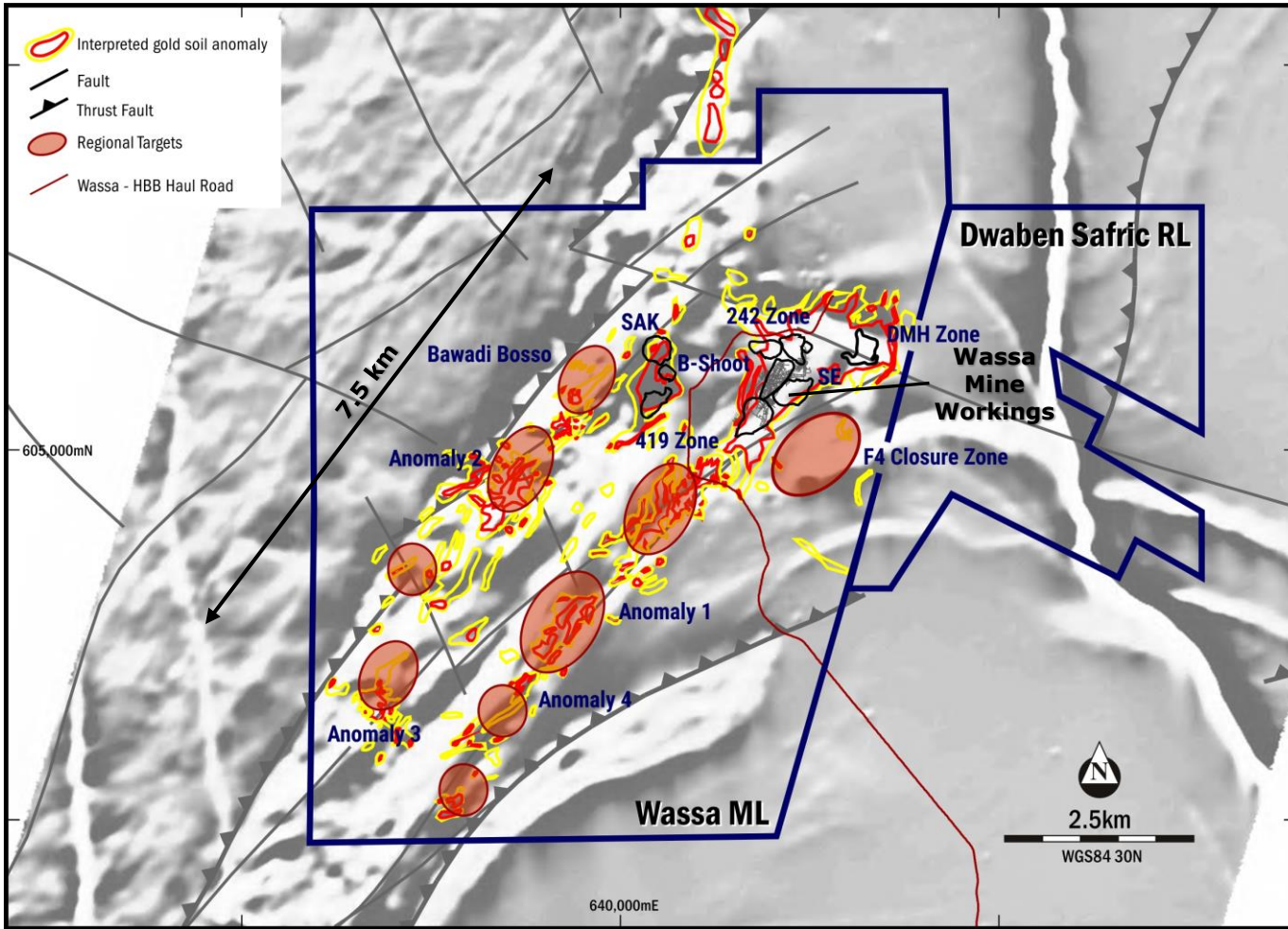


Q4 2020 drilling delivered positive results identifying potential up-dip & down-dip extensions of B-Shoot

Drill targets sit within 200m of existing infrastructure & planned development

Additional drilling planned for 2021 to test further extensions of B-Shoot

EXPLORATION – Near-mine Targets Adjacent to Infrastructure



Wassa Near-Mine Targets

Targeting discovery of new gold deposits within trucking distance of Wassa mill

Numerous multi-kilometre scale gold-soil anomalies still to be tested

Targets all within 2-10km of Wassa

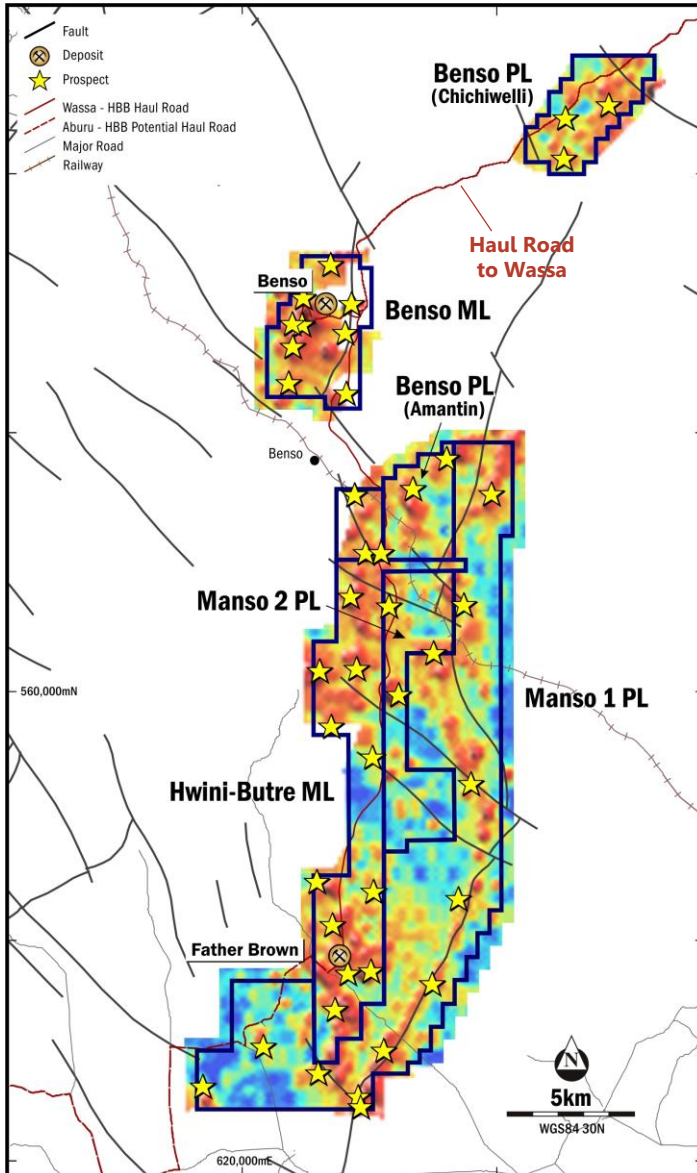
Proximity to existing processing infrastructure could see exploration success at these targets quickly advanced

2021 Work Program

- A total of 8 targets to be tested in 2021, ~\$7m budget
- 27,000 m of RC and DD drilling planned, 9,000 m of AC drilling
- Goal is to test these targets and move the projects up the exploration pipeline for further inferred mineral resource addition drilling in 2022 and beyond

EXPLORATION – Regional Package with Standalone Potential

+30 Gold Targets Identified



2021 Work Program

Historical work

- Regional exploration across Chichiwelli, Benso, HBB and Abura project areas has identified more than 30 targets for field follow-up.
- Targets identified and delineated with surface geochemistry, geological and geophysical interpretation, historic RAB drilling, and field validation.

2021 Work program

- 11 of the 30 + targets to be tested in 2021.
- Historical open pits at Benso show higher grade cores which could form underground targets. 9,000 meters of RC and DD drilling is budgeted to test this potential.
- 50,000 meters of AC drilling will follow up on the soil geochemical anomalies that were defined during 2020 and in past programs. Pending positive AC results 14,000 meters of deeper reverse circulation drilling with diamond core tails is planned for initial follow-up.

Regional Package

Defined Resources plus Upside

Indicated Mineral Resource

0.5 Moz

Inferred Mineral Resource

0.5 Moz

Inferred Mineral Resource

30+ Targets

Existing Mineralization

Father Brown/Adoikrom

Indicated Resources: 335 koz (1.3 Mt at 8.0 g/t)
Inferred Resources: 454 koz (2.7 Mt at 5.3 g/t)

Benso

Indicated Resources: 111 koz (1.4 Mt at 2.5g/t)
Under pit intercept 15.5 m at 6.2 g/t

Chichiwelli

Indicated Resources: 62 koz (1.1 Mt at 1.8 g/t)

Manso North (Angu)

3-5km long gold anomaly (>100ppb)
Historical testing – Auger drilling

Abada & Apotunso

High grade quartz vein & shear
Intercepts include 8m at 5.48g/t



FINANCIAL POSITION

Creating Financial Flexibility

YEAR END BALANCE SHEET – Transitioning to positive Net Assets

FY 2020 Balance Sheet

Balance Sheet Position - \$m	2019	2020	Change
Assets			
Cash and cash equivalents	53.4	60.8	7.4
Accounts receivable	6.5	23.8	17.3
Inventories	38.8	30.6	(8.2)
Prepays and other	7.1	6.5	(0.6)
Total Current Assets	105.8	121.7	15.9
Restricted cash	2.1	2.1	-
Non-current receivables	-	12.6	12.6
Mining interests	264.7	207.4	(57.2)
Total Assets	372.6	343.9	(28.7)
Liabilities			
Accounts payable and accrued liabilities	88.4	41.3	(47.1)
Current portion of rehabilitation liabilities	5.8	2.0	(3.8)
Current portion of deferred revenue	11.2	7.6	3.6
Current portion of long-term debt	16.0	50.0	34.0
Current portion of derivative liability	0.2	3.3	3.1
Current income tax liabilities	0.8	12.8	12.0
Total Current Liabilities	122.4	117.1	(5.3)
Rehabilitation provisions	62.6	15.6	(47.0)
Deferred revenue	102.8	96.9	(5.9)
Long term debt	90.8	55.7	(35.1)
Derivative liability	5.6	1.7	(3.9)
Deferred tax liability	20.6	31.1	10.5
Total Liabilities	404.7	318.1	(86.6)
Equity			
Equity attributable to Golden Star shareholders	50.4	5.9	(44.5)
Non-controlling interest	(82.5)	19.9	102.4
Total Shareholders Equity	(32.1)	25.8	57.9
Total liabilities and shareholder's equity	372.6	343.9	(28.7)
Net asset position	(32.1)	25.8	57.9
Current net asset position¹³	(5.2)	15.6	20.8
Net debt position	53.4	44.9	(8.5)

FY 2020 Balance Sheet Transformation

Bogoso-Prestea Sale

Prestea sale transforms balance sheet

- Removal of Prestea operating losses releases Wassa cash generation for investment in growth and exploration
- \$34m total cash proceeds by 2023 (including \$19m by July 2021)

Financings – Creating Balance Sheet Flexibility

Macquarie credit facility amended on October 8, 2020

- Rescheduled amortization profile and expansion of facility to \$70m provides \$35m of additional liquidity in the short term

At the Market ("ATM") - \$50m program

- Use of proceeds: discretionary growth capital, exploration and general corporate purposes

2020 Financial Outcome

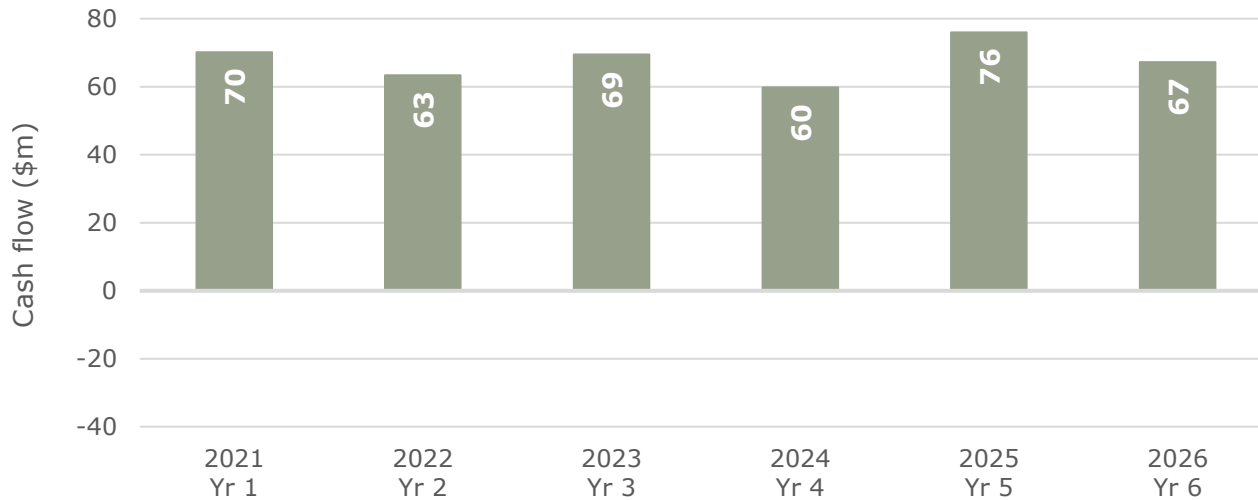
\$51m reduction in rehabilitation liabilities largely resulting from sale of Bogoso-Prestea

**Normalization of working capital
\$47m reduction in payables**

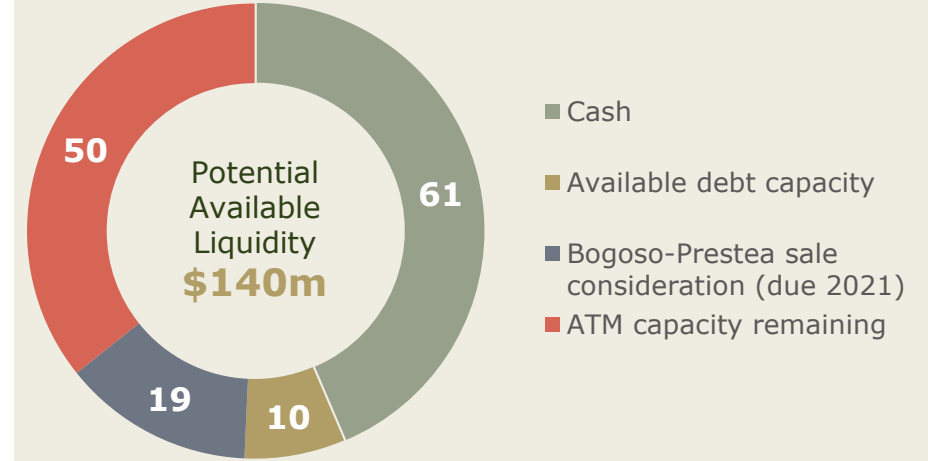
Transition to positive net asset position

BALANCE SHEET – Investment in Future Growth Funded from Cash Flow

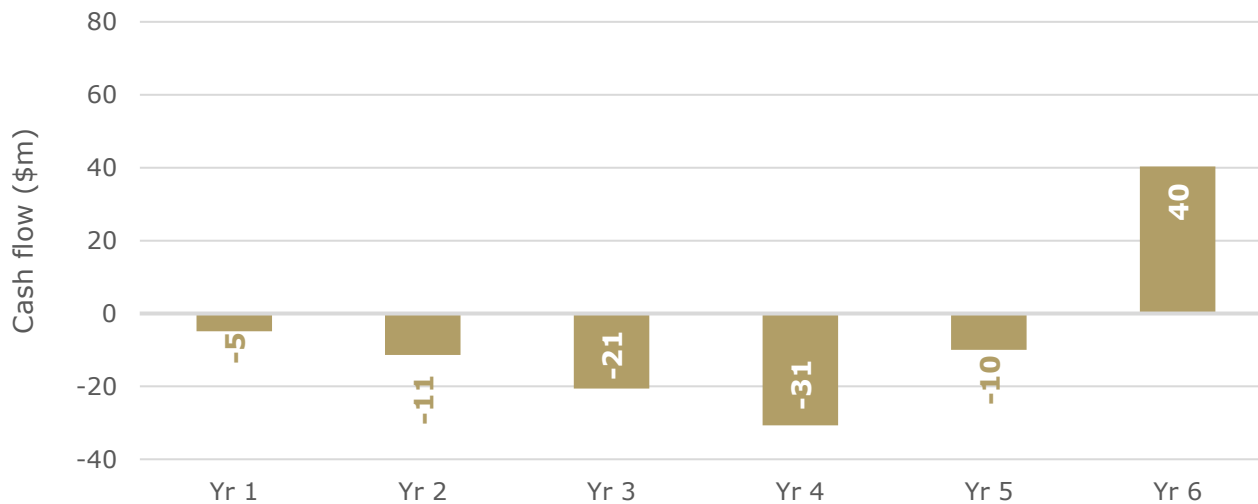
Reserve Mine Plan FCF – Consensus gold forecasts^{2,3,11}



Liquidity (\$m)



PEA Mine Plan FCF – Consensus gold long term forecast^{2,4,11}



Financing Growth

Development strategy limits upfront capital demand for the PEA Plan

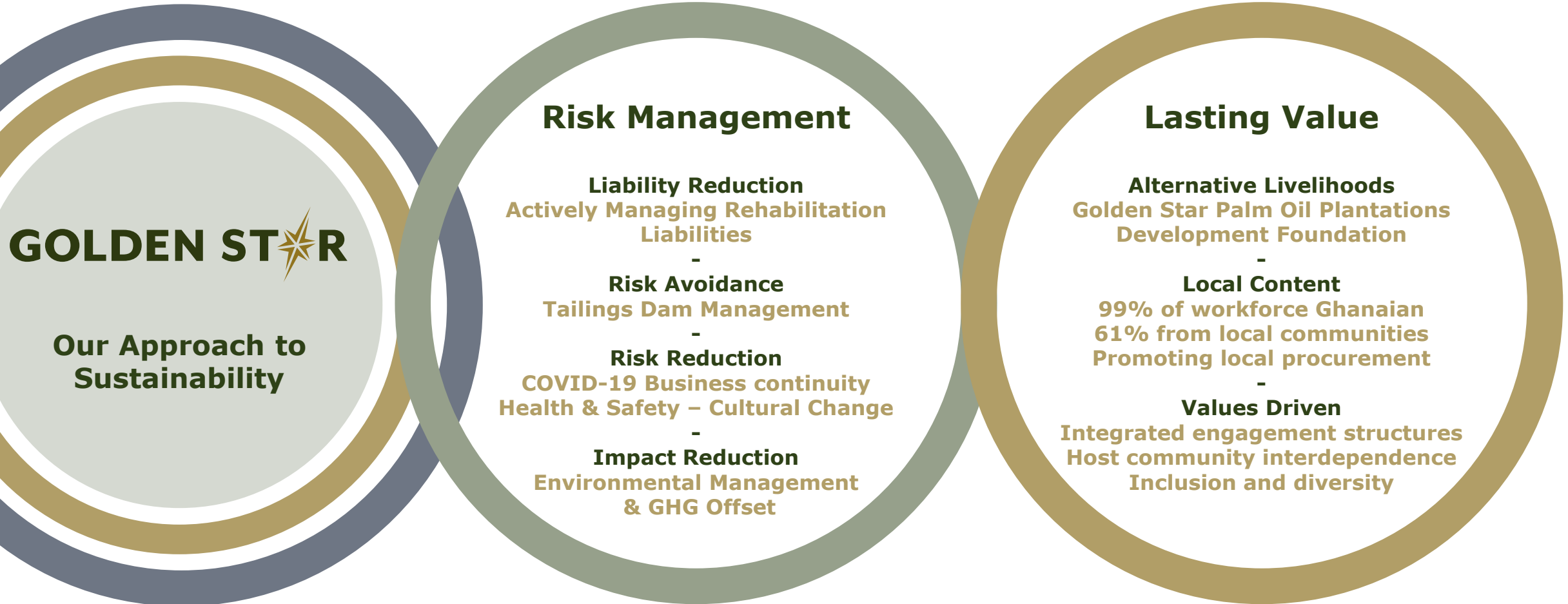
Investment focuses on drilling and development to unlock increased mining rates

Wassa cash generation expected to be sufficient to fund investment in PEA Plan even at gold price assumptions considerably below the current spot price



SUSTAINABLE GOLD MINING

Risk Management and Creating Lasting Value



GOLDEN STAR

Our Approach to Sustainability

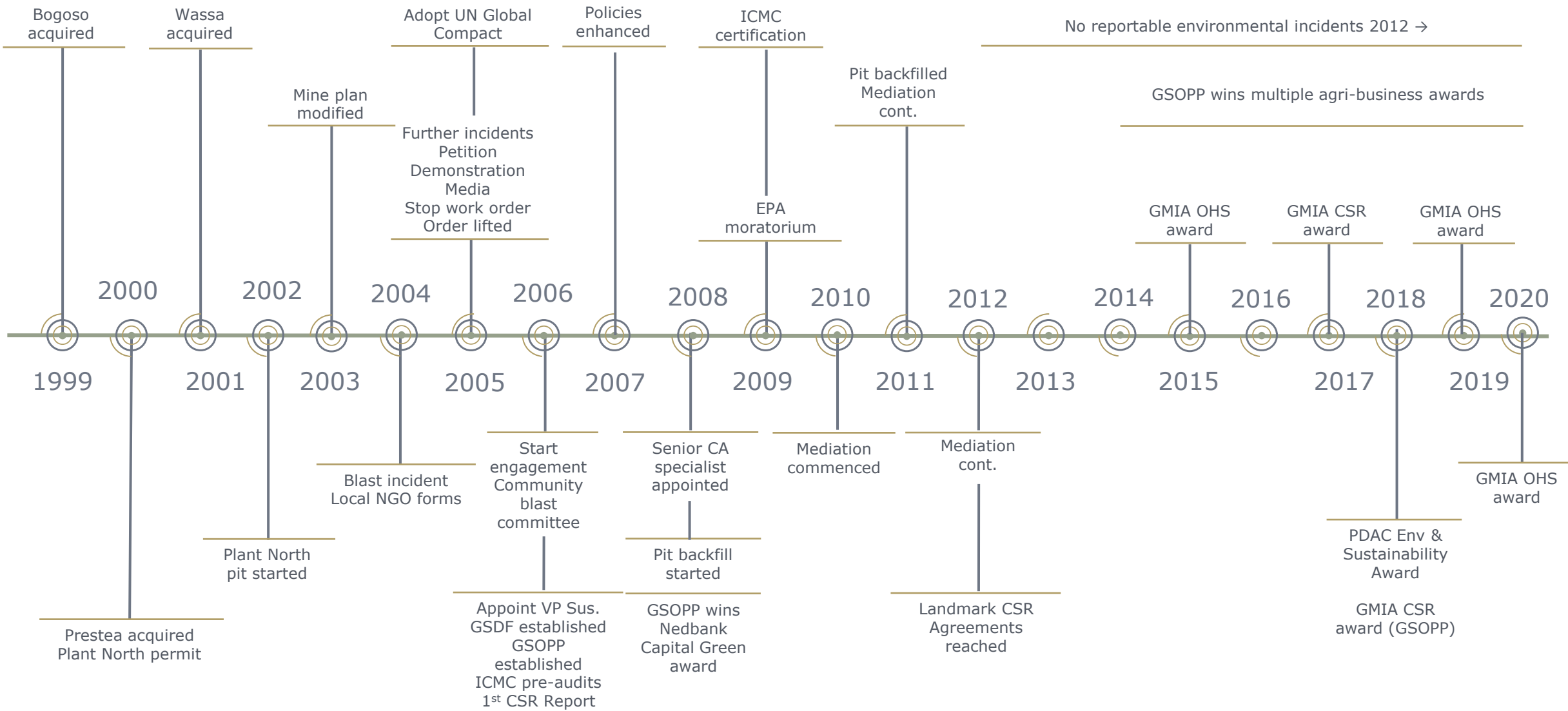
Risk Management

- Liability Reduction**
Actively Managing Rehabilitation Liabilities
-
- Risk Avoidance**
Tailings Dam Management
-
- Risk Reduction**
COVID-19 Business continuity
Health & Safety – Cultural Change
-
- Impact Reduction**
Environmental Management & GHG Offset

Lasting Value

- Alternative Livelihoods**
Golden Star Palm Oil Plantations
Development Foundation
-
- Local Content**
99% of workforce Ghanaian
61% from local communities
Promoting local procurement
-
- Values Driven**
Integrated engagement structures
Host community interdependence
Inclusion and diversity

GOLDEN STAR RESOURCES – Sustainability Journey



In the beginning...
Good intentions not always well executed

then...
Listening, learning and re-earning trust

Now
Integrated sustainability focus

ALTERNATIVE LIVELIHOODS – Golden Star Oil Palm Plantations



Overview

- Flagship sustainability and social enterprise initiative
- Zero deforestation, endemic oil palm plantation over 1,500 hectares
- Multiple award winning project – mining and agribusiness awards
- Roundtable for Sustainable Palm Oil (RSPO) certified buyer

Integrated Sustainability

- High value agribusiness
- Commercial enterprise providing valued livelihoods
- Farmer business units operate over 1,500 Ha of plantation
- Buffer zone protection – avoids encroachment
- Roundtable for Sustainable Palm Oil (RSPO) certified buyer
- Plantation business in first phase of scheme smallholder RSPO certification
- Growth plan incorporates downstream processing
- Subsistence farms or former mined lands – no displacement
- A third of workforce are female

Value Retention

- Supports over 700 families
- Self-funding revegetation / post-mining land use
- Oil palm biomass recognized as carbon sink
- Revolving fund as savings model for re-planting



SOCIAL IMPACT – A Positive and Lasting Impact



Leading Practices

- High local content: workforce 99% Ghanaian and 61% local
- High local procurement spend: >80% of spend in Ghana
- Providing national health insurance scheme for all employees
- Community MOUs institutionalised into operations

Social Licence Secured

- Established community development support – >55 safe water systems in over 12k households
- Partnerships: health outcomes and national systems
- COVID-19 leadership and support to host communities
- Education: schools, scholarships, girl child programs, education support for >2,500 dependents of employees
- Partner with Ghana Education Service on model school

Integral Value Being Realised

- Workforce productivity – leading practice malaria prevention program, case rates <0.3 cases per capita
- Low turnover
- Engagement structure enhancement: > women and youth

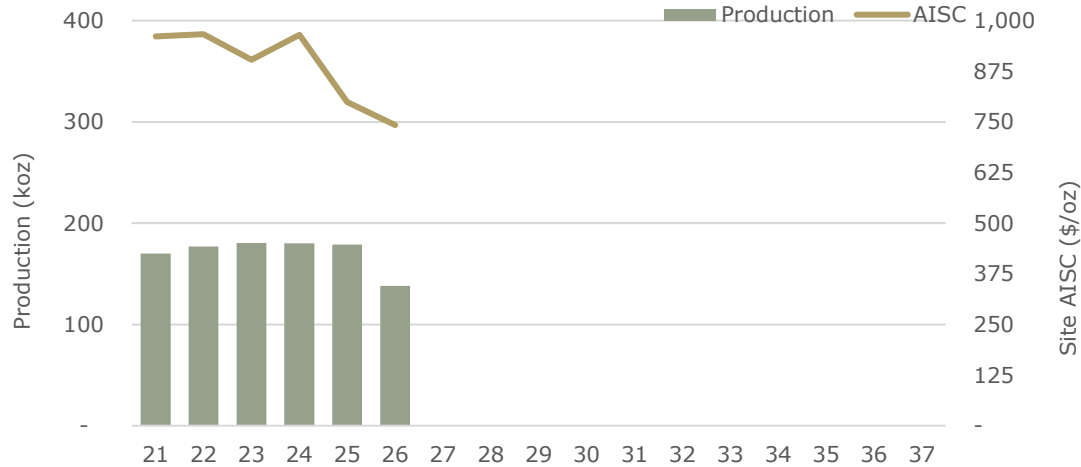
Even More Value To Be Created

- Increase gender diversity +20% over next 5 years from 7%
- Ladies group promotes opportunities for local women
- WIM UK partnership - intern & graduate entry to industry

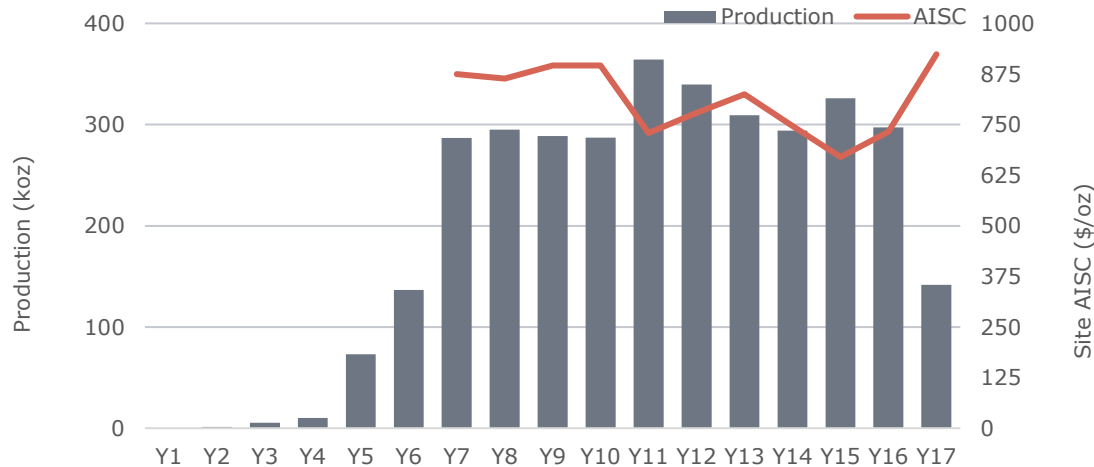


WASSA – Potential for Significant Upside in Mine Life & Production

Reserve Mine Plan | 6 year life



PEA | +10 years life & 76% production increase^{10,14}



New infrastructure & Improving Geological Confidence









Gas-fired power plant operational Q1 2021	Paste fill plant operational Q1 2021	80% 2021 plan measured resource	Continuing infill drilling in 2021
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Brownfield Expansion – Lower Risk Proposition

Fully Permitted	Grid & Captive Power Supply	Proven Processing Plant	Skilled Workforce in Place
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Dual Decline Design
Low upfront capital, reduced delivery risk and increased flexibility

SUMMARY – PEA Indicates Significant Growth of Production and Mine Life

Wassa Growth Opportunity	Reserve Mine Plan			
	 Ave. Production 177koz/year	 Average AISC^{1,2} \$881/oz	 Mine life 6 years	 NPV^{3,11} \$336m
	PEA Life of Mine Extension (excludes Reserve plan)			
	 Ave. Production 294koz/year	 Average AISC^{1,2} \$778/oz	 Mine life 11 years	 NPV^{4,11} \$783m
Exploration	2021 - The first extensive investment in systematic exploration			
	Delineate extensions of underground mineralization	Delineate surface targets within 5-10km of Wassa mill	Test 90km gold belt for standalone targets	
Balance Sheet	Address 7% convertible debentures (Maturity August 2021)		Current available liquidity \$140m	

Catalysts - Next 12 months	
Balance Sheet Repayment of the 7% convertible debentures on maturity in August 2021	
<hr/> Infrastructure Paste fill plant, captive power plant and electrical upgrades due to be commissioned in Q1 2021	
<hr/> Definition Drilling Increased investment in infill drilling at Wassa Underground aimed at resource to reserve conversion	
<hr/> Exploration Exploration spend accelerating in 2021 Systematic program testing of in mine, near mine and regional targets	

FOOTNOTES & ASSUMPTIONS

Footnotes

1. See note on slide 2 regarding Non-GAAP Financial Measures
2. Mine site only - excludes corporate G&A
3. Based on analyst consensus short term forecasts
4. Based on analyst consensus long term forecast \$1,585/oz
5. \$1.5m capitalized exploration expense and \$2.7m expensed
6. Wassa Underground resource estimate excludes open pit and regional resources
7. Based on reserve estimate, December 2020 (excludes stockpiles)
8. Based on inferred resource estimate, December 2020
9. Includes underground ore only, excludes low grade stockpiles
10. Relative to FY 2020 performance
11. After tax, 100% basis
12. After revenue adjustment for Royal Gold stream, pre-tax
13. Excluding deferred revenue and derivative liability
14. AISC in pre-production years not included

Gold Price Assumptions

	2021	2022	2023	2024	Flat Long Term
Gold Price - Analyst Consensus	1,944	1,880	1,773	1,716	1,585
Gold Price - Base Case					1,300

THANK YOU – Q&A

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