

INVESTOR PRESENTATION – TZMI CONGRESS 2023

Astute Metals NL (ASX: ASE, “Astute” or “the Company”) is pleased to advise that its General Manager for Exploration, Mr. Matthew Healy, will be presenting today at the TZMI Congress 2023, which is to be held at the ParkRoyal Collection, Singapore.

Mr. Healy’s presentation will provide attendees with an overview of the recent strategic developments that have been made in respect to the Company’s mineral sands portfolio.

The presentation slides to be delivered by Mr. Healy are a subset of those attached to this announcement.

Authorisation

This announcement has been authorised for release by Kurt Laney, Joint Company Secretary.

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ASTUTEMETALS NL

GOVERNOR BROOME

HEAVY MINERAL SANDS PROJECT

MARKET UPDATE

ASX: ASE

November 2023



DISCLAIMER AND FORWARD-LOOKING STATEMENT

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This presentation has been approved for release by Astute's Board of Directors.

PROJECT HIGHLIGHTS

STRATEGIC LOCATION

- Western Australia - World-class Resources Jurisdiction
- 176km² of tenure in the Southwest WA Mineral Sands district
- Trucking proximity to Mineral Sands processing plants
- Electrical infrastructure on Project with sealed road access

JORC RESOURCES AND HIGH-VALUE MINERALOGY

- Recent Resource Upgrade – 93.4Mt Measured and Indicated Resources @ 4.5% HM
- HM Concentrate dominated by Ilmenite (up to 75%) and Zircon (up to 10.0%), Secondary Ilmenite (up to 14.1%), Rutile (up to 4.5%), Monazite and Garnet

PROVEN HEAVY MINERAL SEPARATION PERFORMANCE

- Bulk testwork conducted on eastern and western halves of the Project
- Slimes and oversize readily removed using conventional tech to produce HM Concentrate
- Separation of Heavy Mineral products using conventional Dry plant
- Marketable titanium and zircon products meeting standard and premium classifications

VALUE-REALISATION FAST TRACK

- Mineral Resource Upgrade Completed
- Scoping Study underway – to be completed Q1 2024



GOVERNOR BROOME LOCATION

Location

- World-class resources jurisdiction of Western Australia
- 95km from Busselton by road in Southwest Mineral Sands district

Established Infrastructure

- 105km from Iluka Processing Plant – Capel
- 135km from Doral Australia Processing Plant – Picton
- 135km from deepwater Bunbury Port
- High-voltage 132kV transmission line passes through project
- Sealed road access

Tenure

- Tenure covers 20km of mineralised strand strike
- 176km² Portfolio in 3x Retention and 3x Exploration Licences
- Exploration targets on Exploration Licence E70/5872



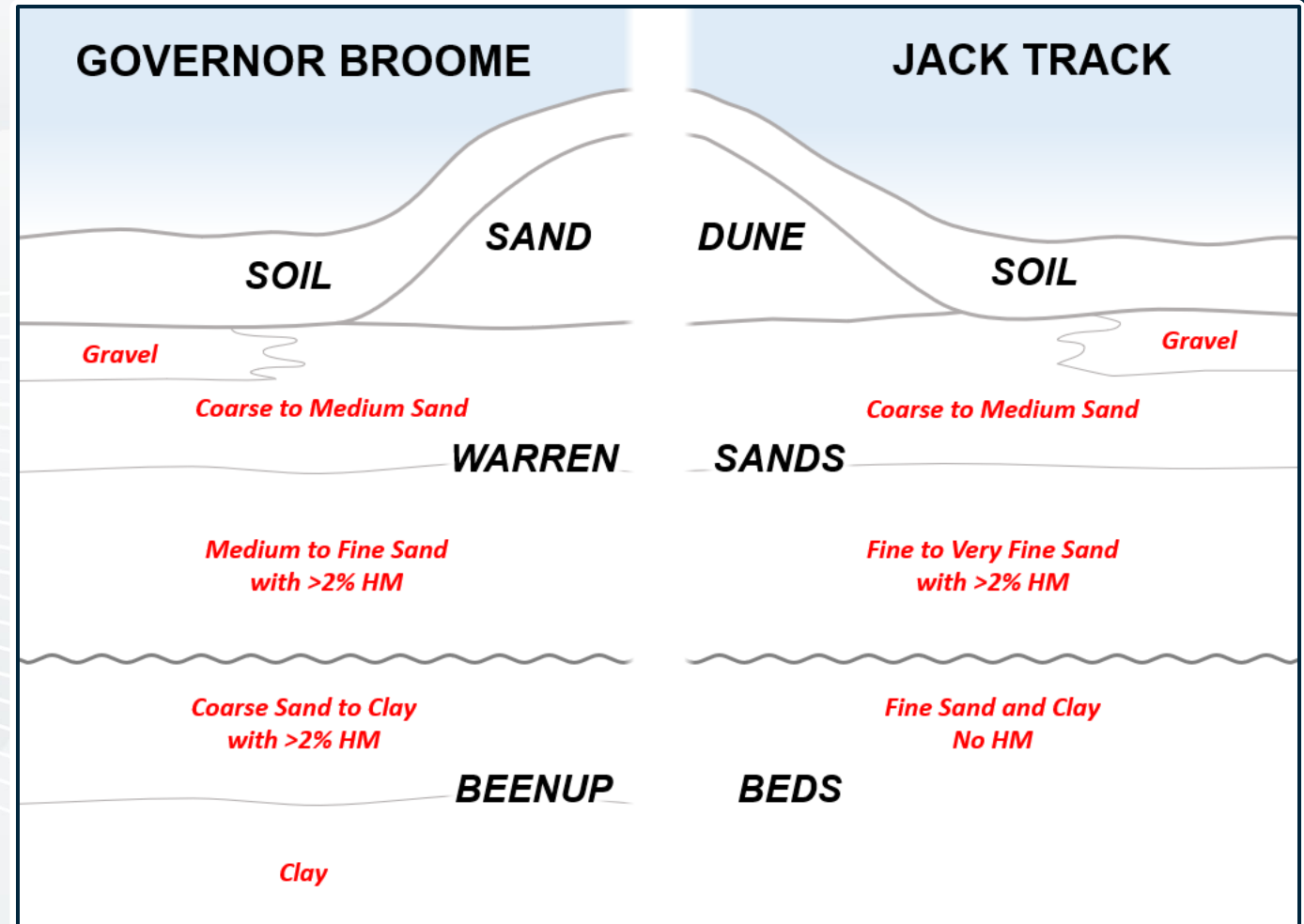
GOVERNOR BROOME GEOLOGY

Governor Broome Deposits

- The upper Warren Sands unit contains economic HM at its base
- The lower Beenup Beds unit contains 1% to 9% VHM in its top few metres, which consists of clayey sands
- Mineralisation is continuous between the West and North Deposits, with an average thickness of 4.5m and a waste-to-ore ratio of 1:1

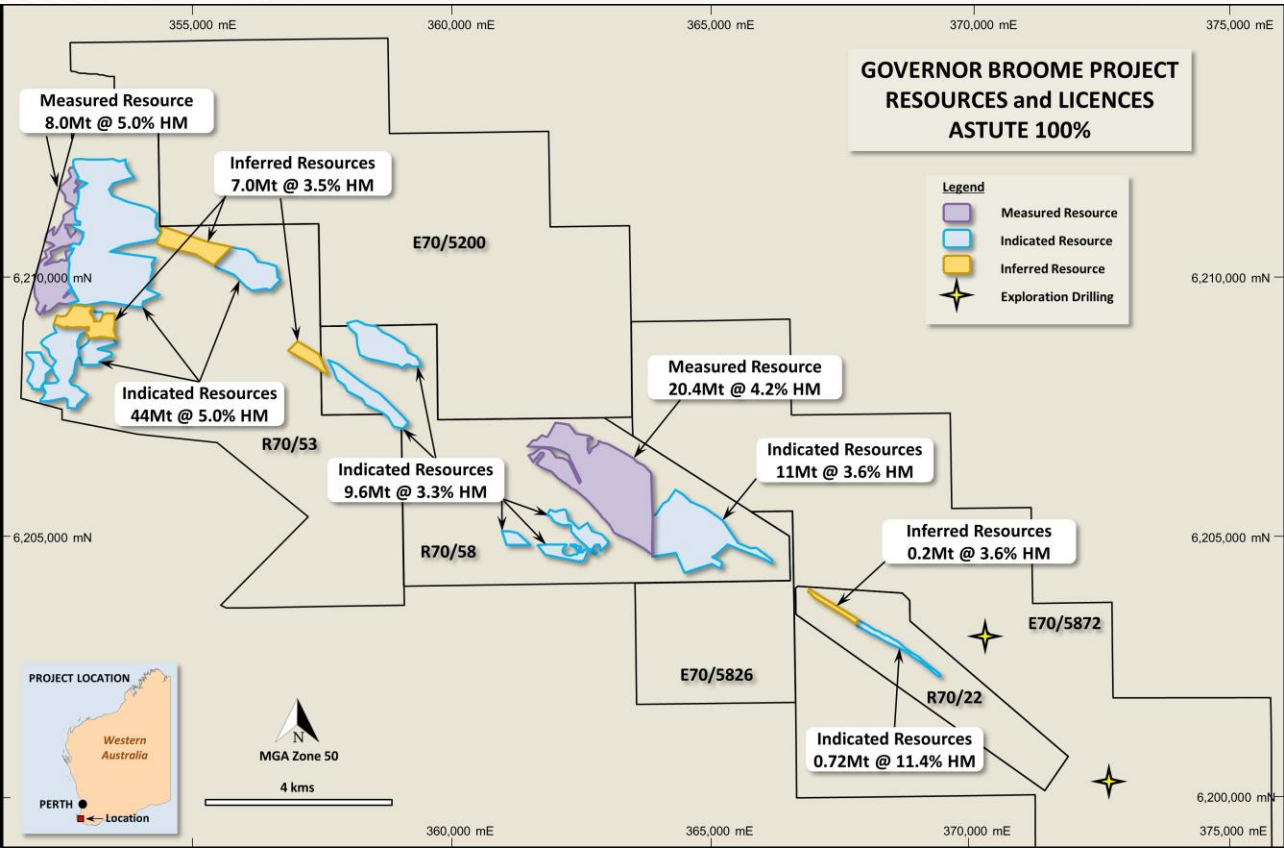
Jack Track Deposits

- HM occurs within the surficial Warren Sands unit.
- The Jack Track Deposits have average thicknesses ranging 2.2 – 6.6m and waste-to-ore ratios ranging from 1:1 to 2:1



GOVERNOR BROOME MINERAL RESOURCES

Recent MRE Update – incorporating Q2 infill drilling results

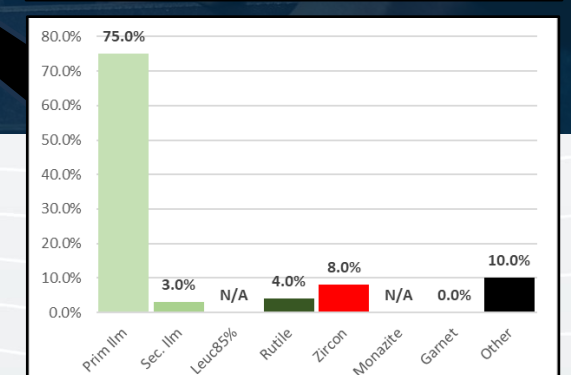
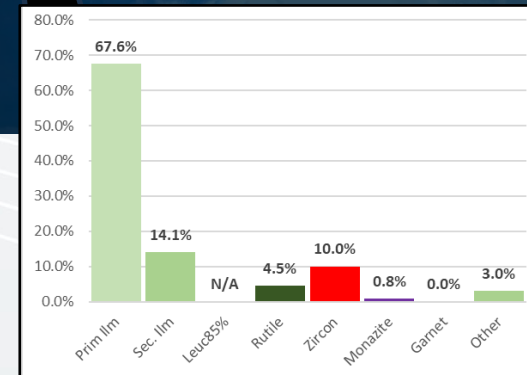
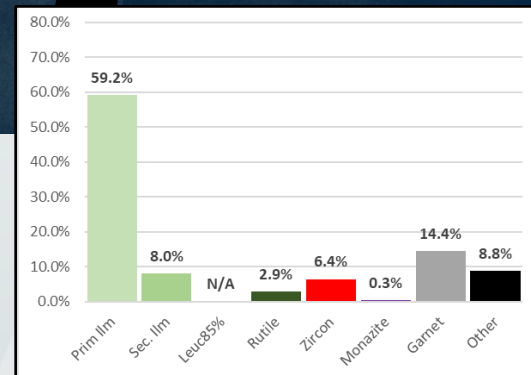
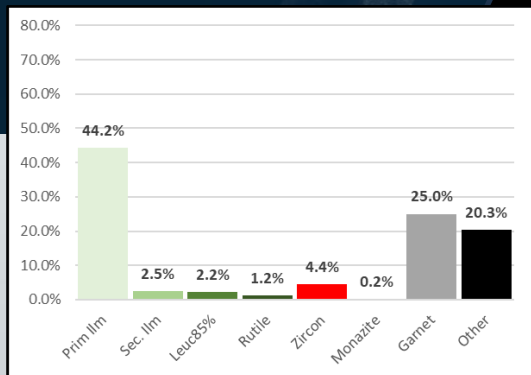
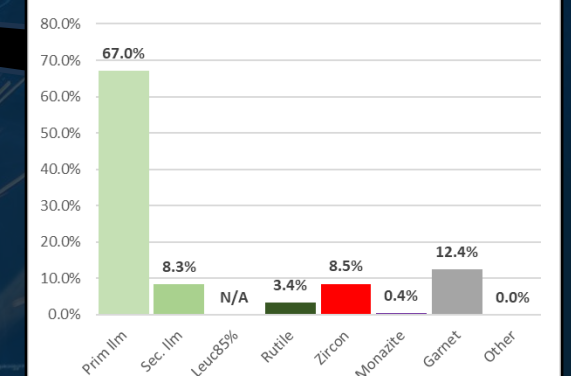
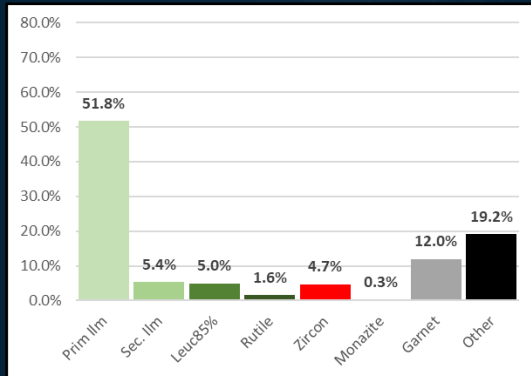
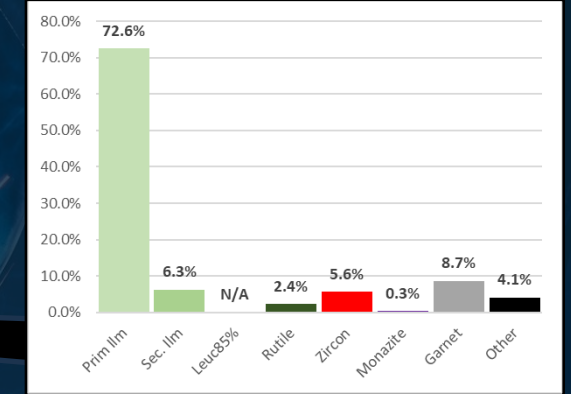
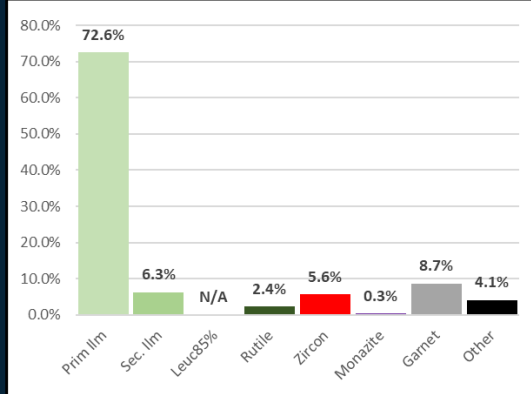
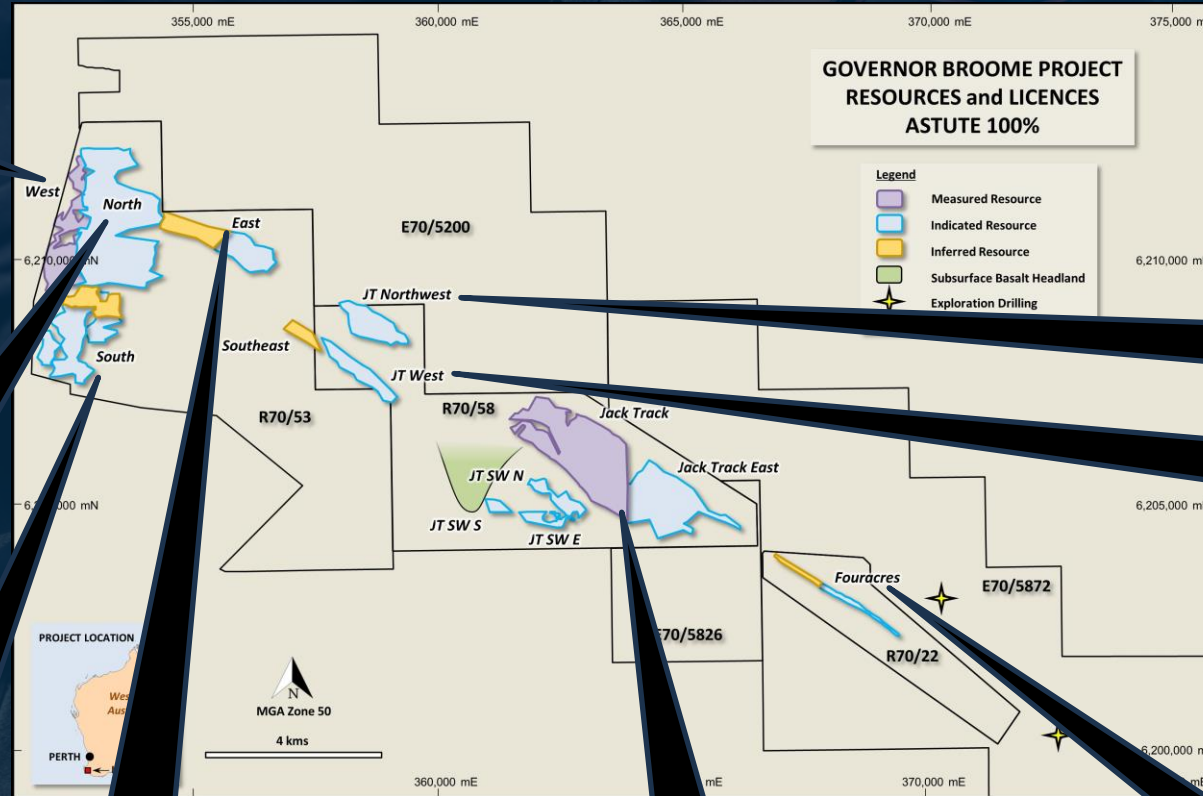


Tenement	Category	Tonnage (Mt)	HM (%)	Slimes (%)
R70/58 - Jack Track	Measured	20.4	4.2	8.4
	Indicated	21	3.5	7.9
	Total	41	3.8	8.2
R70/53 - Governor Broome	Measured	8.0	5.0	13
	Indicated	44	5.0	13
	Inferred	7	3.5	12
	Total	59	4.8	12.5
R70/22 - Fouracres	Indicated	0.72	11.4	6.5
	Inferred	0.2	4	9
	Total	0.93	9.4	7.1
Project	Measured	28.4	4.4	9.7
	Indicated	65	4.5	11
	Inferred	8.5	3.6	11
	Total Resources	102	4.4	11

Table 1. Governor Broome Project Resources – at 2% HM lower block-cut-off grade²

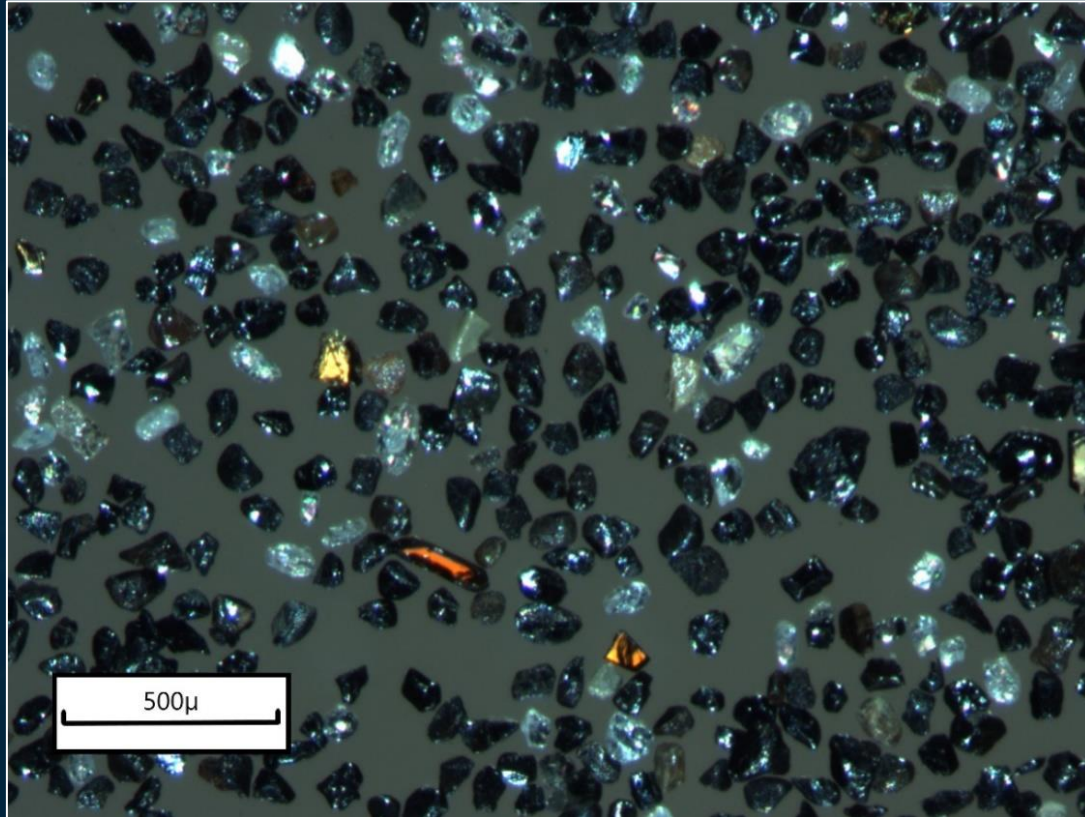
Note that the above figures have been appropriately rounded.
The Fouracres Resources estimated at a 3% Heavy Mineral (HM) lower block-cut-off grade
Governor Broome and Jack Track Resources estimated at a 2% HM lower block-cut-off grade

HIGH-VALUE MINERALOGY



*N/A = Leucoxene and Monazite not determined in mineral assemblage testwork for some Mineral Resource domains

PROCESSING



Multiple mineral products separated from HMC including Zircon, Ilmenite, Rutile and by-product Monazite

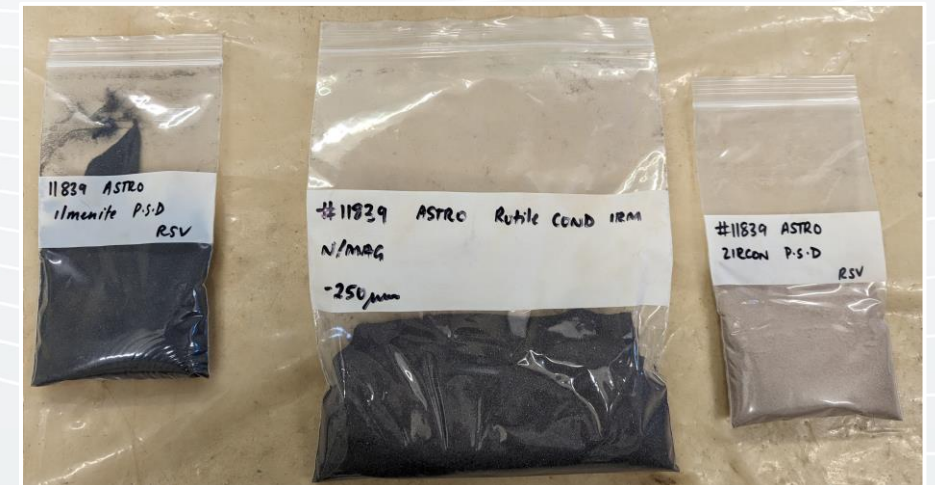
Bulk Sample Wet and Dry plant testwork undertaken:

- Governor Broome West (2.6 ton, June 2021)
- Jack Track (2 ton, August 2023)

Heavy Mineral Concentrate successfully produced in a Wet Concentrator from Governor Broome and Jack Track deposits using conventional WCP methods

Slimes and oversize easily removed and found to behave similarly to other WA producing HM deposits

High recoveries of Heavy Minerals from both Governor Broome (78%) and Jack Track (85.5%) deposits



PRODUCT QUALITY - ILMENITE

Composition (%)	GB West Primary ilmenite	African sulfate ilmenite 1	African sulfate ilmenite 2	African sulfate ilmenite 3	Typical Vietnamese ilmenite	Typical Chinese ilmenite	Indian sulfate ilmenite
TiO ₂	50.81	48.2	52.7	54.5	52.0	47.5	50.4
FeO	30.4	25.5	19.4	16.0	31.1	34.3	34.4
Fe ₂ O ₃	14.0	20.0	22.2	27.0	11.6	5.6	12.1
FeO:Fe ₂ O ₃	2.2	1.3	0.87	0.59	2.70	5.8	2.84
Al ₂ O ₃	0.38	0.45	0.54	0.64	0.30	1.2	0.72
CaO	0.05	<0.01	<0.01	0.03	-	1.3	0.05
Cr ₂ O ₃	0.03	0.09	0.10	0.16	0.05	0.02	0.05
MgO	0.26	0.80	0.31	0.64	-	5.3	0.78
MnO	1.24	0.65	1.67	0.95	2.0	0.65	0.55
Nb ₂ O ₅	0.13	0.06	0.10	-	-	0.03	-
P ₂ O ₅	0.05	0.02	0.02	0.04	0.04	0.02	0.04
SiO ₂	0.52	0.90	0.46	0.58	0.70	3.0	0.90
V ₂ O ₅	0.16	0.25	0.12	0.25	0.15	0.1	0.22
U+Th (ppm)	<20	60	101	58	75	-	45
D ₅₀ (μm)	190	130	N/A	109	N/A	~ 60	N/A

Composition (%)	GBW secondary ilmenite	JT secondary ilmenite	JT Combined ilmenite	Australian chloride ilmenite	African chloride ilmenite 1	African chloride ilmenite 2	Indian chloride ilmenite
TiO ₂	60.9	63.3	58.7	60 – 64	61 – 65	60.0	60
FeO	5.8	N/A	N/A	-	-	8.9	9.7
Fe ₂ O ₃	30.8	30.9	37.24	25 – 32	22.0 – 30.0	25.3	25.5
Al ₂ O ₃	1.6	0.99	0.62	1.1 – 1.6	0.5 – 1.7	1.16	1.1
CaO	0.1	0.08	0.06	0.01 – 0.10	0.05 – 0.10	0.03	0.09
Cr ₂ O ₃	0.3	0.11	0.07	0.4 – 0.7	0.20 – 0.3	0.06	0.13
MgO	0.3	0.19	0.26	0.1 – 0.4	0.5 – 1.0	0.49	0.6
MnO	0.9	0.88	0.94	0.6 – 1.0	0.1 – 0.5	0.39	0.4
Nb ₂ O ₅	0.2	0.17	0.14	0.1 – 0.2	0.02 – 0.08	0.25	-
P ₂ O ₅	0.1	0.14	0.1	0.05 – 0.20	0.1 – 0.2	0.065	0.2
SiO ₂	1.0	0.51	0.8	2.3 – 3.8	0.6 – 1.2	0.15	0.9
V ₂ O ₅	0.3	0.24	0.22	0.12 – 0.35	0.2 – 0.4	0.19	0.22
U+Th (ppm)	135	<210	<121	140 – 240	240 – 270	117	166
D ₅₀ (μm)	N/A	N/A	93	106	112	135	N/A

Governor Broome Primary Ilmenite

- Favorably low U+Th, Cr and V
- Acceptable Fe²⁺/Fe³⁺ ratio
- Other impurities at acceptable levels
- TiO₂ of 50.8% - suitable for Sulfate classification
- Potential synthetic rutile feedstock

Governor Broome and Jack Track Sec. Ilmenite

- Suitable TiO₂ for Chloride pigment classification

Jack Track Combined Ilmenite

- Lower end TiO₂ content for Chloride pigment
- Low levels of impurities

PRODUCT QUALITY - ZIRCON

Governor Broome Zircon

- Relatively low U+Th
- Moderate Al_2O_3
- Meets Premium specification for ceramics and foundry application

Composition (%)	GBW primary zircon	Australian premium zircon	Africa premium grade 1	Africa premium grade 2	Indonesian premium zircon
ZrO_2^*	66.0	66.4	66.0	66.3	66.3
Fe_2O_3	0.08	0.05	0.06	0.08	0.10
TiO_2	0.1	0.14	0.12	0.09	0.10
Al_2O_3	0.39	0.46	0.12	0.29	0.28
SiO_2	32.56	32.5	32.5	32.5	32.5
P_2O_5	0.13	0.10	0.12	0.08	-
U+Th (ppm)	376	410	460	324	300-400
D_{50} (μm)	100	150	125.7	97	-

Jack Track Zircon

- Zircon <66%
- Iron and TiO_2 within acceptable thresholds for Standard Grade ceramics and foundry application

Composition (%)	JT primary zircon
ZrO_2^*	65.02
Fe_2O_3	0.04
TiO_2	0.14
Al_2O_3	0.68
SiO_2	32.8
P_2O_5	0.14
U+Th (ppm)	530
D_{50} (μm)	87

* Includes HfO_2

PRODUCT QUALITY - RUTILE

Jack Track Rutile

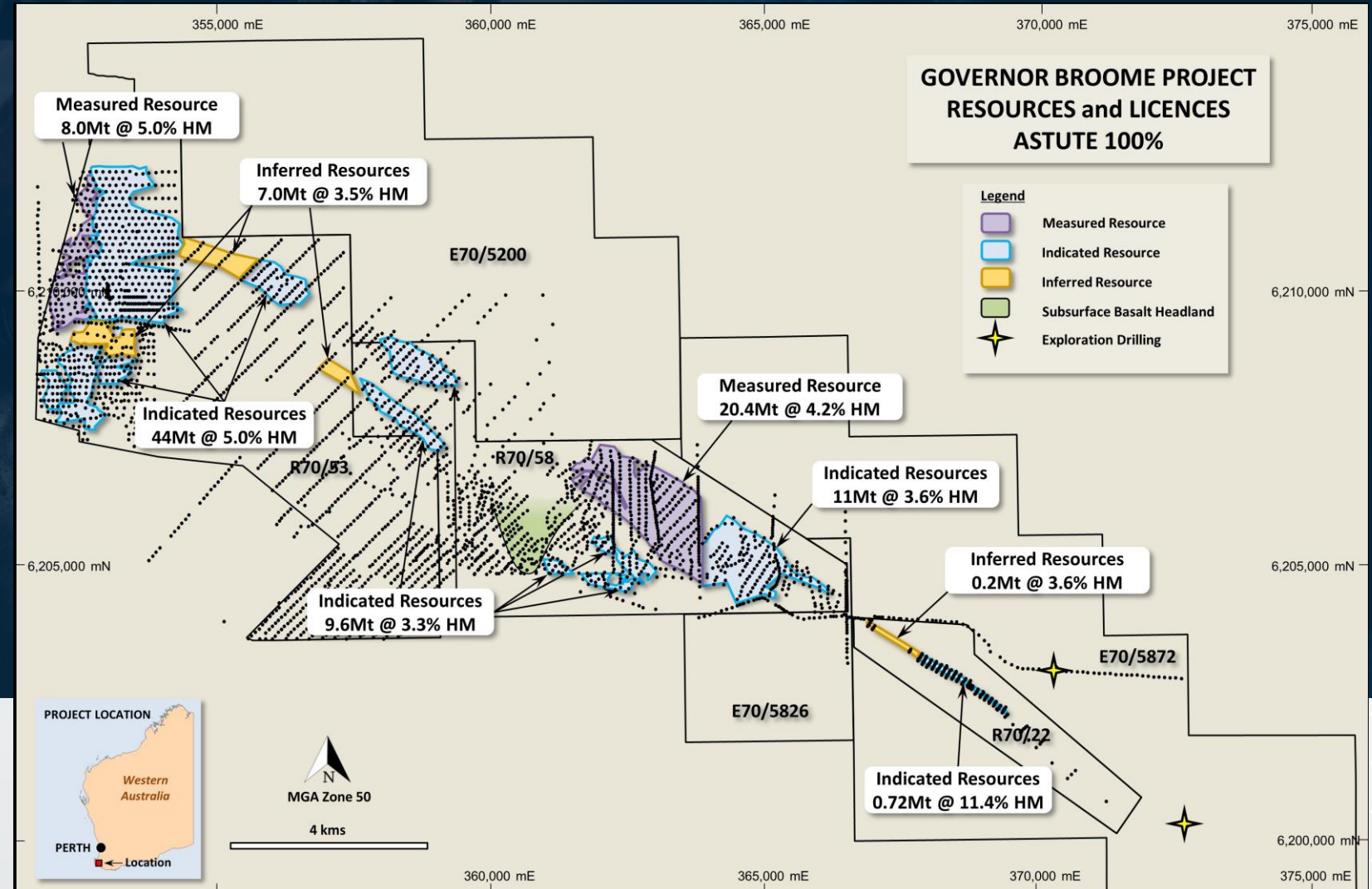
- Low impurities – Ca, Mg, P, S
- Meets Premium specification for direct Chloride pigment use
- Fine fraction slightly above threshold for welding application, however likely remains suitable at a slight (5%) price discount

Composition (%)	JT planned rutile product	African rutile 1	African rutile 2	African rutile 3	Australian rutile
TiO ₂	96.54	95.5	95 – 96	93.3	95.5
Fe ₂ O ₃	0.79	0.6 – 1.0	0.5 – 1.0	0.70	0.53
Al ₂ O ₃	0.28	0.4 – 0.6	0.15 – 0.40	0.90	0.25
CaO	<0.01	<0.01	<0.03	0.10	0.02
Cr ₂ O ₃	0.13	0.15	0.15 – 0.35	0.11	0.14
V ₂ O ₅	0.48	0.6	0.60 – 0.70	0.45	0.60
MgO	<0.01	0.03	<0.03	0.06	0.04
MnO	<0.002	0.02	0.02 – 0.04	0.01	-
Nb ₂ O ₅	0.33	0.30	0.20 – 0.25	0.30	0.40
SO ₃	0.01	<0.03	0.13 – 1.25	<0.05	<0.05
P ₂ O ₅	0.03	0.02	0.01 – 0.03	0.03	0.02
SiO ₂	0.44	0.80	0.5 – 1.0	2.0	0.90
SnO ₂	N/A	-	-	-	0.01
ZrO ₂	0.25	0.3 – 0.5	0.5 – 1.0	1.3	0.80
U+Th (ppm)	66	45 – 95	70 – 115	100	70
D ₅₀ (µm)	100	140	178	125	110

EXPLORATION POTENTIAL

Two key areas of exploration potential

- Follow-up of previous air-core drilling conducted in 2012
- Drilling Intersected Heavy Minerals associated with a radiometric anomaly but no samples assayed
- Second area along strike from Fouracres Deposit



ASTUTE METALS – A COMPARISON

Company	Status	Contained HM in JORC Meas+Ind Resources (Mt)	Enterprise Value Nov 2023 (A\$M)	Enterprise Value/t HM (A\$)	Comments
Sheffield Resources (ASX: SFX)	Production	92.5	\$ 212.10	\$ 2.29	HM in Resources reflect 50% ownership of Thunderbird
Diatreme Resources (ASX: DRX)	DFS	4.7	\$ 86.80	\$ 18.47	Cyclone HM Project only
Image Resources (ASX: IMA)	Permitting	32.0	\$ 25.77	\$ 0.81	Recently ceased production
Strandline Resources (ASX: STA)	In Production/ Adv Expl / DFS	16.3	\$ 115.40	\$ 7.06	HM In Resources reflect 84% ownership of Nyati Mineral Sands
Base Resources (ASX: BSE)	Kwale in production Toliara : DFS	73.8	\$ 48.46	\$ 0.66	Cash from 2023 Annual Report
Astute Metals (ASX: ASE)	Scoping Study	4.2	\$ 10.60	\$ 2.54	Governor Broome project under development.

- Comparison with a selection of Heavy Mineral sands developers and producers by contained HM in Indicated (Ind) and Measured (Meas) JORC Mineral Resources
- Astute Metals is a diversified explorer and no value has been assigned to other Astute Metals Projects (e.g. Nevada Lithium, Georgina IOCG) as part of this analysis - assigning value to other Astute Projects would result in lower EV/t HM

Cautionary Statement: The companies included in the above table have varying compositions of measured, indicated and inferred resource as well as proven and probable reserves and are at various stages of development. They are not intended to be identical in nature to Astute Metals NL.

GOVERNOR BROOME

DE-RISKED HIGH-VALUE ASSET



Location

In the heart of the South West WA Mineral Sands district, within trucking distance to heavy mineral processing plant and Bunbury Port access



Mineralogy

High-value quality-of-life commodities zircon and titanium minerals ilmenite, leucoxene and rutile, with by-product monazite and garnet



Performance

Conventional WCP methods produced heavy mineral concentrates from the project from which marketable products were separated

Previous Announcements

The information contained within this presentation that relate to exploration results of Astro have been extracted from the following ASX announcements (ASX: ASE) and previously (ASX: ARO):

- Substantial Mineral Resource Upgrade – Mineral Sands Project
9th November 2023
- Acquisition of high-grade Heavy Mineral deposit
13th July 2023
- Jack Track Bulk Testwork Produces Marketable HM Products
23rd August 2023
- Completion of Key In-fill Drilling at Governor Broome Sands
4th May 2023
- High Value Mineral Content for Jack Track Deposit
21st November 2022
- Substantial increase in Mineral Resource for Governor Broome
19th September 2022
- TZMI Virtual Congress 2021 Presentation
9th November 2021
- Bulk Testwork Program Delivers Further Positive Results for Governor Broome Heavy Mineral Project
16th June 2021

Competent Person Statement

The information in this presentation as it relates to Mineral Resources and Exploration Results for the Governor Broome Project is based on information compiled by John Doepel, Director of Continental Resource Management Pty Ltd (CRM), who is a member of the Australasian Institute of Mining and Metallurgy. Mr Doepel has sufficient experience in mineral resource estimation, which is relevant to the style of mineralisation and type of deposit under consideration and is qualified as a Competent Person as defined in the 2012 edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Doepel consents to the inclusion in the report of the information in the form and context in which it appears.

Appendix 1 Data Sources

The information concerning resource data for other companies contained within the presentation slide titled “Astute Metals – A Comparison” has been sourced from the following announcements:

Company	ASX Ticker Code	Project(s)	Region(s)	Announcement/ Source	Date
Sheffield Resources	SFX	Thunderbird	Kimberley, WA	Appendix 5B Cash Flow Report (Sept 30), Annual Report 2023	26 Oct 2023, 27 Sept 2023
Diatreme Resources	DRX	Cyclone	Eucla Basin, WA	Appendix 5B Cash Flow Report (Sept 30), Cyclone DFS Report	30 Oct 2023, 15 Nov 2018
Image Resources	IMA	Various Dry and Dredge Deposits	North Perth Basin, WA	Appendix 5B Cash Flow Report (Sept 30), Quarterly Activities Report (Sept 30)	26 Oct 2023
Strandline Resources	STA	Coburn, Fungoni and Tajiri	Gascoyne, WA and Tanzania	Appendix 5B Cash Flow Report (Sept 30), Diggers and Dealers Presentation	31 Oct 2023, 8 Aug 2023
Base Resources	BSE	Kwale and Toliara	Kenya and Madagascar	Annual Report 2023	28 Aug 2023



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HEAVY MINERAL SANDS PROJECT

MARKET UPDATE

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