



DIATREME RESOURCES LIMITED

ABN: 33 061 267 061

Postal Address: P.O Box 382 Coorparoo QLD 4151
Registered Office: Unit 8, 61 Holdsworth Street Coorparoo QLD 4151
PH: +61 (0)7 3397 2222 or 3397 2255
www.diatreme.com.au manager@diatreme.com.au



ASX : DRX

Company Announcement Office
Australian Securities Exchange
Level 4, 20 Bridge Street
Sydney NSW 2000

25 August 2016

MINING 2016 RESOURCES CONVENTION – BRISBANE COMPANY PRESENTATION

Diatreme Resources Limited is pleased to attach a copy of a presentation entitled “Golden Minerals” to be delivered by Neil McIntyre, CEO, at the Mining 2016 Resources Convention in Brisbane on 25 August 2016.

Yours faithfully

Tuan Do
Company Secretary



**Diatreme
Resources
Limited**

ABN: 33 061 267 061

Brisbane - August 2016

Mining 2016 Resources Convention



GOLDEN MINERALS



DISCLAIMER

This presentation contains certain forward-looking statements and forecasts which include without limitation, expectations regarding future performance, exploration, mineral resources, the financial position of Diatreme Resources Limited (the “Company”), industry growth or other trend projections.

Whilst this presentation is based on information from sources which are considered reliable, the Company, its directors, employees and consultants do not represent, warrant or guarantee, expressly or impliedly, that the information in this presentation is complete or accurate. To the maximum extent permitted by law, the Company disclaims any responsibility to inform any recipient of this presentation of any matter that subsequently comes to its notice, which may affect any of the information contained in this document and presentation.

Nothing in this presentation should be construed as either an offer to sell or a solicitation of an offer to buy or sell securities.

STATEMENT IN ACCORDANCE WITH THE AUSTRALASIAN CODE FOR REPORTING OF EXPLORATION RESULTS, MINERAL RESOURCES AND ORE RESERVES (THE JORC CODE)

The information in this report that relates to Exploration Results and Mineral Resources is based on information compiled by Mr Ian Reudavey, who is a Member of the Australian Institute of Geoscientists and a full time employee of Diatreme Resources Limited. Mr Reudavey has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he has undertaken to qualify 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 Reudavey consents to the inclusion in the report of the matters based on the information in the form and context in which it appears.

The information in this report that relates to Ore Reserves is based on information compiled by Mr Phil McMurtrie, who is a Member of the Australasian Institute of Mining and Metallurgy. Mr McMurtrie is a director of Tisana Pty Ltd and is a consultant to Diatreme Resources Limited. Mr McMurtrie has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he has undertaken to qualify 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 McMurtrie consents to the inclusion in the report of the matters based on the information in the form and context in which it appears.

PRESENTATION OUTLINE



- Diatreme Resources
 - Investment overview
- Cyclone Zircon Project
 - Delivering a high-zircon mine
- Tick Hill Gold Project
 - Capitalising on rising gold price
- Strong project pipeline
 - Cape Bedford & more
- Conclusion
 - Golden growth ahead





DIATREME – INVESTMENT OVERVIEW

- **GOLD: Tick Hill Gold Project, Qld:** Short-term cash flow potential from tailings reprocessing operation, benefitting from A\$1,700/oz gold price
- **ZIRCON: Cyclone Zircon Project, WA:** Supply shortage predicted “within 3 years” with zircon price forecast by Beer & Co. to reach US\$1,500/t; Cyclone production eyed by 2018 with estimated NPV of **\$121 million**, IRR 23% and payback in under 3 years
- **MORE PROJECTS:** Attractive project pipeline, including Cape Bedford Silica/HMS project, located next to world’s biggest silica mine in North Qld
- **EXPERIENCE:** Experienced board and management with ‘skin in the game’
- **ATTRACTIVE VALUATION:** Forecast valuation of **6c** (Beer & Co., August 2016) with major driver expected to be conclusion of an investment agreement for Cyclone

SKIN IN THE GAME



DRX— Capital Structure

Shares on Issue	877 Million
Options on Issue (Unlisted)	8.0 Million
Share Price (16th Aug 2016)	A\$0.018
Market Capitalisation (as at 16th Aug 2016)	A\$15.8 Million

Substantial Shareholders (4th Aug 2016)	Interest
Mr Yufeng (Daniel) Zhuang	13.80%
Mr Andrew Tsang (and related parties)	12.72%
Mr Zhenbin Jian	9.35%
Ms Chenxia Zhou	5.70%
Mr Longqiang Zhuang	4.75%
Total Interest of Top 20 Shareholders	68.24%

Directors

Directors	Position
William Wang	Chairman
Andrew Tsang	Non Executive Director
Daniel Zhuang	Non Executive Director

Management

Management	Position
Neil McIntyre	Chief Executive
Ian Reudavey	Chief Geologist
Phil McMurtrie	Project Manager
Tuan Do	Financial Controller/CFO



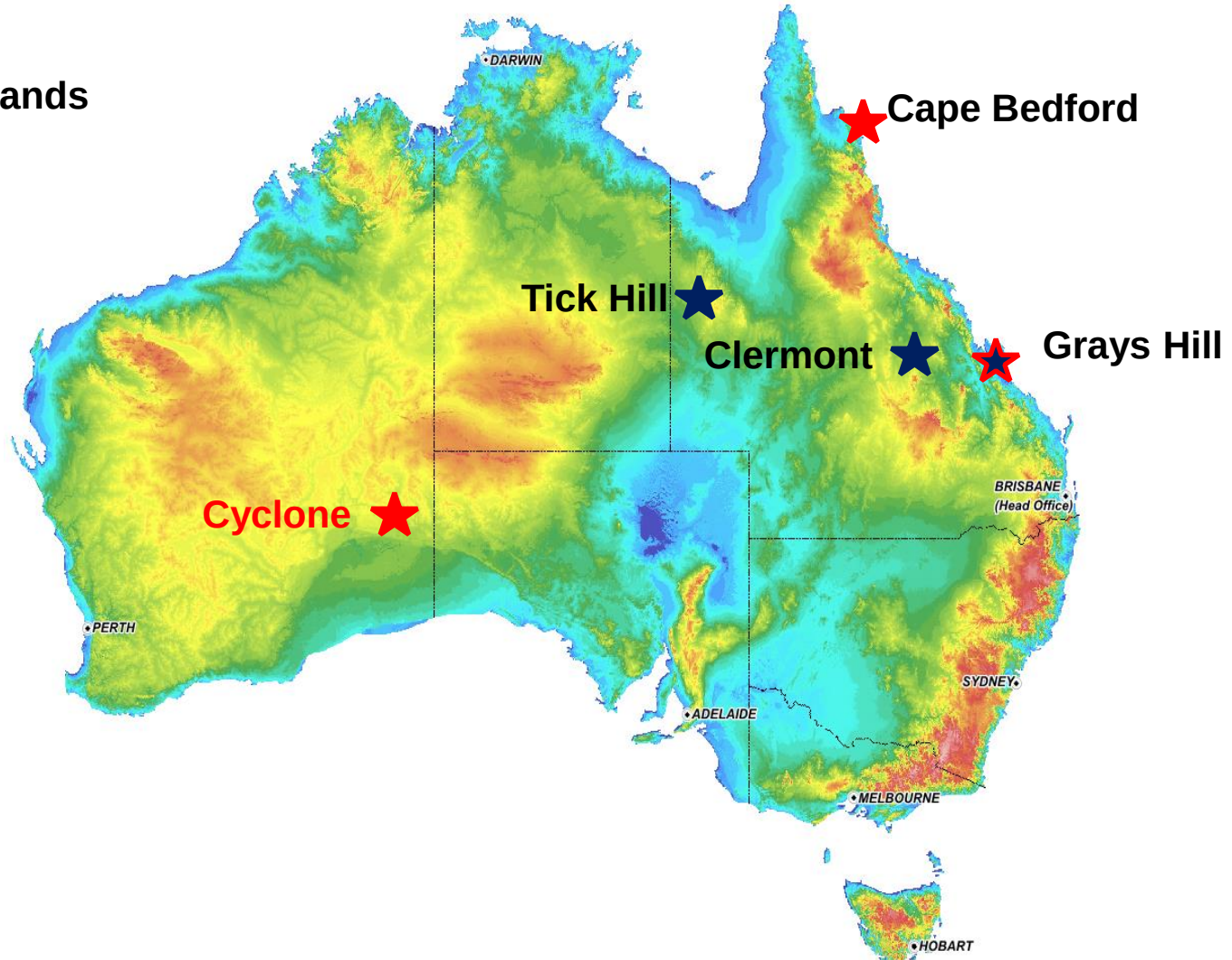
EXPERIENCED TEAM

- Experienced management team focused on streamlining operations with focus on flagship Cyclone Zircon Project:
 - **Neil McIntyre** – CEO, 25yrs experience in banking, finance, resources
 - **Ian Reudavey** – Chief Geologist, 25yrs in exploration & mining, 15yrs mineral sands
 - **Phil McMurtrie** – Project Manager, 35yrs experience mining, 20yrs mineral sands
 - **Tuan Do** – CFO, 30yrs experience, 10yrs resources sector

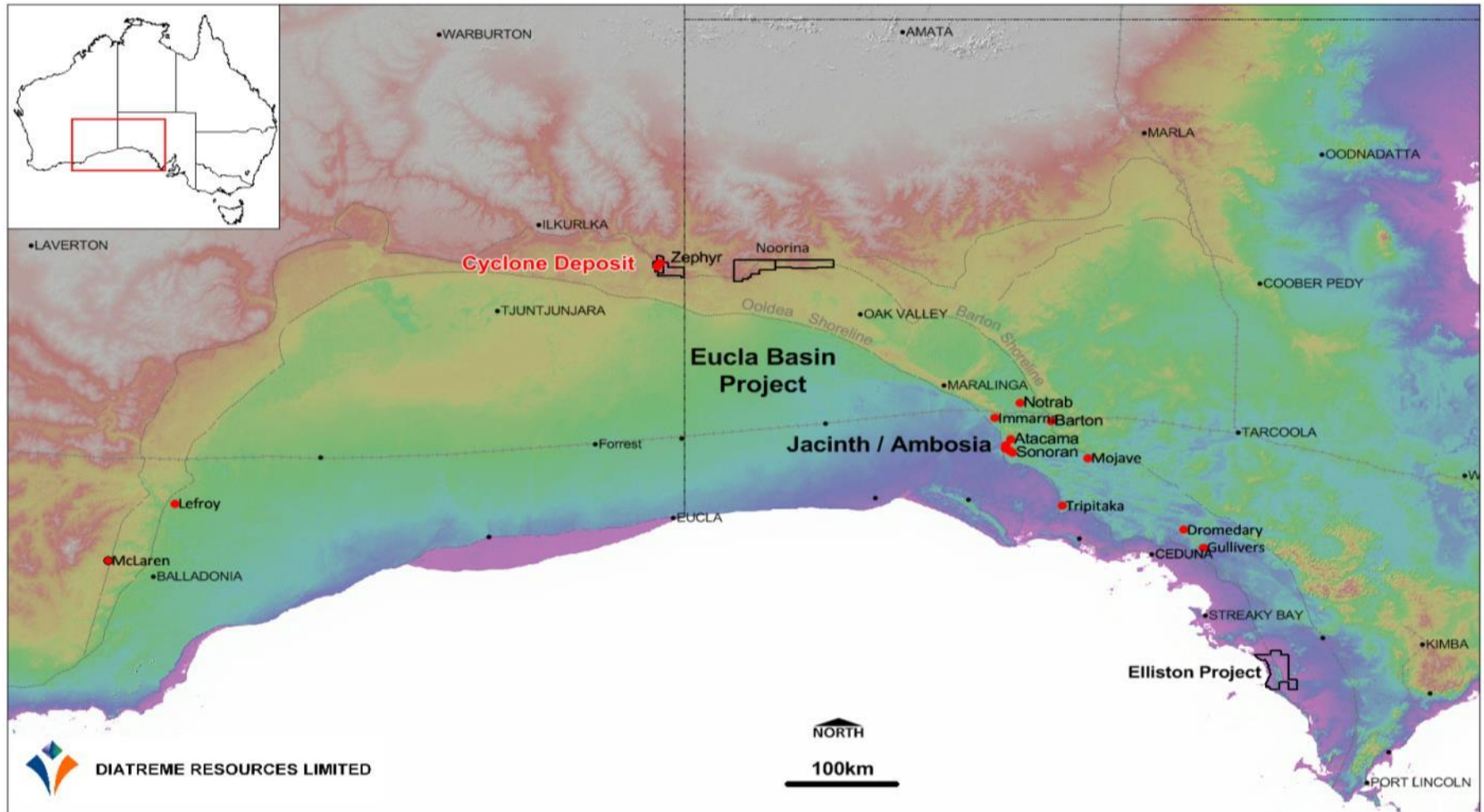
AUSTRALIA-FOCUSED



- ★ Mineral Sands
- ★ Metals



MINERAL SANDS DEVELOPMENT – EUCLA BASIN



DIATREME'S FLAGSHIP: CYCLONE PROJECT, WA





CYCLONE PROJECT FUNDAMENTALS

- **JORC Resource:** 211Mt @ 2.3% HM (Cyclone + Cyclone Extended)
- **JORC Reserve:** 138Mt @ 2.6% HM containing 1 Mt Zircon
- **Beach Strandline Deposit of Tertiary age**
 - Thick, multiple strands - broad mining widths (~400m) and 1:1 strip ratio
 - Low slimes (4.5% -53 μ m)
 - Low oversize (5.1% +2mm)
 - Sandy ore (d50 of 225 μ m for Beach)
 - Coarse grained HM (d50 of 170 μ m for Beach)
- **High Value Mineral Assemblage**
 - Average 28% Zircon , 68% Ti-minerals (65-95% TiO₂).
 - Low levels of trash HM, no primary Ilmenite
 - Low levels of U+Th in products



CYCLONE PROJECT FUNDAMENTALS

- **Conventional mining, processing and tails management**

Use of proven techniques in a similar setting to Iluka JA operation.

- **Sufficient reserves to support extensive mine life**

Currently 14 years at 10Mt pa

Strand mineralisation gives options for high grading

Substantial resource base to support potential long term expansion

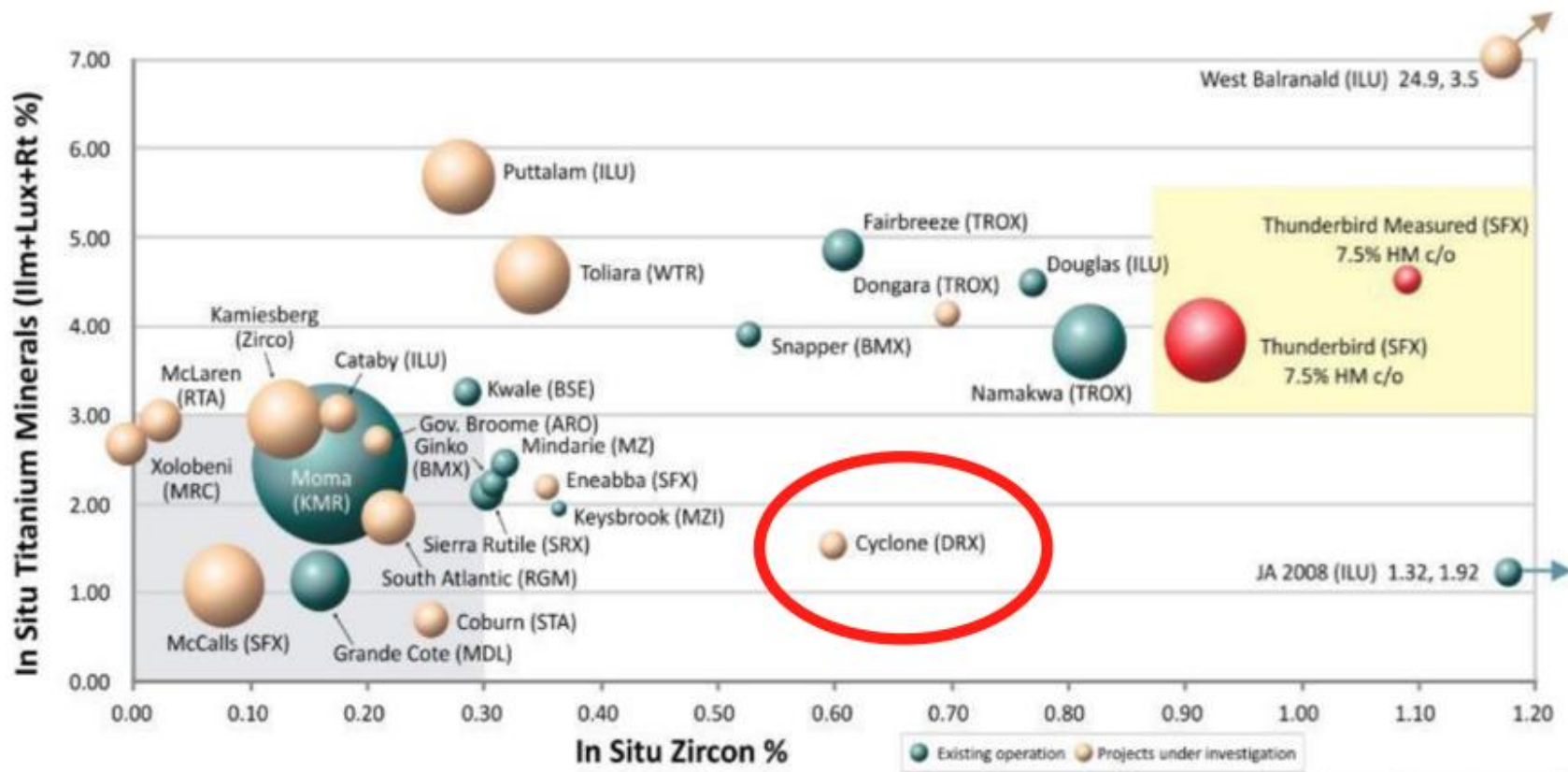
- **Support of Traditional Owners to develop project**

Strong relationship, mining agreement signed

- **No competing land use**

Quaternary dune field, Great Victoria Desert

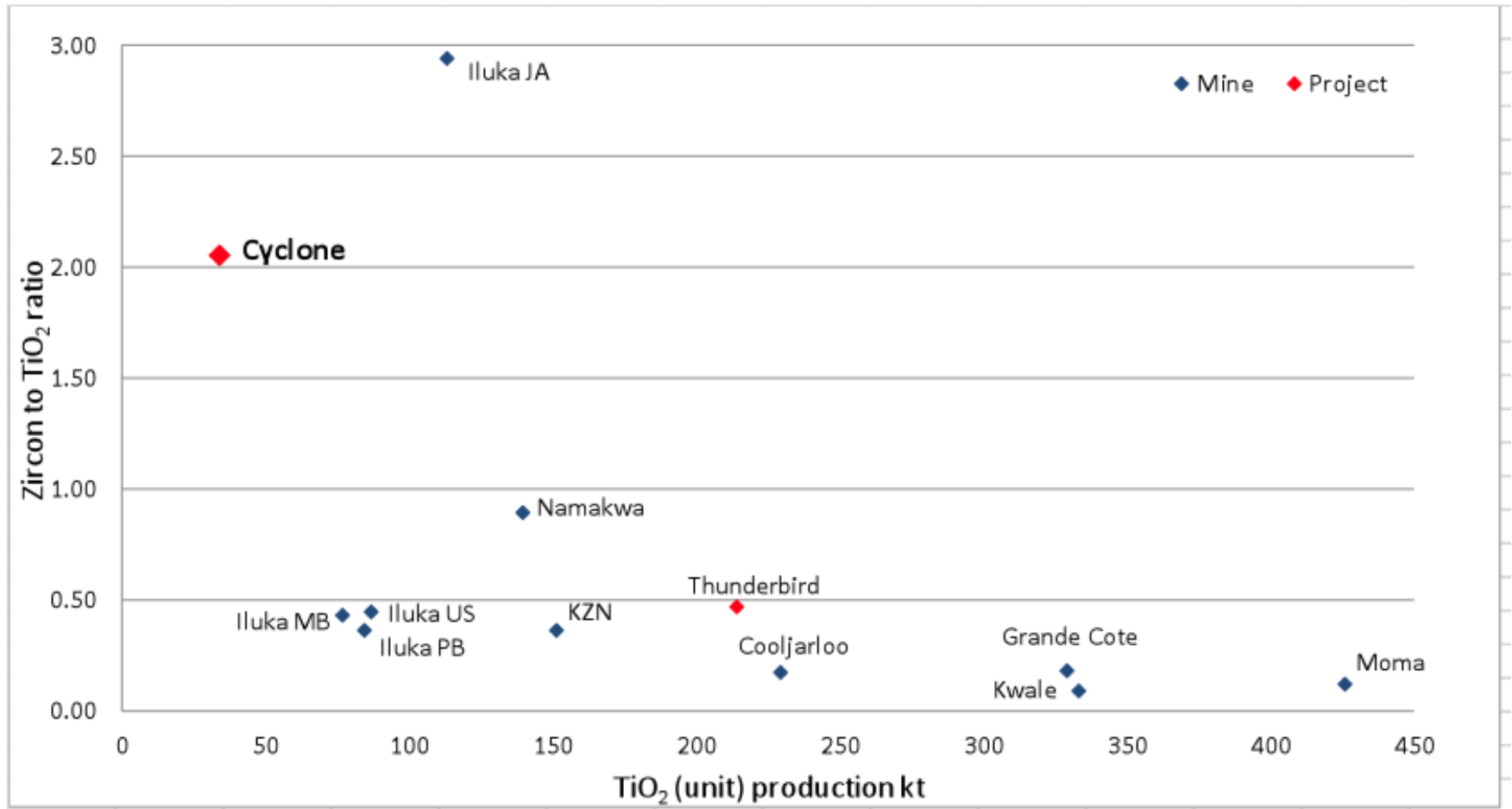
CYCLONE RESOURCE – HIGH ZIRCON CONTENT



Graph sourced from SFX



CYCLONE PROJECT – ZIRCON DOMINANT



CYCLONE MINING LEASE & SITE LAYOUT

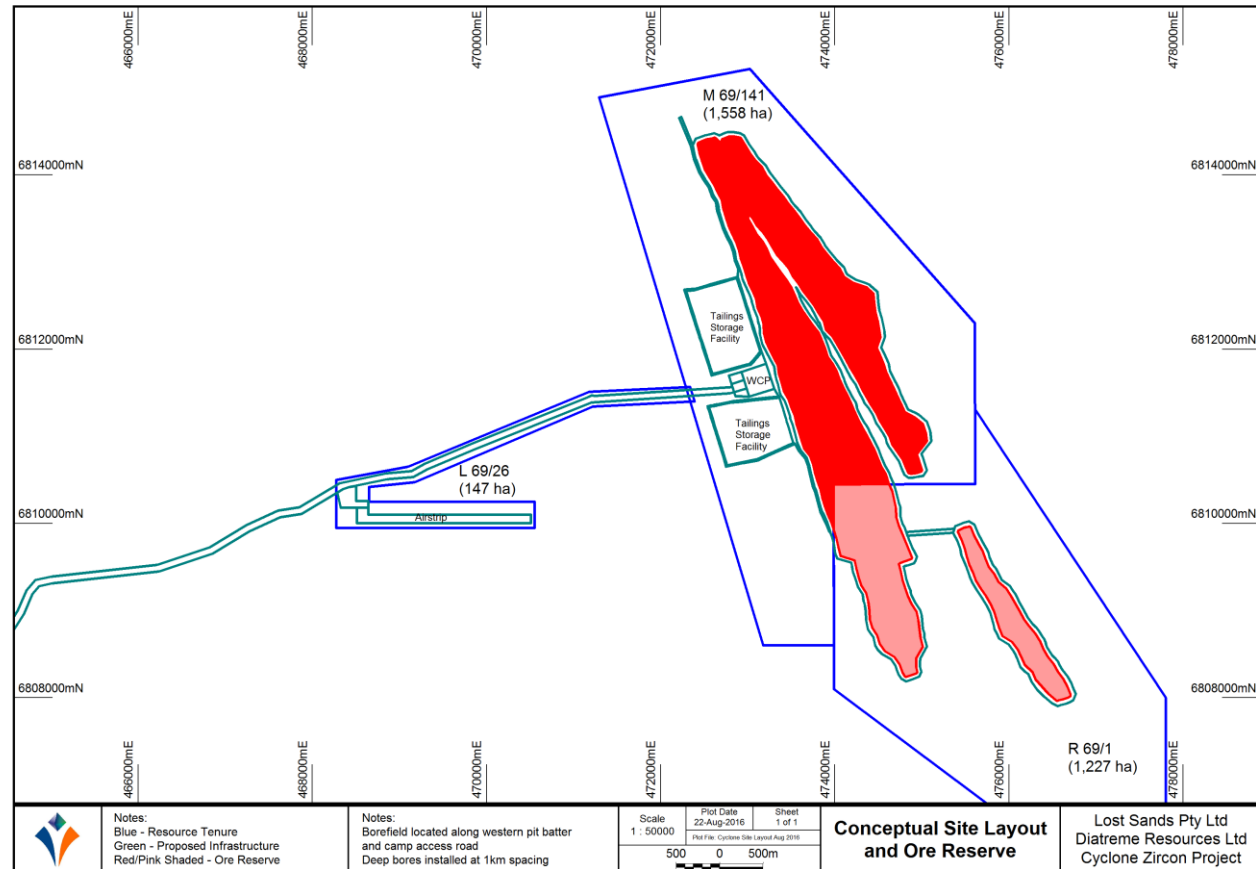


Mining Lease M69/141 was granted Nov 2014 for the Cyclone Ore Reserve (red) and the operational activities that will occur around it. These activities include wet concentrating, tailings disposal, HMC stockpiles, offices, workshops, infrastructure and services.

Cyclone Extended (pink) is secured under a Mineral Retention Licence (R69/1).

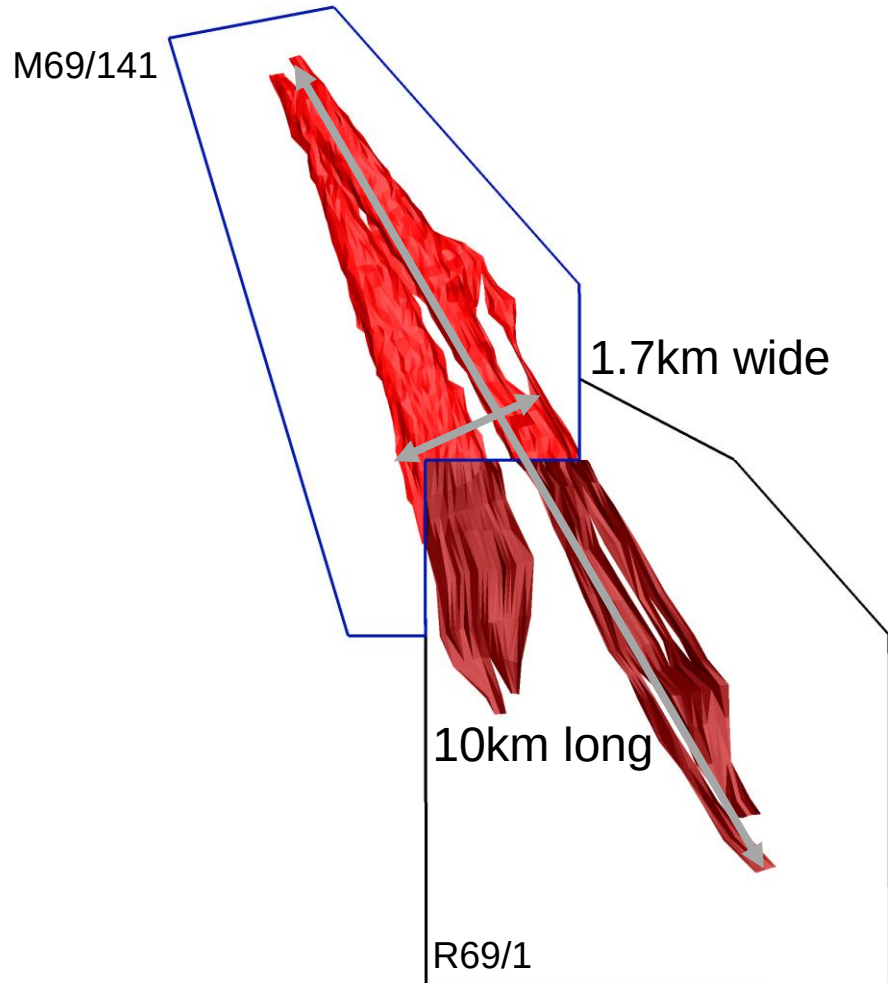
Miscellaneous Licence L69/26 for the site access road, accommodation camp, airstrip, and borefield was granted in July 2016.

The mine site and associated activities including the proposed haul road alignment have all been assessed as meeting the EPA's environmental objectives, and a positive recommendation has been received.





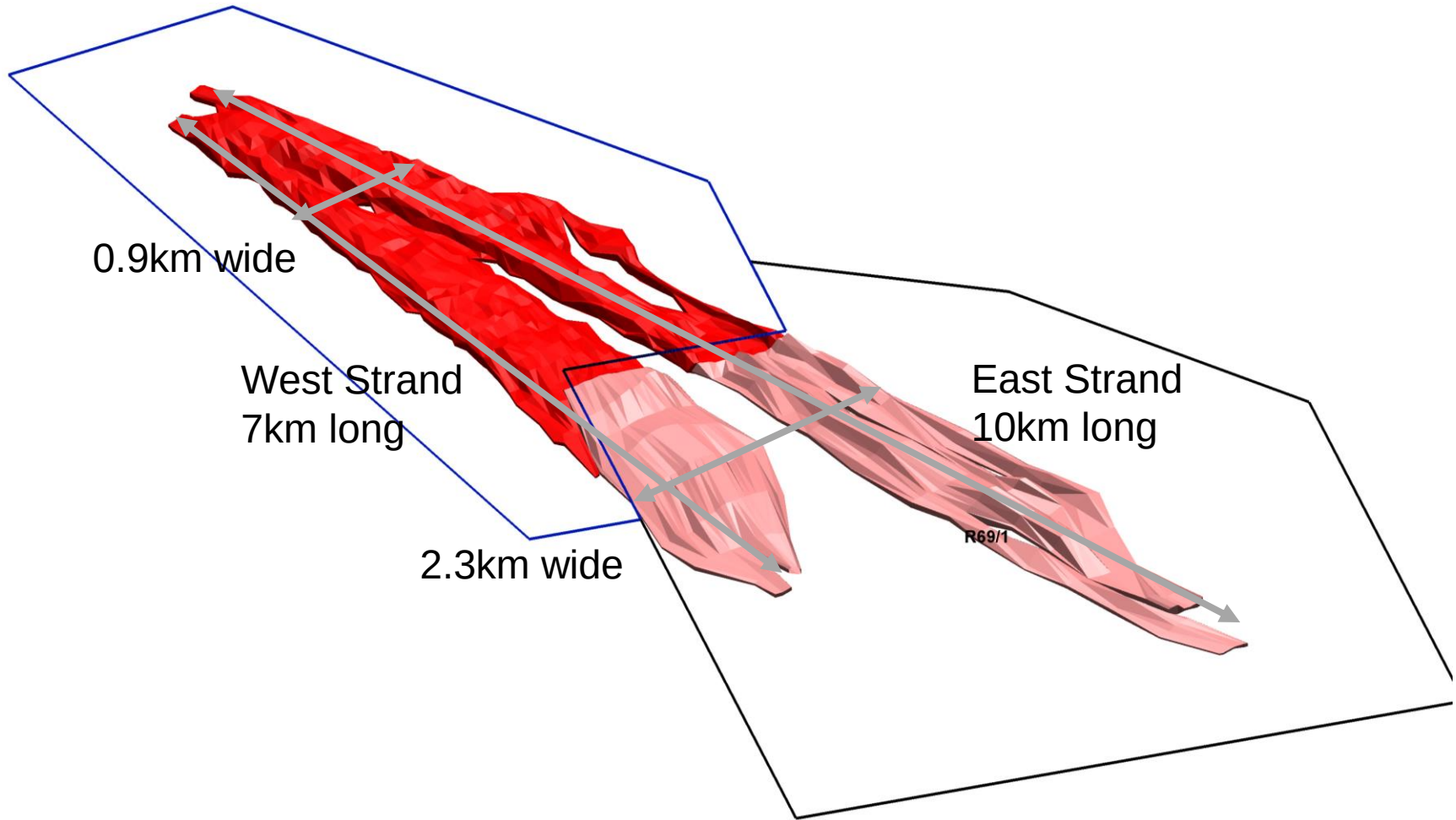
CYCLONE RESOURCE – PLAN VIEW



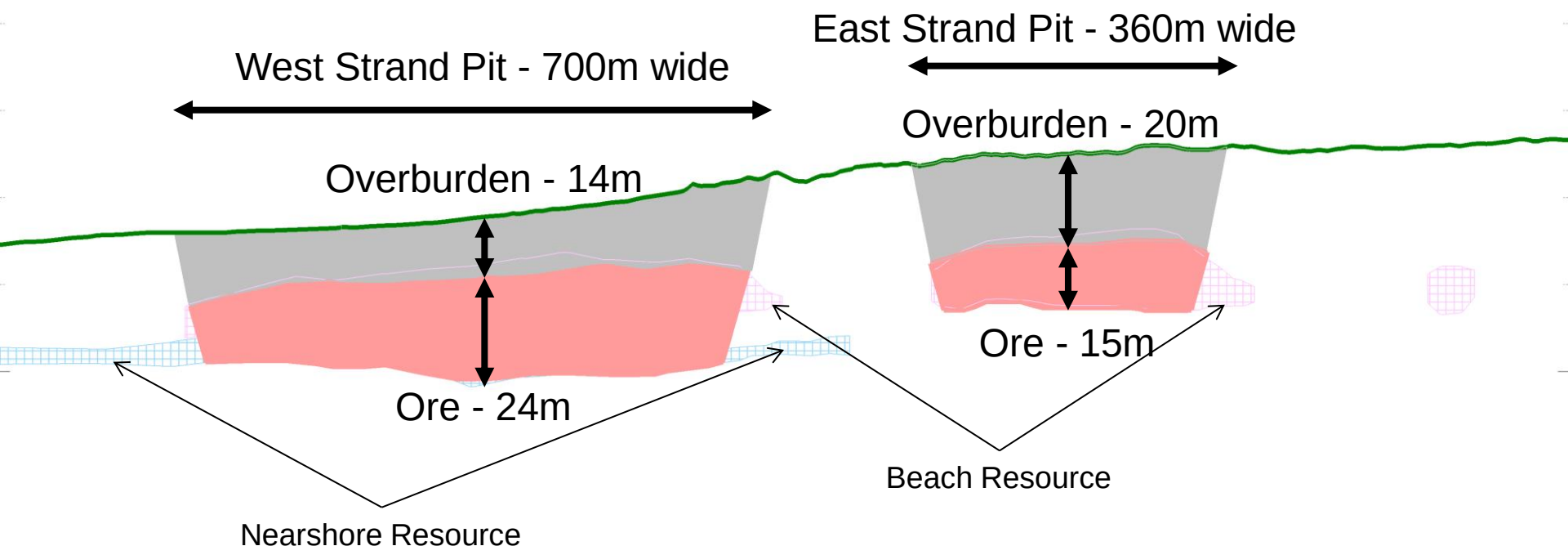
- Large scale deposit
- Mineralisation along 10km strike
- Two beach strandline systems



CYCLONE RESOURCE – OBLIQUE VIEW



CYCLONE RESOURCE – TYPICAL ORE SECTION



5 x vertical exaggeration
1m vertical = 5m horizontal



CYCLONE MINING PROPOSAL

Strip Ratio	1 : 1
Mining Rate	1,300 tonnes per hour 2 x 650tph dozer traps
Mine Production Heavy Mineral Concentrate (HMC)	19 tonnes / hour HMC production 144,000 t/a @ 96% HM
Road transport by truck	240km - 100 tonne loads to Forrest rail siding
Transport - Rail	1,100km – 3,000 tonne loads to Port Pirie

PRODUCTION OPTIONS

Mineral Separation Plant in Australia

Mineral Separation Plant in China or other country

Direct sale of HMC within Australia

Direct sale of HMC offshore (most likely option).



CYCLONE MSP PRODUCTS FROM HMC

AVERAGE ANNUAL MSP PRODUCTION and PRODUCT QUALITY

Zircon – 65,000 tonnes

ZrO ₂ %	Fe ₂ O ₃ %	SiO ₂ %	Al ₂ O ₃ %	TiO ₂ %	P ₂ O ₅ %	U+Th ppm	CeO ₂ %
66.0	0.10	32.8	0.20	0.31	0.07	369	0.020

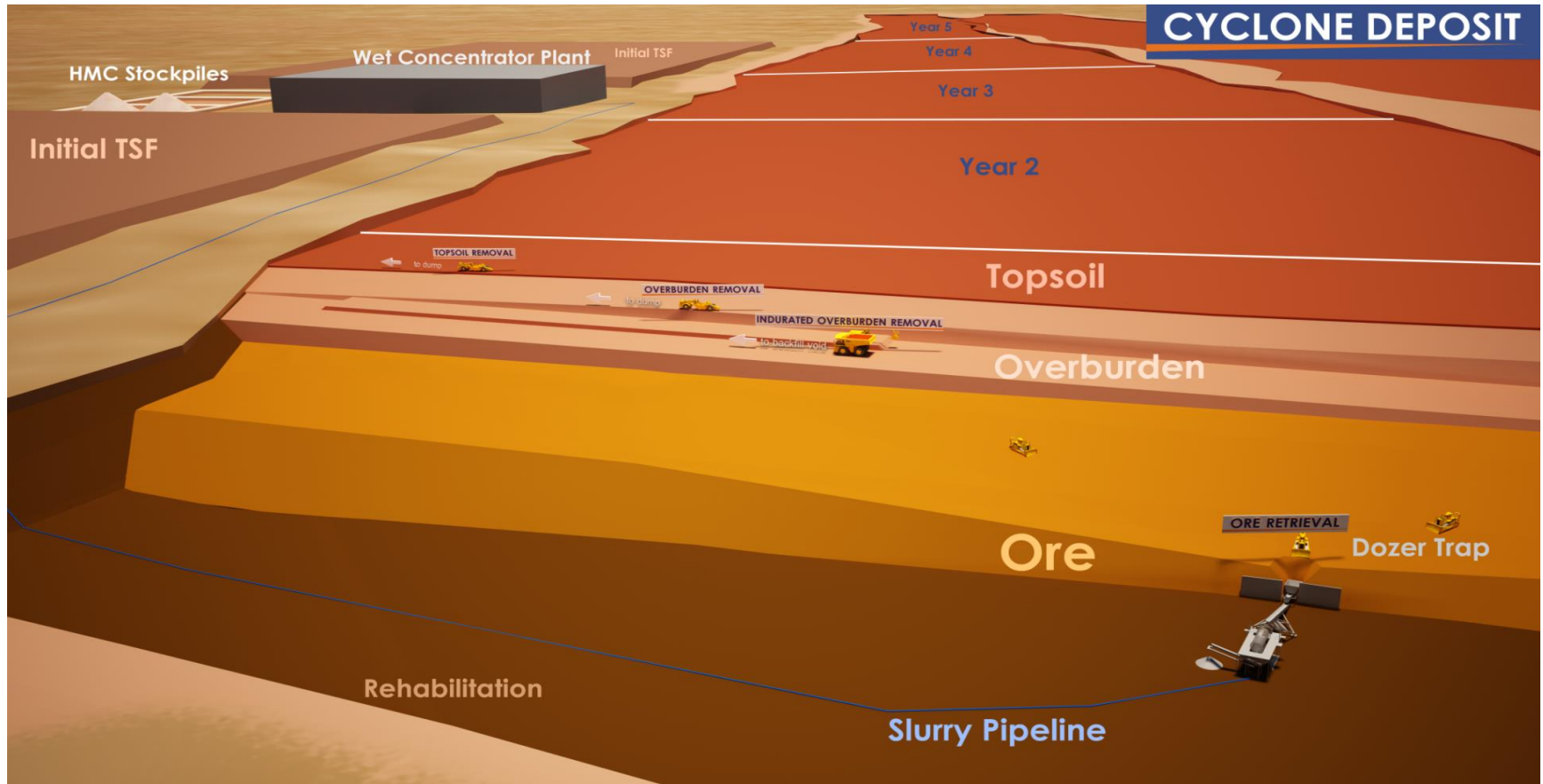
HiTi87 – 10,000 tonnes

TiO ₂ %	Fe ₂ O ₃ %	SiO ₂ %	Al ₂ O ₃ %	ZrO ₂ %	MgO %	MnO %	CaO %	CR ₂ O ₃ %	U+Th ppm
86.6	2.6	5.0	1.01	3.3	0.04	0.02	0.03	0.06	84

HiTi67 – 46,000 tonnes

TiO ₂ %	Fe ₂ O ₃ %	SiO ₂ %	Al ₂ O ₃ %	ZrO ₂ %	MgO %	MnO %	CaO %	CR ₂ O ₃ %	U+Th ppm
67.3	20.1	6.3	1.75	0.5	0.10	0.42	0.07	0.08	94

PROPOSED MINING METHODS



TRANSPORT OPTIONS





CYCLONE PROJECT MILESTONES

ACTIVITY

Pre-Feasibility Study

Definitive Feasibility Study (most permits)

Project Financing

Construction & Development

Mining & Production

SCHEDULE

Completed - March 2012

Q4 2016 – Q1 2017

Q2 2017

Q3 2017

Q3 2018



CYCLONE PROJECT ENHANCEMENT STUDY



- Study completed in May 2016 by **Sedgman Limited** (a leading mineral sands consultancy)
- Independent confirmation of project financials and feasibility
- Based on JORC Ore Reserve of 138Mt @ 2.6% HM
- **CAPEX** of \$A161 million and annual average **OPEX** of \$A72 million (further reductions in CAPEX may be possible by adopting new technologies)
- **NPV** \$121M
- **IRR** 23%
- **Payback** 2.8 years



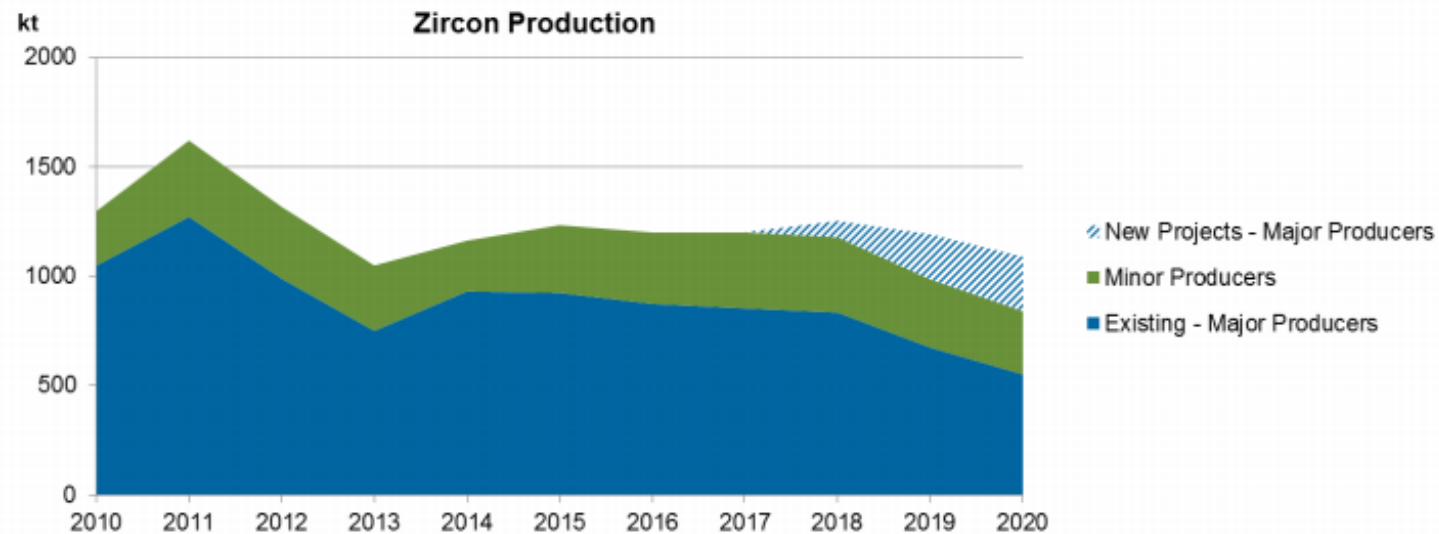
CYCLONE PROJECT BUILDS MOMENTUM

- ✓ **Water Supply** - Extensive groundwater aquifer discovered and test bore completed close to the mine. Bore flow estimated at 40 litres/second.
- ✓ **Native Title and Mining Agreement** – Agreement executed with the Native Title Holders on 15 November 2014
- ✓ **Mining Lease (ML69/141)** – Mining Lease (M69/141) granted on 18 November 2014.
- ✓ **Mine Life Increased** – Acquisition of Cyclone Extended has increased the mine life to 14 years with a mining rate of 10 million tonnes per year.
- ✓ **Independent Update and Evaluation** – Sedgman Limited completed a Project Enhancement and Update Study in June 2016 reducing costs and validating robust financial results. Sedgman identified additional opportunities for improving project economics.
- ✓ **Environmental Approval** – EPA released conditions for project approval on 8 August 2016. The WA Environment Minister is expected to finalise approval after a two week public review and a consulting period with other Ministers.



ZIRCON SUPPLY DEFICIT FORECAST

“Zircon from existing producers declining due to depletion and decline in grade and assemblage... Absent new investment there is a zircon supply challenge within 3 years” (Iluka Resources, February 2016)



Source: Iluka

* Zircon production from 2016 onwards excludes any finished goods inventory held at 31 December 2015, but includes zircon processed from concentrate stockpiles held by Iluka at the end of 2015.



MINERAL SANDS DEMAND INCREASING

*** Urbanisation set to increase demand for mineral sands, including zircon:**

WORLD BANK REPORT, JANUARY 2015

- Almost 200 million people moved to urban areas in East Asia from 2000-10
- Overall proportion of urbanites rose from 29% to 36% - but less than 1% of region's total land area is urbanised
- World Bank: Potential for “more decades of urban growth to come” – direct link between urbanisation and income growth
- Rising demand from India, China and other emerging markets

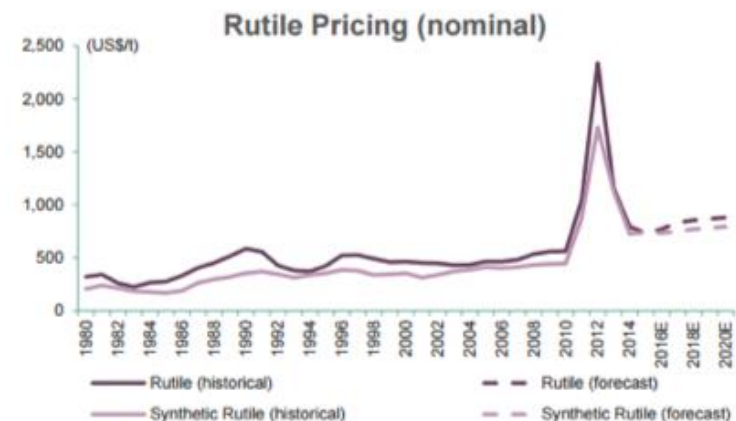
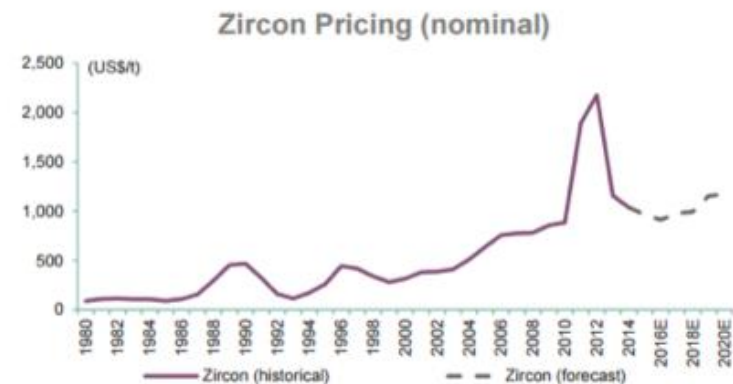
Source: <http://www.worldbank.org/en/news/press-release/2015/01/26/world-bank-report-provides-new-data-to-help-ensure-urban-growth-benefits-the-poor>

*** New applications for mineral sands, including 3-D printing, wastewater treatment, packaging ink**



MINERAL SANDS PRICING OUTLOOK

- ❑ Industry forecaster TZMI says conditions now “tighter than at any time since 2012” for titanium pigment (TiO_2)
- ❑ Analysts Beer & Co expect zircon price to reach US\$1,500/t by 2018, rutile US\$1,200, with benefit of weak AUD
- ❑ UK market researcher Artikel expects global TiO_2 pigment demand to grow 4% p.a.
- ❑ Leucoxene prices are linked to rutile based on TiO_2 content – L88 typically expected to receive 80-85% of rutile price



Source: Deutsche Bank, TZMI

DIATREME'S PROJECT PIPELINE



DIATREME RESOURCES LIMITED

PROJECT LOCATION

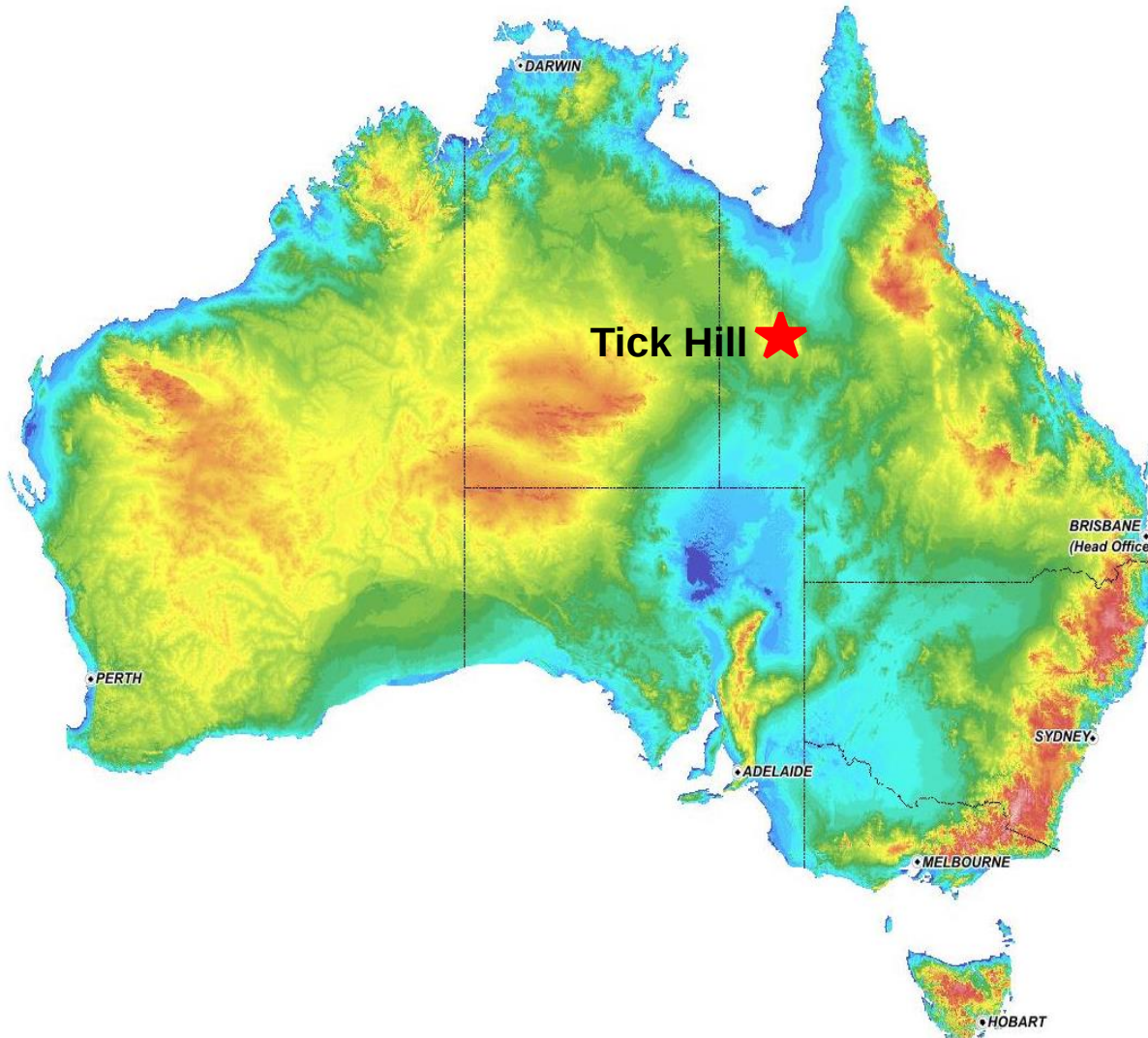




EXPLORATION OVERVIEW

- Consolidation of exploration tenure – currently **6** exploration properties, **4** ML and **1** RL, down from 29 (incl. 13 applications) in March 2014
- Mineral sands exploration tenure comprises Cyclone (WA), Cape Bedford (Qld) and Yeppoon (Qld)
- Focus on progressing Cyclone development milestones and delivering value to shareholders.
- Assessment of tailings dam material at Tick Hill, investigation of other surface gold opportunities (alluvial)

TICK HILL, QLD



Tick Hill, QLD
Gold

3 Granted ML's

Size: 3.9 sq. km

TICK HILL, QLD



Tick Hill Gold Mine (circa 1993) looking easterly



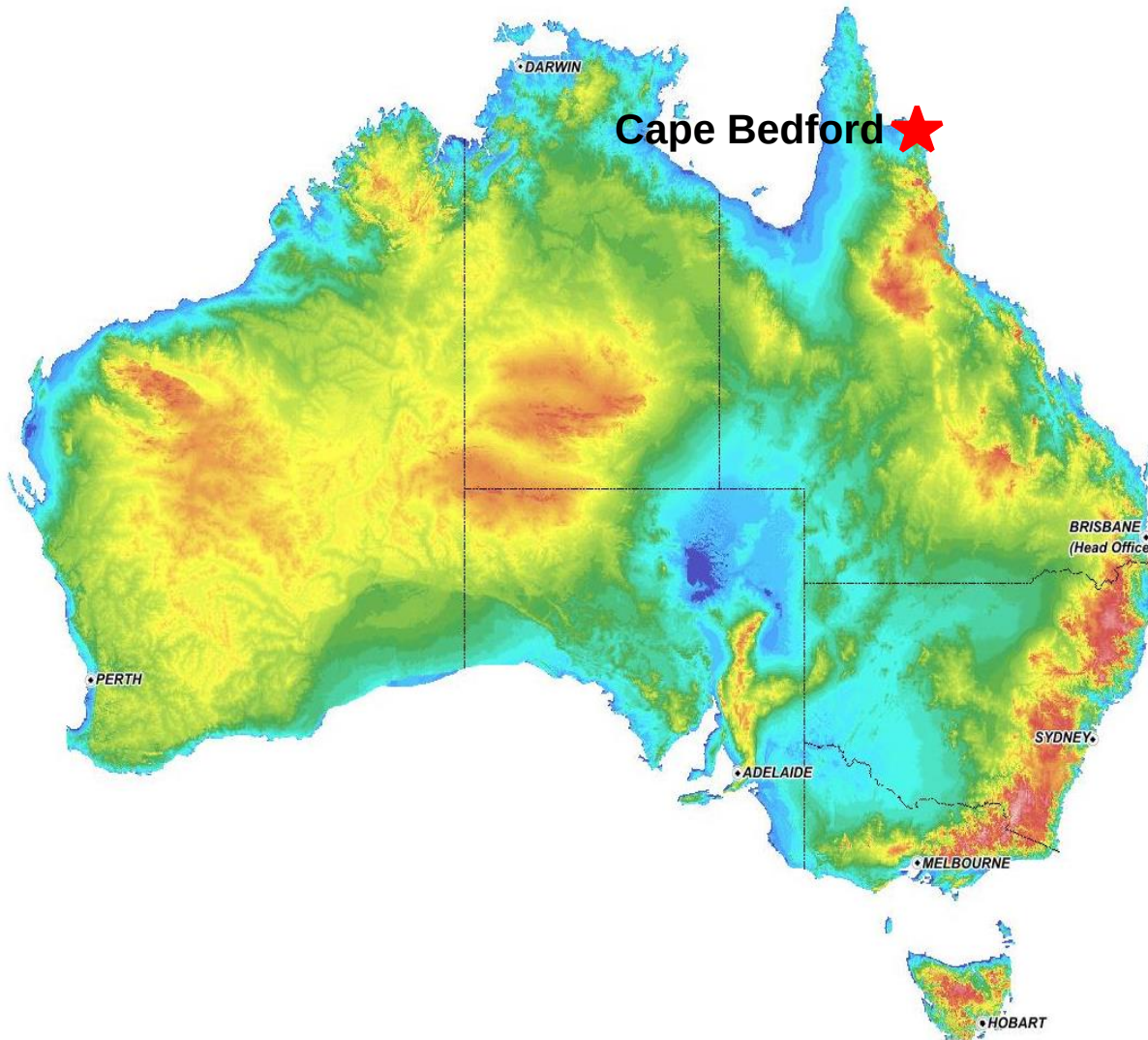
Produced 500,000 oz. gold from 700,000 tonnes of ore at 22.6g/t Au



TICK HILL – POTENTIAL FOR NEAR-TERM CASH FLOW

- High grade historic gold production, **513,333** ounces of gold at a recovered grade of **22.6 g/t gold**
- JV in place with Superior Resources Ltd, “surface” gold 50/50 JV, below ground \$750k earn in for 50%.
- Excellent exploration target – offset / repetition of the mined gold shoot
- Immediate opportunity to process old mine tailings with a resource estimate of 630,000 tonnes at 1.08 gram per tonne Au (22,000 oz Au)
- Encouraging metallurgy (95 – 98% gold extraction with ultra fine re-grind)
- Short term cash flow potential; currently reviewing lower-cost production method using gravity separation circuit to take advantage of high gold price

CAPE BEDFORD, QLD

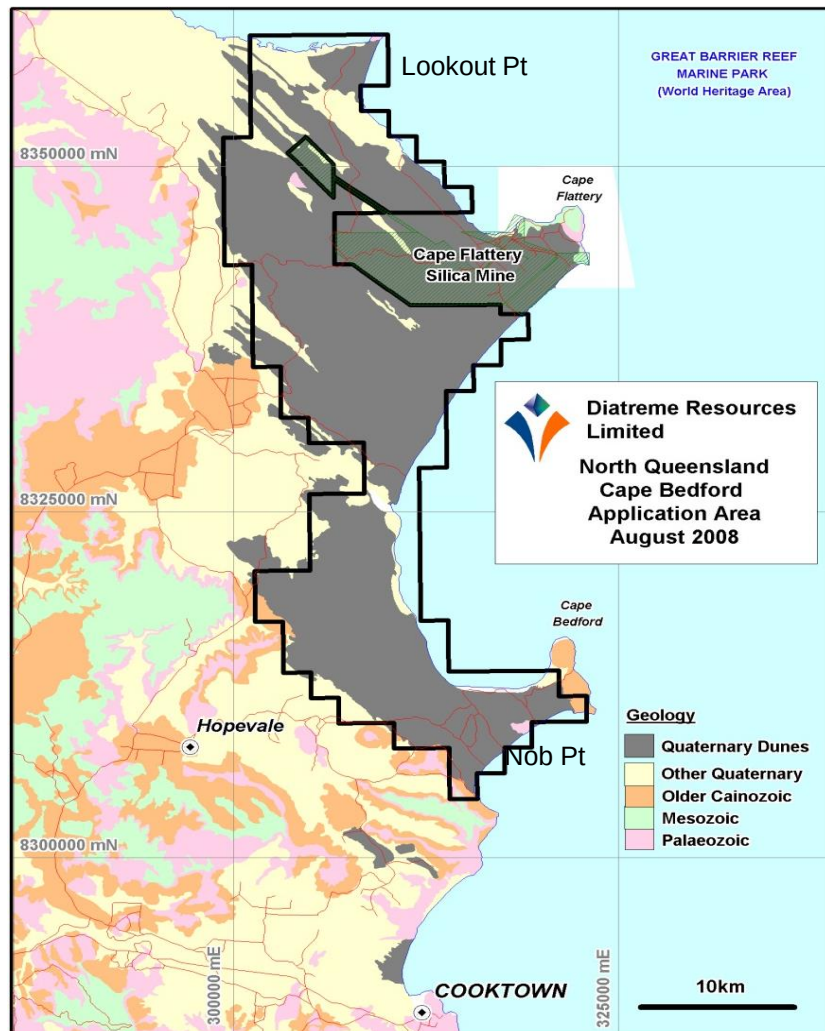


Cape Bedford, QLD
Silica Sand,
Heavy Mineral Sands

EPM Grant **June 2016**

Size: 554 sq. km

CAPE BEDFORD, QLD



Large sand dune system with known silica sand and mineral sand occurrences over an area 50km x 15km in dunes up to 100m high.

Historical exploration indicates HM mineralised horizons in sand mass

High grade silica in previous drilling samples. Samples indicate areas with a high value assemblage of zircon, rutile & ilmenite.

Existing public access port at Cape Flattery.

Cape Flattery silica sand operation has established a mining culture with the Aboriginal landowners.

Traditional owners have agreed general terms for compensation and conduct agreement.



CAPE BEDFORD DEMAND OUTLOOK

- ✓ **Meeting quality demands:** Whiteness (a strong indicator of purity) and sizing of silica sand meets the demands of the glass and foundry industries
- ✓ **Large Asian market demand:** Particularly in China, Japan, Korea and Taiwan
- ✓ **Proximity to existing producer:** Tenement adjacent to world's largest silica sand exporter (Cape Flattery)
- ✓ **Array of applications:** eg. glass manufacture, foundry production, electronics, ceramics, construction

CAPE BEDFORD, QLD



CAPE BEDFORD, QLD



Mineralisation on the current beach shedding from the dunes

CAPE BEDFORD, QLD



Major dune field with high grade silica sand overlying heavy mineral sand potential



DRX RECENT SIGNIFICANT ANNOUNCEMENTS

- ✓ **Dec 2015:** Cyclone Ore Reserve increased by 47%, mine life lengthened to 14 years following incorporation of acquired Cyclone Extended resource.
- ✓ **Jan 2016:** Cyclone Project substantially de-risked, with award of Mining Lease, agreement with Traditional Owners and identification of water supplies.
- ✓ **Jan 2016:** Maiden gold resource for Tick Hill tailings (630kt at 1.08g/t Au at 0.5 g/t cut-off)
- ✓ **Mar 2016:** Cyclone Project costs reduced; CAPEX down \$77m, OPEX cut \$11m after internal engineering reviews. Project fundamentals being improved by redesign and using best practice technologies.
- ✓ **Jun 2016:** Cyclone Project Enhancement Study by Sedgman Limited reaffirms financial viability; NPV \$121M and payback in under 3 years. Ore Reserve updated to 138 Mt at 2.6% HM.
- ✓ **Jun 2016:** 5-year exploration permit secured for Cape Bedford Silica/HM Project.
- ✓ **Aug 2016:** Final EPA recommendation for approval. Review and consultation period before expected consent by the Environment Minister.
- ✓ **Aug 2016:** Lower-cost production method eyed for Tick Hill Gold Project.
- ✓ **Aug 2016: Beer & Co research report:** 'Buy' & 6 cps valuation; Major share price driver 'the conclusion of an investment agreement for Cyclone'.



DIATREME: DELIVERING VALUE

- Experienced management/board with ‘skin in the game’
- Highly prospective tenement portfolio in mineral sands, gold & more
- **Cyclone Zircon Project:** Flagship project advancing through approvals and DFS in world-class zircon province; de-risking process virtually complete, facilitating further investment
- **Tick Hill Gold Project:** Short-term cash flow opportunity from reprocessing tailings of historically rich former mine near Mount Isa
- **Cape Bedford Silica/Heavy Minerals Project:** Potential for mineral sands and large-scale silica sand deposits near world’s largest silica mine
- **Diatreme Resources:** High potential for gains in market value as key projects are advanced in environment of rising commodity prices

APPENDIX 1



Cyclone Project Resource & Reserve Estimate

MINERAL RESOURCE													
Resource Category	HM cut-off %	Material Mt	HM %	HM Mt	Slime %	OS %	Head Grade						Zircon Kt
							Zircon %	Rutile %	Leuc %	HiTi %	Alt Ilm %	Si TiOx %	
MEASURED	1.0	156	2.4	3.79	4.2	5.1	0.69	0.08	0.17	0.52	0.26	0.55	1,070
INDICATED	1.0	55	1.8	0.99	4.1	4.5	0.36	0.06	0.06	0.50	0.11	0.31	200
TOTAL	1.0	211	2.3	4.78	4.2	4.9	0.60	0.08	0.14	0.51	0.23	0.50	1,270
Mineral Assemblage							27%	3%	6%	23%	10%	22%	
ORE RESERVE													
Reserve Category	Zircon cut-off %	Material Mt	HM %	HM Mt	Slime %	OS %	Head Grade						Zircon Kt
							Zircon %	Rutile %	Leuc %	HiTi %	Alt Ilm %	Si TiOx %	
PROBABLE	0.4	138	2.6	3.52	4.6	5.3	0.72	0.07	0.17	0.59	0.32	0.57	990
TOTAL	0.4	138	2.6	3.52	4.6	5.3	0.72	0.07	0.17	0.59	0.32	0.57	990
Mineral Assemblage							28%	3%	7%	23%	13%	22%	

Notes:

- Refer to DRX ASX Release 15 June 2016 "Cyclone Study Reaffirms Project Profitability" for more detail
- Rounding may generate differences in last decimal place
- A constant SG of 1.7 has been used to derive material tonnes
- Slime refers to material typically <53um
- OS refers to material typically >2mm
- Mineral Assemblage derived from QEMSCAN® analysis
- High Titanium Oxides (HiTi) – Ti-oxides containing 70 - 95% TiO₂, Altered Ilmenite (Alt Ilm) – Ti-oxides containing <70% TiO₂, Siliceous Ti-Oxide (Si TiOx) – Ti-oxides containing >10% silica rich Ti minerals.
- Resources are inclusive of Reserves.

APPENDIX 2



Tick Hill Tailings Resource Estimate

Category	Location	Au cut-off g/t	Material Volume '000 m ³	Material Density	Material '000 t	Au g/t	Au kg	Au t oz
INDICATED	West Paddock	0.5	245	1.4	345	0.80	275	8,800
INDICATED	East Paddock	0.5	205	1.4	285	1.42	405	13,000
INDICATED	TOTAL	0.5	450	1.4	630	1.08	680	21,800

Notes:

- Refer to DRX ASX Release 19 January 2016 “Maiden Gold Resource for Tick Hill Tailings” for more detail