

Lottah Mining Pty Ltd
EL 14/2018 - “Middle Arm”
Annual Report on Exploration
for the period July 2019 – July 2020

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July, 2020

Executive Summary

This is the first year's annual report for EL 14/2018 "Middle Arm" at Beaconsfield.

EL 14/2018 "Middle Arm" contains a JORC (2004) gold resource of 517,000t at 1.8g/t gold for 29,900 ounces of gold contained in historical tailings produced between 1877 and 1914 by the processing of ore from the Tasmania Reef at Beaconsfield.

Lottah Mining was in the process of buying the Beaconsfield gold mill, mine lease and tailings dams which is only 4 km's away with the intent of processing the tailings through this mill.

With the apparent collapse of this sale to Lottah Mining Pty Ltd a need to consider other approaches to developing the 29,900 ounces gold resource has arisen.

Field work was limited to reconnaissance shore visits.

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1.0 Introduction

1.1 EL 14/2018 “Middle Arm” Location and Access

Geographically EL 14/2018 “Middle Arm” covers the area of Middle Arm, an embayment on the western side of the estuarine Tamar River adjacent to the historical mining township of Beaconsfield.

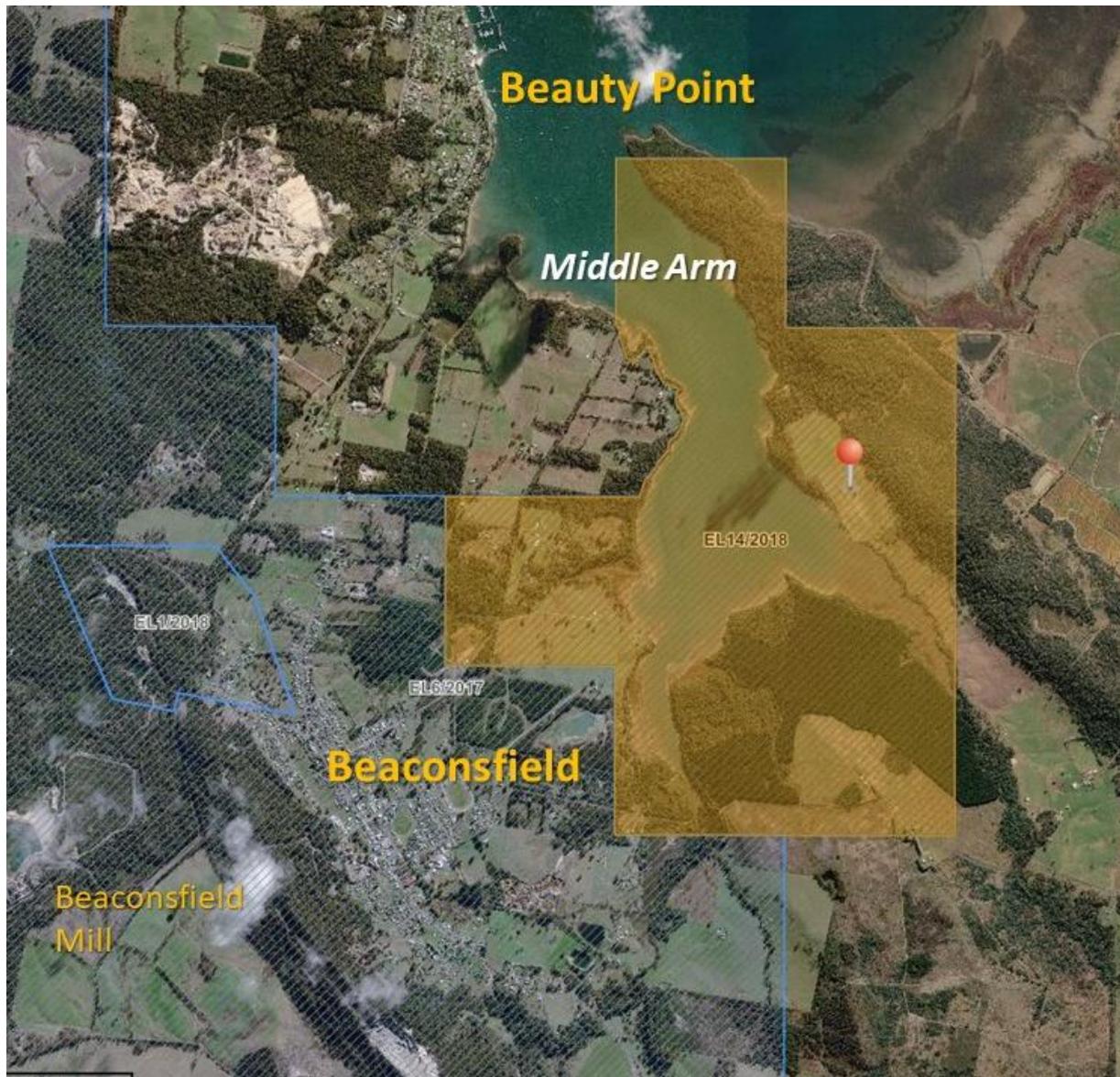


Figure 1.1: EL 14/2018 “Middle Arm” location in tan hatch superimposed on ListMap airphoto.

1.2 Land status and usage

The estuary is largely covered by the Middle Arm Conservation area with the gold resource almost all within it.

The conservation area extends for some tens of metres beyond the highwater mark on the western and shoreline, it appears to run along the highwater mark on the eastern side. It was listed in 2011.

The rest of the dry land is private farmland.

1.3 Tenure

The licence was granted to Lottah Mining Pty Ltd on July 22nd 2019 as a result of a tender for ERA 1095.

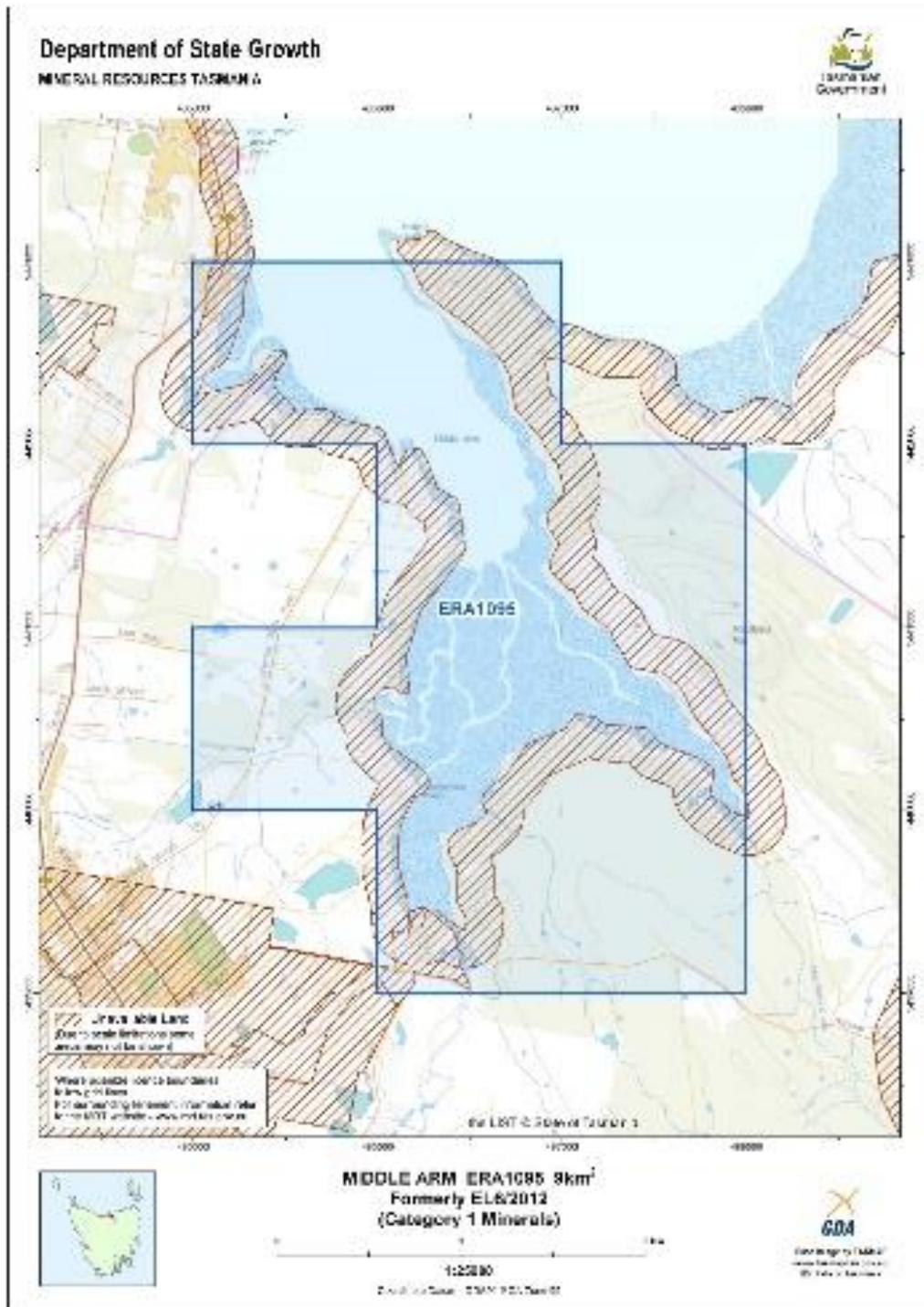


Figure 1.2: Middle Arm ERA1095 summary from Mineral Resources Tasmania

Following objections to licence was reduced from its original application size to exclude unnecessarily concerned residents some distance from the actual resource. The current size of the licence is listed at 8 square kilometres.

1.4 Exploration focus

EL 14/2018 “Middle Arm” contains a JORC compliant gold resource of 29,900 ounces at a grade of 1.8g/t gold as determined by vibracore samples on a 200m x 200m grid (Gibbons, 2012).

Lottah Mining intends developing this resource.

2.0 Geology and Resources

2.1 Geology

The 8 square km's of EL 14/2018 "Middle Arm" are centred on the Middle Arm embayment of the estuarine Tamar River. The dry land portions of the licence are underlain by Permian sediments to the south and west and Jurassic dolerite to the east.

The gold resource is contained within a thin layer of sand which overlies a muddy substrate in the intertidal portion of the estuary, the supratidal and dry land portions of the historic tailings resource having been exploited in the 1990's. The layer averages 0.5m in thickness but ranges up to 2.83m.

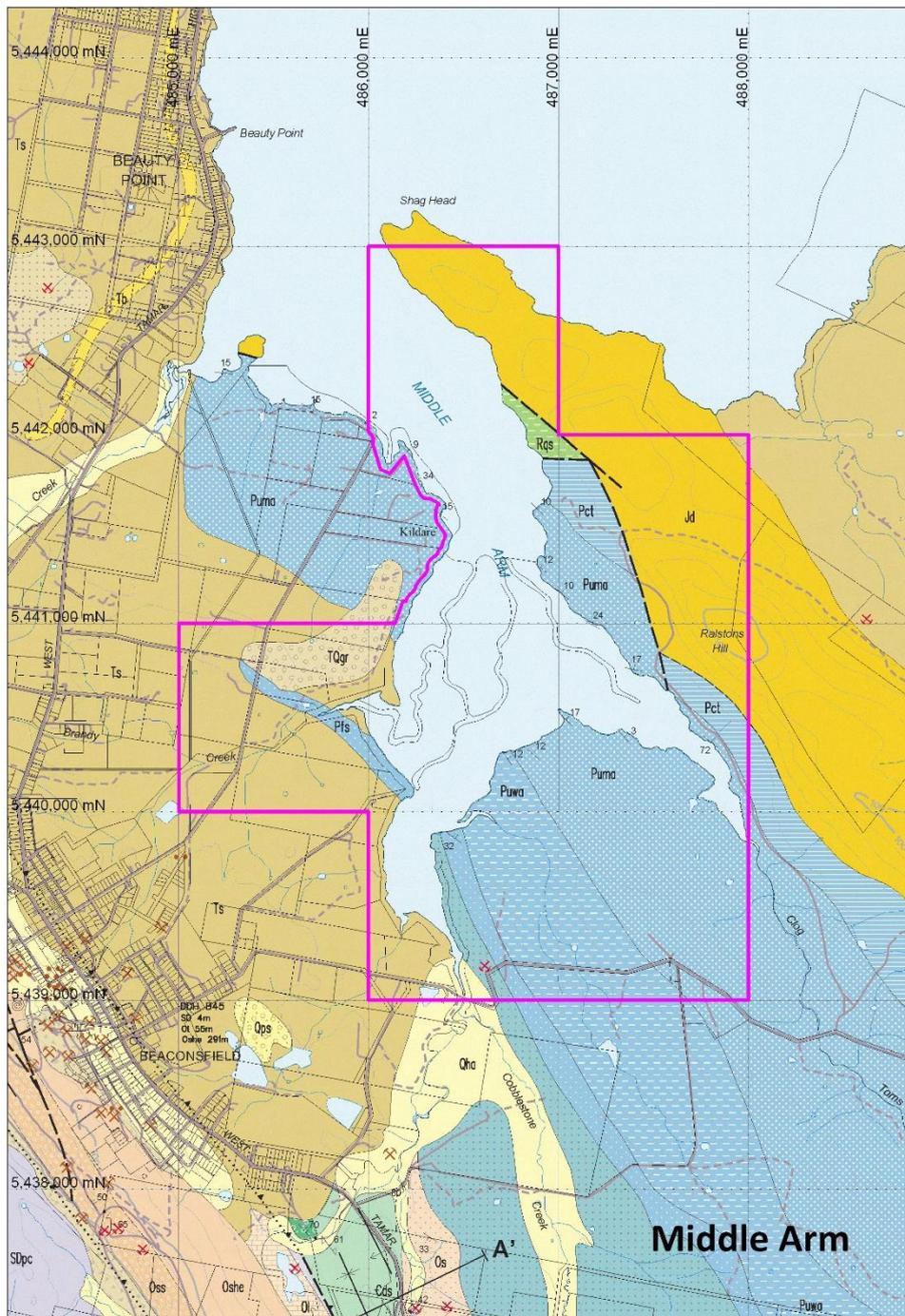


Figure 2.1: Geology of EL 14/2018 "Middle Arm" from Mineral Resources Tasmania's 1:25,000 geology.

2.2 Resource

The current gold resource estimated for Middle Arm is 517,000 tons at 1.80g/t gold (0.5 g/t gold cut-off) for 29,900 ounces of gold (Gibbons, 2012) based on a vibracore sampling programme conducted in August and September 2012.

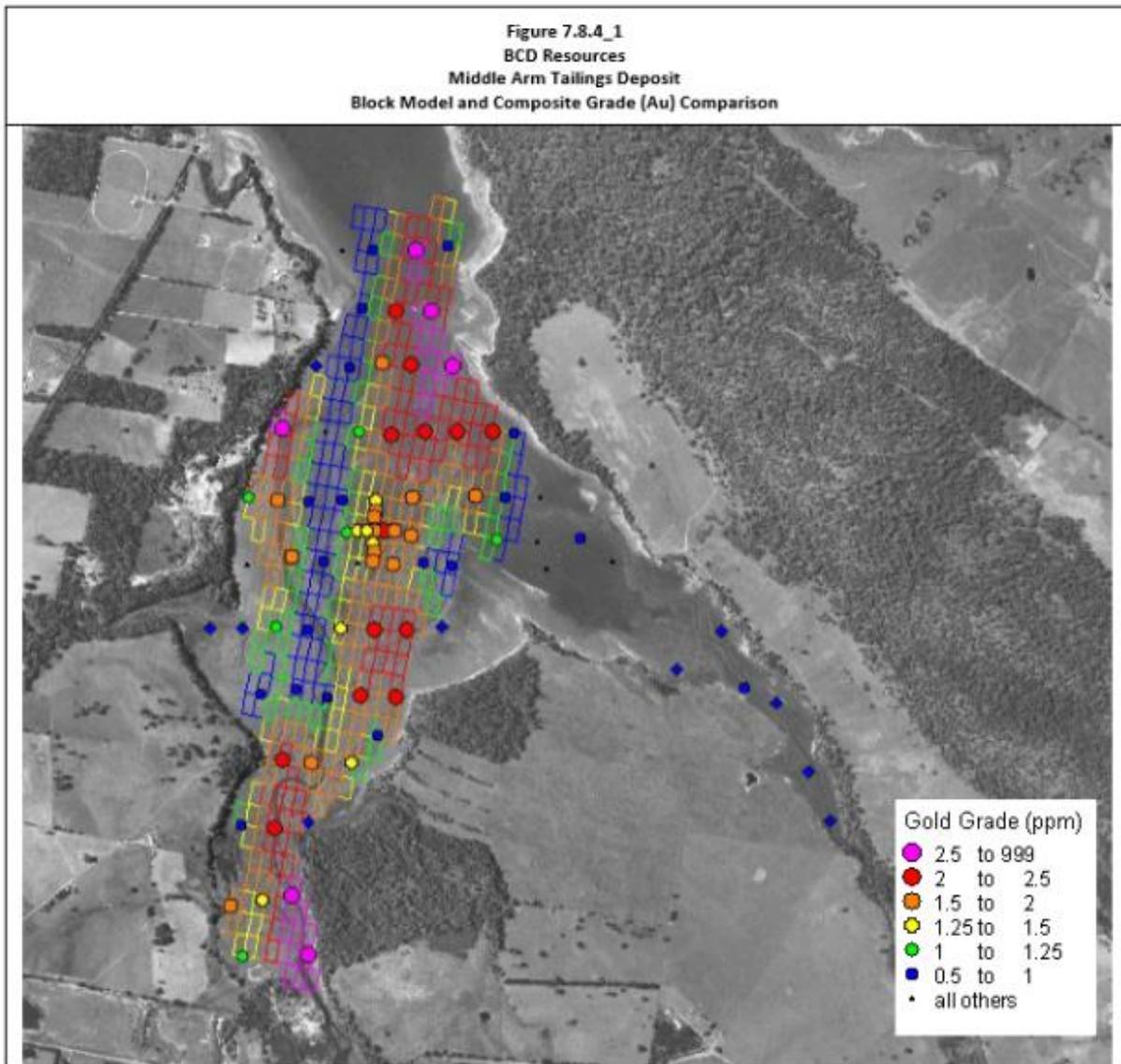


Figure 2.1: Middle Arm tailings resource from Gibbons (2012) showing gold grade.

Figure 7.8.4_2
BCD Resources
Middle Arm Tailings Deposit
Block Model and Composite Thickness (m) Comparison

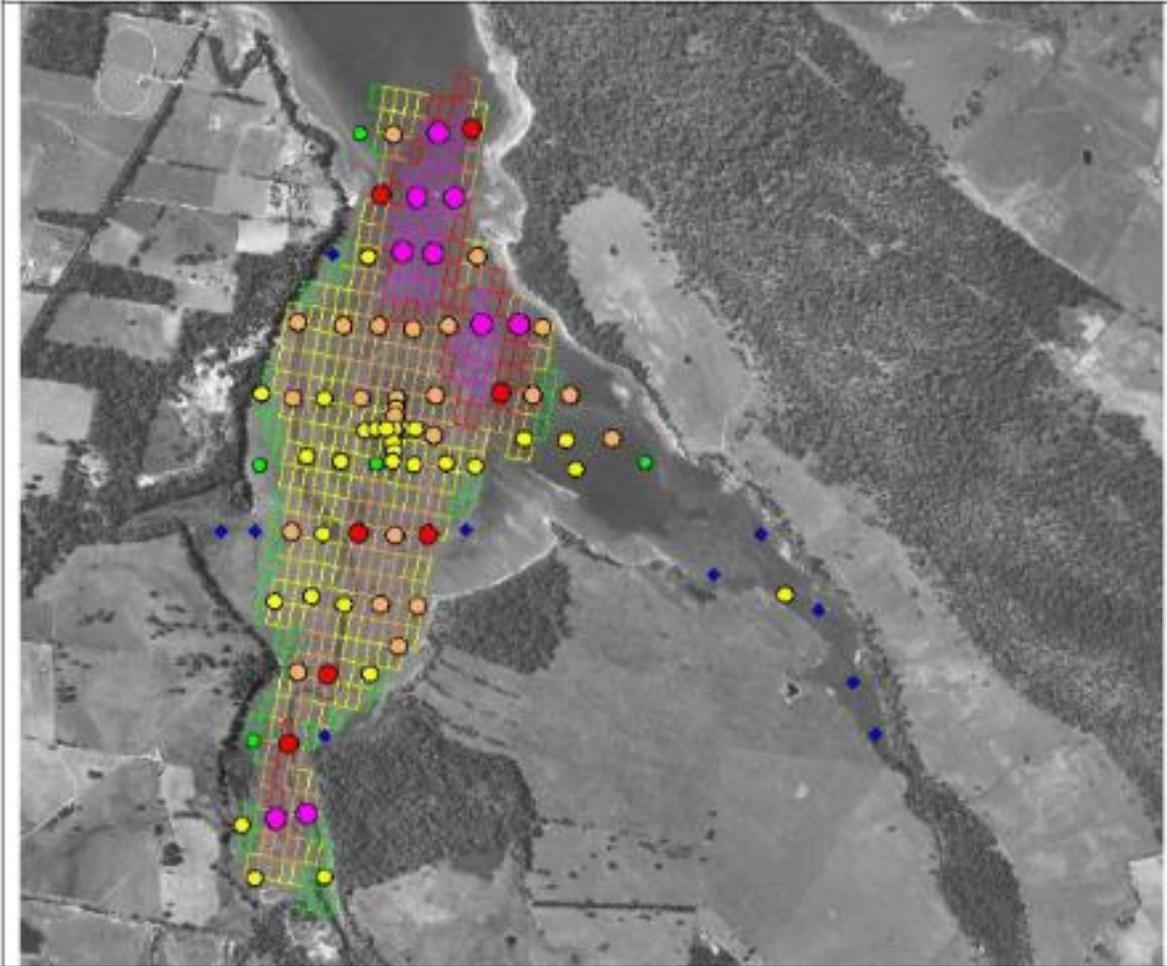


Figure 2.2: Middle Arm tailings resource from Gibbons (2012) showing tailings thickness (no key supplied).

3.0 Review of Previous Work

3.1 Introduction

The Middle Arm resource dates to the period 1877 to 1914 when the Beaconsfield goldmine was actively mining the Tasmania Reef from surface to a depth of 455m only 1 km to the west of the EL boundary.

At the time a tramway carried ore from the mine site to the battery situated on the western side of Middle Arm Creek just upstream from the Middle Arm embayment. Here the high grade gold bearing quartz reef was crushed by the stampers with the fines run across copper plates with a coating of amalgam (mercury) attracting the gold and generating a sulphide concentrate which was subsequently roasted.

Chlorination was utilised to leach this oxidised gold for some of the period pre-1899 (Davies, 1899) being replaced with cyanidation sometime prior to 1914 (Cundy and Fawcett, 1914).

Some of the battery sands accumulated on the banks of Middle Arm Creek, however, the bulk of the sands were allowed to accumulate in the Middle Arm estuary.

The Tasmania Reef is a “mesothermal” quartz reef. Much of the gold is found in classical laminated and/or brecciated quartz associated with a few percentage points of pyrite and arsenopyrite as well as minor but present amounts of silver, copper and occasional lead and zinc. Much of this gold is free milling. Gold is also found in a later phase in the reef associated with an ankeritic carbonate with higher levels of the sulphide minerals listed above. Gold in this later phase includes a higher component of refractory gold which would have been less recoverable using the extractive technologies of the time.

The Tasmania Reef reportedly produced 1.04 million tons at a recovered grade of 25.6 g/t gold. It was reported at the time (Schlapp, 1900) that the tails grade was 2.7 g/t gold which would indicate a recovery of 90% comparable with recoveries during the modern operation which is somewhat surprisingly high and may not reflect the recoveries achieved from later processing of deeper, potentially more refractory ore. However, it may be calculated that the original Middle Arm tailings resource should have contained 1.04 million tons at at least 2.7 g/t gold for 90,300 ounces of gold.

Mining and processing of 541,000t by Golconda Resources between 1985 and 1988 means that there should be 499,000t remaining.

3.2 Previous Resource Definition/Mining History

3.2.1 1944 to 1962 (Anon., 1974)

The presence of commercial quantities of gold within the battery sands has been of interest for some time. From 1944 to 1962 a number of small-scale sampling programmes with accompanying metallurgical testwork was completed. These tests were summarised in anon. (1974) (and shown here in Table 1 below) and illustrate the fact that recoveries using cyanidation with or without grinding were quite poor with the range of recoveries of the non-concentrate samples from 22% to 67.5% but with a mean of 38.3% recovery.

The 24 non-concentrate samples also have a mean grade of 2.69 g/t/gold, higher than the 1.8 g/t gold estimated for the rest of the Middle Arm resource (Gibbons, 2012).

Table 3.1: Summary head grades and recoveries for samples tested metallurgically between 1944 and 1962 (anon., 1974)

Job	Test	Head Grade g/t gold	Recovery %	Sample Location
R1	N1	44.5	46	"Beaconsfield concentrate"
	N2	44.5	66	"Beaconsfield concentrate"

	N3	44.5	88	"Beaconsfield concentrate"
R2	N1	2.3	34.3	Middle Arm dump
	N2	2.3	45.7	Middle Arm dump
	N3	2.3	60	Middle Arm dump
R41		1.84	46.5	Edward's No.1
		2.76	31.4	Edward's No.2
		1.22	23.7	Edward's No.3
		2.45	31.2	Manion's D
		1.53	12.5	Manion's S
		2.45	67.5	Middle Arm dump
		1.99	43.5	Fowler's dump
R50		3.07	32	Middle Arm dump
		2.15	35	Middle Arm dump
		3.07	26	Middle Arm dump
		2.45	53	Middle Arm dump
		3.68	30	Middle Arm dump
		2.14	55	Middle Arm dump
R51	N7	62.49	93	comp. sample R50 - grind
	N8	55.88	57	to produce a concentrate
	N9	3.37	48	
	N10	56.19	17	
R77		3.41	?	Middle Arm dump
R178	plus250µm	2.91	22	Middle Arm dump
	minus250µm	2.91	33	Middle Arm dump
	minus250µm	2.91	33	Middle Arm dump
R130	plus250µm	3.22	20.3	Middle Arm dump - no grind
	plus250µm	3.22	61.3	Middle Arm dump - grind
	minus250µm	4.14	37.2	Middle Arm dump - no grind
	minus250µm	4.14	37.2	Middle Arm dump - grind
R147	N1	6.14	61.5	Middle Arm dump - no grind
	N2	6.14	71.7	Middle Arm dump - grind

3.2.2 BMI Mining Pty Ltd

In 1976 BMI Mining Pty Limited (BMI) pegged Middle Arm in a series of mining leases before undertaking the first systematic sampling programme of the battery sands in Middle Arm itself (Edwards, 1975; Smith, 1975; Smith, 1981) using a hand sludge pump sampling method.

BMI defined a resource of 654,000 tons at 3.6 g/t gold for 75,300 ounces at a 0 g/t gold cut-off (Smith, 1975) in the southern upstream portion of the Middle Arm embayment. A bulk density of 2,500 lb/yd³ (~1.5 t/m³) (which they considered to be conservative) was used and a top-cut of ~4.6 g/t gold applied.

BMI's sampling covered the area from just north of Scotsman's Point upstream to the confluence of Middle Arm Creek with the estuary.



Figure 3.1: BMI sampling locations in red, KA White sampling locations in green (after Gibbons, 2012).

BMI then spent the rest of the decade working on a feasibility study and developing proposals for a mining venture but incorporating such things as a marina in order to give the mining venture a more positive spin. It would appear that they lost interest and withdrew from the project.

Metallurgical testwork by BMI on three samples in 1980 gave the following results;

Table 3.2: BMI metallurgical testwork - recoveries

Sample No.	Head Grade g/t gold	Recovery %
801579	3.3	74.1
801880	2.6	59
801881	2.3	52.1

3.3.3 Golconda Resources

From 1985 to 1988 Golconda Resources (Golconda) mined and processed 541,000 tons of battery sands from Middle Arm producing 20,448 ounces of gold at a recovered grade of 1.18 g/t gold. Whilst not well reported or documented it would appear that Golconda's activities were restricted to the area of the BMI resource.

Golconda did not assay head grades but rather bottle rolled samples in cyanide to determine the recoverable gold. Their plant was a Carbon-in-Leach type without the capacity to win refractory gold.

Golconda mined the Middle Arm tailings using swamp dozers, moxy trucks and an excavator as well as a Mudcat dredge, focusing on the tailings furthest upstream and utilised the swamp dozers to push up the tailings into windrows at low tide where they dried and were dug out by excavator.

Golconda ceased operations after a cyanide spill from one of its tailings dams along Auburn Road.

3.3.4 KA White

In 1992 K.A. White pegged EL 27/1992 and carried out two further lines of sampling akin to BMI's methodology (White, 1995). He surrendered the licence in 1995.

3.3.5 BCD Resources

BCD Resources NL (BCD) pegged EL 6/2012 and carried out a systematic sampling programme on a 200m x 100m grid using a vibracore sampling methodology (Gibbons, 2012).

BCD defined a resource of 517,000 tons at a head grade of 1.8 g/t gold (cut-off grade 0.5 g/t gold) for a total of 29,900 ounces of gold using SURPAC's block modelling function and Ordinary Kriging. The resource is defined as Indicated and is JORC 2004 compliant (Gibbons, 2012).

BCD progressed the development of the resource with the commission of two reports regarding the environmental aspects of mining the resource and commencement of some metallurgical testwork, however, financial difficulties saw BCD fall into receivership with all work on the project ceasing.

BCD's metallurgical testwork is reproduced below.

Table 3.3: Metallurgical testwork on Middle Arm samples by BCD Resources

Sample No.	Head Au ppm	Leach ppm	Tail Au	Calc Rec %	CN kgs/t	Start CN in sol.	Tail CN sol.	Leach time (hrs)	grind pre-leach minutes	Leach Solids %
#3	2.81	1.16		58.77	1.350	1000	100	23.0	15	40.0
#15	2.25	1.19		47.33	1.564	1000	25	21.5	15	38.4
#3	2.83	1.38		51.24	1.479	1000	78	22.5	45	38.4

#3	2.81	1.11	60.68	1.302	1000	88	22.0	15	41.2
#3 + #15	2.53	1.05	58.50	1.367	1000	70	18.0	15	40.5
#3 + #15	2.63	1.85	29.66	0.684	500	30	17.5	15	40.7
MABN #1	1.35	0.72	46.84	2.420	1000	389	19.5	15	20.2
MABN #2	0.64	0.32	49.61	2.477	1000	393	23.0	15	19.7
MABN #3	0.83	0.36	56.97	1.846	1000	507	18.5	15	21.1
MABN #4	1.40	0.63	55.20	2.368	1000	411	18.5	15	19.9
MABN #5	0.19	0.05	72.97	2.305	1000	441	20.0	15	19.5
MABN #6	0.79	0.25	68.35	2.094	1000	474	18.0	15	20.1
mean	1.75	0.84	54.68						

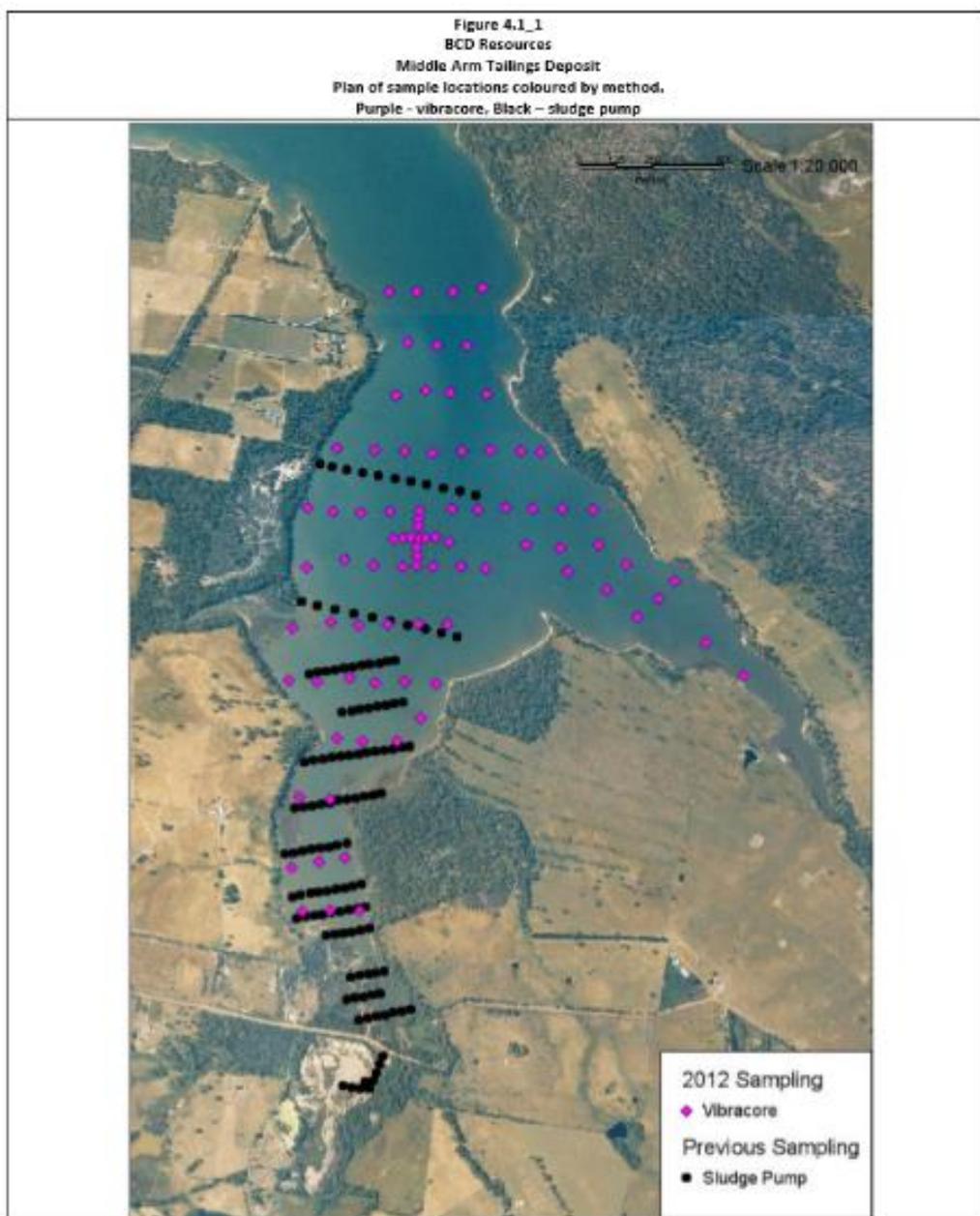


Figure 3.2: BMI sampling locations in pink, BMI sampling locations in black (after Gibbons, 2012)

BCD's resource estimation is quite robust with regard to grades with sufficient QA/QC, however, as noted by Gibbons (2012), calculations of bulk density may be skewed by the use of vibracores which can cause compaction of the sample.

Gibbons (2012) also questions the grade determined in the BMI estimate for the area they sampled suggesting that there was a systematic overstatement of this grade. This is apparent from Golconda's reported head grade of 1.18 g/t gold in combination with some limited sampling of Golconda's own tailings dumps which indicated a tail grade of 0.7-1.0 g/t gold i.e. indicating a resource grade of 1.78 – 2.18 g/t gold as opposed to the 3.6 g/t gold resource grade stated.

Whilst BCD's resource is considered robust it is considered it will be necessary to carry out some further sampling to check and verify BCD's results. As noted later the need for sample material for metallurgical testwork means that such sampling could be used for both.

4.0 Exploration completed during the reporting period July 2019 to July 2020

There has been no field work carried out on the licence during the reporting year.

Much of the typical first year compilation type work was done prior to the application. That work is summarised in section 3.0.

During this period a meeting was held with concerned local landholders who had objected to the granting of the licence.

Energy during the period of the reporting year was focused on completing the purchase of the Beaconsfield mill as a key element in the retreatment of the tailings.

Potential investors including Hunan Gold (China) were introduced to the project with field visits to the site (from the shoreline at near Bowens Jetty and the first bridge over Middle Arm Creek on the Auburn Road) as well as the Beaconsfield mill.

During the reporting period Lottah also maintained the wages of the two employees who were tasked with care and maintenance of the Beaconsfield mill.

Recent announcements by NQ Minerals/Hellyer Gold Mines regarding their purchase of the mill suggests that the deal with Lottah Mining (or associated entity) looks to have fallen over.

Since the intent was to retreat the tailings through this facility its likely sale to a third party has forced a rethink of the direction and reprioritisation of activity on the tenement.

5.0 Discussion of Results

There are no results to discuss.

6.0 Proposed works programme 2020/21 year

Work to date had focused on mining the gold resource and milling it in the Beaconsfield mill.

Whilst this remains an option it will necessitate some form of toll treating or JV with the new owners or develop an alternative treatment option.

The coincidence of the sale of the mill to another buyer, and the impact on travel and investment the coronavirus lockdowns have generated has had a significant impact on Lottah's ability to find alternative options.

It is proposed to complete the work as outlined in the original tender in the second year. This involves a bathymetry survey of the deposit, further sampling and metallurgical testwork, and engineering studies to develop an environmentally acceptable dredging operation.

7.0 Expenditure

	\$
Geology	5,000
Geochemistry	0
Geophysics	0
Remote Sensing	0
Drilling	0
Gridding	0
Land Access	0
Rehabilitation	0
Feasibility Studies	2,500
Other	450
Administration	500
Total	8,450

8.0 Environmental

There has been no field work carried out on the licence which has had any environmental impact.

9.0 List of digital files supplied with this report

There are no digital files attached to this report.

10.0 References

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