

# BCD Resources

ABN 27 000 679 023

## MIDDLE ARM PROJECT TASMANIA

### EL6/2012: MIDDLE ARM

FIRST ANNUAL TECHNICAL REPORT

OF EXPLORATION ACTIVITIES

FOR THE PERIOD

7<sup>TH</sup> AUGUST 2012 TO 7<sup>TH</sup> AUGUST 2013

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REPORT DATE: April 2013  
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## VERIFICATION LISTING VL1

Exploration Work Type	File_Name	Format	Description
<b>Office Studies</b>			
Report	<i>EL6_2012 Middle Arm Annual Report 2013</i>	pdf	This Report
Report	<i>Middle Arm Resource Estimate 2012</i>	pdf	Resource Report 2012
Report	<i>TH035-BCDR-RE-FR-MiddleArmTailingsRecovery-280912</i>	pdf	Hazard and Gap Analysis (ecosure)
Report	<i>6720_BCD_Resources_Final_Report_Aug_2012</i>	pdf	Desktop Study of Sediment Data for Middle Arm (Coffey)
<b>Drilling</b>			
All Drilling	<i>EL62012_201308_02_collars</i>	txt	Drill hole location data
All Drilling	<i>EL62012_201308_03_lithology</i>	txt	Lithological logging data

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All Drilling	<i>EL62012_201308_04_assays</i>	txt	Drill hole assay data
All Drilling	<i>EL62012_201308_05_QAQCassays</i>	txt	Drill hole assay data



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## LICENCE DETAILS

Licence Number: EL6/2012

Project Name: Middle Arm Tailings

Licensee name and ABN: BCD Resources, 27 000 679 023

Licence History:

EL6/2012 was granted on 7<sup>th</sup> August 2012 to BCD Resources (BCD) for an initial term of 5 years.

## INTRODUCTION

### EXPLORATION RATIONALE AND GEOLOGICAL SETTING

The objective of EL6/2012 is to assess the properties (tonnage, thickness, grade distribution etc) of the gold bearing tailings contained in Middle Arm that were discharged from the old Tasmania Mine Reduction Works located on the banks of Middle Arm Creek. The geological setting is unconsolidated tailings material dispersed in an otherwise relatively undisturbed estuarine environment. Tidal fluctuations periodically expose parts of the tailings subaerially, the remainder are under permanent shallow water cover. The body of water is estuarine and connected to the greater Tamar River. Middle Arm receives freshwater flows from permanent and ephemeral creeks.

### LICENCE AND TENEMENT DETAILS

Exploration Licence EL6/2012 was granted to BCD Resources on 7<sup>th</sup> August 2012 for a period of 5 years. The tenement is located approximately 2.5km east of Beaconsfield in Northern Tasmania.

### LOCATION

EL6/2012 is located approximately 2.5km east of Beaconsfield and approximately 40km north of Launceston in Northern Tasmania. It covers an area of 9km<sup>2</sup>, extending over the entirety of Middle Arm from the bridge over Middle Arm Creek on Auburn Road at Beaconsfield to approximately 750m south of the Port Dalrymple Yacht Club at Beauty Point. Refer to Figure 1. All maps and plans are in MGA94 Z55 coordinates.

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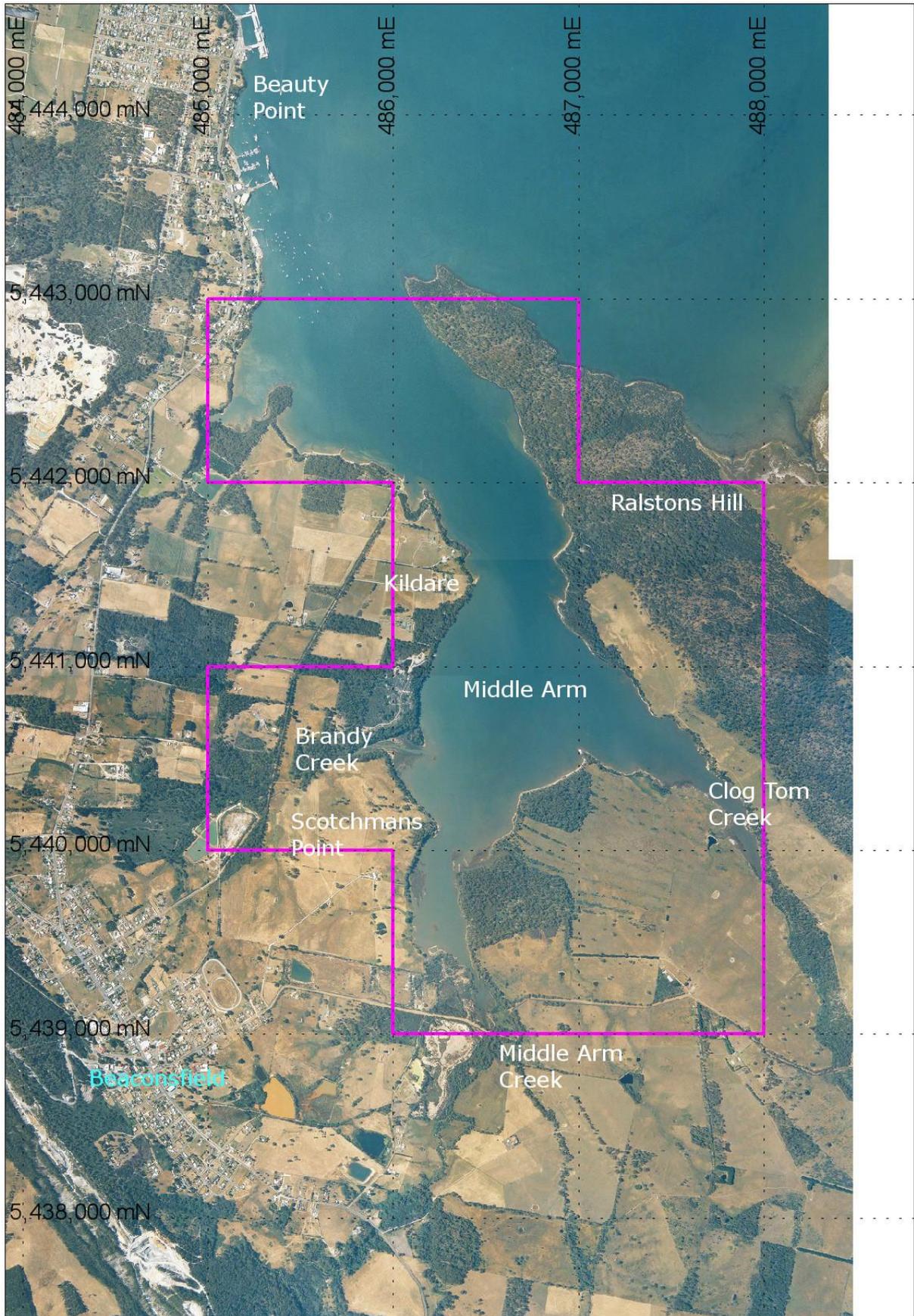


Figure 1 Site overview map

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## TENURE

EL6/2012 is held solely by BCD Resources.

## REVIEW OF PREVIOUS WORK

### PRIOR TO GRANT OF EL6/2012

The Tasmania Mine at Beaconsfield operated in two phases. The early phase, from 1877 to 1914, mined and treated approximately 1.04M tonnes of ore with approximately 855,000 ounces of gold produced at a recovered grade of 25.6g/t. The historic battery and associated plant infrastructure (the “reduction works”) was located approximately 1 mile from the main (Hart) shaft, on the banks of Middle Arm Creek. Tailings from the processing facility were discharged into the creek, and this material was then carried into Middle Arm.

No exact records of tailings grades exist, although one report from 1900 (Schlapp, 1900) indicated a tailings grade of approximately 2.7g/t at that time when converted into modern units. This suggests an overall metallurgical recovery of approximately 90%, comparable to the modern operation (albeit at a much higher average head grade).

Gold from the Tasmania Reef at Beaconsfield has always had a refractory component, although the proportion of free milling gold to refractory gold has varied (typically >60% refractory for the modern operation). The historic operation at Beaconsfield used a roasting and chlorination process to extract the refractory gold, whereas the modern mine used bacterial oxidation.

After rock breaking, the ore was crushed in the battery and passed over amalgamated copper plates (to recover free gold), and then onto the concentrating system. A sulphide concentrate was formed, and this was then roasted until “dead”. The roasted concentrate was leached, with the gold adsorbed onto charcoal which was collected and burnt with the ash smelted (Davies, 1899). A later report (Cundy & Fawcett, 1914) describes a similar process but refers to cyanidation rather than chlorination for the dissolution of gold from the roasted concentrate.

No metallurgical process is perfect, and with the high head grades of the Beaconsfield operation, an appreciable quantity of gold was left in the tailings from the historic reduction works. Accordingly, various investigations into retreatment have been made over the years since the operation ceased. Technical Report 17 (Anon., 1974) summarises 8 separate ‘investigations’ into extraction of gold from the Middle Arm tailings undertaken between 1936 and 1944, plus a later investigation conducted in 1962. Although some relatively small scale retreatment activities were undertaken after 1914, the bulk of the tailings remained in-situ in Middle Arm despite the various investigations until the latter part of the 20<sup>th</sup> century. At some time between 1914 and 1976, a surface stockpile of battery sands (still with residual gold) was created adjacent to Middle Arm, presumably after having been retreated. This was known locally as ‘the stockpile’ but the full history behind it is not clear.

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On 1 August 1976, Blue Metal Industries (“BMI”) was granted four tenements (61M/73, 62M/73, 63M/73 and 96M/74) over Middle Arm for a period of 21 years. BMI also applied for an additional tenement (969P/M) over ‘the stockpile’ and presumably this was ultimately granted although the reports are unclear, with a dispute with private landowners reportedly delaying grant (Smith, 1981). BMI conducted extensive studies into the Middle Arm tailings including a substantial sampling program and reserve calculation (Smith, 1975). This led to a feasibility study with the clear intention of retreating the tailings. This work occurred in the second half of the 1970s, extending at least to 1981.

For unknown reasons, BMI did not ultimately proceed to production. By 1985, the tenure over Middle Arm had passed to another company known as Golconda Resources (“Golconda”). From 1985 to 1988, Golconda recovered and re-treated 541,000 tonnes of Middle Arm tailings and produced 20,448 ounces of gold at a recovered grade of 1.18g/t using a cyanidation process. This production figure includes the 140,000 tonnes reputedly contained in ‘the stockpile’ which was the first material that was retreated by Golconda (J Miedecke, pers. comm.). Golconda constructed a plant and four tailings storage dams close to Middle Arm on Auburn Road, Beaconsfield. The operation was marred by a spill of cyanide bearing solution into Middle Arm which was alleged to have resulted in a fish kill at nearby Beauty Point. The spill occurred as a result of a failed dam wall on tails dam #1. The tailings were recovered from Middle Arm mostly by swamp dozers, excavators and trucks although the company also owned a Mudcat dredge.

The dredge was (reportedly) not very successful, so the primary means of extraction was for swamp dozers to push the material into large windrows at low tide. These windrows were large enough to remain out of the water at high tide, and they would gradually dry over a period of weeks. When a windrow was sufficiently dry, it would be dug out by excavator. This method of operation was only suitable for that part of the deposit that was exposed by low tide for a significant period of time each tidal cycle. As such, areas under permanent water further north were not exploited (J Miedecke, pers. comm.).

Golconda ceased operations in 1988 and the plant was removed and the site largely rehabilitated. Of the four tailings dams constructed by Golconda, only the last one used (#4) remains unrehabilitated at the time of writing. Although it now has vegetation cover over much of the dam surface, the retreated tailings remain exposed in dam #4 on the southern side of Auburn Road (i.e. the dam is uncapped).

The Golconda operations recovered and retreated 541,000 tonnes of material, of the original 1.04M tonnes deposited into Middle Arm. This implies approximately half of the total tailings remained behind in Middle Arm after Golconda ceased operations. The next known holder of the area was K A White, who held an exploration licence (EL27/92) over Middle Arm. White completed two lines of sludge pump sampling largely to the north of where Golconda operated, and the results were made available when Mineral Resources Tasmania advertised the area under the ERA process in 1996.

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No other activity by White is recorded, and no other holders are known between 1996 and 2012. White (1995) reported that Golconda only retreated 237,000 tonnes of tailings and therefore the exploration target was 800,000 tonnes of tailings however this is now believed to be incorrect.

## SINCE GRANT OF EL6/2012

As this is the first annual report for EL6/2012, there are no older works to report on.

## EXPLORATION COMPLETED DURING THE REPORT PERIOD

### LITERATURE REVIEW

The literature review conducted was largely around the history of the site and putting together the records of activity by Golconda Resources. Open file reports are very limited and much of the information about the Golconda operation was obtained directly from people who worked on the project in the 1980s, including John Miedecke (rehabilitation/environmental contractor), Graham Folland (metallurgist/plant supervisor) and Larry Pisconeri (plant operator). The significant points regarding production were outlined in Section 2. The assessment of the area of operation for Golconda was made using aerial photography obtained from the Geodata Services Branch of DPIPW. High resolution low tide images (aerial photographs) were available from 1986 (during operations) and 1989 (post operations) and these were rectified in-house by BCD. No direct production records or maps of areas worked are available, and the total production history was reconstructed from the relevant annual Reports of the Director of Mines which are assumed to be accurate.

Figure 2 shows the detail of the Golconda plant site during operations in October 1986. Auburn Road runs across the bottom of the image, and the edge of the eastern wall of tailings dam #1 can be seen at the left hand side. This is part of a much larger image showing much of the area of operations.

Figure 3 shows a part of the area worked by Golconda. This photo was taken in 1989, after operations had ceased. This part of the image shows the area immediately north of Scotchman's Point, and the machinery marks in the sediments can clearly be seen.

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Figure 2 Golconda plant site October 1986.

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Figure 3 Area around Scotchman's Point, 1989 (post-Golconda)

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## REGIONAL EXPLORATION ACTIVITIES

No regional exploration activities were conducted.

## PROSPECT-BASED EXPLORATION ACTIVITIES

The Middle Arm Tailings project is unusual in the sense that there was quite a strong expectation of the likely size and tenor of the deposit prior to conducting any fieldwork. The total input of tailings to Middle Arm was 'known' (1.04M tonnes) and the total extracted and retreated was also 'known' (541,000 tonnes) from historic records. The recovered grade for Golconda Resources was also known (1.18g/t Au) and this could be used to estimate the likely head grade (or in-situ grade). What remained unknown was the extent of tailings dispersion within Middle Arm and the extent of grade and thickness variations within the deposit.

The earlier work had indicated that the tailings deposit was generally quite thin (usually less than 2m, often much less) but dispersed over an extensive area (the most northerly gold bearing samples taken by White were more than 2km downstream of the historic battery). Both the BMI sampling and the sampling done by White was done with sludge pumping (hand operated in the case of BMI). The 1975 BMI reserve calculated by Smith suggested an in-situ grade of 3.6g/t Au, but the head grade from Golconda (who operated in effectively the same area that the 1975 reserve related to) was substantially lower (circa 2.0-2.2g/t average). This suggests problems with the sampling method used by BMI (and by extension, White) and the early sampling is therefore considered unreliable in terms of grade. An alternative explanation for the grade discrepancy would be very substantial mining dilution incurred by Golconda, but the degree of dilution required to account for the grade difference is considered unrealistically high. The historic sampling locations are shown in Figure 4. Note that the background to Figure 4 is an aerial photograph taken at or close to high tide. Most of the time, at least part of the area of Middle Arm is exposed subaerially.

Standard practice for sampling this style of deposit now is vibracoring (aka vibrocoring) and it was determined that Middle Arm would be systematically vibracored on an approximately 200m x 100m grid. This was to include the area previously worked by Golconda, to test for any material either left behind, or subsequently remobilised by tidal action in the ~25 years since their operation ceased. Much of the area of Middle Arm is exposed for long periods each tidal cycle, so initially investigations were made of various land based deployment methods. However, the surface was found to be extremely soft and specialised equipment would have been required to traverse the mud at low tide. As such, a boat was chosen as the most appropriate sampling platform, with the obvious requirement that the work be carefully scheduled around the tidal cycle. The boat to be used also needed to have a very small draft.

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Figure 4 Sludge pump sampling locations. BMI samples in red, K A White samples in green.

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Vibracoring is a method of sampling used for damp to wet unconsolidated to semi-consolidated sediments. A continuous core can be extracted with little or no contamination and complete core recovery. A single-use core barrel (aluminium pipe) with core catching device is sunk into the sediment and then retrieved. The core barrel is not rotated and there is no cutting head as such; the barrel penetrates under its own weight and/or applied weight to initial refusal and then the vibrating unit is turned on. The vibrating unit is firmly clamped to the barrel, and sets up a high frequency vibration in the barrel which causes liquefaction of the sediment at the barrel/sediment interface allowing the barrel to sink into the sediment. Once the barrel has penetrated to its full length (or to refusal) it is then withdrawn, capped and returned to shore for processing. Various measurements of penetration and water depth are made in the field. Processing involves removal of excess water, removal of the core catcher (for reuse) and cutting off any excess barrel length that does not contain sediment, followed by capping and sealing. Measurements of recovered core length are made at this stage. Cores can then be stored (indefinitely) for later logging and sampling.

Vibracoring devices are available in various sizes, with differing penetration capabilities and retrieval systems. With the shallow water depth, difficult access and thin deposit, a (relatively) lightweight, highly portable system was most appropriate. There are no local contractors with specialist vibracoring experience in Tasmania, so a contractor from the mainland was engaged. Quaternary Resources is a specialist vibracoring provider based in the ACT and they were engaged to do the work. A 6m flat bottomed punt was hired from Gravelly Beach Marine and the fieldwork was completed between the 27<sup>th</sup> August and 5<sup>th</sup> September 2012. The type of system used was a “Wacker” vibracorer, which is effectively a modified concrete vibrator, powered by a small petrol four stroke engine. The entire system can be carried and operated by two people. Core retrieval from the subsurface was manual, with assistance from a pulley system set up on a small davit.

The punt was launched each day from the Port Dalrymple Yacht Club and left at the club overnight. Refuelling took place on land only. 93 coring locations were planned, and 82 cores were actually taken. Sites that were planned but not ultimately cored had either hard bottom (no coring penetration) or were inaccessible even at high tide due to very shallow water – this included areas around Brandy Creek and the upper parts of Clog Tom Creek. One grab sample was also taken near Brandy Creek.

Planned coring locations were navigated to by handheld GPS (nominal accuracy +/-5m), and then the boat was secured by two anchors and a spud. Once the coring was commenced, the position was reacquired to account for movement during the anchoring process. Minor sediment disturbance occurred during coring and anchor deployment/retrieval. Figures 5 to 8 show aspects of the system in use.

One of the disadvantages of vibracoring is that the vibration of the core barrel can cause some compaction in the core. This is due to the loss of fluid (water or gas) from the pore spaces during coring.

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For each core, the penetration length and recovered length is measured so compaction can be quantified, but it is not possible to be confident about where the compaction has occurred and if it is differential or evenly spread along the core length. In some ways this does not matter because the assay values are done on a mass basis, but when it comes to measuring thickness and bulk density it does become significant. For this reason, it is important that the thicknesses derived from the vibracoring are compared to bulk densities also derived from vibracoring. For the purposes of resource estimation the volume, bulk density and tonnage can be estimated with sufficient confidence, but the actual in-situ resource occupies a somewhat greater volume (it is thicker, being uncompacted) and has a lower bulk density than the resource estimate reports. This is relevant if (or when) the resource is ultimately extracted. The average compaction (as a percentage of recovered length) was approximately 30% for the vibracores collected in Middle Arm.

All holes were vertical (or subvertical) and no downhole surveying or hole dip measurements were taken. The average penetration length was approximately 2.2m. The average recovered (i.e. compacted) *tailings* length was approximately 0.5m. All significant intersections are reported from surface – that is, any non-mineralised cover (if present) is included in the intersection. For each hole, the downhole depths are measured from the ‘river’ bed. Cores were taken at different times of the tidal cycle and differing water depths and no attempt has been made to estimate absolute collar RLs relative to a height datum (e.g. AHD). No detailed bathymetry is available for Middle Arm at this time. Collar RLs are set to zero (0) in the data files, although this is not strictly accurate.



Figure 5 Manually deploying prepared Vibracorer

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**Figure 6 Detail of clamping system**

The vibrating head (seen in figure 6) was firmly clamped to the barrel using a bracket. The bracket was attached and removed as necessary with a battery operated impact wrench. The vibrating unit is based on a 'Wacker' concrete vibrator.

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Figure 7 Retrieval of barrel with pulley system

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**Figure 8 Hole in sediment after core retrieval ( just left of centre of frame)**

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## LOGGING AND SAMPLING

The vibracores were transported back to the Beaconsfield mine site for logging. The cores were split by cutting the aluminium barrels in half longitudinally with a metal cutting blade on a circular saw, with the aid of a cutting box. The depth of cut was set to just cut the barrel (2mm wall thickness) and not through the contained core. Parallel cuts on opposite sides of the barrel were made to halve the barrel. The split barrel was then separated by knifing through the soft core, exposing the two halves for logging and sampling. All cores were logged for lithology and photographed. Most of the cores were sampled and assayed for gold, with a few not containing significant thicknesses of tailings left unsampled. No additional elements have been assayed for at this stage. All holes were logged and sampled by David Gibbons. Assaying was done at the in-house BCD Resources plant laboratory (non-NATA accredited). Commercially prepared standards and blanks were used.

Significant intersections are presented in Appendix 1. Sampling locations are shown in Figure 9.

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Figure 9 Collar locations for Vibracoring (pink diamonds)

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## DISCUSSION OF RESULTS

Typically, the tailings are visually distinct as a very dark grey, fine grained silty mud, with coarser sand-sized material less common. Often the upper few cm was oxidised to a brown colour. The tailings were found to be very widespread throughout Middle Arm including back upstream in Clog Tom Creek, indicating mobilisation by tidal action as well as via stream flow. The northernmost line sampled was approximately 3km from the historic battery but still had tailings material present. Accordingly, the deposit is open to the north, although the expectation is that it probably does not extend significantly further north beyond Kildare where the Arm widens. This needs to be investigated with further sampling.

The tailings usually has a sharp lower boundary to natural estuarine sediments, often with a shell rich bed immediately underlying the tailings. In some peripheral areas the tailings directly overlie bedrock derived clays, but more often there is some estuarine sediment component present as well. Compared to the underlying sediment, the tailings contains little shell material.

The tailings are typically very thin (< 1m) but spread over a very large area (> 1km<sup>2</sup>), which will present difficulties in recovering the material. Fortunately in the northern part of Middle Arm there is a thicker and higher grade zone that may be more easily recoverable.

The data collected was used to estimate a Mineral Resource. That Resource is:

<b>BCD Resources</b>				
<b>Middle Arm Tailings</b>				
<b>Summary Resource Statement</b>				
<b>Resource Category</b>	<b>Lower Cut off Grade (g/t)</b>	<b>Tonnes (t)</b>	<b>Gold Grade (g/t)</b>	<b>Contained Gold (ozs)</b>
Indicated	0.5	517,000	1.80	29,900

More detail is contained in the Resource estimation report in Appendix 2.

## CONCLUSIONS

The work to date has identified and characterised to a reasonable degree of confidence a thin but extensive body of gold bearing tailings within Middle Arm. Future works should include additional metallurgical testing, environmental, technical and financial studies to determine the feasibility of an extraction and retreatment program. Infill coring is recommended to increase the confidence in the resource.

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A 'pinger' survey should be conducted in conjunction with any additional coring to endeavor to measure the in-situ tailings thickness for comparison to compacted vibracores. This will be critical for proper planning of any future dredging. Detailed bathymetric data should be acquired at the same time.

## ENVIRONMENTAL STUDIES

### EAGLE SURVEYS

One of the environmental issues noted in relation to activities at Middle Arm was the recorded presence of eagle nests. The Natural Values Atlas contains records of four (4) nest sites in the vicinity of Middle Arm. BCD engaged the Forest Practices Authority ("FPA") to survey these nests.

The FPA conducted two surveys to assess the activity status of two extant eagle nests on Ralstons Hill and one 'lost' nest at Middle Arm on the 14<sup>th</sup> November 2012 and 4<sup>th</sup> December 2012 respectively. The results were as follows:

#### RALSTONS HILL

Ralstons Hill is the name given to the low hill/ridge running north-west south-east on the north eastern side of Middle Arm.

Three nest locations on Ralstons hill are known from the Natural Values Atlas. Nest 132 is the oldest nest site known in this locality which was not located during the survey. This nest is believed to have fallen down due to age. The second nest on Ralstons Hill, Nest 1798, is located 1km NNW of nest 132. The nest contained a wedge-tailed eagle nestling approximately 3 weeks of age. An adult was also observed on the nest brooding the young. The final nest on this hill, nest 1779, located 1.3 km NNW of nest 1798 contained two white-bellied sea eagle nestlings which were approximately 6 -7 weeks old.

The occurrence of these two active nests so close together was unusual in respect of the close proximity of the nests. Generally such nesting densities are not observed due to the territorial conflicts between breeding pairs and species. However given the prey productiveness of the area surrounding Ralstons Hill such anomalies do occur with some pairs being able to produce young to a fledging age.

#### RECOMMENDATIONS

An age estimate of the Ralstons Hill nestlings placed the fledging date to be around the 3<sup>rd</sup> week of January 2013. A line-of-sight (LOS) analysis (Figure 10) was produced for the area to demonstrate the area in which activities were likely to impact on the breeding pairs in the event heavy machinery was operated prior to the fledge date.

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It was noted that fledging dates are an approximate estimate only and that some young may stay close to the nest for many weeks after they have fledged from the nesting site. Activities conducted within the LOS zone after the anticipated fledging date were expected to produce little impact on the fledglings unless ground based activities were focused close to nest sites. Given BCD's activities would primarily be water based, there were no perceived impacts to fledglings if works were conducted after the 3<sup>rd</sup> week of January 2013.

It was noted that eagles recommence breeding activities during June so works should be planned between February to May (inclusive) and any works planned within the breeding season June to January (inclusive) should consider further nest assessments to assess nest occupancy.

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## MIDDLE ARM

The Middle nest (648) has a long history of use prior to it falling naturally sometime around 2009. The nest was known to have been used for approximately 40 years prior to its demise. A nest search was conducted on the 4<sup>th</sup> of December 2012 to locate a new white-bellied sea eagle nest in the remaining mature trees of the Middle Arm forest patch. While it was considered likely a pair of white-bellied sea eagles could re-establish the Middle Arm forest block it is unlikely that a nest at Middle Arm could be used while nest 1778 and 1779 were active. In future years this could change depending on which nest site is selected by wedge-tailed and white-bellied sea eagles.

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## RECOMMENDATIONS

If works are conducted in the area during the breeding season a nest activity check should be conducted to avoid disturbance. LOS areas should be implemented during the breeding season where nest sites are deemed active.

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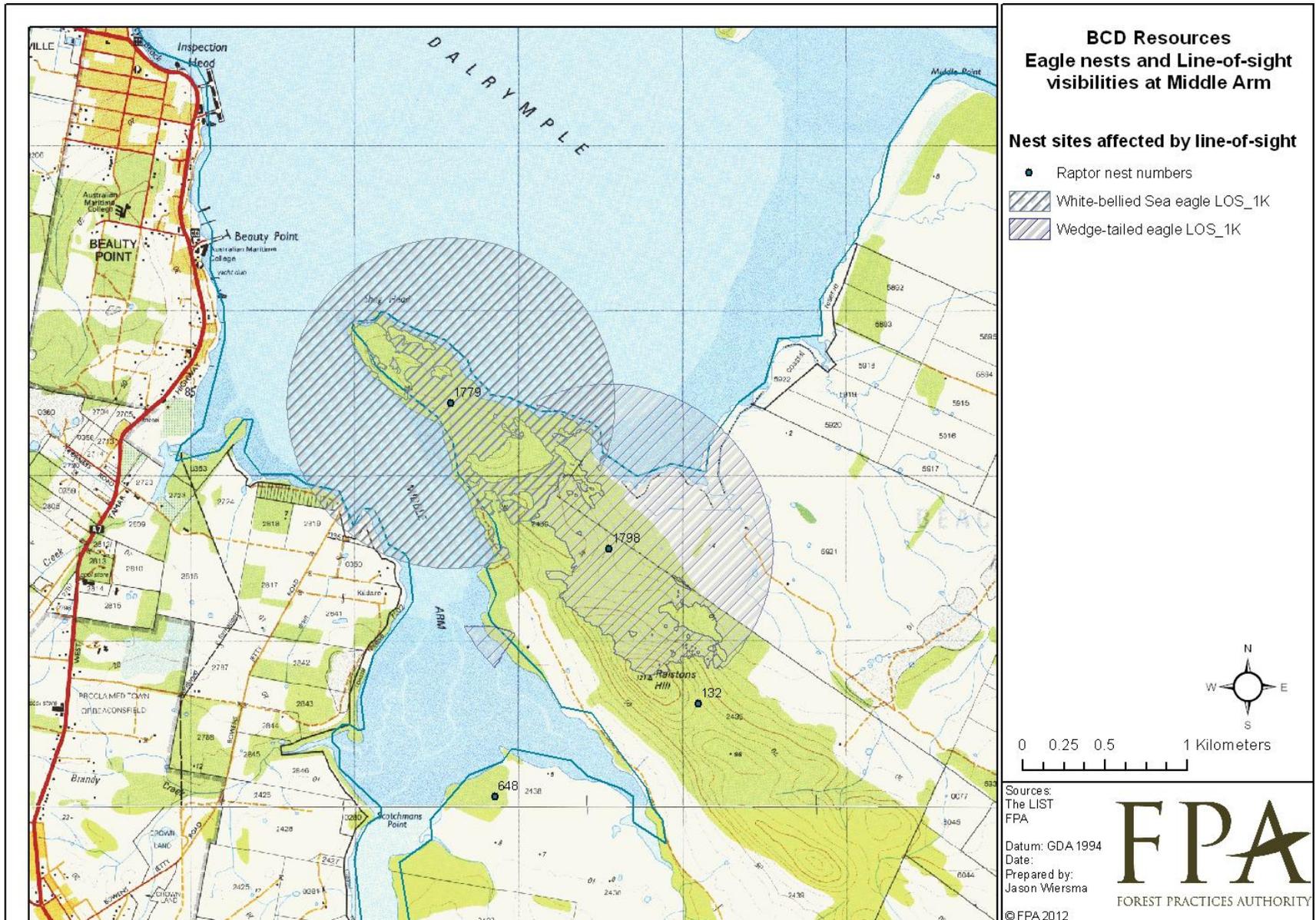


Figure 10 Line of Sight (LOS) for eagle nests

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## GAP ANALYSIS

BCD had a “Hazard Identification and Knowledge Gap Analysis” report prepared by **ecosure** in September 2012 (Walker, 2012). The purpose of this report was to provide:

A Literature review and collation of available information on Middle Arm flora and fauna and water and sediment quality

- Identification of the potential hazards to flora and fauna by the project, including:
  - Ecological
    - Subtidal Infaunal communities
    - Intertidal invertebrate fauna
    - Saltmarsh communities
    - Bird communities
    - Fish communities
  - Ecotoxicological
  - Bioaccumulation
- Introduced pest species
- Knowledge gap analysis and identification of additional information/baseline studies required to assess the risks to Middle Arm ecological values and monitor the effectiveness of future management measures.

This report is provided as Appendix 3. Note that at the time of this report preparation, construction of a dam of some sort at Kildare was considered a likely project option. This may or may not be a recommended option for the project, but the report (Walker, 2012) refers to this option.

## DESKTOP STUDY

In addition to the **ecosure** Gap Analysis, BCD also commissioned a desktop study of available sediment and water quality data information for Middle Arm and lower Tamar Estuary. This was completed by Coffey Environments and is included as Appendix 4.

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### EXPENDITURE

Environmental Studies (Coffey, <b>ecosure</b> )	\$24,561
Vibracoring Costs (Quaternary Resources)	\$52,706
Boat Hire (Gravelly Beach Marine)	\$2,100
Sediment Analysis (ALS)	\$402
Consumables	\$245
Payment to Yacht Club for facility usage (PDYC)	\$200
Wages and Admin	\$20,313
<b>Total</b>	<b>\$100,527</b>

# BCD Resources

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## KEYWORDS

<b>Location Name</b>	Middle Arm, Beaconsfield, Port Dalrymple, Beauty Point
<b>Earth Science &amp; Related Terms</b>	Gold, mining, tailings, sediment
<b>Commodities/minerals</b>	Gold
<b>Exploration Methods</b>	Vibracoring
<b>Prospect Name</b>	Middle Arm Tailings
<b>Stratigraphic Name</b>	N/A
<b>Lithologic Name</b>	Silt, sand, mud, clay
<b>Geological province name</b>	N/A
<b>Geological Age</b>	Holocene, Devonian

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## APPENDIX 1 – SIGNIFICANT INTERSECTIONS

Significant Intersections							
Drillhole ID	Collar East (MGA Z55)	Collar North (MGA Z55)	From (m)	To (m)	Thickness (m)	Gold Grade (g/t)	Used in Resource Estimate (Y/N)
MAV001	486534	5441484	0	0.60	0.60	0.5	Yes
MAV002	486636	5441474	0	1.40	1.40	2.3	Yes
MAV003	486740	5441476	0	2.83	2.83	2.9	Yes
MAV005	486495	5441304	0	0.18	0.18	0.8	Yes
MAV006	486595	5441320	0	1.50	1.50	1.9	Yes
MAV007	486681	5441313	0	1.54	1.54	2.3	Yes
MAV008	486806	5441307	0	0.35	0.35	2.6	Yes
MAV009	486290	5441119	0	0.43	0.43	2.9	Yes
MAV010	486422	5441111	0	0.30	0.30	0.5	Yes
MAV011	486524	5441109	0	0.46	0.46	1.1	Yes
MAV012	486622	5441102	0	0.35	0.35	2.2	Yes
MAV013	486721	5441111	0	0.51	0.51	2.4	Yes
MAV014	486820	5441111	0	2.00	2.00	2.2	Yes
MAV015	486925	5441109	0	1.38	1.38	2.3	Yes
MAV016	486993	5441107	0	0.41	0.41	0.6	Yes
MAV017	486190	5440911	0	0.23	0.23	1.2	Yes
MAV018	486277	5440899	0	0.40	0.40	1.8	Yes
MAV019	486372	5440894	0	0.20	0.20	0.6	Yes
MAV020	486474	5440899	0	0.42	0.42	1.0	Yes
MAV021	486576	5440903	0	0.38	0.38	1.5	Yes
MAV022	486687	5440908	0	0.43	0.43	1.8	Yes
MAV023	486775	5440906	0	0.17	0.17	Not assayed	Yes*
MAV024	486875	5440914	0	0.88	0.88	1.7	Yes
MAV025	486965	5440908	0	0.45	0.45	0.7	Yes
MAV026	487069	5440911	0	0.53	0.53	0.3	No
MAV028	486943	5440782	0	0.29	0.29	1.0	Yes
MAV029	487062	5440774	0	0.27	0.27	0.5	No
MAV031	487194	5440783	0	0.41	0.41	0.6	No
MAV032	487088	5440692	0	0.14	0.14	0.2	No
MAV033	487288	5440715	0	Nil	Nil		No
MAV040	487690	5440331	0	0.20	0.20	0.6	No
MAV044	486185	5440706	0	Nil	Nil		No
MAV045	486317	5440731	0	0.22	0.22	1.6	Yes
MAV046	486416	5440714	0	0.21	0.21	0.5	Yes
MAV047	486517	5440710	0	0.23	0.23	1.3	Yes
MAV048	486624	5440708	0	0.12	0.12	1.7	Yes
MAV049	486718	5440710	0	0.20	0.20	0.9	Yes
MAV050	486802	5440702	0	0.21	0.21	0.5	Yes

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Drillhole ID	Collar East (MGA Z55)	Collar North (MGA Z55)	Significant Intersections			Gold Grade (g/t)	Used in Resource Estimate (Y/N)
			From (m)	To (m)	Thickness (m)		
MAV053	486271	5440515	0	0.39	0.39	1.1	Yes
MAV054	486365	5440506	0	0.19	0.19	0.9	Yes
MAV055	486467	5440509	0	0.69	0.69	1.4	Yes
MAV056	486572	5440507	0	0.45	0.45	2.2	Yes
MAV057	486669	5440508	0	0.61	0.61	2.3	Yes
MAV060	486225	5440310	0	0.20	0.20	0.9	Yes
MAV061	486335	5440323	0	0.26	0.26	0.7	Yes
MAV062	486424	5440304	0	0.14	0.14	0.7	Yes
MAV063	486527	5440309	0	0.43	0.43	2.2	Yes
MAV064	486635	5440301	0	0.41	0.41	2.2	Yes
MAV065	486292	5440113	0	0.42	0.42	2.4	Yes
MAV066	486381	5440104	0	0.62	0.62	1.7	Yes
MAV067	486500	5440104	0	0.23	0.23	1.5	Yes
MAV068	486578	5440184	0	0.49	0.49	0.8	Yes
MAV069	486164	5439911	0	0.08	0.08	0.9	Yes
MAV070	486267	5439901	0	0.82	0.82	2.5	Yes
MAV072	486134	5439665	0	0.15	0.15	1.7	Yes
MAV073	486230	5439685	0	0.95	0.95	1.5	Yes
MAV074	486317	5439699	0	1.03	1.03	2.7	Yes
MAV075	486172	5439512	0	0.18	0.18	1.1	Yes
MAV077	486369	5439518	0	0.13	0.13	3.6	Yes
MAV078	486573	5440870	0	0.26	0.26	1.7	Yes
MAV079	486571	5440848	0	0.37	0.37	1.5	Yes
MAV080	486571	5440806	0	0.49	0.49	1.7	Yes
MAV080A	486571	5440806	0	0.20	0.20	1.6	Yes
MAV081	486566	5440773	0	0.27	0.27	1.4	Yes
MAV082	486569	5440743	0	0.28	0.28	1.8	Yes
MAV083	486567	5440713	0	0.17	0.17	2.0	Yes
MAV084	486488	5440803	0	0.18	0.18	1.2	Yes
MAV085	486517	5440808	0	0.26	0.26	1.4	Yes
MAV086	486545	5440810	0	0.24	0.24	1.5	Yes
MAV087	486598	5440809	0	0.24	0.24	2.3	Yes
MAV088	486632	5440810	0	0.28	0.28	1.6	Yes
MAV089	486679	5440793	0	0.30	0.30	1.8	Yes
MAV090	486471	5441660	0	Nil	Nil		No
MAV091	486567	5441662	0	0.37	0.37	0.6	Yes
MAV092	486693	5441663	0	1.20	1.20	2.7	Yes
MAV093	486792	5441674	0	0.87	0.87	0.9	Yes

\*Assay not available. Logged thickness used in estimate.

# BCD Resources

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## APPENDIX 2 – RESOURCE REPORT

See CD

## APPENDIX 3 – ECOSURE REPORT

See CD

## APPENDIX 4 – COFFEY REPORT

See CD

## APPENDIX 5 – DIGITAL DATA FILES

See CD