Matilda Zircon Limited

ANNUAL REPORT
FOR
Exploration Licence

EL24820

Tiwi Islands
Northern Territory

For 12 month period ending 29th July 2010

MATILDA ZIRCON LTD
ACN 077 221 722

143 Hay St, Subiaco WA 6008

Phone: (08) 9244 1411
Facsimile: (08) 9244 1511
www.matildazircon.com

Distribution:
- Geoscience Information, Northern Territory Geological Survey, Department of Primary Industry, Fisheries & Resources, N.T.
- Matilda Zircon Ltd
- Austwide Mining Title Management Pty Ltd

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SUMMARY

This report provides details of activities related to EL24820 located on the south-western coast of Melville Island, part of the Tiwi Islands north of Darwin, during the 12 months to 29 July 2010. The EL is considered prospective for zircon-rich minerals sands deposits similar in nature to other larger and more extensively tested deposits on the Tiwi Islands.

The EL was previously acquired and held by Matilda Minerals Ltd (MML) until they were placed into administration in late 2008. In 2009, this EL and other Tiwi Islands assets held by MML (collectively referred to as the “Tiwi Islands Project”) were transferred to Matilda Zircon Ltd (“MZL” and formerly, Olympia Resources Ltd).

In July 2010, MZL commenced mining operations on the Tiwi Islands in the Lethbridge Bay region of Melville Island.

Principal exploration activities during the period were a review of previous results plus an assessment of the remaining prospectivity of the exploration assets acquired from MML. The majority of MZL resources during the period were channelled to the re-establishment of mining operations (at Lethbridge Bay). This was necessary to demonstrate the economic viability of the Tiwi Islands Project as a precursor to further resource definition within the various exploration licences.

Of the 10 sub-blocks which comprised the original EL 24820, 5 sub-blocks have been deemed to have no further exploration potential. Consequently, notice was provided to the NT Dept of Resources in July 2010 that these sub-blocks be relinquished.

A program of auger drilling is proposed for testing the potential of identified beach strand systems within the remaining areas of the tenement.
Figure 1  Tenement Location Plan, EL24820
1. INTRODUCTION

The Tiwi islands form part of the Tiwi Island Aboriginal Land Trust administered by the Tiwi Land Council (“TLC”). Matilda Minerals Ltd (MML) had signed an agreement with the TLC on 19 December 2003 which set conditions for the exploration and mining development activity.

Matilda Zircon Ltd (MZL) purchased the assets of MML in July 2009 subsequent to the voluntary appointment of an administrator in September 2008 due to cash flow problems. MZL undertook a reappraisal of the resources identified by MML and, following feasibility studies, commenced mining activities at the high grade Lethbridge Bay deposit in July 2010.

The principal focus by MZL during the reporting period was to ensure that viability could be restored to the Tiwi Islands sand mining project as previously commenced by MML. Consequently, the majority of work undertaken by MZL was in the form of resources evaluation, feasibility and environmental compliance studies. A limited amount of auger drilling was conducted on a few of the previously identified beach strand systems in the exploration tenements forming the “Project” and a study was conducted to identify areas within those exploration licences which could not be considered prospective and should therefore be relinquished.

Expenditure on the exploration licences and mineral leases forming the Tiwi Islands Project since the start of the project has totalled almost $4 million dollars with reasonably systematic exploration completed over most areas of the islands of Melville and Bathurst Island.

2. PHYSIOGRAPHY

The climate of the Tiwi Islands is tropical monsoonal, with warm dry winters and hot wet summers. The annual average rainfall is 1200mm – 1400mm in the eastern part of Melville Island to 1800mm – 2000mm in the north-west of Melville Island and north of Bathurst Island. The majority of the rain falls between December and April under the influence of the northwest monsoons. Temperatures range from a mean of 35ºC to 21ºC in summer, and 26ºC to 18ºC in winter.

The topography of the islands is characterised by relatively low relief, dominated by partially dissected plateaux rising to 100m above sea level, interspersed with broad valleys, riverine lagoons and estuarine tidal flats. The coastline varies from more exposed low cliffs and beaches to large estuaries and extensive tidal flats. The vegetation is consistent with a tropical savannah regime, dominated by dense eucalypt and acacia woodland in the hinterland and more prominent coastal fringe, while melaleuca (paperbark) forests predominate along the watercourses. Mangroves proliferate around tidal flats, while casuarina trees and pandanus palms fringe the coastline.
3. **TENURE**

Exploration Licence 24820 comprising 10 blocks was granted to Matilda Minerals Ltd on 29th July 2008. The licence was transferred to Matilda Zircon in 2009 following the financial collapse of MML and the takeover of their assets by MZL.

A relinquishment of 5 blocks was lodged in August 2010. This relinquishment had the effect of splitting the EL into three separate areas.

4. **GEOLOGY and GEOMORPHOLOGY**

4.1 **Geology**

The oldest rocks exposed on Bathurst and Melville Islands are represented by the Upper Cretaceous Moonkina Member. This formation consists of fine to very fine sub-labile sandstone, along with interbedded grey carbonaceous mudstone and siltstone, of shallow marine to deltaic derivation. The Moonkina Member is exposed at the base of coastal cliffs, particularly along the southern coastline of Bathurst and Melville Islands, and in lower lying portions of the hinterland.

The Moonkina Member is unconformably overlain by the Tertiary Van Diemen Sandstone, which dominates the geology of the Tiwi Islands. This formation comprises a friable, white to yellow, medium to coarse-grained quartzose sandstone with subordinate intercalations of grey carbonaceous mudstone and siltstone of fluvial to paralic derivation. The Van Diemen Sandstone broadly dips very gently to the north, becoming thicker in the process, with the unit exposed over a 60m vertical interval at Cape Van Diemen at the extreme north-western tip of Melville Island.

Both the Moonkina Member and Van Diemen Sandstone are disconformably to unconformably overlain by unconsolidated Quaternary fluvial, paralic, deltaic and littoral deposits. The most economically significant of these are the younger age littoral quartzose sands associated with the palaeo-shoreline. Holocene (recent) littoral deposits have accumulated along the present coastline, variously abutting or transgressing the Cretaceous, Tertiary and Pleistocene deposits.

Recent Age dating completed by Matilda Zircon has identified the age of the Lethbridge Minerals Sand deposit (and by extrapolation, Andranangoo) as being approximately 2000 years old, probably one of the youngest mineral deposits in Australia.

4.2 **Geomorphology**

The Van Diemen Sandstone dominates the geomorphology of both Bathurst and Melville Island, forming low partially dissected and lateritised plateaux, which are frequently capped by ferruginous to bauxitic pisolitic laterite accumulations. Low red cliffs, nick-points and platforms of Van Diemen Sandstone are developed along or adjacent to the more exposed portions of the coastline.

In many instances the Tertiary sea cliffs are preserved from further erosion by accumulations of Pleistocene and/or Holocene littoral deposits. The Pleistocene sands are distinguishable from their Holocene counterparts by a mild orange, pink or red discoloration, and are invariably developed as one or more low amplitude, but strike persistent strandlines, with a wavelength characteristically in tens, rather than hundreds, of metres.

The Holocene deposits generally appear to be cleaner and marginally finer grained than their Pleistocene equivalents, incorporating a more significant proportion of coquina and coralline debris.
Along the north coast of the islands the present day beaches appear to have accumulated as strandlines directly against the Tertiary escarpment or as a composite strand plain successively comprising both the Holocene and Pleistocene deposits. Holocene dune deposits transgress the older strandlines on several beaches that are more exposed to the prevailing north-westerly monsoonal winds.

Heavy mineral ("HM") sand accumulations are present within both the Pleistocene and Holocene strands. The immediate provenance of the HM is the Van Diemen Sandstone itself, which contains thin laminae of HM identical in composition to the mineral sands. The Pleistocene and Holocene deposits have therefore been subjected to two cycles of erosion and deposition, being thought originally to have been derived from the Lower Proterozoic igneous and metamorphic complexes of the Pine Creek Geosyncline on the mainland to the south.

Heavy mineral accumulations, be they Pleistocene or Holocene, appear to be best developed immediately adjacent to the Tertiary Van Diemen Sandstone escarpment from whence they are derived, with successive strandlines being considerably and progressively more depleted in HM away from the scarp. This preferential accumulation of HM immediately adjacent to the Van Diemen Sandstone can be readily witnessed in the present day environment near Cape Fourcroy, located at the extreme southwestern tip of Bathurst Island. Here, although limited in extent, HM species represent the only sand preserved on a wave-cut platform at the base of an extensive cliff of Van Diemen Sandstone.

Recent dating by AMS (accelerator mass spectrometer) radio carbon of the underlying coquina/shelly layer at the Lethbridge Bay deposit has returned a date of approximately 2000 years old, a remarkably young mineral sands deposit. The age of 2,000 years is consistent with the soil development and topography of the beach ridges and the fresh appearance of the shell material and co-beded marine brown algal strands.

From a pragmatic point of view this may indicate that by comparison the Lethbridge South ridges are possibly older but still probably post glacial (<6,000BP) and more importantly the equivalent Pleistocene coastal sands formed when the sea levels were previously around present levels (eg around 120,000BP) has not been identified. They may have been obliterated or they may be preserved either beneath the Holocene sands or preserved but unrecognized in the coastal hinterland.

5. PREVIOUS EXPLORATION

Previous exploration in EL24820 by Matilda Minerals during the first year of tenure has been reported by Simon Coxhell, 2009.

Helicopter reconnaissance of coastal sand formations was undertaken by MZL following their acquisition of the MML assets.

Volumes of identified HM bearing sands within EL24820 were considered insufficient to form the basis of a stand-alone mining operation by MZL. Consequently, drilling programs to test these sands were delayed pending confirmation that the largest and highest grade HM resource on the Tiwi Islands at Lethbridge Bay could be mined economically.
6. EXPLORATION DURING THE REPORTING PERIOD

Exploration activities by MZL for the Tiwi Islands Project in general during the reporting period concentrated on resource definition and feasibility studies for the re-establishment of mining operations on Melville Island at Lethbridge Bay.

Results from the previous reconnaissance within EL24820 did not justify immediate drilling and hence on-ground activities were suspended pending a further review of the prospectivity of the EL24820 area.

Consultant geologist, Colin Morrow, was engaged in June 2010 to undertake a review of the prospectivity of EL 24820 and other Tiwi Islands tenements as a prelude to statutory tenement reductions which fell due at the end of 24 months tenure. The review concluded that potential existed for outlining small quantities of heavy minerals sands in a few locations within the EL. At best, such deposits would provide a supplementary resource for existing mining operations on Melville Island. Potential for a stand-alone, economically viable mining project within EL24820 was considered not to exist. Three regions from within the EL were selected for future drill testing in late 2010 / early 2011 and a reduction from 10 blocks to 5 blocks was effected at the end of the reporting period.

A copy of the consultant’s report is appended as Appendix 1.

7. EXPENDITURE

Recorded expenditure against EL24820 for the 12 month reporting period was $2,692. Exploration budget of $6,000 has been allocated for activities within the reduced tenement for the 12 months to July 2011.

8. PROPOSED EXPLORATION FOR THE NEXT REPORTING PERIOD

A program of auger sampling is proposed in order to assess the HM grades and compositions of identified beach strand systems within the retained section of EL24820. Appendix 1 provides more specific detail of these areas and the nature of the drilling targets.

9. REFERENCES

S. Coxhell, 2009  
Annual Report for EL24820 for 12 month period to July 29th 2009
APPENDIX ONE

Review of Prospectivity and Recommendations for Tenement Reductions for Exploration Licences:

EL24819 (East Melville Island)
EL24820 (South-west Melville Island)
EL24821 (South-east Bathurst Island)
EL24851 (Southern Bathurst Island)
EL25150 (Lethbridge Bay South)

Consultancy Report by Colin Morrow BSc Hons(geol)
Review of Prospectivity for Matilda Zircon Ltd Tiwi Islands Project
Exploration Licences
and
Recommendations for Relinquishment / Reduction

Executive Summary

Use of satellite photographic imagery, employing Google Earth software, has proved extremely effective for identifying Holocene and Pleistocene beach strand sand accumulations which contain varying percentages of heavy minerals on the Tiwi Islands. A comprehensive imagery review has been conducted on five of Matilda Zircon Ltd’s Tiwi Island exploration licences in order to assess the potential for economic mineral sand accumulations and identify areas which can be relinquished.

50% reductions due on 28/7/2010 for five of Matilda Zircon’s ELs on the Tiwi Islands.

- EL24819 (East Melville Island) – currently 101 blocks
- EL24820 (Southwest Melville Island) – currently 10 blocks
- EL24821 (Southeast Bathurst Island) – currently 13 blocks
- EL24851 (Southern Bathurst Island) – currently 24 blocks
- EL25150 (Lethbridge Bay South) – currently 2 blocks

These reductions can be accommodated without compromising any areas considered to have potential to host economic mineral sands deposits. Each of these EL’s is reviewed in the following report and select blocks from each EL have been designated for relinquishment. In total, the recommended reduction will amount to dropping 77 of the blocks currently held.

Chances of successfully outlining new mineable HM resources in these tenements (excluding Lethbridge South) is not rated very high, but additional field review and drill testing is necessary before they can be totally written off and relinquished in full.

Recommendations for forward work programs are included.
1. EL 24819 –(East Melville Island)

Summary

The EL currently comprises 101 blocks and requires a minimum 50% area reduction (50 blocks). Following a comprehensive review of the available satellite imagery of the region 53 blocks have been identified which can be safely relinquished, thus retaining 48 blocks. The blocks to be retained form 3 separate areas. Although several deposits of HM bearing sands are recognised within this EL the chances of success for locating economic grades and tonnages of HM are rated “poor”. However, to be absolutely certain, limited additional sampling is recommended.

Figure 1.1 shows the EL location with areas recommended for retention and relinquishment.
Figure 1.1 EL24819 (East Melville Is.) - Recommended Reduction / Relinquishment
Discussion

Two auger holes into each of 2 prospect areas were drilled by Matilda Minerals Ltd in early 2009 and reported last year:

- One hole into the inland-most strand at Quanipiri Bay returned 1.6% HM (average) over 1.6m. A second hole into another strand averaged about 0.2% HM.
- Two holes at Tinganoo Bay averaged only about 0.1% HM.

Satellite imagery of this EL and immediate surrounds has been reviewed to search for any potential HM deposits which might justify further reconnaissance or exploration. Several beach sand accumulations and relict strand lines occur within the EL but appear not yet to have been drill tested. Volumetrically, these appear insufficient to form the basis of stand-alone projects. However, with an existing mining operation on Melville Island, sampling of these should be undertaken to eliminate the possibility of missing any potential for supplementary resources.

a) In the Cobham Bay region (southern-most portion of the EL), there is a prominent scarp, now 500m to 1.2km inland, dropping to the coastal flats comprised largely of bare dune sand with a fringing line of ?mangroves at the very ocean front. A few relict beach strands are evident between the scarp and the shoreline, but appear to be largely buried by windblown sand. Length of these strands is up to 5km. Widths appear relatively narrow, in the order of 20m – 50m. Maximum tonnage of strand material is estimated at around 0.5M tonne. The windblown sand extends inland to the base of the scarp and may obscure a relict strand formed at the historical highest ocean level. A exploration budget of around $15,000 would be required to drill several auger holes into these features to gauge whether any potentially economic grades of HM are present. Chances of success are not rated extremely high.

Figure below illustrates the concept discussed above.

Figure 1.2 Inclined GoogleEarth View of Cobham Bay Region –facing NNE
b) In the **Napier Bay** region (south-east section of the EL), there is a narrow fringe of accumulated sands. After eliminating a 200m beach zone for turtle nesting and a 50m zone for mangroves in some of the back-dune locations, the tonnage potential of the sands appears insufficient to justify further exploration expenditure. This area should be relinquished. (refer to Fig 1.1)

c) In the **Soldier Point to Tinganoo Bay** region, the coastal scarp is located 200 – 500m inland from the current beach. Conflict with buffer zones appears to be minimal. A well vegetated foredune gives way to a swale close to the base of the scarp. Sporadic earlier relict beach strands are located across the mouth of coastal embayments but well behind the current foredune. The possibility exists for a narrow HM-rich zone at the base of the scarp and also around the margins of 6 separate small embayments. Overall tonnage potential for such a zone would not be huge... most probably insufficient to justify establishment of a primary concentrator in this region unless HM grades were very high(?). No records of any previous sampling in this area were located in the material examined for this review. For completeness of the Tiwis knowledge base a few auger samples should be collected from this region. The figures below show this region and depict the features noted above. An exploration budget of say, $8,000 would be required for testing.

![Figure 1.3](image)

**Figure 1.3  Soldier Point to Tinganoo Bay Region**

Above: Inclined GoogleEarth Image Looking NNW

Right: Plan View of Location

d) **Tinganoo Bay** area contains an obvious accumulation of beach sands forming a barrier across an elongate 1km x 3km embayment. 2 auger holes drilled in 2009 returned only low grade HM from these barrier sands (max. = 2m@0.12%HM) suggesting limited potential for potentially economic HM grades nearby. However,
before confidently relinquishing this area it would be advisable to drill 3 additional holes near the centre of the main sands accumulation. Budget guidance of $7,000 is provided.

Figure 1.4  Tinganoo Bay Barrier Sands Accumulation

At a time of previously higher sea level, this embayment may have provided a trap site for HM accumulation (subject to hinterland providing adequate source material). Traces of remnant strands appear to exist close to the low scarp which forms the boundary to the embayment. Chances of locating high enough grades are rated low and tonnage potential limited (max 250K tonnes), but if additional holes were being drilled into the barrier sands then brief investigation of the embayment margin should be undertaken. Figure below illustrates this concept.

Figure 1.5  Tinganoo Bay Embayment
e) At Boradi Bay & Pulloloo Bay there are narrow recent dunes forming barriers to small coastal embayments. These dunes do not present significant volumes of material, and the embayments are likewise too small to represent host areas for potentially economic deposits. Although no sampling data has been sighted for these Bays, it would be difficult to justify exploration expenditure without having a mineable deposit in the immediate region. These areas should be relinquished.

f) Two auger holes were completed at Quanapiri Bay, one of which returned 2.35% HM for the lower 0.6m of the hole. The other averaged <0.2%HM. The area is characterised by a zone of multiple strands with general dimension 2km length x 1km width forming a barrier across the mouth of a relatively large embayment. Given the “marginally economic” grade of one sample, two samples are not deemed sufficient to write this area off. A few additional samples should be collected and consideration given to a few samples from the margin of the embayment (as per concept discussed for Tinganoo Bay, above). Budget guidance of $7,000 is provided, subject to inclusion with other areas.

g) Yunanti Bay is a large open bay which should have formed a highly efficient trap site for HM during higher sea level episodes. A narrow barrier dune, probably of single event formation, now lies in front of 4km x 1.8km of accumulated sediment within the backing embayment. Evidence of at least 20 separate strands exists within this embayment. Many of these have been partly re-eroded, but dimensions of individual strands vary up to 800m x 70m. A few auger holes into these strands are required before considering relinquishment. Budget guidance of $10,000 is provided. The figure below illustrates the points above.

Figure 1.6  Yunanti Bay Relict Beach Strands
h) Several relict beach strands exist in the Pt Jahleel region. Those which are close to the present ocean front will be impacted by buffer zones, but others exist which should not present impossible environmental constraints. Sampling of one of the slightly older strand systems located 5km west of EL24819 produced a +5.4%HM result from one hole but uneconomic grades from 3 other holes nearby. This result, although in just 1 hole from 4 drilled, does justify additional follow-up in the general region. This far north-western section of EL24819 should be retained pending a brief testing program of some of the strands within the EL. Budget guidance of $7,000 is provided. The figure below illustrates these points.

Figure 1.7  Pt Jahleel Region

Budget Guidance Summary

Budget guidance figures included above are based on a field team being mobilised for a single program covering each of the areas using vehicle support. Depending on the amount of sampling undertaken / field time consumed, a program cost in the range of $45,000 - $55,000 is envisaged.
2. EL 24820 – (South-west Melville Island)

Summary of Relinquishment Recommendations for EL24820

The EL currently comprises 10 blocks and requires a minimum 50% reduction. 5 blocks have been identified which can be safely relinquished (refer to Figure 2.1). Economic potential in the remaining 5 blocks appears very limited. A few auger holes into identified strands should be sufficient to evaluate a further relinquishment of the remaining blocks.

Discussion

Records of previous sampling within this EL were not located in the material examined for this review.

The majority of the area within EL24820 is either mangrove vegetated coastal wetlands or ocean. A relict beach strand in the north-western half of the EL has been partly eroded and now occurs as several separate narrow lensoidal bodies.

The only volumetrically significant beach strand lenses occur in the middle of the EL (refer to Figure 2.2). A strike of approx 2km with average width of 100m is evident on the satellite imagery for the two largest lenses which are separated by a small drainage channel. These 2 lenses represent around 50% of total volume of strand material evident on satellite imagery for this EL.

Owing to the small tonnage of accumulated sands which would be available in this region, HM grades would need to be very high to justify establishing a mining operation. Collection of 3 or 4 augered samples should be sufficient to determine whether the area holds any economic potential. Existing road access comes to within 1km of the largest lenses which would minimise logistic costs involved in sampling. As part of a broader sampling program on other Tiwi Island tenements, an estimated budget of $6,000 would be required to collect, evaluate and report on these samples.

The chance of encountering very high HM grades in this locality is rated as extremely small.
Figure 2.1    EL24820 - Location Plan and Recommended Reduction
Sampling should be conducted on these strands prior to relinquishment.
3. **EL 24821 – (South-east Bathurst Island)**

**Summary of Relinquishment Recommendations for EL24821**

The EL currently comprises 13 blocks and requires a minimum 50% relinquishment (6 blocks). 6 blocks have been identified which can be safely relinquished. Figure 3.1 shows the proposed reduction area.

A 6km length Holocene beach strand in the eastern portion of the EL appears not to have been sampled to date. However, this is a relatively narrow strand with about 50% of the material lying within 200m of the high water mark. The strand system is backed by wetlands and offers no land-based access. HM grades within this system would need to be exceedingly high in order to justify the envisaged expense involved in environmental compliance.

The area does not present itself as a good HM trap site when compared to, say, the Lethbridge Bay region. A program of 4 to 6 auger holes into this strand should be sufficient to gauge the HM content and make a further decision on the merits of either relinquishing the full tenement or pursuing further resource definition.

A small boat supported field trip to Waniunga Beach is recommended in order to take samples from 6 sites, specifically concentrating on the backdune section of the strand line (refer to Figure 3.2).

As part of an exploration budget to sample multiple areas on the Tiwi Islands, a rough apportionment of costs for sampling this area is $12,000.
Discussion

a) The **Waniunga Beach Region** has an obvious and moderately well developed strand system.

On the southern (open ocean) side there is very slight swale separating the active small foredune from a larger relict backdune (Figure 3.2). This backdune may present some potential for reasonable HM grades (?) and should be tested / sampled.

On the eastern (Medina Inlet) side, the strand feathers and intercalates with the backing wetlands (Figure 3.3). There does not appear to have been sufficient re-working of the sands to enable an effective concentration of HM. Rather, it appears that numerous separate “storm events” interspersed with active silt deposition periods have resulted in a reasonably rapid accretion of the land near the entrance to Medina Inlet.

If a turtle beach buffer zone of 200m is applied to this area, then approx 50% of any resource is excluded. If a 50m mangrove buffer is applied on the landward side of the strands, a further significant percentage of the resource is excluded.

The chance of success in outlining an economic mineral sands deposit in this area is rated very low.

This area is actually part of a low-lying island, with no access other than by boat or helicopter. Logistics of any operation here would thus become quite expensive.

As part of an exploration budget to sample multiple areas on the Tiwi Islands, a rough apportionment of costs for sampling this area would be around is $10,000.

One block of the EL in the far south-eastern corner is positioned entirely over the ocean. This block should be relinquished.
Figure 3.2  Beach Strand Formation, Waniunga Beach West

Figure 3.3  Beach Strand Formation, Waniunga Beach East
b) **The Tientebei Beach Region** in the western half of the EL appears to be an erosional zone rather than accretionary. The southern-most point of Bathurst Island in the far southwestern corner of the EL occurs as a reasonably steep bluff rising up to 50m asl just 180m in from the beach and then up to 70m. Satellite imagery of the coastline from this bluff to the east along Tientebei Beach shows outcropping ?Moonkina Fm sediments at the base of the coastal scarp. No accumulations of dune sand are evident.

There is no justification for keeping this area as part of the EL and accordingly, it is included in the proposed relinquishment (refer to Figure 3.1).
4. EL 24851—(Southern Bathurst Island)

Summary of Relinquishment Recommendations for EL24851

The EL currently comprises 24 blocks and requires a minimum 50% relinquishment. 12 blocks have been identified which can be safely relinquished. Figure 4.1 shows the proposed reduction area. The resultant EL will consist of 3 separate areas.

Much of the coastline within EL24851 is characterised by outcropping sediments of the Moonkina Fm immediately above the high water mark and have no dune or strand development. Some sections rise steeply from the beach to as high as 70m asl precluding any possibility of perched strand systems. Four separate areas of this nature have been defined for relinquishment.

In the western section of the EL there are 2 barchan dune zones of similar nature to the One Tree Point area further to the west. These were subject to a small auger drilling program by Matilda Minerals in 2008. Best reported result was 1.57% HM, but with average for one dune system being 0.78% HM and the other being 0.57% HM. It is recommended that this section of the EL be retained for further sampling pending the outcome of One Tree Point area resource evaluation. This section would form Area 1 of the reduced EL.

Also selected for retention is a coastal embayment in the centre of the EL with a thin (100m) barrier sand accumulation at the head of the current beach. The margins of the embayment, although not showing obvious strand features on satellite imagery, should be investigated for residual HM deposits (Area 2 of the reduced EL). A further embayment with barrier strands exists towards the eastern end of the EL. This area should also be investigated further and is recommended for retention as Area 3.

A program of field inspection, sampling, analysis, results evaluation and reporting, plus administration and compliance costs is estimated to require a budget of around $15,000.

Discussion

The current EL area has been broken down into 3 separate areas for retention and 4 areas for relinquishment / reduction.

Reduction Area 1 at the far western end of the EL has cliff faces of Mookina Fm sediments rising from the high water mark to as high as 30m asl. No strand formation is evident. There is no economic potential for mineral sands in this section of the EL and consequently it should be relinquished. Figure 4.2 illustrates this feature.
Reduction Area 2 is very similar to Area 1, above. Cliff faces of outcropping sediment descend to the high water mark. No strand development is evident. There is no interpreted economic potential.

Reduction Area 3 has no obvious outcrop close to the ocean front, but also no significant strand development. Savannah covered gentle slopes extend from well inland down to the water front. There is no interpreted economic potential. Figure 4.3 shows this area.
Reduction Area 4 is at the far eastern end of the EL. The majority of the beach front within this area has exposed outcropping sediments at, or just above, the high water mark with quite steep cliffs rising up to as high as 50m. A lateritic crust is apparent at the head of the cliffs in some sections of the area. No strand development is apparent and there appears to be no reason to retain this area. Refer to Figure 4.4.

![Figure 4.4 EL24851 Reduction Area 4 (Far Eastern End of EL)](image)

Retention Area 1 in the western section of the EL has two areas of sand dune development at the mouths of small coastal embayments. A line of auger holes in each of these was previously completed by Matilda Minerals, but actual hole co-ordinates, sampling details and results were not available for this review. Reported results state a maximum result of 1.57% HM but with average from all samples on one traverse being 0.78% HM and on the other 0.57%. The dunes overly a base of Moonkina Fm sediments exposed at the highwater mark on their western sides and rise as much as 30m above sea level. Actual thickness of sand beneath the highest points is unknown, but a conservative estimate of tonnage would be in the order of 2.5 to 4 M tonnes. Figure 4.5 shows this area. Original data from Matilda Minerals needs to be reviewed and potential for locating some zones of higher grade HM assessed. This may involve drilling up to 6 additional holes from surface to basement.

![Figure 4.5 EL24851 Retention Area 1](image)
Retention Areas 2 & 3 are coastal embayments with thin accumulations of barrier strands at the head of the present beach. Embayments are both approximately 1.5km wide x 0.75km deep. The barrier strands in themselves do not present a significantly large tonnage of material and may attract environmental constraints with any proposed development. Although no clear sand accumulations are evident within the embayments, there appears to be a former beach level around the periphery of the western-most embayment (retention area 2) which is approximately 6m above the current high water level. Investigation of this feature is warranted. Road access to the area is good. A few auger holes would be sufficient to determine if there is any HM potential associated with this features.

The eastern-most embayment (retention area 3) does not appear to have the same feature, but is recommended for retention as part of the EL pending outcomes of other sampling.

Figure 4.6 illustrates the features noted for retention area 2.

![Figure 4.6 EL24851 Retention Area 2](image-url)
5. **EL25150 –(Lethbridge South)**

**Summary of Relinquishment Recommendations for EL25150**

The EL currently comprises only 2 blocks and requires a minimum 50% relinquishment. One of the blocks can be safely relinquished and will have no impact on the current or any future mining at Lethbridge South.

The block designated for retention encloses the far south-eastern tip of the Lethbridge South mineral sands deposit and includes a portion of the material designated as a minable resource. This area is included within a Mineral Lease Application.

The block designated for relinquishment comprises approximately 65% mangrove swamp and 30% dry land area with no indications of any strands or sand accumulations.

Figure 5.1 shows the location of the EL and the proposed relinquishment block. Figure 5.2 shows the relinquishment area overlain on GoogleEarth imagery of the area.

![Figure 5.1 EL25150 -Location and Recommended Reduction](image-url)
Figure 5.2  EL25150 –Reduction Area Over GoogleEarth Imagery