## ABM RESOURCES NL

ABN 58 009 127 020

## SUBMISSION TO CENTRAL LAND COUNCIL

## 2014 WORK PROGRAM

# TANAMI PROJECT DUNE SUB-PROJECT

EL 26590

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## 1. BACKGROUND

The Dune area was previously explored by Normandy NFM. EL 26590 are subject to the Tanami E agreement between ABM Resources NL (ABM) and the Central Land Council (CLC). ABM acquired the licence and obligations of EL 26590 by purchasing the licence, in a package with other tenements, from Tanami Gold in December 2009. The tenement were registered in ABM's name in April 2010

EL 26590 is located in the Tanami Desert region, approximately 550km North West of Alice Springs and covers approximately 61km<sup>2</sup>.

Work completed within the tenement suggests the CLC has previously approved various levels of exploration including:

- Reconnaissance mapping and field work
- Surface geochemical sampling
- Track grading and line clearing
- RC, RAB, VAC and Aircore drilling with a minimum spacing of 50m

Moderate exploration has so far been undertaken on the tenement area by Normandy with several lines of 50m spaced RAB/Aircore/VAC drilling focused on an area within the tenement and widespread soil survey / rock sampling programs over large portions of the tenements. The area is spaced in close proximity to the Oberon discovery and favourable magnetic features exist in the tenements

## 2. INTRODUCTION

ABM has recently secured joint funding for a single exploratory diamond drill hole from the Northern Territory Government. As a result this report is submitted subsequent to the sacred site approval for the Dune subproject dated August 16th 2013 (C2013-060) in which access was granted for reconnaissance mapping and sampling along with a geochemical soil survey and a ground based geophysics program until August 2015. Approval for a mobile camp with up to 9 vehicles was also approved at this time. ABM now wishes to request approval for the drilling of one targeted diamond hole within the tenement. It is anticipated that this work will be undertaken during August-September 2014.

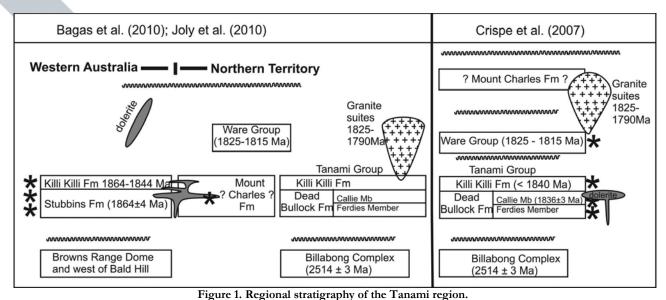
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#### 2.1 Local Geology

## 2.1.1 Regional geology

EL 26590 lies in the Granites-Tanami Block which is considered to be one of the Western most inliers of the North Australian Craton. The Granites-Tanami Block abuts the Halls Creek Orogen to the northwest and the Arunta Complex to the south and east. To the west, clastic sediments of the Middle Proterozoic Birrindudu Basin overlie the Inlier and the Palaeozoic Wiso Basin onlaps its north-eastern margin. Regional Stratigraphy is outlined in Figure 1.



After Crispe et al. (2007) with an alternative stratigraphy proposed by Bagas et al. (2010) and Joly et al. (2010). (From Lambeck et al 2012)

The Archaean Billabong Complex and Browns Range Metamorphics are the oldest rocks in the area. The Browns Range Metamorphics comprise granitic gneiss and muscovite schist intruded by fine-grained granite, thin granitic sills, aplite and pegmatite. The Billabong Complex comprises banded granitic gneiss', which are generally elongated and fault bound. Lying unconformably above the Archaean basement is the Palaeoproterozoic MacFarlane Peak Group. These rocks are characterised by a thick sequence of mafic volcanic, volcaniclastic and clastic sedimentary rocks, which possess a distinctive magnetic and gravity signature. This package of rocks is structurally complex and is considered to have a tectonic contact with the overlying Tanami Group.

The Tanami Group is subdivided into three formations:

- Twigg Formation: purple siltstone with minor sandstone and chert (minor and not always regionally present)
- Killi Killi Formation: turbiditic sandstone and siltstone
- Dead Bullock Formation: siltstone, mudstone, chert and banded iron formation

The Dead Bullock Formation occurs at the base of the Tanami Group and is dominated by fine-grained sedimentary rocks. The rocks outcrop at Dead Bullock Soak and Officer Hill. At the Granites the rocks have been metamorphosed to amphibolite facies to form andalusite, garnet and hornblende bearing schists. The Dead Bullock formation is host to significant gold mineralisation at the Granites and Dead Bullock Soak.

The Killi-Killi Formation conformably overlies the Dead Bullock Formation and is the most extensive formation in the group. The sequence of turbidites includes micaceous greywacke, quartzwacke, and lithic greywacke, quartz arenite and lithic arenite, interbedded with siltstone, mudstone and occasional thin chert beds. Detrital mica is a characteristic feature. The Killi Killi is metamorphosed to lower greenschist facies and is interpreted to be up to 4km thick.

The Twigg formation is confined to a narrow package of rocks immediately west of the Tanami Mine corridor. It comprises a sequence of interbedded purple siltstone with thin-bedded chert and minor medium bedded greywacke.

The Ware Group is interpreted to lie unconformably over the Tanami Group and is divided into three units. The Nanny Goat Volcanics, characterised by extrusive volcanic rocks including quartz-feldspar ignimbrite, feldspar ignimbrite, rhyolite lava, basalt; The Century Formation, characterised by Conglomeritic sandstone, siltstone and fine grained sandstone and the Wilson Formation, largely greywacke, quartz wacke and siltstone.

The Mount Charles Formation comprises an intercalated package of basalts and turbiditic sediments, which occur on the western side of the Frankenia Dome. The Mount Charles Formation is host to structurally controlled vein hosted gold mineralisation in the Tanami Mine Corridor. Sediments include sandstone,

mudstone, carbonaceous mudstones and intraclast conglomerate. Basalts are predominantly massive units with pillow basalts and basaltic breccias also evident.

The Birrindudu group comprises three units with Gardiner Sandstone at the base, overlain by Talbot Well Formation and Coomarie Sandstone. The Supplejack Down sandstone is interpreted to belong to this group but is relationship is unclear. The Birrindudu group lie unconformably over the Browns Range Metamorphics, MacFarlane Peak Group, Tanami Group, Pargee Sandstone, Nanny Goat Creek Volcanics and Mount Winnecke Group throughout the Tanami.

Cenozoic laterite, silcrete, calcrete, and Quaternary debris cover 60 - 70% of the Tanami Desert. The Quaternary sediments are generally unconsolidated, representing the most recent phase of erosion and deposition of sands, gravels and lithic fragments.

### 2.1.2 Local geology

Tertiary drainage channels, now completely filled with alluvial and lacustrine clays and calcrete are a major feature of the region. Some drainage profiles are 10 km wide and 100m deep, making exploration for mineral resources in such areas particularly difficult.

Most known gold mineralisation in the Project Area is hosted by the Tanami Group. Owing to their more resistant nature, only the cherts and iron-formations and associated interbedded graphitic schists of the Tanami Group tend to outcrop above the sand plain.

A suite of syn-to post-deformation dolerites and gabbros have intruded into the graphitic schist components of the sequence. Large plutons of mostly undeformed late-to post-orogenic adamellite and minor, more mafic variants comprising The Granites Granite suite are widespread throughout the area.

Residual hills of gently folded Carpentarian Gardiner Sandstone unconformably overlie Early Proterozoic lithologies. Younger flat-lying Cambrian Antrim Plateau Basalts are also preserved as platform cover in areas protected from erosion.

Complex, polyphase deformation during the Barramundi Orogeny has affected the entire Granites-Tanami Inlier. It appears to have been largely controlled by two sets of regional scale crustal fractures that trend NNE and WNW. This is evidenced by the orientation of successive phases of macroscopic folding in the region and the consistent sympathetic trends of late tectonic faults.

Peak metamorphism during the Barramundi Orogeny reached amphibolite facies at The Granites Gold Mine, but is more generally greenschist facies as at Dead Bullock Soak. Contact metamorphic aureoles, commonly identified in pelitic schist units by randomly orientated and alusite porphyroblasts, are well developed at the margins of the post-orogenic granite plutons.

## 2.1.3 **Prospect Geology**

The Dune area is mapped (Blake et al 1979) to largely consist of the Killi Killi Formation member of the Tanami Group with small portions of the Dead Bullock Formations also existing. Several west-north-west structural features are interpreted to run through the tenements.

#### 2.2 Past Work

Gold mineralisation was discovered by Davidson in 1900 at a number of sites within the Tanami region. In subsequent years, The Granites prospect was worked intermittently up to about the 1960's. Little exploration was carried out in the region until Normandy NFM Ltd negotiated land access with traditional landowners in 1983 and commenced a detailed exploration program that ultimately led to the development and commissioning of The Granites Gold Mine.

In the past modern gold exploration in the subproject region has been carried by Normandy NFM and has included geophysical surveys, surface sampling and drilling programs:

#### 1988-2002

Gold was reported in the Smoke Hills and Cave Hills areas by the explorer Davidson at the turn of the 20th century but it wasn't until the grant of EL2370 to Normandy NFM in 1988 that modern exploration within the area got underway. Normandy NFM commenced work with a scout vacuum drill program to collect samples from areas under shallow transported cover in. The Titania prospect originated from this program of drilling, after a single point anomalous alluvium sample was followed up. Other anomalous areas identified on evolved after investigation of aeromagnetic anomalies.

Little work proceeded until 1995/1996 when a program of lag sampling was undertaken in the area.

The acquisition of detailed aeromagnetics over a portion of the area in 1995 enabled targeting of Tanami Mine style gold mineralisation in brittle fractured basalts. Selected ground magnetic surveys and RAB drilling of these targets in 1996 provided encouragement 3km west/northwest of Challenger, where several 3m intersections of up to 66ppb gold were returned. This area later became the Karnak prospect area.

Completion in 1998 of reconnaissance scale (500x500m) lag coverage over a portion of Normandy's EL 2370 generated numerous single and multiple point anomalies. In addition, 37 structural targets were generated from aeromagnetic data in the southern half of EL2370. A ground magnetic traverse was conducted across each of these targets, as well as a close-spaced lag traverse.

In 1999, the single and multiple-point lag anomalies generated in 1998 were followed up by media-specific and/or close-spaced lag and minor CRC sampling. Some vacuum and RAB drilling of targets was also undertaken to assess the regolith conditions and bedrock geochemistry. Scout RAB holes were also drilled across most of the 37 magnetic targets. Amongst these were targets in the region between the Redeye and Titania prospect areas. The best of those was eventually called the Isis prospect area from which the best intersection of gold included 3m@1.5g/t and 3m@1.2g/t gold.

Work completed during the 2000 field season included a grid based (800x400m) aircore drilling program designed as a follow-up to encouraging results found on the Isis prospect area. From this work, an area approximately 2kms long by 1kms wide from which regionally anomalous gold (>100ppb Au) and arsenic (>100ppm As) were obtained from drilling derived samples. This work later led to the discovery of the Oberon deposit. Prospect-scale soil sampling surveys at Hardtail and Golconda were completed and drilling at the Smoke Hills West prospect area intersected zones of sub-economic mineralisation, up to 0.2ppm.

In 2002 Normandy relinquished the area now encompassed by the Dune subproject to focus on the Isis (Oberon) prospect.

## 2.3 Land tenure

Figure 2 shows the project area in more detail, ABM requests the CLC to release further information on exclusion zones in the area if these have changed.

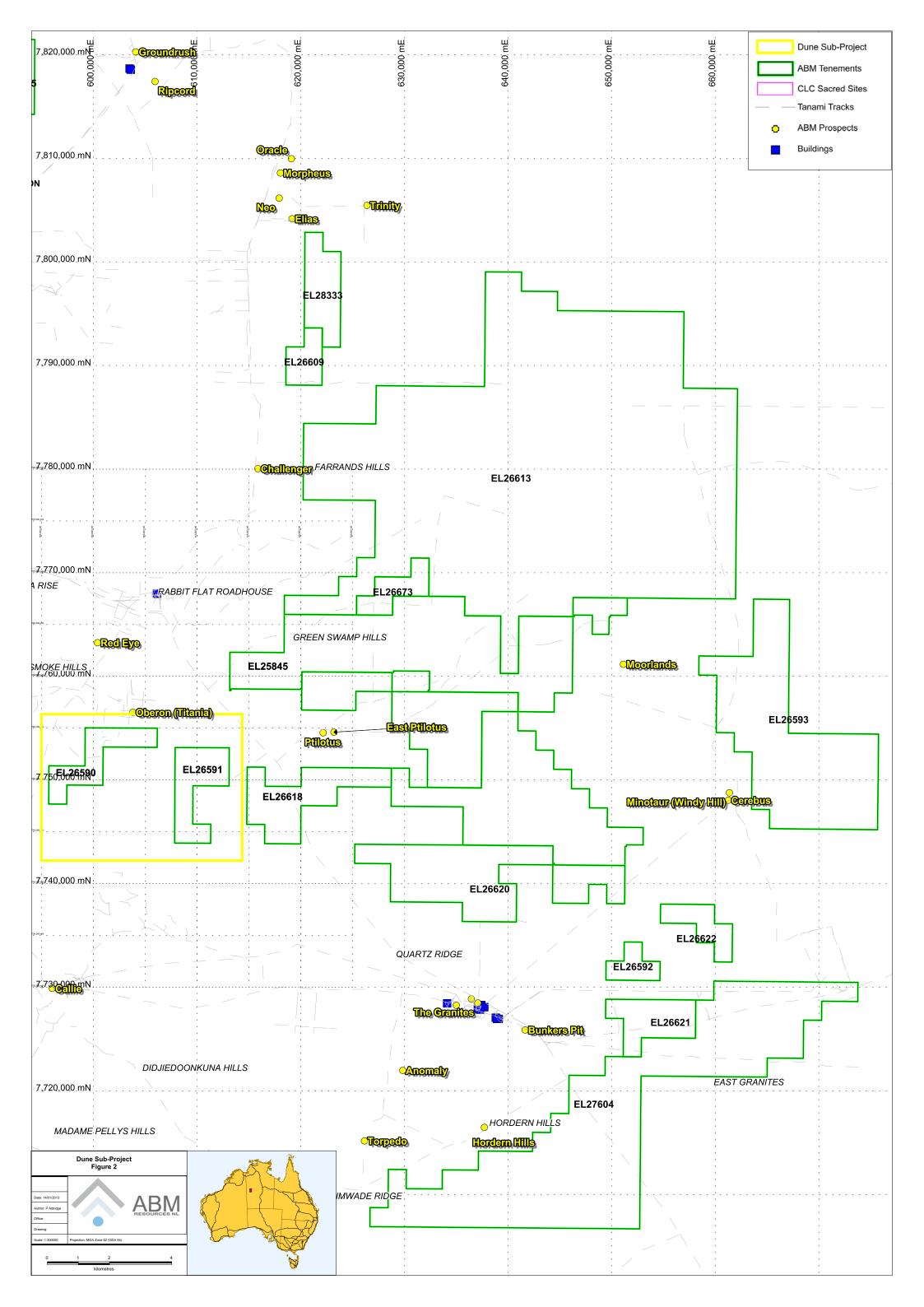
#### **Dune Sub-Project Tenement Schedule**

Exploration Licence	Registered holder	Granted	Expiry date	2014 program summary
EL 26590	ABM	14/12/12	13/12/18	Reconnaissance mapping and surface geochemistry sampling with potential drilling pending results

Table 1. Project Details

#### 2.4 Access

The Dune subproject area is located approximately 550km North West of Alice Springs. Access for EL 26590 is via the Tanami Highway to Rabbit Flats before taking 20km of pastoral tracks. All tracks are thought to be in good condition and no access issues are foreseen, however more information will be available in September when reconnaissance teams are on the ground. Minor extensional track clearing may be required to access the drilling location from (approximately 1km of new track).



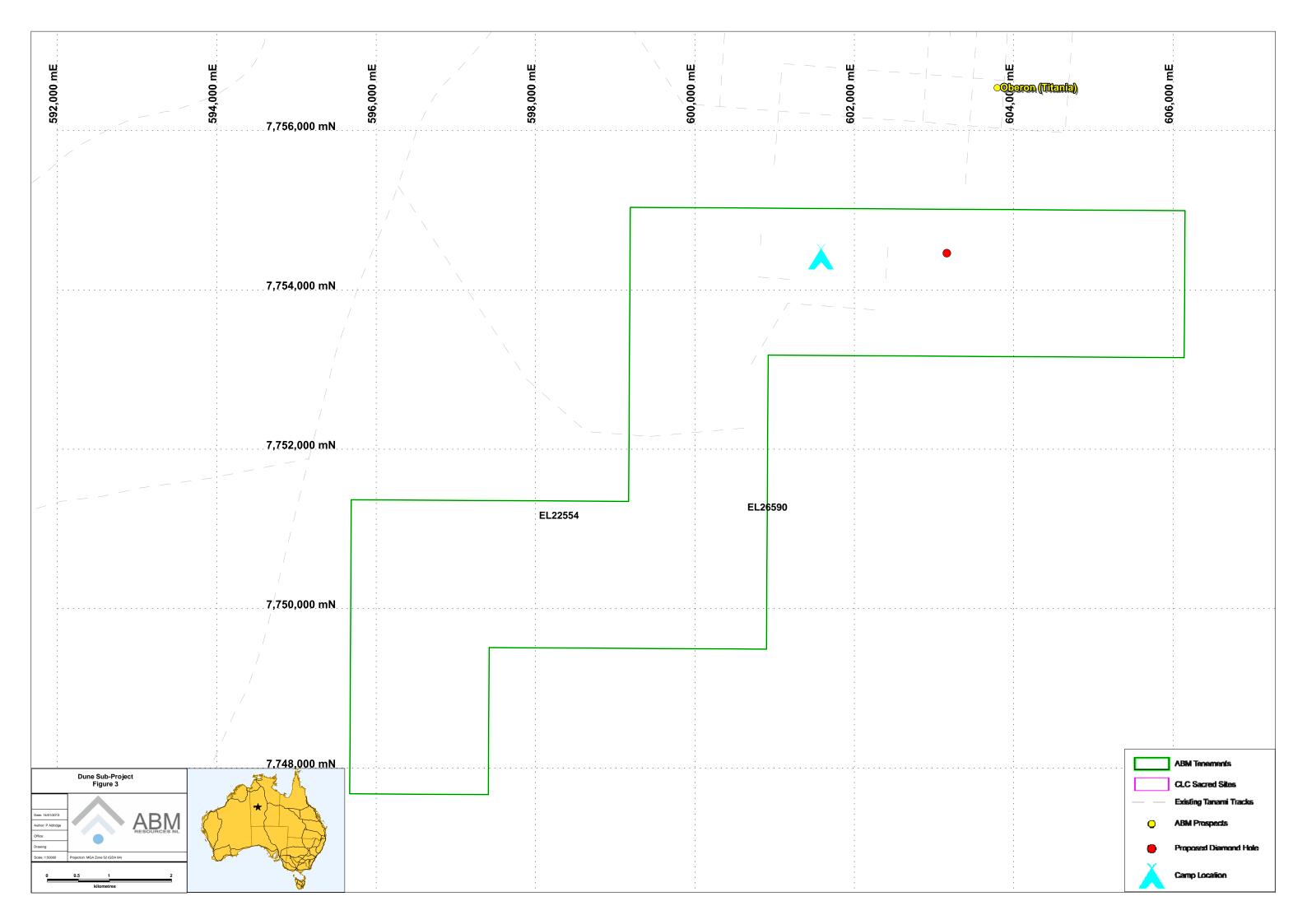
## 3. AMENDED WORK PROGRAM FOR 2014

In addition to the previously approved work ABM intends to drill a single diamond drill hole within EL26590 and access for this work is requested.

## 3.1 Diamond Drilling

A single hole is proposed with planned collar coordinates of GDA94, MGA52 603,160mE 7,754,460mN. The hole is planned with an azimuth of 180° and a dip of 60° (to the south). Planned depth is 200m.

The clearing of a pad will be necessary for drilling to occur however disturbance will be kept to a minimum and the pad will be rehabilitated after drilling is complete. A pad size of 20x20m is required.



## 4. ADDITIONAL DETAILS - SCHEDULED EVENTS

Assuming clearance is provided by CLC, ABM anticipates initially mobilising the field crew to the Dune subproject area during August-September 2014 to initiate reconnaissance followed by drilling. All the work will be conducted from a reconnaissance mobile camp set up along existing tracks, in a low vegetated area, where a small fire break will be established outside the perimeter of the camp. The camp's approximate position is shown in Figures 3 and an indicative layout is shown in Figure 4.

During the initial phase of work, an assessment of track conditions will be made, and it may be likely that some remedial work will be required on the tracks. In addition a further 1km of track may be needed to allow access to the proposed drilling site. Track maintenance and construction will be completed with a small front end loader or backhoe with a minimum of disturbance to the vegetation and top soil. In similar areas in the Tanami, vegetation regrowth has been observed within two or three years for tracks cleared this way.

Following initial reconnaissance, a diamond drill rig will be mobilised to the area. The drilling program will require up to 3 ABM staff and 4 drill crew.

Fuel will be trucked to the campsite, either in fuel cubes sourced in Alice Springs, or in a hired fuel trailer trucked to the site.

Additional infrastructure will be kept to a minimum;

- Water for the mobile camp and drilling will preferentially be sourced from Government Registered bores if
  available. As an alternative source, ABM has permission to access a number of station bores. Alternatively,
  and if necessary, a water trailer can be hired and trucked to site. Bottled drinking water will be supplied.
- Grey water from the laundry, showers and caravan kitchen will be channelled to a small evaporation pond.
- A leach drain for the containment of septic waste produced from the portable toilet will be dug, and compacted and reburied on leaving the area.
- Rubbish disposal: Food scraps and combustible waste will be burnt in a burn-pit (10m x 10m) located near the mobile camp, and only lit after consideration of wind direction and any local fire bans in place. Recyclables such as aluminium cans, glass and cardboard are separated at the camp and trucked to Alice Springs at the end of the season where they are sent to local recycling facilities. Hazardous materials such as empty paint spray cans and batteries are collected on site, and transported to Alice Springs at the end of the field season and disposed of in the appropriate manner at a designated waste facility.

#### Rehabilitation

The mobile Camp and drill site will be removed and rehabbed after the drilling program is complete in accordance with ABM's Environmental Management Plan.

## 5. ABM EXPLORATION POLICIES & PROCEDURES

#### 5.1 Environment

Provided that the practices listed below are followed in the execution of the exploration programs, it is unlikely that the exploration activities detailed above will cause enduring detriment to the environment.

In addition, environmental protection is provided by the Mining Management Act and Regulations and Exploration Licence conditions on grant of tenure. According to this legislation, ABM must submit Mine Management Plans to the Department of Mines & Energy which include a self-assessed bond to cover rehabilitation programs. The bond is refundable on completion of all rehabilitation works. The CLC will be provided with a copy of these MMPs prior to lodgement.

The exploration work will be conducted under the ABM 2012 Environmental Management Plan (EMP), of which a copy will be made available for the CLC upon request.

The ABM environmental management plan (EMP) includes the following:

- use established tracks where practicable;
- minimise track establishment;
- drilling to minimise surface disturbance;
- use of stick rake and 'blade-up' clearing for rig access tracks;
- take precautions against bushfire;
- manage rubbish by appropriate burning or removal (where appropriate);
- separately remove top layer/subsoil if excavation/clearing required;
- protect stock and wildlife from injury from excavations and drilling;
- avoid removal of mature trees over a 2 m height;
- where possible protect watercourse environments;
- rehabilitate disturbed areas as appropriate including the separate replacement of subsoil and upper layer material and ripping as primary techniques;
- fill trenches and sumps;
- cap drill holes; and
- such rehabilitation is to be undertaken as soon as operational and technical constraints allow.

Monitoring of Newmont's 'ground disturbing' exploration programs (as advised to ABM by Tanami Gold and Newmont) in Western Australia and the Northern Territory indicates that the exploration activities can be classed as having a very-low impact on the environment. With the exception of primary access tracks, strong regrowth has covered all drill traverses and sample pads.

ABM inducts all new employees into following best practice environmental programs at all times.

#### 5.2 Sacred sites – Exclusion ("No-Go") Zones

ABM has a strong commitment to ensuring exclusions zones and sacred sites are not disturbed.

Prior to commencing work in the Dune Sub-Project Subproject area, all employees and contractors will be inducted with respect to the terms and conditions of the underlying Deeds for Exploration and any other pertinent instructions issued by the CLC as part of the clearance advice.

In particular, the locations of exclusion zones and other standing instructions relevant to the identification of sacred or archaeological sites will be made known and instructions given expressly prohibiting access to those areas. ABM is mindful that there are still undocumented cultural sites within the subproject area and senior staff

will be vigilant that any sites identified are not disturbed and their locations provided to the CLC. ABM will submit an application for Entry Permits to the CLC before work commences.

## 5.3 Rehabilitation – Existing Liabilities

ABM has only recently (14/12/12) been granted EL 26590 and as such have not visited the area. As a result no assessment of existing rehabilitation liabilities has been made. Further information will be gained throughout the 2014 field season.

#### 5.4 Exploration personnel

ABM has developed a strong and commendable working relationship with the CLC and many traditional Aboriginal owner groups. ABM would like the opportunity to develop like relationships through communication and best practice.

The following senior employees are authorised to represent the Company at meetings or in any consultation with the CLC or Traditional Owners:

	1)	Mike Etheridge	Chairman
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2) Darren Holden Managing Director

3) Graeme Sloan Director

4) Jutta Zimmermann Company Secretary / CFO

5) Andrew Ferguson Director

6) Brad Valiukas Chief Operating Officer

The ABM – Dune subproject exploration team comprises the following personnel:

Pascal Hill Exploration Manager

Peter Aldridge Responsible Geologist – project contact person

Alwin van Roij Project Geologist Kate Eiloart Project Geologist

Luke Meter Geologist John Ingram Geologist

Noel McNee Logistics Manager – logistics contact person

TBA Senior Field Technician
TBA Field Technician
TBA Field Technician

Berdine Mastaglia Manager Geoscience Information Systems

## 6. LOGISTICS

## 6.1 Summary

The reconnaissance mobile camp requires up to 9 vehicles to run efficiently; these are listed below in Table 2. In addition for drilling up to 4 extra vehicles will be required, as shown in Table 3.

## 6.2 ABM Staff Vehicles to be used

Vehicle	Tenement(s)	Description
1DRH546 1DKT119	EL 26590,	2 x Isuzu 4x4 FTS750 Rigid Trucks
1TKZ607	As above	1 x tag along trailer (for telehandler),
Not Registered	As above	1 x JCB 540 Telehandler
1TNB749	As above	1 x 10m Kitchen Caravan
TH7716	As above	1 x 8m Flatdeck Trailer (for carrying 2 Polaris Rangers)
990 318 Q4926 CA28TO	As above	2 x Ford F250 and 1 x Toyota Landcruiser Utility
TG7997	As above	1 x 8x4 Box Trailer

Table 2. Vehicle Summary & Requirements

## 6.3 Drilling contractor staff – equipment

Title/Equipment	Tenement(s)	Description
1 x Driller	EL 26590	Truck mounted Diamond Drilling Rig
3 x Offsiders / Relief Drillers	As above	Support truck/s
As above	As above	4WD Light Vehicle(s)

Table 3. Drilling Staff & Equipment

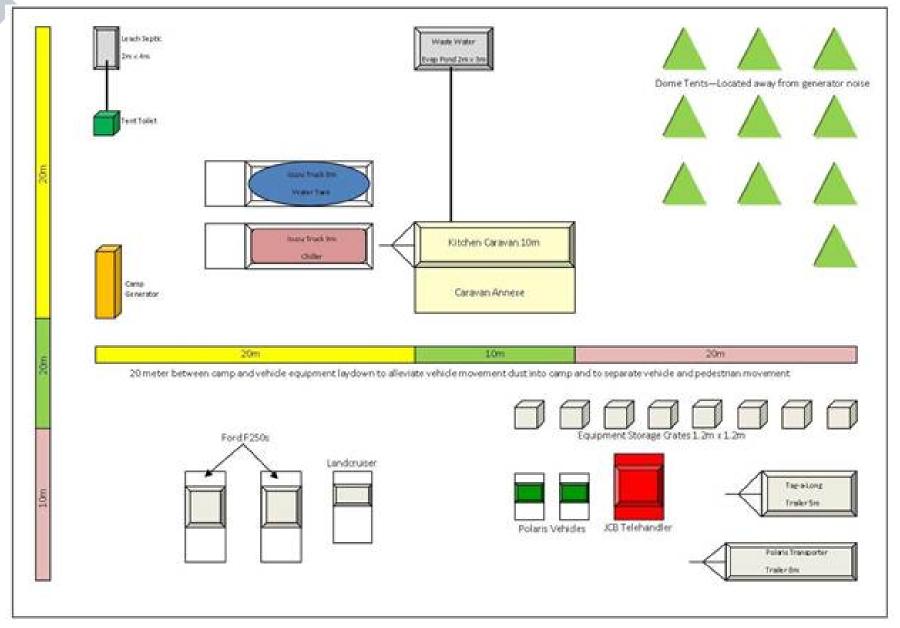


Figure 4. Indicative Mobile Camp Plan

## 7. APPENDICES

- Work Program Cover page
- Sacred Site Clearance Application 2014
  MAP 1: Project Location Plan and Proposed Access on Landsat TM
- GIS data in ESRI format