



**ANNUAL REPORT  
FOR**

E63/0953 - 955, over the period 1<sup>st</sup> November 2009 to 31<sup>st</sup> October 2010  
(Group Report # C122/2009)

&

**E63/0956, 957 & 1232 over the period 1<sup>st</sup> November 2009 to 31<sup>st</sup> October 2010  
(Group Report # C171/2005)**

**TO THE  
DEPARTMENT OF MINES AND PETROLEUM**

**Compiled By: Exploration Department**

**Date: 3<sup>rd</sup> January 2011**

**Copies: Norseman Gold (1)  
Department of Mines & Petroleum (1)**

## **SUMMARY**

This report details exploration conducted over E63/953, 954, 955, 956, 957 & 1232 (The tenements) during the report periods 1<sup>st</sup> November 2009 to 31<sup>st</sup> October 2010. E63/956, 957 & 1232 are constituents of Group Report C171/2005 and E63/0953, 954 & 955 are constituents of Group Report C122/2009.

During the report periods line clearing was commenced pursuant with the proposal presented in the last annual report; unfortunately line clearing was left incomplete due to unseasonably inclement weather during the report period.

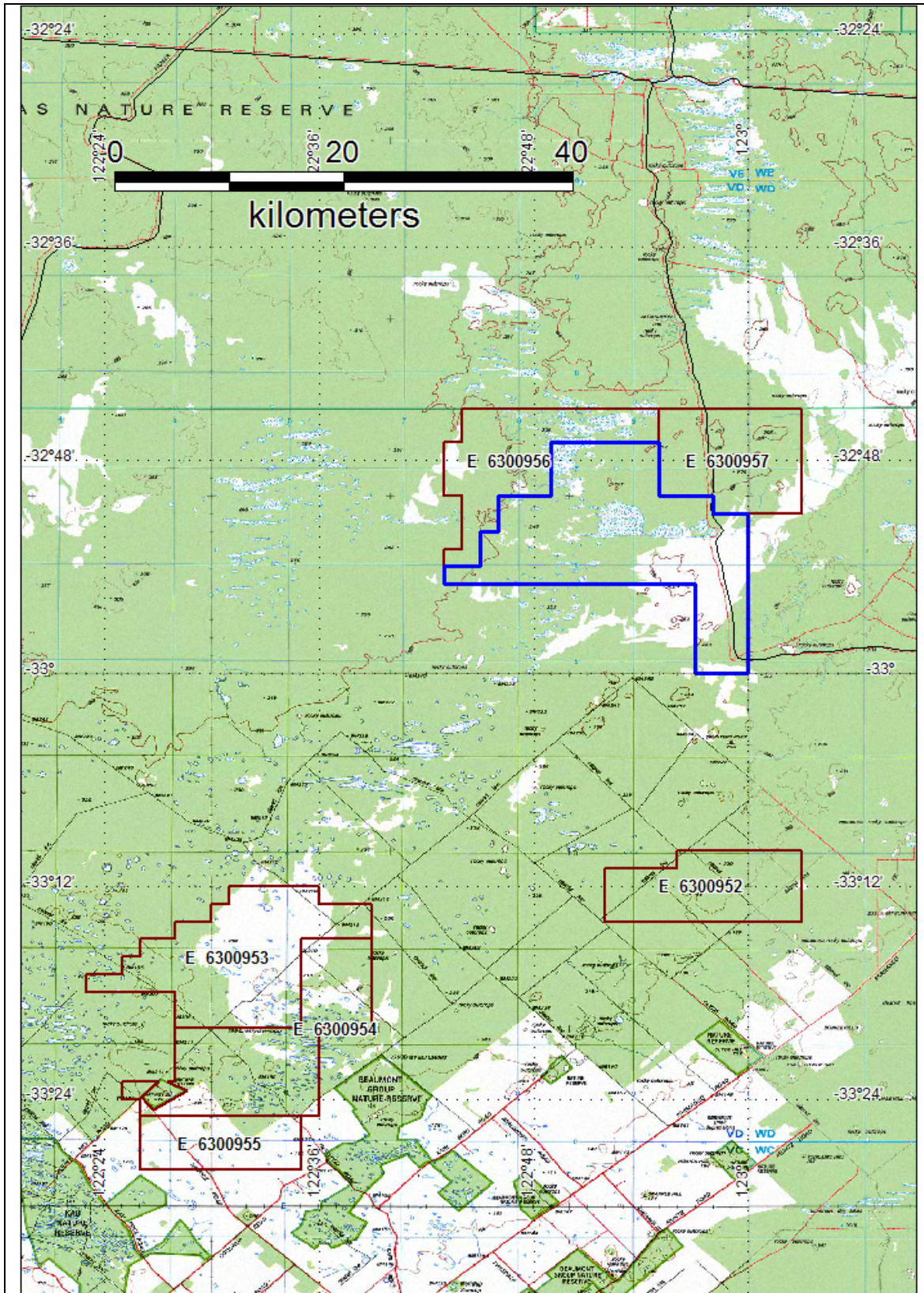


Figure 1: Exploration Index Map  
 (Projection Longitude / Latitude (NAD 83))

## Table of Contents

SUMMARY .....	I
1. INTRODUCTION.....	1
2. TENURE .....	3
3. EXPLORATION HISTORY .....	4
3.1 1996, Pecan Resources.....	4
3.2 1998, Pan Australian E63 / 453.....	4
3.3 BHP– Billiton – Discovery Nickel.....	4
3.4 Exploration for the Period November 2008 to October 2009 .....	5
4. GEOLOGY.....	7
4.1 Regional Geology .....	7
4.2 Regolith Geology .....	7
4.3 Style of Mineralisation.....	8
5. WORK CONDUCTED DURING THE REPORT PERIOD .....	9
6. RECOMMENDATIONS .....	11
7. REFERENCES .....	12
8. RELATED REPORTS .....	13

## List of Figures

Figure 1: Exploration Index Map .....	ii
Figure 2, Tenement locations and access. ....	2
Figure 3, Fraser Range work during the report period. ....	10

## List of Tables

Table 1, Tenement report periods.....	1
Table 2, Tenement Schedule .....	3

## 1. INTRODUCTION

This report details exploration conducted over E63/953, 954, 955, 956, 957 & 1232 (The tenements) during the report period 1<sup>st</sup> November 2009 to 31<sup>st</sup> October 2010. E63/956, 957 & 1232 are constituents of Group Report C171/2005 and E63/0953, 954 & 955 are constituents of Group Report C122/2009.

Report period for each tenement is listed in Table 1

Tenement	Report Period From	Report Period To
E63/0953	01-Nov-09	31-Oct-10
E63/0954	01-Nov-09	31-Oct-10
E63/0955	01-Nov-09	31-Oct-10
E63/0956	01-Nov-09	31-Oct-10
E63/0957	01-Nov-09	31-Oct-10
E63/1232	01-Nov-09	31-Oct-10

Table 1, Tenement report periods.

The tenements are centred approximately 130km southeast of the township of Norseman and are accessed via dirt roads and tracks (Figure 2).

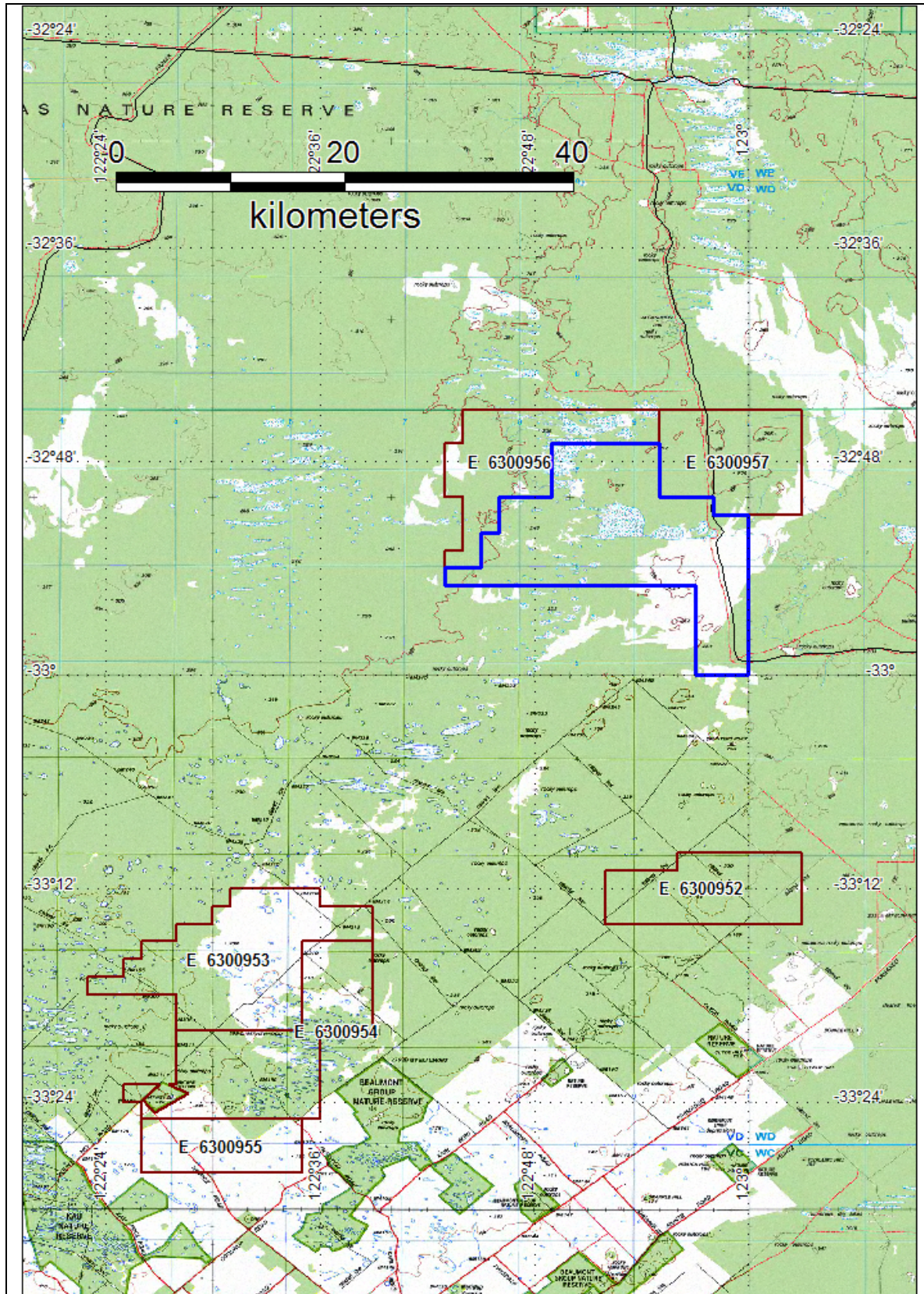


Figure 2, Tenement locations and access.

(Projection Longitude / Latitude (NAD 83))

## 2. TENURE

The tenements are held in the name of Central Norseman Gold Corporation, which is a wholly owned subsidiary of Norseman Gold Plc. Table 2 lists for each tenement the area, grant date, rent and the minimum expenditure commitment as noted on the 21 September 2010 tenement schedule.

Table 2, Tenement Schedule

Tenement	Area	Area Unit	Grant Date	Rent	Expenditure Commitment
E63/0953	70	Sub block	08-Feb-07	\$13,190.10	\$105,000.00
E63/0954	65	Sub block	08-Feb-07	\$12,247.95	\$97,000.00
E63/0955	27	Sub block	08-Feb-07	\$5,087.61	\$40,500.00
E63/0956	47	Sub block	05-Oct-05	\$12,020.25	\$70,500.00
E63/0957	45	Sub block	05-Oct-05	\$11,508.75	\$67,500.00
E63/1232	45	Sub block	05-Oct-05	\$12,837.66	\$106,000.00

### **3. EXPLORATION HISTORY**

#### **3.1 1996, Pecan Resources**

Loam samples to the south of Fraser Range were found to contain gahnites in 30% of the samples collected. There has also been significant mineral sands, bauxite, and coal exploration in the general area.

#### **3.2 1998, Pan Australian E63 / 453**

Pan Australian exploration tested the southern extension of the Archaean Yilgarn Craton into the formerly interpreted Albany-Fraser Province.

World Geoscience completed an aeromagnetic survey over the area on 400m spaced E-W orientated lines at a flight height of 60m. 45 magnetic target areas were identified.

Local rock types include Meso-Proterozoic Coramup Gneiss, in faulted contact with Palaeo-Proterozoic Dalyup complex. Both units consist of para and orthogneisses. Weak, magnetic anomalies in the layered and faulted Proterozoic lithologies were not considered to be worthy of follow up.

#### **3.3 BHP– Billiton – Discovery Nickel**

BHP– Billiton applied the Broken Hill type Ag-Pb-Zn Exploration model for the search for polymetallic VMS type mineralisation.

Calcrete geochemical sampling highlighted an area of Cu-Au-Zn-Ni anomalism, called Zone B, measuring 3km x 1km, centre on the contact between Archaean and Palaeo-Meso Proterozoic Frazer Mobile belt followed by the drilling of 39 RAB holes drilled along two lines to blade refusal. Depth of drilling ranged from 9 – 56m, for a total of 1,219m. Collar spacing generally 50m, though up to 100m when depth to basement reached +50m. Holes were orientated 60 degrees towards 90 magnetic.

A total of 218 composite samples were taken. Six metre composite samples were taken from the overlying cover sequence and 4m composite samples from cover sequence/saprolite



interface. These samples were analysed for Au, Ag, As, Bi, Co, Cu, Mo, Ni, Pb, S, Sb and Zn by ALS-Chemex Kalgoorlie.

This geochemical exploration identified a large 3km x 1km Cu + Au +/- Zn & Ni anomalism on the contact between the Archaean domain and Palaeo-Meso Proterozoic Fraser Mobile Belt.

Last year CSA Global was commissioned to undertake a desktop review of the tenements and identified gold, base metal, mineral sand and uranium potential (Mattinson, P., 2008).

#### 3.4 Exploration for the Period November 2008 to October 2009

During the 12 month period to October 2009 CSA Australia Pty Ltd undertook desk top study, Southern Geoscience Consultants (SGC) undertook an aeromagnetic interpretation and a reconnaissance visit over the tenements was completed. The detail of this has been reported to DMP in the 2008 – 2009 Annual Report previously lodged with DMP.

Of particular note were recommendations arising from this work thus:

Jeffress, September, 2009 recommends that:

- *Infill and repeat calcrete sampling should be undertaken around the anomalous samples collected by BHP. The initial 1km spaced samples should be infilled with 200m spaced samples around the anomalous samples with two repeats taken at and near the original anomalous samples.*
- *This orientation work is designed to check the reliability of the calcrete sampling in this area and provide confidence in the suitability of this approach.*
- *If the follow-up samples repeat the anomalous results then calcrete sampling should be completed on 800m x 200m lines across the areas interpreted as shallow basement in E63/956 and E63/957.*
- *Complete a series of aircore traverses across the prospective units identified on the lithomagnetic interpretation – this will provide basement samples, information on lithologies to truth the interpretation and also geochemical samples and material for hyperspectrally assessing alteration assemblages present. Additionally, this approach will provide unequivocal evidence on the regolith upon which to base exploration decisions elsewhere in this area.*

Jeffress, 4<sup>th</sup> November, 2009 recommends that:

- *The desktop regolith interpretation is still considered to be valid.*
- *The underlying gold prospectivity of the project area (the northern ELs in particular) is considered to warrant evaluation.*
- *The access, whilst difficult, is not significantly more problematic than other regions where exploration is successfully undertaken, for example the tropical savannah woodlands of the Northern Territory or the jungles of Indonesia and PNG.*

- *Grid access using a front end loader is recommended – a loader is capable of fast traversing (compared to a dozer), enables a good view of the terrain, can “float” the bucket above the ground surface, removing stakes but leaving roots intact and the bucket can also deal with overhanging branches and trees above 2m, as well as clearing a vehicle track, and additionally, loaders are commonly available on farms reducing the potential mobilisation and operating costs.*
- *This approach is environmentally friendly and likely to facilitate POW approval compared to more “robust” approaches.*
- *Alternatively if you have a mechanically sound vehicle with body work that can be further damaged it could be fitted with solid tyres and maybe some additional scrub bars and used to undertake the sampling without requiring extensive track clearing.*
- *Tracks to areas of interest and “grid trees” in those areas can be cleared using this approach – either calcrete sampling or aircore drilling can use these access tracks – with only a minimal initial environmental ‘footprint’.*
- *The repeat and infill calcrete sampling around the BHP Au anomalous calcrete samples should be completed.*
- *Reconnaissance lines of aircore over prospective geology should also be planned together with calcrete sampling, as discussed in CSA’s previous memorandum.*
- *Geochemical sampling contractors such as Pathfinder or AusEx Exploration Services should be contacted for quotes on collecting calcrete samples.*
- *Possible contractors, including local farmers, Esperance based contractors or the contractors working on the Parmango road, able to clear the main access routes into the areas of interest should be identified and their rates and availability determined.*
- *The possible access routes should be planned and an estimate of the likely costs calculated.*
- *DMP’s environment group should be contacted to flag any issues that will need to be addressed by successful POW applications.*
- *Review of the BHP work suggests that the BHT potential of the Norseman ground has only been poorly tested by their work. Whilst an airborne EM survey would be a good tool to use to specifically target the massive sulphides of BHT systems, calcrete and aircore drilling are equally effective.*

## 4. GEOLOGY

### 4.1 Regional Geology

The Albany-Fraser Terrane consists of two Proterozoic mobile belts that flank the southern margins of the Archaean Southwest Gneiss Terrane and southern and eastern margins of the Yilgarn block. The two Proterozoic mobile belts are Palaeo-Meso Proterozoic in age and are characterised by high-grade gneisses and granulites, granitoid intrusions and polyphase deformation.

Myers 1990, divided the Albany-Fraser Terrain into the Biranup Complex and Nornalup Complex.

The Project lies in the Biranup Complex (1600-1700Ma) of the Fraser Mobile Belt and is composed of strongly deformed Palaeo-Meso Proterozoic high-grade quartzo-feldspathic and basic gneisses (para and orthogneisses) with localized granitoids and gneisses of 1130-1350Ma.

The Biranup Complex is divided into two domains; the Western Fraser Domain and Dalyup Domain. The Dalyup Domain is interpreted to sit stratigraphically below the Western Fraser Domain and is believed to consist of early rift fill (as evident from the abundant felsic gneisses and widespread amphibolites. The Western Fraser Domain has a higher meta-sedimentary component (psammites and psammo-pelits) with only minor-moderate amphibolites and this might reflect gradual cooling of the basin/rift.

The Nornalup Complex (1100-1300Ma) is less intensely deformed high-grade orthogneisses and paragneisses intruded by sheets of granite-diorite.

### 4.2 Regolith Geology

The Fraser Project contains sub-cropping Proterozoic rocks occurring beneath a stripped insitu laterite profile and overlying Tertiary sediments.

The regolith sequence consists of a truncated Proterozoic saprolite (formed in the Mesozoic), which is variably overlain by sediments of post-Eocene age. These overlying Cainozoic

sediments have been modified by lateritic weathering processes during the Oligocene and locally partially stripped due to uplift.

The soil profile reflects the relatively recent onset of aridity (Late Miocene) and formation of an alkaline upper regolith.

The Fraser ELs are deeply weathered much like the Yilgarn Craton, and is covered by a veneer of Eocene terrestrial marine sediments. Pedogenic carbonate is extensively developed in soils overlying both Archaean and Proterozoic basement and Tertiary sediments.

#### 4.3 Style of Mineralisation

Possible mineral styles include:

- Yilgarn greenstone gold, nickel mineralisation
- Broken Hill Type lead-zinc, VMS polymetallic
- Tropicana style gold mineralisation

## **5. WORK CONDUCTED DURING THE REPORT PERIOD**

Work conducted during the report period was based on recommendations offered in Jeffress, G. M., 4<sup>th</sup> November 2009 and Jeffress, G. M., 27<sup>th</sup> November 2009.

Specifically, access roads and lines were cleared as shown on Figure 3 to permit access for reconnaissance regolith aircore drilling.

Unfortunately, due to unseasonably wet conditions, access clearing was delayed, remains incomplete, and drilling was therefore delayed.

Approximately 60km of roads and access lines were rehabilitated or cleared under supervision of Ngadju traditional claimants.

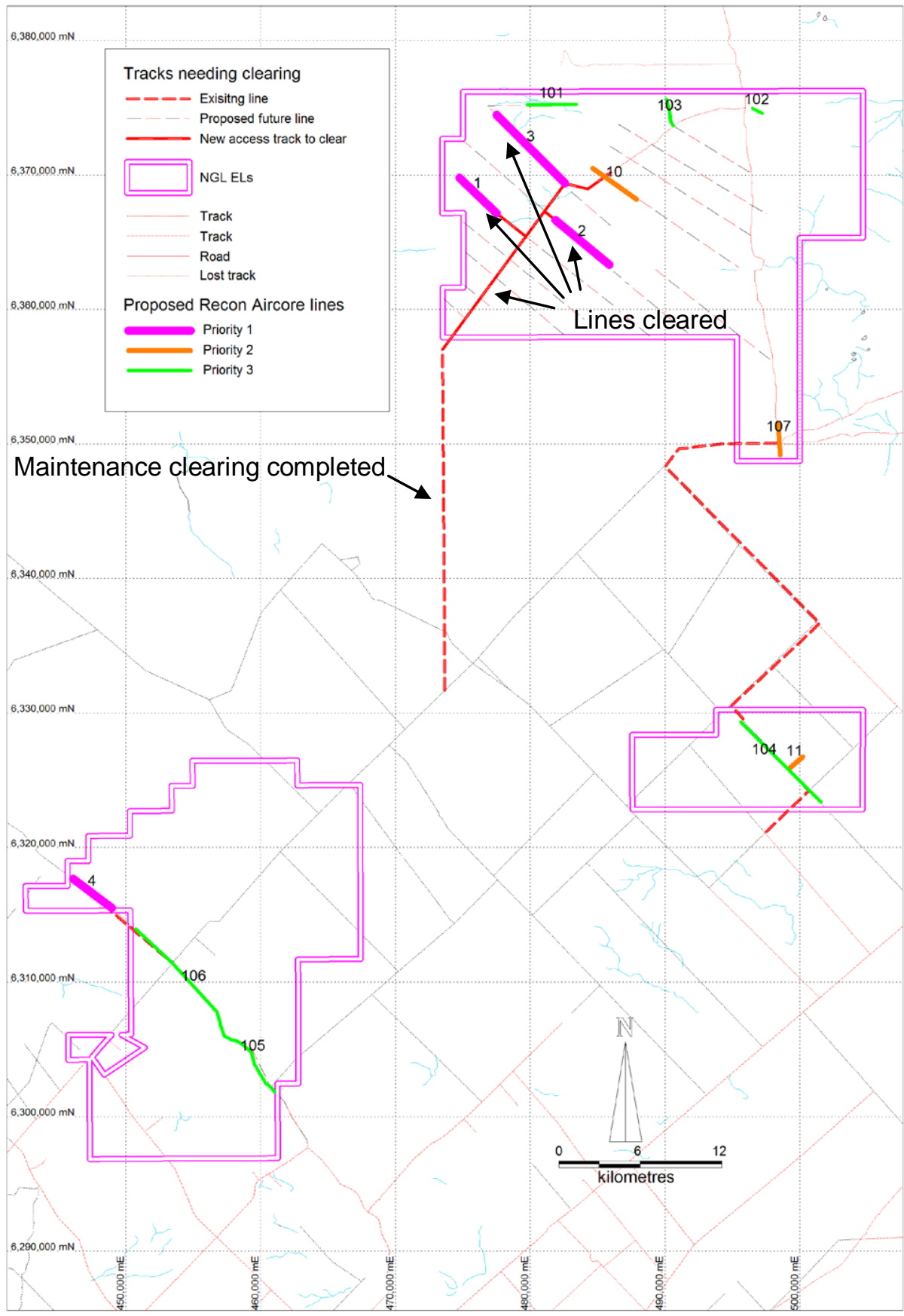


Figure 3, Fraser Range work during the report period.

## **6. RECOMMENDATIONS**

It is recommended that work continue towards the objectives detailed in Section 3.4; that line clearing and drilling be completed as detailed in Jeffress, G. M., 27<sup>th</sup> November, 2009 and Jeffress, G. M., 4<sup>th</sup> November 2009 and Jeffress, G. M., September 2009.

## 7. REFERENCES

Jeffress, G. M., September 2009, Memorandum to David Thomas dated 25/9/2009, Re: Fraser Range Project – Regolith/Landform interpretation and geochemical strategy.

Jeffress, G. M., 4<sup>th</sup> November 2009, Memorandum to David Thomas dated November 4, 2009, Re: Fraser Range South Project – Reconnaissance Visit Report.

Jeffress, G. M., 27<sup>th</sup> November, 2009, Memorandum to David Thomas dated November 27, 2009, Re: Next steps for exploration at Fraser Range project.

Isles, D., 2009, Technical Memorandum to CSA dated 22 September 2009.

Mattinson, P., 2008 Exploration Potential, Norseman Gold Plc, Fraser Province, Albany, Western Australia, ELS63/952 – 957. Unpublished company report.

Norseman Gold, 2009, 2008 – 2009 Annual Report for 63/0952, E63/0953 – 955 & E63/0956, 957 to the DMP.

Read J. 2004 Exploration Licences E63/706-746, Southern Fraser Project, Western Australia; Combined Final Report For The Period Ended 29<sup>th</sup> January 2004, Discovery Nickel Ltd

Robinson P. 1998 Yilgarn Extension Project, E63/453 Surrender Report; Pan Australian Exploration P/L. DOIR Reference M9749/4, Item 10624A 54560

White M 2004 Exploration Licences E63/706-746, Southern Fraser Project, Western Australia; Combined Final Report For The Period Ended 29<sup>th</sup> January 2003, Combined Reporting number C33/2003, BHP Billiton Minerals P/L, DOIR Reference CR10650, A66276

White M., 2004 Exploration Licences E63/706-746, Southern Fraser Project, Western Australia; Combined Final Report for the Period Ended 20<sup>th</sup> December 2004, Combined Reporting number C33/2003, BHP Billiton Minerals P/L, DOIR Reference CR10864.



## **8. RELATED REPORTS**

The following report has been submitted to the DMP with this report:

Jeffress, G. M., 27<sup>th</sup> November, 2009, Memorandum to David Thomas dated November 27, 2009, Re: Next steps for exploration at Fraser Range project.