

# Seventh Annual Report

on

## EL 7/2010 – Conara

<b>Reporting Period</b>	14 September 2016 – 13 September 2017
<b>Project Operator</b>	ABx4 Pty Ltd
<b>Address</b>	Level 2, 131 Macquarie Street, Sydney, NSW, 2000
<b>Authors</b>	Tom Battaglia, Thomas Grieve
<b>Report Prepared By</b>	Tom Battaglia
<b>Date</b>	21 September 2017

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**ABSTRACT****Objective:**

Exploration Licence EL7/2010 “Conara” was applied for in order to facilitate an exploration program to discover economically viable deposits of bauxite associated with Tertiary Volcanics, in an area with old peneplained surfaces preserved as plateaus. The goal of the program is to determine the quality and quantity of the bauxite in the area using an RC drill rig mounted on a light 12 tonne truck.

**Methodology:**

1. Detailed geological mapping, including geomorphological mapping, to define the areas with best potential for bauxite.
2. Systematic sampling of natural outcrops and exposures in road cuts of bauxite profile.
3. Chemical analyses of samples, including specialist analyses to determine total and available alumina, total and reactive silica, loss on ignition and other analyses as required in the bauxite search.
4. Drill testing of zones with best potential defined by work under 1, 2. and 3, by an RC drill rig mounted on a light Mitsubishi truck to get samples representing the whole bauxite profile.
5. Systematic drill testing at close spacing's to obtain data for resource estimation in the best target areas defined by programme under 4.
6. Mine-ability study of Tasmanian bauxite using a small excavator to dig bauxite and screen test on a larger scale.

**Results:**

ABx4 Pty Ltd conducted a Pit Test Programme at the Fingal Rail Bauxite Project starting in May 2017. This is the second pit (FRP002) that has been excavated at the Fingal Rail Deposit, the first of which (FRP001) was excavated in 2013 (See the Third Annual Report on EL7/2010).

The majority of on-site activities (i.e. stripping, excavation, stockpiling, bulk sampling and transport) have been concluded with the exception of ore processing and rehabilitation activities. Approximately 109.9 tonnes of ore were removed from the pit which had a maximum depth of approximately 7 metres.

Data analysis and interpretation is still ongoing so only preliminary findings and documentation of geological works are presented in this report. The geological works comprise of metre-interval and channel sampling, face mapping and photography and reconciliation with drillhole results.

**Recommendations for future work:**

Recommendation for future work include further:

1. Detailed geological mapping, including geomorphological mapping and study of satellite images to define the areas with the best potential for bauxite.
2. Systematic sampling of natural outcrops and exposures in road cuts of bauxite profile.
3. Chemical analyses of samples, including specialist analyses to determine total and available alumina, total and reactive silica, loss on ignition and sieving.
4. Drill testing of zones with best potential with an RC drill rig mounted on a light six wheel truck to get samples representing the whole bauxite profile.
5. Ore processing, data analysis and interpretation of results from the May 2017 Fingal Rail Pit Test Programme.
6. Completion of rehabilitation at Fingal Rail Test Pit No. 2 (FRP002).
7. Additional drilling at Fingal Rail to delineate the ore body.
8. Testing new sample processing techniques to improve silica reduction.
9. Constant monitoring of rehabilitated pit locations.
10. New application for a Mining Lease over the Fingal Rail Deposit.
11. Complete the reporting for the Botanical Survey at Nile Road

## 1. INTRODUCTION

### Exploration Rationale

EL 7/2010 “Conara” was applied for in order to facilitate an exploration program to discover economically viable deposits of bauxite associated with Tertiary Volcanics in an area with old peneplained surfaces preserved as plateaus. The goal of the program was to determine the quality and quantity of the bauxite in the area using an RC drill rig mounted on a light 12 tonne truck.

### Geological Setting

The historic work done by H.B. Owen (‘Bauxite in Australia’, 1954) showed that bauxite in Tasmania is formed as either ‘grouped remnants of former continuous sheet’ or ‘in lenticular or pod shaped bodies in localised depressions’. This generally occurs in areas with high water flow and low erosion where the old surface has been preserved.

In EL7/2010, the majority of bauxite targets are hosted in Tertiary Volcanics, however, some bauxite derived from Jurassic Dolerite could also be present.

### Tenement Information

EL 7/2010 “Conara” was granted on and from 14 September 2010 for a period of 5 years to ABx4 Pty Ltd (“ABx4”). Two 12-month Extension of Term (“EOT”) applications have been approved since, such that the current tenement expiry is 13 September 2017.

This is the Seventh Annual Report for the reporting period 14 September 2016 - 13 September 2017 incorporating the results of work completed during the Seventh year of tenure.

On 9 December 2016, adjacent ABx4-held tenement EL6/2010 “Cleveland” was consolidated into the EL7/2010 area, bringing the total tenement area to 184km<sup>2</sup>.

In September 2017 an application was submitted by ABx4 renew 129 km<sup>2</sup> of EL7/2010 for a further 12 months. 25km<sup>2</sup> of the 55km<sup>2</sup> proposed for relinquishment was originally a part of the EL6/2010 tenement.

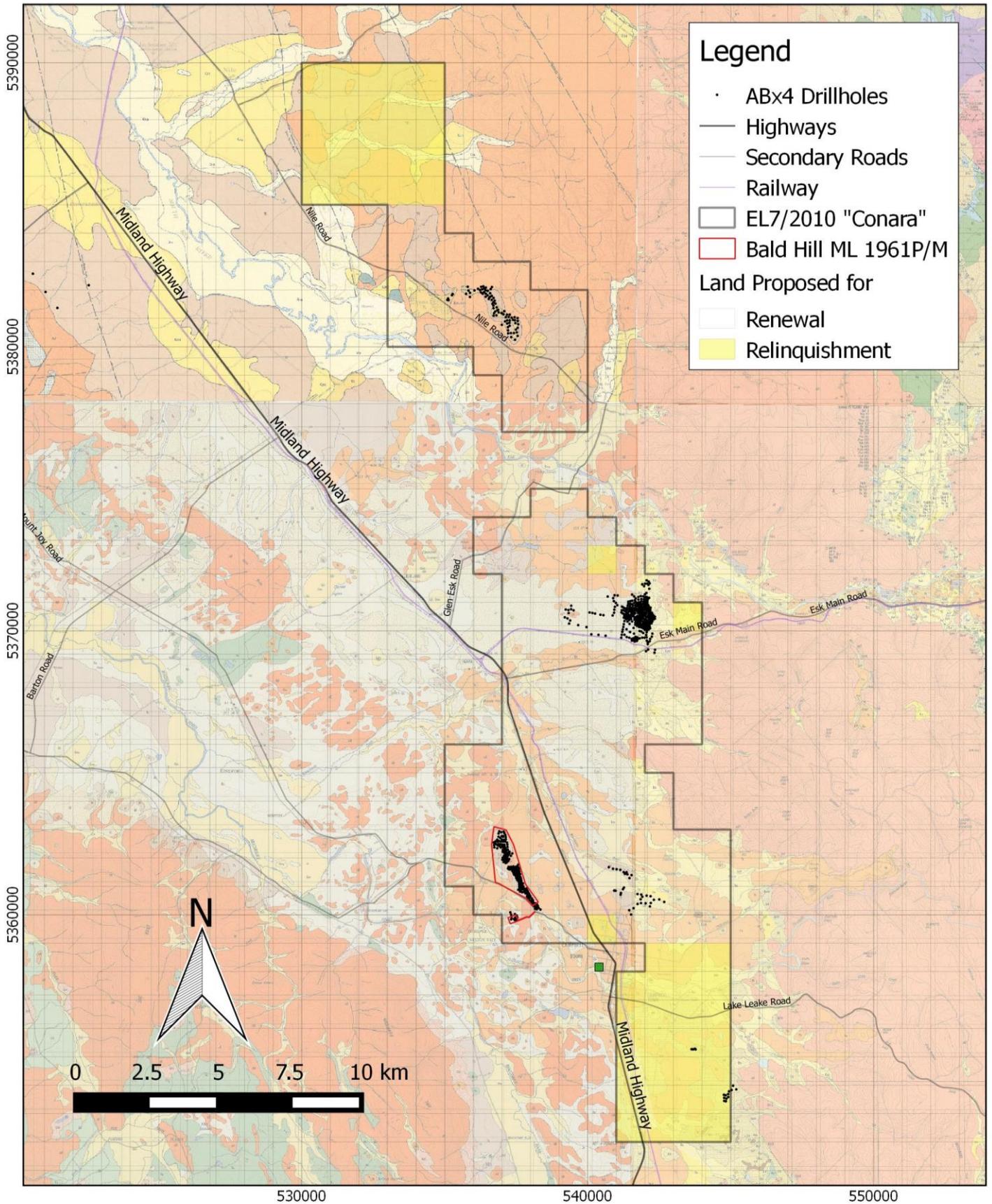
The licence category is Mineral Category 1 – Metallic Minerals and Atomic Substances.

### Tenure, including joint venture details and title transfers

EL7/2010 “Conara” is 100% owned by ABx4 which is a wholly-owned subsidiary of Australian Bauxite Limited.

### Location

The Conara tenement is centred on the railway town of Conara where there is a railway siding and active railway. The tenement is only 90 km from the large operating port at Bell Bay and the Midlands highway passes through the centre of the tenement. The Conara tenement is ideally located for both rail and road transport to the port. EL 7/2010 is close to the City of Launceston which could offer a wide range of services and skilled work force. The majority of the land usage in the tenement is private reserves, natural forest and agricultural land with land categories 4-6.



Map 1. Location of EL7/2010 "Conara". Map indicates areas proposed for relinquishment (yellow) and locations of previous drilling by ABx4 (black dots). Basemap consists of four sheets of the 1:50 000 Geological Map Series (MRT). Map datum GDA94 (MGA94 Zone 55)

## 2. REVIEW OF PREVIOUS WORK

### Work Completed during First Five Years of Tenure

In the previous years of tenure a total of 721 RC holes were drilled for 8,023 metres. More than 2,970 drilling samples underwent specialist chemical analysis at ALS Laboratories, Brisbane. 1,787 of these tested samples were wet sieved at 0.26mm prior to analysis in order to test upgrade and yields of bauxitic material (majority of clay is washed out during this process).

Another 4,414 assays on drilling samples were conducted in-house using a hand-held Niton XRF device.

The results of drilling in the first five years of tenure led to the current JORC-compliant bauxite resources of 1.84 Mt inferred and a further 1.67 Mt indicated (total 3.51Mt) within the Conara tenement (these figures are recent to 2015 but build on previous estimates). These are a combination of the Bald Hill area which is now under a mining lease with 1.60 Mt, Fingal Rail with 1.18 Mt and Nile Road with 0.73 Mt. Other targets have been drill-tested but did not contain economic quantities of bauxite.

Four test pits were dug in 2013 (three on the Bald Hill target, one on the Fingal Rail target) to assess resource extraction, mining equipment, processing equipment and shipping grade and yields.

A mining lease for the Bald Hill bauxite deposit was applied for and later approved on September 19, 2014. The Bald Hill Mine ("ML 1961P/M") opened in December 2014 and has been in production since January 2015.

A great amount of field reconnaissance, geological mapping and surface sampling (for chemical analysis) has been undertaken and has allowed geologists to prioritise targets for drilling and other works. Multiple botanical and/or archaeological surveys have been conducted in the first five years.

Ongoing desktop reviews have also taken place over the past five years in order to assess and prioritise bauxite targets across all ABx4 tenements.

### 3. EXPLORATION COMPLETED DURING THE REPORTING PERIOD

#### Prospect-based Exploration Activities

##### Fingal Rail – Test Pit Programme

###### Summary

ABx4 Pty Ltd conducted a Pit Test Programme at the Fingal Rail Bauxite Project starting in May 2017. This is the second pit (FRP002) that has been excavated at the Fingal Rail Deposit, the first of which (FRP001) was excavated in 2013 (See the Third Annual Report on EL7/2010).

The majority of on-site activities (i.e. stripping, excavation, stockpiling, bulk sampling and transport) have been concluded with the exception of ore processing and rehabilitation activities. Approximately 109.9 tonnes of ore were removed from the pit which had a maximum depth of approximately 7 metres.

Data analysis is still ongoing so what is presented below is intended to be a preliminary summary of works done. A more comprehensive analysis of results will be published in the next year's annual report when aforementioned ore processing, data analysis and interpretation of results has been finalised. Rehabilitation efforts should also be completed within the next annual reporting period.

The main body of results presented below will be the Geological works conducted by ABx field geologists. The geological works comprise of photo documentation, face mapping & logging and reconciliation with drillhole results.

###### Location

The pit was centred on drillhole CN422 which was drilled in 2013 by ABx4. The location was selected on the basis of good results from drilling (i.e. combination of high and moderate grade metres), greater than average orebody thickness and the location which is not proximal to any known threatened flora species.

Table 1. Location of drillhole CN422 on which the FRP002 pit was located. The projection of coordinates is UTM Zone 55s (WGS84).

Drillhole	Easting (metres)	Northing (metres)
CN422	542137	5370421

###### Purpose

The purpose of the pit was to test the mineability of the deposit, including but not limited to

- Ease of digging (i.e. mining method)
- Reconciliation with drillholes
- Processing methods (i.e. beneficiation)

## Geological Work

### *Pit Excavation, Sampling and Face Mapping*

Initial excavation was focused on collecting metre-interval samples to evaluate grade variation with depth. The pit was excavated down to 7 metres below the original surface, with a small stockpile set aside for each interval and hand samples collected in a representative manner. The first metre, from surface to 1 metre depth was named FRP00201, the next FRP00201, and so on. These samples were sent to the ALS Laboratory in Burnie for XRF analysis.

Two large stockpiles were made which consisted of (1) ore from the entire orebody from 2 to 7 metres depth and (2) just the ore from 5 to 7 metres depth which was more cemented and was expected to have greater yields during later mineral processing tests.

The pit was then filled in slightly and benched out for the safety of geologists so they could conduct geological works. Face mapping, photo documentation and channel sampling took place afterwards. The channel samples were not sent to the lab for analysis as the metre-interval samples were thought to be sufficient.



Photo 1. Stockpiling of metre-interval samples from FRP002. Photo shows ABx4 staff conducting sampling.



Photo 2. Fingal Rail Pit No. 2 (FRP002). The two large stockpiles collected for processing can be seen on the ground in the background.

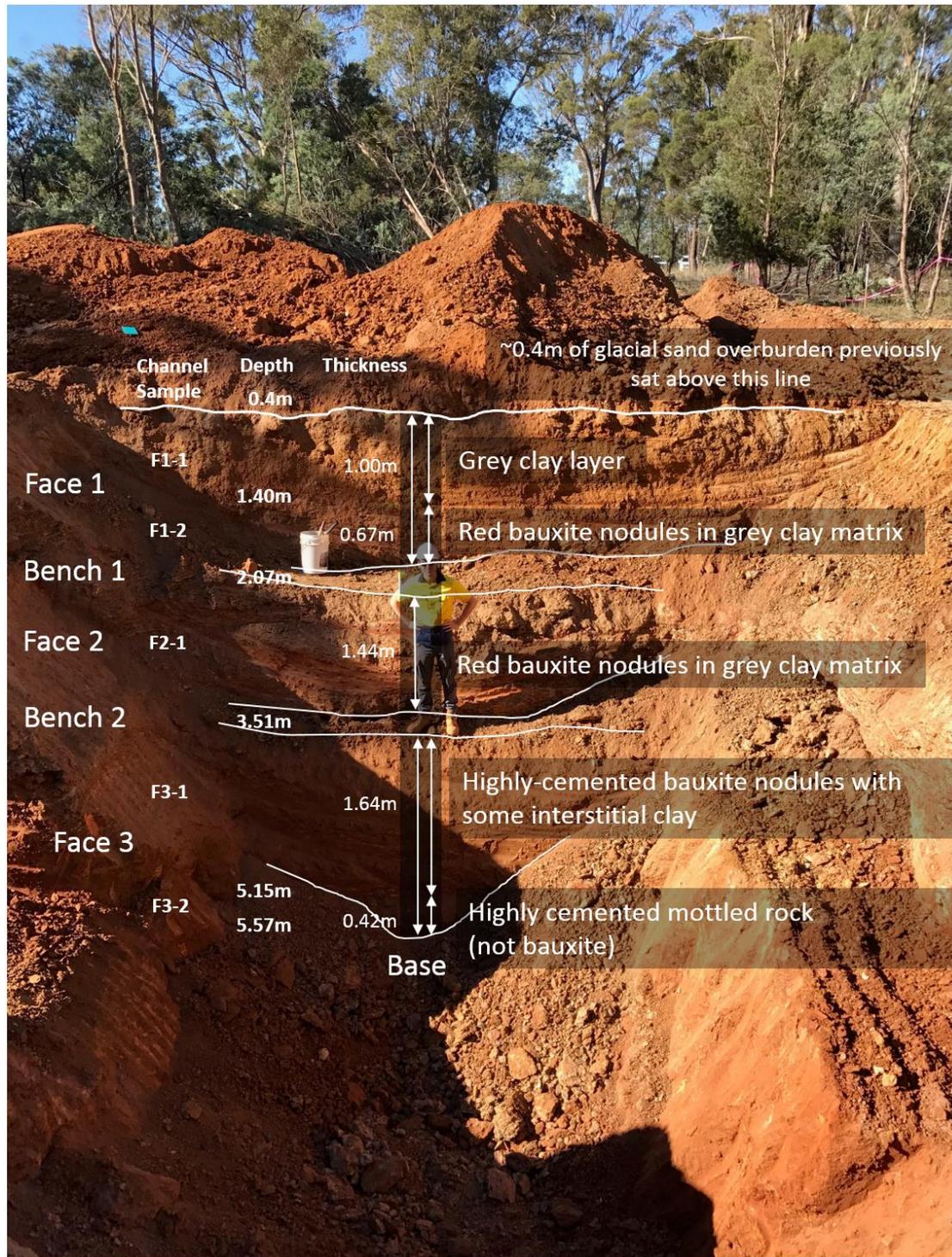


Photo 3. Pit section showing the dimensions of the pit, location of channel samples (behind the arrows) and descriptions of the five main geological units (three of which were bauxite). Note that the overall pit depth at the time of photo was 5.57 metres, however at one stage the pit extended further down to approximately 7 metres.

Table 3. Assay results of metre-interval samples collected from FRP002. The naming convention is FRP00201 was collected from 0-1m depth, and so on, down to total depth of 7m.

SAMPLE ID	ME-XRF15d	ME-XRF15d	ME-XRF15d	ME-XRF15d
	Al2O3	SiO2	Fe2O3	TiO2
	%	%	%	%
FRP00201	30.1	26.7	22.1	3.03
FRP00202	34.1	15.6	24.7	4.65
FRP00203	39.9	10.15	21.9	4.56
FRP00204	39.8	8.57	24.2	4.62
FRP00205	38	7.54	26.2	4.06
FRP00206	33.8	15.05	27	3.68
FRP00207	31.3	24.8	23.5	2.95

Table 2. Assay results of drillhole samples from CN422 (circa 2013).

Sample	Raw					+0.26mm Yield	+0.26mm Wet Sieved Fraction				
	Al2O3	SiO2	Fe2O3	TiO2	LOI		Al2O3	SiO2	Fe2O3	TiO2	LOI
	%	%	%	%	%		%	%	%	%	%
CN42202	32.1	30.2	18.45	2.52	15.8						
CN42203	38.2	19.1	17.3	4.41	20.09	44.9	37.9	7.4	26.7	5.33	21.84
CN42204	38.6	5.8	28.3	3.38	23.03	57.8	38	2.54	32.2	3.27	23.19
CN42205	45	5.3	20.1	3.35	25.51	52.4	52.6	1.6	13.95	2.23	29.18
CN42206	40.5	6.34	24.4	4.36	23.51	45.9	51.3	3.31	14.2	2.4	28.26
CN42207	32.2	22	24.4	3.11	17.22	13.5	38.9	15	21.6	2.6	21.27



Photo 4. Detailed photo of first (upper) face of pit.



FRP002

Face 2

Red bauxite  
nodules in  
grey clay  
matrix

Photo 5. Detailed photo of second (middle) face of pit.

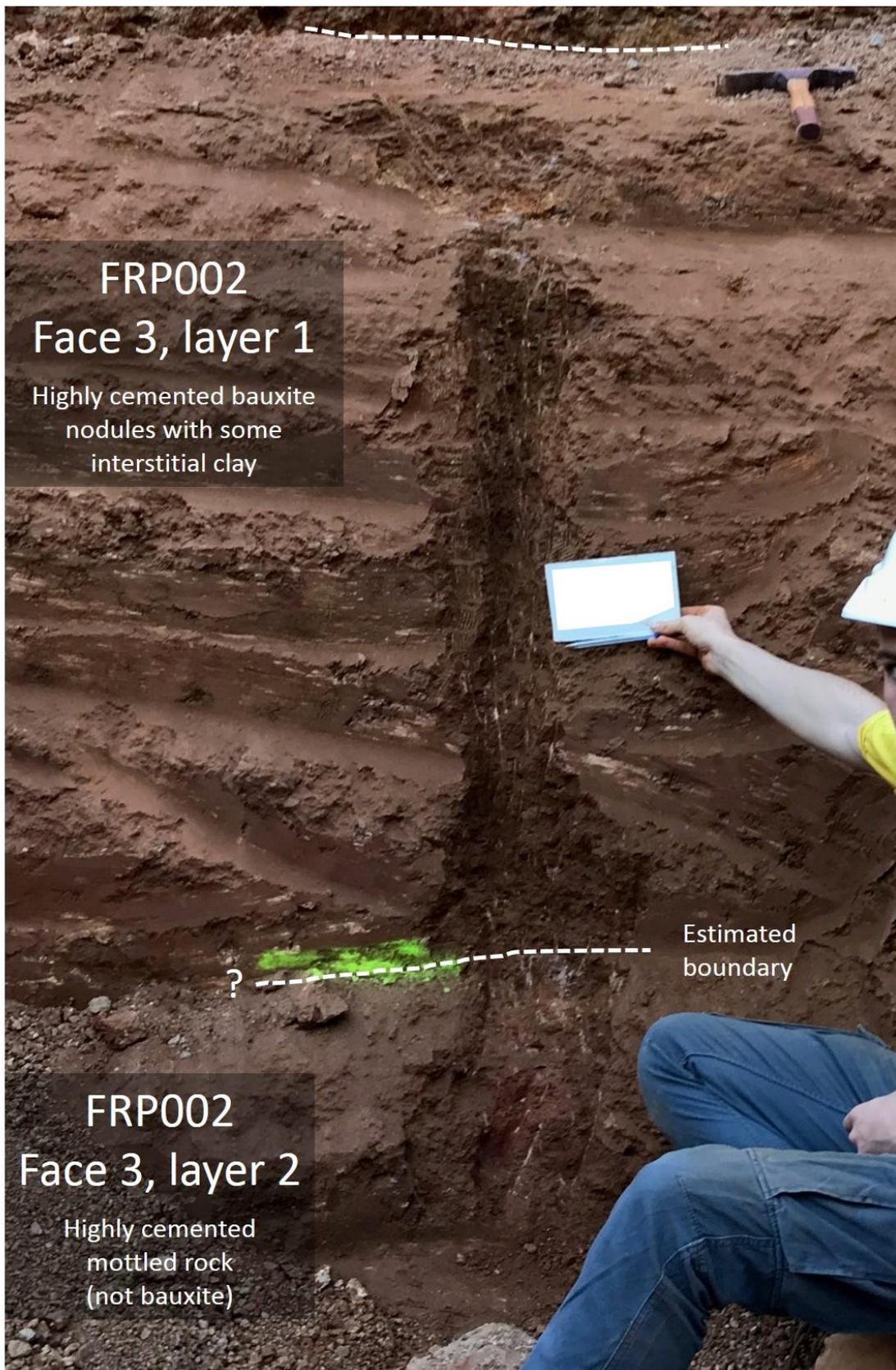


Photo 6. Detailed photo of third (lower) face of pit.

## 4. DISCUSSION OF RESULTS

### Pit Reconciliation

The reconciliation of pit interval samples with drillhole metres was good. The same downhole trends in grade are evident in both pit and drillhole samples. These include:

- The highest-grade bauxite occurring in the middle of the bauxite profile (High  $\text{Al}_2\text{O}_3$ , Low  $\text{SiO}_2$ , Moderate  $\text{Fe}_2\text{O}_3$ ), &
- Upper and lower bauxite profile indicate moderate-grade bauxite with greater values of  $\text{SiO}_2$  (predominantly clay-sized minerals e.g. kaolinite, halloysite, etc.).

It is noteworthy that the high  $\text{Al}_2\text{O}_3$  values seen in the drillhole results are not seen in the pit samples. Possible explanations for this include (1) contamination during sampling by excavator from upper metres of pit, (2) lateral heterogeneities in the pit body and (3) the compressed air in the air core drilling slightly upgraded the bauxite (i.e. by blowing away fine airborne clay particles).

The drillhole results also importantly show that reductions in silica can be made by wet sieving (which on the mine-scale may be replicated by wet-screening). However, these results also show that reducing silica does not always equal proportional increases in alumina – it appears this only occurs in the lower part of the profile whereas increases in Iron oxide occur in the upper profile.

## 1. CONCLUSIONS AND RECOMMENDATIONS

From the preliminary results of the recent Fingal Rail Test Pit Programme presented in this report, the following conclusions can be drawn:

- The reconciliation of pit samples and drillhole samples is good. Previously collected drillhole results from Fingal Rail can be used confidently in future mine-planning activities,
- The success of the excavator in digging through the entirety of the ore zone (assuming of course that this part of the ore zone is representative of the deposit) means that the same mining method can be used later when mining the deposit.

However, the test pit programme is still ongoing – ore processing, data analysis and interpretation is required to be undertaken before further conclusions can be drawn.

### **Recommendation for future work include:**

1. Detailed geological mapping, including geomorphological mapping and study of satellite images to define the areas with the best potential for bauxite.
2. Systematic sampling of natural outcrops and exposures in road cuts of bauxite profile.
3. Chemical analyses of samples, including specialist analyses to determine total and available alumina, total and reactive silica, loss on ignition and sieving.
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7. Additional drilling at Fingal Rail to delineate the ore body.
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9. Constant monitoring of rehabilitated pit locations.
10. New application for a Mining Lease over the Fingal Rail Deposit.
11. Complete the reporting for the Botanical Survey at Nile Road

## **2. ENVIRONMENT**

### **Surface Disturbing Operations:**

The Test Pit Programme conducted from May 2017 caused a significant disturbance to the surface.

### **Surveys (archaeological, botanical):**

No surveys took place in the current annual reporting period.

The Fingal Rail target, on which the Pit Work Programme was conducted, has been subject to a number of botanical surveys which were submitted with previous years' reports.

### **Rehabilitation:**

The pit has been refilled and reshaped, however, full rehabilitation is yet to be completed in the immediate area adjacent to the pit.

### 3. EXPENDITURE

Table 4. Exploration expenditure for EL7/2010 over the 7<sup>th</sup> annual reporting period.

EL 7/2010 Conara - Expenditure over 7th Year of Tenure	
1. Geoscientific costs	
Geology	\$113,573
Geochemistry	
Geophysics	
Remote sensing	
2. Drilling and Gridding Costs	
Gridding	
Drilling	
Holes/metres	
3. Land Access Costs	
4. Rehabilitation Costs	
5. Feasibility Study Costs	
<i>(Pit test program to test deposit mineability and mineral processing)</i>	
6. Other Costs	
7. Administration Costs (< 10%)	
8. Total Costs	
	\$184,700

Note: Office Administration was met by parent company – Australian Bauxite Limited.

## **4. REFERENCES**

H.B. Owen (1954), *Bauxite in Australia*, Bulletin 24. Bureau of Mineral Resources, Geology and Geophysics.