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ENVIRONMENTAL



Prospecting Right and Environmental Authorisation Application for the 4L40 Slimes Dam on R/E Driefontein 85 IR

Notification of Intent to Develop

Project Number:

ERG3416

Prepared for:

Ergo Mining (Pty) Ltd

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Name	Responsibility	Signature	Date
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1 Introduction

Digby Wells Environmental (Digby Wells) has been appointed by Ergo Mining (Pty) Ltd (Ergo) to undertake a Basic Assessment (BA) process for a Prospecting Right Application for the 4L40 Slimes Dam Project (the Project) in the Magisterial District of Benoni. The BA process includes the following:

- Compilation of a Basic Assessment Report (BAR) which consists of:
 - An Environmental Impact Assessment (EIA); and
 - An Environmental Management Programme Report (EMPr).
- Related specialist studies; and
- A summary of the Public Participation Process (PPP).

1.1 Project Location

Table 1-1: Location data for the proposed 4L40 project

Name of property/ies	Driefontein
Street address or location	100 m north of Lower Boksburg Road and to the east of Delmore Park, Boksburg, Johannesburg
Erf or farm number/s	Driefontein 85 IR Remaining Extent of Portion 1
Coordinates of approximate centre of project area	-26.212056 28.203817
Magisterial District	Boksburg
Local Municipality	Ekurhuleni Metropolitan Municipality
District Municipality	Ekurhuleni District Municipality
Maximum extent of proposed development	20 m ²
Current use	Slimes Dam
Predominant land use/s of surrounding properties	Residential, Mining

2 Project / Development Details

The East Rand Gold Basin was historically mined and has produced more than 10 000 tonnes of gold, with the mining companies having deposited the gold tailings in numerous tailings dams (slimes dams) and sand dumps throughout the region. Due to the inefficiencies of the historic mining processes, the slimes dams contain low concentrations of gold, as well as low concentrations of other elements such as nickel, silver and uranium. Ergo has developed an efficient, modern process that is able to extract gold from these historic slimes



dams. To determine whether it is economically viable to mine the slimes dams, it is necessary to undertake prospecting activities to determine the grade and quantity of gold remaining in the slimes dam. Ergo intends to prospect slimes dam 4L40, overlying the Nigel Reefs, located approximately 3.3 km to the east of Boksburg Gauteng Province and within the Ekurhuleni Metropolitan Municipality.

The prospecting activities include both invasive and non-invasive methods; non-invasive methods do not have any environmental impacts. The non-invasive prospecting methods include a geophysical and literature survey to identify and determine potential drill locations. Once drill locations have been identified, invasive prospecting activities will be undertaken and entails the use of an auger which will auger into the slimes dam to a depth of 20 m to 30 m. Drill holes will be augered on the top of the slimes dam only; all slopes of the slimes dam will be avoided. The use of the auger ensures that no water or lubricants are required for the prospecting activities.

The material extracted from the slimes dam from the prospecting activities will be deposited in a sealed and labelled plastic bag to prevent potential spillage during transportation to the laboratories for analysis. Excess material at the auger hole is backfilled into the hole, with topsoil placed over the impacted area (1 m²). If necessary, the affected area will be vegetated with indigenous species. Approximately 20 auger holes will be established over the course of 3 years.

2.1 NHRA Section 38 Triggers

The following aspects of Section 38 of the NHRA may be triggered by the proposed project.

Table 2-1: NHRA Section 38 Triggers for the proposed 4L40 project

		NHRA Section 38 (1) Activities / Triggers	Summary description (e.g. 500 m conveyor belt, open cast pit, etc.)
<input type="checkbox"/>	a	Any linear development or barrier >300 m	
<input type="checkbox"/>	b	Any bridge or similar structure >50 m	
<input type="checkbox"/>	c	Any development or activity that will change the character of a site:	
	<input type="checkbox"/>	i	≥5 000m ² in extent
	<input type="checkbox"/>	ii	Involving ≥3 existing erven/ subdivisions
	<input type="checkbox"/>	iii	Involving ≥3 or more erven/ divisions consolidated within past 5 years.
<input type="checkbox"/>	d	Rezoning of a site ≥10 000 m ² in extent.	



NHRA Section 38 (1) Activities / Triggers		Summary description (e.g. 500 m conveyor belt, open cast pit, etc.)
<input checked="" type="checkbox"/>	e	<p>Other triggers, e.g.: in terms of other legislation, (i.e.: National Environment Management Act, etc.)</p> <ul style="list-style-type: none"> ■ The Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) (MPRDA) and Regulations; ■ The National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA) and the EIA Regulations, 2014; and

2.2 Activities

The following activities will take place during the lifespan of the proposed project.

Table 2-2: Activities for the proposed 4L40 project

Name of Activity	Aerial Extent of the Activity	Listed Activity	Applicable Listing Notice
Non-invasive Prospecting (Geophysical and literature surveys).	N/A	Not Listed	N/A
Auger holes	20 m ²	X – Activity 20	GNR 983
Rehabilitation	20 m ²	Not Listed	N/A

2.3 Additional Impact Assessment Process

The following impact assessment process/es are currently being undertaken for the proposed project.

Table 2-3: Current legal process for the proposed 4L40 project

Legislation, i.e. NEMA, MPRDA, etc.	MPRDA and NEMA
Consenting Authority that has/will receive information	Department of Mineral Resources (DMR)
Present phase of process at Authority, e.g. Draft Scoping Report	Basic Assessment Report

3 Identified / Known Heritage Resources and Potential Impacts

A Heritage Impact Assessment (HIA) was conducted for the development of Extension 7 of Delmore Park (adjacent to the 4L40 Slimes Dam) (Prins, 2008). No archaeological or heritage sites were identified in the project area. According to the geotechnical report conducted for the project area for the Delmore Park project, the underlying geology is that of the Johannesburg and Turffontein Subgroups of the Witwatersrand Supergroup and the Dwyka Formation (Intraconsult, 2007).



The farm Driefontein was declared public diggings on 20 September 1886, along with the farm Elandsfontein (Lang, 1986) on which Boksburg was established in 1905. The town grew around a railway yard that served as a junction centre for railway lines from Cape Town to Pretoria via Kimberley and another to Lourenço Marques (Maputo). Boksburg was thus primarily an industrial centre catering to much of the Central and Eastern Basin mines due its accessibility to mineral resources and as a transport hub (Lang, 1986).

The 4L40 Slimes Dam is over 77 years old as it is present on a 1938 aerial photograph as shown in Figure 3-1 below. In 1938, only half the current extent of the slimes dam is visible. The suburbs of Delmore Park and Delmore have yet to be established as shown in Figure 3-1. By 1952, the slimes dam has taken on the shape that is currently takes today. The suburbs of Delmore and Delmore Park have yet to be established as shown in Figure 3-2.



Figure 3-1: 1938 aerial image of the proposed 4L40 project area



Figure 3-2: 1952 aerial image of the proposed 4L40 project area



The following categories of heritage resources as defined in Section 3 of the NHRA are known to occur within the proposed project area.

Table 3-1: Identified heritage resources

<input checked="" type="checkbox"/>	3(2)(a)	Places, buildings, structures and equipment of cultural significance
		<u>Description of resource:</u> The dump itself represents a historical structure as per the NHRA definition of “structure”, and has been established more than 60 years ago.
		<u>Potential impact:</u> The prospecting activities will not cause any significant changes to the historical character of the dump.
<input type="checkbox"/>	3(2)(b)	Places to which oral traditions are attached or which are associated with living heritage
		<u>Description of resource:</u> None
		<u>Potential impact:</u> None
<input checked="" type="checkbox"/>	3(2)(c)	Historical settlements and townscapes
		<u>Description of resource:</u> The 4L40 slimes dam is over 77 years old.
		<u>Potential impact:</u> At this stage there will be no impact on the cultural landscape
<input type="checkbox"/>	3(2)(d)	Landscapes and natural features of cultural significance
		<u>Description of resource:</u> None identified
		<u>Potential impact:</u> None
<input type="checkbox"/>	3(2)(e)	Geological resources of scientific or cultural importance
		<u>Description of resource:</u> The project area is underlain by the Witswatersrand Supergroup and the Dwyka Formation formation. These formations are of low to insignificant palaeontological sensitivity.
		<u>Potential impact:</u> The project will not impact any palaeontology.
<input type="checkbox"/>	3(2)(f)	Archaeology and/or palaeontology (Including archaeological sites and material, fossils, rock art, battlefields & wrecks)
		<u>Description of resource:</u> None



		<u>Potential impact:</u> None
<input type="checkbox"/>	3(2)(g)	Graves and burial grounds
		<u>Description of resource:</u> None
		<u>Potential impact:</u> None
<input type="checkbox"/>	3(2)(a)	Other human remains
		<u>Description of resource:</u> None
		<u>Potential impact:</u> None
<input type="checkbox"/>	3(2)(h)	Sites of significance relating to the history of slavery in South Africa
		<u>Description of resource:</u>
		<u>Potential impact:</u> None
<input type="checkbox"/>	3(2)(i)	Movable objects
		<u>Description of resource:</u>
		<u>Potential impact:</u> None



3.1 Illustrative Material



Figure 3-3: Local setting of the 4L40 proposed project area

4 Recommendation

Table 4-1: Recommendations for the proposed 4L40 project

Is a Heritage Impact Assessment required?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
If NO, provide motivation:		
<p>Based on our understanding of the cultural landscape and the identified heritage resources within the project area, Digby Wells recommends the following:</p> <ul style="list-style-type: none"> ■ Exemption from any further heritage studies for the Prospection Right Application; ■ Should prospecting show that reclamation of dump 4L40 is feasible, a Mining Right Application process will be required that should include a Heritage Resources Management process. 		
<p>Recommendation made by:</p> <p>Name: Natasha Higgitt</p> <p>Capacity: Assistant Heritage Management Consultant: Archaeologist</p>		

5 References

- Intraconsult. (2007). Geotechnical Investigation for Proposed Township of Reiger Park Parcels 1,2,3,5,6,7,8. Fourways: Intraconsult Associates.
- Lang, J. (1986). *Bullion Johannesburg: Men, Mines and the Challenge of Conflict*. Johannesburg: Johanthan Ball Publishing.
- Prins, F. E. (2008). Cultural Heritage Impact Assessment of the Delmore Park, Extension 7 Development. Durban: Strategic Environmental Focus (Pty) Ltd.