

1. INTRODUCTION

Belfast Silica Mine is located on the Remaining Extent of Portion 1 of the farm Klipfontein 385 JS, which is situated approximately 8 km north west of Belfast and Siyathuthuka (Figure 2.1). The site is accessed via a gravel road (D1334 provincial road), which connects with the R33 provincial road to Stoffberg near Belfast (Figure 2.1).

A mining right in terms of Section 23(1) of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) was granted (13 November 2013) to Belfast Silica Mine (Pty) Ltd. for an area of 19.19 hectares (Figure 2.2a). The said mining right is valid for thirty (30) years. A copy of the approved mining right is provided in Appendix 1.

The following Environmental Management Programme (EMP) was also approved in terms of the issuing of the above-mentioned mining right:

Title:	Revised Environmental Management Programme (EMP) for Belfast Silica Mine (Pty) Ltd located on the Remaining Extent of Portion 1 of the farm Klipfontein 385 JS, Belfast.
Report prepared for:	Belfast Silica Mine (Pty) Ltd.
Report prepared by:	Clean Stream Environmental Services
Report dated:	August 2011
Report number:	EMPR 2011/01
DMR ref. number:	MP 30/5/1/2/3/2/1/388 EM

In 2010, Belfast Silica Mine (Pty) Ltd. submitted an application for the extension of the mining area (letter dated: 6 May 2010; Appendix 1). Belfast Silica Mine (Pty) Ltd was advised by the DMR (in 2013) to request a revival of the original request for extension of the mining area. Belfast Silica Mine (Pty) Ltd forwarded a request in this regard to the DMR (letter dated: 3 July 2013, Appendix 1). The DMR subsequently confirmed receipt of the Section 102 application (letter dated: 26 May 2014: DMR Ref. no.: MP30/5/1/2/2/388MR; Appendix 1) and indicated that six (6) copies of the Scoping Report must be submitted. The Department further indicated that the Scoping Report would be followed by an EMP.

Clean Stream Environmental Services was appointed as independent environmental consultant to compile the necessary scoping report in terms of Sections 22(4), 37, 38 and 39 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) with regards to the extension of the proposed mining right area and mining activity.

This scoping report provides:

- an overview of the extension of the mining right area and activity;
- an overview of the environmental features of the said site and immediate surrounding area,
- an indication of interested and affected parties (I&APs) identified to date,
- an indication of potential environmental impacts that could take place as a result of the proposed project extension,
- an indication of specialist studies to be undertaken during the Environmental Impact Assessment (EIA) phase.

2. DESCRIPTION OF THE PROPOSED MINING ACTIVITY

2.1 Name and address of mining right holder

BELFAST SILICA MINE (PTY) LTD.	
Name of Applicant	Belfast Silica Mine (Pty) Ltd.
Company registration number	2008/012530/07
Company registration date	6 July 2000
Contact Person	Mr. C.A. Wessels
Postal address	P.O. Box 1014 Belfast 1100
Physical address	Farm Klipfontein Belfast 1100
Telephone	012-346 2546
Fax	086 516 0591
Cell	082 654 5402
Email address	cwessels@iafrica.com

2.2 Details of the environmental consultant

Name and address of environmental consultant:	
Clean Stream Environmental Services	
P.O. Box 647	
Witbank	
1035	
Contact person:	Mrs. A. Erasmus <i>Pr. Sci. Nat.</i>
Cell number:	083 271 8260
Telephone number:	(013) 697 5021
Fax number:	(013) 697 5021
Email:	adie@cleanstreams.co.za
Website:	www.cleanstreams.co.za

A copy of the Curriculum Vitae (A. Erasmus) is provided in Appendix 2 together with a list of projects completed to date.

2.3 Location of the mining right area

Belfast Silica Mine is located on the Remaining Extent of Portion 1 of the farm Klipfontein 385 JS, which is situated approximately 8 km north west of Belfast and Siyathuthuka (Figure 2.1). The site is accessed via a gravel road (D1334 provincial road), which connects with the R33 provincial road to Stoffberg near Belfast (Figure 2.1).

Figure 2.1 provides an indication of the location of the Belfast Silica Mine area in a regional context.

The mine is situated within the boundaries of the eMakhazeni Local Municipality (MP314) and the Nkangala District Municipality (DC31).

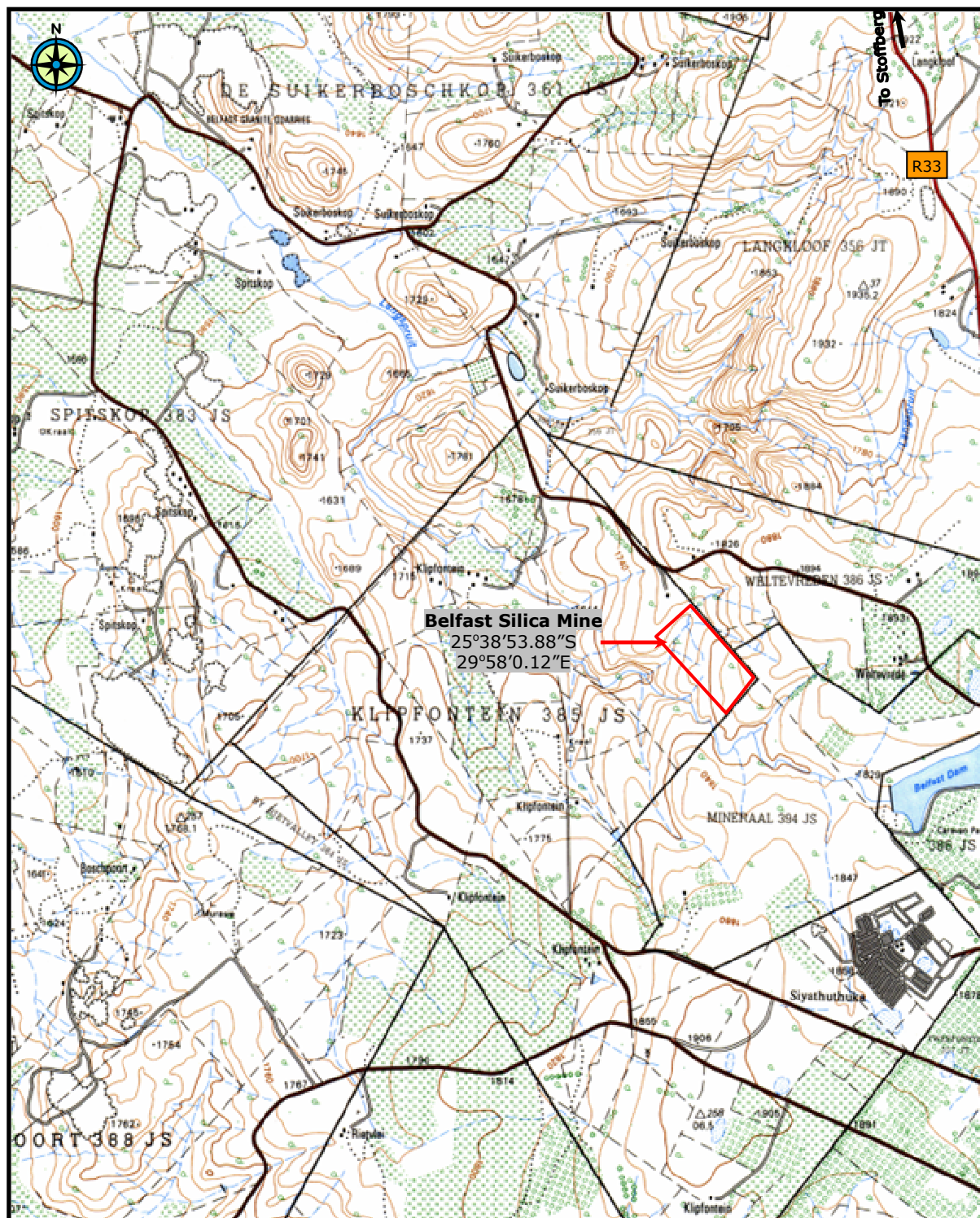


Figure 2.1: Location of Belfast Silica Mine (taken from 1: 50 000 2529DB)

2.4 Mining right area

A mining right in terms of Section 23(1) of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) was granted (13 November 2013) to Belfast Silica Mine (Pty) Ltd. for an area of 19.19 hectares (Figure 2.2a) on the

Remaining Extent of Portion 1 of the farm Klipfontein 385 JS. The said mining right is valid for thirty (30) years. A copy of the approved mining right is provided in Appendix 1.

The proposed extension to the mining right area would involve an area of 31.82 ha (Figure 2.2a) located on the same farm (i.e. Remaining Extent of Portion 1 of the farm Klipfontein 385 JS) as the approved mining right (Figure 2.2a). Quartzite would continue to be mined within the proposed extension area.

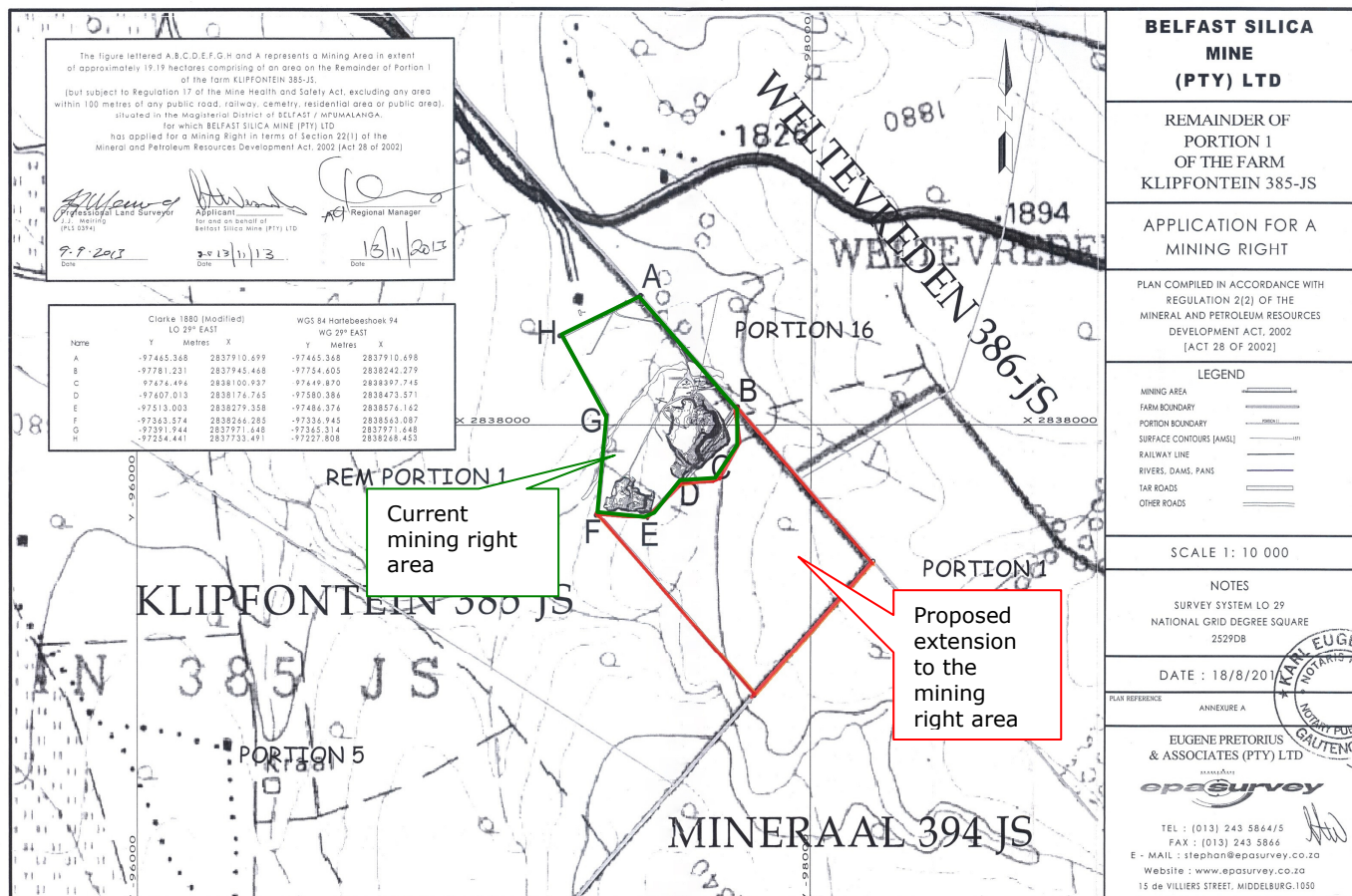


Figure 2.2a: Current and proposed extension of the mining right area

With the inclusion of the proposed extension area, the overall mining right area would then be 51.05 ha as indicated in Figure 2.2b.

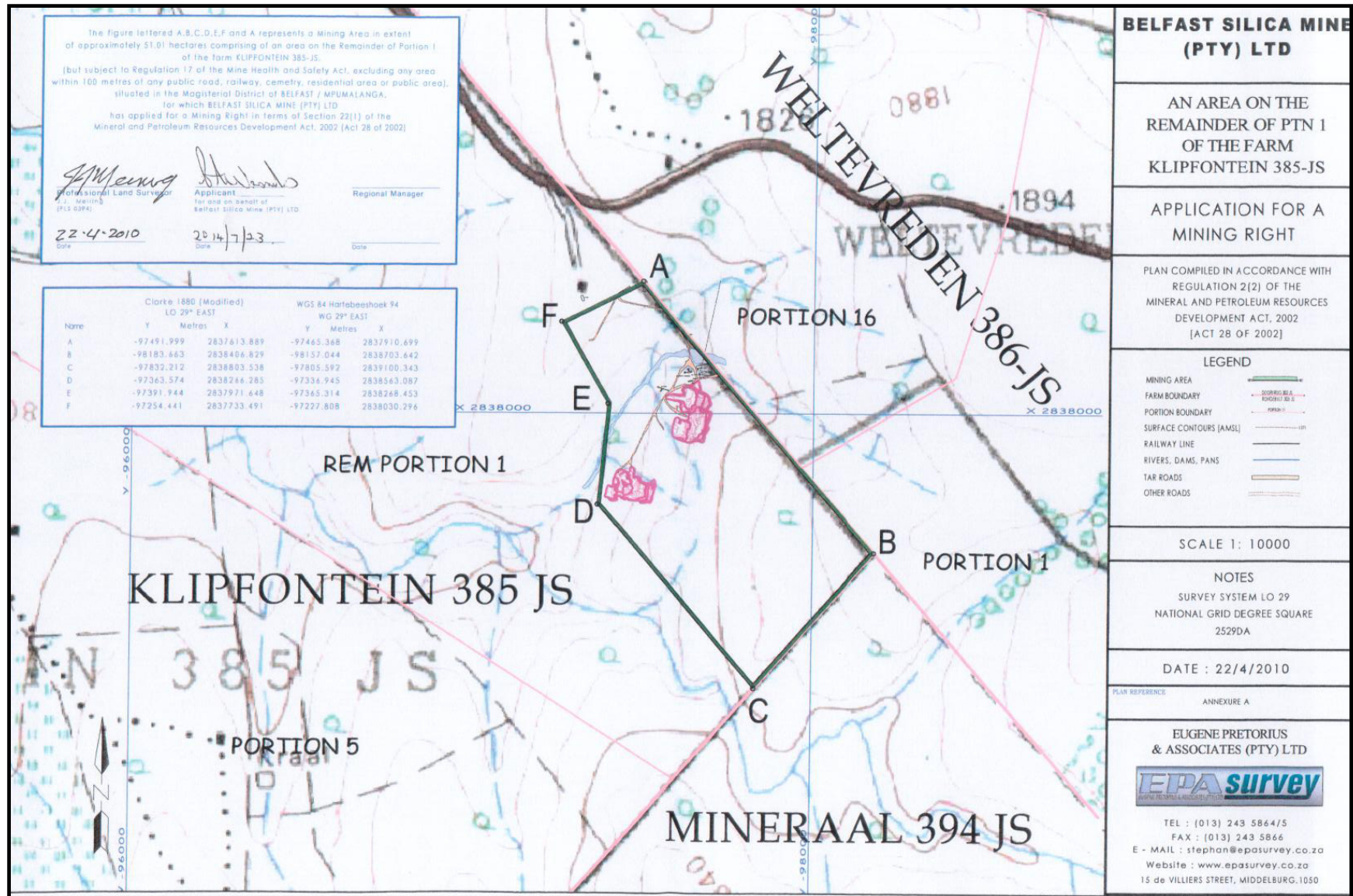


Figure 2.2b: Future overall mining right area

Belfast Silica Mine (Pty) Ltd. is the mineral rights holder with regards to 19.19 ha of the said property as indicated in Table 2.1.

Table 2.1: Mineral rights holder(s)

MINERAL RIGHTS HOLDER(S)				
Farm name:	Portions	Owner of mineral rights	Total Area (ha)	
Klipfontein 385 JS	Remaining Extent of Portion 1	Belfast Silica Mine (Pty) Ltd.	19.19	

According to the online deed search programme (Windeed), the surface rights holder is the company, Four Rivers Trading 179 (Pty) Ltd, as indicated in Table 2.2.

Table 2.2: Surface rights holder(s)

SURFACE RIGHTS HOLDER(S)				
Farm name:	Portions	Owner of surface rights	Title deed no.	Total Area (ha)
Klipfontein 385 JS	Remaining Extent of Portion 1	Four Rivers Trading 179 (Pty) Ltd.	T43378/2007	456.5044

As indicated in Table 2.2, the surface rights do not belong to the same company as the mineral rights (Table 2.1). However, the contact person for this application (Mr. C.A. Wessels) is a shareholder and Director of Four Rivers Trading (Pty) Ltd who owns the surface rights. The proof of ownership (copy of the WinDeed enquiry) is provided in Appendix 3. The shareholders of Four Rivers Trading (Pty) Ltd own 52.6% of Belfast Silica Mine (Pty) Ltd.

2.5 Mineral, mining method and life of mine

2.5.1 Mineral deposit

The mineral to be mined is quartzite. Further details regarding the deposit are provided in Section 3.3.

2.5.2 Target mineral and mine product(s)

Quartzite is mined at the said site. The primary market is for the metallurgical industry where silica is used as flux. The balance of the product is sold mainly as building material (i.e. silica sand and silica rock (19 mm)).

A crushing and screening plant is used to produce the required products. The crushing and screening plant is capable of producing 15 000 tons of products per month on a one shift (10 hours), 4.5 days/week basis. The following products are produced:

- Silica used as flux in the metallurgical industry;
- Silica sand as building material;
- Silica rock (19 mm) as building material.

This material is stockpiled on site until it is transported to clients.

2.5.3 Mining method(s)

The quartzite is exploited by means of the opencast quarrying method which involves both drilling and blasting (Photo 2.1).



Photo 2.1: View of the quarry

2.5.4 Estimated reserves of the mineral deposit and extent of the target area

The proposed extension will entail an extension of the current quarries (Quarry 1 and Quarry 2) of Belfast Silica Mine. The current mine plan will extend into the proposed extension area as indicated in Figure 2.3. Instead of mining deeper for another 30 meters, mining will move horizontally into the extension area. This would facilitate easier mining with less rehabilitation required.



Figure 2.3: Proposed extension of Belfast Silica Mine

The Geological Report (Appendix 4) provides the resource statement for the current and proposed extension areas (see Page 11 of the said report).

2.5.5 Quartzite quality

According to Niesing and Lingenfelder (2003), the chemical analyses (Appendix A of Appendix 4) collected over several years of production reveal that the SiO₂ content of the quartzite ranges from 95% to 98%. This quartzite has been proven by the consumers of this material (i.e. the smelters) to be of good quality metallurgical grade (i.e. over the last 7 years).

2.5.6 The planned Life of Mine (LOM)

Based on the current production levels, the proposed extension would increase the Life of Mine to about 40 years. The proposed extension will not only increase the Life of Mine but will facilitate more economical mine planning and easier rehabilitation of the mining area. The extension will also enable the mine to increase production should long term markets be negotiated which would result in more job opportunities, etc.

2.5.7 Proposed production, yields and sales tons

The quarry has a current production rate of approximately 15 000 tons ROM per month. Approximately 6 500 tons silica rock (used as flux) and 8 500 tons aggregate products are produced per month.

Working hours are from 07h00 to 17h00 from Mondays to Fridays. No work takes place at night nor on Saturdays, Sundays or public holidays. According to the applicant, in exceptional cases the mine operates later in the afternoons and on weekends due to market demands.

The above-mentioned production rate will be applicable with regards to the proposed extension area.

2.6 Infrastructure

Figure 2.4 provides a layout of the existing mine surface infrastructure located within the current mining right area (i.e. 19.19 ha area). Approximately 7.5 hectares of this area has been developed as follows:

- ♣ mining of Quarry no.1 (approximately 3.6 ha),
- ♣ mining of Quarry no. 2 (approximately 1.05 ha),
- ♣ stockpiling (approximately 1.80 ha),
- ♣ surface infrastructure (approximately 1 ha).

The following surface infrastructure is present within the current mining right area (Figure 2.4):

- ❖ Crushing and screening plant (Photo 2.4);
- ❖ Loading plant (load out);
- ❖ Sand drying plant;
- ❖ Workshop area (including stores, washbay, 2200 litre aboveground diesel tank) (Photo 2.3);
- ❖ Diesel tank and paraffin tank;
- ❖ Eskom transformer;
- ❖ Office (Photo 2.2);
- ❖ Change house and ablution facility;
- ❖ Explosive Magazine;
- ❖ Guard house (Photo 2.2);
- ❖ Gravel access road;
- ❖ Product stockpiles.



Photo 2.2: Access road, offices and guardhouse



Photo 2.3: The workshop area



Photo 2.4: Crushing and Screening Plant

No new surface infrastructure other than the extended quarry areas (Figure 2.3) will be constructed as part of the extension of the mining activity. The above-mentioned surface infrastructure will continue to be utilised.

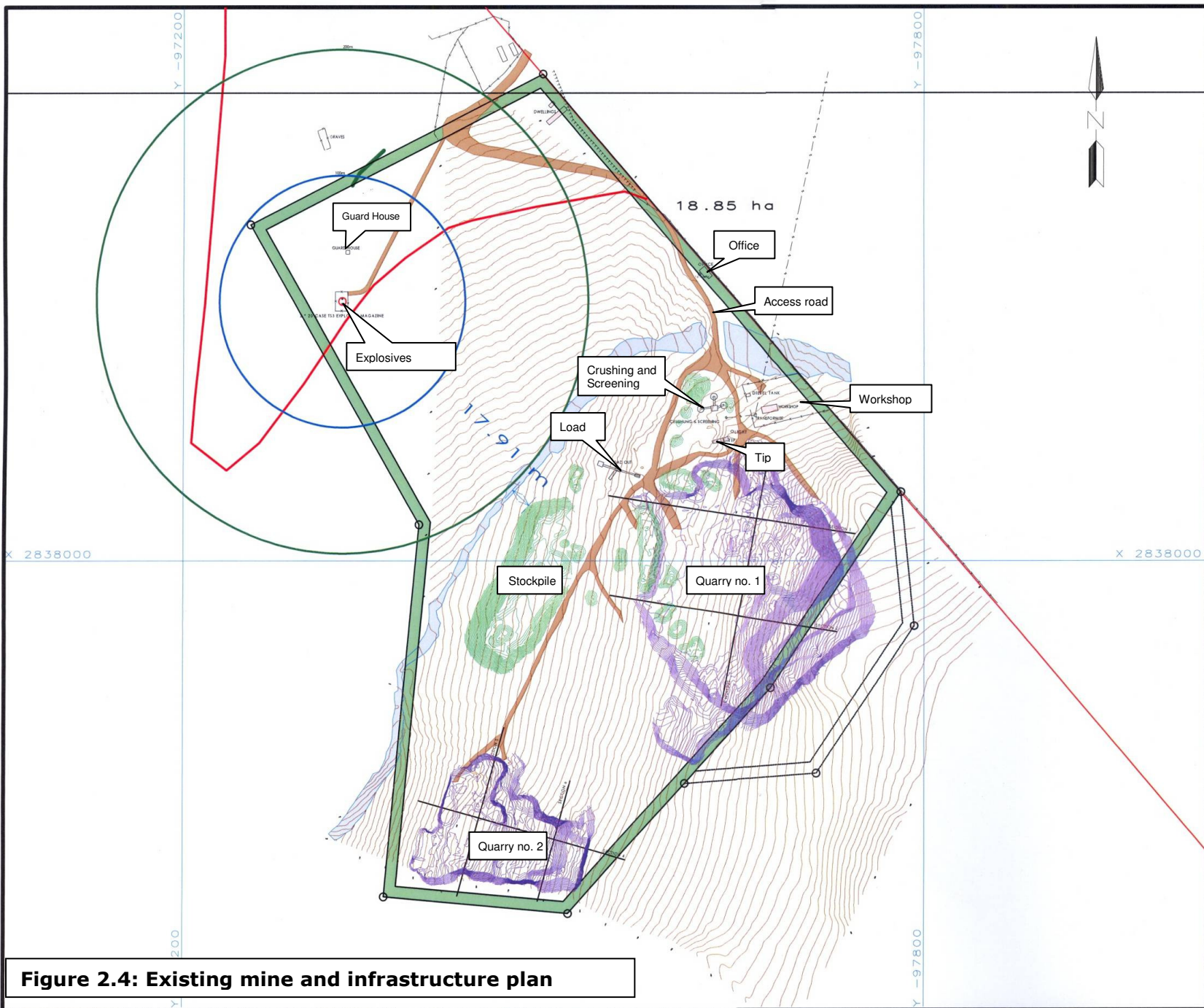



Figure 2.4: Existing mine and infrastructure plan

BELFAST SILICA MINE (PTY) LTD
BELFAST SILICA MINE
GENERAL PLAN
NOTES
SCALE 1: 3 000
DATE :11/4/2011
PLAN REFERENCE
EUGENE PRETORIUS & ASSOCIATES (PTY) LTD

TEL : (013) 243 5864/5 FAX : (013) 243 5866 E - MAIL : stephan@epasurvey.co.za Website : www.epasurvey.co.za 15 de VILLIERS STREET, MIDDELBURG.1050

2.7 Services required

As indicated in Section 2.6, the surface infrastructure present within the current mining right area will continue to be utilised in terms of the extension of the mining activity.

In view of this, the following existing services will continue to be applicable in terms of the mining operation.

2.7.1 Water

Water is used for:

- drinking purposes for approximately 25 persons.
- the septic tank system provided at the office (utilized by 2-4 persons);
- ablution facilities at the workshop (2 showers and 2 toilets (septic tank));
- dust suppression on the crushing and screening plant;
- dust suppression on the road.

Surface water is pumped (1000 litres/hour via a 19mm PVC pipe) from the small dam in the nearby drainage area for use as dust suppression on the crushing and screening plant.

Dust suppression on the crushing and screening plant is carried out by mist sprayers utilizing water pumped (1000 litres per hour via a 19mm PVC pipe) from the nearby dam.

Water for domestic purposes is obtained from the fountain located on the adjacent property belonging to Mr. J. van der Westhuizen. Permission in this regard has been obtained from Mr. J. van der Westhuizen. It should be noted that Belfast Silica Mine (Pty) Ltd has purchased the said property and is awaiting final approval of subdivision.

A total of 300 000 liters of water is utilized by the mine per month:

- 290 000 liters per month used for dust suppression. Dust suppression is done by means of water cart and sprayers at the plant.
- 10 000 liters per month for domestic use (i.e. drinking, toilets, showers).

2.7.2 Electricity

Electricity is obtained from Eskom and is used at the offices, workshop, crushing and screening plant.

2.7.3 Sewage

Sewage is disposed off by means of septic tanks. One septic tank is provided at the office and another at the workshop. The septic tanks are emptied by contractors every six months.

2.7.4 Waste disposal

Domestic waste

Domestic waste is collected on a daily basis and put in black refuse bags. These bags are then stored in a demarcated area until removal to the Belfast Municipal waste disposal site (i.e. on a weekly basis).

No domestic waste is buried or burnt on site. No solid waste disposal site will be developed on site. Alternatives with regards to waste recycling and disposal will be investigated by the mine.

Industrial waste disposal

Scrap metal and other waste material (e.g. tyres, etc.) is collected and stored in a demarcated area. This material is sorted, categorised and disposed of or re-used accordingly.

Measures are in place to ensure that all hazardous substances (oils, grease, diesel, etc.) are correctly stored within the workshop store and that spillage from this store does not contaminate the surrounding soil and run-off water.

A wash bay is present where vehicles are serviced and washed. Water from this wash bay collects in a concreted sump. Once full, the contaminated water will be collected by an appropriate service provider.

A diesel tank (2 200 litre) and a paraffin tank (6 000 litre) are present at the workshop area. The diesel tank is provided with a bunded area.

2.7.5 Roads

The gravel access road to the mine extends across the property of Mr. J. van der Westhuizen. This road is maintained on a regular basis by the mine.

2.8 Pollution control facilities

The treatment of mine/process water is not required since the mine is a Silica mine. No facilities for the treatment of polluted water are provided on site.

The following facilities are not present on site:

- Sewerage plant;
- Evaporation dams;
- Settling dams;
- Pollution control dams;
- Sludge dams;
- Return catchment dams;
- Catchment dams, etc.

The above-mentioned facilities will also not be required with regards to the proposed extension of the mining activity.

2.9 Surface water management

Surface water management measures with regards to the proposed mine extension will be in line with the following:

- National Water Act, 1998 (Act 36 of 1998);
- GN704 of 4 June 1999 (Regulations on use of water for mining and related activities aimed at the protection of water resources);
- Department of Water Affairs and Forestry Best Practise Guidelines for Water Resource Protection in the South African Mining Industry.

Further details in this regard will be provided in the Environmental Impact Assessment (EIA) and the Environmental Management Plan (EMP) to be compiled.

2.10 Labour force

The company employs four (4) persons in the office and eighteen (18) persons on site. Employees are mainly sourced from Siyathuthuka (16) and Belfast (6). The Social and Labour Plan (dated: 30 November 2011) provides further details with regards to the following:

- Human Resources Development Programme;
- Local Economic Development Programme;
- Downscaling and Retrenchment;
- Implementing Mechanism;
- Financial Provision.

2.11 Housing and Living Conditions

(a) Housing for employees

All employees reside either in Siyathuthuka or Belfast.

(b) Recreational and other facilities

None provided on the mine site.

2.12 Health Care

None provided on the mine site.