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Letter from H2ON Environmental Specialist



environmental specialists

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27/06/2008

Coppersun Twelve (Pty) Ltd
37 Leask Street
Wolmaransstad
2630

Attention: Daan Erasmus

**Water Use Licence Application in terms of Chapter 4 under the National Water Act, 1998
(Act 36 of 1998)**

Coppersun Twelve (Pty) Ltd has been prospecting for diamonds on the Farm Fourteen Streams 311 under a Prospecting Right in terms of Section 17 of the Minerals and Petroleum Resources Development Act (MPRDA), 2002 (Act 28 of 2002) with Protocol no. -/2006, issued by the Department of Minerals and Energy (DME) on 31 January 2007. During the prospecting activities, resources have been identified at Rooikoppie (Block A), as well as within the river gravel (Block B). Subsequently, Coppersun Twelve (Pty) Ltd submitted a Mining Rights Application titled "*Application for a Mining Right for Coppersun Twelve (Pty) Ltd on the farm Fourteen Streams 311*", to the Department of Minerals and Energy (DME).

A Water Use Licence Application (WULA) in terms of Chapter 4 of the National Water Act (NWA), 1998 (Act 36 of 1998) to allow mining within a 100 m distance of the Vaal River by Coppersun Twelve (Pty) Ltd, is currently underway and conducted by H2ON Environmental Specialists.

Please do not hesitate to contact me at (051) 444 4700, if you have any queries or concerns regarding this project.

Kind regards

A handwritten signature in black ink, appearing to read 'Gys Hoon'. The signature is stylized with a large, sweeping 'G' and a cursive 'Hoon'.

Gys Hoon (Pri. Sci. Nat)

S

Results of Water analysis



Midvaal Water Company

Scientific Services



TEL: (018) 482 1241
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P.O. Box 31
2550 STILFRONTEIN

lab@midvaalwater.co.za
http://www.midvaalwater.co.za

Test Report

Submitter:

DERA Environmental Consultant
PO Box 6499
Flamwood 2572

Reference:

20:125

Date Received:

2008/05/08

Sample Description:

Coppersun Twelve (Pty) Ltd. Fourteen Streams 331, Kimberley

Certificate number:

8/13571

Analysis Results

Sample number				13571	13889	13890	13891
Identification on container				Vaal River up stream	Vaal River down stream	Canal	Borehole
Determinand	Units	Class 1 (recommended operational)	Method number				
Physical and organoleptic requirements							
pH value at 25°C (aesthetic)	pH units	5,0 – 9,5	WL 1	7,7	7,9	8,2	7,3
Electrical conductivity at 25°C (aesthetic)	mS/m	< 150	WL 2	101	65	65	96
Chemical requirements - macro-determinand							
Ammonia (operational)	mg/l N	< 1,0	GL 2 (GL1)	9,4	0,3	<0,2	<0,2
Calcium (aesthetic/operational)	mg/l Ca	< 150	ICP 1	77	42	42	81
Chloride (aesthetic)	mg/l Cl	< 200	WL 9(WL9A)	74	67	71	87
Fluoride (health)	mg/l F	< 1,0	GL 4	0,3	0,3	0,4	0,3
Magnesium (aesthetic/health)	mg/l Mg	< 70	ICP 1	35	25	23	38
Nitrate and nitrite (health)	mg/l N	< 10	GL 3 (GL5)	3,6	2,0	<0,5	<0,5
Sodium (health)	mg/l Na	< 200	ICP 1	55	53	47	41
Sulphate (aesthetic/health)	mg/l SO ₄	< 400	WL 10	167	133	136	175
Zinc	mg/l Zn	< 5,0	ICP 1	0,20	<0,01	0,01	0,09
Total Alkalinity	mg/l CaCO ₃		WL8(WL8A)	205	125	118	268
Chemical requirements - micro-determinand							
Cadmium (health)	mg/l Cd	<0,005	ICP 1	<0,002	<0,002	<0,002	<0,002
Copper (health)	mg/l Cu	<1,0	ICP 1	0,03	0,02	0,006	0,01

***Not SANAS accredited

Refer to SAN5241: 2005 for the full requirements

***Allowable compliance 95% min.

"Tests marked "Not SANAS Accredited" in this report are not included in the SANAS Schedule of Accreditation for this laboratory"

"The Measurements of Uncertainty of the reported results are calculated using 95% Confidence Limits and are available on request."

Page: 1 of 1

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Signed:

J W D Pietersen. (Head: Scientific Services)

Date of issue: 2008/06/06

This report relates only to the samples supplied to Midvaal Water Company Scientific Services.

This certificate shall not be reproduced, except in full, without the written approval of the laboratory superintendent.

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Archaeological Impact Assessment

Phase 1 Archaeological Impact Assessment of farm
Fourteen Streams, Warrenton District, Northern Cape
Province.



Lloyd Rossouw
PO Box 266, Bloemfontein

Executive Summary

- Several ruins were recorded along the Vaalharts Irrigation Scheme canal and the Vaal River. The riverbank itself is extensively overgrown with few erosional exposures.
- Four graveyards were identified. One graveyard has been abandoned for a long period.
- Exposed sections of river gravel deposits were investigated for archaeological material. These intact gravel facies were sterile in terms of Stone Age material.
- Isolated and uncapped occurrences of Later Stone Age stone tools were recorded on the modern land surface.
- A rock art site with over 80 different engravings is located close to the river.
- The areas with medium to high sensitivity ratings must be considered when future developments are planned and where relevant, incorporated into appropriate management plans. The rock engraving site are archaeologically very sensitive and must be demarcated and avoided at all costs.

Introduction

An AIA of the farm was carried out in May 2008. The survey is required as a prerequisite for new development in terms of the National Environmental Management Act and is also called for in terms of the National Heritage Resources Act 25 of 1999. The task involved identification of possible archaeological sites or occurrences in the proposed zone, an assessment of their significance, possible impact by future development and recommendations for mitigation where relevant.

Description of the Affected Area

Details of area surveyed

Locality data

The farm covers about 3000 hectares and is located between the Vaalharts Dam Weir and the train bridge immediately northeast of the town of Warrenton. The area includes the Veertien Strome railway siding (S28 04.281 E24 53.020) and the Nazereth Farm community (S28 06.647 E24 54.618)

Geology

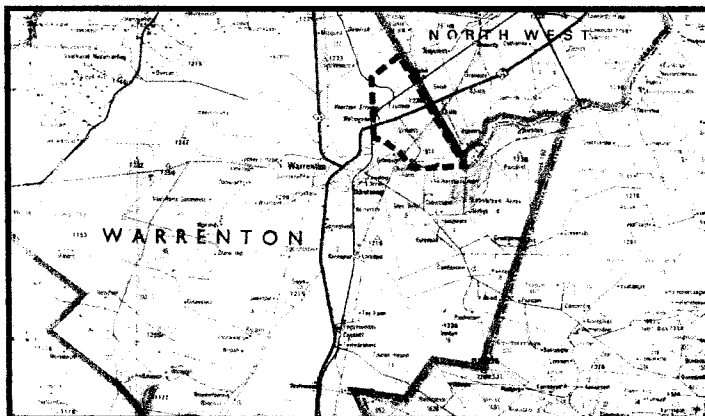
Landscape topography in the lower Vaal River area consists largely of coalescent planar surfaces resting on a pre-Karoo platform of Ventersdorp basalts and andesites. Gravel deposits are laterally very extensive and are deposited up to 110 m above the current riverbed of the Vaal River. These alluvial deposits are manifested as terrace exposures in the Warrenton area, and consist of grit to cobble grade conglomerate with granular to pebbly clasts. Raw material mainly consists of quartz, quartzite, agate, chert or banded ironstone set in a matrix of dark red, fine to medium sand. The gravels are spread across a pre-Karoo platform of Ventersdorp lava pockmarked with thin remnants of Karoo sediments preserved in depressions.

Methodology

All structures and sites that were observed were recorded using a Garmin Etrex Vista GPS hand model (set to the WGS 84 map datum) and a Sony W17 digital camera.

Historical Background

The area was already known as Veertien Strome in the 1880's, apparently referring to a number of waterfalls in the Vaal River. In January 1884 Z.A.R. president Paul Kruger met Cecil John Rhodes at Veertien Strome to discuss the deteriorating relationship between Britain and the Transvaal. Some of the first skirmishes of the Anglo Boer War occurred at the river crossing at Veertien Strome when the Boers occupied it. British forces eventually retook the river crossing in May 1900. The railway line from the Cape initially ended at the Veertien Strome railway siding during the late 19th century. It was extended to Johannesburg by the De Beers Consolidated Mines and officially opened in April 1906.



**Figure 1. 1 to 250 000 topographical map (2824 Kimberley) of the region.
Fourteen Streams shown by dotted line.**

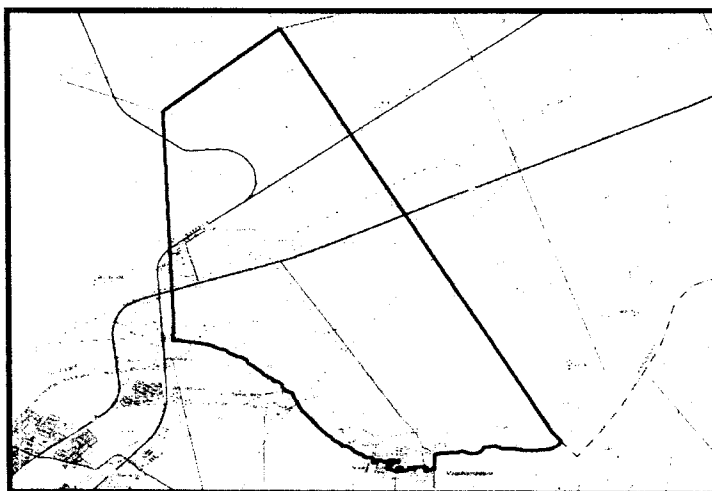


Figure 2. 1 to 50 000 topographical map of the farm Fourteen Streams.

Archaeological and Palaeontological Background

The lower Vaal River Basin has produced a wealth of archaeological finds from its fluviially deposited Pleistocene river gravels. Acheulian (Early Stone Age) handaxes, cleavers and core-axes, primarily made from quartzite, have been retrieved from various gravel localities along the Vaal. In addition, the gravel deposits are largely mantled by Hutton Sands, of which the lower levels have shown evidence of high densities of Fauresmith blades, which is regarded as an important transitional railway lines from the Cape Stone Age artifacts as open-site scatters is also common on the modern landscape.

No archaeological artifacts or vertebrate fossil remains have been explicitly reported from the gravel deposits or younger overburdens on Fourteen Streams. Several Early Stone Age handaxes have been found on Cawoods Hope in exposures in the riverbed showing moderately coarse gravel layers capped by silt and clayey deposits. Calcareous tufa is also found on exposed Dwyka beds and Ventersdorp bedrock, especially at Cawoods Hope, Catharina, and Onrust. Later Stone Age artifacts occur on these deposits at various places.

Rock engravings have been recorded in the region including human figures, animals, therianthropes and geometric motifs.

Extensive fossil fauna of uncertain provenance have been retrieved from the alluvial and terrace gravels between Bloemhof and the Vaal River's junction with the Orange. However, there are no previous records of fossils from this area. Finds from river silts near the Warrenton townlands include an upper right third molar of the plains zebra, *Equus burchelli*, a well-mineralized left mandibular ramus of the spotted hyaena, *Crocuta crocuta*, and a lower right first molar of the giant extinct buffalo, *Homoioceras antiquus*.

Results of Survey

Historical and archaeological features recorded during the survey, are shown in Table 1.

- Overgrown cobble heaps and stone piles, caused by the construction of the Vaalharts Irrigation Scheme canal in 1935, are clearly visible on the landscape and show alteration of extensive areas flanking the concrete canal that was once pristine veld. The rest of the area can largely be described as disturbed agricultural land.
- Several historical ruins were recorded along the canal and the Vaal River. The riverbank itself is extensively overgrown with few erosional exposures.
- Four graveyards were identified. One graveyard has been abandoned for a long period.
- Exposed sections of river gravel deposits were investigated for archaeological material. These intact gravel facies were sterile in terms of Stone Age material.
- Isolated and uncapped occurrences of Later Stone Age stone tools were recorded on the modern land surface.

- A rock art site with over 80 different engravings is located close to the river.

Table 1. Historical and archaeological features recorded during the survey.

	Feature	Coordinates	Sensitivity
	Nazereth Farmstead &		Low
1	Graveyard	S28 06.647 E24 54.618	
2	Tower & Wall ruins	S28 06.710 E24 54.846	Medium
3	LSA Stone tools	S28 06.636 E24 55.064	Low
4	Historical Ruins	S28 05.894 E24 54.050	Medium
5	Graveyard	S28 05.804 E24 54.065	High
6	Historical Ruins	S28 05.828 E24 54.005	Medium
7	LSA Stone tools	S28 04.871 E24 55.103	Low
8	LSA Stone tools	S28 04.782 E24 54.673	Low
9	LSA Stone tools	S28 03.456 E24 54.645	Low
10	Graveyard	S28 04.831 E24 52.905	High
11	Old Bridge	S28 05.333 E24 52.703	Low
12	Historical Ruins	S28 05.378 E24 52.699	Medium
13	LSA Stone tools	S28 05.403 E24 53.502	Low
14	Rock engravings	S28 06.496 E24 55.082	High
15	Historical Ruins	S28 05.364 E24 53.050	Medium
16	Graveyard	S28 05.317 E24 53.303	High

Field Rating

The designated area is of low to medium archaeological significance.

Recommendations

Potential archaeological impact of future development on the farm should be minimal provided that certain mitigative measures are taken into consideration.

- The areas with medium to high sensitivity ratings must be incorporated into all future management plans.
- The rock engraving site are archaeologically very sensitive and must be demarcated and avoided.

References

- Cooke, H.B.S. 1949. Fossil mammals of the Vaal River deposits. *Geological Survey of South Africa Memoir* 35: 1 – 109.
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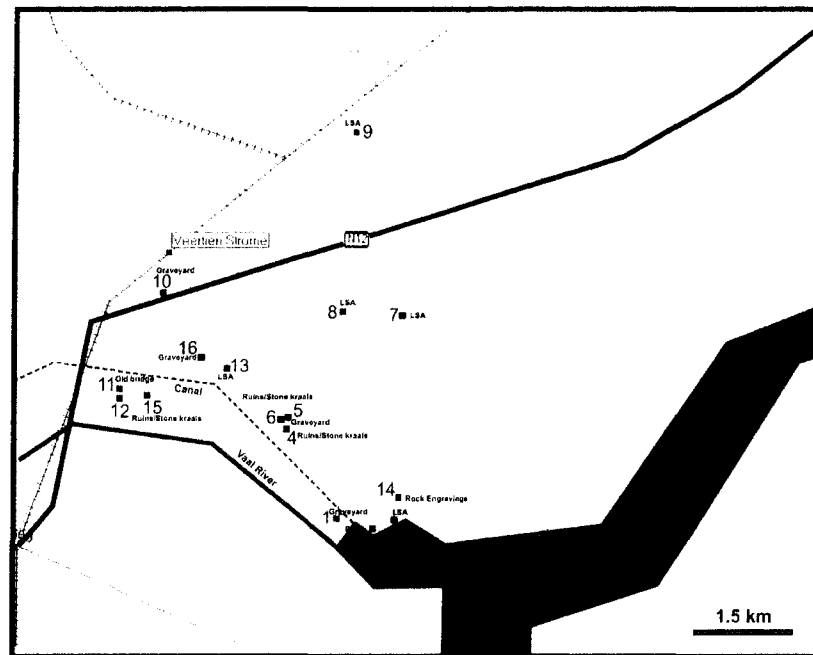


Figure 3. Map of historical and archaeological features recorded.

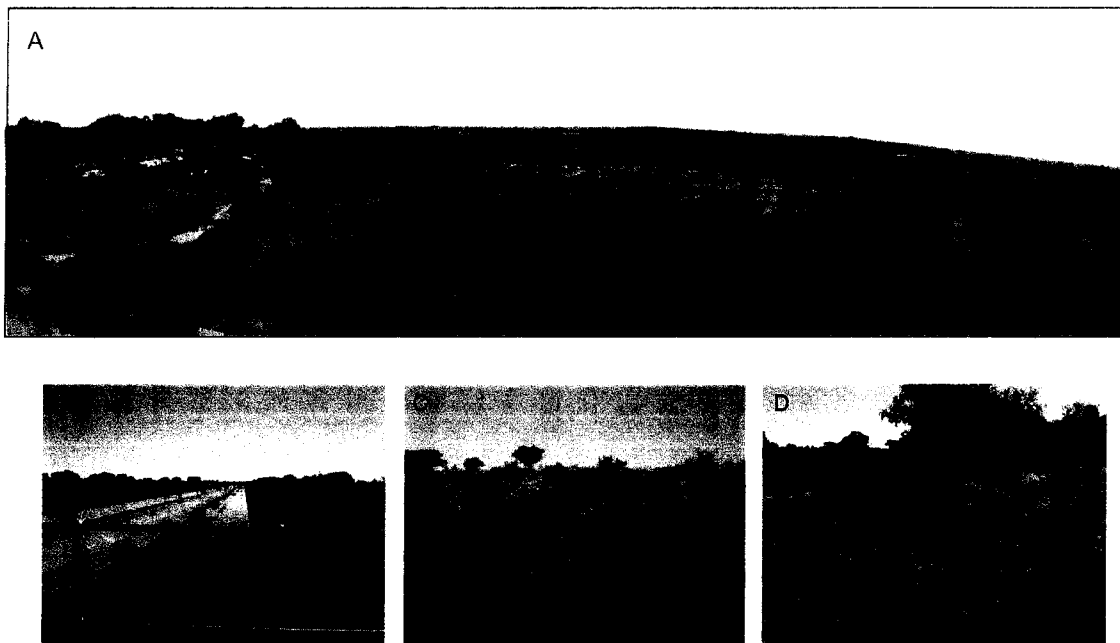


Figure 4. General view of the local environment (A); the canal and disturbances caused by its construction in 1935 (B, C & D).



Figure 5. Historical structures. Dilapidated stone wall and tower (A); stone foundations (B); kraal ruins (C).



Figure 6. An abandoned graveyard (A) and one still in use (B).

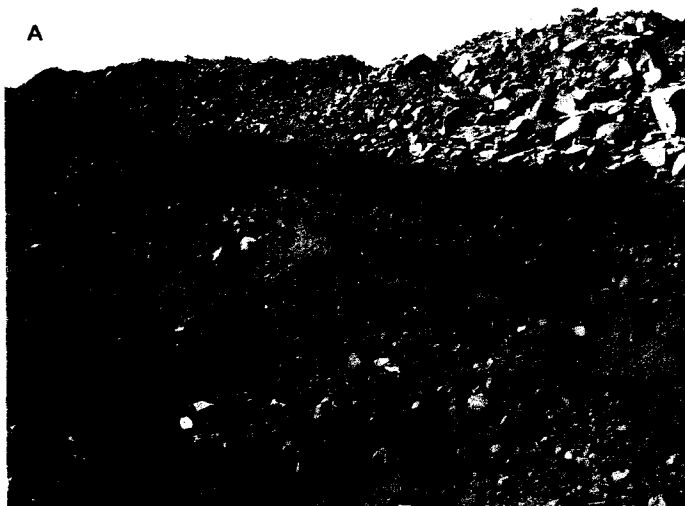


Figure 7. Intact fluvial gravel deposits (A) and a small, uncapped chalcedony core (B).

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Environmental Awareness Plan

ENVIRONMENTAL AWARENESS PLAN – COPPERSUN TWELVE (PTY) LTD.

Introduction

With the commencement of the mining activities all employees will undergo an informal environmental training session. In this training session all impacts as described in Chapter 6 that the proposed mining activities will have on the environment will be discussed with them, in a language that is to their understanding. The proposed management and mitigation measures as explained in Chapter 7 will also be explained. The training will entail basic principles of environmental care. If new employees are appointed they will first undergo this training before continuing with their job description. The Environmental Awareness training will be repeated on a quarterly basis thus insuring the inclusion of new information and technology. This will also insure that workers are reminded of potential hazards that the mining operation may have on them. It will be the sole responsibility of the mine manager or appointed person to ensure that this training is provided to each employee. The following elements will be discussed with all employees.

Topsoil

- Topsoil shall be removed from all areas where physical disturbance of the surface will occur.
- All available topsoil shall be removed after consultation with the Regional Manager prior to the commencement of any operations.
- The topsoil removed, shall be stored in a bund wall on the high ground side of the mining area outside the 1:50 flood level within the boundaries of the mining area/ prospecting.
- Topsoil shall be kept separate from overburden and shall not be used for building or maintenance of access roads.
- The topsoil stored in the bund wall shall be adequately protected from being blown away or being eroded.

Access to the Site

Establishing access roads on the site

- The access road to the mining area and the camp-site/site office must be established in consultation with the landowner/tenant and existing roads shall be used as far as practicable.
- Should a portion of the access road be newly constructed the following must be adhered to:
 - The route shall be selected that a minimum number of bushes or trees are felled and existing fence lines shall be followed as far as possible.
 - Water courses and steep gradients shall be avoided as far as is practicable.
 - Adequate drainage and erosion protection in the form of cut-off berms or trenches shall be provided where necessary.
- The erection of gates in fence lines and the open or closed status of gates in new and existing positions shall be clarified in consultation with the landowner/tenant and maintained throughout the operational period.
- No other routes will be used by vehicles or personnel for the purpose of gaining access to the site.

Dust control on the access and haul roads

The liberation of dust into the surrounding environment shall be effectively controlled by the use of, inter alia, water spraying and/or other dust-allaying agents. The speed of haul trucks and other vehicles must be strictly controlled to avoid dangerous conditions, excessive dust or excessive deterioration of the road being used

Establishing office / camp sites

- No trees or shrubs will be felled or damaged for the purpose of obtaining firewood, unless agreed to by the landowner/tenant.
- Fires will only be allowed in facilities or equipment specially constructed for this purpose. If required by applicable legislation, a fire-break shall be cleared around the perimeter of the camp and office sites.
- Lighting and noise disturbance or any other form of disturbance that may have an effect on the landowner/tenant/persons lawfully living in the vicinity shall be kept to a minimum.

Toilet facilities, waste water and refuse disposal

- As a minimum requirement, the holder of a mining permit/ prospecting right shall, at least, provide pit latrines for employees and proper hygiene measures shall be established.
- Chemical toilet facilities or other approved toilet facilities such as a septic drain shall preferably be used and sited on the camp site in such a way that they do not cause water or other pollution.
- The use of existing facilities must take place in consultation with the landowner/tenant.
- In cases where facilities are linked to existing sewerage structures, all necessary regulatory requirements concerning construction and maintenance should be adhered to.
- All effluent water from the camp washing facility shall be disposed of in a properly constructed French drain, situated as far as possible, but not less than 200 metres, from any stream, river, pan, dam or borehole.
- Only domestic type wash water shall be allowed to enter this drain and any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale or for appropriate disposal at a recognised facility.
- Spills should be cleaned up immediately to the satisfaction of the Regional Manager by removing the spillage together with the polluted soil and by disposing of them at a recognised facility.
- Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., shall be stored in a container at a collecting point and collected on a regular basis and disposed of at a recognised disposal facility. Specific precautions shall be taken to prevent refuse from being dumped on or in the vicinity of the camp site.
- Biodegradable refuse generated from the office/camp site, processing areas vehicle yard, storage area or any other area shall either be handled as indicated above or be buried in a pit excavated for that purpose and covered with layers of soil, incorporating a final 0,5 metre thick layer of topsoil (where practicable). Provision should be made for future subsidence of the covering.

Maintenance of vehicles and equipment

- Suitable covered receptacles shall be available at all times and conveniently placed for the disposal of waste.
- All used oils, grease or hydraulic fluids shall be placed therein and these receptacles will be removed from the site on a regular basis for disposal at a registered or licensed disposal facility.
- All spills should be cleaned up immediately to the satisfaction of the Regional Manager by removing the spillage together with the polluted soil and by disposing of them at a recognised facility.

Waste disposal

- The maintenance of vehicles and equipment used for any purpose during the mining operation will take place only in the maintenance yard area.
- Equipment used in the mining process must be adequately maintained so that during operations it does not spill oil, diesel, fuel, or hydraulic fluid.
- Machinery or equipment used on the mining area must not constitute a pollution hazard in respect of the above substances. The Regional Manager shall order such equipment to be repaired or withdrawn from use if he or she considers the equipment or machinery to be polluting and irreparable.

Excavations

Establishing the excavation areas

- ❖ Topsoil shall, in all cases (except when excavations are made in the river-bed), be handled as described Topsoil above.
- ❖ Excavations shall take place only within the approved demarcated mining area.
- ❖ Overburden rocks and coarse material shall be placed concurrently in the excavations or stored adjacent to the excavation, if practicable, to be used as backfill material once the ore or gravel has been excavated.
- ❖ Trenches shall be backfilled immediately if no ore or precious stone-bearing gravel can be located.

Alien weeds and Invasive plants

- In terms of the amendments to the regulations under the Conservation of Agricultural Resources Act, 1983 (Act No.43 of 1983), landowners are legally responsible for the control of invasive alien plants on their properties.
- The work force needs to be informed of which plants are on the list and need to be controlled. There are plants such as Black Wattle (Category 2 Invader) on the mining terrain that need to be controlled. The work force will be informed and trained on a monthly basis by means of examples and posters from NDA. If there is a need an official from NDA, Potchefstroom office will also be invited to give an information session.

Implementation of the Environmental Awareness Plan

Coppersun Twelve (Pty) Ltd., will be the responsible person for the implementation of this EA Plan. There will be a time slot at the monthly personnel meeting where the work force will be introduced and training on the different aspects that is within the EA Plan. Timeframes will be set down in order to get certain aspects that need attention done. Minutes of each monthly meeting of the EA Plan will be taken and always available from the manager.

Implementation of this EA Plan will ensure an environmentally informed workforce, which will help to mitigate the environmental impacts that might arise from the mining activities.