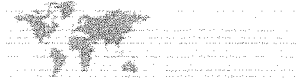


**End**





# NDC EVAPORATION POND - VISUAL IMPACT STATEMENT

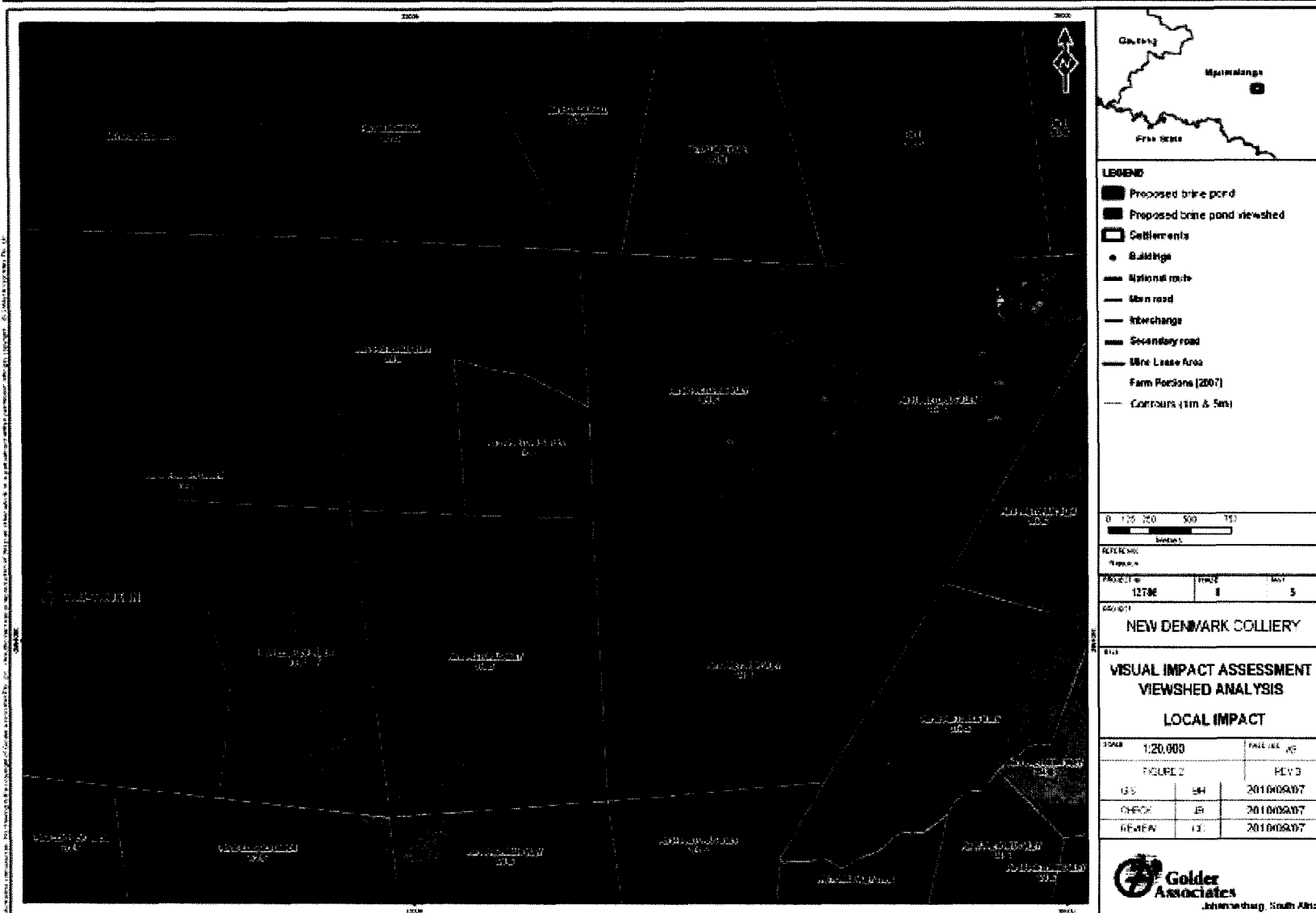


Figure 9: Visual exposure to and visibility of the evaporation pond within short and medium range views



## NDC EVAPORATION POND - VISUAL IMPACT STATEMENT

The majority of travellers through the study (along the R38 and R39 Roads) area will not come within 3 kilometres of the evaporation ponds, pipeline and additional infrastructure; and as a result will only experience a very low visual exposure to the proposed project. Only persons travelling along the smaller roads passing closer to the site, and many of whom it can be expected are travelling to the power station, will be visually exposed to the new infrastructure to any significant degree. As a result it is expected that the overall visual exposure of receptors to the proposed infrastructure will be **low**.

### 7.4 Impact magnitude

Magnitude was determined by using a rating matrix of the criteria visual quality, visibility, visual intrusion, visual exposure and receptor sensitivity. Magnitude is defined as the degree of change in a measurement or analysis, and is classified as negligible, low, moderate or high. Magnitude for the purposes of this VIA was calculated as shown in Table 3.

**Table 3: Scoring system for assessment of magnitude of development components**

Visual Quality of landscape (How pristine or unique is the landscape?)	Visibility (Based on topographic View shed modelling of the project onto the landscape)	Visual Intrusion (How does the project fit in with the surroundings)	Visual exposure (View distance – how far is the activity from receptors?)	Receptor Sensitivity
3 (sensitive, e.g. river floodplains, ridges or other unique landforms)	3 (activity is highly visible from receptor, little/no screening effect)	3 (not at all, contrasts strongly with surrounding landscape and land use)	3 (high, within 500 m)	Factor 1.2 (high – see Table 1 for criteria)
2 (no specific unique landforms, though natural landscape provides aesthetically pleasing character)	2 (activity is only partially visible, moderate screening present)	2 (moderately, some similar activities are located in the regional study area)	2 moderate distance (up to 2000 m)	Factor 1 (moderate – see Table 1 for criteria)
1 (not sensitive, such as urban setting which has been transformed)	1 (activity is only slightly/not visible because of topography vegetation and other screening)	1 (fits into the surrounding – does not conflict with land use)	1 (far, further than 2000 m)	Factor 0.8 (low – see Table 1 for criteria)

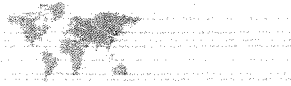
Based on the above assessment, the magnitude of the potential visual impact of the project as a whole is calculated as follows:

Magnitude = [Visual Quality x (Visibility + Visual Intrusion + Visual Exposure)] x Receptor Sensitivity.

From the above equation the maximum Magnitude Point score is 32.4 points. Thus:

$$\text{Magnitude} = [2 \times (2 + 1 + 1)] \times 0.8 = 6.4$$

The possible range of MP scores is then categorised as indicated in the first two columns of Table 4 below. For the purposes of significance assessment and to be in line with the agreed project impact assessment methodology, the various categories are re-scored as indicated in the third column of the table below:



## NDC EVAPORATION POND - VISUAL IMPACT STATEMENT

**Table 4 – Impact Magnitude Point score range**

MP Score	Magnitude rating	Re-scored MP for impact Significance rating purpose
30+	Very high/don't know	10
19-24	High	8
13-18	Moderate	6
7-12	Low	4
≤6	Minor	2

In summary it is stated that the Magnitude of the visual impact that is likely to be caused by the project will be **Low (4)**.

### 7.5 Significance

The Impact significance is rated using the scoring/ranking system and criteria as shown below:

- **Scale/Geographic extent** refers to the area that could be affected by the impact and is classified as site, local, regional, national, or international.
- **Duration** refers to the length of time over which an environmental impact may occur: i.e. transient (less than 1 year), short-term (0 to 5 years), medium term (5 to 15 years), long-term (greater than 15 years with impact ceasing after closure of the project), or permanent.
- **Probability** of occurrence is a description of the probability of the impact actually occurring as improbable (less than 5% chance), low probability (5% to 40% chance), medium probability (40% to 60% chance), highly probable (most likely, 60% to 90% chance) or definite (impact will definitely occur). In terms of visual impact assessment, this criterion refers to the probability of receptors noticing or being exposed to the change in the landscape; and is a function of the physical extent, degree of visual intrusion and proximity of the impact to viewers.

**Table 5: Scoring system for assessment of significance**

SP (significance points) = (magnitude + duration + scale) x probability			
Magnitude	Duration	Scale	Probability
10 - Very high/don't know	5 - Permanent	5 - International	5 - Definite/don't know
8 - High	4 - Long-term (impact ceases after closure of activity)	4 - National	4 - Highly probable
6 - Moderate	3 - Medium-term (5 to 15 years)	3 - Regional	3 - Medium probability
4 - Low	2 - Short-term (0 to 5 years)	2 - Local	2 - Low probability
2 - Minor	1 - Transient	1 - Site only	1 - Improbable
1 - None			0 - None



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## NDC EVAPORATION POND - VISUAL IMPACT STATEMENT

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The maximum possible SP is 100 points:

- SP>75 High environmental significance
- SP 30 to 75 Moderate environmental significance
- SP<30 Low environmental significance

Additional impact assessment criteria that may be described include the following aspects:

- The **Direction** of an impact, which may be positive (+), neutral ([]) or negative (-) with respect to the particular impact (e.g., a habitat gain for a key species would be classed as positive, whereas a habitat loss would be considered negative).
- **Reversibility** is an indicator of the potential for recovery of the end point from the impact. In some cases, reversibility can occur relatively quickly (e.g., in the case of a temporary loss of habitat). In other cases, the effect may extend over a longer period. This is rated as irreversible (I), easily reversible (ER) or potentially reversible (PR).
- **Frequency** describes how often the impact may occur within a given time period and is classified as low (L), medium (M) or high (H) frequency. In the case of visual impacts, the frequency is normally permanent (P), as the infrastructure elements that are responsible for the visual impact are permanent structures in the landscape.



## NDC EVAPORATION POND - VISUAL IMPACT STATEMENT

**Table 6: Significance determination of the anticipated visual impact**

Description of impact	Before mitigation									Mitigation measures	After mitigation (refer to Section 8 below)								
	Magnitude	Duration	Scale	Probability	Score	Significance rating	Direction	Reversibility	Frequency		Magnitude	Duration	Scale	Probability	Score	Significance rating	Direction	Reversibility	Frequency
Visual impact of evaporation pond and associated infrastructure (Operations)	4	3	2	4	36	M	neg	ER	P	Visual impact of evaporation pond and associated infrastructure (Operations)	2	2	2	4	16	L	neg	ER	P



From the above assessment it is anticipated that the most determining factor in terms visual impact caused by the proposed evaporation pond, will be the degree to which it will be visible within the study area. The pipeline and additional infrastructure will not be of a significantly intrusive nature and only relatively small amount of receptors will be exposed to it. As a result the overall visual impact of the proposed evaporation pond and supporting infrastructure is expected to be **low**.

### 8.0 MITIGATION AND MONITORING

Visual mitigation of a proposed mining or industrial area can usually be approached in two ways, and usually a combination of the two methodologies is most effective. The first option is to implement measures that attempt to reduce the visibility of the structures and site disturbances, caused by the activity. Thus an attempt is made to "hide" the visual impact from view by placing visually appealing, or visually less disruptive elements between the viewer and the activity causing a visual impact.

The second category of visual mitigation measures aims to minimise the size and impact of the disturbance itself, and usually involves altering disturbances or structures in such a way that they are visually less disruptive. This can be done by decreasing the size of disturbances (e.g. stockpiles/ dumps and buildings); or shaping, positioning, colouring and/or covering them in such a way that they blend in with the surrounding scenery to a certain degree. By shaping elements in an appropriate fashion, covering it with topsoil, re-seeding it with indigenous grasses, etc., their visual impact can be reduced somewhat.

Due to the nature of the proposed new infrastructure it is anticipated that visual mitigation options are somewhat limited and mostly confined to the first category of options explained above.

#### 8.1 Berms and embankments

The shape and slope of any embankments that are required for the construction of the project infrastructure; including side walls of the evaporation ponds, should mimic the surrounding landscape as far as possible to minimize visual impacts. Mitigation measures for rehabilitation must be addressed in more detail during the detail design phase of the project, but as a broad principle, this means the use of gradual slopes and organic or undulating rather than geometric shapes.

Furthermore all embankments or artificial slopes should be vegetated and sloped in such a manner that they do not erode, as these elements are often more visually intrusive than the infrastructure that they intend to screen. Berms shall not be used for visual screening purposes except in instances where vegetative screens are not feasible and shall be undulating in nature with side slopes no greater than 1:3.

#### 8.2 Vegetative screening

It is recommended that a vegetative screen be established along the road located south of and adjacent to evaporation pond. However due to the extreme climate of the region, which is characterised by frost and sub-zero temperatures during winter, the feasibility of this recommendation, will have to be established by a botanical specialist. In any event indigenous tree species will likely not succeed and consideration should be given to non-invasive exotic species. Due to their status as alien invaders eucalyptus, wattle, beefwood or pine trees are not to be used as screening material under any circumstances.

Trees should be planted along the boundaries of the evaporation pond site and arranged in as natural a formation as possible, with trees in clumps and shrubs as undergrowth, to encourage nesting birds and create potential habitat for other small animals. It is also important that all existing trees be retained where possible, as they already provide valuable screening. Only in instances where a combination of trees and shrubs are not feasible, may berms be employed for visual screening. In such instances berms shall be properly vegetated with a combination of indigenous veld grass and shrub species.



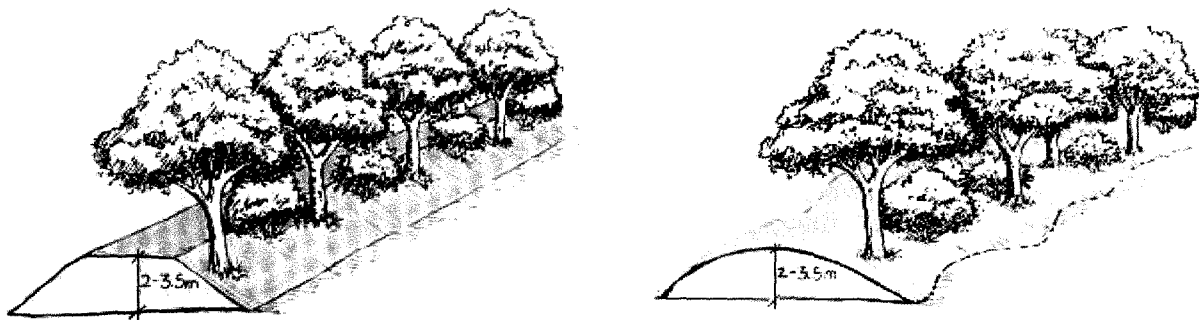


Figure 10: A typical "engineered" earth berm (left) and more desirable curved berm with vegetation in more naturally spaced clumps (right)

### 8.3 Reduction of Construction Related Impacts

Secondary impacts are those associated with construction activities in general and not necessarily project specific:

In order to prevent unsightly and ecologically detrimental erosion damage, steep or bare slopes must be rehabilitated as soon as possible and the extent of working area cleared be kept as small as possible;

The physical extent of vegetation loss must be reduced, by rehabilitating all affected areas as soon as possible. Indigenous species removed during construction should be used for this purpose;

Where the erosion of any embankment or area that has been cleared of vegetation occurs, soil stabilisation measures must be implemented immediately and all eroded areas rehabilitated. The cause of the erosion must subsequently be established and appropriate preventative measures to prevent erosion recurring must be taken, and must be designed and their implementation supervised by a hydrological or agricultural engineer.

### 8.4 Ongoing maintenance and monitoring

Ongoing monitoring of the rehabilitation areas will be required in order to ensure that they establish successfully and that erosion does not occur. The growth of the vegetation should be continuously monitored, however due to the unpredictable nature of vegetation growth and challenging climatic conditions the effectiveness of the re-vegetation will only become apparent after several years. Where specimens die, grow poorly or do not effect sufficient coverage the cause of the problem should be established and the afflicted specimens replaced, or a more suitable alternative established, based on a case-to-case basis.

## 9.0 CONCLUSION AND RECOMMENDATION

In summary, it can be stated that with a few exceptions, the study area is of a relatively low to medium visual resource quality, mostly due to the presence of the Tutuka power station, as well as other infrastructure and disturbance or vegetation cover transformation to a lesser degree. The proposed project components will impact negatively on the visual environment; however, the significance of the impact will be very limited. This is due to the fact that proposed evaporation pond cells and supporting infrastructure, although of a visually detrimental nature, is not extensive in scale, will occur relatively close to significant visual landscape transformation and will not threaten a significant visual resource.

A number of visual mitigation measures have been identified to address the anticipated visual impacts, although it is expected that the extent of their application will be limited due to the nature of the project components; and operational and technological restrictions.

Subsequently, from a visual perspective, the proposed project can be supported, provided that the recommended mitigation measures are implemented.



## 10.0 SOURCES

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### GOLDER ASSOCIATES AFRICA (PTY) LTD.

Johan Bothma  
Landscape Architect

Olivia Chapman  
EIA Lead

JB/JG/jb

Reg. No. 2002/007104/07

Directors: FR Sutherland, AM van Niekerk, SAP Brown, L Greyling

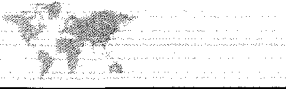
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# **APPENDIX A**

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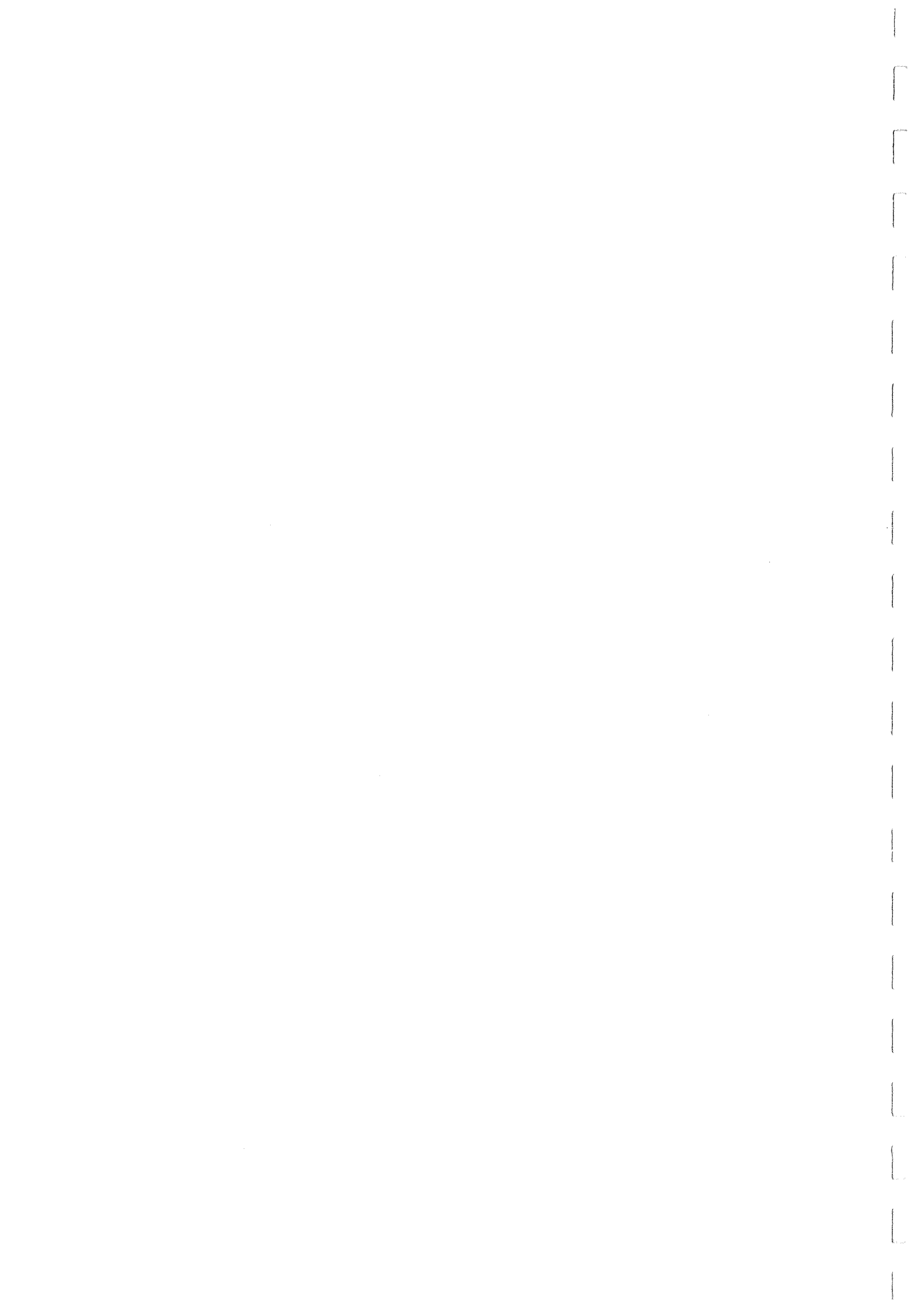


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Africa	+ 27 11 254 4800
Asia	+ 652 2562 3658
Australasia	+ 61 3 8862 3500
Europe	+ 356 21 42 30 20
North America	+ 1 800 275 3281
South America	+ 55 21 3095 9500

[solutions@golder.com](mailto:solutions@golder.com)  
[www.golder.com](http://www.golder.com)

**Golder Associates Africa (Pty) Ltd.**  
**Ditsela Place**  
**1204 Park Street**  
**Hatfield**  
**Pretoria**  
**South Africa**  
**T: [+27] (12) 366 0100**





# APPENDIX J

## NOISE ASSESSMENT





**JH CONSULTING**

Acoustics, Noise & Vibration Control

Address: PO Box 1668, Northriding 2162 RSA

Tel/Fax 011 679 2342 Cell. 082 886 7133

Email: [jh29@pixie.co.za](mailto:jh29@pixie.co.za) VAT Nr. 4360180873

# **Environmental Noise Report**

## **New Denmark Colliery Evaporation Pond**

### **Draft Report - 1**

Issued on 14/11/10

John R. Hassall

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## **EXECUTIVE SUMMARY**

An evaporation pond is proposed at a site adjacent to the existing Tutuka Power Station, 20 km NE of Standerton in Mpumalanga. The site has a consistent existing background noise level dominated on the Southern boundary by sparse traffic noise on the access road to the Power Station and on the rest of the site by the Power Station itself, and by occasional overflying aircraft. The investigation's purpose was to assess the potential noise impact of the evaporation pond on the existing ambient noise climate outside the site boundaries, in particular at the Thuthukani residential area. This was achieved by predicting the noise levels generated by the evaporation pond operation and comparing these to measured noise levels at two points at the boundary between the existing power station site and the proposed evaporation pond site, one near the access road to the power station and the other at the northern boundary of the evaporation pond site. These are described in Section 3.5. All calculations and measurements were carried out in accordance with the relevant SANS Standard Codes of Practice (Refs. 1 & 2), and as required by the regulations of the Department of Environmental Affairs and Tourism (DEAT).

The expected response to the proposed development, i.e. the noise impact, is based on the relevant SANS document, (Ref. 1), and expressed in terms of the effects of impact, on a scale of 'NONE' to 'VERY HIGH'. This report is an overall assessment designed to predict the collective response of a noise-exposed population and therefore the impact the ambient noise is likely to have on them, and is based on measured and/or predicted equivalent continuous noise levels according to the relevant SANS code of practice, (Ref. 1).

The noise impact for blasting operations during the construction phase is considered MODERATE. However, minimisation of the number of times when blasting occurs, and previous notification of blasting activities at predetermined times on stated days, and careful design of the blasting regime to reduce the levels of both airborne blast noise and groundborne vibration will contribute significantly to the minimisation of the overall impact of blasting on the surrounding community.

The noise levels at the most noise-exposed boundary of the proposed development during the operational phase will not experience elevated noise exposure in excess of SANS recommended levels or current ambient noise levels in the area. The impact on the existing noise climate is therefore assessed as NONE.

## **1. PURPOSE OF THE INVESTIGATION AND TERMS OF REFERENCE**

An evaporation pond is proposed at a site adjacent to the existing Tutuka Power Station, 20 km NE of Standerton in Mpumalanga. The site has a consistent existing background noise level dominated on the Southern boundary by sparse traffic noise on the access road to the Power Station and on the rest of the site by the Power Station itself, and by occasional overflying aircraft. The investigation's purpose was to assess the potential noise impact of the evaporation pond on the existing ambient noise climate outside the site boundaries, in particular at the Thuthukani residential area. This was achieved by predicting the noise levels generated by the evaporation pond operation and comparing these to measured noise levels at two points at the boundary between the existing power station site and the proposed evaporation pond site. These measurements are described in Section 3.5.

## **2. INVESTIGATIVE METHODOLOGY**

### **2.1 Introduction**

All calculations and measurements were carried out in accordance with the relevant SANS Standard Codes of Practice (Refs. 1 & 2), and as required by the regulations of the Department of Environmental Affairs (DEA).

The extent of collective community response of a noise-exposed population is assessed according to national and international standards which take into account sociological factors as well as the noise climate.

The expected response to the proposed development, i.e. the noise impact, is based on the relevant SANS document, (Ref. 1), and expressed in terms of the effects of impact, on a scale of 'NONE' to 'VERY HIGH'. This report is an overall assessment designed to predict the collective response of a noise-exposed population and therefore the impact the ambient noise is likely to have on them, and is based on measured and/or predicted equivalent continuous noise levels according to the relevant SANS code of practice, (Ref. 1).

### **2.2 Ambient Noise Levels at the Proposed Site**

Ambient noise measurements were carried out according to SANS Code of Practice 10103:2008 (Ref. 1) at two points on or near the property boundary between the power station and the evaporation pond site on Thursday 29 July 2010. These points are defined and the measurements reported in Section 3.5.

Measurements were made of the equivalent continuous A-weighted sound pressure level,  $L_{Aeq,T}$  using the 'I' (Impulse) dynamic response characteristic as recommended in SANS 10103:2008 (ref. 1) and a number of other parameters, of which the  $L_{90}$  is reported as the generally accepted parameter for describing the background noise level in the absence of intrusive noise.

### 2.3 Assessing the Noise Impact

The noise impact is quantified as the predicted increase in ambient noise level, in decibels, which can be attributed to the operation of the proposed development appropriate to the proposed operating times. The operation is assumed to be operating at all times of the day and night, as defined in the relevant SANS standards.

Existing noise sources in the area include:

Vehicular traffic on the access road to Tutuka Power Station.

Noise from the Tutuka Power Station

Occasional overflying aircraft

Livestock and agricultural activity on surrounding land.

Local community and domestic noise

Noise level (dBA)	Source	Subjective description
160-170	Turbo-jet engine	Unbearable
130	Pneumatic chipping and riveting (operator's position)	Unbearable
120	Large diesel power generator	Unbearable
110	Circular saw Blaring radio	Very noisy
90 - 100	Vehicle on highway	Very noisy
80 - 90	Corner of a busy street Voice - shouting	Noisy
70	Voice - conversational level	Quiet
40 - 50	Average home - suburban areas	Quiet
30	Average home - rural areas Voice - soft whisper	Quiet
0	Threshold of normal hearing	Very quiet

**Table 1: Typical noise level and human perception of common noise sources**

The recommended noise levels in a residential area are described in Table 2 of SANS 10103 (ref. 1), and Table 5 of the same document.

Type of district	Equivalent continuous rating level ( $L_{Req,T}$ ) for noise dB(A)					
	Outdoors			Indoors, with open windows		
	Day-night $L_{R,dn}^{(1)}$	Day-time $L_{Req,d}^{(2)}$	Night-time $L_{Req,n}^{(2)}$	Day-night $L_{R,dn}^{(1)}$	Day-time $L_{Req,d}^{(2)}$	Night-time $L_{Req,n}^{(2)}$
<b>a) Rural districts</b>	<b>45</b>	<b>45</b>	<b>35</b>	<b>35</b>	<b>35</b>	<b>25</b>
b) Suburban districts with little road traffic	50	50	40	40	40	30
c) Urban districts	55	55	45	45	45	35
d) Urban districts with one or more of the following: workshops; business premises; and main roads	60	60	50	50	50	40
e) Central business districts	65	65	55	55	55	45
f) Industrial districts	70	70	60	60	60	50

**Table 2 Acceptable rating levels for noise in districts (Ref.1)**

**NB:** Day-time : 06:00 to 22:00, Night-time : 22:00 to 06:00

The worst case criterion appropriate for this assessment is for rural districts as shown in **bold script** in the above table.

1	2	3
Excess $\Delta L_{Req,T}^a$ dBA	Estimated community/group response	
	Category	Description
0 – 10	Little	Sporadic complaints
5 – 15	Medium	Widespread complaints
10 – 20	Strong	Threats of community/group action
>15	Very strong	Vigorous community/group action

a  $L_{Req,T}$  should be calculated from the appropriate of the following:

- 1)  $L_{Req,T}$  =  $L_{Req,T}$  of ambient noise under investigation MINUS  $L_{Req,T}$  of the residual noise (determined in the absence of the specific noise under investigation).
- 2)  $L_{Req,T}$  =  $L_{Req,T}$  of ambient noise under investigation MINUS the maximum rating level for the ambient noise given in table 1.
- 3)  $L_{Req,T}$  =  $L_{Req,T}$  of ambient noise under investigation MINUS the acceptable rating level for the applicable district as determined from table 2.
- 4)  $\Delta L_{Req,T}$  = Expected increase in  $L_{Req,T}$  of ambient noise in an area because of a proposed development under investigation.

NOTE Overlapping ranges for the excess values are given because a spread in the community reaction may be anticipated

**Table 3. SANS 10103-2008, Table 5 – Categories of Community/Group Response**

The expected response from the local community to the noise impact, i.e. the exceedance of the noise over the acceptable rating level for the appropriate district, is primarily based on Table 5 of SANS 10103 (ref. 1), but expressed in terms of the effects of impact, on a scale of 'none' to 'very high'.

INCREASE dB	RESPONSE INTENSITY	REMARKS	NOISE IMPACT
0	None	Change not discernible by a person	None
3	None to little	Change just discernible	Very low
3 ≤ 5	Little	Change easily discernible	Low
5 ≤ 7	Little	Sporadic complaints	Moderate
7	Little	Defined by National Noise Regulations as being 'disturbing'	Moderate
7 ≤ 10	Little to medium	Sporadic complaints	High
10 ≤ 15	Medium	Change of 10dB perceived as 'twice as loud' leading to widespread complaints	Very high
15 ≤ 20	Strong	Threats of community/group action	Very high

**Table 4: Response intensity & noise impact for various increases over the ambient noise**

### 3. AMBIENT NOISE MEASUREMENTS AT THE SITE

#### 3.1 Introduction

Ambient noise measurements were carried out according to SANS Code of Practice 10103:2008 (Ref. 1) at two points on or near the property boundary on Thursday 29 July 2010. These points are defined and the measurements reported in Section 3.5.

#### 3.2 Equipment Used:

01dB Type SdB01+ Precision Integrating Sound Level Meter, serial number 10167, fitted with 01dB Microphone Type MCE210, serial number 001194, and windscreen. Field calibration using and Bruel and Kjaer Type 4230 Sound Level Calibrator, serial number 1314348.

#### 3.3 Calibration Certificates:

All equipment with valid calibration certificates, from the testing laboratories of De Beer Calibration Services. The calibration certificates are available for viewing if required.

#### 3.4 Procedures Used:

Measurements were carried out strictly in accordance with SOUTH AFRICAN NATIONAL STANDARD - Code of practice, SANS 10103:2008, *The measurement and rating of environmental noise with respect to land use, health, annoyance and to speech communication.*

and as required by the regulations of the then DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND TOURISM. NO. R. 154. *Noise Control Regulations in Terms of Section 25 of the Environmental Conservation Act, 1989 (Act No. 73 of 1989)*. Govt. Gaz. No. 13717, 10 January 1992, e.g. Gauteng province, Department of Agriculture, Conservation and Environment, Notice 5479 of 1999. *Noise control regulations, 1999*, Provincial gazette extraordinary, 20 august 1999.

### **3.5 Measurements at the Proposed Site:**

Measurements were carried out at two positions at the boundaries of the property, and as described under each noise measurement position reported below. These positions were chosen for one or more of the following reasons:

- 1) Easily definable and with easy future access in case of need for comparison measurements after completion of the project.
- 2) Most likely to continue to exist after development of the site.
- 3) Representative of the important background noise regimes
- 4) Near sensitive receptors likely to be affected by future noise.

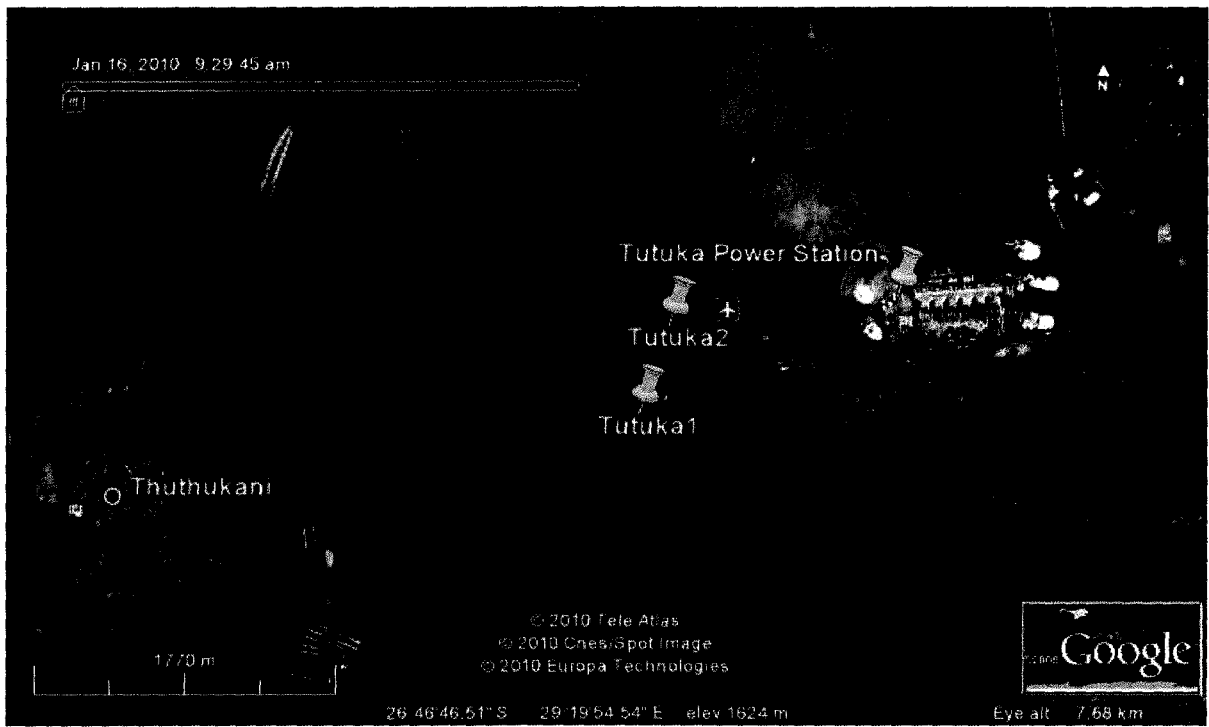
**Note 1:** All noise levels in this report are A-weighted noise levels expressed in dB(A).

**Note 2:**  $L_{Aeq,I}$  is the A-weighted equivalent sound level using the 'I' (Impulse) dynamic response characteristic as recommended in SANS 10103:2008 (ref. 1)

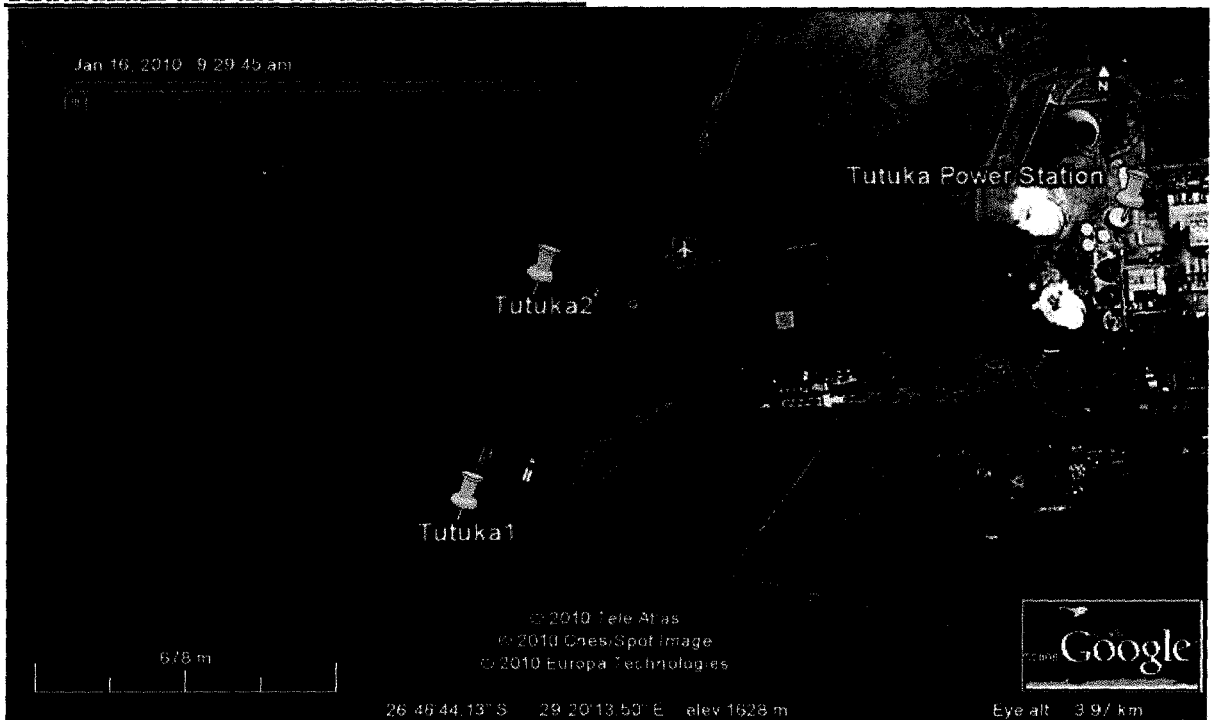
**Note 3:** The noise level exceeded for 90% of the time ( $L_{90}$ ) is taken as an expression of the background noise in the absence of intrusive noisy events, primarily road traffic and random noise events such as pedestrians, animals, birds, and local road or air traffic.

**Note 4:** In the Comments column of the noise tables, C - Car, Minibus or LDV, HGV – Heavy Goods Vehicle or Bus, A/c – Commercial airliner, La/c – light aircraft, H – Helicopter, cN - noise level calculated from traffic count, for the measurement period, usually (but at least) 10 Minutes.





**General view of the evaporation pond site, in relation to the nearest residential area of Thuthukani and the Tutuka Power Station**



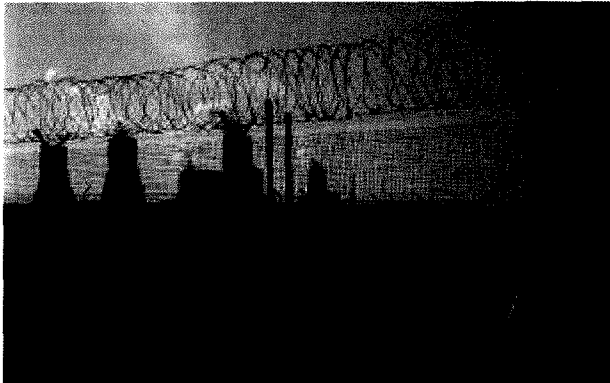
**General View of the evaporation pond site and the Measurement Positions**

### **Measurement Position 1**

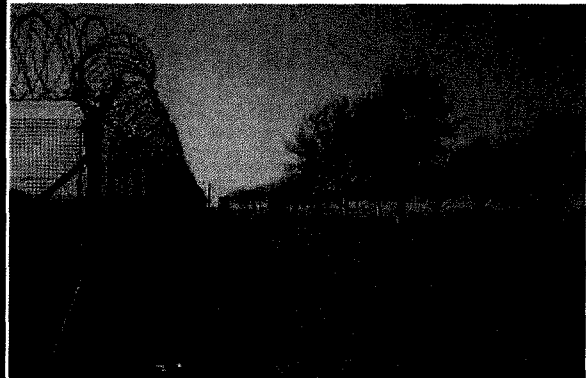
At a position at the corner of the intersection of the southern boundary of the Tutuka Power Station and the proposed evaporation pond site, just west of the southern end of the landing

strip on the western boundary of the power station on the north side of the access road, and 20m from the road centerline as shown in the following photographs.

GPS co-ordinates – S26° 46.930', E29° 20.018'. Height 1619m (±4.2m)



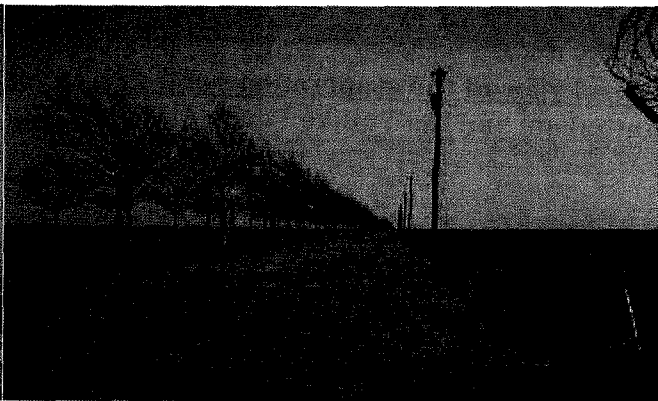
View northeast to Tutuka Power Station



View East along southern boundary/road



View south over access road to Tutuka



View east along access road with site to right

### Measurement Table

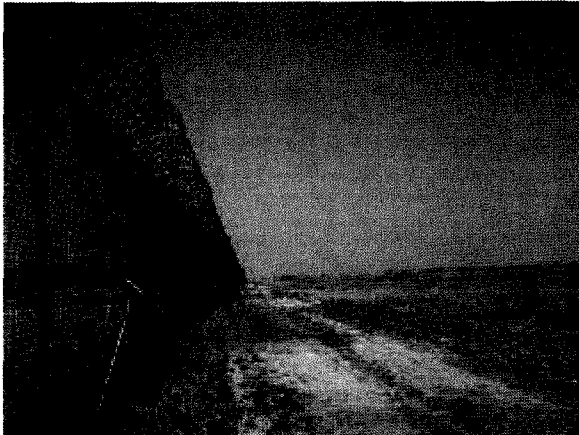
Day/Date	Time	T °C	RH %	Wind m/s	L <sub>eq</sub>	L <sub>90</sub>	Comments
Thur 29/07/10	11:00-11:10	18.5	39	<5	52.8	33	C=13
Thur 29/07/10	11:11-11:22	18.5	39	<5	57.4	33	C=10, HGV=1
Thur 29/07/10	11:23 -11:33	19	36	<5	55.0	33	C=9, HGV=2, A/c=1
Thur 29/07/10	11:34 -11:45	19	36	<5	56.3	34	C=9, HGV=2, A/c=1
Thur 29/07/10	12:48 -12:58	20	28	<5	49.8	32	C=8
Thur 29/07/10	13:00 -13:10	20	28	<5	48.7	34	C=6

**Observations:** These values are typical of a sparsely trafficked road through a rural area, with the noise climate, L<sub>eq</sub>, dominated by individual pass-bys of the occasional road traffic. It should be noted that the traffic flow on this road is fairly regular, approximately 1 vehicle per minute. The background noise level, the L<sub>90</sub>, is provided by the background operating noise of the power station, and is highly stable around 33 dB(A).

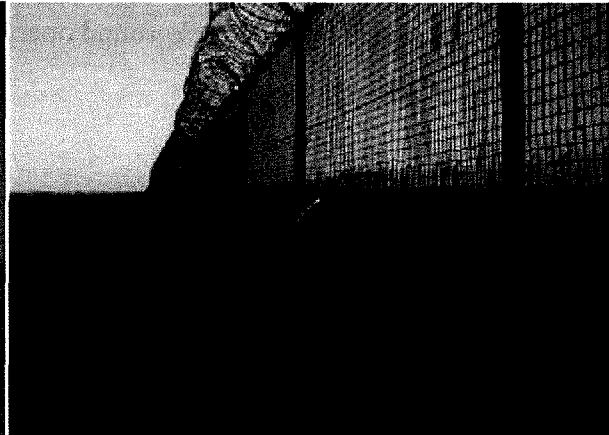
**Measurement Position 2**

At a position along the western boundary fence of the Tutuka Power Station in line with the site of the first set of evaporation pond as shown in the photographs below.

GPS co-ordinates – S26° 46.653', E29° 20.123'. Height 1634m (±4.5m)



View south to MP1 with pond site to right



View north with pond site to left



View east towards Tutuka PS

**Measurement Table**

Day/Date	Time	T °C	RH %	Wind m/s	L <sub>eq</sub>	L <sub>90</sub>	Comments
Thur 29/07/10	11:50 -12:00	20	28	<5	36.5	35	A/c=1
Thur 29/07/10	12:01 -12:11	20	28	<5	41.1	34	A/c=1
Thur 29/07/10	12:13 -12:23	20	28	<5	39.3	35	A/c=1
Thur 29/07/10	12:25 -12:35	20	28	<5	40.9	35	

Freq. Hz.	A-Wt	31.5	63	125	250	500	1k	2k	4k	8k
SPL (dB)	35.9	53.0	46.4	44.6	36.2	33.4	30.6	22.1	18.9	17.0

**Noise Level and frequency spectrum of noise from the Tutuka Power Station**

**Observations:** These values are typical of a rural area with the noise climate,  $L_{eq}$ , characterized by a single dominant noise source, the power station operations and is consistently around 40 dB(A). It should be noted that the traffic on the access road is masked by the noise from the power station at this measurement point. The background noise level, the  $L_{90}$ , is also provided by the background operating noise of the power station, and is highly stable around 35 dB(A).

### **3.6. Predicted Noise from Operations**

#### **Assumptions**

Any noise-generating equipment, such as pumps, is assumed to be incorporated into the primary equipment at the mine with only passive outflow at the ponds. Such noise is not likely to raise the total noise level emitted at the mine boundary, nor is it likely to be audible beyond the ponds boundaries, being masked by existing noise from the normal operation of the Tutuka Power Station, see measurements of section 3.5, above.

## **4. IMPACT ASSESSMENT**

### **4.1 General**

The impact of the development of the ponds on the surrounding area will be entirely masked by normal operations of Tutuka Power Station which will continue to dominate the noise climate. The noise climate,  $L_{eq}$ , in the surrounding area, including the township of Thuthukani, will not be negatively affected by the implementation of the evaporation pond.

### **4.2 Continuous Equivalent Noise Levels and Individual Noise Events**

This report is an overall assessment designed to predict the collective response of a noise-exposed population and therefore the impact the existing environmental noise is likely to have on them, and is based on measured and predicted equivalent continuous noise levels according to SANS 10103. It will be possible to detect and distinguish individual noise events, such as an individual aircraft flyover, as it is now, even if the noise impact is assessed as NONE, or VERY LOW, i.e. where a person with normal hearing will not be able to detect the predicted increase in ambient noise level over the acceptable rating value for the applicable district, or the actual measured pre-development noise level, but where an individual intrusive noise may nevertheless be audible to that person.

### 4.3. Predicted General Impact of Noise from the Development

The SABS recommended noise levels for rural areas according to Table 2 above are repeated below.

Type of District	Daytime	Night-time
Rural	45	35

The noise levels at the most noise-exposed boundary of the proposed site, will not experience elevated noise exposure in excess of these recommended levels. The noise impact is therefore assessed as NONE.

It is not expected that any specific mitigation measures will be necessary if normal procedures of RO Reject deposition and management.

### 4.4 Blast Noise and Vibration

The characteristics of blast noise, which is transient, its manner of propagation, and the assessment of the response of a community to it, is completely different from the assessment of equipment noise, which is continuous, or at least takes place over extended periods. In addition, there are no straightforward methods of assessment of community response to blast noise which are not based on actual blast event measurements. An International Standards Organisation Committee is considering a method of modeling the propagation of blast and other impulsive noise, but there is no reliable scientific method of predicting community response to it at present. Some good practices and mitigation methods to reduce the possible reaction to blasting are discussed in the relevant section below.

The nature and magnitude of the response to noise from blasting operations will depend critically on the blasting regime chosen, the nature of the rock to be blasted, the size and depth of the charge, the type of explosive, the local topography, and the detonation sequence. As mentioned above, there are at present no reliable national or international guidelines to accurately predict human or livestock response to blast noise. The closest habitations around the site are at distances of approximately 2.5 km from the nearest point of blasting. Impulsive noise levels are likely to be a maximum of approximately 75 dB(A) at the nearest dwellings in the worst case that blasting is at the surface in the early stages of development. It should be noted that the proposed blasting frequency, once or twice per week will not add to the overall noise level for normal noise assessment purposes as it is too short to be of significance in this

regard, the response being entirely to the abrupt and unpredictable nature of the event, rather than its 'average' noise level over the day.

Neither the air blast nor the ground vibration are likely, in the author's experience of mining related operations of this type, to have any damaging effect on humans, livestock, or buildings in the vicinity, if they are designed and carried out with due regard to good blasting practice and with the desire to obtain cost-effective results in operational terms. However, both air blast and ground vibration may give rise to secondary noise in a building, such as the rattling of windows and other loose objects in a state of neutral equilibrium, and this is often interpreted as a far more serious occurrence than it really is. An additional complication is that the blast will in general contain frequencies below those which can be heard by the human ear i.e. below 20Hz. These low frequencies also contain sufficient energy to give rise to secondary noise, just as with ground vibration, making it characteristically difficult to differentiate between what is attributable to airborne blast and what is attributable to ground borne vibration. The maximum A-weighted sound level from most blasts, is, in fact, not much greater than the maximum A-weighted sound level from other machinery such as loading, tipping, and permanent plant operations.

Humans are extremely sensitive to vibration and can detect levels of ground vibration of less than 0.1 mm/s, which is less than 1/100<sup>th</sup> of the levels which could potentially cause even minor cosmetic damage to a building. Complaints and annoyance regarding ground vibration are therefore much more likely to be determined by human perception than by noticing minor structural damage. However, these effects, and the startling effect of sudden impulses of both sound and vibration are often perceived as intrusion of privacy and could be a source of considerable annoyance to the local community. For this reason, and because of the absence of information on either the likely community response to blast noise or the likely levels of blast overpressure or audible noise, the noise impact for blasting operations should be considered MODERATE. However, minimisation of the number of times when blasting occurs, and previous notification of blasting activities at predetermined times on stated days, and careful design of the blasting regime to reduce the levels of both airborne blast noise and groundborne vibration will contribute significantly to the minimisation of the overall impact of blasting on the surrounding community.

**Mitigation:**

1. Calculating the charge size and blast regime to optimise required excavation and fragmentation and thus keep air blast and ground vibration levels below pre-determined acceptable values.
2. Monitoring blast, ground vibration and human response to ensure that accepted levels are in fact acceptable and are being adhered to, and to modify the blasting design as required.
3. Pre-notification of affected persons of the intention to blast and the time of blast, preferably at the same time of day to remove the element of surprise.
4. Correct stemming of blast holes.

## 5. REFERENCES

1. SOUTH AFRICAN STANDARD - Code of practice, SANS 10103:2008, *The measurement and rating of environmental noise with respect to annoyance and to speech communication.*
2. SOUTH AFRICAN STANDARD - Code of practice, SANS 10117:2004, Edition 2.1, *Calculation and prediction of aircraft noise around airports for land use purposes.*
3. SOUTH AFRICAN STANDARD - Code of practice, SANS 10210:2008, *Calculating and predicting traffic noise.*
4. SOUTH AFRICAN STANDARD - Code of practice, SABS 10357: 2008, *The calculation of sound propagation by the Concawe method.*
5. SOUTH AFRICAN STANDARD - Code of practice, SABS 10328:2008, *Methods for environmental noise impact assessments.*
6. The then DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND TOURISM. NO. R. 154. *Noise Control Regulations in Terms of Section 25 of the Environmental Conservation Act, 1989 (Act No. 73 of 1989).* Govt. Gazette. No. 13717, 10 January 1992.
7. Gauteng province, Department of Agriculture, Conservation and Environment, Notice 5479 of 1999. *Noise control regulations, 1999*, Provincial gazette extraordinary, 20 august 1999
8. Fuggle, R. F. and Rabie, M. A. et al., *Environmental Management in South Africa.* Juta & Co, Ltd., 1992



John R Hassall  
JH Consulting  
Acoustics, Noise and Vibration Control, Signal Analysis



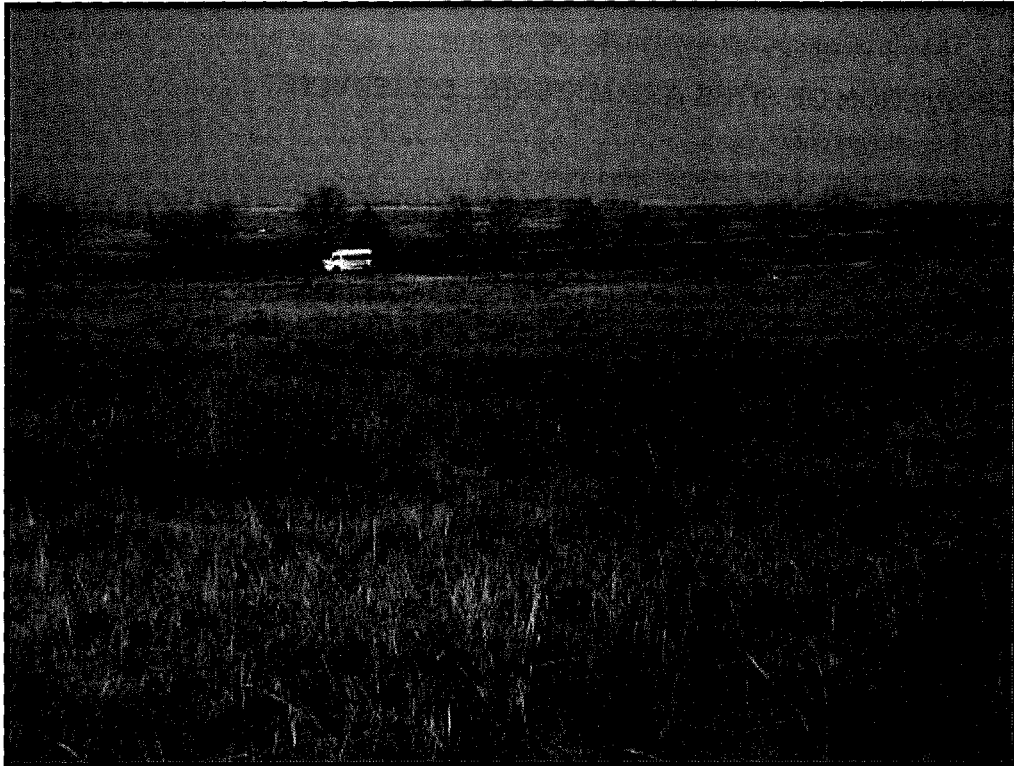


# APPENDIX K

## HERITAGE IMPACT ASSESSMENT



**CULTURAL HERITAGE IMPACT ASSESSMENT OF  
THE PROPOSED NEW DENMARK COLLIERY  
EVAPORATION POND, MPUMALANGA PROVINCE**



**ACTIVE HERITAGE CC.**

**Frans E Prins, MA (Archaeology)**

**Sian M Hall (Hons) Anthropology**

**P.O. Box 947**

**Howick**

**December 2010**

**Tel: 033 3307729**

**Cell: 0834739657**

**E-mail: [feprins@gmail.com](mailto:feprins@gmail.com)**

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**LIST OF ABBREVIATIONS AND ACRONYMS**

EIA	Early Iron Age
ESA	Early Stone Age
HISTORIC PERIOD	Since the arrival of the white settlers - c. AD 1836 in this part of the country
IRON AGE	Early Iron Age AD 200 - AD 1000 Late Iron Age AD 1000 - AD 1830
LIA	Late Iron Age
LSA	Late Stone Age
MSA	Middle Stone Age
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998 and associated regulations (2006).
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999) and associated regulations (2000)
SAHRA	South African Heritage Resources Agency
STONE AGE	Early Stone Age 2 000 000 - 250 000 BP Middle Stone Age 250 000 - 25 000 BP Late Stone Age 30 000 - until c. AD 200

## **EXECUTIVE SUMMARY**

A cultural heritage survey of the proposed evaporation pond site at New Denmark Colliery near Standerton, Mpumalanga identified no heritage features on the identified footprint. There is no archaeological reason why the site may not be developed as an evaporation pond as planned. However, attention is drawn to the South African National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA) which requires that operations that expose archaeological or historical remains should cease immediately, pending evaluation by the provincial heritage agency in the Mpumalanga Province.

## **1 BACKGROUND INFORMATION ON THE PROJECT**

The consultants were approached by Golder Associates to conduct a heritage impact assessment (HIA) of the proposed New Denmark Colliery Evaporation Pond near Standerton.

According to the National Heritage Resources Act, 1999 (NHRA) (Act No. 25 of 1999), the heritage resources of South Africa include:

- a. places, buildings, structures and equipment of cultural significance;
- b. places to which oral traditions are attached or which are associated with living heritage;
- c. historical settlements and townscapes;
- d. landscapes and natural features of cultural significance;
- e. geological sites of scientific or cultural importance;
- f. archaeological and palaeontological sites;
- g. graves and burial grounds, including-
  - i. ancestral graves;
  - ii. royal graves and graves of traditional leaders;
  - iii. graves of victims of conflict;
  - iv. graves of individuals designated by the Minister by notice in the Gazette;
  - v. historical graves and cemeteries; and
  - vi. other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);
- h. sites of significance relating to the history of slavery in South Africa;
- i. movable objects, including-

- i. objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;
- ii. objects to which oral traditions are attached or which are associated with living heritage;
- iii. ethnographic art and objects;
- iv. military objects;
- v. objects of decorative or fine art;
- vi. objects of scientific or technological interest; and
- vii. books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996).

## **2 SCOPE OF WORK**

This study aims to identify and assess the significance of any heritage and archaeological resources occurring on the site. Based on the significance, the impact of the development on the heritage resources will be determined and appropriate actions to reduce the impact on the heritage resources put forward. In terms of the NHRA, a place or object is to be considered part of the national estate if it has cultural significance or other special value because of:

- a. its importance in the community, or pattern of South Africa's history;
- b. its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
- c. its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- d. its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
- e. its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- f. its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- g. its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
- h. its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa; and
- i. sites of significance relating to the history of slavery in South Africa.

**Table 1. Background information**

Consultants:	Frans Prins & Sian Hall (assistant)
Type of development:	Proposed colliery evaporation pond development
Rezoning or subdivision:	Not applicable
Terms of reference	To carry out a Heritage Impact Assessment
Legislative requirements:	The Heritage Impact Assessment was carried out in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) and following the requirements of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA).

**1.1. Details of the area surveyed:**

**Footprint:** From Johannesburg, follow the N3 to Durban, take the Heidelberg off ramp, go through Standerton, turn left after 14km, then turn right after 14 km (Figures 1 & 2).

**Current land use:** Open veld and (artificial) wetlands located on Eskom owned property. The Tutuka Power Station, New Denmark Colliery and landing strip are located adjacent to the site.

**3 BACKGROUND TO ARCHAEOLOGICAL HISTORY OF AREA****Definition**

As defined in Article 1 of the World Heritage Convention Act No. 49 of 1999: Cultural heritage is considered a monuments, architectural works, works of monumental sculpture and painting, elements or structures of an archaeological nature, inscriptions, cave dwellings and combinations of features, which are of outstanding universal value from the point of view of history, art or science, groups of buildings, groups of separate or connected buildings which, because of their architecture, their homogeneity or their place in the landscape, are of outstanding universal value from the point of view of history, art or science, sites, works of man or the combined works of nature and man, and areas including archaeological sites which are of outstanding universal value from the historical, aesthetic, ethnological or anthropological point of view."

The project area including the greater Standerton region has been poorly surveyed for heritage sites in the past. The SAHRA national register of heritage sites list no sites for the region. The majority of archaeological research has taken place to the immediate east and north of the study area – an area which is exceptionally rich in Stone Age, Iron Age sites, and historical features. Nevertheless it is known from historical literature that San hunter-gatherers as well as Nguni and Sotho-speaking



farmers occupied the area in the recent past. The area was also heavily affected during the Boer War of 1899-1901 and it is to be expected that many old farmsteads and associated grave yards may occur on farms in the region.

### ***Archaeology and the prehistoric past***

Archaeological sites in Mpumalanga provide evidence for the existence of humanity going back 1, 7 million years. These sites offer insights into different phases of stone-age society, including Early, Middle, and Later Stone Age societies. It also provides a rich record of the settlement of the region by iron-age agro-pastoralists around 1600 years ago. The majority of the known sites, however, occur to the immediate north and east of the project area. Some of the sites provide tantalising clues about the relationship between these African farmers and the San hunter-gatherers of the region. The enormously evocative and internationally renowned Lydenburg Heads, which has been found to the north east of the project area and dating from approximately 900AD, have been linked to elaborate initiation ceremonies amongst people whose descendants became known as the Shona. Four centuries later the Shona also produced the spectacular Zimbabwe-styled citadels of the Limpopo Province and Zimbabwe.

Abandoned mineshafts, moribund metal workings and excavated trade goods reveal a thriving industry in iron, tin, copper bronze and ochre. The presence of myriad exotic beads and marine shells testify to thriving trade networks that linked regional patterns of trade to the coast and to the far interior. Mpumalanga has, for a thousand years and more, been a vital trading channel; the archaeological record suggests that it was also a vibrant zone of interaction where diverse communities collided and co-operated and experienced forms of osmosis which indicate that the idea of fixed cultural or linguistic boundaries is incorrect. Terms like Nguni and Sotho, for example, present at best outer points on a continuum of social forms rather than discrete cultural groups. Cultural and economic interaction and exchange also gave rise to new forms of social division and political organisation including the emergence of powerful states which long preceded and probably contributed to the processes which fed into the later rise of the Zulu kingdom. Scores of elaborate stone-walled settlements, numerous terraced hillsides, and huts built from stone which cover the countryside to the immediate north and east of the project area and date back hundreds of years, bear witness to an extraordinary past of which little is known outside of the academia (Esterhuysen & Smith 2007).

**Rock Art**

A particularly significant and visually impressive aspect of Mpumalanga's heritage is the abundant rock art to be found all over the province. Some of these sites occur near Ermelo, Carolina, and Lothair to the immediate east of the project area. These include both rock paintings and rock engravings. These vivid images provide insight into the religious beliefs, aspirations and anxieties of their makers. It also allows for a dialogue between present and pre-existing forms of identity and understanding of natural and spiritual worlds. Part of what is special about the rock art of Mpumalanga is its unique diversity, with an array of sites belonging to hunter-gatherer, herder and farmer communities. The most prolific rock art in the province provides reminders of the San (hunter-gatherers), the oldest occupants of the area. These are fine line paintings done by brush, most frequently of animals and human figures which according to some researchers often represent the intersection of material and spiritual worlds. In fact, it is often maintained that the majority of the art reflects the spiritual journey of San medicine people in the invisible realm.

Recent research has also suggested that Khoekhoen (herder) art exists within the later San sequences in the area. This is an art composed mainly of geometric designs in both painted and engraved forms and posing fascinating questions about the presence of Khoi herders in the region and their interaction with other groups. The final form of rock art was the work of the various iron-age farmer communities who settled there from 400AD. Art categorised as Sotho-Tswana, which is applied by finger and is predominantly white in colour, is predominantly associated with male initiation, but during colonial times such art also becomes associated with conflict and domination. Rock art categorised as Nguni, on the other hand, seems to be entirely engraved and dominated by representations of the layout of homesteads. The farm Boomplaats has the finest known examples of this form of rock art in the region. It is clear that rock art constitutes an extraordinarily rich part of the heritage of the province, but at present it remains under-researched, undervalued, insufficiently protected and inadequately publicised (Smith & Zubieta 2007).

**Oral History**

Accounts of the initial waves of settlement of the region have to be reconstructed from the material record i.e. archaeology. But there are rich seams of oral tradition stretching back at least to the 15th century, which, if used critically and in conjunction with other forms of evidence, enable researchers to start to populate

the historical landscape with the forebears of contemporary communities, to periodise movement, to outline patterns of conflict and co-operation, to glimpse changing forms of trade and to chart, from distinctive vantage points, the rise of new political systems such as the Pedi, Ndzundza and Swazi polities (Delius 2007). Nguni as well as Sotho-speaking farmers occupied the immediate environs of the project area in the historical past. However, the systematic identification of archaeological sites associated with these historical processes still need to be undertaken.

### ***The Historical Period***

The arrival of the first Boer settlers in 1854 heralded a new era in Mpumalanga and by implication the project area. The following four decades were to see bitter struggles over land, labour, and political control. Berlin missionary activity after 1860 added an important religious dimension to this contestation and these struggles left an indelible mark on the division of land and the nature of society and religious belief in the region. But perhaps the most singular feature of the history of Mpumalanga is that it was the location of three critically important frontier zones. Boers competed for power and position with the Pedi, Swazi and Zulu kingdoms. They also confronted a range of internal forms of resistance and revolt. In the 1870s these frontiers played a central role in some of the most important conflicts of the 19th century. Wars between the Pedi and the Boers in 1876, the Zulu and the British in 1879, and the Pedi and the British later in the same year. They also played a decisive part in shifting the balance of power in South Africa in favour of white settlers and colonial control.

The modern landscape of Mpumalanga is dotted with the sites of crucial battles and the remnants of the elaborate fortified strongholds crafted by African and mission communities from a combination of natural features and stone walling. In addition, the economic history of Mpumalanga and South Africa is intricately linked with the discovery of precious minerals and the subsequent gold rush of the late 19<sup>th</sup> century. Early mining towns such as Pilgrims Rest and Baberton situated towards the east of the project area have become heritage tourism icons. Together, these towns contain almost 20 provincial heritage sites. However, most of these sites were identified along Eurocentric criteria and heritage features highlighting the contribution of indigenous communities are sadly lacking. While

some of these sites have been recorded by local museums and researchers, many remain to be recognised and documented. Unfortunately those historical sites that have made it onto the heritage map are rarely effectively conserved or managed. In addition, they are often presented in a rather parochial manner and are rarely situated within the wider context of South African history. Neither are they linked one to another in ways which would allow an interested visitor to explore the geography and material remains of this deeply moving and profoundly important history. Although Mpumalanga is famous for the vibrant and intricate arts and crafts of local communities, many of those who admire and even purchase these artefacts are unaware of their connection to the bleaker world of battlefields. Some of the most striking of these forms of artistic expression, such as Ndzundza Ndebele dress, beadwork and wall painting, have been partly shaped by a history of defeat and dispossession.

The best-known military memorials in Mpumalanga recall bloody clashes between Boer and Briton and for many decades after its conclusion this conflict was represented as 'a white man's war'. While this version reflected the official policy of both parties, theory and practice diverged dramatically, as is so often the case in history. It is now widely recognised that black people, including the San, played a broad range of roles in the war. As a result the term South African War has replaced the earlier more restricted name – the Boer War. But the central part black people played in the war in Mpumalanga have not received the attention it deserves in existing texts, museums and monuments (Mbenga 2007). Nevertheless, the Chrissies Meer and Ermelo area to the immediate east of the project area has seen San collaboration with Boer commando's and families during the South African War (Prins 1999). However, it is uncertain to what extent such actions also extended towards the present project area in the past

## **4 BACKGROUND INFORMATION OF THE SURVEY**

### **4.1 Methodology**

A desktop study was conducted of the SAHRA inventory of heritage sites. Unfortunately this database is incomplete and of only limited use. However, the existing database does not indicate any heritage sites in the project area.

A ground survey of the proposed developments following standard and accepted archaeological procedures was conducted.

### **4.2 Restrictions encountered during the survey**

#### **4.2.1 Visibility**

Visibility during the site visit was good.

#### **4.2.2 Disturbance.**

No disturbance of any potential archaeological stratigraphy or heritage features has been noted.

### **4.3 Details of equipment used in the survey**

GPS: Garmin Etrek

Digital cameras: Canon Powershot A460

All readings were taken using the GPS. Accuracy was to a level of 5 m.

## **5 DESCRIPTION OF SITES AND MATERIAL OBSERVED**

### **5.1 Locational data**

Province: Mpumalanga

Municipality: Lekwa Local Municipality

Town: Standerton

### **5.2 Description of the general area surveyed**

The area surveyed consisted of open veld and some wetlands located on Eskom property. The Tutuka Power Station, the New Denmark Colliery, and an airstrip is situated adjacent to the footprint. Some disturbance was noted due to the dumping of builder's rubble and the construction of rudimentary tracks through the open veld. There is no heritage or archaeological features visible on the footprint.

### **5.3 Description of sites**

No heritage or archaeological features have been located on the footprint. The results of the ground survey are also supported by the desktop survey that indicates that there are no heritage sites on the footprint.

**5.4 Dating the findings**

Not applicable.

**5.5 Description and distribution of archaeological material found**

Not applicable.

**5.6 Summary of findings**

No heritage and archaeological features of significance have been located.

**6 STATEMENT OF SIGNIFICANCE (HERITAGE VALUE)**

Not applicable.

**6.1 Field Rating**

Not applicable.

**Table 2. Field rating and recommended grading of sites (SAHRA 2005)**

<b>Level</b>	<b>Details</b>	<b>Action</b>
National (Grade I)	The site is considered to be of National Significance	Nominated to be declared by SAHRA
Provincial (Grade II)	This site is considered to be of Provincial significance	Nominated to be declared by Provincial Heritage Authority
Local Grade IIIA	This site is considered to be of HIGH significance locally	The site should be retained as a heritage site
Local Grade IIIB	This site is considered to be of HIGH significance locally	The site should be mitigated, and part retained as a heritage site
Generally Protected A	High to medium significance	Mitigation necessary before destruction
Generally Protected B	Medium significance	The site needs to be recorded before destruction
Generally Protected C	Low significance	No further recording is required before destruction

**7 RECOMMENDATIONS**

There is no archaeological reason why development of the footprint may not proceed as planned.

### 8 RISK PREVENTATIVE MEASURES ASSOCIATED WITH CONSTRUCTION

Not applicable.

### 9 MAPS

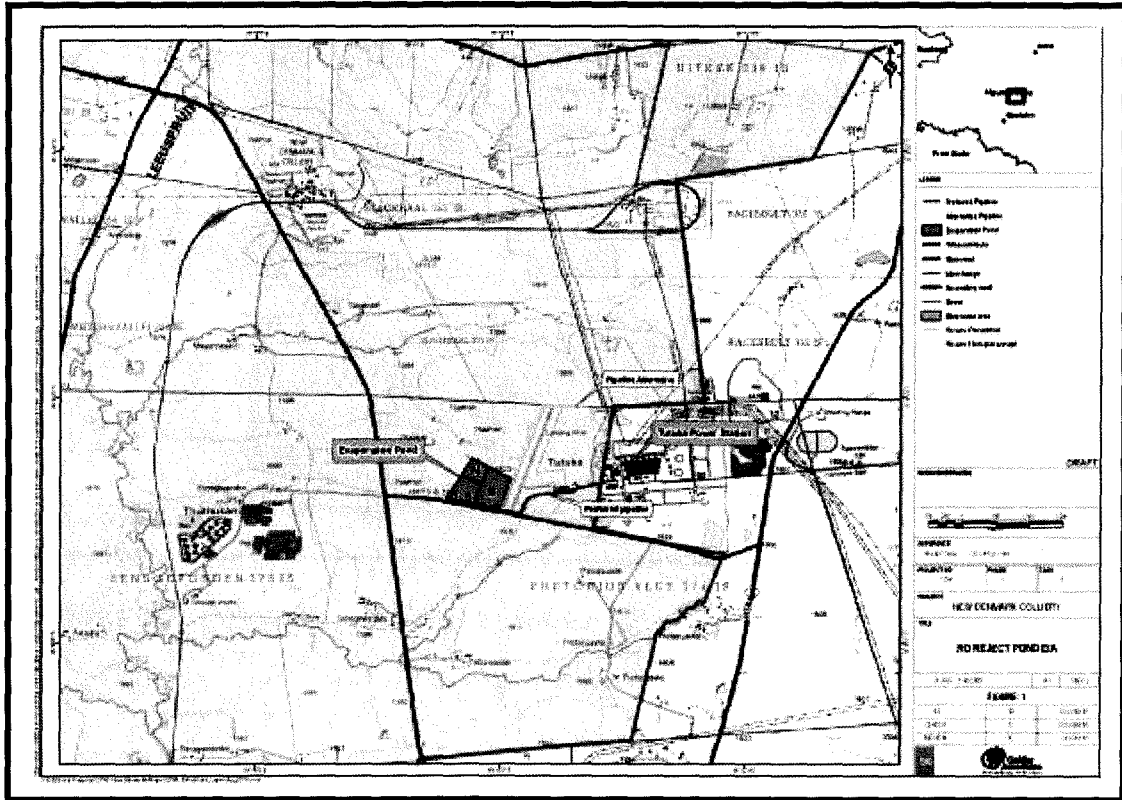


Figure 1 Schematic map showing the directions to the project area

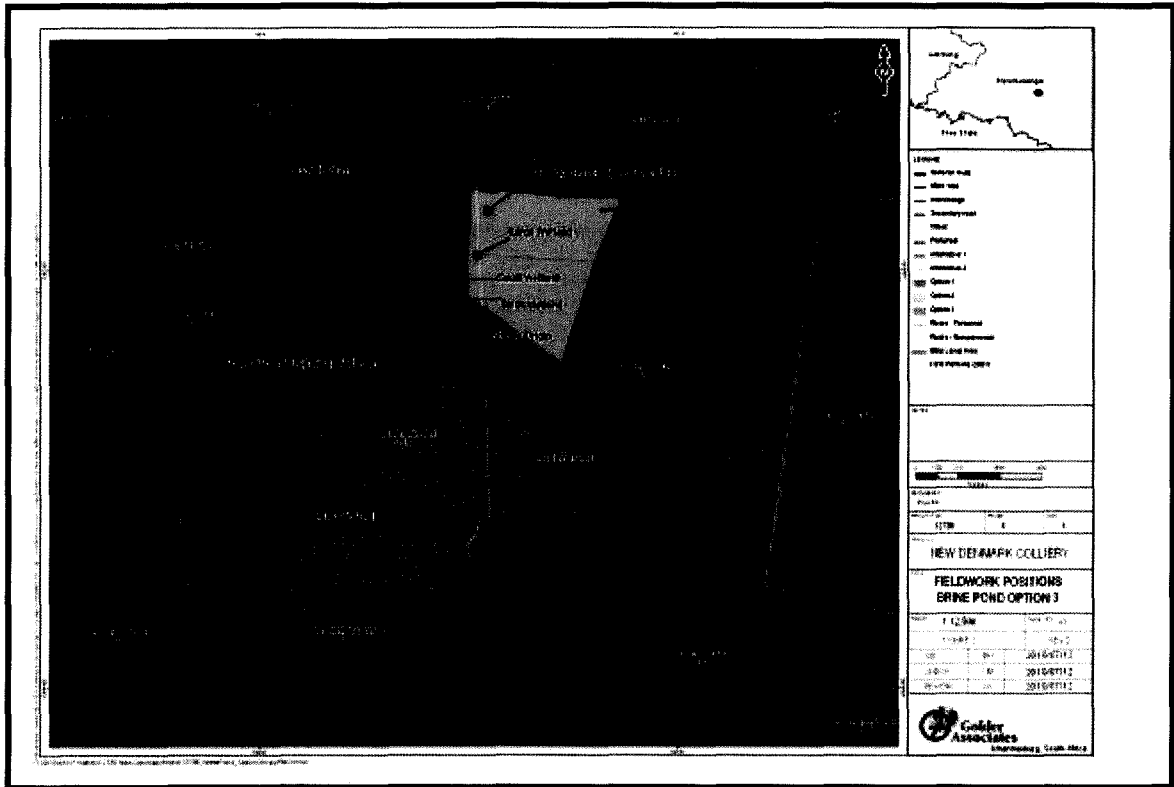


Figure 2 Aerial photograph of the footprint showing the preferred proposed evaporation pond site.



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**Frans E Prins, MA (Archaeology)**







# APPENDIX L

## ENVIRONMENTAL SITE SELECTION



July 2010



## SITE SELECTION REPORT

# New Denmark Colliery Evaporation Pond EIA

**Submitted to:**  
Peter Gunther  
Anglo American Thermal Coal: Water Projects

**Report Number.** 12786-9867-2

**Distribution:**

1 x Anglo American Thermal Coal  
1 x Golder file







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## 1.0 INTRODUCTION

Anglo American Thermal Coal (Anglo American) operates the New Denmark Colliery (NDC) located near Standerton in the Mpumalanga Province (Figure 1). The colliery produces coal for use in Eskom's Tutuka Power Station adjacent to the Anglo American Thermal Coal site. Dewatering of underground compartments is required to mine the coal. This dewatering process results in polluted water being pumped to the surface and needing treatment.

At present the mine water is utilised by the Power Station as process water. The mine water is treated by reverse osmosis (RO) prior to use in the power station. This process results in a large volume of "clean" water for use in the plant and a small volume of concentrated wastewater known as RO reject that requires waste management.

The RO reject is currently disposed of within the underground compartment 321 East in the NDC. In 2007 the department of water affairs issued a directive that pumping of RO reject to the underground compartment must cease when the compartment reaches full capacity. Following that directive, NDC undertook investigations to find an alternative disposal option. The preferred option is to dispose of the RO reject in lagoons, which will be designed such that discharges will not occur. The lagoons will act as evaporation ponds as the net evaporation exceeds rainfall in the region.

In 2009 Golder undertook a desktop preliminary site selection process for the proposed evaporation ponds. Initially 13 sites were identified. Of these sites 2 were highlighted as potential options based on engineering considerations, basic environmental considerations and proximity to the site. In 2010 three sites, which were all in close proximity to the power station, were selected for more detailed evaluation.

NDC has contracted Golder Associates to conduct the Integrated Regulatory Process (IRP) for the construction and operation of the new evaporation ponds. The first phase of work in this process is to undertake a site selection process based on engineering and environmental criteria. This report describes the environmental site selection process.

## 2.0 DESCRIPTIONS OF SITES

The proposed evaporation pond sites are located approximately 20 km North East of Standerton in the Mpumalanga Province (Figure 1). The proposed site locations are in close proximity to the Eskom and NDC sites and are accessible from the road leading to the Eskom site in the south or Eskom's land in the north (Figure 2). Three options have been identified, each covering approximately 40 ha. The area is likely to be split into two 20 hectare ponds directly adjacent to each other. The proposed areas are designed to provide sufficient separation distance from the unnamed stream (a minimum of 100m according to the National Environmental Management: Waste act No 59 of 2008).

The sites were visually assessed by Golder Associates staff members from the EIA and ecology teams. It was noted during the site visits that the Eskom owned land (Figure 2) had been previously disturbed by quarrying activities on the surface and that this land contained a number of depressions. Some of these depressions had maintained standing bodies of water and artificial wetlands have developed as a result.

### 2.1 Option 1

The proposed evaporation pond locations are located entirely on Eskom's land (Figure 2), within an area located south of the unnamed stream. The proposed site borders the underground mine area on the west, the road leading to Eskom's site on the south, Eskom's farm land on the north and the airstrip on the east. This land has previously been disturbed. The top layer of rock has been removed for quarrying purposes. This has left the ground uneven, with bulges and depressions evident throughout the site. The pipeline used to supply Option 1 could be located on Eskom's land without crossing any roads or other infrastructure.



### 2.2 Option 2

In option 2 the proposed ponds are located on Eskom's land north of the unnamed stream (Figure 2). The proposed site borders the underground mine area on the west, Eskom's farm land on the north and west and the airstrip on the east. It was evident from the preliminary site visits that there are small artificial wetlands present within the footprint of site 2. These wetlands were observed to support wetland plant species and a considerable amount of birdlife.

As with Option 1 the ground has been disturbed by previous quarrying activities and the remaining land is uneven with bulges and depressions. The proposed areas are designed to provide sufficient separation distance from the unnamed stream and the airstrip.

### 2.3 Option 3

In option 3 the proposed ponds are located on the neighbouring farm land south of the Eskom road (Figure 2). The ponds would border the road on the north and the farmland in other directions. The farm land appears to have no current crops on these portions of land. This land is likely to have been used for agriculture previously and the agricultural potential on this land can be considered as high. The pipeline to this site would need to cross the road and would enter the farmer's land.

# NDC EVAPORATION POND EIA- SITE SELECTION

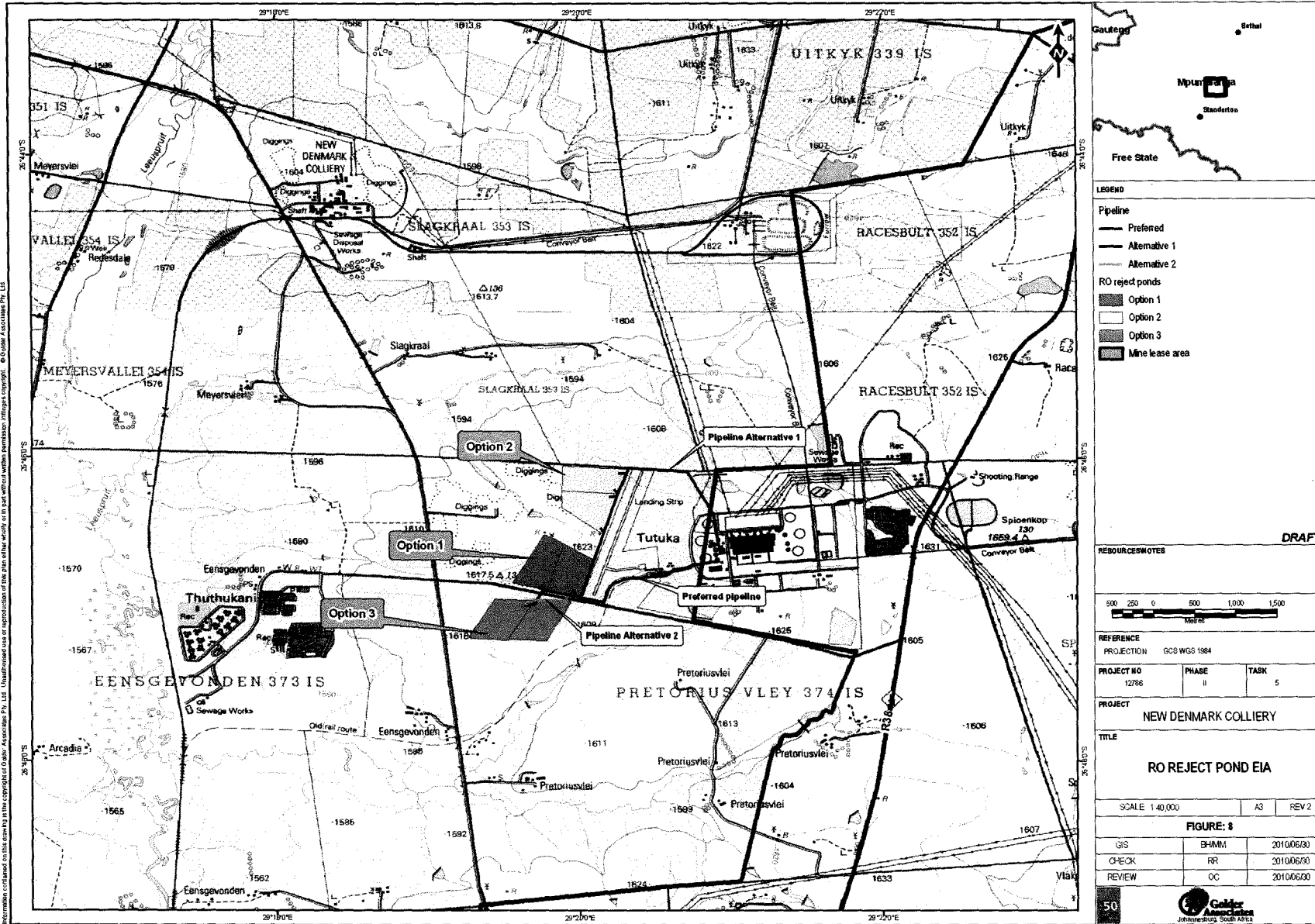
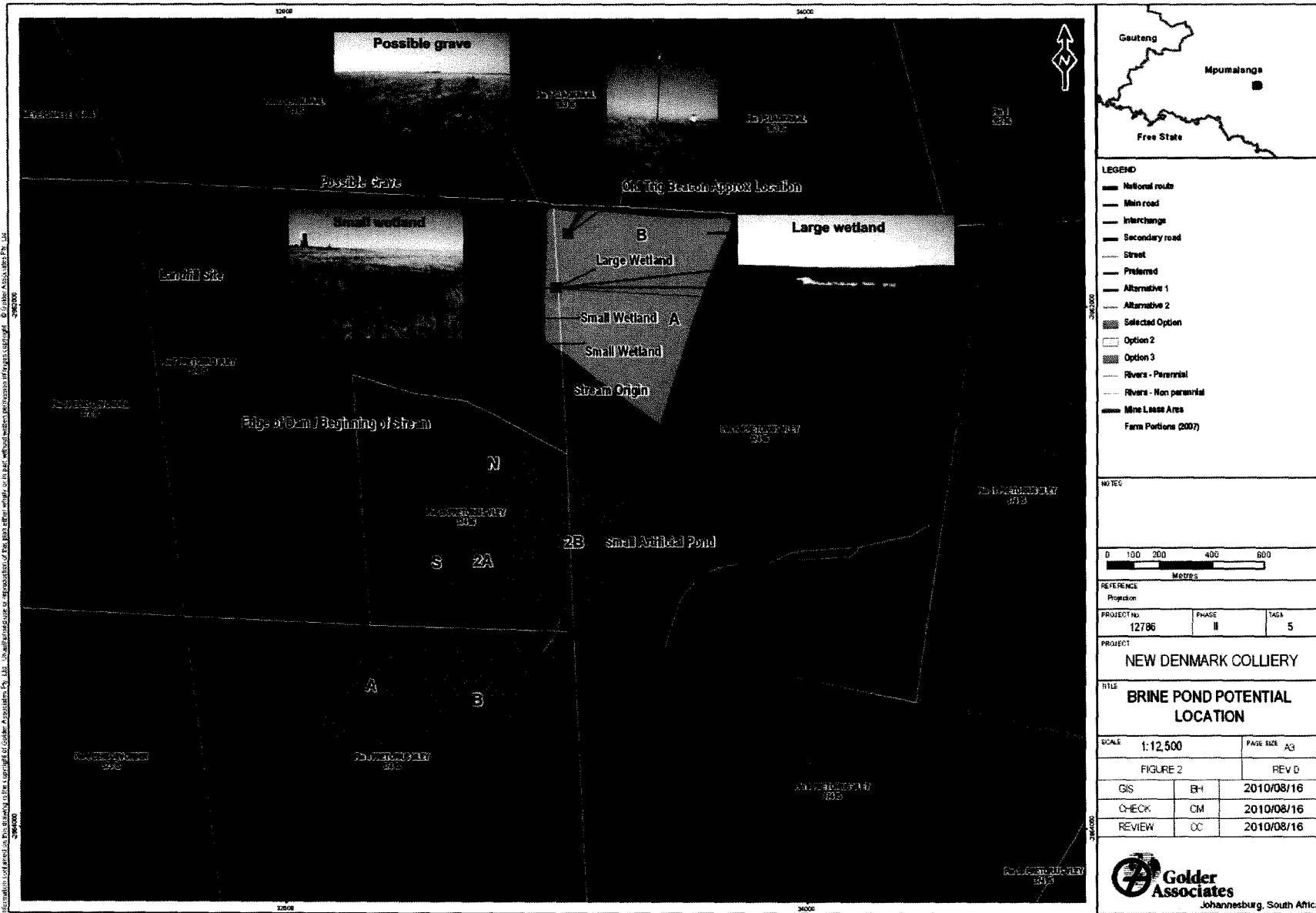


Figure 1: Site location



NDC EVAPORATION POND EIA- SITE SELECTION



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Figure 2: Potential locations.



### 3.0 SITE SELECTION RANKING

#### 3.1 Site selection criteria

The **environmental criteria** which were identified and used in the rating and ranking assessment include the following:

- Land ownership;
- Current condition of land;
- Agricultural potential;
- Wetlands;
- Rivers and riparian areas;
- Protected areas;
- Urban edge;
- Proximity to residential areas;
- Proximity to similar infrastructure;
- Terrestrial wildlife; and
- Terrestrial vegetation;
- Potential pipeline route; and
- Proximity to important infrastructure.

#### 3.2 Ranking of criteria

Each of the defined criteria was collectively ranked by the project team. The ranking was based on the scoring system indicated in **Table 1** below. Scores were given based on site observations, the use of geographical information systems and professional judgement by specialists.

As the potential sites are located in close proximity to each other, the criteria for urban edge, proximity to similar infrastructure and protected areas all ranked equally between the sites and were therefore removed from the final ranking tables to enable better resolution of the ranking system. All of these criteria were ranked as “very good” as the sites were a considerable distance from urban environments and similar infrastructure, and there are no protected areas according to the South African National Biodiversity Institute’s GIS layer.

**Table 1: Scoring system for ranking environmental criteria**

Rating	Explanation
1	Unacceptable
2	Poor
3	Average
4	Good
5	Very Good



### 3.3 Site Rankings

Option 1 is the preferred option from an environmental perspective. The rankings and rationale behind the assessment are summarised in Table 2. The overall rankings are as follows:

- Option 1 – 50;
- Option 2 – 46; and
- Option 3 – 44.

The Option 1 ranking resulted in “good” or “very good” rankings for all criteria while Option 2 resulted in “good” or “very good” rankings for all but the wetland and “proximity to important infrastructure” criteria. Therefore preference for Option 1 over Option 2 is driven by the fact that the Option 2 footprint contains a larger area of artificial wetland habitat compared to Option 1 and there is an old trig beacon in the footprint of option 2.

It is also noted that Option 2, depending on exact location, may be within 160m (based on an 8m height and 5% slope) of the airstrip and as such may breach civil aviation law. This has not been considered in the environmental criteria and should be assessed carefully if Option 2 is preferred.

It is important to reiterate that these artificial wetland areas are the result of surface quarrying creating a depression in the landscape and resulting in ponding of water and development of small wetland habitats. However, despite the artificial nature of the wetland, it is possible that a water use licence would be required to remove the areas.

Option 3 resulted in a lower ranking than Options 1 and 2 and as such is the least favoured option. The following criteria were ranked as poor for Option 3:

- Land ownership – the land is owned by an independent farmer and negotiations would need to be made to construct ponds on the land; and
- Agricultural potential – the land is currently used for agricultural purposes so there would be a loss of productive land at the site.

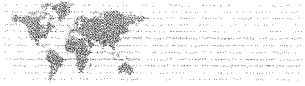




## NDC EVAPORATION POND EIA- SITE SELECTION

**Table 2: Evaluation matrix for the three options.**

	Option 1		Option 2		Option 3	
	Rationale	Ranking	Rationale	Ranking	Rationale	Ranking
Land ownership	Pond locations all on Eskom's land.	5	Pond locations all on Eskom's land.	5	Ponds located on the farmers land.	2
Current condition of land	Site is located on previously disturbed land adjacent to the power station and underground mining.	5	Site is located on previously disturbed land adjacent to the power station and underground mining.	5	Highly disturbed land due to agricultural activities.	5
Soil potential	Soil is not suitable for agricultural activities and may have to be used for agriculture.	4	Soil is not suitable for agricultural activities and may have to be used for agriculture. One pond is located on productive farmland.	4	Soil is not suitable for agricultural activities and may have to be used for agriculture.	2
Wetlands	Minor non-natural wetland in southern pond foot print. Other wetland approximately 200m to north. Water use licence may be required	4	A small portion of wetland located in the corner of ponds. Although wetlands are not be natural, they support considerable biodiversity. Water use licence would be required to place ponds at the site.	2	No wetland located within foot print, however, some wetland areas within 200m of pond.	5
Rivers and riparian areas	The pond is located over 100m away from the current (low flow) stream position, however there are some wetland/riparian areas within 50m and pond B could potentially be closer at higher flows.	4	The pond is located over 100m away from the current (low flow) stream position, however there are some wetland/riparian areas within 50m and pond B could potentially be closer at higher flows.	4	The pond is located over 100m away from the current (low flow) stream position, and riparian zones.	5
Proximity to residential areas	Closest residential area over 2 km and likely to be out of line of site	5	Closest residential area over 2 km and likely to be out of line of site	5	Closest residential area over 2 km away but located on farmer's property, may be in view of farm house and buildings	4



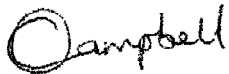
## NDC EVAPORATION POND EIA- SITE SELECTION

	Option 1		Option 2		Option 3	
	Rationale	Ranking	Rationale	Ranking	Rationale	Ranking
Land ownership	Pond locations all on Eskom's land.	5	Pond locations all on Eskom's land.	5	Ponds located on the famers land.	2
Agricultural potential	Both pipeline options remain on Eskom's property.	5	Both pipeline options remain on Eskom's property.	5	Pipeline crosses the road and enters farmer's property.	2
Terrestrial Wildlife	Minimal wildlife likely	4	Minimal wildlife likely	4	Minimal wildlife disturbed by farming	5
Terrestrial Vegetation	Secondary grassland and disturbed soil environment	4	Secondary grassland and disturbed soil environment	4	Highly disturbed grassland and farm land	5
Proximity to residential areas	Nearest residential address is the farm house to the south of the sites approximately 1.5 km away.	5	Nearest residential address is the farm house to the south of the sites approximately 2 km away.	5	Nearest residential address is the farm house to the south of the sites approximately 1.5 km away.	4
Proximity to important infrastructure.	None known within footprint	5	Old trig beacon located within foot print.	3	None known within footprint	5
<b>Total Ranking</b>		<b>50</b>		<b>46</b>		<b>44</b>

## 4.0 CONCLUSION

After a thorough inspection of the proposed sites it is clear that Option 1 will have the least environmental impact compared to that of option 2 or 3. From an environmental point of view NDC is advised to consider Option 1 as the preferred location for the evaporation ponds.

### GOLDER ASSOCIATES AFRICA (PTY) LTD.



Craig Campbell  
Environmental Scientist



Etienne Roux  
Senior Environmental Consultant

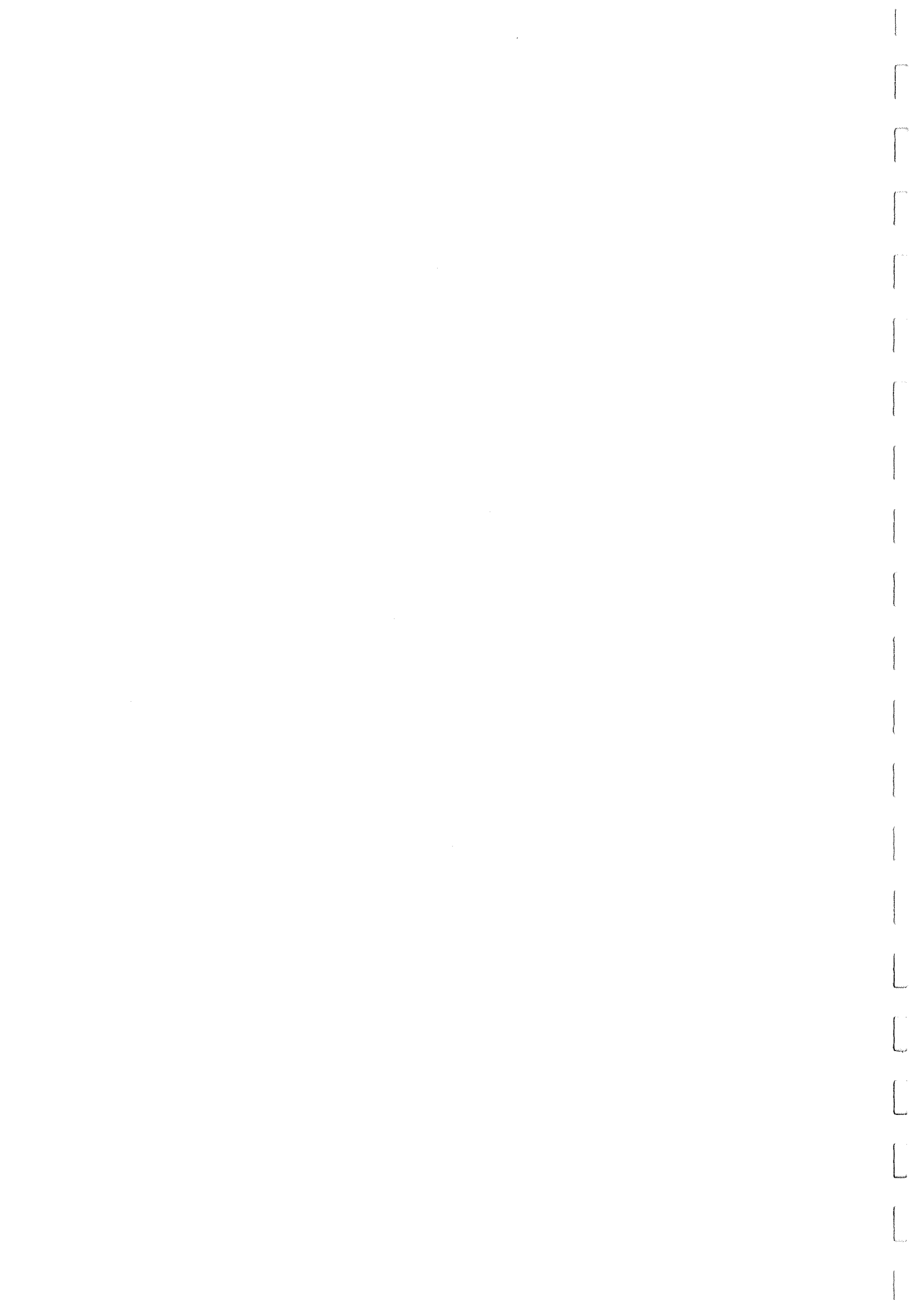
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South America	+ 55 21 3095 9500

[solutions@golder.com](mailto:solutions@golder.com)  
[www.golder.com](http://www.golder.com)

**Golder Associates Africa (Pty) Ltd.**  
**Thandanani Park**  
**Matuka Close**  
**Midrand**  
**South Africa**  
**T: [+27] (11) 254 4800**





# APPENDIX M

## MDEDET CORRESPONDENCE



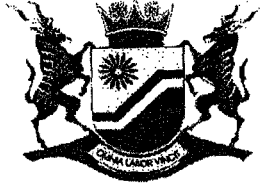


RECEIVED  
10 AUG 2010



# MPUMALANGA PROVINCIAL GOVERNMENT

Building No. 4  
No. 7 Government Boulevard,  
Riverside Park Extension 2  
Nelspruit,  
1200  
Republic of South Africa



Private Bag x 11215  
Nelspruit, 1200  
Tel: (013) 766 4004  
Fax: (013) 766 4614  
Int: +2713 766 4004  
Int: +2713 766 4614

## Department of Economic Development, Environment and Tourism

### DIRECTORATE: ENVIRONMENTAL IMPACT MANAGEMENT

Litiko Letekutfutukiswa  
Kwetermnotfo, Simondzawo  
netekuVakasha

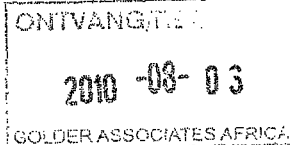
Umngango WezokuThuthukiswa KoMnotho,  
iBhoduluko nezamaVakatjho

Departement van Ekonomiese  
Ontwikkeling, Omgewing en  
Toerisme

**Enquiries:** Martin Fuwela

**Ref No.:** 17/2/2/2 GS - 09

Golder Associates Africa  
P O Box 6001  
Half way House  
1685



**Attention:** Mrs. Olivia Chapman

**Fax:** (011) 313 1075

**APPLICATION FOR ENVIRONMENTAL AUTHORISATION FOR THE ESTABLISHMENT OF A EVAPORATION POND AT NEW DENMARK (STANDERTON) ON PORTION 7, 10 AND 19 OF THE FARM PRETORUIS VLEY 374 IS, WITHIN THE JURISDICTION OF LEKWA LOCAL MUNICIPALITY, MPUMALANGA PROVINCE (17/2/2/2 GS - 09)**

We confirm having received an Application for the abovementioned activity on 02 July 2010.

The application has been assigned to **Mr. Martin Fuwela** with the reference number **17/2/2/2 GS - 09**. Kindly quote this reference number in any future correspondence in respect of the application.

Please draw the applicant's attention to the fact that the activity may not commence prior to an Environmental Authorisation being granted by the Department.

Should you have any enquiries please do not hesitate to contact this office.

Thanking you in advance,

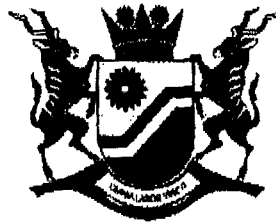
  
**Director: Environment Impact Management**

21/7/2010  
Date



# MPUMALANGA PROVINCIAL GOVERNMENT

Building No. 4  
No. 7 Government Boulevard  
Riverside Park Extension 2  
Nelspruit  
1200  
South Africa



Private Bag X 11215  
Nelspruit, 1200  
Tel: 013 766 4004  
Fax: 013 766 4614  
Int: +27 13 766 4004  
Int: +27 13 766 4614

## Department of Economic Development, Environment and Tourism

Libiko Letekutlufukiswa  
Kwetemnotfo, Simondzwa netekuVakasha

Uningango WezokuThuthukiswa  
KoMnotho, iBhoduluko nezamaVakafjho

Departement van Ekonomiese  
Ontwikkeling, Omgewing en Toerisme

Enquiries: Martin Fuwela, 13 De Jager Street, Ermelo, 2350. Tel: (017) 811 3982/4852, Fax: (017) 811 3992  
Reference: 17/2/2 GS - 09

Att: Mrs. Olivia Chapman  
Golder Associates Africa  
P.O. Box 6001  
Midrand  
1685

Fax no: 011 315 0317


Dear Madam

**APPLICATION FOR ENVIRONMENTAL AUTHORISATION: THE PROPOSED ESTABLISHMENT OF THE EVAPOURATION POND ON PORTION 7, 10 AND 19 OF THE FARM PRETORUIS VLEY 374 IS IN NEW DENMARK AT STANDERTON, WITHIN THE JURISDICTION OF LEKWA LOCAL MUNICIPALITY, MPUMALANGA PROVINCE.**

The Department accepts the Scoping Report and the Plan of study that was submitted for approval for the environmental authorisation of the abovementioned project.

Please draw the applicant's attention to the fact that the activity may not commence prior to an environmental authorisation being granted by the Department.

Sincerely,

  
DIRECTOR: Impact Management

DATE: 12/11/2010





# **APPENDIX N1**

## **Full Database**





**ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR PROPOSED CONSTRUCTION  
AND OPERATION OF A BRINE POND AT THE NEW DENMARK COLLIERY  
NEAR STANDERTON,  
MPUMALANGA PROVINCE (MDEDET Reference number: 17/2/2/GS09)**

FULL NAME	COMPANY	CITY
	Shongololo Farming	ERMELO
Bam, Lerato	Thuthukani Women's Investment Group (TWIG)	WITBANK
Batchelor, Garth	Mpumalanga Department of Economic Development, Environment & Tourism (MDEDET)	NELSPRUIT
Bellim, R.	Office of the Premier - Mpumalanga	NELSPRUIT
Bester, Sam	Vaal Dam Basin Water Forum (Early Bird)	STANDERTON
Bokwe, Tobile	Eskom	SUNNINGHILL
Bolton, Dawie	Plaas Rouxland	MORGENZON
Bosman, Pieter	Slagkraal	STANDERTON
Bredenhann, Nestus	Golder Associates	HALFWAY HOUSE
Cambell, Craig	Golder Associates	HALFWAY HOUSE
Chapman, Olivia	Golder Associates	HALFWAY HOUSE
Cindi, Lwazi	Lekwa Local Municipality	STANDERTON
Claassen, Seppie	Lekwa Local Municipality	STANDERTON
Corbett, Louise	Aurecon	CAPE TOWN
Cronje, Boet	BKB Beperk	STANDERTON
de Waal, Mark	Lekwa Economic Development Forum Standerton	STANDERTON
de Wet, P P	New Denmark Colliery	STANDERTON
du Plooy, Dries	Eskom	
Du Plooy, Johan	Gert Sibande District Municipality	SECUNDA
Dunn, J.	Gert Sibande District Municipality	SECUNDA
Fuwela, Martin	Mpumalanga Department of Economic Development, Environment & Tourism (MDEDET)	ERMELO
Gamede, Andries	Gert Sibande District Municipality	SECUNDA
Govender, Vino	Anglo Coal - New Denmark Colliery	STANDERTON
Gunther, Peter	Anglo American Thermal Coal	WITBANK
Gwadiso, Manqineni	Lekwa Local Municipality	THUTHUKANI
Hine, Philip	South African Heritage Resource Agency	NELSPRUIT
Hlanyane, Dan	Gert Sibande District Municipality	SECUNDA
Hodson, Maria		STANDERTON
Jacobs, Wouter		STANDERTON
Janse van Rensburg, Danie	Uitkyk	STANDERTON
Lacock, Ryno	Eskom Holdings Ltd	STANDERTON
Lawson, Mike	Anglo Operations Limited	STANDERTON
le Roux, Frans	Department of Water Affairs (DWA)	STANDERTON
Leslie, Mary	South African Heritage Resource Agency (SAHRA)	CAPE TOWN
Liefferink, Mariette	Federation for a Sustainable Environment (FSE)	RIVONIA
Louw, Adele	Standerton Advertiser	STANDERTON
Louw, Mike	Anglo Coal - New Denmark Colliery	STANDERTON
Lukey, Peter	Department of Environmental Affairs (DEA)	PRETORIA
Lushaba, Mazwi	Department of Environmental Affairs (DEA)	PRETORIA
Mabelane, Pontsho	Thuthukani Women's Investment Group (TWIG)	LERAATSFONTEIN
Mabena, Margaret	Thuthukani Women's Investment Group (TWIG)	LERAATSFONTEIN
MacDougale, Steve	Eskom	
Machete, Nkosazana	South African Heritage Resource Agency (SAHRA)	NELSPRUIT
MacPherson, Duane	Anglo Coal - New Denmark Colliery	STANDERTON
Madi, Bafana	Information Centre Tutuka Power Station	STANDERTON
Mahlangu, Lucas	Department of Environmental Affairs (DEA)	PRETORIA

FULL NAME	COMPANY	CITY
Mamabolo, J.	Anglo American - New Denmark Colliery	STANDERTON
Marabu, Malisela		STANDERTON
Marebane, Surgeon	Mpumalanga Department of Economic Development, Environment & Tourism (MDEDET)	ERMELO
Mashokwa, Kgaogelo	Ango Coal - New Denmark Colliery	STANDERTON
Matodzi, Bethuel	Department of Mineral Resources (DMR)	WITBANK
Matsoaboli, Thabang	Eskom (Primary Energy)	SUNNINGHILL
Maurin, Philip	Standerton Hospital	STANDERTON
Mavimbela, Siphamandla	Thuthukani CJF	THUTHUKANI
Mavuso, Sipho	Lulwandle Construction Company	STANDERTON
May, Janice	Gert Sibande District Municipality	SECUNDA
Meulenbeld, Paul	Department of Water Affairs (DWA)	PRETORIA
Mkhabithi, N.	South African Civil Aviation	HALFWAY HOUSE
Mndawe, Bhekinkosi	Mpumalanga Department of Economic Development, Environment and Tourism	ERMELO
Mokgabe, Tebogo	Department of Economic Development, Environment and Tourism (DEDET)	ERMELO
Mokgatsi, Johnny	Lekwa Local Municipality	STANDERTON
Mokonyane, Martha	Department of Mineral Resources (DMR)	WITBANK
Moloi, Thabo	Department of Water Affairs (DWA)	STANDERTON
Mondlane, Musa	Mpumalanga Department of Economic Development, Environment & Tourism (MDEDET)	WITBANK
Monnye, Ernest	Mogaleadi Consulting Services	SUPERBIA
Moolman, Lewellyn		STANDERTON
Moremi, Benjamin	Anglo Coal - New Denmark Colliery	STANDERTON
Moremi, Kgadi	Anglo American - New Denmark Colliery	STANDERTON
Moshokwa, Benjamin	Anglo American - New Denmark Colliery	STANDERTON
Mphahlele, Mogole	Department of Economic Development, Environment and Tourism (DEDET)	POLOKWANE NORTH
Mthembu, Dumisani	Department of Environmental Affairs (DEA)	PRETORIA
Ndabazabantu, Ndaba	Thuthukani Co-operative	KWANGWANASE
Nel, Janus	Golder Associates	HALFWAY HOUSE
Ngcobo, M A	Gert Sibande District Municipality	SECUNDA
Ngidi, Percy	Department of Environmental Affairs (DEA)	PRETORIA
Ngubeni, Thokozani	Thuthukani Youth Club	THUTHUKANI
Ngubo, Ntombithini	Thuthukani Public Library	STANDERTON
Njapha, Tricia	Golder Associates	HALFWAY HOUSE
Ntebe, M.	Department of Environmental Affairs (DEA)	PRETORIA
Ntebe, Monde	MNMT c.c	WATTVILLE
Ntoampe, Kellelo	Department of Environmental Affairs (DEA)	PRETORIA
Ntuli, William	Thuthukani CJF	THUTHUKANI
Nyembe, Sibongile	Thuthukani Joint Forum	THUTHUKANI
Payne, Josef	Plase Kafferskraal & Leeuwkraal	STANDERTON
Peens, Fanie	Lekwa Local Municipality	STANDERTON
Pienaar, Johan	Eensgevonden	STANDERTON
Pienaar, Johny	Plaas Eensgevonden	STANDERTON
Pretorius, Koos	Federation for a Sustainable Environment and Escarpment Environmental Protectio	BELFAST
Prinsloo, Jaco	Lekwa Local Municipality	STANDERTON
Rautenbach, Hergaard	Standerton Agricultural Forum	STANDERTON
Riekert, Danie	Niekerksvlei/Uitkyk/Weltevrede	STANDERTON
Riekert, Dirk	Niekerksvlei/Uitkyk/Weltevrede	STANDERTON
Riekert, Simon	Niekerksvlei/Uitkyk/Weltevrede	STANDERTON
Schabort, Pieter	Plaas Meyersvallei/ Welgedacht	STANDERTON
Schoonraad, Jan	Plaas Uitkyk	STANDERTON
Setchaba, Mosia	Lekwa Local Municipality	THUTHUKANI
Shongwe, Bhekiwe	Department of Agriculture Rural Development and Land Administration	STANDERTON
Sibiloane, Alpheus	Thuthukani Joint Forum	THUTHUKANI



FULL NAME	COMPANY	CITY
Sindane, Jabulani	Lekwa Local Municipality	STANDERTON
Steenkamp, Willie	Plaas Eensgevonden	STANDERTON
Steyn, Ben	Mooimeisiesfontein	STANDERTON
Steyn, Conrad	Mooimeisiesfontein	STANDERTON
Steyn, Naas	Joubertsvlei	BETHAL
Strauss, Riza	Anglo American Thermal Coal	WITBANK
Strohl, Lizell	Civil Aviation Authority	HALFWAY HOUSE
Swanepoel, Dave	Eskom	
Theledi, M C	Department of Agriculture Rural Development and Land Administration	NELSPRUIT
Thema, Godfrey	Anglo Coal	STANDERTON
Tshabalala, Mavis	Standerton Public Library	STANDERTON
Tshili, D S	Lekwa Local Municipality	STANDERTON
van der Berg, David	Standerton Agricultural Forum	STANDERTON
van der Merwe, Izak	Department of Water Affairs (DWA)	PRETORIA
Van der Walt, Johan	Meyersvalle	STANDERTON
van der Walt, Johan	Plaas Niekerksvley	SECUNDA
van der Walt, Mike	Eskom	STANDERTON
van der Walt, Stephanus	Land owner	STANDERTON
van Niekerk, Johan	Department of Water Affairs (DWA)	STANDERTON
van Rede, Gerhard	Tutuka Power Station Landing Strip	STANDERTON
van Rensburg, Jonny	Pretoriusvlei	STANDERTON
van Wyk, Johan	Lekwa Local Municipality	STANDERTON
Venter, Paul	Meyersvallei & Honiball	STANDERTON
Vermaak, Neels	Usutu Vaal G W S	STANDERTON
Vilakazi, Phumzile	South African Civil Aviation	HALFWAY HOUSE
Vosloo, Thys	Thys Vosloo Family Trust	STANDERTON
Webb, Kim	Wildlife and Environment Society of South Africa (WESSA)	FERNDALE
Wessels, Francois	Standerton Agricultural Forum	STANDERTON
Zwarts, Blackie	Land owner	STANDERTON





# **APPENDIX N2**

## **Registered I&APs**



**REGISTERED I&APs****ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR PROPOSED CONSTRUCTION AND OPERATION  
OF A BRINE POND AT THE NEW DENMARK COLLIERY NEAR STANDERTON,  
MPUMALANGA PROVINCE (MDEDET Reference number: 17/2/2/GS09)**

<b>FULL NAME</b>	<b>COMPANY</b>	<b>CITY</b>
Bokwe, Tobile	Eskom	SUNNINGHILL
Bosman, Pieter	Slagkraal	STANDERTON
Bredenhann, Nestus	Golder Associates	HALFWAY HOUSE
Cambell, Craig	Golder Associates	HALFWAY HOUSE
Chapman, Olivia	Golder Associates	HALFWAY HOUSE
Corbett, Louise	Aurecon	CAPE TOWN
du Plooy, Dries	Eskom	
Lacock, Ryno	Eskom Holdings Ltd	STANDERTON
Lawson, Mike	Anglo Operations Limited	STANDERTON
MacDougle, Steve	Eskom	
Mamabolo, J.	Anglo American - New Denmark Colliery	STANDERTON
Marebane, Surgeon	Mpumalanga Department of Economic Development, Environment & Tourism (MDEDET)	ERMELO
Matsoaboli, Thabang	Eskom (Primary Energy)	SUNNINGHILL
Mavuso, Sipho	Lulwandle Construction Company	STANDERTON
Moremi, Benjamin	Anglo Coal - New Denmark Colliery	STANDERTON
Moremi, Kgadi	Anglo American - New Denmark Colliery	STANDERTON
Moshokwa, Benjamin	Anglo American - New Denmark Colliery	STANDERTON
Pienaar, Johan	Eensgevonden	STANDERTON
Pienaar, Johny	Plaas Eensgevonden	STANDERTON
Steyn, Conrad	Mooimeisiesfontein	STANDERTON
Strohl, Lizell	Civil Aviation Authority	HALFWAY HOUSE
Swanepoel, Dave	Eskom	
van der Walt, Mike	Eskom	STANDERTON
van Rensburg, Jonny	Pretoriusvlei	STANDERTON
Vermaak, Neels	Usutu Vaal G W S	STANDERTON
Vosloo, Thys	Thys Vosloo Family Trust	STANDERTON





# **APPENDIX N3**

## **Comment and Response Report**

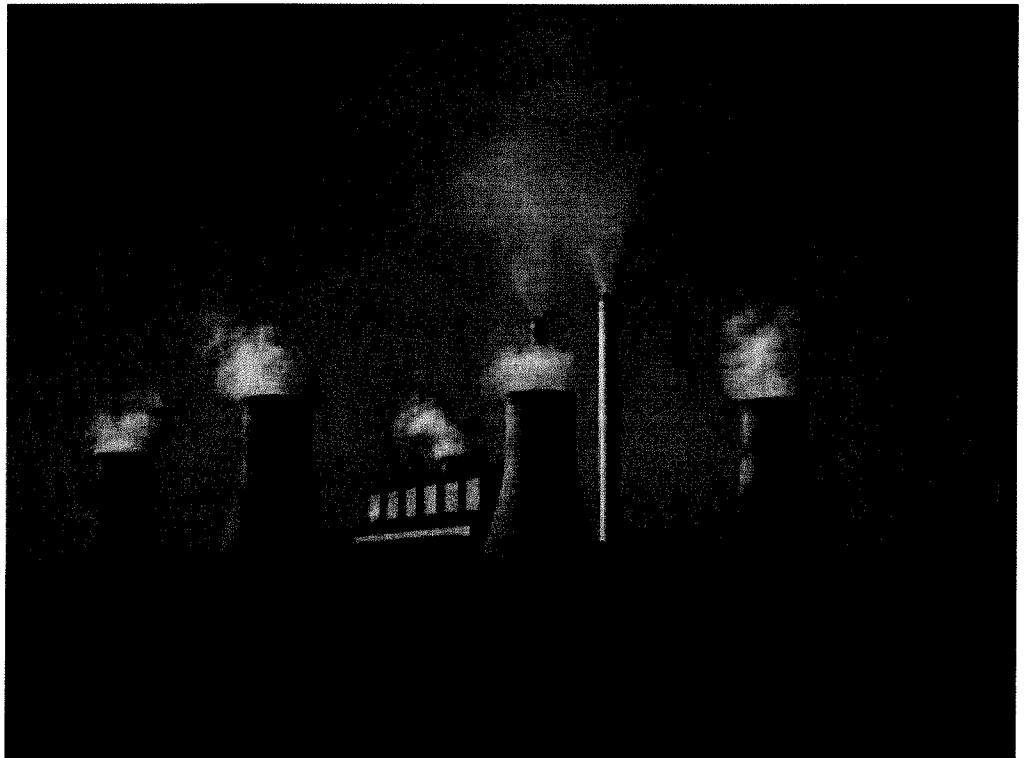




**ENVIRONMENTAL IMPACT ASSESSMENT FOR  
PROPOSED CONSTRUCTION AND  
OPERATION OF AN EVAPORATION POND AT  
NEW DENMARK COLLIERY NEAR  
STANDERTON, MPUMALANGA**

*Mpumalanga Department of Economic Development Environment and  
Tourism (MDEDET) Ref. number: 17/2/2/2GS09*

**COMMENT AND RESPONSE REPORT**





## COMMENT AND RESPONSE REPORT

This document records the comments, issues of concern, questions and suggestions for enhanced benefits raised by stakeholders on the Environmental Impact Assessment (EIA) for the proposed construction and operation of an evaporation pond at the New Denmark Colliery (NDC) near Standerton, Mpumalanga Province. Comments were raised in writing, verbally during telephonic interviews, and at an Open House held in Standerton on 29 November 2010.

The comments have been categorised as follows and responded to by members of the EIA team and the New Denmark Colliery management team.

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# COMMENT AND RESPONSE REPORT

1. WATER					
The Grootdraai dam could be polluted as a result of possible pollution of streams close to the evaporation pond.	Mr Neels Vermaak	Department of Water Affairs	28 July 2010	Written comment	The pond design will prevent overflow events of less than a 1 in 50 year return period and will have a freeboard of between 950mm and 2300mm. The operational water level in the pond will be managed to maintain the freeboard. Refer to Section 2.1.2.2 of the EIA Report. Overspill from the evaporation pond may occur in the event of an intense rainfall event. However, the probability of such an occurrence is very low, since a 1:100 year flood event will increase the water level in the pond with 133.8 mm; however, a freeboard of at least 0.8 m will be added to the height of the pond wall. A spillway will, also be constructed which will direct flow into the unnamed tributary to the north of the site, in an intense rainfall event.
Spillage control measures must be implemented to avoid contamination of surface water.	Dr Paul Meulenbeld	Department of Water Affairs	26 August 2010	Written comment	
How will the reverse osmosis reject be managed should it overflow from the evaporation pond?	Mr Pieter Bosman	Slagkraal Farm	10 August 2010	Telephonic interview	
How will NDC address river pollution, underground water pollution and negative impacts on surrounding livestock, should the evaporation pond overflow?	Mr Thys Vosloo	Pretoriusvlei Farm	24 August 2010	Open House: Thuthukani Hall, Standerton	



## COMMENT AND RESPONSE REPORT

Underground water pollution within my farming area is becoming worse every year.	Mr Thys Vosloo	Pretoriusvlei Farm	24 August 2010	Open House: Thuthukani Hall, Standerton	As part of the groundwater assessment for the EIA, available boreholes and surface water in close proximity to the proposed evaporation pond were sampled on 29 July 2010 (see Figure 4 of APPENDIX C for an indication of the sampling localities).  The hydrochemistry results revealed that the groundwater and surface water from the bodies within and close to the proposed evaporation pond site is of good quality. All the measured parameters recorded values that fall within the acceptable Classes I and II of the South African National Standards (SANS 241, 2005) specifications for drinking water.
Possible overflow from the evaporation pond will pollute groundwater and impact negatively on livestock grazing.	Mr Pieter Bosman	Slagkraal Farm	10 August 2010	Telephonic interview	The pond will be lined with a triple liner system. A leakage collection and conveyance system will be included within the lining system. The liner system for the pond will incorporate two cusped drainage systems to collect leaks from the primary and secondary HDPE geomembranes. Considering that the pond will be lined, this impact is highly unlikely. Moreover, in the event of leakage, the pollutants will not migrate fast within the shallow aquifer because of the low hydraulic conductivity of the aquifer ( $\pm 0.006$ m/day). Therefore, this impact is considered of low significance and with a
	Mr Thys Vosloo	Pretoriusvlei Farm	24 August 2010	Open House: Thuthukani Hall, Standerton	
There is concern that any reverse osmosis reject leaking from the evaporation pond will pollute the groundwater.	Mr Jonny van Rensburg	Pretoriusvlei Farm	10 August 2010	Telephonic interview	
Polluted water might flow towards the farm Uitkyk and pollute boreholes.	Mr Jan Schoonraad	Plaas Uitkyk	10 August 2010	Telephonic interview	
Geological structures must be identified in order to understand the impact on groundwater activity.	Dr Paul Meulenbeld	Department of Water Affairs	26 August 2010	Written comment	



## COMMENT AND RESPONSE REPORT

Basic groundwater monitoring systems must be put in place.	Dr Paul Meulenbeld	Department of Water Affairs	26 August 2010	Written comment	very low probability of occurrence. It is, however, recommended that a network of monitoring boreholes be established around the proposed evaporation pond site during the Operational Phase to monitor any possible seepage from the pond. Due to the limited extent of the ponds only two borehole pairs are recommended, one up-gradient and one down-gradient of the ponds. A borehole pair will consist of one shallow borehole ( $\pm 15\text{m}$ through the weathered material) and one deep borehole ( $\pm 40\text{m}$ into the fractured strata). Any groundwater contamination from RO reject/proposed pond water will show as elevated levels of Na, chloride and sulphate concentration in accordance with the chemical signature of the RO reject. Refer to Sections 7.5.8 and 9.1 of the EIA Report.
The brine water is of such poor quality that it will affect soil and agricultural production negatively.	Dr Paul Meulenbeld	Department of Water Affairs	26 August 2010	Written comment	The evaporation ponds will be triple lined to prevent seepage into the underlying soil. The ponds will be designed to prevent overflow during storm events up to a 1:50 year design event and to have a freeboard of between 950mm and 2300mm. The final design is presented in Section 2.1.2.2 of the EIA Report.



## COMMENT AND RESPONSE REPORT

COMMENT	COMPLAINTANT	LOCATION	DATE	SOURCE	RESPONSE
Does New Denmark Colliery conduct frequent water quality testing?	Mr Pieter Bosman	Slagkraal Farm	24 August 2010	Open House: Thuthukani Hall, Standerton	NDC conducts routine groundwater monitoring in the region. The monitoring programme will be extended to assess the performance of the pond.
NDC needs to take into account that evaporation will be slow because the ponds will only be exposed to four months of summer with the remaining eight months being winter.	Mr Thys Vosloo	Pretoriusvlei Farm	24 August 2010	Open House: Thuthukani Hall, Standerton	The overall water balance, including seasonal evaporation and rainfall, has been taken into consideration in the pond design. Refer to Section 2.1.2.2 of the EIA Report.
Will the pressure and volume of water in the pipeline be monitored?	Dr Paul Meulenbeld	Department of Water Affairs	26 August 2010	Written comment	Yes, the pressure and volume in the pipeline will be monitored.
The Fishbone drainage system under the evaporation pond will need strong pumps to ensure that all water is pumped out from underneath the pond.	Mr Neels Vermaak	Department of Water Affairs	29 November 2010	Open House: Thuthukani Hall, Standerton	The design of the evaporation pond will be able to adequately deal with any water that collects beneath the pond. Refer to Section 2.1.2.3 of the EIA Report.
Water that will be pumped into the river will be blocked by an underground swamp and needs to be investigated.	Mr Thys Vosloo	Pretoriusvlei Farm	29 November 2010	Open House: Thuthukani Hall, Standerton	Thank-you and noted. NDC will investigate this.
Eskom extracts too much water from underground resources that farmers rely on to feed livestock.	Mr Blackie Zwarts	Landowner	29 November 2010	Open House: Thuthukani Hall, Standerton	Thank-you, your comment will be forwarded to Eskom.
<b>2. AIR QUALITY</b>					
Winds are currently blowing dust from the ash dumps into farming areas.	Mr Jan Schoonraad	Plaas Uitkyk	10 August 2010	Telephonic interview	Management of the ash dump is not part of the scope of this EIA. These comments have also been forwarded to Eskom.
Heavy particles from the Eskom smoke stacks cause plants to die and throat swelling in cattle.	Mr Thys Vosloo	Pretoriusvlei Farm	24 August 2010	Open House: Thuthukani Hall, Standerton	



## COMMENT AND RESPONSE REPORT

COMMENT	ORGANISATION	DATE	SOURCE	RESPONSE	
Cattle do not eat plants which have been exposed to air pollution. What is being done to resolve this?	Mr Thys Vosloo	Pretoriusvlei Farm	24 August 2010	Open House: Thuthukani Hall, Standerton	
<b>3. VISUAL</b>					
The visual impact of the evaporation ponds will have a negative impact on land and property value.	Mr Thys Vosloo	Pretoriusvlei Farm	29 November 2010	Open House: Thuthukani Hall, Standerton	The evaporation pond is proposed to be constructed in an area which is already visually altered by the presence of Tutuka Power Station and associated infrastructure. It is not anticipated that the evaporation pond will have a significant impact to the surrounding area. Please refer to section 7.4.10
<b>4. ENVIRONMENTAL MANAGEMENT AND REHABILITATION</b>					
It is the responsibility of Anglo American to ensure regulatory compliance and the implementation of mitigation measures for the proposed project.	Dr Paul Meulenbeld	Department of Water Affairs	26 August 2010	Written comment	Agreed. The EIA is being undertaken in compliance with legislation and that includes drawing up an Environmental Management Plan, which will include mitigation measures and ways to measure performance.
Will the salt be removed from the evaporation ponds when their life expectancy is reached?	Mr Pieter Bosman	Slagkraal Farm	24 August 2010	Open House: Thuthukani Hall, Standerton	There are two potential scenarios of closure for the facility, namely:
What will happen to the evaporation ponds when their life expectancy is reached?	Mr Pieter Bosman	Slagkraal Farm	24 August 2010	Open House: Thuthukani Hall, Standerton	<ul style="list-style-type: none"> <li>■ Removal of the hazardous salt precipitate to a nearby hazardous landfill disposal facility followed by rehabilitation of the footprint.</li> </ul>



## COMMENT AND RESPONSE REPORT

QUESTION	COMMENTS	RESPONSE	DATE	SOURCE	RESPONSE
What will happen to the remaining salt when the water evaporates?	Mr Pieter Bosman	Slagkraal Farm	24 August 2010	Open House: Thuthukani Hall, Standerton	<ul style="list-style-type: none"> <li>Leaving the facility in place.</li> </ul> To achieve these objectives, the rehabilitation measures will be in accordance with the capping and closure requirements of the DWA Minimum Requirements for Waste Disposal by Landfill (DWAF, 1998a). The detailed closure plan for the facility will be developed during the life of the facility. Refer to Section 2.1.2.2 of the EIA Report.
How much acid and salt will go into the evaporation ponds?	Mr Thys Vosloo	Pretoriusvlei Farm	24 August 2010	Open House: Thuthukani Hall, Standerton	The reject water disposed into the pond will have a neutral to alkaline pH; therefore, no acid will be added to the pond. Mass of salt will be determined as part of the EIA.
What are the leakage detection measures and emergency plans for the proposed evaporation pond?	Dr Paul Meulenbeld	Department of Water Affairs	26 August 2010	Written comment	A leakage collection and conveyance system will be included within the lining system. The liner system for the pond will incorporate two cusped drainage systems to collect leaks from the primary and secondary HDPE geomembranes. See Section 2.1.2.2 of the EIA Report. Online monitoring equipment will be used to measure the level in the pond and routine groundwater monitoring will be used to determine any potential impact on groundwater.





## COMMENT AND RESPONSE REPORT

<p>The evaporation pond is far away from New Denmark Colliery and therefore will require proper management plans.</p>	<p>Dr Paul Meulenbeld</p>	<p>Department of Water Affairs</p>	<p>26 August 2010</p>	<p>Written comment</p>	<p>An environmental management plan has been developed for the evaporation pond based on the findings of the impact assessment phase of the project (see Section 8 of the EIA Report). The plan is part of the EIA and upon approval will become a legally binding document.</p>
<p>Seepage from the evaporation pond walls may occur when it rains and building the pond deeper in the ground will assist to mitigate the possible seepage.</p>	<p>Mr Neels Vermaak</p>	<p>Department of Water Affairs</p>	<p>29 November 2010</p>	<p>Open House: Thuthukani Hall, Standerton</p>	<p>The evaporation ponds will be triple lined to prevent seepage to the underlying soil. The ponds will be designed to prevent overflow during storm events up to a 1:50 year design event and to have a freeboard of between 950mm and 2300mm. The final design is presented in Section 2.1.2.2 of the EIA Report. Furthermore, the evaporation pond will be underlain by impermeable dolerite rock which will further limit any seepage, should it occur.</p>
<p>How will water be managed that flows in between the rock foundation of the evaporation pond and the pond itself?</p>	<p>Mr Thys Vosloo</p>	<p>Pretoriusvlei Farm</p>	<p>29 November 2010</p>	<p>Open House: Thuthukani Hall, Standerton</p>	<p>The design of the evaporation pond will be able to adequately deal with any water that collects beneath the pond and underlying dolerite strata. This clean water that collects in these areas will be pumped from these areas and into the adjacent watercourses. Refer to Section 2.1.2.3 of the EIA Report.</p>



## COMMENT AND RESPONSE REPORT

5. PROJECT SPECIFIC					
What is the footprint of the evaporation pond?	Mr Thys Vosloo	Pretoriusvlei Farm	24 August 2010	Open House: Thuthukani Hall, Standerton	The footprint of the evaporation pond is 40 hectares.
Where is the starting point of the pipeline and what route will it follow?	Mr Pieter Bosman	Slagkraal Farm	24 August 2010	Open House: Thuthukani Hall, Standerton	The proposed pipeline route is shown in Figure 2-1 in the EIA Report. The pipeline starts on the Eskom site and runs along the current access road on Eskom land to the proposed pond site.
How will mud that accumulates over time in the evaporation pond, be removed?	Mr Thys Vosloo	Pretoriusvlei Farm	24 August 2010	Open House: Thuthukani Hall, Standerton	Runoff from the surrounding land will be excluded from the pond by diversion structures (to divert stormwater run-off); the pond will only receive direct rainfall. As such no mud or sediment, other than brine residue, will collect in the pond.
What is the source of the salt and water that is stored in the evaporation pond?	Mr Johan Pienaar	Eensgevonden Farm	24 August 2010	Open House: Thuthukani Hall, Standerton	The source of the salt and water is originally from dewatering of the underground mine. The mine water is treated by reverse osmosis and it is proposed that the resulting low volume of reject water be disposed of in the pond.
5.1 Construction					
The proposed project area consists mainly of clay soils, which could cause the evaporation ponds to crack.	Mr Thys Vosloo	Pretoriusvlei Farm	24 August 2010	Open House: Thuthukani Hall, Standerton	Any clay or unstable soil layer within the pond footprint will be removed and the pond located directly on the stable rock surface or other suitable founding material. A geotechnical investigation has been completed, the results of which are
			29 November 2010	Open House: Thuthukani Hall, Standerton	



## COMMENT AND RESPONSE REPORT

	Mr Johan Pienaar	Eensgevonden Farm	24 August 2010	Open House: Thuthukani Hall, Standerton	attached in Appendix B of the EIA Report..
Ground instability could cause the walls of the pond to crack.	Mr Thys Vosloo	Pretoriusvlei Farm	24 August 2010	Open House: Thuthukani Hall, Standerton	
What materials will be used to construct the evaporation pond walls and catchment area around the pond?	Mr Thys Vosloo	Pretoriusvlei Farm	24 August 2010	Open House: Thuthukani Hall, Standerton	The materials used in the construction of the pond will be selected to ensure integrity of the pond structure and conform to detailed engineering specifications. Testing of potential materials has been completed and is described in Section 2.1.2.2 of the EIA Report and the geotechnical report (Appendix B).
	Mr Johan Pienaar	Eensgevonden Farm	24 August 2010	Open House: Thuthukani Hall, Standerton	
Who will build the evaporation pond?	Mr Johnny Pienaar	Eensgevonden Farm	24 August 2010	Open House: Thuthukani Hall, Standerton	An approved and competent civil contractor will build the evaporation pond according to a design approved by the Department of Water Affairs.
Dolerite which will be used as foundation for the evaporation pond is not found everywhere within the preferred site for construction.	Mr Thys Vosloo	Pretoriusvlei Farm	29 November 2010	Open House: Thuthukani Hall, Standerton	The evaporation pond will be located directly on the stable rock foundation of a dolerite sill. A geotechnical investigation has been completed, the results of which are attached in Appendix B of the EIA Report.
Will the power supply be sufficient to power the emergency lights around the evaporation ponds as stipulated by the Civil Aviation Authorities (CAA)?	Mr Gerhard van Rheede van Oudtshoorn	Eskom	29 November 2010	Open House: Thuthukani Hall, Standerton	Yes. The emergency lighting of the evaporation pond will be supplemented by the addition of a new powerline between NDC and a proposed new ventilation shaft.



## COMMENT AND RESPONSE REPORT

QUESTION	COMMENTS	LOCALISATION	DATE	SOURCE	RESPONSE
What will the impact of the blasting done for construction be on the adjacent air strip?	Mr Gerhard van Rheede van Oudtshoorn	Eskom	29 November 2010	Open House: Thuthukani Hall, Standerton	Blasting will be conducted in a controlled manner so as not to impact on any adjacent infrastructure.
<b>5.2 Site Selection</b>					
Where is the preferred site for the evaporation pond located?	Mr Thys Vosloo	Pretoriusvlei Farm	24 August 2010	Open House: Thuthukani Hall, Standerton	A site selection process was undertaken as part of the project. An initial 13 sites were assessed according to engineering and environmental criteria. The preferred site for the evaporation pond is shown in Figure 2-1 in the EIA Report. The pond is located to the west of Eskom's Tutuka site on land owned by Eskom.
How was the site for the evaporation pond selected?	Mr Pieter Bosman	Slagkraal Farm	24 August 2010	Open House: Thuthukani Hall, Standerton	The site selection process evaluated 13 potential sites against a number of criteria including locality, land ownership, engineering and environmental considerations. The site selection report is attached as Appendix L to the EIA Report.
My farming activities are located on the preferred site which is currently leased from Eskom. How will grazing areas be affected should the evaporation pond be constructed?	Mr Pieter Bosman	Slagkraal Farm	24 August 2010	Open House: Thuthukani Hall, Standerton	The lease negotiations between Eskom and farmers do not form part of the scope of this EIA. Eskom will approach farmers leasing land from them directly. However, your comment will be forwarded to Eskom.



## COMMENT AND RESPONSE REPORT

6. SOCIO-ECONOMIC ISSUES					
Sub-contractors employed during construction of the evaporation pond might cause an increase in theft and veld fires.	Mr Jan Schoonraad	Plaas Uitkyk	10 August 2010	Telephonic interview	Approximately 200 staff members will be present on site during the construction phase. Construction crew will only be present on site during the day; they will not stay overnight. Sub-contractor agreements and contracts will specify fire and theft prevention measures. All these issues have been addressed in the environmental management plan (Section 8 of the EIA Report).
7. ENVIRONMENTAL IMPACT ASSESSMENT					
Is the EIA process underwritten and guided by specific regulations in order to ensure transparency?	Mr Thys Vosloo	Pretoriusvlei Farm	24 August 2010	Open House: Thuthukani Hall, Standerton	The EIA process is defined in the regulations under the National Environmental Management Act (1998) (as amended). The Act requires a transparent process. All documents generated for the application are made public and public consultation is a requirement of this process. The specialist investigations and preparation of the EIA are carried out by independent parties
7.1 Public Participation					
Is it possible to include public meeting invitation information on the site notices that are put up?	Mr Benjamin Moremi	Anglo American	2 August 2010	Written comment	Thank you for the suggestion. Site notices that will be used for the Impact Assessment Phase will include invitation information for the next Open House.



## COMMENT AND RESPONSE REPORT

Can the site notices be translated into either Isizulu, Sotho or Afrikaans?	Mr Benjamin Moremi	Anglo American	2 August 2010	Written comment	Thank you for the suggestion. Site notices that will be used for the Impact Assessment Phase will be translated into one other official language.
<b>8 OTHER</b>					
The proposed evaporation pond will require licensing under Section 21(g) of the National Water Act.	Dr Paul Meulenbeld	Department of Water Affairs	26 August 2010	Written comment	An application for a water use licence in terms of the National Water Act (1998) for this water use will be submitted to the Department of Water Affairs.
Eskom has not responded to letters sent by my attorneys, Van Heerden Shoeman.	Mr Thys Vosloo	Pretoriusvlei Farm	24 August 2010	Open House: Thuthukani Hall, Standerton	The follow up of legal issues between the public and Eskom is not part of the scope of this EIA unless related directly to this application. This comment has also been forwarded to Eskom.
Eskom has not maintained nor supplied fencing as promised.	Mr Thys Vosloo	Pretoriusvlei Farm	24 August 2010	Open House: Thuthukani Hall, Standerton	Management of fencing is not part of the scope of this EIA. This comment has also been forwarded to Eskom.

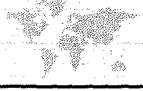


## COMMENT AND RESPONSE REPORT

<p>A joint authorities meeting should be held to discuss progress on the Integrated Regulatory Process. All the relevant sub-directorates of the Department of Water Affairs, including dam safety, should be invited.</p>	<p>Dr Paul Meulenbeld</p>	<p>Department of Water Affairs</p>	<p>12 November 2010</p>	<p>Focus Group Meeting, Golder Office, Pretoria</p>	<p>Thank you for this recommendation. A joint authorities meeting will be convened end November / beginning December 2010. The purpose of this meeting will be to ensure that each authority is satisfied with the findings of the EIA and conclusions reached. During the meeting, authorities will be able to add to the Draft EIAR and assist in ensuring that the level of completeness is enhanced, thus ensuring that the final EIAR and its framework EMP form a comprehensive document that will regulate the construction and operation of the proposed evaporation pond.</p>
<p>The Department of Water Affairs confirmed that should it not be possible to commission the evaporation pond by the time the directive date is reached, due to delays in obtaining regulatory approvals, an extension to the directive can possibly be granted.</p>	<p>Dr Paul Meulenbeld</p>	<p>Department of Water Affairs</p>	<p>12 November 2010</p>	<p>Focus Group Meeting, Golder Office, Pretoria</p>	<p>Thank you for the confirmation.</p>







## **APPENDIX N4**

### **BID, Scoping Phase Announcement Letter, Registration and Comment Sheet**



July 2010

CELEBRATING  
**50**  
YEARS  
in 2010

**ENVIRONMENTAL IMPACT ASSESSMENT FOR  
PROPOSED CONSTRUCTION AND OPERATION OF  
AN EVAPORATION POND AT NEW DENMARK  
COLLIERY NEAR STANDERTON, MPUMALANGA**

**BACKGROUND INFORMATION  
DOCUMENT AND INVITATION TO  
COMMENT**

*Due date for comment: 6 August 2010*



Project No: 12786

# INTRODUCTION

The purpose of this Background Information Document is to provide information to interested and affected parties (I&APs) about a project that Anglo American Thermal Coal proposes to undertake in order to manage and store concentrated brine (also referred to as reverse osmosis reject) at its New Denmark Colliery near Standerton, Mpumalanga Province (see **Figure 1**). The proposed project will involve the construction and operation of an evaporation pond. The pond comprises 2 cells, each with a 20 hectares footprint, and an ultimate storage capacity of 10 years. There will also be a pipeline associated with the evaporation pond.

Before the proposed project may go ahead, an EIA in terms of the National Environmental Management Act (NEMA), 1998 (Act 107 of 1998) and Regulations GN R385, 386 and 387 must be completed by independent consultants appointed by New Denmark Colliery (NDC).

NDC has appointed Golder Associates, an independent engineering and environmental consulting company to conduct the EIA. The EIA is being conducted in parallel with other required regulatory processes as follows:

- An amendment to NDC's Environmental Management Programme in terms of the Mineral and Petroleum Resources Development (MPRD) Act, 2002 (Act 28 of 2002);
- Water Use Licence Application and dam safety registration process in terms of the National Water Act, 1998 (Act 36 of 1998).

This document describes the overall evaporation pond construction project and provides an overview of the environmental authorisation process. It forms part of the Scoping Phase of the EIA process and provides I&APs with an initial opportunity to comment on the proposed project and to register as a stakeholder.

More documents will be available at various stages during the environmental authorisation process to provide stakeholders with information and further opportunities to raise issues of concern and suggestions for enhanced benefits. Stakeholders will also be given the opportunity to verify that their issues have been considered and to comment on the findings of the specialist studies. Thereafter, the findings will be submitted to Department of Economic Development, Environment and Tourism for a decision about the project.

### ***Please submit your comments by Friday, 6 August 2010***

Your comments, issues, concerns and suggestions on any aspect of the proposed project, including the technical and public participation processes, will help to focus the technical studies, and will ultimately assist the authorities to make a decision.

Please complete the enclosed comment and registration sheet or contact the public participation office by mailing or faxing a letter, by telephone or e-mail. You will then receive further information about the proposed re-mining project and the EIA.

***Return address for comments and to register as an Interested and Affected Party:***

**Public Participation Office**

**Nestus Bredenhann/ Tricia Njapha**

**Golder Associates Africa (Pty) Ltd**

**P O Box 6001, Halfway House 1685**

**Tel: (011) 254 4978 / 4916**

**Fax: (011) 315 0317**

**Email: nbredenhann@golder.co.za / tnjapha@golder.co.za**

ABBREVIATIONS	
<b>BID</b>	Background Information Document
<b>CRR</b>	Comment and Response Report
<b>DEDET</b>	Department of Economic Development, Environment and Tourism
<b>EIA</b>	Environmental Impact Assessment
<b>HDPE</b>	High Density Polyethylene
<b>I&amp;AP</b>	Interested and Affected Party
<b>NDC</b>	New Denmark Colliery
<b>NEMA</b>	National Environmental Management Act, No. 107 of 1998
<b>RO</b>	Reverse Osmosis

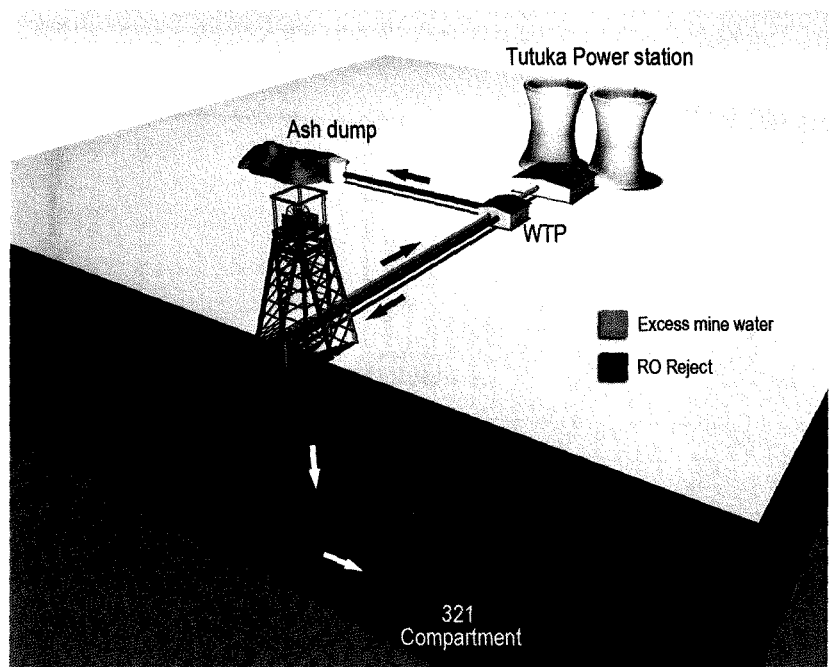
New Denmark Colliery (NDC) provides coal to Eskom's Tutuka Power Station for daily operations. The excess mine water that accumulates in the underground mine workings as a result of coal mining activities, must be pumped to surface and treated. Treatment of the mine water takes place at a reverse osmoses plant i.e. water treatment plant at Tutuka Power Station.

The treated water is split into two streams, namely a clean stream and a reject stream. The reject is a concentrated salt solution. Currently, a reverse osmoses (RO) reject stream of approximately 3 megaliters (Ml) per day is produced. Some of the reject is used on the ash dump at the power station for dust suppression, some is evaporated in the boilers, and the remainder of about 1 Ml/day is returned to NDC for disposal. This returned reject is stored in a mined out void (cavern) referred to as the "321 compartment" at NDC see Figure 2).

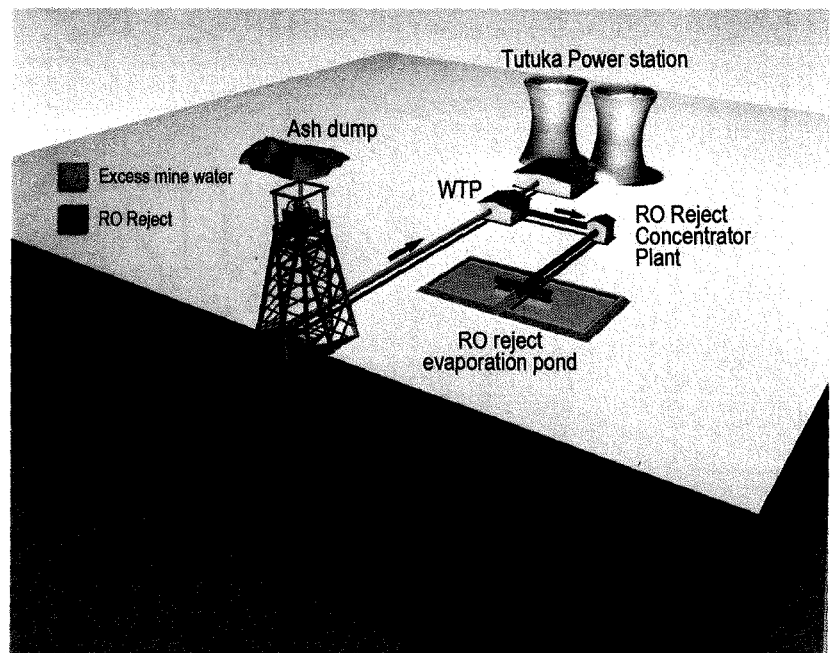
In November 2009, NDC received a Directive from the Department of Water Affairs instructing the mine to implement an alternative management option for the RO reject, by October 2011.

In response to the Directive, Eskom is proposing to construct and operate an RO reject concentrator plant at Tutuka Power Station. The purpose of this plant will be to reduce the volume of RO reject produced from 3 Ml/day to 1 Ml/day. The Eskom proposal to construct the additional concentrator plant forms part of a separate EIA, being conducted by Aurecon.

The concentrated RO reject produced by Eskom's concentrator plant will be sent to NDC's evaporation pond proposed in this EIA (see Figure 3). The implementation of the proposed concentrator plant and evaporation pond project is a collective effort by Eskom and Anglo Coal to meet the requirements of the Directive issued by the DWA.



**Figure 2: Currently in the process, RO reject is disposed into a mined out void ("321 compartment") at New Denmark Colliery**



**Figure 3: The proposed management of RO reject using the evaporation pond**

# PROJECT DESCRIPTION

## Location

New Denmark Colliery is located adjacent to the Eskom Tutuka Power Station, 22 km north east of Standerton, in the Mpumalanga Province.

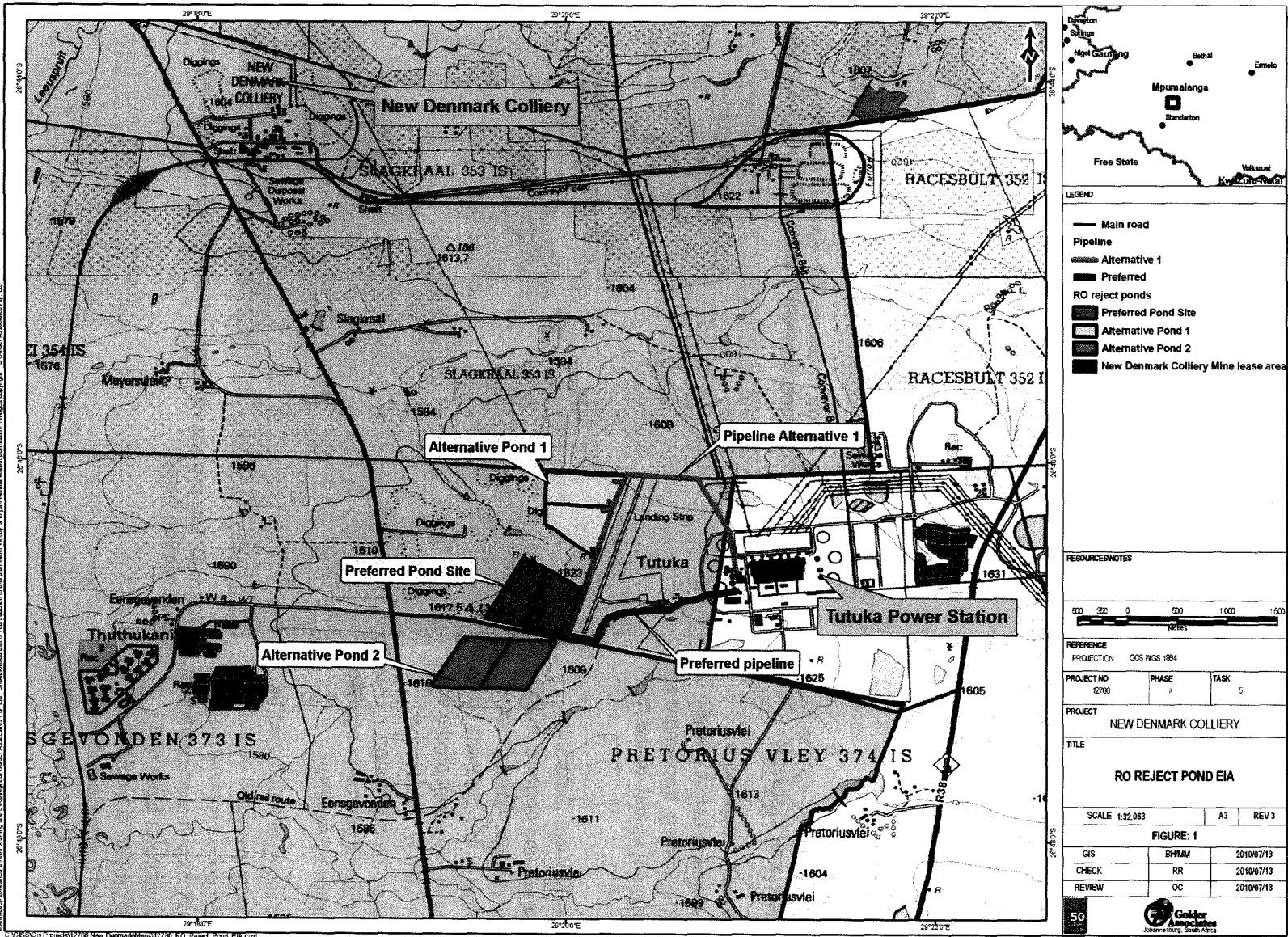
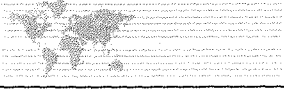


Figure 1: Location of proposed evaporation pond and associated pipeline at New Denmark Colliery



### Key components of project

The following infrastructure will be developed as part of the project:

- Evaporation pond to dispose (evaporate) RO reject
- Pipeline to transmit RO reject from concentrator plant to evaporation pond

#### **Evaporation pond**

The proposed evaporation pond will comprise two cells, each with a lifespan capacity of 5 years and footprint of approximately 20 hectares. Each cell will have a capacity of 1.8 million cubic meters and a depth of 11.2 meters.

#### **Pipeline**

A pipeline will be constructed to transport the reject from the RO reject concentrator plant to the evaporation pond (see **Figure 3**). This pipeline will be a high density polyethylene (HDPE) pipeline and will be buried below ground. A back-up pipeline will be installed alongside the main pipeline in the event of a pipeline leak/burst or during times of maintenance. Based on the locations of the alternative sites for the evaporation pond, it is assumed that the pipeline will not exceed a distance of approximately 6 km.

#### **Other infrastructure**

Supporting infrastructure for the proposed project will include an access road, stormwater management structures at and around the pond site, security fencing and groundwater monitoring boreholes. A gravel ring-road will surround the pond site to ensure easy access for maintenance

#### **Project roles and responsibilities**

The responsibility for the operation and maintenance of the evaporation pond and associated infrastructure lies with NDC. Responsibilities in terms of operation and maintenance of the concentrator plant and pipeline to the pond lie with Eskom.

#### **Supporting infrastructure not part of this EIA**

Other infrastructure that will support this development, but which will not form part of the scope of this EIA include:

- An existing mine water collection system at New Denmark Colliery which delivers excess mine water to the RO plant;
- An existing RO plant used to treat saline mine water and produce the RO reject; and
- The proposed upgrading of the Eskom Tutuka Power Station RO reject concentrator plant to reduce the reject produced (EIA done by Aurecon).

### Power and water supply

Power may need to be supplied to the site for lighting purposes. Electricity will either be sourced from:

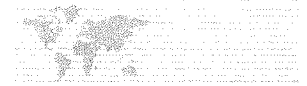
- The existing cable supplying power to the airstrip adjacent to the site; or
- An existing 11kVA powerline supplying power to the ventilation shaft located south west of the site; or
- New solar panels.

During construction and operation potable water will be sourced from either Eskom or NDC's current water supply, and stored in a small tank on site.

### Waste management

During construction, domestic solid waste and hazardous waste (such as oily rags) will be temporarily stored in separate containers on site. A licensed waste contractor will remove the contents of the containers on a regular basis for disposal at facilities licensed to receive such wastes.

Temporary ablution facilities will be available during the Construction Phase for staff.



## Employment

Approximately 40 additional employment opportunities will be created for skilled ( $\pm 70\%$ ) and unskilled ( $\pm 30\%$ ) workers during the Construction Phase. This will be over a 12-month period. Approximately three (3) permanent jobs will be created for the routine operation and maintenance of the new pond and pipeline and for security purposes.

## Project phases

The evaporation pond will be constructed in phases. Construction of the first cell will start soon after Environmental Authorisation is received from the DEDET (expected to be in March 2011). The first cell is expected to be commissioned in November 2011 (see **Figure 4**).

## Alternatives considered

### *Alternatives considered for management of RO reject*

As part of the pre-feasibility study, the following options for the management of RO reject were considered:

- Thermal evaporation;
- Ion exchange;
- Freeze crystallisation;
- Brine injection into boilers;
- Brine and ash paste technology; and
- Disposal in evaporation pond.

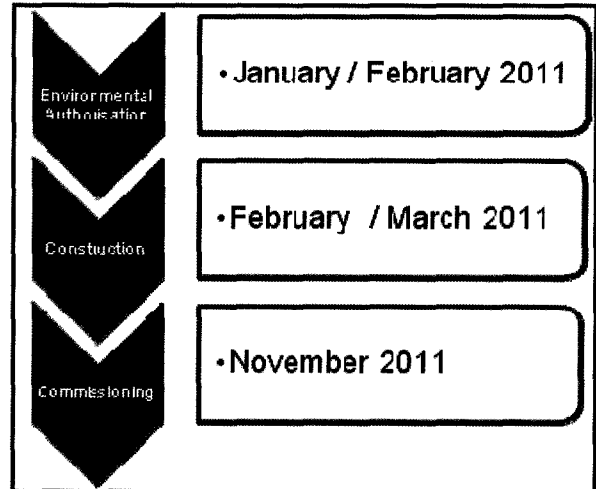
The preferred interim option is to dispose of the RO reject into a new evaporation pond. This is regarded as a short-term solution as Eskom is investigating alternative water treatment technologies, which do not produce any waste or reject.

### *Alternative evaporation pond sites*

A site selection process was conducted in order to select a preferred and suitable site for the location of the evaporation pond. During this process, aspects such as topography, property ownership, agricultural potential, proximity to homesteads, and wetlands, were taken into consideration. The preferred and alternative sites are indicated on **Figure 1**. The preferred site is located within NDC's mine lease area, but the surface rights belong to Eskom.

### *Alternative pipeline routes*

A preliminary pipeline route selection process was undertaken as part of the EIA. Two alternative routes were identified. The preferred route was selected based on aspects such as property ownership, existing road servitudes, and environmental aspects. The preferred and alternative routes are indicated on **Figure 1**.



**Figure 4: Project phases**



An Environmental Impact Assessment (EIA) for the construction and operation of the evaporation pond at New Denmark Colliery is being undertaken. The EIA for the proposed project is being conducted in terms of the National Environmental Act, 1998 (Act 07 of 1998) (NEMA). Several activities associated with the project have been identified as Listed Activities in terms of the EIA Regulations GN R385, R386 and R387 of 2006 under the NEMA.

The objectives of the EIA process are to provide:

- Interested and Affected Parties (I&APs) with adequate information to understand the potential environmental and socio-economic impacts of the proposed project and opportunities for them to comment on the project and the EIA process;
- The engineering team with information that will assist them to incorporate effective mitigatory measures into the design and execution of the project; and
- The regulatory authorities with sufficient information to serve as a basis for sound decision making.

#### **Please Note:**

The EIA process must be completed and the final report submitted to Department of Economic Development, Environment and Tourism (DEDET) for authorisation to construct the evaporation pond and associated pipeline. The lead authority for the EIA is the DEDET. The EIA and public participation process is being conducted by Golder Associates.

An EIA consists of a scoping phase and an impact assessment phase. Both phases require public participation and technical evaluation by specialists. This is expected to take about 10 months for the proposed project. The public participation and technical processes are outlined in the following sections.

## **Technical evaluation**

The impact assessment phase includes specialist studies that investigate the project area and potential negative and positive issues. It is envisaged that the following specialist studies will be undertaken for the proposed project. These may be subject to change on the basis of the issues identified through the public participation process. Specialist studies will include the following:

- Surface water;
- Groundwater;
- Ecology (terrestrial, aquatic, wetland);
- Soil, land use and land capability;
- Visual;
- Heritage; and
- Noise.

## **Public participation**

In terms of the NEMA Regulations (GN R385), you are invited to formally register yourself as an interested and/or affected party (I&AP). Please do so by 6 August 2010, by using the enclosed registration and comment sheet.

The public participation process and time frames are summarized as follows:

### ***Announcing the opportunity to participate and register, July 2010***

- Distribution of a letter to all stakeholders on the database to announce the project;
- Distribution of the Background Information Document (BID); and
- Advertisements in two newspapers (Mpumalanga Mirror and Standerton News).

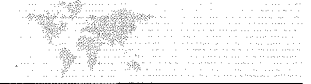
### ***Obtaining initial comment, July 2010***

- Providing this BID and comment sheets to libraries and other public places in the project area and on [www.golder.co.za/public](http://www.golder.co.za/public);
- Holding pre-consultation meetings with authorities; and

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# ENVIRONMENTAL IMPACT ASSESSMENT

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- Capturing all comments in a Comment and Response Report (CRR).

## ***Scoping, August – September 2010***

- Distribution of Draft Scoping Report containing full project description, including remaining alternatives, to registered I&APs. A one month comment period will be provided for stakeholders to comment on the report;
- Holding open house to obtain comment on the Draft Scoping Report;
- Submitting the final Scoping Report, including EIA plan of study, to DEDET for consideration on whether the impact of assessment phase of the EIA may be completed; and

## ***Impact Assessment, October 2010 – December 2011***

- Progress feedback letter to I&APs;
- Making reports containing findings of EIA available to I&APs for comment, a 4 week comment period will be provided for public comment;
- Holding an open house to assist stakeholders to comment on the draft EIA findings; and
- Submitting the final report submitted to DEDET for consideration and a decision about the project.

### **Your registration as an I&AP and comments are important**

The purpose of the EIA is to provide the authorities with sufficient information on which to base a decision on whether to grant environmental approval to the proposed project or not, and if yes, under which conditions. The contributions of stakeholders from all sectors of society will assist in informed decision-making. Golder invites all stakeholders to participate freely, and to submit any comments or information they feel may be useful. Address details appear on page 1.

Dear Sir/Madam

**ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR PROPOSED CONSTRUCTION AND OPERATION OF A BRINE POND AT THE NEW DENMARK COLLIERY NEAR STANDERTON, MPUMALANGA PROVINCE (DEDET Reference number: 17/2/2/GS09)**

Anglo Coal proposes to undertake a project to manage and store concentrated brine (referred to as "RO reject") generated from the treatment of excess underground mine water at its New Denmark Colliery, located adjacent to Eskom's Tutuka Power Station, 22 km north east of Standerton, Mpumalanga Province. This will be done by the proposed construction and operation of an evaporation pond, which will have an ultimate storage capacity of approximately 10 years. Construction of the pond and associated pipeline is expected to start in the first quarter of 2011, for commissioning in November 2011.

The proposed project will include development of the following infrastructure:

- An evaporation pond with an ultimate footprint of approximately 40 ha; and
- Supporting site infrastructure, including a pipeline to Eskom's proposed concentrator plant (investigated in another EIA done by Aurecon), access road, stormwater management structures on and around the evaporation pond site, security fencing and groundwater monitoring boreholes.

Before the proposed project may go ahead, an EIA in terms of the National Environmental Management Act (NEMA), 1998 (Act 107 of 1998) and Regulations GN R385, 386 and 387 must be completed by independent consultants appointed by New Denmark Colliery (NDC). The findings of the EIA will then be submitted to the Mpumalanga Department of Economic Development, Environment and Tourism (DEDET), the lead authority for the EIA, for a decision about the project. NDC has appointed Golder Associates, an independent engineering and environmental consulting company to conduct the EIA in parallel with other required regulatory processes including:

- An amendment to New Denmark Colliery's Environmental Management Programme in terms of the Mineral and Petroleum Resources Development (MPRD) Act, 2002 (Act 28 of 2002); and
- Water Use Licence Application and dam safety registration process in terms of the National Water Act, 1998 (Act 36 of 1998).

**Important milestones in the EIA process**

- **Project announcement and stakeholder registration:** The attached Background Information Document (BID) provides more information about the project and EIA process. You are formally invited to register as an interested and affected party (I&AP) and to participate in the EIA process. **The due date for I&AP registration and comment on the BID is Friday, 6 August 2010.**
- **Public review of the Draft Scoping Report:** The Draft Scoping Report will be available for public review from **Tuesday 10 August to Tuesday, 7 September 2010**; at several public places in the project area (see attached list).
- An Open House to comment on the DSR will be held on **Tuesday, 24 August 2010 from 12h00 – 17h00** at the **Thuthukani Hall**, (map attached).
- **Public review of the Draft EIA Report:** The Draft EIA Report containing the findings of the EIA is expected to be available for public comment in October/November 2010.



## Draft Scoping Report and its accompanying Reports

In accordance with the NEMA, the purpose of the DSR is for interested and affected parties to verify that their contributions have been captured, and correctly understood. Issues raised by stakeholders, along with issues identified by the environmental technical specialists, will be used to define the terms of reference for Specialist Studies that will be conducted during the Impact Assessment Phase of the EIA. The terms of reference will be included for public review as the final chapter in the Draft Scoping Report.

The report will be updated and submitted to the lead authority for the EIA, **Mpumalanga Department of Economic Development, Environment and Tourism (DEDET)**. DEDET will, in consultation with the local authorities in the Province, consider the proposed scope to be addressed by the EIA specialist studies and will approve their preparation, subject to any necessary amendments to the scope that must be implemented.

### How to comment on the BID?

You are welcome to comment on the BID by:

- Completing the enclosed registration and comment sheet and submitting it to the Public Participation Office by **Friday, 6 August 2010**;
- Writing a letter or additional written submission;
- By email, fax or telephone to the public participation office.

### How to comment on the Draft Scoping Report?

Please use the **enclosed reply sheet and return it by Friday, 7 September 2010** to request your own copies of the reports if you intend to comment. The full set of reports will be available at the public places listed in an appendix to this letter. In addition, the Draft Scoping Report, and its appendices will also be available on the following website: [www.golder.com/public](http://www.golder.com/public). You can comment by:

- Completing the comment sheet enclosed with the reports; writing a letter, or producing additional written submissions; by email or telephone to the public participation office.
- By attending the Open House on **Tuesday, 24 August 2010** at the Thuthukani Hall. The Open House will provide stakeholders with an opportunity to meet on a one-on-one basis and in small groups with the EIA team to discuss the contents of the Draft Scoping Report, verify that their issues have been captured correctly, and to raise further issues. Information will be presented visually, and you are welcome to arrive any time between **12h00 and 17h00** on the day of the Open House. Small-group discussions will take place in the language of choice of participants.

Should you have any questions, need more information, or wish to raise issues of concern or suggestions, please contact the public participation office:

**Nestus Bredenhann**- tel: (011) 254 4978 / e-mail: [nbredenhann@golder.co.za](mailto:nbredenhann@golder.co.za) / fax: (011) 315 0317

**Tricia Njapha**- tel: (011) 254 4916 / e-mail: [tnjapha@golder.co.za](mailto:tnjapha@golder.co.za) / fax: (011) 315 0317

Yours sincerely

*Nestus Bredenhann*

**NESTUS BREDENHANN**

**Public Participation Office: EIA for proposed evaporation pond at New Denmark Colliery**

#### Enclosed:

- *Registration and comment sheet accompanying the Background Information Document*
- *Reply sheet to request Draft Scoping Report and to attend the Open House*
- *Map to the Open House venue*
- *List of public places where the full set of reports will be available*

### Registration as Interested and Affected Party

In order to register as an interested and affected party in terms of Regulation 57 of the EIA Process Regulations (GNR 385), please do so by completing and returning the reply sheet appended to this letter. Only stakeholders that have registered will receive further notification of opportunities for comment. Directly affected landowners and the authorities will automatically be included in the register.

**ENVIRONMENTAL IMPACT ASSESSMENT FOR  
PROPOSED CONSTRUCTION AND OPERATION  
OF A EVAPORATION POND AT THE  
NEW DENMARK COLLIERY NEAR STANDERTON,  
MPUMALANGA PROVINCE**

**REGISTRATION AND COMMENT SHEET**  
Accompanying Background Information Document  
July 2010

**Golder Associates Africa**  
**EIA PUBLIC PARTICIPATION OFFICE**  
Nestus Bredenhann / Tricia Njapha  
P O Box 6001, Halfway House, 1685  
Tel: (011) 254 4978/4916  
Fax: (011) 315 0317  
E-mail: [vwiljoen@golder.co.za](mailto:vwiljoen@golder.co.za) or  
[qsibiya@golder.co.za](mailto:qsibiya@golder.co.za)

*Please complete and return to the EIA Public Participation Office (as above) by no later than Friday, 6 August 2010*

TITLE		FIRST NAME	
INITIALS		SURNAME	
ORGANISATION			
POSTAL ADDRESS			
		POSTAL CODE	
LAND LINE TEL NO		CELL NO	
FAX NO		EMAIL	

**REGISTRATION AS AN INTERESTED AND AFFECTED PARTY (I&AP) (please mark applicable box with X)**

Please formally register me as an interested and affected party (I&AP) so that I may receive further information and notifications during the EIA process	<b>YES</b>	<b>NO</b>
<b>I would like my notifications by:</b>		
Letter (mail)	E-mail	Fax
<b>I would like to receive documents for comment as follows:</b>		
Paper copies	By email	On CD
In terms of GNR 385 (EIA process regulations) I disclose below any direct business, financial, personal or other interest that I may have in the approval or refusal of the application:		
.....		
.....		

**COMMENTS** (please use separate sheets if you wish)

I suggest that the following issues of concern be investigated in the EIA:

.....

I suggest the following for the public participation process:

.....

Any other comments:

.....

Please register the following people as I&APs for this EIA:

.....

**THANK YOU FOR YOUR CONTRIBUTION**

<b>NAME:</b>	<b>SIGNATURE:</b>	<b>DATE:</b>
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**ENVIRONMENTAL IMPACT ASSESSMENT FOR  
PROPOSED CONSTRUCTION AND OPERATION  
OF A EVAPORATION PONDAT THE  
NEW DENMARK COLLIERY NEAR STANDERTON,  
MPUMALANGA PROVINCE**

**Golder Associates Africa  
EIA PUBLIC PARTICIPATION OFFICE**

**Nestus Bredenhann / Tricia Njapha**  
P O Box 6001, Halfway House, 1685  
Tel: (011) 254 4978/4916  
Fax: (011) 315 0317  
E-mail: [vviljoen@golder.co.za](mailto:vviljoen@golder.co.za) or  
[qsibiya@golder.co.za](mailto:qsibiya@golder.co.za)

**REPLY SHEET**

- To request Draft Scoping Report and accompanying reports
- To register for the Open House

*Please complete and return by Tuesday, 7 September 2010 to the  
Public Participation office (see alongside)*

TITLE		FIRST NAME	
INITIALS		SURNAME	
ORGANISATION			
ADDRESS			
		POSTAL CODE	
TEL NO		FAX NO	
EMAIL		CELL NO	

I would like to receive a copy of the following: (Please circle the appropriate block)  
(Documents sent by email will be in small-format PDF -low-resolution)

Draft Scoping Report	Paper copy
	By email
	On CD
Comment and Response Report	Paper copy
	By email
	On CD

**OPEN HOUSE, 12:00 – 17:00**

I would like to attend the open house on Tuesday 24 August 2010 (please circle the appropriate block) If you have indicated yes, you will receive a Draft Scoping Report before the meeting.

Thuthukani Hall, Tuesday, 24 August 2010 (Map attached)	<b>YES</b>	<b>NO</b>
---	------------	-----------

**THANK YOU FOR YOUR RESPONSE**

NAME	SIGNATURE	DATE
------	-----------	------

**ENVIRONMENTAL IMPACT ASSESSMENT FOR  
PROPOSED CONSTRUCTION AND OPERATION OF A EVAPORATION  
POND AT THE NEW DENMARK COLLIERY NEAR STANDERTON,  
MPUMALANGA PROVINCE**

**PUBLIC PLACES WHERE THE DRAFT SCOPING REPORT  
AND ACCOMPANYING REPORTS WILL BE AVAILABLE**

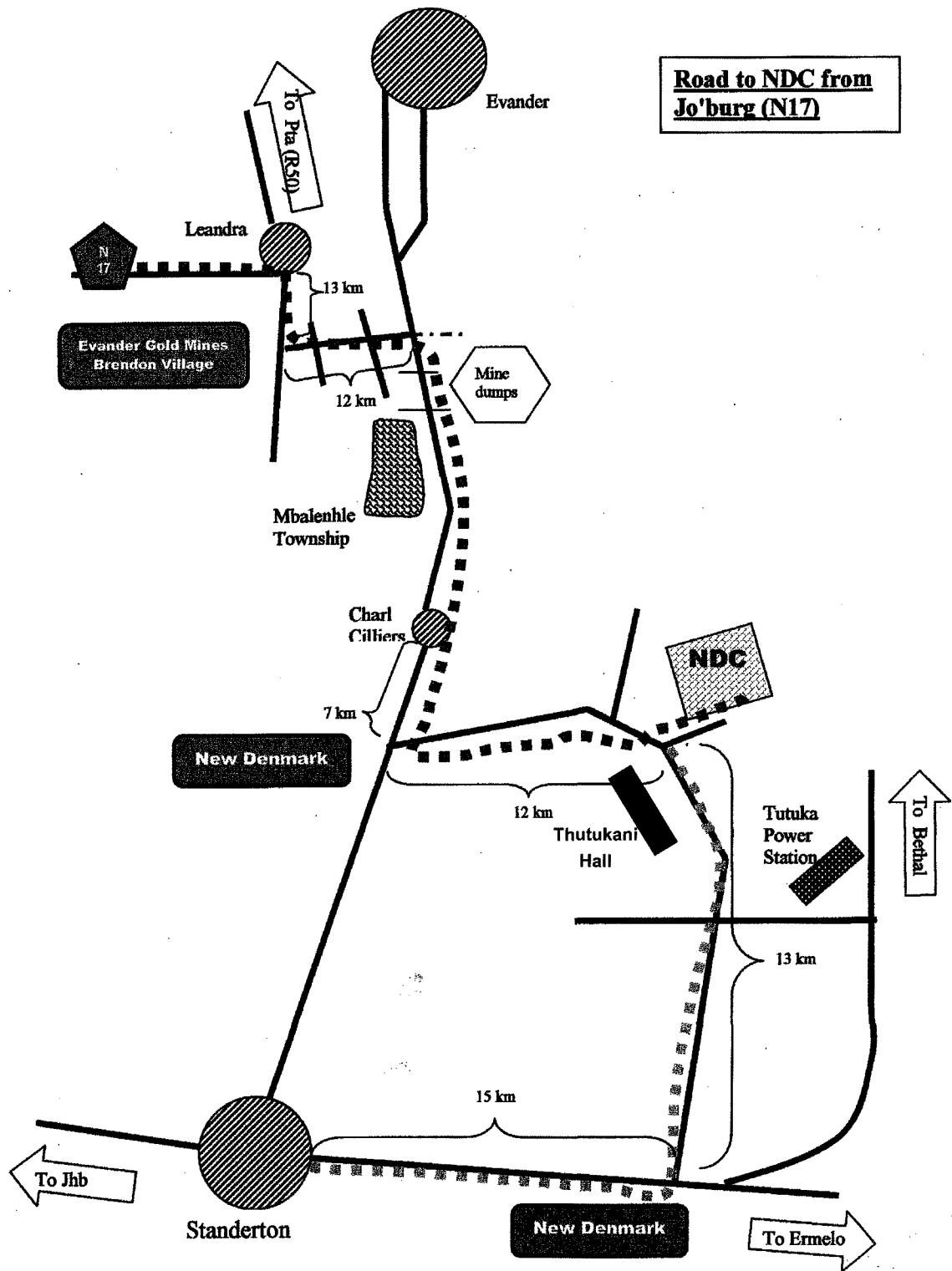
**Tuesday, 10 August 2010 to Tuesday, 7 September 2010**

**Reports for public comment consist of:**

- Draft Scoping Report.
- Comment and Response Report.

Public place	Locality	Contact person	Telephone
Lekwa Local Municipality	Standerton	Johnny Mkgatsi	(017) 712 9613
Standerton Public Library	Standerton	Mavis Tshabalala	(017) 712 9678
Thuthukani Public Library	Standerton	Ntombithini Ngubo	(017) 712 3601
New Denmark Colliery	Standerton	Kgaowelo Moshokwa	(017) 749 0013
Golder Associates Africa	Midrand	Tricia Njapha	(011) 254 4916

Q:\Jvrensburg\M8WORD\General\Directions to NDC from Jhb.doc







# **APPENDIX N5**

## **Copies of Published Advertisements**



# Voertuie rol op Volksrust-pad

Ford en 'n Volkswagen was betrokke in die ongeluk op die Volksrustpad. Twee voertuie, 'n Ford Fiesta en 'n Volkswagen Polo, wat vanaf Newcastle na Standerton onderweg was, was in 'n ongeluk betrokke. Volgens 'n polisiebeampte op die toneel het die Volkswagen Polo die Ford vebygegaan en te vroeg na sy baan terugbeweeg en die Ford aan die kant

gestamp. Albei voertuie het ongeveer 50 meter vergerol. Jeria Ambulansdienste het die insittendes van die Ford na Standerton Hospitaal vir behandeling geneem. Mnr. Steenkamp se vrou het geen besering opgedoen nie. Die twee passasiers in die Volkswagen Polo het geen beserings opgedoen nie.



Die Steenkampfamilie se Ford Fiesta op sy dak.



Die Volkswagen Polo.

# Problem solved quickly

A sewerage drain overflowed onto the street next to Jeugkrug Primary School last week.

According to a resident, the drain began to overflow from 10am but was repaired at about 11am.

"The water that came out of the drain, had an awful smell."

Mr André Kasselman from Kasselman Security Services, notified Lekwa Local

Municipality of the overflowing drain.

Lekwa Municipality quickly reacted to the call and a vehicle was dispatched.

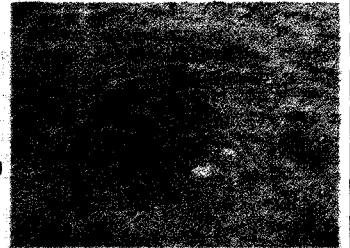
The drain allegedly overflowed because of a blockage in the pipe system.

"The municipality fixed the problem quickly and I congratulate them on their speedy service," said the resident.

Lekwa Municipality could not be reached for comment by the time of going to press.



Municipal workers fixing the overflowing drain.



The overflowing drain.

# Locals receive help

Kasselman Security Services and Jeria Ambulance Service launched a new public emergency service.

This service consists of medical help from trained paramedics when you are in need.

Local residents get this service for R50 per month per premises.

"This service is to help the people of Standerton to get fast and efficient service and immediate attention," said Mr André Kasselman.

According to Mr Kasselman, the ambulance service will run in conjunction with the security service and the ambulance will be dispatched via their control room.

"This service gives people more piece of mind, knowing that their lives are in capable hands," said Mr Pieter (Pompies) van der Westhuizen, owner of Jeria Ambulance Services.

Contact Mr Van der Westhuizen at 082 700 3434, Mr Kasselman at 082 550 8011 or the control room at 017 712 1354.



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13b Burger St, Standerton

**INVITATION TO PARTICIPATE**

Anglo Coal proposes to undertake a project to manage and store concentrated slurry generated from the treatment of excess underground mine water at its New Denmark Colliery (NDC), located adjacent to Edison's Tshaba Power Station, 22km north east of Standerton, Mpumalanga Province. This will be done by the proposed construction and operation of an evaporation pond, which will have an ultimate storage capacity of approximately 10 years. Construction of the pond and associated pipeline is expected to start in the first quarter of 2011, for commencing in November 2011.

The proposed project will include development of the following infrastructure:

- An evaporation pond comprising two cells each with a footprint of approximately 20 ha;
- Supporting site infrastructure, including a pipeline to Edison's proposed contractor plant (situated in another EIA done by Jansen), access road, stormwater management structures on and around the evaporation pond site, security fencing and groundwater monitoring facilities.

Anglo Coal hereby gives notice in terms of the National Environmental Management Act (Act No. 106 of 1998) and Regulations (R1 226) 200 and 207 of 2002 to invite interested parties to apply for consultation for the proposed construction and operation of an evaporation pond at New Denmark Colliery near Standerton, Mpumalanga.

The Mpumalanga Department of Economic Development, Environment and Tourism (MDET) is the lead authority for the Environmental Impact Assessment (EIA). The EIA and public participation process will be conducted by Golder Associates, an international environmental consultant. An interested Stakeholder Process will be conducted in parallel with the EIA and will include an assessment in NDC's Environmental Management Programme, Mine Site Licence Application and dam safety registration process.

Interested and Affected Parties wishing to register as stakeholders to the EIA and to receive information about the proposed project during the EIA process may contact the EIA Public Participation Office as follows:

EIA Public Participation Office  
Minister Broadbent's Public Office  
Golder Associates (Pty) Ltd  
P O Box 6894, Matieland House, 1000  
Tel: (011) 254 4070/4916 Fax: (011) 715 6217  
email: nstanderton@golder.co.za / nstanderton@standerton.co.za

Final date for comments and registrations: Friday, 2 August 2010.

*nou nog meer*  
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**100 use**

margaret 50

VEN 3TE SE

Inza Kuyumard

PIETHE MFA SUN

MAARTIJS

VERVOLG IN TEN-D-TOEKOM

JULIE

100 AUGUSTUS UITGAWE IS 5 JULIE OP DIE RAK



# I'langa continues service excellence

I'langa Mall, Nelspruit's newest 45 000m<sup>2</sup> shopping experience, has brought a superb variety of quality retailers to the area, and shoppers can now enjoy an enhanced experience with even more of South Africa's top retailers joining the mall.

"I'langa Mall has been enthusiastically received by the community and shoppers within the area and we are happy to announce that all our shops are now trading," notes Mr Hennie van Staden, centre manager.

Keeping it totally trendy, fashion retailers Ama'gents, Davisons, Forever New and Naartjie have recently opened their doors, bringing an even greater variety of quality fashion to the centre. Earthwise, I'langa Mall's health and beauty store, also recently opened for trading.

The hugely popular home decor giant @Home LivingSpace opened at the end of

May, much to the delight of Nelspruit's decor and design fundis, and Fascination Books is now retailing with a wide variety of best-sellers and novelty books available.

Fine dining and funky eateries Baglios, Cappuccinos, Juicy Lucy, Super Steer Biltong Kiosk and Biltong Boyz have all now opened their doors to enhance the fantastic dining experience at the mall, with Nelspruit's first open-air piazza already becoming a firm favourite with locals.

"Baglios, Davisons, Cappuccinos and Fascination Books are the first stores of their kind in the city and unique to I'langa Mall,

making the centre's exciting variety even more diverse," says Van Staden.

In addition to the fabulous shopping variety and convenience offered by I'langa Mall's 110 shops and restaurants, this vibrant new mall is also giving away a Honda Jazz valued at R175 000 in its very first competition.

**I'langa Mall is also giving away a Honda Jazz valued at R175 000 in its first competition**



One lucky shopper, who spends R100 or more, stands to win this luxurious prize. Entries closed on Monday and the winner will be announced on Saturday. "Our community has been great in its support of the mall. This competition is one of a number of ways we are giving back to our

community," says Ms Tania Roux, I'langa Mall marketing manager.

"The centre's great promotions and events, along with its spectacular retail offering, have ensured that I'langa Mall is already being nominated for awards - just two months after its opening," notes Roux.

# Auditing determines adequacy of governance

Malefetsane Mohlakoana

Companies find themselves faced with countless challenges that relate to corporate governance.

At present, challenges that are worth mentioning include, but are not limited to, inadequate policies, procedure manuals, strategic plans and organisational structures.

Deficiencies in corporate governance processes normally manifest themselves in the following greater problems that occur at operational or process levels.

Mine accidents and deaths, power outages and boring (but expensive) TV advertising campaigns, are just a few examples of weak governance in the South African corporate arena and the public sector.

Shareholders always need assurance that their investments are safe and that the companies in which they hold ownership are responsible corporate citizens.

When it comes to assurance regarding the fairness with which financial statements are prepared and presented, external audit reports paint a clear picture of the company's financial position, performance and activities.

However, business is not a balance sheet - operational activities

are the ones that generate the company's revenue. Good use of its resources, not accounting. This is where internal auditing plays a pivotal role.

In internal auditing, shareholders, boards of directors and senior management have an agent who can provide them with assurance regarding the effectiveness of complex processes of human resources, marketing, operations, information systems and supply chain management, and the efficiency as well as the economy with which these processes accomplish their objective.

These processes are the very reason the company exists. Without them, accountants would have nothing to report on in the financial statements.

In addition to assessing operations and their

controls, internal auditors provide management with assurance on internal controls designed primarily to ensure that financial or accounting information is complete, accurate, valid, correctly classified and disclosed, and that this information is accounted for in the correct financial period.

By pointing out significant risks and control weaknesses to management and the board, internal auditors help companies to correct deficiencies promptly. This may lead to major cost savings.

By assessing the quality of information before it is used by management and the board, internal auditors can ensure that strategic decisions are based on accurate, valid, relevant, up-to-date and complete information.

Unlike external audits, which take place once or twice in a financial period, internal audits are continuous in nature. Where an external audit's focus would be on historical financial information, the internal audit's scope includes the review and assessment of past, present and future processes.

For example, internal auditors may help identify risks on a new application system at its design stage, and before it can be implemented, thereby reducing the number of post-implementation problems.

Many companies in South Africa have failed to reap the benefits that can be derived from their internal audit units. This may be as a result of not understanding the nature of this profession and what it can do for the company, inadequately staffed internal audit units, incompetent consulting firms (when internal audits are outsourced) and incompetent internal auditors.

For shareholders to obtain reasonable assurance on the adequacy and effectiveness of governance, risk management and control processes, members of the board and senior management must ensure that they obtain quality internal audit services (either in-house or outsourced) from appropriately qualified professionals.

These professionals must also have experience in internal auditing and be members of the Institute of Internal Auditors (IIA). Internal auditing, when performed by appropriately qualified professionals, in compliance with the IIA's International Professional Practices Framework, can help provide answers to many questions that shareholders, boards of directors and executive management need answers to.

• Mr Malefetsane Mohlakoana, CIA, is the managing director of EMS Consulting and a member of the Institute of Internal Auditors and writes in his personal capacity.

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### INVITATION TO PARTICIPATE

**NOTICE OF ENVIRONMENTAL IMPACT ASSESSMENT ENVIRONMENTAL IMPACT ASSESSMENT FOR PROPOSED CONSTRUCTION AND OPERATION OF AN EVAPORATION POND AT NEW DENMARK COLLIERY NEAR STANDERTON, MPUMALANGA PROVINCE**

DEDET REFERENCE NUMBER: 17/2/220509

Anglo Coal proposes to undertake a project to manage and store concentrated brine generated from the treatment of excess underground mine water at its New Denmark Colliery (NDC), located adjacent to Eskom's Tutuka Power Station, 22km north east of Standerton, Mpumalanga Province. This will be done by the proposed construction and operation of an evaporation pond, which will have an ultimate storage capacity of approximately 10 years. Construction of the pond and associated pipeline is expected to start in the first quarter of 2011, for commissioning in November 2011.

The proposed project will include development of the following infrastructure:

- An evaporation pond comprising two cells each with a footprint of approximately 20 ha;
- Supporting site infrastructure, including a pipeline to Eskom's proposed contractor plant (investigated in another EIA done by Aurecon), access road, stormwater management structures on and around the evaporation pond site, security fencing and groundwater monitoring boreholes.

Anglo Coal hereby gives notice in terms of the National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998) and Regulations GN R385, 386 and 387 of its intention to apply for authorisation for the proposed construction and operation of an evaporation pond at New Denmark Colliery near Standerton, Mpumalanga.

The Mpumalanga Department of Economic Development, Environment and Tourism (DEDET) is the lead authority for the Environmental Impact Assessment (EIA). The EIA and public participation process will be conducted by Golder Associates, an independent environmental consultant. An Integrated Regulatory Process will be conducted in parallel with the EIA and will include an amendment to NDC's Environmental Management Programme, Water Use Licence Application and dam safety registration process.

Interested and Affected Parties wishing to register as stakeholders in this EIA and to receive information about the proposed project during the EIA process may contact the EIA Public Participation Office as follows:

**EIA Public Participation Office**  
Nestus Bredenhann/ Tricia Njapha  
Golder Associates (Pty) Ltd,  
P O Box 6001, Halfway House, 1685  
Tel: (011) 254 4978/ 4916 Fax: (011) 315 0317  
email: nbredenhann@golder.co.za / tnjapha@golder.co.za





# **APPENDIX N6**

## **Site Notices and List of GPS Coordinates**







## SITE NOTICES PLACEMENTS

### ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR PROPOSED CONSTRUCTION AND OPERATION OF A BRINE POND AT THE NEW DENMARK COLLIERY NEAR STANDERTON, MPUMALANGA PROVINCE (MDEDET Reference number: 17/2/2/GS09)

*Site notices were put up in July 2010 at strategic publically accessible locations in the proposed project area, including in the vicinity of 100 meter radius.*

GPS Coordinates	Placement Date	Description
S25 58.791 E28 07.359	20 July 2010	In Standerton on the corner of Calendon and Mbonani Mayisela Streets
GPS Coordinates	Placement Date	Description
S25 58.791 E28 07.359	20 July 2010	Lekwa Local Municipality on the corner Dr Beyers Naude and Mbonani Streets
GPS Coordinates	Placement Date	Description
S25 58.791 E28 07.359	20 July 2010	Standerton Library, corner of Dr Beyers Naude and Mbonani Mayisela Streets
GPS Coordinates	Placement Date	Description
S25 58.791 E28 07.359	20 July 2010	Not applicable
GPS Coordinates	Placement Date	Description
S25 58.791 E28 07.359	20 July 2010	AVBOB on the corner of Mbonani Mayisela and Calendon Streets
GPS Coordinates	Placement Date	Description
S26 57.220 E29 14.596	20 July 2010	Post Office on the corner of Dr Beyers Naude and Burger Streets
GPS Coordinates	Placement Date	Description
S26 57.260 E29 14.502	20 July 2010	Shopping Complex on Charl Cillers Street
GPS Coordinates	Placement Date	Description
S26 57.383 E29 14.607	20 July 2010	Caltex Petrol Station and Car Wash corner of Handel Street
GPS Coordinates	Placement Date	Description
S26 57.383 E29 14.607	20 July 2010	At the Car Wash on the corner of Handel Street
GPS Coordinates	Placement Date	Description
S26 57.190 E29 14.582	20 July 2010	Magistrates Office on Beyers Naude Street
GPS Coordinates	Placement Date	Description
S26 57.011 E29 14.527	20 July 2010	The Spar on Princess Street



# ENVIRONMENTAL IMPACT ASSESSMENT FOR PROPOSED CONSTRUCTION AND OPERATION OF AN EVAPORATION POND AT NEW DENMARK COLLIERY NEAR STANDERTON, MPUMALANGA PROVINCE

**DEDET REFERENCE NUMBER: 17/2/2/2GS09**

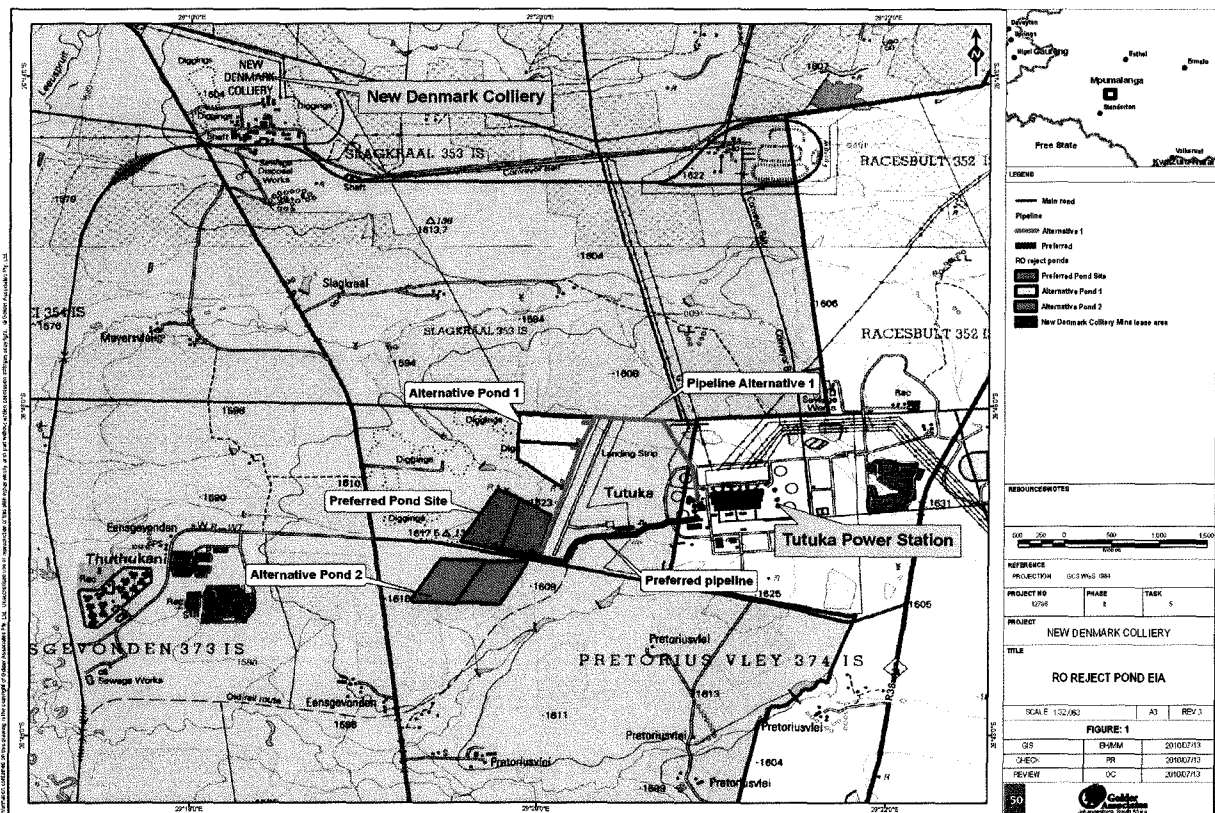
Anglo Coal proposes to undertake a project to manage and store concentrated brine ("RO Reject") generated from the treatment of excess underground mine water at its New Denmark Colliery (NDC), located adjacent to Eskom's Tutuka Power Station, 22 km north east of Standerton, Mpumalanga Province. This will be done by the proposed construction and operation of an evaporation pond, which will have an ultimate storage capacity of approximately 10 years. Construction of the pond and associated pipeline is expected to start in the first quarter of 2011, for commissioning in November 2011.

The proposed project will include development of the following infrastructure:

- An evaporation pond comprising two cells each with a footprint of approximately 20 ha; and
- Supporting site infrastructure, including a pipeline to Eskom's proposed concentrator plant (investigated in another EIA done by Aurecon), access road, stormwater management structures on and around the evaporation pond site, security fencing and groundwater monitoring boreholes.

Anglo Coal hereby gives notice in terms of the National Environmental Management Act (NEMA), 1998 (Act 107 of 1998) and Regulations GN R385, 386 and 387 of its intention to apply for authorisation for the proposed construction and operation of an evaporation pond at New Denmark Colliery near Standerton, Mpumalanga.

The Mpumalanga Department of Economic Development, Environment and Tourism (DEDET) is the lead authority for the Environmental Impact Assessment (EIA). The EIA and public participation process will be conducted by Golder Associates, an independent environmental consultant. An Integrated Regulatory Process will be conducted in parallel with the EIA and will include an amendment to NDC's Environmental Management Programme, Water Use Licence Application and dam safety registration process.



## KINDLY NOTE THE OPEN HOUSE MEETING:

**Date: Tuesday 24 August 2010**

**Time: 12:00 – 15:00**

**Venue: Thuthukani Hall, near Standerton**

To register as an interested and/or affected party and obtain a Background Information Document, please contact Golder Associates:

Nestus Bredenhann / Tricia Njapha  
P O Box 6001, HALFWAY HOUSE, 1685

Tel: (011) 254 4978 / 4916; Fax: (011) 315 0317

Email: nbredenhann@golder.co.za or tnjapha@golder.co.za



**INQUBO YOKUCUBUNGULA LOKHO OKWENZEKA ENHLALWENI NGOKWAKHIWA  
OKUHLONGOZWAYO WOMSEBENZI WECHIBI LOKUHWAMUKISA EMAYINI ENTSHA  
YAMALAHLEE DENMARK ESEDUZE KWASE STANDERTON, ESIFUNDAZWENI SASE  
MPUMALANGA**

**INOMBOLO YENKOMBA YOKUTHUTHUKISWA KWEZOMNOTHO, EZEMVELO KANYE  
NEZOKUVAKASHA (DEDET): 17/2/2/GS09**

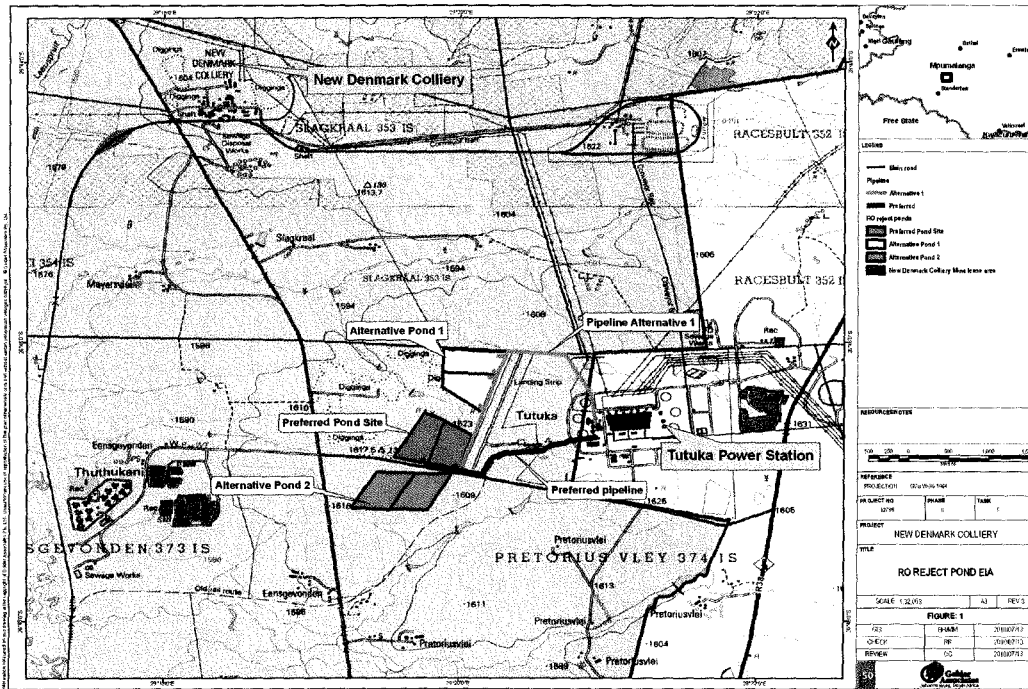
Abe Anglo Coal bahlongoza ukuqala uhlelo lokuphatha kanye nokugcina amanzi eqoqene ndawonye ("RO Reject") adaleke ngesikhathi kuhlengwa amanzi angasafuneki angaphansi komhlaba Wemayini yabo entsha ese Denmark i (NDC), eyakhiwe bude buduze Nesiteshi Sokuphehla Amandla kagesi sabakwa Eskom i Tutuka, esisemakhilomitheni angama 22 enyakatho mpumalanga ne Standerton, Esifundazweni sase Mpumalanga. Lokhu kuyokwenziwa ngomsebenzi ohlongozwayo wokwakha ichibi lokuhwamukisa, elizoba nesisinda sokulondoloza umthamo waso olinganiselwa eminyakeni eyishumi. Ukwakhiwa kwechibi okuhambisana namaphayiphi kulindlekele ukuthi kuqale ezinyangeni ezine zokuqala onyakeni ka 2011, okulungiselelwa ukuqala ukusebenza enyangeni ka Novemba 2011.

Uhlelo oluhlongozwayo luyobandakanya ukuthuthukiswa kwalengqalasizinda elandelayo:

- Ichibi lokuhwamukisa elinamagumbi amabili ngalinye libe nomvundlo ongama hecta angama 20; kanye
- Nesakhiwo sokuxhasa ingqalasizinda, kubandakanya namaphayiphi esizeni esihlongozwayo sabakwa Eskom sokuqoqela ndawonye (esicwaningwe kokunye ukucubungulwa kwalokho okwenzeka endaweni yenhlalo (i-EIA) okwenziwa ngabe Aurecon), umgwaqo onqamulayo, ukuphathwa kwezakhiwo zemisele yamanzi endaweni kanye nasekuzungezeni kwesakhiwo sechibi lokuhwamukisa, ucingo lokubiya kanye namapitsi okulawula amanzi angaphansi komhlaba.

Abe Anglo Coal lapha banikeza isaziso ngokuya Komthetho Kazwelonke Wokuphathwa Kwendawo Yenhlalo (INEMA), wango 1998 (Umthetho ongumombolo 107 wango 1998) kanye Nezimiselo Zomthetho wesigaba esingu R385, 386 kanye no 387 ngenhloso yabo yokufaka isicelo sokugunyazwa ngokwakhiwa kanye nomsebenzi ohlongozwayo wechibi lokuhwamukisela Emayini Entsha Yamalahlee ese Denmark eduze nase Standerton, Esifundazweni sase Mpumalanga.

Umnyango WaseMpumalanga Wokuthuthukiswa Kwezomnotho, Wezemvelo kanye Nezokuvakasha (Department of Economic Development, Environment and Tourism) [DEDET] uhamba phambili njengomgunyazi Wokucutshungulwa Kwalokho Okwenzeka Endaweni Yenhlalo (EIA). Inqubo ye EIA kanye nenqubo yokuhlanganyela komphakathi iyoqhutshwa ngabe Golder Associates, umbonisi ozimele wokuhlola indawo yenhlalo. Inqubo ehlanganiswe ngokuphelele Yokushaywa Kwemithetho iyoqhutshwa kanye nenqubo ye EIA futhi iyobandakanya inguqulo Yohlelo Lokuphathwa Kwendawo Yenhlalo Emayini Entsha Yamalahlee ese Denmark. Isicelo Sokufakwa Kwelayisense Yokusetshenziswa Kwamanzi kanye nenqubo ephephile yokubhaliswa kwedamu.



**SIZA WAZI NGOMHLANGANO OVULELEKILE:**

**Usuku: ULWESIBILI mhlaka 24 August 2010**

**Isikhathi: 12:00 – 15:00**

**Indawo: Thuthukani Hall, eduze kwase Standerton**

Ukubhalisa amathimba anothando kanye/noma nentshisekelo kanye nokuthola Umbhalo Wesendlalela Solwazi siza uxhume abe,  
Golder Associates:

uNestus Bredenhann / uTricia Njapha  
P O Box 6001, HALFWAY HOUSE, 1685

Ucingo: (011) 254 4978 / 4916; iFeksi: (011) 315 0317

i-Email: nbredenhann@golder.co.za noma tnjapha@golder.co.za





# **APPENDIX N7**

## **Postponement Letter**





**Project: 12786  
10 August 2010**

**MDEDET Reference No.: 17/2/2GS09**

Dear Stakeholder

**ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR PROPOSED CONSTRUCTION AND OPERATION OF AN EVAPORATION POND AT NEW DENMARK COLLIERY NEAR STANDERTON, MPUMALANGA PROVINCE**

- **Postponement of public comment period for Draft Scoping Report**
- **New public comment period: 18 August – 15 September 2010**

This letter serves to inform you that the public comment period for the Draft Scoping Report has been postponed and will no longer be from Tuesday 10 August to Tuesday 7 September 2010 as previously communicated.

The public comment period for the Draft Scoping Report is now **Wednesday, 18 August to Wednesday, 15 September 2010**. The date for the Open House will remain as indicated below:

**Date: Tuesday 24 August 2010**

**Time: 12:00 – 15:00**

**Venue: Thuthukani Hall, near Standerton**

We apologise for any inconvenience this may have caused and would like to take this opportunity to thank stakeholders for their continued participation in the EIA process. Should you have any questions, need more information, or wish to raise issues of concern, please contact Tricia Njapha or myself, at tel: (011) 254 4916/4978, fax: (011) 315 0317 or e-mail: [tnjapha@golder.co.za](mailto:tnjapha@golder.co.za) / [nbredenhann@golder.co.za](mailto:nbredenhann@golder.co.za).

Sincerely



**NESTUS BREDENHANN**

**Public Participation Office: EIA for proposed evaporation pond at New Denmark Colliery**





# **APPENDIX N8**

## **Open House Attendance Register and Photos**





## OPEN HOUSE ATTENDANCE

**Name:**

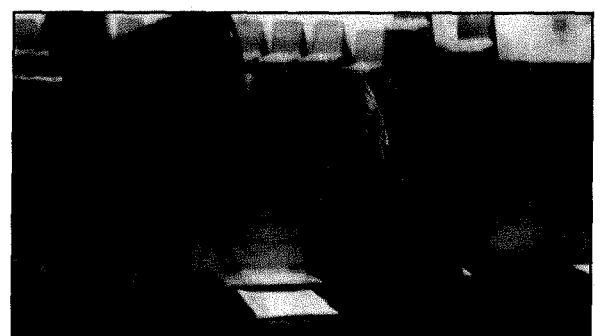
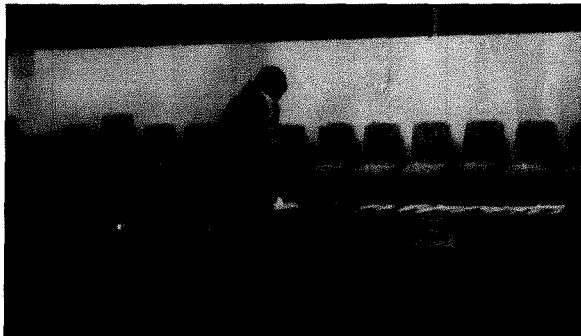
Bosman, Pieter  
Bredenhann, Nestus  
Cambell, Craig  
Chapman, Olivia  
Lawson, Mike  
Mamabolo, J.  
Mavuso, Siphon  
Moremi, Kgadi  
Moshokwa, Kgaowelo  
Njapha, Tricia  
Pienaar, Johan  
Pienaar, Johny  
Steyn, Conrad  
van der Walt, Mike  
Vosloo, Thys

**Company**

Slagkraal  
Golder Associates  
Golder Associates  
Golder Associates  
Anglo American - New Denmark Colliery  
Anglo American - New Denmark Colliery  
Lulwandle Construction Company  
Anglo American - New Denmark Colliery  
Anglo American - New Denmark Colliery  
Anglo American - New Denmark Colliery  
Golder Associates  
Plaas Eensgevonden  
Plaas Eensgevonden  
Mooimeisiesfontein  
Eskom  
Pretoriusvlei

**City**

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HALFWAY HOUSE  
HALFWAY HOUSE  
HALFWAY HOUSE  
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STANDERTON  
STANDERTON





# OPEN HOUSE ATTENDANCE REGISTER (SCOPING PHASE)

## ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR PROPOSED CONSTRUCTION AND OPERATION OF AN EVAPORATION POND AT NEW DENMARK COLLIERY NEAR STANDERTON, MPUMALANGA PROVINCE (MDEDET Reference Number: 17/2/2/GS09)

DATE: 24 August 2010

VENUE: Thuthukani Hall, near Standerton

TIME: 12:00 – 15:00

PRESENTER/S:

NAME	COMPANY	POSTAL ADDRESS	CONTACT DETAILS				
			Tel no:	Fax no:	Cell no:	E-mail:	Signature:
Sipho Mkwiso	Lulwande Construction Company	2713 BJ Homes Sakhile Location Standerton, 2430			072 5356100	lulwande.k@lulwande.co.za	<i>[Signature]</i>
JOHAN PLENAAR.	LAND OWNER Eusepienden.	4244 P.O Box STANDERTON 2430			072 230490		<i>[Signature]</i>



# OPEN HOUSE ATTENDANCE REGISTER (SCOPING PHASE)

## ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR PROPOSED CONSTRUCTION AND OPERATION OF AN EVAPORATION POND AT NEW DENMARK COLLIERY NEAR STANDERTON, MPUMALANGA PROVINCE (MDEDET Reference Number: 17/2/2/GS09)

DATE: 24 August 2010

VENUE: Thuthukani Hall, near Standerton

TIME: 12:00 – 15:00

PRESENTER/S:

NAME	COMPANY	POSTAL ADDRESS	CONTACT DETAILS	
Thys Vosloo	Fames Pietrusus olei	Box 684 Standerton 2430.	Tel no:	
			Fax no:	
			Cell no:	082 870 2074
			E-mail:	
			Signature:	<i>[Signature]</i>
Pieter Bosman	Boer Slagtermaal.	Bus 834 Standerton 2430	Tel no:	
			Fax no:	
			Cell no:	083 297 9571
			E-mail:	
			Signature:	<i>[Signature]</i>
Conrad Steyn.	Boer <del>Steyn</del> Mooi Meisie fontein.	Bus 226 Standerton 2430	Tel no:	
			Fax no:	
			Cell no:	082 450 1186
			E-mail:	steyn.conrad@gmail.com
			Signature:	<i>[Signature]</i>
MIKE LAWSON	ANGLO AMERKAN		Tel no:	
			Fax no:	
			Cell no:	083 50 94 536.
			E-mail:	
			Signature:	<i>[Signature]</i>

OPEN HOUSE ATTENDANCE REGISTER (SCOPING PHASE)

NAME	COMPANY	POSTAL ADDRESS	CONTACT DETAILS	
			Tel no:	
J. PIENAR Johnny	Gensgewonden Fakiner	Box 4244 Stadute	Tel no:	0835401032
			Fax no:	017-712-4660
			Cell no:	
			E-mail:	
			Signature:	
Kgaoweto MOSHOLEWA	ANGLO AMERICAN NDC	PRIVATE BAGX	Tel no:	017 749 0013
			Fax no:	01
			Cell no:	079 890 9147
			E-mail:	kmoshotwa@anglocoal.co.za
			Signature:	
Kgadi MOREMI	ANGLO AMERICAN NDC		Tel no:	017 749 0013
			Fax no:	
			Cell no:	082 7340 734
			E-mail:	Moremi@anglocoal.co.za
			Signature:	
J. MAMABOLO	NDC		Tel no:	017 749 0086
			Fax no:	
			Cell no:	
			E-mail:	ManaboloJ@angloamerican.co.za
			Signature:	
Mike vd Walt	ESKOM		Tel no:	
			Fax no:	
			Cell no:	
			E-mail:	
			Signature:	





# **APPENDIX N9**

## **DEIAR Announcement and Invitation Letter**



**Project No: 12786  
16 November 2010**

Dear Sir/Madam

**ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR PROPOSED CONSTRUCTION AND OPERATION OF AN EVAPORATION POND AT NEW DENMARK COLLIERY NEAR STANDERTON, MPUMALANGA PROVINCE (MDEDET Reference number: 17/2/2/GS09)**

Our sincere thanks to those stakeholders who have commented on the Draft Scoping Report. Comments and suggestions received thus far have been captured in a Comment and Response Report accompanying the Final Scoping Report, which was submitted to the Mpumalanga Department of Economic Development, Environment and Tourism (MDEDET). Permission to proceed with the Impact Assessment Phase was received from MDEDET on 12 November 2010.

The purpose of this letter is to inform you of the following upcoming milestones in the EIA process:

- *Draft Environmental Impact Assessment (EIA) Report* and accompanying specialist studies available for comment;
- Public review period for Draft EIA report: **Monday, 22 November to Monday, 13 December 2010**; and
- Invitation to an Open House to comment on the Draft EIA report: **Monday, 29 November 2010**.

**Draft Environmental Impact Report available for public comment**

The Draft Environmental Impact Report with accompanying specialist studies and the stakeholder Comment and Response Report (CRR) will be available for stakeholders to verify that their comments have been captured correctly and that satisfactory mitigation measures have been suggested for the possible impacts of the proposed project.

**Your comment is important, please**

The reports will be available on the following website: [www.golder.com/public](http://www.golder.com/public). In addition, copies of the draft reports and accompanying specialist studies will be available at the Open House and at the following public places:

Public place	Locality	Contact person	Telephone
Lekwa Local Municipality	Standerton	Johnny Mokgatsi	(017) 712 9613
Standerton Public Library	Standerton	Mavis Tshabalala	(017) 712 9678
Thuthukani Public Library	Standerton	Ntombithini Ngubo	(017) 712 3601
New Denmark Colliery	Standerton	Kgaowelo Moshokwa	(017) 749 0013
Golder Associates Africa	Midrand	Nestus Bredenhann	(011) 254 4978

Stakeholders can comment on the Draft Environmental Impact Report in any of the following ways:

- By completing the comment/reply sheet enclosed with this letter;
- By writing a letter or producing additional written submissions;
- By email, fax or telephone to the public participation office; and
- By attending the Open House on **Monday, 29 November 2010**.

## Invitation to Open House

- An Open House will be held on:
  - Date: Monday, 29 November 2010
  - Time: 14h00 to 17h00
  - Venue: Thuthkani Hall, near Standerton

The contents of the Draft Environmental Impact Report will be presented at the Open House to provide stakeholders with an opportunity to verify if their issues have been taken up in the studies and to clarify further questions. Stakeholders will also have an opportunity to meet with the EIA team and representatives from New Denmark Colliery.

Please use the enclosed comment/reply sheet and return it to us by **Friday, 26 November 2010** if you wish to attend the Open House. We look forward to your further participation in the EIA process. Should you have any questions, need more information or wish to comment, please contact the Public Participation office at: (011) 254 4978, fax (011) 315 0317 or email: [nbredenhann@golder.co.za](mailto:nbredenhann@golder.co.za)

Yours sincerely

*Nestus Bredenhann*

**NESTUS BREDEHANN**

**EIA Public Participation Office: EIA for New Denmark Colliery Evaporation Pond**

**ENVIRONMENTAL IMPACT ASSESSMENT FOR PROPOSED  
CONSTRUCTION AND OPERATION OF AN EVAPORATION  
POND AT NEW DENMARK COLLIERY NEAR STANDERTON,  
MPUMALANGA PROVINCE**

**Golder Associates Africa  
EIA PUBLIC PARTICIPATION OFFICE**

**COMMENT/REPLY SHEET**

- To request Draft Impact Assessment Report and accompanying reports
- To attend the open house

**Nestus Bredenhann**  
P O Box 6001, Halfway House, 1685  
Tel: (011) 254 4978  
Fax: (011) 315 0317  
E-mail: [nbredenhann@golder.co.za](mailto:nbredenhann@golder.co.za)

*Please complete and return by Friday, 26 November 2010 to the  
Public Participation office (see alongside)*

TITLE		FIRST NAME	
INITIALS		SURNAME	
ORGANISATION			
ADDRESS			
		POSTAL CODE	
TEL NO		FAX NO	
EMAIL		CELL NO	
Reports are available at the public places mentioned in the letter and can also be downloaded from the Golder website <a href="http://www.golder.com/public">www.golder.com/public</a> Please e-mail me an electronic copy of the following report (Please circle the appropriate block) (Documents sent by email will be in small-format PDF - low-resolution)			
Draft Environmental Impact Report			
Comment and Response Report			
OPEN HOUSE, 14:00 - 17:00 I would like to attend the open house on Monday 29 November 2010 at the Thuthukani Hall (please circle the appropriate block)			YES NO

**COMMENTS** (please use separate sheets if you wish)

I suggest that the following issues of concern be investigated in the EIA:

.....  
 .....

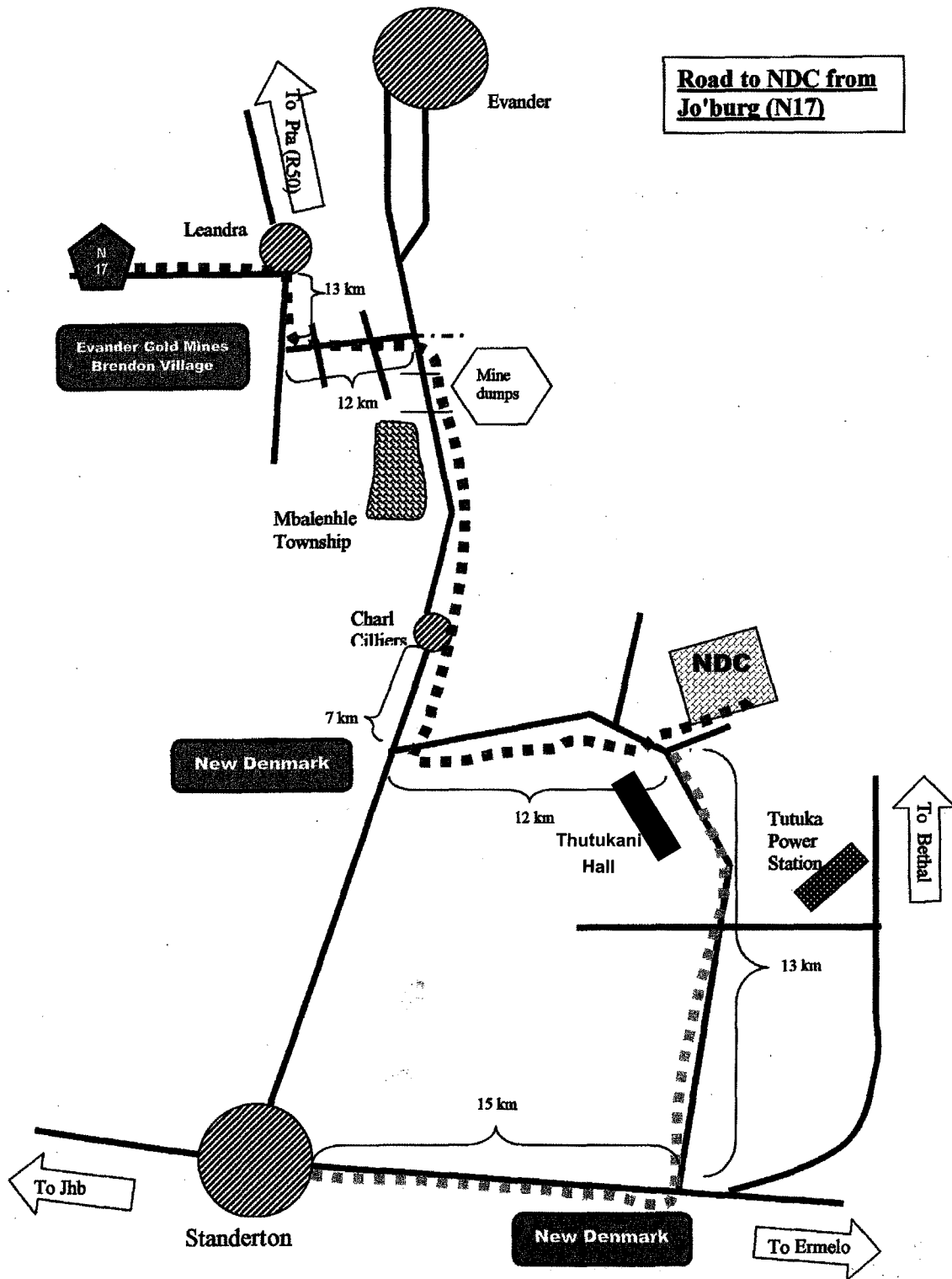
Any other comments:

.....  
 .....

**THANK YOU FOR YOUR RESPONSE**

NAME:	SIGNATURE:	DATE:
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Q:\Jyvrensburg\MSWORD\General\Directions to NDC from Jhb.doc





# **APPENDIX N10**

## **List of Public Places during Impact Assessment**





# ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR PROPOSED CONSTRUCTION AND OPERATION OF AN EVAPORATION POND AT NEW DENMARK COLLIERY NEAR STANDERTON, MPUMALANGA PROVINCE

## ISSUE SLIP FOR DRAFT IMPACT ASSESSMENT REPORT (Golder Project No: 12786)



### PUBLIC PLACES

Project No: 12786

Name /Surname	Name of Public Place	Physical/Postal Address	Telephone, Fax, Cell phone	*Received DFEIR, Letter and Comment Sheet	Date	Signature	Notes
ORAPELENG Orlepong Dipone	<del>Collected - 01/12/2010</del> Lekwa Local Municipality	Cnr Mbonani Mayisela & Dr Beyers Naude Streets Standerton	(017) 712 9613	1 Draft Environmental Impact Assessment Report 10 Comment/Reply Sheet	22 November 2010	<i>Orlepong Dipone</i>	24/11/2010
Mavis Tshabalala	Standerton Public Library	Cnr Mbonani Mayisela & Dr Beyers Naude Streets Standerton	(017) 712 9678	1 Draft Environmental Impact Assessment Report 10 Comment/Reply Sheet	22 November 2010	<i>THOKOZANI HADEBE</i>	24/11/2010
Ntombithini Ngubo	Standerton Regional Library	16 Caledon Street, Standerton	(017) 712 3601	1 Draft Environmental Impact Assessment Report 10 Comment/Reply Sheet	22 November 2010	<i>Not applicable</i>	
Kgaowelo Moshokwa	New Denmark Colliery	Bethal Road, Slagkraal Farm, 353 IS District	(017) 749 0013	1 Draft Environmental Impact Assessment Report 10 Comment/Reply Sheet	22 November 2010	<i>KGADIE MASHOKWA</i>	24/11/2010

\* 1x Draft Impact Assessment Report per public place, 10 Reply/comment sheets

LEKWA LIBRARY SERVICE  
Standerton Public Library  
P.O. Box 66 Standerton 2430  
Cnr. Piet Retief &  
Andries Pretorius str  
Tel: 017 712 9678  
Fax: 017 712 6808





## PUBLIC PLACES FOR DRAFT EIA REPORT

### ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR PROPOSED CONSTRUCTION AND OPERATION OF A BRINE POND AT THE NEW DENMARK COLLIERY NEAR STANDERTON, MPUMALANGA PROVINCE

Public place	Locality	Contact person	Telephone
Lekwa Local Municipality	Standerton	Johnny Mokgatsi	(017) 712 9613
Standerton Public Library	Standerton	Mavis Tshabalala	(017) 712 9678
New Denmark Colliery	Standerton	Kgaowelo Moshokwa	(017) 749 0013
Golder Associates Africa	Midrand	Nestus Bredenhann	(011) 254 4978





# **APPENDIX N11**

## **Open House Attendance Register and Photos**





# OPEN HOUSE ATTENDANCE

**Name:**

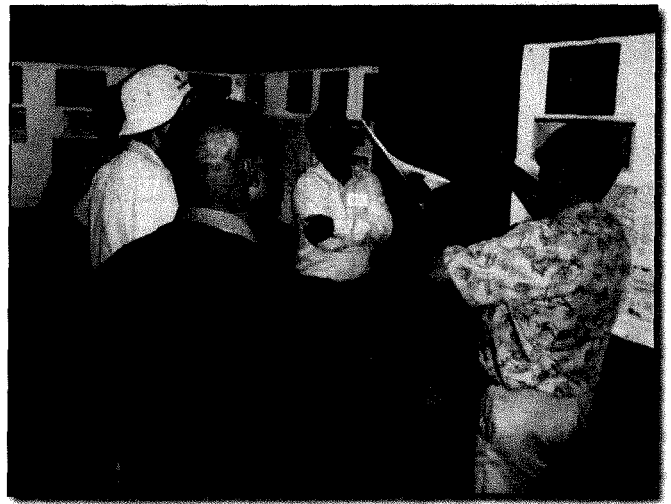
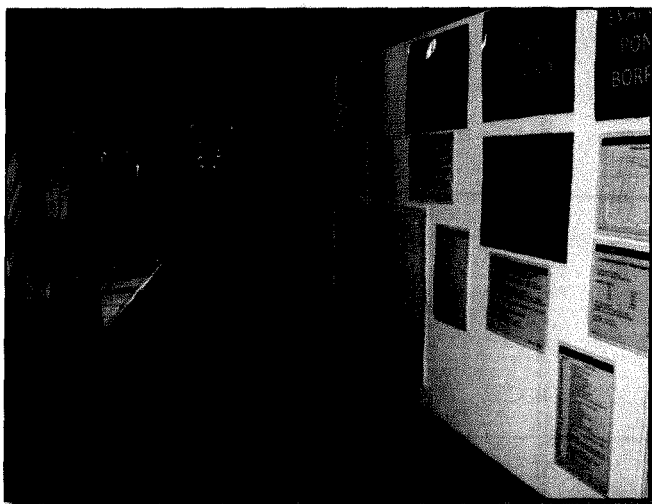
Bredenhann, Nestus  
 Chapman, Olivia  
 Joubert, Claude  
 Matsoaboli, Thabang  
 Mokoto, Queen  
 Moremi, Kgadi  
 Moshokwa, Kgaowelo  
 Thema, Magamola  
 Van Oudtshoorn, Gerhard  
 Vosloo, Thys  
 Vermaak, Neels  
 Zwarts, Blackie

**Company**

Golder Associates  
 Golder Associates  
 Golder Associates  
 Eskom  
 Anglo American - New Denmark Colliery  
 Anglo American - New Denmark Colliery  
 Anglo American - New Denmark Colliery  
 Anglo American - New Denmark Colliery  
 Eskom  
 Pretoriusvlei  
 Department of Water Affairs  
 Plaas Villierschrik

**City**

HALFWAY HOUSE  
 HALFWAY HOUSE  
 PRETORIA  
 SUNNINGHILL  
 STANDERTON  
 STANDERTON  
 STANDERTON  
 WITBANK  
 STANDERTON  
 STANDERTON  
 STANDERTON  
 STANDERTON



# ENVIRONMENTAL IMPACT ASSESSMENT FOR PROPOSED CONSTRUCTION AND OPERATION OF AN EVAPORATION POND AT NEW DENMARK COLLIERY NEAR STANDERTON, MPUMALANGA



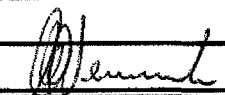
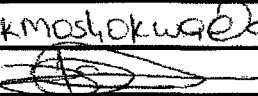






## ATTENDANCE REGISTER

Meeting : Open House  
 Date : 29/11/2010  
 Venue : The Huber Hall.

TITLE	FIRST NAME	SURNAME	ORGANISATION (Please do not use acronyms)	POSTAL ADDRESS	CONTACT DETAILS	
Mr	Nestus	Bredenhann	Golder Associates (Pty) Ltd	P O Box 6001 Halfway House 1685	Tel No:	+2711 254 4800
					Fax No:	+2711 315 0317
					Cell No:	+2783 449 3585
					E-mail:	nbredenhann@golder.co.za
					Signature:	
Ms	Olivia	Chapman	Golder Associates (Pty) Ltd	P O Box 6001 Halfway House 1685	Tel No:	+2711 254 4800
					Fax No:	+2711 315 0317
					Cell No:	+2782 446 9385
					E-mail:	ochapman@golder.co.za
					Signature:	
Mr	JAN-Hendrik	ZWARTS	GROND BEWAAK.	Postbus 362 STANDERTON 21430	Tel No:	0177124225
	(Beaumont)				Fax No:	
					Cell No:	0932340405
					E-mail:	jbzwarts@gmael.co.za
					Signature:	



TITLE	FIRST NAME	SURNAME	ORGANISATION (Please do not use acronyms)	POSTAL ADDRESS	CONTACT DETAILS	
MR	Thys	Vosloo			Tel No:	
					Fax No:	
					Cell No:	
					E-mail:	
					Signature:	
MR	WADI	MOREMI	NEW DENMARK		Tel No:	017 749 0065
					Fax No:	
					Cell No:	082 7347 7347
					E-mail:	moremi@290910091
					Signature:	
MR.	NEELS	VERMAAK	DWA	P/BAGX2021 STANDERTON	Tel No:	
					Fax No:	
					Cell No:	
					E-mail:	
					Signature:	
MS	KSAOWELO	MOSHOLWA	NEW DENMARK	PRIVATE BAG X2022 STANDERTON 2043	Tel No:	017 749 0013
					Fax No:	
					Cell No:	079 890 9147
					E-mail:	kmosholwa@aglocc
					Signature:	
MR	THABANG	MATSOABOLI	ESKOM	3 SIMBA ROAD SUNNINGHILL	Tel No:	
					Fax No:	
					Cell No:	0849840045
					E-mail:	Thabang.Matsoaboli
					Signature:	

TITLE	FIRST NAME	SURNAME	ORGANISATION (Please do not use acronyms)	POSTAL ADDRESS	CONTACT DETAILS
MR	MARGA MOLA	THE MR	Anglo American Financial Em. Services	P/Bes X9 Papafostolaki 10 Kifissias	Tel No: 013-691-5154 Fax No: 086 564 9510 Cell No: 076 746 3766 E-mail: <a href="mailto:amola@anglo.com">amola@anglo.com</a> Signature: 
Ms	Queen	MOKOTO	ANGLO AMERICAN NEW DENMARK	PO Box 1898 STANDERTON 2430	Tel No: 017 749 0065 Fax No: Cell No: 0833644578 E-mail: <a href="mailto:qmokoto@anglo.com">qmokoto@anglo.com</a> Signature: 
MR	GOEHMED	Mr. Goehmed	ES Kon TUTUKA		Tel No: Fax No: Cell No: E-mail: Signature: 
					Tel No: Fax No: Cell No: E-mail: Signature:
					Tel No: Fax No: Cell No: E-mail: Signature:



# **APPENDIX N12**

## **The Department of Water Affairs Meeting Minutes**





## MINUTES: WATER MANAGEMENT PLAN PROGRESS REPORT TO DEPARTMENT

**Project No:** 12787  
**Date:** 12 November 2010  
**Meeting:** 12787 NDC DWA Progress Meeting  
**Venue:** Golder office, Pretoria, Nkulu Boardroom  
**Time:** 10h00 – 11h30

	<b>ACTION</b>
<b>1. WELCOME</b>	
JN welcomed all present to the meeting	Noted
Meeting was initially a pre-consultation meeting but was changed to general progress meeting which incorporated the pre-consultation part. To give an update of where the project currently stands and where the project is heading.	Noted
<b>1. PRESENT, APOLOGIES &amp; DISTRIBUTION</b>	
<b>1.1 PRESENT</b>	
Olivia Chapman (GAA)	OC
Meera Mban (Eskom)	MM
Peter Gunther (Anglo)	PG
Kgaowelo Moshokwa (Anglo)	KM
Paul Meulenbeld (DWA)	PM
Spencer Eckstein (GAA)	SE
Jamie Davey (NDC)	JD
Bennie Breytenbach (NDC)	BB
<b>1.2 APOLOGIES</b>	
Marius Keet (DWA)	MK
Mike Lawson (NDC GM)	ML
<b>1.3 DISTRIBUTION</b>	
As per attendance list in 1.1	
<b>3. PURPOSE OF MEETING</b>	
The purpose of the meeting was to discuss the overall progress on the Water Management Plan for the mine and the progress of the IRP for the proposed Evaporation Pond.	Noted
<b>3. PRESENTATION TO DWA</b>	
1) JN presented the overall progress of the Water Management Plan section of the presentation. (Attachment A):	Noted
a) Programme – High level status overview was discussed.	
b) Design report will be completed within one week.	Noted
c) Dam Safety is currently in process. One month left for approval.	Noted
d) Follow up training and maintenance of the Goldsim modelling to be done.	Noted
2) OC presented the Environmental Impact Assessment progress with regards to the Evaporation Pond, Borrow Pit and Weirs (included in Attachment B):	Noted
a) The Integrated Regulatory Process map was discussed; green tasks	Noted



## MINUTES: WATER MANAGEMENT PLAN PROGRESS REPORT TO DEPARTMENT

are complete and the white tasks are outstanding. Blue date indicates that tasks have started; orange dates indicate task has not yet started.

- b) OC indicated the worst case scenario on IRP map. Noted
  
- 3) SE discussed the Water Use Licence Application for the Evaporation Pond.(included in Attachment B) Noted
- a) Dam construction Licence issue was flagged and discussed by SE. Noted
  
- 5. RECOMMENDATIONS**
  - a) All regulators should be involved and contacted. They should also join the next progress meeting. Dam safety representatives to be included as well. JN & OC
  - b) OC to use Government Notice 199, section 21 C, with regards to WUL. Previous ones are not valid anymore. OC
  - c) OC to include Rehabilitation with the Specialist Studies. OC
  - d) SE to speak to MT with regards to the final authorisation for the draft licence. SE
  - e) SE to do 21(g) with regards to the WULA for the Brine Pond. SE
  - f) With regard to the IWWMP, SE to amend according to option 2. SE
  - g) Bishop Molatsi to be contacted with regards to the WULA. SE
  
- 5. OUTSTANDING ISSUES**
  - a) Flow information and new WULA documentation to be forwarded to DWA KM
  - b) Forward Weir Construction documents to DWA. JN
  - c) Letter for Request for Information needed for KM. MT to confirm with KM if he has a copy. MT
  - d) KM to send DWA a list of what information is needed. KM
  
- 6. GENERAL DISCUSSION**
  - a) Dam construction timeline was discussed. DWA confirmed that if there is an external delay, an extension can possibly be granted. Noted
  - b) DWA is generally available for meetings. Noted
  - c) Copy of the presentation to be e-mailed to PM and all present at meeting. PM to also be included in the distribution of all the NDC Progress meetings. JN
  - d) Next meeting with DWA to be arranged as soon as is possible. JN/OC
  - e) Jamie Davey will be the person to contact with regards to New Denmark's projects. JD will be included to distribution list and invited to next Progress Meeting. JN



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**MINUTES: WATER MANAGEMENT PLAN PROGRESS REPORT  
TO DEPARTMENT**

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**GOLDER ASSOCIATES AFRICA (PTY) LTD.**

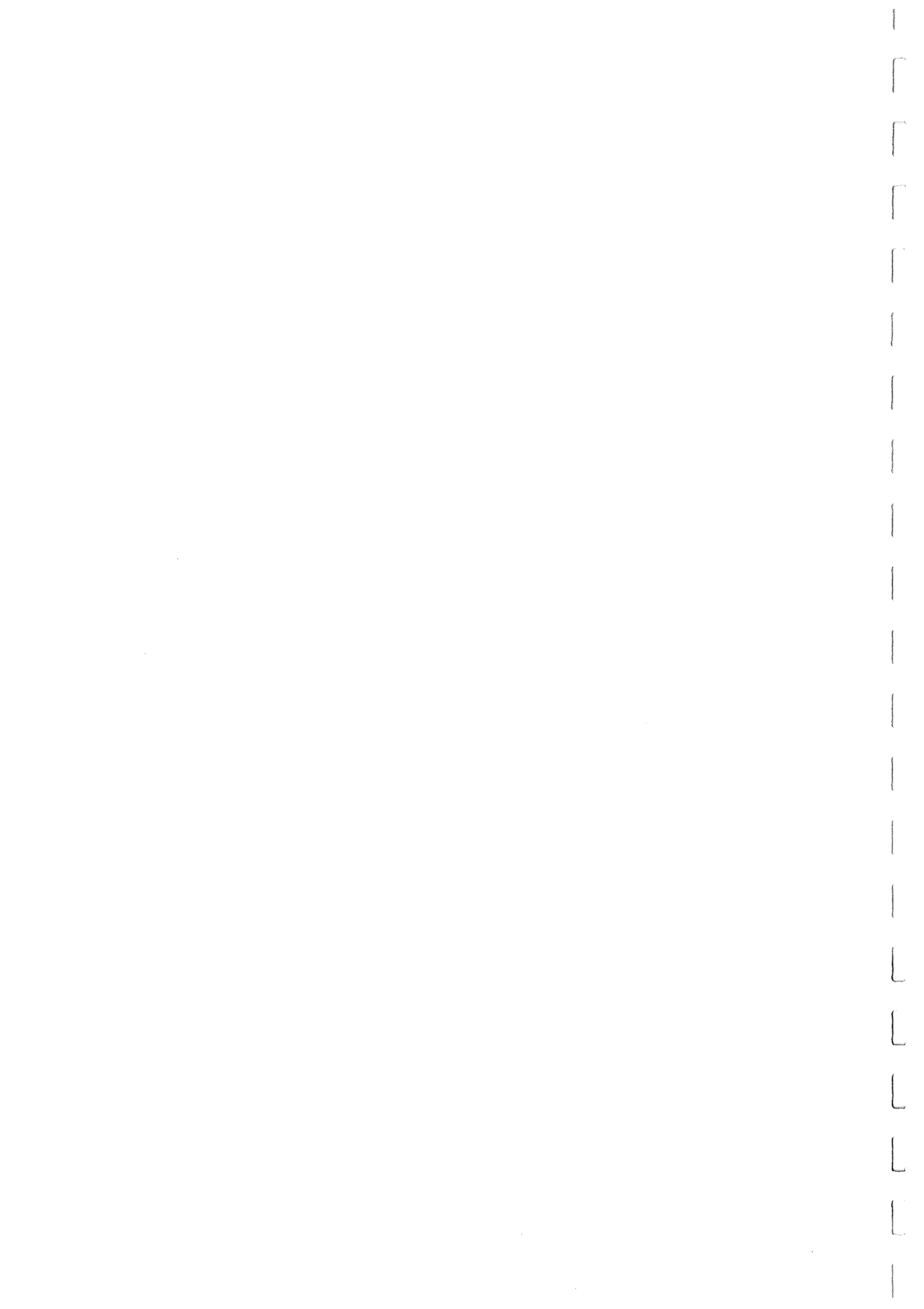
Janus Nel  
Integrated Project Manager

JN/JN/tl

g:\projects\12787 - new denmark colliery wmp\1\_meetings\12787\_ahoc\_dwa\_003\_101112\12787\_min\_003\_ahoc\_dwa\_12nov10\_rev1.docx







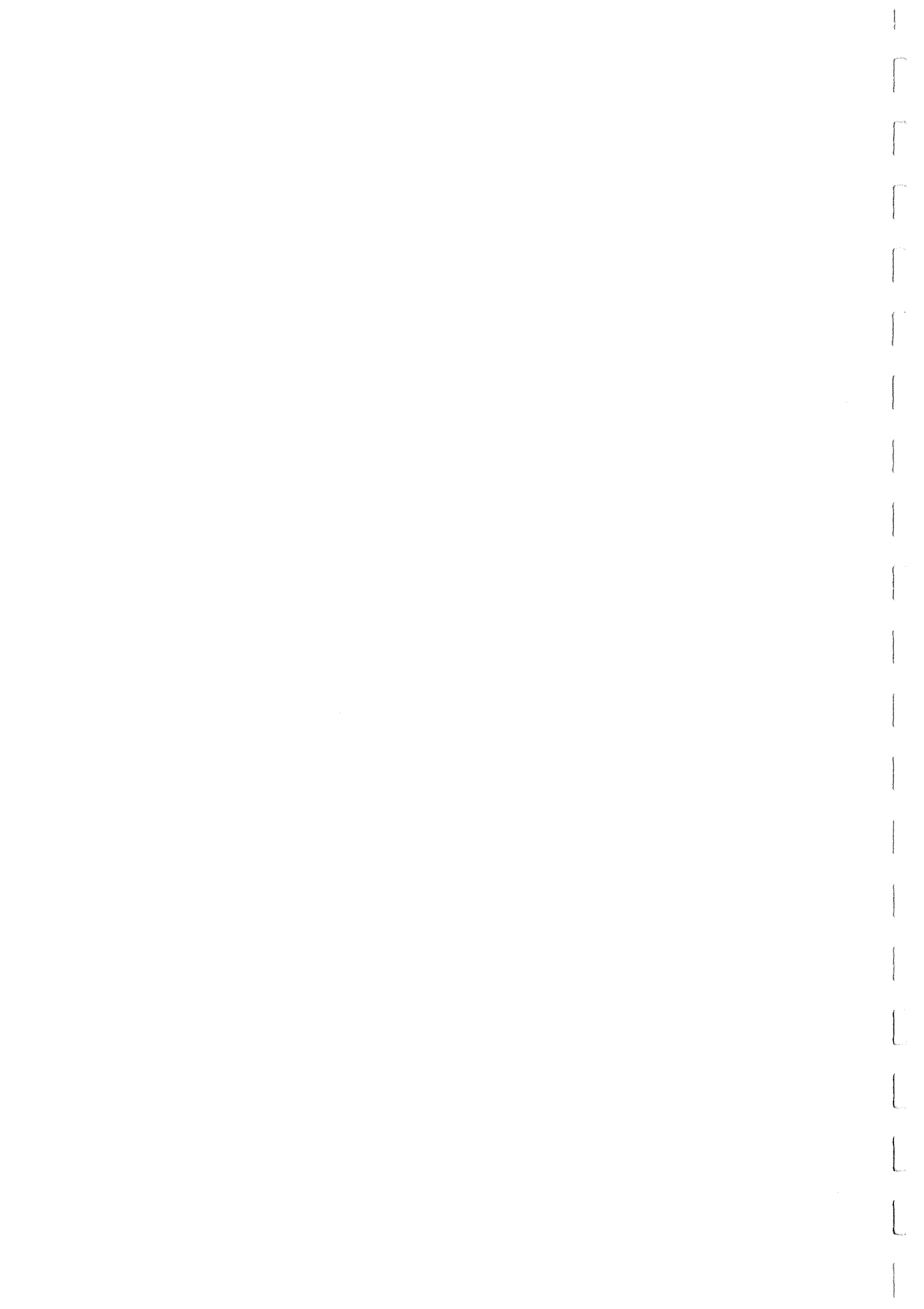
At Golder Associates we strive to be the most respected global group of companies specialising in ground engineering and environmental services. Employee owned since our formation in 1960, we have created a unique culture with pride in ownership, resulting in long-term organisational stability. Golder professionals take the time to build an understanding of client needs and of the specific environments in which they operate. We continue to expand our technical capabilities and have experienced steady growth with employees now operating from offices located throughout Africa, Asia, Australasia, Europe, North America and South America.

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Asia	+ 852 2562 3658
Australasia	+ 61 3 8862 3500
Europe	+ 356 21 42 30 20
North America	+ 1 800 275 3281
South America	+ 55 21 3095 9500

[solutions@golder.com](mailto:solutions@golder.com)  
[www.golder.com](http://www.golder.com)

**Golder Associates Africa (Pty) Ltd.**  
**Thandanani Park**  
**Matuka Close**  
**Midrand**  
**South Africa**  
**T: [+27] (11) 254 4800**





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Asia	+ 852 2562 3658
Australasia	+ 61 3 8862 3500
Europe	+ 356 21 42 30 20
North America	+ 1 800 275 3281
South America	+ 55 21 3095 9500

[solutions@golder.com](mailto:solutions@golder.com)  
[www.golder.com](http://www.golder.com)

**Golder Associates Africa (Pty) Ltd.**  
**Thandanani Park**  
**Matuka Close**  
**Midrand**  
**South Africa**  
**T: [+27] (11) 254 4800**



