

1.10.1 Depth of Water Table:

Not applicable as only the dunes on site will be mined.

1.10.2 Ground Water Quality:

No analysis of ground water has been undertaken as it will not be intersected by mining activities.

1.10.3 Ground Water Use:

No groundwater will be utilised on the mining area.

1.10.4 Boreholes and Springs:

No boreholes or springs are known to occur on the property. *In regard to DEDEA's comments in this regard, it was confirmed during the consultation process with the said municipality that there are no boreholes on site.*

1.10.5 River Diversions:

Not applicable.

1.11 Air Quality:

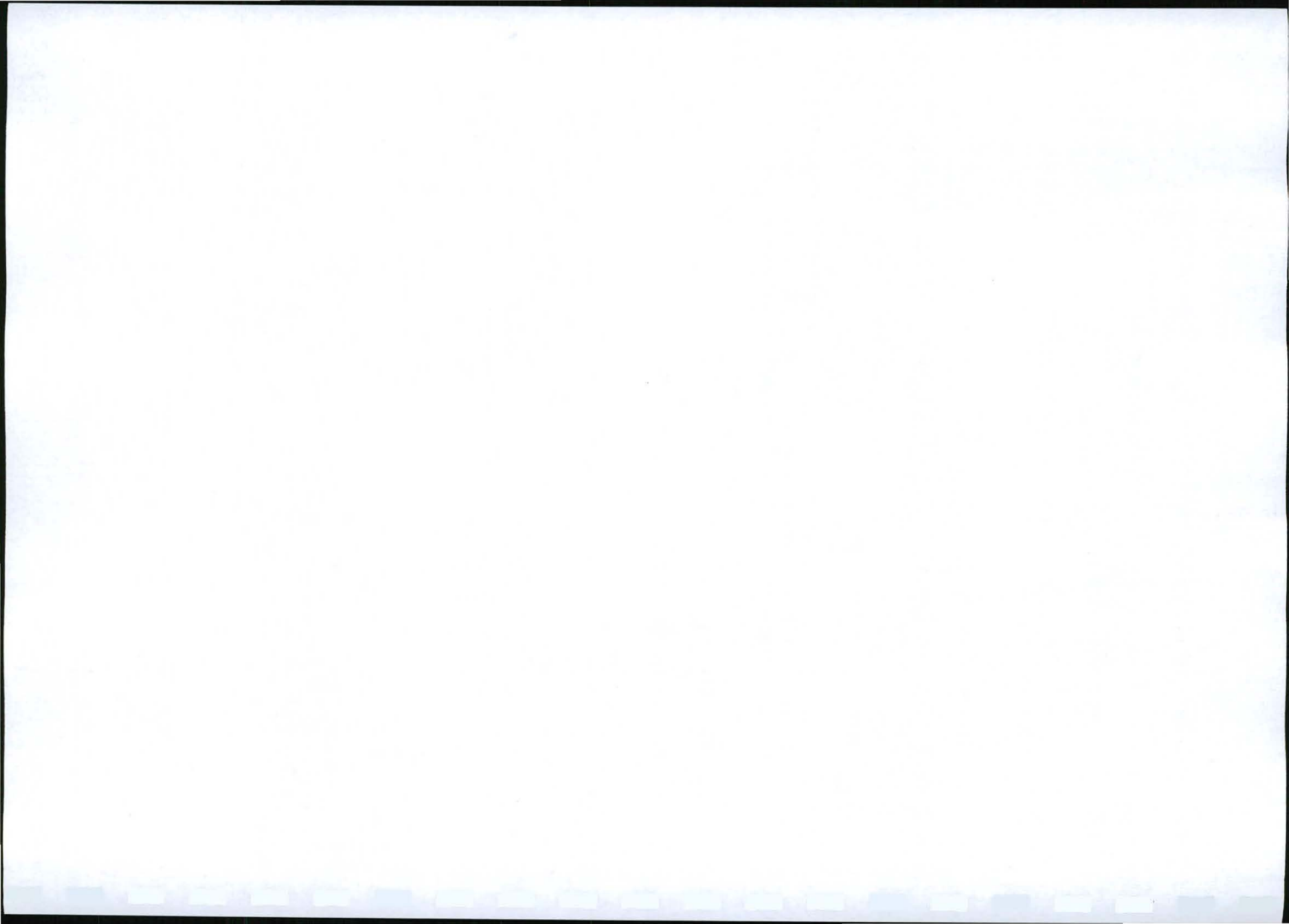
According to the Mine Health and Safety Act (Act, 29 of 1996) an employer must maintain a healthy and safe environment that is without risk to the health of employees. As far as reasonably practicable every employer must identify the relevant hazards and assess the related risks to persons, who are not employees, who may be exposed and ensure that persons who are not employees, but who may be directly affected by the activities at the mine are not exposed to any hazards to their health and safety.

From the above is clear that activities, which can cause a negative impact on the surrounding environment, need to be assessed, considered and managed where necessary. Other statutory requirements include:

- Threshold Limit values – ACHIH 1998/1999
- Chemical Substances Regulations – R1179 of 25 August 1995.
- The Air Pollution Prevention Act, Act 45 of 1965
- Guidelines – Department of Environmental Affairs and Tourism – Air Pollution Division.

The only risk identified in this regard is that of excessive dust levels on the mining area caused by hauling, excavating and loading of material.

The ambient air quality within the area is considered to be fair, with dust originating from gravel roads being the primary source of pollution.



1.12 **Noise:**



Ambient noise levels in the area are higher than similar to those associated with a rural area due to the refuse site and Port Elizabeth Air Port being close by. It is recommended that regular noise surveys be conducted to monitor any possible impacts on the surrounding communities.

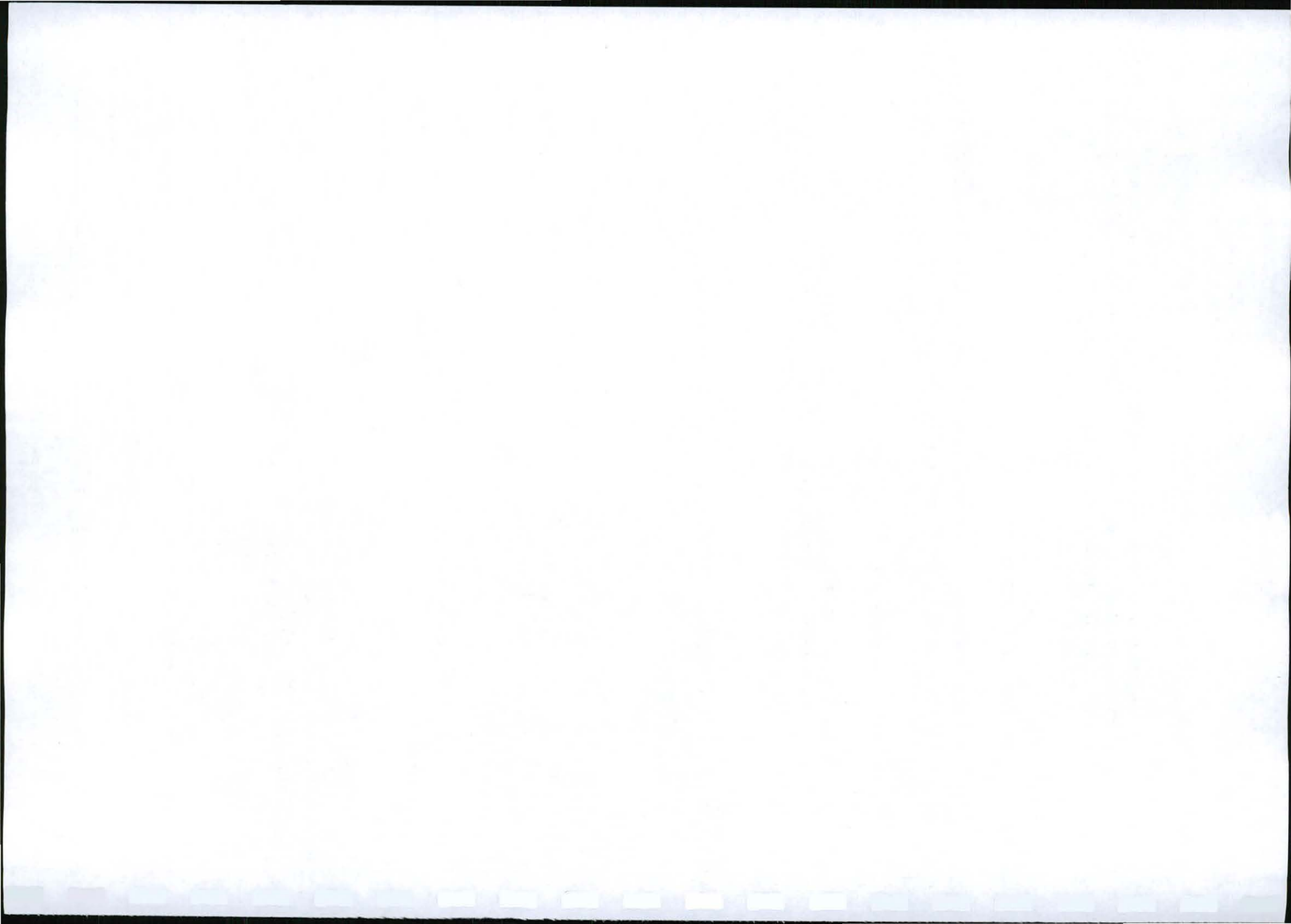
1.13 **Archaeological and Cultural sites:**



No areas or sites of archaeological and/or cultural significance were identified to occur on the area identified for the proposed mining area

1.14 **Visual Aspects:**

The proposed site lies between a cemetery and refuse site and is not visible from any residential or commercial area. Therefore it is unlikely that the proposed mining area will be visible to the broader public.

Picture	Description
	<p>Typical vegetation of the proposed mining area.</p>
	<p>Typical vegetation of the proposed mining area.</p>



	<p>Rehab by Sunshine Coast Crushers on nearby site 9 months after actual rehabilitation commenced.</p>
	<p>Stockpile and plant (on background) of a close by mine of same applicant. Same type of plant will be used to process material from proposed mining area.</p>

Figures 1.15 Photos

1.15 Regional Socio-economic Structure:

1.15.1 Population, Size and Distribution:

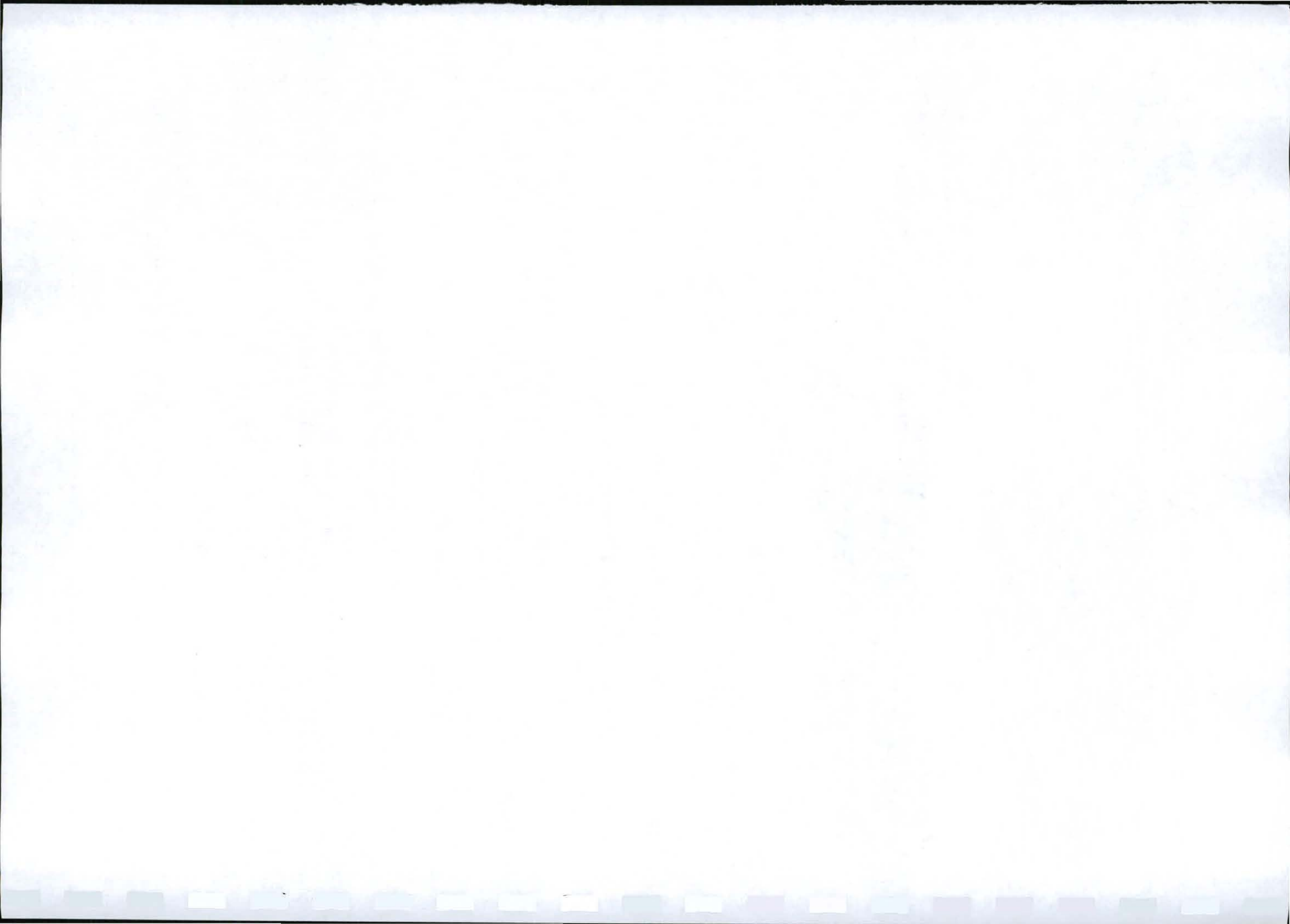
Nelson Mandela Bay has a population of 1,1 million (Development Partners Report) and covers an area of 1 950 km². There are 289 000 households in formal areas. Although the situation changes constantly, the most recent studies show that there are 38 000 households in informal areas and approximately 42 000 qualifying households in backyard shacks.

1.15.2 Human Development Index

- Unemployment rate of approximately 35%.
- Altogether, 107 239 of the total number of 289 000 households are classified as indigent.
- 44% of households access at least one social grant.
- 30% HIV/AIDS Prevalence rate according to Antenatal care statistics.
- 35% of NMB's population is under 19 years of age.
- 66% of the population older than 20 years does not have metric.
- 20% of residents have no or limited schooling.

1.15.3 Housing and Infrastructure

Since 2000, the Municipality has constructed 34 081 low-cost houses. The current housing backlog is approximately 80 000 units.



Water

Altogether 100% of households have access to a basic level of water within a 200 m radius.

Sanitation

Altogether 91% of households have access to a basic level of sanitation.

Health

- (a) Nelson Mandela Bay has 41 permanent and satellite municipal clinics and 13 mobile clinics; these include three day hospitals and 9 Eastern Cape Department Clinics.
- (b) Eight hospitals (four provincial and four private).
- (c) Since 2000, nine primary health care clinics have been built and ten have been upgraded.
- (d) Nurse to patient ratio – 1:43.

Solid waste removal and environmental management

Altogether 100% of households have access to a basic level of solid waste removal within the urban edge. Challenges are around illegal dumping and the provision of basic level of service to peri-urban areas.

Electricity

Altogether 97% of households in formally demarcated municipal residential areas have access to a basic level of electricity. Challenges are around the increase in electricity tariffs.

Library provision

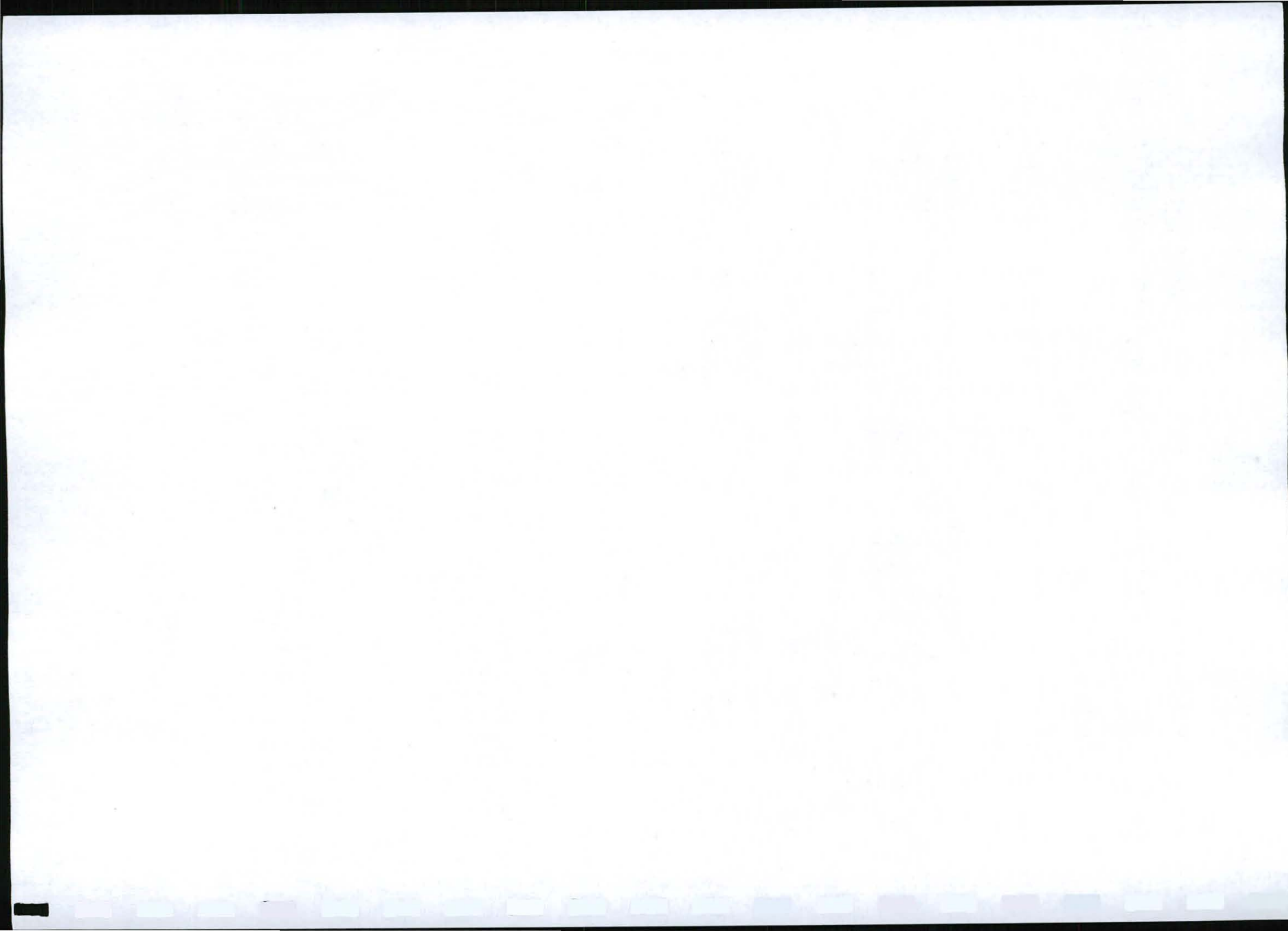
The Municipality has a total of 22 libraries. The Municipality has embarked on a process of computerizing its libraries, equipping each with a full office package and internet and e-mail facilities.

Community facilities

- Community and municipal halls = 31
- Customer Care Centres = 13
- Libraries = 22
- Sport and recreation facilities:
 - Sports facilities = 79
 - Beaches = 19
 - Pools = 18
- Developed Open Spaces = 1438

1.16.4 Social Infrastructure

Shops



The closest centres are in Walmer.

Schools

The closest schools are in Walmer

Churches

The closest churches are in Walmer

Hospitals and Clinics

The closest hospitals and clinics are located in Walmer.

Waste Disposal

General waste disposal sites are located at Addo, Port Elizabeth and Uitenhage.

Arlington

Classified for General Waste

Schoenmakers Kop Road

Walmer

Tourism and Recreation

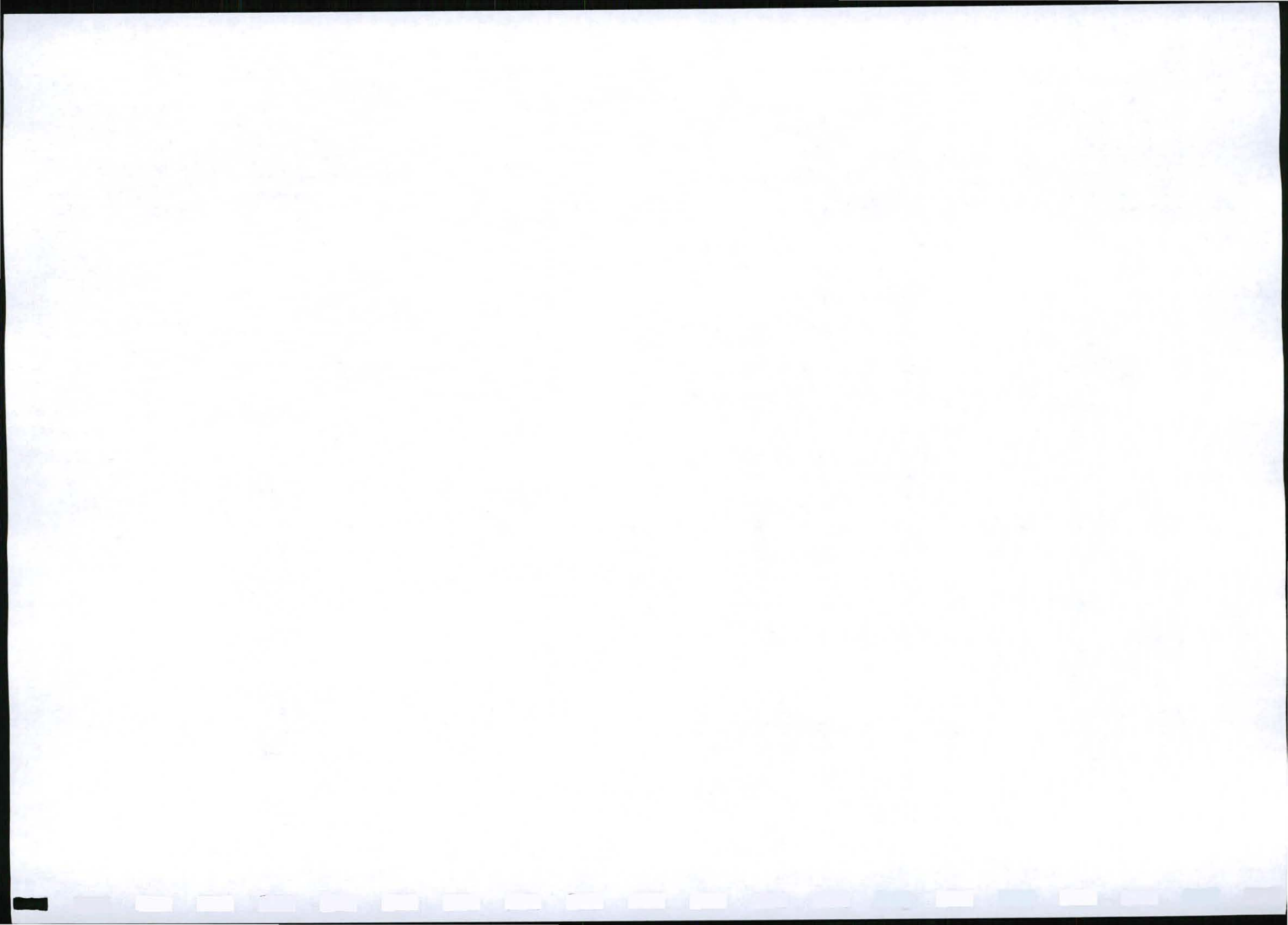
The greater Port Elizabeth area is a prime tourism area.

Water Supply

Not applicable as material will be beneficiated through a portable dry screen process on site.

Power Supply

No power will be required on site.



1.16 LOCAL ECONOMIC DEVELOPMENT PROGRAMME



EXECUTIVE DIRECTOR:
Zolile Siswana

ECONOMIC VISION

The principles of "Global Touch and Local Impact" form the basis upon which the Nelson Mandela Bay's economic vision is built. Nelson Mandela Bay strives to promote global competitiveness in order to create sustainable livelihood for its inhabitants and address sustainable growth.

ECONOMIC OBJECTIVES

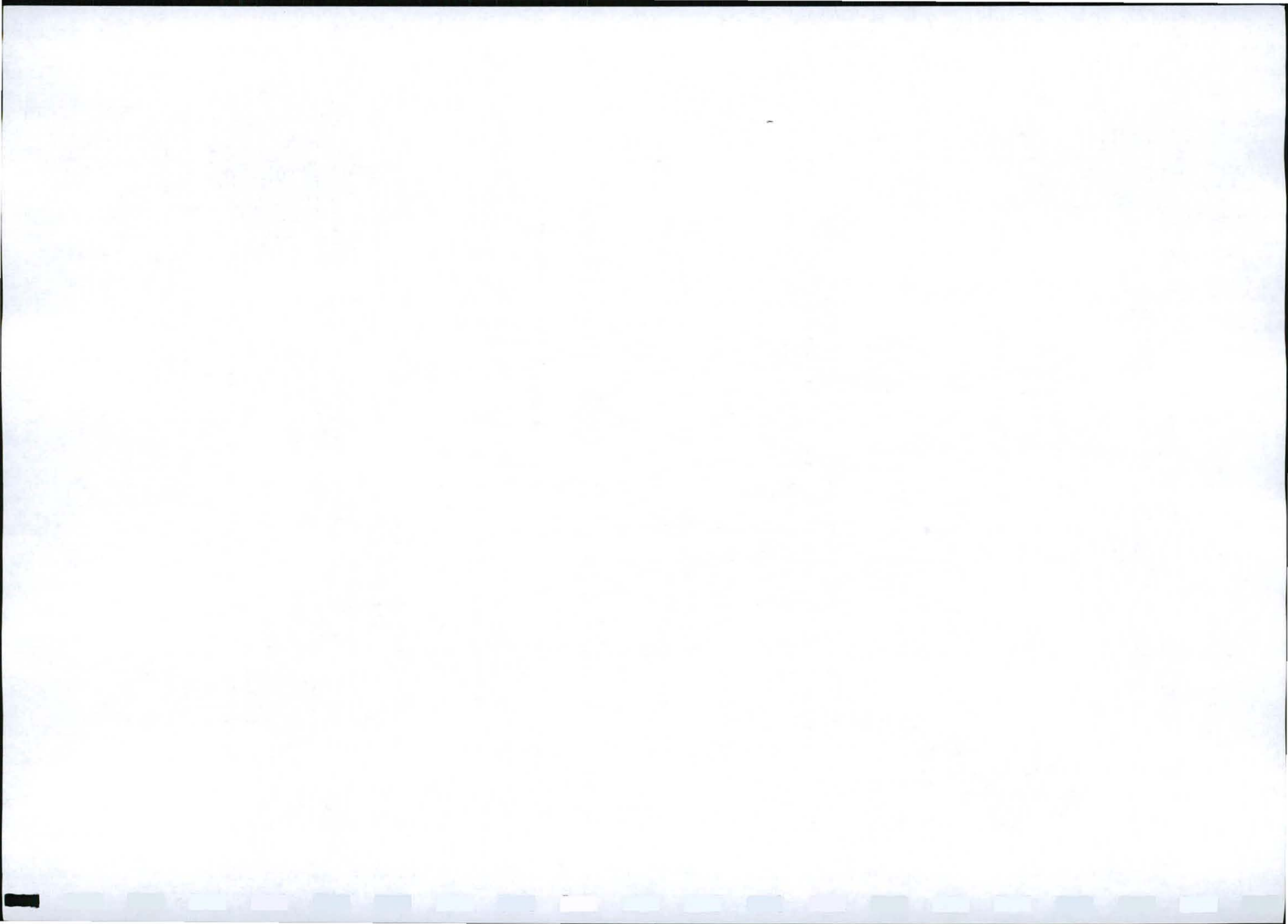
The Nelson Mandela Bay Municipality and its partners are geared to achieve the area's economic vision by 2020 and accordingly, are committed to the following strategic goals:

- ± To achieve and maintain an economic growth rate of between 3.5% to 8% per annum;
- ± To obtain an annual job growth of 3.5% in order to half the current unemployment;
- ± To reduce by 60% the number of households living below the poverty line; and
- ± Assist SMME's and co-operatives to access at least 30% of the opportunities in Nelson Mandela Bay.

STRUCTURE OF THE DIRECTORATE

The Economic Development and Recreational Services directorate is responsible for promoting economic growth, job creation and reducing poverty. The directorates work is guided by the area's Local Economic Development (LED) Plan which provides a blueprint for key development within the area's growth sectors. The LED Plan also informs targeted development plans which include the Human Resource Development Plan and Investment Strategy, Industrial Strategy.

The directorate aims to ensure that Nelson Mandela Bay is a productive and globally competitive area, which has a vibrant economy, and is able to address local economic challenges. The directorate is structured into different branches, which all work toward developing the economy and spreading its benefits.



Beaches and resorts
Sector development
Sport and recreation
Tourism, heritage, culture and museums
Trade and investment
Urban agriculture

BEACHES AND RESORTS

The Beaches and Resorts sub-directorate aims to maximize the development and usage of all beaches, as well as manage 2 of the 5 resorts owned by the municipality. The directorate's role also involves identifying employment and opportunities along the coastline for Small, Macro and Medium Enterprises (SMME's); encourage the enhancement of the environment, as well as the safety and security of the beach front.

SECTOR DEVELOPMENT

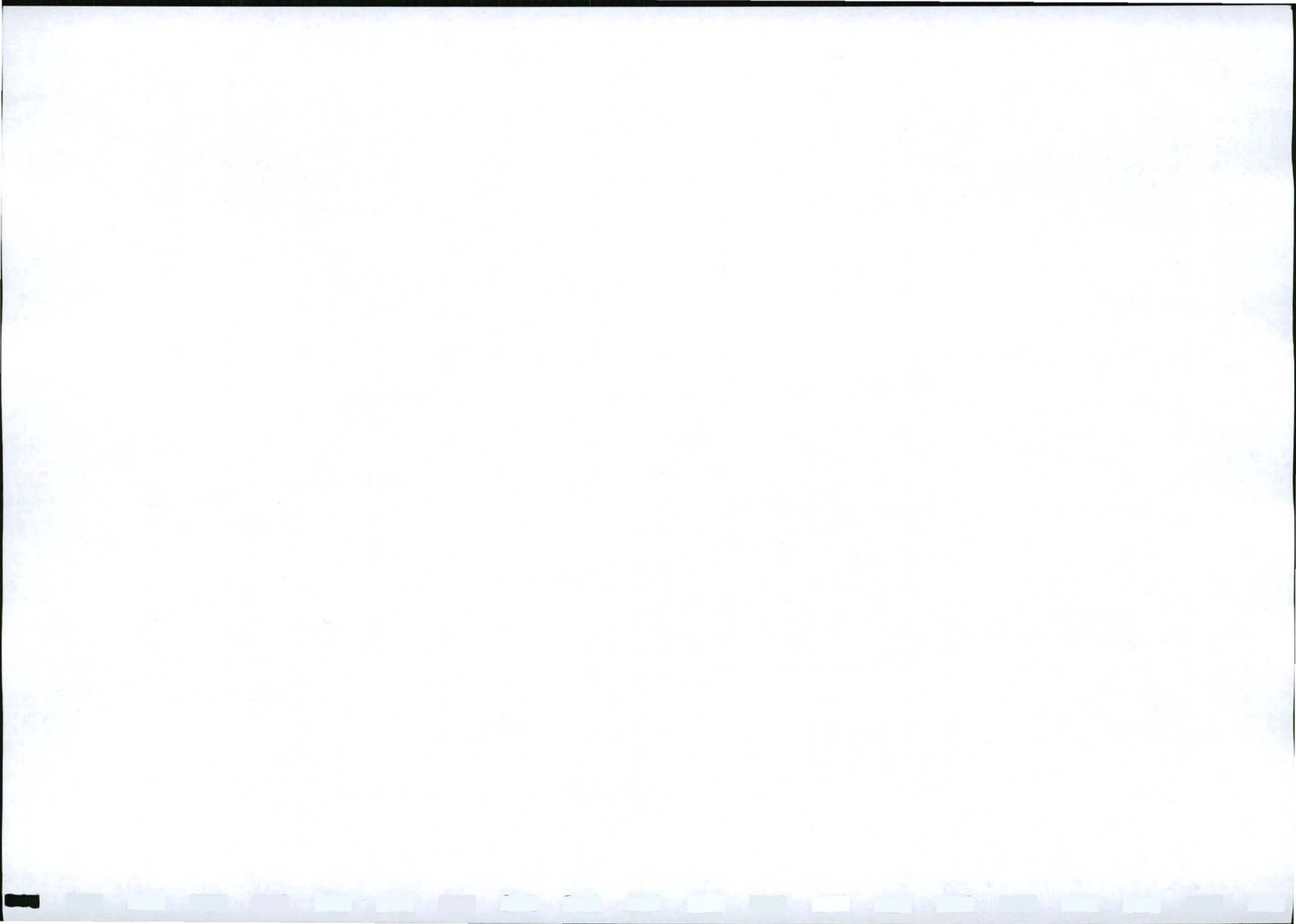
The Sector Development sub-directorate seeks to contribute to the creation of sustainable economic growth that will assist small businesses and cooperatives to develop. The sub-directorate facilitates skills development and mentoring, provides business development support, and also facilitates business linkages and market development initiatives through strategic partnerships in different sectors.

SPORT AND RECREATION

The role of the Sport and Recreation sub-directorate is to maintain, improve and promote the infrastructure of sport facilities in Nelson Mandela Bay. In addition, the sub-directorate aims to integrated local sport and recreation activities in the local tourism agenda, as well as implement sustainable skills development programs essential for the optimal running of the area's sport and recreation activities.

TOURISM, CULTURE, HERITAGE AND MUSEUMS

The Tourism, Culture, Heritage and Museums sub-directorate is responsible for identifying and facilitating infrastructural development necessary for key tourism, cultural and heritage sites in Nelson Mandela Bay. The sub-directorate also provides funding for cultural events and coordinates training programs aimed at capacitating tourism and cultural practitioners.



TRADE AND INVESTMENT

The Trade and Investment sub-directorate aims to position Nelson Mandela Bay as a competitive, world-class business and investment destination by targeting the area's key growth sectors and also by creating an enabling environment for small business and large investments. In partnership with key stakeholders such as the Department of Trade and Industry (DTI), the Eastern Cape Development Corporation (ECDC) and business chambers, the sub-directorate is mainly responsible for the creation of an optimal business climate, attracting new investment, stimulating business expansion and retention in the area, as well as providing business support services.

URBAN AGRICULTURE

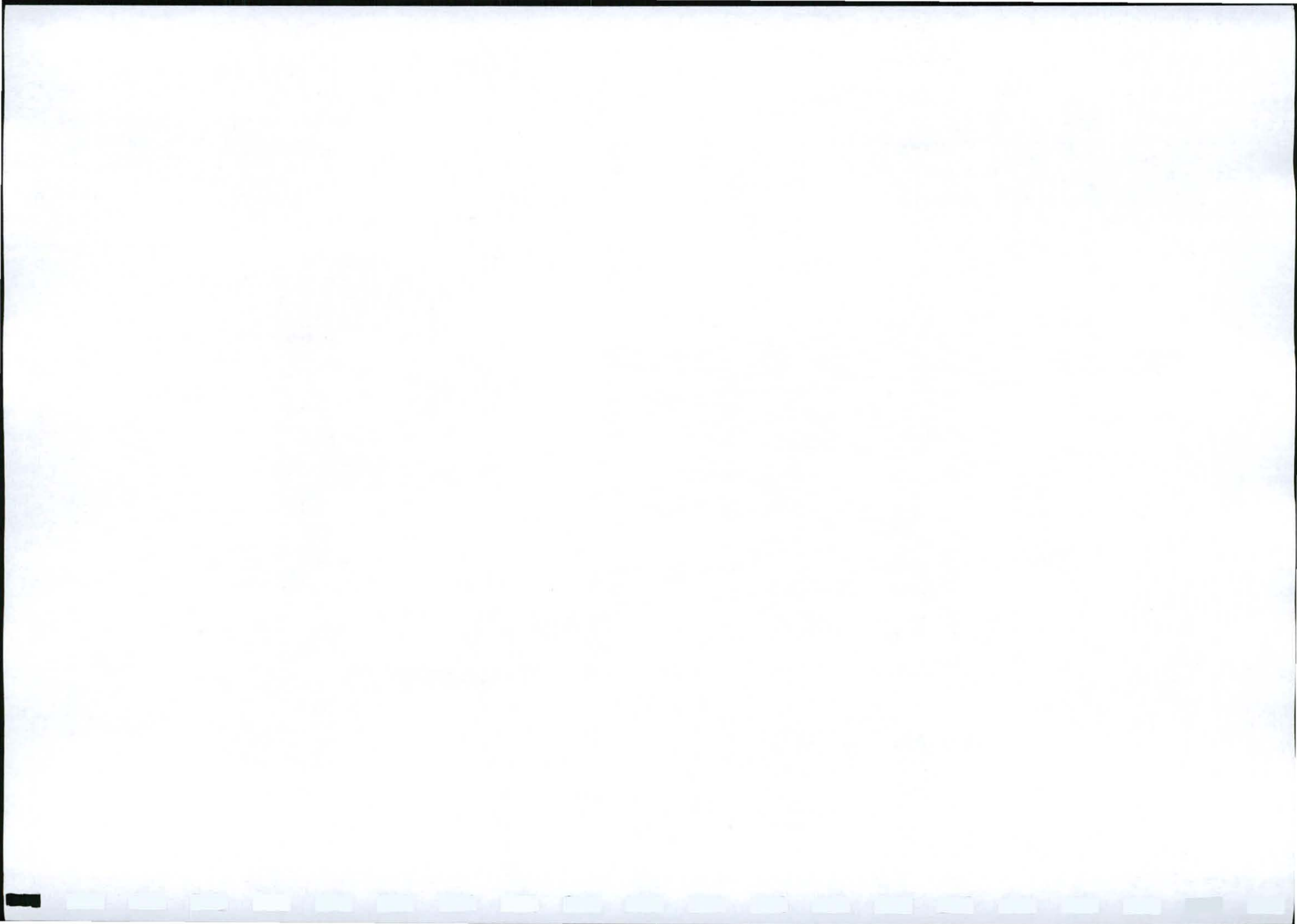
The Urban Agriculture sub-directorate aims to provide infrastructure for commercial and emerging agricultural activities to take place. The sub-directorate's role also involves soliciting training and development for capacity building amongst emerging farmers. In addition, it assists stakeholders in the commercial agriculture and research in the development of products, diversification and value addition through processing.

It is anticipated that at closure, all employees will be absorbed in one or more of the above sectors.

Tribute to Nelson Mandela



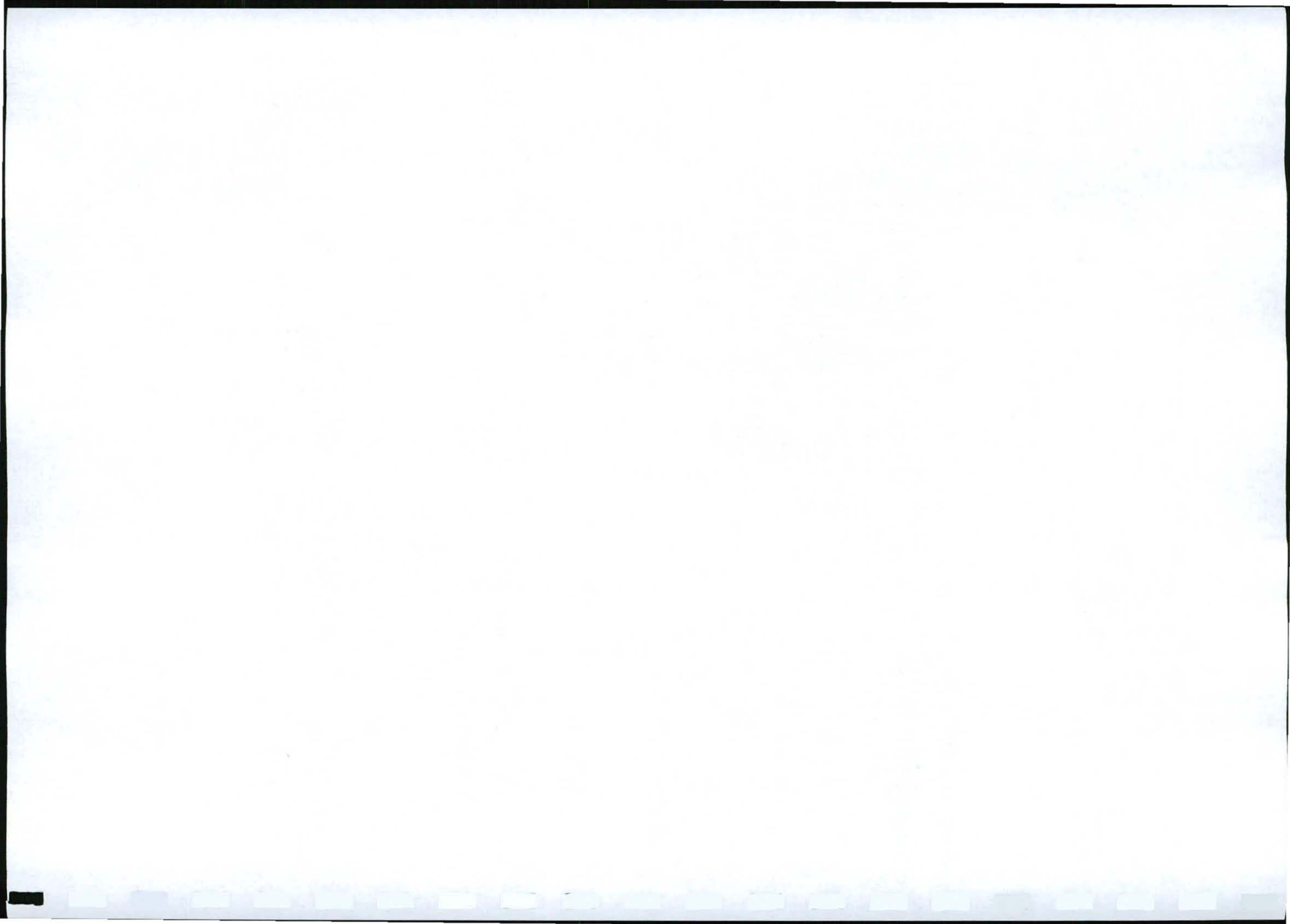
"I have fought against white domination and I have fought against black domination. I have cherished the idea of a democratic and free society. If need be, it is an ideal for which I am prepared to die". (Nelson Mandela)



1.16.1 Key Socio-Economic Activities

VARIABLE	NELSON M ANDELA BAY
Population	1,094,000
Number of households	322,450
Average household size	3.4 persons per household
Age profile	26.2% are in the 0-14 years age group 68.5% are between the ages of 15-64 years 5.3% are in the 65+ years age group
Level of education	33.3% have a metric or higher education 39.5% have some secondary education 20.6% have primary or some primary education 6.7% have no education
Level of employment	32.8% employed 28.2% unemployed 39.0% not economically active
Occupation profile	Elementary occupations, clerks, craft and related trade workers, technicians and Associate professionals, service workers.
1Number of LSM 6 – 10+ households	40%
Weighted Ave. Monthly Household Income	R5 964

Table 1.16.1 Key Socio-Economic Activities



1.16.2 Effect of HIV/AIDS:

Although the effect of HIV/AIDS is not required to be included into the compilation of this report, it is included as a reference for the management of the facility. The information included is extracted from a technical paper delivered by Dr. Izak Fourie on 28 March 2003 at the 34th annual conference of the Institute of Quarrying Southern Africa.

"At the onset of the 21st century post-apartheid South Africa faces daunting economic and social challenges. Most economists and political leaders, regardless of their political orientation, have come to accept that, for South Africa to succeed and meet its social and economic challenges, including the expectations of the majority of its population, it must participate and compete effectively in the global economy.

If South African is to (re)join the global economy and kick-start the "African Renaissance", it will have to attract significant amounts of foreign direct investment while its private, formal sector companies must cut costs, increase productivity and improve quality standards.

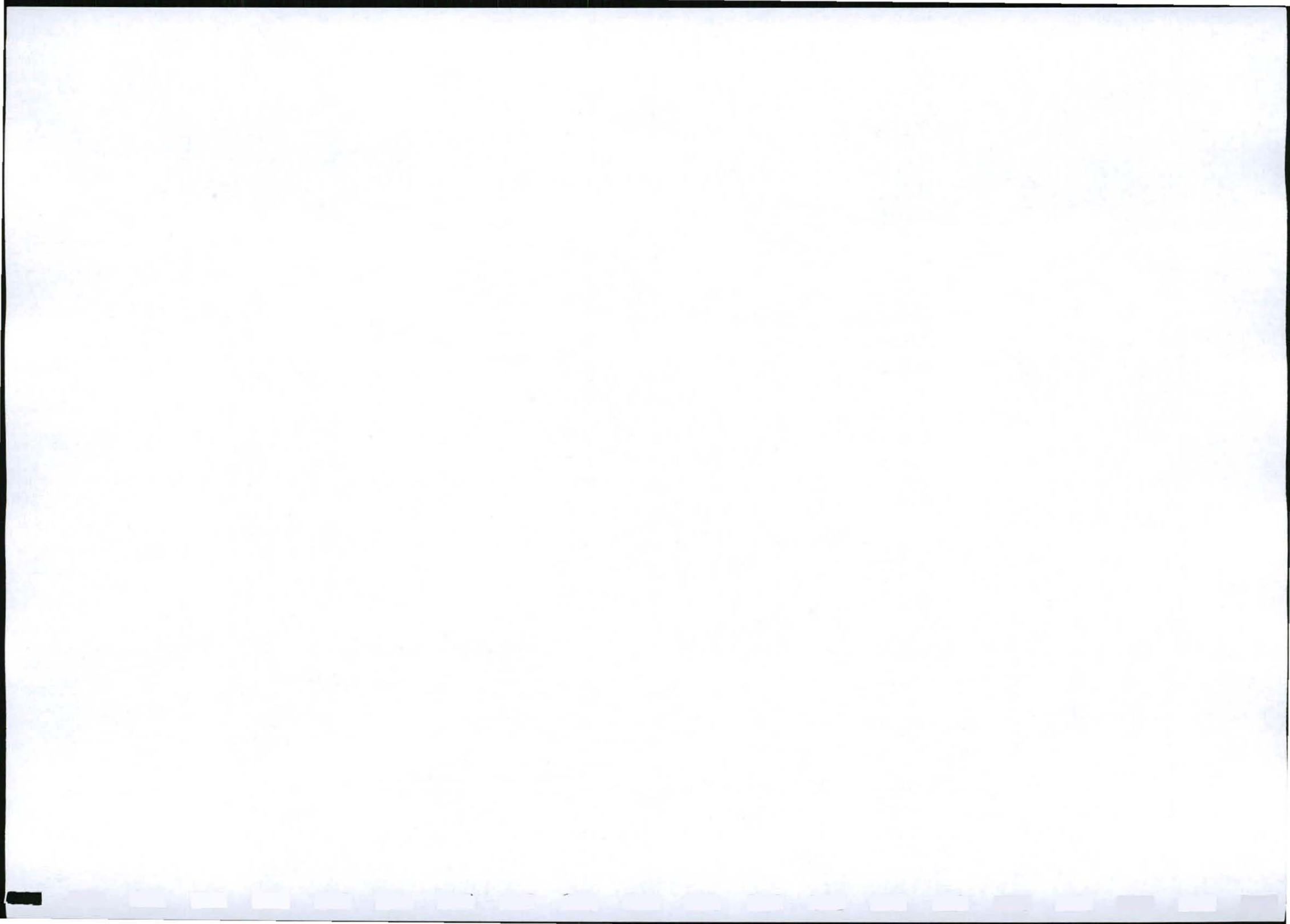
Sadly, just as the opportunities of the global economy are opening up to South Africa, the country is facing an HIV/AIDS epidemic of considerable proportions. Although the country's health care systems will bear (and is already bearing) the initial brunt of the epidemic, there is no doubt that HIV/AIDS will affect virtually every aspect of our society, including our companies and workplace to the extent that it may threaten the very survival of some of our private sector enterprises."

"In its latest Global Update, the Joint United Nations Program on HIV/AIDS (UNAIDS) provide the following estimates of the global HIV/AIDS epidemic as at December 2001:

- *People newly infected with HIV in 2001:5 million*
- *Number of people living with HIV/AIDS:40 million*
- *AIDS deaths in 2001 :3 million*
- *Cumulative AIDS deaths (since 1980) :24 million*

Sub-Saharan Africa continues to dwarf the rest of the world on the HIV/AIDS scorecard with 3.4 million of the total of 5 million new infections in 2001 occurring on our continent. Similarly, of the 40 million people living with HIV/AIDS, 28.1 million or 70.2% are from sub-Saharan Africa.

While no country in sub-Saharan Africa has escaped to virus, some are far more severely affected than others. According to the latest UNAIDS report, the bulk of new infections continue to be concentrated in East and especially Southern Africa.

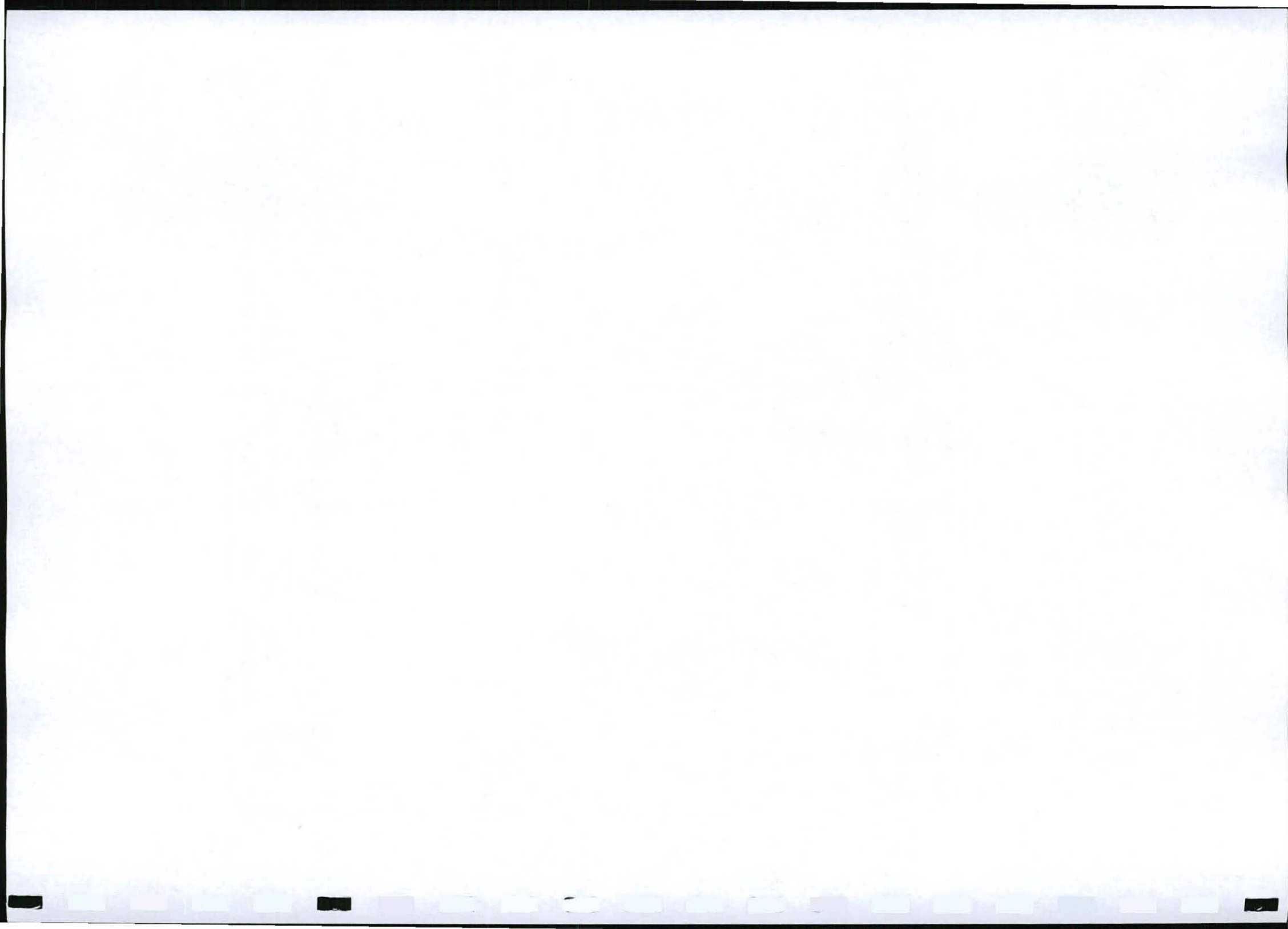


The following table indicates the progression of HIV/AIDS and the economical impacts associated with each progression.

Year	Progression of HIV/AIDS	Economic Impact
0	Infection occurs	-No cost
0-5	Incubation period	-Little or no costs
6-7	HIV/AIDS-related morbidity begins	-Increased sick leave and absenteeism -Reduced productivity -Increased medical costs -Employee requires attention from occupational health, supervisory, human resource and employee assistance personnel
8-10	Employment terminated due to resignation, medical incapacity or death	-Death and/or disability claims -Retirement benefits claims by employee or dependants -Increased medical costs continues post-employment for employees on medical schemes -Company-sponsored loans not repaid -Funeral expenses -Compassionate leave for co-employees to attend funeral -Negative effect on morale and productivity of co-employees -Costs of keeping employee on payroll until medical separation procedures have been completed
8-10	Company recruits and retrain a replacement employee	-Cost of temporary staff or overtime until new employee is operational -Cost of recruitment, training and induction -Salary during training/induction period -Initial lower productivity -Time spent by other employee on in-service training

Table 1.16.2 Economic impacts of HIV/AIDS

It is important for all personnel manager to take note of the possible implications of the disease on his workforce. Any employer must also realise that a certain responsibility towards employees must be accepted.



1.17 Sensitive Environmental Features:**1.17.1 Features Requiring Protection:**

There are no environmental features identified on the mining area that require protection.

1.17.2 Features Requiring Remediation:

There are no environmental features identified on the mining area that require remediation.

1.17.3 Features Requiring Management:

The following environmental features identified as sensitive, will require specific management measures:

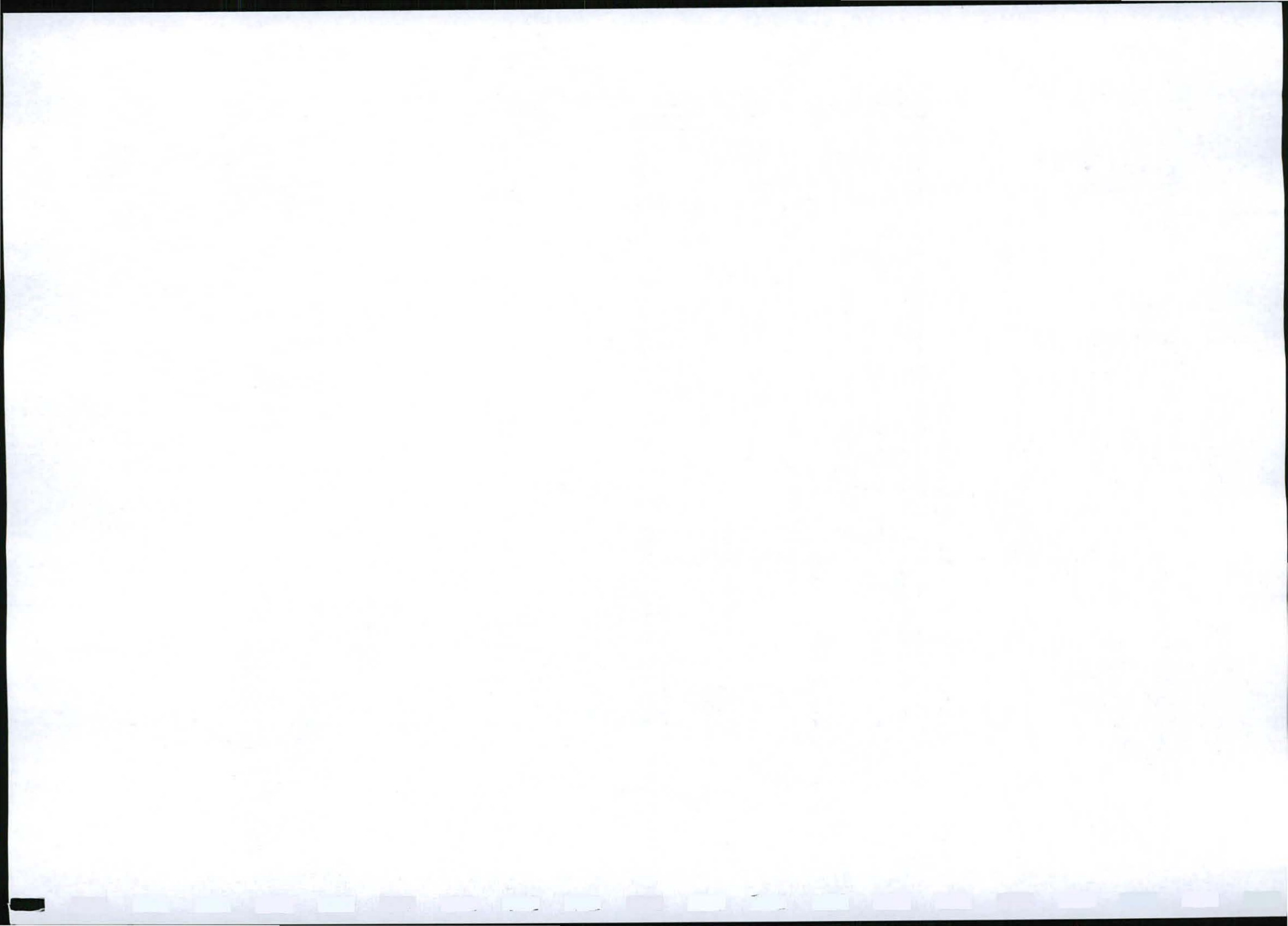
- Air Quality (dust fallout monitoring).
- Noise Pollution (noise levels monitoring).

1.17.4 Features Requiring Avoidance:

There are no environmental features identified on the mining area that require avoidance.

1.17.5 End Land Use Objectives:

Although the proposed end land use of the proposed mining area was indicated in the said scoping report as grazing, the said land owner indicated that the area has been earmarked for the extension of the bordering cemetery (which is accordingly proposed as an alternative land use.)



Chapter 2 – Project Description:

MPRDA Section 39 (3)(b)(i)

MPRDA Section 39 (3)(d)(i)

2.1 Surface infrastructure:

2.1.1 Roads, Railways and Power Lines:

See **Map 1 – Regulation 2(2) Plan** and **Map 3 – Locality Plan** attached hereto as **Annexure A** for location of access roads. No railway or power line passes through or nearby the application area.

2.1.2 Industrial and Domestic Waste Disposal Sites:

Domestic waste will be disposed of in suitable covered receptacles on the application area. The waste disposal site adjacent to the mining area will be used.

All used oils, grease or hydraulic fluids shall be placed in suitable covered receptacles and will be removed from the site on a regular basis for disposal at a registered or licensed disposal site.

Mine residue to be produced by the proposed activities is considered to be minimal and will consist primarily of cleared vegetation. The residue will be disposed of at a registered waste disposal site.

Arlington

Classified for General Waste

Schoenmakers Kop Road

Walmer

2.1.3 Water Pollution Management Facilities:

No sewage treatment plant will be established at any of the site. Chemical or toilets of the "Enviroloo" type will be provided for quarry personnel. One toilet per 10 persons will be available on the site for the duration of the operation.

- **Pollution Control Structures:**

Pollution of water should not occur and pollution control dams are not required.

- **Polluted Water Treatment Facility:**

Not Applicable

2.1.4 Potable Water Plant:

No potable water treatment plant will be necessary on site. Potable water will be transported to the proposed mining area as required.



2.1.5 Process Water Supply System:

No water supply system for dust control is necessary for the proposed mining area as water will be obtained from the existing water supply system at the refuse site adjacent to the mining area in consultation with the said local municipality.

2.1.6 Quarry Pit:

No quarry pit will be made, only loose sand (dunes) will be mined.

2.1.7 Mine Residue Disposal Sites:

No mine residue will be disposed of on the application area. There is no overburden to store. After the mine has finished the site will be used for a cemetery.

2.1.8 Topsoil Storage Stockpiles:

Any available topsoil will be stored on topsoil stockpile dumps. These dumps will not be higher than 2 meters and will be vegetated to prevent erosion and the loss of topsoil.

2.1.9 Mineral Stockpiles:

All mineral stockpiles will be situated on the application area.

2.1.10 Mineral Processing Plant:

The material will be beneficiated through the mobile dry screen on site.

2.1.11 Workshops and Administration Buildings:

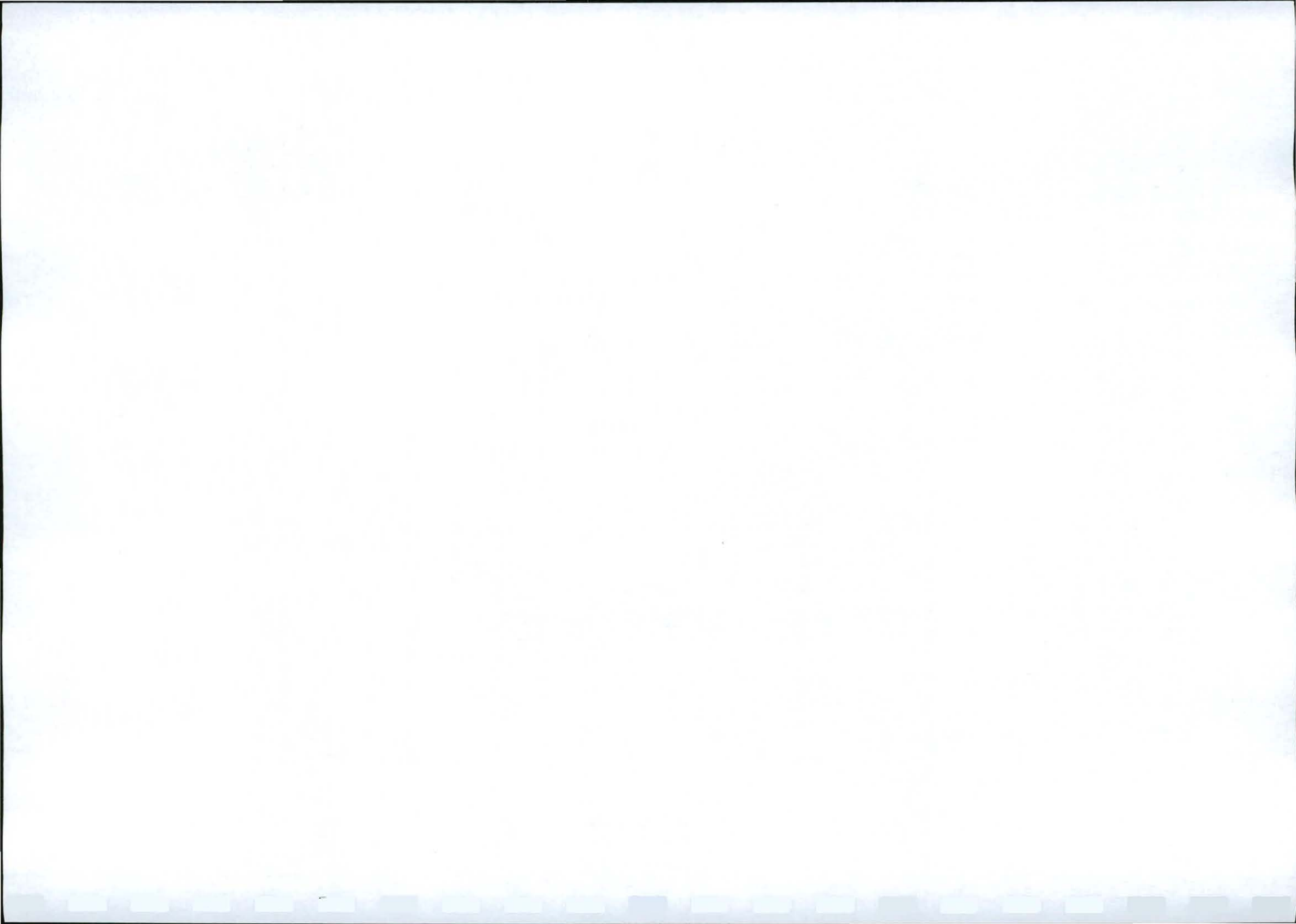
Only temporary structures will be erected on the site.

2.1.12 Housing and Recreational Facilities:

Not Applicable.

2.1.13 Transport

The existing road network will be used. No new road is required on the site or to transport the product from the site.



2.2 General Description:

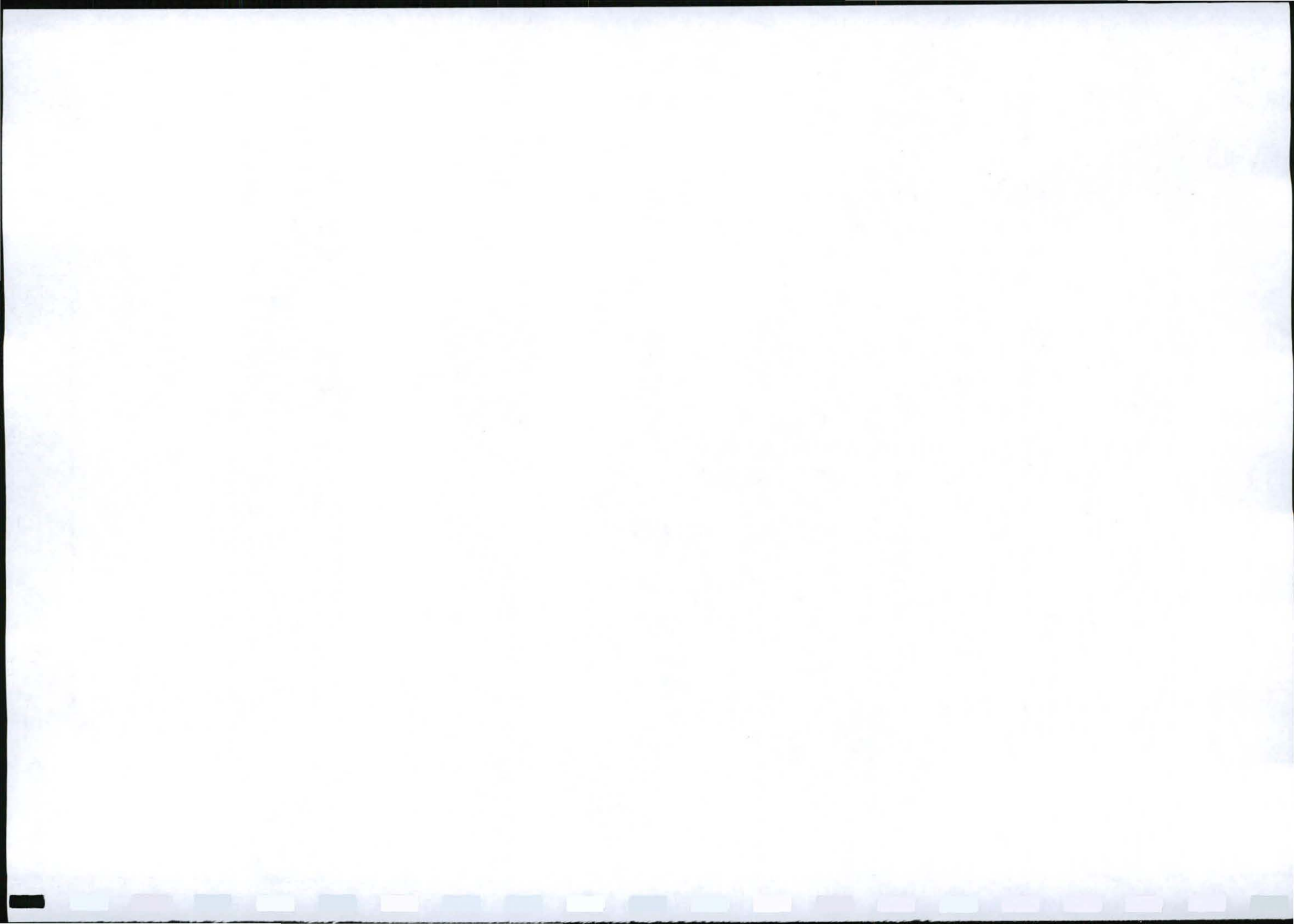
2.2.1 Description of the mining methods:

The open cast mining method, namely bench mining, will be practised for the extraction of the sand. The overburden and top soil will be stockpiled separately and will be utilised for rehabilitation purposes. The material will be extracted with an excavator where after it will be removed by dumper trucks. The material will be screened where after the sand will be loaded onto the trucks. The mobile screen will be situated on the mining area.

The process below illustrates the method precisely:



- 1 Sand is loaded from the quarry with the front end loader on to the mobile screening plant.
- 2 Sand is then transported via a conveyer to the screening bin.
- 3 Sand is screened, to remove the sticks and stones.
- 4 Screened sand is then transported via conveyer to the stock pile area.
- 5 Screened sand goes to stock pile area.
- 6 Trucks get loaded from the stockpile



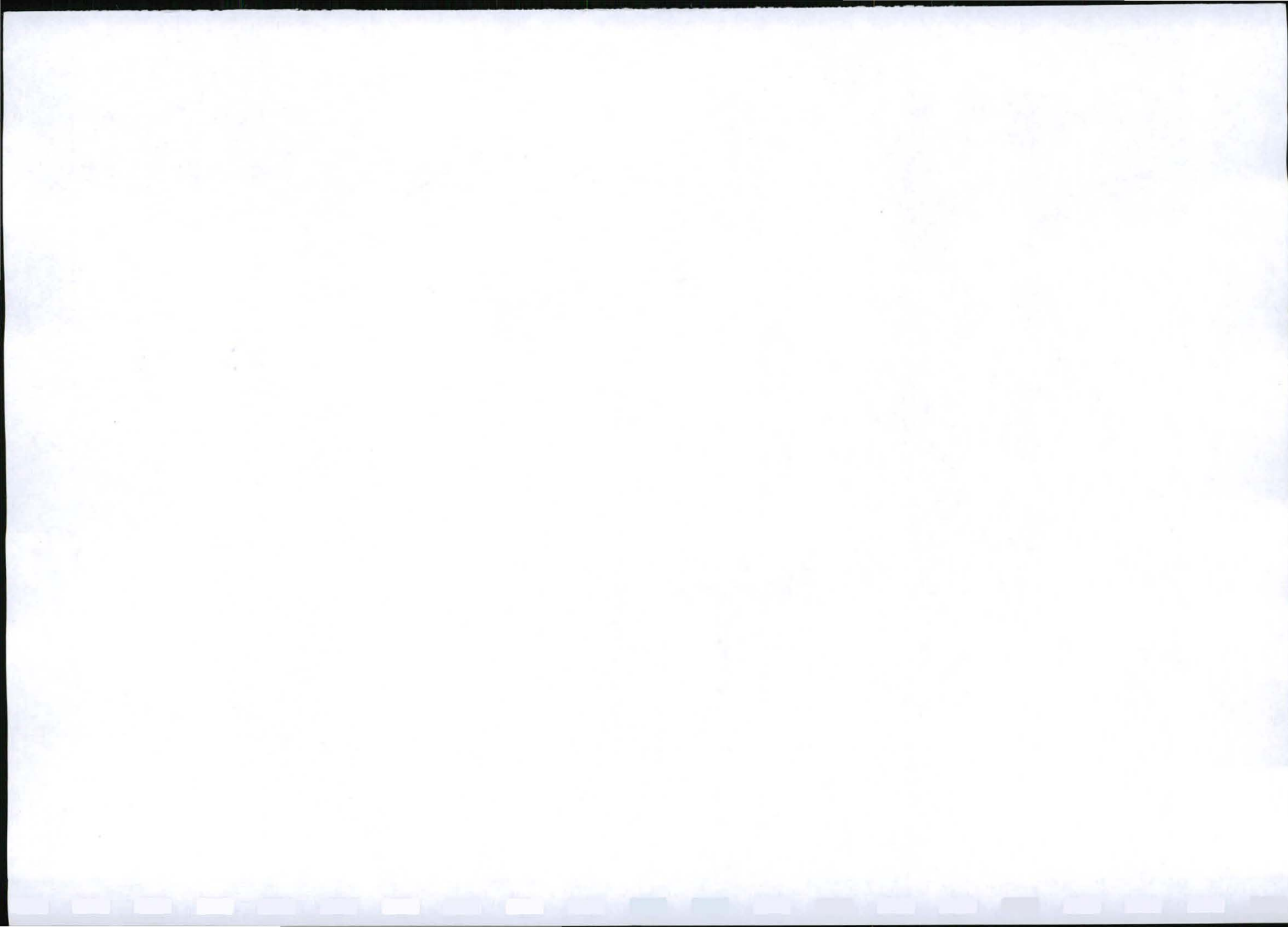
Topsoil clearing



- 1 Topsoil is stockpiled
- 2 Bulldozer separates topsoil and subsoil
- 3 Usable material, which has been excavated, and will be screened.
- 4 Area being rehabilitated.
- 5 Screening Plant.

It can be seen that the rehabilitated area is at a lower level than the area to be mined.

All topsoil is preserved for future use in the rehabilitation process.

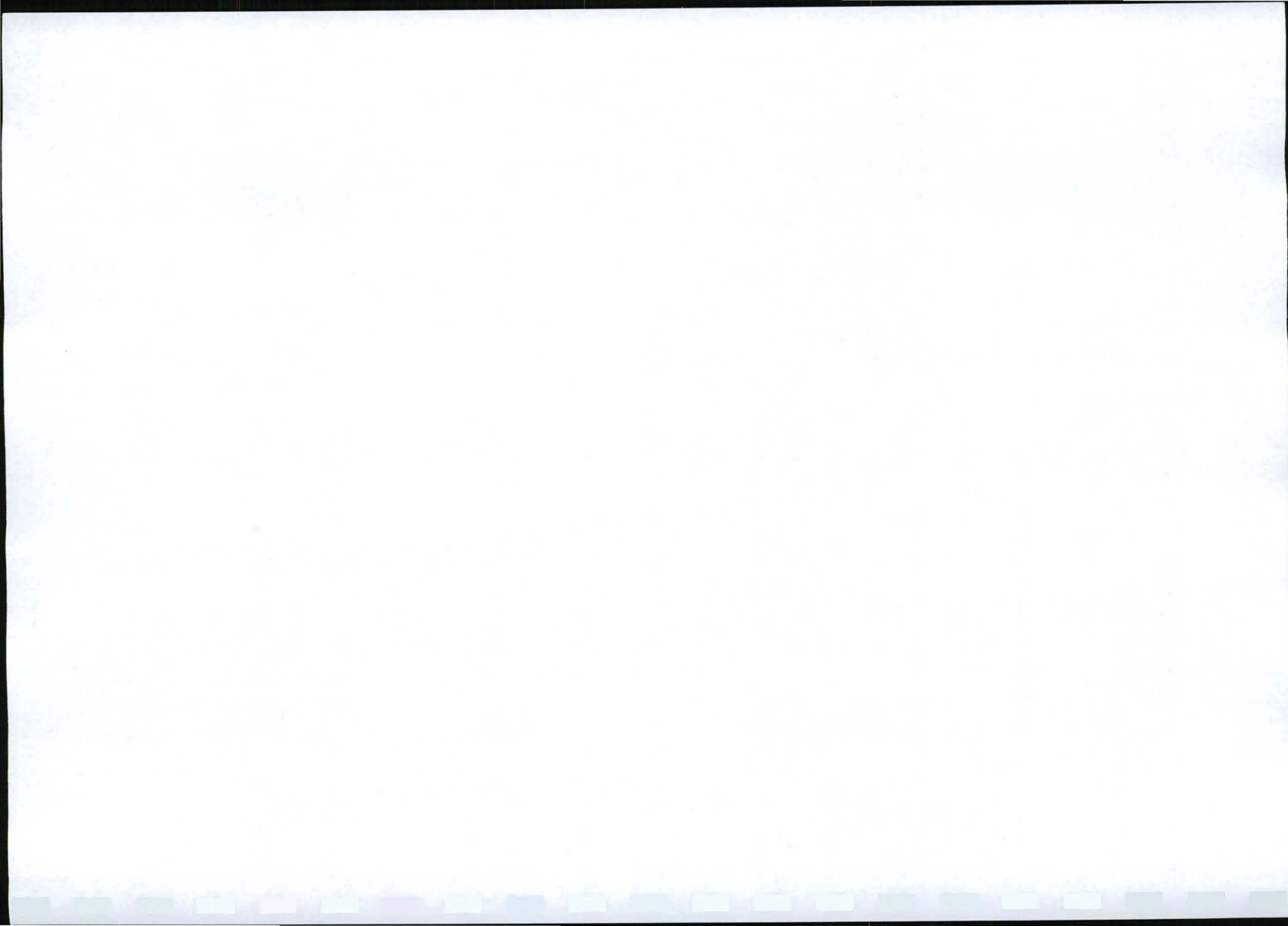


2.2.2 Forecast of annual production rates:

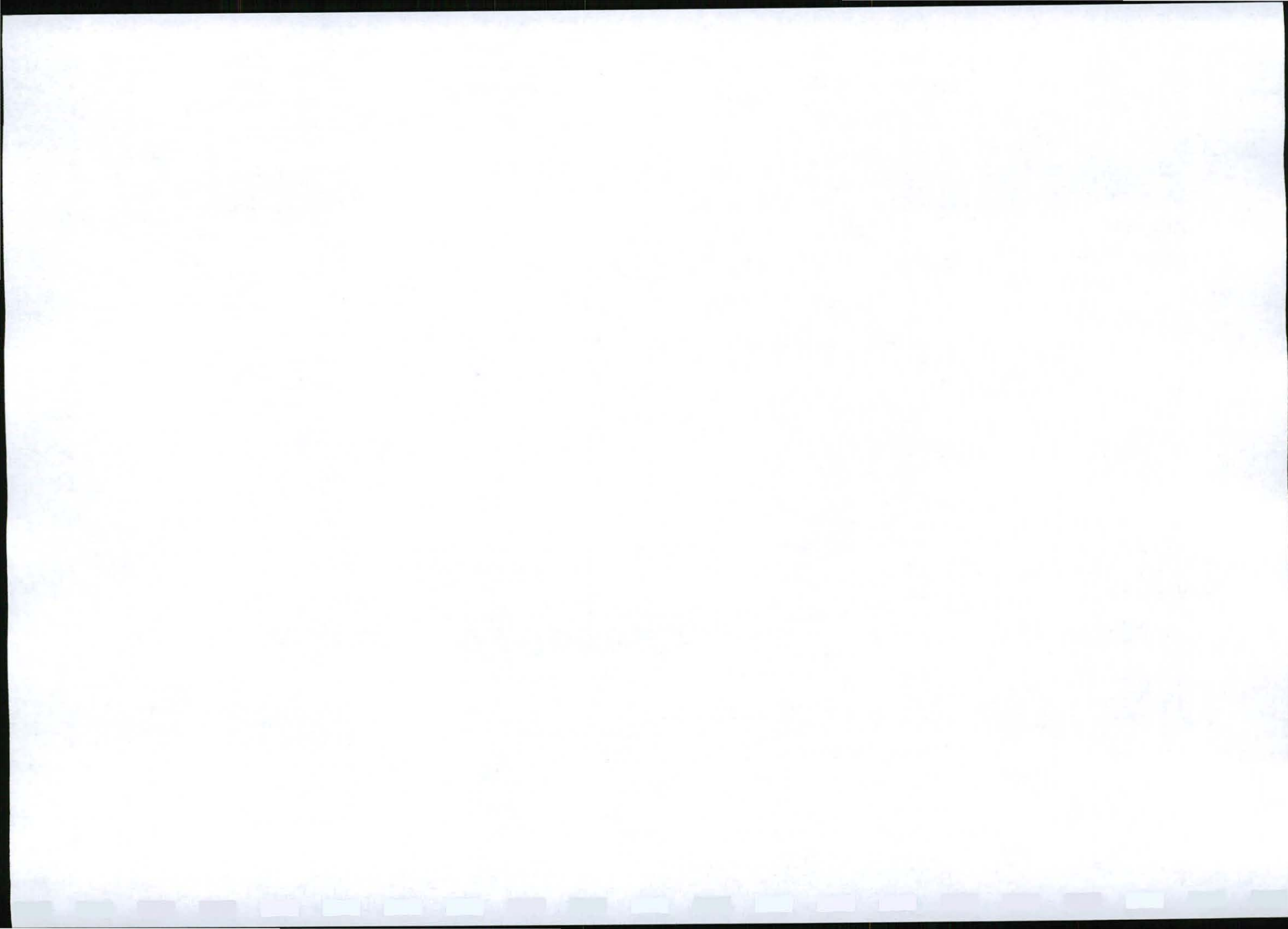
Production Rate:

Table 2.2.1: The planned optimal (Maximum) production rate is 82,000m³ per annum of sand.

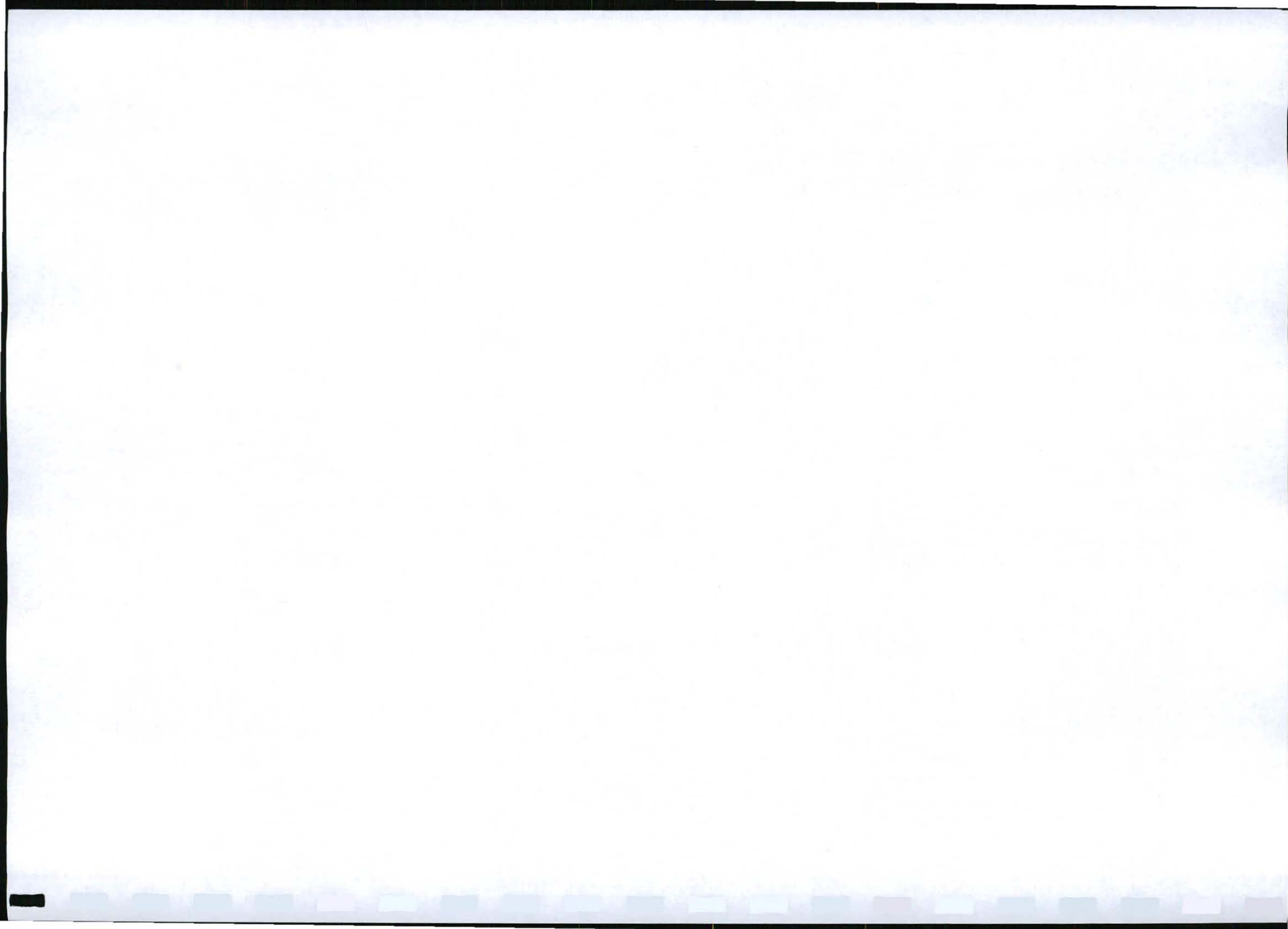
PRODUCTION ESTIMATES - ARLINGTON QUARRY					
ARLINGTON Quarry - PREDICTED Total Sand Sales per month in m ³		Increase	ARLINGTON Quarry - Total Sales Sand per annum (March to Feb)		
Month/Year	Total Sand		Year	Total Sand	Ave/month
Mar-10	7000		2011	82000	9111.11
Apr-10	6000		2012	88560.00	7380.00
May-10	7000		2013	95644.80	7970.40
Jun-10	7000		2014	103296.38	8608.03
Jul-10	8000		2015	111560.09	9296.67
Aug-10	8000		2016	120484.90	10040.41
Sep-10	8000		2017	130123.69	10843.64
Oct-10	9000		2018	140533.59	11711.13
Nov-10	8000		2019	151776.28	12648.02
Dec-10	4000		2020	163918.38	13659.86
Jan-11	4000		2021	177031.85	14752.65
Feb-11	6000		2022	191194.40	15932.87
Mar-11	7560.00	8%	2023	206489.95	17207.50
Apr-11	6480.00	8%	2024	223009.15	18584.10
May-11	7560.00	8%	2025	240849.88	20070.82
Jun-11	7560.00	8%			
Jul-11	8640.00	8%			
Aug-11	8640.00	8%			
Sep-11	8640.00	8%			
Oct-11	9720.00	8%			
Nov-11	8640.00	8%			
Dec-11	4320.00	8%			
Jan-12	4320.00	8%			
Feb-12	6480.00	8%			
Mar-12	8164.80	8%			
Apr-12	6998.40	8%			
May-12	8164.80	8%			
Jun-12	8164.80	8%			
Jul-12	9331.20	8%			
Aug-12	9331.20	8%			
Sep-12	9331.20	8%			
Oct-12	10497.60	8%			
Nov-12	9331.20	8%			
Dec-12	4665.60	8%			
Jan-13	4665.60	8%			
Feb-13	6998.40	8%			
Mar-13	8817.98	8%			
Apr-13	7558.27	8%			
May-13	8817.98	8%			
Jun-13	8817.98	8%			
Jul-13	10077.70	8%			
Aug-13	10077.70	8%			
Sep-13	10077.70	8%			
Oct-13	11337.41	8%			
Nov-13	10077.70	8%			



Dec-13	5038.85	8%
Jan-14	5038.85	8%
Feb-14	7558.27	8%
Mar-14	9523.42	8%
Apr-14	8162.93	8%
May-14	9523.42	8%
Jun-14	9523.42	8%
Jul-14	10883.91	8%
Aug-14	10883.91	8%
Sep-14	10883.91	8%
Oct-14	12244.40	8%
Nov-14	10883.91	8%
Dec-14	5441.96	8%
Jan-15	5441.96	8%
Feb-15	8162.93	8%
Mar-15	10285.30	8%
Apr-15	8815.97	8%
May-15	10285.30	8%
Jun-15	10285.30	8%
Jul-15	11754.62	8%
Aug-15	11754.62	8%
Sep-15	11754.62	8%
Oct-15	13223.95	8%
Nov-15	11754.62	8%
Dec-15	5877.31	8%
Jan-16	5877.31	8%
Feb-16	8815.97	8%
Mar-16	11108.12	8%
Apr-16	9521.25	8%
May-16	11108.12	8%
Jun-16	11108.12	8%
Jul-16	12694.99	8%
Aug-16	12694.99	8%
Sep-16	12694.99	8%
Oct-16	14281.87	8%
Nov-16	12694.99	8%
Dec-16	6347.50	8%
Jan-17	6347.50	8%
Feb-17	9521.25	8%
Mar-17	11996.77	8%
Apr-17	10282.95	8%
May-17	11996.77	8%
Jun-17	11996.77	8%
Jul-17	13710.59	8%
Aug-17	13710.59	8%
Sep-17	13710.59	8%
Oct-17	15424.42	8%
Nov-17	13710.59	8%
Dec-17	6855.30	8%
Jan-18	6855.30	8%
Feb-18	10282.95	8%
Mar-18	12956.51	8%
Apr-18	11105.58	8%
May-18	12956.51	8%
Jun-18	12956.51	8%
Jul-18	14807.44	8%
Aug-18	14807.44	8%
Sep-18	14807.44	8%
Oct-18	16658.37	8%
Nov-18	14807.44	8%



Dec-18	7403.72	8%
Jan-19	7403.72	8%
Feb-19	11105.58	8%
Mar-19	13993.03	8%
Apr-19	11994.03	8%
May-19	13993.03	8%
Jun-19	13993.03	8%
Jul-19	15992.04	8%
Aug-19	15992.04	8%
Sep-19	15992.04	8%
Oct-19	17991.04	8%
Nov-19	15992.04	8%
Dec-19	7996.02	8%
Jan-20	7996.02	8%
Feb-20	11994.03	8%
Mar-20	15112.47	8%
Apr-20	12953.55	8%
May-20	15112.47	8%
Jun-20	15112.47	8%
Jul-20	17271.40	8%
Aug-20	17271.40	8%
Sep-20	17271.40	8%
Oct-20	19430.32	8%
Nov-20	17271.40	8%
Dec-20	8635.70	8%
Jan-21	8635.70	8%
Feb-21	12953.55	8%
Mar-21	16321.47	8%
Apr-21	13989.83	8%
May-21	16321.47	8%
Jun-21	16321.47	8%
Jul-21	18653.11	8%
Aug-21	18653.11	8%
Sep-21	18653.11	8%
Oct-21	20984.75	8%
Nov-21	18653.11	8%
Dec-21	9326.56	8%
Jan-22	9326.56	8%
Feb-22	13989.83	8%
Mar-22	17627.19	8%
Apr-22	15109.02	8%
May-22	17627.19	8%
Jun-22	17627.19	8%
Jul-22	20145.36	8%
Aug-22	20145.36	8%
Sep-22	20145.36	8%
Oct-22	22663.53	8%
Nov-22	20145.36	8%
Dec-22	10072.68	8%
Jan-23	10072.68	8%
Feb-23	15109.02	8%
Mar-23	19037.37	8%
Apr-23	16317.74	8%
May-23	19037.37	8%
Jun-23	19037.37	8%
Jul-23	21756.99	8%
Aug-23	21756.99	8%
Sep-23	21756.99	8%
Oct-23	24476.61	8%
Nov-23	21756.99	8%

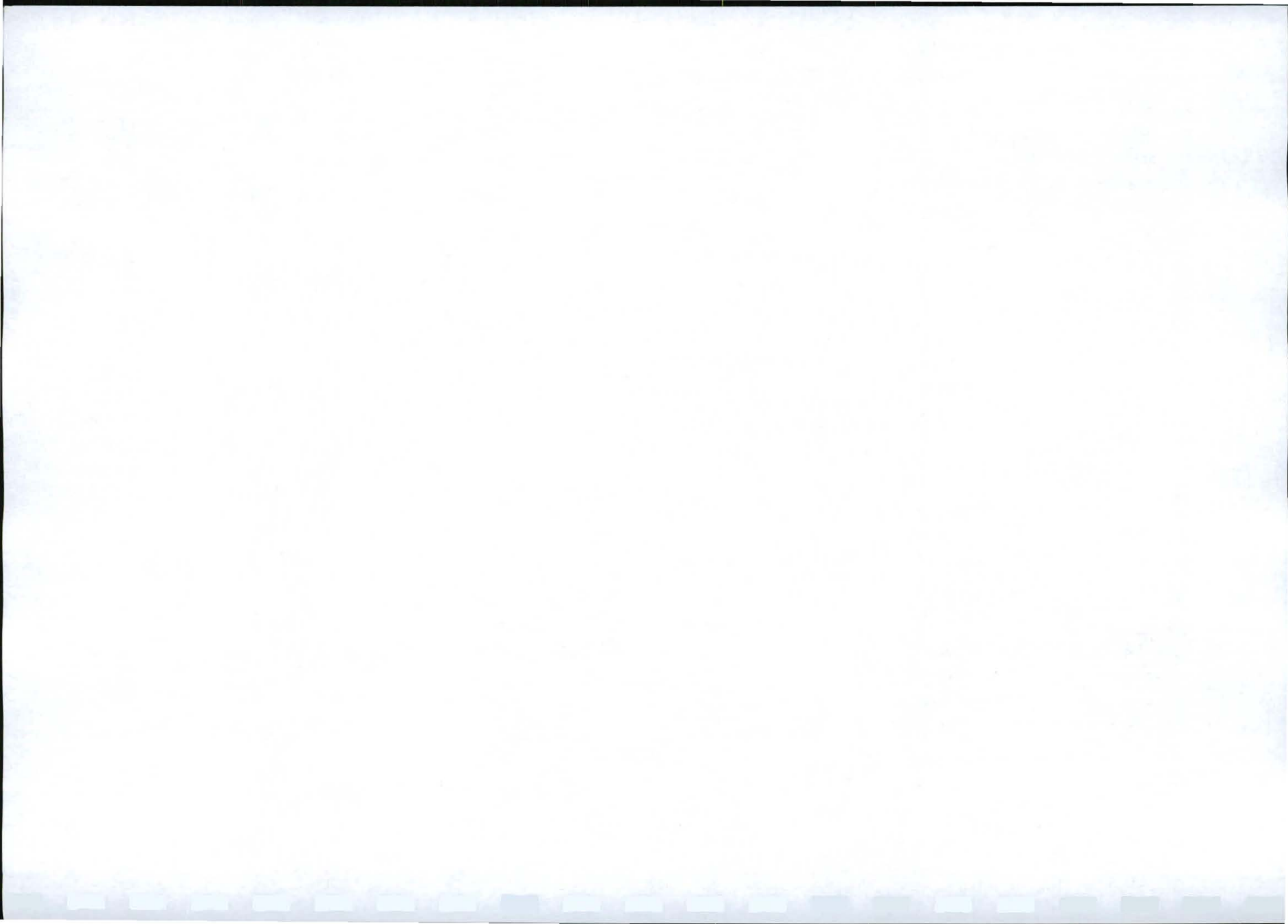


Dec-23	10878.49	8%
Jan-24	10878.49	8%
Feb-24	16317.74	8%
Mar-24	20560.36	8%
Apr-24	17623.16	8%
May-24	20560.36	8%
Jun-24	20560.36	8%
Jul-24	23497.55	8%
Aug-24	23497.55	8%
Sep-24	23497.55	8%
Oct-24	26434.74	8%
Nov-24	23497.55	8%
Dec-24	11748.77	8%
Jan-25	11748.77	8%
Feb-25	17623.16	8%

2.2.3

Infrastructure:

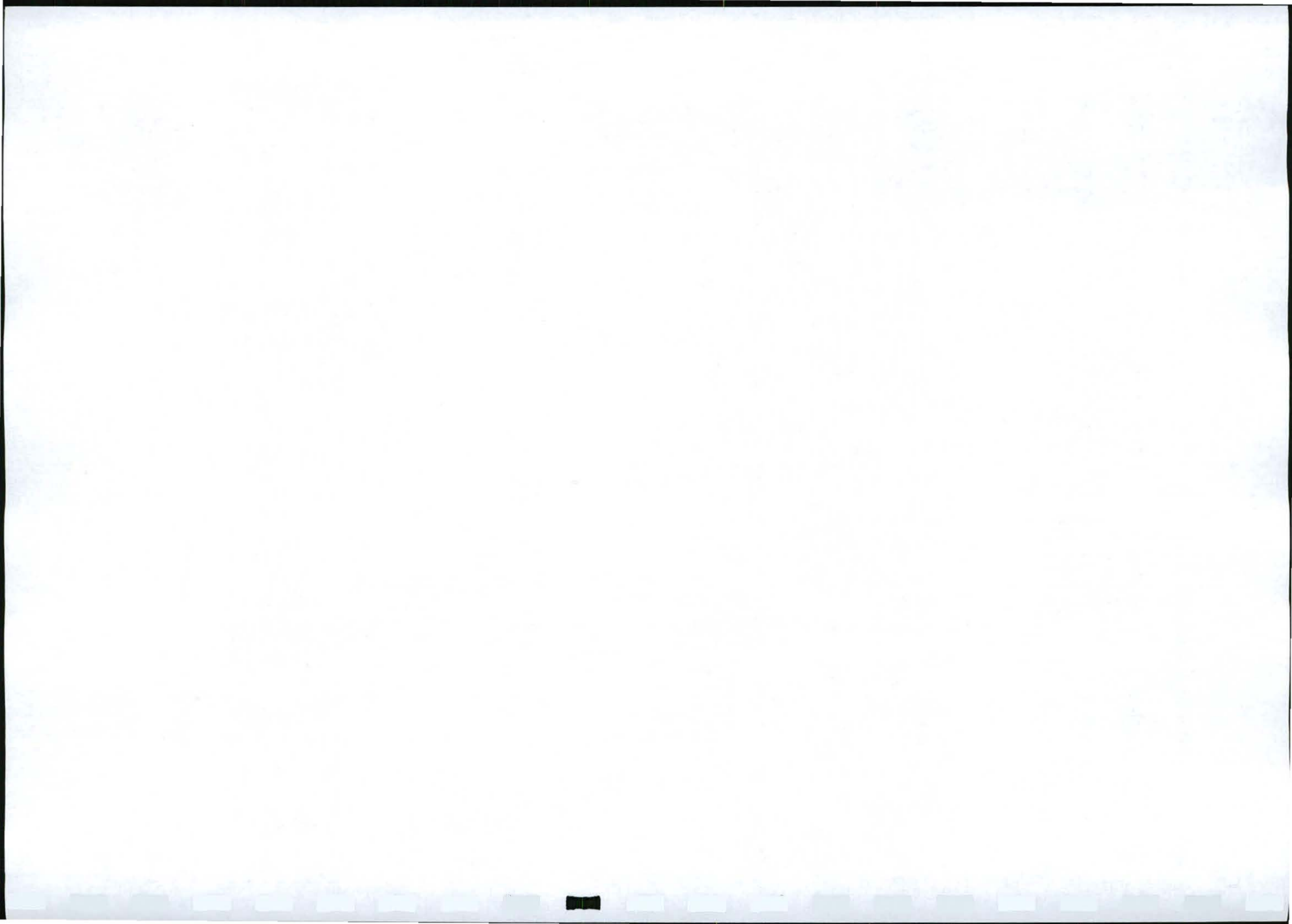
No infrastructure will be erected on the application area.



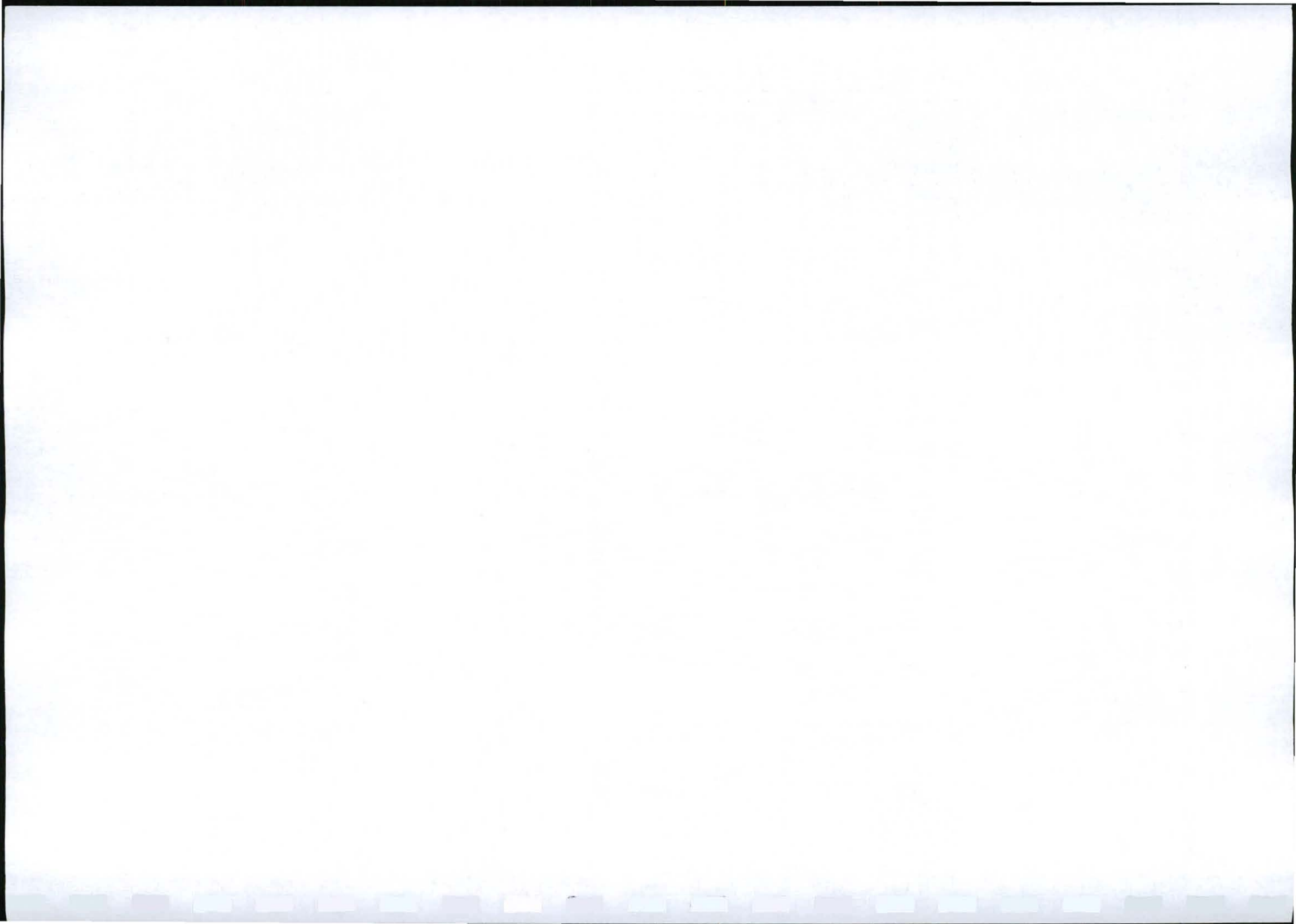
2.3 Mining Activities:

Table 2.3 Mining Phases and Activities

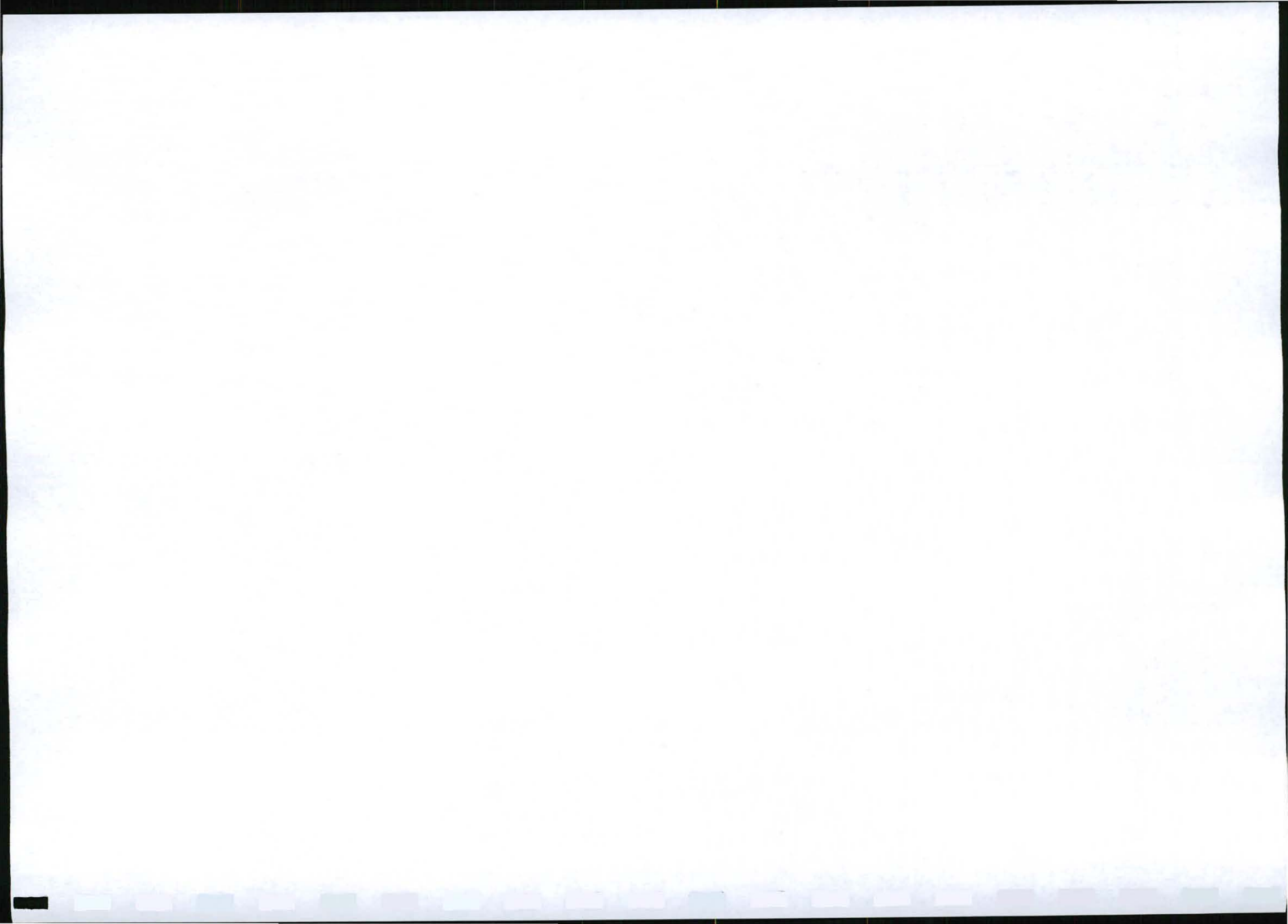
Phase:	Activity:	Description:
Construction Phase:		Due to the fact that no infrastructure will be established on the mining area, there will be no construction phase.
Operational Phase:	Topsoil	<p>When topsoil is removed and stored, it will be done according to the Soil Utilisation Guide below.</p> <p>Soil Utilisation Guide:</p> <p>The following design parameters will be taken into account when designing the topsoil stockpiles:</p> <ul style="list-style-type: none"> -Topsoil will be removed to a depth of 100mm. -The stockpiles must be constructed on the most gradual slope possible. -The slope of the stockpile material must be kept as low and possible to avoid extensive erosion of the natural resource. -If erosion does occur the stockpiles can be stabilised through re-vegetation with pioneering grass species. Species include <i>Eragrostis curvula</i> and <i>Melinis repens</i>. -Soil fertility need to be assessed and ameliorated where necessary prior to re-vegetation in order to ensure optimal growth.
Operational Phase	Excavating	Sand mining will be conducted with a front end loader general opencast mining methods. The sand will be processed through the said dry mobile sand screen and then be sold.
Operational Phase:	Hauling	Sand will be hauled with a front end loader from the excavation area to the said plant.
Operational Phase:	Backfilling	The mined out areas of the quarry pit will be backfilled on a continuous basis using the overburden material.



Operational Phase:	Levelling and Sloping	Mined out areas are levelled and sloped to an angel of 1:3 or flatter where possible.
Operational Phase:	Replacing topsoil	After the mined out areas are levelled and sloped, any available stockpiled topsoil will be replaced and levelled over the areas.
Operational Phase:	Vegetating	After topsoil is returned to the levelled and sloped, mined-out areas, a grass seed mixture including <i>Eragrostis spp</i> and any other endemic species found surrounding the area will be sown.
Operational Phase:	Dust Suppression	<p>Approximately 5,000 litres of water will be sprayed onto the roads daily for dust suppression purposed, but is only expected to be required during the drier seasons of the year. This water will partly evaporate and partly drain into the soils.</p> <p>Water for dust suppression will be obtained from the said local municipality.</p>
Closure Phase	Final Replacing of Topsoil	After final levelling and sloping, any remaining available topsoil will be replaced over any remaining un-rehabilitated areas.
Closure Phase	Final Backfilling and Sloping	Once mining is ceased, the stockpiled overburden will be backfilled into the mined-out pit. After final backfilling is completed, all material will be left at a slope of at least 1:3.
Closure Phase	Final Vegetating	A grass seed mixture including <i>Eragrostis spp</i> and any other endemic species found surrounding the area will be sown on all areas where vegetation growth has not established successfully.
Closure Phase	Dust Suppression	While rehabilitation activities are in progress, water will be sprayed onto the roads and uncovered areas for dust suppression purposes. This



		water will partly evaporate and partly drain into the soils.
Post-Closure Phase	Erosion Control	For a period of at least two years after final rehabilitation, the area will be monitored for occurrence of erosion. Any newly eroded areas found will be remediated.
Post-Closure Phase	Vegetation monitoring	Vegetation will be monitored for a period of at least two years after final rehabilitation. Any area where the vegetation cover is insufficient will be re-vegetated with a similar seed mixture as above.



Chapter 3 – Environmental Impacts Assessment:

MPRDA Regulation 49 (1)(c)

3.1 Engagement Process with affected parties:

The following steps have been taken to ensure that all affected parties were given the opportunity to raise their concerns and or comments, if any:

- Site notices have been placed at the entrance to the application area and other strategic points. The notices have been placed in such a way as to ensure that they are clear and visible.
- An advertisement has been placed in the local newspaper (namely “Your Local Newspaper”) and “The Herald” notifying people from the surrounding communities of the mining right application and providing them with the opportunity to raise their concerns or to obtain more information.
- Most of the identified affected parties were personally briefed by management of the Company and they filled out and signed a *pro forma* confirmation of consultation and statement (addressed tot the DME) to the effect that they have no concern of any objection against the proposal. Some parties were consulted by means of formal letters sent by registered mail. Future Mining Consultants also personally consulted with the Air Ports Company of South Africa (ACSA).

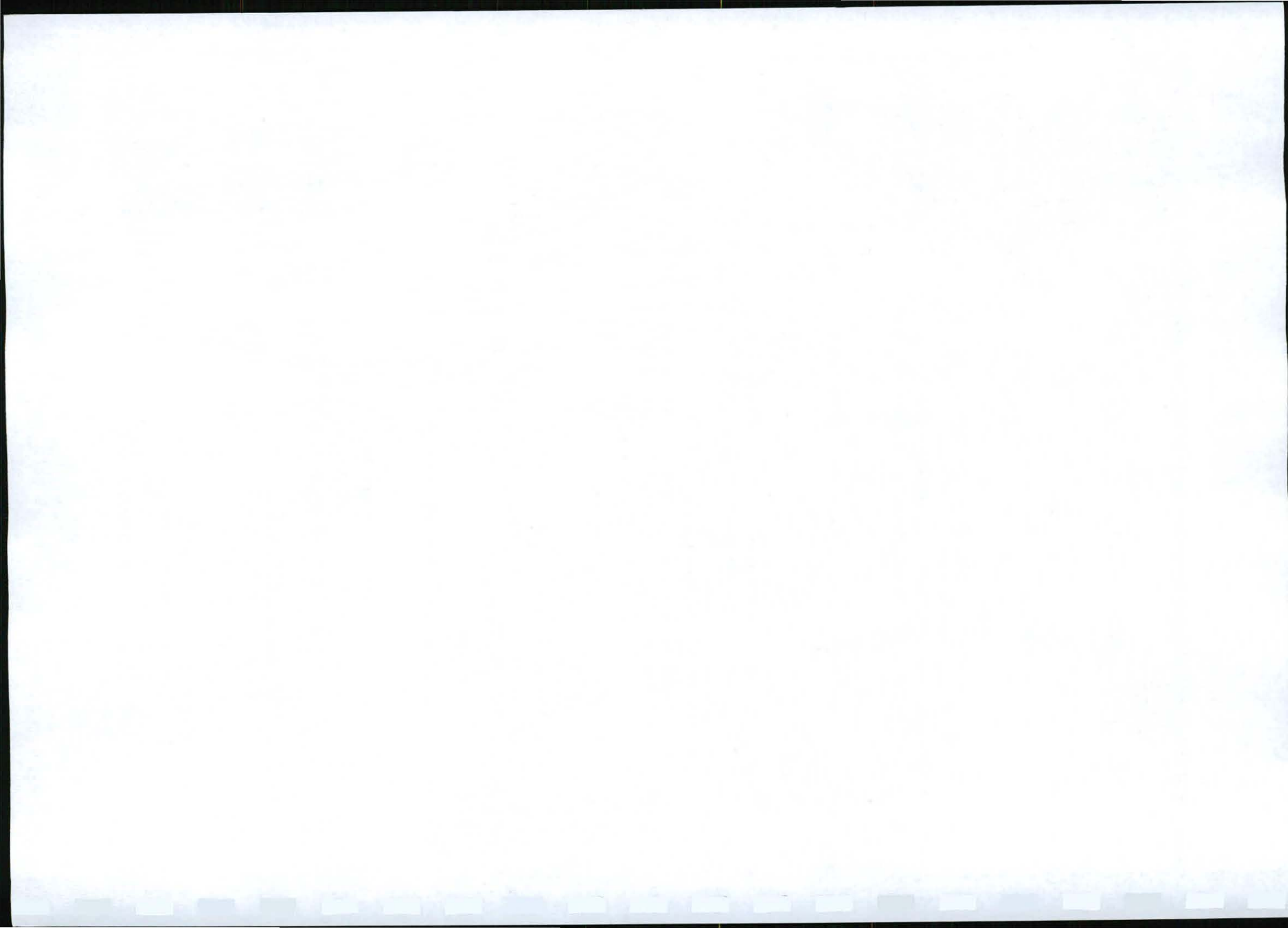
The following affected parties were identified and the **results of consultation with same, as well as photographs of the said site notice and actual newspaper clippings** are attached as **Annexure B and C** hereto:

- The Nelson Mandela Bay Municipality: (local authority and land owner)
- Mr Bernard Rupp: (neighbour)
- Human Dignity Centre: (neighbour)
- Animal Welfare Society: (neighbour)
- Air Ports Company of South Africa: (neighbour)
- Mr Deon Fourie: (neighbour)

3.2 Potential Environment Impacts Identified by affected parties:

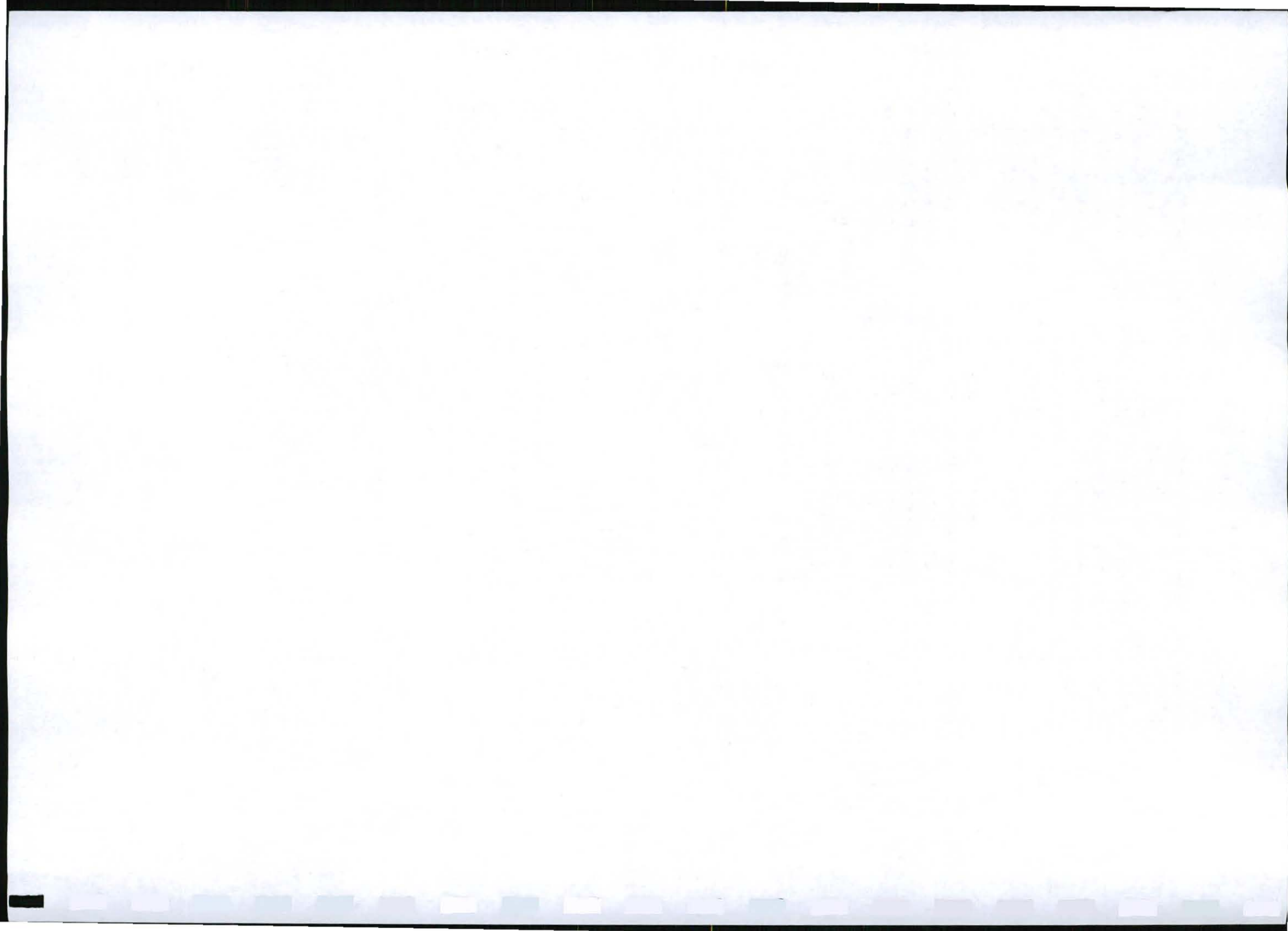
The following environmental impacts were identified by the affected parties:

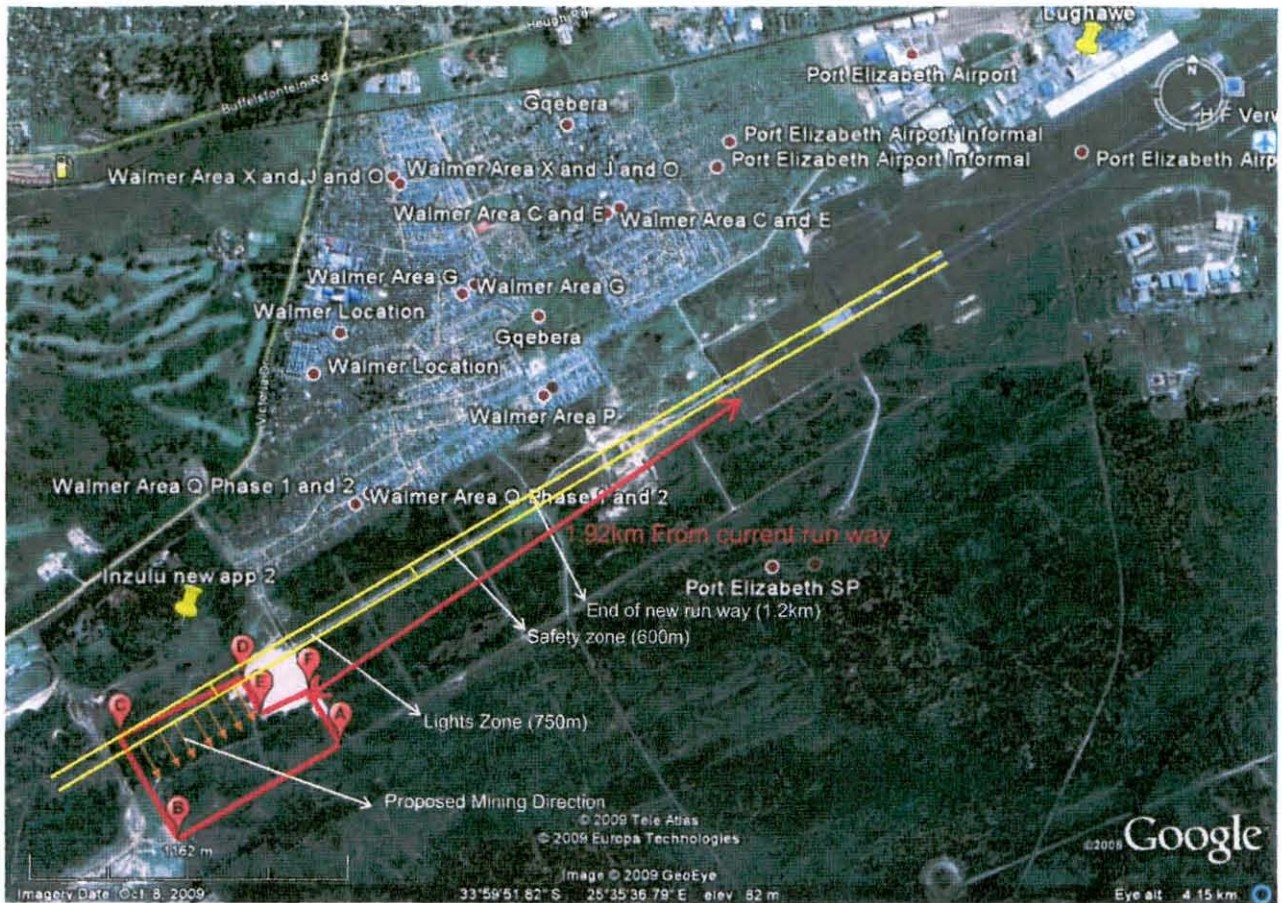
- The Nelson Mandela Bay Municipality: none.
- Mr Bernard Rupp: none.
- Human Dignity Centre: none.
- Animal Welfare Society:
 - ❖ Dust pollution (addressed in this programme).
 - ❖ Access roads (addressed in this programme).
- Air Ports Company of South Africa:
 - ❖ Dust pollution (addressed in this programme).
 - ❖ No activities should attract additional bird or wildlife (obviously an irrelevant condition/concern).



- ❖ No equipment should be higher than the obstacle restriction in terms of Civil Aviation legislation and regulations (during a recent meeting with Mr Justeyn van Zyl, Senior Airport Planner of ACSA at their Head Office in Bedfordview, it was explained by Future Mining Consultants that the highest structure on site will be the mobile screen and Mr Van Zyl assured that same will be well below the said restriction). In this regard it should be mentioned that mobile screen will be situated on the final contour level and will therefore be well below existing topography levels, as it is only 4 meters high.
 - ❖ A clear/open area north-west of the proposed mining area in line with the proposed extended runway, to be constructed only in 2015/16, be reserved for navigational equipment (apart from the fact that ACSA will have to negotiate this proposed use with the said land owner prior to the implementation of such an extended runway. There are no mineral reserves in the area as such and any activity in this area or in the areas immediately adjoining it will be completed in the first 3 years of mining. All actual mining should be completed in 2020 and only the final rehabilitation and after care and maintenance should be conducted after this date.
- Mr Deon Fourie: none

Please note that the Company will liaise further with ACSA as to establish how it should approach the South African Civil Aviation Authority and/or the Air Traffic and Navigational Services Company to negotiate such an aviation perspective approval referred to in ACSA' letter. In this regard the Company has it on authority that the proposed extension of the current runway has been planned since 1995 and that nothing realized since and it seems if the proposal is constantly being postponed. It will be observed from the map directly below that the proposed mining area is situated 1.9 km from the end of the existing runway and would be 0.7 km from the end of the new runway on completion. The line traverses only the edge of proposed mining area and due to fact that the mined out area has to be sloped by 18 degrees, this area will in any event not be mined. It should be mentioned that the current cemetery extension and the existing dump site which adjoins the proposed mining area will also be impacted by the said extension of the runway. Taking the aforementioned into account and the fact large bush fires in the area in the summer season have a far greater impact on the visibility in the area, it is not considered likely that SACA or ATNS will have any serious concerns/objections.





No potential environmental impacts were identified by any other affected parties.

3.3 Potential Environmental Impacts Identified by State Departments:

All comments provided by DEDEA were adequately addressed and highlighted in bold and italic earlier in this programme (please refer to its letter 24 August enclosed herein). No other potential environmental impacts were identified by any other State Department.

3.4 Potential Environmental Impacts of the Mining Activities:

The following table indicates the possible impacts that may occur from the mining activities

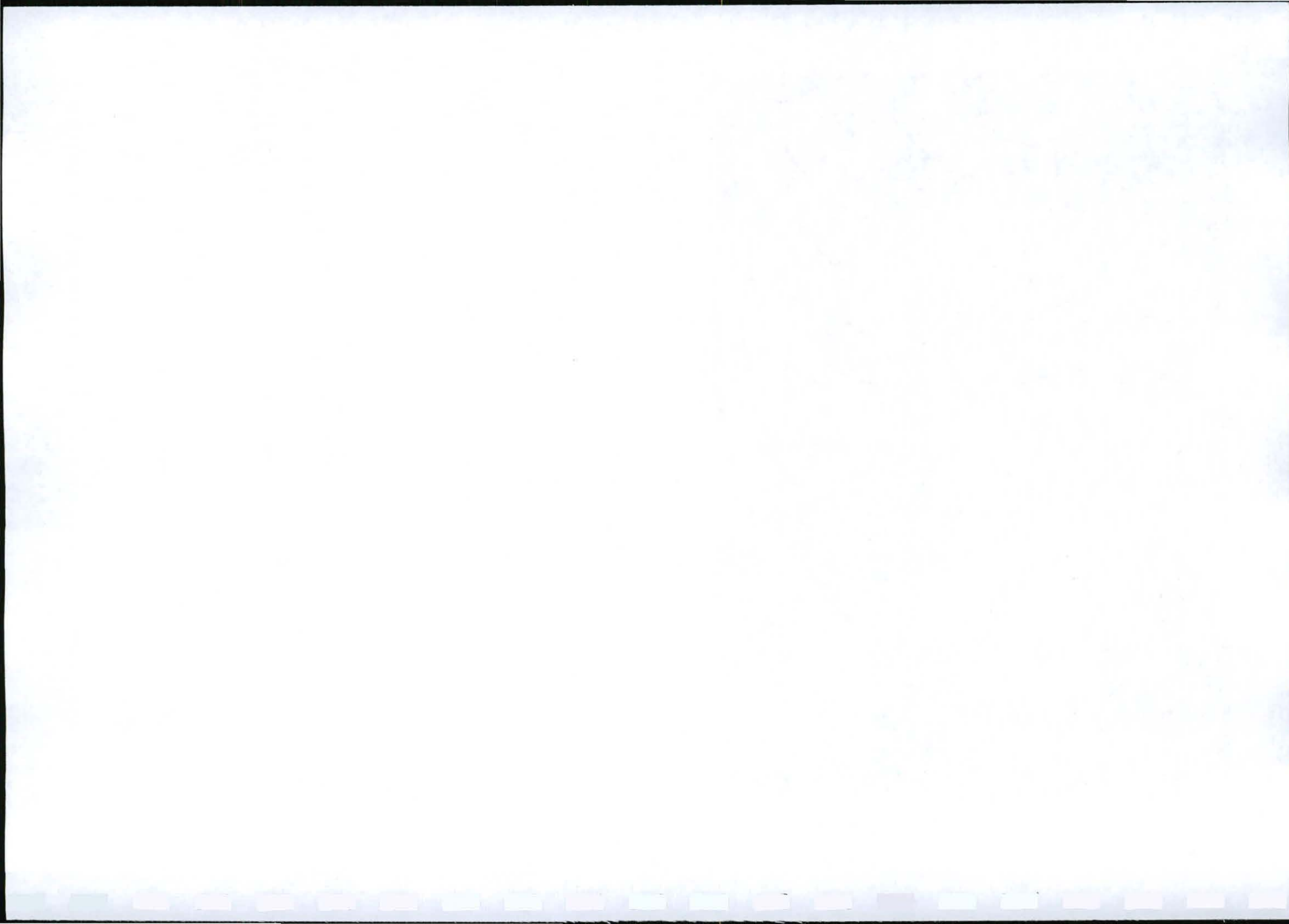


Table 3.4.1 Possible Construction Phase Impacts

Construction Phase:					
Activity:	Environmental Aspect:	Impact	Mitigation Impact	Annual Cost	Final Cost (Calculated over a period of 30 years in accordance with the life of mine)
Due to the fact that no permanent infrastructure will be established on the mining area, there will be no construction phase (Non permanent structures are confined to the mobile screen and portable toilets).					

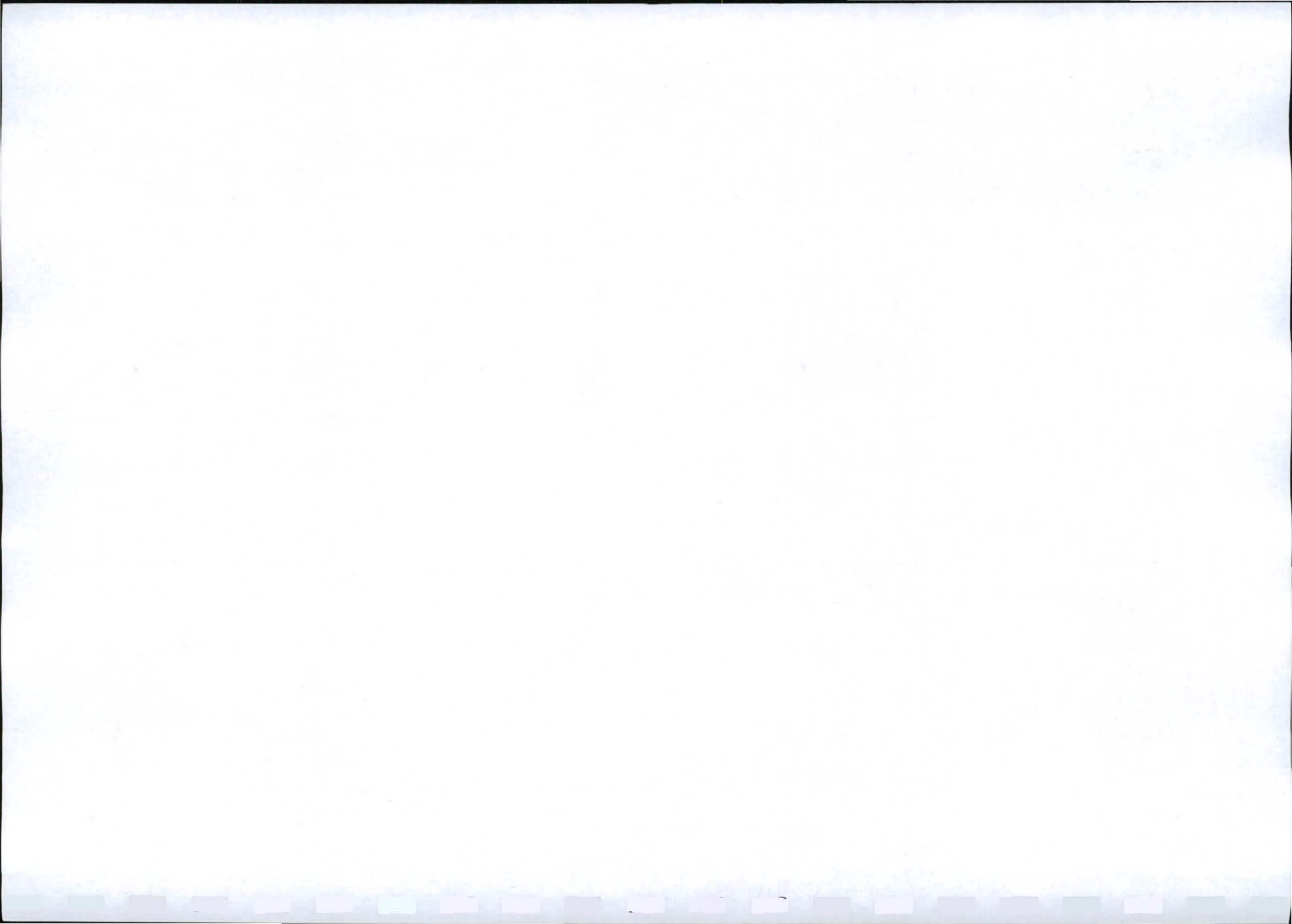
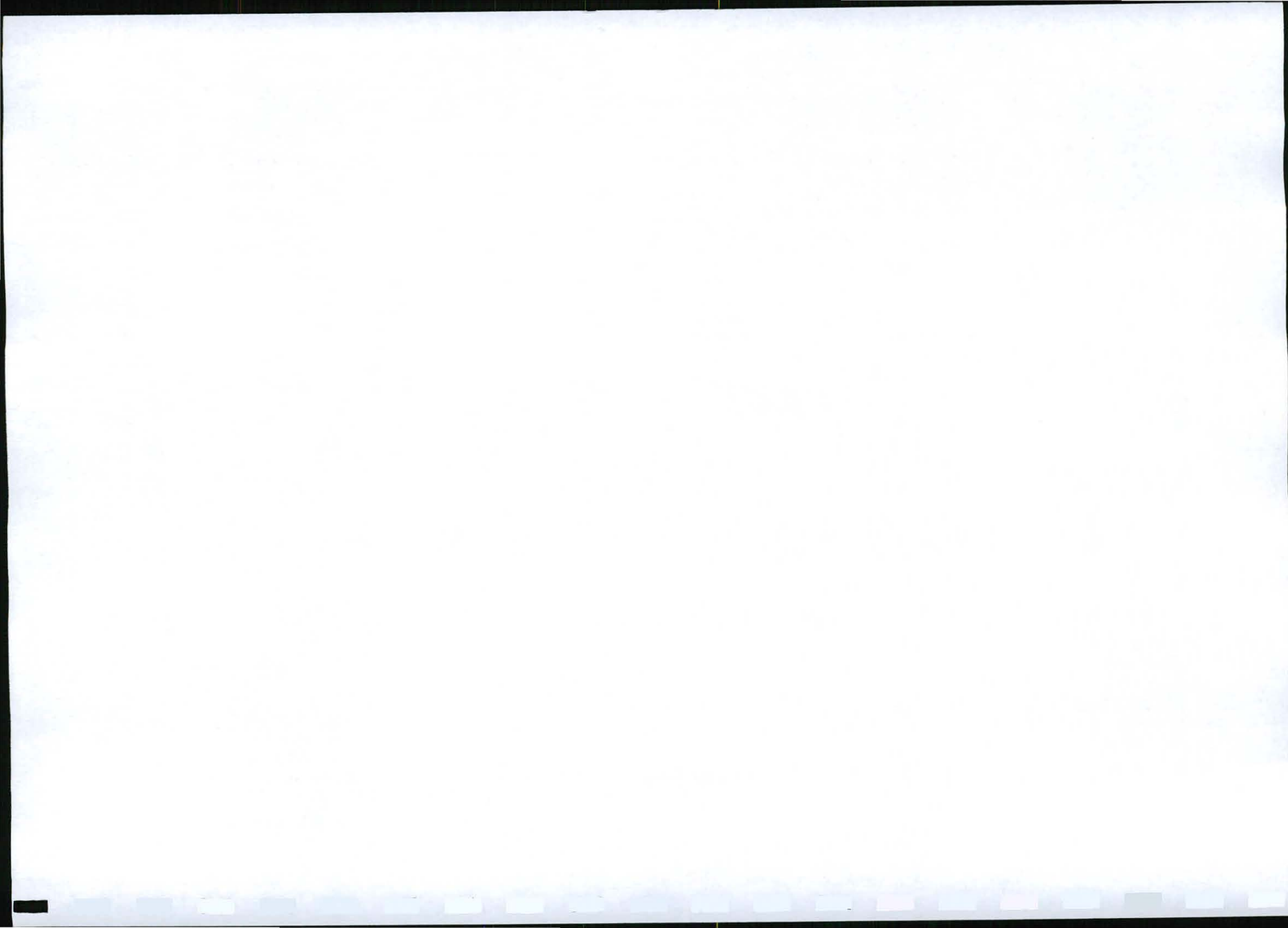
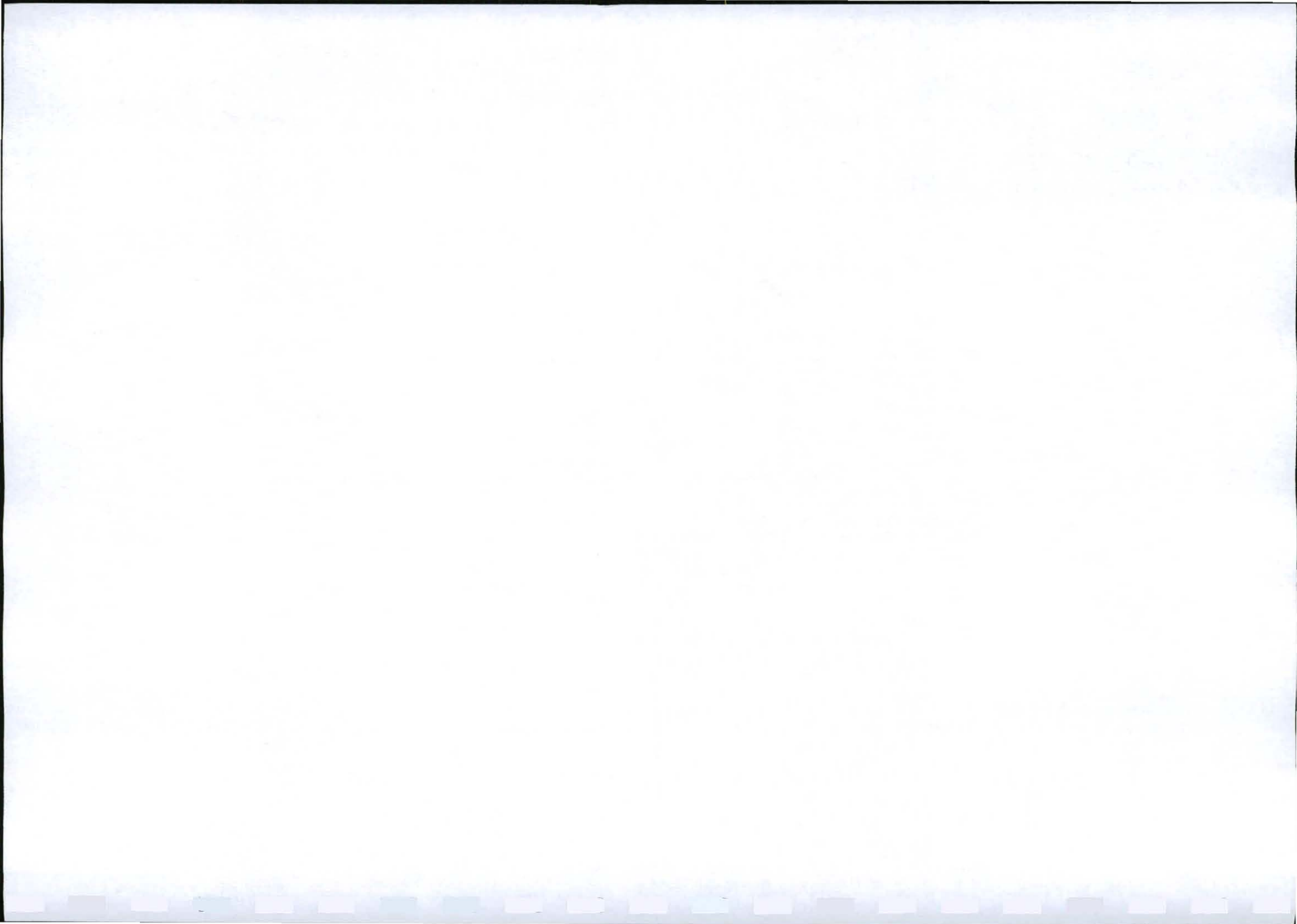


Table 3.4.2 Possible Operational Phase Impacts

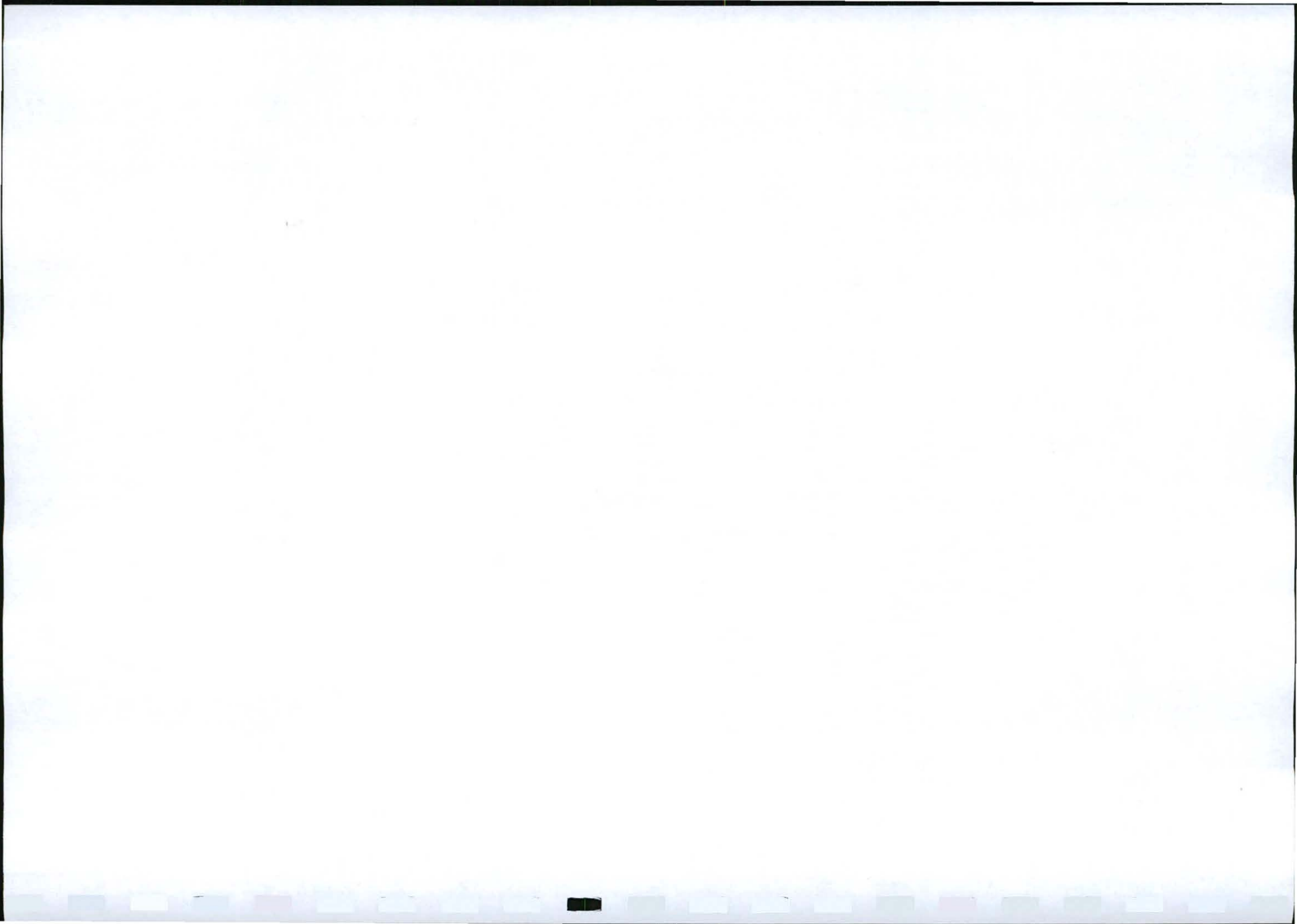
Operational Phase:					
Activity:	Environmental Aspect:	Impact	Mitigation Impact	Annual Cost	Final Cost (Calculated over a period of 22 years in accordance with the life of mine)
Topsoil Removal:	Geology:	Due to the fact that the topsoil only consists of 100mm: the geology will not be affected.	No mitigation is needed for this aspect due to the fact that there is no impact on same.	R0-00	R0-00
	Topography:	The removal of topsoil will create a lowered topography.	The negative impact on the topography of the mining site will be addressed during backfilling.	R0-00	R0-00
	Soil:	Topsoil will be removed periodically as required over the life of mine. The topsoil will be stockpiled.	The following design parameters will be taken into account when designing the topsoil stockpiles: <ul style="list-style-type: none"> • Topsoil will be removed up to a depth of 100mm or the available depth. • The stockpiles must be constructed on the most gradual slope possible and limited to a height of no more than 2m. • The slope of the stockpile material must be kept as low as possible to avoid extensive erosion of the natural resource. • The stockpiles must be vegetated when stored for a period longer than six months. • If erosion does occur the stockpiles can be stabilized through re-vegetation with pioneering grass species. Species include <i>Eragrostis curvula</i> and <i>Melinis repens</i>. • Soil fertility need to be assessed and 	R10,000-00	R220,000-00



		ameliorated where necessary prior to re-vegetation in order to ensure optimal growth.		
Flora:	The vegetation will be removed periodically as the mine do rehabilitation as the same time as mining.	Spreading topsoil over the disturbed areas during the closure phase, and then seeding the areas with an endemic seed mixture address the impact on vegetation. It is recommended that six monthly monitoring sessions be undertaken after the topsoil was restored to assess the success of the re-vegetation. During these monitoring sessions additional measures such as fertilisation can be implemented if necessary.	R0-00 The cost is included in the previous aspect namely topsoil removal.	R0-00 The cost is included in the previous aspect namely topsoil removal.
Fauna:	Fauna will leave the area temporarily.	After the rehabilitation of the mining area and successful re-vegetation, the displaced animal life will return in the time to come. It is however recommended that the mine manager needs to make it clear to labourers not to hunt or trap the local fauna especially the smaller mammals.	R0-00	R0-00
Surface Hydrology:	The lowered topography will alter the surface water runoff patterns.	The regulations promulgated in Government Notice No 704 of 4 June 1999, in terms of the NWA (the National Water Act, (Act No. 36 of 1998)) shall apply to the water management and pollution control at the mine. The mine will make use of beams and other structures surrounding the mine areas to ensure that clean and dirty water are separated. At any time if it is identified that soil erosion is the result of storm water run-off, the mine will rectify the erosion and implement measures to ensure that erosion does not re-occur.	R8,000-00	R24,000-00
Groundwater:	The mining activities will not intersect the groundwater table and no bore holes will be drilled on site. Water will be drawn from the municipality. There will be no sand washing only mobile sand screening.	No mitigation measures are required	R0-00	R0-00



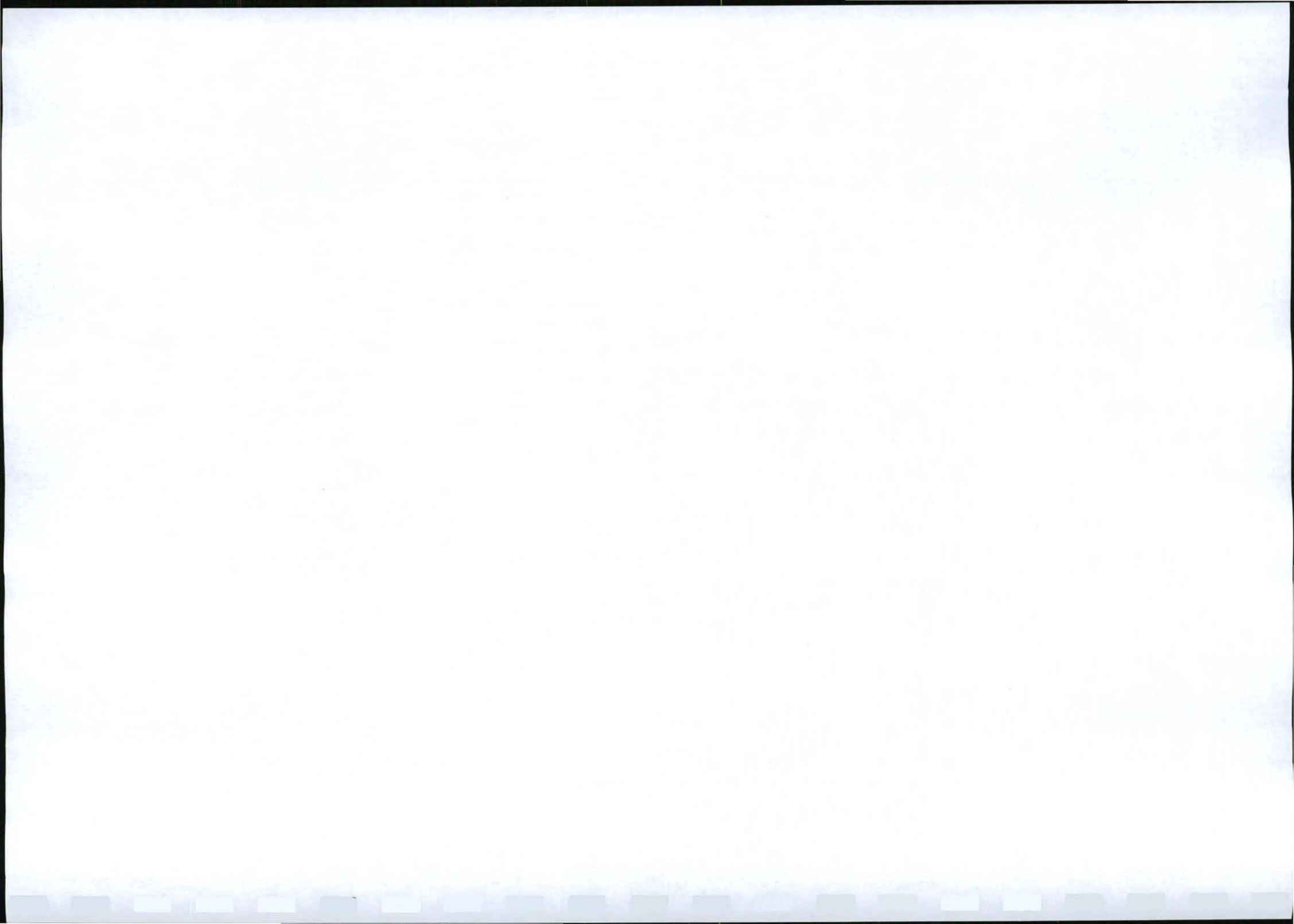
Air Quality / Dust suppression:	An increase in dust levels due to vehicle movement and excavation.	The following steps will be taken: <ul style="list-style-type: none"> • A sprinkler system will be used. Water will be drawn from the municipality. The water will from there be pumped into the sprinkler system. • Periodic watering of the access roads will be conducted if and when required, especially in August and September before the raining season commence. • Speed limits will be instated within the boundaries of the site to minimize the dust impact as a result of heavy trucks. • If dust levels on site are significantly impacted on and the dust level rise above 10mg/m³ dust masks must be made available to workers. 	R32,000-00	R704,000-00	
Noise:	Vehicles and machinery will cause an increase in the noise levels.	All machinery will be kept in good working order, to ensure that no unwanted noise is generated. Noisy vehicles or machinery will be repaired immediately to dampen noise levels on site.	Already catered for in the cash flow forecast contained in the Mining Work Programme. R60,000-00	Already catered for in the cash flow forecast contained in the Mining Work Programme. R1,320,000 -00	
Visual Aspects:	There is no visual impact as the mining site is not visible from any roads. Because this is a degraded area between a cemetery and a dumping site it requires no mitigation.	No mitigation measures required.	R0-00	R0-00	
Excavating:	Geology:	The upper part of the geological structure is removed through excavating. The underlying geology will however not be affected.	The mine will be committed to optimise the use of the mined mineral in order to ensure no resources are wasted. No other management measures will be possible.	R0-00	R0-00
Topography:	Excavating will create a	The negative impact on the topography of the	R10,000-00	R220,000-00	



	lowered topography and leave a final void.	mining site will be addressed during backfilling.		
Soil:	The underlying soil structure (overburden) is removed and stockpiled.	The impacts of excavating soil will be addressed during the Replacing Topsoil activities.	R10,000-00	R220,000-00
Flora:	All Flora has already been removed.	No mitigation measures required.	R0-00	R0-00
Fauna:	All Fauna has already vacated the site in the previous phase.	No mitigation measures required.	R0-00	R0-00
Surface Hydrology:	The lowered topography and final void will alter the surface water runoff patterns.	The regulations promulgated in Government Notice No 704 of 4 June 1999, in terms of the NWA (the National Water Act, (Act No. 36 of 1998)) shall apply to the water management and pollution control at the mine. The mine will make use of beams and other structures surrounding the mine areas to ensure that clean and dirty water are separated. At any time if it is identified that soil erosion is the result of storm water run-off, the mine will rectify the erosion and implement measures to ensure that erosion does not re-occur.	R0-00 Cost already included in previous phase.	R0-00 Cost already included in previous phase.
Groundwater:	The mining activities will not intersect the groundwater table and no bore holes will be drilled on site. A sprinkler system will be used. Water will be drawn from the municipality. The water will from there be pumped into the sprinkler system.	No mitigation measures are required	R0-00	R0-00
Air Quality / Dust suppression:	An increase in dust levels due to vehicle movement and excavation.	The following steps will be taken: <ul style="list-style-type: none"> • A sprinkler system will be used. Water will be drawn from the municipality. The water will from there be pumped into the sprinkler system. • Periodic watering of the access roads 	R0-00 Cost already included in previous phase.	R0-00 Cost already included in previous phase.



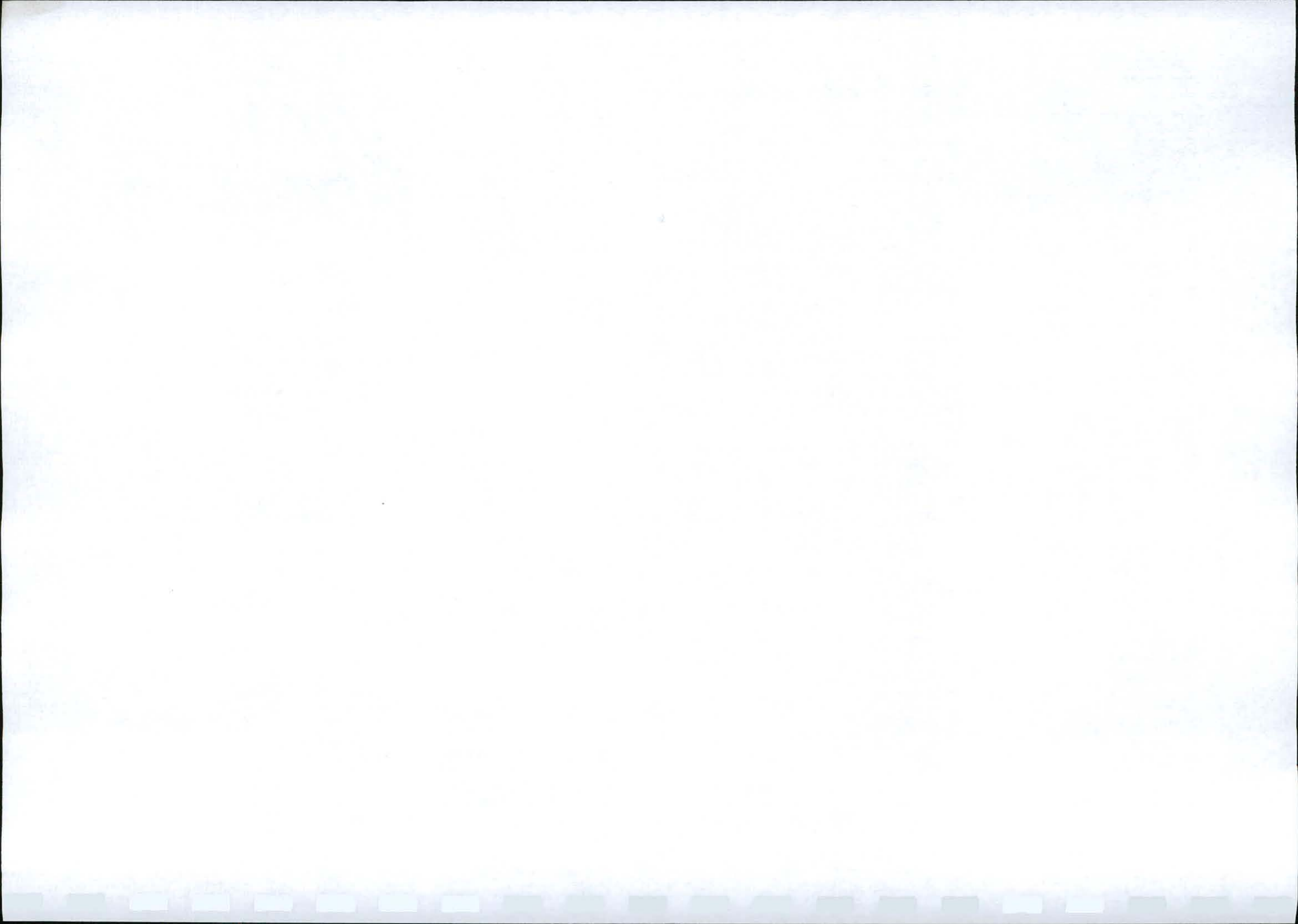
		<p>will be conducted if and when required, especially in August and September before the raining season commence.</p> <ul style="list-style-type: none"> • Speed limits will be instated within the boundaries of the site to minimize the dust impact as a result of heavy trucks. • If dust levels on site are significantly impacted on and the dust level rise above 10mg/m³ dust masks must be made available to workers. 			
	Noise:	Excavating will cause an increase in noise levels.	All machinery will be kept in good working order, to ensure that no unwanted noise is generated. Noisy vehicles or machinery will be repaired immediately to dampen noise levels on site.	R0-00	R0-00
	Visual Aspects:	There is no visual impact as the mining site is not visible from any roads. Because this is a degraded area between a cemetery and a dumping site it requires no mitigation.	No mitigation measures required.	R0-00	R0-00
Hauling:	Geology:	Hauling will have no impact on the geology.	No mitigation measures required.	R0-00	R0-00
	Topography:	Hauling will have no impact on the topography.	No mitigation measures required.	R0-00	R0-00
	Soil:	Hauling will have no impact on the soil. There is already an existing road infrastructure as can be seen on the satellite image on the Reg 2(2) plan.	No mitigation measures required.	R0-00	R0-00
	Flora:	All Flora has already been removed.	No mitigation measures required.	R0-00	R0-00
	Fauna:	All Fauna has already vacated the site in the previous phase.	No mitigation measures required.	R0-00	R0-00
	Surface Hydrology:	Hauling will have no	No mitigation measures required.	R0-00	R0-00



	impact on the surface hydrology.			
Groundwater:	Hauling will have no impact on the groundwater.	No mitigation measures required.	R0-00	R0-00
Air Quality / Dust suppression:	Hauling will cause an increase in dust levels.	<p>The following steps will be taken:</p> <ul style="list-style-type: none"> • A sprinkler system will be used. Water will be drawn from the municipality. The water will from there be pumped into the sprinkler system. • Periodic watering of the access roads will be conducted if and when required, especially in August and September before the raining season commence. • Speed limits will be instated within the boundaries of the site to minimize the dust impact as a result of heavy trucks. • If dust levels on site are significantly impacted on and the dust level rise above 10mg/m³ dust masks must be made available to workers. 	R0-00 Cost already included in previous phase.	R0-00 Cost already included in previous phase.
Noise:	Hauling will cause an increase in noise levels.	All machinery will be kept in good working order, to ensure that no unwanted noise is generated. Noisy vehicles or machinery will be repaired immediately to dampen noise levels on site.	R0-00	R0-00
Visual Aspects:	There is no visual impact as the mining site is not visible from any roads. Because this is a degraded area between a cemetery and a dumping site it requires no mitigation.	No mitigation measures required.	R0-00	R0-00
Backfilling:	Geology: The backfilling of overburden restores the geological material, but with an altered geological structure.	Backfilling is taken from the overburden stockpiled referred to above as to prepare the site for replacing of topsoil.	R0-00 Cost already catered for in the excavating phase.	R0-00 Cost already catered for in the excavation phase.



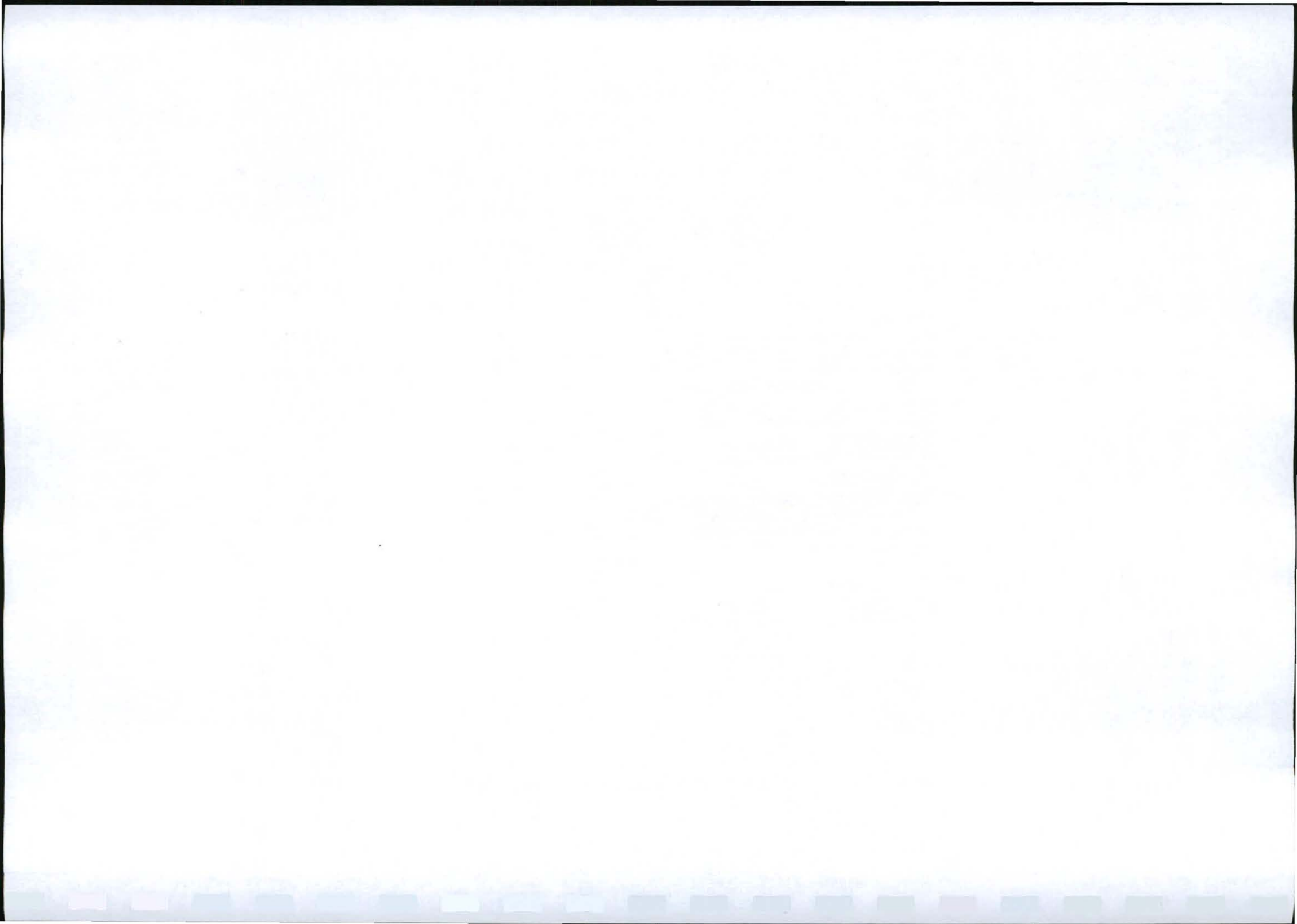
Topography:	There will be no void left because only loose sand on top will be mined. The backfilling be done to level out the area for planting grass and the use of a cemetery.	Backfilling with overburden.	R0-00	R0-00
Soil:	Overburden replacement.	The overburden stockpiled for rehabilitation purposes referred to above are placed on the disturbed area.	R0-00	R0-00 Cost already catered for in the excavation phase.
Flora:	All Flora has already been removed.	No mitigation measures required.	R0-00	R0-00
Fauna:	All Fauna has already vacated the site in the previous phase.	No mitigation measures required.	R0-00	R0-00
Surface Hydrology:	Backfilling will alter the topography and cause a change in surface water runoff patterns.	The regulations promulgated in Government Notice No 704 of 4 June 1999, in terms of the NWA (the National Water Act, (Act No. 36 of 1998)) shall apply to the water management and pollution control at the mine. The mine will make use of beams and other structures surrounding the mine areas to ensure that clean and dirty water are separated. At any time if it is identified that soil erosion is the result of storm water run-off, the mine will rectify the erosion and implement measures to ensure that erosion does not re-occur.	R0-00 Cost already included in previous phase.	R0-00 Cost already included in previous phase.
Groundwater:	Groundwater will not be impacted.	No mitigation measures required.	R0-00	R0-00
Air Quality:	Movement of vehicles and machinery, together with dumping of overburden into the pit will increase dust levels.	The following steps will be taken: <ul style="list-style-type: none"> • A sprinkler system will be used. Water will be drawn from the municipality. The water will from there be pumped into the sprinkler system. • Periodic watering of the access roads will be conducted if and when required, especially in August and September before the raining season commence. 	R0-00 Cost already included in previous phase.	R0-00 Cost already included in previous phase.



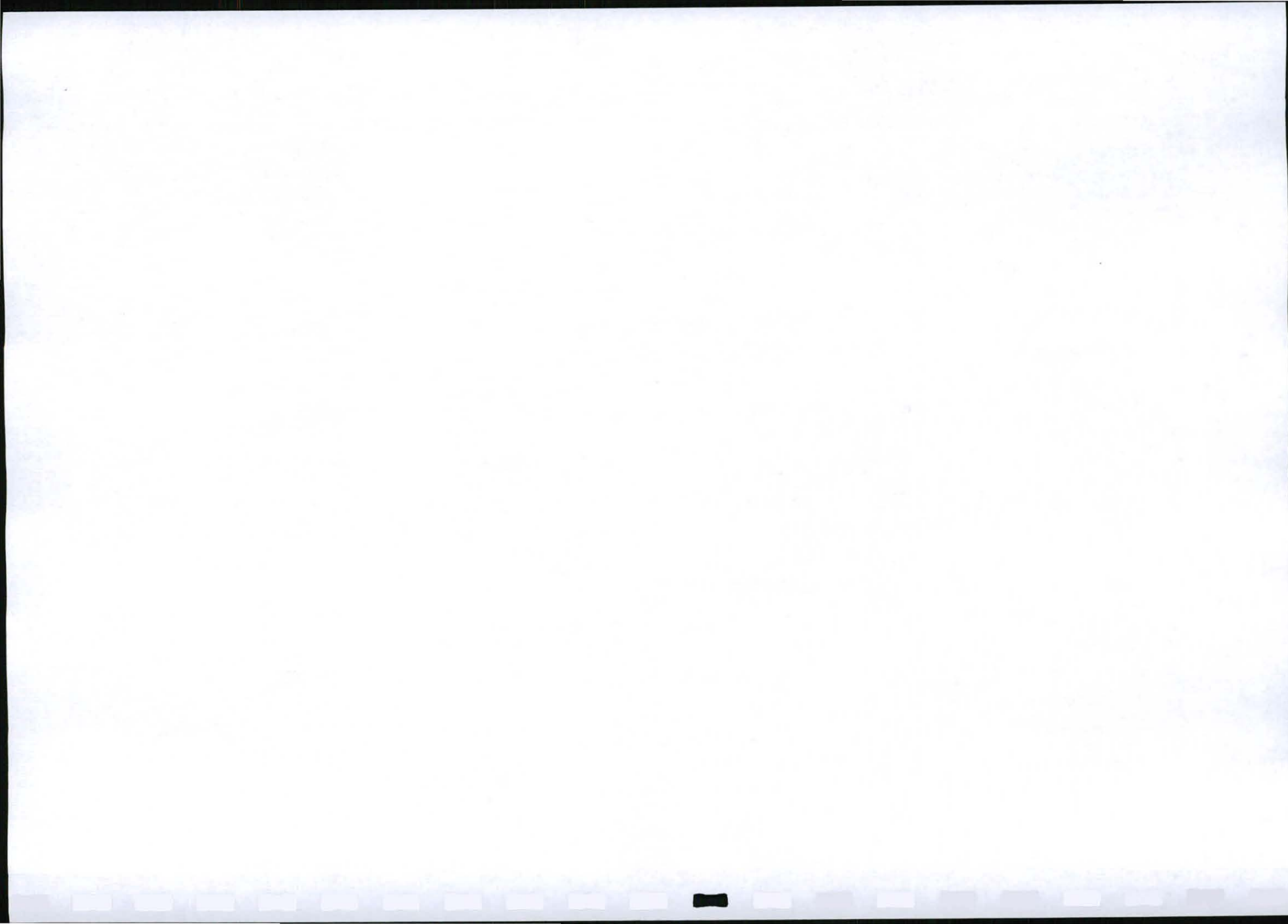
			<ul style="list-style-type: none"> Speed limits will be instated within the boundaries of the site to minimize the dust impact as a result of heavy trucks. If dust levels on site are significantly impacted on and the dust level rise above 10mg/m³ dust masks must be made available to workers. 		
	Noise:	Movement of vehicles and machinery will increase noise levels.	All machinery will be kept in good working order, to ensure that no unwanted noise is generated. Noisy vehicles or machinery will be repaired immediately to dampen noise levels on site.	R0-00	R0-00
	Visual Aspects:	There is no visual impact as the mining site is not visible from any roads. Because this is a degraded area between a cemetery and a dumping site it requires no mitigation.	No mitigation measures required.	R0-00	R0-00
Loading	Geology:	Loading will be on site but will have no impact because geology will have already been taken away.	No mitigation measures required.	R0-00	R0-00
	Topography:	Loading will be on site but will have no impact because topography will have already been altered.	No mitigation measures required.	R0-00	R0-00
	Soil:	Loading will be on site but will have no impact because soil will have already been taken away.	No mitigation measures required.	R0-00	R0-00
	Flora:	Loading will be on site but will have no impact because flora will have already been taken away.	No mitigation measures required.	R0-00	R0-00
	Fauna:	Loading will be on site but will have no impact because fauna will have	No mitigation measures required.	R0-00	R0-00



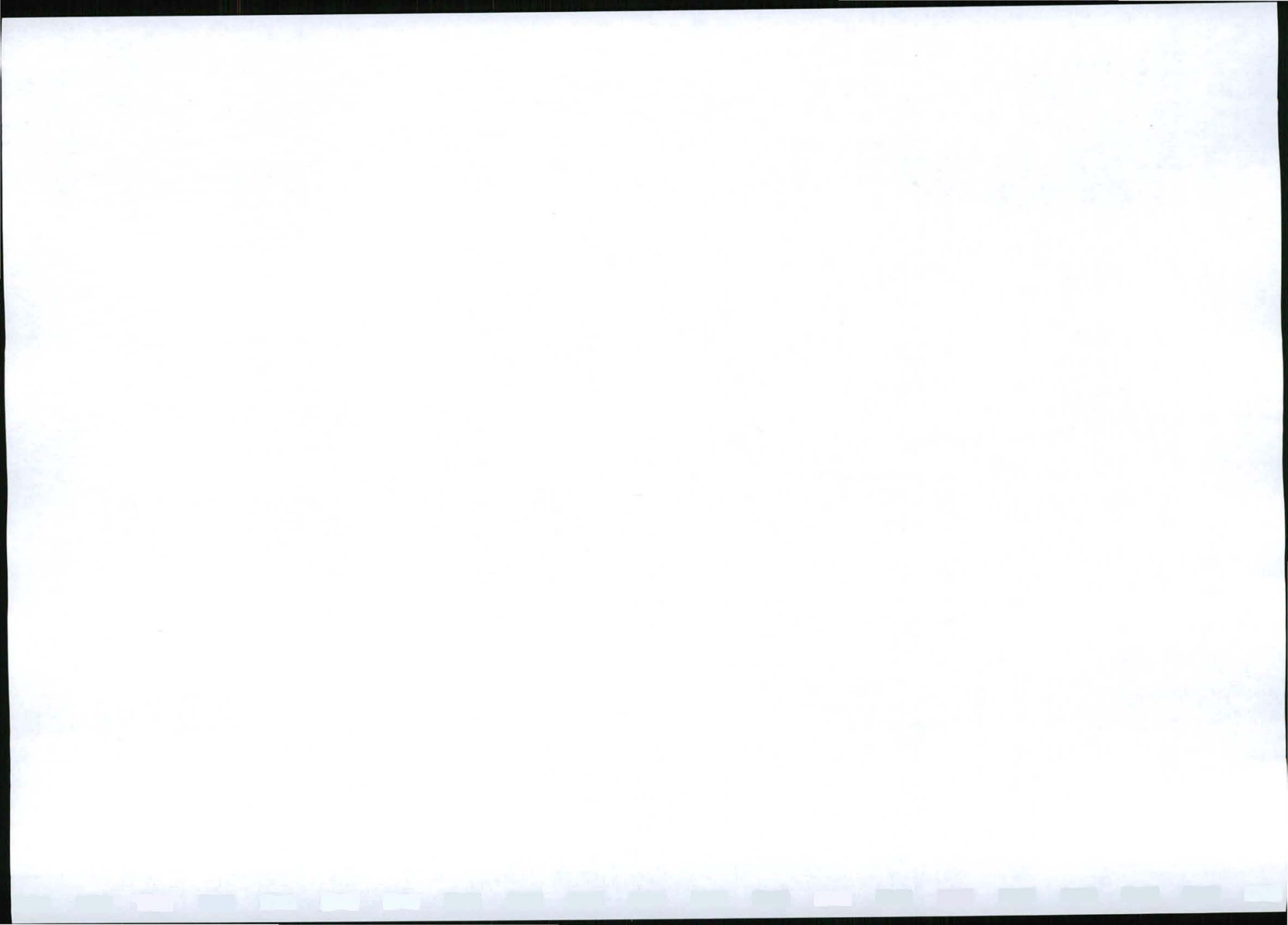
		already temporarily vacated the area.			
	Surface Hydrology:	Loading will be on site but will have no impact because runoff will already have been altered.	No mitigation measures required.	R0-00	R0-00
	Groundwater:	Loading will be on site but will have no impact.	No mitigation measures required.	R0-00	R0-00
	Air Quality / Dust suppression:	Loading will cause an increase in dust levels.	The following steps will be taken: <ul style="list-style-type: none"> • A sprinkler system will be used. Water will be drawn from the municipality. The water will from there be pumped into the sprinkler system. • Periodic watering of the access roads will be conducted if and when required, especially in August and September before the raining season commence. • Speed limits will be instated within the boundaries of the site to minimize the dust impact as a result of heavy trucks. • If dust levels on site are significantly impacted on and the dust level rise above 10mg/m³ dust masks must be made available to workers. 	R0-00 Cost already included in previous phase.	R0-00 Cost already included in previous phase.
	Noise:	Loading will cause an increase in noise levels.	All machinery will be kept in good working order, to ensure that no unwanted noise is generated. Noisy vehicles or machinery will be repaired immediately to dampen noise levels on site.	R0-00	R0-00
	Visual Aspects:	There is no visual impact as the mining site is not visible from any roads. Because this is a degraded area between a cemetery and a dumping site it requires no mitigation.	No mitigation measures required.	R0-00	R0-00
Transport	Geology:	Transport will be off site because the mineral will	No mitigation measures required.	R0-00	R0-00



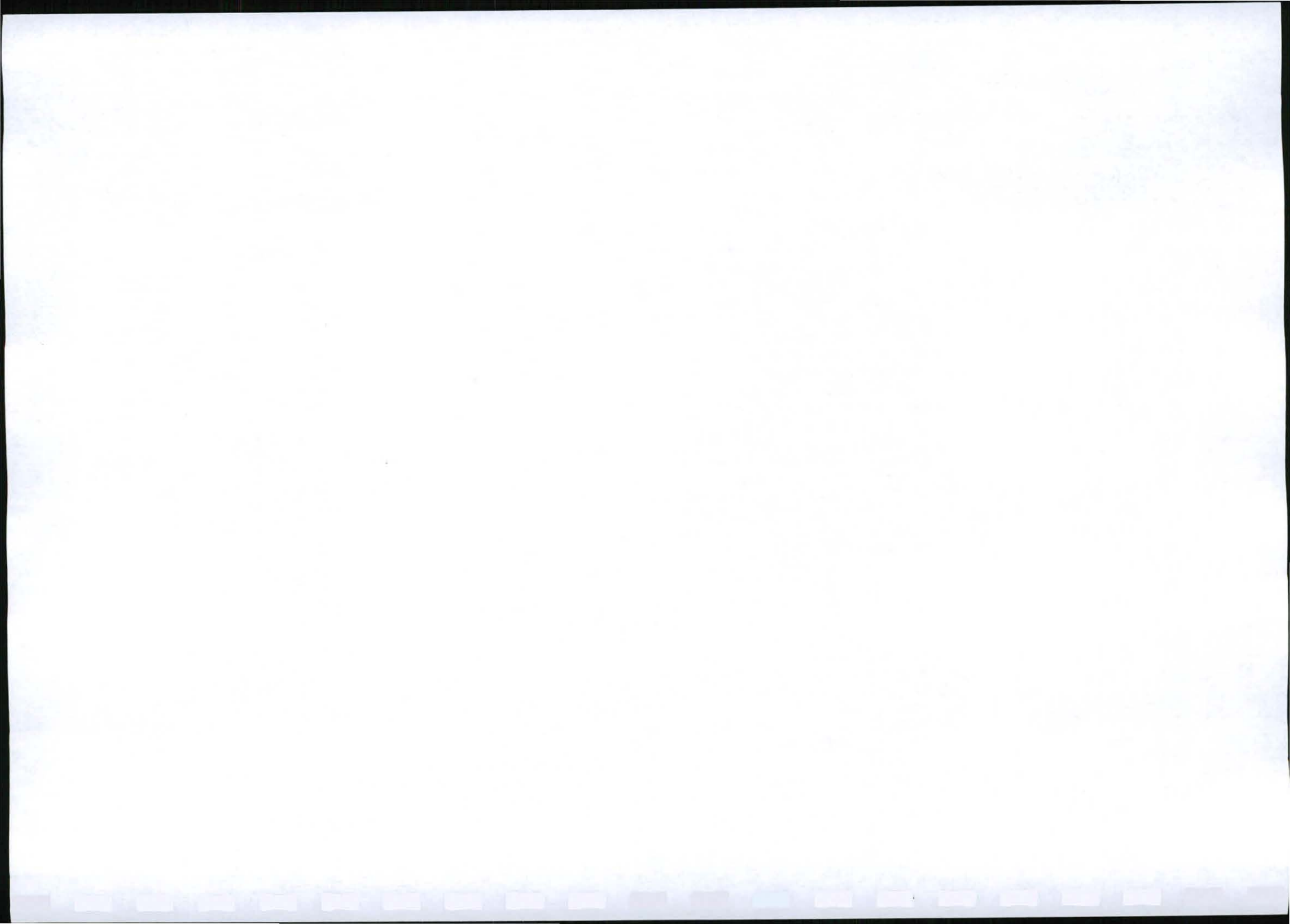
	be delivered to the customer. Thus no impact.			
Topography:	Transport will be off site because the mineral will be delivered to the customer. Thus no impact.	No mitigation measures required.	R0-00	R0-00
Soil:	Transport will be off site because the mineral will be delivered to the customer. Thus no impact.	No mitigation measures required.	R0-00	R0-00
Flora:	Transport will be off site because the mineral will be delivered to the customer. Thus no impact.	No mitigation measures required.	R0-00	R0-00
Fauna:	Transport will be off site because the mineral will be delivered to the customer. Thus no impact.	No mitigation measures required.	R0-00	R0-00
Surface Hydrology:	Transport will be off site because the mineral will be delivered to the customer. Thus no impact.	No mitigation measures required.	R0-00	R0-00
Groundwater:	Transport will be off site because the mineral will be delivered to the customer. Thus no impact.	No mitigation measures required.	R0-00	R0-00
Air Quality:	Transport will cause an increase in dust levels.	The following steps will be taken: <ul style="list-style-type: none"> • A sprinkler system will be used. Water will be drawn from the municipality. The water will from there be pumped into the sprinkler system. • Periodic watering of the access roads will be conducted if and when required, 	R0-00 Cost already included in previous phase.	R0-00 Cost already included in previous phase.



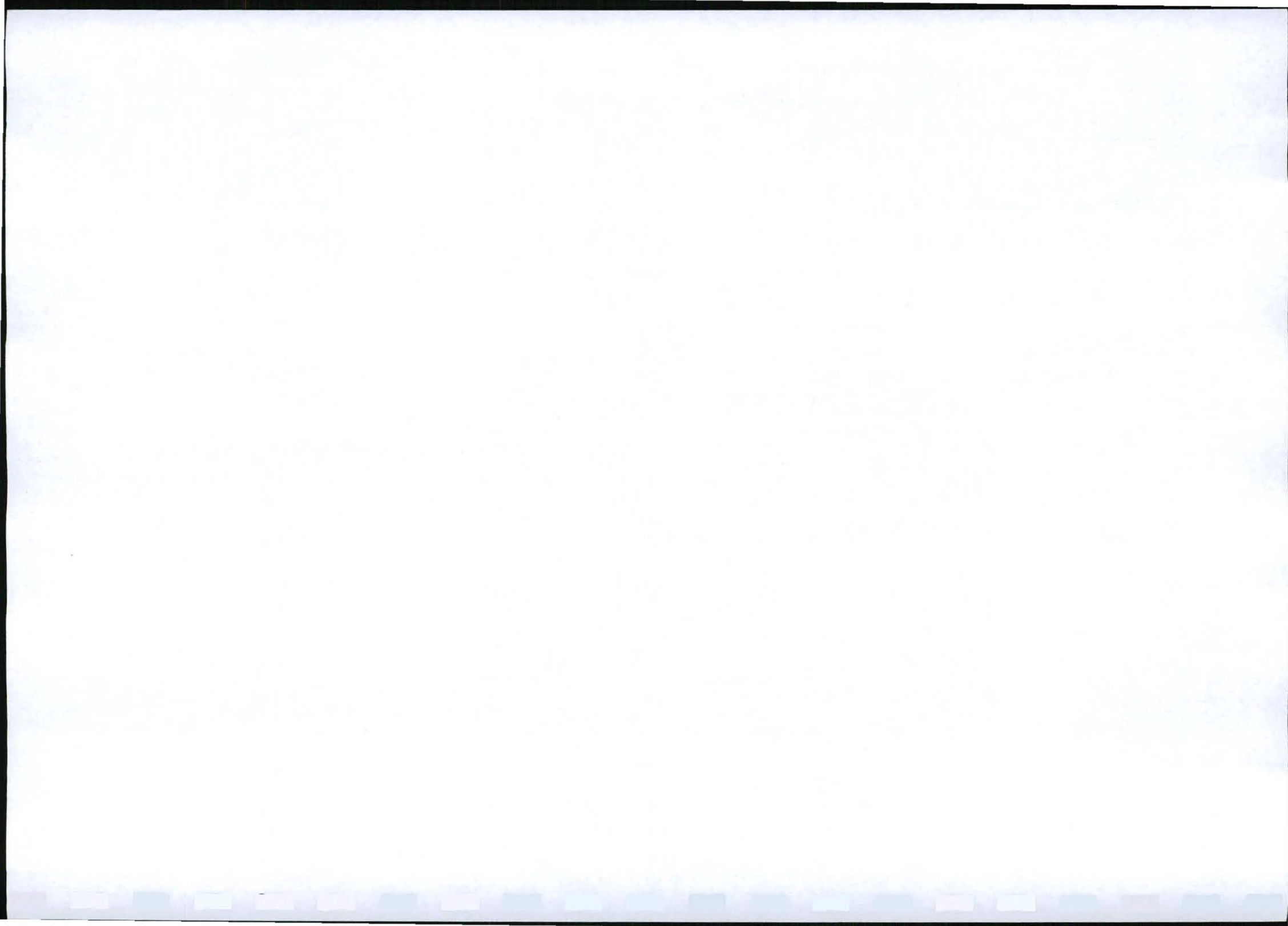
			<p>especially in August and September before the raining season commence.</p> <ul style="list-style-type: none"> • Speed limits will be instated within the boundaries of the site to minimize the dust impact as a result of heavy trucks. • If dust levels on site are significantly impacted on and the dust level rise above 10mg/m³ dust masks must be made available to workers. 		
	Noise:	Transport will cause an increase in noise levels.	All machinery will be kept in good working order, to ensure that no unwanted noise is generated. Noisy vehicles or machinery will be repaired immediately to dampen noise levels on site.	R0-00	R0-00
	Visual Aspects:	Transport will have an effect on traffic being increased transporting the final product to the client.	All loads will be optimised to minimise trips.	R0-00	R0-00
Replacing Topsoil:	Geology:	The backfilling of overburden restores the geological material, but with an altered geological structure.	Backfilling is taken from the overburden stockpiled referred to above as to prepare the site for replacing of topsoil.	R0-00 Cost already catered for in the excavating phase.	R0-00 Cost already catered for in the excavation phase.
	Topography:	There will be no void left because only loose sand on top will be mined. The backfilling be done to level out the area for planting grass and the use of a cemetery.	Backfilling with overburden.	R0-00	R0-00
	Soil:	Topsoil replacement.	The topsoil stockpiled for rehabilitation purposes referred to above are placed on top of the overburden.	R0-00 Cost already catered for in the excavation phase.	R0-00 Cost already catered for in the excavation phase.
	Flora:	All Flora has already been removed.	This mitigation measure has already been catered for in the topsoil removal phase.	R0-00	R0-00
	Fauna:	All Fauna has already vacated the site in the previous phase.	As vegetation re-establishes itself on the site the natural Fauna will gradually return.	R0-00	R0-00



Surface Hydrology:	The replacing of topsoil over the partially backfilled pit or excavation areas will have the final alteration on the topography and changed runoff patterns.	The regulations promulgated in Government Notice No 704 of 4 June 1999, in terms of the NWA (the National Water Act, (Act No. 36 of 1998)) shall apply to the water management and pollution control at the mine. The mine will make use of beams and other structures surrounding the mine areas to ensure that clean and dirty water are separated. At any time if it is identified that soil erosion is the result of storm water run-off, the mine will rectify the erosion and implement measures to ensure that erosion does not re-occur.	R0-00 Cost already included in previous phase.	R0-00 Cost already included in previous phase.
Groundwater:	Groundwater will not be impacted.	No mitigation measures required.	R0-00	R0-00
Air Quality:	Movement of vehicles and machinery will increase the dust levels.	The following steps will be taken: <ul style="list-style-type: none"> • A sprinkler system will be used. Water will be drawn from the municipality. The water will from there be pumped into the sprinkler system. • Periodic watering of the access roads will be conducted if and when required, especially in August and September before the raining season commence. • Speed limits will be instated within the boundaries of the site to minimize the dust impact as a result of heavy trucks. • If dust levels on site are significantly impacted on and the dust level rise above 10mg/m³ dust masks must be made available to workers.. 	R0-00 Cost already included in previous phase.	R0-00 Cost already included in previous phase.
Noise:	Movement of vehicles and machinery will increase the noise levels.	All machinery will be kept in good working order, to ensure that no unwanted noise is generated. Noisy vehicles or machinery will be repaired immediately to dampen noise levels on site.	R0-00	R0-00
Visual Aspects:	There is no visual impact as the mining site is not visible from any roads. Because this is a degraded area between a	No mitigation measures required.	R0-00	R0-00



		cemetery and a dumping site it requires no mitigation.			
Vegetating:	Geology:	Vegetating will not impact geology.	No mitigation measures required.	R0-00	R0-00
	Topography:	Vegetating will not impact topography.	No mitigation measures required.	R0-00	R0-00
	Soil:	Positive impact - vegetating the disturbed areas will prevent soil erosion.	No mitigation measures required.	R0-00	R0-00
	Flora:	Positive impact - vegetating the disturbed areas with endemic species. This area will be a cemetery after mining.	No mitigation measures required.	R0-00	R0-00
	Fauna:	Positive impact - vegetating the disturbed areas with endemic species. This area will be a cemetery after mining.	No mitigation measures required.	R0-00	R0-00
	Surface Hydrology:	The newly established vegetation will result in a higher Tc (time of concentration), resulting in lower flood peaks and reduced risk of erosion and flood damage downstream. The subsequent slower surface water flow will change the runoff.	The regulations promulgated in Government Notice No 704 of 4 June 1999, in terms of the NWA (the National Water Act, (Act No. 36 of 1998)) shall apply to the water management and pollution control at the mine. The mine will make use of beams and other structures surrounding the mine areas to ensure that clean and dirty water are separated. At any time if it is identified that soil erosion is the result of storm water run-off, the mine will rectify the erosion and implement measures to ensure that erosion does not re-occur.	R0-00	R0-00
	Groundwater:	Groundwater will not be impacted.	No mitigation measures required.	R0-00	R0-00
	Air Quality:	Positive impact – air quality will dramatically improve as re-vegetation commences.	No mitigation measures required.	R0-00	R0-00
Noise:	Noise levels will not be	No mitigation measures required.	R0-00	R0-00	



		impacted.			
	Visual Aspects:	Positive impact – will dramatically improve as re-vegetation commences.	No mitigation measures required.	R0-00	R0-00
Dust Suppression:	Geology:	Geology will not be impacted.	No mitigation measures required.	R0-00	R0-00
	Topography:	Topography will not be impacted.	No mitigation measures required.	R0-00	R0-00
	Soil:	Soil will not be impacted.	No mitigation measures required.	R0-00	R0-00
	Flora:	All Flora has already been removed.	No mitigation measures required.	R0-00	R0-00
	Fauna:	All Fauna has already vacated the site in the previous phase.	No mitigation measures required.	R0-00	R0-00
	Surface Hydrology:	Surface hydrology will not be impacted.	No mitigation measures required.	R0-00	R0-00
	Groundwater:	Water spayed on the roads or disturbed areas may seep into the groundwater system.	Water will be obtained from the municipality. The mine will make sure to optimise the water usage and not to contaminate any groundwater.	R0-00	R0-00
	Air Quality:	Positive impact - water sprayed on the roads or disturbed areas will reduce dust pollution of moving vehicles.	No mitigation measures required.	R0-00	R0-00
	Noise:	The movement of vehicles will increase the noise levels.	Frequent maintenance of vehicles required - refer to above.	R0-00 Already catered for above.	R0-00 Already catered for above.
	Visual Aspects:	Visual aspects will not be impacted.	No mitigation measures required.	R0-00	R0-00

