



the dme

Department:
Minerals and Energy
REPUBLIC OF SOUTH AFRICA

DME 12

Private Bag X6076, Port Elizabeth 6000,
Tel: (041) 396 3900
Fax: (041) 396 3946
Cnr. Diaz and Mount Roads
Mount Croix
Port Elizabeth, 6001

Enquiries: D.A. Watkins
E-mail: deidre.watkins@dme.gov.za

Reference:
Date:

EC30/5/1/3/3/2/1(0420)EM
19 March 2010

South African Heritage Resources Agency
P.O. Box 758
GRAHAMSTOWN
5200

case ID: 2498

ATTENTION: MR. T. LUNGILE

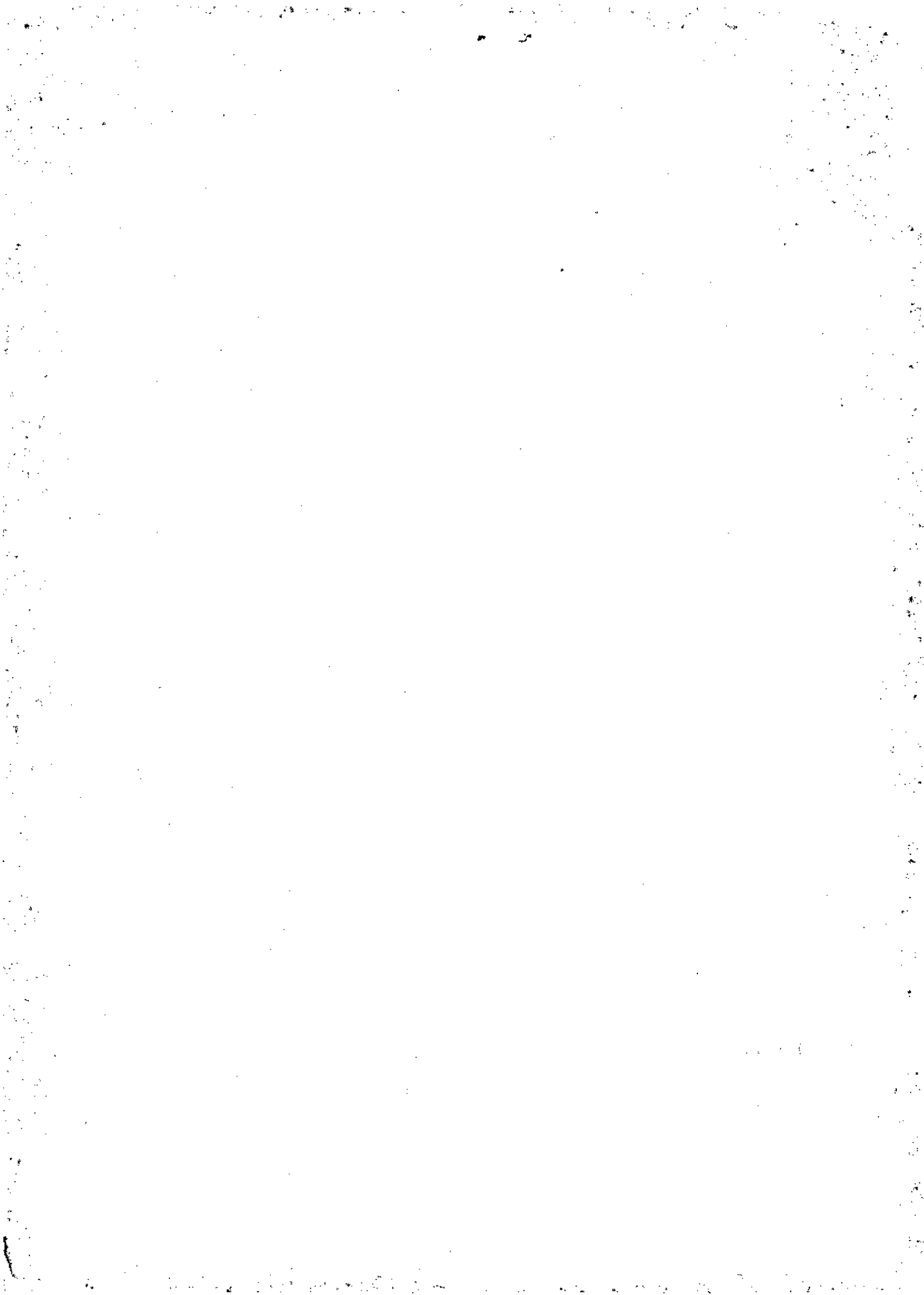
Sir

**CONSULTATION IN TERMS OF SECTION 40 OF THE MPRDA OF 2002:
ENVIRONMENTAL MANAGEMENT PLAN, SAND MINING ON THE REMAINDER
OF FARM RIVERSDALE 167, DIVISION OF MATATIELE, EASTERN CAPE**

1. Attached herewith, please find a copy of the contact details, a locality map and Mine development plan received from Eskom Holdings Limited, for your comments.
2. Please forward any written comments or requirements your department may have in this regard, to this office not later than **17 May 2010**. Failure to do so, will lead to the assumption that your department has no objection(s) or comments with regard to the said document.
3. Consultation in this regard has also been initiated with other relevant State Departments.
4. Please use the reference number (EC) 30/5/1/3/3/2/1(0420) EM in all future correspondence.
5. Your co-operation is appreciated.

Yours faithfully


REGIONAL MANAGER
EASTERN CAPE



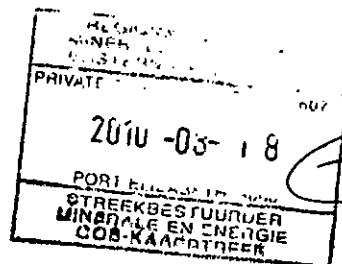
**ENVIRONMENTAL MANAGEMENT PLAN
RIVERSDALE SAND MINING SITE
NOVEMBER 2009**



*Environmental & Rural Solutions cc
on behalf of*

Move It Plant Hire

Environmental and Rural Solutions
110 Main Street
P.O. Box 14
Matatiele 4730
Phone: 039 737 4849
Fax: 039 737 4892
www.enviros.co.za



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1. INTRODUCTION AND BACKGROUND

Environmental and Rural Solutions (ERS) was requested to prepare an environmental management plan for mining sand by Move It Plant Hire. The site is on SPRINGFONTEIN 112 (Riversdale Farm), Ward 5 of Matatiele Local Municipality. The total area earmarked for the mining is 12 968m², or 1.2968 hectares, on map sheet 3029AC.

In addition ERS was requested to prepare a sketch plan for the area with coordinates in order for Move It to obtain authorization as per the Minerals and petroleum Resources Development Act 28 of 2002:

As the site is less than 1.5 hectares, a mining permit being applied for in compliance with Section 27 of the Act.

The environmental management plan describes mitigation measures and is partly prescriptive as it identifies specific people expected to undertake specific tasks to ensure that impacts on the environment are minimized during the sand mining operations. It will also outline the rehabilitation plan that will ensure the land is restored to its original status which will ensuring that the aesthetic qualities and planned uses, either existing before the mining, or indicated based on suitability, can be carried out without incurring significant environmental impacts.

2. COMPLIANCE WITH SOUTH AFRICAN LEGAL FRAMEWORK

Compliance with legislation ensures that developers adhere to regulations as provided for in the law. This way, monitoring cannot be arbitrary and therefore developers can be held to account. The main condition for proceeding with the sand mining operations at Riversdale is that it follows along guidelines as provided for in Section 2 of NEMA (Principles of Environmental Management), and complies with the provisions of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) and its Regulations.

The principles and norms within the legislative framework are mainly aimed at providing guidelines to ensure that:

- the mining operations are sustainable,
- environmental considerations are integrated into decision making,
- there is participation, empowerment and transparency,
- environmental justice and equity are integral to developments,
- the ecological integrity of the sites is not compromised, and that
- international responsibilities and standards are upheld at all times.

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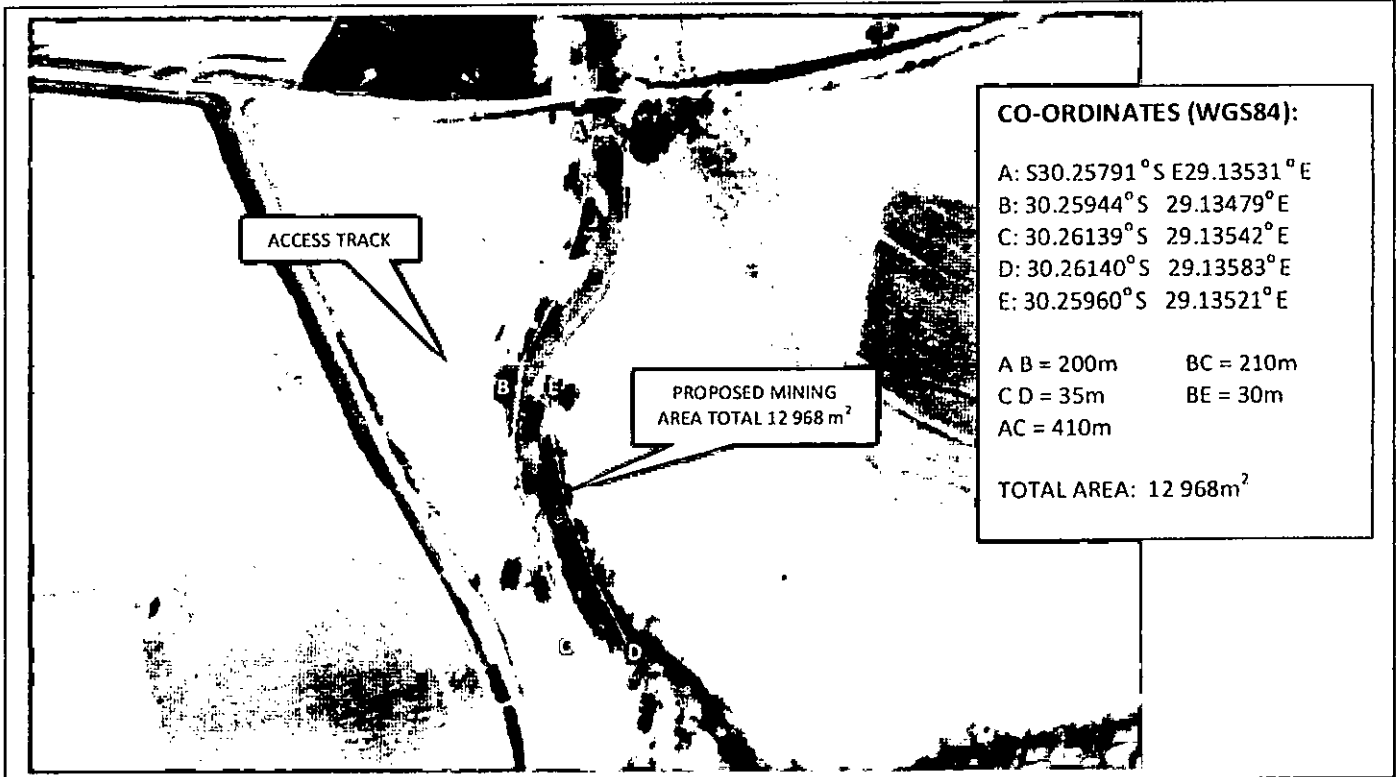
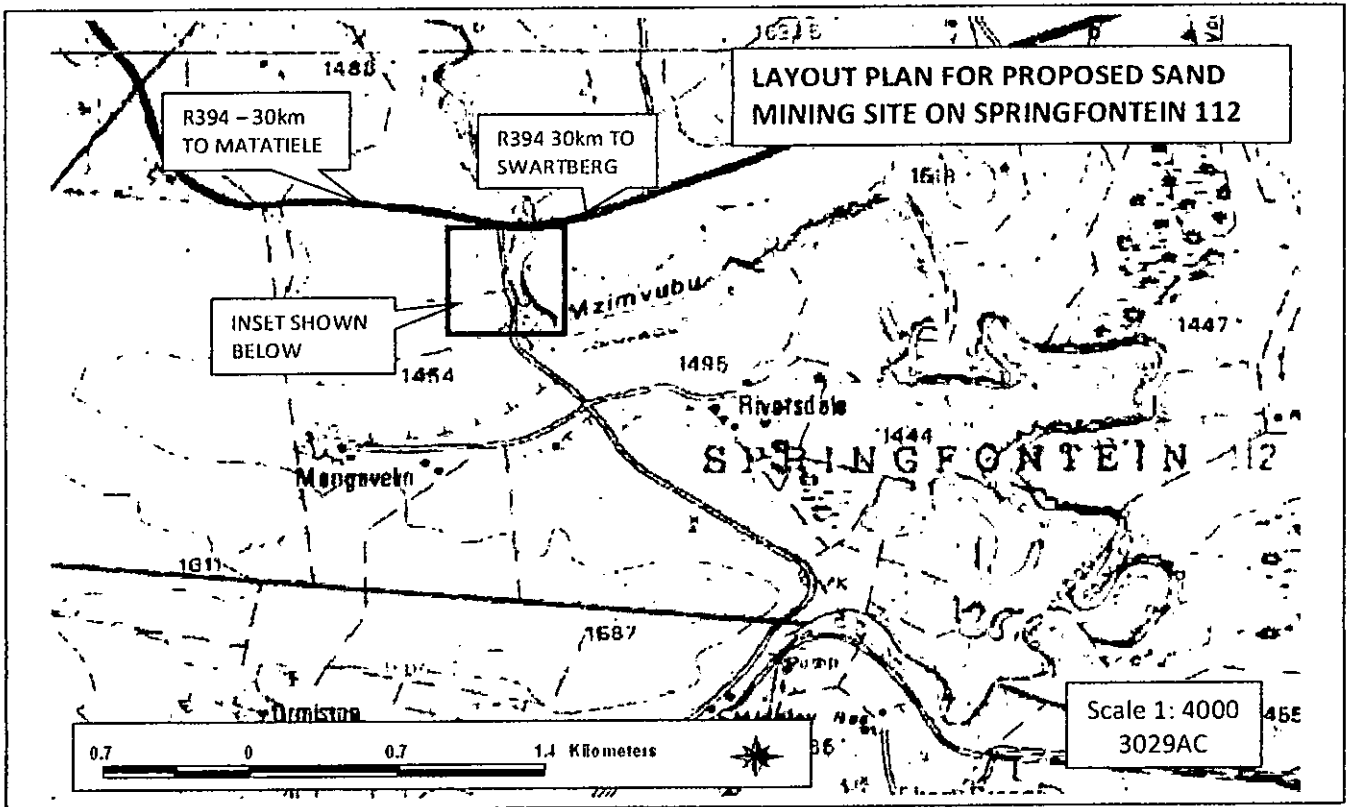
Other legislation that may be immediately applicable includes:

- Atmospheric Pollution Prevention Act, 1965 (Act 45 of 1965)
- The National Water Act, 1998 (Act 36 of 1998)
- National Monuments Act, 1969 (Act 28 of 1969).
- National Environmental Management Act, 1998 (Act No. 107 of 1998)
- The Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983).

3. CONTACT DETAILS

SITE: Riversdale (Springfontein)

Full name (and surname) of person or company applying for permit or right	E.D. BATE T/A MOVE IT
ID number of person or company/ CC registration number	6010160009083
Postal address	BOX 1751 KOKSTAD 4700
Physical/ residential address	4 SCOTT STREET KOKSTAD 4700
Applicant's telephone number	039 727 3586
Applicant's cellular phone number	083 286 2620
Alternative contact's name	KEVIN BATE
Alternative contact's telephone/cell phone numbers	082 335 7387 039 727 3586
Full name of the property on which mining operations will be conducted	RIVERSDALE FARM (PTY) LTD NO. 94/01884/07
Name of the subdivision	
Magisterial district	ALFRED NZO DISTRICT
Name of the registered owner of the property	ELTON TRUST
His/her Telephone number	083 453 7717
His/ her Postal address	BOX 145 CEDARVILLE 4720
Current uses of surrounding areas	
CATTLE AND SHEEP FARMING	
Are there any other, existing land uses that impact on the environment in the proposed mining/ area?	LIVESTOCK GRAZING
What is the name of the nearest town?	MATATIELE



The figure ABCDE represents a portion of land on SPRINGFONTEIN 112, extent 12 968m², or 1.2968 hectares, in respect of which mining permit has been granted to:

ELAINE DOROTHY BATE
ID. NO. 6010160009083

<i>E. Bate</i>	15/12/2009
APPLICANT	DATE
.....
REGIONAL MANAGER	DATE
EASTERN CAPE	

5. THE PROJECT AND ITS ENVIRONMENT

5.1. Motivation

The building boom in the Eastern Cape has seen an increase in demand for the supply of material in the building industry, of which good quality sand is the major components. There is a lot of illegal mining which is contributing to the destruction of pristine areas despite the government's commitment to protect the environment and ensure equitable distribution of resources to prevent their degradation and enhance livelihoods. There is a high demand for building materials including sand associated with housing in the townships, and construction of institutions such as schools and hospitals. The high demand and difficulties in controlling the sand mining activities have led to the destruction of several areas through illegal mining activities as operators who are not held to account leave mining areas unrehabilitated. The EMP will help manage the degradation and ensure that the contractors are held accountable.

5.2. Project descriptions

Move It is in the business of mining sand for construction, brick making and plastering. At present the required amount is 400m³ sourced from Riversdale for the concrete sand. The sand is extracted from the source using an excavator and loaded onto trucks to be deposited to the desired destination.

5.3. Description of the environment

It is important to note that the sand mining is actively taking place. Therefore the pre-mining environment description will be based on the adjacent landscape characteristics rather than observation prior to the mining.

5.3.1. Riversdale Site

This site is on the west bank of the Umzimvubu River. The mining is taking place in the flood plain below the river terrace which is where the farming is taking place. This area is frequently submerged when the river is in flood and slightly moist under normally prevailing conditions.

5.4. How the sand is mined

Mining method is open cast mining. Payloader is used to remove topsoil which is stockpiled at the site for use later in the rehabilitation. The excavator digs and loads the sand onto the trucks. The total mining depth varies at the Riversdale site depending on the incidences of rainfall as the river delivers fresh sand deposits based on the amount and intensity of the rainfall upstream. When mining ceases in a specific area the topsoil is put back and grassed. Mining is confined to the riverbank at the Riversdale site.

The equipment at the site consists of an excavator and a front end loader used to mine the sand and load it onto the trucks. Two trucks, one 20m³ tipper and the other 15m³ are used haul the sand either to the depot in Kokstad or to a site where it is required as per order. The trucks are

340HP and do a maximum of three trips per day. The TLB is 72kW and the front end loader is 60kW. The TLBs are refuelled on site with a hand pump once a week. The maximum number of people at any one time at the site is 4, counting the drivers and the operators

6. DEVELOPMENT STRATEGY

Since the EMP is prepared to manage a site that is already operating, the strategy will be that which will help manage the existing site and guide the opening of new areas within the site.

Move It is a privately run operation that supplies sand to contractors and building sites around Matatiele and Kokstad. The Riversdale sand mining is already in operation. The process that has taken place to date is as follows:

- A portion of the site that is going to be mined has its topsoil removed and stockpiled on site away from the mining area
- A section is opened and sand is extracted as required using the Excavator.
- The sand is loaded onto the trucks and delivered to where it is required or the depot in Kokstad

6.1 The present state of the environment with the mining

The state of the environment in the area in question is mostly influenced by the present land uses in the area. Being a farm area, there has been land transformation associated with use of farm machinery, movements of livestock and annual ploughing. The area is devoid of natural vegetation and no fauna was observed. Contribution of the mining operation to the present state of the environment would be that associated with movement of heavy vehicles in and out of the area which has caused trampling and vegetation removal, compaction, formation of tracks.

The mining is taking place on the riverbank and in the flood plain where fresh sand is deposited frequently by the river. The bank has been reshaped to accommodate the movements of the truck in and out of the sand mining area.

With an operation such as sand mining on a major river bank, environmental issues of concern include water quality directly as a result of the mining. There is some turbidity in the water but it is difficult to attribute it directly to the mining operation due to the high intensity rainfall that has been taking place. The observable water quality upstream and downstream of the mining area is not significantly different based on the turbidity as there is an artificial bank between the mining area and the main river channel.

The main landscape where the machinery is operated is tilted away from the main river channel. Whatever erosion is taking place in the adjacent grassland and farm where the machinery is moving, the debris does not enter the main river channel.

The major land uses associated with the state of the environment in the area include livestock grazing, the extended farming operations, and the movements of machinery. The sand mining has added the other dimension of impacts associated with the utilization of the river bank and

part of the river bed, which demands attention on the impacts on the water resources and associated organisms.

6.2 Riversdale Site photographic record



The access track to the sand mining site passes through the grassland on the farm. It has to be more clearly defined and a maintenance plan produced.



Due to poor definition of the access route, there is some trampling taking place which will result in compaction and subsequent puddling. Work areas have to be defined and traffic confined to designated zones.



A rehabilitation plan is needed that includes ripping and regrassing to restore the land and enable other



Although the steep sand banks can withstand collapse once restored, it is necessary to combine both biological and mechanical means to ensure



The sand mining operation is visible both from the secondary road (above) and the main road (right). Aesthetic quality has to be maintained to avoid



The sand mining is likely to impact the channel morphology and water quality as the TLB moves around in part of the stream bed. This affects water



Shaping to remove all visible scarring before grassing reduce collapse of the bank and should be a progressive activity as mining moves into another authorized area.



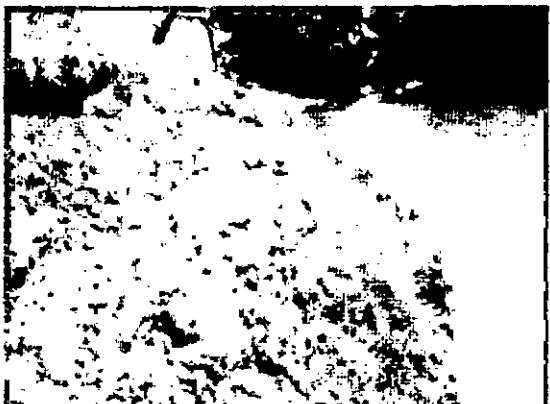
Presence of machinery on the water's edge can present water pollution issues associated with fuels and oil spills which can cause pollution and stress, and alteration of the channel morphology.



Environmental issues that need to be addressed where different types of machinery is operated include noise, dust, fuel and oil spills.



Unprotected, unshaped and uncompact stockpiles are prone to erosion which is likely to cause water pollution.



Rehabilitation work and restoration should result in the landscape resembling the original as closely as possible in shape and vegetation cover.



Turbidity upstream and downstream of the mining area is very similar, likely due to the heavy rains so impact of mining on the water is not immediately evident

- Prescribed rehabilitation methods are followed and
- Communication and consultation is maintained with the relevant authority representatives.

12. PUBLIC PARTICIPATION

Owners and operators of adjacent farms were requested by the contractor to indicate their position to the sand mining at the two sites. The letters are attached.

Elton Trust
Riversdale Farm
Cedarville
4720
October 28, 2009

Elton Trust
P.O.Box 145
Cedarville
4720
Tel:0397575319

To Whom It May Concern:

This is to confirm that permission has been given to "MOVE IT"
to take sand from the Umzimvubu-river on the farm Riversdale.
"MOVE IT" must get the right permits and/or licence that are
needed according to the Law.

Farm owner and Trustee



7. ENVIRONMENTAL IMPACT ASSESSMENT

Sand mining and the associated haulage of the product have the potential to alter environmental conditions that will have effects, direct and indirect, to plant and animal communities, both terrestrial and aquatic. If the alterations in the quality or quantity of the original habitat are severe enough, plant and animal populations may be substantially altered resulting in displacement or even elimination of species. Changes in quality can be more subtle, yet the effects can be just as real and disruptive: the alteration, degradation and contamination of habitats are a concern for the proposed mining operation on Riversdale Farm as the mining area is close to a major water source.

Some of the impacts, direct and indirect, that have to be addressed are outlined below.

7.1 Hydrological impacts

The hydrological impacts are a major issue for the Riversdale site as the sand mining is taking place on the river bank and part of the riverbed and the flood plain. The footprint associated with the mining extends to the 300m long access track and the area close to the river where the trucks turn. The footprint is more on the river than the Florence Farm site.

This section will outline some issues of concern so that the parties concerned pay attention to them throughout the operation.

a) Runoff and sedimentation

Sand mining operations such as vegetation removal, excavation, and the turning of machinery in the river bed can affect stream flow and sediment loads.

b) Nutrient release

Nitrogen can be released through disturbance of established grassland soils, and its entry into streams and ground water may lead to enrichment of water bodies away from the site.

c) Oils and other pollutants

Spillages are common at sites where heavy machinery is operated. These spills can enter water courses directly or through the sand leading to ground water pollution.

d) Aquatic communities

Downstream impacts include changes physical and biological characteristics of the river catchment. The resultant increased sediment loads increase turbidity, and damage habitats for aquatic species.

e) Stream flow

The sand mining operation on the Umzimvubu River bank has constricted the river width on the one side, thus causing a restriction, albeit small, on the natural flow of the river at the sand mining site. This can affect species composition, both type and numbers changes. It is important to consider the impacts on stream flow together with the impacts on the water quality and quantity as these together can affect the ecology of that section of the river and functions downstream.

7.2 Water quality

Clearing and grubbing of the sand mining areas will result in loosening and exposure of the desired sand material, which will make the landscape and riverbank vulnerable to erosion. The loosened material and fine aggregate could be transported by wind and water into the river plain, thus increasing the sediment load of the streams.

Accidental oil spills are possible from the equipment and machinery, which could affect the quality of water in the river. This is a significant threat as the machinery will be operating within the river bed. Great caution will need to be taken with the state of equipment and the skill levels of operators in order to avoid damage to equipment and resultant leakages on site. The sand mining operation can also have impacts to aquatic organisms which may cause a disruption in their normal cycles because of turbidity, flow regime and accumulation of mud.

7.3 Air quality

Sand mining activities such as removal of vegetation cover, topsoil stock piling, excavation, delivery of material, and movement of haulage traffic will generate dust, which in turn will have an effect on the quality of air at the mining site, the road and surroundings, and properties along the road.

This has potential to affect the health of the workers if the dust generation exceeds accepted limits. Dust settling on properties, inside and out, affects cleanliness and aesthetic quality of settlements. The threat from dust from the Riversdale site is minimal as the sand is mined and transported in a moist state. Sand mining activities are taking place away from any settlements. Therefore threat to human beings is minimal.

7.4. Noise

The excavator, loader and the haulage vehicle movement have potential to generate excessive noise. However, due to the long distance of the operation areas from residential areas, the noise is not likely to cause disturbance to residents in the area. The noise however, can cause stress to the organisms at the Riversdale site thus possibly causing a disruption to their normal cycles. Since the sand mining has been taking place for a while at the site, it is likely that the organisms have moved to other localities along the river, thus minimising the impacts in the long term.

Noise will be generated from vehicles and machinery but will not exceed the minimum allowable levels. Standard heavy vehicle noise is in the vicinity of 130dB. Basic Conditions of Employment Act 57 of 1997 defines allowable long term standard work environment noise as 85dB. Operators have to be provided with protective clothing and earmuffs.

Even though the noise generated by the machinery at the sites may be intense, it will mostly be localised, and should therefore not affect the nearby farms as the distance from the residences is more than 2km.

7.5 Erosion

Sand mining activities involve the removal of vegetation and topsoil to expose the underlying sand material. This material, due to its lack of structure is highly vulnerable to erosion. The unprotected, unshaped and uncompacted stockpiles and sand mining areas are prone to erosion which is likely to cause water pollution. Even the rehabilitated areas before the vegetation is established are also vulnerable.

7.6 Refuse removal and waste disposal

Although the sand mining activity does not have waste associated with it, there still needs to be a plan in place to manage especially household waste and containers from food packaging, and oil and fuel containers. Collection of such items will be required on site on a daily basis in order to prevent wind dispersal of waste into the adjacent grassland area. Disposal will need to take place off site at an approved waste management site in either Matatiele or Kokstad.

7.7 Aesthetic impact

The aesthetic quality of the environment at the Riversdale sand mining site is mainly impacted on by the following:

- mining operation itself which is altering the shape of the riverbed,
- the presence of heavy machinery at the site,
- the stockpiles of topsoil and sand
- vehicle tracks in the grass and
- the trampling in the area where the truck turn.

Even though the site can be momentarily seen from the bridge by passing motorists, it does not show significant impacts as the mining is taking place at location that is well hidden because of its location in the riverbed. The impacts observed can also be reversed and the landscape restored easily if progressive rehabilitation takes place. If carefully carried out and rehabilitated, the disturbance period can be minimised to specific areas of operation at a specific time, banks and alluvial slopes can be stabilised, and groundcover progressively used to mitigate any unsightly scars.

7.8 Sanitation

Ablution facilities will have to be provided for the workforce in order to avoid contamination by human waste of the adjacent veld and waterways. These can be in the form of chemical toilets or pit latrines, and the contractor should be responsible for cleaning and rehabilitation of the site where the facility will be situated, either when they move to another location or when demobilizing.

8. EVALUATION OF IMPACTS

The table below provides an evaluation of the impacts in order to plan for addressing them.

Analysis of identified environmental issues

POTENTIAL ISSUE/IMPACT	LIKELIHOOD	INTENSITY & DURATION	SPATIAL EXTENT
Hydrological processes	Medium risk as the mining site occupies part of the river channel for the Riversdale site.	Low intensity and long term duration if the mining continues at the same locality in the long term	Could impact on the downstream functions of the river for the Riversdale site.
Water quality changes and pollution	<p>Medium risk as the mining is likely to increase the amount of sediment in the river hence turbidity.</p> <p>Low risk of contamination by pollutants, such as oil and fuel spills as refuelling takes place away from the site.</p>	Low to medium intensity and long term duration. A lot of churning takes place during the excavation and some erosion is likely to take place on the drive incline for the trucks.	Water contamination would have wide spatial extent as the sand mining site is at an upstream site on the Umzimvubu river.
Air quality	High likelihood especially on the access road from the truck traffic. The dust is likely to settle on the vegetation adjacent to the road. Since the traffic will be on the public road, impacts would still occur with or without the sand mining operation.	Medium intensity for the duration of the mining operation at Riversdale.	<p>Confined to the road corridor mainly due to traffic as the sand is transported moist and has low likelihood of generating dust for the Riversdale site.</p> <p>During high winds the exposed sand can be blown for long distances but most of it will be on the farm. There is low likelihood that the sand can cause problems for residents on the farm as the site is located away from dwellings and over the rise.</p>
Noise	High likelihood as machinery and vehicles operate for most of the day when excavation, loading and transportation of	The noise will be intense for the operating hours closest to the site and the people affected will be the workers at the site.	The noise will dissipate long before it reaches the residential areas as the distances are long and the sites

POTENTIAL ISSUE & IMPACT	LIKELIHOOD	INTENSITY & DURATION	SPATIAL EXTENT
	<p>material is unconsolidated with low moisture holding capacity. Therefore the land does not support vigorous vegetation growth. Activities on sites will be highly likely to increase vulnerability to erosion, and in the long term unless well rehabilitated will increase silt discharge in to river.</p>		
Aesthetic impacts	<p>Medium to high because the mining operation will remove material from the ground permanently leaving scars that have to be rehabilitated. There will also be topsoil stockpiles which can be obtrusive if not shaped properly and managed to stop erosion. Access tracks that are used frequently but poorly defined cause scars on the landscape.</p>	<p>Medium intensity and long term duration.</p>	<p>Localised.</p>

9. MINING GUIDELINES TO ENSURE MAINTENANCE OF THE ENVIRONMENT

- **Mining areas should be properly demarcated** with beacons to ensure that boundaries are not overrun and in order to provide a guide as to the size of area that will have to be rehabilitated.
- **The top 5–15 cm of topsoil should be stripped separately** to maintain the seed bank, removed to an appropriate stockpiling site, and used for rehabilitation and finishing of a mined area when it is being closed. Overburden has to be removed and not to be stockpiled on site for more than 2 days. Topsoil shall be cleared and stockpiled not higher than 2.5 cm. Soil to be stockpiled in slightly moist condition to avoid excessive dust when dry and compaction when wet.
- **Excavation must be done progressively** to ensure that the area is not overrun thus making it difficult to rehabilitate later as it had to be reshaped to reflect the shape of the surrounding landscape. The rehabilitation requires replacement of topsoil in a reshaped landform reflective of the local landscape, in a systematic manner. Material for shaping and rehabilitation should only be from the site as it has to resemble the material on the landscape.
- Care should be taken to **avoid creation of steep hazardous slopes** which could result in equipment and vehicle safety being compromised. Absolutely no undercutting of sides to be allowed. This is the responsibility of the contractor.
- **No new erosion features will be allowed to form** that are directly connected to the sand mining operation. If erosion is evident, protection and rehabilitation measures should be implemented as soon as possible by the contractor. Photo records will also be kept as required for monitoring purposes.
- **Sand pit and excavation area slopes shall not be steeper than 1:2** (vertical:horizontal). All slopes should be protected against erosion. If the upper slope of the cut face is likely to be unstable, it must be stabilised as soon as possible to prevent erosion.
- **Excavation by earthmoving equipment to be carefully monitored** in case of intersection with aquifers or cultural heritage artefacts. Earthworks not to take place on excessively windy days in order to reduce dust and potential fire hazard.
- Should any **artefacts** be unearthed during the sand mining process, work must stop immediately and a DEDEA official must be called to inspect the site. Operators must be briefed beforehand that if any human or other unidentifiable remains are unearthed, an appropriately accredited cultural expert may need to be called in to assess the site in terms of the Cultural Heritage Resources Act. SAHRA (SA Heritage Resource Agency) can provide assistance in this regard.
- **Work should be avoided on excessively windy days** to reduce dust nuisance to nearby road users and the rest of the farm lands. Should excessive rainfall occur (beyond average seasonal figures and pattern of 750mm per annum), stability and safety of slopes in especially for the Riversdale site pit should be ascertained by an engineer in consultation with DWA or suitable specialist to avoid possible accidents

related to slumping or collapse of river bank. Likewise, measures have to be taken to avoid similar incidences at the Florence site, in this case landslides.

- **Grass sods and topsoil** (to depth of 30cm, or when the desired grade of material is reached) should be removed and stockpiled close to the site, at least 6m back from the edge of working area in preparation for rehabilitation.
- The mining process, storage of material and vehicle operation areas should **avoid creation of deflated areas** which can gather run-off and become breeding sites for mosquitoes. Any collected run-off within site are should be allowed to flow out through a gently sloped ground.
- **Sand mining areas should be maintained in safe condition** to avoid any collapse and potential endangering of workers and their livestock. Such measures could include sloping at 1:3, benching at 2m intervals, shoring, or timbering to bolster slopes.
- It is understood that vegetation removal will take place as part of the mining operation. However, care should be taken to **protect indigenous plants and wildlife** including reptiles, amphibians or birds in the area.
- **Camps are not allowed** at the sand mining sites. All workers have to vacate the sites at the end of the working day.
- **No fires will be allowed** at the sites and fire fighting equipment must be available on site and in good working condition
- **All vehicles and machinery shall be maintained** to ensure that there are no leakages. All contaminated surfaces shall be removed from the site
- **Waste must be disposed of in proper waste disposal containers** and disposed of at designated facilities and in a manner that it shall not cause contamination or cause nuisance. Personnel shall be informed about the necessity to refrain from littering and about the need to keep hazardous substances separate from the domestic waste. The contractor shall conduct site clean-ups for litter and dispose of it in refuse bins provided at the site.
- **Adequate chemical toilets shall be provided for all staff at the construction area.** The toilets shall be serviced regularly to prevent overflowing. Night soil shall be removed to a waste water treatment works or disposed of in a manner that will maintain acceptable environmental standards. All fees for the waste removal are payable by the contractor. The contractor's staff shall use only latrines for ablution
- **No fuels and oils shall be stored at the sites.** Should refueling take place at the sites, it will be done away from the waterways and all measures have to be taken to ensure no spills. Should a spill occur, the contaminated soil shall be removed and deposited at a registered landfill site in either Kokstad or Matatiele.

10. MONITORING AND MAINTENANCE PROGRAMME

<i>Aspects</i>	<i>Mitigation/corrective action</i>	<i>Monitoring</i>	<i>Time frame</i>
Hydrological processes	Proper demarcation of mining areas to prevent trampling in the riverbed Water quality monitoring	DWA and Move It	On an ongoing basis at least once a month
Water quality management	No machinery in the river channel All loose material from clearing processes should be stockpiled away from the water. Special care should be taken not to increase water turbidity and avoid mining in the riverbed. The contractor shall ensure at all times that water quality is not negatively affected to the extent that the water is rendered totally unusable by downstream residents or could harm organisms inhabiting the area. No activities will be permitted that could create excessive turbidity.	DWA, DEDEA and Move It	On an on-going basis starting immediately
Dust /air pollution	The height of stockpiled materials should not exceed 1m and stockpiles to be kept in a slightly moist condition to avoid blowing by the wind. Mining activities on Florence Farm to be limited on windy days. Provide workers with protective gear as necessary.	DEDEA and Move It	Ongoing
Noise	Provide workers with protective gear.	Move It	Ongoing
Groundcover removal, and soil erosion and loss	Storm water control should be undertaken to prevent soil loss on the site and surroundings Proof should be provided of top soil stock piles to be used in progressive rehabilitation of site	DEDEA, DME, Move It	Progressively as operation moves from one location to another within the site
Waste management	Waste must collected regularly and placed in approved receptacles to be removed from the site and disposed of regularly at an approved waste disposal site. Personnel shall be informed about the necessity to refrain from littering and about the need to keep hazardous substances separate from the domestic waste	DEDEA and Move It	Ongoing basis
Sanitation	Adequate chemical toilets shall be provided for all staff at the construction area The toilets shall be serviced regularly to prevent overflowing	Move It	Immediately

11. CLOSURE MAINTENANCE AND MONITORING

Mining operation incumbents, in this case Move It Plant Hire, have to ensure responsible mine site closure and sustainable development following closure with inputs especially from DEDEA. Once the decision to close down the active mining areas has been made, and application for closure will be made to the DME and relevant personnel from DME and DEDEA will guide the contractor as to the procedure to be followed.

It is important to have restoration objectives that will result in closure and rehabilitation that is ecologically sound, socially relevant, and predictable. Mine closure objectives should reflect:

Accounting for ecosystem characteristics as they relate to composition, structure, and pattern of the vegetation as a key component of biodiversity is important. The soil biotic community and animal species reconnaissance provide important indications of long-term productivity and successional pathways and information on these has to be included in the closure reports.

Ecosystem characteristics for consideration as ecological restoration objectives include

- Species composition and their relative abundance
- Vertical structure of vegetation and soil components
- Performance of basic ecosystem processes including energy capture, water retention, nutrient cycling
- Species Interactions that will result in proper functioning of processes such as pollination and seed dispersal
- Ability and resilience to recover from such episodic disturbance events as floods, drought or fire

11.1 Site restoration

Site restoration whether topsoil has been lost or retained, has to ensure that revegetation takes place and species are restored. As far as possible, the site restoration has to ensure that indigenous ecosystems and biodiversity is at least re-established. Should the seed in the soil be inadequate to restore the whole site, this should be augmented by a seed mix that is sown by hand which includes the different species as reflected on the surrounding land.

Social factors also need to be considered in practical restoration planning as the area is presently grazed with cattle. The rehabilitation objectives therefore have to be closely consulted with the farmer and land users as they will have to utilize the rehabilitated land in perpetuity after the mining company has departed.

11.2 Changes through topsoil loss and mixing

Natural recovery on bare mine remains and tailings may yield a biodiversity pool very different from the original or surrounding vegetation, again because of the physical and chemical properties of the substrates being so different from those of the original soils.

	waste		
Sanitation	Adequate chemical toilets shall be provided for all staff at the construction area The toilets shall be serviced regularly to prevent overflowing	Move It	Immediately

11. CLOSURE

Once Move It Plant Hire makes a decision to close down the active mining areas, and application for closure will be made to the to DME and relevant personnel from DME and DEDEA will guide the contractor as to the procedure to be followed.

11.1 Identification and management of environmental risks

The normal steps that have to be followed include the following

11.1.1 Risk Assessment and Analysis

Methods as agreed with the relevant authority have to be utilised. This does not need to be a protracted technical procedure but rather a framework that will be used to document and manage risks. Methodologies should be easy to follow and monitor.

11.1.2 Controls Design and Assessments

Predefined criteria and checklists and framework as provided for and outlined in Section 10 of this report and utilizing the guidelines in Section 9. This way all parties will manage the operation to and ensure the effectiveness of the controls based on predefined criteria and checklists. It is important to include the mechanism for scoring, tabulating and reporting results.

11.1.3 Audits cycle

DME and DEDEA can determine the cycle but it is advisable not to exceed three months. It is necessary to have arrangements for field data collection especially on water quality again with checklists. Audit reports and recommendations that will guide the way forward are essential.

11.1.4 Management of identified issues

Status reporting, issues capture, logging of unusual events and necessary follow-ups should form part of status reports in order for remedial actions to be taken.

11.2 Riversdale site risk profile

Based on observations and assessments, the risk profile of the Riverside sand mining site has been determined to be of low significance. This assumes that:

- The contractor will continue to utilize the same methods for mining,
- Follow guidelines as provided in the EMP
- No new social impacts will result including that the land ownership does not change
- The number of employees and the size of the operation does not change
- Legislative requirements as indicated will be adhered to
- Environmental quality and standards are maintained throughout

Elton Trust
Riversdale Farm
Cedarville
4720
October 28, 2009

Elton Trust
P.O.Box 145
Cedarville
4720
Tel:0397575319

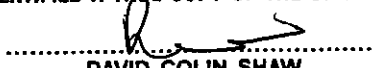
To Whom It May Concern:

This is to confirm that permission has been given to "MOVE IT"
to take sand from the Umzimvubu-river on the farm Riversdale.
"MOVE IT" must get the right permits and/or licence that are
needed according to the Law.

Farm owner and Trustee



CERTIFIED A TRUE COPY OF THE ORIGINAL


DAVID COLIN SHAW
Commissioner of Oaths
Practising Attorney R.S.A.
71 Hope Street, Kokstad