ENVIRONMENTAL MANAGEMENT PLAN

The Proposed Utilisation of Borrow Pits
Road: DR08157
(OR Tambo District Municipality)

Department of Roads and Public Works

Province of the Eastern Cape

Report Number 2011-R625

February 17, 2012

Biotechnology & Environmental Specialist Consultancy cc

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1 Report Release Notice

Report Status	Date	Authorised
1. Internal Draft	December 05, 2011	Ms Lee-Anne Proudfoot
2. Client Draft	December 06, 2011	Mr Conroy van der Riet
3. Public Draft	January 12, 2012	Ms Lee-Anne Proudfoot
4. Final Report	February 17, 2012	Ms Lee-Anne Proudfoot

Ms Lee-Anne Proudfoot

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2 Limitations

BESC has prepared this report for the sole use of **DEPARTMENT OF ROADS & PUBLIC WORKS** in accordance with generally accepted consulting practises and for the intended purposes as stated in the agreement under which this work was completed. This report may not be relied upon by any other party without the explicit written agreement of **DEPARTMENT OF ROADS & PUBLIC WORKS** and **BESC**. No other warranty, expressed or implied, is made as to the professional advice included in this report.

The conclusions and recommendations contained in this report are based upon information provided by others and the assumption that all relevant information has been provided by those bodies from whom it has been requested. Where field investigations have been carried out, they have been restricted to a level of detail required to achieve the stated objectives of the work.

All items listed in BESC's Standard Terms and Conditions of Business are applicable to this report.

3 Limiting Conditions

This report was compiled from information obtained from the following sources:

1. Numerous site visits and assessments
2. Public participation
3. Information on biophysical environment - BESC
4. Information on Borrow pits – Controlab cc
5. Archaeological & Heritage Assessment – ArchaeoMaps
6. Palaeontological Impact Assessment – Lloyd Rossouw

4 Special conditions

None

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5 Natural Science Professions Act

The Principal of BESC, Dr Malcolme Logie, is registered with the:

- South African Council for Natural Scientific Professions (SACNASP), in accordance with the Natural Sciences Professions Act (Act 27 of 2003), as a *Professional Natural Scientist - Environmental Scientist.* As such work undertaken by BESC in Environmental Management complies with the requirement of the Act, which states, "*only individuals registered may practice in a consulting capacity*."
- The South African Institute of Ecologist & Environmental Scientist, and is registered as a *Professional Member - Environmental Scientist*.
- Certification Board of the Environmental Assessment Practitioners of South Africa (EAPSA), as a *Certified Environmental Assessment Practitioner*
- International Association of Impact Assessors – South Africa
- Senior Lead Auditor: Bureau Veritas (Safety, Health, Environment & Quality)
- Lead Auditor: TUV (Safety, Health, Environment)
- Lead Auditor: British Standard Institute (Safety, Health, Environment)

Senior Environmental Consultants:

Ms Lee-Anne Proudfoot, is registered with the:

- South African Council for Natural Scientific Professions (SACNASP), in accordance with the Natural Sciences Professions Act (Act 27 of 2003), as a *Professional Natural Scientist - Environmental Scientist.* As such work undertaken by BESC in Environmental Management complies with the requirement of the Act, which states, "*only individuals registered may practice in a consulting capacity*."
- International Association of Impact Assessors – South Africa

Mr Conroy van der Riet is registered with the:

- South African Council for Natural Scientific Professions (SACNASP), in accordance with the Natural Sciences Professions Act (Act 27 of 2003), as a *Professional Natural Scientist - Environmental Scientist.* As such work undertaken by BESC in Environmental Management complies with the requirement of the Act, which states, "*only individuals registered may practice in a consulting capacity*."
- International Association of Impact Assessors – South Africa

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6 Primary Legislative Specifications

Primary Environmental Legislation governing the Scope of Work undertaken is:

- GN R.1273: Mineral and Petroleum Resources Development Act, 2002, No. 28 of 2002.
- GN R. 527: Mineral and Petroleum Resources Development Act, 2002, (No. 28 of 2002): Mineral and Petroleum Resources Development Regulations, 2004.
- GN R.543: Regulations in terms of Chapter 5 of the National Environmental Management Act, 1998;

for the proposed utilisation of borrow pits for the routine maintenance/re-gravelling of the DR08157.

The permitting of the materials sources required for the project will be undertaken in accordance with the Minerals and Petroleum Resources Development Act (M&PRDA) (No. 28 of 2002). It must be noted that the applicant (Department of Roads and Public Works), as an organ of state, has obtained exemption from the provisions of sections 16, 20, 22 and 27 (application processes) of the M&PRDA in respect of any activity to remove any mineral for the construction and maintenance of dams, harbours, roads and railway lines and for purposes incidental thereto, as allowed for by the said Act in section 106 (1). As such the utilisation of the material sources is subject only to the preparation, submission and approval of an Environmental Management Plan compiled in accordance with requirements of the M&PRDA.

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7 Legal Requirements

7.1 National Acts and Regulations

7.1.1 The Constitution of South Africa, Act No 106 of 1996

Chapter 2 of the Bill of Rights that forms part of The Constitution of South Africa provides for an 'environmental right', and in terms of Section 7, the State is obliged to respect, promote and fulfil the rights in the Bill of Rights. An obligation is therefore placed on the State to give effect to the environmental right and this is achieved through the right of everyone:

- To an environment that is not harmful to their health or well-being,
- To have the environment protected, for the benefit of present and future generations, though reasonable legislative and other measures that:
  - Prevent pollution and ecological degradation,
  - Promote conservation,
  - Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

7.1.2 Mineral and Petroleum Resources Development Act

The Minerals and Petroleum Resources Development Act, 2002 (Act No 28 of 2002) was developed to ensure that provision is made for equitable access to, and sustainable development of, South Africa's mineral and petroleum resources and to provide insight, guidance and control for matters connected thereto. It seeks to provide management tools that ensure that all mining operations are undertaken in an environmentally sound manner according to government approved documents that hold the applicant responsible for any environmental degradation that their mining actions might cause. It also seeks to expand opportunities for historically disadvantaged South Africans and promote employment and welfare of SA citizens. It ensures that holders of mining and production rights contribute towards the socio-economic development of the areas in which they operate.

7.1.3 Mineral and Petroleum Resources Regulations

Regulations in terms of Section 107(1) of the Act were published in Government Notice No. R. 526 on the 23rd April 2004. The regulations provide details of the procedures to be followed in applying for or renewing mining and prospecting rights and permits and for the closure of mining operations as provided and described in the Mineral and Petroleum Resources Development Act (M&PRDA).

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Department of Roads and Public Works, as an organ of state, has applied for exemption from certain provisions of the Act, as allowed in terms of Section 106(1). Utilization of any material sources is therefore subject to the preparation, submission and approval of an Environmental Management Plan compiled in accordance with Section 39(2) and Regulation 52 of the M&PRDA.

7.1.4 Mineral and Petroleum Resources Development Amendment Act

The Mineral and Petroleum Resources Development Act, 2009 (Act No 49 of 2009) was gazetted on the 21 April 2009 in order to amend the Mineral and Petroleum Resources Development Act, 2002, so as to make the Minister the responsible authority for implementing environmental matters in terms of the National Environmental Management Act, 1998 and specific environmental legislation as it relates to prospecting, mining, exploration, production and related activities or activities incidental thereto on a prospecting, mining, exploration or production area; to align the Mineral and Petroleum Resources Development Act with the National Environmental Management Act, 1998 in order to provide for one environmental management system, to remove ambiguities in certain definitions; to add functions to the Regional Mining Development and Environmental Committee; to amend the transitional arrangements so as to further afford statutory protection to certain existing old order rights; and to provide for matters connected therewith.

Any provision related to prospecting, mining, exploration and production and related activities comes into operation only 18 months after the commencement of the M&PDRA Amendment Act.

7.1.5 National Environmental Management Act

The National Environmental Management Act (Act 107 of 1998) (NEMA), has largely superseded the Environment Conservation Act (Act 73 of 1989), and now serves as a framework for environmental management, in which development must be socially, environmentally and economically sustainable.

Section 2(1) of NEMA sets out a range of environmental principles that are to be applied by all organs of state when taking decisions that significantly affect the environment. Included amongst the key principles is the directive that all development must be socially, economically and environmentally sustainable, and that environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably. Therefore the proposed development must to consider the following principles:

- Environmental management must be integrated, taking into account the effects of decisions on all aspects of the environment and on all people;

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- Environmental justice must be pursued to ensure that adverse impacts are not distributed in a manner so as to unfairly discriminate against any person, particularly vulnerable or disadvantaged persons;
- Equitable access to environmental resources, benefits and services to meet basic human needs and to ensure that human well-being is pursued;
- The participation of Interested & Affected Parties (I&AP's) in environmental governance must be promoted;
- Community well-being and empowerment must be promoted through environmental education;
- The social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed and evaluated, and decisions must be appropriate in light of these considerations; and
- Decisions must be taken in an open and transparent manner.

In terms of the current regulations, Section 1 of Government Notice R544 (2010), Section 1 of Government Notice R545 (2010) and Section 1 of Government Notice R546 (2010), provides a schedule of activities which may have a substantial detrimental effect on the environment, and which require authorisation by the DWEA (formerly DEAT) before they may commence. With regards to the proposed utilisation of the identified borrow pits, no listed activities requiring environmental authorisation have been triggered.

7.1.6 National Environmental Management Amendment Act

On 1 May 2009 the National Environmental Management Amendment Act, 2008 (Act No. 62 of 2008) ("the NEMA Amendment Act"), came into operation. The NEMA Amendment Act has implications on the way in which the Environmental Impact Assessment ("EIA") process is implemented.

It serves to amend the National Environmental Management Act, 1998, so as to insert certain definitions and to substitute others; to further regulate environmental authorisations; to empower the Minister of Minerals and Energy to implement environmental matters in terms of the National Environmental Management Act, 1998, in so far as it relates to prospecting, mining, exploration, production or related activities on a prospecting, mining, exploration or production area; to align environmental requirements in the Mineral and Petroleum Resources Development Act, 2002, with the National Environmental Management Act, 1998, by providing for the use of one environmental system and by providing for environmental management programmes, consultation with State departments, exemptions from certain provisions of the National Environmental Management Act, 1998, financial provision for the remediation of environmental damage, the management of residue stockpiles and residue deposits, the recovering

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of cost in the event of urgent remedial measures and the issuing of closing certificates as it relates to the conditions of the environmental authorisation; and to effect certain textual alterations; and to provide for matters connected therewith.

7.1.7 Environment Conservation Act

The Environmental Conservation Act (Act 73 of 1989) aimed "to provide for the effective protection and controlled utilization of the environment and for matters incidental thereto", and predated NEMA as the country's primary environmental statute. Much of the ECA was repealed with the promulgation of NEMA, with the environmental impact assessment regulations in turn being repealed when the regulations under NEMA mentioned in the previous section were adopted. The foundation before this promulgation consisted of Parts V and VI of the ECA that related to the "control of activities which may have detrimental effect on the environment".

In addition, section 25 of the Act makes provision for the regulations regarding noise, vibration and shock. These regulations are provided for Noise Control.

7.1.8 National Water Act

The National Water Act (Act 36 of 1998) (NWA) provided fundamental law relating to water resources. The preamble to the Act recognises that the ultimate aim of water management is to achieve sustainable use of water for the benefit of all users, and that the protection of the quality of water resources is necessary to ensure sustainability of the nation's water resources in the interests of all water users. The purpose of the Act is stated, in Section 2 as, *inter alia;*

- Promoting the efficient, sustainable and beneficial use of water in the public interest;
- Facilitating social and economic development;
- Protecting aquatic and associated ecosystems and their biological diversity; and
- Reducing and preventing pollution and degradation of water resources.

7.1.9 National Forests Act

The principles of the National Forests Act (Act 84 of 1998) (NFA) pertain to:

- The protection of natural forests (except under exceptional circumstances where the Minister determines that the proposed new land use is preferable in terms of its economic, social or environmental benefits);
- The conservation of a minimum area of each woodland type; and
- The management of forests to ensure sustainability of resources (wood, soil, biological diversity, etc).

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No person may cut, disturb, damage or destroy any indigenous living tree in, or remove or receive any such tree from, a natural forest except in terms of-

(a) A license issued under subsection (1) or section 23; or

(b) An exemption from the provisions of this subsection published by the Minister in the Gazette on the advice of the Council.

The Minister may declare to be a natural forest a group of indigenous trees whose crowns are not largely contiguous; or where there is doubt as to whether or not their crowns are largely contiguous, if he or she is of the opinion based on scientific advice, that the trees make up a forest which needs to be protected in terms of this Part.

The Minister declares a forest to be a natural forest by publishing a notice in the Gazette; and publishing a notice in two newspapers circulating in the area; and airing a notice on two radio stations broadcasting to the area.

The Minister may issue a licence to cut, damage or destroy any indigenous, living tree in. or remove or receive any such tree from a natural forest.

7.1.10 Conservation of Agricultural Resources

The Conservation of Agricultural Resources Act (Act 13 of 1983) makes provision for the actions required with regard to any plant species depend on the *category* in which the plant appears of the amended regulations, and might differ from province to province. In certain cases, special conditions were added that apply only to that specific species.

Category 1 plants, or declared weeds

These are prohibited plants that will no longer be tolerated, neither in rural nor urban areas, except with the written permission of the executive officer or in an approved biocontrol reserve. These plants may no longer be planted or propagated, and all trade in their seeds, cuttings or other propagative material is prohibited. They may not be transported or be allowed to disperse.

Plant species were included in this list for one or more of the following reasons: they might pose a serious health risk to humans or livestock, cause serious financial losses to land users, be able to invade undisturbed environments and transform or degrade natural plant communities, use more water than the plant communities they replace or be particularly difficult to control.

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Most of the plants in this category produce copious numbers of seeds, are wind or bird dispersed or have highly efficient means of vegetative reproduction. Whereas some of these plants were introduced inadvertently, have no obvious function to fulfil in South Africa and are generally regarded as undesirable, many of them are popular garden or landscaping plants. What they all have in common, however, is the fact that their harmfulness outweighs any useful properties they might have. Care was taken not to include a plant in this category if part of the population of South Africa would suffer because of its absence. The ornamentals in this category ought to be reasonably easy to replace with less invasive substitutes.

Plant invaders of Category 2

These are plants with the proven potential of becoming invasive, but which nevertheless have certain beneficial properties that warrant their continued presence in certain circumstances. CARA makes provision for Category 2 plants to be retained in special areas demarcated for that purpose, but those occurring outside demarcated areas have to be controlled. The exception is that Category 2 plants may also be retained or cultivated in biological control reserves, where the plants will serve as host plants for the breeding of biological control agents. The growing of Category 2 plants in a demarcated area qualifies as a water use, and is subject to the requirements of section 21 of the National Water Act, 1998 (Act No. 36 of 1998).

An area can only demarcated for the growing of Category 2 plants by the Executive Officer. The land user needs to obtain a water use license; the plants have to primarily serve a commercial or utility purpose, such as a woodlot, shelter belt, building material, animal fodder, soil stabilization, medicinal or own consumption; the conditions under which they are cultivated, have to be controlled; all reasonable steps have to be taken to curtail the spreading of seeds or vegetatively reproducing material outside the demarcated area, and all specimens outside the demarcated area have to be controlled. The Executive Officer has the power to impose additional conditions to ensure the adequate control of Category 2 plants in demarcated areas.

Seed or other propagative material of Category 2 plants may only be sold to, and acquired by, land users of areas demarcated for the growing of that species, or for the establishment of a biocontrol reserve. Category 2 plants may not occur within 30 m from the 1:50 year flood line of watercourses or wetlands, unless authorization has been obtained in terms of the National Water Act. The Executive Officer has the power to grant exemption from some of the above requirements.

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Plant invaders of Category 3

These plants are undesirable because they have the proven potential of becoming invasive, but most of them are nevertheless popular ornamentals or shade trees that will take a long time to replace. A few of them were placed into this category instead of into category 1 because they do not cause problems in all situations. In terms of Regulation 15 of CARA, Category 3 plants will not be allowed to occur anywhere except in biological control reserves, unless they were already in existence when these regulations went into effect. The conditions on which these already existing plants may be retained are that they do not grow within 30 m from the 1:50 year flood line of watercourses or wetlands, that all reasonable steps are taken to keep the plant from spreading, and that the Executive Officer has the power to impose additional conditions or even prohibit the growing of Category 3 plants in any area where he has reason to believe that these plants will pose a threat to the agricultural resources.

Propagative material of these plants, such as seeds or cuttings, may no longer be planted, propagated, imported, bought, sold or traded in any way. It will, however, be legal to trade in the wood of Category 3 plants, or in other products that do not have the potential to grow or multiply. The Executive Officer will have the power to grant exemption from some of the above requirements.

Control methods

The amended regulations stress that, when controlling plants that occur in areas where they are not allowed, methods should be used that are appropriate for the species concerned as well as to the ecosystem in which they occur. One or a combination of the following control methods may be used: uprooting, felling, cutting, burning, treatment with registered herbicides, biological control or any other recognized and appropriate method. Repetitive follow-up actions will be mandatory until the required control has been achieved.

The aim of control is to reach a point where, ideally, the plants concerned do no longer occur in that particular area or, at least, where the plants can no longer grow, produce viable seeds or spores, coppice, sprout or produce root suckers, reproduce vegetatively, propagate themselves in any other way, or spread into other areas. If this is not possible, the plants have to be contained and their multiplication limited as far as possible.

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When controlling weeds and invaders, damage to the environment has to be limited to the minimum. CARA does not specify the types of environmental damage that might be caused by control actions, but a few examples would be:

1. The removal of or herbicidal damage to non-target plants
2. The chemical pollution of soil or water or any other threat to non-target organisms
3. The irresponsible use of fire
4. The creation of a fire hazard by allowing flammable material to accumulate in fire-sensitive areas
5. Unnecessary or irresponsible disturbance of the soil, especially on riverbanks or slopes
6. Failure to rehabilitate denuded areas so as to prevent soil erosion and invasion by other undesirable species
7. Any other action that might upset the ecological balance of the environment.

Biological control of weeds is subject to rigorous regulations, and will be recognized by CARA as a valid control method only if it is practiced in accordance with all these regulations. Biological control involves the use of host-specific natural enemies of weeds or invaders from the plant's country of origin, to either kill or remove the invasive potential of these plants. It may only be initiated by and carried out under the supervision of an academic or research institute or organization established by legislation, which practises and researches biological control of weeds and invader plants. In order to prevent the waste of biocontrol research effort, money and natural enemies, CARA also lays down certain rules for the protection of biological control agents. In areas where biological control is effective, no additional control methods should be used that would harm the biocontrol agents. Provision is made for certain areas to be set aside as biological control reserves, i.e. areas in which a number of invasive plants are maintained as host plants for the biological control agents, to ensure the continued presence of the agents in that area. Only the Executive Officer may designate a biological control reserve, on condition that it is used by a biocontrol expert to rear and redistribute biocontrol agents. In such a biological control reserve, no measures may be applied that would render the biocontrol agents ineffective.

Nothing contained in Regulation 15 may be used as a reason for ignoring or circumventing any other laws.

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7.1.11 National Environmental Management: Biodiversity Act

The Biodiversity Act (Act 10 of 2004) falls within the framework of the National Environmental Management Act and provides for:

- The management and conservation of biological diversity and of components of such biodiversity;
- Protection of species and ecosystems that warrant National protection;
- Sustainable use of indigenous biological resources;
- The fair and equitable sharing of benefits arising from bio-prospecting including indigenous biological resources; and
- The establishment of a National Biodiversity Institute.

Furthermore it gives affect to ratified international agreements relating to biodiversity which are binding on the Republic, it provides for co-operative governance in biodiversity management and conservation, and provides for a South African National Biodiversity Institute to assist in achieving the objectives of this Act.

7.1.12 Provincial Nature Conservation Ordinance

Protected indigenous plants in general are currently controlled under the relevant provincial Ordinances or Acts dealing with nature conservation. The Eastern Cape falls under the Cape Nature and Environmental Conservation Ordinance (1974). In terms of this Ordinance, a permit must be obtained from Department of Economic Affairs Environment and Tourism (DEDEA) to remove or destroy any plants listed as 'endangered', and a letter of consent form the landowner must be obtained to remove or destroy any plants listed as 'protected' in the Ordinance.

7.1.13 Transkei Decree (9 of 1992)

The purpose of the Transkei Decree is to consolidate and amend laws relating to the conservation, management, protection and commercial utilization of indigenous fauna and flora and their habitats on land, in fresh water and in the sea; excluding national parks. To provide for the establishment of national wildlife reserves, protected natural environments, limited development areas, camping areas, hiking trails and coastal conservation areas.

In terms of this decree, the coastal conservation areas applies to the 1 km strip along the entire former Transkei coastline (excluding Municipal land), which is measured from the high water mark of the seashore and relevant tidal estuaries to 1 km inland. The Decree makes provision for various forms of legislation to manage development and conserve, protect and control the utilisation of indigenous fauna

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and flora within the coastal strip. This implies that any development within the 1 km coastal strip requires approval in terms of the Transkei Decree, 1992. The administration of this Decree is the responsibility of the Eastern Cape DEDEA. In the event of an environmental authorization being authorised (in terms of the EIA procedures), a development permit will be issued by DEDEA based on such environmental authorization. However the development site is not located within this 1 km strip.

This decree provides a number of schedules which protect indigenous endangered & protected Fauna & Flora. According to Chapter 3 permits are required from the Eastern Cape DEDEA should a person hunt, kill, capture, sell, buy, donate, receive, remove, disturb, interfere etc any endangered or protected fauna listed in the schedules of the Transkei Decree. According to Chapter 4 no person may without a permit from the Eastern Cape DEDEA be in possession of, pick, sell etc any endangered or protected flora listed in the schedules of the Transkei Decree.

7.1.14 National Heritage Resources Act

The purpose of the National Heritage Resources Act (Act 25 of 1999) is to:

- Introduce an integrated and interactive system for the management of the national heritage resources;
- Promote good government at all levels, and empower civil society to nurture and conserve their heritage resources so that they may be bequeathed to future generations;
- Introduce an integrated system for the identification, assessment and management of the heritage resources of South Africa;
- Control the export/import of nationally significant heritage objects;
- Enable the province to establish heritage authorities which must adopt powers to protect and manage certain categories of heritage resources; and
- Provide for the protection and management of conservation worthy places and areas by local authorities.

Part 2 of the Act provides for the protection and preservation of structures, sites of archaeological and palaeontological sites, meteorite sites, burial grounds and graves, public monuments and memorials. It also includes the procedures and requirements for heritage resources management.

7.1.15 National Environment Management: Air Quality Act

The Atmospheric Pollution Prevention Act has been repealed by the National Environmental Management: Air Quality Act, 2004 (Act No 39 of 2004).The purpose of the National Environment Management: Air Quality Act (Act 39 of 2004) is to regulate air quality in order to protect the

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environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development while promoting justifiable economic and social development; to provide for national norms and standards regulating air quality monitoring, management and control by all spheres of government; for specific air quality measures; and for matters incidental thereto.

7.1.16 Explosives Act, 1956 (Act No 26 of 1956)

For blasting, a permit must be obtained from the Department of Mineral Resources in accordance with this Act.

7.1.17 Occupational Health and Safety Act

The Occupational Health and Safety Act, 1993 (No 85 of 1993) provides for the health and safety of persons at work; for the health and safety of persons in connection with the use of plant and machinery; and the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work. A number of regulations are published under this Act, including:

- Environmental Regulations for Workplaces (GN R2281 of 1987-10-16)
- Regulations for Hazardous Chemical Substances (GN R1179 of 1995-08-25)
- Asbestos Regulations, 2002 (GN R155 of 2002-02-10)
- Explosives Regulations (GN R109 of 2003-01-17)

7.1.18 Mine Health and Safety Act

The Mine Health and Safety Act, 1996 (No 26 of 1996) provides for the protection of health and safety of employees and other persons at mines and serves –

- To promote a culture of health and safety;
- To provide for the enforcement of health and safety measures;
- To provide for appropriate systems for employee, employer and state participating in health and safety matters;
- To provide effective monitoring systems and inspections, investigations and inquiries to improve health and safety;
- To promote training and human resource development;
- To regulate employers' and employees' duties to identify hazards and eliminate, control and minimise the risk to health and safety;
- To entrench the right to refuse to work in dangerous conditions; and

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- To give effect to public international law obligations of the Republic relating to mine health and safety.

7.2 Plans, Policies & Guiding Principles

7.2.1 Provincial Spatial Development Plan

The Eastern Cape has approved a Provincial Spatial Development Plan. The plan supports the view that the focus of development should be on developing nodes and areas where economic opportunities can be stimulated, particularly in the central and eastern areas of the province. The plan identifies key spatial development issues, main development nodes and zones where development should be encouraged. It aims to encourage consolidated settlement through the improved provision of infrastructure and facilities in targeted areas reinforcing the strategic advantages offered by coastal tourism nodes. For the coast in general the plan discourages linear development and places emphasis on the establishment of nodal developments to build on existing strengths and minimize environmental impacts. The plan also outlines environmentally sensitive areas where development should not be permitted. These are:

- State forests
- Dune forests and estuaries
- Within 30 meters of watercourses along major rivers
- Game reserves and nature sanctuaries
- Slopes steeper than 1:6
- Historic heritage sites
- River basin catchment areas

7.2.2 OR Tambo District Municipality - Integrated Development Plan (2010-2011)

The Municipal Systems Act 32 of 2000, Chapter 5 - part 3 prescribes that Municipal Council must review its Integrated Development Plan (IDP) annually in accordance with its performance measurements to the extent that changing circumstances so demand. This involves an assessment of the Municipality's performance and achievement of its targets and strategic objectives. The Council must also amend its IDP in accordance with a prescribed process. The IDP is annually reviewed to reflect the impact of successes, while corrective measures are applied to address development problems that may arise. This is done to ensure its relevance as the Municipality's Strategic Plan, informing other components of the municipal business processes including institutional development, financial planning, cyclical inter-governmental planning and budgeting. Section 26 of the MSA prescribes the following peremptory components that an IDP must reflect on:

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- The municipal council's vision including the municipal critical developmental and transformation needs;
- An assessment of existing level of development in the municipality;
- The council's developmental priorities and objectives including its local economic development aims;
- The councils‟ development strategies which must be aligned to national and provincial sector plans;
- A spatial development framework which must include the provisions of basic guidelines for a land use management system;
- The council's operational strategies;
- Applicable disaster management plans;
- A financial plan, which must include a budget projection for the next three years; and
- The key performance indicators and performance targets determined in terms of section 41.

The Municipal Planning and Performance Management Regulations (2001) set out the following further requirements for an IDP:

- An institutional framework for implementation of the IDP and to address the municipality‟s internal transformation;
- Investment initiatives must be clarified;
- Development initiatives including infrastructure, physical, social and institutional development and;
- All known projects, plans and programmes to be implemented within the municipality by any organ of state.

The Municipal Finance Management Act (MFMA) provides for closer alignment between the Annual Budget and the compilation of the IDP.

To give effect to the said mandates, the IDP has been legislated as a planning mechanism to be adopted by municipalities (Chapter 5 of the MSA No. 32 of 2000). The council of O.R Tambo district municipality is reviewing an Integrated Development Plan (IDP) to adopt it for implementation during (2010/2011) financial year. The IDP as a strategic development plan is reviewed annually to guide all development in a municipal area and inform municipal budgeting and resource allocation. It also plays a pivotal role in informing all planning processes of the other spheres of government (National and Provincial) as well as all state owned enterprises. The development of an IDP as legislated in chapter 5

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of the Local Government Municipal Systems Act No.32 of 2000, amongst others prescribes the content of such a plan (section 27 of this Act), as follows:

- The municipal council's vision for the long-term development of the municipality with special emphasis on the municipality's most critical development and internal transformation needs;
- An assessment of the existing level of development in the municipality, including identification of communities which do not have access to basic services;
- The council's development priorities and objectives for its elected term, including its local economic development aims and it's internal transformation needs;
- The council's development strategies aligned with those of national and provincial sectoral plans and planning requirements binding on the municipality in terms of legislation;
- A spatial development framework including basic guidelines for land use management system for the municipality;
- The council's operational strategies;
- Applicable disaster management plans;
    - A financial plan and budget projection for the next three year; and
    - The key performance indicators and performance targets determined in terms of section 41 of the Municipal Systems Act.

The main purpose of an IDP is to foster more appropriate service delivery by providing the framework for economic and social development within the municipality. In doing so it:-

i. Contributes towards eradicating the development legacy of the past.

ii. Operationalizes the notion of developmental local government.

iii. Foster a culture of co-operative governance.

Projects related to Roads and Transport includes the following:

Table 1: Projects planned 2010/2011 Financial Year

Department of Roads and Transport Projects planned 2010/2011 Financial Year					
Name of project	Indicative Budget	Location of project	Implementing agent	Project output	Duration
Wild Coast Meander Zithulele to Coffee Bay (Ph 1)	13,000	Port St Johns,	DORT	Tarred roads / Surfaced roads	Mar-11
Wild Coast Meander: Madwaleni Hospital Road (Ph 2)	20,000	KSD	DORT	Tarred roads / Surfaced roads	Mar-11
Greenville Hospital Road (Ph 2)	20,000	Mbizana	DORT	Tarred roads / Surfaced roads	Mar-11

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R61 to Holy Cross Hospital	18,200	Mbizana	DORT	Surfaced Road	Mar-10
Continuation to Holy Cross Hospital	7,800	Mbizana	DORT	Surfaced Road	Aug-10
Ngqeleni to Mthatha Mouth	10,400	KSD	DORT	Surfaced Road	Nov-09
R61 Sitshayela to Tembukazi	11,700	Ngquza	DORT	Surfaced Road	Nov-10
Bizana to Port Edward (Magusheni-Mzamba)	600,000	Mbizana	DORT	Tarred roads / Surfaced roads	Mar-15
Phakade to Magusheni	220,000	Bizana , Ngquza	DOR	Tarred roads / Surfaced roads	Mar-11
T125: Siphetu Hospital	350,000	Ntabankulu	DOR	Tarred roads / Surfaced roads	Mar-11
Hluleka Road Project	28,000	Nyandeni	DORT	Tarred roads / Surfaced roads	Mar-11
Urban Renewal Lusikisiki	13,000	Ngquza	DORT	Tarred roads / Surfaced roads	Mar-11
Household Contractor Road Maintenance	34,000	KSD, Mhlontlo	DORT	Minor maintenance works (culverts cleaning, surface maintenance, grass cutting, control stray animals, etc.)	Mar-11
EPWP projects	8,360	7 Local Municipalities	DORT	Minor maintenance works (surface maintenance, fencing, grass cutting and bush clearing, etc).	Mar-11
DR 08313 to Canzibe Hospital	33,800	Nyandeni	DORT	Tarred roads / Surfaced roads	Jun-11
DR 08170 to Lutana Clinic	23,400	Mhlontlo	DORT	Tarred roads / Surfaced roads	Dec-10
DR 08026 & DR 08149 to Magwa Tea Plantation	22,100	Quakeni	DORT	Tarred roads / Surfaced roads	Oct-10
DR 08269 (Lindile)	5,200	KSD	DORT	Tarred roads / Surfaced roads	Sep-11
DR 08288 & DR 08033 & DR 08289 Mvezo Great Place and Museum	33,800	KSD	DORT	Tarred roads / Surfaced roads	Nov-12
DR 08167 to Tina Falls	19,500	Mhlontlo	DORT	Tarred roads / Surfaced roads	Jan-12
DR 08019 to Ntabankulu Town	14,300	Quakeni	DORT	Tarred roads / Surfaced roads	May-12
Flagstaff to Lusikisiki	300,000	Qaukeni	DORT	Tarred roads / Surfaced roads	Mar-12
Pt St Johns to Ntafufu	20,000	Port St Johns	DORT	Tarred roads / Surfaced roads	Nov-11
Mampube to Pt St Johns	35,000	Port St Johns	DORT	Tarred roads / Surfaced roads	Nov-11
N2 to Tabankulu	20,000	Ntabankulu	DORT	Tarred roads / Surfaced roads	Apr-12
Lusikisiki to Mbotyi	40,000	Ngquza	DORT	Tarred roads / Surfaced roads	Nov-11
Vidiesville to Mqaunduli	40,000	King Sabata Dalinyebo	DORT	Tarred roads / Surfaced roads	Feb-11
Magusheni to Flagstaff	20,000	Ngquza/ Mbizana	DORT	Tarred roads / Surfaced roads	Nov-12
Lusikisiki Bambisane Hospital	35,000	Ngquza	DORT	Tarred roads / Surfaced roads	Mar-12

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Mthatha Airport	R60, 000	KSD LM	DORT	Civil Works, Fencing, Terminal Bldg Upgrade, Fire detectors, Lift installation, Air conditioning and ventilation	Mar-12
Qumbu Bus and Taxi Rank	R 2 million	Mhlontlo	DORT	Bus and Taxi Rank	July 10 - June 2012

7.2.3 DWAF – Best Practice Guidelines

The Department of Water Affairs & Forestry developed a series of Best Practice Guidelines (BPG's) for mines that was released in 2009 in line with the international Principles and Approaches towards sustainability. These guidelines have been grouped as follows:

- BPG's dealing with aspects of DWAF's water management hierarchy, namely,
  - H1: Integrated Mine Water Management
  - H2: Pollution Prevention and Minimization of Impacts
  - H3: Water Reuse and Reclamation
  - H4: Water Treatment
- BPG's dealing with General water management strategies, techniques & tolls, namely,
  - G1: Storm Water Management
  - G2: Water and Slat Balances
  - G3: Water Monitoring Systems
  - G4: Impact Prediction
  - G5: Water Management Aspects for Mine Closure
- BPG's dealing with specific mining activities or aspects, namely,
  - A1: Small-Scale Mining
  - A2: Water Management for Mine Residue Deposits
  - A3: Water Management in Hydrometallurgical Plants
  - A4: Pollution Control Dams
  - A5: Water Management for Surface Mines
  - A6: Water Management for Underground Mines

The development of the guidelines is an inclusive consultative process that incorporates the input from a wide range of experts, including specialist within the and outside the mining industry and government. The BPG's form the flowing main functions:

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- Utilization by the mining sector as input for compiling water use license applications (and other legally required documents such as EIA's, EMP's, closure plans, etc) and for drafting license conditions.
- Serve as a uniform basis for negotiations through the licensing process prescribed by the National Water Act.
- Used specifically by DWAF personnel as a basis for negotiation with the mining industry, and likewise by the mining industry as a guideline as to what the DWAFG considers as best practice in resource protection and waste management.
- Inform Interested & Affected Parties on good practice at mines.

7.2.4 Department of Environmental Affairs Guidelines

The Department of Environmental Affairs has also produced a series of guidelines to assist potential applicants and interested and affected parties (I&AP's) to understand what is required of them and what is required of them and what their role may be. The guidelines are intended to guide only and should be read in conjunction with NEMA and the regulations. They are not intended to be a substitute for the provisions of NEMA or the regulations in any way. The guidelines form part of the department's Integrated Environmental Management Guideline Series and consist of -

- Guideline 5: Companion to the National Environmental Management Act Environmental Impact Assessment Regulations of 2010
- Guideline 6: Environmental management framework
- Guideline 7: Public Participation

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8 Introduction

The **Department of Roads and Public Works** is responsible for the maintenance of the gravel roads network in the Eastern Cape Province through routine maintenance or regravelling contracts. The Department of Roads and Public Works has appointed a consortium of Engineering Consultants (RAMS Management Consultants) to manage the Road Asset Management System (RAMS) which includes the borrow pit management system. **Controlab cc** is the Professional Services for the conducting of Geotechnical Borrow pits. **BESC** have been appointed as independent environmental consultants by **Controlab cc** on behalf of **Department of Roads and Public Works** to undertake the necessary investigations and applications in order to obtain authorisation from the relevant authorities for the proposed works. To this end, an Environmental Management Plan as defined and required by the Minerals and Petroleum Resources Development Act (M&PRDA) (No. 28 of 2002), has been prepared for the proposed utilisation of a borrow pit for the routine maintenance/regravelling of the DR08157.

It is proposed that road construction materials be sourced from the existing borrow pit located in the vicinity of the DR08157. As mentioned previously, the utilisation of the material sources required for the project will be undertaken in accordance with the Minerals and Petroleum Resources Development Act (M&PRDA) (No. 28 of 2002). Since the applicant, Department of Roads and Public Works, is an Organ of State, exemption has been obtained previously from the application process in terms of the Act. In terms of this exemption only an Environmental Management Plan for the utilisation of the borrow pits is required to be compiled in accordance with Section 39(2) and Regulation 52 of the M&PRDA.

The purpose of the Environmental Management Plan is to identify and assess potential impacts associated with the project through a process of stakeholder and public consultation and environmental investigations, and to provide sufficient detail on the project to the Department of Minerals Resources (DMR), in order to allow DMR to make an informed decision on the project.

It is also appropriate to highlight at this point that the Department of Mineral Resources may, in their Decision, reserve their rights to initiate criminal proceedings against the Consulting Engineer, contractor and/or any sub-contractors.

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8.1 Objectives of the Environmental Management Plan

The overall objectives of the Environmental Management Plan are defined as follows:

- To fulfil the requirements of Sections 39 of the Minerals and Petroleum Resources Development Act;
- To fulfil the criteria described in regulations 52 of the Minerals and Petroleum Resources Development Regulations, 2004, Government Notice No. 527.
- To inform the public and key stakeholders of the Project and to provide them with an opportunity to express any concerns or issues and to participate in the process;
- To identify and assess potential impacts associated with the activity. A “fatal flaw” constitutes an impact of HIGH significance and which cannot be managed to an acceptable level;
- Identify proposed mitigation and management measures to minimize adverse impacts and benefits; and
- Planned monitoring and performance assessment of the environmental management plan.

8.2 Integrated Environmental Management

The Integrated Environmental Management (IEM) procedure, which is outlined in Chapter 5 of the National Environmental Management Act (Act 107 of 1998) (NEMA), provides a framework for the integration of environmental issues into the planning, design, decision-making and implementation of plans and development proposals. The general objectives of Integrated Environmental Management are to:

- Promote the integration of the principles of environmental management in the making of all decisions, which may have a significant effect on the environment;
- Identify, predict and evaluate the actual and potential impacts on the environment, socio-economic conditions and cultural heritage; the risks and consequences and alternatives and options for mitigation of activities, with a view to minimising negative impacts and maximizing benefits and promoting compliance with the principles of environmental management;
- Ensure that the effects of activities on the environment received adequate consideration before actions are taken in connection with them
- Ensure adequate and appropriate opportunity for public participation in decisions that may affect the environment;
- Ensure the consideration of environmental attributes in management and decision-making which may have a significant effect on the environment; and
- Identify and employ modes of environmental management best suited to ensure that the particular activity is pursued in accordance with the principles of environmental management.

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8.3 Project Details

Applicant:

The Department of Roads & Public Works
Private Bag X0023
BHISHO
5605
Tel No.: (043) 604 7636
Fax No.: (086) 532 3972
Contact Person: Mr CJ Xoko/Mr C Boshoff

Environmental Consultant

Biotechnology and Environmental Specialist Consultancy cc
P O Box 8241
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Fax: (043) 726 3199
Email: lee-anne@besc.co.za
Contact Person: Ms Lee-Anne Proudfoot

Landowner

The Borrow pit falls on Farm Land. The King Sabata Dalindyebo Local Municipality has been identified as the registered landowner of this Farm Land on which the borrow pit is located.

Rd_Nr_	No_	Farm #	Landowner
DR08157	157_BP01	Farm RE/112	King Sabata Dalindyebo Local Municipality

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9 Project Description

9.1 Study Area

The DR08157 is situated within the Port St Johns Local Municipality located in the OR Tambo District Municipality. DR08157 is a gravel road situated approximately 29km west of the town of Lusikisiki within the Province of the Eastern Cape. The section of DR08157 assessed is approximately 19.8km long and runs in a north to south direction. The road starts at the intersection with DR08156 and end at the intersection with DR08158 (Figure 1). The start and end co-ordinates are as follows:

- Start co-ordinate – S 31° 19' 04" E 29° 23' 20"
- End co-ordinate - S 31° 26' 38" E 29° 20' 57"

One (1) borrow pit was identified from the initial investigation for material sources along the DR08157; and, was identified to be suitable for utilisation as material sources for the re-gravelling. The location of the borrow pit is as follows:

Road #	Borrow Pit #	Latitude	Longitude
DR08157	157_BP01	31°25'08.7" S	29°22'53.9" E

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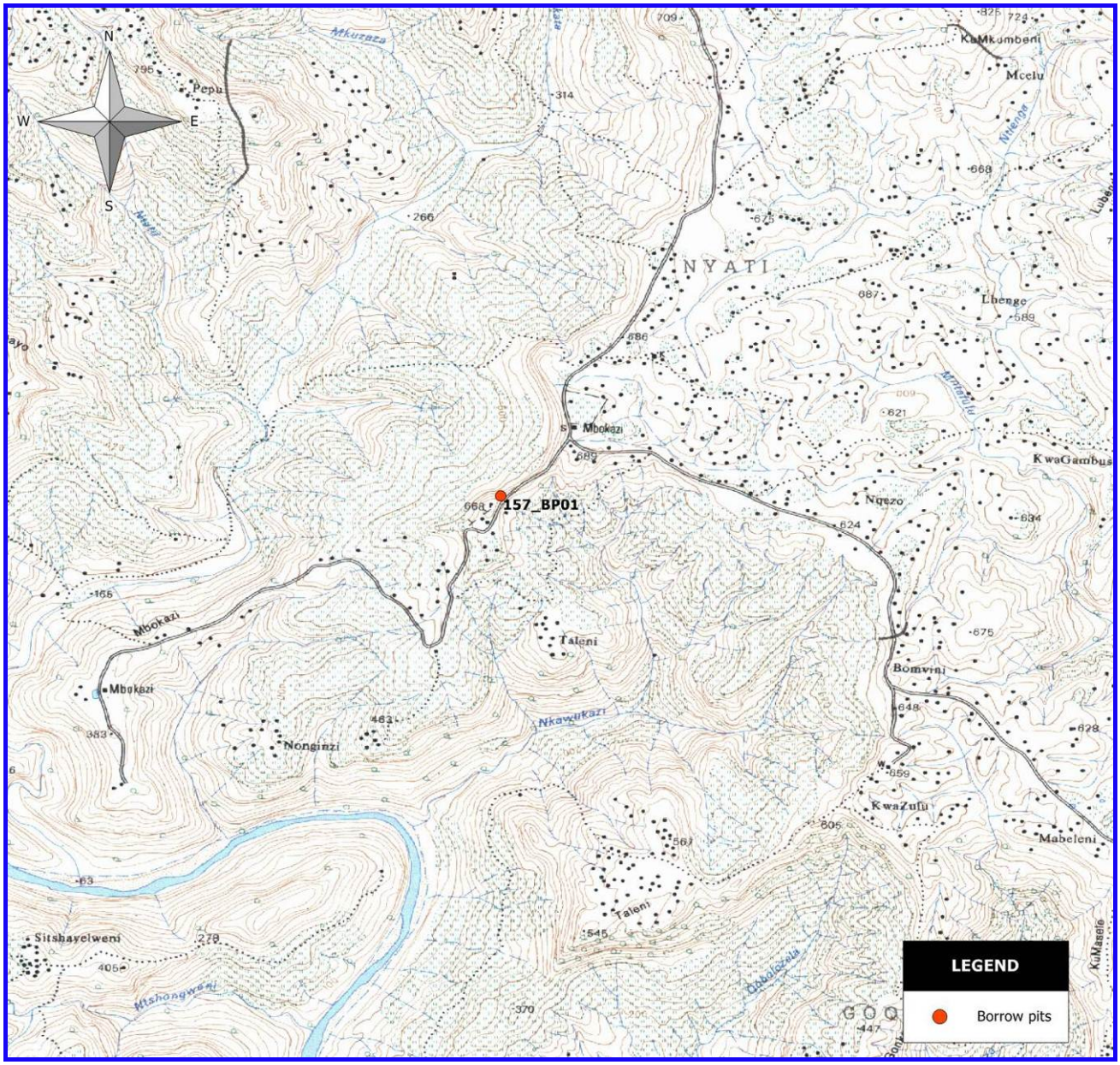

Figure 1: The location of the borrow pit (1: 50 000 map).

9.2 Current Land Use

The borrow pit is existing and was previously used for road construction/upgrading activities.

9.3 Surrounding Land Use

The surrounding land use includes Rural / Communal Land and Natural Landscapes.

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9.4 Proposal

The **Department of Roads and Public Works** is responsible for the maintenance of the gravel roads network in the Eastern Cape Province through routine maintenance or regravelling contracts. As such the Department has embarked on an investigation to identify borrow pits situated along or in close proximity to the district roads identified in the OR Tambo District Municipality which require routine maintenance in order to source materials for the proposed re-gravelling/maintenance of these roads.

It is proposed here to utilise one (1) borrow pit identified along the DR08157, for the routine maintenance/re-gravelling of this district road. The nearest formal town is Lusikisiki. The borrow pit is located adjacent to the DR08157.

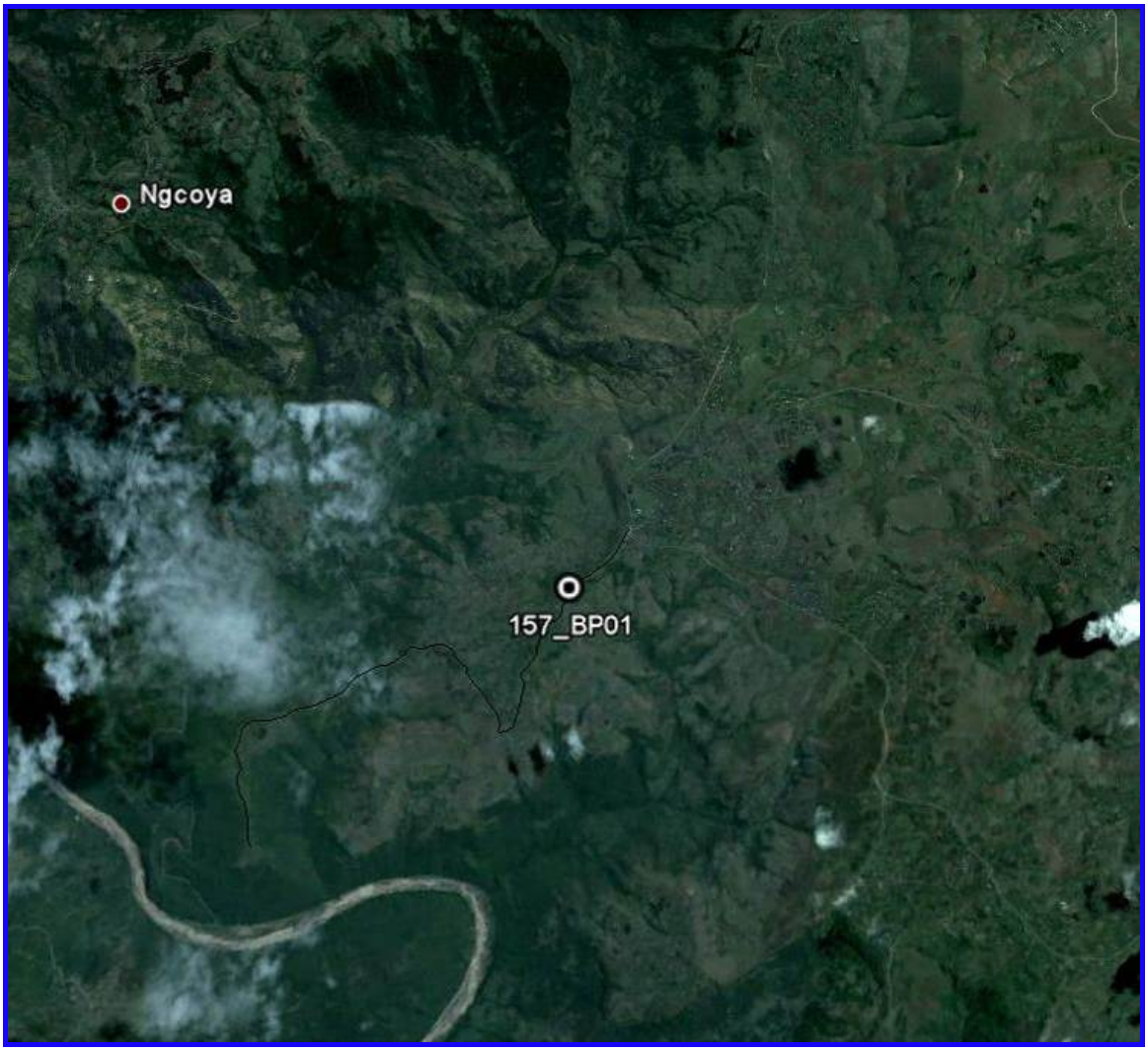

Figure 2: Aerial Image - Road DR08157 & associated BP.

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Table 2: Borrow pit Summary Table

Information		Borrow pits 157_BP01
Ownership		Farm Land - King Sabata Dalindyebo Local Municipality
Type of Material		Shale
Existing or new		Existing
Co-ordinates	South	31°25'08.7"
	East	29°22'53.9"
Distance to DR08156		+/- 5 -10 m
Access		Yes
River Catchment		Mkata River/Mzimvubu River
Nearest Village		Taleni
Distance to Nearest Houses		+/- 40 m
Presence of servitudes		Powerlines adejacent to the proposed borrow pit area
Proposed End Use		Closed and Rehabilitated

9.5 Borrow pit 157_BP01

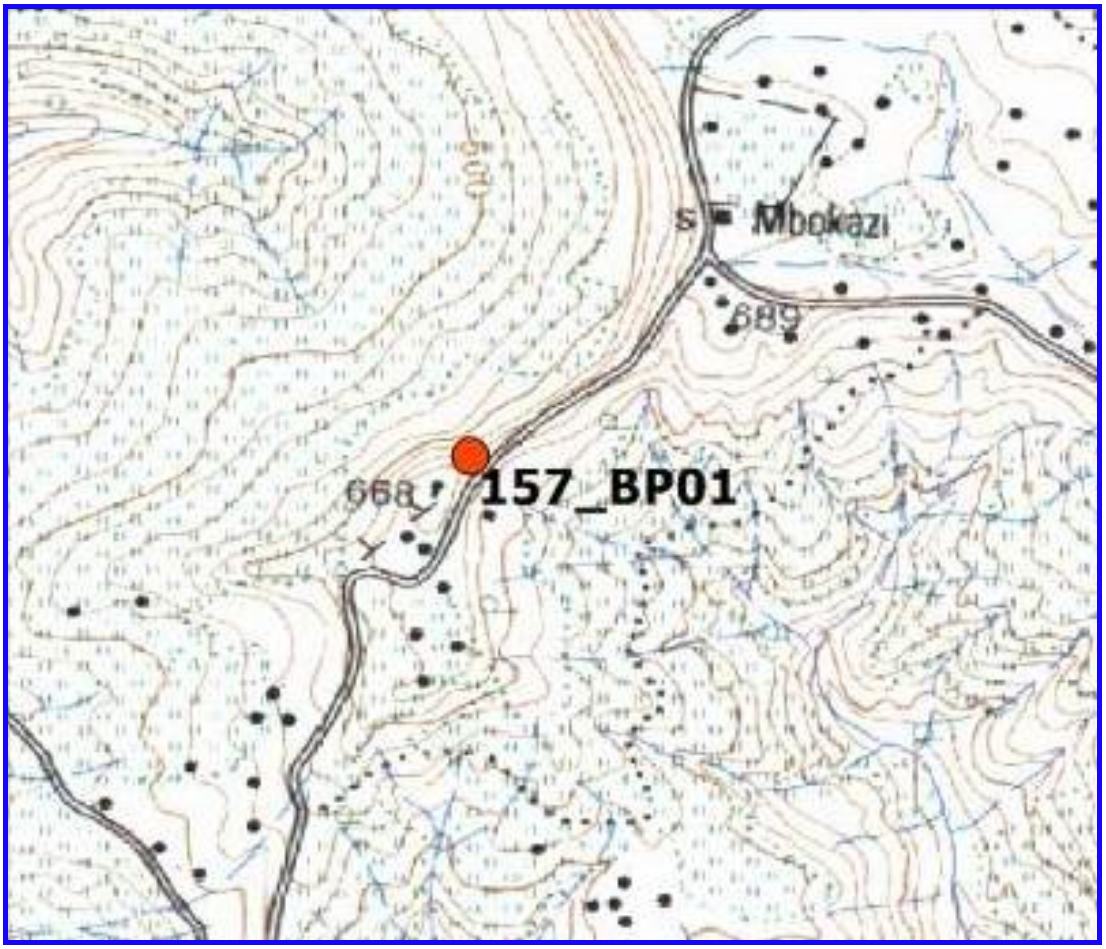

Figure 3: Topographical Location of 157_BP01- 1:50 000 map

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Figure 4: 157_BP01

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General Description

157_BP01 is an existing borrow pit which has been utilized in the past quite recently. The borrow pit is located north easterly hill slope. The site is accessed directly from the DR08157. The nearest village is Taleni, with the nearest household located approximately 40 m from the borrow pit. It is the intension that the borrow pit will be mined from its existing borrow pit footprint/face and extended into the hill slope in a westerly direction away from the DR08157 and the household in close proximity as indicated on the mining plan in SECTION 20. It will not be necessary to relocate any households; however noise control and dust control measures will need to be implemented. Cognisance must be taken of the Powerlines adjacent to the borrow pit fottprint.

Prior to mining the access road will be demarcated to prevent vehicles damaging natural vegetation. The existing access to the borrow pit will be utilised to allow for trucks to access the working face. The entire mining area will be fenced to prevent unauthorized access of both humans and animals. The area to be fenced will be bigger than the area to be mined to allow for a storage area for topsoil.

Site preparation will consist of the stripping of topsoil and overburden into stockpiles, which are to be stored separately. Existing topsoil stockpiles will be shifted out of the way to allow for mining of the material beneath. The topsoil and overburden material will be stockpiled on site and after the mining is complete this material will be spread over again. Once the whole area is open the stockpile can be moved around so as not to interfere with the mining process.

The material will be excavated from the face and floor of the borrow pit and if possible loaded directly onto haul trucks. The material to be mined will be Shale. It is proposed that the extent of the area to be mined (existing and new) will be approximately 0.443 ha.

Stormwater control is viewed as a critical component of the borrow pit development. It is suggested that a cutoff-berm be located above the borrow pit face, protecting the active mining area and topsoil and overburden stockpiles from erosion. This storm water will then be channelled towards the natural drainage in the area. A diversion berm with dissipation beds should be installed down slope of the mining area to filter out any sediment washed off the site during heavy rainfall.

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Proposed Rehabilitation Measures:

On completion of mining, the faces must be sloped to a 1:2 - 1:3 slope and overburden and then topsoil (imported if required) will be spread over the surface of the mining area. The access roads will be ripped. The entire area will be fertilized and seeded with an indigenous grass mix which includes quick-growing pioneers and climax species. The stormwater berms will be retained on closure.

Additionally, near vertical slopes (1:1 to 1:2) should be stabilised by natural rock wall structures using conventional building methods or in forms with slurry forced between the structures. All structures must have a 'natural' look and facilities for plants to grow in.

All areas where the slopes are 1.3 to 1:6 should be logged or otherwise stepped (using stabilisation cylinders or similar) in order to prevent soil erosion. Logs/ cylinders should be laid in continuous lines following the contours and spaced vertically 0.8-1.2 m apart, depending on the steepness of the slope. These logs/ cylinders must be secured by means of steel pegs and wire in rocky areas, and treated wooden pegs in other areas.

Inspections will be undertaken during the project liability period (one year after completion of the contract) to ensure that no erosion has taken place and to monitor the success of the revegetation. Should any damage occur, the necessary repair works will be undertaken. The intention is to establish an 80% grass cover within two years of rehabilitation. Should this not be achieved, it may be necessary to lightly rip, fertilise and reseed the site. The fence will be maintained by the contractor until the end of the contracts liability period.

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9.6 Need and Desirability

The existing gravel roads in the OR Tambo District Municipality are in serious need of maintenance and re-gravelling. The region in particular has recently experienced severe weather conditions which has resulted in severe deterioration of the road conditions and has exacerbated the need for maintenance and re-gravelling of the existing gravel roads. The proposed maintenance/re-gravelling of the DR08157 will be a benefit to the users of the road by providing proper infrastructure, improving overall road safety and reducing the risk of erosion that is occurring at present. The proposed borrow pit will provide material for the maintenance/re-gravelling of the DR08157. The identification of these sources follows a materials identification/investigation undertaken by Controlab (Section 21.1). A number of borrow pits were investigated. A selection process was undertaken whereby the borrow pits having fatal flaws or limited resources were eliminated during the planning process using indicators such as materials present, volume of available material, distances to water courses, land capability, vegetation sensitivity, surrounding erosion, visibility, slopes, etc. The material from the borrow pit was concluded to be suitable for use and that it would yield high quantities of material for the maintenance of the road. As part of the measures to be taken for the borrow pit, rehabilitation is required on closure of the mining, this rehabilitation would be a benefit as this should improve the overall aesthetics of the borrow pit.

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10 Environmental Setting

10.1 Landform & Geology

10.1.1 General Description:

The area is underlain by the sedimentary strata belonging to the Cape Supergroup, the Karoo Sequence and the Cretaceous System. The Cape Supergroup is represented in this area by the Natal Group. The Karoo sequence comprises the Dwyka formation (500 m tillite), the Ecca Group (± 1000 m shale and sub-ordinate sandstone), the Beaufort Group (up to 3000 m mudstone), the Molteno Formation (500 m sandstone, mudstone and shale), the Elliot Formation (500 m mudstone and sandstone), the Clarens Sandstone (up to 250 m) and the Drakensberg Group (over 700 m basaltic lava and subordinate agglomerate and tuff). Cretaceous rocks occupy very small areas and are represented by the Mbotyi (300 m conglomerates) and Mgazana Formations (conglomerates with fossiliferous lenses).

10.1.2 Structural Geology:

The map area can be divided into two structurally distinct regions:

(i) the gently dipping inland area;
(ii) the structurally more complicated coastal strip

The inland area consists mainly of gently dipping Karoo sediments. Dips vary from 1 to 3° northwest with localised steeper dips near dolerite intrusions. Major faults are rare.

The coastal strip has been disturbed by numerous faults, generally striking east-west near the coast and curving north-east to south- west inland. In general the downthrow side is to the south and east of the faults, with the downthrow sediments dipping eastwards at 20° or more. Hence, downfaulted outliers of younger formations occur, the Molteno outlier at Mgazana being the most notable.

The downthrow along the faults ranges up to 3000 m. A horst of upfaulted Natal Group sandstones is exposed in “The Gates” at Port St Johns.

The age of the faulting can be deduced from the occurrence of Cretaceous rocks. It is probable that faulting commenced in the Early Cretaceous and was completed by the end of the Cretaceous.

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10.2 Archaeology, Palaeontology & Heritage Sites

The study area falls within the Ecca group which is Permian (255 million years) in age and dolerite which is Jurassic in age.

Within the Ecca Group only trace fossils have so far been found in the area. The Ecca shales appear to represent deep-water muds with occasional influxes of coarser arenaceous material brought in by the turbidity currents. Gradual shallowing of the basin took place during deposition since the overlying Beaufort Group was deposited under fluviatile conditions. Trace fossils tend to be of tracks, trails, tubes and burrows which occur sporadically. Unidentifiable carbonised plant remains and oval shaped petrified logs displaying well developed annual rings are present near the base of the Ripon Formation.

No general listing of the sites of palaeontological, archaeological and historical significance within the area is available. The South African Heritage Resources Agency does possess a database of National Monuments within each province, but this is only of limited use since it only lists National Monuments (as declared within the Government Gazette), and the vast majority of these occur within urban areas which are unlikely to be impacted upon by borrow pit projects.

10.3 Topography and Drainage

The topography of the area is described as being low mountains. The general topography of the area is characterised by undulating to rolling terrain with deeply incised river valleys. In some areas, e.g. between Ntlaza (793 m), Port St Johns (10 m) and Lusikisiki (610 m), the terrain is very rugged and mountainous with deep and steep-sided river valleys. The landform becomes more steeply rolling as the coast is approached. Where slopes are not too steep, deep soils can be found on Ecca and Dwyka Group sediments.

The study area is located within the Mzimvubu to Keiskamma Water Management Area. It consists of three large drainage basins and the catchments of a number of smaller rivers that lie between the major drainage basins and the Indian Ocean. The major drainage basins are the Great Kei (Drainage Region S), the Mbashe (part of Drainage Region T), and the Mzimvubu (part of Drainage Region T).

The study area falls within the Drainage Region T. The whole of the central and north-eastern portions of the WMA lie within Drainage Region T, which extends into the Mvoti to Mzimkulu WMA. The portion of Drainage Region T within the WMA area falls within the Pondoland Coastal Catchments; this is catchments of the Msikaba, Mtentu, Mzumba Rivers and adjacent smaller rivers which rise in the

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coastal strip between the Mzimvubu River Basin and the north-eastern boundary of the WMA. Both the rivers and the estuaries in this area are of high conservation value.

The topography is hilly to mountainous throughout the WMA with the high mountains of the Drakensberg along the north-eastern boundary.

10.4 Groundwater

The natural quality of groundwater in the water management area is variable, with elevated salinities in some areas. There is a high risk of microbial contamination of both suface water and groundwater in most parts of the densely populated tribal areas of the water management area, and this poses a health threat to those rural communities who rely on untreated supplies of potable water.

10.5 Climate

Due to its location at the confluence of several climatic regimes, the most important of which are temperate and subtropical, the Eastern Cape has a complex climate. There are wide variations in temperature, rainfall and wind patterns, largely as a result of movements of air masses, altitude, mountain orientation and distance from the Indian Ocean. Exceptionally high temperatures may be experienced during berg wind conditions, which occur frequently during the winter, with maximums of well over 30°C not being uncommon. Extreme temperatures also occur during summer, with little accompanying wind. Areas closer to the coast experience cooling due to onshore sea breezes.

The climate of the coastal lowlands of the East Cape region is generally moderate, warm temperate and humid and does not experience wide fluctuations in temperature due to the influence of the warm Agulhas current.

The general climate for the area is described as moderate for most of the year, but with hot periods from December to February. The climate ranges from cool, humid and subtropical at the coast to hot and sub-arid inland. Temperature ranges in the OR Tambo District from a mean minimum of 14.3 – 19.8 °C in January and 1.8 -13.4 °C in July to a mean maximum in 14.3 – 25.3 °C in January and 19.5 – 21.4 °C in July.

Rainfall in the area occurs mainly in summer, but the winter months are not completely dry, with about 30% of the annual rainfall occurring between April and September. There is a great variation of the quantity of rainfall throughout the area. The mean annual precipitation (MAP) along the coastal region ranges from a low of 600mm in the west to a high of 1 208mm in the east, and varies from 400mm to

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1200mm in the central plateau and along the northern areas. The rainfall is generally higher in the east than in the west.

The relative humidity is higher in summer than in winter. It is generally highest in February (the daily mean ranges from 60% in the north-west to 82% in the south-east) and lowest in July (the daily mean ranges from 50% in the north-west to 72% in the south-east). Average potential mean annual gross evaporation (MAE) (as measured by Symons-pan) for the WMA ranges from 1700mm in the north-west to less than 1200m in the south-eastern parts.

10.6 Fauna

10.6.1 Reptiles & Amphibians

Of the 480 reptiles recorded from South Africa at least 144 of these occur within the Eastern Cape, and comprise eleven chelians (including sea-turtles, terrapins and tortoises), eighty-two lizards, and forty-six snakes. Reptiles form an important component of vertebrate diversity within the area. This is particularly true in light of their low mobility and high habitat specificity, particularly lizards and tortoises.

Approximately 60 species of reptiles may occur in the area. Whilst some are wide-ranging species (e.g. snakes such as the boomslang and puff adder), others have relatively restricted distributions. Sensitive and localised species may include the common slug-eating snake (*Duberria lutrix*) and the giant legless skink (*Acontias plumbeus*). Venomous snakes in the area include the Boomslang (*Dispholidus typus*), Ringhals (*Hemachatus haemachatus*), Cape Cobra (*Naja nivea*), Common Night Adder (*Causus mombeatus*) and Puff Adder (*Bitis arietans*); however there are few bites to humans and livestock.

The Province contains 19 threatened reptiles, of which 18 are endemic to the Eastern Cape, none of which are included in the SA RDB for reptiles and amphibians.

Species such as the Natal Black Snake (*Macrelaps microlepidotus*), occurring in coastal forests, reaches its southern limit in the East London area, the Green Sea turtle (*Chelonia mydas* – SA RDB status –vulnerable), the Loggerhead Sea Turtle (*Caretta caretta* –SA RDB status – vulnerable), the Hawksbill Sea Turtle (*Eretmochelys imbricate* – SA RDB status – vulnerable) and the Leatherback Sea Turtle (*Dermochelys coriacea* – SA RDB status – vulnerable) occur in the Eastern Cape coastal waters.

There are 102 amphibian species recorded in South Africa and about 47% of these occur in the Eastern Cape. One of these is an Artholeptid (frog), one is a Pipid (aquatic frog), three are Helephrynids (frogs

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which live in mountain streams and are endemic to South Africa), nine are Bufonids (true frogs) three are Bevicepids (stout bodied frogs), twenty-one are Ranids (frog family) and nine are Hyperolids (reed frogs). The amphibians of the province are an important component of the vertebrate diversity of the province. There are six threatened and four endemic frog species in the Eastern Cape Province. The Pondoland amphibian fauna is relatively poorly known, as is much of that of the former Transkei. This is unfortunate as the region falls at an important transition zone between a southern temperate amphibian fauna, and a tropical fauna that extends along the coastal littoral in association with the warm waters of the Agulhas Current (Poynton, 1990). The known amphibian fauna includes approximately 31 species. New taxa may well still exist in the poorly studied forest patches, river gorges and coastal grasslands. Species currently known only from coastal locations may also have relict inland populations.

One species, *Heleophryne hewitti*, is critically endangered and known for only four rivers in the Elandsberg range.
Five amphibian species of special concern have been idensified i.e.:

- *Afrixalus knysnae* (Data Deficient),
- *Leptopelis natalensis* (Sensitive),
- *Natalobatrachus bonebergi* (Endangered),
- *Cacosterum striatum* (Data Deficient) and
- *Pyxicephalus adspersus* (Near Threatened).

Both the taxonomy and conservation of *Afrixalus knysnae* has changed, *Afrixalus knysnae* is restricted to the southern Cape region, and *Afrixalus spinifrons* applied to dwarf leaf-folding frogs of the Eastern Cape and KwaZulu-Natal. This taxon is now considered Endangered.

Near Threatened status for the Giant Bullfrog is a regional assessment, and the species is not considered threatened elsewhere in Africa.

A number of regional endemics occur, including:

- Bush squeaker (Arthroleptis wahlbergi) – KwaZulu-Natal, reaching its southern limit at Port St. John's;
- Natal ghost frog (Heleophryne natalensis) – Eastern Cape to Mpumalanga escarpment, reaching its southern limit Mtamvuna Gorge;
- Natal chirping frog (Arthroleptella hewitti) – KwaZulu-Natal, reaching its southern limit at Mkambati NR;

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- Forest tree frog (Leptopelis natalensis) – KwaZulu-Natal, reaching its southern limit at Port St. Johns;
- Natal spiny reed frog (*Afrixalus spinifrons*) – Port Edwards, Port St Johns, Butterworth-Qolora; and
- Kloof frog (*Natalobatrachus bonebergi*) – Port St. John's to Ngoye Forest.

A number of tropical species reach their southern limit in the region and these populations are therefore also sensitive. They include:

- Long reed frog (*Hyperolius acuticeps*) – reaches its southern limit at Mkambati;
- Water lily frog (*Hyperolius pusillus*) – reaches its southern limit at Dwesa;
- Dwarf puddle frog (*Phrynobatrachus mababiensis*) – reaches its southern limit at East London;
- Sharp-nosed grass frog (*Ptychadena oxyrhynchus*) – reaches its southern limit at East London; and
- Striped grass frog (*Ptychadena porosissima*) – reaches its southern limit at East London.

10.6.2 Mammals

A total of two hundred and ninety two terrestrial mammals recorded for South Africa, of which 128 (44%) are recorded from the Eastern Cape. Of this 128 species, only one species is endemic to the Eastern Cape. This species is the Giant Golden Mole (*Chrysospalax trevelyani*) that inhabits the indigenous forests of the Eastern Cape and is locally abundant in some regions. A list of recorded mammal species of the Eastern Cape region is presented in Appendix B. Of the 80 terrestrial species recorded, including 11 species of insectivores, 19 bats, three primates, two lagomorphs, 19 rodents, 15 carnivores, one ant bear, two hyrax, one bush pig and five to six small antelope species. Species which have been extirpated within historical times in the Eastern Cape include the cheetah, hunting dog, hippopotamus, lion, warthog and red hartebeest. These have however been extensively reintroduced into the province in provincial and private game reserves. Few of the large and medium- sized mammal fauna that previously occurred now occur naturally in the wild. Most are locally extinct or occur in small, fragmented populations in forest reserves or in protected areas. Few mammals of conservation concern now survive in the study area. The few large megaherbivores surviving in the study area include bushbuck, common duiker and Cape Grysbok. In addition, the Chacma baboon, Vervet Monkey, bush pig and a variety of small carnivores (viverids, genets, Cape Clawless Otter, etc.) survive in small pockets. All are non-threatened and many have successfully adapted to surviving in peri-urban areas.

In the Eastern Cape area the dominant small mammal species associated with Coastal Grasslands and Acacia Savannah are *Rhabdomys pumilio* (Striped mouse) and *Otomys irroratus* (vlei rat). Other

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relatively common animals include various mole species, mole rats, *Orycteropus afer* (Aardvark) and *Cynictis penicillata* (Yellow Mongoose).

Fifteen threatened large- to medium-sized mammals occur in the Eastern Cape Province (Table 3).

Table 3: Terrestrial mammal Red Data Book (RBD) species.

SPECIES	COMMON NAME	CONSERVATION STATUS
Proteles cristatus	Aardwolf	Least Concern
Felis serval	Serval	Near Threatened
Philantomba monticola	Blue duiker	Vulnerable
Mellivora capensis	Honey badger	Near Threatened
Felis lybica	African wild cat	Least Concern
Orycteropus afer	Aardvark	Least Concern
Ourebia ourebi	Oribi	Endangered
Cercopithecus mitis	Samango Monkey	Endangered
Mystromys albicaudatus	White-tailed Rat	Endangered
Chrysospalax trevelyani	Giant golden mole	Vulnerable
Dendrohyrax arboreus	Tree hyrax	Vulnerable
Poeciligale albinucha	Africa striped weasel	Data Defficient
Otolemur crassicaudatus	Thick-tailed bushbaby	Least Concern
Equus zebra	Cape Mountain zebra	Vulnerable
Diceros bicornis	Black rhinoceros	Vulnerable
Panthera pardus	Leopard	Rare
Manis temminckii	Pangolin	Vulnerable

10.6.3 Birds

The former Transkei region has a rich avifauna, with nearly 500 species recorded from the region (approximately half of the species recorded from the subcontinent). They include numerous sensitive and threatened species. The coastal mosaic of grassland and forest habitats serves as an important area for montane species in winter. Many Intra-African summer migrants also use the region both for breeding and in transit to more southerly areas. The Eastern Cape Province contains 62 threatened bird species (Appendix H).). A significant number of threatened species occur in the area. These include one Critically Endangered, two Nationally Endangered, one Globally Endangered, three Endangered, 13 Vulnerable and 12 Near-Threatened species.

The threatened status of some taxa has been upgraded in the NEMBA list (DEAT 2007), e.g.:

- Cape Parrot (Poicephalus robustus) - Critically Endangered
- Blue Crane (Anthropoides paradiseus) - Endangered
- Grey Crowned Crane (Balearica regulorum) - Endangered
- Cape Griffon Vulture (Gyps coprotheres) – Endangered - The Msikaba and Mthentu Gorge Vulture colonies are situated in the area between Lusikisiki and the Mthamvuna River

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Many of the birds are associated with wetlands or are grassland species, highlighting the declining condition of these ecosystems. As can be expected from this highly mobile group there are no Eastern Cape endemic birds, although nine bird species are South African endemics. Only *Accipter melanoleucus* (Black sparrow hawk) has Red Data Book status, but this species is no longer considered threatened. A list of recorded bird species of the Eastern Cape region is presented in Appendix G.

10.6.4 Invertebrates

Although no regional Red Data Book exists for many invertebrate groups, a number of species in diverse groups have been identified as being of conservation concern and are discussed below.

- A number of rare butterflies from the Pondoland region are included in the South African Butterfly Red Data Book (Henning and Henning, 1989), including:
  - Pondoland Charaxes (*Charaxes pondoensis*) - Rare, Port St. Johns, Mkambati NR. Amakoza Rocksitter (*Durbania amakosa albescens*), Rare, Margate.
  - Southern Aslauga (*Aslauga australis*) - Rare, East London, Mbashe River, Doutza Pass, Port St. John's.
  - Bicolored Abantis (*Abantis bicolor*) - Rare, East London, Mbashe River, Port St. John's.
- Pulmonate Molluscs - Two terrestrial slugs have been indicated as candidates for inclusion in the IUCN 'Red List' of threatened species (Herbert, 1997). These include:
  - Chlamydephorus burnupi - known from a few scattered localities in KwaZulu-Natal, and with a single record from Port St. Johns.
  - Chlamydephorus dimidius - known from a few scattered localities in KwaZulu-Natal, and with a single southern record from Mtamvuna Gorge.
- Cicadas - Due to their long, unusual life cycles, cicadas are known to be sensitive to habitat fragmentation (Rodenhause et al., 1997). These large, noisy and enigmatic insects show high levels of endemism and a number of new, highly-localised species have been described from the former Transkei region (Villet, 1997, 1999). Both are recorded from coastal forest, thicket and forest fringes.
  - Stagira pondoensis is known only from Port St John and nearby Vernon Crookes Nature Reserve in KwaZulu-Natal.
  - Nyara thanatotica occurs at Port St Johns and Bosbokstrand. This taxon is taxonomically more important as it is a monotypic genus.
- Millipeds - Like cicadas, millipeds often show high levels of endemism. Moreover, the distribution of endemism is often discordant with that of other groups (Burgess et al., 1998). Although there is no updated review of southern African millipeds highlighting threatened taxa, a

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new species has recently been described from forest habitat in the Lusikisiki District (Alderweireldt, 1998).

- Archaeid spiders - The Afrotropical Archaeidae is a small family of very rare spiders known from southern Africa, Madagascar and Australia. In the subcontinent is represented by two genera and 12 species. *Eriauchenius coronatus* is known from only two specimens and is endemic to the Vernon Crookes Nature Reserve where it inhabits grassland at the forest-grassland ectotone. Two endemic species of *Afrarchaea* have been described (Lotz 2007) from leaf litter in isolated coastal forests in the Eastern Cape, including *A. haddadi* (Komga, Kei Mouth) and *A. woodae* (Komga and Cwebe Nature Reserve).

10.7 Flora

10.7.1 Eastern Cape Biodiversity Conservation Plan

The Eastern Cape is globally recognized for its high biodiversity value and scenic beauty. It has the highest biome diversity of any province, with no less than seven biomes: Forest, Fynbos, Nama Karoo, Savanna, Succulent Karoo and Thicket. The Province is also unique among provinces in that it overlaps with three centres of biological endemism: the Albany Centre, the Drakensberg Centre and the Pondoland Centre.

Recognizing the need to ensure that important natural resources are conserved, the Department of Economic Development and Environment Affairs (DEDEA) together with the Department of Water Affairs and Forestry (DWAF) collaborated to draw up the Eastern Cape Biodiversity Conservation Plan (ECBCP).

The ECBCP addresses the urgent need to identify and map critical biodiversity areas and priorities for conservation in the Province. Critical Biodiversity Areas (CBAs) are “terrestrial and aquatic features in the landscape that are critical for conserving biodiversity and maintaining ecosystem functioning”.

The ECBCP is a broad-scale biodiversity plan. Its aim is to integrate information from existing biodiversity plans (STEP, SKEP, C.A.P.E., the NSBA, DWAF Forest Conservation Planning, Wild Coast Conservation Plan, Pondoland Systematic Conservation Plan, Grasslands Programmes and the Maloti Drakensberg Transfrontier project), and to fill in the gaps, thereby providing a single, user friendly, biodiversity land use decision support tool for the whole Province (CBA maps). In turn it also provides land use planning guidelines, recommending biodiversity-friendly activities in priority areas. The ECBCP is intended for use by technical users and decision-makers in the spheres of planning (for example

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integrated development planning & spatial development frameworks (IDP/SDF)), development and environment. Mapped information can be used both reactively and strategically to guide future development away from sensitive and priority biodiversity areas.

However, it is important to note the following: the "ECBCP has no legal status", (it has however been designed to serve as the basic biodiversity layer in Strategic Environmental Assessments, State of Environment Reports, SDFs, Environmental Management Frameworks and Bioregional Plans), "the ECBCP itself is not a bioregional plan", "the information should always be verified with a site visit", "the ECBCP is not a substitute for a full evaluation" and "the ECBCP should not be used for urban and fine-scale planning" (as it is a broad framework plan) (*Eastern Cape Biodiversity Conservation Plan Handbook, 2007*) .

10.7.2 General vegetation description

The landscape within the river valleys of the Eastern Cape can be described as undulating, with steep river valleys and flat-topped ridges. Valley thicket, which is the predominant vegetation type, is found in river valleys with savanna and open grasslands on the plateaus and spurs between the rivers. The grasslands and savanna have been greatly impacted upon by settlements and grazing of domestic animals.

The proposed borrow pit falls within the Eastern Valley Bushveld vegetation unit, as according to Mucina & Rutherford (2006) (Figure 5).

The **Eastern Valley Bushveld** is found in KwaZulu-Natal and the Eastern Cape Provinces in deeply incised valleys of rivers, including the lower reaches of the Thukela, Mvoti, Mgeni, Mlazi, Mkhomazi, Mzimkulu, Mzimkulwana, Mtamvuna, Mtentu, Msikaba, Mzimvubu, Mthatha, Mbashe, Shixini, Qhora and Great Kei Rivers. The unit very seldom extends to the coast and generally occurs at an altitude of 100-1000m. This unit mainly consists of semi-deciduous savanna woodlands in a mosaic with thickets which are often succulent and dominated by species of *Euphorbia* and *Aloe*. Most of the river valleys run along a northwest-southeast axis which results in unequal distribution of rainfall on the respective north-facing and south-facing slopes since rain bearing winds blow from the south. The steep north-facing slopes are sheltered from the rain and also receive greater amounts of insolation adding to xerophilous conditions on theses slopes.

The conservation status is seen as "Least Threatened". Only 0.8% of this unit is statutorily conserved, mainly in the Luchaba Wildlife Reserve. Small patches are also conserved in the Oribi Gorge Nature

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Reserve. Some 15% is transformed, mainly due to cultivation. Alien plant invasions are a serious threat, with *Chromolaena odorata*, *Lantana camara* and *Caesalpinia decapetala*. The conservation target is 25%.

Table 4: Important Taxa - Eastern Valley Bushveld

Tall Trees		
Acacia robusta	*Sclerocarya birrea subsp caffra*	
Small Trees		
Acacia natalitia	*A. nilotica*	*Combretum molle*
Spirostachys africana	*Acacia tortilis subsp heteracantha*	*Berchemia zeyheri*
Boscia albitrunca	*Brachylaena elliptica*	*Cussonia spicata*
Dombeya rotundifolia	*Encephalartos natalensis*	*E. villosus*
Hippobromus pauciflorus	*Schotia brachypetala*	*Ziziphus mucronata*
Succulent Trees		
Euphorbia tirucalli	*Aloe marlothii subsp marlothii*	*A. rupestris*
Euphorbia ingens	*E. triangularis*	
Tall Shrubs		
Dichrostachys cinerea	*Euclea crispa subsp crispa*	*Coddia rudis*
Ehretia rigida subsp rigida	*Calpurnia aurea*	*Grewia occidentalis*
Olea europaea subsp africana		
Succulent Shrubs		
Aloe arborescens	*Euphorbia grandicornis*	*Kleinia fulgens*
Soft Shrubs		
Hypoestes aristata	*Peristrophe cernua*	
Woody Climber		
Acacia brevispica subsp dregeana		
Herbaceous Climber		
Ischnolepsis natalensis		
Graminoids		
Aristida congesta	*Eragrostis curvula*	*Hyparrhenia hirta*
Melinis repens	*Panicum maximum*	*Themeda triandra*
Cymbopogon pospishilii	*Eragrostis superba*	*Heteropogon contortus*
Panicum deustum	*Sporobolus fimbriatus*	*S. pyramidalis*
Tristachya leucothrix	*Urochloa mosambicensis*	
Herbs		
Achyranthes aspera	*Hibiscus pendunculatus*	
Geophytic Herb		
Sansevieria hyacinthoides		

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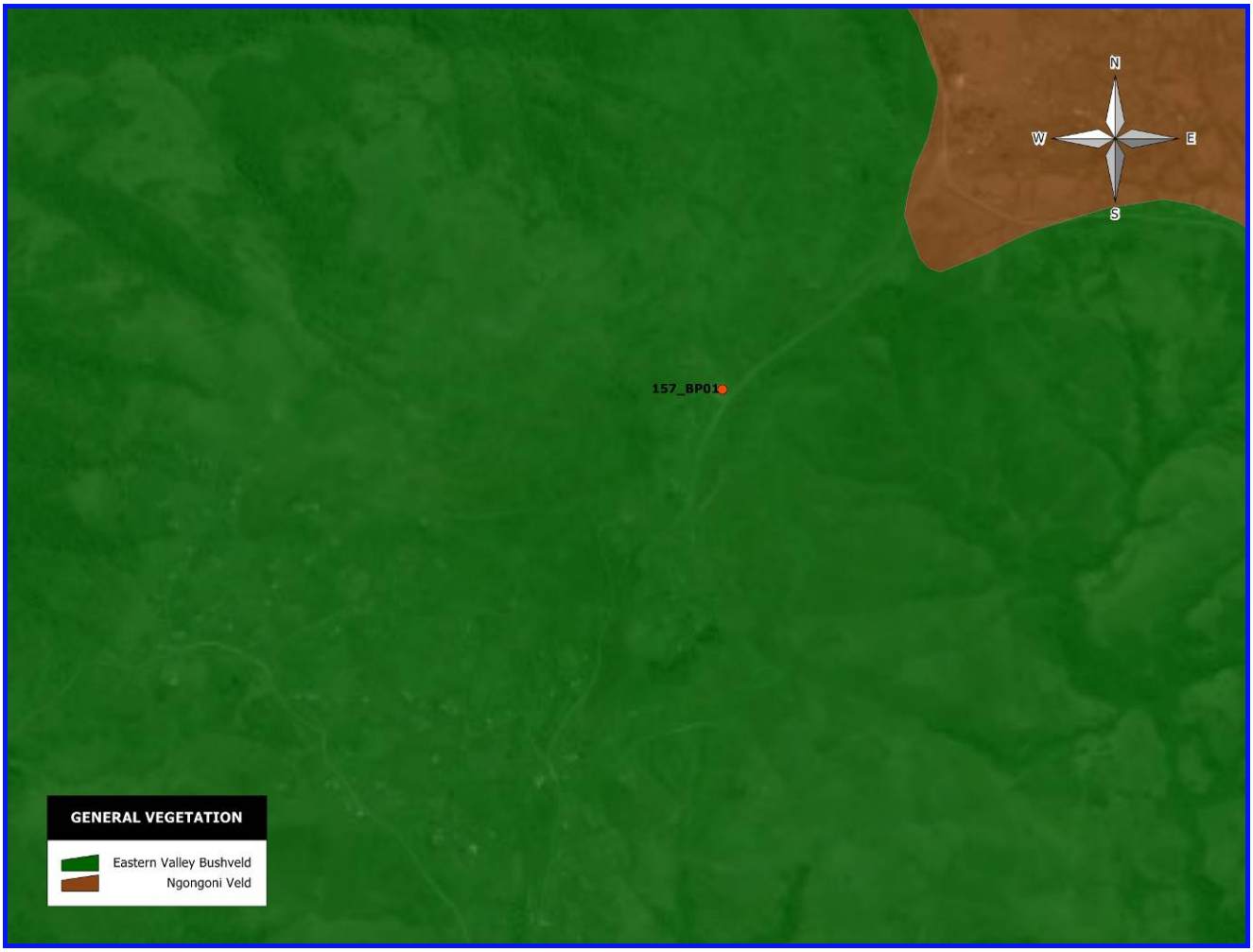

Figure 5: General vegetation and the location of the borrow pit.

10.8 Socio - Economic Environment

In the provincial context, the Eastern Cape is one of the poorer provinces in South Africa. Its economy has been characterised in the Province's 2004-2014 Provincial Growth and Development Plan (PGDP) as having "extreme levels of uneven development". It is situated in the south-east of the country and includes the former Eastern Province, Border, north-eastern Cape areas and the former "homelands" of Transkei and Ciskei. Spatially, it is the second largest province, covering almost 14 % of the total surface area of South Africa.

It has urban industrial manufacturing centres in Buffalo City and the Nelson Mandela Metropolitan Municipality, a well-developed commercial farming sector and high concentrations of developed socioeconomic infrastructure in the western parts. In contrast to this is the undeveloped rural hinterland in the former Transkei and Ciskei homelands, which consist of weak subsistence agriculture and very

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limited socio-economic growth. The coastal area known as the “Wild Coast” is very sparsely populated, mainly due to limited infrastructure and inadequate access to the coastal nodes.

Annual average economic growth for the provincial economy over the last decade was 2.2 % against the national average of 2.8 %. Farming is an important contributor to household livelihoods in the former Transkei where the proposed toll highway would be developed, but it is largely a subsistence activity. Two harbours, at East London and Port Elizabeth, are located along its coastline and a modern deepwater port has recently been constructed at Coega.

In 2007 the province had a population of about 6.90 million, comprising approximately 14 % of the national population. The province has an average density of 67 – 80 people per km². The Eastern Cape has the third lowest urbanised population, at 42.9 % (Development Bank of Southern Africa - DBSA, 2000).

The Gross Geographic Product (GGP) of the Eastern Cape was just more than R 81 billion in 2001, equalling 8.2 % of South Africa’s Gross Domestic Product (GDP). The three most important sectors at the intra-provincial level are manufacturing, commerce and community services. The province possesses comparative economic advantages with regard to textiles, leather products, rubber products and vehicles.

The Eastern Cape has the highest unemployment rate in South Africa, with almost half of its labour force being unemployed. The unemployment rate of 48.4 % is 14.6 percentage points higher than the national average. These figures exclude large numbers of people who left the province to find employment in other provinces such as the Western Cape and Gauteng. Average annual household income in 2001 for South Africa as a whole was R 46 291, while for the Eastern Cape it was R 28 468 (Stats SA Census, 2001).

OR Tambo District Municipality

The O.R. Tambo DM is classified as a Category C2 municipality, indicating a largely rural character (it is estimated that some 93% of the district population resides in rural areas with a consequent dispersed settlement pattern) and low urbanization rate, as well as limited municipal staff and budget capacity.

All, but King Sabata Dalindyebo (KSD), local municipalities are classed as Category B4 (rural, mainly subsistence) reflecting limited institutional capacity and areas characterized by small centres, limited SMME’s and market opportunities, dependence on public support and LED activities that are principally

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at the level of the small project. KSD is classed as a Category B2 (large core town/s with surrounding agricultural areas) municipality reflecting reasonably adequate budgets and staff, urban centre(s) with associated resources where LED activities are emerging into strategies and programmes to take advantage of economic potential, as well as substantial numbers of SMMEs, considerable market opportunities, but limited private sector business development services.

The total population of O.R Tambo district amounted to 1,843,135million in 2007, (growing at an average of 0.5% per annum) which is approximately 26, 6% of the total for the Eastern Cape Province. At least more than 75% of the people live below the minimum poverty level. The highest concentrations of people living poverty are found in Flagstaff 85.3%, Mqanduli 84.5%, Port St Johns 83.6%, and Tabankulu 83.2%.

Since 2001, the following annual average economic growth rates (in terms of GDP) have been measured in each of O.R.Tambo's local municipalities (2001 to 2007 at constant 2000 prices):

- Mbizana 2.4%
- Ntabankulu 1.6%
- Ingquza Hill 2.2%
- Port St Johns 3.1%
- Nyandeni 2.1%
- Mhlontlo 1.5%
- King Sabata Dalindyebo 3.7%

The economic sectors that dominate the economy of the district are community services, financial and business services, and wholesale and retail trade. Between 2006 and 2007, the following growth rates were observed in O.R. Tambo per broad economic sector (based on GVA at constant 2000 prices):

- Agriculture 1.0%
- Mining -7.8%
- Manufacturing 0.7%
- Electricity -1.4%
- Construction 25.2%
- Trade 6.8%
- Transport 5.7%
- Finance 12.9% and
- Community services 3.2%

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11 The Affected Environment/ Site Descriptions

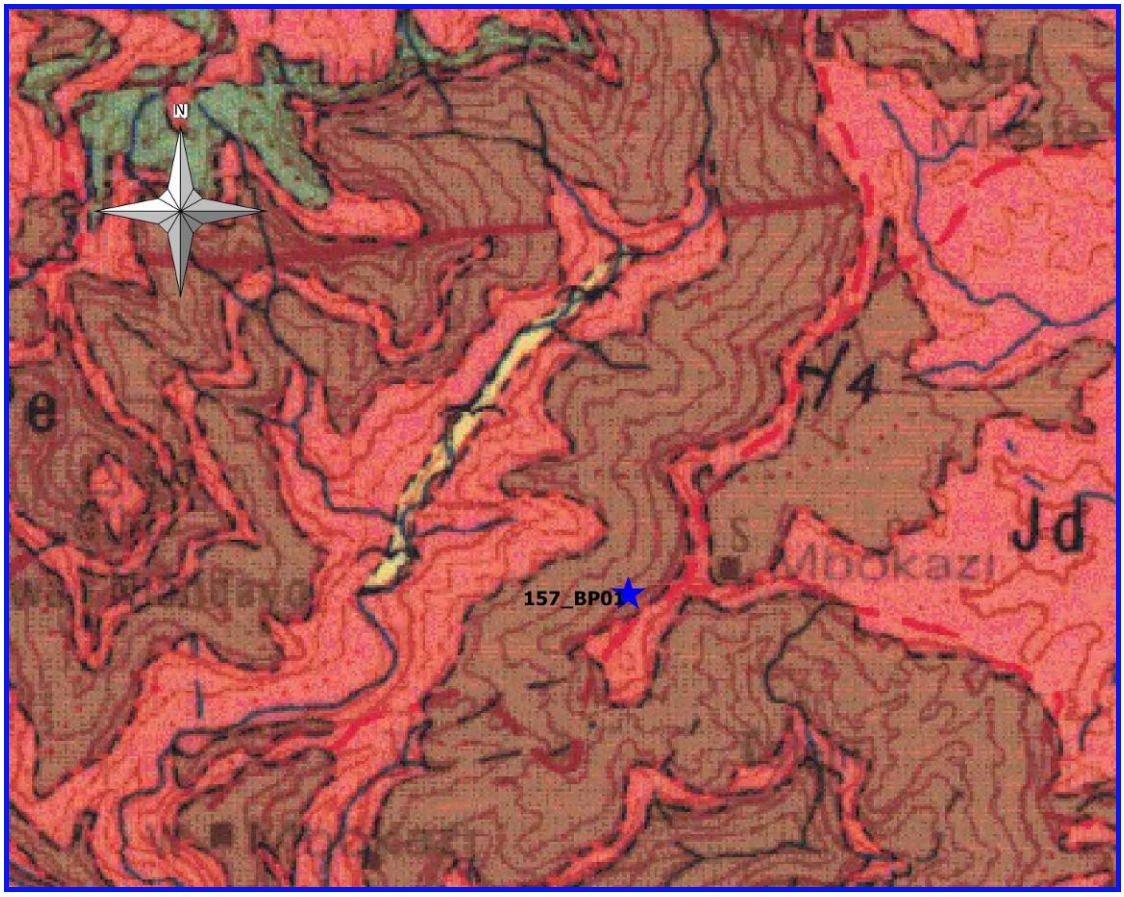
11.1 Geology and Soils

According to the geological map (3128 Umtata), the area in which the borrow pit is located falls within the Ecca Group, which falls under the Karoo Sequence (Figure 6). The area is underlain by dark grey shale, mudstone and sandstone. Wide spread dolerite intrusion occurs throughout the area.

The Ecca Group overlies the Dwyka tillite and is a 1000m thick succession of shale and subordinate sandstone. North of Grahamstown the Ecca Group has been subdivided not the Prince Albert, Whitehill, Coliingham, Ripon and Fort Brown Formations. The three lowermost ones are relatively thin.

Dolerite Dykes, inclined sheets and sills intruded the sediments of the Karoo Sequence and, to a much lesser extent, the Natal Group during the Jurassic.

The investigation undertaken by Controlab (section 21.1) indicated that the type of material found at the borrow pit was shale.



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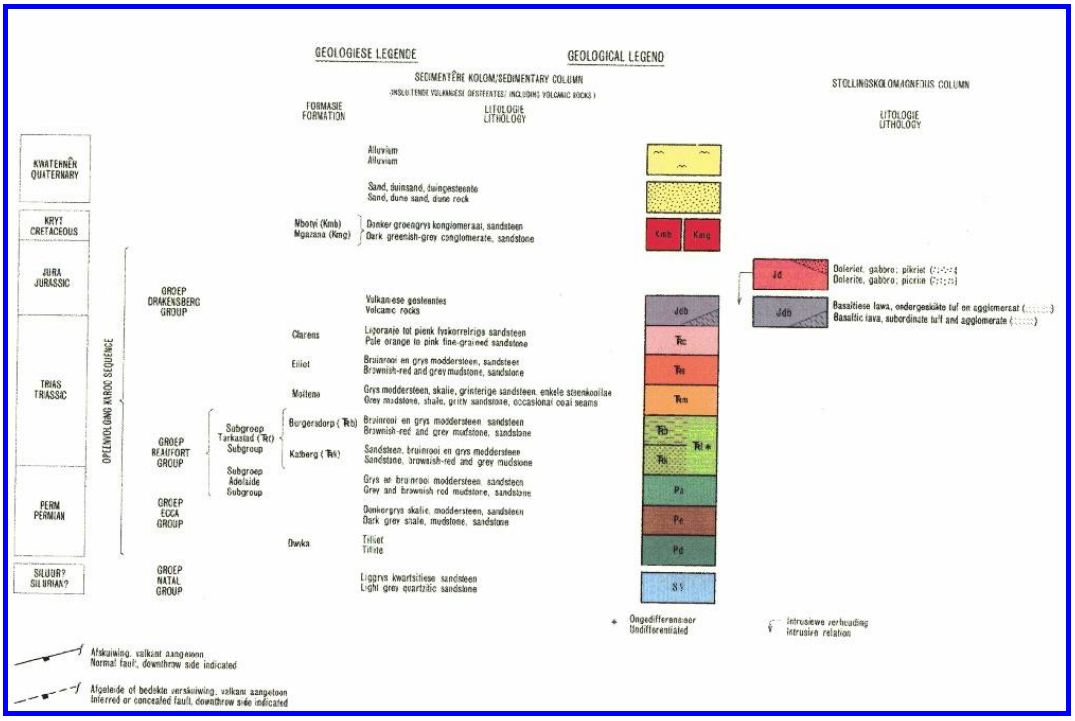

Figure 6: The geology of the area in which the Borrow pit is located (3128 Umtata)

11.1.1 Erodibility Index

Erodibility of soils can be described as the sensitivity of soils to the effects of wind and water on the soil structure. This property is expressed as an erodibility index, where low values indicate high potential for erosion, and high values correspondingly indicate a low potential for erosion.

The erodibility index is determined by combining the effects of slope and soil type, rainfall intensity and land use. These aspects are represented by terrain morphology, mean annual rainfall and broad land use patterns.

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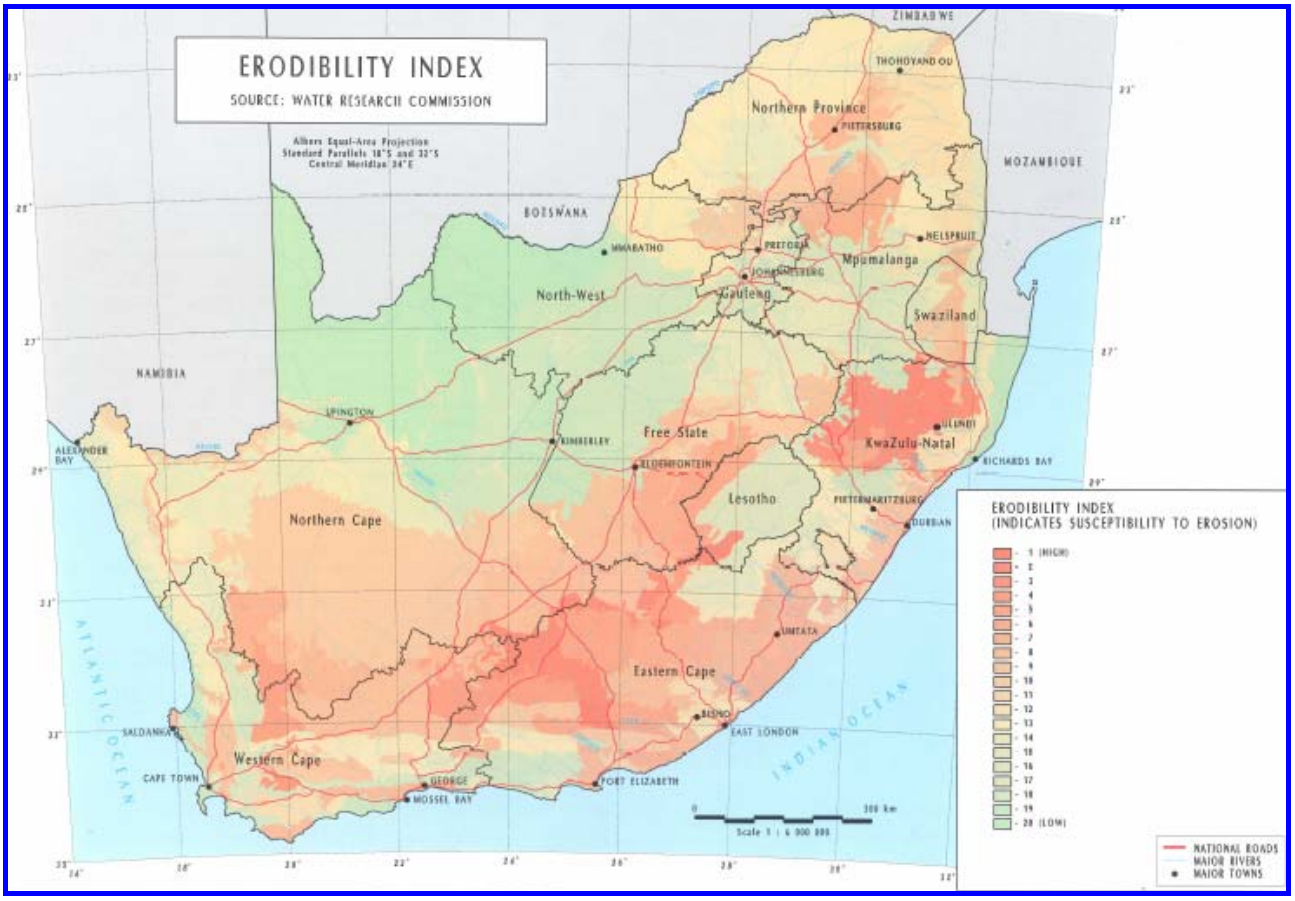

Figure 7: Erodibility Index

According to the Environmental Potential Atlas for South Africa, the study area falls within an Erodibility Index of between 7 and 9, which is at the lower end of the scale (1 being High and 20 being Low), indicating that the area is moderately to highly susceptible to erosion (Figure 7).

11.2 Archaeology, Palaeontology and Heritage Sites

A Phase 1 Archaeological Impact Assessment was undertaken on the identified borrow pit by Archaeomaps Archaeological Consulting (section 21.2). The findings of this assessment were as follows:

Rd_Nr_	No_	AIA Finding	AIA Recommendation
DR08157	157_BP01	No archaeological or cultural heritage resources, as defined and protected under the NHRA 1999, were identified on the surface or within exposed sub-surface sections during the Phase 1 AIA assessment of borrow pit 157_BP01.	It is recommended that use of borrow pit 157_BP01 proceeds as applied for without the developer having to comply with additional heritage compliance requirements.

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A Phase 1 Palaeontological Impact Assessment was undertaken on the identified borrow pit by Lloyd Rossouw (section 21.2). The findings of this assessment were as follows:

Borrow Pit	Rock type	Potential impact / significance	Irreplaceable loss of palaeontological resources?	Mitigation required and measures
157_BP01	*Pe (Ecca Group)*	Low	no	no

There are no major palaeontological grounds to suspend the use of the borrow pit but given the nature of fossil distribution in Karoo sedimentary rocks, it is not possible to exactly predict the buried fossil content of an area other than in general terms unless fresh exposures indicate otherwise.

11.3 Climate and Air Quality

Lusikisiki normally receives about 874mm of rain per year, with most rainfall occurring mainly during summer. It receives the lowest rainfall (12mm) in July and the highest (124mm) in February. The average midday temperatures for Lusikisiki range from 20.2°C in July to 25.5°C in February. The region is the coldest during July when the mercury drops to 8°C on average during the night.

Wienerts climatic N number for the area is less than 2, which should indicate that the rocks would decompose implying that chemical weathering would dominate over mechanical weathering.

The Eastern Cape Province does not appear to be a priority area as far as air quality is concerned, as is evidenced by the number and type of industries in the Province. Monitoring of air quality in the Province is performed on a fragmented basis as no co-ordinated network exists. No comprehensive assessment of air quality is therefore possible.

There is however currently no major sources of air pollution in this region, aside from the contribution that domestic fires and vehicle emissions make along existing roads. Ploughed fields, unpaved roads and unvegetated land are all sources of wind-generated dust. The majority of households, particularly those in the rural areas, rely on fossil fuels such as paraffin and wood for domestic energy. Indoor air pollution is therefore a concern in the area, although it has not been quantified. The highest concentration of motor vehicles and their associated emissions in the area is likely to occur around Lusikisiki.

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11.4 Topography and Drainage

The topography of the area is described as being low mountains.

157_BP01 is located at an elevation of 632 m above mean sea level (amsl). The current drainage of the borrow pit is to the north and south of the borrow pit. The drainage to the north drains into non-perennial drainage lines which intercept the perennial Mkata River in the west. The Mkata River has been classified as a CLASS B – largely natural – river system. Drainage to the south of the borrow pit drains into non-perennial drainage lines which intercept the perennial Nkawukazi River in the south. The Nkawukazi River drains in a westerly direction where it intercepts the Mzimvubu River. The Mzimvubu River has been classified as a CLASS B – largely natural – river system. The nearest non - perennial drainage line is located approximately 150 m away from the borrow pit.

As borrow pit 157_BP01 is existing and has been utilised previously, the topography has been altered by the excavation of material from the hill slopes.

The study area falls in the primary drainage area T60. Within the primary drainage T60, the borrow pit 157_BP01 falls within the quaternary catchment area of T60J. The mean annual precipitation of T60J quaternary is 1100.92 mm with a mean annual runoff of 266.4 mm.

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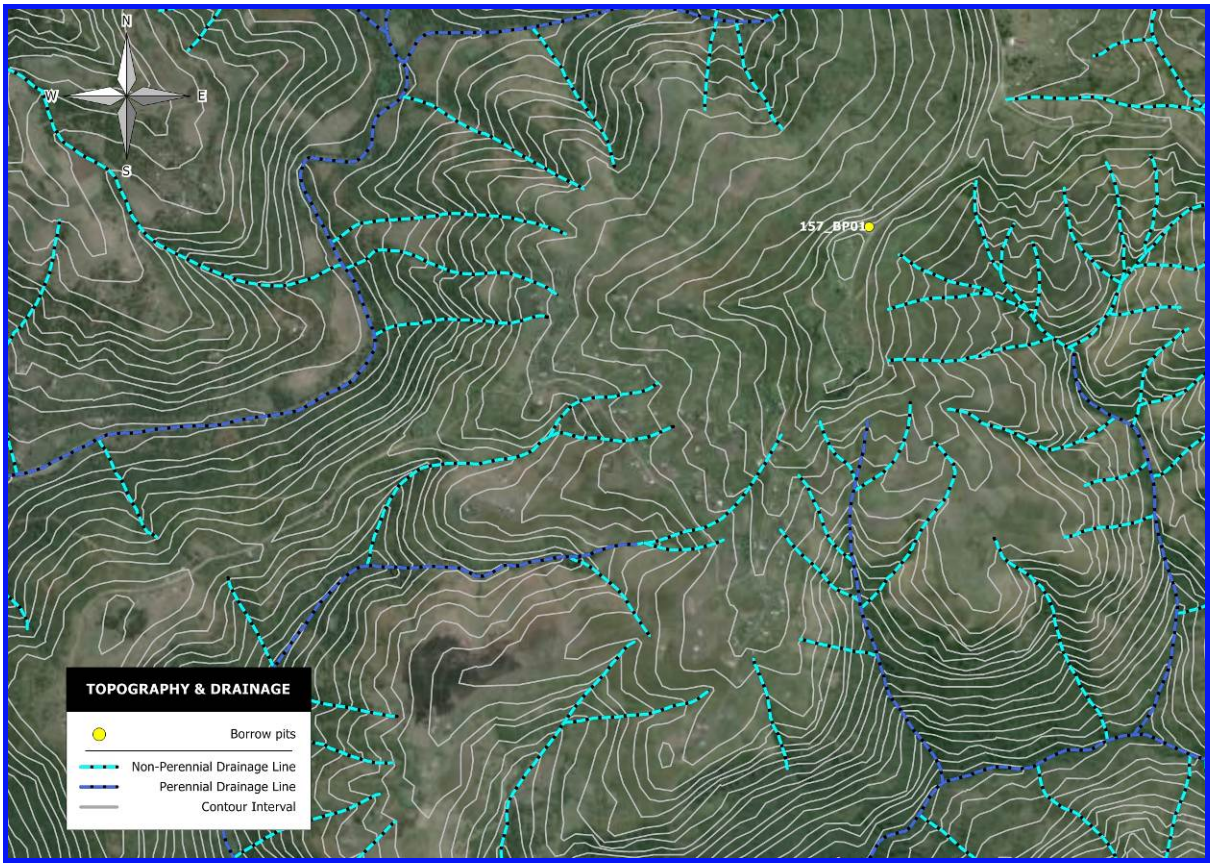

Figure 8: Drainage of the area in which the proposed borrow pit is located.

Figure 9: Terrain view indicating the position of the borrow pit in the landscape.

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The topography may be impacted upon by the excavation of the existing borrow pit which in turn could have an effect on the storm water runoff and drainage of the immediate surrounding area. Areas of concentrated storm water runoff could be subject to increased erosion if not mitigated against appropriately by means of erosion control techniques and/or structures dissipating the velocity and flow of storm water runoff. The non-perennial drainage lines are referred to as such due to the fact that they are dry for the majority of the year, and some instance only flow during periods of high rainfall.

11.5 Fauna

Although a detailed faunal assessment was not undertaken, during the site visit the only fauna encountered were livestock and birds in the surrounding lands. The natural diversity of animal species and animal numbers within the site area may have been severely affected by the degradation of habitat, subsistence hunting and trapping as well as from displacement by livestock. There may however be some mammals, reptiles, amphibians in the surrounding areas, especially within areas still presenting natural landscapes. The current land use of the borrow pit site does not present a unique habitat for rare or endangered fauna and No Red Data List mammals were observed.

The terrestrial mammal, reptile and amphibian fauna are not likely to be materially impacted on by the proposed activity, however any such fauna that is present on or near the site is likely to be displaced into the surrounding areas and into the natural areas.

11.6 Flora

11.6.1 Eastern Cape Biodiversity Conservation Plan (ECBCP)

According to the ECBCP the area in which the proposed borrow pit is located is identified as being predominantly degraded Biodiversity Land Use Management Class 2 (BLMC 2 or CBA 2 – Maintain Near Natural State) (Figure 10).

A Biodiversity Land Management Class (BLMC) refers to the desired ecological state that a parcel of land should be kept in so as to ensure biodiversity persistence (designations may be at the scale of habitat patch, landscape or catchment). It can be described using sets of ecosystem condition indicators, referred to as Limits to Acceptable Change indicators (or LACs). LAC values are assigned for each BLMC to describe upper limits for the degree of acceptable ecological change or impact that any proposed land-use change may bring about without compromising the designated ecological state. In the table below four BMLC's are defined using Limits to Acceptable Change of six key land-use impact indicators.

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Table 5: Limits to Acceptable Change thresholds for six key lands use impact indicators.

BLMC	Permissible transformation (per land parcel considered)	Change in ecosystem structure (fragmentation index)	Change in species composition and dominance	Overall change in natural disturbance regimes (fire, hydrology etc)	Resource extraction (% of Net Primary Production per annum)
Class 1	0%	0%	0%	Little or none	< 5%
Class 2	0% - 10%	0 to 10%	0 to 5%	Some	5 to 30%
Class 3	10 to 70%	10 to 50%	5 to 80%	Significant	> 30%
Class 4	70-100%	> 50%	> 80%	Significant	Any

Terrestrial Critical Biodiversity Area 2 (CBA 2) are areas identified as being endangered vegetation types through the ECBCP systematic conservation assessment, endangered vegetations types from STEP, endangered forest patches in terms of the National Forest Assessment and within the 1km coastal buffer strip. In addition these areas area ecological corridors identified in other studies (e.g. from STEP, Wild Coast, Pondoland, WMA 12 SEA, etc.) and ecological corridors identified by the ECBCP using an integrated corridor design for the whole Province. The land use objective for this Terrestrial BLMC 2 is to maintain biodiversity in near natural state with minimal loss of ecosystem integrity. No transformation of natural habitat should be permitted. It is thus suggested that this land class only be used for purposes such as conservation, game farming and communal livestock.

The ECBCP may however have significant limitations in that there may be significant differences between the ECBCP description of land use and condition and the actual land use, condition and environmental status.

It must be noted that while the borrow pit is located in an identified CBA 2 area, not more than 0.98 hectares of indigenous vegetation will be removed from the borrow pit during the mining activities.

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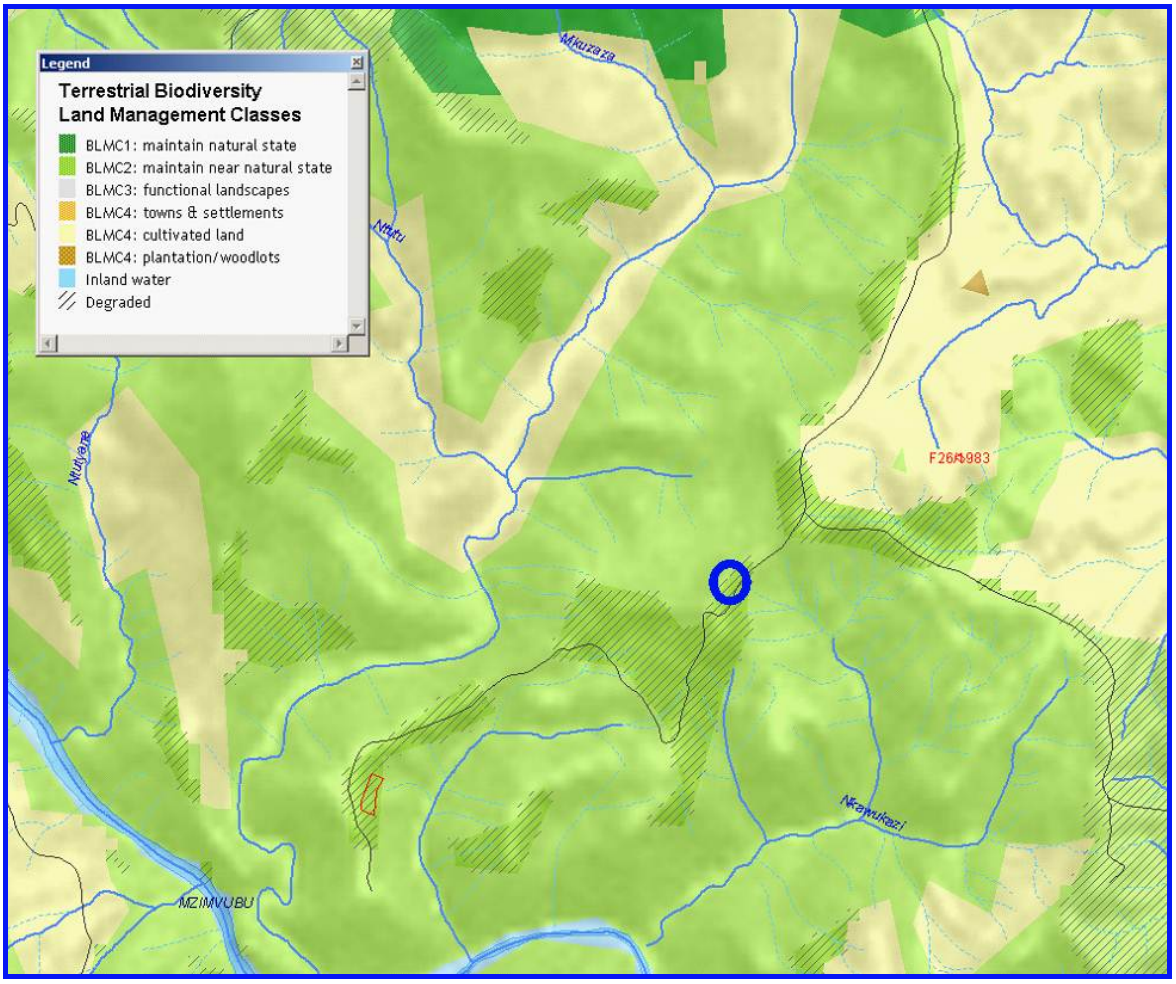

Figure 10: Eastern Cape Biodiversity Conservation plan and the location of the Borrow pit.

11.6.2 Vegetation Description

While the area in which the proposed borrow pit is located has been identified as Eastern Valley Bushveld, the vegetation unit as such has been transformed in the area of the proposed borrow pit as a result of the surrounding communal settlement and agricultural activities/practices, for example grazing and cultivation. The proposed borrow pit has approximately 30 % indigenous vegetation cover. The utilisation of the proposed borrow pit is not expected to have a significant impact on the vegetation of the area.

The vegetation present in the area of the existing borrow pit tends to be dominated by a low diversity grassland with scattered alien species.

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11.6.2.1 Protection status and legislation and Species of Special Concern

11.6.2.1.1 Indigenous flora

While only a preliminary botanical investigation was undertaken, it was observed that the indigenous vegetation in the area of the proposed borrow pit was not protected or endangered species under the various schedules. The the conservation status of the vegetation present in the area of the proposed borrow pit is low.

The area has been degraded as a result of past and current communal agricultural land practices and mining activities.

Borrowpits located in CBA's 2, will not have more than 0.98 hectares of indigenous vegetation removed from these borrow pits during the mining activities.

11.6.2.1.2 Alien Invasive Plant species

Few declared alien invasive plant species are present within the area of the borrow pit (Table 6). The borrow pit tended to have an alien invasive vegetation cover of approximately 40%. The proposed borrow pit 157_BP01 thus has a moderate density of alien species, which has a low to moderate overall impact. These invasive species require removal according to the Conservation of Agricultural Resources Act 43 of 1983 and methods of their removal and treatment should be undertaken according to the Working for Water Guidelines.

Table 6: Alien Invasive plants present within the area of the borrow pit 156_BP02.

No.	Botanical Name	Common Name	Family	Category
1	*Solanum spp*	-	Solanaceae	CARA 1

11.7 Visual Aspects

The proposed borrow pit has been mined in the past and is located within proximity to a public access road, as a result, these sources are visible and currently have or will have a moderate impact on the aesthetics of the area. The area is typically rural "Transkei" and much of the natural environment has been degraded by human impacts. However the scenery is pleasant.

11.8 Socio – Economic Environment

Land use and settlement patterns of the area are influenced by the previous political division of the area with the right bank of the Great Kei being part of South Africa and the left bank being part of the former Transkei. The right bank of the great Kei is predominantly commercial, privately owned farming while on the left bank the dominant form of settlement is communal, with communal forms of tenure. The former

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Transkei is characterized by dispersed rural settlements and communal subsistence farming and grazing.

The proposed borrow pit falls within Ward 17 of the Port St Johns Local Municipality. According to Stats SA (Census 2001) the demographics of this ward is as proceeds.

Within ward 17 of the Port St Johns Local Municipality, the population group tends to be predominantly African (99%) and as a result the predominantly spoken language in this ward is consequently Xhosa. Unemployment levels within this ward are very high at approximately 67%, with a large proportion of the ward being economically inactive. The average annual household income is predominantly no income or between R0 – 9 600.

Thus the surrounding area is predominantly lower income settlement areas occupied by "previously disadvantaged" families.

The proposed project is unlikely to change the socio – economic structure of the wards. However, the labour intensive construction of roads and the utilization of the borrow pit may result in the creation of temporary employment, and will be of particular benefit should the local community be provided with these employment opportunities. The socio-economic benefits of these jobs could also percolate through historically disadvantaged communities. There are thus positive socio-economic impacts in terms of creation of employment opportunities, skills transfer to the local community and providing a higher quality of access to the surrounding residents.

11.9 Existing Land-use

The existing land use in the area of the proposed borrow pit consists of settlement, rural homesteads and subsistence/rural agriculture and open space/natural areas.

Landuse practices have resulted in the degradation of the natural environment in places. The majority of the study area is communal farm land. The King Sabata Dalindyebo Local Municipality is the registered land owner of the land on which the proposed borrow pit is located. The utilisation of the proposed borrow pit will for the most part not impact on any land uses and on closure will be rehabilitated and thus will not impede any landuses.

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12 Potential Issues & Environmental Impacts

The following have been identified as potential environmental impacts associated with the utilisation of the borrow pits. The significance of the identified impacts is assessed in Table 8.

12.1 Geology & Soils

During the construction and operational phase soil loss/topsoil loss may arise as a result of vegetation removal and soil erosion which could impact negatively. The topsoil is a particularly scarce resource in this environment, and must therefore be protected against wind, erosion, compaction, alien invasive plant species and pollution as the topsoil will be needed for rehabilitation purposes.

Activities such as the removal of vegetation and earth moving activities may result in erosion in the area of the proposed borrow pits. During the closure phase, areas disturbed during the operational phase which have not be appropriately rehabilitated, may result in the continued erosion of soils in the area of the proposed borrow pits. Appropriate erosion control must be provided and vegetation cover must be established as quickly as possible following shaping and closure of the sites in order to protect the soil from erosion.

During the construction and operational phases soil pollution as a result of spillages and loss of viability due to compaction may potentially impact negatively. Spillage of hazardous/ chemical substances stored and leakage from construction equipment/machinery as well as the servicing of vehicles on site, washing of vehicles (soaps & greases) etc may result in the contamination of soils. In addition spillage from chemical toilets provided for construction staff will result in soil pollution.

The borrow pits are not normally associated with blasting activities and should therefore not have a significant impact on the geology of the area.

12.2 Topography & Drainage

During the operational phase, the topography may be impacted upon by extensive excavation of sections during mining activities, thus potentially changing the landscape. However it must be noted that the landscape/topography at the borrow pit is currently impacted by the past excavation/mining activities of the existing borrow pit. Rehabilitation during the closure phase would improve the topography/landscape from its current state.

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In addition, the excavation activities during the mining activities could in turn have an effect on the storm water runoff and drainage of the immediate surrounding areas.

12.3 Consumption of Non-renewable Resources

The mining activities during the operational phase may impact on the local and regional natural resources as soil and hard rock will be used during construction activities. The proposed quantities mined from the borrow pits can be seen as relatively low and should therefore not deplete local or regional resources significantly.

12.4 Surface Water/ Drainage lines

Surface water may become polluted via point source and/or diffuse discharge such as oil, fuel and chemical spills. Improper disposal of solid waste generated may pollute the aquatic environments. In addition, improper transportation and storage of fuels may potentially result in surface water pollution. Storage and maintenance of the construction machinery may potentially result in surface water pollution.

Construction & Operational activities may also lead to soil erosion, which could lead to sedimentation of the rivers, and subsequently, the water quality. This may lead to an impact on downstream biota of the river/stream. No new mining excavations will take place within 32 m of a water course.

If any surface water is to be abstracted for construction/operational/closure purposes then the contractor must obtain a permit from the Department of Water Affairs prior to any abstraction taking place.

12.5 Groundwater

Groundwater may also become polluted via point source and/or diffuse discharge such as oil, fuel and chemical spills. Petroleum products released to the environment migrate through soil via two general pathways, namely, as bulk flow infiltrating the soil under the forces of gravity and capillary action, and, as individual compounds separating from the bulk petroleum mixture and dissolving in air or water. As the products migrate through the soil column, a small amount of the product mass is retained by soil particles.

The bulk product retained by the soil particles is known as “residual saturation”, and depending upon the persistence of the products, residual saturation can potentially reside in the soil for years. Residual saturation is important as it determines the degree of soil contamination and can act as a continuing

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source of contamination for individual compounds to separate from the bulk product and migrate independently.

If any groundwater is to be abstracted for construction/operation/closure purposes then the contractor must obtain a permit from the Department of Water Affairs prior to any abstraction taking place.

If any groundwater is to be abstracted for construction/operational/closure purposes then the contractor must obtain a permit from the Department of Water Affairs prior to any abstraction taking place.

12.6 Vegetation Removal (Flora) and Habitat Disturbance

The loss of vegetation cover, loss of protected species, spread of alien invasive vegetation and loss of animal habitat during the construction and operational phases may impact negatively. However the area in which the proposed borrow pit is located has been degraded. The proposed borrow pit does however show more than a 70% vegetation cover.

During the construction and operational phase as a result of vegetation clearing the permanent loss of indigenous vegetation will occur. However all construction and operation activities will be within the area already disturbed and where the vegetation to be removed is predominantly of a low sensitivity, thus the impact on indigenous vegetation will be minimal.

As a result of vegetation clearing for the utilisation of the proposed borrow pits, natural habitat may be lost. However all disturbance in the area of the proposed borrow pit has been identified where the habitat has already been degraded and is predominantly of low sensitivity.

During the construction and operational phase species of special concern may be removed, however no species of special concern were identified within the mining footprint of the proposed borrow pit.

As a result of disturbance during the construction and operational phase, there may be increased risk of alien invasion. However during the construction and operational activities clearing of alien invasives from the proposed borrow pit area will result in a positive impact. The presence of alien invasives is tends to be approximately 40%.

In a regional context the vegetation unit identified is Eastern Valley Bushveld, which is classified as being “least threatened”. The ECBCP has identified that the proposed borrow pit is predominantly located in a degraded BLMC 2 – CBA 2- Maintain Near Natural. It must be noted that while the proposed

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borrow pit is located in CBA 2, the area has been degraded as a result of the past and current communal agricultural land practices (grazing & cultivation), thus the impact on the vegetation unit should be minimal.

Most impacts in the above respect are of minor significance and can be managed (i.e. through use of existing pathways and disturbed areas). No impacts of critical significance to the vegetation are present.

Rehabilitation should form an integral part of the post operational phase in order to avoid further soil erosion, vegetation removal and alien invasive weeds.

Mining activities may result in the disruption of habitat and thus disruption to fauna. Noisy construction activities and the increase in human activity on the site are likely to disturb resident faunal species and cause them to leave the area. Animals could also be killed by construction activities if they take cover in their nests in areas where mining activities are taking place and are then destroyed or covered by collapsed material. The construction and operational phase may also result in staff actively hunting, trapping and disrupting fauna. Mining activities will however be limited to the already transformed/disturbed area and therefore impact on fauna should be minimal. The significance of the various issues identified with regards to fauna is anticipated to be low. The surrounding area is disturbed by settlements.

12.7 Air Quality

The air quality may be impacted upon by the mining activities due to dust generation and fugitive emissions from operation, excavation & hauling vehicles. Air quality may be reduced as a result dust generation and emissions from construction vehicles and construction equipment, this impact however is short term.

12.8 Noise

The proposed mining activities will result in increased noise levels as a result of increased construction vehicles and equipment; however this will be restricted to working hours and is relatively short term.

12.9 Visual Impact

Borrow pit activities during the construction and operational phase may lead to dust and noise generation and vegetation removal and change in landform which could have a visual impact on the rural character of the area. This however is seen as a short term impact. Visual impact associated with the utilisation of the borrow pits will be more severe to the immediate residents than at distances further

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than 2 km where the visual impact should be minimal as the topography and the vegetation present should create a visual screen. Areas not rehabilitated and revegetated properly may become unsightly.

Visual impacted will be largely mitigated on closure. Rehabilitation of the existing borrow pits will ultimately improve the aesthetics of the area.

12.10 Archaeology, Palaeontology & Heritage Sites

An Archaeological Impact Assessment was conducted on the proposed borrow pit. Assessment of the borrow pit yielded no archaeological or heritage resources as defined and protected by the NHRA 1999. A Palaeontological Impact Assessment was conducted on the proposed borrow pit. Assessment of the borrow pits yielded no palaeontological resources.

12.11 Land use

The proposed borrow pit and surrounding areas are currently utilised predominantly for agricultural grazing or open land purposes, however the temporary loss is not considered significant. Landuse will be restored on closure. The borrow pit will be restored and rehabilitated on closure thereby enhancing the landuse capabilities.

12.12 Socio-Economic Environment

The project is unlikely to have any significant effects on the socio-economic structure of the area. However the local community could benefit through employment, income generation, skills development and small business enterprises (i.e. fencing companies). These benefits may be enhanced with focused procurement and by employing labour intensive methods during construction, operation and rehabilitation of the borrow pits. Labour should be sourced from the target area so that those affected stand to benefit the most.

The proposed project may impact positively by the creation of temporary employment opportunities to the local community. In addition, the employment of the local community would result in skills development which will impact positively.

12.13 Health and Safety

During the construction/operational/closure phases there are certain risks posed to human health & safety via exposure to high noise and dust levels, as well as steep and/or unstable faces formed during mining activities. In addition, the use of heavy machinery in close proximity to households also poses a threat. Community health and safety risks should be controlled through the implementation of a Health

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& Safety Management Plan to be implemented by the contractor. Existing unsafe excavations (with vertical faces) should be "made safe" on closure.

13 Environmental Impact Significance Assessment and Mitigation Measures

13.1 Environmental Impact Risk Assessment Methodology

Environmental impact is assessed using an in-house methodology and software (EIA-RA 05 ©), developed by BESC, which operates a 3-D risk assessment protocol based on severity of impact, duration of impact and confidence of impact occurring.

The first step in assessing any environmental impact to listed possible activities or processes that are likely to occur and then identify any resultant or consequential environmental issue. The potential impact associated with an environmental issue is then identified as is the spatial range that any such impact would effect or take place in. The assessment is undertaken under two primary conditions, namely:

- Degree of impact WITHOUT environmental management protocols in place
- Degree of impact WITH environmental management protocols in place

To achieve this, information on severity of impact, duration of impact and confidence of impact occurring are entered, with a risk assessment output for each environmental impact being computed. The environmental impacts are thus categorised into ten negative impact categories and a four positive impact categories.

The ten negative categories are arranged on a scale of importance from category 1 being most negative and category 10 being least negative. Whilst the positive impact categories are arranged on a similar scale whereas category A is most positive and category D being least positive. In order to place a degree of significance to each impact (positive and negative), significance of impact has been defined as (Table 7).

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Table 7: EIA-RA 05© - Risk Assessment Ratings.

Significance	Categories	Definition
Very High	1 & 2	These impacts would be considered by society as constituting a major and usually permanent change to the (natural and/or social) environment. o **Example**: The loss of a species would be viewed by informed society as being of VERY HIGH significance.
High	3 & 4	These impacts will usually result in long term effects on the social and/or natural environment. Impacts rated as HIGH will need to be considered by society as constituting an important and usually long term change to the (natural and/or social) environment. Society would probably view these impacts in a serious light. o **Example:** The loss of a diverse vegetation type, which is fairly common elsewhere, would have a significance rating of HIGH over the long term, as the area could be rehabilitated.
Moderate	5, 6 & 7	These impacts will usually result in medium to long term effects on the social and/or natural environment. Impacts rated as MODERATE will need to be considered by society as constituting a fairly important and usually medium term change to the (natural and/or social) environment. o **Example:** The loss of a sparse, open vegetation type of low diversity may be regarded as MODERATELY significant.
Low	8, 9 & 10	These impacts will usually result in medium to short term effects on the social and/or natural environment. Impacts rated as LOW will need to be considered by the public and/or the specialist as constituting a fairly unimportant and usually short term change to the (natural and/or social) environment. These impacts are not substantial and are likely to have little real effect. o **Example:** The temporary change in the water table of a wetland habitat, as these systems are adapted to fluctuating water levels. or, There are no primary or secondary effects at all that are important to scientists or the public. o **Example:** A change to the geology of a particular formation may be regarded as severe from a geological perspective, but is of NO significance in the overall context.
Positive	A, B, C, D	Any beneficial impact to the environment: A = Very Beneficial o **Example:** Protection of an environmental asset or removal of an existing/latent negative environmental impact; B = Beneficial o **Example:** Improve management of the environment; C = Moderately Beneficial o **Example:** Removal of alien species from the property; D = Slightly Beneficial o **Example:** Minor improvement that has no material significance to the immediate environment.

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13.2 Sensitivity

An overall sensitivity assessment will be made to include condition or state of degradation, invasion status, extent and relative importance of the vegetation types as well as the degree to which successful rehabilitation can take place. Three sensitivity scores are allocated as follows:

1. Areas scoring a low sensitivity are those areas that tend to be highly degraded and it is unlikely that they could be rehabilitated to a normal functioning state without extreme effort and expense.
2. Areas of moderate sensitivity are those areas that contain reasonably intact habitat with low or no alien infestation.
3. Areas scoring a high sensitivity on site are those having an important ecological function.

13.3 Impacts

Four factors need to be considered when assessing the significance of impacts, namely:

A. the relationship of the impact to temporal scales
B. the relationship of the impact to spatial scales
C. the actual significance of the impact, and
D. the probability of the event occurring

A. The **temporal scale** defines the significance of the impact at various time scales, as an indication of the duration of the impact.

1. **Short term:** less than 5 years. Many construction phase impacts will be of a short duration.
2. **Medium term:** between 5-20 years, the approximate duration of the mining operation.
3. **Long term:** between 20-40 years, and from a human perspective essentially permanent.
4. **Permanent**: over 40 years, and resulting in a permanent and lasting change that will always be there.

B. The **spatial scale** defines physical extent of the impact.

1. **Site**: having an impact only within the confined of the development.
2. **Local**: having an impact within the local area of the development.
3. **Municipal**: having an impact within the municipal area (i.e. the Port St Johns Local Municipality)
4. **Regional**: having an impact within the regional context (Eastern Cape)
5. **National:** having an impact at the National Level (South Africa)

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C. The **Environmental Significance** scale is an attempt to evaluate the importance of a particular impact. This evaluation needs to be undertaken in the relevant context, as an impact can either be ecological or social, or both. The evaluation of the significance of an impact relies heavily on the values of the person making the judgment. For this reason, impacts of especially a social nature need to reflect the values of the affected society. SIGNIFICANCE will need to be evaluated with and without mitigation. In many cases, mitigation will take place, as it will have been incorporated into project design. A five-point significance scale has been applied (Table 7).

D. It is also necessary to state the **probability** with which the likelihood of the event/impact will occur.
   1. **Definite:** More than 90% sure of a particular fact. To use this one will need to have substantial supportive data.
   2. **Probable:** Over 70% likelihood of that impact occurring.
   3. **Possible:** Only over 40% likelihood of an impact occurring.
   4. **Unsure:** Less than 40% likelihood of an impact occurring.

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Table 8: Assessment of Significance of Environmental Impacts.

ASSESSMENT				PRIOR TO MITIGATION					POST MITIGATION					
Environmental Issue	Environmental Impact	Positive or Negative	Phase	Spatial	Severity	Duration	Probability	Significance Assessment	Mitigation Measures	Spatial	Severity	Duration	Probability	Significance Assessment
Geology & Soils	Soil Erosion	Negative	Construction, Operational & Closure	Site Specific	3	4	2	High	Minimise the areas of disturbance or vegetation clearance. Revegetate areas that have been disturbed as soon as possible. Cut and fill slopes shall be made stable and be revegetated as soon as possible during the operational phase.	Site Specific	5	4	2	Moderate
Geology & Soils	Soil Pollution	Negative	Construction & Operational	Site Specific	5	4	2	Moderate	Under no circumstances shall hazardous substances be disposed of on site or into the surrounding environment. Accidental pollution incidents shall be reported to the Project Manager/ECO immediately and shall be cleaned up by the Contractor or a nominated clean-up organisation at the expense of the contractor. Vehicles should be well maintained. Chemical toilets are to be emptied on a regular basis and disposed of at the licensed water treatment facility	Site Specific	5	4	4	Low
Geology & Soils	Soil Compaction	Negative	Construction, Operational & Closure	Site Specific	5	4	2	Moderate	Minimise the areas of disturbance or vegetation clearance. Scarify & Revegetate areas that have been compacted as soon as possible.	Site Specific	5	7	5	Low
Geology & Soils	Topsoil Loss	Negative	Construction, Operational & Closure	Local	3	4	3	Moderate	Minimise the areas of disturbance or vegetation clearance. Topsoil to be stockpiled in designated areas and is to be used during rehabilitation. Topsoil only to be stripped from required areas and done in a way to minimize wind erosion. Stockpiles must be protected from erosion and contamination	Site Specific	5	4	3	Low
Topography & Drainage	Cut & Fill/Excavations	Negative	Construction & Operational	Site Specific	5	3	4	Low	Cut and fill slopes/Excavations shall be made stable and be revegetated as soon as possible	Site Specific	7	6	4	Low

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ASSESSMENT				PRIOR TO MITIGATION					POST MITIGATION					
Environmental Issue	Environmental Impact	Positive or Negative	Phase	Spatial	Severity	Duration	Probability	Significance Assessment	Mitigation Measures	Spatial	Severity	Duration	Probability	Significance Assessment
Topography & Drainage	Increased Stormwater Runoff	Negative	Construction & Operational	Site Specific	5	8	3	Low	All areas of stormwater release must be suitable stabilzed	Site Specific	8	9	5	Low
Topography & Drainage	Increased Soil Erosion	Negative	Construction & Operational	Site Specific	3	4	2	High	Minimise the areas of disturbance or vegetation clearance. Revegetate areas that have been disturbed as soon as possible. Cut and fill slopes/Excavations shall be made stable and be revegetated as soon as possible during the construction phase.	Site Specific	5	7	4	Low
Non-renewable Resources	Consumption of Non-renewable Resource	Negative	Operational	Municipal	3	2	3	High	The proposed quantities mined should not exceed limits specified in the mining plans/permits issued by DMR	Local	5	4	2	Moderate
Non-renewable Resources	Material Resources for roads not imported from far off distances	Positive	Operational	Municipal	5	5	2	Low	No Mitigation Required	N/A				#N/A
Surface Water	Surface water contamination	Negative	Construction & Operational	Local	4	5	5	Low	Areas of spillages and/or contamination shall be cleaned up immediately and disposed of at a licensed landfill site. Release of chemicals directly into the environment is strictly prohibited. Waste is to be removed from the area on a regular basis.	Site Specific	8	5	8	Low
Surface Water	Sedimentation	Negative	Construction & Operational	Local	3	4	3	Moderate	Minimise the areas of disturbance or vegetation clearance. Revegetate areas that have been disturbed as soon as possible. Cut and fill slopes/excavations shall be made stable and be revegetated as soon as possible during the construction phase. A stormwater cut-off berm shall be provided upslope from the mining areas. Gabions shall be provided at stormwater release areas	Site Specific	4	5	5	Low

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ASSESSMENT				PRIOR TO MITIGATION					POST MITIGATION					
Environmental Issue	Environmental Impact	Positive or Negative	Phase	Spatial	Severity	Duration	Probability	Significance Assessment	Mitigation Measures	Spatial	Severity	Duration	Probability	Significance Assessment
Surface Water	Decreased water quality	Negative	Construction & Operational	Local	5	6	5	Low	A stormwater cut-off berm shall be provided upslope from the mining areas. Gabions shall be provided at stormwater release areas	Site Specific	8	5	8	Low
Surface Water	Decrease in Benthic microalgae	Negative	Construction & Operational	Local	5	6	5	Low	A stormwater cut-off berm shall be provided upslope from the mining areas. Gabions shall be provided at stormwater release areas	Site Specific	8	5	8	Low
Surface Water	Decrease in Submerged macrophytes	Negative	Construction & Operational	Local	5	6	5	Low	A stormwater cut-off berm shall be provided upslope from the mining areas. Gabions shall be provided at stormwater release areas	Site Specific	8	5	8	Low
Surface Water	Decraese in Macrobenthos	Negative	Construction & Operational	Local	5	6	5	Low	A stormwater cut-off berm shall be provided upslope from the mining areas. Gabions shall be provided at stormwater release areas	Site Specific	8	5	8	Low
Surface Water	Change in fish community structure	Negative	Construction & Operational	Local	5	6	5	Low	A stormwater cut-off berm shall be provided upslope from the mining areas. Gabions shall be provided at stormwater release areas	Site Specific	8	5	8	Low
Surface Water	Surface water abstraction	Negative	Operational	Local	3	5	2	Moderate	Applications for a water use license must be made in terms of the National Water Act, (Act 36 of 1998). Conditions contained in the approval(s) must be strictly adhered to. Abstraction rates should not exceed those specified in the water use license	Local	4	5	4	Low
Groundwater	Groundwater contamination	Negative	Construction & Operational	Local	4	3	3	Moderate	Areas of spillages and/or contamination shall be cleaned up immediately and disposed of at a licensed landfill site	Site Specific	5	4	5	Low

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Environmental Issue	Environmental Impact	Positive or Negative	Phase	Spatial	Severity	Duration	Probability	Significance Assessment	Mitigation Measures	Spatial	Severity	Duration	Probability	Significance Assessment
Groundwater	Groundwater abstraction	Negative	Operational	Local	3	5	2	Moderate	Applications for a water use license must be made in terms of the National Water Act, (Act 36 of 1998). Conditions contained in the approval(s) must be strictly adhered to. Abstraction rates should not exceed those specified in the water use license	Local	4	5	4	Low
Vegetation and Habitat	Loss of indigenous vegetation	Negative	Construction & Operational	Local	3	4	3	Moderate	Minimise the areas of disturbance or vegetation clearance. Revegetate areas that have been disturbed as soon as possible.	Site Specific	6	5	5	Low
Vegetation and Habitat	Disturbance of habitat	Negative	Construction & Operational	Site Specific	5	4	3	Low	Minimise the areas of disturbance or vegetation clearance. Revegetate areas that have been disturbed as soon as possible. No hunting/trapping of any animals is strictly forbidden.	Site Specific	8	8	5	Low
Vegetation and Habitat	Alien Invasive Plant Species	Negative	Construction, Operational & Closure	Local	3	4	3	Moderate	All alien invasive plant species should be removed accoring to the Conservation of Agricultural Resources Act.	Site Specific	5	7	8	Low
Vegetation and Habitat	Removal of alien invasive species	Positive	Construction, Operational & Closure	Local	7	5	5	Low	No Mitigation Required	N/A				#N/A
Air Quality	Dust Generation	Negative	Construction & Operational	Local	3	5	2	Moderate	Avoid dust generating activities during periods of medium to high winds. Cover and/or maintain appropriate freeboard on trucks hauling any lose material that could produce dust when travelling. Limit the areas that need to be cleared of vegetation. Revegetate disturbed areas as soon as possible after clearing.	Site Specific	4	5	3	Low
Air Quality	Fugitive Emissions	Negative	Construction & Operational	Site Specific	8	8	3	Low	Vehicles should be properly maintained and serviced.	Site Specific	8	8	5	Low

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ASSESSMENT				PRIOR TO MITIGATION					POST MITIGATION					
Environmental Issue	Environmental Impact	Positive or Negative	Phase	Spatial	Severity	Duration	Probability	Significance Assessment	Mitigation Measures	Spatial	Severity	Duration	Probability	Significance Assessment
Noise	Noise Pollution	Negative	Construction & Operational	Local	3	5	2	Moderate	All noise sources shall be controlled at the source; Vehicle silencers should be in good working order and should be maintained. No construction/operational work should be done after working hours or on Sundays and Public Holidays.	Local	4	5	3	Low
Visual	Change in Sense of Place	Negative	Construction, Operational & Closure	Local	3	2	3	High	Borrow Pits are to be rehabilitated to represent the former habitat/surrounding land use character.	Local	5	4	6	Low
Visual	Decreased Visual Quality	Negative	Construction, Operational & Closure	Local	4	2	4	Moderate	Protect and maintain the vegetated slopes as a natural screen. Ensure that any signage (i.e. at entrance gate of construction camp site) is visible but not visually intrusive. Ensure good housekeeping at the construction campsite and control litter and general site cleanliness. Ensure that adequate ablution facilities are in place, that the workforce utilises these facilities and that they are placed where they are not visible to the public.	Local	8	5	6	Low
Visual	Rehabilitation of existing borrow pits	Positive	Closure	Local	4	4	2	Moderate	No Mitigation Required	N/A				#N/A

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ASSESSMENT				PRIOR TO MITIGATION					POST MITIGATION					
Environmental Issue	Environmental Impact	Positive or Negative	Phase	Spatial	Severity	Duration	Probability	Significance Assessment	Mitigation Measures	Spatial	Severity	Duration	Probability	Significance Assessment
Archaeology, Palaeontology & Heritage Sites	Disturbance of sites	Negative	Construction & Operational	Local	4	3	3	Moderate	All finds of human remains shall be reported to the nearest police station. Human remains from the graves of victims of conflict, or any burial ground or part thereof which contains such graves and any other graves that are deemed to be of cultural significance may not be destroyed, damaged, altered, exhumed or removed from their original positions without a permit from the South African Heritage and Resource Agency (SAHRA) Work in areas where artefacts are found shall cease immediately and SAHRA notified. Under no circumstances shall the Contractor, employees, subcontractors or subcontractors' employees remove, destroy or interfere with archaeological artefacts. All recommendations made in the Specialist Reports and the SAHRA A&PRC must be adhered to.	Local	8	6	7	Low

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ASSESSMENT				PRIOR TO MITIGATION					POST MITIGATION					
Environmental Issue	Environmental Impact	Positive or Negative	Phase	Spatial	Severity	Duration	Probability	Significance Assessment	Mitigation Measures	Spatial	Severity	Duration	Probability	Significance Assessment
Archaeology, Palaeontology & Heritage Sites	Loss of sites	Negative	Construction & Operational	Local	3	3	2	High	All finds of human remains shall be reported to the nearest police station. Human remains from the graves of victims of conflict, or any burial ground or part thereof which contains such graves and any other graves that are deemed to be of cultural significance may not be destroyed, damaged, altered, exhumed or removed from their original positions without a permit from the South African Heritage and Resource Agency (SAHRA) Work in areas where artefacts are found shall cease immediately and SAHRA notified. Under no circumstances shall the Contractor, employees, subcontractors or subcontractors' employees remove, destroy or interfere with archaeological artefacts. All recommendations made in the Specialist Reports and the SAHRA A&PRC must be adhered to.	Local	5	6	7	Low
Archaeology, Palaeontology & Heritage Sites	Discovery of new/buried sites	Positive	Construction & Operational	Municipal	2	3	5	Moderate	No Mitigation Required	N/A				#N/A
Land Use	Change in land use	Negative	Construction, Operational & Closure	Local	3	3	4	Moderate	Borrow Pits are to be rehabilitated to represent the former habitat/surrounding land use character.	Local	8	4	8	Low
Socio -Economic	Disturbance to rural character	Negative	Construction, Operational & Closure	Local	5	3	3	Low	Borrow Pit is to be rehabilitated to represent the former habitat/surrounding land use character.	Local	8	5	6	Low
Socio -Economic	Job Creation	Positive	Construction & Operational	Municipal	4	3	3	Moderate	No Mitigation Required	N/A				#N/A
Socio -Economic	Skills Development	Positive	Construction & Operational	Municipal	4	3	3	Moderate	No Mitigation Required	N/A				#N/A

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ASSESSMENT				PRIOR TO MITIGATION					POST MITIGATION					
Environmental Issue	Environmental Impact	Positive or Negative	Phase	Spatial	Severity	Duration	Probability	Significance Assessment	Mitigation Measures	Spatial	Severity	Duration	Probability	Significance Assessment
Socio -Economic	Improved Road Quality	Positive	Operational	Municipal	4	3	3	Moderate	No Mitigation Required	N/A				
Socio -Economic	Safety Risk	Negative	Construction & Operational	Local	2	2	3	Very High	The mining area shall be fenced off and access to the site shall be restricted by means of a gate. All Occupational Health & Safety Standards shall be strictly adhered to. Excavations should be made safe prior to closure.	Site Specific	2	2	8	Moderate

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The No-Go Alternative

The “no-go” alternative simply involves leaving the site in its current condition and not undertaking the proposed mining operations at the proposed borrow pit. This means that the impacts identified as a result of the construction/operational phase would not occur, these being impacts related to vegetation removal, soil erosion and pollution, surface water, groundwater and terrestrial pollution, air quality and visual impacts. Although no negative environmental issues identified for the construction/operational phase would occur, the existing borrow pit would not be rehabilitated thus leaving it in its current visual state and without the use of this source the financial feasibility to regravel/maintain the district road would be jeopardized, thus potentially resulting in the road remaining in a poor condition, and in all likelihood deteriorating further, resulting in further soil erosion and unsafe road conditions.

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14 Mitigatory Measures & Environmental Management

The guidelines, operating procedures and rehabilitation/pollution control requirements contained in this Environmental Management Plan will be binding on the holder of the mining permit permission after approval of the Environmental Management Plan by the Department of Mineral Resources. It is essential that this portion be carefully studied, understood, implemented and adhered to at all times. The mitigation measures which will apply during the Site Establishment, Operation and Rehabilitation phases are provided in the following Sections.

14.1 Responsibilities of the Role Players

14.1.1 Developer

The Developer (Department of Roads and Public Works in this instance) remains ultimately responsible for ensuring that the activity is implemented according to the requirements of the EMP. Although the developer appoints specific role players to perform functions on his/her behalf, this responsibility is delegated. The developer is responsible for ensuring that sufficient resources (time, financial, human, equipment, etc.) are available to the other role players (e.g. the ECO, ELO and contractor) to efficiently perform their tasks in terms of the EMP. The developer is liable for restoring the environment in the event of negligence leading to damage to the environment. The developer shall ensure that the EMP is included in the tender documentation so that the contractor who is appointed is bound to the conditions of the EMP. The developer shall appoint an independent Environmental Control Officer (ECO) during the planning phase to oversee all the environmental aspects relating to the development.

14.1.2 Consulting Engineer

The Consulting Engineer, is bound to the EMP conditions through his/her contract with the developer, and is responsible for ensuring that she/he adheres to all the conditions of the EMP. The Consulting Engineer shall thoroughly familiarise him/herself with the EMP requirements before coming onto site and shall request clarification on any aspect of these documents, should they be unclear. The Consulting Engineer shall ensure that he/she has provided sufficient budget for complying with all EMP conditions at the tender stage. The Consulting Engineer shall comply with all orders (whether verbal or written) given by the ECO, Project Manager or DMR in terms of the EMP.

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14.1.3 Contractor

The Contractor, as the developer's agent on site, is bound to the EMP conditions through his/her contract with the developer, and is responsible for ensuring that she/he adheres to all the conditions of the EMP. The Contractor shall thoroughly familiarise him/herself with the EMP requirements before coming onto site and shall request clarification on any aspect of these documents, should they be unclear. The Contractor shall ensure that he/she has provided sufficient budget for complying with all EMP conditions at the tender stage. The Contractor shall comply with all orders (whether verbal or written) given by the ECO, Project Manager, Consulting Engineer or DMR in terms of the EMP.

The Department of Mineral Resources have reserved their rights to initiate criminal proceedings against the Consulting Engineer, contractor and/or any sub-contractors.

14.1.4 Environmental Control Officer (ECO)

The Environmental Control Officer (ECO) is appointed by the developer as an independent monitor of the implementation of the EMP. He/she shall form part of the project team and shall be involved in all aspects of project planning that can influence environmental conditions on the site. The ECO shall attend relevant project meetings, conduct inspections to assess compliance with the EMP and be responsible for providing feedback on potential environmental problems associated with the development. In addition, the ECO is responsible for:

- Liaison with relevant authorities;
- Liaison with contractors regarding environmental management; and
- Undertaking routine monitoring and appointing a competent person/institution to be responsible for specialist monitoring, if necessary
- Has the authority to halt any activity or process related directly or indirectly to the project, which in the view of the ECO may have undue or significant impact the environment
- The ECO has the right to enter the site and undertake monitoring, auditing and assessment at any time.

The ECO shall be responsible for liaising with the DMR.

Monitoring of Compliance with the EMP

The ECO shall conduct internal monthly environmental audit reports for the applicant/developer and will supply quarterly audit reports to the authorities. These audit reports shall contain information on the contractor and developer's levels of compliance with the EMP. The audit report shall also include a

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description of the general state of the site, with specific reference to sensitive areas and any matters of non-compliance. The ECO is to suggest corrective action measures to eliminate the occurrence of the non-compliance incidents. In order to keep a record of any non-compliance, an Environmental Incident Record shall be kept.

An Environmental Control Officer (ECO) should be appointed prior to any mining activities commencing in order to ensure compliance with this Environmental Management Plan.

14.1.5 Environmental Liaison Officer (ELO)

The contractor shall appoint an Environmental Liaison Officer (ELO) to assist with day-to-day monitoring of the construction activities. Any issues raised by the ECO shall be routed to the ELO for the contractors' attention. The ELO shall be *permanently* on site during the construction phase to ensure daily environmental compliance with the EMP and shall be ideally be a senior member of the contractor's management team. The ECO shall be responsible for ensuring that all staff members are adequately trained and aware of the EMP. The ELO shall be responsible for undertaking weekly environmental inspections (according to the criteria specified in the EMP), and accompany the ECO during site visits, audits or assessments.

The ECO shall be notified of this appointment and furnished with the contact details of the ELO.

14.2 General Requirements

14.2.1 Mining Plans

- A copy of the mining plan shall be available at the mining site for scrutiny when required.
- A final layout plan must be submitted at closure of the mine or when operations have ceased.

14.2.2 Demarcating the mining area

- The mining area must be clearly demarcated by means of beacons at its corners and by fencing off the mining area.
- Permanent beacons as indicated on the mining plans must be firmly erected and maintained in their correct position throughout the life of the operation.
- Mining operations shall only take place within this demarcated area.
- Mining is to take place according to the proposed mine development plans. Mined out areas are to be used as spoil site thereby facilitating rehabilitation.

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14.3 Infrastructural Requirements

14.3.1 Topsoil Management

- Stripping of topsoil shall be undertaken in such a manner as to minimise erosion by wind or runoff.
- Topsoil shall be stripped to a depth not exceeding 300 mm from the original ground level unless otherwise specified by the Project Manager in consultation with ECO.
- Areas from which the topsoil is to be removed shall be cleared of any foreign material which may come to form part of the topsoil during removal including bricks, rubble, any waste material, litter, excess vegetation and any other material which could reduce the quality of the topsoil.
- The Contractor shall ensure that subsoil and topsoil are not mixed during stripping, excavation, reinstatement and rehabilitation. If mixed with sub-soil the usefulness of the topsoil for rehabilitation of the site shall be lost.
- The topsoil stockpiles shall be clearly demarcated with appropriate signage.
- Topsoil should under no circumstances be used to create diversion berms or for general erosion control measures.
- Soils should be exposed for the minimum time possible once cleared.
- Topsoil shall be temporarily stockpiled, separately from subsoil and rocky materials.
- Topsoil shall be stockpiled in the Top Soil designated storage areas.
- Soil shall not be stockpiled near drainage lines, watercourses or on steep slopes.
- The topsoil removed, shall be stored in a bund wall on the high ground side of the mining area outside the 1:50 flood level within the boundaries of the mining area/ prospecting.
- Topsoil shall not be used for building or maintenance of access roads.
- The topsoil stored in the bund wall shall be adequately protected from being blown away or being eroded.
- Stockpiles shall either be vegetated with indigenous grasses or covered by a suitable fabric to prevent erosion and invasion of weeds.
- Stockpiled topsoil shall not be compacted.
- Topsoil shall be used for rehabilitation of disturbed areas only.

14.3.1.1 Topsoil stripping

- Prior to the stripping of topsoil, as much as possible of the aboveground grass layer shall be removed and stockpiled. This is to be placed on top of the topsoil once the topsoil has been replaced and shall be stored separately from the topsoil. The purpose of using this vegetation material is that it contains grass seed and would therefore assist with re-establishment of the indigenous grasses that naturally occur in the area. Aside from this, the grass covering of the soil

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would also assist in preventing erosion prior to the re-establishment of a dense vegetation covering. Should insufficient grass covering be available to cover the soil, grass cuttings must be obtained from areas of natural grassland in the immediate vicinity of the particular area, with the consent of the affected landowner, or hydroseeding must be conducted.

- Topsoil shall be stripped from all areas that are to be utilised during the mining period and where permanent structures and access' is required. Topsoil shall be stripped after clearing of vegetation and before excavation commences.
- While topsoil is being stripped, it should be scanned for the presence of bulbous plants. Should bulbous plants be detected, they shall be removed from the topsoil and an ecologist shall be contacted to provide advice on suitable habitats and methods for replanting.
- The topsoil is regarded as the top 300mm of the soil profile, unless there is a clearer shallower boundary between the topsoil and subsoil indicated by texture, colour or structure.
- No topsoil which has been stripped shall be buried or in any other way be rendered unsuitable for further use by mixing with spoil or by compaction using machinery.
- Topsoil shall preferably be stripped when it is in a dry condition in order to prevent compaction.

14.3.1.2 Soil stockpiling

- Stripped topsoil shall be stockpiled in areas, which have been approved by the ECO.
- Topsoil stripped from different soil zones shall be stockpiled separately and clearly identified as such.
- Soil stockpiles shall not be higher than 2.5m or stored for a period longer than one month. The slopes of soil stockpiles shall not be steeper than 1 vertical to 5 horizontal.
- No vehicles shall be allowed access onto the stockpiles after they have been placed. Topsoil stockpiles shall be clearly demarcated in order to prevent vehicle access and for later identification when required.
- Soil stockpiles shall not be allowed to become contaminated with oil, diesel, petrol, litter or any other material that may later inhibit the growth of vegetation in the soil.
- After topsoil removal has been completed, the Contractor shall apply soil conservation measures to the stockpiles where and as directed by the Environmental Control Officer. This may include the use of erosion control fabric or grass seeding.

14.3.2 Access to the Borrow Pit Sites

14.3.2.1 Establishment of Access Roads

- The access road to the mining areas and the camp-site/site office must be via existing access roads/ jeep tracks.

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- Should a portion of the access road be upgraded or newly constructed the following must be adhered to:
  - The route shall be selected that a minimum number of bushes or trees are felled and existing fence lines shall be followed as far as possible.
  - Water courses and steep gradients shall be avoided as far as is practicable.
  - Adequate drainage and erosion protection in the form of cut-off berms or trenches shall be provided where necessary.
- No other routes will be used by vehicles or personnel for the purpose of gaining access to the site.

14.3.2.2 Maintenance of Access Roads

- The maintenance of access roads will be the responsibility of the holder of the mining permit.
- Newly upgraded access roads shall be adequately maintained so as to minimize dust, soil erosion or undue surface damage (i.e. adequate storm water control).

14.3.2.3 Dust control on the access and haul roads

- The liberation of dust into the surrounding environment shall be effectively controlled by the use of, inter alia, water spraying and/or other dust-allaying agents.
- The speed of haul trucks and other vehicles must be strictly controlled to avoid dangerous conditions, excessive dust generation or excessive deterioration of the road being used.
- A freeboard of 0.5m shall be maintained by haul trucks. The load should also be covered during travel in order to avoid loss of material and dust generation.

14.3.2.4 Rehabilitation of access roads

- Whenever a mining permit is suspended, cancelled or abandoned or if it lapses and the holder does not wish to renew the permit or right, any access road or portions thereof, constructed by the holder and which will no longer be required by the landowner/tenant, shall be removed and/or rehabilitated in order to represent the former habitat.
- Any gate or fence erected by the holder which is not required by the landowner/tenant, shall be removed and the situation restored to the pre mining situation.
- Roads shall be ripped or ploughed, and if necessary, appropriately fertilized to ensure the regrowth of vegetation. Imported road construction materials which may hamper regrowth of vegetation must be removed and disposed of in an approved manner prior to rehabilitation.
- If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the ECO may require that the soil be analyzed and any deleterious effects on the soil arising

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from the mining operation be corrected and the area be seeded with a seed mix to the ECO specification.

14.3.3 Office/Camp Sites

14.3.3.1 Establishing Office/Camp Sites

- Should any office/ camp sites be established, these are to be established within the boundaries of the mining area.
- No camp or office site shall be located closer than 100 meters from a stream, river, spring, dam or pan.
- The area chosen for these purposes shall be the minimum reasonably required in order to remove as little vegetation as possible.
- Topsoil shall be handled as described in this EMP. This topsoil is to be used for rehabilitation of the area once the office/camp sites have been removed.
- Only gas cooking facilities shall be allowed for purposes of making food. No open fires shall be allowed.
- Lighting and noise disturbance or any other form of disturbance that may have an effect on the public living in the vicinity shall be kept to a minimum by avoiding work after hours.

14.3.3.2 Toilet facilities, waste water and refuse disposal

- The contractor shall provide suitable ablution facilities for employees and proper hygiene measures shall be established.
- Chemical toilet facilities are to be used and sited on the camp site at least 100 meters away from any river/stream/watercourse. The construction of “long drop” toilets is forbidden. Under no circumstances may open areas or the surrounding bush be used as a toilet facility. A minimum of 1 toilet per 20 persons must be provided. Chemical Toilets should be emptied on a regular basis and the contents disposed of at a licensed sewage treatment works.
- All temporary / portable toilets shall be secured to the ground to prevent them toppling due to wind or any other cause. The Contractor shall ensure that no spillage occurs when the toilets are cleaned, or emptied, and that the contents are properly stored and removed from Site. Discharge of waste from toilets into the environment, and burial of waste, is strictly prohibited.
- All effluent water from the camp washing facility shall be disposed of in a properly constructed French drain, situated as far as possible, but not less than 200 meters, from any stream, river, pan, dam or borehole.
- Only domestic type wash water shall be allowed to enter this drain and any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed

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from the site for appropriate disposal at a licensed disposal facility. Records of safe disposal shall be kept on site and presented to the ECO.

- Spills should be cleaned up immediately to the satisfaction of the ECO by removing the spillage together with the polluted soil and by disposing of them at a licensed waste disposal facility.
- Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., shall be stored in a container at a collecting point and collected on a regular basis and disposed of at a licensed waste disposal facility.
- All other waste shall also be removed from site on a regular basis and disposed of at a licensed waste disposal facility.
- Waste containers shall be provided with lids or netting to prevent waste from being disturbed by scavengers or being blown away by wind.
- Specific precautions shall be taken to prevent refuse from being dumped on or in the vicinity of the camp site. This could include environmental awareness training and the provision of a suitable number of refuse bins.
- No burning of refuse is to take place on site.
- Materials shall be appropriately secured to ensure safe passage between destinations. Loads including, but not limited to sand, fine vegetation, refuse and paper shall have appropriate cover to prevent them spilling from the vehicle during transit. The Contractor shall be responsible for any clean-up resulting from the failure of his employees, or suppliers, to properly secure transported materials.

14.3.3.3 Rehabilitation of the office/camp site

- When the mining permit lapses, is cancelled or is abandoned or when any prospecting or mining operation comes to an end, the holder of any such right or permit may not demolish or remove any building, structure, object -
  - which may not be demolished in terms of any other law;
  - which has been identified in writing by the Minister; or
  - which is to be retained in terms of an agreement between the holder and the owner or occupier of the land, which agreement has been approved by the Minister in writing.
- Where office/camp sites have been rendered devoid of vegetation/grass or where soils have been compacted owing to traffic, the surface shall be scarified or ripped.
- Areas containing French drains shall be compacted and covered with a final layer of topsoil to a height of 10cm above the surrounding ground surface in order to allow for the settling of the soil.
- The site shall be seeded with an indigenous grass seed mix.

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- If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the ECO may require that the soil be analyzed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a seed mix to the ECO specification.
- Photographs of the camp and office sites, before, during and after the mining operations shall be taken by the ECO and/or ELO at selected fixed points and kept on record.

14.3.4 Maintenance Yard & Storage Areas

14.3.4.1 Establishing the vehicle maintenance yard and secured storage areas

- Should a vehicle maintenance yard be required, this vehicle maintenance yard and secured storage areas shall not be located closer than 100 meters from any stream, river, spring, dam or pan, and shall be within the boundaries of the mining area.
- The areas chosen for these purposes shall be the minimum reasonably required and involve the least disturbance to vegetation.
- Topsoil shall be removed from these areas and handled as described in this EMP.
- The vehicle maintenance yard and secured storage areas shall be constructed of impermeable material and bunded.
- Runoff from vehicle maintenance yards and secured storage areas shall be contained on site in a suitable receptacle and removed for appropriate disposal at a licensed waste disposal facility. The receptacle shall be emptied when 75% full. Records of safe disposal shall be kept on site and presented to the ECO.
- Store all materials defined as hazardous within a bunded and secure area (>50L).
- The floor and bund walls should be impervious to the material stored and should be capable of containing 110% of the total volume of hazardous substance stored.
- Fuel or lubricant tanks shall be secured and provided with collision protection.
- Valves shall be locked when not in use, and shall be protected from vandalism and unauthorized use.
- Valves shall be within the confines of the bunded/impervious areas.
- Small quantities of hazardous substances (50L or less) shall be stored in appropriate containers within a secure storage area.
- Base of the storage area shall be impervious and so designed as to ensure that the hazardous substances do not infiltrate into the soil.
- Used fuels, oils, hydraulic fluids, paints and solvents and grease shall be stored in drums or other suitable containers. Care shall be taken to avoid ingress of rain water into containers.
- Once the containers are full then they shall be labeled, sealed and removed from the site to a licensed waste disposal site.

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- The relevant Material Safety Data Sheets (MSDS) shall be available on Site. Procedures detailed in the MSDSs shall be followed in the event of an emergency situation.
- Provide collection systems (i.e. trays or impervious linings) under machinery or equipment that may dispense hazardous substances (i.e. generators and pumps).

14.3.4.2 Maintenance of vehicles and equipment

- The maintenance of vehicles and equipment used for any purpose shall take place only in the maintenance yard areas provided.
- The maintenance yard areas shall be fully contained and impervious.
- Runoff from the maintenance yard areas shall be collected and contained on site in a suitable receptacle and removed for appropriate disposal at a licensed waste disposal facility. The receptacle shall be emptied when 75% full. Records of safe disposal shall be kept on site and presented to the ECO.
- Equipment used in the mining/ process must be adequately maintained so that during operations it does not spill oil, diesel, fuel, or hydraulic fluid.
- Machinery or equipment used on the mining area must not constitute a pollution hazard. The ECO shall order such equipment to be repaired or withdrawn from use if he or she considers the equipment or machinery to be polluting and irreparable.
- The washing of equipment and vehicles shall be restricted to urgent or preventative maintenance requirements only. All washing shall be undertaken in a wash bay area which must be equipped with a suitable impermeable floor and sump / oil trap.

14.3.4.3 Waste disposal

- Suitable waste disposal containers shall be made available at all times and conveniently placed for the disposal of waste.
- Collected waste shall be separated into the different categories of hazardous, general waste and construction rubble.
- Separate waste containers for the different waste categories shall be provided and located in the maintenance areas.
- Containers shall be easily distinguishable (i.e. different colors etc)
- Waste containers shall be provided with lids or netting to prevent waste from being disturbed by scavengers or being blown away by wind.
- Waste shall be removed from site on a regular basis.

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- All used oils, grease or hydraulic fluids shall be placed therein and these receptacles will be removed from the site on a regular basis for disposal at a registered or licensed waste disposal facility. Records of safe disposal shall be kept on site and presented to the ECO.
- All spills should be cleaned up immediately to the satisfaction of the ECO by removing the spillage together with the polluted soil and by disposing of them at a licensed waste disposal facility

14.3.4.4 Rehabilitation of vehicle maintenance yard and secured storages areas.

- On completion of mining operations, the above areas shall be cleared of any contaminated soil, which must be disposed of at a licensed waste disposal facility. Records of safe disposal shall be kept on site and presented to the ECO.
- All buildings, structures or objects on the vehicle maintenance yard and secured storage areas shall be dealt with in accordance with section 44 of the Mineral and Petroleum Resources Development Act, 2002.
- The surface shall be ripped or ploughed to a depth of at least 300mm and topsoil previously removed from these areas shall be spread evenly to its original depth over the whole area.
- The area shall then be fertilized if necessary in order to assist re-establishment of the vegetation and then be seeded with an indigenous grass seed mix.

14.4 Operational Procedures

14.4.1 Limitations on mining

- Mining shall be limited to the areas indicated on the mining plans for each individual borrow pit.
- The contractor shall ensure that operations take place only in the demarcated areas.
- New mining excavations will not be conducted within 32 m of a drainage line.
- Security must be put in place to prevent unauthorised access to the site.
- The entire mining area is to be fenced.
- Appropriate warning signage is to be erected around the mining area.

14.4.2 Water Use License

- If any surface or groundwater abstraction is needed then applications for a water use license must be made in terms of the National Water Act, (Act 36 of 1998)
- Approval(s) must be granted by the Department of Water Affairs prior to any abstraction taking place.
- Conditions contained in the approval(s) must be strictly adhered to.
- The appropriate license forms for each kind of expected water use should be completed together with supporting documentation.

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14.4.3 Excavations

Whenever any excavation is undertaken the following operating procedures shall be adhered to:

- Topsoil shall, in all cases be handled as described in this EMP.
- Excavations shall take place only within the approved demarcated mining area as indicated in the mining plans.
- Overburden rocks and coarse material shall be placed concurrently in the excavations or stored adjacent to the excavation, if practicable, to be used as backfill material once mining operations have ceased.
- Trenches shall be backfilled as soon as possible.
- Areas of expected increased surface runoff along the down-slope borders of the excavation areas (i.e. areas natural runoff may be concentrated) shall be suitable stabilized using gabions and/or rock material. These areas shall be maintained until the borrow pits have been fully rehabilitated.
- Where blasting may be required, the appropriate measures and blasting permits in terms of Explosives Act and Occupation Health and Safety Act (Regulations) must be undertaken.

14.4.4 Rehabilitation of excavation areas

The following operating procedures shall be adhered to during the rehabilitation of excavation areas:

- The excavated area must serve as a final depositing rocks and coarse material not used in the road construction.
- Waste material (general waste, litter, etc) shall not be deposited in the excavations.
- Once excavations have been refilled and profiled with acceptable contours and erosion control measures, the topsoil previously removed shall be returned to form a layer no less than 50mm. If insufficient topsoil is available, then it must be imported from elsewhere is such material is available.
- The area shall be fertilized if necessary to allow vegetation to establish rapidly. The site shall be seeded with an indigenous grass seed mix in order to propagate the locally or regionally occurring vegetation.
- Near vertical slopes (1:1 to 1:2) must be stabilized using natural rock wall structures constructed using conventional building methods or in forms with slurry forced between the structures. All structures must have a 'natural' look and facilities for plants to grow in.
- All areas where the slopes are 1.3 to 1:6 must be logged or otherwise stepped (using stabilization cylinders or similar) in order to prevent soil erosion. Logs/ cylinders must be laid in continuous lines following the contours and spaced vertically 0.8-1.2 m apart, depending on the steepness of the slope. These logs/ cylinders must be secured by means of steel pegs and wire in rocky areas, and treated wooden pegs in other areas.

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- The post-mining area must be fenced off in order to prevent access by livestock until such time that the vegetation has been allowed to establish sufficiently.
- The site must remain fenced with warning signs erected to caution the general public of the altered state of the environment in the area. Drainage structures must also be left intact.
- No dangerous faces which present a safety threat to communities should be left.

14.5 Vegetation Removal and Habitat Disturbance

- Natural features, indigenous flora and fauna within the vicinity of the project works, should be protected and damage or disturbance prevented or minimised, specifically:
  - No plant species outside of the designated mine site and associated areas may be removed.
  - No mining staff may have access to indigenous vegetation outside of the Site.
  - The use of indigenous plants as firewood is prohibited.
  - All fauna (including domestic livestock) within, and surrounding the site, shall be protected. They shall not be caught, poisoned, trapped, snared or killed.
  - The minimum amount of vegetation must be removed. Excessive clearing of a site must be avoided. Disturbance outside of the immediate construction area must be avoided.
  - Replanting of indigenous species in disturbed areas will be required, under the guidance of the Environmental Controller.
  - No more than 0.98 ha of indigenous vegetation may be removed from the borrow pit.
- Planning and construction must ensure that alien plants are not introduced to the disturbed areas. This can be accomplished by:
  - Utilising the saved topsoil from the construction area and regular monitoring during the revegetation phase and immediately after the revegetation phase.
  - Preventing continuous disturbances of the rehabilitated areas.
  - Alien invader species must be removed from the site and destroyed as per the DWAF Working for Water specifications for that species.
  - Any regrowth must be controlled in the same manner.
  - Soil should not be moved from one part of the site to another unnecessarily.

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14.6 Surface Waters/Drainage Lines

- Site staff shall not be permitted to use the stream/drainage lines/water bodies for the purpose of bathing, washing of clothing or as a water resource.
- The stream/drainage/inland water bodies lines shall not be used for mining activities such as washing of equipment or the disposal of any type of waste.
- Water may not be abstracted from the stream for any reason or use, unless authorised by the Department of Water Affairs.
- All fuel, chemical, oil storage areas shall confined to areas at least 100 meters away from any watercourse and/or drainage line and is to be secured and appropriately stored on bund areas and in storage areas.
- Appropriate structures and methods to confine spillages such as the construction of berms and pans shall be used in order to prevent contamination of the rivers and streams.
- Release of chemicals directly into the environment is strictly prohibited.
- Waste should be managed and removed from site on a regular basis and the use of degreasing agents should be strictly prohibited.
- Illegal dumping of construction material within the Drainage Environment is strictly prohibited.
- No new mining excavations are to be allowed within 32 m of the drainage lines.

14.7 Stormwater Management

The general principal behind stormwater management is to divert runoff away from the mining area in such a manner as to prevent any erosion from resulting and to contain the “dirty” runoff within the mining area before releasing it into the environment.

“Dirty” water runoff refers to stormwater runoff which has collected within the disturbed areas and accumulated a high sediment load as a result of the exposed soils and underlying weathered rock. Other than a high sediment load, there is unlikely to be any other form of contamination of the runoff.

- No rock, silt, petroleum product, timber, vegetation, domestic waste, or any deleterious substance shall be placed or allowed to disperse directly into the drainage lines.
- Halt construction activity on exposed soil during events of high rainfall intensity and runoff.
- Minimise vegetation cover removal on all the cleared areas - i.e. only clear those areas where mining and stockpiling is currently taking place.

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- A cutoff-berm must be located above the borrow pit face, protecting the active mining area and topsoil and overburden stockpiles from erosion. This storm water will then be channelled towards the natural drainage in the area.
- Soil erosion shall not be tolerated on the Site. Uncontrolled erosion will cause siltation and pollution of the downstream areas and result in loss of valuable topsoil. The Contractor should take all reasonable measures to prevent soil erosion and protect areas susceptible to erosion. Erosion prevention measures must be implemented to the satisfaction of the ECO and DMR.
- Areas particularly susceptible to erosion include:
    - areas stripped of topsoil,
    - soil stockpiles, and
    - steep slopes (gradients>8%).
- Where erosion does occur, the Contractor shall reinstate such areas to the satisfaction of the DMR through the construction of contour berms, cut-off drains, or planting of grass sods / ground cover, as may be necessary. Topsoil that has been washed away shall be replaced.
- The berms will remain in place after closure in order to allow for the protection of the downstream environment from sedimentation and erosion which may arise during the rehabilitation period prior to the establishment of adequate grass cover.

14.8 Air Emissions

- Minimise areas of exposed soil by only clearing those areas where mining or stockpiling is activity taking place and by revegetating mining and stockpiling areas progressively where possible.
- Fine material must be kept to a minimum by practicing good housekeeping. All fines should be removed to the spoils area and covered with overburden and vegetated accordingly.
- Employ dust suppression measures on dry dusty surfaces. This may involve the spraying of water from water carts.
- Ensure fine materials being stored or transported are covered with tarps or equivalent material.
- Ensure that the district road accessing the site is maintained in a good condition with a suitable gravel surface. Heavy trucks may lead to the pulverizing of the gravel and increase the amount of dust produced.
- Operators exposed to high levels of dust (including cement dust) must be equipped with dust masks. This is a heath and safety requirement and must be managed via the mine's Health and Safety Plan.
- Ensure all equipment is in good operating order, and fitted with standard air emission control devices.
- Wet methods must be enforced when rock breaking, drilling and loading take place.

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- Minimise idling of engines at all times.

14.9 Noise Management

- No nighttime activities are to take place.
- All activities with high noise levels should be restricted to daylight hours on weekdays. Working hours are Monday to Friday 6 am - 6.00 pm and Saturdays 7am - 2pm. No mining activities may occur on Sundays or Public Holidays.
- All operators exposed to noise in excess of 85dB will be equipped with hearing protection devices.
- The Contractor shall take the necessary measures to limit noise levels on site to within legally acceptable limits. The regulations framed under the Machinery and Occupational Safety Act, 1983 (Act No. 6 of 1983) apply.
- All vehicles to be kept in a serviceable condition and fitted with silencers.
- Any warning hooters be so designed that they are only effective in the area of concern.
- Where possible physical barriers are to be placed between noise sources and the community.

14.10 Visual Quality

- Protect and maintain the vegetation not required to be removed as a natural screen.
- Ensure that any signage (i.e. at entrance gate of construction camp site) is visible but not visually intrusive.
- Ensure good housekeeping and control litter and general site cleanliness. The construction camp should be so sited so as to limit its visual impact.
- Ensure that adequate ablution facilities are in place, that the workforce utilises these facilities and that they are placed where they are not visible to the public.
- Workforce shall be dressed in appropriate neat and safe construction uniforms.
- Bright colours shall only be used for the safety issues for which they are intended.
- Safety lighting should only be used for the safety issues for which they are intended.
- Only emergency after-hours work should be done.
- Rehabilitation of Borrow pits after utilisation must be undertaken to decrease visual impact

14.11 Health and Safety (safety of all contractors, employees and the general public)

- The Contractor shall have a first aid box and a trained First Aider (as required by the OHS Act) available on site at all time.
- Potable (human drinking quality) drinking water shall be provided to all construction crews at all times.

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- The Contractors (and all sub-contractors) shall provide all their employees (permanent, contracted or casual) with:
    - Overall that have a reflective strip across the back, and around both legs
    - Steel capped safety boots
    - Hard hats
    - These are to be worn on the site at all times
- The Project Manager shall ensure that there are White Hard hats and reflective vests (yellow with reflective strip) available for use by any visitors, other project consultants and authorities.
- The contractor shall ensure that all construction vehicles using public roads are in a roadworthy condition, they adhere to speed limits, their loads are secured and that all other regulations are adhered to.
- The mining area must be placed out of bounds to members of the public and other unauthorised persons.
- Security must be put in place to prevent unauthorised access to the site.
- The entire mining area is to be fenced.
- Appropriate warning signage is to be erected around the mining and processing area.
- The contractor will be required to develop a Health and Safety Plan identifying all potential health and safety hazardous and providing a plan and programme for the management and monitoring of these risks.

14.12 Emergency Procedures & Remediation

- Emergency procedures must be developed for the following incidents:
    - Fire
    - Spillage of Hazardous Materials (fuel, chemicals, sewage etc)
- It is the Contractor's responsibility to develop the emergency action plans. These must be checked and approved by the ECO and by DMR.

14.13 Fire Risk & Burning

- The Contractor shall take all the necessary precautions to ensure that fires are not started on site.
- The Contractor shall develop a Fire Management Procedure and present it to the ECO for review.
- The Contractor shall ensure that the risk of fire at any location on site is kept to a minimum.
- The Contractor shall ensure that all construction staff are aware of these procedures.
- The Contractor shall supply fire fighting equipment in proportion to the fire risk presented by the type of activity and materials used on site.
- This equipment shall be kept in good working order.

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- No open fires shall be allowed on site or on the route. Gas cylinder shall be provided for daily cooking. A designated facility must be established to serve as a kitchen/food preparation area.
- Any welding or other sources of heating shall be done in a controlled environment and under appropriate supervision, in such a manner as to minimise the risk of veld fires and/or injury to staff.
- Occupational Health & Safety Act requirement relating to fire precautions and fire control shall be implemented.
- All waste bins shall be kept away from fuel tank installations.
- Smoking near refuelling depots or near any flammable substances shall be prohibited.

14.14 Accidental leaks & spillages

- An Emergency Action Plan and Procedure for the prevention and remediation of spillages of hazardous substances shall be developed by the Contractor. This must include clear roles & responsibilities.
- The Contractor shall ensure that his employees are aware of the procedure to be followed for dealing with spills and leaks, which shall include the immediate notification of the Project Manager, ECO and the relevant authorities.
- The Contractor shall ensure that the necessary materials and equipment for dealing with spills and leaks is available on site at all times.
- Potentially hazardous materials shall be handled and stored on site in containers with tight lids that shall be sealed and disposed of at an appropriately permitted hazardous waste disposal site.
- The Contractor shall maintain a hazardous materials register which must document the use, storage, final destination and method of disposal of all hazardous substances.
- The contractor shall submit copies of Material Safety Data Sheets (in accordance with the requirements of the OHS Act – i.e. sixteen point MSDS format) to the ECO. Copies shall also be kept on site.
- Treatment and remediation of the spill areas shall be undertaken to the reasonable satisfaction of the DMR.
- In the event of a hydrocarbon spill, the source of the spillage shall be isolated and contained (i.e. be protected from rainfall and surface runoff). The Contractor shall ensure that there is always a supply of absorbent material readily available to absorb / breakdown spilt hydrocarbon material and where possible, materials designed to encapsulate minor hydrocarbon spillage. This is particularly relevant in the fuel storage and dispensing area.
- The quantity of such materials shall be able to handle a minimum of 200liters of hydrocarbon liquid spill.

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- The telephone numbers for the closest Hazardous Materials Emergency Response offices should be prominently displayed as bitumen and diesel spillage frequently occur on mining sites. A swift cleanup procedure is critical in order to prevent contamination.

14.15 Archaeology, Palaeontology & Heritage Sites

- All recommendations as stated in the Specialist Studies (section 11.2 & section 21.2) and in the SAHRA A&PRC under Appendix D must be adhered to.
- All finds of human remains shall be reported to the nearest police station.
- Human remains from the graves of victims of conflict, or any burial ground or part thereof which contains such graves and any other graves that are deemed to be of cultural significance may not be destroyed, damaged, altered, exhumed or removed from their original positions without a permit from the South African Heritage and Resource Agency (SAHRA)
- Work in areas where artifacts are found shall cease immediately and SAHRA notified.
- Under no circumstances shall the Contractor, employees, subcontractors or subcontractors' employees remove, destroy or interfere with archaeological artifacts.
- Any person who causes intentional damage to archaeological or historical sites and/or artifacts could be penalized or legally prosecuted in terms of the national Heritage Resources Act 25 of 1999.
- A fence of at least 3m outside the extremities of the site shall be erected to protect archaeological sites.
- All known and identified archaeological sites shall be left untouched.
- In terms of the National Heritage Resources Act (Act 25 of 1999), in the event that any object or material of archaeological or palaeontological importance is noted during the construction & operational process, work in the immediate area should be immediately stopped and SAHRA notified without delay. Should any such sites be identified (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, marine shell and charcoal/ash concentrations), unmarked human burials or other categories of heritage resources are found during the proposed activities, SAHRA APM Unit (Mariagrazia Galimberti, Tel: 021 462 4502) must be alerted immediately, and an accredited professional archaeologist must be contacted as soon as possible to inspect the findings.
- Should substantial fossil remains (notably articulated vertebrate skeletons or skulls) be exposed during construction, however, the ECO should safeguard these - in situ, where feasible. SAHRA and / or a professional palaeontologist should then be alerted as soon as possible so that appropriate mitigation measures can be implemented.

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14.16 Socio-economic

- A targeted procurement policy to be implemented at the mine whereby goods and services should be sourced locally if possible.
- Labour where feasible should be drawn from the affected community.

14.17 Community Relations

- The Contractor shall keep a “Complaints Register” on Site. The Register shall contain all contact details of the person who made the complaint, information regarding the complaint itself, and measures taken to address the complaint.

14.18 Work Stoppage

The DMR shall have the right to order work to be stopped in the event of significant infringements of the Environmental Specifications. Work will only be allowed to restart once the situation is rectified in compliance with the specifications.

14.19 Site Closure/Decommissioning

The Applicant, the Department of Roads and Public Works, shall be responsible for the complete rehabilitation of the sites, access roads, site camp / office, stockpile area, ablution facilities and storage areas.

- All site infrastructure, equipment, plant, and other items used during the mining period will be removed from the site in accordance with section 44 of the Mineral and Petroleum Resources Development Act, 2002 and those areas will be ripped and then covered with a 50mm thick layer of topsoil. Those areas will then be hydroseeded with a mix of grasses indigenous to the area.
- All waste shall be removed from site. It will not be permitted to be buried or burned on the site.
- All access roads or portions thereof, constructed by the holder and which will no longer be required by the landowner/tenant, shall be removed/ripped and/or rehabilitated in order to represent the former habitat.
- Foreign materials, which may hamper the re-growth of the vegetation, must be removed prior to rehabilitation and disposed of at a licensed waste disposal site.
- All cleared sites are rehabilitated with indigenous grass species.
- The mine must conform to the designed closure specifications, including drainage, slope stability, topsoiling and tree / grass planting.
- Drainage structures must be left intact.
- Areas showing signs of erosion due to mining activities shall be suitably stabilized or rehabilitated.

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- All ablution facilities shall be removed from site.
- The mine area will be fenced with a stockproof fence to prevent access by livestock until such time that the vegetation has been allowed to recover. No dangerous faces which present a safety threat to communities will be left.
- All signs relating to the mining activates shall be removed.
- All areas, devoid of vegetation or where solids have been compacted due to traffic, shall be scarified or ripped before rehabilitation to allow penetration of roots and water.
- Remaining boulders and spoil will be pushed up against the slopes of the mine face. That rock material will be covered with overburden (decomposed rock) and a 50cm thick layer of topsoil and then seeded.
- Slopes must be made safe; slopes must at least be sloped to a ratio of 1:3.
- Final rehabilitation shall be completed within a period specified by DMR and should take cognizance of the season.

15 Quantum of Financial Provision for Rehabilitation

The Quantum of Financial Provision shall be calculated using DME's Guideline Document for the Evaluation of the Quantum of Closure-Related Financial Provision Provided by a Mine (2005).

In terms of this guideline the borrow pits classify as Class C Mines (low risk) of low to moderate sensitivity.

Table B.11: Rates (per hectare) to determine the quantum for financial provision (Class C mines)

	Environmental sensitivity of mine area		
	Low	Medium	High
Rate per hectare to determine the quantum (rands)	20 000.00	50 000.00	80 000.00
Minimum amount	R 10 000.00		

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16 Environmental Awareness

The ECO shall be responsible for compiling and implementing an Environmental Awareness Training Programme for all staff members that aims at explaining the mitigation measures described in this report. Before commencing with any work, all staff members shall attend the Environmental Awareness Training Programme. After attending the Environmental Awareness Training Programme, all contractors and sub-contractors shall sign an Environmental Training register as proof of their training.

17 Monitoring & Performance of the EMP

In order to ensure that this Environmental Management Plan is effectively implemented, it is important that regular external audits of the Environmental Management Plan are conducted.

The Department of Roads and Public Works must appoint an independent Environmental Control Officer (ECO) in order to oversee compliance with the EMP by undertaking monthly site inspections, quarterly audits and post construction/operation site visits. The audits shall aim at addressing environmental issues identified on site and to provide recommendations through the audit reports.

Audit Reports shall be provided to Department of Roads and Public Works, the Project Managers/Engineers, and the Department of Mineral Resources (DMR).

18 Environmental Objectives and Goals

18.1 Mine Closure

The overall Environmental Objective for mine closure is as follows:

To render the mining area in a safe and environmentally acceptable condition on completion of the mining, rehabilitation and closure activities.

Specific Environmental Goals include:

- To return the mining area, as closely as possible, to its original condition and land use through the shaping and landscaping of the surface and through the establishment of an indigenous grass cover emulating the surrounding environment.

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- To minimize the residual impacts through ensuring that erosion is controlled, the slopes are stable, the vegetation cover is established satisfactory and that the area is left in a condition which does not pose a safety hazard to humans, livestock and indigenous fauna.
- To minimize the visual impacts of the mine on closure by way of landscaping and the establishment of an indigenous grass cover emulating the surrounding environment
- To obtain the necessary Mine Closure Certificates from the Department of Mineral Resources.

18.2 Socio-Economic Aspects

The specific objective related to the Socio-Economic aspects is as follows:

To contribute significantly and meaningfully towards the economic and social development of the surrounding communities within the OR Tambo District Municipality.

Specific goals include:

- To maximize the benefits to the local economy through the provision of employment opportunities and support of local service providers and suppliers wherever possible.
- To institute a training programme for all staff members in order to improve skills development in the area.
- To improve the safety aspects of the road for road users and pedestrians.
- To encourage further economic development through exploring partnerships with local individuals and groups in the establishment of further beneficiation businesses.

18.3 Archaeological, Palaeontological & Heritage Aspects

The specific objective related to the Archaeological, Palaeontological & Heritage Aspects is as follows:

"To identify, protect and preserve any sites of cultural, religious, palaeontological or archaeological significance"

Specific goals include:

- To ensure that any identified sites are properly protected in accordance to the National Heritage Resources Act.
- To ensure that any further sites that may be discovered are identified timeously and protected in accordance to the National Heritage Resources Act.

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19 Public Participation

The public participation process for the utilisation of the borrow pits identified on DR08157 was held in conjunction with the public participation process for all the other identified road sections in the area and their relevant identified borrow pits.

19.1 Advertisement

- Public participation was initiated by the placement of a Legal Notice (English and Xhosa) in the local/regional daily newspaper, The Daily Dispatch on 04 November, 2011 (Appendix B). The general pubic were given 30 days (from 04 November, 2011) to register as Interested & Affected Parties and to submit any issues / concerns they might have regarding this proposed project.
- 3 x Signboards, in English and Xhosa, were erected at strategic intersections at the beginning and end of the identified borrow pits for DR08153, DR08156 & DR08157, in order to notify the general public/community and passers-by of the proposed activity (Appendix C). The date of advertisement on the Signboard was 04 November, 2011.

19.2 Key Interested and Affected Parties

- A Letter of Notification and the Background information documents were posted via parcel mail to the legal custodian of the land, Department of Rural Development and Land Reform – OR Tambo District Manager Mr Matabese, in which the proposed borrow pits are located informing him of the proposed activity on 04 November, 2011.
- Notice of the activity and a background information document was posted via parcel mail to Mr Mr Zola Hewu, the Municipal Manager for Port St Johns Local Municipality on 04 November, 2011.
- Notice of the activity and a background information document was posted via parcel mail to Mr Ncube, the Municipal Manager for the OR Tambo District Municipality on 04 November, 2011.
- Background Information Documents were posted via registered mail to the Port St Johns Local Municipality for Cllr Mncwati, the Port St Johns Local Municipality Ward Councillor for ward number 17 (the ward in which the proposed borrow pits are located), on 04 November, 2011.
- Identified Key Interested and Affected Parties (Table 9) were either posted via parcel mail or registered mail, notification of the proposed activity and the Background Information Document for this project on 04 November, 2011.
- All email and/or hard copy correspondence received from and issued to key I & AP's is retained in Appendix D.

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Table 9: Identified Key Interested & Affected Parties.

OR Tambo – DR08156: Borrow Pits - Key I & AP's							
	Name		Tel/Fax		Mobile/Email	Postal	Comments
1	Ms Deidre Watkins	Tel:	041 396 3900	Mbl:		Department of Minerals Resources Private Bag X6076 Port Elizabeth 6000	Deputy Director : Mine Environment Management
		Fax:	041 396 3945	Eml:	Deidre.Watkins@dmr.gov.za		
2	Jimmy Calder, Phillip Wilkinson	Tel:	043 748 6246	Mbl:	082 900 0840	P O Box 2909, Beacon Bay 5205	WESSA
		Fax:		Eml:	Jimmy [jimjan@iafrica.com], phillip@wessabk.co.za		
3	Dr. Mariagrazia Galimberti	Tel:	(0)21 462 4502	Mbl:		South African Heritage Resources Agency, PO Box 4637, Cape Town 8000	APM Impact Assessor
		Fax:	(0)21 462 4509	Eml:	mgalimberti@sahra.org.za		
4	Ms Lizna Fourie	Tel:	437 010 291	Mbl:		Department of Water Affairs and Forestry PO BOX 7019, EL, 5200	Department of Water Affairs - Eastern Cape
		Fax:	043 722 6152	Eml:	FourieL4@dwa.gov.za		
5	SFISO KHOZA	Tel:	(047) 5016400	Mbl:		OR Tambo District Municipality; Private Bag X6043 Mthatha 5099	Director:Engineering
		Fax:		Eml:			
6	Ms P.A.X Dunywa	Tel:	047 501 6409	Mbl:		OR Tambo District Municipality; Private Bag X6043 Mthatha 5099	Director: Planning & Development
		Fax:		Eml:	andiswad@ortambodm.org.za		
7	Ms Mandisa Matiso	Tel:	047 501 6420	Mbl:		OR Tambo District Municipality; Private Bag X6043 Mthatha 5099	Director: Technical Services
		Fax:	047 532 2834	Eml:	mandisam@ortambodm.org.za		
8	Mr Ncube	Tel:	047 501 7000	Mbl:		OR Tambo District Municipality; Private Bag X6043 Mthatha 5099	OR Tambo: Municipal Manager
		Fax:		Eml:			
9	Mr Nick Matebese	Tel:	(047) 532-5959	Mbl:		40 Blake way street,MTHATHA, 5100; Private Bag X 5213, MTHATHA, 5100	Department of Rural Development & Land Reform: OR Tambo District Manager
		Fax:	(047) 532-5968	Eml:	NMatebese@ruraldevelopment.gov.za		
10	Mr Q. Paliso	Tel:	[047] 531 1191	Mbl:		Old Radio Transkei Building, Cnr Victoria & York Roads, Mthatha Private Bag X5029 Mthatha, 5100	DEDEA - OR Tambo Region
		Fax:	[047] 531 2887	Eml:			
11	Mr Zola Hewu	Tel:	(047) 564 1207 / 1208	Mbl:		Port St Johns Local Municipality, PO Box 2, PORT ST JOHNS, 5120	Municipal Manager - Port St Johns Local Municipality
		Fax:	(047) 564 1206	Eml:			
12	Cllr Mncwati	Tel:		Mbl:	0735287465	Port St Johns Local Municipality, PO Box 2, PORT ST JOHNS, 5120	Port St Johns Local Municipality- Ward 17 Councillor
		Fax:		Eml:			
13	Mr Tyala (Acting Municipal Manager – KSD Local Municipality)	Tel:	(047) 501 4239	Mbl:		King Sabata Dalinyebo Local Municipality, PO Box 45, MTHATHA, 5099	Registered Landowner for the Land on which 157_BP01 is located.
		Fax:	(047) 532 5198	Eml:			

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19.3 Registered Interested and Affected Parties

No Interested and Affected Parties registered in response to the notifications, advertisements or signage.

19.4 Public Draft Environmental Management Plan Report

The public draft Environmental Management Plan Report was made available to key and registered (if any) I&AP's for a 30-day commenting period, this period commenced from date of mailing/ hand delivery, 16 January 2012, and ended on 16 February 2012. All hard copy correspondence issued to I & AP's during the public draft review period is retained in Appendix D.

Table 10: Summary of comments made during the public participation.

I & AP Name	Concerns/Issues/Comments	EAP Response
SAHRA: Dr Galimberti – Part 1 – 157_BP01	• The SAHRA Archaeological, Palaeontological & Meteorite Unit supports the recommendations of the specialist authors. If the recommendations made in the specialist report (Archaeological & Palaeontological) and in SAHRA's review comment are adhered to then the the SAHRA Archaeological, Palaeontological & Meteorite Unit has no objections to the development. • If any new evidence of archaeological sites or artefacts, palaeontological fossils, graves or other heritage resources are found during development then SAHRA and a professional archaeologist must be alerted immediately.	• Recommendations are incorporated as part of this EMP and thus must be adhered to. • Comment noted.
SAHRA: Dr Galimberti – Part 2 – All identified borrow pits	• If the recommendations made in this review comment are adhered to then the SAHRA Archaeological, Palaeontological & Meteorite Unit has no objections to the development. • If any new evidence of archaeological sites or artefacts, palaeontological fossils, graves or other heritage resources are found during development then SAHRA and a professional archaeologist or palaeontologist must be alerted immediately.	• Recommendations are incorporated as part of this EMP and thus must be adhered to. All Comments have been noted.

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20 Mining Plans

Electronic Adobe PDF Version Only

DOUBLE CLICK the PAPER CLIPS here to access the Mining Plans.

157_BP01: Mining plan	

Hardcopy/Paper Version - See overleaf

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21 Specialist Report

21.1 Preliminary Materials Investigation

Electronic Adobe PDF Version Only

DOUBLE CLICK the PAPER CLIPS here to access the reports.

DR08157 - Report	
157 - BP01	

Hardcopy/Paper Version - See overleaf

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21.2 Archaeological & Palaeontological Assessments

Electronic Adobe PDF Version Only

DOUBLE CLICK the PAPER CLIPS here to access the reports.

AIA-OR Tambo BP2, EC - Archaeomaps	
PIA - OR Tambo Borrow pits - Lloyd Rossouw	

Hardcopy/Paper Version - See overleaf

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22 Appendix A: Letters of Confirmation, Retention Monies & Undertaking

Electronic Adobe PDF Version Only

DOUBLE CLICK the PAPER CLIPS here to access

Letter of Confirmation - EC Department of Roads and Public Works	
Letter for Retention Monies - EC Department of Roads and Public Works	
Letter of Undertaking - EC Department of Roads and Public Works	

Hardcopy/Paper Version - See overleaf

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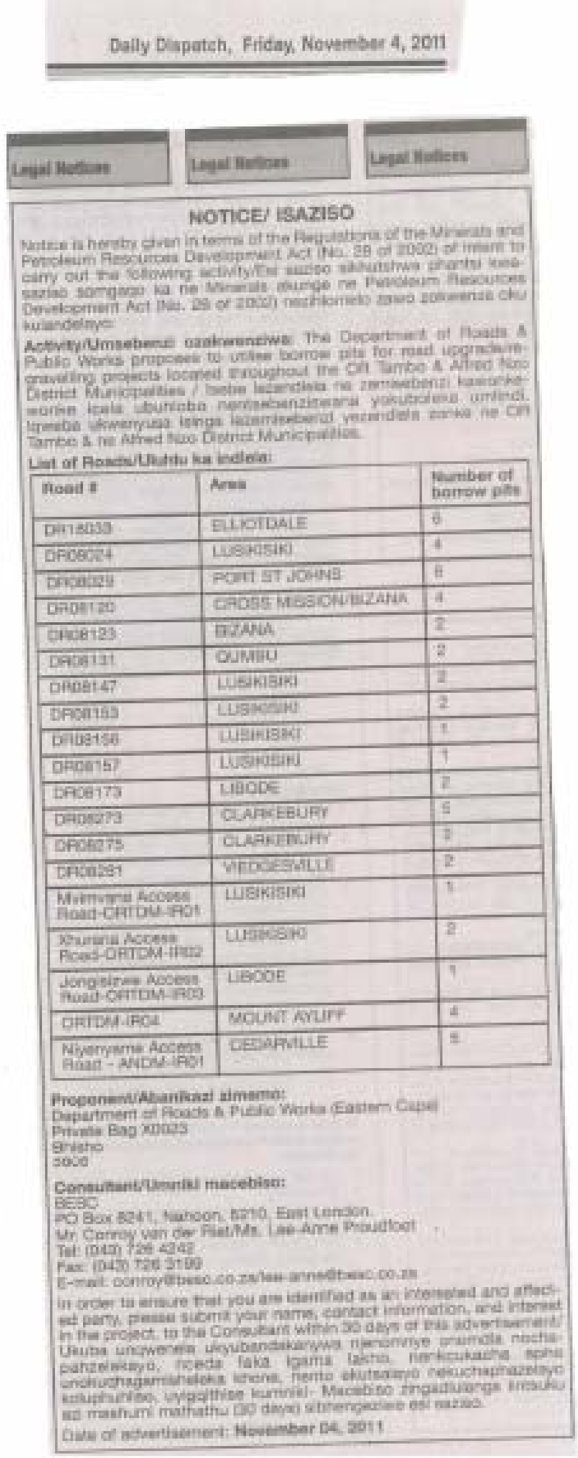
23 Appendix B: Advertisement placed in Daily Dispatch



Daily Dispatch, Friday, November 4, 2011

Legal Notices Legal Notices Legal Notices

NOTICE/ ISAZISO

Notice is hereby given in terms of the Regulations of the Minerals and Petroleum Resources Development Act (No. 28 of 2002) of intent to carry out the following activity/Esi saziso sikhutshwa phantsi kwe-saziso somgaqo ka ne Minerals ekunge ne Petroleum Resources Development Act (No. 28 of 2002) nezihlomelo zawo zokwenza oku kulandelayo:

Activity/Umsebenzi ozakwenziwa: The Department of Roads & Public Works proposes to utilise borrow pits for road upgrade/re-gravelling projects located throughout the OR Tambo & Alfred Nzo District Municipalities / Isebe lezendlela ne zemisebenzi kawonke-wonke lcala ubunobo nentsebenzisesma yokudolelo umhlaba. Igweba ukwenyusa isinga lezemisebenzi yezendlela zonke ne OR Tambo & ne Alfred Nzo District Municipalities.

List of Roads/Uluhlu lwe ndlela:

Road #	Area	Number of borrow pits
DR18033	ELLIOTDALE	6
DR08024	LUSIKISIKI	4
DR08029	PORT ST JOHNS	6
DR08120	CROSS MISSION/BIZANA	4
DR08123	BIZANA	2
DR08131	QUMBU	2
DR08147	LUSIKISIKI	2
DR08153	LUSIKISIKI	2
DR08156	LUSIKISIKI	1
DR08157	LUSIKISIKI	1
DR08173	LIBODE	2
DR08273	CLARKEBURY	5
DR08275	CLARKEBURY	3
DR08281	VIEDGESVILLE	2
Mvimvane Access Road-ORTDM-IR01	LUSIKISIKI	1
Xhurana Access Road-ORTDM-IR02	LUSIKISIKI	2
Jongisizwe Access Road-ORTDM-IR03	LIBODE	1
ORTDM-IR04	MOUNT AYLIFF	4
Niyenyeme Access Road - ANDM-IR01	CEDARVILLE	8

Proponent/Abanikazi zimemo:
Department of Roads & Public Works (Eastern Cape)
Private Bag X0023
Bhisho
5606

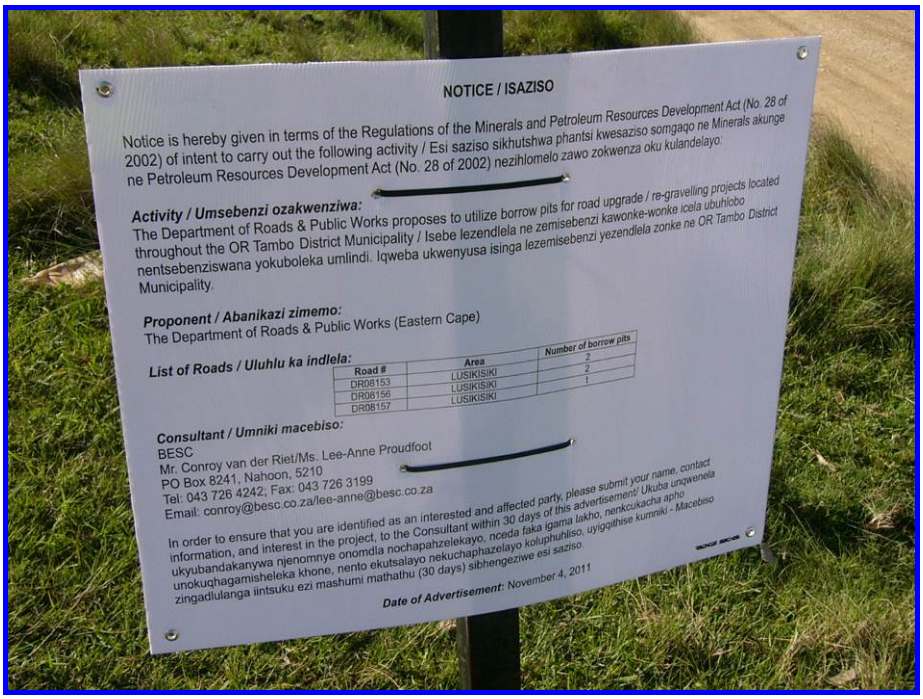
Consultant/Umnikl macebiso:
BESC
PO Box 8241, Nahoon, 5210, East London.
Mr. Conroy van der Riet/Ms. Lee-Anne Proudfoot
Tel: (043) 726 4242
Fax: (043) 726 3199
E-mail: conroy@besc.co.za/lee-anne@besc.co.za

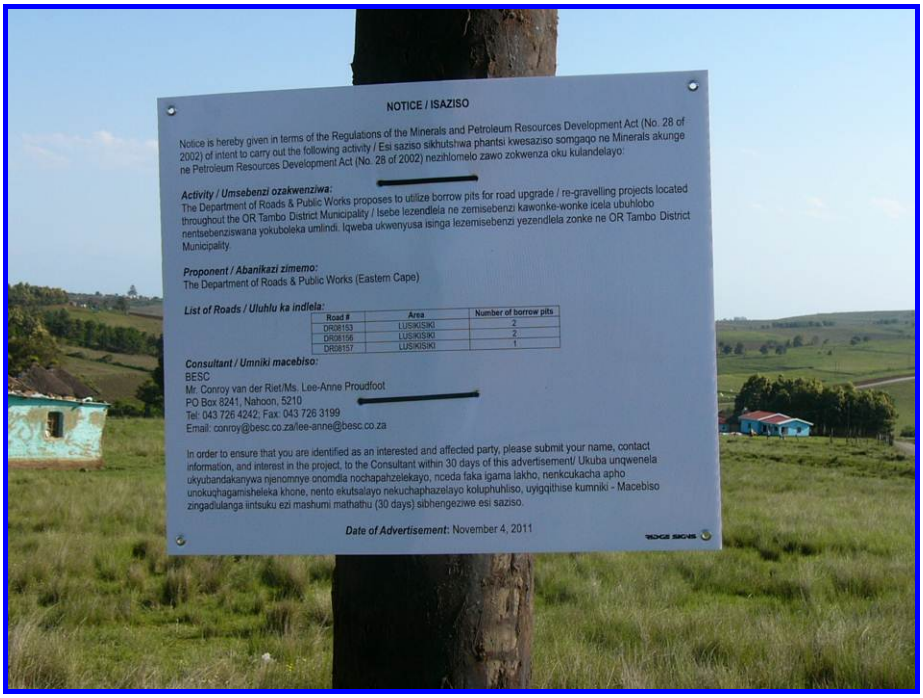
In order to ensure that you are identified as an interested and affected party, please submit your name, contact information, and interest in the project, to the Consultant within 30 days of this advertisement/ Ukuba uruqwenela ukyubandakanywa njenomnye onomdla nochaphazelekayo, nceda faka igama lakho, nenkcukacha apho onokuqhagamisheleka khona, nento ekutsalayo nekuchaphazelayo kuluphuhliso, uyiqithise kumniki- Macebiso zingadlulanga iintsuku ezi mashumi mathathu (30 days) sibhengezwe esi saziso.

Date of advertisement: **November 04, 2011**

Figure 11: Daily Dispatch Notice.

24 Appendix C: Signboard





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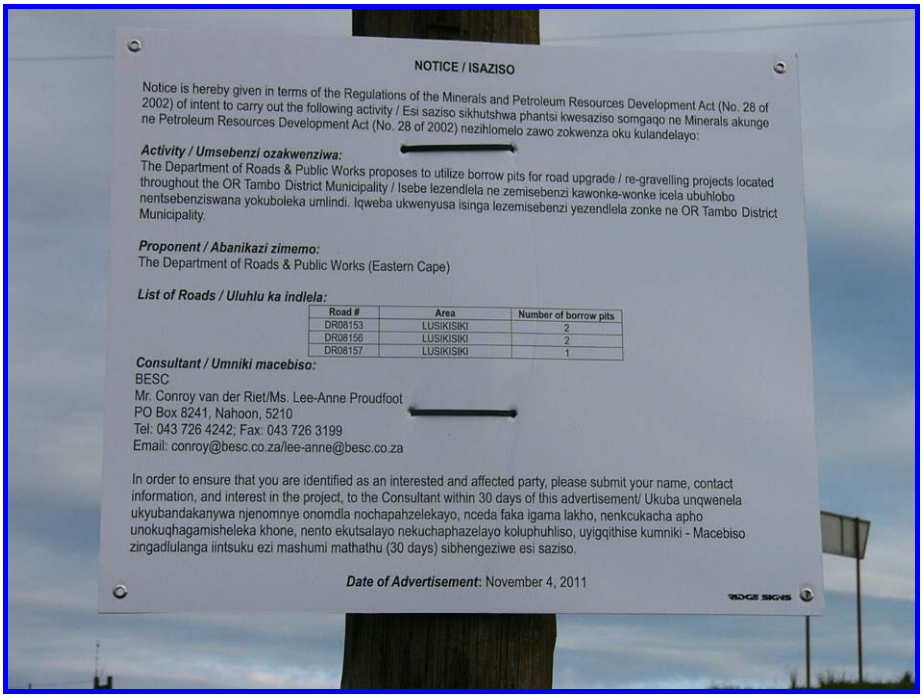

Figure 12: Image of the Signboards erected for DR08157

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25 Appendix D: Public Participation - Correspondence

25.1 Correspondence issued to and received from Key I & AP's during the Public Participation

BESC

BIOTECHNOLOGY & ENVIRONMENTAL SPECIALIST CONSULTANCY CC

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Leaders in Industrial Ecology, Environmental Impact & Site Assessments & Safety, Health & Environmental Management Systems

October 3, 2011

Ms. Deirdre Watkins
Department of Mineral Resources
Corner of Mount & Diaz Roads
Mount Croix
Port Elizabeth
6001

Dear Ms Watkins,

RE: The proposed utilisation of borrow pits for the resurfacing/regravelling/maintenance of district roads located in the OR Tambo District Municipality, Eastern Cape.

As per our correspondence dated June 28, 2011, the outstanding borrow pits that were still to be identified along fourteen of the road sections which forms part of the twenty-nine road sections identified for resurfacing/maintenance projects, have now been identified. Please see the attached table for the position of the identified borrow pits on these outstanding road sections where the borrow pits have now been identified.

As in our previous correspondence it is our intended approach to prepare an environmental management plan per district road identified in the attached table which will cover the identified borrow pits along these sections of roads. As confirmed telephonically, the Department of Roads and Public Works has received exemption from the provisions of sections 16, 20, 22 and 27 of the M&PRDA, 2002, in respect of any activity to remove any mineral for the construction and maintenance of dams, harbours, roads and railway lines and as such the utilisation of the material sources is subject to the preparation, submission and approval of an Environmental Management Plan compiled in accordance with requirements of the M&PRDA. It is the Department of Roads and Public Works preference to proceed in this manner, i.e. separate application/environmental management plan for the borrow pits identified per district road, as there is a considerable distance between the identified district roads and to circumvent any possible delays which may arise during the process and which would then result in the delay of the entire project.

Malcolme Logie

B.Sc. Hons. (Botany), M.Sc. (Botany), Ph.D. (Biotechnology), (Rhodes)
CEAP-SA; MSAIE & ES; MIAIA; *Pr.Sci.Nat.(Environ.Sci.)*
CK 95.10210/23

OR TAMBO DISTRICT DISTRICT MUNICIPALITY

No.	Road Number	Kilometers	LMA	Comments / Priority	Start co-ordinates		End co-ordinates	
					E	S	E	S
1	DR08120	52.69	Bizana	1	29° 50' 27"	30° 52' 8"	29° 40' 53"	31° 9' 16"
2	DR08033	31.82	KSD	2	28° 33' 40"	31° 30' 4"	28° 22' 21"	31° 38' 10"
3	DR08212	18.88	KSD	2	28° 47' 4"	31° 31' 27"	28° 48' 28"	31° 29' 28"
4	DR08273	20.1	KSD	4	28° 27' 51"	31° 44' 1"	28° 16' 2"	31° 47' 6"
5	DR08276	19.28	KSD	4	28° 20' 41"	31° 53' 6"	28° 24' 52"	31° 47' 12"
6	DR08281	17.5	KSD	1	28° 40' 17"	31° 44' 24"	28° 30' 58"	31° 45' 12"
7	DR08290	11.54	KSD	2	28° 41' 36"	31° 43' 11"	28° 40' 45"	31° 49' 5"
8	DR18055	68.72	KSD		28° 35' 40"	31° 50' 5"	28° 54' 58"	32° 14' 10"
9	DR08029	63.08	Libode	2	29° 4' 15"	31° 33' 23"	29° 22' 43"	31° 37' 39"
10	DR08157	38.12	Libode	1	29° 13' 20"	31° 19' 4"	29° 20' 57"	31° 26' 18"
11	DR08181	11.13	Mhlontlo		28° 42' 44"	31° 1' 28"	28° 47' 1"	30° 57' 48"
12	DR08019	61.85	Ntabankulu	2	29° 17' 36"	31° 9' 3"	29° 18' 5"	30° 58' 6"
13	DR08313	45.39	Nyandeni		28° 55' 56"	31° 36' 45"	29° 10' 11"	31° 53' 52"
14	DR08173	15.5	Nyandeni / PSJ	3	28° 54' 17"	31° 25' 6"	28° 59' 57"	31° 22' 14"
15	DR08174	24.26	Nyandeni / PSJ	2	28° 51' 40"	31° 28' 60"	29° 2' 48"	31° 26' 19"
16	DR08191	44.68	Nyandeni / PSJ	2	29° 16' 53"	31° 56' 21"	29° 13' 54"	31° 33' 22"
17	DR08308	33.52	Nyandeni / PSJ	1	29° 10' 57"	31° 40' 39"	29° 12' 41"	31° 53' 5"
18	DR08309	4.4	Nyandeni / PSJ	1	29° 15' 35"	31° 49' 8"	29° 18' 6"	31° 49' 32"
19	DR18080	81.83	Nyandeni / PSJ	2	29° 2' 18"	31° 40' 12"	29° 11' 57"	31° 56' 44"
20	DR08151	23.74	PSJ		29° 32' 12"	31° 27' 10"	29° 41' 0"	31° 31' 26"
21	DR08153	47.75	PSJ		29° 32' 5"	31° 20' 15"	29° 14' 32"	31° 32' 0"
22	DR08156	56.74	PSJ		29° 33' 31"	31° 18' 18"	29° 18' 30"	31° 23' 16"
23	DR08158	22.22	PSJ		29° 15' 14"	31° 24' 51"	29° 29' 55"	31° 25' 12"
24	DR08026	44.62	Qaukeni	1	29° 34' 35"	31° 22' 38"	29° 57' 44"	31° 18' 37"
25	DR08025	34.08	Qaukeni	1	29° 34' 0"	31° 21' 31"	29° 38' 39"	31° 8' 28"
26	DR18023	43.83	Qaukeni	2	29° 40' 57"	31° 10' 4"	29° 57' 40"	31° 10' 16"
27	DR08123	21.18	Qaukeni		29° 19' 40"	30° 54' 44"	29° 41' 59"	31° 4' 33"
28	DR08124	12.16	Qaukeni		29° 32' 53"	30° 57' 18"	29° 36' 20"	31° 5' 39"
29	DR08147	14.64	Qaukeni	2				

As the SAMRAD Online System is currently experiencing problems, and we are unable to access this information, please could you assist me in determining if any of these identified borrow pits have already been previously permitted. We have highlighted on the attached excel spreadsheet borrow pits that were identified previously as being permitted.

In addition, as per our previous approach for the other thirteen road sections and borrow pits already identified in the OR Tambo Region, we would like to continue with the following approach we have already initiated for public participation in respect of the previous 13 road sections:

- Legal Notice in the respective newspaper.
- As the number of borrow pits are high, to place signboards at each particular borrow pit seems impractical, therefore we propose to group road sections and place signboards at main intersections/entrances of roads to be regravelled.
- Notifying the Relevant Municipal and Government Departments
- Notifying the Department of Rural Development as the custodian of the rural land
- Notifying the Municipal Ward Councilors
- Where applicable notify Relevant Landowners of Private Land

Please would you confirm if this would suffice, as has previously been indicated by yourselves.

Your assistance in the above regard will be much appreciated. Please feel free to contact me directly for any further queries.

Yours Sincerely
Lee-Anne Proudfoot
(Pr.Sci.Nat – Environmental Scientist)
Senior Environmental Consultant
Mobile: +27 83 421 3991
Email: lee-anne@besc.co.za

Rd_Nr_	No_	Longitude (l)	Latitude (l)	Area	Municipality	Ward
DR18033	18033_BP01	28°36'15.6" E	31°51'50.3" S	Elliotdale	KSD LM	19
DR18033	18033_BP02	28°39'48.2" E	31°58'39.2" S	Elliotdale	Mbashe LM	13
DR18033	18033_BP08	28°52'24.2" E	32°11'56.1" S	Elliotdale	Mbashe LM	20
DR18033	18033_BP01N	28°47'50.1" E	32°03'14.7" S	Elliotdale	Mbashe LM	15
DR18033	18033_BP02N	28°39'53.8" E	31°58'46.6" S	Elliotdale	KSD LM	21
DR18033	18033_BP03N	28°52'23.9" E	32°11'43.0" S	Elliotdale	Mbashe LM	20
DR08024	024_BP01	29°44'45.2" E	31°20'30.7" S	Lusikisiki	Ingquza Hill LM	24
DR08024	024_BP01N	29°45'27.9" E	31°20'21.9" S	Lusikisiki	Ingquza Hill LM	23
DR08024	024_BP02N	29°47'12.3" E	31°19'29.9" S	Lusikisiki	Ingquza Hill LM	23
DR08024	024_BP02N	29°45'16.4"E	31°20'01.5" S	Lusikisiki	Ingquza Hill LM	24
DR08029	029_BP01	29°22'55.2" E	31°41'06.7" S	Port St Johns	Port St Johns LM	3
DR08029	029_BP01N	29°16'19.9" E	31°43'22.0" S	Port St Johns	Port St Johns LM	1
DR08029	029_BP02N	29°18'11.2" E	31°45'10.1" S	Port St Johns	Port St Johns LM	1
DR08029	029_BP03N	29°18'13.8" E	31°45'18.3" S	Port St Johns	Port St Johns LM	1
DR08029	029_BP04N	29°21'39.1" E	31°44'02.8" S	Port St Johns	Port St Johns LM	2
DR08029	029_BP05N	29°21'54.1" E	31°42'59.6" S	Port St Johns	Port St Johns LM	2
DR08120	120_BP01	29°45'24.6" E	31°03'16.7" S	Bizana	Mbizana LM	15
DR08120	120_BP02	29°43'43.1" E	31°10'12.9" S	Bizana	Ingquza Hill LM	28
DR08120	120_BP01N	29°49'33.9" E	30°54'28.1" S	Bizana	Mbizana LM	13
DR08120	120_BP02N	29°49'34.7" E	30°54'10.5" S	Bizana	Mbizana LM	13
DR08123	123_BP01	29°40'23.4" E	30°58'38.3" S	Bizana	Mbizana LM	11
DR08123	123_BP01N	29°40'12.2" E	30°58'32.8" S	Bizana	Mbizana LM	10
DR08131	131_BP01	28°44'06.3" E	30°59'41.9" S	Qumbu	Mhlontlo LM	21
DR08131	131_BP01N	28°45'25.6" E	30°58'24.3" S	Qumbu	Mhlontlo LM	19
DR08153	153_BP02	29°20'13.6" E	31°17'16.9" S	Lusikisiki	Ingquza Hill LM	2
DR08153	153_BP01N	29°30'7.5" E	31°20'21.8" S	Lusikisiki	Ingquza Hill LM	17
DR08156	156_BP02	29°23'06.4" E	31°19'24.1" S	Lusikisiki	Ingquza Hill LM	2
DR08156	156_BP01N	29°23'8.8" E	31°19'22.5" S	Lusikisiki	Ingquza Hill LM	2
DR08157	157_BP01	29°22'53.9" E	31°25'08.7" S	Holy Cross Mission	Port St Johns LM	17
DR08173	173_BP01	28°58'51.4" E	31°24'27.2" S	Libode	Nyandeni LM	3
DR08173	173_BP02	28°59'04.9" E	31°22'51.7" S	Libode	Nyandeni LM	3
DR08273	273_BP02	28°17'58.6" E	31°48'20.6" S	Clarkebury	Engcobo LM	16
DR08273	273_BP01N	28°26'23.4" E	31°46'39.1" S	Clarkebury	KSD LM	18
DR08273	273_BP02N	28°24'20.8" E	31°48'07.6" S	Clarkebury	KSD LM	18
DR08273	273_BP03N	28°17'38.6" E	31°48'20.0" S	Clarkebury	Engcobo LM	16
DR08273	273_BP04N	28°16'16.2" E	31°47'06.7" S	Clarkebury	Engcobo LM	16
DR08275	275_BP02	28°25'50.2" E	31°47'55.6" S	Clarkebury	KSD LM	18
DR08275	275_BP01N	28°27'14.1" E	31°53'2.2" S	Clarkebury	KSD LM	20
DR08281	281_BP01	28°39'08.6" E	31°44'05.3" S	Payne	KSD LM	32
DR08281	281_BP02	28°31'08.4" E	31°44'18.9" S	Payne	KSD LM	31

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Leaders in Industrial Ecology, Environmental Impact & Site Assessments & Safety, Health & Environmental Management Systems

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DR08147	147_BP01	29°46'01.9" E	31°20'23.6" S	Lusikisiki	Ingquza Hill LM	23
DR08147	147_BP02	29°47'40.5" E	31°20'56.7" S	Lusikisiki	Ingquza Hill LM	23

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Lee-Anne Proudfoot

From: Lee-Anne Proudfoot <lee-anne@besc.co.za>
Sent: 03 October 2011 09:36 AM
To: Deidre Watkins (Deidre.Watkins@dmr.gov.za)
Cc: 'Siyanda Lurwenga'
Subject: FW: Proposed utilisation of borrow pits - OR Tambo Region
Attachments: DMR-10_2011.pdf; Second Phase - OR Tambo - DMR.xls

Dear Deidre,

Please find attached correspondence regarding the preparation of Environmental Management Plans for the utilisation of the outstanding road sections and borrow pits located in the OR Tambo District which have now been identified – the applicant is the Department of Roads and Public Works. Previous correspondence regarding the above has been forwarded to the Department.

Dear Siyanda
As the SAMRAD Online System is experiencing problems and we are unable to access this information, please could you assist me again in determining if any of these identified borrow pits have already been previously permitted, please see the attached excel spread sheet. I have also included on the excel spread sheet the borrow pits that you identified previously as being permitted – borrow pits you previously looked at on the system have been highlighted in green in order to prevent you from looking at the same borrow pit again, please could you look at the non-highlighted borrow pits as these are the newly identified borrow pits.

Should you have any queries, please do not hesitate to contact me.

Kind Regards

Lee-Anne
Ms Lee-Anne Proudfoot
Environmental Consultant
Biotechnology & Environmental Specialist Consultancy cc
PO Box 8241, Nahoon, 5210, East London, South Africa
9 Douglas Road, Vincent, 5247, East London, South Africa
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Office Fax: +27 43 726 3199
Office Email: info@besc.co.za
Web: http://www.besc.co.za

Lee-Anne Proudfoot

From: Deidre Watkins <Deidre.Watkins@dmr.gov.za>
Sent: 11 October 2011 10:20 AM
To: Lee-Anne Proudfoot
Subject: RE: Proposed utilisation of borrow pits - OR Tambo Region

Hi Lee-Anne,
Yes thanks, I received your email. I presume Siyanda is checking the coordinates.
Best regards,
Deidre

BESC

BIOTECHNOLOGY & ENVIRONMENTAL SPECIALIST CONSULTANCY CC

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Leaders in Industrial Ecology, Environmental Impact & Site Assessments
& Safety, Health & Environmental Management Systems

November 3, 2011

Ms. Deidre Watkins
Deputy Director: Mine Environment Management
Department of Minerals and Energy
C/o of Mount & Diaz Roads
Mount Croix
Port Elizabeth
6001
Tel: (041) 3963934
Fax: 086 576 8004

RE: Background Information Documents for the utilisation of borrow pits in the OR Tambo District Municipality & Alfred Nzo District Municipality, Eastern Cape.

As per previous correspondence, the Department of Roads & Public works proposes to utilize borrow pits for road maintenance/re-gravelling projects located throughout the OR Tambo District Municipality & Alfred Nzo District Municipality. BESC have been appointed to compile the Environmental Management Plans for these borrow pits.

The permitting of the materials sources required for the project will be undertaken in accordance with the Minerals and Petroleum Resources Development Act (M&PRDA) (No. 28 of 2002). As previously confirmed, since the proponent, Department of Roads and Public Works, has been exempted in terms of the provisions of the M & PRDA Environmental Management Plans will be compiled for submission and approval from the DMR for the utilisation of the identified borrow pits, per the 29 roads sections.

Accompanying this letter for your records is a CD containing the Background Information Document(s) (BID'(s)) for the road sections where all the borrow pits to be utilised have been identified, which are to be distributed during the public participation process. Please refer to the attached table for the borrow pits and road sections. As the other borrow pits on the remaining road sections become identified, these will be forwarded to the department.

Please feel free to contact BESC if you have any further queries.

Yours Sincerely
Lee-Anne Proudfoot
(Pr.Sci.Nat – Environmental Scientist)
Senior Environmental Consultant
Mobile: +27 83 421 3991

Page 1 of 3

Malcolme Logie

B.Sc. Hons. (Botany), M.Sc. (Botany), Ph.D. (Biotechnology), (Rhodes)
CEAP-SA; MSAIE & ES; MIAIA; *Pr.Sci.Nat.(Environ.Sci.)*
CK 95.10210/23

Email: lee-anne@besc.co.za
Mr. Conroy van der Riet
(Pr.Sci.Nat. - Environmental Scientist)
Senior Environmental Consultant
Mobile: 083 993 1243
Email:conroy@besc.co.za

Road #	Borrow pit #	Latitude	Longitude	Local Municipality	Ward	Farm #/ Allotment Name
Mvimvana Access Road-ORTDM-IR01	ORTDM-IR01_BP01	31°15'48.65"	29°33'20.67"	INGQUZA HILL	18_12	FARM 19
Xhurana Access Road-ORTDM-IR02	ORTDM-IR02_BP01	31°16'25.30"	29°29'13.40"	INGQUZA HILL	13	FARM 115
Xhurana Access Road-ORTDM-IR02	ORTDM-IR02_BP02	31°15'37.20"	29°29'7.10"	INGQUZA HILL	13	FARM 115
Jongisizwe Access Road-ORTDM-IR03	ORTDM-IR03_BP01	31°21'24.30"	29° 6'8.50"	NYANDENI	5	FARM RE/36
ORTDM-IR04	ORTDM-IR04_BP01	30°46'12.74"	29°31'38.73"	NTABANKULU	18	MBONGWENI LOC 7
ORTDM-IR04	ORTDM-IR04_BP02	30°46'23.30"	29°30'38.70"	NTABANKULU	18	MBONGWENI LOC 7
ORTDM-IR04	ORTDM-IR04_BP03	30°46'32.19"	29°29'41.31"	NTABANKULU	17	MBONGWENI LOC 7
ORTDM-IR04	ORTDM-IR04_BP04	30°46'48.00"	29°29'34.40"	NTABANKULU	17	MBONGWENI LOC 7
DR18033	18033_BP01	31°51'50.3" S	28°36'15.6" E	KSD	19	Sitebe
DR18033	18033_BP02	31°58'39.2" S	28°39'48.2" E	MBASHE	13	Elliotdale
DR18033	18033_BP08	32°11'56.1" S	28°52'24.2" E	MBASHE	20	RE/29
DR18033	18033_BP01N	32°03'14.7" S	28°47'50.1" E	MBASHE	15	RE/63
DR18033	18033_BP02N	31°58'46.6" S	28°39'53.8" E	KSD	21	Farm 76
DR18033	18033_BP03N	32°11'43.0" S	28°52'23.9" E	MBASHE	20	RE/29
DR08024	024_BP01	31°20'30.7" S	29°44'45.2" E	INQGUZA HILL	24	3/89
DR08024	024_BP01N	31°20'21.9" S	29°45'27.9" E	INQGUZA HILL	23	3/89
DR08024	024_BP02N	31°19'29.9" S	29°47'12.3" E	INQGUZA HILL	23	3/89
DR08024	024_BP02N	31°20'01.5" S	29°45'16.4"E	INQGUZA HILL	24	3/89
DR08029	029_BP01	31°41'06.7" S	29°22'55.2" E	PORT ST JOHN5	3	Farm 43
DR08029	029_BP01N	31°43'22.0" S	29°16'19.9" E	PORT ST JOHN5	1	RE/45
DR08029	029_BP02N	31°45'10.1" S	29°18'11.2" E	PORT ST JOHN5	1	RE/45
DR08029	029_BP03N	31°45'18.3" S	29°18'13.8" E	PORT ST JOHN5	1	RE/45
DR08029	029_BP04N	31°44'02.8" S	29°21'39.1" E	PORT ST JOHN5	2	Farm 43
DR08029	029_BP05N	31°42'59.6" S	29°21'54.1" E	PORT ST JOHN5	2	Farm 43
DR08120	120_BP01	31°03'16.7" S	29°45'24.6" E	MBIZANA	15	RE/54
DR08120	120_BP02	31°10'12.9" S	29°43'43.1" E	INGQUZA HILL	26	RE/85
DR08120	120_BP01N	30°54'28.1" S	29°49'33.9" E	MBIZANA	13	RE/51
DR08120	120_BP02N	30°54'10.5" S	29°49'34.7" E	MBIZANA	13	RE/51
DR08123	123_BP01	30°58'38.3" S	29°40'23.4" E	MBIZANA	11	RE/49
DR08123	123_BP01N	30°58'32.8" S	29°40'12.2" E	MBIZANA	10	RE/49

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DR08131	131_BP01	30°59'41.9" S	28°44'06.3" E	MHLONTLO	21	Tina LOC 20
DR08131	131_BP01N	30°58'24.3" S	28°45'25.6" E	MHLONTLO	19	Tina LOC 20
DR08153	153_BP02	31°17'16.9" S	29°20'13.6" E	INQGUZA HILL	2	RE/108
DR08153	153_BP01N	31°20'21.8" S	29°30'7.5" E	INQGUZA HILL	17	Farm 116
DR08156	156_BP02	31°19'24.1" S	29°23'06.4" E	INQGUZA HILL	2	RE/128
DR08156	156_BP01N	31°19'22.5" S	29°23'8.8" E	INQGUZA HILL	2	
DR08157	157_BP01	31°25'08.7" S	29°22'53.9" E	PORT ST JOHNS	17	RE/112
DR08173	173_BP01	31°24'27.2" S	28°58'51.4" E	NYANDENI	3	RE/35
DR08173	173_BP02	31°22'51.7" S	28°59'04.9" E	NYANDENI	3	RE/56
DR08273	273_BP02	31°48'20.6" S	28°17'58.6" E	ENGCOBO	16	Clarkebury
DR08273	273_BP01N	31°45'39.1" S	28°26'23.4" E	KSD	18	Mqekezweni
DR08273	273_BP02N	31°48'07.6" S	28°24'20.8" E	KSD	18	Rune
DR08273	273_BP03N	31°48'20.0" S	28°17'38.6" E	ENGCOBO	16	Clarkebury
DR08273	273_BP04N	31°47'06.7" S	28°16'16.2" E	ENGCOBO	16	Clarkebury
DR08275	275_BP02	31°47'55.6" S	28°25'50.2" E	KSD	18	Mqekezweni
DR08275	275_BP01N	31°53'2.2" S	28°27'14.1" E	KSD	20	Mntentu
DR08281	281_BP01	31°44'05.3" S	28°39'08.6" E	KSD	32	Xwili
DR08281	281_BP02	31°44'18.9" S	28°31'08.4" E	KSD	31	Mqekezweni
DR08147	147_BP01	31°20'23.6" S	29°46'01.9" E	INQGUZA HILL	23	RE/89
DR08147	147_BP02	31°20'56.7" S	29°47'40.5" E	INQGUZA HILL	23	RE/89
Niyenyame Access Road - ANDM-IR01	ANDM-IR01_BP01	30°25'54.90"	29° 3'30.80"	MATATIELE	26	RE/196
Niyenyame Access Road - ANDM-IR01	ANDM-IR01_BP02	30°32'0.86"	29° 4'3.37"	MATATIELE	21	RE/21
Niyenyame Access Road - ANDM-IR01	ANDM-IR01_BP03	30°34'28.50"	29° 3'20.80"	MATATIELE	21	RE/21
Niyenyame Access Road - ANDM-IR01	ANDM-IR01_BP04	30°33'39.60"	29° 2'14.20"	MATATIELE	21	RE/21
Niyenyame Access Road - ANDM-IR01	ANDM-IR01_BP05	30°33'16.06"	29° 1'26.59"	MATATIELE	21	RE/21

Page 3 of 3

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Leaders in Industrial Ecology, Environmental Impact & Site Assessments
& Safety, Health & Environmental Management Systems

November 3, 2011

Attention: Mr. N. Matebese
Regional Manager – OR Tambo District
Department of Rural Development & Land Reform
Private Bag X 5213,
MTHATHA,
5100

Tel: (047) 532-5959
Fax: (047) 532-5968

RE: Notification of the compilation of Environmental Management Plans for the utilisation of borrow pits in the OR Tambo & Alfred Nzo District Municipalities, Eastern Cape.

As per previous correspondence, notice is hereby given in terms of the Regulations of the Minerals and Petroleum Resources Development Act (No. 28 of 2002) of the intent to carry out the following activity:

The Department of Roads & Public works proposes to utilize borrow pits for road maintenance/re-gravelling projects located throughout the OR Tambo District Municipality and in the Alfred Nzo District Municipality. The permitting of the materials sources required for the project will be undertaken in accordance with the Minerals and Petroleum Resources Development Act (M&PRDA) (No. 28 of 2002). The Department of Roads & Public Works have been exempted from provisions in terms of Section 106(1) of the M&PRDA, and thus exploration of any materials sources would be subject to the preparation, submission and approval of an Environmental Management Plan compiled in accordance with Section 39(1) of the M&PRDA and Regulation 52 of the M&PRDA regulations. BESC have been appointed to compile the Environmental Management Plans for these borrow pits.

A number of these borrow pits are located on rural/communal land or state owned land. The purpose of this letter is to notify and inform you, the custodian/landowner of all rural / communal land and the identified state owned land of the proposed utilisation of these borrow pits.

You have been identified as a Key Interested & Affected Parties (I&AP's). Accompanying this letter is a CD containing the Background Information Document(s) (BID'(s)) pertaining to the remaining thirteen of the road sections identified along which borrow pits are located. Please refer to attached table for the borrow pits and the road sections which pertain to the BID's on the accompanying CD.

Please feel free to contact BESC if you have any further queries.

Malcolme Logie

B.Sc. Hons. (Botany), M.Sc. (Botany), Ph.D. (Biotechnology), (Rhodes)
CEAP-SA; MSAIE & ES; MIAIA; *Pr.Sci.Nat.(Environ.Sci.)*
CK 95.10210/23

Yours Sincerely
Lee-Anne Proudfoot
(Pr.Sci.Nat – Environmental Scientist)
Senior Environmental Consultant
Mobile: +27 83 421 3991
Email: lee-anne@besc.co.za

Mr. Conroy van der Riet
(Cand. Sci. Nat. - Environmental Scientist)
Senior Environmental Consultant
Mobile: 083 993 1243
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E-mail: info@besc.co.za; Website: http://www.besc.co.za

Road #	Borrow pit #	Latitude	Longitude	Local Municipality	Ward	Farm # Allotment Name
Mvimvana Access Road-ORTDM-IR01	ORTDM-IR01_BP01	31°15'48.65"	29°33'20.67"	INGQUZA HILL	18_12	FARM 19
Xhurana Access Road-ORTDM-IR02	ORTDM-IR02_BP01	31°16'25.30"	29°29'13.40"	INGQUZA HILL	13	FARM 115
Xhurana Access Road-ORTDM-IR02	ORTDM-IR02_BP02	31°15'37.20"	29°29'7.10"	INGQUZA HILL	13	FARM 115
Jongisizwe Access Road-ORTDM-IR03	ORTDM-IR03_BP01	31°21'24.30"	29° 6'8.50"	NYANDENI	5	FARM RE/36
ORTDM-IR04	ORTDM-IR04_BP01	30°46'12.74"	29°31'38.73"	NTABANKULU	18	MBONGWENI LOC 7
ORTDM-IR04	ORTDM-IR04_BP02	30°46'23.30"	29°30'38.70"	NTABANKULU	18	MBONGWENI LOC 7
ORTDM-IR04	ORTDM-IR04_BP03	30°46'32.19"	29°29'41.31"	NTABANKULU	17	MBONGWENI LOC 7
ORTDM-IR04	ORTDM-IR04_BP04	30°46'48.00"	29°29'34.40"	NTABANKULU	17	MBONGWENI LOC 7
DR18033	18033_BP01	31°51'50.3" S	28°36'15.6" E	KSD	19	Sitebe
DR18033	18033_BP02	31°58'39.2" S	28°39'48.2" E	MBASHE	13	Elliotdale
DR18033	18033_BP08	32°11'56.1" S	28°52'24.2" E	MBASHE	20	RE/29
DR18033	18033_BP01N	32°03'14.7" S	28°47'50.1" E	MBASHE	15	RE/63
DR18033	18033_BP02N	31°58'46.6" S	28°39'53.8" E	KSD	21	Farm 76
DR18033	18033_BP03N	32°11'43.0" S	28°52'23.9" E	MBASHE	20	RE/29
DR08024	024_BP01	31°20'30.7" S	29°44'45.2" E	INQGUZA HILL	24	3/89
DR08024	024_BP01N	31°20'21.9" S	29°45'27.9" E	INQGUZA HILL	23	3/89
DR08024	024_BP02N	31°19'29.9" S	29°47'12.3" E	INQGUZA HILL	23	3/89
DR08024	024_BP02N	31°20'01.5" S	29°45'16.4"E	INQGUZA HILL	24	3/89
DR08029	029_BP01	31°41'06.7" S	29°22'55.2" E	PORT ST JOHNS	3	Farm 43
DR08029	029_BP01N	31°43'22.0" S	29°16'19.9" E	PORT ST JOHNS	1	RE/45
DR08029	029_BP02N	31°45'10.1" S	29°18'11.2" E	PORT ST JOHNS	1	RE/45
DR08029	029_BP03N	31°45'18.3" S	29°18'13.8" E	PORT ST JOHNS	1	RE/45
DR08029	029_BP04N	31°44'02.8" S	29°21'39.1" E	PORT ST JOHNS	2	Farm 43
DR08029	029_BP05N	31°42'59.6" S	29°21'54.1" E	PORT ST JOHNS	2	Farm 43
DR08120	120_BP01	31°03'16.7" S	29°45'24.6" E	MBIZANA	15	RE/54
DR08120	120_BP02	31°10'12.9" S	29°43'43.1" E	INGQUZA HILL	28	RE/85
DR08120	120_BP01N	30°54'28.1" S	29°49'33.9" E	MBIZANA	13	RE/51
DR08120	120_BP02N	30°54'10.5" S	29°49'34.7" E	MBIZANA	13	RE/51
DR08123	123_BP01	30°58'38.3" S	29°40'23.4" E	MBIZANA	11	RE/49
DR08123	123_BP01N	30°58'32.8" S	29°40'12.2" E	MBIZANA	10	RE/49
DR08131	131_BP01	30°59'41.9" S	28°44'06.3" E	MHLONTLO	21	Tina LOC 20
DR08131	131_BP01N	30°58'24.3" S	28°45'25.6" E	MHLONTLO	19	Tina LOC 20
DR08153	153_BP02	31°17'16.9" S	29°20'13.6" E	INQGUZA HILL	2	RE/108
DR08153	153_BP01N	31°20'21.8" S	29°30'7.5" E	INQGUZA HILL	17	Farm 116
DR08156	156_BP02	31°19'24.1" S	29°23'06.4" E	INQGUZA HILL	2	RE/128

Leaders in Industrial Ecology, Environmental Impact & Site Assessments & Safety, Health & Environmental Management Systems

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E-mail: info@besc.co.za; Website: http://www.besc.co.za

DR08156	156_BP01N	31°19'22.5" S	29°23'8.8" E	INQGUZA HILL	2	
DR08157	157_BP01	31°25'08.7" S	29°22'53.9" E	PORT ST JOHNS	17	RE/112
DR08173	173_BP01	31°24'27.2" S	28°58'51.4" E	NYANDENI	3	RE/35
DR08173	173_BP02	31°22'51.7" S	28°59'04.9" E	NYANDENI	3	RE/56
DR08273	273_BP02	31°48'20.6" S	28°17'58.6" E	ENGCOBO	16	Clarkebury
DR08273	273_BP01N	31°46'39.1" S	28°26'23.4" E	KSD	18	Mqekezweni
DR08273	273_BP02N	31°48'07.6" S	28°24'20.8" E	KSD	18	Rune
DR08273	273_BP03N	31°48'20.0" S	28°17'38.6" E	ENGCOBO	16	Clarkebury
DR08273	273_BP04N	31°47'06.7" S	28°16'16.2" E	ENGCOBO	16	Clarkebury
DR08275	275_BP02	31°47'55.6" S	28°25'50.2" E	KSD	18	Mqekezweni
DR08275	275_BP01N	31°53'2.2" S	28°27'14.1" E	KSD	20	Mntentu
DR08281	281_BP01	31°44'05.3" S	28°39'08.6" E	KSD	32	Xwili
DR08281	281_BP02	31°44'18.9" S	28°31'08.4" E	KSD	31	Mqekezweni
DR08147	147_BP01	31°20'23.6" S	29°46'01.9" E	INQGUZA HILL	23	RE/89
DR08147	147_BP02	31°20'56.7" S	29°47'40.5" E	INQGUZA HILL	23	RE/89
Niyenyame Access Road - ANDM-IR01	ANDM-IR01_BP01	30°25'54.90"	29° 3'30.80"	MATATIELE	26	RE/196
Niyenyame Access Road - ANDM-IR01	ANDM-IR01_BP02	30°32'0.86"	29° 4'3.37"	MATATIELE	21	RE/21
Niyenyame Access Road - ANDM-IR01	ANDM-IR01_BP03	30°34'28.50"	29° 3'20.80"	MATATIELE	21	RE/21
Niyenyame Access Road - ANDM-IR01	ANDM-IR01_BP04	30°33'39.60"	29° 2'14.20"	MATATIELE	21	RE/21
Niyenyame Access Road - ANDM-IR01	ANDM-IR01_BP05	30°33'16.06"	29° 1'26.59"	MATATIELE	21	RE/21

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BESC

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Leaders in Industrial Ecology, Environmental Impact & Site Assessments
& Safety, Health & Environmental Management Systems

November 3, 2011

Attention: Mr Q. Paliso
Regional Manager: DEDEA – OR Tambo Region
Old Radio Transkei Building,
Cnr Victoria & York Roads,
Private Bag X5029
Mthatha,
5100

RE: Notification of the compilation of Environmental Management Plans for the utilisation of borrow pits in the OR Tambo District Municipality, Eastern Cape.

As per previous correspondence, notice is hereby given in terms of the Regulations of the Minerals and Petroleum Resources Development Act (No. 28 of 2002) of the intent to carry out the following activity:

The Department of Roads & Public works proposes to utilize borrow pits for road maintenance/re-gravelling projects located throughout the OR Tambo District Municipality. BESC have been appointed to compile the Environmental Management Plans for these borrow pits.

Please note that in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998): Listing Notices 1, 2 & 3 (GN 544, GN 545 & GN546, 2010), no listed activities will be triggered by the above mentioned utilisation of the identified borrow pits.

You have been identified as a Key Interested & Affected Parties (I&AP's). Accompanying this letter is a CD containing the Background Information Document(s) (BID'(s)) pertaining to remaining of the road sections identified along which borrow pits are located. Please refer to attached table for the borrow pits and the road sections which pertain to the BID's on the accompanying CD.

Please feel free to contact BESC if you have any further queries.

Yours Sincerely
Lee-Anne Proudfoot
(Pr.Sci.Nat – Environmental Scientist)
Senior Environmental Consultant
Mobile: +27 83 421 3991
Email: lee-anne@besc.co.za

Page 1 of 3

Malcolme Logie

B.Sc. Hons. (Botany), M.Sc. (Botany), Ph.D. (Biotechnology), (Rhodes)
CEAP-SA; MSAIE & ES; MIAIA; *Pr.Sci.Nat.(Environ.Sci.)*
CK 95.10210/23

Mr. Conroy van der Riet
(Pr.Sci.Nat - Environmental Scientist)
Senior Environmental Consultant
Mobile: 083 993 1243
Email:conroy@besc.co.za

Road #	Borrow pit #	Latitude	Longitude	Local Municipality	Ward	Farm #/ Allotment Name
Mvimvana Access Road-ORTDM-IR01	ORTDM-IR01_BP01	31°15'48.65"	29°33'20.67"	INGQUZA HILL	18_12	FARM 19
Xhurana Access Road-ORTDM-IR02	ORTDM-IR02_BP01	31°16'25.30"	29°29'13.40"	INGQUZA HILL	13	FARM 115
Xhurana Access Road-ORTDM-IR02	ORTDM-IR02_BP02	31°15'37.20"	29°29'7.10"	INGQUZA HILL	13	FARM 115
Jongisizwe Access Road-ORTDM-IR03	ORTDM-IR03_BP01	31°21'24.30"	29° 6'8.50"	NYANDENI	5	FARM RE/36
ORTDM-IR04	ORTDM-IR04_BP01	30°46'12.74"	29°31'38.73"	NTABANKULU	18	MBONGWENI LOC 7
ORTDM-IR04	ORTDM-IR04_BP02	30°46'23.30"	29°30'38.70"	NTABANKULU	18	MBONGWENI LOC 7
ORTDM-IR04	ORTDM-IR04_BP03	30°46'32.19"	29°29'41.31"	NTABANKULU	17	MBONGWENI LOC 7
ORTDM-IR04	ORTDM-IR04_BP04	30°46'48.00"	29°29'34.40"	NTABANKULU	17	MBONGWENI LOC 7
DR18033	18033_BP01	31°51'50.3" S	28°36'15.6" E	KSD	19	Sitebe
DR18033	18033_BP02	31°58'39.2" S	28°39'48.2" E	MBASHE	13	Elliotdale
DR18033	18033_BP08	32°11'56.1" S	28°52'24.2" E	MBASHE	20	RE/29
DR18033	18033_BP01N	32°03'14.7" S	28°47'50.1" E	MBASHE	15	RE/63
DR18033	18033_BP02N	31°58'46.6" S	28°39'53.8" E	KSD	21	Farm 76
DR18033	18033_BP03N	32°11'43.0" S	28°52'23.9" E	MBASHE	20	RE/29
DR08024	024_BP01	31°20'30.7" S	29°44'45.2" E	INQGUZA HILL	24	3/89
DR08024	024_BP01N	31°20'21.9" S	29°45'27.9" E	INQGUZA HILL	23	3/89
DR08024	024_BP02N	31°19'29.9" S	29°47'12.3" E	INQGUZA HILL	23	3/89
DR08024	024_BP02N	31°20'01.5" S	29°45'16.4"E	INQGUZA HILL	24	3/89
DR08029	029_BP01	31°41'06.7" S	29°22'55.2" E	PORT ST JOHNS	3	Farm 43
DR08029	029_BP01N	31°43'22.0" S	29°16'19.9" E	PORT ST JOHNS	1	RE/45
DR08029	029_BP02N	31°45'10.1" S	29°18'11.2" E	PORT ST JOHNS	1	RE/45
DR08029	029_BP03N	31°45'18.3" S	29°18'13.8" E	PORT ST JOHNS	1	RE/45
DR08029	029_BP04N	31°44'02.8" S	29°21'39.1" E	PORT ST JOHNS	2	Farm 43
DR08029	029_BP05N	31°42'59.6" S	29°21'54.1" E	PORT ST JOHNS	2	Farm 43
DR08120	120_BP01	31°03'16.7" S	29°45'24.6" E	MBIZANA	15	RE/54
DR08120	120_BP02	31°10'12.9" S	29°43'43.1" E	INGQUZA HILL	28	RE/85
DR08120	120_BP01N	30°54'28.1" S	29°49'33.9" E	MBIZANA	13	RE/51
DR08120	120_BP02N	30°54'10.5" S	29°49'34.7" E	MBIZANA	13	RE/51
DR08123	123_BP01	30°58'38.3" S	29°40'23.4" E	MBIZANA	11	RE/49
DR08123	123_BP01N	30°58'32.8" S	29°40'12.2" E	MBIZANA	10	RE/49
DR08131	131_BP01	30°59'41.9" S	28°44'06.3" E	MHLONTLO	21	Tina LOC 20

Page 2 of 3

DR08131	131_BP01N	30°58'24.3" S	28°45'25.6" E	MHLONTLO	19	Tina LOC 20
DR08153	153_BP02	31°17'16.9" S	29°20'13.6" E	INQUZA HILL	2	RE/108
DR08153	153_BP01N	31°20'21.8" S	29°30'7.5" E	INQUZA HILL	17	Farm 116
DR08156	156_BP02	31°19'24.1" S	29°23'06.4" E	INQUZA HILL	2	RE/128
DR08156	156_BP01N	31°19'22.5" S	29°23'8.8" E	INQUZA HILL	2	
DR08157	157_BP01	31°25'08.7" S	29°22'53.9" E	PORT ST JOHNS	17	RE/112
DR08173	173_BP01	31°24'27.2" S	28°58'51.4" E	NYANDENI	3	RE/35
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DR08273	273_BP02	31°48'20.6" S	28°17'58.6" E	ENGCOBO	16	Clarkebury
DR08273	273_BP01N	31°46'39.1" S	28°26'23.4" E	KSD	18	Mqekezweni
DR08273	273_BP02N	31°48'07.6" S	28°24'20.8" E	KSD	18	Rune
DR08273	273_BP03N	31°48'20.0" S	28°17'38.6" E	ENGCOBO	16	Clarkebury
DR08273	273_BP04N	31°47'06.7" S	28°16'16.2" E	ENGCOBO	16	Clarkebury
DR08275	275_BP02	31°47'55.6" S	28°25'50.2" E	KSD	18	Mqekezweni
DR08275	275_BP01N	31°53'2.2" S	28°27'14.1" E	KSD	20	Mntentu
DR08281	281_BP01	31°44'05.3" S	28°39'08.6" E	KSD	32	Xwili
DR08281	281_BP02	31°44'18.9" S	28°31'08.4" E	KSD	31	Mqekezweni
DR08147	147_BP01	31°20'23.6" S	29°46'01.9" E	INQUZA HILL	23	RE/89
DR08147	147_BP02	31°20'56.7" S	29°47'40.5" E	INQUZA HILL	23	RE/89

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E-mail: info@besc.co.za; Website: http://www.besc.co.za

From: lee-Anne Proudfoot [mailto:lee-anne@besc.co.za]
Sent: 30 June 2011 12:30 PM
To: 'MARIAGRAZIA GALIMBERTI'
Subject: Proposed Utilisation of Borrow pits - OR Tambo District Municipality
Importance: High

Dear Mariagrazia,

BESC have been appointed by the Department of Roads and Public Works to prepare the Environmental Management Plans (EMP) required for the utilisation of identified borrow pits in the OR Tambo District in the Eastern Cape, for the maintenance/regravelling/resurfacing/patch gravelling of identified district roads.

Twenty - nine District Roads requiring routine maintenance/resurfacing/regravelling/patch gravelling have been identified within the OR Tambo District. In total some 93 borrow pits are proposed to be utilised as material sources for the routine maintenance/resurfacing/regravelling/patch gravelling of the 29 identified district roads. These borrow pits are located adjacent to the identified road sections and are located throughout the OR Tambo District Municipality.

The OR Tambo District Municipality (the area in which the borrow pits are located) falls within the Umtata Geological Series Map – 3128 – and the geology is described as either being the Tarkastad Subgroup, Adelaide Subgroup or Ecca Group. We have commissioned Ms Karen van Ryneveld of ArchaeoMaps to undertake the Phase 1 AIA for these borrow pits. Please could you confirm whether or not SAHRA will require that a phase 1 Palaeontological Assessment also be undertaken?

When the background information documents are available for each road section identified these will be forwarded to you; however at this stage we would just like to gain confirmation on this matter prior. I attach for you reference a google image of the borrow pits that Ms Lee-Anne Proudfoot
Senior Environmental Consultant
(Pr. Sci. Nat. – Environmental Scientist)
Biotechnology & Environmental Specialist Consultancy cc
PO Box 8241, Nahoon, 5210, East London, South Africa
9 Douglas Road, Vincent, 5247, East London, South Africa
Mobile: +27 83 421 3991

From: MARIAGRAZIA GALIMBERTI
To: lee-anne@besc.co.za
Subject: Re: FW: Proposed Utilisation of Borrow pits - OR Tambo District Municipality
Date: 04 July 2011 06:14:19 PM

Dear Lee- Anne,

apologies for the late reply, but I was at a conference in Swaziland and I didn't get access to my emails, unlike what I was expecting.

Considering the extent of the project and of the area impacted and the formations affected by the borrow pits, I would recommend that a Palaeontological Study is undertaken. I will send an official request once I received the BID.

Please let me know if you have any questions
Kind regards

Mariagrazia

Mariagrazia Galimberti (PhD)
APM Impact Assessor
South African Heritage Resources Agency

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Leaders in Industrial Ecology, Environmental Impact & Site Assessments
& Safety, Health & Environmental Management Systems

November 3, 2011

Attention: SAHRA

RE: Notification of the compilation of Environmental Management Plans for the utilisation of borrow pits in the OR Tambo District Municipality, Eastern Cape.

Notice is hereby given in terms of the Regulations of the Minerals and Petroleum Resources Development Act (No. 28 of 2002) of the intent to carry out the following activity:

The Department of Roads & Public works proposes to utilize borrow pits for road upgrade/re-gravelling projects located throughout the OR Tambo District Municipality & Alfred Nzo District Municipality. BESC have been appointed to compile the Environmental Management Plans for these borrow pits.

You have been identified as a Key Interested & Affected Parties (I&AP's). Accompanying this letter is a CD containing the Background Information Document(s) (BID'(s)) pertaining to the road sections identified, along which the borrow pits are located.

Please note that a Phase 1 Archaeological and Heritage Assessment is currently being undertaken by Ms Karen van Ryneveld (Archaeomaps) and a Palaeontological Assessment is currently being undertaken by Metsi Metseng Geological & Environmental Services for the identified borrow pits.

Please feel free to contact BESC if you have any further queries.

Yours Sincerely
Lee-Anne Proudfoot
(Pr.Sci.Nat – Environmental Scientist)
Senior Environmental Consultant
Mobile: +27 83 421 3991
Email: lee-anne@besc.co.za

Mr. Conroy van der Riet
(Pr.Sci.Nat - Environmental Scientist)
Senior Environmental Consultant
Mobile: 083 993 1243
Email:conroy@besc.co.za

Road #	Borrow pit #	Latitude	Longitude	Local Municipality	Ward	Farm #/ Allotment Name
Mvimvana Access Road-ORTDM-IR01	ORTDM-IR01_BP01	31°15'48.65"	29°33'20.67"	INGQUZA HILL	18_12	FARM 19
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DR08024	024_BP01	31°20'30.7" S	29°44'45.2" E	INQGUZA HILL	24	3/89
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DR08024	024_BP02N	31°19'29.9" S	29°47'12.3" E	INQGUZA HILL	23	3/89
DR08024	024_BP02N	31°20'01.5" S	29°45'16.4"E	INQGUZA HILL	24	3/89
DR08029	029_BP01	31°41'06.7" S	29°22'55.2" E	PORT ST JOHNS	3	Farm 43
DR08029	029_BP01N	31°43'22.0" S	29°16'19.9" E	PORT ST JOHNS	1	RE/45
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DR08029	029_BP03N	31°45'18.3" S	29°18'13.8" E	PORT ST JOHNS	1	RE/45
DR08029	029_BP04N	31°44'02.8" S	29°21'39.1" E	PORT ST JOHNS	2	Farm 43
DR08029	029_BP05N	31°42'59.6" S	29°21'54.1" E	PORT ST JOHNS	2	Farm 43
DR08120	120_BP01	31°03'16.7" S	29°45'24.6" E	MBIZANA	15	RE/54
DR08120	120_BP02	31°10'12.9" S	29°43'43.1" E	INGQUZA HILL	28	RE/85
DR08120	120_BP01N	30°54'28.1" S	29°49'33.9" E	MBIZANA	13	RE/51
DR08120	120_BP02N	30°54'10.5" S	29°49'34.7" E	MBIZANA	13	RE/51
DR08123	123_BP01	30°58'38.3" S	29°40'23.4" E	MBIZANA	11	RE/49
DR08123	123_BP01N	30°58'32.8" S	29°40'12.2" E	MBIZANA	10	RE/49
DR08131	131_BP01	30°59'41.9" S	28°44'06.3" E	MHLONTLO	21	Tina LOC 20
DR08131	131_BP01N	30°58'24.3" S	28°45'25.5" E	MHLONTLO	19	Tina LOC 20
DR08153	153_BP02	31°17'16.9" S	29°20'13.5" E	INQGUZA HILL	2	RE/108
DR08153	153_BP01N	31°20'21.8" S	29°30'7.5" E	INQGUZA HILL	17	Farm 116
DR08156	156_BP02	31°19'24.1" S	29°23'06.4" E	INQGUZA HILL	2	RE/128

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DR08156	156_BP01N	31°19'22.5" S	29°23'8.8" E	INQGUZA HILL	2	
DR08157	157_BP01	31°25'08.7" S	29°22'53.9" E	PORT ST JOHNS	17	RE/112
DR08173	173_BP01	31°24'27.2" S	28°58'51.4" E	NYANDENI	3	RE/35
DR08173	173_BP02	31°22'51.7" S	28°59'04.9" E	NYANDENI	3	RE/56
DR08273	273_BP02	31°48'20.6" S	28°17'58.6" E	ENGCOBO	16	Clarkebury
DR08273	273_BP01N	31°46'39.1" S	28°26'23.4" E	KSD	18	Mqekezweni
DR08273	273_BP02N	31°48'07.6" S	28°24'20.8" E	KSD	18	Rune
DR08273	273_BP03N	31°48'20.0" S	28°17'38.6" E	ENGCOBO	16	Clarkebury
DR08273	273_BP04N	31°47'06.7" S	28°16'16.2" E	ENGCOBO	16	Clarkebury
DR08275	275_BP02	31°47'55.6" S	28°25'50.2" E	KSD	18	Mqekezweni
DR08275	275_BP01N	31°53'2.2" S	28°27'14.1" E	KSD	20	Mntentu
DR08281	281_BP01	31°44'05.3" S	28°39'08.6" E	KSD	32	Xwili
DR08281	281_BP02	31°44'18.9" S	28°31'08.4" E	KSD	31	Mqekezweni
DR08147	147_BP01	31°20'23.6" S	29°46'01.9" E	INQGUZA HILL	23	RE/89
DR08147	147_BP02	31°20'56.7" S	29°47'40.5" E	INQGUZA HILL	23	RE/89
Niyenyame Access Road - ANDM-IR01	ANDM-IR01_BP01	30°25'54.90"	29° 3'30.80"	MATATIELE	26	RE/196
Niyenyame Access Road - ANDM-IR01	ANDM-IR01_BP02	30°32'0.86"	29° 4'3.37"	MATATIELE	21	RE/21
Niyenyame Access Road - ANDM-IR01	ANDM-IR01_BP03	30°34'28.50"	29° 3'20.80"	MATATIELE	21	RE/21
Niyenyame Access Road - ANDM-IR01	ANDM-IR01_BP04	30°33'39.60"	29° 2'14.20"	MATATIELE	21	RE/21
Niyenyame Access Road - ANDM-IR01	ANDM-IR01_BP05	30°33'16.06"	29° 1'26.59"	MATATIELE	21	RE/21

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SAHRA AIA Review Comment FORM A

FOR ATTENTION: **PHRA: Eastern Cape**

FOR OFFICIAL USE ONLY:
SAHRA File No: **9/2/050/0001**
Date Received: **26 September 2011**.....
Date of Comment: **04 November 2011**.....
Sent to Peer Review: .....
Date to Peer Review: .....
SAHRA Contact Person: **Dr Mariagrazia Galimberti**

SOUTH AFRICAN HERITAGE RESOURCES AGENCY
111 HARRINGTON STREET, CAPE TOWN, 8001
PO BOX 4637, CAPE TOWN, 8000
TEL: 021 462 4502 FAX: 021 462 4509

REVIEW COMMENT ON ARCHAEOLOGICAL AND PALAEONTOLOGICAL IMPACT ASSESSMENTS

BY THE ARCHAEOLOGY, PALAEONTOLOGY AND METEORITES UNIT OF THE SOUTH AFRICAN HERITAGE RESOURCES AGENCY

South Africa has a unique and non-renewable archaeological and palaeontological heritage. Archaeological and palaeontological sites are protected in terms of the National Heritage Resources Act (Act No 25 of 1999) and may not be disturbed without a permit. Archaeological Impact Assessments (AIAs) and Palaeontological Impact Assessments (PIAs) identify and assess the significance of the sites, assess the potential impact of developments upon such sites, and make recommendations concerning mitigation and management of these sites. On the basis of satisfactory specialist reports SAHRA or the relevant heritage resources agency can assess whether or not it has objection to a development and indicate the conditions upon which such development might proceed and assess whether or not to issue permission to destroy such sites.
AIAs and PIAs often form part of the heritage component of an Environmental Impact Assessment or Environmental Management Plan. They may also form part of a Heritage Impact Assessment called for in terms of section 38 of the National Heritage Resources Act, Act No. 25, 1999. They may have other origins. In any event they should comply with basic minimum standards of reporting as indicated in SAHRA Regulations and Guidelines.
This form provides review comment from the Archaeologist of the relevant heritage resources authority for use by Heritage Managers, for example, when informing authorities that have applied to SAHRA for comment and for inclusion in documentation sent to environmental authorities. It may be used in conjunction with Form B, which provides relevant peer review comment.

A. PROVINCIAL HERITAGE RESOURCES AUTHORITY: **Eastern Cape**

B. AUTHOR(S) OF REPORT: **AIA: K van Ryneveld and PIA: L Rossouw**

C. ARCHAEOLOGY CONTRACT GROUP: **Archaeomaps**

D. CONTACT DETAILS: **Postnet Suite 239, Private Bag X3, Beacon Bay 5205, E-mail: kvanryneveld@gmail.com / PO Box 38806, Langenhoven Park, 9330**

E. DATE OF REPORTS: **September 2011**

F. TITLES OF REPORTS: **AIA: Phase 1 Archaeological Impact Assessment: Part 1: Utilization of Borrow Pits – O.R. Tambo District Municipality, Eastern Cape, South Africa.**
PIA: Phase 1 Palaeontological Impact Assessment of 54 Borrow Pits in the Oliver Tambo Municipal District, EC Province
Please circle as relevant: Heritage component of **EIA** / EMP / HIA / CMP/ Other (Specify).....

G. REPORT COMMISSIONED BY: **BESC Environmental Consultants**

H. CONTACT DETAILS: **Lee-Ann Proudfoot, PO Box 8241, Nahoon 5210, E-mail: lee-ann@besc.co.za**

I. COMMENTS: .....

Please see comment on next page .....

1

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REVIEW COMMENT ON ARCHAEOLOGICAL AND PALAEONTOLOGICAL IMPACT ASSESSMENTS

K van Ryneveld
Dated: September 2011, received: September 2011

Phase 1 Archaeological Impact Assessment: Part 1: Utilization of Borrow Pits – O.R. Tambo District Municipality, Eastern Cape, South Africa

L Rossouw
Dated: September 2011, received: September 2011

Palaeontological Impact Assessment of 54 Borrow Pits in the Oliver Tambo Municipal District, EC Province

The proposed development entails obtaining material from borrow pits in order to upgrade and resurface 29 roads across the O.R. Tambo District Municipality.

The Archaeological Impact Assessment (AIA) discusses 40 borrow pits along 13 roads:

Road DR08033 – 3 borrow pits

Road DR08212 – 3 borrow pits

Road DR08290 – 2 borrow pits

Road DR08019 – 5 borrow pits

Road DR08313 – 3 borrow pits

Road DR08174 – 2 borrow pits

Road DR08191 – 3 borrow pits

Road DR08308 – 3 borrow pits

Road DR08309 – 1 borrow pits

Road DR08030 – 6 borrow pits

Road DR08151 – 4 borrow pits

Road DR08025 – 4 borrow pits

Road DR08124 – 1 borrow pits

The AIA reports that no archaeological or cultural heritage resources were identified, and the author recommends that the development may proceed as applied for without the developer having to comply with additional heritage compliance requirements.

The Palaeontological Impact Assessment (PIA) addresses 54 borrow pits and notes that the sedimentary geology largely constitutes Carboniferous Dwyka, Permian Ecca and Triassic Beaufort Group Strata. Fourteen borrow pits are exclusively doleritic and therefore not palaeontologically significant. Borrow pit 024 BP01 is located on Natal Group sediments and therefore not palaeontologically significant. The author recommends that no mitigation is required for the borrow pits located within dolerite, Natal, Dwyka and Ecca Group strata. The geology of the remaining borrow pits of known fossil-bearing strata of Carboniferous, Permian and Triassic age and the author recommends palaeontological monitoring of fresh exposures and bedrock excavations into the strata of the Adelaide and Tarkastad Subgroups for the following sixteen borrow pits:

309_BP01

030_BP01

030_BP02

2

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030_BP03

030_BP04

18033_BP02

18033_BP08

029_BP01

033_BP02

033_BP03

120_BP01

153_BP02

156_BP02

174_BP01

273_BP02

275_BP02

The author also recommends that access by a palaeontologist should be facilitated during development and that newly uncovered objects of palaeontological significance found during the course of excavation activities may require a Phase 2 rescue operation at the cost of the developer.

The SAHRA Archaeology, Palaeontology and Meteorites Unit supports the recommendations of the authors. If the recommendations made in the specialist report and in this comment are adhered to, the SAHRA Archaeology, Palaeontology and Meteorite Unit has no objection to the development. If any new evidence of archaeological sites or artefacts, palaeontological fossils, graves or other heritage resources are found during development, construction or mining, SAHRA and a professional archaeologist must be alerted immediately.

Please note that any issues regarding Built Environment are processed by the Eastern Cape Provincial Heritage Resources Authority (attention of Mr Zote, mlzote@ecphra.org.za).

SIGNATURE OF ARCHAEOLOGIST PROCESSING REPORT: .....

EMAIL: asalomon@sahra.org.za .....

SIGNATURE OF SAHRA HEAD ARCHAEOLOGIST: .....pp.....

EMAIL: cscheermeyer@sahra.org.za .....

NAME OF HERITAGE RESOURCES AGENCY: SAHRA.....

PLEASE NOTE THAT THE COMMENT (ABOVE OR APPENDED) CONSTITUTES THE COMMENT OF THE HERITAGE RESOURCES AGENCY ARCHAEOLOGIST AND THAT ANY DEVELOPMENT THAT INVOLVES DESTRUCTION OF ANY ARCHAEOLOGICAL/PALAEONTOLOGICAL SITE IS STILL SUBJECT TO A PERMIT/PERMISSION FOR DESTRUCTION OF SUCH SITE GIVEN TO THE DEVELOPER BY THE RELEVANT HERITAGE RESOURCES AGENCY ARCHAEOLOGICAL AND PALAEONTOLOGICAL PERMIT COMMITTEE (THIS WILL BE SUBJECT TO APPROVAL OF THE PHASE 2 OR ARCHAEOLOGICAL/ PALAEONTOLOGICAL MITIGATION AS NECESSARY). THIS REPORT MAY BE TAKEN ONLY AS APPROVAL IN TERMS OF SECTION 35 OF THE NATIONAL HERITAGE RESOURCES ACT. THE PROVINCIAL MANAGER OF THE HERITAGE RESOURCES AUTHORITY MUST ADVISE AS TO APPROVAL IN TERMS OF HERITAGE ISSUES ENCOMPASSED BY OTHER ASPECTS OF THE LEGISLATION, SUCH AS ISSUES OF THE BUILT ENVIRONMENT (STRUCTURES (E.G. FARM HOUSES), OVER 60 YEARS), INDIGENOUS KNOWLEDGE SYSTEMS OR OF CULTURAL LANDSCAPES AS THIS IS NOT WITHIN THE SCOPE OF THE ARCHAEOLOGIST.

3

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Lee-Anne Proudfoot

From: Karen van Ryneveld <kvanryneveld@gmail.com>
Sent: 27 November 2011 03:27 PM
To: Mariagrazia Galimberti; mlzote@ecphra.org.za; Lee-Anne Proudfoot
Subject: AIA - Part 2: Utilization of Borrow Pits - O.R. Tambo District Municipality, EC
Attachments: AIA-Part 2, O.R. Tambo BP1.pdf; Part 2 OR Tambo BP1.kmz

Hi Mariagrazia, Mzikayise and Lee-Anne,

Attached please find the Phase 1 AIA report for the proposed Part 2: Utilization of Borrow Pits, O.R. Tambo District Municipality, EC project (and the associated map). Hard copies of the report will be posted to the SAHRA APM Unit and BESC.

Regards,
Karen

--
Karen van Ryneveld
ArchaeoMaps

Tel: 043 732 1270
Fax to e-mail: 086 515 6848
Cell: 084 871 1064

Lee-Anne Proudfoot

From: Lee-Anne Proudfoot <lee-anne@besc.co.za>
Sent: 28 November 2011 08:29 AM
To: 'MARIAGRAZIA GALIMBERTI'
Cc: 'mlzote@ecphra.org.za'
Subject: PIA - Part 2: Utilization of Borrow Pits - O.R. Tambo District Municipality, EC
Attachments: 1110 OR Tambo Phase 2 B_Pits PIA.pdf; APRC Borrow Pits OR Tambo Municip Van Ryneveld Rossouw EC nov2011.pdf

Dear Mariagrazia,

Please find attached for SAHRA's review and comment the Phase 1 PIA report for the proposed Part 2: Utilization of Borrow Pits, O.R. Tambo District Municipality. Karen van Ryneveld of ArchaeoMaps submitted the Archaeological report directly to you yesterday the 27th November 2011 – please see correspondence below. Please could you confirm that you have received both the Archaeological and Palaeontological Reports.

Please note that the following borrow pits in the Archaeological Assessment formed part of the Palaeontological Assessment under the Part 1 OR Tambo Assessment and thus were commented on for Palaeontology under the SAHRA review comment file ref. no: 9/2/050/0001 (Attached for your reference) and are not included under this Palaeontological Assessment:

- 18033_BP01
- 18033_BP02
- 18033_BP08
- 024_BP01
- 029_BP01
- 120_BP01
- 120_BP02
- 123_BP01
- 131_BP01
- 153_BP02
- 156_BP02
- 157_BP01
- 273_BP02
- 275_BP02

If you have any queries regarding the above please do not hesitate to contact me.

Kind Regards

Lee-Anne

Ms Lee-Anne Proudfoot
Senior Environmental Consultant
(Pr. Sci. Nat. – Environmental Scientist)

Leaders in Industrial Ecology, Environmental Impact & Site Assessments & Safety, Health & Environmental Management Systems

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SAHRA AIA Review Comment FORM A

SOUTH AFRICAN HERITAGE RESOURCES AGENCY
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FOR ATTENTION: **PHRA:**

FOR OFFICIAL USE ONLY:
SAHRA File No: **9/2/502/0001**
Date Received: **28 November 2011 (AIA)**
10 January 2012 (PIA)
Date of Comment: **11 January 2012**.....
Sent to Peer Review: .....
Date to Peer Review: .....
SAHRA Contact Person: **Dr Mariagrazia Galimberti**
DMR Ref. no:

REVIEW COMMENT ON ARCHAEOLOGICAL AND PALAEONTOLOGICAL IMPACT ASSESSMENTS

BY ARCHAEOLOGY, PALAEONTOLOGY AND METEORITES UNIT OF THE SOUTH AFRICAN HERITAGE RESOURCES AGENCY

South Africa has a unique and non-renewable archaeological and palaeontological heritage. Archaeological and palaeontological sites are protected in terms of the National Heritage Resources Act (Act No 25 of 1999) and may not be disturbed without a permit. Archaeological Impact Assessments (AIAs) and Palaeontological Impact Assessments (PIAs) identify and assess the significance of the sites, assess the potential impact of developments upon such sites, and make recommendations concerning mitigation and management of these sites. On the basis of satisfactory specialist reports SAHRA or the relevant heritage resources agency can assess whether or not it has objection to a development and indicate the conditions upon which such development might proceed and assess whether or not to issue permission to destroy such sites.
AIAs and PIAs often form part of the heritage component of an Environmental Impact Assessment or Environmental Management Plan. They may also form part of a Heritage Impact Assessment called for in terms of section 38 of the National Heritage Resources Act, Act No. 25, 1999. They may have other origins. In any event they should comply with basic minimum standards of reporting as indicated in SAHRA Regulations and Guidelines.
This form provides review comment from the Archaeologist of the relevant heritage resources authority for use by Heritage Managers, for example, when informing authorities that have applied to SAHRA for comment and for inclusion in documentation sent to environmental authorities. It may be used in conjunction with Form B, which provides relevant peer review comment.

A. PROVINCIAL HERITAGE RESOURCES AUTHORITY: **Eastern Cape**

B. AUTHOR(S) OF REPORT: **Karen van Ryneveld**
C. ARCHAEOLOGY CONTRACT GROUP: **Archaeomaps Arcaheological Consultancy**
D. CONTACT DETAILS: **Postnet Suite 239, Private Bag X3, Beacon Bay, 5205, kvanryneveld@gmail.com**
E. DATE OF REPORT: **28 November 2011**
F. TITLE OF REPORT: **Part 2: Utilization of borrow pits - O.R. Tambo District Municipality, Eastern Cape, South Africa**

B. AUTHOR(S) OF REPORT: **Dr Gideon Groenewald**
C. ARCHAEOLOGY CONTRACT GROUP: **Metsi Metseng Geological and Environmental Services**
D. CONTACT DETAILS: **Suite 91, Private Bag X62, Betlehem, 9700.**
E. DATE OF REPORT: **26 October 2011**
F. TITLE OF REPORT: **The Proposed Utilisation Of Borrow Pits On Roads: DR08024, DR08147, DR08153 & DR08156 - Qaukeni/Inqguza Hill Local Municipality, DR08029 - Port St Johns Local Municipality, DR08120 &**

1

SAHRA AIA Review Comment FORM A

DR08123 – Mibizana Local Municipality, Dr08131 – Mhlontlo Local Municipality, DR08173 – Nyandeni Local Municipality, DR08273, DR08275, DR08281 & DR18033 – King Sabata Dalindyedo Local Municipality, Oliver Tambo District Municipality, Eastern Cape Province South Africa

G. Please circle as relevant: Archaeological and Palaeontological components of EIA / **EMP** / HIA / CMP/ Other (Specify).....

H. REPORT COMMISSIONED BY (CONSULTANT OR DEVELOPER): **Biotechnology and Environmental specialist Consultancy**

I. CONTACT DETAILS: **P.O. Box 8241, Nahoon, 5210, lee-anne@besc.co.za**

J. COMMENTS: .....

Please see comment on next page .....

2

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REVIEW COMMENT ON ARCHAEOLOGICAL AND PALAEONTOLOGICAL IMPACT ASSESSMENT

Ms K. van Ryneveld
Dated: November 2010, Received: November 2010

Part 2: Utilization of borrow pits - O.R. Tambo District Municipality, Eastern Cape, South Africa

Dr G. Groenewald
Dated: October 2011, received: January 2012

The Proposed Utilisation Of Borrow Pits On Roads: DR08024, DR08147, DR08153 & DR08156 - Qaukeni/Inqguza Hill Local Municipality, DR08029 - Port St Johns Local Municipality, DR08120 & DR08123 – Mibizana Local Municipality, Dr08131 – Mhlontlo Local Municipality, DR08173 – Nyandeni Local Municipality, DR08273, DR08275, DR08281 & DR18033 – King Sabata Dalindyedo Local Municipality, Oliver Tambo District Municipality, Eastern Cape Province South Africa

INTRODUCTION

The Department of Roads and Public Works is proposing the use of 82 borrow pits to upgrade 29 roads in the Oliver Tambo District Municipality.

Biotechnology and Environmental Specialist Consultants undertook the Environmental Management Plan for this project and commissioned both an archaeological and a palaeontological assessment of the proposed borrow pits.

The archaeologist divided the assessment into two phases, the first one was included in a report submitted to SAHRA in September 2011 and commented upon in November 2011. The September 2011 assessment included the survey of 40 borrow pits along 13 roads, whereas the second part, submitted in November 2011, included the survey of the remaining 42 borrow pits along another 14 roads.

The first palaeontological assessment was undertaken by Dr Rossouw in September 2011 and considered 54 of the 82 borrow pits, whereas another 28 were assessed by Dr Groenewald in October 2011 and are commented upon in this review.

DISCUSSION

From an archaeological perspective the specialist recorded only a low density scatter of stone tools of low significance close to a borrow pit (BP04N) along the DR 08273.

Six stone pile features were identified along DR08120, at borrow pit 01N, in proximity of a modern homestead. These may represent grave sites, however, inhabitants of the surrounding area are quite confident that these are actually natural stone clusters.

Two formal cemeteries were also recorded along the DR18033, close to borrow pit 01. Both these grave sites, of 25 and 30 graves respectively, are still in use, and some of the graves are expected to be older than 60 years. Mostly these are traditional graves with simple earth mounds.

The 28 borrow pits investigated by Dr Groenewald are established through formations of the Natal Group from the Ordovician, The Ecca Group, the Adelaide Subgroup of the Beaufort Group, with its Koonaap, Middleton and Balfour Formation, the Katberg Formation of the Tarkastad Subgroup Group, and some intrusions of dolerite from the Jurassic.

In five of the surveyed borrow pits the palaeontologist recorded fossils, amongst which *Glassopteris* leaves in the Adelaide Formation, fossilised rhizomes in the Burgersdorp Formation, fossilised burrow casts in the Katberg Formation and some trace fossils in the Ecca Group. In the light of the fossil material recovered and of the previous studies in the area the palaeontologist suggested that monitoring by a professional palaeontologist

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for the most sensitive formations is undertaken.

SAHRA RECOMMENDATIONS

SAHRA APM and Burial Grounds and Graves Units support the recommendations of the authors and require that:

- The Stone Age scatter of low density may be destroyed without applying for a permit from SAHRA;
- The two cemeteries should not be impacted upon during the mining activities. The cemeteries must be fenced off at least temporarily, the fence must be placed 5m from the graves and no activities are allowed within 20 m of the fence line (see Appendix 1);
- Similar recommendations are valid for the possible grave sites. If any activity is to occur within 20m from the site, test excavations are requested. This must be undertaken by a professional archaeologist and a permit from SAHRA will be requested. The archaeologist will require a mitigation permit from SAHRA in terms of s. 35 and 36 of the National Heritage Resources Act (Act 25 of 1999). On receipt of a satisfactory mitigation (Phase 2) permit report from the archaeologist, SAHRA will make further recommendations.
- For the five borrow pits where fossilised material was identified, mitigation must be undertaken before any earth-moving activities resulting from this proposed project begins. A photographic record must be established immediately before, during and after mitigation. The palaeontologist will require a mitigation permit from SAHRA in terms of s. 35 of the National Heritage Resources Act (Act 25 of 1999). On receipt of a satisfactory mitigation (Phase 2) permit report from the archaeologist, SAHRA will make further recommendations in terms of the site such as its final destruction or additional sampling.
- Excavations in sensitive formations, such as the Adelaide, Burgerdsorp and Katberg Formations and the Ecca Group must be monitored by an ECO trained by a palaeontologist to recognise fossils. Moreover, a professional palaeontologist must inspect the site regularly for possible fossil exposures. A report from the monitoring activities must be submitted to SAHRA for further comments. If new palaeontological resources are identified, mitigation may be necessary and the palaeontologist will need to apply from a permit from SAHRA in terms of s. 35 of the National Heritage Resources Act (Act 25 of 1999).

CONCLUSION

If the recommendations made in this comment are adhered to, the SAHRA Archaeology, Palaeontology and Meteorites Unit has no objection to the development in terms of the archaeological and palaeontological components of the heritage resources. If any new evidence of archaeological sites or artefacts, palaeontological fossils, graves or other heritage resources are found during mining, SAHRA and a professional archaeologist or palaeontologist must be alerted immediately.

SIGNATURE OF ARCHAEOLOGIST PROCESSING REPORT: .....

EMAIL: mgalimberti@sahra.org.za .....

SIGNATURE OF SAHRA HEAD ARCHAEOLOGIST: .....

EMAIL: cscheermeyer@sahra.org.za .....

NAME OF HERITAGE RESOURCES AGENCY: SAHRA .....

PLEASE NOTE THAT THE COMMENT (ABOVE OR APPENDED) CONSTITUTES THE COMMENT OF THE HERITAGE RESOURCES AGENCY ARCHAEOLOGIST AND THAT ANY DEVELOPMENT THAT INVOLVES DESTRUCTION OF ANY ARCHAEOLOGICAL/PALAEONTOLOGICAL SITE IS STILL SUBJECT TO A PERMIT/PERMISSION FOR DESTRUCTION OF SUCH SITE GIVEN TO THE DEVELOPER BY THE RELEVANT HERITAGE RESOURCES AGENCY ARCHAEOLOGICAL AND PALAEONTOLOGICAL PERMIT COMMITTEE (THIS WILL BE SUBJECT TO APPROVAL OF THE PHASE 2 OR ARCHAEOLOGICAL/ PALAEONTOLOGICAL MITIGATION AS NECESSARY). THIS REPORT MAY BE TAKEN ONLY AS APPROVAL IN TERMS OF SECTION 35 OF THE NATIONAL HERITAGE RESOURCES ACT. THE PROVINCIAL MANAGER OF THE HERITAGE RESOURCES AUTHORITY MUST ADVISE AS TO APPROVAL IN TERMS OF HERITAGE ISSUES ENCOMPASSED BY OTHER ASPECTS OF THE LEGISLATION, SUCH AS ISSUES OF THE BUILT ENVIRONMENT (STRUCTURES (E.G. FARM HOUSES), OVER 60 YEARS), INDIGENOUS KNOWLEDGE SYSTEMS OR OF CULTURAL LANDSCAPES AS THIS IS NOT WITHIN THE SCOPE OF THE ARCHAEOLOGIST.

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PLEASE NOTE THAT SAHRA IS NOW RESPONSIBLE FOR GRADE I HERITAGE RESOURCES (AND EXPORT) AND THE PROVINCIAL HERITAGE RESOURCES ARE RESPONSIBLE FOR GRADE II AND GRADE III HERITAGE RESOURCES, EXCEPT WHERE THERE IS AN AGENCY ARRANGEMENT WITH THE PROVINCIAL HERITAGE RESOURCES AUTHORITY.

APPENDIX 1
Protection of Graves

In terms of the National Heritage Resources Act (No. 25 of 1999) graves older than 60 years (not in a municipal graveyard) are protected. Human remains younger than 60 years should be handled only by a registered undertaker or an institution declared under the Human Tissues Act.

Anyone who wishes to develop an area where there are graves older than 60 years is required to follow the process described in the legislation (section 36 and associated regulations). The specialist will require a permit from the heritage resources authority:

1. Determine/ confirm the presence of the graves on the property. Normally the quickest way to proceed is to obtain the service of a professional archaeologist accredited to undertake burial relocations. The archaeologist will provide an estimate of the age of the graves. There may be a need for archival research and possibly test excavations (permit required).
2. The preferred decision is to move the development so that the graves may remain undisturbed. If this is done, the developer must satisfy SAHRA that adequate arrangements have been made to protect the graves on site from the impact of the development. This usually involves fencing the grave(yard) and setting up a small site management plan indicating who will be responsible for maintaining the graves and how this is legally tied into the development. It is recommended that a distance of at least 2 m is left undisturbed between the grave and the fence around the graves and another 15 m between the fence of the grave and the development.
3. If the developer wishes to relocate or disturb the graves:
    a. A 60-day public participation (social consultation) process as required by section 36 (and regulations), must be undertaken to identify any direct descendants of those buried on the property. This allows for a period of consultation with any family members or community to ascertain what their wishes are for the burials. It involves notices to the public on site and through representative media. This may be done by the archaeologist, who can explain the process, but for large or sensitive sites a social consultant should be employed. Archaeologists often work with undertakers, who rebury the human remains.
    b. If as a result of the public participation, the family (where descendants are identified) or the community agree to the relocation process then the graves may be relocated.
    c. The archaeologist must submit a permit application to SAHRA for the disinterment of the burials. This must include written approval of the descendants or, if there has not been success in identifying direct descendants, written documentation of the social consultation process, which must indicate to SAHRA's satisfaction, the efforts that have been made to locate them. It must also include details of the exhumation process and the place to which the burials are to be relocated. (There are regulations regarding creating new cemeteries and so this usually means that relocation must be to an established communal rural or formal municipal cemetery.)
    d. Permission must be obtained before exhumation takes place from the landowner where the graves are located, and from the owners/managers of the graveyard to which the remains will be relocated.

Other relevant legislation must be complied with, including the Human Tissues Act (National Department of Health) and any ordinances of the Provincial Department of Health). The archaeologist can usually advise about this.

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Leaders in Industrial Ecology, Environmental Impact & Site Assessments & Safety, Health & Environmental Management Systems

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Leaders in Industrial Ecology, Environmental Impact & Site Assessments
& Safety, Health & Environmental Management Systems

November 3, 2011

Attention: Key Interested and Affected Parties

RE: Notification of the compilation of Environmental Management Plans for the utilisation of borrow pits in the OR Tambo District Municipality, Eastern Cape.

Notice is hereby given in terms of the Regulations of the Minerals and Petroleum Resources Development Act (No. 28 of 2002) of the intent to carry out the following activity:

The Department of Roads & Public works proposes to utilize borrow pits for road maintenance/re-gravelling projects located throughout the OR Tambo District Municipality and Alfred Nzo District Municipality. BESC have been appointed to compile the Environmental Management Plans for these borrow pits.

You have been identified as a Key Interested & Affected Parties (I&AP's). Accompanying this letter is a CD containing the Background Information Document(s) (BID'(s)) pertaining to the the road sections identified along which the borrow pits are located. Please refer to attached table for the borrow pits and the thirteen road sections which pertain to the BID's on the accompanying CD.

Please feel free to contact BESC if you have any further queries.

Yours Sincerely
Lee-Anne Proudfoot
(Pr.Sci.Nat – Environmental Scientist)
Senior Environmental Consultant
Mobile: +27 83 421 3991
Email: lee-anne@besc.co.za

Mr. Conroy van der Riet
(Pr.Sci.Nat - Environmental Scientist)
Senior Environmental Consultant
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B.Sc. Hons. (Botany), M.Sc. (Botany), Ph.D. (Biotechnology), (Rhodes)
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CK 95.10210/23

Road #	Borrow pit #	Latitude	Longitude	Local Municipality	Ward	Farm #/ Allotment Name
Mvimvana Access Road-ORTDM-IR01	ORTDM-IR01_BP01	31°15'48.65"	29°33'20.67"	INGQUZA HILL	18_12	FARM 19
Xhurana Access Road-ORTDM-IR02	ORTDM-IR02_BP01	31°16'25.30"	29°29'13.40"	INGQUZA HILL	13	FARM 115
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Jongisizwe Access Road-ORTDM-IR03	ORTDM-IR03_BP01	31°21'24.30"	29° 6'8.50"	NYANDENI	5	FARM RE/36
ORTDM-IR04	ORTDM-IR04_BP01	30°46'12.74"	29°31'38.73"	NTABANKULU	18	MBONGWENI LOC 7
ORTDM-IR04	ORTDM-IR04_BP02	30°46'23.30"	29°30'38.70"	NTABANKULU	18	MBONGWENI LOC 7
ORTDM-IR04	ORTDM-IR04_BP03	30°46'32.19"	29°29'41.31"	NTABANKULU	17	MBONGWENI LOC 7
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DR18033	18033_BP01	31°51'50.3" S	28°36'15.6" E	KSD	19	Sitebe
DR18033	18033_BP02	31°58'39.2" S	28°39'48.2" E	MBASHE	13	Elliotdale
DR18033	18033_BP08	32°11'56.1" S	28°52'24.2" E	MBASHE	20	RE/29
DR18033	18033_BP01N	32°03'14.7" S	28°47'50.1" E	MBASHE	15	RE/63
DR18033	18033_BP02N	31°58'46.6" S	28°39'53.8" E	KSD	21	Farm 76
DR18033	18033_BP03N	32°11'43.0" S	28°52'23.9" E	MBASHE	20	RE/29
DR08024	024_BP01	31°20'30.7" S	29°44'45.2" E	INQGUZA HILL	24	3/89
DR08024	024_BP01N	31°20'21.9" S	29°45'27.9" E	INQGUZA HILL	23	3/89
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DR08024	024_BP02N	31°20'01.5" S	29°45'16.4"E	INQGUZA HILL	24	3/89
DR08029	029_BP01	31°41'06.7" S	29°22'55.2" E	PORT ST JOHNS	3	Farm 43
DR08029	029_BP01N	31°43'22.0" S	29°16'19.9" E	PORT ST JOHNS	1	RE/45
DR08029	029_BP02N	31°45'10.1" S	29°18'11.2" E	PORT ST JOHNS	1	RE/45
DR08029	029_BP03N	31°45'18.3" S	29°18'13.8" E	PORT ST JOHNS	1	RE/45
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DR08120	120_BP02	31°10'12.9" S	29°43'43.1" E	INQGUZA HILL	28	RE/85
DR08120	120_BP01N	30°54'28.1" S	29°49'33.9" E	MBIZANA	13	RE/51
DR08120	120_BP02N	30°54'10.5" S	29°49'34.7" E	MBIZANA	13	RE/51
DR08123	123_BP01	30°58'38.3" S	29°40'23.4" E	MBIZANA	11	RE/49
DR08123	123_BP01N	30°58'32.8" S	29°40'12.2" E	MBIZANA	10	RE/49
DR08131	131_BP01	30°59'41.9" S	28°44'06.3" E	MHLONTLO	21	Tina LOC 20
DR08131	131_BP01N	30°58'24.3" S	28°45'25.6" E	MHLONTLO	19	Tina LOC 20
DR08153	153_BP02	31°17'16.9" S	29°20'13.6" E	INQGUZA HILL	2	RE/108
DR08153	153_BP01N	31°20'21.8" S	29°30'7.5" E	INQGUZA HILL	17	Farm 116
DR08156	156_BP02	31°19'24.1" S	29°23'06.4" E	INQGUZA HILL	2	RE/128
DR08156	156_BP01N	31°19'22.5" S	29°23'8.8" E	INQGUZA HILL	2	

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DR08157	157_BP01	31°25'08.7" S	29°22'53.9" E	PORT ST JOHNS	17	RE/112
DR08173	173_BP01	31°24'27.2" S	28°58'51.4" E	NYANDENI	3	RE/35
DR08173	173_BP02	31°22'51.7" S	28°59'04.9" E	NYANDENI	3	RE/56
DR08273	273_BP02	31°48'20.6" S	28°17'58.6" E	ENGCOBO	16	Clarkebury
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DR08275	275_BP02	31°47'55.6" S	28°25'50.2" E	KSD	18	Mqekezweni
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DR08147	147_BP01	31°20'23.6" S	29°46'01.9" E	INQUZA HILL	23	RE/89
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Niyenyame Access Road - ANDM-IR01	ANDM-IR01_BP01	30°25'54.90"	29° 3'30.80"	MATATIELE	26	RE/196
Niyenyame Access Road - ANDM-IR01	ANDM-IR01_BP02	30°32'0.86"	29° 4'3.37"	MATATIELE	21	RE/21
Niyenyame Access Road - ANDM-IR01	ANDM-IR01_BP03	30°34'28.50"	29° 3'20.80"	MATATIELE	21	RE/21
Niyenyame Access Road - ANDM-IR01	ANDM-IR01_BP04	30°33'39.60"	29° 2'14.20"	MATATIELE	21	RE/21
Niyenyame Access Road - ANDM-IR01	ANDM-IR01_BP05	30°33'16.06"	29° 1'26.59"	MATATIELE	21	RE/21

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CK 95.10210/23

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ORTDM-IR04	ORTDM-IR04_BP01	30°46'12.74"	29°31'38.73"	NTABANKULU	18	MBONGWENI LOC 7
ORTDM-IR04	ORTDM-IR04_BP02	30°46'23.30"	29°30'38.70"	NTABANKULU	18	MBONGWENI LOC 7
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DR08153	153_BP01N	31°20'21.8" S	29°30'7.5" E	INQGUZA HILL	17	Farm 116
DR08156	156_BP02	31°19'24.1" S	29°23'06.4" E	INQGUZA HILL	2	RE/128
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You have been identified as a Key Interested & Affected Parties (I&AP's). Accompanying this letter is/are the Background Information Document(s) (BID'(s)) pertaining to the proposed borrow pits and roads sections relevant to your area of jurisdiction. Please refer to the attached table for relevant borrow pits and road sections.

Please feel free to contact BESC if you have any further queries.

Yours Sincerely
Lee-Anne Proudfoot
(Pr.Sci.Nat – Environmental Scientist)
Senior Environmental Consultant
Mobile: +27 83 421 3991
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DR18033	18033_BP08	32°11'56.1" S	28°52'24.2" E	MBASHE	20	RE/29
DR18033	18033_BP01N	32°03'14.7" S	28°47'50.1" E	MBASHE	15	RE/63
DR18033	18033_BP02N	31°58'46.6" S	28°39'53.8" E	KSD	21	Farm 76
DR18033	18033_BP03N	32°11'43.0" S	28°52'23.9" E	MBASHE	20	RE/29
DR08024	024_BP01	31°20'30.7" S	29°44'45.2" E	INQGUZA HILL	24	3/89
DR08024	024_BP01N	31°20'21.9" S	29°45'27.9" E	INQGUZA HILL	23	3/89
DR08024	024_BP02N	31°19'29.9" S	29°47'12.3" E	INQGUZA HILL	23	3/89
DR08024	024_BP02N	31°20'01.5" S	29°45'16.4"E	INQGUZA HILL	24	3/89
DR08029	029_BP01	31°41'06.7" S	29°22'55.2" E	PORT ST JOHNS	3	Farm 43
DR08029	029_BP01N	31°43'22.0" S	29°16'19.9" E	PORT ST JOHNS	1	RE/45
DR08029	029_BP02N	31°45'10.1" S	29°18'11.2" E	PORT ST JOHNS	1	RE/45
DR08029	029_BP03N	31°45'18.3" S	29°18'13.8" E	PORT ST JOHNS	1	RE/45
DR08029	029_BP04N	31°44'02.8" S	29°21'39.1" E	PORT ST JOHNS	2	Farm 43
DR08029	029_BP05N	31°42'59.6" S	29°21'54.1" E	PORT ST JOHNS	2	Farm 43
DR08120	120_BP01	31°03'16.7" S	29°45'24.6" E	MBIZANA	15	RE/54
DR08120	120_BP02	31°10'12.9" S	29°43'43.1" E	INGQUZA HILL	28	RE/85
DR08120	120_BP01N	30°54'28.1" S	29°49'33.9" E	MBIZANA	13	RE/51
DR08120	120_BP02N	30°54'10.5" S	29°49'34.7" E	MBIZANA	13	RE/51
DR08123	123_BP01	30°58'38.3" S	29°40'23.4" E	MBIZANA	11	RE/49
DR08123	123_BP01N	30°58'32.8" S	29°40'12.2" E	MBIZANA	10	RE/49
DR08131	131_BP01	30°59'41.9" S	28°44'06.3" E	MHLONTLO	21	Tina LOC 20
DR08131	131_BP01N	30°58'24.3" S	28°45'25.6" E	MHLONTLO	19	Tina LOC 20
DR08153	153_BP02	31°17'16.9" S	29°20'13.6" E	INQGUZA HILL	2	RE/108
DR08153	153_BP01N	31°20'21.8" S	29°30'7.5" E	INQGUZA HILL	17	Farm 116
DR08156	156_BP02	31°19'24.1" S	29°23'06.4" E	INQGUZA HILL	2	RE/128
DR08156	156_BP01N	31°19'22.5" S	29°23'8.8" E	INQGUZA HILL	2	

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DR08157	157_BP01	31°25'08.7" S	29°22'53.9" E	PORT ST JOHNS	17	RE/112
DR08173	173_BP01	31°24'27.2" S	28°58'51.4" E	NYANDENI	3	RE/35
DR08173	173_BP02	31°22'51.7" S	28°59'04.9" E	NYANDENI	3	RE/56
DR08273	273_BP02	31°48'20.6" S	28°17'58.6" E	ENGCOBO	16	Clarkebury
DR08273	273_BP01N	31°46'39.1" S	28°26'23.4" E	KSD	18	Mqekezweni
DR08273	273_BP02N	31°48'07.6" S	28°24'20.8" E	KSD	18	Rune
DR08273	273_BP03N	31°48'20.0" S	28°17'38.6" E	ENGCOBO	16	Clarkebury
DR08273	273_BP04N	31°47'06.7" S	28°16'16.2" E	ENGCOBO	16	Clarkebury
DR08275	275_BP02	31°47'55.6" S	28°25'50.2" E	KSD	18	Mqekezweni
DR08275	275_BP01N	31°53'2.2" S	28°27'14.1" E	KSD	20	Mntentu
DR08281	281_BP01	31°44'05.3" S	28°39'08.6" E	KSD	32	Xwili
DR08281	281_BP02	31°44'18.9" S	28°31'08.4" E	KSD	31	Mqekezweni
DR08147	147_BP01	31°20'23.6" S	29°46'01.9" E	INQGUZA HILL	23	RE/89
DR08147	147_BP02	31°20'56.7" S	29°47'40.5" E	INQGUZA HILL	23	RE/89

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25.2 Correspondence issued to and received from Key & Registered Interested Affected Parties during the Public Draft Review Commenting Period.

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January 16, 2012

Attention: Key Interested & Affected Parties

Public Draft Environmental Management Plan Reports – Utilization of Borrow Pits, OR Tambo and Alfred Nzo District Municipalities.

In terms of the Minerals and Petroleum Resources Development Regulations (Government Notice No. 527) under the Minerals and Petroleum Resources Development Act (M&PRDA) (No. 28 of 2002) and the Promotion of Administrative Justice Act (Act 3 of 2000 and as amended) the following is presented to you:

The Department of Roads & Public works proposes to utilize borrow pits for road maintenance/re-gravelling projects located throughout the OR Tambo and Alfred Nzo District Municipalities. BESC have been commissioned to prepare Environmental Management Plan Reports in terms of the Minerals and Petroleum Resources Development Regulations (Government Notice No. 527) under the Minerals and Petroleum Resources Development Act (M&PRDA) (No. 28 of 2002) for the proposed utilization of Borrow Pits throughout the OR Tambo & Alfred Nzo District Municipalities.

Accompanying this letter is a Compact Disc containing the Public Draft Environmental Management Plan Report(s) pertaining to the proposed borrow pits and roads sections identified in the OR Tambo and Alfred Nzo District Municipalities.

These public draft Environmental Management Plan Reports are released for review and comment for a 30-day period from date of mailing. Whereas you may want to provide comments and/or suggestions for inclusion into this assessment/ the final EMP reports, please ensure that such is received in writing by the offices of BESC before 17H00, February 16, 2011; either via email (conroy@besc.co.za/ lee-anne@besc.co.za), facsimile (043 726 3199), or post (BESC, P.O. Box 8241, Nahoon, 5210).

Yours sincerely,
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Fax: (043) 726 3199
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Yours sincerely,
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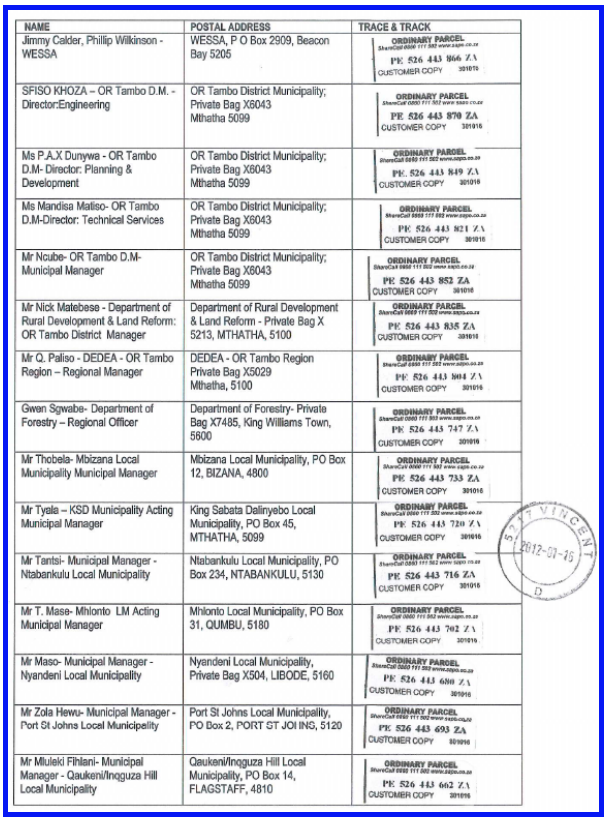
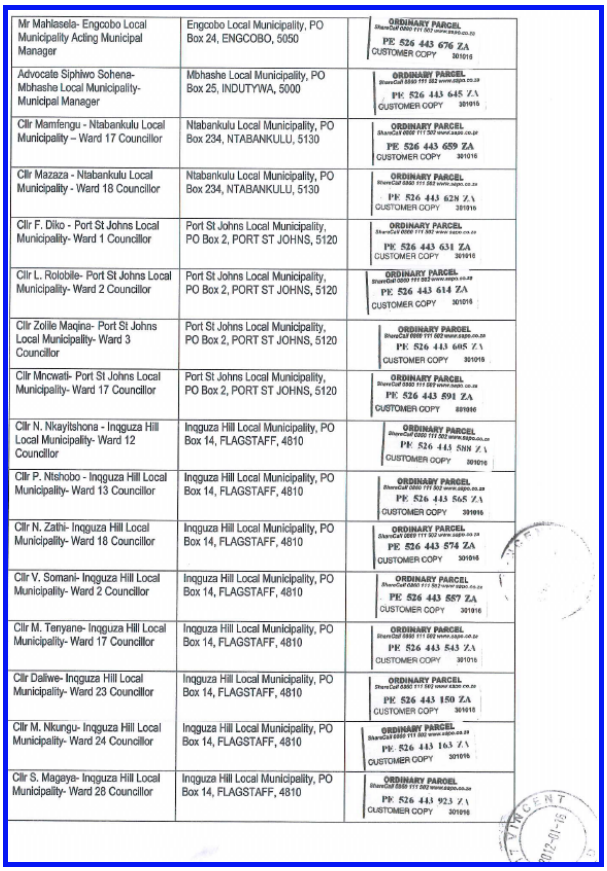


NAME	POSTAL ADDRESS	TRACE & TRACK
Jimmy Calder, Phillip Wilkinson - WESSA	WESSA, P O Box 2909, Beacon Bay 5205	ORDINARY PARCEL PE 526 443 866 ZA CUSTOMER COPY
SFISO KHOZA – OR Tambo D.M. - Director:Engineering	OR Tambo District Municipality; Private Bag X6043 Mthatha 5099	ORDINARY PARCEL PE 526 443 870 ZA CUSTOMER COPY
Ms P.A.X Dunywa - OR Tambo D.M- Director: Planning & Development	OR Tambo District Municipality; Private Bag X6043 Mthatha 5099	ORDINARY PARCEL PE 526 443 849 ZA CUSTOMER COPY
Ms Mandisa Matiso- OR Tambo D.M-Director: Technical Services	OR Tambo District Municipality; Private Bag X6043 Mthatha 5099	ORDINARY PARCEL PE 526 443 821 ZA CUSTOMER COPY
Mr Ncube- OR Tambo D.M-Municipal Manager	OR Tambo District Municipality; Private Bag X6043 Mthatha 5099	ORDINARY PARCEL PE 526 443 852 ZA CUSTOMER COPY
Mr Nick Matebese - Department of Rural Development & Land Reform: OR Tambo District Manager	Department of Rural Development & Land Reform - Private Bag X 5213, MTHATHA, 5100	ORDINARY PARCEL PE 526 443 835 ZA CUSTOMER COPY
Mr Q. Paliso - DEDEA - OR Tambo Region – Regional Manager	DEDEA - OR Tambo Region Private Bag X5029 Mthatha, 5100	ORDINARY PARCEL PE 526 443 804 ZA CUSTOMER COPY
Gwen Sgwabe- Department of Forestry – Regional Officer	Department of Forestry- Private Bag X7485, King Williams Town, 5600	ORDINARY PARCEL PE 526 443 747 ZA CUSTOMER COPY
Mr Thobela- Mbizana Local Municipality Municipal Manager	Mbizana Local Municipality, PO Box 12, BIZANA, 4800	ORDINARY PARCEL PE 526 443 733 ZA CUSTOMER COPY
Mr Tyala – KSD Municipality Acting Municipal Manager	King Sabata Dalinyebo Local Municipality, PO Box 45, MTHATHA, 5099	ORDINARY PARCEL PE 526 443 720 ZA CUSTOMER COPY
Mr Tantsi- Municipal Manager - Ntabankulu Local Municipality	Ntabankulu Local Municipality, PO Box 234, NTABANKULU, 5130	ORDINARY PARCEL PE 526 443 716 ZA CUSTOMER COPY
Mr T. Mase- Mhlonto LM Acting Municipal Manager	Mhlonto Local Municipality, PO Box 31, QUMBU, 5180	ORDINARY PARCEL PE 526 443 702 ZA CUSTOMER COPY
Mr Maso- Municipal Manager - Nyandeni Local Municipality	Nyandeni Local Municipality, Private Bag X504, LIBODE, 5160	ORDINARY PARCEL PE 526 443 680 ZA CUSTOMER COPY
Mr Zola Hewu- Municipal Manager - Port St Johns Local Municipality	Port St Johns Local Municipality, PO Box 2, PORT ST JOHNS, 5120	ORDINARY PARCEL PE 526 443 693 ZA CUSTOMER COPY
Mr Mluleki Fihlani- Municipal Manager - Qaukeni/Ingquza Hill Local Municipality	Qaukeni/Ingquza Hill Local Municipality, PO Box 14, FLAGSTAFF, 4810	ORDINARY PARCEL PE 526 443 662 ZA CUSTOMER COPY



Mr Mahlasela- Engcobo Local Municipality Acting Municipal Manager	Engcobo Local Municipality, PO Box 24, ENGCOBO, 5050	ORDINARY PARCEL PE 526 443 676 ZA CUSTOMER COPY
Advocate Siphiwo Sohena-Mbhashe Local Municipality-Municipal Manager	Mbhashe Local Municipality, PO Box 25, INDUTYWA, 5000	ORDINARY PARCEL PE 526 443 645 ZA CUSTOMER COPY
Cllr Mamfengu - Ntabankulu Local Municipality – Ward 17 Councillor	Ntabankulu Local Municipality, PO Box 234, NTABANKULU, 5130	ORDINARY PARCEL PE 526 443 659 ZA CUSTOMER COPY
Cllr Mazaza - Ntabankulu Local Municipality - Ward 18 Councillor	Ntabankulu Local Municipality, PO Box 234, NTABANKULU, 5130	ORDINARY PARCEL PE 526 443 628 ZA CUSTOMER COPY
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Cllr Mncwati- Port St Johns Local Municipality- Ward 17 Councillor	Port St Johns Local Municipality, PO Box 2, PORT ST JOHNS, 5120	ORDINARY PARCEL PE 526 443 591 ZA CUSTOMER COPY
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Cllr P. Ntshobo - Ingquza Hill Local Municipality- Ward 13 Councillor	Ingquza Hill Local Municipality, PO Box 14, FLAGSTAFF, 4810	ORDINARY PARCEL PE 526 443 565 ZA CUSTOMER COPY
Cllr N. Zathi- Ingquza Hill Local Municipality- Ward 18 Councillor	Ingquza Hill Local Municipality, PO Box 14, FLAGSTAFF, 4810	ORDINARY PARCEL PE 526 443 574 ZA CUSTOMER COPY
Cllr V. Somani- Ingquza Hill Local Municipality- Ward 2 Councillor	Ingquza Hill Local Municipality, PO Box 14, FLAGSTAFF, 4810	ORDINARY PARCEL PE 526 443 587 ZA CUSTOMER COPY
Cllr M. Tenyane- Ingquza Hill Local Municipality- Ward 17 Councillor	Ingquza Hill Local Municipality, PO Box 14, FLAGSTAFF, 4810	ORDINARY PARCEL PE 526 443 543 ZA CUSTOMER COPY
Cllr Daliwe- Ingquza Hill Local Municipality- Ward 23 Councillor	Ingquza Hill Local Municipality, PO Box 14, FLAGSTAFF, 4810	ORDINARY PARCEL PE 526 443 150 ZA CUSTOMER COPY
Cllr M. Nkungu- Ingquza Hill Local Municipality- Ward 24 Councillor	Ingquza Hill Local Municipality, PO Box 14, FLAGSTAFF, 4810	ORDINARY PARCEL PE 526 443 163 ZA CUSTOMER COPY
Cllr S. Magaya- Ingquza Hill Local Municipality- Ward 28 Councillor	Ingquza Hill Local Municipality, PO Box 14, FLAGSTAFF, 4810	ORDINARY PARCEL PE 526 443 923 ZA CUSTOMER COPY

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Cllr Willie - Mbhashe Local Municipality - Ward 13 Councillor	Mbhashe Local Municipality, PO Box 25, INDUTYWA, 5000	ORDINARY PARCEL PE 526 443 937 ZA CUSTOMER COPY
Cllr Mbalela- Mbhashe Local Municipality - Ward 15 Councillor	Mbhashe Local Municipality, PO Box 25, INDUTYWA, 5000	ORDINARY PARCEL PE 526 443 906 ZA CUSTOMER COPY
Cllr Savu- Mbhashe Local Municipality - Ward 20 Councillor	Mbhashe Local Municipality, PO Box 25, INDUTYWA, 5000	ORDINARY PARCEL PE 526 443 910 ZA CUSTOMER COPY
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Cllr. M. Makholeosa- Mbizana Local Municipality- Ward 10 Councillor	Mbizana Local Municipality, PO Box 12, BIZANA, 4800	ORDINARY PARCEL PE 526 443 818 ZA CUSTOMER COPY
Cllr S. Faku - Mbizana Local Municipality- Ward 11 Councillor	Mbizana Local Municipality, PO Box 12, BIZANA, 4800	ORDINARY PARCEL PE 526 443 781 ZA CUSTOMER COPY
Cllr. N. Madikizela- Mbizana Local Municipality- Ward 13 Councillor	Mbizana Local Municipality, PO Box 12, BIZANA, 4800	ORDINARY PARCEL PE 526 443 795 ZA CUSTOMER COPY
Cllr Mcambalala- Mbizana Local Municipality- Ward 15 Councillor	Mbizana Local Municipality, PO Box 12, BIZANA, 4800	ORDINARY PARCEL PE 526 443 778 ZA CUSTOMER COPY
Cllr J.M. Jikigela - Mhlonto Local Municipality - Ward 19 Councillor	Mhlonto Local Municipality, PO Box 31, QUMBU, 5180	ORDINARY PARCEL PE 526 443 764 ZA CUSTOMER COPY
Cllr Mkhuseli Matehe- Mhlonto Local Municipality - Ward 21 Councillor	Mhlonto Local Municipality, PO Box 31, QUMBU, 5180	ORDINARY PARCEL PE 526 443 755 ZA CUSTOMER COPY
Cllr N. Lumkwana - Engcobo Local Municipality - Ward 16 Councillor	Engcobo Local Municipality, PO Box 24, ENGCOBO, 5050	ORDINARY PARCEL PE 526 444 019 ZA CUSTOMER COPY
Cllr M. Jasta- King Sabata Dalinyebo Local Municipality- Ward 18 Councillor	King Sabata Dalinyebo Local Municipality, PO Box 45, MTHATHA, 5099	ORDINARY PARCEL PE 526 444 005 ZA CUSTOMER COPY
Cllr B. Mazini- King Sabata Dalinyebo Local Municipality- Ward 19 Councillor	King Sabata Dalinyebo Local Municipality, PO Box 45, MTHATHA, 5099	ORDINARY PARCEL PE 526 443 999 ZA CUSTOMER COPY
Cllr Zela- King Sabata Dalinyebo Local Municipality- Ward 20 Councillor	King Sabata Dalinyebo Local Municipality, PO Box 45, MTHATHA, 5099	ORDINARY PARCEL PE 526 443 985 ZA CUSTOMER COPY
Cllr M. Mazukwana- King Sabata Dalinyebo Local Municipality- Ward 21 Councillor	King Sabata Dalinyebo Local Municipality, PO Box 45, MTHATHA, 5099	ORDINARY PARCEL PE 526 443 971 ZA CUSTOMER COPY

Cllr Zimela- King Sabata Dalinyebo Local Municipality- Ward 31 Councillor	King Sabata Dalinyebo Local Municipality, PO Box 45, MTHATHA, 5099	ORDINARY PARCEL PE 526 443 968 ZA CUSTOMER COPY
Cllr M.T. Mtirara- King Sabata Dalinyebo Local Municipality- Ward 32 Councillor	King Sabata Dalinyebo Local Municipality, PO Box 45, MTHATHA, 5099	ORDINARY PARCEL PE 526 443 954 ZA CUSTOMER COPY

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26 Appendix E: Site Photographs

26.1 Borrow pit 157_BP01

Figure 13: Borrow Pit # 157-BP01.

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27 Appendix F: Mammal species of the Eastern Cape region

Species	Common name
Aethoys namaquensis	Namaqua rock mouse
Alelerix frontalis	Southern African hedgehog
Amblysomus hottentotus	Hottentot golden mole
Aonyx capensis	Clawless otter
Atilax paludlnosus	Water mongoose
Canis mesomelas	Black-backed jackal
Cephalophrus monticola	Blue duiker
Cercopithecus aethiops	Vervet monkey
Cercopithecus mitis	Samango monkey
Chrysospalax trevelyani	Giant golden mole
Cicidura falvescens	Greater mush shrew
Crocidura cyanea	Reddish-grey mush shrew
Cryptomys hottentotus	Common mole rat
Cynictis penicillata	Yellow mongoose
Damaliscus dorcas phillipsi	Blesbuck
Dasumys incomtus	Water rat
Dendomus mesomelas	Brant's climbing mouse
Dendrohyrax arboreus	Tree dassie
Dendromus melanotis	Grey climbing mouse
Dendromus mystacalis	Chestnut climbing mouse
Elephantus edwardii	Cape rock elephant shrew
Epomophorus wahlbergi	Walberg's epauletted fruit bat
Eptesicus capensis	Cape serotine bat
Eptesicus hottentotus	Long-tailed serotine bat
Felis caracal	Caracal
Felis lybica	African wild cat
Felis serval	Serval
Galerella pulverulenta	Small grey mongoose
Genetta genetta	Small-spotted genet
Genetta tigrina	Large-spotted genet
Georychus capensis	Cape mole rat
Grammomys dolichurus	Woodland mouse
Graphiurus murinus	Woodland dormouse
Graphiurus ocularis	Spectacled dormouse
Herpestes ichneumon	Large grey mongoose
Hipposideros caffer	Sundevall's leaf-nosed bat
Hysterix africaeaustralis	Porcupine
Ichneumia albacaudia	White-tailed mongoose
Ictonyx striatus	Striped polecat
Kerivoula lanosa	Lesser woolly bat
Lepus saxatilis	Scrub hare
Malacothrix typical	Long-eared mouse
Mastomys coucha	Multi-mammate mouse
Mastomys natalensis	Natal multi-mammate mouse
Mellivora capensis	Honey badger
Miniopterus schreibersii	Schreiber's long-fingered bat
Minipterus fracterculus	Lesser long-fingered bat
Mus minutoides	Pygmy mouse

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Species	Common name
Mus musculus	House mouse
Myotis tricolor	Temminck's hair bat
Mysorex cafer	Dark-footed forest shrew
Mysorex varius	Forest shrew
Mystromys albicaudatus	White-tailed rat
Nycteris thebaica	Egyptian slit-faced bat
Orycteropus afer	Antbear (aardvark)
Otmys irroratus	Vlei rat
Otomys saundersiae	Saunder's vlei rat
Papio ursinus	Chacma baboon
Pedetes capensis	Springhare
Philantomba monticola	Blue duiker
Pipistrellus kuhlii	Kuhl's pipistelle
Poecilogate albinuchu	Stripped weasel
Potamohoerus larvatus	Bushpig
Procavia capensis	Rock dassie
Pronolagus crassicaudatus	Natal red hare
Pronolagus rupestris	Smith's red hare
Proteles cristatus	Aardwolf
Raphicerus campestris	Steenbok
Raphicerus melanotis	Cape grysbok
Rattus norvegicus	Brown rat
Rattus rattus	House rat
Redunca arundinum	Reedbuck
Rhabdomys pumilio	Stripped mouse
Rhinolophus clivosus	Geoffrey's horseshoe bat
Rhinolophus swinnyi	Swinny's horseshoe bat
Rousettus aegyptiacus	Egyptian fruit bat
Sccostomus campestris	Pouched mouse
Scotophlus borbonicus	Lesser yellow house bat
Suncus infiitesimus	Least dwarf shrew
Suncus varilla	Lesser dwarf shrew
Sylvicarpa grimmia	Common duiker
Tadarida aegyptiaca	Egyptian free-tailed bat
Tadarida condylura	Angolan free-tailed bat
Taphozous mauritianus	Mauritian tomb bat
Thryonomys swinderianus	Greater cane rat
Traglahus scriptus	Bushbuck
Vulpes chama	Cape fox

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28 Appendix G: Bird species of the Eastern Cape region

Species	Common name	Robarts N#
Accipiter melanelous	Black sparrow hawk	158
Accipiter minullus	Little sparrow hawk	157
Accipiter tachio	African goshawk	160
Acridotheres tristis	Indian myna	758
Acrocephalus palustris	European marsh warbler	633
Actophilomus africanus	African jacana	240
Alcedo cristata	Malachite kingfisher	431
Alcedo semitorquata	Half-collared kingfisher	430
Alopochen aegyptiacus	Egyptian goose	102
Amblyospiza abifrons	Thick-billed weaver	807
Anas sparsa	African black duck	105
Anas undulate	Yellow bulled duck	104
Andropadus imprtunus	Somber bulbul	572
Anhinga melanogaster	Darter	60
Anthreptes collaris	Collard sunbird	793
Anthus lineiventris	Stripped pipit	720
Anthus novaeseelandiae	Richard's pipit	716
Apalis flavida	Yellow-breasted apalis	648
Apalis thoracica	Bar-throated apalis	645
Apalodema narina	Narina trogon	427
Aplopelia larvata	Cinnamon dove	360
Apus affinis	Little swift	417
Apus barbatus	Black swift	412
Apus caffer	White-rumped swift	415
Ardeola railodides	Squacco heron	72
Ardrea cinera	Grey heron	62
Ardrea melancephala	Black-beared heron	63
Aviceda cuculoides	Cucco hawk	128
Balearica regulorum	Crowned quail	209
Batis capensis	Cape batis	700
Bostrychia hagedash	Hadeda	94
Bradyoterus baboecala	African sedge warbler	638
Bradypterus barratti	Barret's warbler	639
Bradypterus sylvaticus	Knysna warbler	640
Bubo africanus	Spotted eagle owl	401
Burhinus capensis	Spotted dikkop	297
Burhinus vermiculatus	Water dikkop	298
Buteo buteo	Steppe buzzard	149
Buteo rufofucus	Jackal buzzard	152
Bycanister bucinator	Trumpeter hornbill	455
Calandrella cinerea	Red-capped lark	507
Calidrus capensis	Sanderling	281
Camaroptera brachyuran	Bleating warble	657
Campephraga flava	Black cuckoo shrike	538
Campethera notata	Knysna woodpecker	484
Centro superciliosus	Burchell's cuckoo	391
Ceryle maxima	Giant kingfisher	429

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Species	Common name	Robarts N#
Ceryle rudis	Pied kingfisher	428
Charadruis marginatus	White-fronted plover	246
Charadruis pecuaris	Kittilz's plover	248
Charadruis tricollaris	Three-banded plover	249
Chrysococcyx capruis	Diederik's cuckoo	386
Chrysococcyx cupreus	Emerald cuckoo	384
Chrysococcyx klaas	Klaas's cuckoo	385
Circaetus cinereus	Brown snake eagle	142
Circus macrourus	Pallid harrier	167
Circus maurus	Black harrier	168
Circus ranivorus	African marsh hawk	165
Cisticola aberrans	Laz cisticola	679
Cisticola ayersii	Ayre's cisticola	667
Cisticola fulvicapilla	Neddick cisticola	681
Cisticola tinniens	Le Vallant's cisticola	677
Colius striatus	Speckled mousebird	424
Columba arquatrix	Rameron pigeon	350
Columba guinea	Rock pigeon	349
Coracias garrulous	European roller	446
Coracina caesia	Grey cuckoo shrike	540
Cossypha caffra	Cape robin	601
Cossypha dichroa	Chorister robin	598
Coturnix conturnix	Common quail	200
Crovus albicolis	Whiter-necked raven	550
Crovus albus	Pied crow	548
Crovus capensis	Black crow	547
Cypsiurus parvus	Palm swift	421
Dendrocygna viduata	White-faced duck	99
Dicrurus adsimilis	Fork-tailed drongo	541
Dryscopus cubia	Puff-back	740
Egretta garzetta	Little egret	67
Elanus caerulen	Black-shouldered kite	127
Erythropygia leucophrys	White-browed robin	613
Erythropygia signata	Brown robin	616
Estilda astrid	Common waxbill	846
Estrilda melanotisquartin	Swee waxbill	850
Euplectes capensis	Yellow-rumped widow	827
Falco biarmicus	Lanner falcon	172
Falco subuteo	Hobby falcon	173
Falco tinnunculus	Rock kestrel	181
Fulica cristata	Red-nobbed coot	228
Haiaetus vocifer	African fish eagle	148
Halyco albiventris	Brown-hooded kingfisher	435
Hieraaetus pennatus	Booted eagle	136
Hirundo abyssinica	Lesser stripped swallow	527
Hirundo albigularis	White-throated swallow	520
Hirundo cucullata	Greater stripped swallow	526
Hirundo dimidiate	Pearl-breasted swallow	523
Hirundo fuligula	Rock martin	529
Hirundo rustica	European swallow	518
Indicator indicator	Greater honey guide	474
Indicator variegates	Scarlet-throated honey guide	475

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Species	Common name	Robarts N#
Ispidima picta	Pygmy kingfisher	432
Lagonosticta rubricate	Blue-billed fire finch	840
Lamprotomis corrusus	Black-billed starling	768
Laniarius ferrugineus	Southern boubou	736
Lanius colaris	Fiscal shrike	732
Lopeatus occipitalis	Long-crested eagle	139
Lybius leucomelas	Pied barbet	465
Lybius torquatus	Black-collared barbet	464
Macronyx capensis	Orange-throated longclaw	727
Malaconotus blanchoti	Grey-headed bush shrike	751
Malaenomis pammelaina	Black flycatcher	694
Merops apiaster	European bee-eater	438
Mesopicus griseocephalus	Olive woodpecker	488
Milvus migrans	Yellow-billed black kite	126
Motacilla aguimp	African pied wagtail	711
Motacilla capensis	Cape wagtail	713
Motacilla ciara	Long-taied wagtail	712
Muscicupa adjusta	Dusk flycatcher	690
Muscicupa caerulescens	Blue-grey flycatcher	691
Nectainia veroxii	Gery sunbird	789
Nectarine amethystine	Black sunbird	792
Nectarinia afra	Greater double-collared sunbird	785
Nectarinia chalybea	Lesser double-collared sunbird	783
Nycticorax nicticorax	Black crowned night heron	76
Oena capensis	Namaqua dove	356
Oriolus larvatus	Black-headed oriole	545
Oriolus oriolus	European golden oriole	543
Parus niger	Southern black tit	554
Permis apivorus	Hone buzzard	130
Phalacrocorax afrianus	Reed cormorant	58
Phalacrocorax capensis	Cape cormorant	56
Phalacrocorax carbo	White-breasted cormorant	55
Phoeniculus purpureus	Red-billed wood hoopoe	452
Phyllasterphus terrestris	Terrestrial bulbul	569
Phylloscopus trochilus	Willow warbler	643
Plectropterus gambensis	Spurwinged goose	116
Ploceus bicolor	Forest weaver	808
Ploceus capensis	Spectacled weaver	810
Ploceus capensis	Cape weaver	813
Ploceus subaureus	Yellow weaver	817
Podica senegalensis	African finfoot	229
Pogoniulus pusillus	Red-fronted tinker barbet	469
Pogonocichia stellata	Starred robin	606
Poicephalus robustus	Cape parrot	362
Polyboroides typus	Gymnogene	169
Prinia maculosa	Spotted prina	686
Prinia sublava	Tawn-flanked prinia	683
Psalioprocne holomelas	Black saw-winged swallow	536
Pyncnonotus barbatus	Black-eyed bulbul	568
Sagittarius serpentarius	Secretary bird	118
Sarothrura affinis	Stripped flufftail	221
Sarothrura rufa	Red-chested flufftail	217

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Species	Common name	Robarts N#
Saxicola toquata	Stone chat	596
Scopus unbretta	Hammerkop	81
Seicercus ruficapillus	Yellow-throated warbler	644
Serinus gulasris	Streak-headed canary	881
Serinus mazambicus	Yellow-eyed canary	869
Serinus scotops	Forest canary	873
Sigelus silens	Fiscal flycatcher	698
Sorathrura elegans	Buff-spotted flufftail	218
Spermestes cuccullatus	Bronze manikin	857
Stephanoaetus coroatus	Crowned eagle	141
Streptopelia capicola	Cape turtle dove	354
Streptopelia semitorquata	Red-eyed dove	352
Streptopelia senegalensis	Laughing dove	355
Sturnus vulgaris	European starling	757
Tachybaptus ruficolis	Little grebe, dabchick	8
Tadoma cana	South African shell duck	103
Tauraco corythaix	Knysna lourie	370
Tchagra tchagra	Grey-breasted tchagra	742
Telephorus zeylonus	Bokmakierie	746
Telphorus olivaceus	Olive bush shrike	750
Tersiphone viridis	Paradise flycatcher	710
Thalassomis leuconotus	White-backed duck	101
Thamnolea cinnamomeivent	Mocking chat	577
Threskiomis aethiopus	Sacred ibis	91
Tokus alboterminatus	Crown hornbill	460
Tringa hypoleucos	Common sandpiper	264
Trochocercus cynomelas	Blue-mantled flycatcher	708
Turdus olivaceus	Olive thrush	577
Turtur chalcospilos	Green-spotted dove	358
Turtur tympanistria	Tambourine dove	359
Tyto alba	Barn owl	392
Tyto capensis	Grass owl	393
Upupa epopos	Hoopoe	451
Vanellus armatus	Blacksmith plover	258
Vanellus coronatus	Crowned plover	255
Vanellus melanopteris	Black-winged plover	257
Zosterops pallidus	Cape white-eye	796

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29 Appendix H: Threatened Birds of the Eastern Cape

Common name	Species name	Conservation status	Endemicity
Bearded Vulture	*Gypaetus barbatus*	Endangered	
Bittern	*Botaurus stellaris*	Critical	
Black Harrier	*Circus maurus*	Near-threatened	SA Endemic
Black Oystercatcher	*Haematopus moquini*	Near-threatened	
Black Stork	*Ciconia nigra*	Near-threatened	
Blackbellied Korhaan	*Eupodotis melanogaster*	Near-threatened	
Blackbrowed Albatross	*Diomedea melanophris*	Near-threatened	
Blackwinged Plover	*Vanellus melanopterus*	Near-threatened	
Blue Crane	*Anthropoides paradisea*	Vulnerable	SA Endemic
Blue Korhaan	*Eupodotis caerulescens*	Near-threatened	SA Endemic
Broadtailed Warbler	*Schoenicola brevirostris*	Near-threatened	
Bush Blackcap	*Lioptilus nigricapillus*	Near-threatened	SA Endemic
Cape Cormorant	*Phalacrocorax capensis*	Near-threatened	
Cape Gannet	*Morus capensis*	Vulnerable	
Cape Parrot	*Poicephalus robustus*	Endangered	
Cape Vulture	*Gyps coprotheres*	Vulnerable	SA Endemic
Caspian Tern	*Hydroprogne caspia*	Near-threatened	
Chestnutbanded	*Charadrius pallidus*	Near-threatened	
Corncrake	*Crex crex*	Vulnerable	
Crowned Eagle	*Stephanoaetus coronatus*	Near-threatened	
Damara Tern	*Sterna balaenarum*	Endangered	
Delegorgue's Pigeon	*Columba delegorguei*	Vulnerable	
Finfoot	*Podica senegalensis*	Vulnerable	
Grass Owl	*Tyto capensis*	Vulnerable	
Greater Flamingo	*Phoenicopterus rubber*	Near-threatened	
Grey Petrel	*Procellaria cinerea*	Near-threatened	
Ground Hornbill	*Bucorvus leadbeateri*	Vulnerable	
Halfcollared Kingfisher	*Alcedo semitorquata*	Near-threatened	
African Penguin	*Spheniscus demersus*	Vulnerable	
Knysna Warbler	*Bradypterus sylvaticus*	Vulnerable	SA Endemic
Knysna Woodpecker	*Campethera notata*	Near-threatened	SA Endemic
Kori Bustard	*Ardeotis kori*	Vulnerable	
Lanner	*Falco biarmicus*	Near-threatened	
Lesser Flamingo	*Phoenicopterus minor*	Near-threatened	
Lesser Kestrel	*Falco naumanni*	Vulnerable	
Ludwig's Bustard	*Neotis ludwigii*	Vulnerable	
Mangrove Kingfisher	*Halcyon senegaloides*	Vulnerable	
Marabou	*Leptoptilos crumeniferus*	Near-threatened	
Marsh Harrier	*Circus ranivorus*	Vulnerable	
Martial Eagle	*Polemaetus bellicosus*	Vulnerable	SA Endemic
Melodious Lark	*Mirafra cheniana*	Near-threatened	
Orange Thrush	*Turdus gurneyi*	Near-threatened	
Painted Snipe	*Rostratula benghalensis*	Near-threatened	
Pallid Harrier	*Circus macrourus*	Near-threatened	
Peregrine	*Falco peregrinus*	Near-threatened	
Roseate Tern	*Sterna dougallii*	Endangered	
Rudd's Lark	*Mirafra ruddi*	Critical	
Secretary bird	*Sagittarius serpentarius*	Near-threatened	

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Common name	Species name	Conservation status	Endemicity
Shy Albatross	*Diomedea cauta*	Vulnerable	
Southern Giant Petrel	*Macronectes giganteus*	Near-threatened	
Stanley's Bustard	*Neotis denhami*	Vulnerable	
Striped Flufftail	*Sarothrura affinis*	Vulnerable	
Tawny Eagle	*Aquila rapax*	Vulnerable	
Wandering Albatross	*Diomedea exulans*	Vulnerable	
Wattled-Crane	*Burgeranus carunculatus*	Endangered	
White Pelican	*Pelecanus onocrotalus*	Near-threatened	
Whitebacked Night Heron	*Gorsachias leuconotus*	Vulnerable	
Whitebellied Korhaan	*Eupodotis cafra*	Vulnerable	
Whitechinned Petrel	*Procellaria aequinoctialis*	Near-threatened	
Whitecrowned plover	*Vanellus albiceps*	Near-threatened	
Yellowbilled Stork	*Mycteria ibis*	Near-threatened	
Yellowbreasted Pipit	*Anthus chloris*	Vulnerable	SA Endemic

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30 Appendix I: Borrow pit Information

Rd_Nr_	No_	South	East	Municipal Area	Ward	Farm #/Allotment Name
DR08157	157_BP01	31°25'08.7" S	29°22'53.9" E	Port St Johns LM	17	Farm RE/112

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31 Appendix J: Curriculum Vitae

31.1 Dr Malcolme Logie

Dr. Malcolme Logie
Principal and Managing Director
MSc (Botany); PhD (Biotechnology), Rhodes

Malcolme Logie has over 12 years experience in the field of Environmental Management with extensive experience in the fields of Industrial Environmental Management; Safety, Health & Environmental Management Systems; and Environmental Auditing and Assessments (environmental site assessments, environmental impact assessments, systems certification), in South Africa, Mocambique, Namibia, Angola, Ghana, Zambia, Egypt, The Czech Republic, The Slovak Republic and Romania.

Malcolme has wide-ranging experience primarily in the following sectors:

- Automotive sector
- Beverages
- Chemicals & chemical products
- Civil and mechanical engineering
- Electricity & water supply
- Metals refining & processing
- Mining & quarrying
- Pulp & paper
- Telecommunications

Malcolme's project experience largely falls into the following broad areas:

Safety, Health & Environmental Management Systems

Malcolme's experience includes management system design and implementation and also certification audits across a wide range of industrial and mining sectors in South Africa, Mocambique, Angola, Zambia and Romania.

Environmental Site Assessments

Malcolme has been the project leader on many Phase I and II ESA's that have been undertaken in accordance with the ASTM standards, at several industrial facilities in South Africa.

Environmental Auditing

Malcolme's auditing experience includes ISO 14001, OHSAS 18001 and ISO 9001 certification level audits; legal compliance, and environmental performance audits across a wide range of industrial and mining sectors in South Africa, Mocambique, Namibia, Angola, Ghana, Zambia, Egypt, The Czech Republic and Romania.

Environmental Impact Assessments

Malcolme has managed a broad range of environmental impact assessments ranging from: industrial facilities, telecommunication networks, electrification networks, transportation infrastructure, waste sites and water supply.

Professional Affiliations & Registrations

- Registered as a Professional Natural Scientist (Environmental Scientist) with the South African Council of Natural Scientific Professions (SACNASP).
- Professional Member of the South African Institute of Ecologists and Environmental Scientists (SAIE&ES)
- Certification Board of Environmental Assessment Practitioners of South Africa
- International Association of Impact Assessors (IAIASA)
- Royal Society of South Africa
- South African Association of Botanists (SAAB)
- Phycology Society of South Africa (PSSA)
- South African Auditor & Training Certification Association (SAATCA) – EMS Verification Auditor
- Bureau Veritas Quality International – Lead EMS Auditor

South African Council of Natural Scientific Professions

- Malcolme is a member of the Education Committee of South African Council of Natural Scientific Professions (SACNASP) for the registration of Professional Natural Scientist.

Rhodes University Investec Schools of Business

- Malcolme sits on the Advisory Board for the Rhodes University Investec Schools of Business which provides advice and directs the strategic planning and continual development of the business school.
- Malcolme lectures at the MBA class at the Rhodes University Investec Schools of Business on safety, health environmental management in the industrial and business environments.

Fields of Competence

- Safety, Health & Environmental Management Systems
- Industrial Environmental Management
- Environmental Site Assessments

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- Environmental Impact Assessments

Education

- PhD (Biotechnology) 1995
- MSc (Botany), 1992
- BSc Honours (Botany), 1990
- BSc (Plant Science & Biochemistry), 1989

Key Projects

Recent key projects include:

South African Breweries Millers (SAB Miller)

- Ursus Breweries, Romania (SAB Miller), where Malcolme is responsible for the development and implementation of a Safety, Health & Environmental Management System at four breweries and a depot.
- Plzeňský Prazdroj, Czech Republic (SAB Miller), where Malcolme is responsible for the development and implementation of an integrated Safety, Health & Environmental Management System at three breweries.
- Dreher Sörgyárak Zrt, Hungary (SAB Miller), where Malcolme is responsible for the development and implementation of an integrated Safety, Health & Environmental Management System at this brewer.
- Ibhayi Brewery (Port Elizabeth) where an Environmental Management System was designed and implemented at this new state-of-art brewery. During the construction of the brewery Malcolme reviewed all the plans to ensure environmental sustainability

BHP Billiton (MOZAL), Mocambique

- Malcolme designed and co-ordinated the implementation of the Environmental Management System at this BHP Billiton aluminium smelter in Maputo, and continues to service this organization environmental management needs.

Coca-Cola Company

- Malcolme is the appointed SHE Management System Consultant to Coca-Cola Company Southern Africa, responsible for advising of the implementation of a SHE MS compliant with ISO 14001:2004, OHSAS 18001:1999 and the Coca-Cola Worldwide E3 programme.
- Malcolme is guiding to process for the development and implementation of an integrated SHE Management System at Coca-Cola Fortune (Polokwane & Bloemfontein). The management system is based on the requirements of ISO 14001:2004 and OHSAS 18001:1999.

Lonmin Platinum, South Africa

- Malcolme co-ordinated the design and implementation of the Environmental and Quality Management System at Lonmin's Western Platinum Refinery in Johannesburg, and also revised and re-establish the EMS at this platinum producers smelter and base metal refinery near Rustenburg.

Dorbyl Automotive Technologies, South Africa.

- For the past eight years Malcolme has been the exclusive environmental management and environmental management systems consultant to this automotive components producer. The production facilities include: foundries, forges, machine shops and manufacturing units.

Telkom SA Ltd, South Africa.

- Malcolme was instrumental in establishing the internal environmental assessment guidelines for this national telecommunication service provider, for the placement of telecommunication masts and associated infrastructure. He has also undertaken more than 120 environmental impact assessments of individual telecommunication masts throughout South Africa.

Environmental Site Assessments

- Malcolme has been the project leader on many Phase I and II ESA's that have been undertaken in accordance with the ASTM standards, at several industrial facilities in South Africa.

SHEQ Management Systems Auditing

- Malcolme has in excess of 8600 hours of SHEQ Management Systems auditing. He has audited companies in South Africa, Mocambique, Namibia, Angola, Ghana, Zambia, Egypt, The Czech Republic, The Slovak Republic and Romania.

European Scope of Accreditation

Malcolme has competency in the following Industrial Sectors:

1	Agriculture, forestry, fisheries	20	Ship building
2	Mining & quarrying	21	Aerospace
3	Beverages & foodstuff industries	22	Other transport equipment (automotive, rail)
4	Textile industries	23	Manufacturing (not classified elsewhere)
5	Leather & leather products	24	Recycling
6	Wood industries	25	Electricity supply
7	Pulp, paper & paper products	26	Gas supply
10	Mineral-oil processing	27	Water supply
12	Chemicals & chemical products	28	Construction
13	Pharmaceuticals	30	Hotels & restaurants
14	Rubber & plastic goods	31	Transport & communication
15	Glass, ceramics, processing of minerals & ores	34	Research & development
16	Production of cement, lime, gypsum & concrete, lime and gypsum products	35	Business services
17	Metals refining & processing, & production of metals	37	Education
18	Mechanical engineering	39	Other social services

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31.2 Ms Lee-Anne Proudfoot

Ms. Lee-Anne Proudfoot
Senior Environmental Consultant
MSc (Marine Biology)

Lee-Anne Proudfoot has experience in the fields of Marine and Coastal Ecology , Geographical Information Systems (GIS), Environmental Impact Assessments, Environmental Site Assessments, Environmental Management Plans, Environmental Auditing, Visual Impact Assessments, Aquatic Impact Assessments and Project Management.

Lee-Anne's project experience includes:

Environmental Impact Assessments
Lee-Anne assisted in and managed a broad range of scoping & environmental impact assessments ranging from: agri-industrial & industrial facilities, residential & resort developments, golf estates, renewable energy technologies, storm water management, water supply, desalinisation and sewage.

Environmental Site Assessments
Lee-Anne has experience in site assessments, field sampling & monitoring, permit applications and in the compilation of reports for prospective land buyers.

Environmental Management Plans
Lee-Anne has experience in compiling and monitoring the Environmental Management Plans for a wide range of developments.

Environmental Auditing
Lee-Anne has experience in auditing the environmental compliance of and compiling environmental auditing reports.

Geographical Information Systems (GIS)
Lee-Anne has experience in using ArcView, Idrisi and Manifold software in assessing & producing maps, site plans, aerial photographs, etc.

Visual Impact Assessments (VIA)
Lee-Anne has experience in conducting VIA's and compiling VIA reports.

Aquatic Impact Assessments (AIA)
Lee-Anne has experience in conducting SASS5 Bio-rapid assessments for Aquatic Impact Assessments.

Project Management
Lee-Anne has experience in managing projects for a wide range of developments.

Professional Affiliations & Registrations
- Registered as a Professional Natural Scientist (Environmental Scientist) with the South African Council of Natural Scientific Professions (SACNASP).
- International Association of Impact Assessors, South Africa

Fields of Competence
- Environmental Impact Assessments
- Environmental Site Assessments
- Environmental Management Plans
- Environmental Auditing
- Geographical Information Systems (GIS)
- Visual Impact Assessments (VIA)
- Aquatic Impact Assessments (AIA)
- Project Management

Education
- M.Sc. (Marine Biology), Rhodes, 2006
- B.Sc. Honours (Marine Biology), Rhodes, 2003
- B.Sc. (Zoology and Ichthyology), Rhodes, 2002

Key Projects

African Dune Investments (Pty) Ltd
Lee-Anne is currently undertaking the environmental impact assessment and managing the environmental authorization process for the proposed Woodlands Golf Estate.

ABSA Development Company/Bigen Africa
Lee-Anne is the project manager for the environmental management component of the Albany Regional Water Services Project

African Dune Investments (Pty) Ltd
Lee-Anne is currently managing the scoping and environmental impact assessment for the environmental authorization of a proposed Wind Turbine Farm.

Amatola Green Power (Pty) Ltd

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Lee-Anne is currently managing the environmental impact assessment for the proposed extraction of landfill gas from three BCM Landfill Sites for the purposes of electricity generation.

The Environmental Law Consultancy

Lee-Anne assisted in the compilation of a Legal Register for a Chrome Tanning Salts Plant in Merebank, with her focus pertaining to the relevant Occupational Health and Safety legislation.

International Finance Corporation

Lee-Anne co-ordinated and reviewed the specialist environmental studies required for the environmental impact assessment for the proposed Kalakundi Copper & Cobalt Mine in the Democratic republic of Congo.

Carpano Investments (Pty) Ltd

Lee-Anne was responsible for the environmental management component of the Spatial Development Framework for the proposed Rock Cliff development area south-east of East London

Kempston Leisure (Pty) Ltd

Lee-Anne managed the environmental authorization process for a proposed motor city

Edcot Trust (Pty) Ltd

Lee-Anne managed the environmental authorization process for a proposed motor city

Kempston Leisure (Pty) Ltd

Lee-Anne is the Environmental Control Officer for the proposed motor city development.

Wild Coast Ski Boat Club

Lee-anne undertook the renewal application for a boat launching permit and prepared the requested environmental management plan for the Hole in the Wall Launch Site

Wild Coast Fishing Co-operative

Lee-Anne conducted and managed the environmental authorization process for a proposed aquaculture facility

Wild Coast Fishing Co-operative

Lee-Anne conducted and managed the scoping assessment for a proposed fish processing factory

Alvitex 103 (Pty) Ltd

Lee-Anne assisted on the environmental impact assessment for the proposed resort development.

Rakel (Pty) Ltd

Lee-Anne managed the environmental impact assessment for desalination plants servicing the proposed resort developments

Alvitex 103 (Pty) Ltd

Lee-Anne managed the environmental impact assessment for desalination plants servicing the proposed resort developments

Leisure Homes for Senior Citizens

Lee-Anne managed the environmental authorization process for the proposed extension of a retirement village

Fire Ring

Lee-Anne was involved in the compilation of a site assessment report for the prospective purchasing of land

Blue Beacon Investments (Pty) Ltd

Lee-Anne conducted and managed the environmental authorization process for the Connemara Housing Complex

Buffalo City Municipality – Waste Management

Lee-Anne assisted in the environmental audit process on the Buffalo City Regional Waste Disposal Site, focussing on issues such as operations and water-quality monitoring.

Buffalo City Development Agency

Lee-Anne was responsible for the environmental assessment component of the Nahoon Mouth and Sports Precinct Local Spatial Framework Plan.

Southern Palace Investments 414 (Pty) Ltd

Lee-Anne conducted and managed the scoping and environmental impact assessment for environmental authorization for a proposed mixed use development for the purposes of a hospital, retirement village and church.

Nuffield Trust

Lee-Anne conducted and managed the environmental impact assessment for the environmental authorization of a proposed Yellowwood Heights Residential Development

Riverleigh VII

Lee-Anne conducted and managed the Scoping Assessment for a proposed mixed use development for the purposes of entry level residential, office and retail.

True Group Building (Pty) Ltd

Lee-Anne conducted and managed the environmental impact assessment for the environmental authorization of a proposed light industrial site.

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31.3 Mr Conroy van der Riet

Mr. Conroy van der Riet
Senior Environmental Consultant
BSc Honours (Environmental Geography)

Conroy van der Riet has more than 4 years experience in the fields of Marine and Terrestrial Ecology, Geography, Geographical Information Systems (GIS), Mining, Environmental Impact Assessments, Environmental Site Assessments, Environmental Management Plans, Environmental Management Systems, Environmental Auditing, Visual Impact Assessments, Site Rehabilitation, Water Use Licensing, Waste Licensing and project management throughout South Africa.

Conroy's project experience includes:

Environmental Impact Assessments
Conroy assisted in and managed a broad range of environmental impact assessments ranging from: agri-industrial & industrial facilities, residential & resort developments, golfing estates, informal settlement planning & formalisations, storm water management, water supply, desalinisation and sewage.
Environmental Site Assessments
Conroy has experience in many Phase I and II site assessments in accordance with ASTM Standards, SASS 5 freshwater aquatic systems assessments, field sampling & monitoring, permit applications and in the compilation of reports for prospective land buyers.
Environmental Management Plans
Conroy has experience in compiling and monitoring the Environmental Management Plans for a wide range of developments.
Environmental Management Systems
Conroy's experience includes Environmental Management System design and implementation, legal compliance audits, and risk assessments in compliance with relevant ISO Standards.
Environmental Auditing
Conroy's auditing experience includes ISO 14001, OHSAS 18001 and ISO 9001 certification level audits; legal compliance, and environmental performance audits across a wide range of industrial sectors in South Africa.
Geographical Information Systems (GIS)
Conroy has experience in using ArcView, Idrisi and Manifold software in assessing & producing environmental sensitivity maps, site plans, aerial photographs, satellite imagery, etc.
Visual Impact Assessments (VIA)
Conroy has experience in conducting VIA's and compiling VIA reports.
Site Rehabilitation
Conroy has experience in the rehabilitation of a variety of disturbed areas.
Water Use Licensing
Conroy has experience in a range of Water Use License application and related projects.
Waste Licensing
Conroy has experience in Waste License Applications for a range of projects
Project Management
Conroy has experience in managing projects for a wide range of developments.

Professional Affiliations & Registrations
- Registered as a Professional Natural Scientist (Environmental Scientist) with the South African Council of Natural Scientific Professions (SACNASP).
- International Association of Impact Assessors, South Africa

Fields of Competence
- Environmental Impact Assessments
- Environmental Management Plans
- Environmental Site Assessments
- Environmental Management Systems
- Environmental Auditing
- Geographical Information Systems (GIS)
- Visual Impact Assessments (VIA)
- Site Rehabilitation
- Water Use Licensing
- Waste Licensing
- Project Management

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Education
- BSc Hons (Environmental Geography) NMMU, 2006
- BSc (Zoology and Geography) NMMU, 2005

Employment Record
- Biotechnology & Environmental Specialist Consultancy cc: 2006 – Present:

Key Projects

PG Bison
Conroy assisted in the preparation of an Environmental Aspects Register, inclusive on significance assessment and proposed mitigation/management strategies for all the PG Bison activities at the board plant in Ugie, Eastern Cape for purposes of implementation of an Environmental Management System.

Kraft Foods SA
Conroy conducted the Phase I Environmental Site Assessment n in accordance with the ASTM standards, and assisted in the preparation of an Environmental Aspects Register, inclusive on significance assessment and proposed mitigation/management strategies for all the Kraft Foods SA – Tunney Plant's activities for purposes of implementation of an Environmental Management System.

Goodyear SA
Conroy managed the Scoping process for the proposed installation of Underground Storage Vessels at the Goodyear SA factory.

Pragma Africa (Pty) Ltd
Conroy managed the environmental authorization process for the removal of underground fuel storage vessels.

Buffalo City Municipality – Waste Management
Conroy assisted in the environmental audit process on the Buffalo City Regional Waste Disposal Site, focussing on issues such as construction, operations and air-quality monitoring.

SANRAL
Conroy is managed the environmental authorization process for the proposed improvement of National Route 02, Section 18 for the South African National Roads Agency Limited. Conroy is also managing the mining permit applications of the borrow pits for the proposed road improvement, and has been appointed to act as Environmental Control Officer for the implementation of the project.

Bigen Africa (Pty) Ltd & Ndlambe Local Municipality
Conroy managed the environmental authorization process for the proposed Port Alfred Waste Water Treatment Works upgrade project. Conroy has also been appointed to act as the Environmental Control Officer for the implementation of the project.

Uhambiso
Conroy managed the environmental authorization and Waste License Application process for the proposed Tsolo Waste Water Treatment Works upgrade project.

Chris Hani District Municipality – Bulk Services
Conroy is currently managing the environmental authorization and Waste License Application process for the proposed upgrading of the Bulk Services for the proposed Rathwick Development, Queenstown, inclusive of the Waste Water Treatment Works, Water Treatment Works, Stormwater and associated infrastructure.

Chris Hani District Municipality – Water Supply
Conroy is currently managing the environmental authorization process for the Water Supply Backlog projects in the Cluster 2 area of the Chris Hani District Municipality.

Alvitex 103 (Pty) Ltd
Conroy managed the environmental authorization process for a proposed golfing estate development and assisted in the environmental authorization for the sewage works servicing the proposed resort developments, and.

African Dune Investments
Conroy assisted in the environmental authorization for the proposed golf estate development.

Thynk Property Partners (Pty) Ltd
Conroy managed the environmental authorization process for the proposed retail & residential development.

Eskom
Conroy is currently managing the environmental authorization process for the proposed upgrading of the Qumbu Substation and associated infrastructure.

Buffalo City Municipality – Planning and Economic Development
Conroy managed the environmental authorization for various settlement planning & formalization projects in the Amathole district.

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The Diocese of Grahamstown
Conroy managed the environmental authorization for the proposed rezoning and residential development of the St Lukes Mission Land.
Bunker Hills Investments (Pty) Ltd
Conroy managed the environmental management plan for the proposed residential development.
Rakel (Pty) Ltd
Conroy assisted in managing the environmental authorization for the proposed residential development and assisted in the environmental impact assessment for the proposed desalination plant servicing the proposed residential development.
Rapitrade (Pty) Ltd
Conroy assisted in managing the environmental management plan for the proposed residential development and managed the applications to the South African Heritage Resources Agency (SAHRA) and the Department of Water Affairs & Forestry.
Golden Falls (Pty) Ltd
Conroy assisted in the environmental authorization and the environmental management plan for the proposed residential development.
Beautiful Connections (Pty) Ltd
Conroy managed the environmental authorization for a proposed wildlife resort in the Queenstown area and the proposed development of Eco-Type chalets in the East London area.
Riverleigh VII cc
Conroy managed the environmental authorization process for the proposed warehousing and light industrial manufacturing processes developments.
Purple Moss 29 (Pty) Ltd
Conroy managed the rehabilitation of the Quenera River bank on the site and the environmental authorization process for the proposed township establishment consisting of business, mixed use and residential areas.
Silicon Smelters (Pty) Ltd (FerroAtlantica)
Conroy managed the environmental impact assessment process and CAPCO permit applications for various charcoal burners in the East Cape, West Cape, Free State, North-West, Limpopo and Gauteng Provinces.
Wild Coast Fishing Co-operative
Conroy assisted in the environmental authorization for the proposed fish works factory.
ELGC
Conroy managed the EIA Process and prepared the rehabilitation management plan for the proposed realignment of the 6th fairway & minor upgrades in order to upgrade the East London Golf Club (ELGC).

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