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This Report should be cited as follows: Coastal and Environmental Services (Pty) Ltd, December 2014: Agriculture and Soils Assessment, Capitol Resources Mozambique, Tete Iron Project, Tete Province, Mozambique. CES, East London.

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<tr>
<th>Document Title</th>
<th>Tete Iron Project: Agriculture And Soils Assessment</th>
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<tr>
<td>Client Name &amp; Address</td>
<td>Capitol Resources Limitada</td>
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<td>Rua Fernão Melo e Castro 261</td>
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<td></td>
<td>Bairro da Sommerschield</td>
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<td>Maputo</td>
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<td>Moçambique</td>
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<td>CES East London</td>
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<td>Dr Kevin Wittington-Jones</td>
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<tr>
<td></td>
<td>Mr Bill Rowlston</td>
</tr>
<tr>
<td></td>
<td>CES Grahamstown</td>
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</tbody>
</table>

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EXECUTIVE SUMMARY

Project background

Baobab Resources Plc (Baobab) is an AIM listed company with a portfolio of mineral properties in the Republic of Mozambique. The company’s flagship asset is the Tete magnetite-ilmenite (Iron) Project located in the Tete Province of Mozambique. Capitol Resources Limitada (Capitol Resources), a subsidiary of Baobab Resources, is proposing to develop the Tete Iron Project which is located in the Chiúta and Moatize districts, 30 km north of Tete town.

The deposit consists of four prospecting areas: Tenge; Ruoni North; Ruoni South; Ruoni Flats. The mine will include open pit mining, processing and transportation of pig iron from the Tenge prospect. The iron will be exported from either the Beira or Nacala Ports.

Coastal and Environmental Services (Pty) Ltd (CES) has been appointed by Capitol Resources Lda, as independent environmental assessment practitioners, to undertake an Environmental Impact Assessment (EIA) for a proposed iron ore mine in Tete Province of Mozambique. One of the required specialist studies as identified in the Final Scoping Report is that of an Agriculture and Soils Impact Assessment (ASIA) of the proposed mining development.

Terms of reference

The Terms of Reference for the soil assessment were as follows:
- Characterise the soil and distribution of soil types.
- Develop recommendations for soil management and mitigation measures for soil degradation.
- Recommend potential crop types that can be grown in the area, extrapolated from soil and climatic conditions.

The Agriculture and Soils Assessment had the following Terms of Reference:
- To provide a report on the status quo with reference to agricultural activity.
- Identify and map existing important community agricultural activities within the project footprint.
- To find ways and means to help the local people to improve their agricultural productivity.
- Evaluate the land capability of the area based on the broad soil and climatic analysis and comment on the potential of the area for agriculture.
- Engage with the social scientists to ensure that questions related to agriculture are asked during the social impact assessment, to clarify the complexities associated with agricultural resource utilisation.
- Determine whether any grazing land falls within proposed mine infrastructure and mining areas and map these areas.
- Identify and assess the significance of impacts on soils and agricultural resource use that could result from the mining operation.

Assumptions and information availability

This report is based on currently available information and, as a result, the following limitations and assumptions are implicit:
- The report is based on a project description taken from design specifications for the proposed Capitol Resources Mozambique, Tete Iron Mine that have not yet been finalised, and which are likely to undergo a number of iterations and refinements before they can be regarded as definitive;
- Descriptions of the surrounding agricultural environment are based on extensive fieldwork and available literature only.
Approach

A desktop analysis and a field survey were undertaken. The methodology used is described below.

Desktop analysis

Soil distribution and agricultural reference maps were developed using the following resources:
- Topographical map
- Geological map of the Cazula/Zobue area (Scale 1:250 000)
- Vegetation map (from the Vegetation Assessment Report; CES 2014)
- Satellite imagery from Google Earth

The following specialist reports have been prepared as part of the Environmental process and were also consulted during the preparation of this report:
- Groundwater and Geochemistry
- Surface water
- Erosion Assessment
- Socio-economic Impact Assessment (including SEBS)
- Natural resource use study

The abovementioned resources were used as a remote sensing technique. This allowed for a preliminary soil and agricultural analysis of the study site to guide the subsequent field survey work.

Field survey

A field survey was conducted from 12th to 16th May 2014 in order to assess soils and agricultural potential onsite. The entire mining concession area (as shown in Figure 1.2) was assessed.

As the Mozambican Soil Classification is based on the Food and Agriculture Organisation (FAO) of the United Nations, the Guidelines for Soil Description (FAO 4th Ed. 2006) was used to classify soils in the field according to international guidelines as set out in the second edition of the World Reference Base for Soil Resources (WRB) (IUSS Working Group WRB, 2006).

Soil samples were collected and analysed at an accredited laboratory (Brookside Laboratory Inc, a participating laboratory in the North American Soil, Plant and Water Proficiency Testing Programs.) to confirm the onsite visual classification of soils.

Results and conclusions

Soil classification

Based on a visual survey conducted during the site visit, as well as soil samples collected from each area that was visually classified, the dominant soil forms were identified within the Capitol Resources Mozambique, Tete Iron Project mining site. Soil types found onsite are, Fluvisols, Vertisols, Leptosols, Luvisols, Cambisols, Calcisols and Gypsisols (as seen below).
Figure 4.2. Soil map of the Capitol Resources Mozambique, Tete Iron Project mining site.
Figure 4.3. Soil map of the Capitol Resources Mozambique, Tete Iron Project haul road site.
Agricultural potential

Based on the soil characteristics identified, the proposed mining site and haul road is considered as having high agricultural potential for crop cultivation and livestock rearing on the plains, and moderate for livestock grazing on rocky outcrops (Figure 5.1 and Table 5.2.)
Figure 5.1. Agricultural potential for the Capitol Resources Mozambique, Tete Iron Project site.
Figure 5.2. Agricultural potential for the Capitol Resources Mozambique, Tete Iron Project haul road.
Despite the high agricultural potential classification of a large proportion of the project area and haul road (up to 90%), agricultural productivity in the area remains low. This is due to a variety of factors such as:

- Limited access to water in areas away from perennial rivers
- A limited range of crops historically utilised, mainly maize
- Shifting and rain fed arable cultivation primarily practised
- Traditional farming methods used: no mechanical methods (such as tractors.) are utilised.
- Limited agricultural aid
- No agricultural infrastructure (such as silos, roads, irrigation)
- Few and scattered machambas found onsite

With the exception of the mine pit and a short section (of the haul road around 4 km), all other mining infrastructure will be situated in high agricultural potential areas. Agricultural practices in these areas are limited and the impact on existing farming practices may be low.

**Impacts on soils and agriculture**

Impacts on the agricultural potential of the affected land were identified during the Planning and Design, Construction and Operation phases of the proposed Capitol Resources Mozambique, Tete Iron mining project and are described below. These included the consideration of direct, indirect and cumulative impacts that may occur. Issues and impacts are summarised below:

**Table 1: Impacts to soil and agriculture associated with different phases of the proposed Capitol Resources Mozambique, Tete Iron Project.**

<table>
<thead>
<tr>
<th>Phase</th>
<th>Issue</th>
<th>Nature of Impact</th>
<th>Description of Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>1. Sedimentation of rivers and streams</td>
<td>Direct Cumulative</td>
<td>1.1. Reduced water availability for agriculture.</td>
</tr>
<tr>
<td></td>
<td>2. Establishment of mining infrastructure on agricultural land</td>
<td>Direct Cumulative</td>
<td>2.1. Loss of high potential agricultural land as a result of increased mining infrastructure</td>
</tr>
<tr>
<td></td>
<td>3. Construction of berms along the river to protect mine infrastructure from flooding</td>
<td>Direct Cumulative</td>
<td>3.1. The construction of berms will reduce current agricultural activities along the river edge.</td>
</tr>
<tr>
<td>Operation</td>
<td>5. Development of waste dump and TSF</td>
<td>Direct Cumulative</td>
<td>5.1. Increase in loss of high agricultural potential land</td>
</tr>
<tr>
<td></td>
<td>6. Increased mining operation</td>
<td>Direct Cumulative</td>
<td>6.1. Management of stockpiles and surface run-off</td>
</tr>
<tr>
<td></td>
<td>7. Use of pesticides</td>
<td>Indirect</td>
<td>7.1. Contaminate existing ecosystems essential for agriculture (bees essential for pollination)</td>
</tr>
<tr>
<td></td>
<td>8. Increased risk of fires from the mine</td>
<td>Direct Cumulative</td>
<td>8.1. Potential loss of crops as a result of fires originating from the mine</td>
</tr>
<tr>
<td></td>
<td>9. Increased mining development within the Tete</td>
<td>Indirect</td>
<td>9.1. Gradual reduction of available agricultural land within the province as a</td>
</tr>
</tbody>
</table>
Agricultural and Soil statement and Opinion of the Specialist

The agricultural and soil impacts of all the aspects of the proposed Capitol Resources Mozambique, Tete Iron Project were considered to be acceptable provided that the mitigation measures proposed in this report are implemented.

Although agricultural production within the site is considered as low, agricultural potential is considered to be high as a result of fertile soils. No problematic areas or fatal flaws were identified for the site.

All the identified impacts on agriculture are considered to have high reversibility because most of the land will be able to be returned to agriculture after mine closure, with very little change in agricultural potential. Impacts on agriculture are also considered to have a low level irreplaceability of resource loss because:

1. The productive capacity of the land can be restored with the implementation of appropriate mitigation measures.
2. It is highly unlikely to be irretrievably lost to agriculture.
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1 INTRODUCTION

Coastal and Environmental Services (Pty) Ltd (CES) has been appointed by Capitol Resources Lda, as independent environmental assessment practitioners, to undertake an Environmental Impact Assessment (EIA) for a proposed iron ore mine in Tete Province of Mozambique. One of the required specialist studies as identified in the Final Scoping Report is that of an Agriculture and Soils Impact Assessment (ASIA) of the proposed mining development.

1.1 Project location

The proposed Capitol Resources Mozambique, Tete Iron Project is located north of the provincial capital of Tete, in the Chiúta and Moatize districts. The project site forms part of a magnetite-titanium-vanadium mineralisation zone known as the Massamba Group, located approximately 55km north-northeast of Tete. The project area is shown in Figure 1.1. The area is sparsely populated with Tenge Makodwe being the closest human settlement in the area. The area is predominantly covered by dense mopane woodland, and the Revuboe River runs through the site.

![Figure 1.1. Locality map indicating the position of the proposed Capitol Resources Mozambique, Tete Iron mine area in Mozambique.](image)

1.2 Project description

The primary infrastructure for the Capitol Resources Mozambique, Tete Iron mine will include:
- An open pit,
- mine waste facilities (waste rock dump and tailings storage facilities); and
- an ore processing plant.

The development of the pit and the associated mine waste facilities will vary between various scenarios; however, the location of the processing plant will not change.
Mt Tenge will be mined to an open pit close to the Revuboe River (Figure 3.2). The processing plant area will be located on the eastern side of the Revuboe River, to the southeast of Mt Tenge. This area will incorporate the beneficiation processing plant, pyro-metallurgical plant, Run-of-Mine (ROM) pad and a switchyard, and may also incorporate a tailings facility.

Waste rock will be deposited in a mine waste facility adjacent to the mining area.

The method of disposal of tailings will depend on the beneficiation process implemented. Tailings from a dry processing scenario will be coarse and will be disposed of in the mine waste facilities as a dry product, forming integrated facilities for waste rock and tailings. Tailings from a dry-wet processing scenario will be both coarse (dry) and fine (wet). The coarse tailings will be disposed of in the integrated mine waste facilities, while the fine tailings will be thickened and disposed of in a dedicated TSF (Tailings Storage Facility). The preferred location for the TSF is west of the processing plant area, however if restricted by other infrastructure, the TSF may be located to the south of the processing plant area.

A camp will provide accommodation and other facilities for the workers of the mine including plant operators, maintenance, logistics and management personnel. Fuel storage facilities, parking and repair facilities for the mining vehicles and machinery as well as laydown areas will also need to be constructed.

Large volumes of steel and concrete will be required for the construction of the processing plant, smelter and other infrastructure at the mine. The exact volumes have not yet been determined.

Coal to be used in the beneficiation and pig iron production plants is likely to be obtained from the coal mines neighbouring the licence area.

Water will either be extracted from the Ncondezi River, Revuboe River or from ground water, and is likely to require treatment. Exact volumes have not yet been determined.

A new haul road is also planned between the mining site and the town of Tete to the south.

Figure 1.2 below illustrates the proposed planned layout for the mining infrastructure.
Figure 1.2. Proposed layout of the Capitol Resources Mozambique, Tete Iron Mine area.
1.2.1 Mining process

The mining operation will take between 21 and 36 years (depending on the mining scenario to be followed), and will cover a total area of about 4000 hectares (ha), in which mining will comprise the following stages:

- Clearing existing vegetation
- Removing and stockpiling topsoil
- Drilling and blasting 10 - 15m high benches in the open pit.
- Excavating rocks with front-end loaders.
- Transferring the rocks to the crusher plant.
- Screening the material from the crusher.
- Crush and screen the material three times.
- Dispose of the waste rock from the screening process
- Separating the material into iron ore product and tailings using dry magnetic cobbling.
- Dispose of the tailings
- Pre-reduction classification of the product (either dry or dry-wet process)
- Production of pig iron and by-products (titanium as well as vanadium slag) using a melting furnace
- Rehabilitation of site

The final product (pig iron) will be transported from the mine site via road and possibly rail to Moatize. The product will then be transported to the ports of Beira and Nacala for export to the international market.

1.3 Components of the project that will impact on soils and agricultural potential

The following components of the project will impact on soils and agricultural potential:

1.3.1 Infrastructure

- Open pit,
- Mine waste rock site
- TSF
- Beneficiation processing plant
- Smelter
- Pyro-metallurgical plant
- ROM pad and switchyard
- Mine camp
- Coal storage site
- Haul road

1.3.2 Other requirements

- Water extracted either from the Ncondezi or Revuboe Rivers or from ground water
- Water treatment facility.
- Influx of people
- Erosion

1.4 Terms of Reference

The Terms of Reference for the soil assessment was as follows:

- Characterise the soil and distribution of soil types.
- Develop recommendations for soil management and mitigation measures for soil degradation.
- Recommend potential crop types that can be grown in the area, extrapolated from soil and climatic conditions.
The Agriculture and Soils Assessment had the following Terms of Reference:
- To provide a report on the status quo with reference to agricultural activity.
- Identify and map existing important community agricultural activities within the project footprint.
- To find ways and means to help the local people to improve their agricultural productivity.
- Evaluate the land capability of the area based on the broad soil and climatic analysis and comment on the potential of the area for agriculture.
- Engage with the social scientists to ensure that questions related to agriculture are asked during the social impact assessment, to clarify the complexities associated with agricultural resource utilisation.
- Determine whether any grazing land falls within proposed mine infrastructure and mining areas and map these areas.
- Identify and assess the significance of impacts on soils and agricultural resource use that could result from the mining operation.

1.5 Approach

A desktop analysis and a field survey were undertaken. The methodology used is described below.

1.5.1 Desktop analysis

Soil distribution and agricultural reference maps were developed using the following resources:
- Topographical map
- Geological map of the Cazula/Zobue area (Scale 1:250 000)
- Vegetation map (from the Vegetation Assessment Report; CES 2014)
- Satellite imagery from Google Earth

The following specialist reports have been prepared as part of the Environmental process and were also consulted during the preparation of this report:
- Groundwater and Geochemistry
- Surface water
- Erosion Assessment
- Socio-economic Impact Assessment (including SEBS)
- Natural resource use study

The abovementioned resources were used as a remote sensing technique. This allowed for a preliminary soil and agricultural analysis of the study site to guide the subsequent field survey work.

1.5.2 Field survey

A field survey was conducted from 12th to 16th May 2014 in order to assess soils and agricultural potential onsite. The entire mining concession area (as shown in Figure 1.2) was assessed.

As the Mozambican Soil Classification is based on the Food and Agriculture Organisation (FAO) of the United Nations, the Guidelines for Soil Description (FAO 4th Ed. 2006) was used to classify soils in the field according to international guidelines as set out in the second edition of the World Reference Base for Soil Resources (WRB) (IUSS Working Group WRB, 2006).

Soil samples were collected and analysed at an accredited laboratory (Brookside Laboratory Inc, a participating laboratory in the North American Soil, Plant and Water Proficiency Testing Programs.) to confirm the onsite visual classification of soils.
1.6 Assumptions and limitations

This report is based on currently available information and, as a result, the following limitations and assumptions are implicit:

- The report is based on a project description taken from design specifications for the proposed Capitol Resources Mozambique, Tete Iron Mine that have not yet been finalised, and which are likely to undergo a number of iterations and refinements before they can be regarded as definitive;

- Descriptions of the surrounding agricultural environment are based on extensive fieldwork and available literature only.
## 2 RELEVANT LEGISLATION, STANDARDS AND GUIDELINES

The following Mozambican legislation, together with national and international standards and guidelines, is relevant when considering impacts on the agricultural potential of the area identified during the Planning and Design, Construction and Operation Phase of the proposed Capitol Resources Mozambique, Tete Iron mine project.

Table 2.1. Agricultural legislation considered in the preparation of the Capitol Resources Mozambique, Tete Iron Agricultural and Soil Assessment.

<table>
<thead>
<tr>
<th>Title of Agricultural legislation, policy or guideline</th>
<th>Date</th>
<th>Implications for proposed Capitol Resources Mozambique, Tete Iron Mine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mozambique Legislation</td>
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</table>
| Constitution of the Republic of Mozambique, articles 109 and 111 | 2004 | - All ownership of land is vested in the state.  
- The state shall recognize and protect land rights acquired through inheritance or by occupation, unless there is a legal reservation or the land has been lawfully granted to another person or entity. |
<p>| Land Law No 19 of 1997                                  | 1997 | - This law provides the legal framework for land ownership, as well as the control of land and natural resources in Mozambique. The process of determining land rights is also explained by this law. |
| Decreto nº 66/98, de 8 de Dezembro. Aprova o Regulamento da Lei de Terras Land Law Regulations (Decree Nº 66/98); | 1998 | The Decree nº 66/98 of 8 December, which approves the Regulation of Land Law, in its Article 24 lists the documents to be submitted as well as the procedures to be followed. Advice from the District Administrator is required before any consultation with the local community is undertaken regarding relocation of rural communities to other areas. For the case of urban areas, the entire area comprised within the boundaries of the cities, towns and villages which are legally established, then the respective procedures are set out in the Decree 60/2006 of 26 December, which approves the Regulation of Urban Land. |
| Environmental Act No 20 of 1997                          | 1997 | - The objective of the Environment Law is to define the legal basis for judicious utilisation and management of the environment and its components, with a view to achieving sustainable development in the country |
| National Water Act No 16 of 1991                         | 1995 | - The project has the potential to significantly affect not only the reliability of water supply to the project's surrounding villages, but also the quality of this water. |
| Plano de Acção para Prevenção e Controlo às Queimadas Descontroladas, aprovada na 32ª Sessão Ordinária do | 2007 | Specific regulations on the fire management are set by the Law of the Environment, the Law of Forests and Wildlife, and others. The future of the wildlife fire management is likely to be strongly influenced by implementation of the Action Plan for Prevention and Control of Wildfires. Introduced in 2007, the Plan has recently started to be implemented. Implemented through MICOA, the Plan is intended to provide districts governments with practical fire management |</p>
<table>
<thead>
<tr>
<th>Title of Agricultural legislation, policy or guideline</th>
<th>Date</th>
<th>Implications for proposed Capitul Resources Mozambique, Tete Iron Mine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conselho de Ministros de 4 de Dezembro de 2007. Action Plan for the Prevention and Control of Forest Fire</td>
<td></td>
<td>guidelines that they will use to develop their own district level fire management plans. The guidelines include six components designed to: guide district level awareness-raising; promote community-level fire management; emphasize the role of traditional authorities; and provide information on locally available, low-cost fire management techniques and tools. The National Prevention and Control of wild fire Programme was approved, and it defines actions to be developed by the agrarian, environment and civil society in this matter. This program serves as the basis for the development of provincial programs with the involvement of other relevant institutions.</td>
</tr>
<tr>
<td>Plano de Acção para a Prevencao e Controle da erosão de solos 2008-2018, aprovado na 32ª Sessão Ordinária do Conselho de Ministros de 4 de Dezembro de 2007.</td>
<td>2008</td>
<td>The document constitutes support of the Laws of the Land and Environment, and proposes on the one hand to: provide information on the situation of erosion resulting from the action of man and secondly, proposes ways to minimize the risks associated with the misuse of Natural Resources. This Plan suggests the basis for systematization and structuring actions to prevent, control and combat soil erosion in over a period of 11 years. It clearly defines the responsibilities of each stakeholder in the process of mitigating the effects caused by erosion. Also the plan aim to provide reliable information on the scale of the problems caused by erosion that usually makes it impossible to understand the seriousness of the problem as well as propose mechanisms for identifying appropriate solutions and plans for concrete Actions and responsibilities.</td>
</tr>
<tr>
<td>Forest and Wildlife Act No 10 of 1999</td>
<td>1999</td>
<td>This law bears relevance as the project will have significant impacts on the surrounding forest and natural resources. One of the main objectives of the law is to assist in conserving and utilising the forests and wildlife resources for the social, ecological and economic benefits of the future generations (Development Bank of Southern Africa, 2007). The law also identifies protected areas, including cultural and heritage sites.</td>
</tr>
<tr>
<td>Mozambique’s Regulations on the Resettlement Process Resulting from Economic Activities (Decree No 31/2012 of 8 August 2012)</td>
<td>2012</td>
<td>As several machambas (farm plots) will be economically displaced, a full Resettlement Action Plan (RAP) will be required. Such a requirement will be in fulfilment of Performance Standard (PS) 5 of the International Finance Corporation (IFC) on Land Acquisition and Involuntary Resettlement (2012), but also of Mozambique’s Regulations on the Resettlement Process Resulting from Economic Activities (Decree No 31/2012 of 8 August). According to the latter legislation, and Environmental Impact Assessment (EIA) cannot be approved by MICOA prior to the approval of a RAP.</td>
</tr>
</tbody>
</table>
| IFC Performance Standards | 2012 | - The IFC is a member of the World Bank Group, and one of the largest development financing institutions that focuses exclusively on the private sector in developing countries (IFC, 2012). - The IFC Performance Standards (2012) no’s 5 and 6 (Land Acquisition & Involuntary Resettlement and Biodiversity Conservation and Sustainable Management of Living Natural Resources) on Environmental and Social Sustainability is relevant for this study:  
  - Protect and conserve biodiversity; and  
  - Promote the sustainable management and use of natural resources through the adoption of practices that integrate conservation needs and development priorities. |
<p>| IFC EHS Guidelines | 2007 | - The EHS Guidelines for Mining and for Integrated Steel Mills are relevant to this project. |</p>
<table>
<thead>
<tr>
<th>Title of Agricultural legislation, policy or guideline</th>
<th>Date</th>
<th>Implications for proposed Capitol Resources Mozambique, Tete Iron Mine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equator Principles</td>
<td></td>
<td>- The Equator principles were derived as a set of requirements which must be fulfilled in order for lenders to finance capital ventures (<a href="http://www.equator-principles.com/">http://www.equator-principles.com/</a>). These principles ensure that social and environmental issues are addressed, all considerations are taken into account, policies and standards are upheld and that all these elements are thoroughly addressed. This includes the identification and mitigation of all negative impacts. The principles relevant to the Soils and Agriculture Study include:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Principal 1: Review and categorisation: determine potential impacts and risks to the environment using screening criteria of the International Finance Corporation (IFC).</td>
</tr>
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<td></td>
<td></td>
<td>• Principal 2: Social and Environmental Assessment: This study and EIR are in fulfilment of this principal.</td>
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<tr>
<td></td>
<td></td>
<td>• Principal 3: Environmental standards: Compare with IFC standards and World Bank Environment, Health and Safety standards and determine compliance or justify deviation.</td>
</tr>
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<td></td>
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<td>• Principal 4: Action Plan and Management System: EIR and specialist studies should inform the Environmental and Social Management Plan, which will include all mitigation measures suggested by the Environmental and Social Impact Assessment.</td>
</tr>
<tr>
<td>Sustainable Agricultural Network (SAN) principles</td>
<td></td>
<td>- SAN promotes efficient and productive agriculture, biodiversity conservation and sustainable community development by creating social and environmental standards.</td>
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<td></td>
<td></td>
<td>- The SAN’s sustainable agriculture standard is represented by the ten guiding principles set out below:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. <strong>Management System</strong></td>
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<tr>
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<td></td>
<td>Social and environmental management systems must be in place so that auditors can confirm that farms are operated in compliance with SAN standard and the laws of Mozambique. Most farmers find that such a system not only improves conditions for workers and the environment, but also results in better-organized and more efficient farms.</td>
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<td></td>
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<td>2. <strong>Ecosystem Conservation</strong></td>
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<tr>
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<td></td>
<td>Farmers must conserve existing ecosystems and aid in the ecological restoration of critical areas. They can achieve this by taking steps that protect waterways and wetlands from erosion and contamination, prohibit logging and other deforestation, maintain vegetation barriers and prevent negative impacts on natural areas outside farmlands.</td>
</tr>
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<td></td>
<td>3. <strong>Wildlife Protection</strong></td>
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<tr>
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<td></td>
<td>Certified farms serve as refuge for wildlife, and therefore farmers should monitor wildlife species on farms. This is particularly important for endangered species and their habitats on the land, which farmers should take specific steps to protect. This includes educating workers, prohibiting hunting and the removal of plants and animals from their lands, protecting nesting places, and either releasing captive wildlife or registering animals with the proper authorities.</td>
</tr>
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<td></td>
<td>4. <strong>Water Conservation</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SAN standard requires that farmers conserve water by keeping track of water sources and consumption. A farm’s practices and machinery may need to be modified — or new technology installed — in order to reduce water consumption or to avoid contamination of springs and rivers on and near the property. Farmers should have the proper permits for water use, treat wastewater and monitor water quality.</td>
</tr>
<tr>
<td>Title of Agricultural legislation, policy or guideline</td>
<td>Date</td>
<td>Implications for proposed Capitol Resources Mozambique, Tete Iron Mine</td>
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<tr>
<td>------------------------------------------------------</td>
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<td>5. <strong>Working Conditions</strong></td>
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<td></td>
<td>Farmers must ensure good working conditions for all employees, as</td>
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<td>defined by such international bodies as the United Nations and the</td>
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<td></td>
<td></td>
<td>International Labour Organization. SAN standards prohibit forced</td>
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<tr>
<td></td>
<td></td>
<td>and child labour and all forms of discrimination and abuse.</td>
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<td></td>
<td>Workers should be aware of their rights and of farm policies. They</td>
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<td></td>
<td></td>
<td>should benefit from legally established salaries, work schedules</td>
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<td></td>
<td></td>
<td>and any benefits required by the national government. If housing</td>
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<td></td>
<td>is provided, it must be in good condition, with potable water,</td>
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<td>sanitary facilities and waste collection. Workers and their</td>
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<td></td>
<td></td>
<td>families should have access to healthcare and education.</td>
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<td></td>
<td>6. <strong>Occupational Health</strong></td>
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<td></td>
<td>Certified farms must have occupational health and safety programs</td>
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<tr>
<td></td>
<td></td>
<td>to reduce the risk of accidents. This requires that workers</td>
</tr>
</tbody>
</table>
|                                                      |      | receive safety training — especially regarding the use of agro-
|                                                      |      | chemicals — and that farmers provide the necessary protective |
|                                                      |      | gear and ensure that farm infrastructure, machinery and other |
|                                                      |      | equipment is in good condition and poses no danger to human |
|                                                      |      | health. SAN standards contain extensive criteria for establishing |
|                                                      |      | a safe work environment. This includes avoiding the potentially |
|                                                      |      | harmful effects of agrochemicals on workers and others, |
|                                                      |      | identifying and mitigating health risks and preparing for |
|                                                      |      | emergencies.                                                   |
|                                                      |      | 7. **Community Relations**                                       |
|                                                      |      | SAN standard requires farmers to be good neighbours and inform |
|                                                      |      | surrounding communities and local interest groups about their |
|                                                      |      | activities and plans. They should consult with interested |
|                                                      |      | parties about the potential impacts of their farm and contribute |
|                                                      |      | to local development through employment, training and public |
|                                                      |      | works.                                                          |
|                                                      |      | 8. **Integrated Crop Management**                                |
|                                                      |      | SAN encourages the elimination of chemical products that pose |
|                                                      |      | dangers to people and the environment. Farm managers must monitor |
|                                                      |      | pests and use biological or mechanical alternatives to pesticides |
|                                                      |      | where possible — and if they determine that agrochemicals are |
|                                                      |      | necessary to protect the crop, they are obligated to choose the |
|                                                      |      | safest products available and use every possible safeguard to |
|                                                      |      | protect human health and the environment.                      |
|                                                      |      | 9. **Soil Conservation**                                         |
|                                                      |      | A goal of SAN’s sustainable agriculture approach is the long-
|                                                      |      | term improvement of soils, which is why certified farms take |
|                                                      |      | steps to prevent erosion, base fertilization on crop requirements |
|                                                      |      | and soil characteristics and use organic matter to enrich soil. |
|                                                      |      | Vegetative ground cover and mechanical weeding are used to |
|                                                      |      | reduce agrochemical use whenever possible.                      |
|                                                      |      | 10. **Integrated Waste Management**                              |
|                                                      |      | Certified farms are clean and orderly with programs for managing |
|                                                      |      | waste through recycling, reducing consumption and reuse. Waste |
|                                                      |      | is segregated, treated and disposed of in ways that minimize |
|                                                      |      | environmental and health impacts. Workers are educated about |
|                                                      |      | properly managing waste on the farms and in their communities.  |
This section provides a short description of the bio-physical context of the proposed Capitol Resources Mozambique, Tete Iron mine concession area in the Tete Province of Mozambique. Much of the information presented is derived from the Scoping Report for the project (CES, 2013).

### 3.1 Climate

Tete is renowned for its hot weather. The warmest month of the year is November (mean minimum = 24˚C; mean maximum 36˚C). June and July are the coldest months of the year (mean minimum = 16˚C; mean maximum = 28˚C). The predominant wind direction is from the south east. There is no weather station on site, so rainfall data used is from the Revuboe catchment area. The area has a mean annual rainfall of 1,000 mm. The majority of rainfall falls from November to March (averaging 178.2 mm per month) with highest rainfall in January (average = 229 mm). The driest months are August and September, with rainfall of 6 mm and 5 mm respectively (CES, 2013).

### 3.2 Geology

The underlying geology at the study site is characteristic of the Tete Suite which forms an elongate, sub horizontal sheet-like body of 6 000 km$^2$ (Westerhof et. al., 2008). The intrusive underlies a dissected plateau that is covered by blocks and boulders in places (Westerhof et. al., 2008). The most common rock types are gabbro, with subordinate leucogabbro, norite and anorthosite (Figure 3.1). These are types of igneous rocks that form when magma under the earth’s surface is trapped and cools. Bands or lenses composed mainly of iron-titanium oxides are found to occur in places (Westerhof et. al., 2008).
Figure 3.1. Regional geological map of the area.
3.3 Land cover and topography

The project site is situated in a wide valley near the Revuboe River floodplain (Plate 3.1). The topography of the area is generally flat with the exception of the Tenge-Ruoni hills which include Mount Tenge, Ruoni North and Ruoni South (Figure 3.2). The Revuboe River runs from north to south through the proposed mine site.

Plate 3.1. General topography of the study site
Figure 3.2. Elevation of the Capitol Resources Mozambique, Tete Iron Project site
3.4 Current land use

3.4.1 Project Site

The project area is sparsely populated and as a result the vegetation is in fairly good condition compared to more heavily populated areas. The land is used mainly for subsistence agriculture, livestock rearing (mostly goats) and fishing. A few crops, mainly maize, were noted in the area. In addition to subsistence farming, natural resources are relied on for construction, medicinal consumption and to supplement their food. Charcoal production was noted along the access roads but did not appear to be directly impacting on the study site.

3.4.2 Haul Roads

The areas along the haul road option were more heavily populated than the study site. The area was more heavily impacted due to anthropogenic activities which included charcoal production, subsistence agriculture and livestock rearing.

3.5 Vegetation

Approximately 61% of the project site is comprised of Open Zambezian Undifferentiated Woodland (Figure 3.3). Mopane Woodland, which occurs in the south, covers 18% of the total project area, and Closed Zambezian Undifferentiated Woodland covers 3.6%. The most heavily impacted vegetation type in the project is the Closed Zambezian Undifferentiated Woodland. 66% of this vegetation type will be lost during the mining process.

Figure 3.3. Vegetation Map of the Capitol Resources Mozambique, Tete Iron Project site
3.6 Surface hydrology

The project area is located in the catchment of the Revuboe River. The river’s catchment area upstream of the mining site extends to the north and north-northeast towards Malawi, following the border along its north and eastern boundaries. This upstream catchment area covers an area of approximately 11,000 km².

There are two major watercourses located in, or in the vicinity of the project area; the Revuboe River and the Nhambia River. The Revuboe River flows from north to south, bisecting the Tenge-Ruoni deposit and eventually discharging into the Zambezi River further south at tete. The Nhambia River connects with the Revuboe River downstream of the mine site. In addition, the Ncondezi River will need to be crossed by the haul road.
4  SOILS

This section presents the procedure used to describe the different morphological and other characteristics of the soil. Six random sampling points (shown in Figure 4.1) were selected in the licensed mining area. Soil samples were collected from each of these sites for laboratory assessment, and the sites were visually assessed. The following procedure was followed during the field assessment as described in the World Reference Base (WRB) for Soil Resources (Deckers et al 2006):

- Firstly, surface characteristics were recorded.
- Then a soil description was done horizon by horizon, starting with the uppermost horizon.

See Appendix 1 for a detailed description for each sample point.
Figure 4.1. Locations of the 6 soil sample sites.
Table 4.1. Coordinates for the soil sample sites.

<table>
<thead>
<tr>
<th>Site #</th>
<th>GPS coordinates</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Latitude</td>
<td>Longitude</td>
<td></td>
</tr>
<tr>
<td>BT1</td>
<td>15° 43.42'</td>
<td>33° 46.30'</td>
<td></td>
</tr>
<tr>
<td>BT2</td>
<td>15° 45.65'</td>
<td>33° 47.01'</td>
<td></td>
</tr>
<tr>
<td>BT3</td>
<td>15° 45.29'</td>
<td>33° 46.41'</td>
<td></td>
</tr>
<tr>
<td>BT4</td>
<td>15° 44.23'</td>
<td>33° 46.26'</td>
<td></td>
</tr>
<tr>
<td>BT5</td>
<td>15° 43.26'</td>
<td>33° 46.19'</td>
<td></td>
</tr>
<tr>
<td>BT6</td>
<td>15° 43.24'</td>
<td>33° 46.55'</td>
<td></td>
</tr>
</tbody>
</table>

4.1 Soil classification

Based on a visual survey conducted during the site visit, as well as soil samples collected from each area that was visually classified, the dominant soil forms were identified within the Capitol Resources Mozambique, Tete Iron Project mining site (Figure 4.2)
Figure 4.2. Soil map of the Capitol Resources Mozambique, Tete Iron Project mining site.
Figure 4.3. Soil map of the Capitol Resources Mozambique, Tete Iron Project haul road site.
4.1.1 Fluvisols

These soils are typically young (recent) stratified, fluvial and alluvial soils found in river channels and river edges. This was also the case at the current site where they were only found close to the Revuboe and Nhambia Rivers.

These soils have good natural fertility and are considered as high agricultural potential soils.

4.1.2 Vertisols

Vertisols are found in a very specific and limited area of the site as it is associated with an elongated low laying depression that prohibits surface water draining. As a result, the soils contain high contents of expansive or swelling clays that form deep cracks in drier seasons or years. The lack of drainage is a major constraint to increased agricultural production. This section is therefore more suited to rangeland agriculture and agroforestry, as the cost to develop this area for sustained arable crop production is relatively high.

Even though the heavy texture and unstable behaviour of the soil usually makes it difficult for dense forests to grow on vertisols, the local vegetation found on these soils was identified as riparian (CES Vegetation Report). This may be due to the striking distance of the Revuboe River to the area, resulting in an elevation of riparian vegetation into the low lying area where vertisols are found.

4.1.3 Leptosols

These soils are associated with rocky outcrops and low mountains of the Tenge-Ruoni hills where the soils are very shallow and overlaying hard rock or a deeper soil that is extremely gravelly and/or stony.

Leptosols are unsuitable soils for rainfed or irrigation agriculture because of their inability to hold water, but may sometimes have potential for tree crops or extensive grazing.

4.1.4 Luvisols

They soils are mainly found in lower lying areas to the south of the mining site where they often blend with Vertisols. These soils exhibit distinct luvic nature (increase in clay content downwards from the surface as well as cutanic character and often clay/silt crusts on the surface).

Luvisols are considered as fertile soils and are suitable for a wide range of agricultural uses. Level plains are considered as suitable for small grains (wheat etc.), sugar beet and fodder while slopes areas as used for orchids and grazing.

4.1.5 Cambisols

Cambisols are the dominant soil type found onsite. These soils exhibit weak horizon differentiation and are characterized by the absence of any accumulated clay, humus, soluble salts, or iron and aluminum oxides layers. Cambisols are found in young deposition areas and/or erosion areas where they formed after genetically mature soils such as Luvisols have eroded away.

Cambisols are considered as good agricultural land and are intensively used worldwide. They are used for (mixed) arable farming and as grazing land. Under irrigation, they could be intensively used for production of food and oil crops.

Although not dominant, the following soil types were also found onsite:
4.1.6 **Calcisols**

These soils exhibit distinct secondary carbonate enrichment. They blend with Vertisols and Luvisols on the site.

If irrigated, well drained (to prevent salinisation) and fertilised, Calcisols can be highly productive under a wide variety of crops. Hilly areas with Calcisols are predominantly used for low volume grazing of cattle, sheep and goats.

4.1.7 **Gypsisols**

These soils exhibit distinct accumulation of secondary gypsum enrichment in the subsoil. They blend with Vertisols and Luvisols on the site.

As Gypsisols has elevated levels of salts in their soil, they have a higher osmotic potential that affects water uptake by plants. Depending on local salt levels, a range of harmful effects on crop performance may be expected.

Below are visual representations of all the soil types found within the Capitol Resources Mozambique, Tete Iron Project mining site (Plate 4.1).
Surface crusting found on plains with no rocky outcrops.

Plate 4.1. Different soil types found in the Capitol Resources Mozambique, Tete Iron Project mining site.

4.2 Laboratory results

Laboratory results of the soil samples collected onsite are currently not available. This will be included in the report as soon as they are received from the laboratory.
5 AGRICULTURE

5.1 Agriculture in Mozambique

Mozambique has experienced rapid economic growth over the last decade or more with a 7.2% GDP growth for agriculture from 2003-2010. Also, of all adults employed within the population, close to 80% is employed in the agricultural sector or engaged in agricultural activities. Despite this growth, poverty remains high and is concentrated in rural areas where many households derive their income from traditional agricultural activities.

There are about 36 million hectares of arable land in Mozambique, suitable for agriculture. At present, only 11% of the arable land (3.9 million hectares) is under cultivation. The remainder of the area is under pastures (44 million ha) and forest/woodlands (30.7 million ha). About 118,000 hectares are equipped for irrigation, covering 3% of the potential land (FAO Statistic Yearbook 2010 & Food and Agriculture Organization, Emergency Mozambique Fact Sheet).

Animal husbandry is an underdeveloped sector. Cattle, goats, sheep and pigs are reared in back-yard scavenger systems. There is a small fast-growing modern poultry industry. In 2009 livestock accounted for 1.2 million head of cattle, 4.5 million sheep and goats, 1.3 million pigs, and 18 million poultry. Beef production was estimated at 22,000 tons; pig meat, 91,000 tons; poultry meat, 22,000 tons; cows' milk, 75,000 tons; and hen eggs, 14 million (FAO Statistic Yearbook 2010; Mozambique at a glance).

5.2 Agriculture in the mining licenced area

Agriculture is based on self-subsistence small, hand-cultivated units (‘machambas’) averaging 1 hectare in size, often found on the banks of rivers and streams. These units may contain multiple crops consisting of traditional varieties that are river-fed, with low intensity fertiliser and pesticide control used and little or no mechanization, resulting in low productivity. Most households diversify to cope with low productivity and income. The majority practise extensive shifting cultivation, only about one-third sell any crop output, and almost two-thirds live in households that lack food security (FAOSTAT, 2012).

Food crop production is the most important agricultural sub-sector, accounting for around 80% of the cultivated areas (The World Bank Report, 2006). Maize is the major staple; other food crops include cassava, sorghum, millet, rice, beans, groundnut, sweet potatoes and a wide variety of vegetables. Maize occupies about 80% of total planted area in the mining site. Cassava is an important component of the farmer’s risk reduction strategy because it is drought tolerant and resistant to disease. Groundnut is cultivated on sandy soils and makes an important contribution to household diet and income. The main cash crops are maize. Tree crops, especially coconut and banana are an important source of cash generation, and contribute to household food security (Special Report FAO/WFP, 2010).

The use of modern technologies and irrigation facilities is not practised onsite.

5.3 Site assessment

A field survey was conducted between 12 and 16th May 2014 in order to assess agricultural practices onsite.

5.3.1 Cash crops

The main cash crop in the area is maize. As agriculture in the area is limited (to river banks), production of maize is low and no real yield figures are available.
5.3.2 Food crops

As mentioned earlier, to ensure household food security, most cultivated land is used to grow low-value maize (more than 80% of the total used land) (Tables 5.1 and Plate 5.1). Smallholders diversify with a wide variety of other food crops. Yields are low and show stagnant patterns (no improvement in improved agricultural practices).

Various fruit trees as well as small vegetable plots were also found on the project site but were limited to river areas.

Table 5.1. Main food crops grown in the Capitol Resources Mozambique, Tete Iron Project mining area

<table>
<thead>
<tr>
<th>Food crops</th>
<th>Fruit trees</th>
<th>Vegetables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cassava, maize, wheat, ground beans, beans</td>
<td>Banana, coconut</td>
<td>Tomatoes, onions, cabbage, lettuce, carrots, cucumber, pumpkin</td>
</tr>
</tbody>
</table>

5.3.3 Livestock

Although livestock make significant contributions to the livelihood of smallholders (Social Impact Assessment) and the rural poor, the number of livestock found within the project area was very low. The highest concentration of livestock within the mining concession area was found scattered along river edges. Livestock observed included primarily chickens and goats.

Several constraints undermine an increase in livestock numbers, but mainly a high prevalence of and susceptibility to disease. For example, Newcastle disease is a major problem for poultry, tsetse flies affect cattle, and African swine fever affects pigs. In addition, the inadequacy of animal husbandry services is a common problem because extension services do not cover the district. The ability of communities to expand grazing is restricted by the availability and variability in pasture quality, access to water and veterinary services. There are some conflicts between crop agriculture and livestock, especially under drought conditions and when the animals are large. Where there are crops nearby, animals need to be tethered to reduce the possibility of conflict. The lack of access to financial support and credit facilities is a problem in crop agriculture and also undermines the livestock sector. Poor families cannot raise credit to purchase animals, and women in particular have difficulty accumulating livestock. If widowed, they are stripped of all family assets upon the death of their husbands, including family animals.

Localised pumpkin and cucumber variants are grown in between maize crops
Maize is the main crop grown onsite:

Plate 5.1. The various types of agricultural activities found in the mining site.

5.4 Agricultural potential

Based on characteristics identified in Section 4 the proposed mining site and haul road is considered as having high agricultural potential for crop cultivation and livestock rearing on the plains, and moderate for livestock grazing on rocky outcrops (Figure 5.1 and Table 5.2).
Figure 5.1. Agricultural potential for the Capitol Resources Mozambique, Tete Iron Project site.
Figure 5.2. Agricultural potential for the Capitol Resources Mozambique, Tete Iron Project haul road.
Despite the high agricultural potential classification of a large proportion of the project area and haul road (up to 90%), agricultural productivity in the area remains low. This is due to a variety of factors such as:

- Limited access to water in areas away from perennial rivers
- A limited range of crops historically utilised, mainly maize
- Shifting and rain fed arable cultivation primarily practised
- Traditional farming methods used: no mechanical methods (such as tractors.) are utilised.
- Limited agricultural aid
- No agricultural infrastructure (such as silos, roads, irrigation)
- Few and scattered machambas found onsite

With the exception of the mine pit and a short section (of the haul road around 4 km), all other mining infrastructure will be situated in high agricultural potential areas. Agricultural practices in these areas are limited and the impact on existing farming practices may be low.

Table 5.2 below provides a short description of potential agricultural uses for each soil type identified in Chapter 4.

**Table 5.2. Potential agricultural uses within the Capitol Resources Mozambique, Tete Iron Project site and haul road.**

<table>
<thead>
<tr>
<th>Soil type</th>
<th>Potential Agricultural use</th>
<th>% land coverage</th>
<th>Agricultural suitability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluvisols</td>
<td>- Commonly utilised for grazing. &lt;br&gt; - Can grow a variety of dry land food crops but requires some form of water control (Flood control, drainage and/or irrigation).</td>
<td>10%</td>
<td>High for livestock grazing and crops cultivation.</td>
</tr>
<tr>
<td>Vertisols</td>
<td>- Generally used for grazing. &lt;br&gt; - Maize and wheat can be grown under irrigation. &lt;br&gt; - Especially suitable for rice crops. &lt;br&gt; - Rain fed farming is very difficult because vertisols can be worked only under a very narrow range of moisture conditions: they are very hard when dry and very sticky when wet.</td>
<td>5%</td>
<td>Moderate for both livestock grazing and crops cultivation.</td>
</tr>
<tr>
<td>Leptosols</td>
<td>- Unattractive for rain fed agriculture because of their inability to hold water. &lt;br&gt; - Sometimes have potential for tree crops or extensive grazing. &lt;br&gt; - Best kept under natural vegetation</td>
<td>15%</td>
<td>Moderate for livestock grazing. Low potential for crop cultivation.</td>
</tr>
<tr>
<td>Cambisols</td>
<td>- Among the most productive soils on earth. &lt;br&gt; - Used for (mixed) arable farming and as grazing land. &lt;br&gt; - Under irrigation, they could be intensively used for production of food and oil crops \</td>
<td>40%</td>
<td>High for livestock grazing and crops cultivation.</td>
</tr>
<tr>
<td>Luvisols</td>
<td>- Considered as fertile soils and are suitable for a wide range of agricultural uses.</td>
<td>26%</td>
<td>High for livestock grazing and crops cultivation.</td>
</tr>
<tr>
<td>Soil type</td>
<td>Potential Agricultural use</td>
<td>% land coverage</td>
<td>Agricultural suitability</td>
</tr>
<tr>
<td>-----------</td>
<td>-----------------------------</td>
<td>-----------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td></td>
<td>− Level plains are suitable for small grains (wheat etc.), sugar beet and fodder. − Sloped areas are used for orchids and grazing.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calcisols</td>
<td>− If irrigated, well drained and fertilised, Calcisols can be highly productive under a wide variety of crops. − Hilly areas are predominantly used for low volume grazing.</td>
<td>2%</td>
<td>Moderate for both livestock grazing and crops cultivation.</td>
</tr>
<tr>
<td>Gypsisols</td>
<td>Due to an elevated salt content, these soils are not considered as suitable for agriculture.</td>
<td>2%</td>
<td>Moderate for both livestock grazing and crops cultivation.</td>
</tr>
</tbody>
</table>
6 IMPACT IDENTIFICATION AND ASSESSMENT

6.1 Introduction

This chapter details the potential soils and agricultural impacts identified by the specialist. For each issue identified, details are provided, followed by the mitigation measures required to minimise the negative impacts associated with the issue. The standardised CES assessment methodology was used, details of which are contained in the ESIA report.

6.2 Impacts on soils and agriculture

Impacts on the agricultural potential of the affected land were identified during the Planning and Design, Construction and Operation phases of the proposed Capitol Resources Mozambique, Tete Iron mining project and are described below. These included the consideration of direct, indirect and cumulative impacts that may occur. Issues and impacts are summarised in Table 6.1.

Table 6.1 Impacts to soil and agriculture associated with different phases of the proposed Capitol Resources Mozambique, Tete Iron Project.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Issue</th>
<th>Nature of Impact</th>
<th>Description of Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>12. Sedimentation of rivers and streams</td>
<td>Direct Cumulative</td>
<td>12.1. Reduced water availability for agriculture.</td>
</tr>
<tr>
<td></td>
<td>13. Establishment of mining infrastructure on agricultural land</td>
<td>Direct Cumulative</td>
<td>13.1. Loss of high potential agricultural land as a result of increased mining infrastructure</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>13.2. Erosion potential increase from new road and building hard surfaces</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>13.3. Loss of existing agricultural crops</td>
</tr>
<tr>
<td></td>
<td>14. Construction of berms along the river to protect mine infrastructure from flooding</td>
<td>Direct Cumulative</td>
<td>14.1. The construction of berms will reduce current agricultural activities along the river edge.</td>
</tr>
<tr>
<td>Operation</td>
<td>16. Development of waste dump and TSF</td>
<td>Direct Cumulative</td>
<td>16.1. Increase in loss of high agricultural potential land</td>
</tr>
<tr>
<td></td>
<td>17. Increased mining operation</td>
<td>Direct Cumulative</td>
<td>17.1. Management of stockpiles and surface run-off</td>
</tr>
<tr>
<td></td>
<td>18. Use of pesticides</td>
<td>Indirect</td>
<td>18.1. Contaminate existing ecosystems essential for agriculture (bees essential for pollination)</td>
</tr>
<tr>
<td></td>
<td>19. Increased risk of fires from the mine</td>
<td>Direct Cumulative</td>
<td>19.1. Potential loss of crops as a result of fires originating from the mine</td>
</tr>
<tr>
<td></td>
<td>20. Increased mining development within the Tete Province</td>
<td>Indirect Cumulative</td>
<td>20.1. Gradual reduction of available agricultural land within the province as a consequence of an increase in mining developments.</td>
</tr>
</tbody>
</table>
6.3 Design and Pre-construction Phase

Activities associated with the design and pre-construction phase relate mostly to exploration. The project has an exploration licence, and impacts associated with exploration and the mitigation of these impacts were included in the Exploration EMP compiled to obtain the licence, and will therefore not be repeated in this section. Other activities associated with the design and pre-construction phase will not have impacts on the biophysical environment as this phase consists of planning and design of the proposed development, and is done at a desktop level. In some cases site visits need to take place but the impacts of these visits which include photography and field surveys, are negligible, if any.

6.4 Construction Phase

This section presents the issues that may impact current soil conditions as well as existing agricultural activities arising from the construction of the mine, including its associated infrastructure such as accommodation (which is minimal during normal operations), the haul road and the mineral concentration plant and associated infrastructure.

6.4.1 Issue 1. Sedimentation of rivers and streams

The project area is drained by the Revuboe River that transects the mining site. The Revuboe River forms part of a larger Revuboe River catchment system that originates in Malawi. Sedimentation and siltation of these water systems as a result of mining activities will have an effect of water quality and quantity.

Impact 1.1. Degraded water quality for agriculture.

Cause and comment
Water is already a limited resource within the mining and haul road site. As a result, most agricultural activities only take place in close proximity to an open water source like the Revuboe River and associated streams.

Sedimentation and siltation of these water systems will result in a decrease in quality water for agricultural use, both for livestock watering and for crop irrigation.

Mitigation measures
- Ensure that all stockpiled material (subsoil and topsoil) are appropriately sited and shaped to reduce wind-blown and stormwater transported sediments. Other mitigation measures include wetting, canvassing or netting down stockpiles, and construction of wind breaks.
- Develop a Stormwater Management Plan to mitigate any excessive sedimentation observed as a result of mining activity.

Significance statement

<table>
<thead>
<tr>
<th>Impact</th>
<th>Effect</th>
<th>Risk or Likelihood</th>
<th>Overall Significance</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
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<td>Temporal Scale: Medium term</td>
<td>Spatial Scale: Study area</td>
<td>Severity of Impact: Slight</td>
</tr>
</tbody>
</table>
6.4.2 Issue 2. Establishment of mining infrastructure on agricultural land

The occupation of the land by the Capitol Resources Mozambique, Tete Iron mine and associated infrastructure will exclude agricultural use of that land for the duration of mining activities. Up to 90% of the mining site and haul road are considered as high potential agricultural land even though only a small portion of that land is currently utilised for agriculture.

Impact 2.1. Loss of high potential agricultural land as a result of increased mining infrastructure

Cause and comment
Although only small portions of land are currently utilised (25%) for agricultural purposes, most of the land (up to 90%) is still considered as high agricultural potential due to soil fertility. Some infrastructure, like the haul road will become a permanent feature and as a result, the agricultural land will be permanently lost.

Mitigation measures
- There is potential for the developer to implement an agricultural development programme to compensate for the large amount of high agricultural potential land lost.
- A conservation agriculture approach is recommended. This can be achieved through basic training to ensure the local communities become self-sufficient in generating high protein foods as well as cash liquidity. The traditional subsistence and rain fed practices that deplete soil nutrition and limit large crop production should be altered so that less land could be used more efficiently. Agriculture could then, with correct rotations and cropping programmes, ensure better food security and more stable employment conditions for the local communities.
- Due to the high fertility of soils onsite, a potential to develop an irrigation scheme exists that will allow larger and more frequent crop and livestock practices away from the river systems.
- The following crops are recommended:
  - Maize
  - Wheat
  - Sorghum
  - Rice (on Vertisols)
  - Cassava
  - Vegetables
  - Fruit trees (mango, papaya, coconut, banana etc.)
- All these crops can be grown through intercropping with more traditional crops like cassava and locally found vegetables.

Significance statement

<table>
<thead>
<tr>
<th>Impact</th>
<th>Effect</th>
<th>Risk or Likelihood</th>
<th>Overall Significance</th>
</tr>
</thead>
<tbody>
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<td>Severity of Impact: Severe</td>
</tr>
<tr>
<td>With Mitigation</td>
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<td>Spatial Scale: Study area</td>
<td>Severity of Impact: Slight</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Risk or Likelihood: May occur</td>
</tr>
</tbody>
</table>

Impact 2.2. Erosion potential increase from new road and building hard surfaces

Cause and comment
An increase in hard surfaces (such as new roads, parking areas, concrete slabs) may result in high energy stormwater (fast moving surface runoff) originating from these hard surfaces, and may result in an increase in soil erosion. The result is a loss in fertile soils (washed away) as well as a decrease in agricultural land due to the formation of various erosion features such as gullies and dongas.

Mitigation measures
– All run-off water must be collected, channelled and disposed of in an appropriate manner.
– Anti-erosion features must be installed where required.
– Ensure that all cleared and impacted land are rehabilitated and re-vegetated.

### Significance statement

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<thead>
<tr>
<th>Impact</th>
<th>Effect</th>
<th>Severity of Impact</th>
<th>Risk or Likelihood</th>
<th>Overall Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without Mitigation</td>
<td>Long term</td>
<td>Study area</td>
<td>Moderate</td>
<td>May occur</td>
</tr>
<tr>
<td>With Mitigation</td>
<td>Long term</td>
<td>Study area</td>
<td>Slight</td>
<td>Unlikely</td>
</tr>
</tbody>
</table>

#### Impact 2.3. Loss of existing agricultural crops

**Cause and comment**

Displacing farmers from currently occupied farmland by the proposed new mining development will result in a loss of potential crops. Most inhabitants of the proposed Capitol Resources Mozambique, Tete Iron Project mining site practise subsistence agriculture to survive and earn income. Losing this land will have a detrimental effect on the local communities as it will cause a direct loss of income and food source. Only a small portion of land (mostly next to the Revuboe River) is currently utilised for crops.

**Mitigation measures**

– Avoid or minimise the displacement of any existing farmers.
– If this is unavoidable the displaced farmer should either be compensated for the economic value of the land or aid must be provided to start up a new farm elsewhere. This may be in the form of improved farming methods, irrigation, and provision of seeding.

### Significance statement

<table>
<thead>
<tr>
<th>Impact</th>
<th>Effect</th>
<th>Severity of Impact</th>
<th>Risk or Likelihood</th>
<th>Overall Significance</th>
</tr>
</thead>
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</tr>
<tr>
<td>With Mitigation</td>
<td>Long term</td>
<td>Study area</td>
<td>Slight</td>
<td>May occur</td>
</tr>
</tbody>
</table>

**6.4.3 Issue 3. Construction of berms along the river to protect mine infrastructure from flooding**

The construction of berms (flood levees) may be required next to the Revuboe River as a measure to protect mining infrastructure from flooding.

**Impact 3.1. The construction of berms will reduce current agricultural activities along the river edge.**

**Cause and comment**

The highest concentration of machambas is found next to the river, resulting in the probability of the relocation of various farmers to create space for the construction of these berms.

**Mitigation measures**

– The displaced farmer should either be compensated for the economic value of the land or aid must be provided to start up a new farm elsewhere. This may be in the form of improved farming methods, irrigation, seeding etc.
6.4.4 **Issue 4. Management of hazardous materials and waste**

Proper storage and disposal of hazardous wastes from the construction site prevents the discharge of pollutants to the natural environment. Managing hazardous wastes - to reduce potential risks to project personnel and the site - requires knowledge and diligence.

**Impact 4.1. Soil contamination and a loss of fertile soils.**

**Cause and comment**

Soil quality is at risk from a number of threats driven by a range of man-made processes. Human activities have degraded soil quality over time by pollution and more specifically through hazardous chemicals spillages. This may result in a decrease in the fertility of soil to act as a growth medium for food crops. Once soil is damaged or contaminated it is extremely difficult, if not impossible, to restore.

**Mitigation measures**

- Machinery must be properly maintained to keep oil leaks in check.
- Spill kits must be used onsite.
- If a spill occurs on an impermeable surface such as cement or concrete, the surface spill must be contained using oil absorbent materials.
- Contaminated remediation materials must be carefully removed from the area of the spill so as to prevent further release of hazardous chemicals to the environment, and stored in adequate containers until appropriate disposal.
- Polluting materials must be handled with special care to avoid spillage. Prepare clear procedures for workers to deal with these products;
- All waste oils and grease should be stored in sealed drums for recycling/reuse;
- Refuelling of machinery and vehicles should be done in appropriate locations previously identified within the site;
- If there is a decreased ability of the soil, mainly due to soil contamination, this should be limited.
- The fuel storage and maintenance or refuelling of vehicles or equipment shall only be carried out at a distance not less than 150 m from any watercourse or wetland;
- The storage areas, accommodating hazardous substances such as fuel, oils and chemicals, must an impermeable surface and suitably bunded so as to retain 110% of all the container volumes.

**Significance statement**

<table>
<thead>
<tr>
<th>Impact</th>
<th>Temporal Scale</th>
<th>Spatial Scale</th>
<th>Severity of Impact</th>
<th>Risk or Likelihood</th>
<th>Overall Significance</th>
</tr>
</thead>
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<td>Study area</td>
<td>Slight</td>
<td>May occur</td>
<td>LOW</td>
</tr>
</tbody>
</table>

6.5 **Operational Phase**

This section presents the issues that may impact soil conditions and agricultural activities arising from the operation of the mine, the haul road and the mineral concentration plant and associated infrastructure.
6.5.1 Issue 5. Development of a waste dump and TSF

The TSF (tailings storage facility) and waste dumps are the materials left over after the process of separating the valuable fraction from the uneconomic fraction (gangue) of an ore. Tailings are distinct from overburden, which is the waste rock or materials overlying an ore or mineral body that are displaced during mining without being processed.

Impact 5.1. Increase in loss of high agricultural potential land

Cause and comment
The TSF and waste dump together constitute the biggest mining footprint in the mining site. Both of these facilities will permanently reduce large areas of high potential agricultural land. Both these facilities will grow and expand over time, taking up more and more land and slowly reducing the agricultural potential over time. Agricultural activities within the footprint is considered as low and scattered.

Mitigation measures
- There is potential for the developer to implement an agricultural development programme to compensate for the large amount of high agricultural potential land lost.
- A conservation agriculture approach is recommended. This can be achieved through basic training to ensure the local communities become self-sufficient in generating high protein foods as well as cash liquidity. The traditional subsistence and rain fed practices that deplete soil nutrition and limit large crop production should be altered so that less land could be used more efficiently. Agriculture could then, with correct rotations and cropping programmes, ensure better food security and more stable employment conditions for the local communities.
- Due to the high fertility of soils onsite, a potential to develop an irrigation schemes exists that will allow larger and more frequent crop and livestock practices away from the river systems.
- The following crops are recommended:
  - Maize
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- All these crops can be grown through intercropping with more traditional crops like cassava and locally found vegetables.

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<thead>
<tr>
<th>Impact</th>
<th>Temporal Scale</th>
<th>Spatial Scale</th>
<th>Severity of Impact</th>
<th>Risk or Likelihood</th>
<th>Overall Significance</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
<tr>
<td>With Mitigation</td>
<td>Long term</td>
<td>Study area</td>
<td>Slight</td>
<td>May occur</td>
<td>BENEFICIAL</td>
</tr>
</tbody>
</table>

6.5.2 Issue 6. Increased mining operations

An increase in mining operations will result in an increase in soil stockpiles throughout the mining site. Managing these stockpiles will become increasingly essential to reduce and mitigate impacts on the surrounding agricultural environment.

Impact 6.1. Management of stockpiles and surface run-off

Cause and comment
Stockpiling soil (topsoil and subsoil) over extended periods of time may result in sediment loss from within these stockpiles through surface run-off and subsequent loss of fertile topsoil.
Mitigation measures
- Soil stockpiles will be free-draining and protected from erosion.
- Stockpiles allocated for rehabilitation will not be mixed with other materials, such as building rubble, rock etc.
- Stockpiles is to be handled only twice – once during clearing and stockpiling and once during rehabilitation
- The stockpiles shall be monitored, and dampened when necessary to control dust.
- No driving of vehicles on the topsoil stockpiles will be permitted.
- No blanket clearing of vegetation will permitted.

Significance statement

<table>
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<tr>
<th>Impact</th>
<th>Temporal Scale</th>
<th>Spatial Scale</th>
<th>Severity of Impact</th>
<th>Risk or Likelihood</th>
<th>Overall Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without Mitigation</td>
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<td>Severe</td>
<td>Possible</td>
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</tr>
<tr>
<td>With Mitigation</td>
<td>Long term</td>
<td>Study area</td>
<td>Slightly severe</td>
<td>Unlikely</td>
<td>LOW</td>
</tr>
</tbody>
</table>

6.5.3 Issue 7. Use of pesticides and fertilizers

With growing human population, demand for food has increased considerably. Farmers often use highly toxic fertilizers and pesticides to get rid of insects, fungi and bacteria from their crops. However with the overuse of these chemicals, they result in the contamination and poisoning of soil as well as natural and essential ecosystems.

Impact 7.1. Contamination of existing ecosystems essential for agriculture

Cause and comment
The use of dangerous pesticides and fertilizers could affect natural ecosystems essential for a successful agricultural return. Bees that are essential for pollination of fruit trees and various grain crops may be negatively affected by the blanket application of pesticides to control mosquitoes.

Mitigation measures
- Reduce the use of pesticides and fertilisers
- Use organic fertilizers where possible
- Do not use prohibited pesticides and fertilisers
- Blanket application of pesticides is not recommended.

Significance statement

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<th>Impact</th>
<th>Temporal Scale</th>
<th>Spatial Scale</th>
<th>Severity of Impact</th>
<th>Risk or Likelihood</th>
<th>Overall Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without Mitigation</td>
<td>Long term</td>
<td>Study area</td>
<td>Slightly severe</td>
<td>Possible</td>
<td>LOW</td>
</tr>
<tr>
<td>With Mitigation</td>
<td>Long term</td>
<td>Study area</td>
<td>Slightly severe</td>
<td>Unlikely</td>
<td>LOW</td>
</tr>
</tbody>
</table>

6.5.4 Issue 8. Increased mining development within the Tete Province

Investment in the mining sector in the Tete Province of Mozambique is resulting in new infrastructure links – roads, rail and ports – being built and a subsequent increase in the local population. This provides an opportunity for small farmers in terms of a larger local market for their produce and improved transport links opening up new potential markets, but many small farmers lack the access to affordable capital to develop their farms despite being highly suitable for a wide range of crops and livestock. Also, an increase in mining infrastructure directly results in a decrease in available arable land for agriculture.
**Impact 9.1. Gradual reduction of available agricultural land in the province as a consequence of an increase in mining developments.**

**Cause and comment**
Mining development within the Tete province is growing exponentially. Various mining (and other infrastructure) activities has been at an increase the last few years. Tete has always been primarily an agriculture driven province. With the development of mining in the area, focus is slowly shifting from agriculture to mining. At this stage, mining development has been more beneficial to agricultural development than not. The development of infrastructure links (roads and rail) allowed for small scale farmers to expand their markets as well as increase the demand for fresh produce through an influx of people into the area.

**Mitigation measures**
- Agricultural activities in the mine site area must be increased to compensate for the potential increase in the demand for agricultural produce.
- Due to the decrease in agricultural land, modern agricultural methods are recommended to allow for a higher crop yield per agricultural area.

**Significance statement**

<table>
<thead>
<tr>
<th>Impact</th>
<th>Effect</th>
<th>Risk or Likelihood</th>
<th>Overall Significance</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
<tr>
<td>With Mitigation</td>
<td>Long term</td>
<td>Study area</td>
<td>Slightly severe</td>
</tr>
</tbody>
</table>

6.6 **Decommissioning Phase**

A single impact is likely to result from the decommissioning of the various components of the mine.

6.6.1 **Issue 10. Soil rehabilitation**

If topsoil becomes buried or subsoil material, that is less suitable for root growth, remains at the surface, the agricultural suitability of the soil that will become available for agriculture again after the decommissioning of the mine, will be reduced.

**Impact 10.1. Decrease of agricultural viability**

**Cause and comment**
If topsoil becomes buried, or subsoil material that is less suitable for root growth remains at the surface, the agricultural suitability of the soil, that will become available for agriculture again after rehabilitation of mined and developed areas after decommissioning of the mine, will be reduced.

**Mitigation measures**
- Develop and implement a Rehabilitation and Monitoring Plan to monitor rehabilitated areas.
- Implement measures such as wind-breaks, swales and watering to aid the initial grown of primary vegetation.
- Fertile topsoil must not be stockpiled for periods exceeding 12 months on stockpiles exceeding 2m in height.
- Topsoil may be supplemented with an indigenous seed mix.

**Significance statement**

<table>
<thead>
<tr>
<th>Impact</th>
<th>Effect</th>
<th>Risk or Likelihood</th>
<th>Overall Significance</th>
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<tbody>
<tr>
<td></td>
<td>Temporal Scale</td>
<td>Spatial Scale</td>
<td>Severity of Impact</td>
</tr>
<tr>
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</tr>
<tr>
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<tr>
<td>With Mitigation</td>
<td>Short term</td>
<td>Study Area</td>
<td>Slight</td>
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</table>
7 CONCLUSIONS AND RECOMMENDATIONS

The proposed Capitol Resources Mozambique, Tete Iron Project is located north of the provincial capital of Tete, in the Chiúta and Moatize districts. The project site forms part of a magnetite-titanium-vanadium mineralisation zone known as the Massamba Group, located approximately 55 km north-northeast of Tete.

Soil samples were collected at six sites in the mining area and the dominant soil types identified. Soil samples were sent for laboratory analysis.

An agricultural impact assessment was undertaken to identify and assess the significance of potential impacts associated with the proposed activity on the agricultural potential and the current soil conditions of the affected land.

The proposed development’s primary impact on agricultural activities and soil conditions will be as a result of the construction of the new mine and associated infrastructure, as well as mining operations. The construction of the mine site and associated infrastructure will only influence a small area of the total local agricultural portion, while mining activities will affect a large area over an extended timeframe (years).

The No-go alternative would mean abandoning the proposed development and as such there will be no negative impact on the environment as identified in Section 6. Furthermore it may also result in none of the positive impacts of commercial mining in terms of employment and skills development being realised from this area.

7.1 Recommendations for the proposed Capitol Resources Mozambique, Tete Iron Project

All the mitigation measures provided below should be implemented in the Construction, Operation and Decommissioning Phases of the proposed Capitol Resources Mozambique, Tete Iron Project.

7.1.1 Construction

- Ensure that all stockpiled material (subsoil and topsoil) are appropriately sited and shaped to reduce wind-blown and stormwater transported sediments. Other mitigation measures include wetting, canvassing or netting down stockpiles, and construction of wind breaks.
- Develop a Stormwater Management Plan to mitigate any excessive sediment runoff observed as a result of mining activity.
- There is potential for the developer to implement an agricultural development programme to compensate for the large amount of high agricultural potential land lost.
- A conservation agriculture approach is recommended. This can be achieved through basic training to ensure the local communities become self-sufficient in generating high protein foods as well as cash liquidity. The traditional subsistence and rain fed practices that deplete soil nutrition and limit large crop production should be altered so that less land could be used more efficiently. Agriculture could then, with correct rotations and cropping programmes, ensure better food security and more stable employment conditions for the local communities.
- Due to the high fertility of soils onsite, a potential to develop an irrigation schemes exists that will allow larger and more frequent crop and livestock practices away from the river systems.
- The following crops are recommended:
  - Maize
  - Wheat
  - Sorghum
  - Rice (on Vertisols)
  - Cassava
  - Vegetables
  - Fruit trees (mango, papaya, coconut, banana etc.)
All these crops can be grown through intercropping with more traditional crops like cassava and locally found vegetables. 
- All run-off water must be collected, channelled and disposed of in an appropriate manner. 
- Anti-erosion features must be installed where required. 
- Ensure that all cleared and impacted land is rehabilitated and re-vegetated. 
- It is recommended that the displacement of existing farmers should be avoided or minimised. 
- If this is unavoidable the displaced farmer should either be compensated for the economic value of the land or aid must be provided to start up a new farm elsewhere. This may be in the form of improved farming methods, irrigation, seeding etc. 
- The displaced farmers should either be compensated for the economic value of the land or aid must be provided to start up a new farm elsewhere. This may be in the form of improved farming methods, irrigation, and seeding. 
- Machinery must be properly maintained to keep oil leaks in check. 
- Spill kits must be used onsite. 
- If a spill occurs on an impermeable surface such as cement or concrete, the surface spill must be contained using oil absorbent materials. 
- Contaminated remediation materials must be carefully removed from the area of the spill so as to prevent further release of hazardous chemicals to the environment, and stored in adequate containers until appropriate disposal.

7.1.2 Operation

- There is potential for the developer to implement an agricultural development programme to compensate for the large amount of high agricultural potential land lost. 
- A conservation agriculture approach is recommended. This can be achieved through basic training to ensure the local communities become self-sufficient in generating high protein foods as well as cash liquidity. The traditional subsistence and rain fed practices that deplete soil nutrition and limit large crop production should be altered so that less land could be used more efficiently. Agriculture could then, with correct rotations and cropping programmes, ensure better food security and more stable employment conditions for the local communities. 
- Due to the high fertility of soils onsite, a potential to develop an irrigation schemes exists that will allow larger and more frequent crop and livestock practices away from the river systems.
- The following crops are recommended:
  - Maize
  - Wheat
  - Sorghum
  - Rice (on Vertisols)
  - Cassava
  - Vegetables
  - Fruit trees (mango, papaya, coconut, banana etc.)
- All these crops can be grown through intercropping with more traditional crops like cassava and locally found vegetables.
- Soil stockpiles will be free-draining and protected from erosion.
- Stockpiles allocated for rehabilitation will not be mixed with other materials, such as building rubble, rock etc.
- Stockpiles is to be handled only twice – once during clearing and stockpiling and once during rehabilitation.
- The stockpiles shall be monitored, and dampened when necessary to control dust.
- No driving of vehicles on the topsoil stockpiles will be permitted.
- No blanket clearing of vegetation will permitted.
- Reduce the use of pesticides and fertilizers
- Use organic fertilizers where possible
- Blanket application of pesticides is not recommended.
- Ensure that all personnel are aware of the fire risk and the need to extinguish cigarettes before disposal, in appropriate waste disposal container.
The risk of fire is highest in the late summer and autumn months, during high wind velocities and dry periods. To avoid and manage fire risk the following steps should be implemented:

- Have on site fire-fighting equipment and ensure that all personnel are educated how to use it and procedures to be followed in the event of a fire.
- Identify the relevant authorities and structures responsible for fighting fires in the area and shall liaise with them regarding procedures should a fire commence.
- Ensure that all the necessary telephone numbers etc. are posted at conspicuous and relevant locations in the event of an emergency.

- No open fires shall be allowed on site for the purpose of cooking or warmth. Cooking fires must only be lit in designated cooking areas.
- The mine shall take all reasonable steps to prevent the accidental occurrence or spread of fire. The mine shall appoint a fire officer who shall be responsible for ensuring immediate and appropriate action in the event of a fire. The mine shall ensure that all site personnel are aware of the procedure to be followed in the event of a fire. The appointed fire officer shall notify the Fire and Emergency Services in the event of a fire and shall not delay doing so until such time as the fire is beyond his/her control.
- The mine shall ensure that there is basic fire-fighting equipment on site at all times. This equipment shall include fire extinguishers and beaters.
- Any work that requires the use of fire may only take place within designated areas. Fire-fighting equipment shall be available in these areas.
- Agricultural activities in the mine site area must be increased to compensate for the potential increase in the demand for agricultural produce.
- Due to the decrease in agricultural land, modern agricultural methods are recommended to allow for a higher crop yield per agricultural area.

### 7.1.3 Decommissioning

- Develop and implement a Rehabilitation and Monitoring Plan to monitor rehabilitated areas.
- Implement measures such as wind-breaks, swales and watering to aid the initial grown of primary vegetation.
- Fertile topsoil must not be stockpiled for periods exceeding 12 months on stockpiles exceeding 2m in height.
- Topsoil may be supplemented with an indigenous seed mix.

### 7.2 Agricultural and Soil statement and Opinion of the Specialist

The agricultural and soil impacts of all the aspects of the proposed Capitol Resources Mozambique, Tete Iron Project were considered to be acceptable provided that the mitigation measures proposed in this report are implemented.

Although agricultural production within the site is considered as low, agricultural potential is considered to be high as a result of fertile soils. No problematic areas or fatal flaws were identified for the site.

All the identified impacts on agriculture are considered to have high reversibility because most of the land will be able to be returned to agriculture after mine closure, with very little change in agricultural potential. Impacts on agriculture are also considered to have a low level irreplaceability of resource loss because:

3. The productive capacity of the land can be restored with the implementation of appropriate mitigation measures.
4. It is highly unlikely to be irreplaceably lost to agriculture,
8 REFERENCES


### APPENDIX 1
**VISUAL ASSESSMENT OF SOIL SAMPLES**

<table>
<thead>
<tr>
<th>Profile number</th>
<th>BT1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of description</td>
<td>15 May 2014</td>
</tr>
<tr>
<td>Location</td>
<td>E 15° 43.42' S 33° 46.30'</td>
</tr>
<tr>
<td>Elevation</td>
<td>384 m</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Soil morphology</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Surface characteristic</strong></td>
<td></td>
</tr>
<tr>
<td>Rock outcrops</td>
<td>Describes bedrock exposure Site in on top of Mt. Tenge. Rock outcrops dominate the site.</td>
</tr>
<tr>
<td>Coarse surface fragments</td>
<td>Includes partially and fully exposed fragments These are abundant and ranges from medium gravel to stones to boulders.</td>
</tr>
<tr>
<td>Erosion</td>
<td>Includes both Aeolian and water erosion No evidence of erosion observed.</td>
</tr>
<tr>
<td>Surface sealing</td>
<td>Describes crusts that developed at the soil surface after the topsoil dries out No surface sealing observed.</td>
</tr>
<tr>
<td>Surface cracks</td>
<td>Cracks that developed in shrink-swell clay-rich soils after they dry out No surface crack observed.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Horizon boundaries</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Depth</td>
<td>Between upper and lower boundary 1&lt;sup&gt;st&lt;/sup&gt; horizon (Top layer): 20cm 2&lt;sup&gt;nd&lt;/sup&gt; horizon: 50cm +</td>
</tr>
<tr>
<td>Distinctness and topography</td>
<td>Distinctness: Abrupt (1cm) for each horizon boundary Topography: Irregular (pockets more deep than wide) for each horizon boundary</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Primary constituents</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Texture of fine earth fraction</td>
<td>Proportion of the various particle-size classes 1&lt;sup&gt;st&lt;/sup&gt; horizon: coarse unsorted sand with minimal clay properties (Takyric horizon) 2&lt;sup&gt;nd&lt;/sup&gt; horizon: unconsolidated sand in between rock fragments.</td>
</tr>
<tr>
<td>Rock fragments</td>
<td>Fragments of rocks found within each horizon 1&lt;sup&gt;st&lt;/sup&gt; horizon: abundant rock fragments (60%) ranging from medium to coarse gravel. Rock fragments ranges from medium gravel to stones and are angular in shape. All rocks are strongly weathered. The primary mineral fragment in quartz. 2&lt;sup&gt;nd&lt;/sup&gt; horizon: continuous rock</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Soil colour</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hue</td>
<td>Dominant spectral colour Brownish-red to red for all horizons</td>
</tr>
<tr>
<td>Value</td>
<td>Lightness or darkness of colour (1=dark, 8=light) 3 for horizon 1 4 for horizon 2</td>
</tr>
<tr>
<td>Chroma</td>
<td>Strength of colour 6 for both horizons</td>
</tr>
<tr>
<td>Mottling</td>
<td></td>
</tr>
<tr>
<td>-----------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Abundance</strong></td>
<td>% of the exposed surface that mottles occupy</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Size</strong></td>
<td>Approximate diameter</td>
</tr>
<tr>
<td><strong>Contrast</strong></td>
<td>Between mottles and matrix</td>
</tr>
<tr>
<td><strong>Boundary</strong></td>
<td>Thickness of colour transition zone</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Soil odour</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Smell</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Organic matter content</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Value</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Profile number</th>
<th>BT2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of description</td>
<td>15 May 2014</td>
</tr>
<tr>
<td>Location</td>
<td>E 15° 45.65’ S 33° 47.01’</td>
</tr>
<tr>
<td>Elevation</td>
<td>299 m</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Soil morphology</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Surface characteristic</strong></td>
<td></td>
</tr>
<tr>
<td>Rock outcrops</td>
<td>Describes bedrock exposure</td>
</tr>
<tr>
<td>Coarse surface fragments</td>
<td>Includes partially and fully exposed fragments</td>
</tr>
<tr>
<td>Erosion</td>
<td>Includes both Aeolian and water erosion</td>
</tr>
<tr>
<td>Surface sealing</td>
<td>Describes crusts that developed at the soil surface after the topsoil dries out</td>
</tr>
<tr>
<td>Surface cracks</td>
<td>Cracks that developed in shrink-swell clay-rich soils after they dry out</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Horizon boundaries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depth</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Distinctness and topography</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distinctness refers to the thickness of the zone in which the horizon boundary can be located without being in the adjacent horizons. Topography indicates the smoothness of depth variation of the boundary</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Primary constituents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Texture of fine earth fraction</td>
</tr>
<tr>
<td>Classes</td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>Rock fragments</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Soil colour</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hue</td>
<td>Dominant spectral colour</td>
</tr>
<tr>
<td>Value</td>
<td>Lightness or darkness of colour (1=dark, 8=light)</td>
</tr>
<tr>
<td>Chroma</td>
<td>Strength of colour (1=pale, 8=bright)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mottling</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Abundance</td>
<td>% of the exposed surface that mottles occupy</td>
</tr>
<tr>
<td>Size</td>
<td>Approximate diameter</td>
</tr>
<tr>
<td>Contrast</td>
<td>Between mottles and matrix</td>
</tr>
<tr>
<td>Boundary</td>
<td>Thickness of colour transition zone</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Soil odour</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Smell</td>
<td>No entry implies no odour</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Organic matter content</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>% of soil content for each horizon</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Profile number</th>
<th>BT3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of description</td>
<td>15 May 2014</td>
</tr>
<tr>
<td>Location</td>
<td>E 15° 45.29’ S33° 46.41’</td>
</tr>
<tr>
<td>Elevation</td>
<td>297 m</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Soil morphology</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface characteristic</td>
<td>Describes bedrock exposure</td>
</tr>
<tr>
<td></td>
<td>Includes partially and fully exposed fragments</td>
</tr>
<tr>
<td></td>
<td>Includes both Aeolian and water erosion</td>
</tr>
<tr>
<td></td>
<td>Describes crusts that developed at the soil surface after the topsoil dries out</td>
</tr>
<tr>
<td></td>
<td>Cracks that developed in shrink-swell clay-rich soils after they dry out</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Horizon boundaries</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Depth</td>
<td>Between upper and lower boundary</td>
</tr>
<tr>
<td>Distinctness and</td>
<td>Distinctness refers to the thickness of</td>
</tr>
<tr>
<td>topography</td>
<td>the zone in which the horizon boundary can be</td>
</tr>
</tbody>
</table>
Agriculture and Soils Assessment – December 2014

<table>
<thead>
<tr>
<th>Located without being in the adjacent horizons. Topography indicates the smoothness of depth variation of the boundary</th>
</tr>
</thead>
</table>

### Primary constituents

<table>
<thead>
<tr>
<th>Texture of fine earth fraction</th>
<th>Proportion of the various particle-size classes</th>
<th>Medium sand Loamy clay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rock fragments</td>
<td>Fragments of rocks found within each horizon</td>
<td>None</td>
</tr>
</tbody>
</table>

### Soil colour

<table>
<thead>
<tr>
<th>Hue</th>
<th>Dominant spectral colour</th>
<th>Yellowish-brown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>Lightness or darkness of colour (1=dark, 8=light)</td>
<td>4</td>
</tr>
<tr>
<td>Chroma</td>
<td>Strength of colour (1=pale, 8=bright)</td>
<td>5</td>
</tr>
</tbody>
</table>

### Mottling

<table>
<thead>
<tr>
<th>Abundance</th>
<th>% of the exposed surface that mottles occupy</th>
<th>No mottling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>Approximate diameter</td>
<td></td>
</tr>
<tr>
<td>Contrast</td>
<td>Between mottles and matrix</td>
<td></td>
</tr>
<tr>
<td>Boundary</td>
<td>Thickness of colour transition zone</td>
<td></td>
</tr>
</tbody>
</table>

### Soil odour

<table>
<thead>
<tr>
<th>Smell</th>
<th>No entry implies no odour</th>
<th>No odour</th>
</tr>
</thead>
</table>

### Organic matter content

| Value | % of soil content for each horizon | <1.0% |

### Soil morphology

<table>
<thead>
<tr>
<th>Profile number</th>
<th>BT4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of description</td>
<td>15 May 2014</td>
</tr>
<tr>
<td>Location</td>
<td>E 15° 44.23’ E33° 46.26’</td>
</tr>
<tr>
<td>Elevation</td>
<td>312 m</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Soil morphology</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Surface characteristic</strong></td>
<td></td>
</tr>
<tr>
<td>Rock outcrops</td>
<td>Describes bedrock exposure Undulating with rocky outcrops present</td>
</tr>
<tr>
<td>Coarse surface fragments</td>
<td>Includes partially and fully exposed fragments Common Medium gravel</td>
</tr>
<tr>
<td>Erosion</td>
<td>Includes both Aeolian and water erosion No evidence of erosion observed.</td>
</tr>
<tr>
<td>Surface sealing</td>
<td>Describes crusts that developed at the soil surface after the topsoil dries out No surface sealing observed.</td>
</tr>
<tr>
<td>Surface cracks</td>
<td>Cracks that developed in shrink- No surface crack observed.</td>
</tr>
</tbody>
</table>
### Horizon boundaries

<table>
<thead>
<tr>
<th>Depth</th>
<th>Between upper and lower boundary</th>
<th>No horizons observed</th>
</tr>
</thead>
</table>

### Distinctness and topography

<table>
<thead>
<tr>
<th>Distinctness and topography</th>
<th>Distinctness refers to the thickness of the zone in which the horizon boundary can be located without being in the adjacent horizons. Topography indicates the smoothness of depth variation of the boundary</th>
</tr>
</thead>
</table>

### Primary constituents

#### Texture of fine earth fraction

<table>
<thead>
<tr>
<th>Texture of fine earth fraction</th>
<th>Proportion of the various particle-size classes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coarse sand</td>
<td>Loamy clay</td>
</tr>
</tbody>
</table>

#### Rock fragments

<table>
<thead>
<tr>
<th>Rock fragments</th>
<th>Fragments of rocks found within each horizon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common (10%)</td>
<td>Medium to coarse gravels</td>
</tr>
<tr>
<td>Mix of coarse gravel and stone</td>
<td></td>
</tr>
</tbody>
</table>

### Soil colour

#### Hue

<table>
<thead>
<tr>
<th>Hue</th>
<th>Dominant spectral colour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brownish-red</td>
<td></td>
</tr>
</tbody>
</table>

#### Value

<table>
<thead>
<tr>
<th>Value</th>
<th>Lightness or darkness of colour (1=dark, 8=light)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

#### Chroma

<table>
<thead>
<tr>
<th>Chroma</th>
<th>Strength of colour (1=pale, 8=bright)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

### Mottling

#### Abundance

<table>
<thead>
<tr>
<th>Abundance</th>
<th>% of the exposed surface that mottles occupy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Few (2%)</td>
<td></td>
</tr>
</tbody>
</table>

#### Size

<table>
<thead>
<tr>
<th>Size</th>
<th>Approximate diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fine (3 mm)</td>
<td></td>
</tr>
</tbody>
</table>

#### Contrast

<table>
<thead>
<tr>
<th>Contrast</th>
<th>Between mottles and matrix</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faint</td>
<td></td>
</tr>
</tbody>
</table>

#### Boundary

<table>
<thead>
<tr>
<th>Boundary</th>
<th>Thickness of colour transition zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear (0.5 mm)</td>
<td></td>
</tr>
</tbody>
</table>

### Soil odour

<table>
<thead>
<tr>
<th>Smell</th>
<th>No entry implies no odour</th>
</tr>
</thead>
<tbody>
<tr>
<td>No odour</td>
<td></td>
</tr>
</tbody>
</table>

### Organic matter content

<table>
<thead>
<tr>
<th>Value</th>
<th>% of soil content for each horizon</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;0.1%</td>
<td></td>
</tr>
</tbody>
</table>

### Profile number

<table>
<thead>
<tr>
<th>Profile number</th>
<th>BT5</th>
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</table>

### Date of description

<table>
<thead>
<tr>
<th>Date of description</th>
<th>15 May 2014</th>
</tr>
</thead>
</table>

### Location

<table>
<thead>
<tr>
<th>Location</th>
<th>E 15° 43.26’ E33° 46.19’</th>
</tr>
</thead>
</table>

### Elevation

<table>
<thead>
<tr>
<th>Elevation</th>
<th>288 m</th>
</tr>
</thead>
</table>

### Soil morphology

<table>
<thead>
<tr>
<th>Surface characteristic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rock outcrops</td>
<td>Describes bedrock exposure</td>
</tr>
<tr>
<td>River bank (Revuboe River)</td>
<td></td>
</tr>
<tr>
<td>Coarse surface fragments</td>
<td>Includes partially and fully exposed</td>
</tr>
<tr>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>
### Erosion
- **Involves both Aeolian and water erosion**
- Minor rill erosion close by
- Moderate evidence
- Less than 5% of area affected
- Active at present

### Surface sealing
- **Description crusted at the soil surface after the topsoil dries out**
- No surface sealing observed.

### Surface cracks
- **Cracks developed in shrink-swell clay-rich soils after they dry out**
- No surface crack observed.

### Horizon boundaries
<table>
<thead>
<tr>
<th>Depth</th>
<th>Layering abundant</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Depth</strong></td>
<td>Between upper and lower boundary</td>
</tr>
<tr>
<td><strong>Distinctness and topography</strong></td>
<td>Distinctness refers to the thickness of the zone in which the horizon boundary can be located without being in the adjacent horizons. Topography indicates the smoothness of depth variation of the boundary</td>
</tr>
<tr>
<td></td>
<td>3 – 10 cm</td>
</tr>
</tbody>
</table>

### Primary constituents
<table>
<thead>
<tr>
<th>Texture of fine earth fraction</th>
<th>Proportion of the various particle-size classes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rock fragments</strong></td>
<td>Fragments of rocks found within each horizon</td>
</tr>
<tr>
<td><strong>Fine sand</strong></td>
<td>None</td>
</tr>
</tbody>
</table>

### Soil colour
<table>
<thead>
<tr>
<th>Hue</th>
<th>Dominant spectral colour</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Value</strong></td>
<td>Lightness or darkness of colour (1=dark, 8=light)</td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

### Mottling
<table>
<thead>
<tr>
<th>Abundance</th>
<th>% of the exposed surface that mottles occupy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Size</strong></td>
<td>Approximate diameter</td>
</tr>
<tr>
<td><strong>Contrast</strong></td>
<td>Between mottles and matrix</td>
</tr>
<tr>
<td><strong>Boundary</strong></td>
<td>Thickness of colour transition zone</td>
</tr>
</tbody>
</table>

### Soil odour
<table>
<thead>
<tr>
<th>Smell</th>
<th>No entry implies no odour</th>
</tr>
</thead>
</table>

### Organic matter content
<table>
<thead>
<tr>
<th>Value</th>
<th>% of soil content for each horizon</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;0.3%</td>
<td></td>
</tr>
<tr>
<td>Profile number</td>
<td>BT6</td>
</tr>
<tr>
<td>----------------</td>
<td>-----</td>
</tr>
<tr>
<td>Date of description</td>
<td>15 May 2014</td>
</tr>
<tr>
<td>Location</td>
<td>E 15° 43.24 S 33° 46.55'</td>
</tr>
<tr>
<td>Elevation</td>
<td>309 m</td>
</tr>
</tbody>
</table>

### Soil morphology

<table>
<thead>
<tr>
<th>Surface characteristic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rock outcrops</td>
<td>Describes bedrock exposure Depression in and undulating landscape.</td>
</tr>
<tr>
<td>Coarse surface fragments</td>
<td>Includes partially and fully exposed fragments None</td>
</tr>
<tr>
<td>Erosion</td>
<td>Includes both Aeolian and water erosion No evidence of erosion observed.</td>
</tr>
<tr>
<td>Surface sealing</td>
<td>Describes crusts that developed at the soil surface after the topsoil dries out No surface sealing observed.</td>
</tr>
<tr>
<td>Surface cracks</td>
<td>Cracks that developed in shrink-swell clay-rich soils after they dry out No surface crack observed.</td>
</tr>
</tbody>
</table>

### Horizon boundaries

<table>
<thead>
<tr>
<th>Depth</th>
<th>Between upper and lower boundary None</th>
</tr>
</thead>
</table>

### Distinctness and topography

| Distinctness refers to the thickness of the zone in which the horizon boundary can be located without being in the adjacent horizons. Topography indicates the smoothness of depth variation of the boundary |

### Primary constituents

<table>
<thead>
<tr>
<th>Texture of fine earth fraction</th>
<th>Proportion of the various particle-size classes Medium sand Loamy clay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rock fragments</td>
<td>Fragments of rocks found within each horizon None</td>
</tr>
</tbody>
</table>

### Soil colour

| Hue | Dominant spectral colour Reddish-brown to brown |
| Value | Lightness or darkness of colour (1=dark, 8=light) 3 |
| Chroma | Strength of colour (1=pale, 8=bright) 5 |

### Mottling

<p>| Abundance | % of the exposed surface that mottles occupy No mottling |
| Size | Approximate diameter |
| Contrast | Between mottles |</p>
<table>
<thead>
<tr>
<th>Boundary</th>
<th>Soil odour</th>
<th>Organic matter content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness of colour transition zone</td>
<td>No odour</td>
<td>% of soil content for each horizon</td>
</tr>
<tr>
<td>Smell</td>
<td>No entry implies no odour</td>
<td>1.2% for both horizons</td>
</tr>
<tr>
<td>Value</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>