Project No: PO0000009

ESKOM HOLDINGS (PTY) LTD
KENDAL CONTINUOUS ASHING

TIME EXTENSION ASSESSMENT

SPECIALIST OPINION – SOILS & LAND CAPABILITY

Compiled For

Green Gold Group (Pty) Ltd

FINAL REPORT

September 2019

Sustaining the Environment

26th September 2019

Green Gold group (Pty) Ltd
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South Africa

Attention: Lebohang Moiloa (073 232 4312, 012 000 2562, eias@greengoldgroup.co.za

Dear Ms Moiloa,

Re: KENDAL CONTINUOUS ASHING TIME EXTENSION PROJECT
PROFESSIONAL OPINION - SOIL ASSESSMENT

Attached please find report detailing our findings and professional opinion regarding the time extension being considered by Eskom Holdings as part of the ongoing operation of their Continuous Ashing for the Kendal Power Generation Plant.

Yours sincerely
Earth Science Solutions (Pty) Ltd

Ian Jones
Director

TABLE OF CONTENTS

LIST OF FIGURES

Appendix 1 – Soil Study June 2014

Declaration

This specialist report has been compiled in terms of the 2014 NEMA Regulations as amended, and forms part of the overall Environmental Impact Assessment for the proposed project being considered as part of the Kendal Continuous Ashing Expansion Project, both as a standalone document and as supporting information to the overall submission.

The specialist Pedological and Land Capability studies are managed and signed off by Ian Jones (Pr. Sci. Nat 400040/08), an Earth Scientist with 42 years of experience in this field of expertise.

I declare that both, Ian Jones, and Earth Science Solutions, are totally independent in this process, and have no vested interest in the project.

The objectives of the study were to:

- Assess and report on the potential for a time extension to the continuous ashing operation beyond the licensed agreement deadline.

The Taxonomic Soil Classification System and Chamber of Developments Land Capability Rating Systems were used as the basis for the soils and land capability investigations respectively. These systems are recognized nationally.

Signed: 26th September 2019

Ian Jones B.Sc. (Geol) Pr.Sci.Nat 400040/08

1. INTRODUCTION AND PHYSIOGRAPHY

1.1 Introduction

The Kendal Continuous Ashing Project (KCAP) covers an area to the northwest and contiguous with the existing Kendal Ash Disposal Facility (ADF) (Refer to Figure 1a and 1b – Proposed Ash Disposal Facility Extension), an area that is considered a greenfield environment/project albeit that the majority of the area proposed for development has already been disturbed and impacted by high intensity commercial cropping. The effect of commercial farming renders much of the area a "brownfield" site in terms of the impacts that the cultivation and grazing of livestock has had on the soils and land capability.

Eskom holdings received environmental authorisation (EA) for extension of their ADF to the north and west in 2015. One of the conditions of the EA was that the new ADF should be lined with Class C lining. Eskom applied for exemption to dispose on a portion of the approved area without lining, while the construction of the lined ADF is underway. The exemption application was approved in 2019, granting Eskom permission to dispose without lining until 05 May 2020.

The current application for the competent authority to remove time constraint and allow Eskom to ash on the exempted area until it reaches its capacity.

As part of the ongoing process, impacts from the deposition of ash from the power generator has had a cumulative effect on the area. The effects of the existing activities (Farming and Ash disposal) are clearly evident, with both erosion and compaction noted on the site, and the permanent cover of the site by the advance of the ash disposal.

The extension to the ADF and associated developments (Return water dams etc.) have been raised as negative impacts to both the soils and land capability on the immediate site, and to some lesser extent on the surroundings.

The outcomes reached as part of the original Environmental Impact Assessment (EIA) concluded that the dumping of ash would have a long term and permanent negative impact on the soils and their associated land capability, that the soils should be stripped and stockpiled on all areas that are to be permanently covered or impacted for a significant period of time, and that the ash disposal will need to be managed and mitigation implemented as part of any closure strategy.

This report has been compiled in line with the Guideline Document for Impact Assessment philosophy and Significance Rating System (NEMA).

1.2 Project Description

The deposition of the coal-fired power station waste as ash is a recognised method of disposing of the waste product. The design plans issued as part of the ToR supplied envisage the expansion of the existing Ash Disposal to the north and west, the construction of a return water dam and stormwater control facility, and the extension of the existing conveyer system (Refer to Figure 1a and 1b).

Progress with Ash Disposal and the advancement of the facility over time has caught up with the project and the facility finds themselves with limited air space ahead of the required liner needed in terms of the applied for license.

Figure 1a – Original (2012) Development Plan

Figure 1b – 2019 Site Survey Plan

1.3 Methodology and Approach

As part of the original baseline study 2014, the soil and land capability specialist studies were undertaken, and mapping of the in-situ materials undertaken. The soil physical and chemical characteristics were described and mapped, and the site sensitivity and land capability assessed as part of the impact assessment and development of a management plan (Refer to Soils Report 2014).

With the need for additional time, the site was visited in mid September 2019 and an assessment of the viability for ongoing deposition of ash considered. In conjunction with the resident engineer, the environmental manager and her assistant, a walk-over site visit was carried out.

The assessment aimed to determine:

- The extent of deposition since the 2014 study;
- The extent of change that might have occurred to the site since the previous study, and
- The extent to which ongoing deposition of ash could be undertaken within the legal boundaries as defined in the license.

1.4 Legal Considerations

As part of understanding the consequences of the proposed development a knowledge of the national legislation that pertains to soils is important, and is a guide in understanding the permissible standards and limits that can be considered, albeit that there are no prescribed quantitative limits that can be quoted.

The most recent South African Environmental Legislation that needs to be considered for any new development with reference to management of soil includes:

- The Bill of Rights (chapter 2) states that environmental rights exist primarily to ensure good health and wellbeing, and secondarily to protect the environment through reasonable legislation, ensuring the prevention of the degradation of resources.
- The Environmental right is furthered in the National Environmental Management Act (No. 107 of 1998), which prescribes three principles, namely the precautionary principle, the "polluter pays" principle and the preventive principle.
- It is stated in the above-mentioned Act that the individual/group responsible for the degradation/pollution of natural resources is required to rehabilitate the polluted source.
- Soils and land capability are protected under the National Environmental Management Act 107 of 1998, the Development Act 28 of 2002 and the Conservation of Agricultural Resources Act 43 of 1983.
- The National Environmental Management Act 107 of 1998 requires that pollution and degradation of the environment be avoided, or, where it cannot be avoided be minimised and remedied.
- The Conservation of Agricultural Resources (Act 43 of 1983) states that the degradation of the agricultural potential of soil is illegal.

In addition to the South African legal compliance this proposed development was also assessed in terms of the International Performance Standards as detailed by the International Finance Corporation (IFC).

The development plan should include measures appropriate to the situation to intercept, divert, or otherwise reduce the storm water runoff from exposed soil surfaces, tailings dams, and waste rock dumps.

Project sponsors are encouraged to integrate vegetative and non-vegetative soil stabilization measures in the erosion control plan.

Sediment control structures (e.g., detention/retention basins) should be installed to treat surface runoff prior to discharge to surface water bodies. All erosion control and sediment containment facilities must receive proper maintenance during their design life.

This will be included in the appropriate management plans when they are developed at a later stage in the project's life cycle.

Please refer to the 2014 document for more details on the legal framework that was followed.

2. 2. PROFESSIONAL OPINION

In offering a professional opinion on the proposed time extension for the Continuous Ashing on the current footprint it was important to understand the assumptions that needed to be made while considering the time extension required for the ongoing deposition of ash.

It was assumed that:

- The rate of deposition would continue at the average rate over life of the operation;
- The planned deposition would be controlled within the legal footprint as delineated;
- That the area surveyed (Refer to Figure 1b) and the site demarcated on the ground are correct in terms of the license agreement;
- The design and planned infrastructural development will allow for the construction of the required infrastructure ahead of the life of the existing legal requirements.

The findings of the site assessment carried out on the 17th September 2019 concluded that:

- There has been no additional impact on the soils and/or the land capability outside of the area of legal authorisation and the historical land use is continuing with impact;
- There has been no change in the baseline conditions of the soils or the land capability on the area outside of the legal area of disturbance, the management of both erosion and compaction having been engineered and mitigated through construction of berms and defined roadways;
- The area considered as part of the license agreement for ongoing deposition has been managed well, and any/all impacts associated with the ash deposition is being contained within the dirty water management area (bunded area);

- Assuming the present rate of deposition, the footprint required for continuous ashing is considered sufficient for the foreseeable future, and with the implementation of the engineering designs being planned (Refer to Figure 1b) there should be no additional impact or limitations on the project going forward.

3. CONCLUSIONS AND RECMMENDATIONS

Based on the assumptions made, and the site visit undertaken it is concluded that the time extension to the on-going deposition of ash is both feasible and recommended.

APPENDIX 1

SOIL STUDY – JUNE 2014