

**PROPOSED ESKOM LANDFILL SITE DEVELOPMENT, LEPHALALE,
LIMPOPO PROVINCE**

**ADDENDUM TO THE ENGINEERING INPUT TO THE SCOPING REPORT
OF THE ENVIRONMENTAL IMPACT ASSESSMENT**



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SCOPING REPORT ADDENDUM

BACKGROUND

The Minimum Requirements for Waste Disposal by Landfill have, as an overall objective of environmentally responsible landfilling, the requirement to “**avoid both short or long term impacts or any degradation of the environment in which the landfill is located.**” Short term impacts include problems such as noise, flies, odour, air pollution, unsightliness and windblown litter. Long term impacts include potential pollution of the water regime, landfill gas generation and devaluation of adjacent land holdings. These problems can be mitigated by carefully considered landfill site selection, design, preparation or operation and ensuring that there are adequate buffer zones in place.

From an engineering perspective these considerations and identification of impacts are indicated by supplementary studies including geological and geo-hydrological assessments, social-impact assessments, air-quality impact assessments, visual impact assessments, noise impact assessments, traffic impact assessments and land-use assessments. These inputs are supplied to the engineer who considers this feedback in the design process to mitigate potential negative impacts. Some of these engineering interventions include:

Lining the landfill: In order to ensure the integrity of the water regime, the engineer will design the landfill with a lining appropriate to the class of the landfill. For the proposed Medupi landfill a synthetic liner will be proposed as part of the design.

Screening: To ensure aesthetic acceptability to the surrounding community, berms will be specified as part of the design to screen the workings from the public

Compaction: Waste compaction assists in reducing voids, thereby minimising channelling and in turn the rapid infiltration and migration of any leachate formed. By compaction the risk of fires is reduced, vermin are discouraged, a measure of litter control is achieved, the life of the landfill site is increased and the quantity of daily cover required is reduced.

Daily Cover: The landfilling operations will include adequate covering of the waste. This will obviate most short term adverse impacts associated with the landfill operation in particular odour.

Operational Plan: All of the details of day-to-day operations will be captured in the operating plan which is part of the scope of works of the engineering specialist study.

PROJECT SCOPE

To re-iterate, the scope of works for the engineering study includes an Investigation and Report Phase and a Design Phase.

The Investigation and Report Phase includes:

- Project Initiation,
- Specialist Study, and
- Topographical Survey and Digital Terrain Modelling

The specialist report will improve project planning and design and assist in avoiding negative impacts and reduce the risk of unexpected costs and delays later in the EIA process. The specialist report will

contribute to the integrated Environmental Impact Report which will be compiled by Envirolution Consulting.

The Design Phase includes:

- Preliminary Design, and
- Detailed Design

The design work includes but is not limited to the following:

- Geometric design
- Landfill lining design
- Leachate control extension
- Stormwater management (stormwater diversion, culvert and retention dam and leachate management system)
- Access road
- Optimising landfill operation methods to optimise available airspace
- Operating plan for landfill site
- Landfill gas ventilation
- Capping layers
- Cost and budgets required for such a facility
- Site office
- Weigh bridge

PROJECT INITIATION AND SURVEY

After project initiation, a topographical survey needs to be undertaken by a surveyor appointed by PDNA. The survey will be used to determine the existing airspace remaining on the site, using digital terrain modelling software Modelmaker (preferred) or Civil Designer. Disposal volumes will be confirmed with the client so that a phased approach can be taken in developing a Master Plan for the full site development.

MASTERPLAN

The Masterplan would indicate the phasing of cell development, given the constraints of the local conditions. The Masterplan includes waste disposal predictions and forecasts, as well as airspace options vs. geometry. The Masterplan needs to include, at a conceptual level, provision for stormwater management, leachate drainage, monitoring of groundwater, surface water, air quality and landfill gas (if found necessary).

DETAIL DESIGN AND TENDER

After acceptance by the Client of the Masterplan, a preliminary design will be undertaken. Preliminary design will be discussed with the Client and the competent provincial and national authorities (assuming permit application, rezoning and Record of Decision all successful). Detail design includes attention to the key issues identified in the Masterplan, the approval conditions and requirements by competent authorities. The detail design plus design report is submitted for approval by the Client and the competent approving authorities.