

## Shongweni Permanent Landfill Gas Block Diagram

Block	Landfill	BIDOX Scrubber	Bio filters (BIDOX backup)	BIDOX ETP	Permanent Flare
<b>Inputs</b>	Permitted waste, ash, treatment chemicals	Landfill gas	Landfill gas	Effluent from BIDOX mostly sulphuric acid	Landfill gas
<b>Outputs</b>	Leachate, storm water, landfill gas	Treated landfill gas	Treated landfill gas	Permeate water for reuse in BIDOX. Sodium Sulfate concentrate	Combusted landfill gas
<b>Major Plant and Equipment</b>	Engineered landfill, 6 gas wells, gas drainage pipe, excavators, bull dozer, compactors, TLB	BIDOX scrubber filled with packing material.	Bio filter filled with a compost and wood chip mix	BIDOX ETP consisting of Ufand RO membranes	500 m3/hr low calorific flare, blower to exert a vacuum on the landfill gas extraction system. Generator
<b>Potential environmental risks</b>	Landfill gas, leachate, stormwater	Odours, effluent spills	Odours, irrigation water	Odours, effluent spills	Odours
<b>Mitigation</b>	Landfill gas extraction, treatment and flaring system. Storm water and leachate storage.	The system is under pressure but is designed fit for purpose. The BIDOX is contained and any leaks will drain to the storm water dam	The system is under a vacuum so no emissions are expected. The irrigation water is contained in the bund and drains to the leachate tank	The BIDOX ETP is contained and any leaks will drain to the storm water dam.	The flare is fitted with a flame detector to ensure combustion while running. A backup generator has been installed to maintain operations.