



ETHEKWINI MUNICIPALITY
Occupational Health & Safety Unit

BASELINE RISK ASSESSMENT

Document Title	Baseline Risk Assessment
Client	eThekwini Municipality – Cleansing and Solid Waste
Project	WWMF Contract B - Landfill Cell 1, Lined Dams and Platforms Construction
Contract Number	ZE30109
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BASELINE RISK ASSESSMENT

1. INTRODUCTION: In accordance with the Occupational Health and Safety Act, (Act 85 of 1993) the Legislator places specific requirements on an Employer. One of these is prescribed in Section 8(i) of the Act where it requires the Employer to ascertain the risks and dangers which may occur within the workplace or section of the workplace and then goes on to establish working procedures or practices.

2. PURPOSE: This is conducted to create a benchmark of the potential risks that apply to the whole project or business operation.

3. SCOPE: This assessment could be approached on a site, regional or national level concerning any facet of the business operation or process or activity.

4. REVIEW AND MONITORING PLAN

The risk assessment form part of the health and safety plan to be applied on the site and must include the following:

- (a) The identification of the risk and hazards to which persons may be exposed.
- (b) An analysis and evaluation of the risks and hazards identified based on a documented method

5. REFERENCES

- (a) Tender Document ZE30109
- (b) Occupational Health & Safety Act and its Regulation

LOCALITY PLAN



SCOPE OF WORK

The Contract is for the construction of a new landfill cell, Cell 1, a Leachate Dam, Contaminated Stormwater Dams, and ancillary works for the Western Waste Management Facility (WWMF). The main parts of the envisaged work include:

- a) careful relocation of identified indigenous plants from the area of the works, clearing of other vegetation and the removal of trees
- b) stripping of topsoil to stockpile for re-use.
- c) bulk earthworks in materials ranging from soft clayey soils to soft rock in order to prepare for the new cell, the leachate dam, the contaminated stormwater dams and other works including, but not limited to, gravel roads, drains and pipelines.
- d) base preparation layers, GCL and geomembrane liners and geogrid for Cell 1, the Leachate Dam and the Contaminated Stormwater Dams.
- e) construction of liner protection layers, generally stabilised sand then the crushed rock aggregate leachate drainage layers for Cell 1, geotextiles and appurtenant works together with the pipework for the leachate detection and under drainage layers for Cell 1, the Leachate Dam and the Contaminated Stormwater Dams.
- f) construction of sundry subsoil drains, blanket drains and pipework as may be needed.
- g) construction of concrete vee and trapezoidal drains as well as ancillary brickwork structures.
- h) construction of leachate, stormwater and monitoring manholes (including pipework and valves) and other structures.
- i) stormwater drainage (piping headwalls and manholes).
- j) gabions and protection work including diversion drains and berms.
- k) ancillary works including fencing, environmental monitoring boreholes and probes and temperature monitoring systems.

1. RISK ESTIMATION AND EVALUATION

RISK CLASSIFICATION USING A RISK SCORE TECHNIQUE

Exposure (E) How frequently does the hazardous event occur		Risk classification
Continuously		10
Frequently (daily)		6
Occasionally (weekly)		3
Unusually (monthly)		2
Rarely (few a year)		1

Probability (P) The probability of a loss when the hazardous event does occur		Risk classification
Frequent (happens often)		10
Probable (quite possible)		6
Occasional (unusual, but possible)		3
Remotely possible (has happened somewhere)		1
Improbable (practically impossible)		0.5

Severity (S) Consequences of the hazardous event		Risk classification
Catastrophic many fatalities; or interruption of longer than 2 weeks; or asset or environmental damage (or both) exceeding R100m		100
Disaster (few fatalities; or interruption between one and 2 weeks; or asset or environmental damage (or both) exceeding R10m)		40
Very serious (one fatality; or interruption of 6 days; or asset or environmental damage (or both) exceeding R100,000		7
Important (temporary disability; or interruption between 6 and 24 hours; or damage exceeding R10,000		3
Noticeable (first aid needed; or interruption of less than 6 hours; damage exceeding R1000)		1

Risk classification (Risk score = E x P x S)	
Risk score	Risk classification
Over 400-----5	Very high risk – discontinue operation or activity
200 to 400 ----- 4	High risk – immediate correction needed
70 to 200----- 3	Substantial risk – correction needed
20 to 70----- 2	Possible risk – attention needed
Under 20 ----- 1	Risk accepted

BASELINE RISK ASSESSMENT WORKSHEET: IDENTIFYING EXISTING & POTENTIAL RISKS

1	Site Access								
	Activity	Hazard	Risk	Risk Evaluation			Risk Score	Risk level	Risk Rank
				E	P	S			
	Accessing the site using construction vehicles or walking to site. Delivering of equipment and material to the site	Excessive speed, head on collusion, employees knocked by moving vehicles. Road blocked off due to community protest. Manual Handling and excessive lifting.	Accidents, damage to equipment or severe injuries or death. Back injuries,	6	6	7	252		4
2	Site Establishment								
	Manual and mechanical clearing of the land. Off-loading and positioning of offices by mobile crane. Fencing. Installation of temporary water supply, electricity, ablution facilities,	Dust, Snakes, Bees & Wasps. Incompetent operator. Poor connection of temporary services.	Poisoned and death. Collision/impacts of mobile lifting equipment loads and dropped loads with process plant, pipe work, electrical cables and people. Water leaks, Electrocution, improper connection	6	6	7	252		4

3	Bulk Earthwork								
	Mechanical excavation Stockpiling	Incompetent operator. Machine running out of control. Open excavation. Dust Poor stockpiling. Operating mobile plant next to open excavation	Personal injury/amputations Property damage. Respiratory problem. Obstruction of walkways	6	6	7	252		4
4	Drainage/Storm water								
	Lay, bed and joint of pipes	Unsafe access to excavation Manual handling of pipes Possible pinch of fingers Engulfment of excavation	Personal injuries. Possible pinch Death/ body injury	6	6	3	108		3
5	Excavation								
	Mechanical and manual excavation. Back filling mechanical and manual	Unauthorized operator. Machine running out of control. Open excavation. Dust. Operating mobile plant next to open excavation.	Personal injury/possible disabling injuries. Property to damage Respiratory problem.	10	6	7	420		5

6	Construction Mobile Plant and Equipment								
	Use of Plant & Equipment on site	Incompetent operator Unsafe plant & equipment. Collusion with other vehicles. Petrol and oil spillages.	Personal injuries. Motor vehicle accident. Environmental contamination.	6	6	7	252		4
7	Emergency Management								
	Development and Implementation of an Emergency Management Plan	Failure to have a basic, site specific emergency management plan. Workers not trained in the Emergency Plan. Insufficient or no emergency equipment or personnel.	Injury or damage to property. Inability to respond to emergencies. Insufficient or no emergency equipment.	6	6	3	108		3
8	Community Risk Management								
	Managing community risk	Failure to adequately monitor and manage the multi-faced social issues.	Violent protests. Injury to employees and property damage.	6	6	3	108		3

9	Subcontractor Management								
	Managing subcontractors	Failure to adequately assess subcontractors S.H.E Management System before work commences and at regular intervals. Inadequate Supervision. Utilizing incompetent Subcontractors.	Injury and non-compliance to legislation. High level of employee unsafe behavior. Accidents and property damage.	6	6	3	108		3