ETHEKWINI MUNICIPALITY
Occupational Health & Safety Unit

BASELINE RISK ASSESSMENT

Document Title	Baseline Risk Assessment
Client	eThekwini Municipality – Water and Sanitation
Project	**KwaMashu Wastewater Treatment Works Functional Upgrade**
Contract Number	WS7502
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Revision Number	BRA 129/06/2023

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:

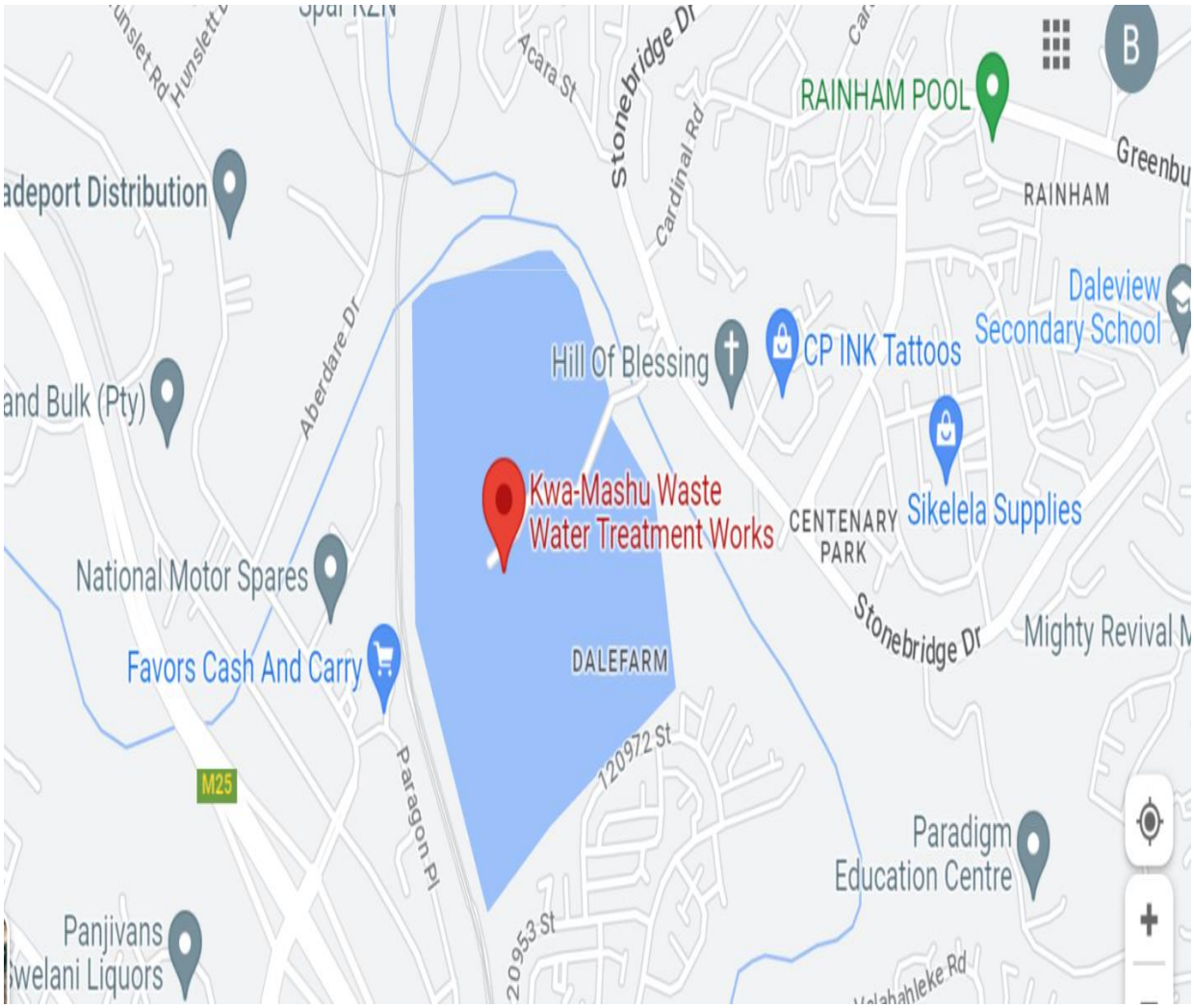
(a) The identification of the risk and hazards to which persons may be exposed.
(b) An analysis and evaluation of the risk and hazards identified based on a documented method.

5. REFERENCES

(a) Tender document number WS7502

(b) Occupational Health & Safety Act and its Regulation

LOCALITY PLAN



RISK ASSESSMENTS SCOPE OF WORK

- The scope of works is as follows: The safe rigging, removal and replacement, installation and commissioning of the following plant and equipment in line with best practice engineering standards, equipment data tables and particular specifications.

1. One off AISI 304 stainless steel stone trap conveyor.
2. Two off self-priming pumps at the raw sludge pump station as per specifications
3. The removal of an existing thickener step screen and replacement with a front rake mechanical screen as per specifications
4. Two off progressive cavity digester feed pumps as per specifications
5. Two off progressive cavity thickener transfer pumps as per specifications
6. Two off submersible centrifugal pumps for the WAS DAF(Dissolved air Floatation) plant as per specifications
7. Two off progressive cavity DAF Sludge pumps as per specifications
8. One off air compressor for the DAF plant as per specifications
9. One off secondary digestor motor and gearbox unit as per specifications
10. Three off progressive cavity sludge feed pumps as per specifications at the Dewatering plant
11. Two off submersible filtrate pumps as per specifications at the Dewatering plant
12. Two progressive cavity sludge transfer pump rotor and stator as per specifications at the Dewatering plant
13. Three off aerator motors to suit and three off aerator gearboxes to suit
14. Four off stainless steel Bioreactor Mixer Impellers to suit, four off Bioreactor Mixer Motors to suit and three off Bioreactor Mixer gearboxes to suit

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 (quiet 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

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	**Demolition Work /Replacement**								
	Removal of pumps using tools	Manual handling of equipment and materials Noise Flying objects Defective tools	Manual handling injuries Dust being inhaled/getting into eyes	6	6	3	108		3
4	**Working at height**								
	Erection of Scaffolding by a Competent person 0r the Use of ladders	Unsafe scaffolding/ trestle scaffolds/ ladders Falling from height	Unsafe scaffolding /trestle/ ladder could collapse resulting in critical injuries Fatalities	6	6	7	252		4
5	**Welding** Setting up the welding machine	Sparks from the welding machine Emission smoke	Burns Respiratory problem	6	6	7	252		4
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