



## ETHEKWINI MUNICIPALITY Occupational Health & Safety Unit

### BASELINE RISK ASSESSMENT

Document Title	Baseline Risk Assessment
Client	EThekweni Municipality – Water and Sanitation
Project	ESCOMBE – WALL ROAD SEWER RETICULATION
Contract Number	WS7190
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Reference Number	BRA84/03/2022

## **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) Occupational Health & Safety Act and its Regulation
- (b) Tender Document WS7190

## 6. LOCALITY PLAN

NIL

## SCOPE OF WORK

This project entails the construction of a sewer reticulation to service 65 units and crossing the M7 Highway before tie-in into the existing gravity sewer at Middleton Road.

### Reticulation for 65 Units

A 160mm diameter HDuPVC (class 34) pipe will be laid along property boundaries and in the road servitude for an approximate length of 2565m.

### Pipe Jacking

This section entails the pipe jacking of a 1200mm diameter (class 100D) concrete pipe sleeve under the M7 Highway for a distance of 46m with a 160mm diameter HDuPVC inside

The scope of work is made up as follows:

- Conventional open trench for the sewer pipe
- Prepare pipe bedding, lay the pipe, backfill and compact
- Build new manholes and construct benching
- General reinstatement along pipeline route and road surfaces
- Connection into existing live sewer line and new sewers

## 1. RISK ESTIMATION AND EVALUATION

### RISK CLASSIFICATION USING A RISK SCORE TECHNIQUE

<b>Exposure (E) How frequently does the hazardous event occur</b>		<b>Risk classification</b>
Continuously .....		10
Frequently (daily) .....		6
Occasionally (weekly) .....		3
Unusually (monthly) .....		2
Rarely (few a year) .....		1
<b>Probability (P) The probability of a loss when the hazardous event does occur</b>		<b>Risk classification</b>
Frequent (happens often) .....		10
Probable (quite possible) .....		6
Occasional (unusual, but possible) .....		3
Remotely possible (has happened somewhere) .....		1
Improbable (practically impossible) .....		0.5
<b>Severity (S) Consequences of the hazardous event</b>		<b>Risk classification</b>
<b>Catastrophic</b> many fatalities; or interruption of longer than 2 weeks; or asset or environmental damage (or both) exceeding R100m .....		100
<b>Disaster</b> (few fatalities; or interruption between one and 2 weeks; or asset or environmental damage (or both) exceeding R10m) .....		40
<b>Very serious</b> (one fatality; or interruption of 6 days; or asset or environmental damage (or both) exceeding R100,000 .....		7
<b>Important</b> (temporary disability; or interruption between 6 and 24 hours; or damage exceeding R10,000 .....		3
<b>Noticeable</b> (first aid needed; or interruption of less than 6 hours; damage exceeding R1000) .....		1
<b>Risk classification (Risk score = E x P x S )</b>		
<b>Risk score</b>	<b>Risk classification</b>	
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

<b>3</b>	<b>Site Fencing</b>								
	Clearing bush using bush knives Digging holes using pick and spade	Manual handling of material Dust Moving vehicles	Manual handling injuries Dust being inhaled/getting in eyes Vehicle collision and damage	3	6	7	126		3
<b>4</b>	<b>Existing Services</b>								
	Identify the existing services	Snakes Unforeseen hazards Unknown/ Unidentified underground services	Poisoned and death. Personal injuries. Electrocution	6	6	7	252		4
<b>5</b>	<b>Traffic Accommodation</b>								
	Installation of temporally signs Traffic diverting/ Management	Knocked down by moving vehicles, poor demarcation/ displaying of misleading signs. Poor traffic management plan. Incompetent traffic controllers	Personal injuries or death. Road Accident	6	6	7	252		4
<b>6</b>	<b>Working in properties, driveways and restricted areas</b>								
	Provide access to the property owners driveways	Snakes bite Sting by Bees	Death Bee & Wasp Stings causing Anaphylaxis	6	6	7	252		4

			(allergic reaction) reaction)						
<b>7</b>	<b>Construction on Manholes</b>								
	Manhole access Mechanical lifting of concrete manhole rings and roof slabs. Backfilling around the manhole.	Unsafe access. Unsafe lifting. Incompetent lifting operator.	Fall risks. Personal injuries. Damage to property	6	6	7	252		4
<b>8</b>	<b>Tie Ins to existing manholes</b>								
	Blank off all pipelines connected to the manhole	Improper lifting manhole covers Falling in a manhole Oxygen deficient	Personal injuries/death	6	6	7	252		4
<b>9</b>	<b>Road work construction and asphaltting</b>								
	Layer works Compaction Asphaltting	Nose, dust Inclement weather, including localized flooding Smoking/open fires Vibration (rolling compaction) Asphalt emulsion	Rain causing slippery conditions and localised flooding causing property damage, injury and possible death Heat stroke from being	6	6	7	252		4

			exposed to the sun for too long and sunburn Bush fires caused by cigarette/open fires causing smoke, inhalation possible death						
<b>10</b>	<b>Excavation Work</b>								
	Mechanical and manual excavation. Back filling mechanical and manual	Incompetent 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.	6	6	7	252		4
<b>11</b>	<b>Bedding using sandy material and Pipe Laying</b>								
	Accessing trenches Mechanical lifting of 34 HDuPVC Sewer Pipe	Trench collapse, falling objects/material Incorrect lifting of pipes	Personal injuries/death Injury to muscle	6	6	7	252		
<b>12</b>	<b>Backfilling and Compaction</b>								
	Lay the soil and weathered rock	Dust Incompetent operator.	Respiratory problem Personal injuries and	3	6	7	126		3

	Operating a Bomag, Roller and a Wacker	Noise. Vibration.	damage to property. Noise Induce. Hearing loss. Kidney problem. Body pain.						
<b>13</b>	<b>Removal of rubble</b>								
	Mechanical and manual loading of rubble Mechanical removal of trees Removal of rubble and trees to damp site	Dust, Mobile plant came into contact with trucks. Incompetent operator and lack of planning. Reckless driving.	Respiratory problem. Damage to equipment. Damage to property. Motor Vehicle Accident.	3	6	7	126		3
<b>14</b>	<b>Construction of Pedestrian Walkways</b>								
	Pouring of concrete by ready mix truck. Excavations for walkways. Manual and Mechanical Excavation.	Reckless driving. Incompetent operator. Unsafe hand tools.	Motor Vehicle Accident. Personal injuries.	3	3	7	63		2
<b>15</b>	<b>Construction Mobile Plant and Equipment</b>								
	Use of Plant & Equipment on site	Incompetent operator Unsafe plant & equipment. Collusion with other vehicles.	Personal injuries. Motor vehicle accident. Environmental contamination.	6	6	7	252		4

		Petrol and oil spillages.							
<b>16</b>	<b>Emergency Management</b>								
	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
<b>17</b>	<b>Community Risk Management</b>								
	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
<b>18</b>	<b>Subcontractor Management</b>								

	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
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