



# ETHEKWINI MUNICIPALITY

## Occupational Health & Safety Unit



### SITE BASELINE RISK ASSESSMENT

#### Construction Regulations 5.1.(a)

Document Title	Baseline S.H.E. Risk Assessment
Client	EThekwin Municipality- COASTAL STORMWATER & CATCHMENT MANAGEMENT
Project Name	Culvert Upgrade & Stream Protection Works along Ubobo Walk & Ntshangase Road, Inanda Ward 107
Contract Number	<b>1D-31909</b>
Date	<b>16.04.2024</b>
Compiled by (Safety Officer)	Name and Surname: <u>Ntombifuthi Mazibuko</u> Signature: <u></u> Date: <u>16.04.2024</u>
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Revision Number	<b>BRA: 381/04/2025</b>

## **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**

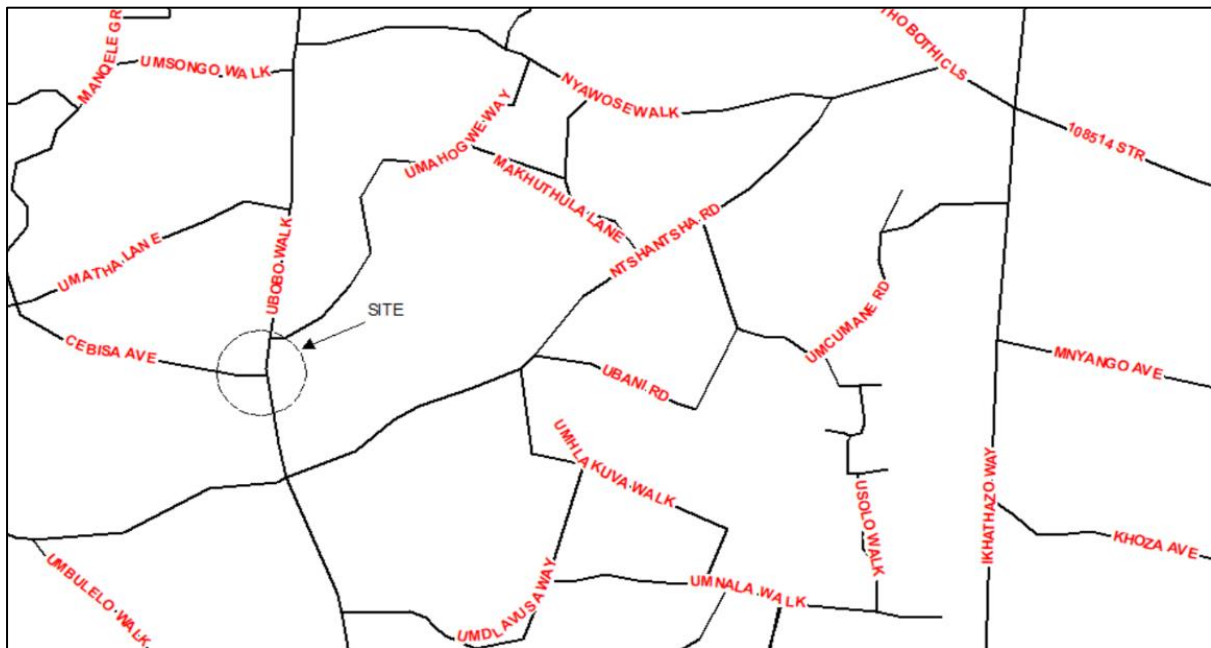
The risk assessment form part of the health and safety plan to be applied on the site and must include the following:

- (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,
- (c) A documented plan and applicable safe work procedures to mitigate, reduce or control the risks and hazards that have been identified;
- (d) A monitoring plan; and
- (e) A review plan

### **5. REFERENCES**

- (a) Tender document number **1D-31909**
- (b) Occupational Health & Safety Act and its Regulation

## 6. LOCALITY PLAN



Culvert Upgrade & Stream Protection Works along Ubobo Walk & Ntshangase Road, Inanda Ward 107.

- Traffic control and diversion
- Stream diversion
- Removal of reinforced and unreinforced concrete
- Removal of disused pipes
- Excavation for culvert and culvert foundation
- Trimming of embankments and provision for lateral support system
- Saw-cutting of road edges
- Construction of artificial foundation base of dump rock and 75 mm blinding layer
- Erect formwork for cast in situ Culvert base slab
- Provision of reinforcement for culvert base slab and casting of culvert base slab
- Allow for Concrete curing and strip formwork after curing
- Provision and placement of 1200mm x 1200mm precast concrete culvert and secure to the base slab.
- Provision of erosion protection works, and gabion protection works
- Backfilling and compacting culvert trench with suitable material
- Construction of reinforced concrete slab

- Reinstatement of roadworks
- Redirect stream to original stream channel
- Redirect traffic to normal route
- Backfilling with suitable material from an offsite source.

## **RISK ASSESSMENTS**

Site establishment

Site clearing

Excavation work

Laying of stormwaterpipe

Construction and installation of mainhole

Construction and installation of Kerbs

Working in public vicinity

The use of Construction mobile plants

Use of hand-tools

Demolition of existing concrete foundations

Existing service

### **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

Severity (S) Consequences of the hazardous event		Risk classification
<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

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**

	<b>ACTIVITY</b>	<b>HAZARDS</b>
<b>1</b>	<b>Site establishment</b>	
	<ul style="list-style-type: none"> <li>• Manual and mechanical clearing of the land</li> <li>• Off-loading and positioning of containers by mobile crane</li> <li>• Fencing</li> <li>• Installation of temporary water supply, electricity, ablution facilities</li> </ul>	<ul style="list-style-type: none"> <li>• Incompetent construction mobile plant operator</li> <li>• Manual Handling of equipment and materials.</li> <li>• Uneven surfaces</li> <li>• Driving on dangerous and undulating terrain.</li> <li>• Reckless driving.</li> <li>• Electrocutation</li> <li>• Incorrect/ poor connection of temporary services</li> </ul>
<b>2</b>	<b>Site clearing</b>	
	<ul style="list-style-type: none"> <li>• Manually and mechanical site clearing</li> </ul>	<ul style="list-style-type: none"> <li>• Overgrown vegetation</li> <li>• Incompetent driver/ operator</li> <li>• Unsafe construction mobile plant</li> <li>• Petrol and oil spillages</li> <li>• Unsafe hand tools</li> <li>• Manual handling</li> </ul>
<b>3</b>	<b>Excavation work</b>	
	<ul style="list-style-type: none"> <li>• Manual and mechanical excavation</li> </ul>	<ul style="list-style-type: none"> <li>• Unforeseen underground services</li> <li>• Unsafe hand tools</li> <li>• Unsafe construction mobile plants</li> <li>• Uneven surface/ ground condition</li> <li>• Incompetent construction mobile plant operator</li> <li>• Oil leak</li> </ul>
<b>4.</b>	<b>Laying of storm waterpipe</b>	
	<ul style="list-style-type: none"> <li>• Operating of TLB or Excavator in close proximity</li> </ul>	<ul style="list-style-type: none"> <li>• Critical injuries caused by TLB/ Excavator striking workers or TLB rolling over</li> </ul>

	<p>to workers and public vehicles</p> <ul style="list-style-type: none"> <li>• Using TLB or mobile crane for lifting pipes or other material</li> <li>• Incorrect use of defective hand tools</li> </ul>	<ul style="list-style-type: none"> <li>• Critical injuries caused by the TLB, crane or Excavator striking workers or rolling over</li> <li>• The incorrect and or defective hand tools could result in non- disabling/ first aid case i.e. the hand or eyes</li> </ul>
<b>6.</b>	<b>Construction and installation of mainhole</b>	
	<b>Construction of Mainhole</b>	<ul style="list-style-type: none"> <li>• Manual handling of retaining blocks</li> <li>• Falling of</li> </ul>
<b>7.</b>	<b>Working in public vicinity</b>	
	<b>Working on the Public Road</b>	<ul style="list-style-type: none"> <li>• Public exposure to construction activities</li> <li>• Conflict of activities</li> <li>• Community unrest</li> <li>• Distraction of services</li> <li>• Community forums</li> </ul>
<b>8.</b>	<b>The use of construction mobile plants</b>	
	<b>Use of Mobile PLant</b>	<ul style="list-style-type: none"> <li>• Unsafe construction plants and equipment</li> <li>• Incompetent drivers/ operators</li> <li>• Uneven surface</li> <li>• Equipment/ machinery failure</li> <li>• Running out of control</li> <li>• Noise</li> <li>• Vibration</li> <li>• Oil leaks</li> <li>• Dust</li> </ul>
<b>9.</b>	<b>Use of hand-tools</b>	
	<ul style="list-style-type: none"> <li>• Conducting activities using hand-tools</li> </ul>	<ul style="list-style-type: none"> <li>• Unsafe hand-tools</li> <li>• Possible of pinch</li> </ul>

<b>10.</b>	<b>Demolition of existing</b>	
	<ul style="list-style-type: none"> <li>Mechanical and manual demolition of the concrete foundations</li> </ul>	<ul style="list-style-type: none"> <li>Vibration</li> <li>Noise</li> <li>Incompetent operator</li> <li>Machine running out of control</li> <li>Oil spill</li> <li>Unsafe stockpiling/ dumping of debris</li> <li>Flying particles</li> <li>Inclined surfaces</li> </ul>
<b>11.</b>	<b>Existing services</b>	
	<ul style="list-style-type: none"> <li>Existing roads, watermains, sewerlines, electricity</li> </ul>	<ul style="list-style-type: none"> <li>Damage to existing services,</li> <li>Destruction of services in the area,</li> <li>Electrocution</li> <li>Unforeseen existing hazards</li> </ul>
<b>12. Traffic Management</b>		
	<ul style="list-style-type: none"> <li>The use of construction vehicle and mobile plant in the public and next to private</li> </ul>	<ul style="list-style-type: none"> <li>Poor/ no traffic management plan in place</li> </ul>
<b>13. Construction/upgrading of stormwater drainage system</b>		
	<ul style="list-style-type: none"> <li>Excavation above 1m deep using and excavator and TLB</li> <li>Preparation and laying of concrete pipes using a lifting equipment</li> <li>Construction of above 1m deep manhole using cement, blocks, handtools and concrete manhole rings/ cover</li> <li>Connection of the stormwater pipes into the existing stormwater drainage system</li> </ul>	<ul style="list-style-type: none"> <li>Excavating in an in fill and dumped material</li> <li>Collapsing of trenches.</li> <li>Unsafe access to trench</li> <li>Unprotected trenches</li> <li>People exposure to excavations</li> <li>Unsafe lifting devices</li> <li>Incompetent lifting machinery operator</li> <li>Equipment failure</li> <li>Overloading of equipment/ machinery</li> <li>Working/ operating equipment too close to the excavation</li> </ul>



	<ul style="list-style-type: none"> <li>• Contact with and inhalation of cement dust</li> <li>• Manual handling of heavy manhole rings and covers</li> <li>• Incorrect connection of stormwater pipes</li> </ul>
<b>14. Removal of collapsed gabion</b>	
<ul style="list-style-type: none"> <li>• Mechanical and manual demolition of the concrete foundations</li> </ul>	<ul style="list-style-type: none"> <li>• Vibration</li> <li>• Noise</li> <li>• Incompetent operator</li> <li>• Machine running out of control</li> <li>• Oil spill</li> <li>• Unsafe stockpiling/ dumping of debris</li> <li>• Flying particles</li> <li>• Inclined surfaces</li> </ul>
<b>15. Construction Activities of Gabions</b>	
<p>Construction of Gabion</p> <ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Cutting of the mesh fabric</li> <li>• Handling wire</li> <li>• Poor ergonomics may result in muscular skeletal injuries</li> </ul>