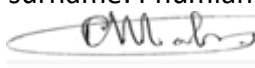
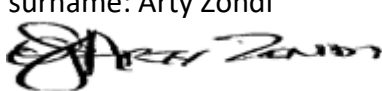




## ETHEKWINI MUNICIPALITY Occupational Health & Safety Unit

### SITE BASED BASELINE RISK ASSESSMENT

#### Construction Regulations 5.1(a)

Document Title	Baseline Risk Assessment
Client	EThekwini Municipality-Engineering Unit: Roads and Stormwater Maintenance.
Project	Upgrading of Low Volume Gravel Roads with the use of Bitumen Stabilised Material (BSM Base Layer) for the Roads and Stormwater Maintenance Department in the West region of EThekwini Municipality for 24 Months.
Contract Number	1M-31190
Revision	00
Date	05 March 2025
Internal Reference no.	BRA 343/01/2025
Compiled by (Safety officer)	Name and surname: Phumlani Mabaso Signature:  Date: 05/03/2025
Reviewed by (Manager: Safety & Risk)	Name and surname: Arty Zondi Signature:  Date: 05/03/2025
Received by Principal contractor	Name:
	Signature:

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

### **5. REFERENCES**

- (a) Tender document number 1M-31190
- (b) Occupational Health & Safety Act and its Regulation

**PLEASE NOTE THAT THIS IS A BASELINE RISK ASSESSMENT AND NOT A DETAILED RISK ASSESSMENT OF ALL ANTICIPATED ACTIVITIES ON SITE.**

## **SCOPE OF WORK**

The scope of work consists of the construction of base layer and wearing course (asphalting) on low volume gravel roads located within West region of eThekweni municipality. Also refer to Bill of Quantities for a detailed information and understanding of the work to be done.

Wards covered under the West region include:

Wards 2,4,5,7,8,9

**N.B: Work may not be undertaken on a monthly basis for 24 months.**

### **The following activities were assessed:**

- (a) Access to the site
- (b) Material delivery to the site
- (c) Accommodation of traffic on site.
- (d) Busy residential/commercial/Industrial areas.
- (e) Concrete pavements.
- (f) Manual moving of precast products.
- (g) Protection of existing services.
- (h) Construction mobile plant and machinery.
- (i) Supply and Installation of kerbs.
- (j) Road, Speed humps and haunches construction using asphalt.
- (k) Application of road markings.
- (l) Concrete work.
- (m) Stabilisation of gravel base.
- (n) Installation of road signs and guardrails.
- (o) Application of road marking and sealant.
- (p) Removal of dumped material off site.

## 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 level</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 level</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 level</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 level</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

	Activity	Hazard	Risk	Risk Evaluation			Risk Score	Risk level
				E	P	S		
1	Access to the site.							
	<ul style="list-style-type: none"><li>Traveling to and from site in a vehicle.</li></ul>	<ul style="list-style-type: none"><li>Safety belts not worn when traveling in, or operating a vehicle.</li><li>Vehicle not equipped with safety belts for all passengers.</li><li>Over speeding of vehicles.</li><li>Driving on public roads.</li></ul>	<ul style="list-style-type: none"><li>Injuries caused when in vehicle accident.</li><li>Fatalities when in vehicle accident</li><li>Risk of personnel being injured by over speeding vehicles.</li><li>Involved in accident.</li></ul>	6	6	7	252	4
2	Material delivery to the site.							
	<ul style="list-style-type: none"><li>Loading and offloading of heavy equipment manually.</li></ul>	<ul style="list-style-type: none"><li>Employee being struck by the load.</li></ul>	<ul style="list-style-type: none"><li>Back strain</li><li>Skeletal damage</li><li>Head, hand, and foot injuries.</li><li>Serious injury</li><li>Fatality</li></ul>	3	6	7	126	3
3	Accommodation of traffic on site.							
	<ul style="list-style-type: none"><li>The use of</li></ul>	<ul style="list-style-type: none"><li>Poor/ no</li></ul>	<ul style="list-style-type: none"><li>Accidents, death,</li></ul>	6	6	7	252	4

	<p>construction vehicle on the public and streets</p> <ul style="list-style-type: none"> <li>• Execution of activities on the road in line with the scope of work.</li> <li>• Exposed group/employees</li> <li>• Placing of temporary traffic warning signs.</li> </ul>	<p>traffic management plan in place</p> <ul style="list-style-type: none"> <li>• Lack of traffic management training</li> <li>• Unroadworthy plant and vehicle</li> <li>• Collision with other vehicles</li> <li>• Workers exposed to high traffic volume.</li> <li>• Personnel movement and vehicles</li> <li>• Signs not visible to the road users.</li> <li>• Signs being placed at an unreasonable distance.</li> <li>• Personnel in charge of traffic control not familiar with the traffic management</li> </ul>	<p>broken bones, damage to property</p> <ul style="list-style-type: none"> <li>• Noncompliance with the National Road Traffic Act, Council Road Traffic bi-laws and other applicable Regulations</li> <li>• Blockage/ inconvenient access to industrial/ commercial areas</li> <li>• Personnel are at risk of being bumped by a vehicle or an Accident</li> <li>• It may cause injuries possibility of fatalities.</li> </ul>					
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		plan.						
<b>4</b>	<b>Busy residential/ commercial/ industrial areas.</b>							
	<ul style="list-style-type: none"> <li>Working next to residential, commercial, industrial areas</li> </ul>	<ul style="list-style-type: none"> <li>Public exposure to construction activities.</li> <li>Destruction of businesses and services in the area.</li> <li>Other activities in the areas</li> <li>Strikes in the area</li> </ul>	<ul style="list-style-type: none"> <li>Injuries public and employees, broken bones, damage to property, death,</li> <li>Production loss, disturbance of personnel activities</li> <li>Fights, lawsuits, disagreement</li> <li>Damage to property, injuries to employees</li> </ul>	6	6	7	252	4
<b>5</b>	<b>Concrete Pavements.</b>							
	<ul style="list-style-type: none"> <li>Lifting of heavy objects by hands.</li> <li>Concrete precast products repairs.</li> <li>Mixing cement on site for infrastructure repairs.</li> <li>Saw cutting during repairs.</li> <li>Breaking of the precast product to be repaired.</li> <li>Compacting.</li> </ul>	<ul style="list-style-type: none"> <li>Unsafe lifting methodology.</li> <li>Damage to underground services</li> <li>Cement dust inhalation.</li> <li>Dust.</li> <li>Faulty machine.</li> <li>Unguarded blade.</li> <li>Roller operated by</li> </ul>	<ul style="list-style-type: none"> <li>Feet and finger crushed.</li> <li>Service delivery interruption.</li> <li>Respiratory problems.</li> <li>Injuries.</li> <li>Lung disease, eye irritation.</li> </ul>	6	6	3	108	3

	<ul style="list-style-type: none"> <li>Floating of the concrete.</li> </ul>	<ul style="list-style-type: none"> <li>an incompetent person</li> <li>Skin contact.</li> </ul>						
<b>6</b>	<b>Manual moving of precast product.</b>							
	<ul style="list-style-type: none"> <li>Manual handling and moving of precast product using wheelbarrows,</li> </ul>	<ul style="list-style-type: none"> <li>Unsafe wheelbarrows,</li> <li>Manual handling of precast product</li> <li>Lifting of excess/ heavy load</li> <li>Ergonomics hazards</li> </ul>	<ul style="list-style-type: none"> <li>Injury to hands/ toes</li> <li>Skeletal injuries</li> <li>Slippery surface</li> <li>Tripping hazards</li> <li>Ergonomic risks</li> </ul>	3	3	3	27	2
<b>7</b>	<b>Protection of existing services.</b>							
	<ul style="list-style-type: none"> <li>Working in the precence of watermain, sewer, stormwater, electrical cables, telkom/ neotel cables , gas/petroleum pipeline.</li> </ul>	<ul style="list-style-type: none"> <li>Disturbance of the services,</li> <li>Sewer spillage,</li> <li>Blockage of sewer and stormwater lines</li> <li>Exposure to biological agents</li> <li>Electrocution</li> <li>Damage to Telkom/ neotel cables,</li> </ul>	<ul style="list-style-type: none"> <li>No water and electricity, community strikes,</li> <li>Health hazards</li> <li>Environmental hazards</li> <li>Burns, death</li> <li>Financial costs for replacing damaged cables</li> </ul>	6	6	7	252	4



		stormwater, sewer						
<b>8</b>	<b>Construction mobile plant and machinery.</b>							
	<ul style="list-style-type: none"> <li>• Use of construction vehicles and mobile plants and equipment.</li> </ul>	<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 Spillage</li> <li>• Dust</li> </ul>	<ul style="list-style-type: none"> <li>• Accidents. Property damage. Noncompliance with DMR. Noncompliance with stipulated safe working load.</li> <li>• Capsizing of mobile construction plants. Jammed construction mobile plants, death</li> <li>• Injury to employees and community, death, loss of limb/disablement</li> <li>• Damage to property</li> <li>• Noise induced hearing loss</li> <li>• Muscular pains, kidney damage,</li> </ul>	6	6	7	252	4

			<ul style="list-style-type: none"> <li>Environmental contamination</li> <li>Lung disease</li> </ul>					
<b>9</b>	<b>Supply and installation of kerbs.</b>							
	<ul style="list-style-type: none"> <li>Kerbs installation.</li> </ul>	<ul style="list-style-type: none"> <li>Manual handling of kerbs.</li> <li>Unsafe tools</li> <li>Ergonomic hazards.</li> </ul>	<ul style="list-style-type: none"> <li>Skeletal injuries. Injuries to hands and toes.</li> <li>Ergonomic risks</li> </ul>	3	3	3	27	2
<b>10</b>	<b>Road, Speed Humps and Haunches Construction using Asphalt.</b>							
	<ul style="list-style-type: none"> <li>Supply and lay asphalt wearing course.</li> <li>Cleaning/sweeping of road before applying tack coat.</li> <li>Application of tack coat.</li> <li>Using hand tools during raking of asphalt.</li> <li>Milling</li> <li>Compaction.</li> <li>Saw cutting.</li> <li>Breaking of existing asphalt surface.</li> </ul>	<ul style="list-style-type: none"> <li>Contact with hot asphalt.</li> <li>Dust accumulation.</li> <li>Faulty hand tools.</li> <li>Contact with tack coat.</li> <li>Bending.</li> <li>Incompetent driver/operator.</li> <li>Vibration</li> <li>Noise</li> <li>Fumes</li> </ul>	<ul style="list-style-type: none"> <li>Burns, skin infections.</li> <li>Lung disease, eye irritation.</li> <li>Injuries,</li> <li>Skin irritation.</li> <li>Environmental contamination</li> <li>Contamination of the nearest commercial buildings</li> <li>Back strain.</li> <li>Accident due to collision.</li> <li>Fatigue.</li> <li>Kidney damage.</li> <li>Muscle/ body/ joint pain</li> <li>Noise induced</li> </ul>	6	6	3	108	3

			<ul style="list-style-type: none"> <li>hearing loss</li> <li>Breathing/ respiratory diseases.</li> </ul>					
<b>11</b>	<b>Application of road markings.</b>							
	<ul style="list-style-type: none"> <li>Cleaning the area to be painted.</li> <li>Painting using a retro-reflective paint and brush.</li> <li>Cleaning of brushes using a thinners.</li> </ul>	<ul style="list-style-type: none"> <li>Dust accumulation.</li> <li>Paint in contact with skin.</li> <li>Thinners in contact with skin.</li> <li>Fire.</li> <li>Inhalation of HCS fumes.</li> <li>Exposure to moving vehicles.</li> </ul>	<ul style="list-style-type: none"> <li>Respiratory problems.</li> <li>Skin irritation.</li> <li>Burns.</li> <li>Chest pains.</li> <li>Accidents.</li> </ul>	6	6	7	252	4
<b>12</b>	<b>Concrete work.</b>							
	<ul style="list-style-type: none"> <li>Pre-leveling the area and formwork preparation.</li> <li>Working with steel reinforcement wire mesh.</li> <li>Hand mixing of cement.</li> <li>Pouring of ready-</li> </ul>	<ul style="list-style-type: none"> <li>Noise.</li> <li>Vibration.</li> <li>Pinch point, sharp and protruding edges.</li> <li>Dust.</li> <li>Defective hand tools.</li> <li>Cement</li> </ul>	<ul style="list-style-type: none"> <li>Injury to employees and community, loss of limb/ disablement.</li> <li>Hand injuries.</li> <li>Noise induced hearing loss</li> <li>Lung disease, eye irritation.</li> </ul>	6	6	3	108	3

	<ul style="list-style-type: none"> <li>mix concrete.</li> <li>Floating of the concrete.</li> </ul>	<ul style="list-style-type: none"> <li>contact with body.</li> <li>Over bending.</li> </ul>	<ul style="list-style-type: none"> <li>Hand injuries.</li> <li>Backache.</li> </ul>					
<b>13</b>	<b>Stabilisation of gravel base.</b>							
	<ul style="list-style-type: none"> <li>Levelling.</li> <li>Compaction.</li> <li>Transportation of imported material.</li> </ul>	<ul style="list-style-type: none"> <li>Traffic accidents on site when transporting materials.</li> <li>Reversing of trucks and mobile plant.</li> <li>Dust inhalation.</li> <li>Incompetent driver/ operator</li> <li>Dust</li> <li>Vibration</li> <li>Noise</li> <li>Faulty hand tools</li> </ul>	<ul style="list-style-type: none"> <li>Damage to Property.</li> <li>Respiratory failure</li> <li>Fatigue. Kidney damage. Muscle/ body/ joint pain</li> <li>Noise induced hearing loss</li> <li>Skin irritation</li> <li>Breathing/ respiratory diseases</li> <li>Hand Injuries.</li> </ul>	3	3	3	27	2
<b>14</b>	<b>Installation of road signs and guardrails.</b>							
	<ul style="list-style-type: none"> <li>Manual digging for guardrails and sign posts</li> <li>Installation of guardrails and sign posts</li> </ul>	<ul style="list-style-type: none"> <li>Faulty hand tools.</li> <li>Handling and lifting of heavy objects.</li> <li>Skin contacts</li> </ul>	<ul style="list-style-type: none"> <li>Hand injuries.</li> <li>Environmental contamination</li> <li>Lung disease, eye irritation.</li> <li>Noise induced</li> </ul>	6	6	3	108	3

	<ul style="list-style-type: none"> <li>Mixing and floating of cement.</li> <li>Installation of signage and guardrail panels.</li> <li>Drilling and aligning.</li> </ul>	<ul style="list-style-type: none"> <li>with cement.</li> <li>Dust</li> <li>Unsafe drilling machine</li> <li>Bending.</li> <li>Working on a stepladder.</li> </ul>	<ul style="list-style-type: none"> <li>hearing loss</li> <li>Burns, skin infections</li> <li>Breathing/ respiratory diseases.</li> <li>Backache.</li> <li>Trip and fall.</li> </ul>					
<b>15</b>	<b>Removal of dumped material off site.</b>							
	<ul style="list-style-type: none"> <li>Manual clearing of the site.</li> </ul>	<ul style="list-style-type: none"> <li>Rubble existing on site</li> <li>Manual handling of heavy objects</li> <li>Illegal dumping.</li> </ul>	<ul style="list-style-type: none"> <li>Backache.</li> <li>Fine</li> </ul>	6	6	3	108	3