ETHEKWINI MUNICIPALITY Occupational Health & Safety Unit



Baseline Risk Assessment in terms of Construction Regulation 5.1(a)

Document Title	Baseline Risk Assessment in terms of Construction Regulation 5.1(a)
Client	eThekwini Municipality – road provision
Project Name	Gravel to asphalt upgrade of TRK 87122 Inanda ward 108
Contract Number	1R-33142
Revision	01
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Compiled by (Safety officer)	Signature:
Reviewed by (Manager: Safety& Risk)	Arty Zondi Signature:

MAIN ACTIVITY				Site Estab	olishment	
REF NO	SUB ACTIVITY	SAFETYRISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
1.1	Travel to site	Potholes Undulating roads Poor visibility	• Fatigue	Oil/diesel spillages	Community livestock Other vehicles driving recklessly Pedestrians Construction works on public road	 All drivers to be deemed competent No staff to travel in rear of vehicles with equipment All equipment to be secured during transport All vehicles to be road worthy No drivers/Operators to be under the influence of alcohol or drugs of any kind. Inspection Records must be kept for all vehicles and plant.

REF NO	SUB ACTIVITY	SAFETYRISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
1.2	Site clearance and de-vegetation	Poor traffic control Incompetent drivers inadequate signage's Moving of construction vehicles and vehicle colliding Snakes insect bites & stings	Back strain cuts, Abrasion heat exhaustion noise exposure dust inhalation	Spilling of oil diesel, petrol Contamination of ground	Tripping hazard dust inhalation intermittent noise level	 All staff to have medicals done by an occupational medical practitioner prior to commencement of work. All workers to have valid medicals with annexure 3 documents signed and stamped by Occupational Medical Practitioner with records in file. All staff to work under supervision Dust suppression is to be maintained Responsible 8.1 to ensure Instructions are given on Manual handling using Safe Work Procedure (SWP) for Manual Handling. Only Licensed and Appointed Mechanical Aids Operators (i.e. Crane Operators, TLB operators, Bobcat Operators, etc.) to operate plant on site. Inspection & Maintenance records must be maintained for all mechanical aids on site.

REF NO	SUB ACTIVITY	SAFETYRISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
1.3	Site fencing	Pinch points from manual handling Trip hazards Underground services	Heat exposure Dust Noise Chemical burns/ contact dermatitis from cement and eye injuries from cement splashes	Hydrocarbon spills	Unauthorised persons entering site School learners entering site Damage to underground services	 All contractor staff and local labour to be inducted of all "no go" areas All staff have company logo PPE with name tags Contractor staff to work within designated areas only Contractor to conduct DSTI's (Daily Safety Task Instruction) and communicated at the beginning of the shift daily. DSTI close out to be conducted and attendance registered signed by all staff. Flagman to be provided to ensure vehicles are guided onto site. Wear hand protection (PVC Gloves), safety glasses and face shield always by the operator of the concrete chute. Concrete spillages to be cleaned up and concrete truck chute to be cleaned in concrete wash area. Stacking & Storage Supervisor to be appointed to control lay down areas.

REF NO	SUB ACTIVITY	SAFETYRISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
1.4	Placing of mobile offices	Use of mechanical aids for offloading Failure of lifting equipment Fall from heights Manual handling Mechanical aids overturning Overhead power lines	Noise Hand and body injuries Heat exposure Dust exposure	Hydrocarbon spills	Exposure to dust Interaction of machinery and learners	 All operators to be deemed competent All riggers to be deemed competent All lifting equipment to be. load tested Flagman/banksman to be present on-site during movement of plant Access control to be managed on site All staff to have the required PPE Staff working at heights to be trained for heights safety Contractor to conduct DSTI's (Daily Safety Task Instruction) and communicated at the beginning of the shift on a daily basis. DSTI close out to be conducted and attendance registered signed by all staff. Ensure Offloading area is clear, level, secure and free from slip trip and falling hazards. Mechanical Aids must be operated in accordance with the operators training and manufacturers guidelines

REF NO	SUB ACTIVITY	SAFETYRISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
1.5	Connection of power supply	Electrocution Hand injuries	Heat exhaustion	None	Interruption of power supply	 Only authorised person to do electrical connection A COC is to be provided for all electrical works done Monthly inspections to be done for all temporary electrical connections Contractor is to be responsible for power consumption Required agreements to be in file for electrical usage
1.6	Water supply	Injuries during the laying of water pipes	Drinking water which is not safe for human consumption	None	Theft of water by residents	 All drinking water is to be labelled/sign posted Water use is to be managed on site The location of standpipes to be correctly positioned to mitigate theft of water from site

1.8	Construction of staff facilities: eat area/toilets/ change area	 Manual handling Fall from heights Hand injuries Use of portable electrical power tools 	Electrocution Dust exposure Heat exposure	None	None	 Separate facilities for both male and female Drinking water to be provided for staff on site If portable toilets are to be used required service slips are to be maintained on site Staff facilities area to be suitable for staff use
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MAIN ACTIVITY		Construction Works							
REF NO	SUB ACTIVITY	SAFETYRISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE			
2.1	Site survey	Trips and falls Injuries from use of hand tools	Heat exhaustionDust exposure	Use of cement for markings contamination	Trips and falls Unauthorised entrance	 Works to be supervised DSTI to be done Lime to be used for ground markings Required PPE to be used All survey pegs to be made visible If steel is to be used rebar caps are to be fitted onto them 			
2.2	Mechanical excavations	 Machinery collides with people Collision with machinery Fall into open excavation Collapse of side walls 	 Dust exposure Back injuries Noise exposure 	Hydrocarbon spills	Dust exposure Collision with machinery	 DSTI to be done All staff to have the required PPE All plant to be inspected before use All open excavations to be netted off and sign posted Excavated spoil to be 500mm away from edge of excavation Nil staff to be in any excavation when machinery in use 			
2.3	Manual excavations	 Slips and falls Fall into open excavations Collapse of side walls 	Dust exposureBack injuriesHeat exhaustion	None	Fall into open excavations	 All staff to be trained in safe works procedure All spoil to be away from edge of excavation Ladders to be provided for access and egress from excavations 			

REF NO	SUB ACTIVITY	SAFETYRISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
2.4	Unsafe stacking and storage practices	 Manual handling injuries Pinch points Slips and trips 	Back injuries	None	None	 Required PPE to be used DSTI to be done All works to be supervised All steel to be stacked within a designated area
2.5	Installation of Temporary Electrical Installations	 Use of hand tools injuries Trips and falls Collapse of excavation side walls Contact with machinery 	Chemical burns from concrete Heat exhaustion Dust exposure	Ground contamination	Collision with pedestrians	 DSTI to be done Flagman to direct all trucks to site All staff to have the required PPE when handling concrete Nil staff to be in foundation during discharge of concrete into excavation Delivery trucks to use designated access Washing of truck chutes to be done within a concrete wash area
2.6	Housekeeping	Manual handling injuries Trips and falls	 Dust exposure Back strains Ergonomically injuries 	Ground contamination due to mixing of mortar on natural ground	② Unauthorised access to site	 Proper stacking of bricks to be done Movement of bricks to be done with proper wheelbarrows All staff to have required PPE A platform to be created for mixing of mortar Housekeeping to be maintained on site

REF NO	SUB ACTIVITY	SAFETYRISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
2.7	Site Induction	 Struck by machinery Manual handling injuries Fires 	Dust exposureHeat exhaustionHAVSNoise	Hydrocarbon spills	Unauthorised access	 All staff to have required PPE DSTI to be done All works to be supervised Safe works procedure to be done and communicated to staff Risk assessments to be communicated by means of training
2.8	Setting up of temporary road works signage	 Struck by machinery Placing of incorrect signage at locations 	incident Damage to property	Environmental degradation	None	The Contract Manager must ensure that a suitable site-specific Traffic Management Plan is developed and implemented and a competent Traffic Safety Officer The Contract Site of the Contract The Contract Traffic Management Plan is developed and implemented and a competent Traffic Safety Officer
2.9	Public vehicular and pedestrian traffic travelling on the public road during construction work	injuries car collision	2 2 incident Damage to property	None	None	 All works to be supervised All All temporary road traffic signage must comply with the SARTSM Flagman to direct all vehicles to site

2.10	Layer works (asphalt layer)	Use of hand tools injuries Trips and falls Contact with machinery Respiratory failure Burns	 Chemical burns from asphalt Heat exhaustion High temperature of product 	Ground contamination	none	 Flagman to direct all vehicles All staff to have the required PPE when handling asphalt Delivery trucks to use designated access All spills to be cleaned and disposed Enforced reverse alarms to be fitted Application of dust masks

REF NO	SUB ACTIVITY	SAFETYRISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
2.11	Backfilling	 Manual handling injuries Trips and falls 	 Dust exposure Back strains Ergonomically injuries Heat exhaustion 	Ground contamination due to mixing of mortar on natural ground	Unauthorised access to site	 All staff to have required PPE A platform to be created for mixing of mortar Waste skips to be provided on site All asphalt waste to be properly disposed on site Housekeeping to be maintained on site

2.12	Refuelling plant and equipment	Extremely flammable, high hazard. The liquid can release vapours at temperature below ambient which forms flammable mixtures	Heat exhaustion	Ground contamination due to mixing of mortar on natural ground	Unauthorised access to site	 Required appointments to be in file All works to be supervised Remove all sources of ignition. Contain and collect spillage with non-combustible absorbent materials. Place in a suitable container for disposal in accordance with waste regulations
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REF NO	SUB ACTIVITY	SAFETYRISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
2.13	Excavator Plate compactor, Bomag roller, Front end loader, Mobile crane TLB, milling machine, paver, excavator, skid steer(bobcat), rollers (steel drum/ rubber tyre) grader, insist recycler,	Collapse of scaffolding Slips and falls Fall from heights/elevated positions	Heat exhaustion	None	Unauthorised access to site	 All staff will be deemed fit for work with medicals records in file Required PPE will be provided for staff All works to be supervised

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REF NO	SUB ACTIVITY	SAFETYRISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
2.15	Employees working in close proximity to moving machinery Exposure to noise	noise	noise	none	No unauthorised access	 All power tools to be inspected before use. Records to be in file Housekeeping to be maintained on site Employee to make use of SABS approved hearing protection, supervisor to ensure that the correct P.P.E is used. Task to be supervised by a competent supervisor

2.16	Hazardous chemical substances	injuries Contact with skin/ eyes Inhalation or indigestion	Skin irritation, burns or infections Could cause loss in eyesight		 Required PPE to be used DSTI to be done All works to be supervised All steel to be stacked within a designated area Exposed rebar to be fitted with rebar caps All power tools to be inspected before use.
2.17	Neighbouring business and public exposed to the nature of the construction activities	Dust exposure Heat exhaustion	2 Dust pollution	Unauthorised access to site	Communication with neighbouring business is critical. Health risk must be communicated to all employees' dust, noise generated out of the construction work must be managed Fence constructed to approved standard

REF NO	SUB ACTIVITY	SAFETYRISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
2.18	Emergency Preparedness, Emergency Drill & Evacuation	No training No implementation Planning done Failure to have a basic site- specific Emergency Management Plan	Person/s unprepared to respond to the emergency at hand	none	none	The Construction Manager must ensure that a site specific Emergency Management Plan is developed for implementation. Adequate number of employees trained in the use of fire equipment

2.17	Utilizing incompetent Sub-Contractors	 Use of hand tools injuries Trips and falls Contact with machinery 	Chemical burns from concrete Heat exhaustion Dust exposure	Ground contamination	2 Collision with pedestrians	The Construction Manager must be reasonably satisfied that the Sub Contractors intended to be appointed have the necessary competencies and resources to carry out the work safely
2.18	Brickwork at manholes	 Manual handling injuries Use hand tools injuries 	Ergonomical injuries Heat exhaustion	None	None	 DSTI to be done Risk assessment and SWP to be communicated to all staff All power tools to be inspected before use Fall arrest equipment to be used at all heights

REF NO	SUB ACTIVITY	SAFETYRISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
2.19	Mixing mortar	Unsafe electrocution loading strain	Loading / unloading material	none	none	The Construction Manager must ensure that a SWP is developed implemented about safe lifting and loading procedures All work needs to be supervised

REF NO	SUB ACTIVITY	SAFETYRISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
2.20	Install Geosynthetic layer	Poor Ergonomics may result in muscular skeletal injuries	Ergonomical injuries Heat exhaustion	None	None	The Construction Manager must ensure that workers are trained in the risk of ergonomically injuries and methods to mitigate the risks

MAIN ACTIVITY						
REF NO	SUB ACTIVITY	SAFETYRISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
3.3	Construction of drains	Trips and falls Manual handling injuries Underground services Open excavations	Dust exposure Heat exposure Ergonomical injuries Noise exposure	None	None	 All works to be supervised DSTI to be done Risk assessments & SWP to be done All open excavations to be netted off Access and egress to be provided for all open excavations All spoil to be away from excavation side wall

MAIN ACTIVITY						
REF NO	SUB ACTIVITY	SAFETYRISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
3.4	Pouring Ready Mix concrete	 Noise Dust Bumping against,	noise induced hearing loss	None	None	flag person required and Visual check required Wearing required PPE

		Concrete truck tipping over				
3.5	Waste removal	NoiseDustBumping against,Struck by flying items	cuts and abrasionsdust inhalationnoise induced hearing loss	None	None	 Safe & proper use of hand tools Wearing required PPE practise of proper manual lifting of material

MAIN ACTIVITY						
REF NO	SUB ACTIVITY	SAFETYRISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
3.9	Inlet and outlet structures	Use of hand tools injuries Trips and falls Contact with machinery Working in a restricted area Manual handling	Dust exposure Ergonomical injuries Chemical burns	None	None	 Safe & proper use of hand tools Wearing required PPE practise of proper manual lifting of material Supervise the works by a competent supervisor
3.10	Working with hot asphalt	lack of proper access / working platform	2 Heat exhaustion	None	None	 DSTI to be done Risk assessment and SWP to be communicated to all staff Scaffold to be erected by competent person Scaffold to be erected as per SANS 10085 Supervise the works by a competent supervisor Staff to be trained for work at heights Fall arrest equipment to be used at all heights Adequate lighting to be provided

REF NO	SUB ACTIVITY	SAFETYRISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
6.3	Cleaning tools with solvent	Use of power tool – electrocution Manual handling Work in restricted area	2 Dust exposure	None	None	 All power tools to be inspected before use DSTI to be done Risk assessment/SWP to be done and in file All staff to have required PPE
6.5	Manual lifting of tool	Fall from heightsFall ofequipment from heights	Dust exposureHeat exhaustionManual exertion	None	None	 Work platform to be inspected Full supervision at all times Staff to have fall arrest equipment in use Manual lifting techniques to be practiced at all times
	Welding, flame cutting, soldering and similar operations	Fumes inhalation Eye injury	Chest pain heat	none	none	Proper PPE required Close supervision

MAIN ACTIVITY						
REF NO	SUB ACTIVITY	SAFETYRISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
7.1	Inlet and outlet structures	Struck by vehicle	heat	none	none	Traffic management plan required
7.2	Applying tack	Eye injury	contamination	none	none	Close supervision all the time

MAIN ACTIVITY						
REF NO	SUB ACTIVITY	SAFETYRISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
8.1	Site levelling using excavator/bob cat	Trips and falls Exposed survey pegs Use of hand tools	Heat exposure Noise exposure	Hydrocarbon spills	Pedestrians exposed to machinery Accidents	Works to be supervised Staff to use required PPE Dust suppression to be maintained Refuelling to be done in designated areas Rebar caps to be fitted on exposed pegs Risk assessments and SWP to be done for staff All plant operators to be deemed competent Flagman to be present on site
8.2	Backfill and compaction of other layers	Manual handling Trips and falls Use of mobile plant accidents	Heat exhaustion Dust exposure Noise exposure	Hydrocarbon spills	Pedestrians exposed to machinery Accidents	 Works to be supervised Staff to use required PPE Dust suppression to be maintained Refuelling to be done in designated areas Rebar caps to be fitted on exposed pegs Risk assessments and SWP to be done for staff All plant operators to be deemed competent Flagman to be present on site

REF NO	SUB ACTIVITY	SAFETYRISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
8.4	Concreting of walkways/ driveway	Use of hand tools injuries Trips and falls Collapse of excavation side walls Contact with machinery	Chemical burns from concrete Heat exhaustion Dust exposure	Ground contamination	Collision with pedestrians	 DSTI to be done Flagman to direct all trucks to site All staff to have the required PPE when handling concrete Nil staff to be in foundation during discharge of concrete into excavation Delivery trucks to use designated access All spills to be cleaned and disposed

MAIN ACTIVITY				COVID 19		
REF NO	SUB ACTIVITY	SAFETYRISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
9.1	Travel to site Deliveries -use of public transport	Nil decontamination of public transport Passengers in public transport not using face masks Nil social distancing in public transport Nil decontamination of supplies and deliveries	Staff contracting the virus during use of public transport Staff contracting virus during handling of contaminated supplies	None	None	 All staff to ensure that they use a face mask and sanitise when using the public transport Contractor could arrange for a dedicated transport for all staff to and from work. Staff are not to use their work PPE when travelling on public transport. All staff to follow decontamination procedures when entering work site
9.2	Management to prepare site before construction works commence	Nil decontamination of offices and facilities Failure to align policies and procedures to COVID 19 virus	 Returning staff not provided with COVID related PPE and disinfectants Possible contamination to staff 	none	Unauthorised persons entering site	 Management to ensure all offices, facilities are disinfected with proper disinfectants Overgrown vegetation to be cut before any staff can return to site Required COVID 19 PPE is to be purchased and made available for staff when project commences

	SUB ACTIVITY	SAFETYRISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
	Site preparation	Failure to display related signage's for site access due to COVID virus. Nil PPE and sanitisers (COVID related) for staff to return to work Management not inducted/educate d on COVID 19	Staff returning to work are not educated on policy changes Management unable to provide correct information to staff on COVID 19 issues	none	none	 Required access control signage's (COVID related) to be displayed at main entrance Management to rearrange facilities area to ensure social distancing Policies and procedures (COVID related) to be amended and approved before site can reopen. This is to be communicated to all staff An induction program (COVID 19) is to be prepared which is to be communicated to all staff when project commences Required sanitisers and disinfectants to be purchased and made available before project commences Contractor to ensure required staff information form pertaining to COVID 19 is available which is to be filled out by each staff Adequate hazardous waste bins to be made available on site
9.3	Entering of construction work site	Staff fail to use required PPE	Staff may be infected with the virus	none		All staff to follow the required social distancing when at main entrance

REF NO	SUB ACTIVITY	SAFETYRISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
	Entering construction work	Congestion of staff at main entrance to site Failure of	2 Staff spreading of the virus to other staff	none	none	Due to lockdown, staff are to declare their movement, medical history during lockdown. These records are to be kept on site for record/tracing purposes
		contractor to screen staff entering site • Staff not maintaining				 All staff are to be tested as per contractor's protocol to enter the site. Taking of staff temperature and desensitising of entire staff. An infrared thermometer is to be used.
		social distancing				 Contractor to ensure all staff conducting the required testing is provided with the required PPE and is supervised by management.
						Staff are not permitted to enter the site with their work PPE. Work PPE is to be left on site when leaving site to prevent possible contamination of work PPE
						Any staff tested with a high temperature or signs of COVID is to follow the quarantine procedure until staff can be tested by the DOH for possible COVID 19 infection.

9.4 Work tasks •	 Nil social distancing on site Staff socialising on site Staff not using their required PPE to prevent COVID infections 	 Spreading of the virus to other staff Possible infections 	none	Possible closure of site due to infection	 Identified tasks are to be evaluated to encourage social distancing All staff to have the required PPE when on site Staff to decontaminate all tools and workspace prior to any activity Monitoring to be done by management Inductions to be done for all staff on social distancing whilst at work. Failure of staff to comply with COVID control measures are to be removed off site.
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REF NO	SUB ACTIVITY	SAFETYRISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
9.5	Use of facilities during break intervals	Nil social distancing Nil hygiene been maintained at break intervals Nil paper towel provided for staff at wash facilities Lack of chairs for staff at facilities area	Possible contamination of staff Staff not practising adequate hygiene control measures Possible spread of virus Inadequate provision of hand wash /sanitisers for staff	none	none	 Breaks are to be staggered to allow social distancing of staff All staff are to take their breaks at the identified facilities area Layout of facilities area to be planned to encourage social distancing Table and chairs to be disinfected before and after all break intervals Toilets to be disinfected at frequent interval. Adequate hand wash and sanitisers are to be provided for staff to frequently wash their hands Paper towels to be provided for staff use Labelled bins to be provided for all hazardous waste Staff are not to share any meals or utensils Staff are not to leave the site to purchase any meals

9.6		 Injuries 	 vibration 	none	none	 Tools need to be inspected
	Use of	 Noise 				 Safety team supervisor
	jackhammer	 Loss limb 				