ETHEKWINI MUNICIPALITY - **Occupational Health & Safety Unit**

SITE BASELINE RISK ASSESSMENT - Construction Regulations 5.1.(a)

Document Title	Baseline S.H.E. Risk Assessment
Client	EThekwini Municipality- COASTAL STORMWATER & CATCHMENT MANAGEMENT
Project Name	Clark Road Sea Outfall and Culvert Storm Water Upgrade Isipingo Ward 90
Contract Number	**1D-24853**
Date	**26.09.2023**
Compiled by (Safety Officer)	Name and Surname: Ntombifuthi Mazibuko Signature:  Date: 26.09.2023
Approved by (Safety and Risk Manager)	Name and Surname: Arty Zondi Signature:  Date: 26.09.2023
Revision Number	**BRA:190/09 23**

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:

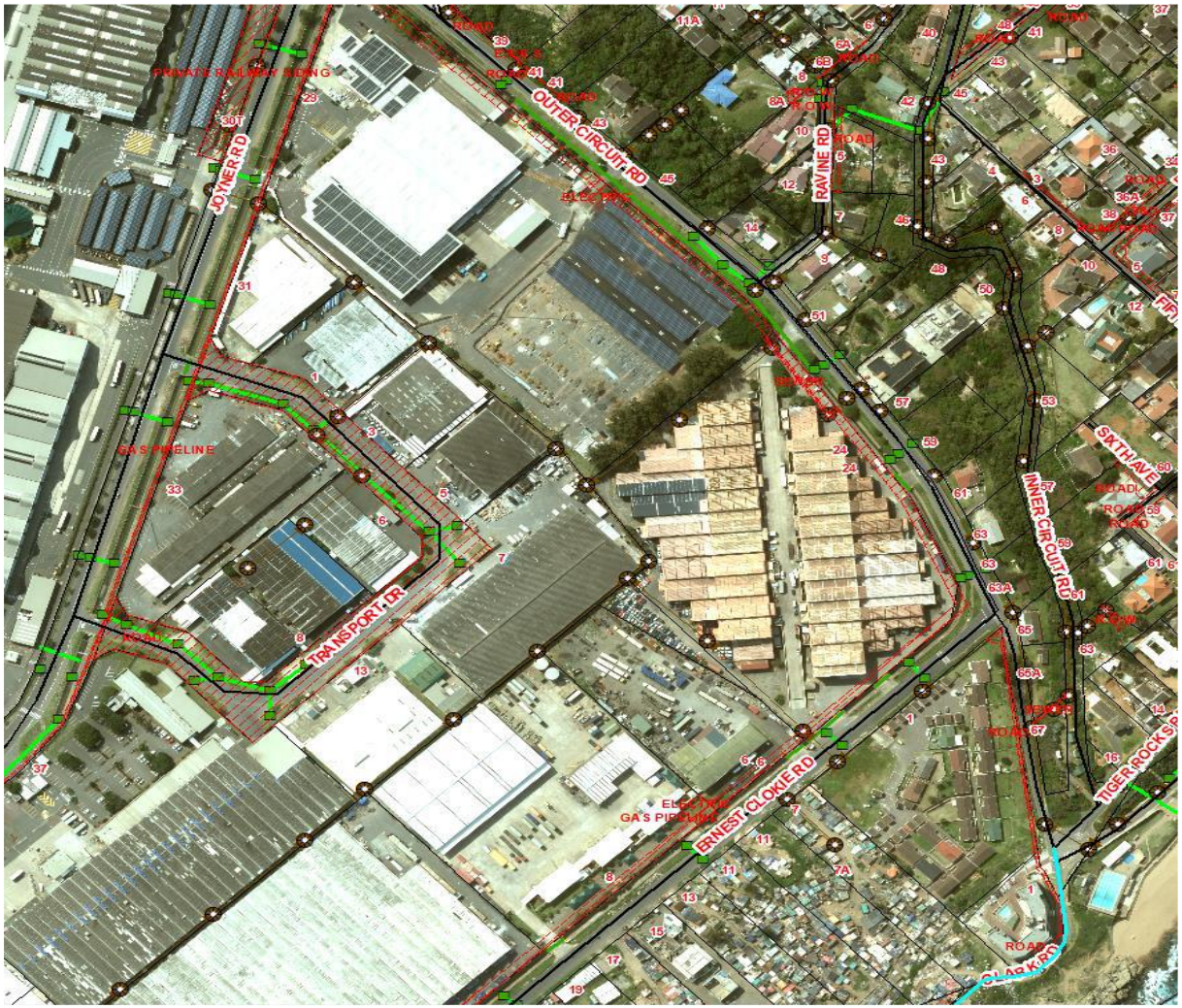
(a) The identification of the risk and hazards to which persons may be exposed.
(b) An analysis and evaluation of the risk and hazards identified based on a documented method,
(c) A documented plan and applicable safe work procedures to mitigate, reduce or control the risks and hazards that have been identified;
(d) A monitoring plan; and
(e) A review plan

5. REFERENCES

(a) Tender document number **1D-24853**

(b) Occupational Health & Safety Act and its Regulation

6. LOCALITY PLAN



7. SCOPE OF WORKS

Description of Site and Access

The site location is situated at 6 Ernest Clokie Road, Isipingo, Ward 90.The work will be taking place between Joyner road through to Ernest Clokie Road the finally through to Clark Road on the Beach.

The Scope of works for the upgrade of the Clark Road Outfall and Culvert consist of:

1. Proving of all services by hand prior to any construction work taking place.
2. lateral support trench excavation for the construction works.
3. Excavate earthworks for structures to spoil and storage for re use
4. Construct new cast in-situ base slab and installing of precast portal culverts and seals (650m)
5. Carry out pipe jacking through beach dune (100m)
6. Backfill and compact between newly built culvert
7. Construct cast in-situ outfall on concrete piles
8. Supply and lay HDPE Stormwater pipes
9. Dune rehabilitation
10. Supplying of building packs materials for displace dwelling in the settlement

RISK RATING CRITERIA

A	INJURY SEVERITY	B	FREQUENCY of OCCURENCE	RATING	
				RISK CLASSIFICATION	RISK VALUE
0	No injury	0	Has not occurred in last two years		
2	Minor laceration, wound (first aid case)	2	Occurs very seldom	LOW	0---6
4	More severe injury medical attention	4	Occurs occasionally	MEDIUM	6---16
8	Serious injuries, broken bones, amputation etc	8	Occurs often	HIGH	16---32
10	Loss of life / fatality	10	Could / has happened	CRITICAL	32---40

C	POTENTIAL DAMAGE / LOSS	D	ENVIRONMENT		ACTION REQUIRED		
0	No damage, minimal costs R10 – 100	0	No effect	Spillage, noise, water, dust / vapours/ fauna and flora	LOW	Supervision, training, certification, method/risk assessments, safe work procedures training, toolbox talks.	Good instruction.
2	Minor damage, small costs R100 – 1000	2	Minor effect				
4	Med damage, stoppage (On site repair) medium cost R1000 – 5000	4	Serious effect (Short term)		MEDIUM	Competent supervision, training certification, method/risk assessments, safe work procedures training, toolbox talks.	Change method, mitigate
8	More serious damage / / loss / delay < R5000 - +	8	Very serious effect (Long Term)				
10	Severe damage, long term stoppage, high costs	10	Catastrophic effect		HIGH	**Competent supervision, training certification, method/risk assessments, safe work procedures training, toolbox talks.**	**Change method, mitigate.**
					CRITICAL	**Close competent supervision, training certification, method/risk assessments, safe work procedures, PJO's, work permits, training and toolbox talks.**	**Intolerable, change method, transfer risk.**

ETHEKWINI MUNICIPALITY

Potential Risk Identified as per Scope of Work

1. Vehicles travelling to the construction site.
2. Site establishment.
3. Security operations.
4. Robbery on site.
5. Speed restriction on site.
6. Transport of workers on site.
7. Working on site exposed to weather conditions.
8. Carrying out work on site where there are long grass, bushes etc. which can burn.
9. Survey or set out area to be cleared and grub with wooden survey pegs.
10. Carrying out tasks on site requiring specific Personal Protective Equipment to be worn.
11. Use of Hand Tools, Mechanical and Hydraulic operated tools.
12. Pneumatic Tools.
13. Use of Portable Electrical Tools.
14. Using Ladders.
15. Manual Handling.
16. Hazardous Chemical & Flammable Liquids used on site.
17. Bulk Diesel Storage.
18. Housekeeping.
19. Stacking and Storage.
20. Loading and Offloading of equipment.
21. Use of lifting machines, Hand powered lifting devices and lifting tackle for the purpose of loading and offloading equipment on vehicles or lowering of equipment, materials ect
22. Excavation
23. Pipe Laying
24. Public and site visitor safety.

ETHEKWINI MUNICIPALITY

ACTIVITY	POTENTIAL HAZARD	POSSIBLE RESULT	RISK EVALUATION A R	B	C	D		PREVENTATIVE MEASURES	CONTROLS
Vehicles travelling to the construction site.	Poor road conditions i.e. no established road; Rocks, holes, ditches etc. hidden by long grass; Roads slippery in wet conditions; Unstable road edges on high ground; Driving vehicles too fast for the road conditions.	Damage to vehicles or equipment; Injuries to persons should a vehicle accident occur; .	4	2	8	0	**14**	Only experienced licensed vehicle drivers to drive on site; Vehicles to be in a roadworthy condition; Vehicles to have inspection Checklists; No persons to travel on the back of trucks or LDV's unless seated inside a canopy constructed for that purpose; Equipment to be properly secured on the back of vehicles; The condition of the road to be assessed in advance if there is any doubt regarding the safety of driving on the road; Speed limit appropriate to the condition of the road to be maintained.	Detailed risk assessment and training on RA; Only experienced licensed vehicle drivers drive on site; Vehicles in a roadworthy condition; Vehicles have inspection Checklists; No persons to travel on the back of trucks or LDV's unless seated inside a canopy constructed for that purpose; Equipment properly secured on the back of vehicles; The condition of the road assessed in advance if there is any doubt regarding the safety of driving on the road; Speed limit appropriate to the condition of the road maintained.
Site establishment	Poor positioning of offices, stores and parking areas.	Restricted access to parking and delivery to storage areas can cause damage to transport, equipment and buildings.	2	2	4	0	**8**	Access to be a main consideration when positioning offices and stores on site during planning stage; possible one way traffic movement to be introduced.	Detailed risk assessment and training on RA; toolbox talks; directional signs and supervision.
	Incorrect Installation of electrical cables and distribution boards.	Damage to exposed cables and loose wires; Electrical shock / Electrocution of employees or non employees.	10	2	8	0	**20**	All cables from distribution board to offices, stores and security to be underground; the distribution board is to stand on a firm level base and should e locked at all times; Electrical installations must be in compliance with the Electrical Installations Regulations 2009.	Detailed risk assessment and training on RA; toolbox talks; supervision; constant reinforcement and inspections by an appointed competent person and findings recorded in a register kept on site.

	Installation of security fencing.	Installation of fencing can result in lacerations and other minor injuries to the hands of the workers; Objects falling on feet of workers.	2	2	2	0	**6**	Security fencing must be minimum height of 1.8m around site area together with two double gates; Employees must wear hand gloves and safety boots at all times.	Detailed risk assessment and training on RA; toolbox talks; supervision; constant reinforcement and inspections by an appointed competent person.
	Fire Fighting Equipment not provided.	Not having Fire Fighting Equipment available in case of a fire can result in loss of property.	0	2	8	2	**12**	Firefighting services to be available during the site establishment.	Principal contractor to ensure that sufficient fully serviced firefighting equipment to meet the fire risk is on site from the start-up of the site establishment; training on use of firefighting equipment; fire risk surveys; fire drills and scheduled inspections on firefighting equipment.

ACTIVITY	POTENTIAL HAZARD	POSSIBLE RESULT	RISK EVALUATION A	B	C	D	R	PREVENTATIVE MEASURES	CONTROLS
	Not providing required hygiene `facilities.	Not having proper hygiene facilities available like clean drinking water, toilets, showers, changing facilities and sheltered eating areas will result in unhygienic conditions which can lead to Health issues and water pollution.	4	2	4	2	**12**	Hygiene facilities to be available in compliance with the Facilities Regulation 2004 and must be within reasonable access of the site; clean hygienic and maintained facilities consisting of at least 1 shower for every 15 persons, 1 sanitary facility for each sex for every 30 workers, changing facilities for each sex; Sheltered eating areas.	Principal contractor to ensure that sufficient fully maintained hygiene facilities are on site from the start of the site establishment; talks on hygiene; regular inspections carried out on the facilities.
Security operations.	Uncontrolled entry /exit to the site.	Can result in tampering with equipment; stealing; persons under the influence of alcohol entering on site; unauthorised entry to the site etc.	2	4	8	0	**14**	Security Company with competent trained guards to be engaged to control access to the site; All entry and exit to the site to be recorded; Employees of all Contractors to be issued with ID cards.	Security Company with competent trained guards engaged to control access to the site; Guards instructed in the correct procedures to be followed.

ACTIVITY	POTENTIAL HAZARD	POSSIBLE RESULT	RISK EVALUATION	PREVENTATIVE MEASURES	CONTROLS

			A	B	C	D	R		
								available for use at all times; Depending on the location/circumstances pertaining to the site, it is advisable to obtain the services of a reputable security company for the duration of the contract.	
Speed restriction on site.	Speeding vehicles / mobile plant.	Causing accidents involving people, other mobile plant and existing structures, Spillages resulting in ground contamination.	10	2	8	2	22	Safe speed limit to be set for the site and enforced.	Detailed risk assessment and training on RA; toolbox talks; supervision; Constant reinforcement & specific instructions to operators of vehicles / mobile plant; Speed limit set for site.
Transport of workers on site.	Workers not properly seated; tools and equipment not secured sliding around.	Workers being struck by moving equipment or falling off vehicles resulting in injury.	10	4	2	0	16	No transport of persons together with goods or tools unless there is an appropriate area or section to store the goods or tools; Transport persons in a non-enclosed vehicle e.g. truck, there must be a proper canopy (properly covering the back and top) with suitable sitting area; Workers shall not be permitted to stand or to sit on the edge of the bin of the vehicle.	Risk assessment training; Toolbox talks; Supervision; Constant reinforcement & specific instructions to workers.

ACTIVITY	POTENTIAL HAZARD	POSSIBLE RESULT	RISK EVALUATION A	B	C	D	R	PREVENTATIVE MEASURES	CONTROLS
Working on site exposed to weather conditions or in areas with poor air circulation.	Ultra violet sun rays	Excessive sun burn.	4	2	2	0	**8**	Personnel to wear long sleeve tops and long pants; Sun screen lotion to be available for use by Personnel; Safety talks to be carried out.	Detailed risk assessment and training on RA; toolbox talks; supervision; Sun screen lotion available for use by Personnel.

	Excessive hot conditions.	Dehydration / heat exhaustion / heatstroke which can result in death.	10	2	2	0	**14**	Training of personnel on the precautions to be taken to avoid heatstroke and to recognise the symptoms of heatstroke; Inform personnel of the need to partake of at least 600 millilitres of water every hour; Any person showing symptoms of heatstroke must receive medical attention as soon as possible; Safety talks to be carried out.	Detailed risk assessment and training on RA; toolbox talks; supervision; Personnel trained on the precautions to be taken to avoid heatstroke and to recognise the symptoms of heatstroke; Personnel informed of the need to partake of at least 600 millilitres of water every hour; Carry out Heat stress monitoring if deemed necessary.
	Severe weather conditions i.e. thunderstorms with lightning.	Lightning striking a person can result in severe burns or death.	10	2	4	0	**16**	When a thunderstorm approaches the site area, all personnel must be withdrawn from the open areas and take shelter inside their vehicles or inside an office; Safety talks to be carried out.	Detailed risk assessment and training on RA; toolbox talks; supervision; Personnel withdrawn from open areas during a thunderstorm and lighting.
Carrying out work on site where there are long grass, bushes etc. which can burn.	Veldt Fires.	Persons trapped in a fire can sustain serious burns, lung damage or be burnt to death.	10	2	4	0	**16**	When a veldt fire is noticed no matter how small, all personnel must be withdrawn from the area to gather in a safe open area away from the fire where there is no grass i.e. open road, cleared work area etc.; A roll call must be held to ensure all personnel are accounted for; Under no circumstances must any personnel attempt to put out the fire unless their safety is in danger or damage to the equipment can occur since it is not part of the work for which they are contracted for; No person may go back to carry out his or her task until such time that the fire is put out or has passed the area and it is safe to do so and then only if instructed to do so by the person in charge; Safety talks to be carried out.	Detailed risk assessment and training on RA; toolbox talks; supervision; Personnel withdrawn during a veldt fire to a safe open area away from the fire where there is no grass and all personnel accounted for; Firefighting carried out only when the safety of personnel and equipment is threatened.

ACTIVITY	POTENTIAL HAZARD	POSSIBLE RESULT	RISK EVALUATION A R	B	C	D		PREVENTATIVE MEASURES	CONTROLS
	Open Fires made by personnel on site.	It can result in setting the surrounding grass, bushes etc. on fire and If the fire cannot be put out quickly, it can result in the grazing areas and other property burning down and also possible fire damage to own equipment; Animals can also suffer burns or death from the fire; Persons trapped in a fire can sustain serious burns, lung damage or be burnt to death.	10	2	8	2	**22**	No open fires to be made by personnel on site.	Detailed risk assessment and training on RA; toolbox talks; supervision; No open fires made on site.
Carrying out work on site where there are poisonous reptiles, arthropods and arachnids present.	Poisonous Snakes, Spiders, Scorpions and Ticks.	Snake bites, scorpion stings, spider and tick bites can result in blood poisoning and tick fever which can be very serious and even lead to death if not treated correctly and timeously.	10	2	4	0	**16**	Ensure the wearing of safety boots is enforced; The wearing of snake gaiters is recommended when walking in long grass, bushy or rocky areas; Don't attempt to approach or try to catch any of the creatures mentioned; The First Aider is to attend to the affected Person; Any person bit by a snake, stung by a scorpion or bit by a spider must receive medical attention as soon as possible; Persons bit by ticks must report to their supervisor if they starting to feel unwell and develop a fever; If snakes are spotted in working area's then work must be stopped and a professional snake catcher should be called out to remove the snake. Employees are not allowed to take action by them self's. Safety talks to be carried out.	Detailed risk assessment and training on RA; toolbox talks; supervision; Personal Protective Equipment (P.P.E) Requirements Matrix; Record of P.P.E issued to Personnel; Record of training on the correct use of the P.P.E.

ACTIVITY	POTENTIAL HAZARD	POSSIBLE RESULT	RISK EVALUATION A R	B	C	D		PREVENTATIVE MEASURES	CONTROLS
Surveyor set out area to be cleared and grub with wooden survey pegs.	Heat Exposure.	Sun stroke / heat Exhaustion.	4	4	2	0	**10**	Risk assessment training; Daily safe task instructions; Potable water available on site; Wearing of appropriate PPE.	Detailed risk assessment and training on RA; DSTI's; Supervision; Registers
	Environmental hazards.	Snake bites / tick bites / spider bites.	4	4	2	0	**10**	Wearing of appropriate PPE; Daily safe task instructions; Trained First Aider on site; When possible snake / spider to be identified to assist medical personnel with treatment.	Detailed risk assessment and training on RA; PPE Matrix and issue Registers.
Carrying out tasks on site requiring specific Personal Protective Equipment to be worn.	Incorrect or no Personal Protective Equipment worn.	Persons not wearing the correct Personal protective Equipment Can result in serious injuries or death.	10	4	4	0	**18**	The following Personal Protective Equipment must be issued to all personnel and worn when on site: Hard hats to prevent head injuries from falling objects; Safety boots to protect against Snake bites, Scorpion stings and spider / tick bites / falling Objects, ground conditions, slippery surfaces etc.; Snake gaiters to protect against snake bites, Scorpion stings and spider / tick bites; Eye Protection appropriate for the task; Gloves appropriate for the task; Reflective vests for visibility; Safety Harnesses for fall protection; Any other P.P.E which may be required.	Detailed risk assessment and training on RA; toolbox talks; supervision; Personal Protective Equipment (P.P.E) Requirements Matrix; Record of P.P.E issued to Personnel; Record of training on the correct use of the P.P.E.
Use of Hand Tools, Mechanical and Hydraulic operated tools.	Using tools which have the potential to cause injury.	Possible serious injury if used incorrectly.	4	2	4	0	**10**	Only trained competent persons with the knowledge in the use, limits and hazards pertaining to a specific tool may work with the tools; Workers trained on the correct use of personal protective equipment issued for use with the tools; Regular inspections carried out to ensure the tools are in a good condition, safe to work with and used properly	Detailed risk assessment and training on RA; toolbox talks; supervision; Only trained competent persons to have access to the tools; Tools on register & checked on a regular basis; visually inspect tools for damage before use; PPE Register.

Pneumatic Tools.	Not knowing how to operate Pneumatic tools; Not wearing the correct personal protection equipment; Exposure to noise, vibration, dust and flying material; Poor quality tools.	Improper operation of pneumatic tools can result in damage to equipment and property; Injuries caused by being struck by the tools or pieces of flying material;	8	4	8	0	**20**	Only competent persons trained in the hazards and risks associated with the operation of pneumatic tools are to use the tools; operator to make use of the correct personal protective equipment (PPE) such as dust mask, ear protection, safety glasses, steel cap safety boots and anti-vibration gloves;	Detailed Risk Assessment and workers trained on RA; Method statement and workers trained on content; Induction training; Daily Toolbox Talks; PPE register;

ACTIVITY	POTENTIAL HAZARD	POSSIBLE RESULT	RISK EVALUATION A	B	C	D	R	PREVENTATIVE MEASURES	CONTROLS
		Hand-arm vibration injuries (Hand-arm Vibration Syndrome); Hearing loss; Respiratory / lung damage.						Regular inspections carried out to ensure the tools are in a good condition, safe to work with and used properly.	Visually inspect for damage before use; Wearing of PPE enforced.
	Accidental disconnection; damaged hoses.	Damage to other equipment, property and serious injuries to employees and other.	8	4	8	0	**20**	Operator to ensure that the connection of hoses is tight before use and safety chain is in place; Pre use inspection of the equipment with the foreman before use.	Detailed Risk Assessment and workers trained on RA; Method statement and workers trained on content; Induction training; Daily Toolbox Talks; PPE register; Visually inspect for damage before use.
Use of Portable Electrical tools.	Using portable electrical tools which have the potential to cause injury.	Possible injury, electrical shock or electrocution if used incorrectly.	10	2	4	0	**16**	Only trained competent persons with the knowledge in the use, limits and hazards pertaining to a specific portable electrical tool may work with the tools; Workers trained on the correct use of personal protective equipment issued for use with the tools; The person using the portable electrical tool must ensure it is in a safe working condition.	Detailed risk assessment and training on RA; toolbox talks; supervision; Only trained competent persons to have access to the portable electrical tools; Portable electrical tools on register & checked on a regular basis; Portable electrical tools visually. inspected for damage before use; PPE Register.

	Insufficient or poor quality portable electrical tools; Unsafe portable electrical tools due to broken switches, damaged cables, plugs and missing machine guards.	Possible injury, electrical shock or electrocution due to failure or incorrect/ unsafe use of tools.	10	4	4	0	**18**	The correct good quality portable electrical tools for the job must be available for use; Only trained competent persons with the knowledge in the use, limits and hazards pertaining to a specific portable electrical tool may work with the tools; Workers trained on the correct use of personal protective equipment issued for use with the tools; The person using the portable electrical tool must ensure it is in a safe working condition.	Only the correct good quality portable electrical tools for the job must be available for use on site; Only trained competent persons to have access to the portable electrical tools; Portable electrical tools on register & checked on a regular basis; Portable electrical tools visually inspected for damage before use; PPE Register.

ACTIVITY	POTENTIAL HAZARD	POSSIBLE RESULT	RISK EVALUATION A	B	C	D	R	PREVENTATIVE MEASURES	CONTROLS
								Supervision.	Explosive Fastening Device on register & checked on a scheduled basis; Explosive Fastening Device visually inspected for damage before use; PPE Register; Supervision.

ACTIVITY	POTENTIAL HAZARD	POSSIBLE RESULT	RISK EVALUATION A	B	C	D	R	PREVENTATIVE MEASURES	CONTROLS
Manual Handling.	Lifting heavy loads i.e. bags of cement, heavy tools or equipment.	Employees could injure their backs when picking up heavy loads on their own.	4	4	2	0	**10**	Employees must never pick up anything that is too heavy for one person; If they battle to lift an item, they must get assistance; Where possible mechanical lifting equipment i.e. forklifts, cranes etc. must be used to pick up heavy equipment.	Detailed risk assessment and training on RA; toolbox talks; supervision; Constant reinforcement & specific instructions to employees.
	Wrong posture when lifting/placing down items.	Employees that pick items up with their legs straight and back bent can sustain serious back & muscle injuries.	4	4	2	0	**10**	Employees must ensure that they keep their back straight and bend their knees when they lift any load, this prevents strain on the lower back; Physical demonstrations should be given to all employees.	Detailed risk assessment and training on RA; toolbox talks; supervision; Constant reinforcement & specific instructions to employees.

	Loads with sharp edges/corners.	Sharp edges and corners could cause lacerations to hands and other body parts.	2	2	4	0	**8**	Load to be inspected before lifting to check for sharp edges & corners; To wear leather gloves when picking up equipment and materials to protect against hand injuries.	Detailed risk assessment and training on RA; toolbox talks; supervision; Constant reinforcement & specific instructions to employees.
Hazardous Chemicals & Flammable Liquids used on site.	Exposure to source of ignition; inhaling vapours / fumes; contact with the skin; accidental ingestion; Chemicals splashing into eyes; Spillage of chemicals on ground and in water.	Fire or explosion when ignited; respiratory irritation from fumes and vapours which can cause injuries to the respiratory system, dizziness, nausea & loss of consciousness if inhaled constantly; Irritation & possible skin disorders like Dermatitis, infection, allergy and poisoning when skin is exposed constantly to chemicals; low viscosity material if swallowed may enter the lungs and cause lung damage; eye injuries from chemicals splashing into the eyes; Ground and water pollution.	4	2	8	2	**16**	Keep flammable liquids away from high energy ignition sources, heat, sparks, pilot lights, static electricity & open flames; Avoid skin contact with chemicals by wearing PVC gloves; Wear respirators if exposed to the inhalation of vapours or mists; Use chemicals in a well ventilated area away from all ignition sources; no smoking or open flames in close proximity of flammable liquids; firefighting equipment must be available at the point of storage & use of flammable chemicals; flammable substances must be stored separately from other materials in a well ventilated area with a bund wall to contain leaks or inside a flammable liquid cabinet specific for that purpose with suitable warning signs displayed; Do not ingest any chemicals; wear splash goggles when handling chemicals; Eye wash to be available; Workers trained on the correct use of personal protective equipment issued; Material Safety Data Sheets available for all Hazardous chemical substances;	Detailed Risk Assessment; Training on MSDS sheets; Toolbox talks; MSDS Sheets available for all chemicals; Constant Supervision & Reinforcement of Preventative Action; Proper storage facility for chemicals and the necessary warning signs displayed; Hazardous Chemical substances Coordinator appointed in writing; PPE register.

ACTIVITY	POTENTIAL HAZARD	POSSIBLE RESULT	RISK EVALUATION A	B	C	D	AR	PREVENTATIVE MEASURES	CONTROLS
								Spill kit to be available; Hazardous Chemical Substances Co-ordinator to be appointed in writing.	
Bulk Diesel Storage.	Sub-standard storage; Unsafe handling.	Ground and water pollution; ignition of fuel causing fire damage and possible burn injuries; fines from local authorities for noncompliance.	8	2	8	2	**20**	Obtain written approval from land owner where the tank will be positioned; Site plan and positioning of the Diesel tank along with the local fire department's approval after inspection need to be supplied to the supplier before the installation can commence; Firefighting equipment requirements information can be obtained from the fire department on their visit to site; The fuel supplier will then visit the site for approval before installation can commence.	Detailed risk assessment; storage and handling to be in compliance with local authority and supplier requirements; Approval documentation and permits to be available on site.
Housekeeping.	Poor housekeeping and storage practises can result in various items lying around.	Materials and paper lying around creates an un neat appearance; Items lying around are tripping hazards and can cause employees to trip and fall resulting in injuries; Plastic bags when eaten by cattle can result in the animal dying; Pollution of the Environment.	8	4	2	2	**16**	Housekeeping must be based on a place for everything and everything in place; Refuse bins must be available to place all waste in; Redundant material or equipment must be sorted and stored in designated areas; All workstations must be kept tidy; Employees should be trained through risk assessments and toolbox talks to practise housekeeping on a daily basis; Regular inspections by Supervisors; All waste must be removed from site.	Detailed risk assessment and training on RA; toolbox talks; supervision; Refuse bins in place; Designated storage areas; All waste removed from site.
Stacking and Storage.	Unstable stacking and storage	Collapsing stack and material falling off the stack can fall on employees resulting in multiple injuries; Damaging of stored items.	8	2	8	0	**18**	Competent person appointed in writing with the duty to supervise all stacking on site; Demarcated storage area; Stacking area must be stable and levelled to avoid material falling;	Supervision by a competent person appointed in writing; Constant reinforcement; Toolbox talks.

								Storage area must be kept neat and under control.	
	Stacking material of different sizes, shape and mass together.	Collapsing stack and material falling off the stack can fall on employees resulting in multiple injuries; Damaging of stored equipment.	8	2	8	0	**18**	Competent person appointed in writing with the duty to supervise all stacking on site; Demarcated storage area; Stacking area must be stable and levelled to avoid material falling; Storage area must be kept neat and under control; Material of the same size, shape / mass must be stacked and stored together to avoid the material	Supervision by a competent person appointed in writing; Constant reinforcement; Toolbox talks.

ACTIVITY	POTENTIAL HAZARD	POSSIBLE RESULT	RISK EVALUATION A	B	C	D R		PREVENTATIVE MEASURES	CONTROLS
								falling.	
	Stacking exceeding 3m in height.	It can cause material to fall and serious injuries and damage to equipment can occur.	8	2	8	0	**18**	Competent person appointed in writing with the duty to supervise all stacking on site; Demarcated storage area; Stacking area must be stable and levelled to avoid material falling; Storage area must be kept neat and under control; Total height of stack must not exceed 3m to avoid material from falling onto the ground.	Supervision by a competent person appointed in writing; Constant reinforcement; Toolbox talks.
Loading and Offloading of equipment.	Untrained / incompetent persons using the equipment; loads being dropped.	Damage to material, equipment & plant; Injury to workers and/or plant.	4	2	4	0	**10**	Only competent trained persons are permitted to operate lifting machinery; Banksman / Rigger to be available at all times to co-ordinate & control the material being loaded or unloaded.	Ensure that the lifting machine operator & banks man are trained & are appointed as competent persons; Training certificates should be available.

Use of Lifting machines, Hand powered lifting devices and Lifting tackle for the purpose of Loading and Offloading equipment on or from vehicles and the raising or lowering of equipment, materials etc.	Untrained / incompetent persons using Lifting machines, Hand powered lifting devices and Lifting tackle; Unsafe Lifting machines, Hand powered lifting devices and Lifting Tackle.	Damage to Lifting machines, Hand powered lifting devices and Lifting tackle; Load dropping can result in damage to materials, equipment and plant; Possible injuries to Workers; Contravention or failure to comply with the Driven Machinery Regulations, 2015 can lead to Prosecution.	4	4	8	0	**16**	Only competent trained persons are permitted to operate lifting machines, hand powered lifting devices and lifting tackle used on site; All lifting machines, hand powered lifting devices and lifting tackle to be on register; Tested & checked by a competent appointed person; Load test certificates must be available for all lifting machines and hand powered lifting devices; All training of lifting machine operators, Load testing and inspection of lifting machines and lifting tackle to be in compliance with Driven Machinery Regulations , 2015; Lifting machines, hand powered lifting devices and lifting tackle to be visually inspected for damage before use; A competent Banksman / Rigger to be available at all times to co-ordinate & control the lifting operations; The banks man must use his whistle at all times when a suspended load is moving above workers to warn them.	Detailed risk assessment and training on RA; toolbox talks; supervision; Training certificates of lifting machine operators on file; All records of tests and inspections of lifting machines, hand powered lifting devices and lifting tackle to be on file and available on site; All training of lifting machine operators, Load testing and inspection of lifting machines, hand powered lifting devices and lifting tackle in compliance with Driven Machinery Regulations, 2015; Visual inspection of lifting before use; A competent Banksman / Rigger to be available at all times to co- ordinate & control the lifting operations.

ACTIVITY	POTENTIAL HAZARD	POSSIBLE RESULT	RISK EVALUATION A	B	C	D	R	PREVENTATIVE MEASURES	CONTROLS
Working at Heights & Elevated Positions.	Not wearing safety harnesses / safety harnesses not secured; Taking an unsafe position whilst working on scaffolding.	Severe injury or even death when falling from a height or scaffolding.	10	2	4	0	**16**	Training on the correct use of safety harnesses and fall arrest equipment; ensuring that trained competent persons are carrying out the work & understand the hazards of working at height; always use the 100% tie off method while moving around at height.	Detailed risk assessment and training on RA; toolbox talks; supervision; Constant reinforcement & specific instructions to employees; Daily pre-inspection to be carried out; training on the correct use of a safety harness and fall arrest equipment on file; Competent to do the job; Monthly safety harness inspection register to be completed.

	Improper identification and issuing of Personal Protective Equipment requirements resulting in slipping and falling; improper head, hand and eye protection.	Severe injuries or even death.	10	2	4	0	16	Survey to be carried out to identify PPE requirements; issuing of correct PPE as identified i.e. safety shoes, hardhat, overall, gloves, safety glasses, safety harnesses with dual lanyards; Workers trained in the correct use of PPE issued; record of all training to be kept on file; record of PPE issued to be kept on file; safety harness inspector to be appointed.	Detailed risk assessment and training on RA; toolbox talks; supervision; Daily pre-inspection to be carried out; training on the correct use of a safety harness and fall arrest equipment on file; training on the correct use of PPE on file; record of PPE issued on file; Monthly safety harness inspection register to be complete

ACTIVITY	POTENTIAL HAZARD	POSSIBLE RESULT	RISK EVALUATION A	B	C	D	R	PREVENTATIVE MEASURES	CONTROLS
Working at Heights & Elevated Positions on Scaffolding structures.	Scaffold not properly boarded.	Employees could fall through resulting in serious injuries or death.	10	2	4	0	16	Scaffold platforms must at all times be fully boarded to ensure that employees do not fall through; Competent person appointed in writing to supervise scaffolding operations.	Detailed risk assessment and training on RA; toolbox talks; supervision; Constant reinforcement & specific instructions to employees; Daily pre-inspection to be carried out; Complying with SANS 10085-1 on the design, erection and inspection of access scaffolding.
	Scaffold has no handrails.	Falling off the scaffold resulting in serious injuries or death.	10	2	4	0	16	Handrails must be fitted at knee & hip height at all times, if employees are required to work on an open edge then they need to wear a harness & attach it to the structure or life line; Competent person appointed in writing to supervise scaffolding operations.	Detailed risk assessment and training on RA; toolbox talks; supervision; Constant reinforcement & specific instructions to employees; Daily pre-inspection to be carried out; Complying with SANS 10085-1 on the design, erection and inspection of access scaffolding.

	Scaffold has no safe access.	Falling from height resulting in serious injuries or death.	10	2	4	0	**16**	Scaffolding must be fitted with safe access ladders / staircases at all times, if the scaffold does not have safe access then it may not be used; Competent person appointed in writing to supervise scaffolding operations.	Detailed risk assessment and training on RA; toolbox talks; supervision; Constant reinforcement & specific instructions to employees; Daily pre-inspection to be carried out; Complying with SANS 10085-1 on the design, erection and inspection of access scaffolding.

ACTIVITY	POTENTIAL HAZARD	POSSIBLE RESULT	RISK EVALUATION A R	B	C	D		PREVENTATIVE MEASURES	CONTROLS
Structural steel erection.	Incompetent erectors not trained to work at height and in steel erection.	Falling off structures resulting in serious injuries or death.	10	2	8	0	**20**	Erectors of steel and their assistants must be competent in structural steel erection and handling themselves on steel structures at elevated positions; Supervisor to induct steel erectors and their assistants in the safe way to erect the steel and how to use their PPE; Training on the correct use of safety harnesses and fall arrest equipment.	Detailed risk assessment and training on RA; toolbox talks; Supervision; Constant reinforcement & specific instructions to employees; Daily pre-inspection to be carried out; Training on the correct use of a safety harness and fall arrest equipment on file; Training on the correct use of PPE on file; Record of PPE issued on file; Monthly safety harness register to be completed.
	Failing to follow the correct method and rules of erection or use of damaged material can cause structure to collapse.	Collapsing of structure can result in serious injuries or death and extensive damage to structure.	10	2	10	0	**22**	Sequence of erecting structural elements as required by the supervisor is to be adhered to at all times by all members of the erection crew; Supervisor to explain method of erection and rules to be followed by erection team.	Detailed risk assessment and training on RA; Toolbox talks; Supervision; Constant reinforcement & specific instructions to employees; Daily pre-inspection to be carried out.

	Improper identification and issuing of Personal Protective Equipment requirements resulting in slipping and falling; Improper head, hand and eye protection.	Employees having no knowledge in the use of safety harnesses or PPE when working at heights can get injured or fall resulting in severe injuries or even death.	10	2	8	0	**20**	Survey to be carried out to identify PPE requirements; Erection team must use the following PPE at all times: Overall, hardhat, harness with double lanyards and shock absorber, safety shoes with non-slip soles for structural steel work and gloves; Training on the correct use of safety harnesses and fall arrest equipment; Training in the correct use of PPE issued; record of all training to be kept on file; Record of PPE issued to be kept on file; Safety harness inspector to be appointed.	Detailed risk assessment and training on RA; Toolbox talks; Supervision; Daily pre-inspection to be carried out; Training on the correct use of a safety harness and fall arrest equipment on file; Training on the correct use of PPE on file; Record of PPE issued on file; Monthly safety harness register to be completed.

ACTIVITY	POTENTIAL HAZARD	POSSIBLE RESULT	RISK EVALUATION A B C D R					PREVENTATIVE MEASURES	CONTROLS
		equipment, vehicles or buildings; Can result in ground and water pollution; Fire burns to persons.						be displayed; “Flammable Liquid Store” sign to be displayed. A Fire extinguisher capable of putting out any fire that may occur to be within 20 metre of the storage area; Cabinet or storage area must be able to contain any leakage or spillage that may occur to prevent ground or water pollution.	Supervision by Supervisor; Evaluation of the suitability of the location; Evaluation of the stability of the ground / floor conditions; Demarcate the area if necessary.

	Incorrect, damaged or no Personal Protective Equipment.	Foot and Hand Injuries. Skin contact with paint or chemicals can cause skin problems; Inhalation of fumes and dust can cause sinus / throat irritations, asthma, bronchitis etc. Possible lead poisoning from lead dust when scraping or sanding old paint containing lead; Eye injuries.	8	2	2	0	**12**	Personal Protective Equipment requirements to be identified; Proper personal protective equipment to be issued to employees i.e. Safety boots, gloves, dust masks, chemical respirators, splash goggles and overalls; Hard hats to be issued if required for head protection; Employees to be trained in the purpose and correct wearing of the personal protective equipment; Employees to wear the PPE issued where required; PPE to be in a clean and good condition. PPE properly stored when not in use; Material Safety Data Sheets to be available for all chemicals and workers trained on the contents thereof.	Detailed Risk Assessment. Training on Risk Assessment; Induction Training; Toolbox talks; Supervision by Supervisor; PPE requirements identified; Record of employee training on PPE on file; Record of PPE issued per employee and signed by employee in acknowledgement thereof on file; Monthly PPE inspection checklist on file; MSDS Sheets available for all chemicals and workers trained on the content thereof.
	Unsafe use of builders trestles.	Falling off a trestle can result in serious injury or death; Paint containers falling off the trestle can result in ground and water pollution.	10	2	2	2	**16**	Trestles to be placed on a level surface; Minimum of three planks of each 225 mm x 38 mm to be used for the platform and the platform not to exceed 2 m between the trestles; The legs of the trestles must be spread to their maximum width; Planks must be secure in the brackets and protrude at least 150 mm past the brackets; Planks must not be overloaded; Scaffold to be inspected daily before use.	Detailed Risk Assessment; Training on Risk Assessment; Induction Training; Toolbox talks; Supervision by Supervisor; Daily inspection of trestles before use.
	Using unsafe ladders or using ladders unsafely.	Falling off a ladder can result in serious injury or death; Paint containers falling off the ladder can result in ground and water pollution.	10	2	2	2	**16**	Only persons trained on the safe use of ladders are allowed to use ladders; Ladders must be properly inspected before use for any defects and no defective ladder must be used to work with; Defective ladders must be tagged as unsafe for use and removed to be repaired or discarded; Ladders must always be placed on an even stable	Detailed Risk Assessment; Training on Risk Assessment; Induction Training; Toolbox talks; Supervision by Supervisor; Record of employee training on the use of ladders on file; Monthly Ladder inspection checklist on

ACTIVITY	POTENTIAL HAZARD	POSSIBLE RESULT	RISK EVALUATION A R	B	C	D		PREVENTATIVE MEASURES	CONTROLS
`Confined spaces.	Testing and air evaluation.	Lack of oxygen while testing and evaluating air can cause suffocation.	10	2	8	4	24	A competent person must test and evaluate the air within and certify in writing after testing; Trained or competent person must use dragger instrumentation or similar to measure the oxygen content.	Detailed risk assessment and training on RA; Toolbox talks; Supervision; Constant reinforcement & specific instructions to workers; Daily pre-inspection to be carried out.
	Lack of oxygen below 20%.	Lack of oxygen in the confined space can cause suffocation to employees.	10	2	8	0	20	Employees to be evacuated immediately should the oxygen level drop below 20%.	Detailed risk assessment and training on RA; Toolbox talks; Supervision; Constant reinforcement & specific instructions to workers; Hourly pre-inspection to be carried out.
	No ventilation.	If there is no ventilation in the confined space, harmful gasses can reduce oxygen which can lead to suffocation.	10	2	8	0	20	Fans to be positioned to allow sufficient air flow and oxygen to the worker.	Detailed risk assessment and training on RA; Toolbox talks; Supervision; Constant reinforcement & specific instructions to workers; Hourly pre-inspection to be carried out.
	Changing conditions; Accumulation of poisonous gases or the lack of oxygen.	The lack of oxygen can cause suffocation and poisonous gases can result in respiratory damage or death.	10	2	10	0	22	Supervisor to take readings continuously throughout the day to monitor the oxygen content to ensure a safe breathing environment for the persons working.	Detailed risk assessment and training on RA; Toolbox talks; Supervision; Constant reinforcement & specific instructions to workers.

	Not using self-contained breathing apparatus if oxygen level drops to less than 20%.	Not using self-contained breathing apparatus if there is lack of oxygen in confined space can cause suffocation to employees.	8	2	8	0	**18**	Employees to use self-contained breathing apparatus or airline system if oxygen level drops to less than 20%; Employees need to be trained on the proper and safe method of using the apparatus.	Detailed risk assessment and training on RA; Toolbox talks; Supervision; Constant reinforcement & specific instructions to workers.

ACTIVITY	POTENTIAL HAZARD	POSSIBLE RESULT	RISK EVALUATION A	B	C	D	AR	PREVENTATIVE MEASURES	CONTROLS
	No unauthorised persons allowed into confined space.	Untrained employees can cause serious injuries or death to themselves and other employees, because they are not familiar with confined space working procedures.	10	4	8	0	**22**	No unauthorised personnel allowed in the working area; Working area outside the confined space must be barricaded to avoid unauthorised persons from entering.	Detailed risk assessment and training on RA; Toolbox talks; Supervision; Constant reinforcement & specific instructions to workers.
	No emergency breathing apparatus provided.	Not receiving the required oxygen immediately after the incident can cause suffocation or death to an employee.	10	4	8	0	**22**	A breathing apparatus set must be positioned outside in case of an emergency; Check oxygen content of apparatus before work starts.	Detailed risk assessment and training on RA; Toolbox talks; Supervision; Constant reinforcement & specific instructions to operators.

Pipe laying.	Rigger not competent; Lifting pipe using TLB; TLB operator not competent; TLB defective; Employees in trenches whilst pipe being lifted and lowered; Positioning and assembling of pipes; Improper use of PPE.	Incorrect rigging can cause pipe to fall causing damage to pipe or serious injuries to workers in trench; Injuries whilst positioning and assembling pipes; Incompetent TLB operator unable to operate TLB properly can cause damage to TLB and pipes or injuries to operator or workers; Defective TLB can cause damage to TLB and pipes or cause injuries to operator or workers should the brakes, hydraulic lifting cylinders etc. be defective and the operator lose control.	8	2	8	0	**16**	Competent Rigger to be appointed in writing; Lifting tackle must be inspected before being used; TLB operator to be certified competent and appointed in writing; TLB must be in a good working order and inspected daily; No employees shall be in trenches whilst pipes are being lifted into place; Workers trained on the hazards and risks pertaining to the tasks to be performed; Workers trained on the correct use of personal protective equipment issued.	Detailed Risk Assessment and workers trained on RA; Method statement in place and workers trained on content; Induction training; Competency records of Rigger and TLB operator on file; Site supervision; Toolbox talks and PPE registers; TLB daily checklist.

ACTIVITY	POTENTIAL HAZARD	POSSIBLE RESULT	RISK EVALUATION A	B	C	D	R	PREVENTATIVE MEASURES	CONTROLS
	Spoil is stacked too close to the edge of the excavation & causing it to collapse / fall back into the excavation.	Lost time, damage and/or possible injury depending on the depth of the excavation.	4	2	2	0	**8**	Ensure that the spoil removed is placed at least one meter from the edge of the excavation; Ensure that there are no cracks in the side walls.	As spoil is removed, it must be ensured that it is placed at least 1 meter from the edge of the excavation.

Working in proximity of live HV or MV electrical power conductors.	Carrying of equipment, poles etc. that can come in contact with overhead live conductors.	Should any conductive items being carried come in contact with overhead live conductors it can result in serious injury due to electrical shock or electrocution; Disruption to power supply; Damage to equipment.	10	2	8	0	**20**	No work must be carried out under HV / MV conductors unless the conductors are isolated and earthed, the work area barricaded and a permit issued for that purpose. Should it be necessary to carry any items passing below a live line crossing the access way to the barricaded work area and it is not possible to comply with the above requirements to isolate and earth the lines for whatever reason, it must be done as follow: any item of which the length is	Detailed risk assessment and training on RA; Training carried out on safe work procedures; Supervision by a competent person; Toolbox talks; Constant reinforcement & specific instructions to employees; Record of all training kept in site safety file.

ACTIVITY	POTENTIAL HAZARD	POSSIBLE RESULT	RISK EVALUATION A R	B	C	D	PREVENTATIVE MEASURES	CONTROLS
							both sides of the passageways; ensure the surface of the passageway is levelled, formed up and well maintained to prevent undue tilting or bouncing of the equipment; the notices and crossbars must be illuminated for visibility during the night or poor weather conditions; the goalposts and barriers must be maintained. Operator / driver to remain inside the cab of the vehicle if a flashover occur to prevent electrical shock or electrocution and if any of the raised parts is in contact with HV line conductor and can be lowered from inside the cab, do so and attempt to drive clear of the HV power lines if possible, otherwise wait for confirmation from ESKOM or the competent person in charge of the substation that the line is dead and it is safe to get out; should the vehicle be on fire and persons inside the vehicle must get out, they must jump well clear from the cab; Nobody must approach the vehicle until confirmation from ESKOM or the competent person in charge of the substation that the line is dead and it is safe to do so; Never assume that the line is dead, auto reclosing of the ESKOM breakers or ESKOM operators closing the breakers manually to try and restore the power supply can cause the line to be energised for short periods of time. All persons who will be involved in the above operation must be trained on the relevant Risk Assessment and safe work procedure emphasising the hazards and risks associated with it. Daily toolbox talks to be conducted; List of emergency telephone numbers which	

								must include the ESKOM emergency contact number to be readily available; Emergency rescue plan to be in place.	
	Persons working in elevated positions, stacking, erecting structures or carrying out any work in close proximity to the minimal horizontal distance of 10	Handling of equipment used for the stacking and construction of the structures i.e. materials, metal pipes etc. and structures	10	2	8	0	**20**	No working in elevated positions, stacking or erecting of structures must occur within 10 metre from the nearest live HV / MV conductor; If any person/s are going to carry out work in elevated positions or stacking and erecting of structures is going to be carried out	Detailed Risk Assessment and workers trained on RA; Training carried out on safe work procedures; induction training; Toolbox talks; Barricading of 10 metre horizontal safety zone including high level

	metre from the nearest live HV /MV conductor and are	falling over might come in contact with						alongside the live HV / MV conductors, the 10 metre horizontal safety zone	

ACTIVITY	POTENTIAL HAZARD	POSSIBLE RESULT	RISK EVALUATION A B C D R	PREVENTATIVE MEASURES	CONTROLS

	handling equipment, materials, pipes etc. which accidently cross the line of the minimal horizontal distance to within the clear safe distance of 4.0 metre from live conductors.	the live conductors or within the Safe clearance distance of 4.0 metre from the live conductors too close to the conductors in which case an arc flash may occur resulting in fire damage to the equipment; serious injury due to electrical shock or electrocution should any of the people working on the structures attempt to prevent falling items from touching the live conductors or someone approaches with the purpose to assist, touches the equipment and the ground at the same time causing the current to flow through the person's body to earth. Disruption to power supply.	10	2	8	0	**20**	must be demarcated by means of barricading e.g. earth banks marked with posts, concrete blocks etc. and if any work is taking place at night, reflective strips must be put up. If any equipment, materials, pipes etc. during handling accidently fall or move across the line of the minimal horizontal distance towards the clear safe distance of 4.0 metre from the live conductors, nobody must attempt to stop or grab it. Should an arc flash occur and the item that fell is still in contact with the live HV / MV conductor, nobody must leave the stack or the structure or approach the structure to prevent electrical shock or electrocution until the competent person in charge of the substation informs the competent supervisor that the conductor is dead and it is safe to do so and then only on instruction from the competent supervisor. All persons associated with the tasks must be trained on the Risk Assessment and the hazards and risks associated with it; Daily toolbox talks to be conducted; List of emergency telephone numbers which must include the ESKOM emergency contact number to be readily available; Emergency rescue plan to be in place. All stacking of articles must be in compliance with General Safety Regulation 8, Erection of temporary structures must be such that should the structure fall over, it will not encroach within the 4.0 metre safe clearance zone from the nearest HV / MV live conductor; temporary structures must be designed by an appointed Designer and all drawings and calculations pertaining to the structure must be readily available. Daly inspections of the structure must be carried out by a competent person.	indication; Ongoing supervision by a competent person; List of emergency numbers; Emergency rescue plan.

ACTIVITY	POTENTIAL HAZARD	POSSIBLE RESULT	RISK EVALUATION A	B	C	D	AR	PREVENTATIVE MEASURES	CONTROLS
								the Risk Assessment and the hazards and risks associated with it; Daily toolbox talks to be conducted; List of emergency telephone numbers which must include the ESKOM emergency contact number to be readily available; Emergency rescue plan to be in place.	
Excavation work for the proposed gabion wall position	Manual and mechanical excavation	• Unforeseen underground services • Unsafe hand tools • Unsafe construction mobile plants • Uneven surface/ ground condition • Incompetent construction mobile plant operator Oil leak	10	2	8	0	20	• Appointment of Excavation Supervisor with relevant Competency • Dairy Excavation Work Inspection. • Risk Assessment to be done • DSTI to be done dairly	
Laying of storm waterpipe	Operating of TLB or Excavator in close proximity to workers and public vehicles	• Critical injuries caused by TLB/ Excavator	10						

	• Using TLB or mobile crane for lifting pipes or other material	striking workers or TLB rolling over • Critical injuries caused by the TLB, crane or Excavator striking workers or rolling over The incorrect and or defective hand tools could result in non-disabling/ first aid case i.e. the hand or eyes							
Electrical Installations - Permanent and Temporary.	Untrained / incompetent persons carrying out electrical installations.	Can lead to electrical shock or electrocution and damage to equipment.	10	2	8	0	**20**	Only competent Registered Persons as defined in the Electrical Installation Regulations pertaining to the category of electrical installations carried out may carry out any electrical installations.	Only competent Registered Persons as defined in the Electrical Installation Regulations pertaining to the category of electrical installations carried out may carry out any electrical installations; Person appointed in writing to control all temporary electrical installations; Weekly inspections carried out and recorded on a register;

									COC (Certificate of compliance) available for all electrical installations including offices and containers.
	Unsafe standard of installation of electrical equipment.	Can lead to electrical shock or electrocution and damage to equipment; Fires caused by failing electrical installations damaging property.	10	4	10	0	**24**	All installations to be in compliance with the Electrical Installation Regulations 2009, the Electrical Machinery Regulations 2011 and Construction Regulation 24 of the Occupational Health and Safety Act and Regulations (Act 85 of 1993).	Only competent Registered Persons as defined in the Electrical Installation Regulations pertaining to the category of electrical installations carried out may carry out any electrical installations; Person appointed in writing to control all temporary electrical installations; Weekly inspections carried out and recorded on a register; COC (Certificate of compliance) available for all electrical installations including offices and containers.
Welding and cutting operations.	Incompetent persons carrying out welding and cutting operations.	Damage to equipment and injuries to persons.	4	4	8	0	**16**	Only competent persons trained in the safe use of welding and cutting equipment allowed carrying out such operations; All the required PPE must be worn i.e. Welding helmets, welding gloves, leather aprons, gas cutting glasses, cotton overalls, welding spats, safety boots and welding caps; Record of the issue thereof to be available on file.	Only competent persons trained in the safe use of welding and cutting equipment carrying out such operations; Proof of competency on file. All the required PPE must be worn i.e. Welding helmets, welding gloves, leather aprons, gas cutting glasses, cotton overalls, welding spats, safety boots and welding caps;
	Using unsafe equipment.	Can result in serious injuries and electrical shock to person using the equipment or fire damage	8	2	8	0	**18**	All electrical welding equipment, gas cutting and welding equipment must be on register and checked monthly.	Detailed Risk Assessment and workers trained on RA; Toolbox talks;

									All electrical welding equipment, gas
	No annual leak tests performed.	Can result in persons being exposed to radiation due to radiation leaks and prosecution by law.	4	2	8	0	**14**	Annual leak tests to be carried out on sources and the results thereof to be kept on file.	Annual leak tests carried out on sources and the results thereof kept on file.
	Exposure to radiation due to unsafe storage.	Sealed sources with very low level of radiation but can have health effects if not handled properly and damage occur resulting in exposure to radiation.	4	2	4	0	**10**	Source assembly must be in the “off” or fully shielded position; Warning signs will be displayed at entrance to store room indicating presence of radioactive material; Storage facility will be lockable and unauthorised entry will be prevented; Unit control register will be provided in which instruments can be signed in and out of the	Risk Assessment and training on the RA; Safe work Procedure and training on the SWP. Toolbox talks; Record of training on file; Supervision; Radioactive warning and unauthorised entry signs displayed at store room;
	Accident/ Incident during transportation.	Sealed sources with very low level of radiation but can have health effects if not handled properly and damage occur resulting in radiation exposure.	4	2	4	0	**10**	If mechanical damage has occurred the area is to be isolated and the appointed Radiation Protection Officer notified immediately; No person is to go near the gauge unless instructed to do so by the appointed Radiation Protection Officer.	Risk Assessment and training on the RA; Safe work Procedure and training on the SWP. Toolbox talks; Record of training on file; Supervision; In case of an accident and mechanical damage has occurred, the area is isolated and the appointed Radiation Protection Officer notified immediately;

ACTIVITY	POTENTIAL HAZARD	POSSIBLE RESULT	RISK EVALUATION A R	B	C	D		PREVENTATIVE MEASURES	CONTROLS
									No person goes near the gauge unless instructed to do so by the appointed Radiation Protection Officer.

Public and site visitor safety.	Unauthorised entry to the construction site.	Can result in serious injuries or death to members of the public.	10	4	8	0	**22**	Unauthorised entry prohibited in English and in the language of the surrounding community to be displayed at conspicuous locations on the fence surrounding the site area; The site to be fenced off and any other hazardous locations on site i.e. excavations, water ponds etc. to be fenced off and warning signs displayed; Controlled access points to the site to be in place; Visitors to the site to undergo safety induction training before allowed to go on site; Visitors to be accompanied by employees at all time when on site.	Site to be fenced off; Warning signs displayed; All hazardous locations on site fenced off; Controlled access to the site; Visitors undergoing Safety induction training; Visitors accompanied by employees whilst on site.

NOTE:

This information describes the type of work required in terms of this contract that will be accompanied by dangers, hazards and risks which the Contractor shall be required to identify, analyse, manage, monitor and review in terms of the Health and Safety Plan and Risk Assessments.

This information is neither prescriptive nor exhaustive, and is provided as a guideline to tenders in preparing their tender submissions and to the successful Contractor as a basis for the preparation of the Site Specific Risk Assessments, to be performed by the Contractor in terms of Construction Regulation 9.

Tenders shall make their own assessment of the dangers, hazards and risks that can be expected during the course of this contract, which may include dangers, hazards and risks not identified in the Baseline Risk Assessment, including those that may arise from specific methods of construction employed by the Contractor, and shall make due allowance in their tendered rates and prices for all costs related to complying with the provisions of the Act and Construction Regulations.

This information is given in good faith for the guidance of Tenderers, and no additional payment shall be made as a result of any inaccuracies, discrepancies of omissions contained therein.

This is a Baseline Risk Assessment and the responsibility remains with the Contractor to prepare project specific Risk Assessment as per Regulation 9.