

BASELINE RISK ASSESSMENT

**AS PER CONSTRUCTION REGULATION 5(1)(a), 2014
OCCUPATIONAL HEALTH AND SAFETY ACT, NO. 85 OF 1993**



PROJECT:

CONSTRUCTION OF ARBEIDSGENOT SCHOOL

PREPARED BY



This document is prepared on behalf of the Client in terms of Construction Regulation 5(1)(a). The Baseline Risk Assessment is conducted to obtain a benchmark of type and size of potential hazards pertaining to the project. The aim is to identify all major and significant risks.

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1. Objective

The objective of this baseline risk assessment was to identify and categorise the low to high hazards associated with performing tasks during different work categories.

The evaluation of results will assist management to eliminate, minimise or control risks to workers associated with the tasks performed or exposure to the working environment.

This risk assessment was also conducted to assist management in identifying training needs in order to concentrate efforts where it is mostly needed.

- 1.1 According to the **Occupational Health and Safety Act 85 of 1993**, all companies must assess where they stand in terms of risk, identifying the major risks which they are exposed to thereby establishing their priorities and a system for future risk control. A baseline risk assessment must be comprehensive and may well lead to further, separate and more in-depth risk assessment studies.
- 1.2 The baseline risk assessment should be reviewed periodically, about every year, after every accident/incident, change of work force or change of plant/equipment to ensure that it is still relevant and accurate. Any other studies will need to be incorporated to achieve a 'complete picture'.

2. Scope of Works

The Project scope is the Construction of Arbeidsgenot School.

The scope of work will include the following:

Buildings:

- Refuse area
- Pump house
- Site works
- Admin
- Hall
- Library and two computer classrooms
- Three Grade R classrooms
- HOD, one classroom and two storerooms
- Two classrooms and two storerooms
- Four classrooms and four storerooms
- HOD, Science and Ablution
- Tuck Shop and Change Rooms
- Caretaker
- Security
- HOD, Science, one classroom and ablution
- Five classrooms and six storerooms

External Works:

- Plumbing - complete the vent pipe, toilet pan and seat, hand wash basin, taps, urinals, and paraplegic facility

- Parking area, assembly area and courtyard – consisting of excavations, backfilling, layer filling, compaction and paving
- Walkways and aprons – consisting of excavations, back filling and reinforced cast in panels.
- Covered walkway and parking – consisting of bases with square steel columns, steel beams, rafters and purlins with IBR roofing
- Fencing – consisting of hole excavations for poles, steel poles planted in concrete. Approximately 976m long high security fencing 2400mm high at perimeter of the school complete with spikes wire at the top bed, etc.

Water Reticulation:

- High 64.80kl water tank – comprising of galvanized steel structure bolted to reinforced concrete bases complete with ladders, platforms for tank to rest on, etc.
- Water reticulation – complete with water pipes and fittings from elevated water tanks to drinking fountains, hand wash basins etc.
- Drinking fountains – drinking fountains with stainless steel water taps, piping, fittings, etc.

Electrification:

- Supply of Electricity
- Installation – of conduits earthing, cabling, DB, light fittings, light switches, plug points, dedicated plugs, etc.
- Testing and Commissioning

The construction work on project will entail, but not be limited to the following:

- Site establishment
- Site clearance
- Bulk Earthworks
- Bulk services (water, sewer and electrical)
- Structural Steel Work
- Brickwork
- Concrete works
- Water reticulation
- Electrical work
- Asbestos work

Also refer to the Design Report and Scope of work as per Bill of Quantities.

3. Risk Analysis Method

The risk analysis considered all the tasks as described in the safe work procedures developed for this specific operation.

The risk analysis included

- a. Description of the task/system under analysis.
- b. Evaluation of each risk by determining the probability of recurrence and severity of each event.

- 3.1 Evaluation of current and planned controls, barriers and safeguards.
- 3.2 A selected team of personnel were involved to conduct this on the job task analysis to determine baseline risk assessment

4. Determination of Levels of Risk

- c. Risks associated with each step in the operational process were considered.
- d. The following factors were considered and rated in accordance with the effect it would have on the items described below, should the event occur:
- Threat to the health and safety of a worker
 - Severity of the event
 - Likelihood of the event happening
 - Event consequence

A risk level was attributed to each event in the following manner:

Low risk	=	1-6
Medium risk	=	7-15
High Risk	=	16-24

6. Risk Ranking & Calculation of risk

6.1 Risk Ranking:

Consequence:

Fatality or permanent disability	-	5
Major Injury	-	4
Average lost time injury	-	3
Minor Injury	-	2
Medical treatment only or less	-	1

Probability:

Common Occurrence	-	5
Has Happen	-	4
Could Occur	-	3
Not Likely to Occur	-	2
Very Unlikely	-	1

6.2 Calculation of Risk:

Consequence: Probability = Risk Ranking (see table in risk assessment)

7. Evaluation of Results

Activities listed in the high risk categories must be seen as tasks requiring immediate attention. Training will, in most instances, solve the problem satisfactorily.

An implementation plan may then be devised to address the outstanding issues. This action plan must take cognisance of the hazards that should be eliminated concurrently.

8. Abbreviations used in Risk Assessment

DSTI	-	Daily Safety Task Instruction
HIRA	-	Hazard Identification and Risk Assessment
HCA	-	Hazardous Chemical Agents
PTO	-	Planned Task Observation
PPE	-	Personal Protective Equipment
SOP	-	Safe Operating Procedure
SWP	-	Safe Work Procedure

9. Assessment Team

The following people were involved in establishing the relevant task groups and analysis.

- | | | |
|--------------|---|-----------------------------|
| • F du Toit | - | Pr. CHSA |
| • N de Bruyn | - | Risk Assessment Team Leader |
| • W Venter | - | Risk Assessor |
| • S Marais | - | Designer |

10. Task Specific-Risk Assessment

Should the baseline assessment indicate tasks in High risk a specific task risk assessment must be conducted. This assessment will then target the specific tasks and the hazards attached to it.



N de Bruyn
Risk Assessment Team Leader



BASELINE RISK ASSESSMENT CONSTRUCITON OF ARBEIDSGENOT SCHOOL

RISK ASSESSMENT TITLE / TASK	BASELINE RISK ASSESSMENT		
PROJECT NAME	CONSTRUCTION OF ARBEIDSGENOT SCHOOL	START DATE	TO BE DETERMINED
RISK ASSESSMENT REFERENCE NO	SHE/BLRA/DBSA/AG/2021/00	END DATE	TO BE DETERMINED
REVISION STATUS	00	REVISION DATE	TO BE DETERMINED
BRIEF DESCRIPTION OF WORK/ACTIVITY	CONSTRUCTION OF ARBEIDSGENOT SCHOOL		

REQUIRED AND EXISTING CONTROL MEASURES	Available		Adequate		REMARKS
	Yes	No	Yes	No	
Scope of Work (logical steps on how task will be performed)	X		X		
Procedures: (WI / SOP / Vendor Spec)	X		X		
Training, Induction, Competency Certificates, Specific Training / Other Instructions	X		X		Induction Training to be given before any work may commence
Special permits required (specify)		X		X	Construction Work Permit, Notification of Asbestos Work
Equipment / Tool Registers / Others (specify)	X		X		COVID19 Prevention Controls
Other		X	X		

PROBABILITY LEGEND			CONSEQUENCE / INJURY / LOSS			RANKING						
5	Has happened		5	Fatality or permanent disability or > R 5,000,000			5	4	3	2	1	
4	Quite possible to happen (Happen during last year)		4	Major Injury or > R 1,000,000 < R 5,000,000		5	25	20	15	10	5	
3	Could Happen (No record of recent occurrence)		3	Average Lost time Injury or > R 500,000 < R 1,000,000		4	20	16	12	8	4	
2	Not likely to happen		2	Minor Injury or < R 500,000		3	15	12	9	6	3	
1	Very Unlikely		1	Medical Treatment only or Less or No Financial loss		2	10	8	6	4	2	
HIGH RISK = 15-25		MEDIUM RISK = 7-14	LOW RISK = 1-6		PROB: Probability	CON: Consequence	1	5	4	3	2	1

BASIC PPE REQUIRED FOR TASK	<input checked="" type="checkbox"/> HARD HAT	<input checked="" type="checkbox"/> OVERALL	<input checked="" type="checkbox"/> EAR PROTECTION	<input checked="" type="checkbox"/> DUST MASK
	<input checked="" type="checkbox"/> SAFETY GLASSES	<input checked="" type="checkbox"/> SAFETY FOOTWEAR	<input checked="" type="checkbox"/> GLOVES	<input checked="" type="checkbox"/> SAFETY VEST
ADDITIONAL REFERENCES TO TASK	<input checked="" type="checkbox"/> METHOD STATEMENT	<input checked="" type="checkbox"/> MSDS	<input checked="" type="checkbox"/> PLANNED TASK OBSERVATION	<input checked="" type="checkbox"/> SAFE WORK PROCEDURE
	<input checked="" type="checkbox"/> WORK INSTRUCTION	-	-	-

Step No	Activity	Task	Potential Hazards	Risks	Current Risk			Suggested Control Measures
	List activity steps	List task steps	Potential dangers that could cause harm. List the potential hazards	Potential Risks due to Hazard	PROB	CON	Ranking	Controls already in place to mitigate the hazard before work may commence
1	Site Identification & Establishment	Project Mobilization of Personnel	Incompetent personnel appointed	Project interruption	3	4	12	<ul style="list-style-type: none"> Ensure all responsible person on site submit CV's. Legal appointment letters to be signed prior to commencement of work. Competencies to be verified. Occupational medicals to be in place prior to commencement of work
				Legal liability claims	3	5	15	
				Financial loss	3	3	9	
			Workers not informed of hazards and risks associated with tasks	Serious injuries or Fatalities	4	5	20	<ul style="list-style-type: none"> Site specific Induction training to be conducted on all personnel prior to commencing work.
			Workers exposed to unknown / unidentified hazards	Serious injuries or Fatalities due to unknown hazards	4	5	20	<ul style="list-style-type: none"> Appointed Risk Assessor to be in possession of a HIRA certificate (Hazard Identification and Risk Assessment). Task specific risk assessments to be carried out. Employees to be trained in the content of the risk assessments. Attendance registers to be in place

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1	Site Identification & Establishment	Project Mobilization of Plant and Equipment	Poor / unsafe offloading practices	Load falling on employees	3	5	15	<ul style="list-style-type: none"> Method statement / safe operating procedure to be in place for offloading plant and equipment. To be communicated to employees. Employees to stand clear of offloading operations
			Operators under the influence of Alcohol or other substances while transporting machinery and equipment to site establishment area	Accident causing property damage	3	2	6	<ul style="list-style-type: none"> Company substance abuse / alcohol policy to be available and implemented by communicating the policy to all employees.
				Serious Injuries or Fatalities	3	5	15	
			Pedestrians / public passing by	Pedestrians / public hit by plant and machinery	3	5	15	<ul style="list-style-type: none"> Camp area to be fenced off to prevent unauthorised entry. Unauthorised and general warning signs to be displayed.
			Theft of material, equipment and machinery	Project interruption	3	3	9	<ul style="list-style-type: none"> Project program to be compiled to prevent machinery and equipment to be left unattended. Security to be implemented.
		Setting up Camp & Storage Facilities	Abnormal load	Accident	2	5	10	<ul style="list-style-type: none"> Special arrangements to be made for abnormal loads. Abnormal load signage to be displayed on trucks if applicable. Valid driver's licence of driver.
			Containers placed on uneven surfaces	Property damage	2	3	6	<ul style="list-style-type: none"> Containers / offices to be placed on level surface.

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1	Site Identification & Establishment		Using defective / incorrect equipment to offload containers	Load falling on employees	3	5	15	<ul style="list-style-type: none"> Lifting equipment to be load tested. Load test certificates to be available. Lifting equipment to be placed on register and inspected on a monthly basis. Employees to stand clear of lifting operations and no employees allowed underneath suspended loads.
			Sub-standard housekeeping	Incidents / accidents	3	2	6	<ul style="list-style-type: none"> High standards of housekeeping to be maintained. Stacking and storage supervisor to be appointed in writing. Monthly inspections to be conducted on stacking and storing on site
		Installation of Temporary Services	Incompetent person conducting installation	Property damage	3	2	6	<ul style="list-style-type: none"> Competent / registered electrician to conduct temporary electrical installations. Electrical COC to be issued and kept on H&S file
				Electrocution	3	5	15	
			Incorrect location / layout plan	Financial loss	3	3	9	<ul style="list-style-type: none"> Temporary electrical installations to be done on exact location provided by after consultation with client
		Clearing and Grubbing	Poor visibility	Incident / Accident	3	4	12	<ul style="list-style-type: none"> Pre-start inspections to be conducted Windscreens to be kept clean Occupational medicals to be conducted to ensure operator has good eye sight

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1	Site Identification & Establishment		Collision	Property Damage	3	4	12	<ul style="list-style-type: none"> Speed limit to be adhered to Occupational medical to be available Proper supervision
				Incident / Accident / Fatality	3	5	15	<ul style="list-style-type: none"> Workers to stand clear from moving machinery when clearing and grubbing takes place
			Excessive Dust	Occupational Illness	3	3	9	<ul style="list-style-type: none"> Water Truck to be used to spray working areas in order to suppress dust
2	Excavation Work	Excavate by hand	Underground Services	Financial Loss	3	3	9	<ul style="list-style-type: none"> Identify underground services Location of underground services to be communicated to all relevant personnel Excavation work to take place only as per approved permit / instruction
				Project Interruption	3	3	9	
		Excavate by Machinery	Employees standing too close to machinery	Bumping / hitting employee with bucket of machine causing serious injury	3	4	12	<ul style="list-style-type: none"> Employees to stand clear of machinery in operation
			Incompetent / unfit operator	Accident causing fatality	3	5	15	<ul style="list-style-type: none"> Operators to undergo occupational medical surveillance. Occupational Medical Certificate to be available on H&S file Operator competency to be available
			Underground Services	Financial Loss	3	4	12	<ul style="list-style-type: none"> Identify underground services Location of underground services to be communicated to all relevant personnel Excavation work to take place only as per approved permit / instruction
				Project Interruption	3	4	12	

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2	Excavation Work	Excavate by Machinery	Operating next to excavation edge / placing excavated material next to excavation	Collapse of trench / excavation (sides caving in)	4	5	20	<ul style="list-style-type: none"> Ground stability to be tested in case of deep excavations Excavated material to be placed away from excavation edge Operator to be competent
		Backfilling	Employees standing too close to machinery	Bumping / hitting employee with bucket of machine causing serious injury	3	4	12	<ul style="list-style-type: none"> Employees to stand clear of machinery in operation
3	Working near services	Offloading material from truck near overhead powerlines	Striking overhead electrical cables	Electrocution	3	5	15	<ul style="list-style-type: none"> Contractor to refer to design drawings indicating underground powerlines and to plan accordingly. Prestart checklist Operator authorised, competent and medically fit Machinery may not exceed height of overhead power lines Supervision Banksman/Spotter checking plant height
			Overhead power lines knocked over	Legal Liability Claims	3	5	15	
			Damaging power lines	Property damage	3	3	9	
4	Lifting & Lowering Operation	Mobile Cranes / Truck-mounted crane	Incorrect slinging	Employees struck by swinging load	4	4	16	<ul style="list-style-type: none"> Crane / Truck-mounted crane operator to be competent in the operation of the specific machine. Employees to stand clear of lifting operations
			Defective Crane	Load falling on employees	4	5	20	<ul style="list-style-type: none"> Crane to be load tested. Pre-start inspection to be conducted on a daily basis prior to shift. Employees to stand clear of lifting operations and no employees allowed underneath lifted loads.

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4	Lifting & Lowering Operation		Incompetent operator / not medically fit to operate	Incident / Accident	3	4	12	<ul style="list-style-type: none"> Operators (and all other employees) to be sent for Occupational medical surveillance. Medical certificates and Annexure 3 to be placed on the H&S file. Operator To be appointed in writing in terms of DMR18(11)
			Exceeding maximum load capacity	Crane toppling over	3	5	15	<ul style="list-style-type: none"> Crane to be load tested. Maximum Load Capacity to be displayed on Crane. Outriggers of crane to be placed in order to keep crane steady. Crane spec to be available for reference purposes.
		Chains / Slings	Defective equipment used causing falling objects	Load falling on employees	4	5	20	<ul style="list-style-type: none"> Lifting equipment to be load tested. Load test certificates to be available. Lifting equipment to be placed on register and inspected on a monthly basis. Employees to stand clear of lifting operations and no employees allowed underneath lifted loads.
			Objects not correctly hooked	Serious injuries, Fatality due to falling loads / objects	4	5	20	<ul style="list-style-type: none"> Competent rigger to be appointed. Rigging guidelines to be followed Occupational medical of operator and rigger to be available

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5	Scaffold work	Scaffold Erection	Incorrect erection of scaffolding	Collapse of scaffold causing serious injury or fatality	4	5	20	<ul style="list-style-type: none"> Scaffolding to be erected by a competent scaffold erector, appointed in writing Scaffolding to be inspected by a competent person, appointed in writing. Inspections to be done daily and recorded in writing Scaffolding to be erected in accordance with SANS 10085
		Working on scaffolding inside of pump station	Falling from heights	Serious injury / fatality	4	5	20	<ul style="list-style-type: none"> Employees to be issued with specific safety harnesses for the specified work Safety harnesses to be worn by employees whilst working on scaffolding and to be hooked to scaffold / anchor points. Safety harnesses to be in good condition, on register and inspected regularly
			Scaffold collapsing	Serious injury / fatality	3	5	15	<ul style="list-style-type: none"> Scaffolding to be erected by a competent scaffold erector, appointed in writing Scaffolding to be inspected by a competent person, appointed in writing. Inspections to be done daily and recorded in writing Scaffolding to be erected in accordance with SANS 10085 Scaffold to be anchored / erected in such a way to prevent collapse.
			Falling tools and equipment	Head injury	3	4	12	<ul style="list-style-type: none"> Tools and equipment may not be placed on edge of platform boards. Lifting and lowering of tools must be done properly in a bucket with a rope and no tools may be thrown from heights.

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5	Scaffold work	Disassemble scaffolding	Falling from heights	Serious injury / fatality	4	5	20	<ul style="list-style-type: none"> Scaffolding to be disassembled under proper supervision (construction work supervisor / scaffold supervisor) To be disassembled from top to bottom Employees to wear safety harnesses while conducting this activity
6	Working at heights	Edge Work	Falling off edges	Major injuries (fractures), etc.	3	3	9	<ul style="list-style-type: none"> Edge protection to be in place. Employees working near edges to wear safety lanyards to prevent them from falling over edge
				Fatality	3	5	15	
		Openings	Falling into openings	Major injuries (fractures), etc.	3	3	9	<ul style="list-style-type: none"> All openings to be covered. Employees working near openings to wear safety lanyards to prevent them from falling into openings
				Fatality	3	5	15	
7	Hazardous Chemical Agents	Handling	Incorrect handling	Skin irritation	2	3	6	<ul style="list-style-type: none"> MSDS's to be available MSDS's to be communicated to all employees handling HCA Task specific training
			Exposed to HCA	Occupational Illness or Disease	3	4	12	
			Not trained to work with HCA	Occupational Illness or Disease	3	4	12	
		Storage	Incorrect storage of HCA	Production time loss	3	3	9	<ul style="list-style-type: none"> Task specific training HCA inspections PPE HCA compatibility chart to be available and implemented HCA to be stored in accordance with compatibility chart
			Fire hazard	Explosion	3	5	15	

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8	Stacking & Storage	Stacking and storage of material and equipment	Sub-standard stacking and storing practices	Collapsing of stacked / stored material causing serious injuries	3	3	9	<ul style="list-style-type: none"> Stacking and storage supervisor to be appointed in writing. Monthly inspections to be conducted on stacking and storing on site
9	Hot works	Gas Welding & Cutting	Incorrect storage of gas cylinders	Sudden release of pressurised gas	3	4	12	<ul style="list-style-type: none"> Gas cylinders to be stored in accordance with requirements. TO be stored in a designated area. Gas cylinders to be chained.
			Hot surfaces	Burns	3	3	9	<ul style="list-style-type: none"> Task specific training to be conducted on employees conducting hot works. Competent First aider and box to be readily available on site. Employees to wear the relevant PPE, e.g. welding helmet, apron, welding gloves etc.
			Fire hazard	Explosion	3	5	15	<ul style="list-style-type: none"> Designated smoking area to be established. No smoking near hot work activities. Gas cylinders to be secured at all times.
			No flashback arrestors	Explosion	4	5	20	<ul style="list-style-type: none"> Gas welding equipment to be in accordance with requirements. Flashback arrestors to be fitted to gas welding and cutting equipment
		Electrical Welding & Cutting	Incompetent person operating welding machine	Incident / Accident	3	3	9	<ul style="list-style-type: none"> Task specific training to be conducted. Competency to be available and person to be appointed in writing

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9	Hot works		Not wearing a welding helmet	Sparks in face / Arc eyes	3	3	9	<ul style="list-style-type: none"> Welding helmet to be issued to persons conducting welding. Employees conducting welding, to wear the relevant PPE, e.g. welding helmet, apron, welding gloves etc.
			Exposed electrical wiring	Electrocution	3	5	15	<ul style="list-style-type: none"> Monthly inspections to be conducted on electrical arc welding machine and deviations to be recorded and reported.
10	Electrical Works	Installation of Electrical Cables	Exposure to live electricity	Electrocution	4	5	20	<ul style="list-style-type: none"> Electrical source to be isolated when conducting installation work Competent and registered electrician to conduct the electrical installation work Occupational medical to be available
			Incompetent person conducting electrical installations	Project interruption	4	5	20	
		Connecting of electricity to existing systems	Exposure to live electricity	Electrocution	4	5	20	<ul style="list-style-type: none"> Electrical source to be isolated when conducting installation work Competent and registered electrician to conduct the electrical installation work Occupational medical to be available
			Incompetent person conducting electrical connection	Project interruption	4	5	20	
		Commissioning of Electrical System	Using electrical equipment in wet areas or outside in wet conditions	Electrocution	4	5	20	<ul style="list-style-type: none"> Electrical equipment may not be used in wet areas or wet conditions Task specific training

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10	Electrical Works		Overloaded power-points	Fire risk	3	4	12	<ul style="list-style-type: none"> Competent and registered electrician to conduct the electrical installation work Fire equipment to be readily available
		Trailing cables from static equipment and whilst using portable electrical equipment		Short circuit	3	3	9	<ul style="list-style-type: none"> Antistatic PPE
				Fire Risk	3	4	12	<ul style="list-style-type: none"> Competent and registered electrician to conduct the electrical installation work Fire equipment to be readily available
		Faulty cables		Electrocution	4	5	20	<ul style="list-style-type: none"> Electrical source to be isolated Competent and registered electrician to conduct the electrical installation work Occupational medical to be available
				Short circuit	3	3	9	<ul style="list-style-type: none"> Antistatic PPE
				Fire Risk	3	4	12	<ul style="list-style-type: none"> Competent and registered electrician to conduct the electrical installation work Fire equipment to be readily available

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11	Concrete Works	Steel Fixing	Tripping hazards	Bodily injuries / sprains and strains	3	3	9	<ul style="list-style-type: none"> High standards of stacking and storage to be maintained on site Task specific training to employees involved with steel fixing Monthly register checklist on hand tools to be conducted. Deviations to be reported
			Using unsafe hand tools	Injuries	3	2	6	
		Ready-Mix	Unauthorised personnel pouring concrete	Injuries	3	3	9	<ul style="list-style-type: none"> Only authorised personnel to pour concrete
			Concrete truck running over personnel, equipment or material	Fatalities	3	5	15	<ul style="list-style-type: none"> Occupational medical certificate of operator to be available First aid to be on site at all times Workers to always wear correct PPE Workers working with vibration equipment must ensure they have firm footing Concrete truck driver to ensure that the handbrake is secured to prevent truck from running out of control. Task Specific Training
				Property damage	3	3	9	
		Ready-Mix	Concrete truck running over personnel, equipment or material	Project interruption	3	4	12	
		On Site Mixing	Exposed moving parts	Loss of limb	4	4	16	<ul style="list-style-type: none"> All moving parts of concrete mixer to be guarded Correct PPE to be worn by employees operating concrete mixer
			Excessive concrete dust	Occupational Illness or Disease	4	4	16	
		Using Concrete Pump	Concrete pump hitting workers	Injuries	3	3	9	<ul style="list-style-type: none"> Workers to always stand clear from pump movements

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12	Building Works	Brick Work & Plastering	Working with cement	Dermatitis	3	2	6	<ul style="list-style-type: none"> Safety gloves to be worn by employees working with cement
			Handling bricks	Hand injuries	3	2	6	<ul style="list-style-type: none"> Safety gloves to be worn by employees handling bricks
			Working at height	Employees falling from heights causing serious injuries of fatality	3	5	15	<ul style="list-style-type: none"> Employees conducting brickwork at heights to follow the correct procedures. Scaffolding to be erected in accordance with SANS 10085 Safety harnesses to be worn when working at heights
			Falling objects (bricks, tools, etc.)	Head injuries	3	4	12	<ul style="list-style-type: none"> Overhead work to be barricaded Signage to be displayed Head protection to be worn by employees where falling objects poses a hazard
		Electrical Work	Exposed to live electricity while installing plugs, light fittings, etc.	Electrocution	4	5	20	<ul style="list-style-type: none"> Electrical source to be isolated when installing and connecting electrical plugs, etc. To be done by a competent electrician
		Plumbing Works	Working at heights while installing gutters and downpipes	Employees falling from heights causing serious injuries of fatality	3	5	15	<ul style="list-style-type: none"> Employees conducting plumbing work at heights to follow the correct procedures. Scaffolding to be erected in accordance with SANS 10085 Safety harnesses to be worn when working at heights
			Falling objects	Head injuries	3	4	12	<ul style="list-style-type: none"> Overhead work to be barricaded Signage to be displayed Head protection to be worn by employees where falling objects poses a hazard

Step No	Activity	Task	Potential Hazards	Risks	Current Risk			Suggested Control Measures
	List activity steps	List task steps	Potential dangers that could cause harm. List the potential hazards	Potential Risks due to Hazard	PROB	CON	Ranking	Controls already in place to mitigate the hazard before work may commence
12	Building Works	Plumbing Works	Manual handling of material	Injuries	2	2	4	<ul style="list-style-type: none"> Task specific training to be provided to employees. Ergonomical risks to be taken into account
			Using unsafe hand tools	Injuries	3	2	6	<ul style="list-style-type: none"> Hand tools and equipment to be inspected on a monthly basis and deviations to be recorded and reported
			Substandard housekeeping	Injuries	3	3	9	<ul style="list-style-type: none"> High standards of housekeeping to be maintained on site Stacking and storage inspections to be conducted on a regular (monthly) basis
			Exposure to open flames	Fires / burns	3	4	12	<ul style="list-style-type: none"> Task specific training to be provided Competent plumber to supervise work Firefighting equipment to be readily available with trained personnel
		Roof Works	Tripping over obstacles and objects	Injuries	3	3	9	<ul style="list-style-type: none"> High standards of housekeeping to be maintained Stacking and storing inspections to be conducted on a monthly basis
			Manual handling of material	Injuries	2	2	4	<ul style="list-style-type: none"> Task specific training to be provided to employees. Ergonomical risks to be taken into account
			Manual lifting of material while working at heights	Employees falling from heights causing serious injuries of fatality	3	5	15	<ul style="list-style-type: none"> Employees conducting roof work to follow the correct procedures. Scaffolding to be erected in accordance with SANS 10085 Safety harnesses to be worn when working at heights

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12	Building Works	Roof Works	Employees conducting work under overhead work	Falling objects causing head injuries / bodily injuries	3	4	12	<ul style="list-style-type: none"> Overhead work to be barricaded Signage to be displayed Head protection to be worn by employees where falling objects poses a hazard
			Scaffolding use to access the roof work poorly erected	Fall from heights / fatality	3	5	15	<ul style="list-style-type: none"> Competent Scaffold Erector and Inspector to be appointed in writing Roof work / scaffold work to be supervised
			Working at heights	Employees falling from heights causing serious injuries of fatality	3	5	15	<ul style="list-style-type: none"> Employees conducting roof work to follow the correct procedures. Scaffolding to be erected in accordance with SANS 10085 Safety harnesses to be worn when working at heights
		Interior & Finishing Work	Manual handling of glass	Injuries	2	2	4	<ul style="list-style-type: none"> Task specific training to be provided to employees. Ergonomical risks to be taken into account
			Using unsafe hand tools	Injuries	3	2	6	<ul style="list-style-type: none"> Hand tools and equipment to be inspected on a monthly basis and deviations to be recorded and reported
		Glass Work	Manual handling of glass	Injuries (cuts / lacerations)	2	2	4	<ul style="list-style-type: none"> Task specific training to be provided to employees. Ergonomical risks to be taken into account
			Using unsafe hand tools	Injuries	3	2	6	<ul style="list-style-type: none"> Hand tools and equipment to be inspected on a monthly basis and deviations to be recorded and reported

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13	Roof Work	Removal of existing roof coverings and installation of new roof coverings	Tripping over obstacles and objects	Injuries	3	3	9	<ul style="list-style-type: none"> High standards of housekeeping to be maintained Stacking and storing inspections to be conducted on a monthly basis
			Manual handling of material	Injuries	2	2	4	<ul style="list-style-type: none"> Task specific training to be provided to employees. Ergonomic risks to be taken into account
		Removal of existing roof coverings and installation of new roof coverings	Manual lifting of material while working at heights	Employees falling from heights causing serious injuries of fatality	3	5	15	<ul style="list-style-type: none"> Employees conducting roof work to follow the correct procedures. Scaffolding to be erected in accordance with SANS 10085 Safety harnesses to be worn when working at heights
			Employees conducting work under overhead work	Falling objects causing head injuries / bodily injuries	3	4	12	<ul style="list-style-type: none"> Overhead work to be barricaded Signage to be displayed Head protection to be worn by employees where falling objects poses a hazard
			Scaffolding use to access the roof work poorly erected	Fall from heights / fatality	3	5	15	<ul style="list-style-type: none"> Competent Scaffold Erector and Inspector to be appointed in writing Roof work / scaffold work to be supervised
			Working at heights	Employees falling from heights causing serious injuries of fatality	3	5	15	<ul style="list-style-type: none"> All employees working at heights to be declared fit for work at heights. Scaffolding to be erected in accordance with SANS 10085 Safety harnesses to be worn when working at heights. Anchor points to be installed and retractable lifelines and / or similar devices to be used when conducting roof works

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	List activity steps	List task steps	Potential dangers that could cause harm. List the potential hazards	Potential Risks due to Hazard	PROB	CON	Ranking	Controls already in place to mitigate the hazard before work may commence
14	Glass work and Windows	Replacing windows, etc.	Manual handling of glass	Injuries	2	2	4	<ul style="list-style-type: none"> Task specific training to be provided to employees. Ergonomical risks to be taken into account
			Using unsafe hand tools	Injuries	3	2	6	<ul style="list-style-type: none"> Hand tools and equipment to be inspected on a monthly basis and deviations to be recorded and reported
		Glass Work	Manual handling of glass	Injuries (cuts / lacerations)	2	2	4	<ul style="list-style-type: none"> Ergonomical risks to be taken into account
			Using unsafe hand tools	Injuries	3	2	6	<ul style="list-style-type: none"> Hand tools and equipment to be inspected on a monthly basis and deviations to be recorded and reported
15	Water Reticulation Works	Installation of Pipes	Confined space	Health risk	3	4	12	<ul style="list-style-type: none"> Confined space entry permit to be issued to individuals prior to working in confined spaces Occupational medicals to be of personnel to be available
			Misuse of equipment	Injuries	3	3	9	<ul style="list-style-type: none"> Task specific training Correct equipment to be used for specific tasks Proper supervision
			Faulty equipment	Injuries	3	3	9	<ul style="list-style-type: none"> Equipment to be inspected on a monthly basis and deviations to be recorded and reported
		Commissioning of Water Reticulation System	Sub-standard housekeeping	Employees tripping over obstacles causing injuries	3	2	6	<ul style="list-style-type: none"> High standards of housekeeping to be maintained
			Leakage could result in pipes bursting	Injuries	3	3	9	<ul style="list-style-type: none"> Competent person to conduct / supervise plumbing work
			High pressure 10 – 20 bar	Project interruption	3	4	12	<ul style="list-style-type: none"> Competent person to conduct / supervise plumbing work

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16	Construction of Pump Station	Concrete works	Exposed moving parts	Loss of limb	4	4	16	<ul style="list-style-type: none"> All moving parts of concrete mixer to be guarded Correct PPE to be worn by employees operating concrete mixer Only authorised personnel to pour concrete
			Excessive concrete dust	Occupational Illness or Disease	4	4	16	
			Concrete pump hitting workers	Injuries	3	3	9	<ul style="list-style-type: none"> Workers to always stand clear from pump movements
		Steel fixing	Incorrect handling of reinforcement material	Injuries	3	3	9	<ul style="list-style-type: none"> Correct manual lifting techniques to be communicated to employees
			Working without proper personal protective equipment	Hand injuries	3	2	6	<ul style="list-style-type: none"> Monthly inspections on PPE to be done Correct PPE to be issued to workers
		Installation and connection of pipes at pump station	Confined space	Health risk	3	4	12	<ul style="list-style-type: none"> Confined space entry permit to be issued to individuals prior to working in confined spaces Occupational medicals to be of personnel to be available
			Misuse of equipment	Injuries	3	3	9	<ul style="list-style-type: none"> Task specific training Correct equipment to be used for specific tasks Proper supervision
			Faulty equipment	Injuries	3	3	9	<ul style="list-style-type: none"> Equipment to be inspected on a monthly basis and deviations to be recorded and reported
		Commissioning of System / Testing of pipes	Sub-standard housekeeping	Employees tripping over obstacles causing injuries	3	2	6	<ul style="list-style-type: none"> High standards of housekeeping to be maintained
			Leakage could result in pipes bursting	Injuries	3	3	9	<ul style="list-style-type: none"> Competent person to conduct / supervise plumbing work
			High pressure 10 – 20 bar	Project interruption	3	4	12	<ul style="list-style-type: none"> Competent person to conduct / supervise plumbing work

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17	Transmittable Diseases (e.g., COVID-19)	Coming into contact with other workers. Normal working activities on site	Workers exposed to Health Hazards namely Diseases / Bacteria / Viruses (e.g. COVID-19)	Serious illnesses due to Health hazards. Contracting disease.	4	5	20	<ul style="list-style-type: none"> Revise Health and Safety Management Plan to include planning around COVID-19 and in accordance with measures and Regulations set out by Government Compile and implement a Risk Assessment and Safe Operating Procedure in accordance with measures and Regulations set out by Government Toolbox talks / other gatherings / meetings to be held in small groups Emergency Response and Prevention Plan to be developed and implemented Employees to be trained in the content of the risk assessments revised H&S Plan, COVID-19 Risk Assessment Other informal training / communication pertaining COVID-19 Implementation and adherence to the latest issued Directive Social Distancing to be implemented. Employees to keep a fair distance of 1.5 to 2 meters from co-workers Contractor to implement a self-screening tool by means of a questionnaire. This must be kept on record for all employees. This must be done prior to employees / visitors/ contractors entering the site It is recommended that a daily infrared temperature test is conducted on all employees

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	List activity steps	List task steps	Potential dangers that could cause harm. List the potential hazards	Potential Risks due to Hazard	PROB	CON	Ranking	Controls already in place to mitigate the hazard before work may commence
18	Asbestos Work	The asbestos area must be cleaned and must be demarcated as an asbestos area	Asbestos fibre release	Occupational illness and disease (asbestosis)	5	5	25	<ul style="list-style-type: none"> Barricading accesses to asbestos area. Asbestos area to be cleared and to be safe for access. Asbestos areas to be clearly demarcated with mandatory asbestos signage. Clearance inspections and certificates to be issued before handing over a section. Asbestos signage to be displayed
			Employees exposed to asbestos could possibly accumulate occupational illnesses and diseases	Occupational illness and disease (asbestosis)	5	5	25	
				Legal liability claims	4	5	20	
		Removal of material containing asbestos	Employees not wearing the correct personal protective equipment	Exposure to asbestos fibres leading to an Occupational illness and disease (asbestosis)	3	5	15	<ul style="list-style-type: none"> All employees to wear the mandatory asbestos PPE in Asbestos work area Asbestos containing material to be placed in a designated area. Inventory list to be compiled and updated regularly Proper and constant supervision Training to staff
			Not placing asbestos material in designated area / skip	No control over asbestos material leading to incorrect disposal and legal liability claims	3	5	15	
		Double bagging of material	Damaged asbestos bags can cause people from site to be exposed to asbestos and cause health hazard	Exposure to asbestos fibres leading to an Occupational illness and disease (asbestosis)	3	5	15	<ul style="list-style-type: none"> Ensure asbestos PPE is being worn by workers at all times. FFP2 respirators mandatory. Asbestos panels to be lowered to ground by ropes and intact. Monitor wind speeds and stop work when wind is above 30km/h. Line asbestos skips with 250 micron plastic sheeting and cover panels when completed with task. Plastic bags must be sealed and must be identified as asbestos with asbestos labels The asbestos skip must be closed and locked when vacated.

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18	Asbestos Work	Placing material in waste disposal skips	Improper handling leading to damaged asbestos bags	Exposure to asbestos fibres leading to an Occupational illness and disease (asbestosis)	3	5	15	<ul style="list-style-type: none"> Ensure asbestos PPE is being worn by workers at all times. FFP2 respirators mandatory.
		Transport asbestos skip to an approved asbestos disposal site	Accident causing release of asbestos fibres due to breakage	Employees and public exposed to asbestos causing occupational illness and disease	2	5	10	<ul style="list-style-type: none"> Driver to be trained in hazardous spill procedures. The asbestos skip must be clearly identified as an asbestos waste disposal vessels with appropriate asbestos signage displayed. Asbestos disposal certificate to be issued.
			Damaged asbestos bags can cause people from community to be exposed to asbestos and cause health hazard		2	5	10	
19	Fencing	Transporting fencing material to installation site	Collisions / Road accidents	Serious injuries	3	3	9	<ul style="list-style-type: none"> Drivers not to overload trucks Only competent drivers allowed to transport and operate trucks All work and transporting activities to be monitored
		Offloading of fencing material from vehicle	Manual handling of heavy material	Serious injury / Ergonomic Risks (Musculoskeletal Disorders)	3	4	12	<ul style="list-style-type: none"> All workers to be issued with correct PPE Task specific training Induction training
			Wrong lifting practices	Ergonomic related injuries	3	3	9	<ul style="list-style-type: none"> Proper manual lifting techniques to be followed Task specific training
			Workers not wearing correct PPE	Nicks and cuts	3	2	6	<ul style="list-style-type: none"> Workers to wear correct PPE
		Manual stacking of fencing material	Incorrect lifting practices	Ergonomic Risks (Musculoskeletal Disorders)	3	4	12	<ul style="list-style-type: none"> Proper manual lifting techniques to be followed Task specific training
			Workers not wearing correct PPE	Nicks and cuts	3	2	6	<ul style="list-style-type: none"> Workers to wear correct PPE

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19	Fencing	Allocating locations of work and where fencing will be erected and trenching	Over populating trench	Multiple injuries	3	3	9	<ul style="list-style-type: none"> Restrict number of persons in a designated excavation to prevent persons working in close proximity to each other
			Hand tools not safe for use, damaged handle, worn equipment	Multiple injuries	3	3	9	<ul style="list-style-type: none"> Employee must wear appropriate PPE Steel toe cap boots, gloves , head protection A visual inspection on tools should be conducted before undertaking work, tools should be to subject of regular recorded inspections
		Installation of fencing material / fitting of fencing material	Working at elevated positions while handling heavy material	Serious injuries	3	3	9	<ul style="list-style-type: none"> Task specific training on handling of material and housekeeping
			Slip and fall		3	3	9	
		Disconnect Services	Incompetent person disconnecting temporary electrical distribution boards	Property damage	3	2	6	<ul style="list-style-type: none"> Competent / registered electrician to conduct the disconnection of temporary electrical installations.
20	Site Demobilization	Loading of material, equipment and offices	Employees standing underneath lifting operations	Load falling on employees	4	5	20	
				Electrocution	3	5	15	<ul style="list-style-type: none"> Lifting equipment to be load tested. Load test certificates to be available. Lifting equipment to be placed on register and inspected on a monthly basis. Employees to stand clear of lifting operations and no employees allowed underneath suspended loads. Operators to be competent.
		Loading of Machinery on Trucks	Improper loading of plant and machinery	Plant / machinery falling off trucks causing property damage	4	5	20	
				Load falling on employees	4	5	20	
		Transporting of equipment, machinery and tools	Vehicle not roadworthy	Accident	3	5	15	<ul style="list-style-type: none"> All construction vehicles to be roadworthy Verification on roadworthiness to be done before entering site