1. Purpose of Baseline Risk Assessment

This baseline risk assessment was carried out to:

- Identify, analyse, and prioritize the health and safety hazards and risk scenarios (Unforeseen circumstances) associated with the Project Geotechnical Engineering Report.
- Identify effective control measures to remove the risks, if they cannot be removed to substitute the risks, if they cannot be substituted to tolerate the risks to a level of as low as reasonably practicable; and
- Satisfy the requirements of the Construction Regulations, General Safety Regulation, General Administrative Regulation and any other regulations under the Occupational Health and Safety Act 85 of 1993.
- Train employees on risks and hazards associated with the project.

2. Scope of Work

Supply and Delivery of the Dublo or double skin mesh galvanized 5000x3000mm kiosk, as per formal quotation specifications.

Definitions

ALARP (As Low as Reasonably Practicable)

The concept of weighing a risk against the sacrifice needed to execute the measures necessary to avoid the risk. This is some sort of looking at the risk presented by an activity and checking after applying the control measures what is the residual risk. If its significance can be ignored, that is when it is concluded to be as low as reasonably practicable.

Consequence

The outcome of an unwanted event (risk scenario) expressed qualitatively or quantitatively. It is usual to consider this term of the maximum reasonable potential outcome.

Control Measure

An Act, Object (engineered) or a system) can be a combination of a system and Act intended to prevent or mitigate an unwanted event (Risk Scenario).

Critical Control

A control measure that is crucial to preventing an unwanted event or mitigating the consequences of an unwanted event from happening.

HAZARD IDENTIFICATION AND RISK ASSESSMENT

Hazard

A source of potential harm in terms of human injury, ill health, or damage to property.

Hierarchy of Controls

A sequence of control measures, arranged in order of reducing the impact of an unforeseen incident / accident, used to eliminate or minimise the exposure to workplace health and safety hazards.

Elimination – Completely removing a hazard or risk scenario from the source

Substitution – Replacing an activity, equipment, substance, process, or energy with a less hazardous alternative.

Engineering Controls – Designing control measures into processes and / or equipment for example mechanical aids, interlocks, pressure relief systems, extraction, and ventilation.

Isolation – Creating barriers to lessen the impact, machine guarding and insulation.

Administrative Controls – Comping up with firm policies, procedures, and work practices to reduce exposure of persons to a hazard. Providing training and Development to ensure that employees have been informed about the hazards associated with their tasks. Supervision and toolbox talks.

Personal Protective Equipment – PPE should be the last line of defence and must be informed by a risk assessment. After all the above control measures have been applied and there is still residual risk, PPE is there to address risks that could not be dealt with by all other controls such as the protection of eyes from flying objects and earmuffs to lessen the impact of noise.

Likelihood – A description of probability or frequency, in relation to the chance that an unwanted event will occur.

Consequence – A result of an unwanted event, typically one that is unwelcome or unpleasant

Risk – Means the probability that an injury or damage will occur

Safe – means free from any hazard

Risk Assessment – A process of evaluating the risk scenarios arising from identified hazards and identifying the control measures that are effective. The Control measures must be able to eliminate the identified risks or keep it to levels that are as low as reasonably practicable.

Risk Management – A systematic application of management policies, processes, and procedures to:

- Identify hazards
- Analysing and evaluating the associated risks
- Controlling the risks through the implementation of control measures and
- Monitoring the risks and control measures to check if they are yielding the anticipated results, if not review the risk management documents.

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Unwanted event

A description of a potential situation in which a hazard can cause injury or damage to property.

3. Methodology

Officials from EQPROJECT MANAGERS AND SAFETY SOLUTIONS visited the site to assess the existing conditions. The risk assessment was carried out using EQPROJECT MANAGERS AND SAFETY SOLUTIONS consequence and likelihood scales.

A risk rating was assigned to each risk scenario without taking any control measures into consideration. Control measures were taken into consideration to check what will be the residual risk after the application of all control measures.

4. Risk Assessment Team

Name & Surname	Registration Category	Highest Level of Education	Organisation	Signature
Eric Nqampi	Pr.CHSA	B. Tech in Safety Management	Eqproject Managers and Safety Solutions (Pty) Ltd	
Dunyiswa Nosana Nqampi	CanCHSA	B. Tech in Safety Management	Eqproject Managers and Safety Solutions (Pty) Ltd	
Siviwe Dandala	CanCHSA	Adv.Diploma in Safety manageement	Eqproject Managers and Safety Solutions (Pty) Ltd	

BASELINE RISK ASSESSMENT FOR THE CONSTRUCTION SUPPLY AND INSTALLATION OF GALVANISED KIOSK

Effect category	Weight number	Physical risk matrix					Hazard Description	Estimated loss	Effect on personnel	Public reaction (relatives)
A	6	7	8	9	10	11	Catastrophic	R5 Mil or more	Several fatalities	Severe national pressure to cease business
B	5	6	7	8	9	10	Very Critical	R1 – R5 Million	One fatality	Local and National press reaction
C	4	5	6	7	8	9	Critical	R40 000 to R1 million	1 in 10 chance of fatal or serious loss	Only local press reaction
D	3	4	5	6	7	8	Serious	R10 000 to R40 000	Disabling injury	Minor local reaction
E	2	3	4	5	6	7	Medium	R2 000 to R10 000	Non – disabling injuries	Minor local reaction

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F	1	2	3	4	5	6	Small	Zero to R2 000	Minor injuries (first aid treatment)	None

SIGNIFICANT HAZARDS		ASSESSMENT OF RISK			
		Exposure	likelihood	Consequence	Risk score
Score is from 1 – 11					E (L + C) = Risk Score
1	Plant and equipment.	6	5	8	78
2	Loading and offloading of material by employees	7	4	5	63
3	Steel fixing (Ergonomics)	4	4	4	32
4	Removal of electrical line, there is a risk of electrocution	4	6	9	60
5	Chemical venom	5	6	7	65
6	Damage to existing services such as water pipes, sewer lines and electrical lines	5	8	8	80

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8	Chemicals such as cement, paint, lime, and bitumen emulsion	4	6	4	40

BASELINE RISK ASSESSMENT GUIDE

Procedure for conducting the Baseline Risk Assessment:

1. Identify and list all hazards in the area being assessed
2. Quantify each hazard that will be exposed on a certain activity
3. Identify the risks associated with each hazard i.e. back injuries, fire, and electrical shock
4. Consider the existing control measures and then rank the risk from each hazard using the scoring chart below
5. Complete and distribute an action list to eliminate, substitute, transfer or reduce all identified risks according to a priority list
6. If the risk is medium or high then further control is required if technically possible. For low risk further control is required only if it is economically viable
7. Any high risk activity or situation should be attended immediately.

Probability index		**Severity index = injury + loss + cost**						**Frequency index**		**Risk index**			
		Injury		**Loss**		**Cost**			**No production**	**Score**	**Category**		**Action Priority**
10	Inevitable	10	Fatal	10	No production	10	1 million plus	10	Permanently present	201 – 242	A	Very high risk	Immediately
9	Almost certain	9	Permanent total disability	9	One month production loss	9	R500 000 – R999 999	9	Arises every 30 seconds	151 – 200	B	High risk	Within a month
8	Very likely	8	Permanent slightly disability	8	3 weeks production loss	8	R250 000 – R499 999	8	Arises every 30 minutes	101 – 150	C	Medium Risk	Within 3 months
7	Probable	7	14 days absence from work,	7	2 weeks production loss	7	R100 000 – R249 999	7	Arises every hour	51 – 100	D	Low Risk	Within 6 months

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			chances of incapacitation are high										
6	More than even a chance	6	14 days with complete recovery	6	1 week production loss	6	R50 000 – R99 999	6	Arises within a shift of 8 hours	0 – 50	E	Very low risk	Within a year

HAZARD INDICATORS / PROMPTS						
Fire	**Past History**	**Mechanical**	**Substances**	**Workplace**	**Physical Agents**	**Human Factors**
Sources of ignition Flammable materials Chemical reaction	Near misses Damage First aid Medical, disabling and reportable accidents based on sec 24	Trapping Auto start Entanglement Impact – (machine movements vehicular traffic Ejection Machine failure Inadequate / no guards in place	Oils Chemicals Contaminated water Resins Acids Release of substances Inadequate storage	Confined space Collapsible soil Working at height Dust, vapours, and irritants Unstable equipment Sharp and protruding parts Uneven floor	Noise Vibration Stored energy Compressed air Fluids Steam / heat	Stress Peer pressure Monotony Lack of training

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HAZARD IDENTIFICATION AND RISK ASSESSMENT

Ref No.	Sequence of Activity in Action	Hazards (Safety, Health and environment)	Risk rating E (L + C)				Control Measure	Control Effectiveness Rating	
			E	L	C	Risk Rating		Control Type	Control effectiveness rating
1	Location, exposing and protection of known and unknown existing services	Tele communication lines, underground Water and sewage. Overhead and underground power lines and any other Services. Possible damage to property e.g. water line or electrical supply which could also Lead to disruption of municipal services.	**6**	**5**	**8**	**78**	To obtain relevant drawings. • Prepare a risk assessment and safe work procedures and or method statement • Locate and identify existing services • Expose and safe guard services. • Competent supervision and adequate pre task Training required. • Supervisors must use as built drawing to locate existing services • All excavations open overnight / non-working days to be barricaded or fenced at least 1 meter in height. • Limit the length of open excavations by implementing methods statement that reduces the exposure to danger.	Administrative	Satisfactory
2	Site Establishment	Damage to Construction equipment, vehicles, heavy lifting equipment etc. Damage to overhead electrical or Telecommunication lines.	**7**	**5**	**9**	**98**	• The Principal contractor will be required to develop and submit prior to commencement of work a risk assessment, health and safety plan, the method statements and all relevant supporting documentation to ensure that all overall activities are properly planned. • When using lifting equipment and cranes to assist with site establishment, ensure that all relevant risk assessments and method statements are conducted & employees are briefed on the risks involved.	Administrative	Satisfactory

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		Damage to property of client. Construction vehicles crashes with site personnel causing injuries and fatal accidents.					• Use competent employees to fulfil functions during the activities. • Ensure that sites are suitably and sufficiently fence off and provided with controlled access points to prevent the entry of unauthorized persons.		
3	Hazardous Chemical Substances	Exposure to various HCS' (such as diesel, petrol, hand sanitisers etc) exhaust emissions, inhalation of contaminated air particles resulting in an occupational illness	4	5	11	64	• Formal risk based selection and acceptance process to be implemented for all new and modified light vehicles and mobile equipment (before the vehicle or equipment is used on site). • Before any employee is allowed to use HCS, They must be provided with training, warned about possible hazards as per MSDS. Correct and relevant PPE should be issued and wearied to mitigate any possible risk. • Preventative maintenance programme to be implemented for all mobile equipment and light vehicles to minimise emissions. • Pre – use inspections to be carried out by drivers / operators. Use of PPE instances where all has been implemented and there is still significant level of risk.	Administrative and the use of PPE	Good
		Cement mix and concrete splashes into the eyes of the employees, leading to eye injuries.	5	7	8	75	• Ensure employees are provided with PPE • Ensure that the First Aid Boxes contain the necessary hand washing solutions. • Training employees on the necessary Safe Working Procedures related to handling HCS	Administrative and the proper use of PPE	Good
4	Electricity	Electrical shock due to contact with live electrical wire	4	5	10	60	• Develop detailed method statement and ensure that it is implemented. • Exclusion zones to be created with rigid barriers and warning signs	Combination of Administrative process and PPE	Satisfactory

Commented [dn1]: New additions

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							• No machine to be operated in an area where any part of machine or equipment can make contact with electrical wire. • All persons to be provided with training in the hazards associated with live electrical wire. • Provide employees with relevant PPE		
	Electricity	Electrical shock or electrocution due to the use of unsafe electrical equipment (including generators)	4	5	10	60	• Electrical equipment to be inspected by an authorised/competent operator or user daily prior to use. • Ensure that all electrical equipment contain manufacturer's manual on how to handle, operate and decommission them accordingly. • Details of these inspections to be recorded in a register which will be always kept on site.	Administrative	Satisfactory
	Electricity	Electrical shock or electrocution due to contact with live overheard power lines	4	4	10	56	• Truck operator's needs to be mindful of overheard electrical wires. Before any mobile equipment is mobilised to a work site, a thorough assessment of working areas should be carried out to clearly identify any overheard power lines.	Administrative	Satisfactory
5	Excavation	The caving – in of the soil especially if the soil is not cohesive Inadequate shoring or bracing of excavation works leading to the sliding of ground resulting in death or injury.	3	4	7	84	• Geotechnical report indicates that there is a risk of high-water table. • The soil is not cohesive and that increases the risk of caving – in of the material. • All excavation work to be properly planned taking site specific conditions and hazards into consideration. • Excavation sides to be suitably battered, benched or shored in accordance with the recommendations made by RE and CHSA.	Administrative	satisfactory

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							• Caution needs to be applied, for example, the excavated soil should not be stockpiled on the edge of the trench. Heavy construction vehicles should not be allowed to drive on the edges of the trench. The trench should be inspected after the rain to ensure that it is still safe and before people are allowed to work on it even if there was no rain. Trenches should not be open far too long, the Principal Contractor must ensure that the trenches are closed as soon as they are inspected by the Engineer and being deemed fit for purpose.		
		Excavations conducted without supervision of competent person leading to injury to people and damage to property.					• All excavations are to be created in the presence of competent excavation supervisor and inspected thoroughly. • Registers of said inspections to be kept in recordkeeping schedule.	Administrative	Good
		Presence of overhanging rocks or poor soil condition resulting in the collapsing of walls and falling objects resulting in injury to people.	4	5	6	44	• Excavations must be sloped to the maximum angle of repose. • Rocks, boulders, and loose material must be placed at least 1m from the edge of the excavations. • Regular inspections need to be conducted by competent excavation supervisor.	Engineering and Administrative	Good
		The unsafe use of material and equipment when conducting excavation work leading to injury to workers because of overcrowding.	3	5	6	33	• The placement of employees should be limited to the size and accessibility of the working area involved.	Administrative	Good

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HAZARD IDENTIFICATION AND RISK ASSESSMENT

		Inadequate barricading of excavations, unauthorized access to excavations leading to occupational injuries.	3	5	6	33	• Highly visible barricade, hoarding and physical barriers need to be established around deep excavations to impede personnel from falling off the edges. • Visible signage to be installed around these working zones for awareness.	Engineering, Administrative and PPE	Good
		Flooding due to excessive volumes of water seeping into open excavations	4	5	6	44	• Temporary water diversion Berm at an altitude/ level above the working zone, must be created around the open excavations to redirect excess water flowing towards open excavations. • If heavy rains lead to the excavations being water-logged, water pumps should be provided to extract the excess water from the excavations.	Engineering	Good
7	Chemical – Venom	Person bitten by a venomous snake	6	3	5	48	• Safety boots to be worn • Emergency preparedness and response plan to be enforced. • Provide enough trained first aiders • Snake removal service arrangement to be in place for any eventuality • Snake identification chart to be developed and displayed in visible areas. • Provide awareness training about the snakes • Trained Snake handler to be appointed • No person should be allowed to work in remote areas alone • Inspect working area prior the commencement of work	PPE and administrative	good
9	Drilling and grinding	flying particles that can cause asthma	6	3	5	48	Machine guard to be fitted and ensure that the machine is working properly. Inspection and pre checks to be conducted before using any driven machine.	Engineering and administrative	Satisfactory

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HAZARD IDENTIFICATION AND RISK ASSESSMENT

10	Welding	Fumes that can cause asthma	6	4	5	54	Provide personal protective equipment, ensure that the area is ventilated if the operation is taking place in-house.	Administrative and PPE	satisfactory
11	Steel Fixing	Cuts, pinching and back injuries	4	4	4	32	• Provide proper manual handling training to all workers • Carry out a risk assessment related to ergonomics • Allow employees to rest in between the tasks to minimise the impact. • Provide necessary PPE such as gloves • Allow working space among employees	Administrative and PPE	Satisfactory
12	Improper stacking and storage	Material falls due to improper stacking causing injuries to persons.	7	6	10	96	• Stacking should be supervised by competent person. • Best stacking practices should be applied. • Training for those responsible for discharging this duty should be provided.	Administrative	good
13	Loading and offloading	Back injuries	3	3	6	27	• Train employees on safe lifting techniques • reduce the weight of items to be lifted and use the mechanical method to lift heavy items.	Administrative	satisfactory
14	Ergonomics – Awkward movement	Musculoskeletal injury while climbing into a construction vehicle.	3	4	5	27	• Limit workers exposure • Train employees on safe climbing techniques	Use PPE as the last resort	Effective
15	Mistakes in operation by employees and operators	Lack of training leads to mistakes, use of equipment incorrectly	4	5	4	36	• All employees on site to be properly inducted • Competent supervision to be provided on site	Administrative	Good

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