TSHWANE AUTOMOTIVE
SPECIAL ECONOMIC ZONE

AFRICA'S FIRST AUTOMOTIVE CITY

Site Specific Health and Safety Baseline Risk Assessment for TASEZ Phase 2 Development: Bulk Water Engineering Services

Document Type	Health and Safety Baseline Risk Assessment
Document Number:	TAS-GQM-BRA001
Area of Applicability:	TASEZ (Pty) Ltd
Functional Area:	Infrastructure Development
Revision:	01
Effective Date:	October 2004
Next Review Date:	N/A
Disclosure	Public

Official Approval

It is hereby certified that:

- The Risk Assessment was developed by the Infrastructure Division under the guidance of the Executive Team.
- The Risk Assessment will be reviewed as required and updated as necessary, to ensure continuous improvement.
- The implementation of this Risk Assessment will be subjected to both internal and external audit as part of the monitoring process.

Originator:	Functional Responsibility:	Functional Responsibility:
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Date: 04 November 2024	Date: 04 November 2024	Date: 05 November 05

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Date: 04 November 2024	Date: 05 November 2024	Date: 06 November 2024

Document History

Table 1: Document History

Date	Rev. No.	Originator	Status or Reason for Change
November 2024	01	Eric Nqampi	New Document

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1. PURPOSE

The purpose of this baseline risk assessment is to:

1.1 Ensure that TASEZ fulfils its duties as client for the construction of Phase 2: Bulk Water Engineering Services as prescribed in section 5 (1) of the Construction Regulations, 2014.

1.2 Ensure that TASEZ fulfils its compliance obligation by ensuring that risk is eliminated or mitigated before resorting to personal protective equipment.

1.3 This baseline risk assessment is used as the bases for the Health and Safety Specification for the Phase 2 Development: Bulk Water Engineering Services.

2. SCOPE OF DOCUMENT

This document is applicable to TASEZ Phase 2 Development: Bulk Water Engineering Services.

3. DEFINITIONS

Table 2: Definitions

Term	Definitions
Competence	Ability to apply knowledge and skills to achieve intended results.
Hazard	A source of or exposure to danger/ source with a potential to cause injury and ill health.
Client	TASEZ
Risk	Effect of uncertainty: an effect is a deviation from the expected - positive/negative uncertainty is the state, even partial, of deficiency of information related to, understanding or knowledge of an event, its consequence, or likelihood. Risk is often characterised by reference to potential events and consequences or a combination of these. Risk is often expressed in terms of a combination of the consequences of an event (including changes in circumstances) and associated likelihood of occurrence.
Worker	Person performing work or work-related activities that are under the control of the organisation.

Term	Definitions
Compliance obligations	Legal and other requirements Note: compliance obligations are related to the Integrated Management System. Note: compliance obligations can arise from mandatory requirements, such as applicable laws and regulations, or voluntary commitments, such as organisational and industry standards, contractual relationships, codes or practice and agreements with community groups non-governmental organisations.

4. ABBREVIATIONS

Abbreviations	Description
C	Consequence
E	Exposure
L	Likelihood
RR	Risk Rating
TASEZ	Tshwane Automotive Hub Special Economic Zone (Pty) Ltd

5. RISK ASSESSMENT METHODOLOGY

COMPANY	Baseline Risk Assessment
COMPILED BY	Eric Nqampi
DATE OF ASSESSMENT	11 June 2024
SCOPE OF WORK	Construction of a Phase 2 Development: Bulk Water Engineering Services
REVIEW DATE	Everyone (1) Year or After Reportable Incident or Change in Scope of Work.

HAZARD IDENTIFICATION AND RISK ASSESSMENT

Probability Index			Severity index injury /disease			Severity index (Production)			Severity index due to Environment			Severity index (Financial impact)			Frequency index		
	5	Almost certain to inevitable		5	Fatal		5	No production for at least 12 months		5	Permanent effects		5	Greater than R500 000.00		5	Hazards permanently present
	4	Probable		4	Permanently disabling injury		4	Loss of 1 month or more		4	Long term > 2 years		4	R100 000. 00 – R499 999,00		4	Hazards arises every week
	3	Improbable		3	Likely to be absent for more than 14 days		3	Loss of 1 week in production		3	Medium – 6 months to 12 months		3	R10 000.00 – R99 999.00		3	Hazards arises every month
	2	Less than even a chance		2	Medical recovery within 14 days		2	Loss of 1 day in production		2	Short term 1 day to six (6) months		2	R1 000.00 – R9 999.00		2	Hazards arises every year
	1	Highly improbable		1	First aid only		1	Loss of half day in production		1	Insignificant effect		1	R0 – R999.00		1	Hazards arises every five (5) years
	0	Not probable		0	Near misses		0	No loss of time but production affected by shock of employees		0	No aspect or impact		0	No cost involved		0	No hazards exist

6. RISK PRIORITISATION

PRIORITY OF ACTION				ACTION TO BE TAKEN
Risk Value	A	75 – 100%	Immediate	Training, Safe Work Practice, Method Statements & detailed action plans
	B	60 – 74%	Within 1 week	Training, Safe Work Practice, Method Statements & detailed action plans
	C	45 – 59%	Within 1 month	Training, Safe Work Practice, Method Statements & detailed action plans and registers
	D	30 – 44%	Within 6 months	Training and Safe Operating Procedures
	E	15 – 29%	Within 12 months	Training
	F	0 – 14%	As reasonable	Training

7. 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	RR		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.	3	3	5	24	To obtain relevant drawings. • Prepare a risk assessment, safe work procedures and or method statement. • Locate and identify existing services. • Expose and safeguard services. • Competent supervision and adequate pre task Training required. • Supervisors must use as built drawings 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,	2	3	4	14	• 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	Administrative	Satisfactory

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	RR		Control Type	Control effectiveness rating
		Vehicles, heavy lifting equipment etc. Damage to overhead electrical or Telecommunication lines. Damage to property of client. Construction vehicles crash with site personnel causing injuries and fatal accidents.					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. • 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 Hazardous Chemical Substances	4	2	3	20	• 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.	2	4	3	14	• Ensure employees are provided with PPE	PPE	Good
4.	Electricity	Electrical shock due to contact with live electrical wire	3	5	3	24	• Develop detailed method statement and ensure that it is implemented. • Exclusion zones to be created with rigid barriers and warning signs	Administrative and PPE	Satisfactory

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	RR		Control Type	Control effectiveness rating
							• 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		
		Electrical shock or electrocution due to the use of unsafe electrical equipment (including generators)	3	5	3	24	• Electrical equipment to be inspected by an authorised operator or user on a daily basis prior to use. • Details of these inspections to be recorded in a register which will be kept on site at all times.	Administrative	Satisfactory
		Electrical shock or electrocution due to contact with live overheard power lines	3	5	3	24	• Truck operator's needs to be mindful of overheard electrical wires. Before any mobile equipment is mobilised to a work site, an assessment should be carried out in order 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 Principal Agent and CHSA. 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.	Administrative	satisfactory

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	RR		Control Type	Control effectiveness rating
		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
		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
6.	Ladder: to gain access to deep	Falling from the ladder leading to injuries	3	3	3	18	• Must be erected by a qualified person • Principal contractor to appoint such qualified person and must ensure that no worker uses a scaffolding that is not approve for use by a competent person. • Provide personal protective equipment	Administrative	good

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	RR		Control Type	Control effectiveness rating
	excavations								
7.	Concrete Mixing using manual labour and mechanical means	Noise, dust and slippery surfaces	3	3	5	24	• The contractor to ensure that workers are informed about the risks associated with their activities. • Contractor to use appropriate PPE.	Engineering and administrative	good
8.	Concrete pouring using mechanical means	Falling objects Slippery surfaces Concrete coming to contact with skin. Splashes of concrete entering eye.	3	3	5	24	• Induct employees on safe work procedure. • Provide correct PPE and ensure that they wear the PPE	Engineering and administrative	good
9.	Erecting working platforms	Poor manual handling leading to sprains, strains, and fractures.	4	3	5	32	• Train employees on good lifting techniques • Introduce the lifting machinery to avoid accidents to employees	Administrative	good
10.	Moving bricks and blocks for employees	Poor terrain Incorrect type of trolley to lift bricks and blocks. Repetitive lifting of bricks and blocks. Increased load of new modular bricks and blocks.	4	3	5	32	• Train employees on good lifting techniques • Introduce the lifting machinery to avoid accidents to employees	Administrative	good

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	RR		Control Type	Control effectiveness rating
11.	Drilling and grinding	Flying particles that can cause asthma	4	3	5	32	• 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
12.	Welding	Fumes that can cause asthma	2	4	5	18	Provide personal protective equipment, ensure that the area is ventilated if the operation is taking place in-house.	Administrative and PPE	satisfactory
13.	Working in enclosed areas or confined space or deep excavations	Falls, injuries and fatalities may happen due to caving – in of the trench. Lack of oxygen. Damage to property such as water and sewer lines.	3	3	5	24	The construction plant and vehicles should not be allowed to drive too close to the edges of the trench. The construction plant must at least drive 2m away from the trench. Material must not be stockpile on the edges of the trench, because the force exerted on the sides of the trench might cause the trench to collapse. Employees must get permits to work in an enclosed area.	Administrative Engineering solution	good
14.	Improper stacking and storage	Material falls due to improper stacking causing injuries to persons, heavy concrete pipes rolling if stacked incorrectly causing damage to property and injuries to persons on site.	3	4	4	24	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
15.	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 to lift heavy items.	Administrative	satisfactory
16.	Working with ladders	Falling	4	4	4	32	Ladders are to be inspected before commencement of work, ladders are to be securely fixed tied down below and above. Workers to be trained for safe use of ladders.	Administrative	good

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	RR		Control Type	Control effectiveness rating
17.	Pouring blinding using ready mix truck	Ready mix truck too close to the edges of the excavation, risk of truck toppling into the excavation and compromising the strength of the excavation.	2	3	5	16	Operators to be trained about the hazards associated with driving the truck too close from the edges of the excavation. Excavations to be barricaded and signage's to be erected.	Administrative and Engineering solution	good
18.	Use of Cranes to lift and off load heavy objects	Crane falling over or accidentally releasing the load	3	4	5	27	Operator and Risk Assessor to inspect the ground conditions. Crane to stand on the firm ground, safe work procedure to be communicated with crane operator. Strong winds to be observed with caution and the decision be taken on whether it is safe to use the crane or not.	Administrative	Satisfactory
19.	Working on adverse weather conditions	Thunder and lightning causing injuries and fatalities	3	4	5	27	Employees should not be allowed to work on severe weather conditions, especially working with steel and corrugated iron. Work should be halted as soon as the weather changes and the rain start falling. Exposure to excessive heat/hot weather conditions should be prohibited.	Administrative	Satisfactory
20.	Compaction with mechanical equipment. Use of jack hammers.	Vibration which may lead to muscular skeleton injuries, low back disorder	2	5	4	18	Regular intervals to be taken and rotation of employees to reduce exposure to danger.	Administrative and Engineering	Satisfactory
21.	Mechanical Machinery	Noise will be generated by construction plant which will lead to noise induced hearing loss	2	2	3	10	Principal Contractor to provide PPE (Ear Protection). Workers should be rotated to reduce exposure. Noise must be measured and if found to be more than 85 decibels, the contractor must provide means to mitigate the impact.	Engineering and administrative	Satisfactory

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	RR		Control Type	Control effectiveness rating
22.	Movement of construction plant will generate dust	Inhalation of dust leading to chest problems like asthma.	3	3	4	21	The Principal Contractor must ensure that the dust generation is suppressed by means of watering the area. Provide the PPE such as Dust mask to mitigate the impact. Medical surveillance must be conducted before the commencement of the project and after the project.	Engineering and administrative control	Good
23.	Microbiological bacterium	Exposure to bacterium hazards associated with portable chemical toilets and ablution facilities.	2	2	5	14	Units to be serviced regularly. Units to be inspected and cleaned daily. Water and soap to be provided to enable employee's tom to wash their hands, Hygiene practice.	Administrative	Good
24.	Environmental pollution	Spillage of chemicals polluting the soil. Release of excessive smoke polluting the air.	2	3	4	14	The principal contractor must put the pan under the vehicles whenever there is leak. All pollution incidents must be reported to relevant authorities.	Administrative	Good
25.	Lime	Possible stabilisation agent in subbase layer. Can cause respiratory illnesses.	2	2	3	10	Provide PPE to mitigate the impact.	PPE	Effective
26.	Construction Vehicles trying to access public road from site.	Speeding vehicles may crash/collide with construction vehicles.	4	5	5	40	Provide signage that indicates that there are construction vehicles turning on that vicinity so that the motorists may reduce their speed when passing that point.	Engineering and administrative measures.	Satisfactory
27.	Thermal heat	Working at extreme weather conditions can lead to heat stroke, dehydration, and fatigue	2	2	5	14	Adequate water supply, ensure workers are medically fit for the type of activity that they may be exposed to.	Administrative	Satisfactory

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	RR		Control Type	Control effectiveness rating
28.	Stacking and storage	Stacking and storage of storm water pipes on site could prove problematic and if rolled down hills could cause severe damage.	4	2	4	24	Adequate supervision will be needed. The Principal Contractor is advised to take the terrain factor into consideration when stacking and storage of heavy pipes is done.	Administrative and Engineering solutions	Satisfactory
29.	Accessing trenches/Conduits	Collapse of trench, falling objects leading to serious injuries or even a fatality.	3	3	5	24	Support / Bench / batter the excavation to avoid caving – in of the material. Assess the properties on the material ideally Geotechnical reports. Materials must not be placed or stacked near the edge of the trench. All trenches to have safe barricade when left open for a period of time.	Engineering solution	Satisfactory
30.	Sloping ground	Falling / rolling objects injuring persons and causing damage to property	4	4	3	28	Maintain good housekeeping, remove trip hazards keep site tidy.	Administrative	Satisfactory
31.	Overhead and underground power cables	Electrocution which can cause injury to persons or even fatality.	4	4	3	28	• Determine the location of underground services. • If underground power cables are located in the vicinity, exercise extreme cautions while excavating. • Communicate with relevant stakeholders such as Eskom, and the relevant Department from the Local Municipality.	Engineering, Administrative	Good
32.	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

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	RR		Control Type	Control effectiveness rating
33.	Interface with community members / public	Mixing up of members of community / public with construction activities due to poor hoarding / screens and barricaded. PC not coming up with clear plan of suppressing dust generation.	4	5	4	36	• Hoarding must be erected to separate public from construction activities. • Barricading must be installed around excavations.	Engineering and administrative controls	Good
34.	Housekeeping	Housekeeping not being maintained daily. Generated waste, scrap and debris not removed from site at reasonably appropriate intervals. Construction areas near build up areas not sufficiently hoarded.	4	3	4	28	• Housekeeping to be maintained daily. • Hoarding must be maintained daily and must be kept up to standard.	Administrative	Good
35.	Working at elevated position / heights	Falling objects. Employees not hooking safety harness to anchor points. Employees working at heights not having necessary competency to work at heights.	4	5	5	40	• Employees working at heights must have certificates of competence. • Anchor points must be certified by a competent person before they can be used. • Fall arrest or restraints to be inspected by competent person before use. • Tools to be secured while working at heights to prevent falling from heights.	Engineering and administration	Good

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	RR		Control Type	Control effectiveness rating
36.	Fall protection	Employees not working according to approved fall protection plan. Employees not trained on fall protection plan. Lack of supervision to ensure that workers are implementing the approved fall protection plan.	4	5	5	40	• Fall Protection plan to be communicated among all employees by means of induction training and toolbox talks. • Employees to have the necessary competency in order to qualify to work at heights. • Fall protection plan to be updated throughout the project lifespan. • Fall protection plan to address all site-specific conditions.	Engineering and administration	Good
37.	Temporary works	Temporary works not designed by competent Engineer. Temporary works not being signed off by appointed temporary works designer. Temporary works erected by incompetent erectors. PC not working according to temporary works design. Temporary works not designed, inspected, and approved by competent person as per CR12.	4, 5	5	5	45	• Must be designed, inspected, and approved by competent person. • Must be inspected daily. • Detailed drawings must be readily available for all temporary works.	Engineering and Administration	Good

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	RR		Control Type	Control effectiveness rating
38.	Edge barricading/protection	No solid edge barricading installed on all open edges of buildings / excavations where the risk of falling exist. Edge protection not secured into position to serve the purpose. Edge protection means not inspected daily by competent person	3	4	5	27	• PC must devise plans to ensure that edges are protected so as to safeguard the safety of employees. • Must be inspected daily by competent person.	Engineering and administration	Good

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	RR		Control Type	Control effectiveness rating
39.	Scaffolding – Erecting and dismantling	Scaffolding not being erected according to SANS 10085 Standards. Scaffolding erected by untrained scaffolding erectors. No scaffolding inspector to inspect scaffolding. No sole boards installed underneath scaffolding. No sign on scaffolding indicating safe / unsafe for use. No design available for special scaffolding. No ladder to access top Tiers of scaffolding. Area below scaffolding not barricaded when scaffolds are being dismantled. Scaffolding erected on uneven ground level. No sufficient components of scaffolding.	4	4	5	36	• Must be designed and inspected by competent person. • Must be inspected daily by a competent person. • Must have detailed designs available upon request. • Must be erected by a trained employee. • Must be signed off as safe for use / unsafe for use.	Engineering and administration	Good

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	RR		Control Type	Control effectiveness rating
40.	Operating/movement of heavy machines.	Collisions leading to serious injury and/or fatality.	4	5	5	40	• Only competent and properly trained workers must be allowed to operate machines. • Workers need to be in possession of valid medical certificates of fitness. • Daily pre-inspections to be conducted on all equipment and machinery, and all deviations recorder and reported accordingly. • Trained flag persons to be used when plants are in operation.	Administrative	Good
41.	Painting / waterproofing products	Use of broken and unsafe rollers and paintbrushes may lead to cuts, bruises, and other injuries	3	4	3	21	• All hand tools e.g., rollers and paint brushes must be inspected for splinters and if they are broken, they must be disposed of. • Application must be done as per the Engineers specifications	Administrative	Good
		The excessive inhalation of paint fumes, leading to respiratory complications.	3	4	3	21	• Adequate PPE must be provided to alleviate exposure to fumes and noxious gases. • Employees to adhere to all MSDS requirements.	Administrative	Good
		Incorrect disposal, and unsolicited spillage of paint leading to environmental pollution.	3	4	4	24	• All cleaning of paint brushes to be conducted in controlled manner. • No paint spills to be spilled into drains/stormwater channels.	Administrative	Good
42.	Elevated Tanks	Material not stacked/loaded and tied down properly onto the transporting vehicle leading to damage to property, machinery, and injuries to persons because of it falling off.	4	5	4	36	• Material and equipment to be stacked and loaded properly onto transportation vehicles, tied down correctly to minimize movement, and falling off the edges. • No passengers are to be loaded in an unauthorized manner or position in the transportation vehicle. • All moving of material must be supervised by a competent person.	Administrative	Good
		Unsafe handling techniques used in the process of offloading heavy material and equipment leading to back injuries, persons being hit by falling objects and	4	5	4	36	• Appropriate equipment and manual handling techniques must be always used to prevent unforeseen injuries.	Administrative	Good

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	RR		Control Type	Control effectiveness rating
		overall damage to property and equipment.							
		Contacting live overhead electrical cables during the installation of an elevated tank which may lead to fatality.	4	5	6	44	• Adequate preventative measures must be put in place to prevent/avoid contacting live electrical cables during the installation of elevated tanks. • A holistic task-specific risk assessment must be conducted prior to the commencement of activities, covering all the necessary hazards attributed to the task, which must subsequently be communicated to all personnel involved. • Competent supervision must be implemented throughout the inception of activities.	Administrative	Satisfactory
43.	Office Ergonomics	Fixed or un-adjustable workstation and furniture setup; Contact Stress; Insufficient rest breaks; Static or sustained postures; Temperature (hot or cold); Substandard lighting; Poor layout/housekeeping; Body Mass Index (BMI), age, activity exposure history and sex of the employee can also have a negative and pose as a risk.	2	5	4	35	• Desk height range: 72-74cm. Height adjustable desk should be implemented if viable. • Chair height range: 40-55cm, however this should be adjusted to your knee height. • Seat pan length range: 40-50cm, this should be adjustable to accommodate your leg length. • Seat pan width range: >45cm, ensure the chair is wide enough to accommodate you. • Monitor height to be positioned 15-20° below the horizontal eye-level. • Monitor distance to be greater than 60cm, about an arm's length away. • Back rest height: 50-68cm, should be adjustable to your needs. • Within 25cm from the edge of the desk. • Desk depth: >75cm, should be sufficient space for your work. • Armrest height range: 12-22cm	Administrative	Good
44.	Manual Handling & Lifting	Bending; Lifting heavy items; Reaching for items to be lifted or handled; Reaching overhead	3	5	4	37	Human Component • Employee age-related factors are not contributing to the risk of this task. • Employee exposure history poses a high risk to this task. Implement employee rotation and review work-rest ratios.	Administrative	Good

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	RR		Control Type	Control effectiveness rating
							• Employee BMI is not contributing to the risk of this task.		
		Divided attention task; Unfamiliar task; Poorly designed tools; Lack of PPE or poorly designed or maintained PPE; and Lack of task variability	3	4	4	24	Task Components • Task time poses minimal risk. • Reach poses a high risk, reduce reach or re-design the task. The greater the reach the higher the compressional forces are in the back. Keep loads as close to the body as possible. • Vertical displacement poses minimal risk. • Horizontal displacement poses a high risk, implement a trolley or lifting device. Wherever possible reduce the need to carry loads. • Frequency poses minimal risk. • Working heart rate poses minimal risk. • Load poses a moderate risk, reduce the load wherever practicable. • Static holding poses minimal risk. • Twisting poses a moderate risk, design twisting out of the task. • Provide handles for the load. Appropriate handles help reduce the force required to hold and lift the load. If possible, provide mechanical aids. • There is no kneeling or crouching risk for this task. • Temperature poses a human safety risk and may reduce performance.	Administrative	Good
45.	Work-Related Upper Limb Disorder (Ergonomic)	Static or Sustained Postures; Repetitive motions	2	4	4	24	Human Component: • Employee age-related factors pose a moderate risk to this task. • Employee exposure history poses a high risk to this task. Implement employee rotation and review work-rest ratios. • Employee BMI is not contributing to the risk of this task.	Administrative	Good
		Vibrations: Complex task; Excessive work-pace and/or duration	1	4	4	8	Task Components: • Task time poses minimal risk. • Load poses a moderate risk, reduce the load wherever possible. • Repetition poses minimal risk.	Administrative	Good

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	RR		Control Type	Control effectiveness rating
							• Forceful movement poses minimal risk. • Reach poses minimal risk. • Static posture poses minimal risk. • Awkward posture poses minimal risk. • Contact stress poses minimal risk. • Vibration poses minimal, implement employee discomfort scale. • Temperature must be regulated, provide hydration for employees.		
46.	Push / Pull Ergonomics	Forceful Exertions	2	4	3	14	Human Component: • Employee age-related factors are not contributing to the risk of this task. • Employee exposure history poses a minimal risk to this task. • Employee BMI is not contributing to the risk of this task.	Administrative	Good
		Push / Pull heavy loads	2	5	3	19	Task Components: • Task time poses a moderate risk, implement employee rotation schedules. • One can reduce sustained forces, from mechanisation to more suitable carts. Engineering controls and employee education are required. • Frequency per shift is high, consider mechanizing the task. Engineering controls and employee education are recommended. • Distance the load is moved poses a high risk. Consider mechanizing the trolley. Engineering controls is required. • The working surface is appropriate for trolley pushing and pulling. • Handle height poses a moderate risk, implement vertical handles if possible. • Working heart rate poses minimal risk. • Load poses a high risk, reduce load or mechanize the trolley. Engineering controls is required. • Aisle width poses minimal risk. • No twisting risk.	Administrative	Good

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	RR		Control Type	Control effectiveness rating
							• Temperature poses a human safety risk and may reduce performance.		
47.	Demolition of dilapidated structures.	Falls from height	2	3	4	14	• Assess, eliminate, and control the risks of falls from height. • Job Safety Analysis must be conducted before the commencement of demolition work. • The information received from engineering survey must be used to curb any possibility of risk.	Engineering and administrative	Good
		Uncontrolled collapse	4	5	5	40	• A possibility of a building falling over people is highly possible. Exposure must be reduced to people who should be in the demolition area. • The demolition area must be secured so that only authorised persons are in that vicinity. • Work to be supervised by competent persons	Engineering and administrative	Good
		Dust inhalation	3	3	2	15	• Dust suppression measures to be used to reduce impact of dust generated during demolition. • Watering of the area is normally used to suppress dust generation.	Engineering and administrative	Good
		Use of Jackhammer	2	2	2	8	• Vibration and noise are associated with use of jack hammers. • Exposure to danger relating to vibration can be used by rotating employees who use jack hammer to demolish the structure. • Provide employees with necessary PPE (earplugs)	Engineering and administrative	Good