TSHWANE AUTOMOTIVE
SPECIAL ECONOMIC ZONE

AFRICA'S FIRST AUTOMOTIVE CITY

Environmental Specification for TASEZ Phase 2 Development: Construction of Bulk Electrical Engineering and Infrastructure Services

Document Type	Specification
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Official Approval

It is hereby certified that:

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

Originator:	Functional Responsibility:	Reviewed By:
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SHE Manager: Corporate Services Division	Project Manager: Infrastructure Development Division	Snr Construction Manager: Infrastructure Development
Date: 25 August 2025	Date: 28/08/2025	Date:

Approved By:
Andile Sangweni
Executive Manager: Infrastructure Development Division
Date:

Document History

Table 1: Document History

Date	Rev. No.	Originator	Status or Reason for Change
May 2025	01	Patricia Mandleni	New Document

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1. Purpose of the Environmental Specification

The purpose of this specification is to provide guidance and assist the principal Agent in realizing compliance with the National Environmental Management Act (Act No. 107 of 1998), Specific Environmental Management Acts (SEMA's) including the National Water Act, (Act No. 36 of 1998), and all the relevant regulations pertaining to the Principal Agent's scope of work and to eliminate possible or potential environmental aspects and impacts. This specification serves as a performance measure to ensure that all affected parties, i.e., the client, consultants, and contractors, are able to achieve an acceptable level of environmental performance.

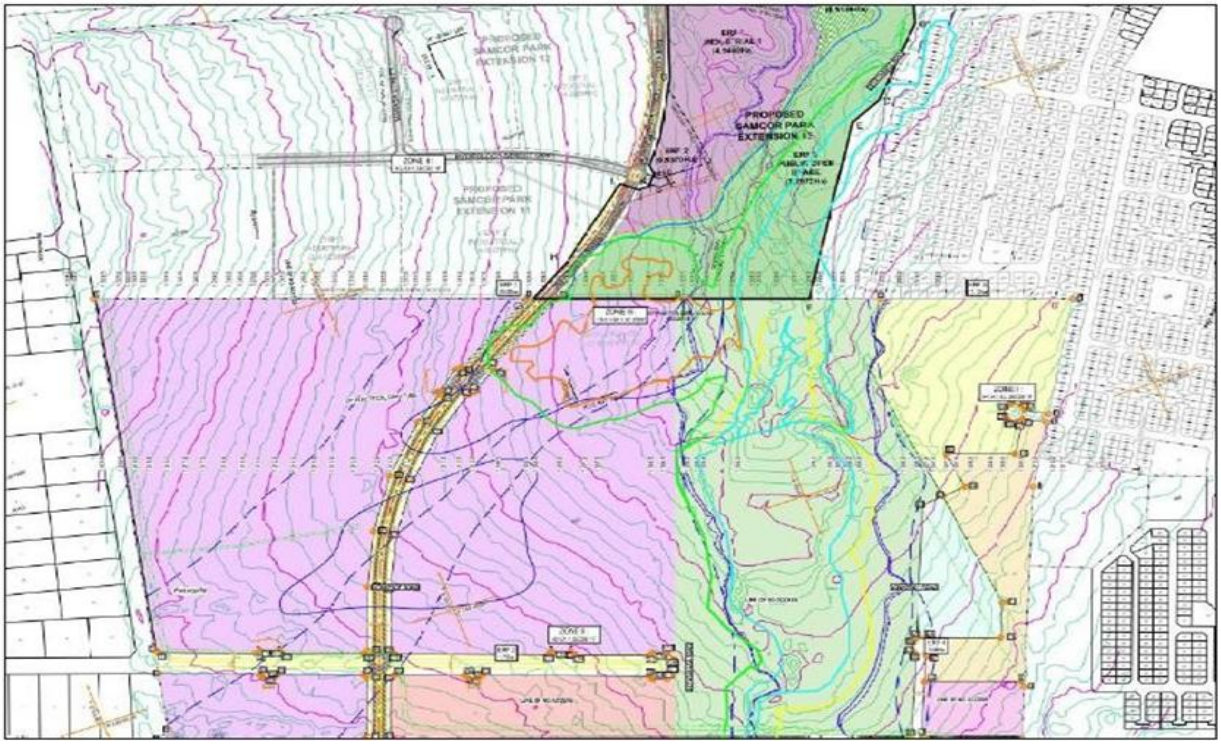

Figure 1: TASEZ Phase 2 Development Site

2. Applicability

This Specification covers the requirements for controlling the impact on the environment of construction activities undertaken for the **TASEZ Phase 2 Development: Construction of Construction of Bulk Electrical Engineering and Infrastructure Services**

References

2.1 Normative

2.1.1 National Environmental Management Act, 1998

2.1.2 National Water Act,1998

2.2 Informative

2.2.1 TAS-HSH-POL001: TASEZ SHE Policy Statement

2.2.2 TAS-CHR-GHS-PLN003 – Safety, Health and Environmental Contractor Management Plan

2.2.3 Environmental Conservation Act, 1989

2.2.4 National Environmental Management: Waste Act, 1998

2.2.5 National Heritage Resources Act, 1999

2.2.6 National Environmental Management: Air Quality Act. 2004

3. Terms and Definitions

Below are the definitions of terms. The National Environmental Management Act, 1998 will be used as the bases for the definition of some terms and other terms will be defined in other TASEZ document as applicable.

Table 2: Terms and Definitions

Term	Definitions
Agent	Means a competent person who acts as a representative for the Client
Client	TASEZ
Cement laden Water	Means water containing cement or concrete arising from the Contractor's activities.
Contaminated Water:	Means water contaminated by the Contractor's activities such as with hazardous substances, hydrocarbons, paints, solvents and runoff from plant, workshop or personnel wash areas but excludes water containing cement/ concrete or silt.
Environment:	Means the surroundings within which human beings exist and these comprise of: (i) The land, water, and atmosphere of the earth; (ii) Micro-organisms, plant, and animal life; (iii) Any part or combination of (i) and (ii) and the interrelationships among and between them; and (iv) The physical, chemical, aesthetic, and cultural properties and conditions of the foregoing that influences human health and well-being.
Environmental aspect	Means an element of an organization's activities or products or services that interact or can interact with the environment.
Environmental impact	Means change of the environment whether adverse of beneficial, wholly or partially resulting from an organization's environmental aspect.
Environmental Officer	Means an officer was appointed by the contractor to assist with the implementation of this specification.

Health and Safety Agent	A competent person appointed in terms of section 5(5) of the Construction Regulations, 2014 and means Afroteq.
Method Statement	Is a written submission by the Contractor in response to the Specifications or to a request by the Health and Safety Agent/SHE Project Manager setting out the plant (construction equipment), materials, labor, and method the Contractor proposes using to carry out an activity, identified by the relevant specification or the Health and Safety Agent/SHE Project Manager when requesting the Method Statement. The Method Statement shall be in such detail that the Health and Safety Agent/SHE Project Manager is able to assess whether the Contractor's proposal is in accordance with the Specifications and/or will produce results in accordance with the Specifications. The Method Statement shall cover applicable details with regard to: • Construction procedures; • Materials and equipment to be used; • Getting the equipment to and from Site; • How the equipment/ materials will be moved while on Site; • How and where materials will be stored;
Potentially hazardous substance:	Is a substance which, in the reasonable opinion of the Health and Safety Agent/SHE Project Manager can have a detrimental effect on the environment. Hazardous Chemical Substances are defined in the Regulations for Hazardous Chemical Substances published in terms of the Occupational Health and Safety Act.
Pollution	Means any change in the environment caused by - (i) substances; (ii) radioactive or other waves; or (iii) noise, odours, dust or heat emitted from any activity, including the storage or treatment of waste or substances, construction and the provision of services, whether engaged in by any person or an organ of state, where that change has an adverse effect on human health or well-being or on the composition. Resilience and productivity of natural or managed ecosystems, or on materials useful to people, or will have such an effect in the future.
Reasonable:	Means, unless the context indicates otherwise, reasonable in the opinion of the Health and Safety Agent/SHE Project Manager after he has consulted with a representative of the Contractor;
SHE Manager	TASEZ Safety, Health and Environmental Manager
Silt laden water:	Means water containing sand and silt arising from the Contractor's activities and/or as a result of natural run-off.
Site	This is the area in the possession of the Contractor for the construction of the Works. Where the area is not demarcated, it will include all adjacent areas,

	which are reasonably required for the activities for the Contractor, and approved for such use by the PA.
Solid waste	Means all solid waste, including construction debris, excess cement/ concrete, wrapping materials, timber, tins, cans, drums, wire, nails, food, and domestic waste (e.g. plastic packets and wrappers);

4. Scope of the Environmental Specification

This specification contains clauses that are generally applicable to the undertaking of construction works as it is necessary to impose proactive controls on the extent to which the construction activities impact the environment.

Where this Environmental Specification is required for a project the Standard Vegetation Specification (SVS) shall also, where applicable, form part of the Contract Documents.

The intended scope of works is entailed in the RFP document, mainly focusing on the intended construction work of TASEZ Phase 2 Development in Tshwane in the Gauteng. The works order entails of Construction of new Bulk Electrical Reticulation Infrastructure for Phase 2 Bulk Electrical for the Tshwane Automotive Special Economic Zone (TASEZ). The scope will include the following activities but not limited to:

4.1 Scope of Work

4.1.1 Watloo Infrastructure Network

4.1.1.1 The supply, delivery to site, offloading, placing into final position, installation and guarantee of all the electrical bulk services and associated loose equipment, MV cables, fibre optic communications cables, as specified in this document and accompanying drawings.

4.1.1.2 Supply & install 4 new MV Panels complete with all associate metering & control units.

4.1.1.3 Supply & install 4 x 300mm² x 3 core Al 11kV cables from Waltloo Substation to new distribution substation on Erf 179.

4.1.1.4 Trenching, backfilling and compacting of cable routes for MV cabling.

4.1.1.5 The reinstatement of roadways, driveways, paving and gardens required once the MV reticulation has been installed.

4.1.1.6 Build a brick build S1 substation complete with 11kV switchgear on Erf 178 as indicated on the schematic diagram & layout plan.

4.1.1.7 Sleeves, horizontal drilling and road crossings.

4.1.1.8 Supply & install a 25mm² x 4 core PVC insulated Al ECC cable from minisub to streetlights as per layout drawings & schematic diagram (future extension to Vonkprop Road)

4.1.1.9 Streetlighting installation to future extension to Vonkprop Road.

4.1.1.10 Supply and installation of a SCADA communications and control system to new MV infrastructure including fibre optic cable to City of Tshwane requirements.

4.1.1.11 Testing, commissioning and handover of the bulk supply infrastructure to CoT on completion of the project.

4.1.2 Eerste Fabriek Infrastructure Network

4.1.2.1 Supply & install a 4MVA metering type RMU for Erf 173 as per layout plan & schematic diagrams

4.1.2.2 Supply & install a 4 MVA metering type RMU for Erf 174 as per layout plan & schematic diagrams

4.1.2.3 Supply & install a 500 kVA 11kV miniature substation for Erf 176 as per layout plan & schematic diagrams

4.1.2.4 Earthing system to substations and MV reticulation.

4.1.2.5 Trenching, backfilling and compacting of cable routes for MV cabling.

4.1.2.6 The reinstatement of roadways, driveways, paving and gardens required once the MV reticulation has been installed.

4.1.2.7 Supply and installation of MV cable network infrastructure to CoT specifications and standards.

4.1.3 Operations:

4.1.3.1 Site Establishment

4.1.3.2 Loading and Offloading

4.1.3.3 Control of access to public and staff on site

4.1.3.4 Security

4.1.3.5 Contact with existing services

4.1.3.6 Trenching and backfilling

4.1.3.7 Placement of barricading and signage

4.1.3.8 Pipe Jacking

4.1.3.9 Directional drilling

4.1.3.10 Brick and plastering work

4.1.3.11 Glazing

4.1.3.12 Joinery

4.1.3.13 Working on heights

4.1.3.14 Electrical installation

4.1.3.15 Mechanical installation

4.1.3.16 Roofing

4.1.3.17 Use of batching plant

4.1.3.18 Use of concrete mixer

4.1.3.19 Use of plant equipment

4.1.3.20 Use of hand and explosive tools and lifting equipment

4.1.3.21 Use of scaffolding/suspended platforms

4.1.3.22 Use of construction vehicles (Inclusive of bakkies)

4.1.3.23 Management and handling of different waste categories

4.1.3.24 Use of construction water and portable water

4.1.3.25 Working during inclement weather

4.1.3.26 Traffic management with possible road closures

4.1.3.27 Working in a confined space

4.2 Environment

4.2.1 Management and handling of different waste categories

4.2.2 Use of construction water and portable water

4.2.3 Dust suppression

4.2.4 Stockpile management and protection from erosion and weathering

4.2.5 Working during inclement weather

4.2.6 Management of spoil material

4.2.7 All environmental hazards that can be present during any of the above activities and should include individual dusts, gases, fumes, vapours, noise, extreme temperatures, illumination, windspeed, vibration and ergonomic hazards.

5. Materials

5.1 Materials Handling, Use and Storage

5.1.1 The Contractor shall ensure that any delivery drivers are informed of all procedures and restrictions (including "no go" areas) pertaining to their work activities required to comply with the Specifications.

5.1.2 The Contractor shall ensure that the delivery drivers are supervised during off loading, by someone with an adequate understanding of the requirements of the Specifications.

5.1.3 Materials shall be appropriately secured to ensure safe passage between destinations. Loads including, but not limited to sand, stone chip, fine vegetation, refuse, paper and cement, shall have appropriate cover to prevent them spilling from the vehicle during transit. The Contractor shall be responsible for any clean-up resulting from the failure by his employees or suppliers to properly secure transported materials.

5.1.4 All manufactured and/ or imported material shall be stored within the Contractor's fenced-off camp, and, if so, required by the Project Method Statement, out of the rain. All lay down areas outside of the construction camp shall be subject to the Principal Agent approval.

5.1.5 Imported gravel, fill, soil and sand materials shall be free of weeds, alien invasive seed matter, plant material, litter and contaminants and shall be obtained from sources approved by the PA. A Method Statement detailing the source and methods to ensure compliance with this specification shall be submitted to the Health and Safety Agent and PA.

5.2 Stockpiling

5.2.1 Any stockpiling of gravel, cut, fill or any other material including spoil shall be in areas approved by the PA within the defined working area.

5.2.2 The Contractor shall ensure that the material does not blow or wash away. If the stockpiled material is in danger of being washed or blown away, the Contractor shall spray it with Dustex or cover it with a suitable material, such as hessian or plastic. Stockpiles of topsoil shall not be covered with plastic.

5.3 Solid Waste Management

5.3.1 No on-site burning, burying or dumping of any waste materials, litter or refuse shall occur. The Contractor shall provide vermin and weatherproof bins with lids of sufficient number and capacity to store the solid waste produced on a daily basis. The lids shall be kept firmly on the bins at all times.

5.3.2 Bins shall not be allowed to overflow and shall be emptied at least once a day. The waste from bins may be temporarily stored on Site in a central waste area that is weatherproof and scavenger-proof, and which the Health and Safety Agent and PA have approved.

5.3.3 Recyclable waste shall be disposed of into separate skips/bins and removed off-site for recycling.

5.3.4 All solid waste shall be disposed of off-site at an approved landfill Site. The Contractor shall supply the Health and Safety Agent with the appropriate disposal certificates.

5.3.5 The Contractor shall submit a solid waste management Method Statement to the Health and Safety Agent.

5.4 Water Use

All source of water for construction purposes must be approved by the PA in writing before any such sources can be used to obtain water.

5.5 Hazardous Substances

5.5.1 The transportation and handling of hazardous substances must comply with the provisions of the Hazardous Substances Act (Act No.187 of 1993) and associated regulations as well as SABS 0228 and SABS 0229. The Contractor shall also comply with all other applicable regional and local legislation and regulations with regard to the transport, use and disposal of hazardous substances.

5.5.2 Hazardous chemical substances (as defined in the Regulations for Hazardous Chemical Substances) used during construction shall be stored in secondary containers. The relevant Material Safety Data Sheets (MSDS) shall be available on Site. Procedures detailed in the SDSs shall be followed in the event of an emergency situation. The Contractor shall be responsible for the training and education of all personnel on Site who will be handling hazardous materials about their proper use, handling, and disposal.

5.5.3 If potentially hazardous substances are to be stored or used on Site, the Contractor shall submit a Method Statement to the Health and Safety Agent detailing the substances / materials to be used, together with the transport, storage, handling, and disposal procedures for the substances.

5.6 Contaminated Water

5.6.1 Potential pollutants of any kind and in any form shall be kept, stored, and used in such a manner that any escape can be contained and that the Water table is not endangered. Water containing such pollutants as chemicals, washing detergents, sewerage, fuels, paints and solvents and hydrocarbons shall be contained and discharged into an impermeable storage facility for removal from the site or for recycling.

5.6.2 This particularly applies to runoff from fuel depots/workshops/vehicle washing areas. The Contractor may direct contaminated water into a sewerage main, provided that authorisation has been obtained from the local authority and that the PA has provided written permission for this action.

5.6.3 Wash down areas shall be placed and constructed in such a manner so as to ensure that the surrounding areas are not polluted. The Contractor shall notify the Health and Safety Agent and the PA immediately of any pollution incidents on Site.

5.6.4 The Contractor shall submit a Method Statement to the Health and Safety Agent and the PA detailing how the contaminated water will be managed on Site.

5.7 Cement and Concrete Batching

5.7.1 The proposed location of batching areas (including the location of cement stores and sand and aggregate stockpiles) shall be indicated on the Site layout plan and approved by the PA.

5.7.2 All wastewater generated from the operation and cleaning of concrete batching equipment and other sources of concrete shall be passed through a concrete wastewater settlement system as depicted in the appropriate drawing. The water from this system shall not be allowed to flow into any "no go" area or water course but must permeate through the ground before it reaches any such water course.

5.7.3 The accumulated sludge in the settlement system must be regularly cleaned out and appropriately disposed of as solid waste.

5.7.4 The Contractor shall ensure that minimal water is used for washing of concrete batching equipment.

5.7.5 Used cement bags shall be disposed of in weatherproof bins on site to prevent the generation of wind-blown cement dust and the bags from blowing away. Disposing of such bags in the hospital's refuse bin is strictly prohibited.

5.7.6 During construction, the contractor must ensure that concrete is mixed on mortar boards, all visible remains of concrete are removed and disposed of as waste and that all surplus aggregate is removed.

5.7.7 A Method Statement detailing all actions to be taken to comply with the cement and batching requirements shall be submitted to the Health and Safety Agent and the PA.

6. Plant Fuel (Petrol, Diesel) and Oil

6.1 Fuel Storage

6.1.1 Fuel can be stored on site. The location of the fuel storage area will be approved by the PA and will be situated at least 100m away from any major drainage systems, residential areas or "no go" areas.

6.1.2 All necessary approvals with respect to fuel storage and dispensing shall be obtained from the appropriate authorities. Symbolic safety signs depicting "No Smoking", "No Naked Lights" and "Danger" conforming to the requirement of SABS 1186 shall be prominently displayed in and around the fuel storage area.

6.1.3 There shall be adequate fire-fighting equipment at the fuel storage area.

6.1.4 The Contractor shall ensure that all liquid fuels and oils are stored in containers with lids, which are kept firmly shut and under lock and key at all times. The capacity of the container shall be clearly displayed, and the product contained within the container clearly identified using the emergency information system detailed in SABS 0232-part 1 Fuel storage tanks shall have a capacity not exceeding 9000 litres and shall be kept on site only for as long as fuel is needed for construction activities, on completion of which they shall be removed.

6.1.5 Tanks on site shall not be linked or joined via any pipe work but shall remain as separate entities. The tanks shall be situated on a smooth impermeable base with a bund.

6.1.6 The volume inside the bund shall be 110% of the total capacity of the largest storage tank. The base may be constructed of concrete, or of plastic sheeting with impermeable joints with a layer of sand over to prevent perishing. The impermeable lining shall extend to the crest of the bund. The floor of the bund shall be sloped to enable any spilled fuel and/or fuel-contaminated water to be removed. Appropriate material, approved by the PA that absorbs/ breaks-down or encapsulates minor hydrocarbon spillage and which is effective in water shall be installed in the sump.

6.1.7 The tanks and bunded areas shall be covered by a roofed structure, as detailed in appropriate drawing, to prevent the bunded area from filling up with rainwater. This structure shall be constructed in such a way, and to the approval of the PA,

6.1.8 to ensure that it is not dislodged by wind. If any water does collect in the bunded area it shall be removed within a day of

6.1.9 this occurring and taken off Site to a disposal site approved by

6.1.10 the PA, and the material that absorbs/ breaks-down or encapsulates minor hydrocarbon spillage shall be replenished.

6.1.11 Only empty and externally clean tanks may be stored on the bare ground. Empty and externally dirty tanks shall be sealed and stored on an area where the ground has been protected.

6.1.12 Adequate precautions shall be provided to prevent spillage during the filling of any tank and during the dispensing of the contents. The dispensing mechanism for the fuel storage tanks shall be stored in a waterproof container when not in use.

6.1.13 A Method Statement shall be submitted to the Health and Safety Agent and the PA detailing the design, location and construction of the fuel storage area as well as for the filling and dispensing from storage tanks and for the type of absorbing/ breaking-down or encapsulating material to be used.

6.2 Refuelling

6.2.1 Where reasonably practical, plant shall be refuelled at a designated re-fuelling area/depot or at a workshop as applicable. If this is not reasonably practical, then the surface under the refuelling area shall be protected and appropriately bunded against pollution to the reasonable satisfaction of the Health and Safety Agent and PA prior to any refuelling activities.

6.2.2 If fuel is dispensed from 200 litre drums, the proper dispensing equipment shall be used, and the drum shall not be tipped in order to dispense fuel. The Contractor shall ensure that the appropriate fire-fighting equipment is present during refuelling operations.

6.2.3 The Contractor shall ensure that there is always a supply of absorbent material readily available to absorb/breakdown or where possible, be designed to encapsulate minor hydrocarbon spillages. The quantities of such materials shall be able to handle a minimum of 200 ℓ of hydrocarbon liquid spill. Prior to any refuelling or maintenance activities, the PA must approve this material.

6.3 Used Oil and Hydrocarbon Contaminated Materials

6.3.1 Used oil shall be stored at a central location on Site prior to removal off Site for disposal at an approved disposal or recycling site.

6.3.2 Old oil filters and oil, petrol and diesel-soaked material shall be treated as hazardous waste.

6.3.3 The Contractor shall remove all oil, petrol, and diesel-soaked sand immediately and shall dispose of it as hazardous waste or treat it on site with material that breaks- down or encapsulates such spillages as approved by the Health and Safety Agent and the PA.

7. Facilities

7.1 Ablution Facilities

7.1.1 Washing, whether of the person or of personal effects, and acts of excretion and urination are strictly prohibited other than at the facilities provided; The Contractor shall provide the necessary ablution facilities for all his personnel prior to the commencement of work and shall ensure that his personnel make use of the facilities.

7.1.2 Toilet facilities shall be supplied by the Contractor for the workers at a ratio of at least 1 toilet per 15 workers in areas approved by the PA. Every 1-man urinal will be taken as

7.1.3 supplying the equivalent of 5 men in addition to the 15 men per toilet on site. Toilets shall be situated within 200m of any area where work is taking place in numbers sufficient to meet the ratio depicted above for the workers in the area.

7.1.4 The facilities shall be maintained in a hygienic state and serviced regularly. Toilet paper shall be provided. Temporary/ portable toilets shall be secured to the ground to prevent them toppling due to wind or any other cause, to the satisfaction of the PA.

7.1.5 Discharge into the environment and burial of waste is strictly prohibited. The Contractor shall ensure that no spillage occurs when the toilets are cleaned or emptied and that the contents are removed from the Site. Toilets shall be emptied before the Contractors' holidays or any other temporary site closure.

7.2 Eating Areas

7.2.1 The Contractor shall designate eating area/s, subject to the approval of the PA and the Health and Safety Agent. No cooking is allowed outside of the Contractor's camp area on Site.

7.2.2 At mealtimes all workers must eat in designated eating areas. More than one area may be required for large Sites.

7.2.3 These areas shall have shade for the workers.

7.2.4 The eating areas may be in existing structures or in temporary/ transportable structures that shall be well constructed using wood or metal for the frame and screened on the top and sides with shade cloth/ canvas or other material to the satisfaction of the PA/Health and Safety Agent.

7.2.5 These areas shall be well demarcated and in locations approved by the PA and shall not be within 100m of any "no go" areas or any major drainage systems, on or adjacent to the Site.

7.2.6 Sufficient bins as specified in Section 0 of this Environmental Specification shall be present in these areas. All disposable food packaging must be disposed of in the bins after every meal. The feeding or leaving of food for animals is strictly prohibited.

7.3 Site Structures

7.3.1 All site establishment components (as well as equipment) shall be positioned to limit visual intrusion on neighbours and the size of the land area disturbed. The type and colour of roofing and cladding materials to the Contractor's temporary structures shall be selected to reduce reflection.

7.3.2 The Contractor shall supply and maintain adequate and suitable sheds for the storage of materials. Sheds for the storage of materials that may deteriorate or corrode if exposed to the weather shall be weatherproof, adequately ventilated and provided with raised floors.

7.4 Lights

The Contractor shall ensure that any lighting installed on the Site for his activities does not interfere with road traffic or cause a reasonably avoidable disturbance to the surrounding community or other users of the area.

7.5 Workshop, Equipment Maintenance and Storage

7.5.1 Where practical, all maintenance of equipment and vehicles on Site shall be performed in a workshop. If it is necessary to do maintenance outside of the workshop area, the Contractor shall obtain the approval of the PA prior to commencing such activities.

7.5.2 No maintenance, including emergency maintenance, of plant can take place within 20m of any "no go" area or drainage system.

7.5.3 The Contractor shall ensure that in his workshop and other plant maintenance facilities, including those areas where, after obtaining the PA's approval, the Contractor carries out emergency plant maintenance, there is no contamination of the soil or vegetation. The workshop shall have a smooth impermeable (concrete or thick plastic covered with sand) floor.

7.5.4 The floor shall be bunded and sloped towards an oil trap or sump to contain any spillages. When servicing equipment, drip trays shall be used to collect the waste oil and other lubricants. Drip trays shall also be provided in construction areas for stationary plant (such as compressors) and for "parked" plant (such as scrapers, loaders, vehicles).

7.5.5 All vehicles and equipment shall be kept in good working order and serviced regularly. Leaking equipment shall be repaired immediately or removed from the Site.

7.5.6 The washing of equipment shall be restricted to urgent or preventative maintenance requirements only. All washing shall be undertaken in the workshop or maintenance areas, and these areas must be equipped with a suitable impermeable floor and sump/oil trap. The use of detergents for washing shall be restricted to low phosphate and nitrate containing and low sodding-type detergents.

7.5.7 A Method Statement must be submitted to the PA and Health and Safety Agent detailing the design of the bunding of the workshop and how run-off from the workshop will be managed as well as how drip trays used under plant will be managed.

8. Workplace Environment

8.1 Noise

8.1.1 The Contractor shall take precautions to minimise noise generated on Site (e.g. Install and maintain silencers on machinery where possible). The Contractor shall comply with the Noise Induced Hearing Loss Regulations published under the Occupational Health and Safety Act of 1993.

8.1.2 Appropriate directional and intensity settings are to be maintained on all hooters and sirens.

8.1.3 No amplified music shall be allowed on Site. The use of radios, tape recorders, compact disc players, television sets etc. shall not be permitted unless the volume is kept sufficiently low as to avoid any intrusion on members of the public within range. The Contractor shall not use sound amplification equipment on Site unless in emergency situations.

8.2 Dust Control

8.2.1 The Contractor shall be responsible for the continued control of dust arising from his operations. The Contractor shall inform the PA/Health and Safety Agent 48 hours in advance of anticipated 'unavoidable' dust generating activities. The Contractor shall take all reasonable measures to minimize the generation of dust as a result of construction activities to the satisfaction of the Health and Safety Agent and PA.

8.2.2 Appropriate dust suppression measures include: spraying or dampening with water, using a commercial dust binder (such as Hydropam or Dustex), rotovating straw bales, planting of open cleared space and the scheduling of dust-generating activities. If the conditions are such that the Contractor cannot satisfactorily dampen the dust, then the Contractor must halt operations until such time as the conditions are more suitable for lower dust generating construction.

8.2.3 Damping of all gravel haul and access roads with water must be ongoing and special attention must be given to roads close to residential areas. Should dust still be a problem on any specific road, the allowable speed will be reduced to 20km/h.

8.2.4 Areas that are to have the topsoil stripped for construction purposes must be limited and only stripped when work is about to take place.

8.2.5 Other activities and situations that may result in a dust nuisance include site clearance and other earth moving operations, open cleared space, stockpiles of topsoil or sand and activities associated with concrete batching plants.

8.2.6 A Method Statement detailing how dust will be managed for different operations on the site must be submitted to the Health and Safety Agent and PA for his approval before any work that could result in dust being generated is undertaken.

9. Construction

9.1 Method Statements

The following Method Statements shall be provided by the Contractor and submitted with the Health and Safety Files for reviewing prior to the Contractor starting work on site.

9.1.1 Solid Waste Management

Expected solid waste types, quantities, methods and frequency of collection and disposal as well as location of disposal sites.

9.1.2 Contaminated Water

Methods of minimising, controlling, collecting and disposing of contaminated water.

9.1.3 Contractors Environmental Officer

The name and letter of appointment of the Contractors Environmental Officer must be included in the Health and Safety Files and the terms of reference for the work to be undertaken by the Environmental Officer must be detailed including time on site, CV, roles and responsibility, interaction with the Contractor and environmental offices, etc.

9.1.4 Site Division

The location, layout, and method of establishment of the construction camp (including all buildings, offices, lay down yards, vehicle wash areas, fuel storage areas, batching areas and other infrastructure required for the running of the project).

9.1.5 Emergency Procedures

Emergency procedures for fire and accidental leaks and spillages of hazardous substances (including fuel and oil); Include details of risk reduction measures to be implemented including fire-fighting equipment, fire prevention procedures and spill kits (materials and compounds used to reduce the extent of spills and to breakdown or encapsulate hydrocarbons).

9.2 Other Method Statements that will be required during the course of construction are to be provided by the Contractor a minimum of 20 days prior to commencement of the works or activities to which they apply (no work can commence on site before these Method Statements have been approved):

9.2.1 Importing of Material

Detail the source of any gravel, soil, aggregate or sand imported onto site and precautions taken to ensure no vegetative contamination.

9.2.2 Hazardous Substances

Details of any hazardous substances / materials to be used, together with the transport, storage, handling, and disposal procedures for the substances.

9.2.3 Cement and Concrete Batching

Location, layout and preparation of cement/ concrete mixing areas including the methods employed for the mixing of concrete and particularly the containment of run- off water from such areas and the method of transportation of concrete.

9.2.4 Fuel Storage and Use

The design, location, and construction of the fuel storage area as well as for the filling and dispensing from storage tanks.

9.2.5 Workshop and Drip Trays

Location, layout, design, and pollution control for Workshop as well as management of drip trays under plant.

9.2.6 Dust

Details on the methods for managing dust on the site.

9.2.7 Environmental Awareness Training

Number, dates, trainer, and logistics for awareness courses for the Contractor's employees and for the management staff.

9.3 Access Routes

9.3.1 Details, including a drawing, showing where and how the access points and routes will be located and managed.

9.3.2 Any additional Method Statements as required by the Health and Safety Agent must be provided by the Contractor. The Contractor shall not commence the activity until the Method Statement has been approved in writing and shall, except in the case of emergency activities, allow a period of 7 working days for approval of the Method Statement.

9.3.3 The Health and Safety Agent and PA may require changes to a Method Statement if the proposal does not comply with the specification or if, in the reasonable opinion of the Health and Safety Agent and PA, the proposal may result in, or carries a greater than reasonable risk of, damage to the environment in excess of that permitted by the Specifications or any legislation.

9.3.4 Approved Method Statements shall be readily available on the Site and shall be communicated to all relevant personnel and subcontractors. The Contractor shall carry out the Works in accordance with the approved Method Statement. Approval of the Method Statement shall not absolve the Contractor from any of his obligations or responsibilities in terms of the Contract. No claim for delay or additional cost incurred by the Contractor shall be entertained due to inadequacy of a Method Statement.

9.4 Appointment of Key Personnel

Details of the following appointments are required within 7 days of commencing work on site and shall be given to the Health and Safety Agent/SHE MANAGER in writing.

9.4.1 Assistants to the Contractor's Environmental Officer

The name and appointment letter of at least one assistant to the Contractor's Environmental Officer must be given to the Health and Safety Agent/SHEPM and the work to be undertaken by this assistant must be detailed including time allocated to these roles and their responsibility and interaction with the Contractors Environmental Officer.

9.4.2 Fire Officer

The name and appointment letter of the Fire Officer must be included in the SHE organogram including:

9.4.2.1 The Contractor's Environmental Officer and Assistant

9.4.2.2 The Contractor shall appoint a Contractor's Environmental Officer who shall be responsible for undertaking a daily site inspection to monitor compliance with this Specification and the relevant Project Specification.

9.4.2.3 The Contractor shall submit the name of the Contractor's Environmental Officer as well as a Method Statement detailing his/her CV, roles and responsibilities to the HEALTH AND SAFETY AGENT/SHE Manager for his approval before work can commence on site. The Contractor will also appoint a competent SHE Representative, who will assist and report to the Contractor's Environmental Officer, to the following positions:

9.4.2.3.1 Litter Assistant to ensure that the site is cleaned every day and that dustbins are not overflowing, and litter does not blow off the site into the surrounding areas.

9.4.2.3.2 Hydrocarbon and Contaminated water Assistant to ensure that any hydrocarbon spills or leaks are dealt with immediately, vehicles are not leaking hydrocarbons on site, there is no pollution of any water course/ drainage system on or adjacent to site due to any construction activities, all stationary plant has bunds around them that are kept in good working order, the fuel storage and refuelling area is free of spills and leaks of hydrocarbons and any other issues to do with hydrocarbon housekeeping on site. He will also ensure that no contaminated water is escaping onto the site and that the toilets are kept in a clean and good working condition.

9.4.2.3.3 Demarcation and Dust Assistant to ensure that all fencing and demarcation is in place when it is required and that such fencing or demarcation is in good order on a daily basis.

9.4.2.3.4 This person will also be responsible to ensure that excessive dust is not generated from the construction area and will ensure that the roads are watered, and other areas dampened where necessary and any other actions taken to limit dust generation from site.

10. Environmental Awareness Training

10.1 Environmental awareness training ('toolbox' talks) shall be run for all personnel on site. Toolbox talks shall be run during normal working hours at a suitable venue provided by the Contractor. All attendees shall remain for the duration of the talk and sign an attendance register on completion that clearly indicates participant's names, a copy of which shall be kept in the Health and Safety Files.

10.2 The size of each session shall be limited to 30 people. The Contractor shall allow for sufficient sessions to train all personnel.

10.3 Subsequent sessions shall be run for any new personnel coming onto site. A Method Statement with respect to the organisation of these courses shall be submitted.

10.4 Notwithstanding the specific provisions of this clause, it is incumbent upon the Contractor to convey the sentiments of this Environmental Specification to all personnel and Subcontractors involved with the Works.

10.5 Site Division

10.5.1 The Contractor shall restrict all his activities, materials, equipment, and personnel to within the area specified.

10.5.2 A Method Statement detailing the location, layout and method of establishment of the construction camp (including all buildings, offices, lay down yards, vehicle wash areas, fuel storage areas, batching areas and other infrastructure required for the running of the project) shall be submitted to the PA. No accommodation for any staff is permitted on the Site.

10.6 Site Demarcation

The Contractor shall erect and maintain permanent and / or temporary fences of the type and in the locations directed by the PA and Health and Safety Agent. Such fences shall be erected before undertaking designated activities.

10.7 "No Go" Areas

If so required, certain areas within or next to the Site may be declared as "no go" areas. The Contractor shall ensure that, insofar as he has the authority, no person, machinery, equipment or materials enter the "no go" areas at any time.

10.8 Access Routes/ Haul Roads

10.8.1 On the Site, the Contractor shall control the movement of all vehicles and plant including that of his suppliers so that they remain on designated routes, are distributed so as not to cause an undue concentration of traffic and that all relevant laws are complied with. In addition, such vehicles and plant shall be so routed and operated as to minimise disruption to regular users of the routes not on the Site. On gravel or earth roads on Site and within 500m of the Site, the vehicles of the Contractor and his suppliers shall not exceed a speed of 20 km/hr or as directed by the Health and Safety Agent.

10.8.2 The Contractor shall supply the Health and Safety Agent and PA with a Method Statement detailing the location and management of all access points.

10.9 Construction Personnel Information Posters

The Contractor shall erect and maintain information posters for the information of his employees depicting actions to be taken to ensure compliance with the SES. Construction personnel information posters shall be laminated and erected in all eating areas, workshops, and site offices. The Contractor shall ensure that the construction personnel information posters are not damaged in any way and shall replace them if any part becomes illegible.

10.10 Fire Control

10.10.1 The Contractor shall take all the necessary precautions to ensure that fires are not started as a result of his activities on Site. No open fires shall be permitted on the Site.

10.10.2 Any fires that occur shall be reported to the Health and Safety Agent and PA immediately.

10.10.3 Smoking shall not be permitted inside offices and those areas where there is a fire hazard. Such areas shall include the workshop and fuel storage areas and any areas where the vegetation or other material is such as to support the rapid spreading of an initial flame.

10.10.4 The Contractor shall appoint a Fire Officer who shall be responsible for ensuring immediate and appropriate actions in the event of a fire and shall ensure that employees are aware of the procedures to be followed.

10.10.5 The Contractor shall forward the name of the Fire Officer to the PA for his approval within 7 days of being on site.

10.10.6 The Contractor shall ensure that there is basic fire-fighting equipment available on Site at all times. This shall include at least rubber beaters when working in urban open spaces and natural areas, and at least one fire extinguisher of the appropriate type when welding or other "hot" activities are undertaken.

10.10.7 The Contractor shall be liable for any expenses incurred by any organisations called to assist with fighting fires that were started as a result of his activities or personnel, and for any cost relating to the rehabilitation of burnt areas, or consequential damages.

10.11 Emergency Procedures

10.11.1 Emergency procedures, including the names and contact details of responsible personnel and emergency services shall be made available to all staff and shall be clearly displayed at relevant locations at the Site. The Contractor shall advise the PA/Health and Safety Agent of any emergencies on Site, together with a record of action taken, within 24 hours of the emergency occurring.

10.11.2 Telephone numbers of emergency services shall also be posted conspicuously in the Contractor's office near the telephone.

10.11.3 The Contractor shall submit a Method Statement covering the procedures for the following emergencies:

10.11.4 Fire

10.11.4.1 The Contractor shall advise the relevant authority of a fire as soon as one starts and shall not wait until he can no longer control it. The Contractor shall ensure that his employees are aware of the procedures to be followed in the event of a fire.

10.11.5 Accidental leaks and spillages:

10.11.5.1 The Contractor shall ensure that his employees are aware of the procedures to be followed for dealing with spills and leaks, which shall include notifying the HEALTH AND SAFETY AGENT and PA and the relevant authorities.

10.11.5.2 The Contractor shall ensure that all the necessary materials and equipment for dealing with spills and leaks are available on Site at all times. Treatment and remediation of the spill areas shall be undertaken to the reasonable satisfaction of the PA.

10.11.5.3 In the event of a hydrocarbon spill, the source of the spillage shall be isolated, and the spillage contained. The area shall be cordoned off and secured. The Contractor shall ensure that there is always a supply of absorbent material readily available to absorb/ breakdown or where possible, be designed to encapsulate minor hydrocarbon spillages. The quantities of such materials shall be able to handle a minimum of 200 ℓ of hydrocarbon liquid spill.

10.11.5.4 Any spills must be cleared, and the contaminated soil/sludge disposed of in an appropriate manner, approved by the PA, or at a licensed hazardous waste disposal site.

11. Community Relations

11.1 The Contractor shall keep a "Complaints Register" on Site. The Register shall contain all contact details of the person who made the complaint, and information regarding the complaint itself and note the date and time that the complaint was resolved.

11.2 The PA shall be responsible for responding to queries and/or complaints and may request assistance from the Contractor's Management Staff.

12. Protection of Natural Features

12.1 The Contractor shall not deface, paint, damage or mark any natural features (e.g. rock formations) situated in or around the Site for survey or other purposes unless agreed beforehand with the PA. Any features affected by the Contractor in contravention of this clause shall be restored / rehabilitated to the satisfaction of the PA.

12.2 The Contractor shall not permit his employees to make use of any natural water sources (e.g. springs, streams, and open water bodies) for the purposes of swimming, personal washing and the washing of machinery or clothes.

13. Stormwater Management

Natural run-off must be diverted to stormwater arrangement. The Contractor shall take appropriate measures to prevent sand, silt and silt-laden water from entering any surface water course. The Contractor shall take reasonable measures to control the erosive effects of stormwater runoff particularly where excavation and construction activities form temporary channels. Suitable energy breaking devices, cut-off drains, diversions and retention ponds shall be employed to ensure that storm water runoff from the Site is dissipated and does not exceed the capacity of the surrounding stormwater system and excessive suspended solids are settled before they enter the stormwater l system or any surface water course.

13.1 Erosion and Sedimentation Control

13.1.1 The Contractor shall take all reasonable measures to limit erosion and sedimentation due to construction activities and shall, in addition, comply with such detailed measures as may be required by the Project Specification.

13.1.2 Where erosion and/or sedimentation, whether on or off the Site, occurs despite the Contractor complying with the foregoing, rectification shall be carried out in accordance with details specified by the PA. Where erosion and/or sedimentation occur due to the fault of the Contractor, rectification shall be carried out to the reasonable requirements of the PA/Health and Safety Agent and at the expense of the Contractor.

13.1.3 The Contractor shall take reasonable measures to ensure that construction activities do not have an unreasonable impact on the aesthetics of the area.

14. Temporary Site Closure

14.1 If the Site is closed for a period exceeding 5 days, the Contractor's Environmental Officer in consultation with the Health and Safety Agent shall carry out the following checklist procedure and ensure that the following conditions pertain and report on compliance with this clause:

14.1.1 Fuels / flammables / hazardous materials stores

14.1.2 Fuel stores are as low in volume as practicable.

14.1.3 There are no leaks.

14.1.4 The outlet is secure and locked.

14.1.5 The bund is empty.

14.1.6 Fire extinguishers are serviced and accessible.

14.1.7 The area is secure from accidental damage through vehicle collision and the like.

14.1.8 Emergency and contact numbers are available and displayed.

14.1.9 There is adequate ventilation in enclosed spaces.

14.1.10 There are no stores or containers within the 1:50 year flood line.

14.2 Safety

14.2.1 Site safety checks have been carried out in accordance with the Occupational Health and Safety Act (No. 85 of 1993) prior to site closure.

14.2.2 An inspection schedule and log for use by security or contracts staff is developed.

14.2.3 All trenches and manholes are secured.

14.2.4 Applicable notice boards are in place and secured.

14.2.5 Emergency and Management contact details are prominently displayed. Security personnel have been briefed and have the facilities to contact or be contacted by relevant management and emergency personnel.

14.2.6 Night hazards such as reflectors, lighting, traffic signage etc. have been checked.

14.2.7 Fire hazards identified and the local authority notified of any potential threats e.g. large brush stockpiles, fuels etc.

14.2.8 Pipe stockpiles are wedged / secured.

14.2.9 Scaffolds are secure.

14.2.10 Structures vulnerable to high winds secure.

14.3 Erosion

14.3.1 Wind and dust mitigation measures such as straw, brush packs, irrigation etc. is in place.

14.3.2 Excavated and filled slopes and stockpiles are at a stable angle and capable of accommodating normal expected water flows.

14.3.3 Re-vegetated areas have a watering schedule and the supply to such areas is secured.

14.3.4 There are sufficient detention ponds or channels in place.

14.4 Water contamination and pollution

14.4.1 Hazardous fuel stores are secure.

14.4.2 Cement and materials stores are secure.

14.4.3 Toilets are empty and secured.

14.4.4 Refuse bins are empty and secured.

14.4.5 Bunding is clean and treated with appropriate material that will absorb/ breakdown and where possible be designed to encapsulate minor hydrocarbon spillage.

14.4.6 Drip trays are empty & secure.

15. Basic Principles

Except as noted below as Scheduled Items, no separate measurement and payment will be made to cover the costs of complying with the provisions of this Specification and such costs shall be deemed to be covered by the rates tendered for the items in the Schedule of Quantities completed by the Contractor when submitting his Tender.

15.1 Protection of stockpiles from blowing or washing away:

The spraying or covering of stockpiles, including the supply of the spray or cover material, as required, shall be measured as a lump sum.

15.2 Storage of fuel and oils:

The supply, construction, installation, transport, upkeep and removal of all facilities required for storage and management of fuel and oils will be measured as a lump sum.

15.3 Cement laden water management:

The supply, construction, installation, transport, upkeep and removal of all facilities required for the management of wastewater from concrete operations will be measured as a lump sum.

15.4 Contaminated water management:

The supply, construction, installation, transport, upkeep and removal of all facilities required for managing contaminated water will be measured as a lump sum.

15.5 Stormwater management:

The supply, construction, installation, transport, upkeep and removal of all facilities required for managing storm water run-off from the site will be measured as a lump sum.

15.6 Bunding and management of run-off from workshop areas and supply of drip trays for stationary and "parked" plant:

The supply, construction, installation, transport, upkeep and removal of all facilities required for bunding and managing the run-off from workshop areas as well as all drip trays required will be measured as a lump sum.

15.7 Dust management:

The supply, application, transport, upkeep and removal of all materials required to ensure that dust is adequately controlled will be measured as a lump sum.

15.8 Fire Control:

The supply, transport, upkeep and removal of all material required for fire control will be measured as a lump sum.

15.9 Eating areas:

The supply, construction, installation, transport, upkeep, and removal at the end of the construction of all eating areas structures shall be measured as a sum.

15.10 Ablutions:

The supply, maintenance, regular emptying, and removal of toilets shall be measured as a sum.

15.11 Site demarcation:

The supply, installation, and removal at the end of the construction of all temporary fences shall be measured by length for each type of fence scheduled.

15.12 Construction personnel information posters:

The supply, installation, and removal at the end of the construction of all construction information posters shall be measured by number of posters for each type of poster scheduled.

15.13 Solid waste (including hazardous waste) management:

The supply of bins and skips as well as transport of waste to appropriate waste disposal facilities shall be measured as a sum.

15.14 Spill kits:

The supply, use and replenishment of spill kits, to be used at fuel storage areas and refueling areas shall be measured as a sum.

15.15 Method Statements: Additional Work:

15.15.1 No separate measurement and payment will be made for the provision of Method Statements but, where the PA requires a change beyond the requirements of the Specification on the basis of his opinion that the proposal may result in, or carries a greater than warranted risk of damage to the environment, then any additional work required, provided it could not reasonably have been foreseen by an experienced Contractor, shall be valued in accordance with the Contract document.

15.15.2 A stated sum is provided in the Schedule of Quantities to cover payment for such additional work.

Acknowledgement:

I_____representing_____ Contractor have satisfied myself with the content of the SPECIFICATION-EP for the TASEZ Phase 2 - Construction of New 15ml Reservoir for Phase 2 Bulk Electrical for the Tshwane Automotive Special Economic Zone (TASEZ), Tshwane, Gauteng Province and shall ensure that the we will comply with all relevant obligations in respect thereof.

_____ _____

Signature of Contractor Date

_____ _____

Signature of Agent/ClientDate