

TENDER NUMBER: EPMLM/8/3/427

FOR: DICHOEUNG INTERNAL STREET etender document

C3.3 PARTICULAR SPECIFICATIONS

In addition to the Standardized and Project Specifications the following Particular Specifications shall apply to this contract and are bound in hereafter.

SECTION EMP	ENVIRONMENTAL MANAGEMENT SPECIFICATION
SECTION DWK	DAY WORKS
SECTION OHS	OHSA 1993 SAFETY SPECIFICATION

SECTION EMP: ENVIRONMENTAL MANAGEMENT SPECIFICATION

EMP.1 General

In order to ensure that the construction works is carried out in an environmentally sensitive matter, strict compliance to the Environmental Management Plan (EMP) guidelines is required. The EMP is bounded to this document under Part C4: **Site Information**. The purpose of the EMP is to:

- Encourage good management practices through planning and commitment to environmental issues,
- Provide rational and practical environmental guidelines to:
 - i. Minimize disturbance of the natural environment,
 - ii. Prevent pollution of land, air and water,
 - iii. Prevent soil erosion and facilitate re-vegetation.
- Adopt the best practicable means available to prevent or minimize adverse environmental impact,
- Develop waste management practices based on prevention, minimization, recycling, treatment or disposal of wastes,
- Train employees and contractors with regard to environmental obligations.

EMP.2 Training and Induction of Employees

- The Contractor has a responsibility to ensure that all those people involved in the project are aware of and familiar with the environmental requirements for the project (this includes sub-contractors, casual labour, etc.). The EMP shall be part of the terms of reference for all contractors, sub-contractors and suppliers.

EMP.3 Complaints Register and Environmental Incident Book

Any complaints received by the project team from the public will be recorded. The complaint should be brought to the attention of the site manager, who will respond.

The following information must be recorded:

- Time, date and nature of the complaint,
- Type of communication (telephone, letter etc.),
- Name, contact address and telephone number of the complainant,
- Response and investigation undertaken and
- Actions taken and by whom.

All complaints received will be investigated and a response given to the complainant within 14 days.

All environmental incidents occurring on the site will be recorded. The following information will be provided:

- Time, date, location and nature of the incident,
- Actions taken and by whom.

EMP.4 Site Cleanliness and Neatness

- Location of a construction camp is to be approved by the Engineer and is to be restored to its previous condition after completion of construction.
- The construction camp should preferably be fenced with a 1.8m bonnox fence or similar approved.
- All materials, equipment, plant and vehicles must be stored within the construction camp.
- A dedicated area must be made available for construction staff to change and store their personal belongings.

EMP.5 Access

- Access to existing roads, schools, buildings, shops and residential properties must not be impeded during construction.
- Access roads utilised by the Contractor must be maintained in good condition.

EMP.6 Borrow Pits

- Mining authorizations (permits) for borrow pits must be obtained from the Department of Minerals and Energy (DME) in consultation with the Department of Water Affairs and Forestry (DWAF).
- Spoil dumps resulting from borrow pits must not interfere with any natural surface drainage.
- Borrow pits must be rehabilitated after use in accordance with the requirements of DME and DWAF.
- Borrow pits will be fenced and the necessary warning signs will be erected.

EMP.7 Dust Control / Air Quality

- Dust suppression measures must be implemented during construction by ensuring that all surfaces prone to dust generation are kept damp (e.g. use of water tanker).
- Ensure that vehicles and equipment are in good working conditions and that emissions are not excessive.
-
- Ensure that vehicles and equipment are in good working conditions and that emissions are not excessive.
- Special care must be taken in areas where the route passes close to schools and residential areas.
- The speed of construction vehicles must be reduced.

EMP.8 Fauna

- Contractor staff may not chase, catch or kill animals encountered during construction.

EMP.9 Fire Prevention and Control

- Smoking is prohibited in the vicinity of flammable substances.
- The contractor must ensure that fire-fighting equipment is available on site, particularly where flammable substances are being stored or used, and that construction staff are aware of where it is kept and how it is operated.
- Fires started for comfort (warmth) are prohibited, due to the risk of veld fires and risk to adjacent property owner's lands.

EMP.10 Grave Sites

- Gravesites in close proximity to the road must not be disturbed during construction.

EMP.11 Materials Handling and Spills Management

- Any hazardous materials to be used during construction (e.g. lime, fuel, paint, etc) are to be stored in a designated area at the campsite.
- The storage containers/facilities (including any diesel/petrol tanks) must be placed on an impermeable surface and surrounded by a bund wall, in order to ensure that accidental spillage does not pollute the environment.
- Workers must at all times be made aware of the health and safety risks associated with any hazardous substances used (e.g. smoking near fuel tanks), and must be provided with appropriate protective clothing/equipment in case of spillages or accidents.
- Ensure all staff and contractors undergo relevant training in the maintenance of equipment to prevent the accidental discharge or spill of fuel, oil, lubricants and other chemicals.
- Any spill of potentially hazardous materials must be cleaned up immediately (Potentially hazardous materials on site include paint, oil, grease, fuel, turpentine, etc).
- The area of contaminated soil or spill must be deposited into the hazardous waste container(s).
- The contractor should keep Peat, Sorb or a similar absorbent on site to clean up any spills. The absorbent must be stored in a designated area and be available for inspection.
- All spills are to be recorded in the environmental incident book.

EMP.12 Noise

- Noise generating activities must be restricted to between 07:00 and 17:00 Monday to Friday, unless otherwise approved by the appropriate competent person in consultation with adjacent landowners/affected persons.
- All equipment, vehicles and machinery must be in good working condition and be equipped with sound mufflers if necessary.
- Construction staff must be trained and made aware of not creating unnecessary noise such as hooting and shouting.

EMP.13 Pollution Control

- Soil and water pollution through usage of fuel, oil, paint, bitumen or other hazardous substances must be avoided.
- All construction vehicles are to be maintained in good working order so as to prevent soil or water pollution from oil, fuel or other leaks, and to reduce noise pollution.

EMP.14 Rivers and Streams

- During construction of bridge structures, there must be no obstruction of the water flow of rivers and streams.
- Excavated material must not be stockpiled on or near riverbanks, in order to prevent sedimentation occurring.
- Erosion control measures must be employed both during and after construction.
- No impediments to natural surface water flow, other than approved erosion control measures, must occur.

EMP.15 Safety

- Safety measures, such as detour signs, must be implemented during construction to ensure the safety of workers, pedestrians and drivers/passengers in vehicles in the vicinity of construction work.
- Special care must be taken in the vicinity of schools to ensure the safety of children wishing to cross the road under construction.
- The relevant signage (e.g. speed control signs) must be erected alongside the road during the operation phase in order to control traffic.
- Accommodation must be made for pedestrian pathways alongside the road during the construction and operation phases.

EMP.16 Soil Management

- Stormwater drainage pipes must be installed alongside the road in all areas susceptible to soil erosion.
- Erosion should be minimized by the construction of meadow drains and the planting of indigenous vegetation on the side slopes and drains to reduce flow velocity of stormwater.
- Spoil from cuts may be used in existing erosion galleys.
- Stone pitching and gabions should be constructed at pipe culvert outlets.
- Accidental spills of contaminants onto the ground e.g. oil, concrete, fuel and chemicals should be removed together with the contaminated soil.
- If necessary, an absorbent such as Peat Sorb should be used the aid in cleaning up the spill. The contaminated soil should be disposed of in an appropriate container, depending on its classification.
- Servicing and re-fueling of vehicles must only be carried out at construction camp.

EMP.17 Worker Conduct

Code of Conduct for Construction Personnel:

- Do not leave the construction site untidy and strewn with rubbish which will attract animal pests.

- Do not set fires.
- Do not cause any unnecessary, disturbing noise at the construction camp/site or at any designated worker collection/drop off points.
- Do not drive a construction-related vehicle under the influence of alcohol.
- Do not exceed the national speed limits on public roads or exceed the recommended speed limits on the site.
- Do not drive a vehicle which is generating excessive noise or gaseous pollution (noisy vehicles must be reported and repaired as soon as possible).
- Do not litter along the roadsides, including both the public and private roads.
- Do not pollute any water bodies (whether flowing or not).
- No member of the construction team is allowed to enter the areas outside the construction site.

EMP.18 Traffic Disturbances and Diversions

- Any traffic diversions must be undertaken with the approval of all relevant authorities and in accordance with all relevant legislation.
- Wherever possible, traffic diversion must only take place on existing disturbed areas and remain within the existing road reserve.
- Traffic diversion routes must be rehabilitated after use.

EMP.19 Vegetation

- Only vegetation falling directly on the route must be removed where necessary.
- Alien vegetation within the road reserve must be eradicated, and management measures must be implemented for future control of these species.
- Vegetation that has been removed from large areas (e.g. on traffic diversion routes) during construction must be replaced with indigenous vegetation after construction has been completed.

EMP.20 Waste Management

- All general, non-hazardous waste must be placed in a skip container and disposed of at a registered waste disposal site.
- The contractor is to ensure that the portable toilet facilities at the campsite are properly maintained and in working order.
- No disposal, or leakage, of sewage must occur on or near the site.
- All hazardous waste (e.g. oil, paint, empty lime bags, contaminated wash water, etc) must be stored in leak proof containers and disposed of at a registered hazardous waste disposal site.
- The contents of waste storage containers must, under no circumstances, be emptied to the surrounding area. In general, littering, discarding or burying of any materials is not allowed on site or along the route.
- Adequate waste receptacles must be available at strategic points around the construction camp and site for all domestic refuse and to minimize the occurrence of littering.
- Concrete rubble must be collected and disposed of as directed by the Project Manager.
- Each working area must be cleared of litter and building waste (e.g. rubble, wood, concrete packets etc) on completion of the day's work.
- Any spill around the container(s) should be treated as per Section EMP11 and EMP16.

SECTION DWK: DAY WORKS

This part of the Project Specifications deals with the provision for Day works in the Schedule of Quantities. Rates for Day works shall be entered in Section 1800 of the Schedule of Quantities in accordance with the following specifications.

DWK. 1 SCOPE

According to clause 37.2 of the General Conditions of Contract for construction works (GCC) 2010 edition, certain work may be carried out using rates tendered in the day work schedule. A schedule of personnel, plant and equipment which may be necessary to perform work on a day work basis is included in the schedule of quantities. The quantities used in the schedule are for tender evaluation purposes only and the use or not of these items shall not constitute a variation in terms of Clause 37 of the General Conditions of Contract 2010 edition.

No work will be paid for as Day works without the written instruction or approval of the Engineer.

DWK. 2 TYPE OF WORK

The Engineer may order day work in certain cases where it is necessary to vary or to extend the works due to new or unforeseen circumstances to such an extent that the tendered rates for specific items of work are no longer applicable, or where no suitable combination of tendered rates can be used to pay for such work.

As a general rule, applicable rates for additional work items will be agreed between the Contractor and the Engineer. Day works will only be used in exceptional circumstances.

DWK. 3 MATERIALS

Materials for use in works carried out under Day work shall be purchased by the Contractor who shall also arrange for delivery to site, and shall be responsible for any other requirements associated with specific materials. A Provisional Sum has been allowed in Section 1800 for Day work materials. The Contractor shall enter a tendered percentage in the schedule to cover his handling costs and profit, as per other provisional and prime cost sums in this Contract.

Materials shall be paid for using the method described in the Pricing Data. No contract price adjustment will be applicable to materials.

The Contractor shall submit proof of ownership for any materials used in Day works with his day works claim to the Engineer. Further, if specific materials are required for Day works, quotations will be called for as per Clause 37.2.4 of the General Conditions of Contract 2010 edition.

DWK. 4 CONSTRUCTION PLANT HIRE

Where daywork is ordered, the tendered rates for plant hire in Section 1800 shall be used in calculating the payment due for any plant required to execute the daywork. If no rate is included in the schedule for a particular piece of equipment, and where no other rate or combination of rates would provide suitable compensation, then the daywork method of payment described in Clause 37.2.3 of the General Conditions of Contract 2010 edition will be used.

The tendered rates for each item of constructional plant shall include for all operating costs associated with the said item of plant. Such costs are deemed to include fuel, re-fuelling costs, lubrication and routine servicing / maintenance, breakdowns and spares, all overhead costs, site management costs and administration costs. The tendered rates shall also include the plant operator and the general supervision of the plant while it is engaged in the day works.

DWK. 5 SALARIES AND WAGES OF WORKMEN

The salaries and wages of workmen executing daywork shall be paid for using the tendered rates in Section 1800. The tendered rates shall include for all costs associated with the employment of personnel, including salaries, wages, allowances, workmen's compensation, medical aid and pension contributions, government levies and taxes, training costs and any costs associated with living on the site. The tendered rates shall also include for the transportation of the workmen to the site of the day works.

All overhead costs, administration costs, site management costs and the Contractor's profit are deemed to be covered by the DAY WORKS rates and no additions or mark ups will be made to the tendered rates.

The tendered rates shall also include any hand tools normally associated with the workmen's job description e.g. picks, shovels, hammers, saws, spirit levels, etc. The tendered rate for labourers shall also include for the casual supervision by a gang boss or foreman. Only when specifically called for by the Engineer, will payment be made for the use of a gang boss or foreman supervising on a continuous basis.

DWK. 6 MEASUREMENT AND PAYMENT

The following principles shall also apply to the measurement and payment of day works.

The unit of measurement for plant shall be the number of vibroclock hours worked and each item of plant shall be fitted with a vibroclock, the cost of which shall be included in the rates. Excessive non-productive time when the engine is idling will not be paid for. Where there is ambiguity between the flywheel horsepower and mass of the machine, the flywheel horsepower shall govern the measurement category. Where width and mass are specified, mass shall govern the measurement category.

The Contractor's attention is drawn to the requirements of Sub-clauses 37.2.5 and 37.2.6 of the General Condition of Contract 2010 edition with regard to the submission of day works claims.

SECTION OHS : OHS 1993 HEALTH AND SAFETY SPECIFICATION

OHS.1 SCOPE

This specification covers the health and safety requirements to be met by the Contractor to ensure a continued safe and healthy environment for all workers, employees and subcontractors under his control and for all other persons entering the site of works.

This specification shall be read with the Occupational Health and Safety Act (Act No 85 and amendment Act No 181) 1993, and the corresponding Construction Regulations 2014, and all other safety codes and specifications referred to in the said Construction Regulations.

In terms of the OHS Agreement in Section C1.2.4 of the Contract document, the status of the Contractor as mandatory to the Employer (client) is that of an employer in his own right, responsible to comply with all provisions of OHS 1993 and the Construction Regulations 2014.

This safety specification and the Contractor's own Safety Plan as well as the Construction Regulations 2014, shall be displayed on site or made available for inspection by all workers, employees, inspectors and any other persons entering the site of works.

The following are possible risks associated with this project:

- Working high above the ground on top and below the bridge, most of the time in a restricted environment with limited landings (working platforms)
- Working above a continuously flowing river and in an flood plain environment subject to flooding
- Lifting and lowering of materials and equipment from the ground to the bridge and vice versa, exposed to cross winds
- Steep and restricted access to the lower flood plain below the bridge
- Potentially dangerous existing services, i.e. gas lines, water and sewerage mains, electrical high voltage cables, on the bridge, buried and overhead
- Deep excavations in soils requiring shoring or reducing of slopes
- Blasting of hard rock or demolition of concrete
- High pressure during testing of the relocated pipe lines, which could result in potentially dangerous situations in the event of the pipeline or fittings failing
- Potentially harmful gasses when tying into the existing sewer mains
- Movement of construction vehicles on site, taking into consideration steep slopes, other traffic and existing services
- Exposure to possible injuries due to mishandling or failure of power and hand tools
- Falling debris, tools and materials from bridge
- Non-conformance to specifications with regards to fasteners and materials
- Risks related to general safety and security on site

Additional risks may arise from specific methods of construction selected by the Contractor which are not necessary covered in the above.

OHS.2 DEFINITIONS

For the purpose of this contract the following shall apply:

- (a) **Employer** where used in the contract documents and in this specification, means the Employer as defined in the General Conditions of Contract and it shall have the exact same meaning as **client** as defined in the Construction Regulations 2014. **Employer** and **client** is therefore interchangeable and shall be read in the context of the relevant document.

- (b) “**Contractor**” wherever used in the contract documents and in this specification, shall have the same meaning as “**Contractor**” as defined in the General Conditions of Contract.

In this specification the terms “**principal contractor**” and “**contractor**” are replaced with “**Contractor**” and “**subcontractor**” respectively.

For the purpose of this contract the **Contractor** will, in terms of OHS 1993, be the mandatory, without derogating from his status as an employer in his own right.

- (c) “**Engineer**” where used in this specification, means the Engineer as defined in the General Conditions of Contract. In terms of the Construction Regulations the Engineer may act as agent on behalf of the Employer (the client as defined in the Construction Regulations).

OHS.3 TENDERS

The Contractor shall submit the following with his tender:

- (a) a documented Health and Safety Plan as stipulated in Regulation 7 of the Construction Regulations. The Safety Plan must be based on the Construction Regulations 2014 and will be subject to approval by the Employer;
- (b) a declaration to the effect that he has the competence and necessary resources to carry out the work safely in compliance with the Construction Regulations 2014;
- (c) a declaration to the effect that he made provision in his tender for the cost of the health and safety measures envisaged in the Construction Regulations.
- (d) Failure to submit the foregoing with his tender, will lead to the conclusion that the Contractor will not be able to carry out the work under the contract safely in accordance with the Construction Regulations.

OHS.4 NOTIFICATION OF COMMENCEMENT OF CONSTRUCTION WORK

After award of the contract, but before commencement of construction work, the Contractor shall, in terms of Regulation 4, notify the Provincial Director of the Department of Labour in writing if the following work is involved:

- (a) the demolition of structures and dismantling of fixed plant of height of 3,0m or more;
- (b) the use of explosives;
- (c) construction work that will exceed 30 days or 300 person-days;
- (e) excavation work deeper than 1,0m; or
- (f) working at a height greater than 3,0m above ground or landings.

The notification must be done in the form of the pro forma included under Section 9 (Forms to be Completed by Successful Tenderer) of the tender document.

A copy of the notification form must be kept on site, available for inspection by inspectors, Employer, Engineer, employees and persons on site.

OHS.5 RISK ASSESSMENT

Before commencement of any construction work during the construction period, the Contractor shall have a risk assessment performed and recorded in writing by a competent person. (Refer Regulation 9 of the Construction Regulations 2014).

The risk assessment shall identify and evaluate the risks and hazards that may be expected during the execution of the work under the contract, and it shall include a documented plan of safe work procedures to mitigate, reduce or control the risks and hazards identified.

The risk assessment shall be available on site for inspection by inspectors, Employer, Engineer, subcontractors, employees, trade unions and health and safety committee members, and must be monitored and reviewed periodically by the Contractor.

OHS.6 APPOINTMENT OF EMPLOYEES AND SUBCONTRACTORS

6.1 Health and Safety plan

The Contractor shall appoint his employees and any subcontractors to be employed on the contract, in writing, and he shall provide them with a copy of his documented Health and Safety Plan, or relevant sections thereof. The Contractor shall ensure that all subcontractors and employees are committed to the implementation of his Safety Plan.

6.2 Health and safety induction training

The Contractor shall ensure that all employees under his control, including subcontractors and their employees, undergo a health and safety induction training course by a competent person before commencement of construction work. No visitor or other person shall be allowed or permitted to enter the site of the works unless such person has undergone health and safety training pertaining to hazards prevalent on site.

The Contractor shall ensure that every employee on site shall at all times be in possession of proof of the health and safety induction training issued by a competent person prior to commencement of construction work.

OHS.7 APPOINTMENT OF SAFETY PERSONNEL

7.1 Construction Supervisor

The Contractor shall appoint a full-time **Construction Supervisor** with the duty of supervising the performance of the construction work.

He may also have to appoint one or more competent employees to assist the construction supervisor where justified by the scope and complexity of the works.

7.2 Construction safety officer

Taking into consideration the size of the project and the hazards or dangers that can be expected, the Contractor shall appoint in writing a full-time or part-time **Construction Safety Officer** if so decided by the Inspector of the Department of Labour. The Safety Officer shall have the necessary competence and resources to perform his duties diligently.

Provision shall be made by the Contractor in his rates, to cover the cost of this dedicated construction safety officer appointed after award of the contract.

7.3 Health and safety representatives

In terms of **Section 17 and 18 of the Act (OHSA 1993)** the Contractor, being the employer in terms of the Act for the execution of the contract, shall appoint a **health and safety representative** whenever he has more than 20 employees in his employment on the site of the works. The health and safety representative must be selected from employees who are employed in a full-time capacity at a specific workplace.

The number of health and safety representatives for a workplace shall be at least one for every 100 employees.

The function of health and safety representative(s) will be to review the effectiveness of health and safety measures, to identify potential hazards and major incidents, to examine causes of incidents

(in collaboration with his employer, the Contractor), to investigate complaints by employees relating to health and safety at work, to make representations to the employer (Contractor) or inspector on general matters affecting the health and safety of employees, to inspect the workplace, plant, machinery etc. on a regular base, to participate in consultations with inspectors and to attend meetings of the health and safety committee.

7.4 Health and safety committee

In terms of Sections 17 and 18 of the Act (OHS 1993) the Contractor (as employer), shall establish one or more **health and safety committee(s)** where there are two or more health and safety representatives at a workplace. The persons selected by the Contractor to serve on the committee shall be designated in writing.

The function of the health and safety committee shall be to hold meetings at regular intervals, but at least once every three months, to review the health and safety measures on the contract, to discuss incidents related to health and safety with the Contractor and the inspector, and to make recommendations regarding health and safety to the Contractor and to keep record of recommendations and reports made by the committee.

7.5 Competent persons

In accordance with the Construction Regulations the Contractor has to appoint in writing **competent persons** responsible for supervising construction work on each of the following work situations that may be expected on the site of the works.

- (a) Risk assessment and induction training as described in Regulation 9 of the Construction Regulations;
- (b) Fall protection as described in Regulation 10;
- (c) Excavation work as described in Regulation 13;
- (d) Demolition work as described in Regulation 14;
- (e) Scaffolding work as described in Regulation 16;
- (f) Suspended platform operations as described in Regulation 17;
- (g) Material hoists as described in Regulation 19;
- (h) Bulk Mixing plant operations as described in Regulation 20;
- (i) Explosive actuated fastening device as described in Regulation 21;
- (j) Cranes as described in Regulation 22;
- (k) Construction vehicle and mobile plant inspections on a daily basis by a competent person as described in Regulation 23(1);
- (l) Control of all temporary electrical installation on the construction site as described in Regulation 24;
- (m) Stacking and storage on construction sites as described in Regulation 28; and
- (n) Fire precautions on construction sites as described in Regulation 29.

A competent person may be appointed for more than one part of the construction work with the understanding that the person must be suitably qualified and able to supervise at the same time the construction work on all the work situations for which he has been appointed.

The appointment of competent persons to supervise parts of the construction work does not relieve the Contractor from any of his responsibilities to comply with **all** requirements of the Construction Regulations.

OHS.8 RECORDS AND REGISTERS

In accordance with the Construction Regulations the Contractor is bound to keep records and registers related to health and safety on site for periodic inspection by inspectors, the Engineer, the Employer, trade union officials and subcontractors and employees. The following records and registers must be kept on site and shall be available for inspection at all times.

- (a) A copy of the OHSA 1993 Construction Regulations 2014;
- (b) A copy of this Health and Safety Specification;
- (c) A copy of the Contractor's Health and Safety Plan (Regulation 7);
- (d) A copy of the Notification of Construction Work (Regulation 4);
- (e) A health and safety file in terms of Regulation 7(1b) with inputs by the Construction Safety Officer (Regulation 8(5));
- (f) A copy of the risk assessment described in Regulation 9;
- (g) A full protection plan and the corresponding records of evaluation and training of employees working from elevated positions as described in Regulation 10;
- (h) Drawings pertaining to the design of structures (Regulation 11(1c)) and temporary works (Regulation 10) must be kept on site;
- (i) Pronouncement of the safety of excavations must be recorded in a register to be kept on site (Regulation 13(2)(h));
- (j) A copy of the certificate of the system design for suspended platforms (Regulation 17(3));
- (k) A notice must be affixed around the base towers of material hoists to indicate the maximum mass load, which may be carried at any one time by material hoists (Regulation 11(2));
- (l) Maintenance records of material hoists and inspection results must be kept in a record book to be kept on site (Regulation 19(8));
- (m) A record of any repairs to or maintenance of a batch plant must be kept on site (Regulations 19(8));
- (n) A warning notice must be displayed in a conspicuous manner when and wherever an explosive powered tool is used (Regulation 21(2));
- (o) A register for recording of findings by the competent person appointed to inspect construction vehicles and mobile plant (Regulation 23(1) (k)).

OHS.9 CONTRACTORS RESPONSIBILITIES

For this contract the Contractor will be the mandatory of the Employer (Client), as defined in the Act (OHSA 1993), which means that the Contractor has the status of employer in his own right in respect of the contract. The Contractor is therefore responsible for all the duties and obligations of an employer as set out in the Act (OHSA 1993) and the Construction Regulations 2014.

Before commencement of work under the contract, the Contractor shall enter into an agreement with the Employer (Client) to confirm his status as mandatory (employer) for the contract under consideration.

The Contractor's duties and responsibilities are clearly set out in the Construction Regulations 2014, and are not repeated in detail but some important aspects are highlighted hereafter, without relieving the Contractor of any of his duties and responsibilities in terms of the Construction Regulations.

(a) Contractor's position in relation to the Employer (Client) (Regulation 5)

In accordance with Section 4 of the Regulations, the Contractor shall liaise closely with the Employer or the Engineer on behalf of the Employer, to ensure that all requirements of the Act and the Regulations are met and complied with.

(b) The Principal Contractor and Contractor (Regulation 7)

The Contractor is in terms of the definition in Regulation 2(b) the equivalent of Principle Contractor as defined in the Construction Regulations, and he shall comply with all the provisions of Regulation 7.

Any subcontractors employed by the Contractor must be appointed in writing, setting out the terms of the appointment in respect of health and safety. An independent subcontractor shall however provide and demonstrate to the Contractor a suitable, acceptable and sufficiently documented health and safety plan before commencement of the subcontract. In the absence of such a health and safety plan the subcontractor shall undertake in writing that he will comply with the Contractor's safety plan, the health and safety specifications of the Employer and the Construction Regulations 2014.

(c) Management Supervision of construction work (Regulation 8)

The Contractor shall appoint the safety and other personnel and employees as required in terms of Regulation 8 and as set out in paragraph 7 above. Appointment of those personnel and employees does not relieve the Contractor from any of the obligations under Regulation 8.

(d) Risk assessment for construction works (Regulation 9)

The Contractor shall have the risk assessment made as set out in paragraph 3 above before commencement of the work and it must be available on site for inspection at all times. The Contractor shall consult with the health and safety committee or health and safety representative(s) etc. on a regular basis to ensure that all employees, including subcontractors under his control, are informed and trained by a competent person regarding health hazards and related work procedures.

No subcontractor, employee or visitor shall be allowed to enter the site of works without prior health and safety induction training, all as specified in Regulation 9.

(e) Fall protection (Regulation 10)

Fall protection, if applicable to this contract shall comply in all respects with Regulation 10 of the Construction Regulations.

(f) Structures (Regulation 11)

The Contractor will be liable for all claims arising from collapse or failure of structures if he failed to comply with all the specifications, project specifications and drawings related to the structures, unless it can be proved that such collapse or failure can be attributed to faulty design or insufficient design standards on which the specifications and the drawings are based.

In addition the Contractor shall comply with all aspects of Regulation 11 of the Construction Regulations.

(g) Temporary works (Regulation 12)

The Contractor will be responsible for the adequate design of all formwork and support structures by a competent person.

All drawings pertaining to formwork shall be kept on site and all equipment and materials used in formwork, shall be carefully examined and checked for suitability by a competent person.

The provisions of Regulation 12 of the Construction Regulations shall be followed in every detail.

(h) Excavation (Regulation 13)

It is essential that the Contractor shall follow the instructions and precautions in the Standard Specifications and Project Specifications as well as the provisions of the Construction Regulations to the letter as unsafe excavations can be a major hazard on any construction site. The Contractor shall therefore ensure that all excavation work is carried out under the supervision of a competent person, that inspections are carried out by a Professional Engineer or Technologist, and that all work is done in such a manner that no hazards are created by unsafe excavations and working conditions.

Supervision by a competent person will not relieve the Contractor from any of his duties and responsibilities under Regulation 13 of the Construction Regulations.

(i) Demolition work (Regulation 14)

Whenever demolition work is included in a contract, the Contractor shall comply with all the requirements of Regulation 14 of the Construction Regulations. The fact that a competent person has to be appointed by the Contractor does not relieve the Contractor from any of his responsibilities in respect of safety of demolition work.

(j) Tunneling (Regulation 15)

The Contractor shall comply with Regulation 15 wherever tunneling of any kind is involved.

(k) Scaffolding (Regulation 16)

The Contractor shall ensure that all the provisions of Regulation 16 of the Construction Regulations are complied with. [Note: Reference in the Regulations to "Section 44 of the Act" should read "Section 43 of the Act"].

(l) Suspended platforms (Regulation 17)

Wherever suspended platforms will be necessary on any contract, the Contractor shall ensure that copies of the system design issued by a Professional Engineer are submitted to the Engineer for inspection and approval. The Contractor shall appoint competent persons as supervisors and competent scaffold erectors, operators and inspectors and ensure that all work related to suspended platforms are done in accordance with Regulation 17 of the Construction Regulations.

(m) Rope Access (Regulation 18)

Where rope access are required on the construction site, the Contractor shall comply with Regulation 18.

(n) Material Hoists (Regulation 19)

Wherever applicable, the Contractor shall comply with the provisions of Regulation 19 to the letter.

(o) Bulk Mixing plants (Regulation 20)

Wherever applicable, the Contractor shall ensure that all lifting machines, lifting tackle, conveyors, etc. used in the operation of a batch plant shall comply with, and that all operators, supervisors and employees are strictly held to the provisions of Regulation 20. The Contractor shall ensure that the General Safety Regulations (Government Notice R1031 of 30 May 1986), the Driven Machinery Regulations (Government Notice R295 of 26/2/1988) and the Electrical Installation Regulations (Government Notice R2271 of 11/10/1995) are adhered to by all involved.

In terms of the Regulations, records of repairs and maintenance shall be kept on site.

(p) Explosive actuated fastening devices (Regulation 21)

The Contractor shall ensure that, wherever explosive-powered tools are required to be used, all safety provisions of Regulation 21 are complied with.

It is especially important that warning notices are displayed and that the issue and return of cartridges and spent cartridges be recorded in a register to be kept on site.

(q) Cranes (Regulation 22)

Wherever the use of tower cranes becomes necessary, the provisions of Regulation 22 shall be complied with.

(r) Construction vehicles and mobile plant (Regulation 23)

The Contractor shall ensure that all construction vehicles and plant are in good working condition and safe for use, and that they are used in accordance with their design and intended use. The vehicles and plant shall only be operated by workers or operators who have received appropriate training, all in accordance with all the requirements of Regulation 23.

All vehicles and plant must be inspected on a daily basis, prior to use, by a competent person and the findings must be recorded in a register to be kept on site.

(s) Electrical installation and machinery on construction sites (Regulation 24)

The Contractor shall comply with the Electrical Installation Regulations (Government Notice R2920 of 23 October 1992) and the Electrical Machinery Regulations (Government Notice R1953 of 12 August 1993). Before commencement of construction, the Contractor shall take adequate steps to ascertain the presence of, and guard against dangers and hazards due to electrical cables and apparatus under, over or on the site.

All temporary electrical installations on the site shall be under the control of a competent person, without relieving the Contractor of his responsibility for the health and safety of all workers and persons on site in terms of Regulation 24.

(t) Use of temporary storage of flammable liquids on construction sites (Regulation 25)

The Contractor shall comply with the provisions of the General Safety Regulations (Government Notice R1031 of 30 May 1986) and all the provisions of Regulation 25 of the Construction Regulations to ensure a safe and hazard-free environment to all workers and other persons on site.

(u) Water environments (Regulation 26)

Where construction work is done over or in close proximity to water, the provisions of Regulation 26 shall apply.

(v) Housekeeping and general safeguarding on construction sites (Regulation 27)

Housekeeping on all construction sites shall be in accordance with the provisions of the environment Regulations for workplaces (Government Notice R2281 of 16 October 1987) and all the provisions of Regulation 27 of the Construction Regulations.

(w) Stacking and storage on construction sites (Regulation 28)

The provisions for the stacking of articles contained in the General Safety Regulations (Government Notice R1031 of 30 May 1986) as well as all the provisions Regulation 28 of the Construction Regulations shall apply.

(x) Fire precautions on construction sites (Regulation 29)

The provisions of the Environmental Regulations for Workplaces (Government Notice R2281 of 16 October 1987) shall apply.

In addition the necessary precautions shall be taken to prevent the incidence of fires, to provide adequate and sufficient fire protection equipment, sirens, escape routes etc. all in accordance with Regulation 29 of the Construction Regulations.

(y) Construction welfare facilities (Regulation 30)

The Contractor shall comply with the construction site provisions as in the Facilities Regulations (Government Notice R1593 of 12 August 1988) and the provisions of Regulation 30 of the Construction Regulations.

(z) Non-compliance with the Construction Regulations 2014

The foregoing is a summary of parts of the Construction Regulations applicable to all construction projects.

The Contractor, as employer for the execution of the contract, shall ensure that all provisions of the Construction Regulations applicable to the contract under consideration are complied with to the letter.

Should the Contractor fail to comply with the provisions of the Regulations 4 to 30 as listed in Regulation 33, he will be guilty of an offence and will be liable, upon conviction, to the fines or imprisonment as set out in Regulation 33.

The Contractor is advised in his own interest to make a careful study of the Act and the Construction Regulations as ignorance of the Act and the Regulations will not be accepted in any proceedings related to non-conformance to the Act and the Regulations.

OHS.10 MEASUREMENT AND PAYMENT

10.1 Principles

It is a condition of this contract that Contractors, who submit tenders for this contract, shall make provision in their tenders for the cost of all health and safety measures during the construction process. All associated activities and expenditure are deemed to be included in the Contractor's tendered rates and prices.

(a) Safety personnel

The Construction Supervisor, the Construction Safety Officer, Health and Safety Representatives, Health and Safety Committee and Competent Persons referred to in clauses 9.1 to 9.5 shall be members of the Contractor's personnel, and no additional payment will be made for the appointment of such safety personnel.

(b) Records and Registers

The keeping of health and safety-related records and registers as described in 8 is regarded as a normal duty of the Contractor for which no additional payment will be considered, and which is deemed to be included in the Contractor's tendered rates and prices.

TENDER NUMBER: EPMLM/8/3/427

FOR: DICHOEUNG INTERNAL STREET etender document

PART C5 ANNEXURES

(For Information Purposes Only)

SECTION CONTENTS

C5.1 Annex I - Environmental Management Plan

C5.2 Annex II - Borrow Pit Guarantee

C5.3 Annex III - Health and Safety Specification

C5.1 PART G: Annex I ENVIRONMENTAL MANAGEMENT PLAN

CONTENTS

G 01 SCOPE

This environmental management programme (EMP) sets out the methods by which proper environmental controls are to be implemented by the Contractor. The duration over which the Contractor's controls shall be in place cover the construction period of the project as well as the limited time after contract completion defined by the General Conditions of Contract, and the project specifications, as the defects liability period.

The provisions of this EMP are binding on the Contractor during the life of the contract. They are to be read in conjunction with all the documents that comprise the suite of documents for this contract. In the event that any conflict occurs between the terms of the EMP and the project specifications or Record of Decision, the terms herein shall be subordinate.

The EMP is a dynamic document subject to similar influences and changes as are brought by variations to the provisions of the project specification. Any substantial changes shall be submitted to the Employer in writing for approval.

The EMP identifies the following:

Construction activities that will impact on the environment. Specifications with which the Contractor shall comply in order to protect the environment from the identified impacts. Actions that shall be taken in the event of non-compliance.

G 02 DEFINITIONS

Alien Vegetation: alien vegetation is defined as undesirable plant growth which shall include, but not be limited to, all declared category 1 and 2 listed invader species as set out in the Conservation of Agricultural Resources Act (CARA) regulations. Other vegetation deemed to be alien shall be those plant species that show the potential to occupy in number, any area within the defined construction area and which are declared to be undesirable.

Construction Activity: a construction activity is any action taken by the Contractor, his subcontractors, suppliers or personnel during the construction process as defined in the South African National Roads Agency Limited and National Roads Act, 1998 (Act No. 7, 1998)

Environment: environment means the surroundings within which humans exist and that could be made up of:

- the land, water and atmosphere of the earth;
- micro-organisms, plant and animal life;
- any part or combination of (i) and (ii) and the interrelationships among and between them; and
- the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

Environmental Aspect: an environmental aspect is any component of a contractor's construction activity that is likely to interact with the environment.

Environmental Impact: an impact or environmental impact is the change to the environment, whether desirable or undesirable, that will result from the effect of a construction activity. An impact may be the direct or indirect consequence of a construction activity.

Record of Decision: a record of decision is a written statement from the National Department of Environmental Affairs and Tourism, (NDEAT), that records its approval of a planned undertaking to improve, upgrade or rehabilitate a section of road and the mitigating measures required to prevent

or reduce the effects of environmental impacts during the life of a contract.

Road Reserve: the road reserve is a corridor of land, defined by co-ordinates and proclamation, within which the road, including access intersections or interchanges, is situated. A road reserve may, or may not, be bounded by a fence.

Road Width: for the purposes of the EMP, the road width is defined as the area within the road reserve i.e. fence line to fence line, but also includes all areas beyond the road reserve that are affected by the continuous presence of the road, e.g. a reach of a water course.

Listed in the table below are some of the references in the COLTO Standard Specifications to environmental related issues.

Description	Reference
Establishment of site offices	1302(a), 1402(e).
Vegetation	5801(b), 5802(b), (c), (d), and (e), 5804, 5805, 5806 and 5807.
Rehabilitation	1302(a) and Sections 5800 and 5900 of the Standard and Project Specifications
Sewage treatment	1402(g) and 1404(a) and Part B of the Project Specifications, clause B1302(a).
Litter	1302(b).
Removal of solid waste	1404(a).
Soil management	3104(a), 5802(a), (g), 5804(a), (b), and (c).
Borrow/Quarry material	3100. (The cost of complying with the requirements shall be deemed to be included in existing rates in the Bill of Quantities.)
Discovery of archaeological sites, artefacts or graves	Clause 4.7 of the GCC 2015 General Conditions of Contract.
Graves	
Stockpiled material	3202 and 4306.
Pollution prevention	Sub clause 8.1.2 of the GCC 2015 General Conditions of Contract.

G 03 IDENTIFICATION OF ENVIRONMENTAL ASPECTS AND IMPACTS

The Contractor shall identify likely aspects before commencing with any construction activity. Examples of environment aspects include:

- waste generation
- stormwater discharge
- emission of pollutants into the atmosphere
- chemical use operations
- energy use operations
- water use operations
- use of natural resources
- noise generation

Thereafter the Contractor shall programme his work in such a way that each cause and effect of a construction activity is also identified and the activity planned so as to prevent any impact from happening. If prevention is not practicable, or in the event of mishap or misapplication, the Contractor shall provide plans and measures for the Engineer's approval, which will limit and

contain the magnitude, duration and intensity of the impact. The Contractor shall demonstrate that he/she is capable of carrying out any repair and reinstatement of the damaged environment. These requirements shall be concurrent with the time constraints to produce an approved construction programme according to sub clause 5.6 of the general conditions of contract and clause B1204 of these project specifications.

Listed below are some environmental impacts that could adversely alter an aspect of the environment through usual construction activities:

- Pollution of atmosphere, soil or water
- Destruction or removal of fauna and flora and effect on biological diversity
- Deformation of the landscapes oil erosion
- Destruction of historical/heritage sites
- Effect on the built environment
- Effect on agricultural land and wetlands

General good construction practice will play an important role in avoiding the occurrence of an Impact. The Contractor's attention is drawn, in this regard, to G 08. Environmental Management of Construction Activities.

G 04 LEGAL REQUIREMENTS

G04.01 General

Construction will be according to the best industry practices, as identified in the project documents. This EMP, which forms an integral part of the contract documents, informs the Contractor as to his duties in the fulfilment of the project objectives, with particular reference to the prevention and mitigation of environmental impacts caused by construction activities associated with the project. The Contractor should note that obligations imposed by the EMP are legally binding in terms of environmental statutory legislation and in terms of the additional conditions to the general conditions of contract that pertain to this project. In the event that any rights and obligations contained in this document contradict those specified in the standard or project specifications then the latter shall prevail.

G04.02 Statutory and other applicable legislation

The Contractor is deemed to have made himself conversant with all legislation pertaining to the environment, including provincial and local government ordinances, which may be applicable to the contract.

G 05 ADMINISTRATION OF ENVIRONMENTAL OBLIGATIONS

G 05.01 Appointment of a Designated Environmental Officer (DEO)

For the purposes of implementing the conditions contained herein, the Contractor shall submit to the Engineer for approval the appointment of a nominated representative of the Contractor as the DEO for the contract. The request shall be given, in writing, at least fourteen days before the start of any work clearly setting out reasons for the nomination, and with sufficient detail to enable the Engineer to make a decision. The Engineer will, within seven days of receiving the request, approve, reject or call for more information on the nomination. Once a nominated representative of the Contractor has been approved he/she shall be the DEO and shall be the responsible person for ensuring that the provisions of the EMP are complied with during the life of the contract. The Engineer will be responsible for issuing instructions to the Contractor where environmental considerations call for action to be taken. The DEO shall submit regular written reports to the Engineer, but not less frequently than once a month.

The Engineer shall have the authority to instruct the Contractor to replace the DEO if, in the Engineer's opinion, the appointed officer is not fulfilling his/her duties in terms of the requirements of the EMP or this specification. Such instruction will be in writing and shall clearly set out the reasons why a replacement is required. There shall be an approved DEO on the site at all times.

G 05.02 Administration

Before the Contractor begins each construction activity the DEO shall give to the Engineer a written statement setting out the following:

- The type of construction activity.
- Locality where the activity will take place.
- Identification of the environmental aspects and impacts that might result from the activity.
- Methodology for impact prevention for each activity or aspect.
- Methodology for impact containment for each activity or aspect.
- Emergency/disaster incident and reaction procedures.
- Treatment and continued maintenance of impacted environment.
- The Contractor may provide such information in advance of any or all construction activities provided that new submissions shall be given to the Engineer whenever there is a change or variation to the original.

The Engineer may provide comment on the methodology and procedures proposed by the DEO, but he shall not be responsible for the Contractor's chosen measures of impact mitigation and emergency/disaster management systems. However, the Contractor shall demonstrate at inception and at least once during the contract that the approved measures and procedures function properly.

G 05.03 Good Housekeeping

The Contractor shall undertake "good housekeeping" practices during construction as stated in clause 1217 of the COLTO Standard Specifications for Roads and Bridges. This will help avoid disputes on responsibility and allow for the smooth running of the contract as a whole. Good housekeeping extends beyond the wise practice of construction methods that leaves production in a safe state from the ravages of weather to include the care for and preservation of the environment within which the site is situated.

G 06 TRAINING

The designated environmental officer (DEO) must be conversant with all legislation pertaining to the environment applicable to this contract and must be appropriately trained in environmental management and must possess the skills necessary to impart environmental management skills to all personnel involved in the contract.

The Contractor shall ensure that adequate environmental training takes place. All employees shall have been given an induction presentation on environmental awareness. Where possible, the presentation needs to be conducted in the language of the employees. The environmental training should, as a minimum, include the following:

- The importance of conformance with all environmental policies
- The environmental impacts, actual or potential, of their work activities
- The environmental benefits of improved personal performance;
- Their roles and responsibilities in achieving conformance with the environmental policy and procedures and with the requirement of the Agency's environmental management systems, including emergency preparedness and response requirements;
- The potential consequences of departure from specified operating procedures;
- The mitigation measures required to be implemented when carrying out their work activities.
- In the case of permanent staff, the Contractor shall provide evidence that such induction courses have been presented. In the case of new staff (including contract labour) the Contractor shall inform the Engineer when and how he/she intends concluding his environmental training obligations.

G 07 ACTIVITIES/ASPECTS CAUSING IMPACTS

A list of possible causes of environmental impacts that occur during construction activities is given in Table 1: Aspects or Activities that Cause Environmental Impacts during Construction Activities, which is to be found at the end of this part. This list is not exhaustive, and shall be used for guideline purposes only.

G 08 ENVIRONMENTAL MANAGEMENT OF CONSTRUCTION ACTIVITIES

G 08.01 Site Establishment

G 08.01.01 Site Plan

The Contractor shall establish his construction camps, offices, workshops, staff accommodation and testing facilities on the site in a manner that does not adversely affect the environment. However, before construction can begin, the Contractor shall submit to the Engineer for his approval, plans of the exact location, extent and construction details of these facilities and the impact mitigation measures the Contractor proposes to put in place.

The plans shall detail the locality as well as the layout of the waste treatment facilities for litter, kitchen refuse, sewage and workshop-derived effluents. The site offices should not be sited in close proximity to steep areas, as this will increase soil erosion. Preferred locations would be flat areas along the route. If the route traverses water courses, streams and rivers, it is recommended that the offices, and in particular the ablution facilities, aggregate stockpiles, spoil areas and hazardous material stockpiles are located as far away as possible from any water course as possible. Regardless of the chosen site, the Contractor's intended mitigation measures shall be indicated on the plan. The site plan shall be submitted not later than the first site meeting. Detailed, electronic colour photographs shall be taken of the proposed site before any clearing may commence. These records are to be kept by the Engineer for consultation during rehabilitation of the site. Read with COLTO Specification 1302(a), 1402(e).

G 08.01.02 Vegetation

The Contractor has a responsibility to inform his staff of the need to be vigilant against any practice that will have a harmful effect on vegetation.

The natural vegetation encountered on the site is to be conserved and left as intact as possible. Vegetation planted at the site shall be indigenous and in accordance with instructions issued by the Engineer. Only trees and shrubs directly affected by the works, and such others as may be indicated by the Engineer in writing, may be felled or cleared. In wooded areas where natural vegetation has been cleared out of necessity, the same species of indigenous trees as were occurring, shall be re-established.

The project specification for the rehabilitation of the grass cover shall be strictly adhered to. Any proclaimed weed or alien species that propagates during the contract period shall be cleared by hand before seeding. (Read in conjunction with COLTO Specification 5801(b), 5802(b), (c), (d) and (e), 5804, 5805, 5806 and 5807). Fires shall only be allowed in facilities or equipment specially constructed for this purpose. A firebreak shall be cleared and maintained around the perimeter of the camp and office sites.

G 08.01.03 Rehabilitation

The area where the site offices were erected will require rehabilitation at the end of the contract. All construction material, including concrete slabs and braai areas shall be removed from the site on completion of the contract.

G 08.01.04 Water for human consumption

Water for human consumption shall be available at the site offices and at other convenient locations on site.

All effluent water from the camp/office sites shall be disposed of in a properly designed and constructed system, situated so as not to adversely affect water sources (streams, rivers, pans dams etc.). Only domestic type wastewater shall be allowed to enter this drain.

G 08.01.05 Heating and Cooking fuel

The Contractor shall provide adequate facilities for his staff so that they are not encouraged to supplement their comforts on site by accessing what can be taken from the natural surroundings. The Contractor shall ensure that energy sources are available at all times for construction and supervision personnel for heating and cooking purposes.

G 08.02 Sewage treatment (impose penalties on solid waste non-conformance)

Particular reference in the site establishment plan shall be given to the treatment of sewage generated at the site offices, site laboratory and staff accommodation and at all localities on the site where there will be a concentration of labour. Sanitary arrangements should be to the satisfaction of project management, the local authorities and legal requirements.

Safe and effective sewage treatment will require one of the following sewage handling methods: septic tanks and soak-away, dry-composting toilets such as "enviro loos", or the use of chemical toilets which are supplied and maintained by a subcontractor. The type of sewage treatment will depend on the geology of the area selected, the duration of the contract and proximity (availability) of providers of chemical toilets. Should a soak-away system be used, it shall not be closer than 800 metres from any natural water course or water retention system. The waste material generated from these facilities shall be serviced on a regular basis. The positioning of the chemical toilets shall be done in consultation with the Engineer. Read with COLTO Specifications 1402(g) and 1404(a).

Toilets and latrines shall be easily accessible and shall be positioned within walking distance from wherever employees are employed on the works. Use of the veld for this purpose shall not, under any circumstances, be allowed. Monthly proof of safe disposal must be filed on site by the contractor.

Outside toilets shall be provided with locks and doors and shall be secured to prevent them from blowing over. The toilets shall also be placed outside areas susceptible to flooding. The Contractor shall arrange for regular emptying of toilets and shall be entirely responsible for enforcing their use and for maintaining such latrines in a clean, orderly and sanitary condition to the satisfaction of the Engineer.

G 08.03 Waste Management

The Contractor's intended methods for waste management and waste minimisation shall be implemented at the outset of the contract. All personnel shall be instructed to dispose of all waste in the proper manner.

Monthly proof of safe disposal for all waste must be filed on site.

Waste disposal

- Suitable covered receptacles shall be available at all times and conveniently placed for the disposal of waste.

- All used oils, grease or hydraulic fluids shall be placed therein and these receptacles will be removed from the site on a regular basis for disposal at a registered or licensed disposal facility.
- All spills should be cleaned up immediately to the satisfaction of the ECO by removing the spillage together with the polluted soil and by disposing of them at a recognised facility.

G 08.03.01 Solid Waste

Solid waste shall be stored in an appointed area in covered, tip proof metal drums for collection and disposal. A refuse control system shall be established for the collection and removal of refuse to the satisfaction of the Engineer. Disposal of solid waste shall be at a DWS licensed landfill site or at a site approved by DWS in the event that an existing operating landfill site is not within reasonable distance from the site offices and staff accommodation. No waste shall be burned or buried at or near the site offices, nor anywhere else on the site, including the approved solid waste disposal site. Read with COLTO Specification 1404(a).

G 08.03.02 Litter

No littering by construction workers shall be allowed. During the construction period, the facilities shall be maintained in a neat and tidy condition and the site shall be kept free of litter.

Measures shall be taken to reduce the potential for litter and negligent behaviour with regard to the disposal of all refuse. At all places of work, the Contractor shall provide litter collection facilities for later safe disposal at approved sites. (Read with COLTO Specification 1302(b)).

G 08.03.03 Hazardous waste

Hazardous waste such as bitumen, tar, oils etc. shall be disposed of in a DWS approved landfill site. Special care shall be taken to avoid spillage of tar or bitumen products such as binders or pre-coating fluid to avoid water-soluble phenols from entering the ground or contaminating water.

Under no circumstances shall the spoiling of tar or bituminous products on the site, over embankments, in borrow pits or any burying, be allowed. Unused or rejected tar or bituminous products shall be returned to the supplier's production plant. Any spillage of tar or bituminous products shall be attended to immediately and affected areas shall be promptly reinstated to the satisfaction of the Engineer.

G 08.04 **Control at the workshop**

The Contractor's management and maintenance of his plant and machinery will be strictly monitored according to the criteria given below, regardless whether it is serviced on the site (i.e. at the place of construction activity or at a formalised workshop)

G 08.04.01 Safety

All the necessary handling and safety equipment required for the safe use of petrochemicals and oils shall be provided by the Contractor to, and used or worn by, the staff whose duty it is to manage and maintain the Contractor's and his subcontractor's and supplier's plant, machinery and equipment.

G 08.04.02 Hazardous Material Storage

Petrochemicals, oils and identified hazardous substances shall only be stored under controlled conditions. All hazardous materials e.g. tar or bitumen binders shall be stored in a secured, appointed area that is fenced and has restricted entry. Storage of tar or bituminous products shall only take place using suitable containers to the approval of the Engineer.

The Contractor shall provide proof to the Engineer that relevant authorisation to store such substances has been obtained from the relevant authority. In addition, hazard signs indicating the nature of the stored materials shall be displayed on the storage facility or containment structure. Before containment or storage facilities can be erected the Contractor shall furnish the Engineer with details of the preventative measures he proposes to install in order to mitigate against pollution of the surrounding environment from leaks or spillage. The preferred method shall be a concrete floor that is bunded. Any deviation from the method will require proof from the relevant authority that the alternative method proposed is acceptable to that authority. The proposals shall also indicate the emergency procedures in the event of misuse or spillage that will negatively affect an individual or the environment.

G 08.04.03 Fuel and Gas Storage

Fuel shall be stored in a secure area in a steel tank supplied and maintained by the fuel suppliers. An adequate bund walls, 110% of volume, shall be provided for fuel and diesel areas to accommodate any leakage spillage or overflow of these substances. The area inside the bund wall shall be lined with an impervious lining to prevent infiltration of the fuel into the soil. Any leakage, spillage or overflow of fuel shall be attended to without delay.

G 08.04.04 Oil and Lubricant Waste

Used oil, lubricants and cleaning materials from the maintenance of vehicles and machinery shall be collected in a holding tank and sent back to the supplier. Water and oil should be separated in an oil trap. Oils collected in this manner, shall be retained in a safe holding tank and removed from site by a specialist oil recycling company for disposal at approved waste disposal sites for toxic/hazardous materials. Oil collected by a mobile servicing unit shall be stored in the service unit's sludge tank and discharged into the safe holding tank for collection by the specialist oil recycling company.

All used filter materials shall be stored in a secure bin for disposal off site. Any contaminated soil shall be removed and replaced. Soils contaminated by oils and lubricants shall be collected and disposed of at a facility designated by the local authority to accept contaminated materials.

G 08.05 Clearing the Site

In all areas where the Contractor intends to, or is required to clear the natural vegetation and soil, either within the road reserve, or at designated or instructed areas outside the road reserve, a plan of action shall first be submitted to the Engineer for his approval. Contractor to communicate with an appointed ECO before clearing any area on site.

The plan shall contain a photographic record and chainage/land reference of the areas to be disturbed. This shall be submitted to the Engineer for his records before any disturbance/stockpiling may occur. The record shall be comprehensive and clear, allowing for easy identification during subsequent inspections.

The Contractor shall be responsible for the re-establishment of grass within the road reserve boundaries for all areas disturbed during road construction. This includes, for example, service roads, stockpile areas, stop/go facilities, windrows and wherever material generated for, or from, road construction has to be stored temporarily or otherwise within the road reserve, or at designated or instructed areas outside the road reserve. This responsibility shall extend until expiry of the defects liability period.

G 08.06 Soil Management

G 08.06.01 Topsoil

Topsoil shall be removed from all areas where physical disturbance of the surface will occur and shall be stored and adequately protected. The contract will provide for the stripping and stockpiling of topsoil from the site for later re-use. Topsoil is considered to be the natural soil covering, including all the vegetation and organic matter. Depth may vary at each site. The areas to be cleared of topsoil shall include the storage areas. All topsoil stockpiles and windrows shall be maintained throughout the contract period in a weed-free condition. Weeds appearing on the stockpiled or windrowed topsoil shall be removed by hand. Soils contaminated by hazardous substances shall be disposed of at an approved Department of Water and Sanitation waste disposal site. (Read with COLTO Specifications 3104(a), 5802(a), (g), 5804(a), (b) and (c)). The topsoil stockpiles shall be stored, shaped and sited in such a way that they do not interfere with the flow of water to cause damming or erosion, or itself be eroded by the action of water. Stockpiles of topsoil shall not exceed a height of 2m, and if they are to be left for longer than 6 months, shall be analysed, and if necessary, upgraded before replacement. Stockpiles shall be protected against infestation by weeds.

The Contractor shall ensure that no topsoil is lost due to erosion – either by wind or water. Areas to be top soiled and grassed shall be done so systematically to allow for quick cover and reduction in the chance of heavy topsoil losses due to unusual weather patterns. The Contractor's programme shall clearly show the proposed rate of progress of the application of topsoil and grassing. The Contractor shall be held responsible for the replacement, at his own cost, for any unnecessary loss of topsoil due to his failure to work according to the progress plan approved by the Engineer. The Contractor's responsibility shall also extend to the clearing of drainage or water systems within and beyond the boundaries of the road reserve that may have been affected by such negligence.

G 08.06.02 Subsoil

The subsoil is the layer of soil immediately beneath the topsoil. It shall be removed, to a depth instructed by the Engineer, and stored separately from the topsoil if not used for road building. This soil shall be replaced in the excavation in the original order it was removed for rehabilitation purposes.

G 08.07 Drainage

The quality, quantity and flow direction of any surface water runoff shall be established prior to disturbing any area for construction purposes. Cognisance shall be taken of these aspects and incorporated into the planning of all construction activities. Before a site is developed or expanded, it shall be established how this development or expansion will affect the drainage pattern. Recognised water users / receivers shall not be adversely affected by the expansion or re-development. No water source shall be polluted in any way due to proposed changes.

Streams, rivers, pans, wetlands, dams, and their catchments shall be protected from erosion and from direct or indirect spillage of pollutants such as refuse, garbage, cement, concrete, sewage, chemicals, fuels, oils, aggregate, tailings, wash water, organic materials and bituminous or tar products.

The Contractor shall submit to the Engineer his proposals for prevention, containment and rehabilitation measures against environmental damage of the identified water and drainage systems that occur on the site. Consideration shall be given to the placement of sedimentation ponds or barriers where the soils are of a dispersive nature or where toxic fluids are used in the construction process. The sedimentation ponds must be large enough to contain runoff so that they function properly under heavy rain conditions.

G 08.08 Earthworks and Layer works

This section includes all construction activities that involve the mining of all materials, and their subsequent placement, stockpile, spoil, treatment or batching, for use in the permanent works, or temporary works in the case of deviations. Before any stripping prior to the commencement of construction, the Contractor shall have complied with the requirements of sections G 08.05 and G 08.07. In addition, the Contractor shall take cognisance of the requirements set out below.

G 08.08.01 Quarries and borrow pits

The Contractor's attention is drawn to the requirement of the Department of Minerals and Energy, that before entry into any quarry or borrow pit, an EMP for the establishment, operation and closure of the quarry or borrow pit shall have been approved by the Department. It is the responsibility of the Contractor to ensure that he is in possession of the approved EMP or a copy thereof, prior to entry into the quarry or borrow pit. The conditions imposed by the relevant EMP are legally binding on the Contractor and may be more extensive and explicit than the requirements of this specification. In the event of any conflict occurring between the requirements of the specific EMP and these specifications the former shall apply. The cost of complying with the requirements shall be deemed to be included in existing rates in the Bill of Quantities. (Read with COLTO Specification 3100 and 3200). An approval from DMR with all the conditions which need to be adhered to by the contractor will be given to the appointed contractor.

Demarcating the Borrow pit/Quarrying Area

- The mining/Quarrying area must be clearly demarcated by means of beacons at its corners, and along its boundaries if there is no visibility between the corner beacons.
- Permanent beacons as indicated on the layout plan or as prescribed must be firmly erected and maintained in their correct position throughout the life of the operation.
- Mining/ Quarrying and resultant operations shall only take place within this demarcated area.

RESTRICTIONS ON MINING/Quarrying Area

- On assessment of the application, the Regional Manager may prohibit the conducting of mining or Quarrying operations in vegetated areas or over portions of these areas
- In the case of areas that are excluded from mining, no operations shall be conducted within 5 m of these areas.

RESPONSIBILITY

- The environment affected by the mining operations shall be rehabilitated by the holder, as far as is practicable, to its natural state or to a predetermined and agreed to standard or land use which conforms with the concept of sustainable development. The affected environment shall be maintained in a stable condition that will not be detrimental to the safety and health of humans and animals and that will not pollute the environment or lead to the degradation thereof.
- It is the responsibility of the holder of the mining permit to ensure that the manager on the site and the employees are capable of complying with all the statutory requirements which must be met in order to mine, which includes the implementation of this EMP.

Maintenance of access roads

- In the case of dual or multiple use of access roads by other users, arrangements for multiple responsibility must be made with the other users. If not, the maintenance of access roads will be the responsibility of the holder of the mining permit/ prospecting right.
- Newly constructed access roads shall be adequately maintained so as to minimise dust, erosion or undue surface damage.

Dust control on the access and haul roads

- The liberation of dust into the surrounding environment shall be effectively controlled by the use of, inter alia, water spraying and/or other dust-allaying agents. The speed of haul trucks and other vehicles must be strictly controlled to avoid dangerous conditions; excessive dust or excessive deterioration of the road being used.

1) Rehabilitation of access roads

- **Whenever a mining permit is suspended, cancelled or abandoned or if it lapses and the holder does not wish to renew the permit or right, any access road or portions thereof, constructed by the holder and which will no longer be required by the landowner/tenant, shall be removed and/or rehabilitated to the satisfaction of the Regional Manager.**
- Any gate or fence erected by the holder which is not required by the landowner/tenant, shall be removed and the situation restored to the pre-mining/ prospecting situation.
- Roads shall be ripped or ploughed, and if necessary, appropriately fertilised (based on a soil analysis) to ensure the regrowth of vegetation. Imported road construction materials which may hamper regrowth of vegetation must be removed and disposed of in an approved manner prior to rehabilitation.

Toilet facilities, waste water and refuse disposal

- As a minimum requirement, the holder of a mining permit shall, at least, provide pit latrines for employees and proper hygiene measures shall be established.
- Chemical toilet facilities or other approved toilet facilities such as a septic drain shall preferably be used and sited on the camp site in such a way that they do not cause water or other pollution.
- The use of existing facilities must take place in consultation with the landowner/tenant.
- In cases where facilities are linked to existing sewerage structures, all necessary regulatory requirements concerning construction and maintenance should be adhered to.

LIMITATIONS ON BORROW PITS AND QUARRYING AREA

- The mining of shall take place only within the approved demarcated mining or prospecting area.
- Mining may be limited to the areas indicated on assessment.
- The holder of the mining permit/ shall ensure that operations take place only in the demarcated areas.

G 08.08.02 Excavation, hauling and placement

The Contractor shall provide the Engineer with detailed plans of his intended construction processes prior to starting any cut or fill or layer. The plans shall detail the number of personnel and plant to be used and the measures by which the impacts of pollution (noise, dust, litter, fuel, oil, sewage), erosion, vegetation destruction and deformation of landscape will be prevented, contained and rehabilitated. Particular attention shall also be given to the impact that such activities will have on the adjacent built environment. The Contractor shall demonstrate his "good housekeeping", particularly with respect to closure at the end of every day so that the site is left in a safe condition from rainfall overnight or over periods when there is no construction activity. (Read with COLTO Standard Specification clauses 1217 and 3309)

G 08.08.03 Spoil sites

The Contractor shall be responsible for the safe siting, operation, maintenance and closure of any spoil site he uses during the contract period, including the defects liability period. This shall include existing spoil sites that are being re-entered. Before spoil sites may be used

proposals for their locality, intended method of operation, maintenance and rehabilitation shall be given to the Engineer for his approval. The location of these spoil sites shall have signed approval from the affected landowner before submission to the Engineer. No spoil site shall be located within 500m of any watercourse. A photographic record shall be kept of all spoil sites for monitoring purposes. This includes before the site is used and after re-vegetation.

The use of approved spoil sites for the disposal of hazardous or toxic wastes shall be prohibited unless special measures are taken to prevent leaching of the toxins into the surrounding environment. Such special measures shall require the approval of the relevant provincial or national authority. The same shall apply for the disposal of solid waste generated from the various camp establishments. The Engineer will assist the Contractor in obtaining the necessary approval if requested by the Contractor.

Spoil sites will be shaped to fit the natural topography. These sites shall receive a minimum of 75mm topsoil and be grassed with the recommended seed mixture. Slopes shall not exceed a vertical: horizontal ratio of 1:3. Only under exceptional circumstances will approval be given to exceed this ratio. Appropriate grassing measures to minimise soil erosion shall be undertaken by the Contractor. This will include both strip and full sodding. The Contractor may motivate to the Engineer for other acceptable stabilising methods. The Engineer may only approve a completed spoil site at the end of the defects liability period upon receipt from the Contractor of a landowner's clearance notice and an engineer's certificate certifying slope stability (Read with COLTO standard Specifications clause 1214). The Contractor's costs incurred in obtaining the necessary certification for opening and closing of spoil sites shall be deemed to be included in the tendered rates for spoiling.

G 08.08.04 Stockpiles

The Contractor shall plan his activities so that materials excavated from borrow pits and cuttings, in so far as possible, can be transported direct to and placed at the point where it is to be used. However, should temporary stockpiling become necessary, the areas for the stockpiling of excavated and imported material shall be indicated and demarcated on the site plan submitted in writing to the Engineer for his approval, together with the Contractor's proposed measures for prevention, containment and rehabilitation against environmental damage.

The areas chosen shall have no naturally occurring indigenous trees and shrubs present that may be damaged during operations. Care shall be taken to preserve all vegetation in the immediate area of these temporary stockpiles. During the life of the stockpiles the Contractor shall at all times ensure that they are:

- Positioned and sloped to create the least visual impact;
- Constructed and maintained so as to avoid erosion of the material and contamination of surrounding environment; and
- Kept free from all alien/undesirable vegetation.

After the stockpiled material has been removed, the site shall be re-instated to its original condition. No foreign material generated / deposited during construction shall remain on site. Areas affected by stockpiling shall be landscaped, top soiled, grassed and maintained at the Contractor's cost until clearance from the Engineer and the relevant Authority is received.

Material milled from the existing road surface that is temporarily stockpiled in areas approved by the Engineer within the road reserve, shall be subject to the same condition as other stockpiled materials. Excess materials from windrows, in-situ milling or any detritus of material from road construction activities may not be swept off the road and left unless specifically instructed to do so in the contract drawing or under instruction from the Engineer. In all cases, the Engineer shall approve the areas for stockpiling and disposal of construction rubble before any operation commences and shall approve their clause only when they have been satisfactorily rehabilitated. (Read with COLTO Specification 3203 and 4306).

G 08.08.05 Blasting activities

Wherever blasting activity is required on the site (including quarries and/or borrow pits) the Contractor shall rigorously adhere to the relevant statutes and regulations that control the use of explosives. In addition, the Contractor shall, prior to any drilling of holes in preparation for blasting, supply the Engineer with a locality plan of the blast site on which shall be shown the zones of influence of the ground and air shock-waves and expected limits of fly-rock. The plan shall show each dwelling, structure and service within the zones of influence and record all details of the dwellings/structures/services including existing positions, lengths and widths of cracks, as well as the condition of doors, windows, roofing, wells, boreholes etc. The Contractor, alone, shall be responsible for any costs that can be attributed to blasting activities, including the collection of fly-rock from adjacent lands and fields. The submission of such a plan shall not in any way absolve the Contractor from his responsibilities in this regard. The Contractor shall also indicate to the Engineer the manner in which he intends to advertise to the adjacent communities and/or road users the times and delays to be expected for each individual blast.

G 08.09 Batching sites

Asphalt plants are considered scheduled processes listed in the second schedule to the Atmospheric Pollution Prevention Act, 1965 (Act No. 45 of 1965). Should the use of an asphalt plant be considered on site, the Contractor shall be responsible to obtain the necessary permit from the Department of Environmental Affairs and Tourism, regardless of where they are sited.

Crushing plants and concrete batching plants, whether sited inside or outside of defined quarry or borrow pit areas, shall be subject to the requirements of the Department of Minerals and Energy legislation as well as the applicable industrial legislation that governs gas and dust emissions into the atmosphere. Such sites will be the subject of regular inspections by the relative authorities during the life of the project. In addition, the selection, entry onto, operation, maintenance, closure and rehabilitation of such sites shall be the same as for those under section G 08.08.03, with the exception that the Contractor shall provide additional measures to prevent, contain and rehabilitate against environmental damage from toxic/hazardous substances. In this regard the Contractor shall provide plans that take into account such additional measures as concrete floors, bunded storage facilities, linings to drainage channels and settlement dams. Ultimate approval of these measures shall be from the relevant national authority, as shall approval of closure. The Engineer will assist the Contractor in his submissions to the relevant authority.

Effluent from concrete batch plants and crusher plants shall be treated in a suitable designated sedimentation dam to the legally required standards to prevent surface and groundwater pollution. The designs of such a facility should be submitted to the Engineer for approval.

The Contractor shall invite the relevant department to inspect the site within 2 months after any plant is commissioned and at regular intervals thereafter, not exceeding 12 months apart

G 08.10 Spillages

Streams, rivers and dams shall be protected from direct or indirect spillage of pollutants such as refuse, garbage, cement, concrete, sewage, chemicals, fuels, oils, aggregate, tailings, wash water, organic materials and tar or bituminous products. In the event of a spillage, the Contractor shall be liable to arrange for professional service providers to clear the affected area.

Responsibility for spill treatment lies with the Contractor. The individual responsible for, or who discovers a hazardous waste spill must report the incident to his/her DEO or to the Engineer. The Designated Environmental Officer will assess the situation in consultation with the Engineer and act as required. In all cases, the immediate response shall be to contain the spill. The exact treatment of polluted soil / water shall be determined by the Contractor in consultation with the DEO and the Engineer. Areas cleared of hazardous waste shall be re-vegetated according to the Engineer's instructions

Should water downstream of the spill be polluted, and fauna and flora show signs of deterioration or death, specialist hydrological or ecological advice will be sought for appropriate treatment and remedial procedures to be followed. The requirement for such input shall be agreed with the Engineer. The costs of containment and rehabilitation shall be for the Contractor's account, including the costs of specialist input.

G 08.11 Areas of Specific Importance

Any area, as determined and identified within the project document as sensitive or of special interest within the site shall be treated according to the express instructions contained in these specifications or the approved EMP. The Contractor may offer alternative solutions to the Engineer in writing should he consider that construction will be affected in any way by the hindrance of the designated sensitive area or feature. However, the overriding principle is that such defined areas requiring protection shall not be changed. Every effort to identify such areas within the site will have been made prior to the project going out to tender. The discovery of other sites with archaeological or historical interest that have not been identified shall require ad hoc treatment.

G 08.11.01 Archaeological Sites

If an artefact on site is uncovered, work in the immediate vicinity shall be stopped immediately. The Contractor shall take reasonable precautions to prevent any person from removing or damaging any such article and shall immediately upon discovery thereof inform the Engineer of such discovery. The National Monuments Council is to be contacted who will appoint an archaeological consultant. Work may only resume once clearance is given in writing by the archaeologist. (Read with Sub clause 4.7.1 of the General Conditions of Contract).

G 08.11.02 Graves and middens

If a grave or midden is uncovered on site, or discovered before the commencement of work, then all work in the immediate vicinity of the graves/middens shall be stopped and the Engineer informed of the discovery. The National Monuments Council should be contacted and in the case of graves, arrangements made for an undertaker to carry out exhumation and reburial. The undertaker will, together with the National Monuments Council, be responsible for attempts to contact family of the deceased and for the site where the exhumed remains can be re-interred. (Read with Sub clause 4.7.1 of the General Conditions of Contract).

G 08.12 Noise Control

The Contractor shall endeavour to keep noise generating activities to a minimum. Noises that could cause a major disturbance, for instance blasting and crushing activities, should only be carried out during daylight hours. Compliance with the appropriate legislation with respect to noise, shall be mandatory.

Should noise generating activities have to occur at night the people in the vicinity of the drilling shall be warned about the noise well in advance and the activities kept to a minimum.

G 08.13 Dust Control

Dust caused by strong winds shall be controlled by means of water spray vehicles. Dust omission from batching plants shall be subject to the relevant legislation and shall be the subject of inspection by the relevant office of the Department of Minerals and Energy.

G 08.14 Alien Vegetation

The Contractor shall be held responsible for the removal of alien vegetation within the road reserve disturbed during road construction. This includes, for example, service roads, stockpile areas, stop/go facilities, windrows and wherever material generated for or from road construction has been stored temporarily or otherwise within the road reserve. This responsibility shall extend for the duration of the defects liability period.

G 09 RECORD KEEPING

The Engineer and the DEO will continuously monitor the Contractor's adherence to the approved impact prevention procedures and the Engineer shall issue to the Contractor a notice of non-compliance whenever transgressions are observed. The DEO should document the nature and magnitude of the non-compliance in a designated register, the action taken to discontinue the non-compliance, the action taken to mitigate its effects and the results of the actions. The non-compliance shall be documented and reported to the Engineer in the monthly report.

Copies of any record of decision or EMP's for specific borrow pits or quarries used on the project shall be kept on site and made available for inspection by visiting officials from the Employer or relevant environmental departments.

G 10 COMPLIANCE AND PENALTIES

The Contractor shall act immediately when such notice of non-compliance is received and correct whatever is the cause for the issuing of the notice. Complaints received regarding activities on the construction site pertaining to the environment shall be recorded in a dedicated register and the response noted with the date and action taken. This record shall be submitted with the monthly reports and a verbal report given at the monthly site meetings.

Any avoidable non-compliance with the above-mentioned measures shall be considered sufficient ground for the imposition of a penalty

The following penalties shall apply for environmental violations:

G10.01 Unnecessary removal or damage to trees:

- 2600mm girth or less: R5 000 per tree
- Greater than 2600mm, but less than 6180mm girth: R10 000 per tree
- Greater than 6180mm girth: R30 000 per tree

G 10.02 Serious violations:

- Hazardous chemical/oil spill and/or dumping in non-approved sites: R10 000 per incident
- General damage to sensitive environments: R5 000 per incident
- Damage to cultural and historical sites: R5 000 per incident
- Uncontrolled/unmanaged erosion(plus rehabilitation at the Contractor's cost): R1 000 to R5 000 per incident
- Unauthorised blasting activities: R5 000 per incident
- Pollution of water sources: R10 000 per incident

The Engineer's decision with regard to what is considered a violation, its seriousness and the penalty imposed shall be final.

G 10.03 Less serious violations:

- Littering on site: R1 000 per incident
- Lighting of illegal fires on site: R1 000 per incident
- Persistent or un-repaired fuel and oil leaks: R1 000 per incident
- Excess dust or excess noise emanating from site: R1 000 per incident
- Dumping of milled material in side drains or on grassed areas: R1 000 per incident
- Possession or use of intoxicating substances on site: R500 per incident
- Any vehicles being driven in excess of designated speed limits: R500 per incident
- Removal and/or damage to flora or cultural or heritage objects on site, and/or killing of wildlife: R2 000 per incident
- Illegal hunting: R2 000 per incident
- Urination and defecation anywhere except in designated areas: R500 per incident

The Engineer’s decision with regard to what is considered a violation, its seriousness and the penalty imposed shall be final. The imposition of such a penalty shall not preclude the relevant provincial or national authority from applying an additional penalty in accordance with its statutory powers. Any non-compliance with the agreed procedures of the EMP is a transgression of the various statutes and laws that define the manner by which the environment is managed.

Failure to redress the cause shall be reported to the relevant authority for them to deal with the transgression, as it deems fit.

G 11 MEASUREMENT AND PAYMENT

Item **Unit**

G 11.01 Penalty for unnecessary removal or damage to trees for the following diameter sizes:

- (a) 2600mm girth or less number (No)
- (b) Greater than 2600mm, but less than 6180mm girth number (No)
- (c) Greater than 6180mm girth..... number (No)

The unit of measurement shall be the number of trees by diameter size removed unnecessary or damaged. The penalty rates applied shall be those stated in clause G 10.01.

Item **Unit**

G 11.02 Penalty for serious violations:

- (a) Hazardous chemical/oil spill and/or dumping in non-approved sites number (No)
- (b) General damage to sensitive environments number (No)
- (c) Damage to cultural and historical sites number (No)
- (d) Pollution of water sources number (No)
- (e) Unauthorised blasting activities number (No)
- (f) Uncontrolled/unmanaged erosion per incident, depending on environment impacts, plus rehabilitation at the Contractor’s cost) number (No)

The unit of measurement for G 11.02(a) to (f) shall be the number of serious violation incidents. The penalty rates to be applied shall be those stated in clause G 10.02.

The relevant sections of Mineral and Petroleum Resources Development Act and its supporting Regulations are summarised below for the information of applicants. The onus is on the applicant to familiarise him/herself with the provisions of the full version of the Mineral and Petroleum Resources Development Act and its Regulations.

Section of Act	Legislated Activity/ Instruction/ Responsibility or failure to comply	Penalty in terms of Section 99
5(4)	No person may prospect, mine, or undertake reconnaissance operations or any other activity without an approved EMP, right, permit or permission or without notifying land owner	R100 000 or two years imprisonment or both
19	Holder of a Prospecting right must: lodge right with Mining Titles Office within 30 days; commence with prospecting within 120 days, comply with terms and conditions of prospecting right, continuously and actively conduct prospecting operations; comply with requirements of approved EMP, pay prospecting fees and royalties	R100 000 or two years imprisonment or both
20(2)	Holder of prospecting right must obtain Minister's permission to remove any mineral or bulk samples	R100 000 or two years imprisonment or both
26(3)	A person who intends to beneficiate any mineral mined in SA outside the borders of SA may only do so after notifying the Minister in writing and after consultation with the Minister.	R500 000 for each day of contravention
28	Holder of a mining right or permit must keep records of operations and financial records AND must submit to the DG: monthly returns, annual financial report and a report detailing compliance with social & labour plan and charter	R100 000 or two years imprisonment or both
29	Minister may direct owner of land or holder/applicant of permit/right to submit data or information	R10 000
38(1)(c)	Holder of permission/permit/right MUST manage environmental impacts according to EMP and as ongoing part of the operations	R500 000 or ten years imprisonment or both.
42(1)	Residue stockpiles must be managed in prescribed manner on a site demarcated in the EMP	A fine or imprisonment of up to six months or both
42(2)	No person may temporarily or permanently deposit residue on any other site than that demarcated and indicated in the EMP	A fine or imprisonment of up to six months or both
44	When any permit/right/permission lapses, the holder may not remove or demolish buildings, which may not be demolished in terms of any other law, which has been identified by the Minister or which is to be retained by agreement with the landowner.	Penalty that may be imposed by Magistrate's Court for similar offence
92	Authorised persons may enter mining sites and require holder of permit to produce documents/ reports/ or any material deemed necessary for inspection	Penalty as may be imposed for perjury
94	No person may obstruct or hinder an authorised person in the performance of their duties or powers under the Act.	Penalty as may be imposed for perjury
95	Holder of a permit/right may not subject employees to occupational detriment on account of employee disclosing evidence or information to authorised person (official)	Penalty as may be imposed for perjury
All sections	Inaccurate, incorrect or misleading information	A fine or imprisonment of up to six months or both
All sections	Failure to comply with any directive, notice, suspension, order, instruction, or condition issued	A fine or imprisonment of up to six months or both

Item	Unit
G 11.03 Penalty for less serious violations:	
(a) Littering on site.....	number (No)
(b) Lighting of illegal fires on site.....	number (No)
(c) Persistent or un-repaired fuel and oil leaks	number (No)
(d) Excess dust or excess noise emanating from site.....	number (No)
(e) Dumping of milled material in side drains or on grassed areas	number (No)
(f) Possession or use of intoxicating substances on site	number (No)
(g) Any vehicles being driven in excess of designated speed limits	number (No)
(h) Removal and/or damage to flora or cultural or heritage objects on site, and/or killing of wildlife.....	number (No)
(i) Illegal hunting.....	number (No)
(j) Urination and defecation anywhere except in designated areas.....	number (No)

The unit of measurement shall be the number of less serious violation incidents. The penalty rates applied shall be those stated in clause G 10.03.

The Engineer’s decision with regard to what is considered a violation, its seriousness and the penalty imposed shall be final. The imposition of such a penalty shall not preclude the relevant provincial or national authority from applying an additional penalty in accordance with its statutory powers. Any non-compliance with the agreed procedures of the EMP is a transgression of the various statutes and laws that define the manner by which the environment is managed.

Failure to redress the cause shall be reported to the relevant authority for them to deal with the transgression, as it deems fit.

Item	Unit
G 11.04 Contractor’s time related obligations in respect of	
Environmental management plans and specifications	monthly

The tendered monthly amount shall represent full compensation for that part of the Contractor’s general obligations in terms of the environmental management plans and specifications which are mainly a function of time. This includes inter alia payment of all costs of the approved designated environmental office (DEO) and other staff contemplated in the administration of the environmental obligations, including the transport of employees on site. Payment will be monthly. The following obligations will be directed by the Audit reports to be compiled by the Environmental control officer and that report will give a clue on the basis of contractor’s compliance on the below obligations:

Below is the list of time related obligations in respect of EMP specifications but not limited to:

- Servicing of Toilets on site & Submission of proof of safe of disposal
- Dust Suppression
- Cleaning of spillages on site
- Methods statement for all the activities
- Waste disposal and proof of safe disposal (Registered landfill site)
- Designated Environmental officer (Full time on site)
- Administration for all the required documents for Environmental Compliance
- Maintenance of site camp standard
- Provision of all the Covid-19 requirements

Contractor's initial obligations in respect to Environmental Management Plans

Specifications.....Lump Sum

- Site Establishment
- Fencing of Borrow pits & Quarrying Area
- Provision of Toilets on site, Quarrying and Borrow pit
- Provision of Waste Bins on sites for waste separations
- Legal Requirements in terms of NEMA
- Mining Requirements as per the Mine regulations and Bylaws.
- Methods statement for all the activities
- Waste management plan
- All necessary Signage's to be posted on site
- Provision of PPE

Table 1: Mechanisms that Cause Environmental Impacts during Construction Activities

CONTENTS	ENVIRONMENTAL IMPACTS				
	POLLUTION TYPE	DEFORMATION OF LANDSCAPE	SOIL EROSION	ALIEN VEGETATION	SENSITIVE AREAS
Camp Establishment	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	High Sensitivity
Housing, Offices and laboratories	Waste treatment Hazardous waste Water supply Spillage Storage Noise/lights	Selection of site Preserve indigenous vegetation Preserve topsoil Demarcate sensitive areas	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	Moderate Sensitivity
Accommodation of Traffic	Waste treatment Hazardous waste Water supply Spillage Storage Noise/lights Dust control	Selection of site Preserve indigenous vegetation Preserve topsoil Demarcate sensitive areas Maintenance of windrows	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	Moderate
Overhaul	Spillage Storage Noise/lights Dust control Exhaust fumes Washing waste	Turning circles Parking areas	Restrict access to sensitive areas	Protection of indigenous vegetation Preserve topsoil	Moderate
Clearing and grubbing	Waste treatment Hazardous waste Water supply	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation	Protection of indigenous vegetation Preserve topsoil	Moderate

TENDER NUMBER: EPMLM/8/3/427

FOR: DICHOEUNG INTERNAL STREET etender document

CONTENTS	ENVIRONMENTAL IMPACTS				
	POLLUTION TYPE	DEFORMATION OF LANDSCAPE	SOIL EROSION	ALIEN VEGETATION	SENSITIVE AREAS
	Noise /lights Dust control		Preserve topsoil		
Drainage	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	Moderate
Borrow pits/Quarrying	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	High Sensitivity
Stockpiling	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	Moderate/Low
Mass Earthworks	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	Low-Moderate
Pavement layers	Waste treatment Hazardous waste Water supply Spillage Storage Noise / lights Dust control	Selection of site Preserve indigenous vegetation Preserve topsoil Demarcate sensitive areas Maintenance of windrows	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	Low

TENDER NUMBER: EPMLM/8/3/427

FOR: DICHOEUNG INTERNAL STREET etender document

CONTENTS	ENVIRONMENTAL IMPACTS				
	POLLUTION TYPE	DEFORMATION OF LANDSCAPE	SOIL EROSION	ALIEN VEGETATION	SENSITIVE AREAS
Asphalt works / sealing operations	Waste treatment Hazardous waste Water supply Spillage Storage Noise / lights Dust control Smoke control Storage of materials	Selection of site Preserve indigenous vegetation Preserve topsoil Turning circles Parking areas	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil	High Sensitivity
Ancillary roadworks	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	Low-Moderate
Structures	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	Low-Moderate
Concrete/Cement	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	Moderate to High

TENDER NUMBER: EPMLM/8/3/427

FOR: DICHOEUNG INTERNAL STREET etender document

C5.2 Annex II - Borrow Pit Guarantee

BANK OR GUARANTOR'S LETTER HEAD)

(Reference number)

(Guarantee number)

**The Regional Manager
The Department of Mineral and Energy
POLOKWANE**

Dear Sir/ Madam

FINANCIAL GUARANTEE FOR THE REHABILITATION OF LAND DISTURBED BY MINING (EXECUTION OF ENVIRONMENTAL MANAGEMENT PROGRAMME)

1 Concerning the responsibility in terms of the Mineral and Petroleum Resources Development Act 28 of 2002, which is incumbent on

(hereinafter referred to as "the mine owner") to execute the environmental management programme approved in terms of the provisions of the said Act for the mine known as

situated in the magisterial district of Province

, I/We.., in my/our

Capacity/capacities of .

and as duly authorized representative ..

(Hereinafter referred to as "the guarantor") confirm that the amount of R

R () is available to you for the purpose of executing the said environmental management programme.

2 The guarantor, who hereby waives the advantages of the exceptions non numerate pecuniae non causa debitiexecutionis et divisionis the meaning and the consequences of which is known to the guarantor undertakes to pay to you the said

sum of R..... (.....) upon receipt of a written claim from you to do so and the claim may be submitted by you, if (in your opinion and discretion) the mine owner fails or remains in default to execute the said environmental management programme, or if he ceases mining/prospecting operations, or if his estate is sequestrated, or if he should hand over his estate in terms of the Insolvency act which are applicable in the Republic of South Africa, or if the guarantor gives written notice to you in terms of clause 5 of this agreement. The said claim may be instituted by you at any stage commencing from the date of signature of this guarantee.

3 The said amount of R.....may be held by you on the condition that you, after having complied with all the provisions of the said environmental management programme, will give account to the guarantor of how the amount was appropriated and repay any inappropriate amount to the guarantor.

4 This undertaking is neither negotiable nor transferable, and –

TENDER NUMBER: EPMLM/8/3/427

FOR: DICHOEUNG INTERNAL STREET etender document

- (a) must be returned to the guarantor when giving account to the guarantor in terms of clause 3 above,
- (b) shall lapse on the granting of a closure certificate in terms of the Minerals and Petroleum Resources Development Act, 2002 (Act 28 of 2002) and
- (c) shall not be construed as placing any other responsibility on the guarantor other than the paying of the guaranteed amount.

5 The guarantor reserves the right to withdraw from this guarantee after having given you at least three months written notice in advance of his intention to do so.

Yours faithfully

.....

ADDRESS:

.....

.....

.....

DATE:

- PLEASE NOTE:**
- (1) No amendments and/or additions to the wording of this Guarantee will be accepted.
 - (2) The address of the guarantee must be stated clearly.
 - (3) This guarantee must be returned to:

.....

.....

.....

.....

TENDER NUMBER: EPMLM/8/3/427

FOR: DICHOEUNG INTERNAL STREET etender document

C5.3 Annex III - Health and Safety Specification

Project		DICHOEUNG INTERNAL STREET	
Client		Ephraim Mogale Local Municipality	
Prepared By		Complied By	Approved By
DOCUMENT CHANGE RECORD			
Rev	Date	Section(s) change(d)	Description of Revision

H 1. Introduction

Construction regulation 7(1) states that a principal contractor shall provide and demonstrate to the client a suitable and sufficiently documented health and safety plan based on the client's documented health and safety specifications which shall be applied from the date of commencement of and for the duration of the construction work

This document therefore describes the health and safety specifications required by the client for any principal contractor who is making a Tender for or who has been appointed to perform construction work on behalf of the client. [Ref. CR 5(1)(b)]. The specification is based on relevant legislation as a minimum requirement and any best practices the client subscribes to that will contribute to an improved health and safety performance

Principal contractors are requested to compile their Health and Safety Plans including risk assessments, based on the specifications detailed and referred to, in this document. In other words, the Health and Safety Plan must specify how the principal contractor will control and manage all health and safety aspects on the construction site. The importance of the plan cannot be emphasized enough, as it is the direct response to these specifications which is the minimum health and safety standard required by the contractor on site.

The Health and Safety Plan and all required documentation that are part of the health and safety file on site must be reviewed and approved by the client's agent prior to the principal contractor commencing work on site.

H 2. Reference Documents

The following Acts and Regulations are referred to in this document followed by their abbreviations in brackets. Note that this is not an exhaustive list and other documents may be referred to if necessary, in order to compile a Health and Safety Plan:

2.1. Occupational Health and Safety Act, (Act No. 85 of 1993) and Mining Health and Safety Act - [OHSA] and Regulations as follows:

- Construction Regulations [CR]
 - General Admin Regulations [GAR]
 - General Safety Regulations [GSR]
 - Environmental Regulations for Workplaces [ERW]
 - Hazardous Chemical Substances Regulations [HCSR]
 - Lead Regulations [LR]
 - Noise Induced Hearing Loss Regulations [NIHLR]
 - General Machinery Regulations [GMR]
 - Electrical Installation Regulations [EIR]
 - Electrical Machinery Regulations [EMR]
 - Pressure Equipment Regulations [PER]
 - Basic Conditions of Employment Act (Act 75 of 1197)
 - National Environmental Management Act no 107 of 1998
- 2.2. Compensation for Occupational Injury and Diseases Act – [COIDA]
- 2.3. The Gauteng Noise Control regulation (GN 5479 of 1999)
- 2.4. Standards applicable such as:

- SANS10103 the Measurement and Rating of Environmental Noise with Respect to annoyance and to Speech Communication.

H 3. Definitions

The following definitions apply. (Abbreviations and legal references in brackets where applicable):

Construction Work [CR 1]:

Means any work in connection with –

- a) The erection, maintenance, alteration, renovation, repair, demolition or dismantling of or an addition to a building or any similar structure;
- b) The installation, erection, dismantling or maintenance of a fixed plant where such work includes the risk of a person falling;
- c) The construction, maintenance, demolition or dismantling of any bridge, dam, canal, road, railway, runway, sewer or water reticulation system or any similar civil engineering structure; or
- d) The moving of earth, clearing of land or making of an excavation or work on any similar type of work.

Hazard Identification, Risk Assessment and Risk Control (HIRA)

Means a documented plan, which identifies hazards, assesses the risks and detailing the control measures and safe working procedures, which are to be used to mitigate and control the occurrence of hazards and risks during construction or operation phases.

Site

Means the area in the possession of the Contractor for the construction of the works. Where there is no demarcated boundary it will include all adjacent areas, which are reasonably required for the activities for the Contractor, and approved for such use by the client.

Hazard

Means a source of or exposure to danger (source which may cause injury or damage to persons or property)

Risk

Means the probability or likelihood that a hazard can result in injury or damage.

Construction Manager [CR 8(1)]

Means a full time, competent employee appointed in writing by the Contractor to supervise construction work. The appointment, as required by the OHSA, shall stipulate health and safety responsibilities, area of responsibility and the proposed duration of the project.

Hazardous Chemical Substance (HCS)

Means any toxic, harmful, corrosive, irritant or asphyxiant substance, or a mixture or substances for which an occupational exposure limit is prescribed, or an occupational exposure limit is not prescribed, but which creates a hazard to health.

Construction Plant

Encompasses all types of plant including but not limited to, cranes, piling frames, boring machines, excavators, dewatering equipment and road vehicles with or without lifting equipment.

Contractor [CR 1]

Means an employer [OHS 1] who performs construction work and includes principal contractors and sub-contractors

Health and Safety Plan (HSP) [CR 1]

Means a documented plan, which addresses hazards identified and includes safe work procedures to mitigate, reduce or control the hazards identified.
The plan shall be applied from the date of commencement of and for the duration of construction work [CR 7(1)]

Health and Safety File (HSF) [CR 1]

The file holding all documentation and records on health and safety for the project, which shall be available at all times for evaluation, and a copy of which will be forwarded to the client upon completion of the project.

Disabling Injury Frequency Rate (DIFR)

The number of disabling injuries (DI's) multiplied by a constant (man hours relative to period worked) divided by total man hours worked over a rolling period (usually 12 months, but can be less)

Disabling Injury Severity Rate (DISR)

The number of days lost due to DI's multiplied by a constant (man hours relative to period worked) divided by total man hours worked over a rolling period (usually 12 months, but can be less)

Confined Space

An enclosed, restricted or limited space in which, because of its construction, location or contents, or any work carried on therein, a hazardous substance may accumulate or an oxygen deficient atmosphere may occur, and includes any chamber, tunnel, pipe, pit, sewer, container, valve, machinery or object in which a dangerous liquid or dangerous concentration of gas, vapour, dust or fumes may be present.

H 4. Responsibilities of Contractors for Construction Work

H 4.1. Notification of Intention to Commence Construction Work [CR 4]

The principal contractor shall within 7 days notify the Provincial Director of the Department of Labour before any work commences, in accordance with the following requirements:

- The demolition of a structure exceeding a height of 3 meters; or
The use of explosives to perform construction work; or
- The dismantling of fixed plant at a height greater than 3 meters;
or
- The work exceeds 30 days or will involve more than 300 person days of construction work;
and
- Includes excavation work deeper than 1 meter; or
- Includes working at a height greater than 3 meters above ground or a landing.

The notification must be done on a form similar to that shown in **Annexure** and a copy of the completed form kept in the HSF for inspection by an inspector, the client or an employee.

H 4.2. Principal Contractor's Responsibilities [CR 7]

- a) Compile a HSP [CR 7(1)]
- b) Ensure co-operation between all contractors to comply to the Act
- c) Provide and demonstrate to the client a suitable, sufficiently documented and coherent site specific health and safety plan, based on this client's health and safety specifications of which plan must be applied from the date of commencement of and for the duration of the construction work and which must be reviewed and updated by the principal contractor as work progresses.
- d) Ensure compliance to the Act in terms of
 - a) Provide relevant sections of these specifications to contractors as required
 - b) Appoint each contractor in (a) above in writing. Only contractors who have the necessary competencies and resources may be appointed
 - c) Ensure each contractor's HSP is implemented and maintained on site
 - d) Stop any contractor from work which is not in accordance with HSP's or which pose a threat to health and safety of persons
 - e) Sufficient information is provided to contractors where there are changes to design and construction
 - f) Ensure every contractor is registered and in good standing with the Compensation Commissioner
 - g) Ensure potential contractors have made provision for the cost of health and safety measures
- e) Negotiate and approve the HSP of each contractor
- f) All HSP's including the principal contractor's to be available on site
- g) All HSF's including the principal contractor's to be available on site
- h) A consolidated HSF to be handed over to the client on completion of construction including records of drawings, designs etc
- i) HSF to include updated list of all contractors, the agreements and their type of work

H 4.3. Contractor's Responsibilities (including sub-contractors)

- a) Provide their HSP to the principal contractor
- b) Where a contractor appoints another contractor (sub-contractor) it is the responsibility of that contractor to apply a) above as if he were the principal contractor.
- c) No contractor to appoint another contractor (sub-contractor) unless the latter has the necessary competency and resources to perform the required work.
- d) To provide any information which affects the health and safety of any persons at work to the principal contractor.

H 4.4. Supervision of Construction Work [CR 8]

The appointments embodied in this regulation are as follows:

- a) Construction Manager [CR 8(1)]
- b) Assistant construction manager [CR 8(2)]
- c) Safety officer [CR 8(5)], in terms of the nature of project such Safety Officer must be full-time on site and must avail him/herself whenever there is work at the Quarry. Registered with SACPCMP council.
- d) Construction Supervisor [CR 8(7)]

The detailed requirements of these appointments can be found under the relevant regulation. In terms of competence of these appointees, they are to be approved by the client's agent before being appointed for the project.

H 4.5. Legal Appointments

The principal contractor shall ensure copies of the appointment letters of all responsible persons appointed on site will be kept in the HSF. All legal appointments shall be conducted in accordance with the requirements set out in the OHSA and as per this specification. The appointment protocols for the CR and the OHSA are set out in the tables below. It should be noted that these represent complete lists and not all these appointments may be required:

H 4.5.1. Construction Regulations

Reg.	Appointment	Appointee	Appointed by	Represented by
CR 7(1 c)	Principal Contractor	16(2) for the company	Client	Project Manager
CR7 (3)	Contractor	Competent person	Principal Contractor	16(2)
CR 8 (1)	Construction Manager	Competent person	Principal Contractor	16(2)
CR 8 (2)	Assistant Construction Manager	Competent person	Principal Contractor	16(2)
CR 8 (5)	Safety Officer (SACPCMP registered)	Competent person	Principal Contractor	16(2)
CR 9 (1)	Risk Assessor	Competent person	Principal Contractor	16(2)
CR 10 (1a)	Fall Protection Planner	Competent person	Principal Contractor	16(2)
CR 11(2 a)	Structure Inspector	Competent person	Principal Contractor	16(2)
CR 12 (a)	Formwork & Support work Inspector	Competent person	Principal Contractor	16(2)
CR 13 (1)	Excavation Work Inspector	Competent person	Principal Contractor	16(2)
CR 14 (1)	Demolition Work Supervisor	Competent person	Principal Contractor	16(2)
CR 17	Suspended Platform Supervisor	Competent person	Principal Contractor	16(2)
CR 20	Batch Plant Supervisor	Competent person	Principal Contractor	16(2)
CR 21	Explosive power tool Controller	Competent person	Principal Contractor	16(2)
CR 22	Mobile Crane Operator	Competent person	Principal Contractor	16(2)
CR 23	Construction Vehicle Inspector	Competent person	Principal Contractor	16(2)
CR 24	Temporary Electrical Installation Inspector	Competent person	Principal Contractor	16(2)
CR 28	Stacking and Storage Supervisor	Competent person	Principal Contractor	16(2)
CR 29	Fire Equipment Inspector	Competent person	Principal Contractor	16(2)
CR 29	Fire Team Members	Competent person	Principal Contractor	16(2)

OHS Act

Reg.	Appointment	Appointee	Appointed by	Represented by
OHSA 16 (1)	16 (1)	CEO	Board members	
OHSA 16 (2)	16 (2)	Contract Manager	16(1)	CEO
OHSA 17 (1)	Health & Safety Rep	Nominated employee	16(1)	CEO
OHSA 8	Hand Tools Inspector	Competent person	Principal Contractor	16(2)
GAR 9 (2)	Incident Investigator	Competent person	Principal Contractor	16(2)
GSR 3 (4)	First Aider	Competent person	Principal Contractor	16(2)
GSR 13	Ladder Inspector	Competent person	Principal Contractor	16(2)
FR 9	Welfare Facilities Inspector	Competent person	Principal Contractor	16(2)
HCSR 3	Hazardous Chemical Substances Co-ordinator	Competent person	Principal Contractor	16(2)
DMR 18 (11)	Lifting Equipment Operator	Competent person	Principal Contractor	16(2)
DMR 18 (5)	Lifting Equipment Inspector	Competent person	Principal Contractor	16(2)
PER 10	Portable Gas Bottle Inspector	Competent person	Principal Contractor	16(2)

The responsibilities of each appointment are detailed in the relevant written appointment form, which are signed by both the authorised person and the appointee and kept in the Health and Safety file.

H 5. Documentation and Procedures

All required documentation for the construction work, shall be kept in the HSF, which shall be available on site. The Construction Supervisor shall be responsible for the file on site and ensure that documentation is valid and up to date. The procedures to be used for the project are to be in accordance with contractor policy and as per the outcome of the HRA exercise. It is required that the documentation is filed in an orderly fashion for easy access. The following sections are suggested:

- Policies, permits etc
- Health & Safety plans, specifications
- Appointments
- Incident management
- Inspection checklists
- Risk assessments
- Training and Competency
- Procedures
- Hazardous Chemical Substances
- Environmental Risk Assessments and protocols

TENDER NUMBER: EPMLM/8/3/427

FOR: DICHOEUNG INTERNAL STREET **etender document**

H 6. Application of COIDA and OHSA to Construction Work

H 6.1 Compensation of Occupational Injuries and Diseases Act, Act No. 130 of 1993 (COIDA)

Every contractor shall provide proof of registration and updated letter of good standing with the Compensation Commissioner.

H 6.2 Occupational Health and Safety Policy [OHS 7] and copy of the Act [GAR 4]

Every contractor's OHS Policy statement should be available for scrutiny and as evidence of their commitment their employees' occupational health and safety. If the contractor has 5 or more employees on site, a copy of the OHS Act and regulations must be available on the site and ensure that such copies are displayed at visible areas such site offices, boardrooms and notice boards.

H 6.3 Health and Safety Training and Competency

Training of personnel is a necessity and a legal requirement when required. A record of all training shall be kept and provided on request.

H 6.3.1 Induction Training

The principal contractor shall be responsible for the induction of all personnel entering the site including visitors, inspectors etc. An identification card confirming induction training must be carried by all contract personnel and site security informed so that only contractors carrying a card may be admitted to the site. Contractors doing specific construction work shall be responsible for the induction of their employees with respect to that specific work.

H 6.3.2 Awareness Training

In addition, the client would favour awareness training to be carried out such as Toolbox Talks on relevant topics e.g. manual lifting, wearing PPE, safe use of portable electric tools etc.

H 6.3.3 Competency and CV's

Where applicable, valid copies of certificates of competency of appointed personnel to be provided and kept in the HSF. Other training requirements such as those identified through the HIRA process, to be completed and proof of that training also kept in the HSF. Where competency is achieved through experience, a brief CV will be required.

H 6.3.4 Specific OHS training

Valid certificates of training from registered service providers preferably accredited by the appropriate SETA are required for First Aiders, H&S reps, Fire Marshals etc.

H 6.3.5 Medical Fitness

All employees will have entry and exit valid medical fitness certificate, certified by a HPCSA registered occupational medical practitioner to be fit for work. See the annexure 3A template

H 6.4 Hazards and Potentially Hazardous Situations [OHS 13]

The principal contractor is responsible to ensure that all contractors and any visitors are warned of any hazardous or potentially hazardous situations, which may affect them on site and shall put any additional measures in place to assist in mitigating the risk of these hazards.

TENDER NUMBER: EPMLM/8/3/427

FOR: DICHOEUNG INTERNAL STREET etender document

H 6.5 Health and Safety Reps [OHS 17 and 18]

The principal contractor shall be responsible to ensure compliance to this section of the OHS 17 and 18 as required and to ensure similar compliance of all contractors. All contractors are required to have at least one OHS rep even if the minimum requirement of 20 employees is not met.

H 6.6 Health and Safety Committee [OHS 19 and 20]

The principal contractor shall be responsible to ensure compliance to this section of the OHS 19 and 20 as required. A health and safety committee must be formed that will be chaired by the principal contractor's 16(2) and which will consist of all OHS reps from both the principal contractor and all contractors. They will meet at least once a month and a record kept of all meetings.

H 6.7 General Record Keeping

The principal contractor shall ensure that all Health and Safety records, required by OHS 19 and 20 Regulations are kept for reference purposes and auditing.

H 6.7.1 Inspections

The principal contractor shall keep all records of inspections undertaken during the contract. The total list of inspections can be found under **Annexure 1 (at the bottom)**. An assessment will need to be made of what inspections are required and their frequency. The principal contractor is also responsible to ensure compliance to this requirement by all contractors.

H 6.7.2 Audits

The client's agent shall carry out regular audits on the principal contractor at least once per month. Similarly, principal contractors shall be responsible for carrying out regular audits on their contractors at least once per month. The results shall be tabled for action and discussed at the Health and Safety Committee meetings or the site meetings, as appropriate. Records of such meetings must be kept in the file, made available upon request by inspector, client or client's agent.

H 6.8 Incident management and emergency plans

The principal contractor shall create an Emergency Plan for the construction site. The plan shall be clearly laid out for all types of emergencies including responsibilities, evacuation routes, siren, emergency no.'s etc. The plan shall be fully explained to all personnel during the induction training. All contractors will become completely familiar with the requirements of the plan and will participate in any evacuation drills that may take place.

H 6.8.1 First Aid [GSR 3]

The principal contractor shall be responsible to ensure compliance to this regulation as required. In particular, a first aid box with the minimum stock as specified in the regulation will be located at the site office and there will be signage to indicate the location of the box. Attention is drawn to GSR 3(4) for the requirement of trained first aiders. It is also suggested that a trained first aider be made responsible for the box in terms of the following:

- a) Security – the box should not be left open but it must be accessible in case of emergency (spare key availability)
- b) Injuries - a record of first aid box injuries treated and the stock issued (Dressing Register)
- c) Stock – a regular inspection to maintain stock levels and check expiry dates

In addition, the first aid requirements should be noted for high risk substances or hazardous chemical substances and if these are to be used, then it should be addressed in the HRA and the need for eye wash facilities assessed.

H 6.8.2 Incidents and Injuries

a) Incidents

The principal contractor shall provide evidence by means of a procedure or chart that he is fully aware of the “hierarchy” of incidents that can occur e.g. unsafe situations, near misses, first aid box injuries, medical cases, disabling injuries etc. He shall keep an incident register of all such incidents, investigate and apply corrective action where required. The client also reserves the right to request incident statistics from the principal contractor such as DI’s, DIFR and DISR and it is advised that these are maintained.

b) Injuries

First aid box injuries have been addressed under 6.8.1 above. More serious injuries requiring transport of the injured person to the nearest hospital or doctor or the calling of an ambulance and paramedic personnel will be the responsibility of the principal contractor’s appointed personnel such as the Construction Supervisor, First Aider and Safety Officer. It is advised that all required emergency numbers be on hand and prominently displayed.

As all contractors are registered and in good standing with the Compensation Commissioner, it will be the responsibility of the contractor whose employee has been injured, to make the necessary report and claims to the Commissioner.

H 6.8.3 Accident and Incident Reporting and Investigation [OHSA 24, GAR 8, 9 (1) & (2)]

Should an incident or accident investigation need to be conducted, a competent person shall be appointed to conduct the said investigation. The procedure to be followed will be in accordance with Annexure 1 of GAR 9 – “Recording and Investigation of incidents”. A copy of this annexure can be found under **Annexure 2 (at the bottom)** in this document

Particular attention is also drawn to OHSA 24, the reporting of certain incidents to an inspector of the Department of Labour

The principal contractor shall ensure that the investigations are kept for record purposes and he shall ensure that the outcome of the investigation is communicated to all affected parties as required i.e. the client and contractors

The client reserves the right to participate in all investigations into accidents or incidents and to conduct their own investigation if required.

H 6.8.4 Fire Precautions on Construction Site.

A contractor must, in addition to compliance with the Environmental Regulations for Workplaces, 1987, ensure that:

- All appropriate measures are taken to avoid the risk of fire.
 - A sufficient and well-functioning mobile fire alarm must be in place.
 - Sufficient and suitable storage is provided for flammable liquids, solids and gases.
 - Smoking is prohibited and notices in this regard are prominently displayed in all places containing readily combustible or flammable materials.
 - Combustible materials do not accumulate on the construction site; (welding, flame cutting and other hot work are done only after appropriate precautions have been taken to reduce the risk of fire.
 - Suitable and sufficient fire-extinguishing equipment is placed at strategic locations or as may be recommended by the Fire Chief or local authority concerned, and that such equipment is maintained in a good working order.
 - The fire equipment contemplated in paragraph (g) is inspected by a competent person, who has been appointed in writing for that purpose, in the manner indicated by the manufacturer thereof:
- (i) A sufficient number of workers are trained in the use of fire- extinguishing equipment;) where appropriate, suitable visual signs are provided to clearly indicate the escape routes in the case of a fire.
- The means of escape is kept clear at all times; there is an effective evacuation plan providing for all:
 - (i) Persons to be evacuated speedily without panic.
 - (ii) Persons to be accounted for at the Assembly point.

H 6.9 Contractors and suppliers [OHS 37(2)]

The client shall enter into an "Agreement with Mandatory" in terms of Section 37(2) of the Occupational Health and Safety Act, 85 of 1993, with all appointed principal contractors, a copy of which can be found under **Annexure 3 (at the bottom)**. Likewise, all principal contractors shall enter into a similar agreement with all contractors, sub-contracted to them for the duration of their contract. Please note that if contractors hire any construction vehicles including operator, the companies from which the equipment is hired are subject to the requirements as "contractors" detailed in this document

The principal contractor shall ensure that all contractors are issued with this safety specification where reasonably practicable including any contractor pack for the project, should they not be contained in the safety specification.

The principal contractor shall assist and ensure that contractors engaged comply with all of these requirements and adhere to the requirements set out in the OHS. Contractors will be stopped from working in the event of unsafe conditions and activities being observed.

All contractors shall be subject to the requirements specified in the HSP and will be issued with a copy of the plan. If the contractor is not able to comply with the requirements set out in the plan, he shall not be appointed as contractor.

H 6.10 Personal Protective Equipment, Intoxication, Signage and Access Control [GSR 2]

H 6.10.1 Personal Protective Equipment (PPE) [GSR 2]

The principal contractor shall through the Risk Assessment process identify the specific PPE needs per activity. Contractors, as employers, will be responsible for the issue of the required PPE. Should PPE be lost or stolen, then the employee will be issued with new PPE. Should PPE be worn out or damaged, the user shall return the worn or damaged PPE and will be issued with a replacement. Contractor is required to issue PPE every after 6 months, whether worn out or damaged. Training in the use of this shall be provided. Visitors shall be informed of PPE requirements prior to their visit so that they may enter the site.

H 6.10.2 Intoxication [GSR 2A]

The principal contractor shall be responsible to ensure that no persons may enter or remain at the construction site if under or apparently under the influence of intoxicating liquor or drugs. Random breathalyser testing shall be carried out using the marked ping pong ball method. If anyone is found intoxicated such person must not allowed entry.

H 6.10.3 Display of signs [GSR 2B]

The principal contractor should make use of signage to assist in enforcing compliance to any requirement specified in this document or as required by law. Standard symbolic signs are acceptable for conveying these requirements where applicable.

H 6.10.4 Access control [GSR 2C]

The principal contractor shall be responsible to ensure control of all persons entering the construction site by means of the biometric access control system and access registrar controlled by the security guard. The reasons for this are as follows:

- a) The principal contractor is the 'employer' on the site and for all intents and purposes is responsible for section 8 of OHS for employees and contractors and section 9 for any other person on site such as visitors and inspectors
- b) All persons entering the site must undergo induction training to inform them of the hazards present on the site. This includes contractors, visitors, inspectors etc
- c) The construction supervisor will be aware of who is on site and their function
- d) The construction supervisor will be able to control tasks that may impact on other work being carried out on the site by a permit to work system

TENDER NUMBER: EPMLM/8/3/427

FOR: DICHOEUNG INTERNAL STREET etender document

- e) The number of people and their purpose on the site must be known in case of emergency and evacuation
- f) Security reasons.

The principal contractor shall post conspicuous notices at the site informing all those entering the site of these requirements.

H 6.11 Ladders [GSR 13A]

The following requirements shall be complied with regarding Ladders and Ladder work:

- a) A competent person shall be identified and appointed as the ladder inspector.
- b) Where aluminium ladders cannot be used, then wooden ladders shall be straight grained, unpainted to allow for proper inspection of the grain for cracking.
- c) Ladders shall be secured at the top and chocked at the base to prevent slipping.
- d) Where chocking of the base is not possible, then the user shall ensure that the ladder is held in position by another employee when ascending the ladder.
- e) Ladders shall be inspected a minimum once per month by the person appointed as the ladder inspector.
- f) Proper storage shall be provided for all ladders when not in use.

H 6.12 Ramps [GSR 13B]

The following requirements shall be complied with regarding Ramps:

- a) Is constructed in accordance with accepted standards
- b) Has a safety factor of at least 2 with respect to the load it is expected to carry
- c) Has an inclination to the horizontal of not more than 34°
- d) Every ramp steeper than 14° is provided with stepping laths at suitable intervals which may be interrupted to allow for wheel barrows
- e) All ramps higher than 2m must be provided on both sides with substantial handrails at least 900 mm and not more than 1000 mm in height and toe boards at least 150mm in height.

H 6.13 Pressure Equipment Regulations (Gas Bottles) [PER]

If gas bottle sets (Oxy-Acetylene for heating, cutting, welding) are used, these regulations, as required, shall be adhered to. Regular inspection of the sets shall be carried out. In particular:

- Only trained personnel shall operate such equipment.
- The Construction Supervisor shall ensure operation of the equipment is in accordance with the HIRA requirements and Safe Working Procedure (SWP) or method statement.
- All users shall undergo regular awareness training (toolbox talk) to ensure compliance.
- The Construction Supervisor shall ensure the required PPE is used.

H 6.14 Portable Electrical Tools [EMR 9]

This regulation shall be complied with as a minimum requirement. Regular inspections of all Portable Electrical Tools such as drills, angle grinders etc, and shall be carried out. In particular:

- Only trained personnel shall operate such equipment.
- The Construction Supervisor shall ensure operation of the equipment is in accordance with the HIRA requirements and Safe Working Procedure (SWP).
- All users shall undergo regular awareness training (toolbox talk) to ensure compliance.
- The Construction Supervisor shall ensure the required PPE is used.

H 6.15 Permit to work (including hot work)

The principal contractor shall be responsible to ensure that:

- All work being carried out on the site has been approved through the necessary project control system
- Permits required from third parties such as town councils for utility and sewage services are in place
- If required, a permit system is operational so that work consisting of many tasks related to the construction on site, can be carried out without endangering the health and safety of personnel on site, neighbours and the public surrounding the site and/or causing damage to property.
- In particular, attention is drawn to GSR 9, which details the requirements for welding, flame cutting, soldering and similar operations (hot work).

H 6.16 Work in confined spaces [GSR 5]

The principal contractor shall be responsible to ensure that no work is carried out in a confined space unless it is safe to do so. All the requirements of this regulation shall be met. Attention is drawn to the fact that further precautions are required if hot work is to be carried out in a confined space as per GSR 5(5) and GSR 9(2). In addition, CR 11(3)(j) specifies that excavations are regarded as confined spaces and these precautions need to be applied.

H 6.17 Noise within the construction site [NIHL]

The principal contractor shall be responsible to ensure compliance with this regulation where applicable within the construction site.

H 6.18 Noise impacting the surrounding neighbourhood

The principal contractor shall be responsible to ensure compliance as follows:

H 6.18.1 The Noise Control regulation (GN 5479 of 1999) provides:

- A uniform minimum standard for noise regulation in the Province
- Accommodates the specific circumstances of different neighbourhoods and areas, and
- Creates new mechanisms for effective enforcement in neighbourhoods.

Section 9(m) prohibits the use any power tool or power equipment used for **construction work, drilling work or demolition work**, or allow it to be used, in or near a residential area if it may cause a noise nuisance. Noise nuisance is defined as any sound, which disturbs or impairs, or may disturb or impair the convenience or peace of any reasonable person considering time of day and environment.

The regulations define a “disturbing noise” as meaning, “...a noise level that causes the ambient noise level to rise above the designated zone level, or if no zone level has been designated, the typical rating levels for ambient noise in districts which can be obtained from the following code of practice below.

H 6.18.2 The South African National Standard SANS 10103:2008 - The Measurement and Rating of Environmental Noise with Respect to Annoyance and to Speech Communication provides guidance in defining noise impact criteria limits and standards and is also used by local authorities in the control of environmental noise

The code of practice should be referred to obtain typical noise rating levels for various land use types and expected community response that may be elicited should these levels be exceeded.

H 6.19 Hazardous Chemical Substances [HCSR]

The principal contractor shall be responsible to ensure compliance with this regulation where applicable within the construction site. A hazardous chemical substance is any toxic, harmful, corrosive irritant or asphyxiant substance or mixture of such substances for which an occupational exposure limit is prescribed or which creates a hazard to health. For example cement is a hazardous chemical substance.

The principal contractor shall ensure that all hazardous chemicals brought to site have a Material Safety Data Sheet (MSDS) and the users are made aware of the important sections of the MSDS such as:

- Hazards
- First aid measures
- Fire-fighting measures Accidental release measures
- Handling and storage Exposure control especially PPE
- Disposal

First Aiders shall be made aware of the MSDS and how to treat HCS incidents appropriately. Copies of MSDS's will be available on site and in the HSF.

H 6.20 Traffic control

The principal contractor shall appoint a competent person to design and maintain a site specific traffic control management plan and have this plan approved and accepted by the local authorities and have a copy available in the file.

The Principal Contractor shall ensure that a fulltime traffic safety officer be appointed in writing, upon the commencement of construction activities.

The traffic safety officer shall be tasked with regular inspections and movement of road traffic signs as per the approved traffic accommodation plans and will report to the safety officer.

This document must indicate the potential risk to the public or environment posed by all vehicles travelling to and from the areas of construction for the purpose of the construction work, and proposes methods to eradicate or minimize these risks. Such a plan must include the following aspects:

- Design of Traffic Management Plan
- Site specific base line risk assessment
- Protection of employees
- Protection of pedestrians
- Specific signage and distances applicable
- Applicable training
- Appointments of road safety officers
- Management after hours/weekend/adverse weather conditions
- Setup and clearing of signage

The Principal Contractor will also put in place flagmen to control the entry and exit of vehicles to and from the site onto the public roads

The Principal Contractor must bear in mind that there are two villages within the proposed road. Therefore traffic safety should be strengthened and timeously monitored.

TENDER NUMBER: EPMLM/8/3/427

FOR: DICHOEUNG INTERNAL STREET etender document

H 6.21. Public Health and Safety

The contractor shall ensure that each person working on or visiting a site, and the surrounding community shall be made aware of the dangers likely to arise from onsite activities and the precautions to be observed to avoid or minimize those dangers. Appropriate health and safety signage shall be posted at all times.

H 6.22. Borrow Pit usage

There are two identified borrow pits authorised to borrow materials from. Contractor shall safely fence both borrow pits with access lockable gates installed.

Each borrow pit must have all the warning signs and emergency contact board attached to it.

Chemical toilets with toilet papers and hand-washing water shall be provided.

Contractor must ensure that each borrow as long as it is in use, it is stationed with a security guard and such security guard is provided with a guard-house at the gate.

Contractor must ensure that a safe excavation when borrowing material, it is adhered to and trucks are able to move around safely.

Ensure that excessive dust is controlled.

Material from the mine

The contractor will be required to collect material from the mine to be stockpiled in a designated area to be identified outside the mine.

All the loading plant will not be allowed to stay overnight at the mine and therefore the contractor will be required to make that arrangement on a daily basis to remove all the plant from the mine

Induction for all the personnel to enter the mine will be conducted timeously

Valid Medical fitness certificate will be required from a qualified Occupational Doctor

These requirements are in terms of the Mine Health and Safety Act, Act 29 of 1996.

- Every Borrow Pit must have a valid Mining Permit issued by the Department of Minerals and Energy.
- Adequately safeguard Borrow Pits to prevent unauthorized entry.
- Appropriate, conspicuous safety signs must be placed around the excavations.
- No undercutting or under mining may be allowed to take place in the Borrow Pit.
- All undesired material must be used to backfill the excavations made.
- Excavations to be sloped to a safe angel.
- All excavations must be design such that they will drain any water accumulated. Where this is impractical, means of protection must be provided.
- All operators must be appointed to work in Borrow Pits.
- All operators must be authorized to work with machinery in Borrow Pits.
- All vehicles working in Borrow Pits shall have reverse hooters, at least 3 mirrors for reversing and shall be fitted with a rotating light.
- All machinery working in the Borrow Pit shall have a certificate of compliance by a competent person.
- A monthly labour compliment report must be submitted of employees worked in a Borrow Pit.
- The contractor shall submit a Code of Practice on Trackless Mobile Machines to the Department of Minerals and Energy for approval.
- A Risk Assessment for each Borrow Pit must be submitted.

Note: Principal Contractor must note that road material will be collected from a mining area and such must be considered and ensure that the Mine health and safety act will be adhere to at all times.

H 7. Application of the Construction Regulations [CR]

H 7.1 Hazard Identification, Risk Assessment and Risk Control (HIRA) [CR 9]

The contractor shall prior to the commencement of any construction work perform a HIRA exercise, known as a Baseline Risk Assessment which will form part of the HSP for the project. An Issue Based Risk Assessment will be carried out during construction for any changes or variations to procedures or methods and Continuous Risk Assessments may be done during construction as a result of audit findings, inspections, hazard awareness etc.

A copy of the HIRA shall be made available for viewing to the client's agent and shall be kept in the HSF the contractor shall ensure that the outcome of all HIRA exercises will be conveyed to all relevant employees with respect to the hazards and the related control measures before any work commences.

Below is a list of activities, which may be considered for the risk assessment. The list is not exhaustive but covers the main activities applicable on site:

- Contractual appointments, agreements and notifications
- Traffic – restrictions, existing systems, site traffic
- Site security and access
- Existing services, overhead and underground
- Ground conditions / ground water
- Employees and visitors (all persons outside the construction site) safety and liaison
- Demolitions, excavations using explosives
- Tree felling
- Activities that affect adjacent sites and roads during construction
- Excavations in particular those adjacent to roads or sidewalks Construction Vehicles and mobile plant use
- Stacking, storage and good housekeeping
- Use and storage of flammable and hazardous chemicals such as petrol, diesel, etc Use of hand tools
- Use of portable electrical equipment (power tools)
- Use of flammable and hazardous chemical substances
- Waste management such as removal of excavation waste and debris
- Environmental restraints such as excessive dust
- General hazards to site personnel such as cleaning, noise and dust and correct issuing of PPE
- Welfare facilities such as toilets, change rooms and eating areas
- Emergency evacuation
- Temporary site accommodation
- Construction activities

TENDER NUMBER: EPMLM/8/3/427

FOR: DICHOEUNG INTERNAL STREET **etender document**

H 7.2 Excavations [CR13]

Section 1 of this regulation states that this work must be carried out under the supervision of a competent person, who has been appointed in writing. All the requirements of CR 13 shall be met. For inspection of excavations, attention is drawn to section 3(h), the records of which must be available on site.

Contractor shall consider the safety and health of the surrounding livestock and ensure that excavations that can be closed immediately are closed and that those that cannot be closed are solidly barricaded with warning signs.

H 7.3 Demolition [CR14]

Section 1 of this regulation states that this work must be carried out under the supervision of a competent person.

Contractor must in terms of section 4 (d), where the stability of an adjoining building road is likely to be affected by the removal of the guardrails (demolition), take steps to ensure the stability of such road and safety of persons.

Contractor must also ensure that no material is dropped to any point, which falls outside the exterior walls of the structure, unless it is effectively protected.

H 7.4 Batch Plants [CR 20]

Contractor will be collecting stone materials from a quarry at a mining area, to an established batch plant, where the contractor will need to comply to such mines health and safety requirements.

In terms of section 1 Contractor must appoint a competent person, for supervising such batch plant in writing and such person must be aware of the dangers involved within the operation and ensure precautionary measures are taken in the interest of health and safety.

All requirements of CR 20 shall be met if applicable.

H 7.5 Explosive powered tools [CR 21]

Section 2(b) of this regulation states that these tools must be cleaned and inspected daily before use by an appointed, competent person and a trained person (3b) can only operate them.

Contractor must bear in mind that there might be any live explosives buried under at the quarry and ensure that an effective risk assessment is taken into consideration prior any mining.

All the requirements of CR 21 shall be met.

H 7.6 Cranes [CR 22] including lifting machines and lifting tackle [GMR 18]

If applicable, the requirements of CR 22 shall be met. If a mobile crane or other mobile plant is hired, only approved hire companies shall be contracted to provide such equipment. The Construction Supervisor shall ensure compliance of the provider to these regulations. In particular attention is drawn to the competence and fitness of the operator [section 1(d)] and the inspection of the equipment [section 1(j)]. As far as GMR 18 is concerned, compliance to these requirements will be the responsibility of contractors using any lifting equipment and lifting tackle. Especially in lifting items such as mobile offices brought during site establishment.

H 7.7 Construction vehicles and mobile plant [CR 23]

It will be the responsibility of each contractor on site to ensure compliance of their construction vehicles and mobile plant to these regulations.

Each contractor will have to take into consideration the busyness of provincials roads and the public road users within, and make it a priority that such vehicles and plants are in perfect working conditions and road

worthy in terms of the National Road Traffic Act, 1996 (Act No 93 of 1996).

Contractor must ensure that all the tipper trucks that will be loading rocks from the quarry are well guarded, to prevent loaded rocks from falling.

This includes vehicles to be used for transporting personnel to and from site, which will be subject to relevant requirements such as licensing and roadworthiness checks. In addition, the following will apply:

- Safe transport for personnel working on the project to and from the workplace, which shall include proper seating, side restraints and cover.
- Road safety principles shall be adhered to on and off site.

If a mobile crane or other mobile plant is hired, only approved hire companies shall be contracted to provide such equipment. The Construction Supervisor shall ensure compliance of the provider to these regulations. In particular attention is drawn to the competence and fitness of the operator [section 1(d)] and the inspection of the equipment [section 1(j)].

H 7.8 Electrical Installations [CR 24], including [EIR] and [EMR]

The requirements of these regulations shall be met as required, by the appointed electrical contractor. A competent person will be appointed for inspection and control of all temporary electrical installations as per CR 24(d) and (e) respectively.

H 7.9 Use and storage of flammable liquids [CR 25], and [GSR 4]

All the requirements of CR 25 shall be met and attention is drawn to the storage requirements of flammable liquids as specified in GSR 4.

H 7.10 Water Environments [CR 26]

All requirements of CR 26 shall be met if applicable.

H 7.11 Housekeeping [CR 27] including [ERW(6)]

All contractors shall ensure that housekeeping standards as per these regulations shall be maintained at all times. The principal contractor is responsible to ensure that building waste and debris is removed at regular intervals and not allowed to build up to any degree. The building's domestic and compactable waste removal systems may not be used for this purpose under any circumstances.

H 7.12 Stacking of Materials [CR 28] including [GSR(8)]

All contractors shall ensure that materials are only stored in defined and allocated storage areas and that materials being stored are stacked in accordance with sound stacking principles as per these regulations.

H 7.13 Fire precautions [CR 29]

All contractors on site will comply fully with the requirements of this regulation. In particular, the principal contractor will be responsible for the evacuation plan (section (I)) the details of which will be imparted to contractors, visitors etc. through the site induction.

H 7.14 Construction welfare facilities [CR 30] including [FR 2- 9]

The principal contractor shall be responsible for implementing this regulation and shall ensure that adequate facilities are provided for the personnel on site in terms of the following:

- At least one shower for every 15 workers
- At least one sanitary facility for every 30 workers
- Changing facilities for each sex
- Sheltered eating areas
- Potable water.

On-site chemical toilets must be serviced daily.

No food preparation shall be conducted on site. Eating and drinking will only be permitted in the designated eating areas, which must be provided with adequate seating. Waste bins shall be strategically placed and cleared regularly.

B12.12 Contractor’s initial obligations in respect of the Occupational Health And Safety act (OHS), General Safety Regulations 1986, Covid-19 Regulations and Construction regulations 2014 Lump Sum

The full amount will be paid in one instalment only once: -

- (a) The contractor has notified the Provincial Director of the Department of Labour in writing of the project and to obtain construction permit.
- (b) The contractor has made the required initial appointments of employees and sub-contractors and their entry medical fitness certificates are in place.
- (a) The client has approved the contractor’s Health and Safety Plan.
- (b) Compliance with the Covid-19 Regulations
- (c) The contractor has set up his Health and Safety File.
- (d) All employees are provided with PPE
- (e) Compliance with General Safety Regulations is met
- (f) All general site posters and signage in terms of GSR is met

The tendered sum shall include full compensation to the Contractor for compliance with all the requirements of the OHS Act and Regulations (including the Construction Regulations, 2014) at all times for the full duration of the Contract, as described in clause B1228 of the project specifications. The successful Tenderer shall provide the Engineer with a complete breakdown of this tendered sum.

This sum will be paid to the Contractor in equal monthly amounts subject to proper and/or substantial compliance.

B12.13 Submission of the Health and Safety File.....Lump Sum

The tendered sum shall include full compensation to the Contractor for compliance with all the requirements with regard to the Health and Safety File and Approval.

Annexure 1

No.	Inspection	By who	Frequency	Record
1	Structures	Appointed person	As required for design compliance	Checklist
2	Formwork & Support work	Appointed person	Before, during, after loading, then daily	Checklist
3	Excavations	Appointed person	Daily before shift, plus other	Checklist
4	Traffic Accommodation	Appointed person	Daily	Inventory / checklist
5	Suspended Platforms	Appointed person	Manufacturer's spec, not more than 3 mo.	Inventory / checklist
6	Material Hoists	Appointed person	Daily	Checklist
7	Construction Vehicles	Appointed person	Daily	Inventory / checklist
8	Electrical Installations	Appointed person	Weekly	Inventory / checklist
9	Explosive Powered Tools	Appointed person	Daily	Inventory / checklist
10	Fire Equipment	Appointed person	Manufacturer's spec	Inventory / checklist
11	First Aid Box Contents	First Aider	Monthly	Inventory
12	Ladders	Competent person	Monthly	Inventory / checklist
13	Lifting Tackle	Appointed person	3-monthly	Inventory / checklist
14	Hand Tools	Appointed person	Monthly	Inventory / checklist
15	Portable Electrical Equipment	Appointed person	Monthly	Inventory / checklist
16	Gas Bottle Sets (OxyAcetylene)	Appointed person	Monthly	Inventory / checklist
17	Safety Harnesses	H&S Rep / Safety Officer	Monthly	Inventory / checklist
18	Health & Safety Rep	H&S Rep / Safety Officer	Monthly	Checklist
19	Good Housekeeping	H&S Rep / Safety Officer	Monthly	Report
20	Stacking and Storage	Appointed person	Monthly	Report
21	Change rooms and toilets	H&S Rep / Safety Officer	Monthly	Inventory / checklist

TENDER NUMBER: EPMLM/8/3/427

FOR: DICHOEUNG INTERNAL STREET

etender document

B. INVESTIGATION OF THE ABOVE INCIDENT BY A PERSON DESIGNATED THERETO	
1	Name of investigator _____
2	Date of investigation _____
3	Designation of investigator _____
4	Short description of incident _____
5	Suspected cause of incident _____
6	Recommended steps to prevent a recurrence _____
	Signature of investigator _____ Date _____
C. ACTION TAKEN BY THE EMPLOYER TO PREVENT THE RECURRENCE OF A SIMILAR INCIDENT	
	Signature of employer _____ Date _____
D. REMARKS BY HEALTH AND SAFETY COMMITTEE	
	Remarks _____
	Signature of chairman of health and safety committee _____ Date _____

Annexure 3

Definition of Mandatory

Includes an agent, a contractor or sub-contractor for work, but without derogating from his status in his own right as an employer or user.

Occupational Health and Safety Act (No. 85 of 1993)

You are requested to, as far as you reasonably can, comply with the requirements of the OHS ACT and Regulations.

1. Your attention is drawn to “**General Duties of Employers to their Employees**” as required by Sect 8 of the Act.
2. You are required to:
 - Sign a written “**Agreement with Mandatory**” as required by Sect 37(1)(2) of the Act with us before you
 - 3.1 commence any work on my / our premises / site.
 - 3.2 Provide the **client / principal contractor** with a documented health and safety plan.
 - 3.3 Provide the **client / principal contractor** with written appointment of the person who is going to supervise the construction work as per Construction Regulation 6(1).

Note: Electrician to provide copy of certificate of registration as per Elect. Install Reg. 9(3).
 - 3.4 Provide the **client / principal contractor** with written designation of your nominated Health and Safety Representative as per Sect 17(1).
 - 2.5 If you employ more than five (5) persons, you are required to provide your own First Aid Box. (General Safety Regulation 3 (2).)
 - 2.6 If you employ more than ten (10) persons, you are required to provide your own qualified First Aider as per General Safety Regulation 3(4).
 - 2.7 When working with hazardous chemical substances, comply with Hazardous Chemical Substances Regulation 3. *Note: Asbestos and Lead regulations are separate.*
 - 2.8 When using a Materials Hoist , comply with Construction Regulation 17.
 - 2.9 When using Lifting Machines and Lifting Tackle, comply with Driven Machinery Regulation 18.
 - 2.10 When using Explosive Powered Tools, comply with Construction Regulation 19.
 - 2.11 When using Scaffolding, Formwork and support work, comply with Construction Regulation 10 and 14.
 - 2.12 When Excavating or Demolishing, comply with Construction Regulation 11 and 12.
 - 2.13 When Welding, Flame Cutting, Soldering, comply with General Safety Regulation 9.
 - 2.14 When working in confined spaces, comply with General Safety Regulation 5.
3. You are responsible for providing your own **legal safety documents and registers** to comply with the Act's requirements. *A copy of the OHS Act of 1993 should be available in the main contractor's office.*
4. You are required to comply with General Safety Regulation 2(1) to (7) and provide employees with: personal protective equipment which will allow them to carry out their work in a safe manner, e.g. hard hats, safety belts, gloves, safe footwear, eye protection, ear protection, waterproof clothing etc.
5. Reporting of Incidents and Occupational Diseases shall be done as per General Admin. Regulation 6. (Also see Sect 24 of the Act.)

Compensation for Occupational Injuries and Diseases Act (No 130 of 1993)

You are required to provide the **client** proof of registration with the Compensation Commissioner/Federated Employer's Mutual within seven (7) days after signing this agreement. Failure to do so would result in the **client** notifying the agent of the Commissioner to investigate and make an assessment of your wage return and the applicable levy you have to pay, which will be liable for a deduction from your monthly progress payments and paid over to the Commissioner. (Copies of proof of payment will be provided to the contractor) **See Section 89(1) of the COID Act.**

TENDER NUMBER: EPMLM/8/3/427

FOR: DICHOEUNG INTERNAL STREET etender document

Annexure 3A

OCCUPATIONAL HEALTH AND SAFETY ACT, 85 OF 1993

Medical Certificate of Fitness

CONSTRUCTION REGULATIONS, 2014

Name of Employee _____ ID Number _____

Co Number _____

* Occupation e.g. General worker, Welder, Bricklayer, Steel fixer, Mobile crane operator, etc	* Possible Exposure e.g. Noise, Heat, Fall risk, Confined spaces, etc	* Job Specific Requirements e.g. Operating mobile crane, Digging trenches, Erecting formwork and support work etc	* Protective Clothing e.g. Dust respirator, Welding gloves, etc

* The Employer to complete the information in the spaces marked with an * before sending the Employee for a medical examination Declaration by the Medical Examiner: I certify that I have, by examination and testing, using the above criteria specified by the employer, satisfied myself that the abovementioned employee is fit to perform the duties as described by the employer in the matrix above.

Occupational Medicine Practitioner / Occupational Health Nursing Practitioner: _____
Signature _____ Practice Number _____
Date _____ Address _____

AGREEMENT WITH MANDATORY In terms of Section 37 (1) and (2)

Section 37 (1)

Whenever an employee does or omits to do any act which it would be an offence in terms of this Act for the employer of such employee or a user to do or omit to do, then unless it is proved that -

- (a) in doing or omitting to do that act the employee was acting without the connivance or permission of the employer or any such user;
- (b) it was not under any condition or in any circumstance within the scope of the authority of the employee to do or omit to do an act, whether lawful or unlawful, of the character of the act or omission charged; and
- (c) all reasonable steps were taken by the employer or any such user to prevent any act or omission of the kind in question,

the employer or any such user himself shall be presumed to have done or omitted to do that act, and shall be liable to be convicted and sentenced in respect thereof; and the fact that he issued instructions for Tendering any act or omission of the kind in question shall not, in itself, be accepted as sufficient proof that he took all reasonable steps to prevent the act or omission.

Section 37 (2)

The provisions of subsection (1) shall "*mutatis mutandis*" apply in the case of a mandatory of any employer or user, except if the parties have agreed in writing to the arrangements and procedures between them to ensure compliance by the mandatory with the provisions of the Act.

I, _____ (Responsible person)
for, _____ (Company) appoint, _____ (Contractor)
at the following premises / site: _____

Period: _____

AUTHORISED SIGNATORY FOR THE COMPANY (CLIENT)

Signature: _____ Designation: _____ Date: _____

ACCEPTANCE SIGNATORY FOR THE CONTRACTOR

I, hereby acknowledge receipt of and accept and understand the requirements of this agreement and shall ensure compliance with the OHS Act 85, of 1993.

Signature: _____ Designation: _____ Date _____

BASELINE RISK ASSESSMENT

RISK AND ASSURANCE STANDARD RISK MATRIX		Hazard Effect / Consequence				
		1 Insignificant	2 Minor	3 Moderate	4 Major	5 Catastrophic
Loss Type						
Timeline		No impact on overall project timeline	May result in overall project timeline overrun of less than 5%	May result in overall project timeline overrun of between 5% and less than 20%	May result in overall project timeline overrun of between 20% and less than 50%	May result in overall project timeline overrun of 50% or more
Budget		No impact on the budget of the project	May result in overall project budget overrun of less than 5%	May result in overall project budget overrun of between 5% and less than 20%	May result in overall project budget overrun of between 20% and less than 50%	May result in overall project budget overrun of 50% or more
Investment Return – NPV loss		Less than R25 000	R25 000 to less than R100 000	R100 000 to less than R1 000 000	R1 000 000 to R10 000 000	R10 000 000 or more
Quality		No impact on quality	Minimal quality issues that can be addressed in a short timeframe with minimal interactions	Some quality issues that requires immediate management action	Significant quality issues that requires senior project management interaction	Significant quality issues that requires sponsorship intervention with significant resource and cost implications for rework
Safety / Health		First aid case / Exposure to minor health risk	Medical treatment case / Exposure to major health risk	Lost time injury / Reversible impact on health	Single fatality or loss of quality of life / Irreversible impact on health	Multiple fatalities / Impact on health ultimately fatal
Environment		Minimal environmental harm – L1 incident	Material environmental harm – L2 incident remediable short term	Serious environmental harm – L2 incident remediable within LOM	Major environmental harm – L2 incident remediable post LOM	Extreme environmental harm – L3 incident irreversible
Legal & Regulatory		No legal impact	Minor legal concerns with minor impact	Some legal concerns with manageable level of impact	Serious legal concerns and significant impact on operations	Legal noncompliance with risk of shutdown of operations with significant cost impacts
Likelihood		Risk Rating				
5 Almost Certain	The unwanted event has occurred frequently; has a 90% and higher probability of reoccurring	Medium (11)	Significant (16)	Significant (20)	High (23)	High (25)
4 Likely	The unwanted event has a probability of between 60% and less than 90% of occurring	Medium (7)	Medium (12)	Significant (17)	High (21)	High (24)
3 Possible	The unwanted event has a probability of between 30% and less than 60% of occurring	Low (4)	Medium (8)	Significant (13)	Significant (18)	High (22)
2 Unlikely	The unwanted event has a probability of between 1% and less than 30% of occurring	Low (2)	Low (5)	Medium (9)	Significant (14)	Significant (19)
1 Rare	The unwanted event has never occurred, has a probability of less than 1% of occurring	Low (1)	Low (3)	Medium (6)	Medium (10)	Significant (15)

TENDER NUMBER: EPMLM/8/3/427

FOR: DICHOEUNG INTERNAL STREET etender document

PLANNING, DESIGN AND CONSTRUCTION SUPERVISION OF MARBLE HALL EXTENSION 6 STORMWATER (PHASE 5)

Activity Description:	BASELINE RISK ASSESSMENT	Project No:	PWRT99/13
Assessment Team:		Assessment Date:	
		Review Date:	

Task #	Task Description	Hazards / Aspects / Failures	Potential Risks / Impacts	SHEQ Category	Likelihood	Consequence	Raw Risk Rating	Mitigation / Control Measures	SHEQ Category	Likelihood	Consequence	Residual Risk Rating	Resp Person
1	Induction and training	<ul style="list-style-type: none"> Injuries due to employees not aware of dangers in work area Long hours of induction. Use of unfamiliar language. Imcompetent trainer/facilitator. Issueing Incorrect PPE afterwards. Employment of underaged employees. 	Injury Disability Property damage	S&H BI/AD L&R	4	4	21(H)	<ul style="list-style-type: none"> Inductions- Employees to be informed to all hazards in the work area as well as the recommended precautionary measures Site specific induction to be conducted to all employees, sub-contractors and visitor's Employees to be trained on all tools and equipment. Ensuring that all the employees understood the training including questionnaires raised. Ensure all employees get the correct PPE. The contractor to hire people that are legal to work in terms of age. 	S&H BI/A D L&R	2	3	9(M)	Safety Officer Site Agent General Foreman
2	Site establishment	<ul style="list-style-type: none"> Fence erection. Exposure to hazardous materials. Exposure to moving machinery and vehicles. Exposure to existing services. Office building building and installation of ventilations. Installation of electrical connections. Clearing of site 	Injury, disease, Property damage,	S&H BI/AD L&R	4	2	12 (H)	<ul style="list-style-type: none"> Management to ensure site layout be approved by relevant engineer to consider site traffic, plant movement and other interfacing contractor site layouts. Ensure that proper PPE is provided. Ensure that Plants used for clearing are inspected and well serviced. Contractor to ensure that competent persons are hired for installations. 	S&H BI/A D L&R	1	3	8 (M)	Site Agent General Foreman

3	Environmental control	Environmental risks	Environmental	EN	1	3	6(M)	<ul style="list-style-type: none"> Ensure all waste areas controlling hazardous waste is kept clear Ensure area housing hazardous waste is banded to prevent run-off and absorption into the ground water systems Ensure the area is well demarcated and screened off Ensure that waste is disposed legally with an appointment letter from legal appointee. Ensure all spills are reported immediately Ensure drip trays are used when the risk to spillage is high Ensure the waste storage area has sufficient capacity Ensure that all loose materials are covered and tied down to prevent wind picking the loose items out of the storage area or facility Ensure storage areas and facilities are kept neat and tidy at all times Ensure these areas are cleared regularly of waste material Ensure all hazardous waste is removed to an approved dumping site/facility Ensure correct colour coded waste bin for the discarding of waste 	EN	1	2	3(L)	Environmental officer
4	Access/egress to site & correct placing of units	Restricted/unsafe access & parking of vehicles and plant	Injury Property damage	S&H BI/AD L&R	5	2	16(S)	<ul style="list-style-type: none"> Management to ensure site layout approved by client to consider site traffic, plant movement and other interfacing contractor site layouts 	S&H BI/A D L&R	1	4	10 (M)	Site Agent General Foreman
5	Create access through berm using TLB	Substandard plant	Injury Propety damage Production loss	S&H BI L&R	3	4	14 M)	<ul style="list-style-type: none"> Only certified and approved operator to be used. Plant pre-inspection checklist to be completed Tool box talk and risk assessment training before work commences Work area to be barricaded and flag man to control people and plant movement 	S&H BI L&R	1	4	4(L)	Site Agent General Foreman

6	Truck onto site and lay down area	<ul style="list-style-type: none"> Reckless driving Uncertified driver Substandard truck Conditions 	Injury Fatality Property damage	S&H BI/AD L&R	3	5	15 (H)	<ul style="list-style-type: none"> Ensure drivers are qualified and competent. Ensure drivers are informed of route and site traffic requirements Vehicle to be approved and licensed to enter site Ensure that the plant is serviced on intervals and by competent and certified personnel. 	S&H BI/A D L&R	2	4	10 (M)	Site Agent General Foreman
7	Pedestrian access to site Construction plant access to site.	<ul style="list-style-type: none"> Unsafe pedestrian access (Walkway) Plants that are not road worthy Incompetent drivers or operators. 	Injury Property damage Production loss	S&H BI L&R	4	4	16(H)	<ul style="list-style-type: none"> Safe demarcated walkway to be conducted Walkway to be barricaded with snow netting Pedestrian crossings to be conducted and utilised. Pedestrian and plants access must be separated. Vehicle and plant signages must be made available. Monitoring of site. Appointment of qualified security service provider. 	S&H BI L&R	1	4	4(L)	Site Agent General Foreman
8	Offloading and positioning of containers/offices (mobile crane)	<ul style="list-style-type: none"> Equipment failure Load falling Rigger (falling) Load striking employees Load striking other containers Load swinging 	Injury Property damage Production loss Fatality	S&H BI L&R	4	5	20 (H)	<ul style="list-style-type: none"> Management (supervisor) to ensure that only certified and approved operator, crane and lifting tackle to be used. All lifting equipment to be inspected and registered Plant pre-inspection checklist to be completed Operator and rigger to attend tool box talk and risk assessment training before work commences Supervisor and rigger to ensure correct lifting tackle and attaching method/procedures applied Qualified and competent rigger allocated to specific crane (one on one communication) Rigger to wear safety harness and tie-off at all times. Step ladder must be used for access to top of container If working on top of load the rigger must then be hooked on the crane or on a life line 	S&H BI L&R	1	4	4 (L)	Site Agent General Foreman

								<ul style="list-style-type: none"> Area to be barricaded off during lifting activities to prevent unauthorised entry Two guide ropes to be used on load to ensure stable movement No lifting during high winds or inclement weather Heavy equipment must be identified and a rigging study to be in place Swing radius must be identified to ensure that the load can be of loaded in a safe manner Stay out of the swing radius of the crane Ensure there are barrier guards showing swing radius A boom angle indicator must be on the crane 					
9	Erecting safety and security fencing	<p>Employees</p> <p>Fencing material (Wire and poles)</p> <p>Tools (Tensioners and pliers)</p> <p>Theft (Unauthorised entry)</p> <p>Hi-hub Crane truck</p> <p>Unfenced borrow pits</p>	Injury Disability, Production loss, Property damage, animal loss	S&H BI/AD L&R	2	4	8(M)	<ul style="list-style-type: none"> Ensure outriggers are in full extended position and on firm and stable ground using spreader boards Crane may not travel with outriggers in extended position Trained and competent workers to be used under supervision for fence erecting No borrow pit will be excavated prior fencing together with an access gate. Only approved and correct hand tools for the job may be used No homemade or modified tools allowed on site Tools to be inspected before commencing of work Security guard will be appointed to provide security and access controll. Labelled tools or plants. 	S&H BI/A D L&R	1	2	2(L)	Site Agent General Foreman
10	Installation of safety signs and notice boards	<p>Un-informed employees</p> <p>Inadequate signage</p> <p>Incorrect signage</p>	Injury Property damage	S&H BI/AD L&R	2	2	4 (L)	<ul style="list-style-type: none"> Legal required signage must be displayed to be clearly visible at all times. All required signage to be available Informative, prohibitive, mandatory and emergency signs Signage change and applicability should be maintained 	S&H BI/A D L&R	1	1	2(L)	Site Agent General Foreman

11	Emergency preparedness	Fire fighting equipment Insufficient no's	Injury Property damage Production loss	S&H BI/AD L&R	2	3	6(M)	<ul style="list-style-type: none"> Fire fighting equipment must be placed in accordance to survey conducted during site establishment Identification and signage must be clear and visible All relevant equipment to be inspected and on register 	S&H BI/A D L&R	1	4	4 (L)	Site Agent General Foreman Safety Officer
12	First aid	Inadequate medical assistance Untreated injuries	Diseases, disability	S&H BI L&R	2	4	8 (M)	<ul style="list-style-type: none"> First aid boxes to be available at each work area clearly identified, signage installed and qualified first aider identified First aid boxes to comply with minimum requirements inspected and registered 	S&H BI L&R	1	3	3(L)	Safety Officer First Aider
13	Facilities	Hygiene Insufficient no Waste Eating area Drinking water	Hygiene Environme ntal Poor hygiene Illnesses and ailments Water contaminat ed	S&H BI L&R	2	2	4(L)	<ul style="list-style-type: none"> Separate toilets for both genders must be available and clearly identified Ration 1 to 20 and to be cleaned 3 times a week Separate waste bins for different wast categories to be available and identified Waste disposal plan and schedule must be maintained Skips must have lids Adequate, clean and shaded eating area to be ensured Facilities to be ensured from start of site establishment Clean drinking water must be available Signage to be installed to all drinking and non drinking water 	S&H BI L&R	1	2	2(L)	Safety Officer Site Agent
14	Power supply and electricity to office area	Generator	Injury	S&H	4	4	16 (H)	<ul style="list-style-type: none"> DB board must stand on firm level base and should be locked at all times DB board to be inspected and approved by qualified electrician 	S&H	2	4	8 (M)	Site Agent General Foreman
		Electrical cables	Injury Electrocuti on	S&H BI L&R	3	4	12 (H)	<ul style="list-style-type: none"> All cables to be routed underground Only qualified electrician to do installation and termination 	S&H BI L&R	2	4	8 (M)	Site Agent General Foreman
15	Refuelling Tank	Environmental spillage	Soil contaminat ion Fire risk	S&H EN	3	3	12 (H)	<ul style="list-style-type: none"> Bunding or drip tray to be utilised Spill kit to be available at all times MSDS available at generator Fire extinguisher and relevant required signage to be installed (no smoking, no open flames and hearing protection) Boundry wall to be available. 	S&H EN	1	3	3 (L)	Site Agent General Foreman Environmental officer

16	Lay down area Stacking and storage	Inadequate space	Injury	S&H BI L&R	3	3	12 (H)	<ul style="list-style-type: none"> Lay down area must be well planned to ensure adequate space 	S&H BI L&R	1	3	3 (L)	Site Agent General Foreman
		Poor stack/storage practices	Property damage	S&H BI L&R	2	5	10(H)	<ul style="list-style-type: none"> Safe stacking and storing practices/procedures must be maintained Access and off-loading space must be a priority Area to be barricaded Flammable material not to be stacked together. 	S&H BI L&R	1	3	3 (L)	Site Agent General Foreman
		Dunnage	Injury Property damage	S&H BI L&R	3	3	9 (M)	<ul style="list-style-type: none"> Timber poles (Dunnage) to be used for stacking material 	S&H BI L&R	1	3	3 (L)	Site Agent General Foreman
17	Loading and off-loading of truck with mobile crane	Unfit personnell on site Incorrect PPE Incompetent personnel Under the influences of alcohol and substances	Injury Fatality	S&H BI/AD L&R	4	4	16 (H)	<ul style="list-style-type: none"> Insure all personnel are fit by means of medical clearance certificate All personnel shall undergo all relative inductions, site inductions and risk assessment training Daily DSTI plus toolbox talks to be conducted Correct PPE to be worn for the right job or site requirements Safety harnesses to be worn when working at heights and safety life lines to be erected when required Safety harnesses will be issued per person and will be inspected and booked out accordingly Supervisor to ensure personnel is competent for the task at hand with competency/qualifications certificates All competency certificates to be kept in the safety officer office All appointments to be up to date Crane operator must be licence by an authorised training institution Only competent rigger to do lifting operations No employee to work when under the influence of drugs or alcohol Random alcohol test will be conducted 	S&H BI/A D L&R	1	4	4 (L)	Site Agent General Foreman Banksman

18	Approval of mobile crane	Non compliance No crane certification	Injury Fatality	S&H BI/AD L&R	3	4	12 (H)	<ul style="list-style-type: none"> All cranes to be checked and tested by an testing station All cranes shall be finally inspected and passed by project vehicle inspector The crans shall have an up to date and valid load test certificate, rope test certificate, LMI calibration certificate and crane hook certificate Full maintenance record of crane Operator competence certificate Crane pre-use checklist available and checklist completed daily Crane specification and load chart available in crane cab, understood and used by operator 	S&H BI/A D L&R	1	4	4 (L)	Site Agent General Foreman Safety Officer
20	Establishing crane on site	<ul style="list-style-type: none"> No set-up/traffic plan Poor or unstable ground condition Obstructions Excavations Power lines (arc flash/electrocution) 	Injury Fatality	S&H BI/AD L&R	4	4	14(H)	<ul style="list-style-type: none"> Site traffic plan/area establishment plan shall be available and be approved by site manager and Project construction manager Training and awarness to be conducted Crane to be escorted to set-up area Barricade crane and work area Supervisor and crane operator to do a pre-inspection of ground conditions Check and verify that there is no unkown services Supervisor/rigger to ensure area is free of any obstructions Crane not to be established closer than 3 menter to any excavation to prevent possible side wall collapse Do not work within 15 meters of any power line Site manager to ensure a pre-plan meeting and site inspection Site specific traffic plan in place and approved by Projects construction manager Permit to work near power lines. 	S&H BI/A D L&R	2	4	8(M)	Site Agent General Foreman
21	Select correct lifting equipment	Pinch points Lifting equipment failure	Injury Property damage	S&H BI/AD L&R	3	4	12 (H)	<ul style="list-style-type: none"> Pre task assessment for correct lifting equipment above 5 ton – Rigging study Wear correct PPE Client representative can inspect tools and equipment and request tools to be replaced or repaired 	S&H BI/A D L&R	2	3	6 (L)	Site Agent General Foreman

								<ul style="list-style-type: none"> Competent person/s shall be appointed for the responsibility of looking after equipment and tools must be inspected as required Hazard awareness briefings Rigging study to be approved by construction manager and master rigger 					
22	Hook up lifting equipment , crane and material to be lifted. Hoist up crane slowly to get equipment slack out	Pinch points	Injury	S&H BI/AD L&R	4	4	16 (H)	<ul style="list-style-type: none"> Connect lifting equipment to correct procedures All lifting equipment must have a load certificate inspection and must be updated and lock down in register Keep hands clear once hooked up Rigger to ensure all personnel are clear when hoisting, to get slack out 	S&H BI/A D L&R	2	4	8 (M)	Site Agent General Foreman
23	Raise load slowly to check load stability and centre of gravity	Equipment failure	Injury Fatality Disability Property damage	S&H BI L&R	3	5	15 (H)	<ul style="list-style-type: none"> Use correct and certified equipment Work within crane and lifting equipment specification Rigger only personnel to communicate with crane operator by means of hand signals, radio communications and or whistles Rigger to remove glove when giving hand signals Do not exceed wind speed for elevated lifts Rigger to ensure no person to be under a suspended load. No personnel within the swing radius of the crane 	S&H BI L&R	2	4	8 (M)	Site Agent General Foreman
24	Raise load to desired height and slew to designated installation area Remove lifting equipment	Incorrect lifting practices Lifting equipment failure Crane toppling over	Injury Fatality Property damage Production loss	S&H BI L&R	3	4	12 (H)	<ul style="list-style-type: none"> Work to lifting procedures/task analysis Rigger to communicate with operator Ensure sufficient guide ropes attached Work to equipment specifications Work within crane load chart specification Work within wind regulations – 6m/s or analyse situation Rigger to ensure he/she constant eye contact with crane operator or radio contact Rigger to ensure no person to be under a suspended load 	S&H BI L&R	2	3	6 (M)	Site Agent General Foreman

25	Weather conditions	Lightning/wind Storms and thunder storms	Injury Fatality	S&H BI/AD L&R	2	4	14 (H)	<ul style="list-style-type: none"> Work within wind regulation – 6m/or analyse situation Stop task and call manager or rigger for assistance if in doubt ask crane operator Do not work in thunderstorms and lightning No work to be conducted on elevated positions when raining If possible when load is suspended lower the load to ground level Do not work with any steel/lifting of any steel when raining 	S&H BI/A D L&R	1	4	4 (L)	Site Agent General Foreman
26	Truck arrived at site	Un informed operator Restricted access to loading area	Injury Property damage	S&H BI L&R	2	4	8 (M)	<ul style="list-style-type: none"> Supervisor to inspect driver’s public licence and condition of truck by means of an checklist. Truck maintenance/service record to be with driver of truck Driver to be send back if condition are not complied with Supervisor to escort trucks to lie-down area Communication with truck and crane operator Area to be identified and barricaded If delivery truck from a supplier come to site they need to complete the proforma checklist at the warehouse and manager to sign off. 	S&H BI L&R	1	4	4 (L)	Site Agent General Foreman
		Truck operator under influence of alcohol and substances	Injury Property damage	S&H BI L&R	3	4	12 (H)	<ul style="list-style-type: none"> Randomly drug and alcohol test to be conducted All truck drivers compulsory to do alcohol test prior of enter site area 	S&H BI L&R	2	3	6(M)	Site Agent General Foreman
		Load not secure	Property damage	S&H BI L&R	3	3	9(M)	<ul style="list-style-type: none"> Suppliers must be notified before hand that supplier is not allowed on site. If delivery truck from an supplier come to site and complete proforma checklist at warehouse and their manager must sign Signed form accompany with truck to site Delivery truck to be inspected for secure load before entry on site. 	S&H BI L&R	1	2	2(L)	Site Agent General Foreman
		Not in position of stop blocks and PPE	Injury	S&H BI	2	2	4(L)	<ul style="list-style-type: none"> Spare stop blocks to be provided or operator remain in truck. 	S&H BI	1	1	1 (L)	Site Agent General Foreman

				L&R				<ul style="list-style-type: none"> Engine to be stopped engage park brakes and stay seated to take action if track comes in motion Operator not allowed exiting truck without correct PPE 	L&R				
		Incorrect parking on site	Injury Property damage	S&H BI L&R	3	3	9 (M)	<ul style="list-style-type: none"> Supervisor to plan off load area before trucks arrived Supervisor to eliminate that roads been close for other users Barricade area off 	S&H BI L&R	1	2	2(M)	Site Agent General Foreman
27	Climbing on to truck to connect lifting equipment	Falling from truck	Injury	S&H BI L&R	3	4	12 (H)	<ul style="list-style-type: none"> Personnel must take tripping hazard in consideration and not walk on the edge of truck load bed Ensure 3 point contact when climbing on and off the truck Ladder to be used when ascending or descending truck Workers to wear safety harness attached to life line if working height exceeds 18m; lineyard on harness not exceeds 1 meter 	S&H BI L&R	2	3	6 (M)	Site Agent General Foreman Banksman/Slinger
		Caught between	Injury	S&H BI L&R	2	3	6(M)	<ul style="list-style-type: none"> Ensure loads are stable when offloading Workers to ensure proper footing and keep their feet out from line of fire 	S&H BI L&R	1	2	2{L}	Site Agent General Foreman
		Cuts and brazes	Injury	S&H BI L&R	1	2	2{L}	<ul style="list-style-type: none"> Ensure all material is free from sharp edges and protruding objects Gloves and safety boots to be worn 	S&H BI L&R	1	1	1 (L)	Site Agent General Foreman
28	Traffic Accomodation	Failure to inform members of the public about project thru PSC and CLO Non/incorrect placing of signage signage	Injury Fatality Disability Property damage due to traffic accidents	S&H BI L&R	3	4	12{H}	<ul style="list-style-type: none"> Discuss Traffic Plan with PSC and CLO and inform members of the public including employees Placement of correct signage Pre use inspection prior of use No damage equipment to be used Informing members of the public of construction activities thru CLO 	S&H BI L&R	1	5	5 (M)	Site Agent General Foreman
29	Identifying and Exposing of existing services Hand excavations Setting out points (Survey	Unsafe conditions unstable ground, incorrect identification Hand tools Incorrect setting out points (Demarcation)	Danage to services and disruption to existing services Production loss Loss of	S&H BI L&R	2	2	44(L)	<ul style="list-style-type: none"> Pre-checks on hand tools Discuss DSTI with employees Identify and expose services Pre-checks on hand tools Warn others in close proximity when excavating using hand tools Barricade all excavations Management, surveyor and supervisor must ensure that SOP's are in accordance 	S&H BI L&R S&H BI L&R	1	2	3 (L)	Site Agent General Foreman

			production Injury to employees					with approved and accepted drawings and survey results					
30	Barricading of work area	Uncontrolled movement	Injury Disability Fatality Property damage Production loss	S&H BI L&R	2	2	5 (L)	<ul style="list-style-type: none"> All excavation areas will be barricaded with solid barricading from before excavations start until after backfilling is completed Excavation to be numbered and put on register Daily pre-work check list to be completed and permit obtained by appointed supervisor Signage for barricading to be installed at access to excavation 	S&H BI L&R	1	2	3(L)	Site Agent General Foreman
31	Excavation with Excavator Handling and storage of excess spoil	Man and machine interface Failure of equipment Property damage Excess spoil (Rocks, stone boulders etc.) Plant lock out	Injury Fatal Property damage	HS	3	5	15H	<ul style="list-style-type: none"> Discuss traffic management plan Pre-use inspection of plant daily before use Operator and supervisor to inspect site before actual works Excess spoil will be removed from excavation work area with tipper Spoil remain in work site area for backfilling purposes will be stock piled in safe area All spoil will be stored further than 2m way from excavation edges and outside barricading Stock pile will not cause restriction to access/egress of work area 	S&H BI L&R	1	4	4(M)	Site Agent General Foreman
32	Placing spoil	Excess material/spoil (Excavation sides collapsing)	Injury Fatality Property damage	S&H BI L&R	2	2	4(L)	<ul style="list-style-type: none"> No excess spoil will be placed within 2m from excavation All spoil material to be removed offsite to n identified land fill All excavation sides will be shored to prevent collapsing of materials Spoil at edges will not exceed height of 2m and will be shored 1-2 at all times 	S&H BI L&R	1	2	3(L)	Site Agent General Foreman
33	Access/egress to excavation	Poor or no access/egress at excavation	Injury	S&H BI L&R	2	2	5(L)	<ul style="list-style-type: none"> All excavation will be supplied with sufficient access/egress ladders for entry and exit, placed no further than 6m away from nearest workers and no further than 6m apart. 	S&H BI L&R	1	2	3(L)	Site Agent General Foreman

34	Using of drilling machine Pre-use inspection Changing of drill bits	<ul style="list-style-type: none"> • Inspection not done and on register • Drilling machine not made safe • Incorrect tools used • Incorrect bit fitted • Bit fitted wrong way • Damaged bit fitted 	Injury Equipment damage	S&H BI L&R	3	3	9(M)	<ul style="list-style-type: none"> • Inspection to be done by competent person • User of drilling machine to be trained and found competent • Checklist to be signed off by competent appointed supervisor • Permanent lock switch not allowed • Only trained and found competent employees to change drill bits on a drilling machine • To ensure drilling machine is unplugged • Equipment needs to be inspected prior entering site • Proper tool (Chuck key) to be use • Supervisor to ensure correct bit is provided and fitted • Bit to be inspected prior of fitment by competent and trained employee 	S&H BI L&R	1	3	3 (L)	Site Agent General Foreman
35	Use of drilling machine (drilling thru hard rock)	<ul style="list-style-type: none"> • Drilling machine used by incompetent employee • Noise • Dust • Bit coming off while working with drilling machine • Employee injured as a result of an electric shock 	Injury Disability Fatality	S&H BI L&R	3	3	9(M)	<ul style="list-style-type: none"> • Only trained employees allowed to work with drilling machine • Ensure drilling machine not to be left unsupervised • Ear plugs to be worn when drilling • No loose clothing to be worn • Dust mask to be used • Correct PPE to be worn at all times • Employee to ensure drill bit is attached properly and secured with suck key • Drilling machine not to be used while standing in water • Drilling machine to be inspected before use • Faulty equipment to be removed from site • No drilling operations to be done during rain 	S&H BI L&R	1	3	3 (L)	Site Agent General Foreman
36	Use of mobile compressor	<ul style="list-style-type: none"> • Unauthorised persons using equipment • Operator not knowing where emergency stop button is 	Fire risk Injury Fatality Property damage Injury	S&H BI L&R	3	4	12(H)	<ul style="list-style-type: none"> • Only authorised trained employees to use equipment • Supervisor to be present at all times • Supervisor to give employee on the job training as to the hazards and risk associated with the mobile Compressor and emergency preparedness 	S&H BI L&R	2	3	6 (M)	Site Agent General Foreman

		<ul style="list-style-type: none"> No inspection done prior of commencement of work Leakage of diesel/petrol Oil decomposition Rotating parts Cleaning of clothes and skin with compressed air 						<ul style="list-style-type: none"> Only trained employees to use mobile Compressor Inspection to be done daily by supervisor prior commencement of entering site. Material safety data sheets must be on site and communicated to all employees by supervisor Drip trays to be utilised No smoking or open flames near Mobile Compressors that are in operation Contaminated soil will be properly disposed in line with construction EMP Disposal certificate will be kept on record Only certified companies used to dispose of hazardous waste Regular cleaning of cylinders and valves Supervisor to ensure employees comply All rotating parts must be guarded. Supervisor to ensure that items are covered in pre start inspection Supervisor to ensure no employees uses compressed air to dust off clothes or skin as irritation can occur Communicate to employees in Toolbox Talk Warning signs to be displayed 					
37	Hazardouse chemical storage	<ul style="list-style-type: none"> Employees not familiar with MSDS Liquid splashing Employees inhaling fumes Liquid spilling from container No information of hazardous substance signage No fire extinguisher 	Injury Disability Fatality	S&H BI L&R	3	4	12(H)	<ul style="list-style-type: none"> Obtain formal approval of flammable store from the relevant local authority and display the certificate at the entrance to the store Flammable liquid store to conform all legal requirements Assessment to be carried out to determine the quantity of flammable liquid kept on site No open flames and no smoking symbolic signs to be displayed in the vicinity of flammable liquid store All material safety data sheets (MSDS) to be available at all times Liquid bulk storage tanks to be banded. Each bund to be capable of containing the maximum volume of the tank +10% Fire extinguisher to be in 10 meter radius. 	S&H BI L&R	2	3	6(M)	Site Agent General Foreman

TENDER NUMBER: EPMLM/8/3/427

FOR: DICHOEUNG INTERNAL STREET etender document

38	Borrowing of materials at the Quarry	<ul style="list-style-type: none"> Working without conducting a risk assessment. Without the supervision. Defective and faulty construction plant and equipments. No induction conducted. No PPE worn Live burried explosives under-ground qaurry. Uncontrolled access 	<p>Medical treatment cases</p> <p>Injuries/Fatality</p> <p>Damage to property</p> <p>Incidents/accidents lead by high speeding/no traffic compliance</p> <p>Falling of rocks from tippers at the public road could lead to incidents/a accident</p>	4	4	16(H)	<ul style="list-style-type: none"> Conducting site specific risk assessment Appointment of Site Safety officer and supervisors. Contruction plant daily checklists Conducting induction training awareness prior accessing the quarry All employees shall be provided with task specific PPE Ensure the risk assessment also tackles the possibility of live buried explosives. Control access and register every one accessing. 	1	5	5(M)	<p>Site Agent</p> <p>Safety officer</p> <p>Traffic ooficer</p>
----	--------------------------------------	---	---	---	---	-------	---	---	---	------	--