



PRE-CONSTRUCTION HEALTH AND SAFETY SPECIFICATION

Project:

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1. INTRODUCTION AND BACKGROUND

1.1 Background to the Pre-construction Health and Safety Specification

The Construction Regulations (2014) place the onus on the Client to prepare a pre-construction health & safety specification, highlighting all risks not successfully eliminated during design.

1.2 Purpose of the Pre-construction Health and Safety Specification

To assist in achieving compliance with the Occupational Health & Safety Act 85/1993 and the now promulgated Construction Regulations (2014) in order to reduce incidents and injuries. This pre-construction specification shall act as the basis for the drafting of the construction phase health & safety plan.

The pre-construction specification sets out the requirements to be followed by the Principal Contractor and other Contractors so that the health & safety of all persons potentially at risk may receive the same priority as other facets of the project e.g. cost, programme, environment, etc.

1.3 Implementation of the Pre-construction Health and Safety Specification

This specification forms an integral part of the contract, and the Contractor is required to use it at pre-tender phase when drawing up its project-specific construction phase health & safety plan. The Principal Contractor shall forward a copy of this specification to all Contractors at their bidding stage so that they can in turn prepare health & safety plans relating to their operations.

2. PRE-CONSTRUCTION HEALTH AND SAFETY SPECIFICATION

2.1 Scope

This Specification covers the requirements for eliminating and mitigating incidents and injuries on the particular project

The scope also addresses legal compliance, hazard identification and risk assessment, risk control, and promoting a health and safety culture amongst those working on the project. The specification also makes provision for the protection of those persons other than employees.

2.2 Interpretations

2.2.1 Application

This specification is a compliance document drawn up in terms of South African legislation and is therefore binding. It must be read in conjunction with relevant legislation as noted previously.

2.2.2 Definitions

The definitions as listed in the Occupational Health & Safety Act 85/1993 and Construction Regulations (2014) shall apply.

2.3 Minimum Administrative Requirements

2.3.1 Notification of Intention to Commence Construction Work

The Contractor shall notify the Provincial Director of the Department of Labour in writing before construction work commences. A copy of this notification must be forwarded to the Client on appointment.

2.3.2 Assignment of Contractor's Responsible Persons to Supervise Health and Safety on Site

The Contractor shall submit supervisory appointments as well as any relevant appointments in writing (as stipulated by the OHS and Construction Regulations), prior to commencement of work. Proof of competency must be included. See annexure B.

2.3.3 Competency for Contractor's Appointed Competent Persons

Contractors' competent persons for the various risk management portfolios shall fulfil the criteria as stipulated under the definition of Competent in accordance with the Construction Regulations (2014). Proof of competence for the various appointments must be included.

2.3.4 Compensation of Occupational Injuries and Diseases Act 130 of 1993 (COIDA)

The Principal Contractor shall submit a letter of good standing with its Compensation Insurer to the Client as proof of registration. Contractors shall submit proof of registration to the Principal Contractor before they commence work on site.

2.3.5 Occupational Health and Safety Policy

The Principal Contractor and all Contractors shall submit a Health and Safety Policy signed by their Chief Executive Officer. The Policy must outline objectives and how they will be achieved and implemented by the Company / Contractor.

2.3.6 Health and Safety Organogram

The Principal Contractor and all Contractors shall submit an organogram, outlining the Health and Safety Site Management Structure including the relevant appointments/competent persons. In cases where appointments have not been made, the organogram shall reflect the intended positions. The organogram shall be updated when there are any changes in the Site Management Structure.

2.3.7 Preliminary Hazard Identification and Risk Assessment and Progress Hazard Identification and Risk Assessment

The Contractor shall cause a hazard identification to be performed by a competent person before commencement of construction work, and the assessed risks shall form part of the construction phase health and safety plan submitted for approval by the Client. The risk assessment must include;

- a) A list of hazards identified as well as potentially hazardous tasks;
- b) A documented risk assessment based on the list of hazards and tasks;
- c) A set of safe working procedures (method statements) to eliminate, reduce and/or control the risks assessed;
- d) A monitoring and review procedure of the risks assessment as the risks change.

The Principal Contractor shall ensure that all Contractors are informed, instructed and trained by a competent person regarding any hazards, risks and related safe work procedures before any work commences and thereafter at regular intervals as the risks change and as new risks develop.

The Principal Contractor shall be responsible for ensuring that all persons who could be negatively affected by its operations are informed and trained according to the hazards and risks and are conversant with the safe work procedures, control measures and other related rules (tool box talk strategy to be implemented).

2.3.8 Health and Safety Representative(s)

The Principal Contractor and all Contractors shall ensure that where required Health and Safety Representative(s) are appointed under consultation and trained to carry out their functions. The appointment must be in writing. The Health and Safety Representative shall carry out regular inspections, keep records and report all findings to the Responsible Person forthwith and at health & safety meetings

2.3.9 Health and Safety Committees

The Principal Contractor shall ensure that project health and safety meetings are held monthly and minutes are kept on record. Meetings must be organised and chaired by the Principal Contractor's Responsible Person. All Contractors' Responsible Persons and Health & Safety Representatives shall attend the monthly health & safety meetings. Contractors shall also have their own internal health & safety committees in accordance with the OHS Act 85/1993 and minutes of their meetings shall be forwarded to the Principal Contractor on a monthly basis.

2.3.10 Health and Safety Training

2.3.10.1 Induction

The Principal Contractor shall ensure that all site personnel undergo a risk-specific health & safety induction training session before starting work. A record of attendance shall be kept in the health & safety file. **A suitable venue must be supplied to house this training.**

2.3.10.2 Awareness

The Principal Contractor shall ensure that, on site, periodic toolbox talks take place at least once per week. These talks should deal with risks relevant to the construction work at hand. A record of attendance shall be kept in the health & safety file. All Contractors have to comply with this minimum requirement.

2.3.10.3 Competency

All competent persons shall have the knowledge, experience, training, and qualifications specific to the work they have been appointed to supervise, control, carry out. This will have to be assessed on a regular basis e.g. periodic audits by the Client, progress meetings, etc. The Principal Contractor is responsible to ensure that competent Contractors are appointed to carry out construction work.

2.3.11 General Record Keeping

The Principal Contractor and all Contractors shall keep and maintain Health and Safety records to demonstrate compliance with this Specification, with the OHS Act 85/1993; and with the Construction Regulations (2014). The Principal Contractor shall ensure that all records of incidents/accidents, training, inspections, audits, etc. are kept in a health & safety file held in the site office. The Principal Contractor must ensure that every Contractor opens its own health & safety file, maintains the file and makes it available on request.

2.3.12 Health & Safety Audits, Monitoring and Reporting

The Client shall conduct monthly health & safety audits of the work operations including a full audit of physical site activities as well as an audit of the administration of health & safety. The Principal Contractor is obligated to conduct similar audits on all Contractors appointed by it. Detailed reports of the audit findings and results shall be reported on at all levels of project management meetings/forums. Copies of the Client audit reports shall be kept in the Primary Project Health & Safety File while the Principal Contractor audit reports shall be kept in their file, a copy being forwarded to the Client. Contractors have to audit their sub-contractors and keep records of these audits in their health & safety files, available on request.

2.3.13 Emergency Procedures

The Principal Contractor shall submit a detailed Emergency Procedure for approval by the Client prior to commencement on site. The procedure shall detail the response plan including the following key elements:

- List of key competent personnel;
- Details of emergency services;
- Actions or steps to be taken in the event of the specific types of emergencies;

- Information on hazardous material/situations.

Emergency procedure(s) shall include, but shall not be limited to, fire, spills, accidents to employees, use of hazardous substances, bomb threats, major incidents/accidents, etc. The Principal Contractor shall advise the Client in writing forthwith, of any emergencies, together with a record of action taken. A contact list of all service providers (Fire Department, Ambulance, Police, Medical and Hospital, etc) must be maintained and available to site personnel.

2.3.14 First Aid Boxes and First Aid Equipment

The Principal Contractor and all Contractors shall appoint in writing First Aider(s). The appointed First Aider(s) are to be sent for accredited first aid training. Valid certificates are to be kept on site. The Principal Contractor shall provide an on-site First Aid Station with first aid facilities, including first aid boxes adequately stocked at all times. All Contractors with more than 5 employees shall supply their own first aid box. Contractors with more than 10 employees shall have a trained, certified first aider on site at all times.

2.3.15 Accident / Incident Reporting and Investigation

Injuries are to be categorised into first aid; medical; disabling; and fatal. The Principal Contractor must stipulate in its construction phase health & safety plan how it will handle each of these categories. When reporting injuries to the Client, these categories shall be used. All injuries shall be investigated by the Principal Contractor, with a report being forwarded to the Client forthwith. All Contractors have to report on the 4 categories of injuries to the Principal Contractor at least monthly. The Principal Contractor must report all injuries to the Client in the form of a detailed injury report at least monthly.

2.3.16 Hazards and Potential Situations

The Principal Contractor shall immediately notify other Contractors as well as the Client of any hazardous or potentially hazardous situations that may arise during performance of construction activities.

2.3.17 Personal Protective Equipment (PPE) and Clothing

The Principal Contractor shall ensure that all workers are issued and wear hard hats, safe footwear and overalls. The Principal Contractor and all Contractors shall make provision and keep adequate quantities of SABS approved PPE on site at all times. The Principal Contractor shall clearly outline procedures to be taken when PPE or Clothing is:

- Lost or stolen;
- Worn out or damaged.

The above procedure applies to Contractors and their Sub-contractors, as they are all Employers in their own right.

2.3.18 Occupational Health and Safety Signage

The Contractor shall provide adequate on-site OHS signage. Including but not limited to: 'no unauthorised entry', 'report to site office', 'site office', 'beware of overhead work', 'hard hat area'. Signage shall be posted up at all entrances to site as well as on site in strategic locations e.g. access routes, stairways, entrances to structures and buildings, scaffolding, and other potential risk areas/operations.

2.3.19 Permits

Permits may include the following:

- Use of Explosives and Blasting
- Work for which a fall prevention plan is required
- Use of cradles

2.3.20 Contractors and Sub-contractors

The Principal Contractor shall ensure that all Contractors under its control comply with this Specification, the OHS Act 85/1993, Construction Regulations (2014), and all other relevant legislation that may relate to the activities directly or indirectly. The Contractor, when appointing other Contractors as 'Sub-contractors', shall mutatis mutandis ensure compliance.

2.3.21 Incentives and Penalties

Certain incentives will be provided for ongoing compliance to the provisions of the construction phase health & safety plan submitted by the Principal Contractor.

Penalties will be implemented for ongoing non-compliance to the provisions of the construction-phase health & safety plan as submitted by the Principal Contractor.

2.4 Physical Requirements

2.4.1 Demolition Work

Prior to any demolition work being carried out, the Principal Contractor shall submit a safe working procedure and a detailed engineering survey for approval by the Client. Acceptance will then be issued to the Principal Contractor to proceed with the demolition work. The Principal Contractor shall ensure that demolition work complies with the Construction Regulations (2014).

2.4.2 Excavations, Shoring, Dewatering or Drainage

The Principal Contractor and any relevant Contractors shall make provision in their tender for shoring, dewatering or drainage of any excavation as per this specification.

The Contractor shall make sure that:

- a) The excavations are inspected before every shift and a record is kept;
- b) Safe work procedures have been communicated to the workers;
- c) The safe work procedures are enforced and maintained by the Contractor's Responsible Persons at all times;
- d) The requirements as per section 13 of the Construction Regulations are adhered to.

2.4.3 Edge Protection and Penetrations

The Principal Contractor must ensure that all exposed edges and openings are guarded and demarcated at all times until permanent protection has been erected. The Principal Contractor's risk assessment must include these items. E.g. protection of decking edges, finished floor slab edges, stairways, floor penetrations, lift shafts, and all other openings and areas where a person may fall.

2.4.4 Explosives and Blasting

The Principal Contractor shall ensure that the use of explosives and blasting (where required) be undertaken by a competent Contractor. A Safe Work Procedure (SWP) must be submitted to the Client for approval before commencement of blasting work. The Client will issue a permit to authorise the operation.

2.4.5 Piling

The Contractor shall ensure that piling is undertaken by a competent Contractor. A SWP shall be submitted to the Client for approval before commencement of this work.

2.4.6 Stacking of Materials

The Principal Contractor and other relevant Contractors shall ensure that there is an appointed staking supervisor and all materials, formwork and all equipment is stacked and stored safely.

2.4.7 Speed Restrictions and Protection

The Principal Contractor shall ensure that all persons in its employ, all Contractors, and all those that are visiting the site are aware and comply with the site speed restriction(s), especially in big 5 game reserves. Separate vehicle and pedestrian access routes shall be provided, maintained, controlled, and enforced.

2.4.8 Hazardous Chemical Substances (HCS)

The Principal Contractor and other relevant Contractors shall provide the necessary training and information regarding the use, transport, and storage of HCS. The Principal Contractor shall ensure that the use, transport, and storage of HCS is carried out as prescribed by the HCS Regulations. The Contractor shall ensure that all hazardous chemicals on site have a Material Safety Data Sheet (MSDS) on site and the users are made aware of the hazards and precautions that need to be taken when using the chemicals. The First Aiders must be made aware of the MSDS and how to treat HCS incidents appropriately.

2.4.9 Asbestos

Not applicable

2.5 Plant and Machinery

2.5.1 Construction Plant

“Construction Plant” includes all types of plant including but not limited to, cranes, piling rigs, excavators, road vehicles, and all lifting equipment.

The Principal Contractor shall ensure that all such plant complies with the requirements of the OHS Act 85/1993 and Construction Regulations (July 2014). The Principal Contractor and all relevant Contractors shall inspect and keep records of inspections of the construction plant used on site. Only authorised/competent persons are to use machinery under proper supervision. Appropriate PPE and clothing must be provided and maintained in good condition at all times.

2.5.2 Pressure Equipment Regulations and Gas Bottles

The Principal Contractor and all relevant Contractors shall comply with the Vessels under Pressure Regulations, including:

- Providing competency and awareness training to the operators;
- Providing PPE or clothing;
- Inspect equipment regularly and keep records of inspections;
- Providing appropriate fire fighting equipment (Fire Extinguishers) on hand.

2.5.3 Fire Extinguishers and Fire Fighting Equipment

The Principal Contractor and relevant Contractors shall provide adequate, regularly serviced fire fighting equipment located at strategic points on site, specific to the classes of fire likely to occur. The appropriate notices and signs must be posted up as required.

2.5.4 Hired Plant and Machinery

The Principal Contractor shall ensure that any hired plant and machinery used on site is safe for use. The necessary requirements as stipulated by the OHS Act 85/1993 and Construction Regulations (2014) shall apply. The Principal Contractor shall ensure that operators hired with machinery are competent and that certificates are kept on site in the health & safety file. All relevant Contractors must ensure the same.

2.5.5 Scaffolding / Working at Heights

Working at heights includes any work that takes place in an elevated position. The Contractor must submit a risk-specific fall prevention plan in accordance with the Construction Regulations (2014) before this work is undertaken. The fall prevention plan must be approved by the Client before work may commence, and a permit to operate will be issued.

2.5.6 Formwork and Support work for Structures

The Principal Contractor shall ensure that the provisions of section 10 of the Construction Regulations (2014) are adhered to. These provisions must include but not be limited to ensuring that all equipment used is examined for suitability before use; that all formwork and support work is inspected by a competent person immediately before, during and after placement of concrete or any other imposed load and thereafter on a daily basis until the formwork and support work has been removed. Records of all inspections must be kept in a register on site.

2.5.7 Lifting Machines and Tackle

The Principal Contractor and all Contractors shall ensure that lifting machinery and tackle is inspected before use and thereafter in accordance with the Driven Machinery Regulations and the Construction Regulations (section 22). There must be a competent lifting machinery and tackle inspector who must inspect the equipment daily or before use, taking into account that:

- All lifting machinery and tackle has a safe working load clearly indicated;
- Regular inspection and servicing is carried out;
- Records are kept of inspections and of service certificates;
- There is proper supervision in terms of guiding the loads that includes a trained banksman to direct lifting operations and check lifting tackle;
- The tower crane bases have been approved by an engineer;
- The operators are competent as well as physically and psychologically fit to work and in possession of a medical certificate of fitness to be available on site.

2.5.8 Ladders and Ladder Work

The Principal Contractor shall ensure that all ladders are inspected monthly, are in good safe working order, are the correct height for the task, extend at least 1m above the landing, fastened and secured, and at a safe angle. Records of inspections must be kept in a register on site. Contractors using their own ladders must ensure the same.

2.5.9 General Machinery

The Principal Contractor and relevant Contractors shall ensure compliance with the Driven Machinery Regulations, which include inspecting machinery regularly, appointing a competent person to inspect and ensure maintenance, issuing PPE or clothing, and training those who use machinery

2.5.10 Portable Electrical Tools and Explosive Powered Tools

The Contractor shall ensure that use and storage of all explosive powered tools and portable electrical tools are in compliance with relevant legislation. The Contractor shall ensure that all electrical tools, electrical distribution boards, extension leads, and plugs are kept in safe working order. Regular inspections and toolbox talks must be conducted to make workers aware of the dangers and control measures to be implemented e.g. personal protection equipment, guards, etc. The Contractor shall consider the following:

- A competent person undertakes routine inspections and records are kept;
- Only authorised trained persons use the tools;
- The safe working procedures apply;
- Awareness training is carried out and compliance is enforced at all times; and
- PPE and clothing is provided and maintained.
- A register indicating the issue and return of all explosive round;

- Signs to be posted up in the areas where explosive powered tools are being used.

2.5.11 High Voltage Electrical Equipment

No high voltage electrical equipment is present on, under or above the construction area.

2.5.12 Public and Site Visitor Health & Safety

The Principal Contractor shall ensure that every person working on or visiting the site, as well as the public in general, shall be made aware of the dangers likely to arise from site activities, including the precautions to be taken to avoid or minimise those dangers. Appropriate health and safety notices and signs shall be posted up, but shall not be the only measure taken.

Both the Client and the Principal Contractor have a duty in terms of the OHS Act 85/1993 to do all that is reasonably practicable to prevent members of the public and site visitors from being affected by the construction activities.

Site visitors must be briefed on the hazards and risks they may be exposed to and what measures are in place or should be taken to control these hazards and risks. A record of these 'inductions' must be kept on site in accordance with the Construction Regulations.

2.5.13 Night Work

The Principal Contractor must ensure that adequate lighting is provided to allow for work to be carried out safely.

2.5.14 Transport of Workers

The Principal Contractor and other Contractors shall not:

- Transport persons together with goods or tools unless there is an appropriate area or section to store them;
- Transport persons in a non-enclosed vehicle, e.g. truck; there must be a proper canopy (properly covering the back and top) with suitable sitting area. Workers shall not be permitted to stand or sit at the edge of the transporting vehicle.
- Transport workers in bakkies unless they are closed/covered and have the correct number of seats for the passengers.

2.6 Occupational Health

2.6.1 Occupational Hygiene

Exposure of workers to occupational health hazards and risks is very common in any work environment, especially in construction. Occupational exposure is a major problem and all Contractors must ensure that proper health and hygiene measures are put in place to prevent exposure to these hazards. Prevent inhalation, ingestion, absorption, and noise induction. Site-specific health risks are tabled in Annexure C e.g. cement dust, wet cement, wood-dust, noise, etc.

2.6.2 Welfare Facilities

The Principal Contractor must supply Sufficient toilets (1 toilet per 30 workers), showers (1 for every 15 workers), changing facilities, hand washing facilities, soap, toilet paper, and hand drying material must be provided. Waste bins must be strategically placed and emptied regularly. Safe, clean storage areas must be provided for workers to store personal belongings and personal protective equipment. Workers should not be exposed to hazardous materials/substances while eating and must be provided with sheltered eating areas.

2.6.3 Alcohol and other Drugs

No alcohol and other drugs will be allowed on site. No person may be under the influence of alcohol or any other drugs while on the construction site. Any person on prescription drugs must inform his/her superior, who shall in turn report this to the Principal Contractor forthwith. Any person suffering from any illness/condition that may have a negative effect on his/her safety performance must report this to his/her superior, who shall in turn report this to the Principal Contractor forthwith. Any person suspected of being under the influence of alcohol or other drugs must be sent home immediately, to report back the next day for a preliminary inquiry. A full disciplinary procedure must be followed by the Contractor concerned and a copy of the disciplinary action must be forwarded to the Principal Contractor for his records.

Project name: Date:

PRE-CONSTRUCTION HEALTH AND SAFETY SPECIFICATION (HSS)

Project:

ANNEXURE A

The Principal Contractor and Contractors must submit proof of compliance with Annexure A with the construction phase H&S plan where applicable.

HSS Item No.	Requirement	OHS Act Requirement	Submission Date
2.3.1	Notification of Intention to Commence Construction / Building Work	Complete Schedule 1 (Construction Regulations)	Before commencement on site
2.3.2	Assignment of Responsible Person to Supervise Construction Work	All relevant appointments, as per OHS Act and Construction Regs.	Before commencement on site
2.3.3	Competence of Responsible Persons	Client Requirement & OHS Act	Together with H&S plan
2.3.4	Compensation of Occupational Injuries and Diseases Act (COIDA) 130 of 1993	COIDA Requirement	Together with H&S plan
2.3.5	Occupational Health and Safety Policy	OHS Act	Together with H&S plan
2.3.6	Health and Safety Organogram	Client Requirement	Together with H&S plan
2.3.7	Initial Hazard Identification and Risk Assessment based on the Client's assessment	Construction Regs.	Together with H&S plan
2.3.8	Health and Safety Representative	OHS Act	Submit as soon as there are more than 20 employees on site
	Other		

ASSIGNMENT OF PRINCIPAL CONTRACTOR'S RESPONSIBLE PERSONS

Project:

ANNEXURE B

The Principal Contractor shall make the following appointments according to the initial risk assessment: (further appointments could become necessary as project progresses)

Appointment	OHSA Reference	Requirement
CEO Assignee	Section 16(2)	A competent person to assist with the on-site H&S overall responsibility – Contractor's Responsible Person
Construction Work Supervisor	CR 8.7	A competent person to supervise and be responsible of Health & Safety related issues on site. The person is appointed to assist the CEO with his/her overall duties.
Subordinate Construction Work Supervisors	CR 8.8	A competent person to assist with daily supervision of construction / building work. The person assists the Construction Work Supervisor.
Health & Safety Representative(s)	Section 17	A competent person(s) to inspect H&S in reference to plant, machinery and Health & Safety of persons in the workplace.
Health & Safety Committee Member(s)	Section 19	A competent person(s) representing the employer to assist with the on site Health & Safety matters.
Incident Investigator	GAR 8	A competent person to investigate incidents / accidents on site and could be: <ul style="list-style-type: none"> • The employer • H&S Representative • Designated person • Member of the H&S Committee
Risk assessment co-ordinator	CR 9	A competent person to co-ordinate all risk assessments on behalf of the Principal Contractor. The same applies to Contractors.
Fall protection plan co-ordinator	CR 10	A competent person to prepare & amend the fall protection plan.
First Aiders	GSR 3	A qualified person to address all on site first aid cases.
Machinery Inspector	GSR 2.1	A competent person to supervise machinery.
Lifting machine & equipment inspector	DMR 18	A competent person to inspect lifting machines, equipment & tackle.
Scaffolding Inspector	SABS 085	A competent person to inspect scaffolding before use and every time after bad weather, etc.
Scaffolding erector	GSR 13D	A competent person to erect scaffolding.

Scaffolding supervisor	SABS 085	A competent person to supervise scaffolding.
Formwork & support work inspector	CR 12	A competent person to inspect formwork & support work.
Excavation Inspector	CR 13	A competent person to inspect excavation work and ensure that approved safe working procedures. Are followed at all times.
Ladder Inspector	GSR 13A	A competent person to inspect ladders daily and ensure they are safe for use, keeping monthly record.
Stacking Supervisor	CR 28	A competent person to supervise all stacking and storage operations.
Explosive powered tools inspector/supervisor	CR 21	A competent person to inspect & clean the tool daily and controlling all operations thereof.
Temporary electrical installations supervisor	CR 24	A competent person to control all temporary electrical installations.
Fire-fighting equipment inspector	CR 29	A competent person to inspect fire-fighting equipment.

OTHER REQUIREMENTS

Project:

ANNEXURE C

The Principal Contractor shall comply but not be limited to the following requirements: report on these to the Client at progress meetings or at least monthly which ever is sooner.

What	When	Output	Accepted by Client & date
Induction training	Every worker before he/she starts work.	Attendance registers	
Awareness Training (Tool Box Talks)	At least weekly	Attendance registers	
Health & Safety Reports	Monthly	Report covering: <ul style="list-style-type: none"> • Incidents / accidents and investigations • Non conformances by employees & contractors • Internal & External H&S audit reports 	
Emergency procedures	Ongoing evaluation of procedure	Table procedure in writing as well as tel. numbers	
Risk assessment	Updated and signed off at least monthly	Documented risk assessment	
Safe work procedures	Drawn up before workers are exposed to new risks	Documented set of safe work procedures (method statements), updated and signed off.	
General Inspections	Weekly & daily	Report OHS Act compliance: <ul style="list-style-type: none"> • Scaffolding • Excavations • Formwork & support work • Explosive tools 	
General Inspections	Monthly	<ul style="list-style-type: none"> • Fire fighting equipment • Portable electrical equipment • Ladders • Lifting equipment/slings 	
List of contractors	List to be updated weekly	Table list, number of workers and Company tel. numbers	
Workman's Compensation	Ongoing	Table a list of Contractors' workman's compensation proof of good standing.	
Construction site rules & Section 37.2 Manadatory Agreement	Ongoing	Table a report of all signed up Mandataries.	

(b)Detail of training of persons from my company's own resources (or to be hired) who still have to be trained to achieve the necessary competency:

(i) By whom will training be provided?

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(ii) When will training be undertaken?

(iii) List the positions to be filled by persons to be trained or hired:

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(c) Details of competent resources to be appointed as subcontractors if competent persons cannot be supplied from own company:

Name of proposed subcontractors:

.....

.....

.....

.....

.....

5. I hereby undertake, if my tender is accepted, before commencement of the works under the contract, a suitable and sufficiently documented Health and Safety Plan in accordance with Regulation 7(1) of the Construction Regulations, which plan shall be subject to approval by the Employer.

6. I confirm that copies of my company's approved Health and safety plan, the employer's safety specifications as well as the OHS 1993 Construction Regulations 2014 will be provided on site and will at all times be available for inspection by the contractor's personnel, the Employer's personnel, the Engineer, Visitors, and officials and inspectors of the Department of Labour.

7. I hereby confirm that adequate provision has been made in my tendered rates and prices in the schedule of quantities to cover the cost of all resources, action, training and all health and safety measures envisaged in the OHS 1993 Construction Regulations (Regulation 33) for failure on the Contractor's part to comply with the provisions of the Act and the Regulations.

8. I agree that my failure to complete and execute this declaration to the satisfaction of the employer will mean that I am unable to comply with the requirements of the OHS 1993 Construction Regulations 2014, and accept that my tender will be prejudiced and may be rejected at the discretion of the Employer.

SIGNATURE:

DATE:

.....

(Of person authorised to sign on behalf of the Tenderer)



EZEMVELO KZNWILDLIFE CONTRACTOR STANDING ORDERS

**EZEMVELO
KZN WILDLIFE**
Conservation, Partnerships & Ecotourism

The following are the Contractor standing orders for **all the reserves, parks and resorts within Ezemvelo KZN Wildlife** as they pertain to contractors that work within the borders of Ezemvelo KznWildlife their staff and visitors.

TO: _____

FROM: Project Manager

DATE: _____ Tender / Quotation Number: _____

1. FAUNA AND FLORA

1. 1. All plants and animals inside the park are protected. Anyone found in possession of any plant or animal material, or interferes with any plant or animal, will be charged criminally. Plant or animal material includes bark, leaves, thorns, suckers, seeds and roots of any plant (excluding alien invasive species), as well as meat, feathers, eggs or egg shell, skin, hair, hoof, claw, tooth, bone or horn of any animal. This includes animals such as snakes and chameleons.

1. 2. No contractor staff, sub contractors and their staff, suppliers or visitors may feed any wild animals.

1. 3. Any trap or snare found in the reserve must be left alone and reported to the CM or Field Rangers immediately.

1. 4. Any animal found in a snare is to be left alone and reported to the CM or Field Rangers immediately.

1. 5. No contractor staff, sub contractors and their staff, suppliers or visitors may be in possession of any trap, weapon or snare at any time.

1. 6. No fire wood may be collected from inside the reserve.

2. FIRE

2. 1. No open fires are permitted in the park for any reason and at any time.

3. LITTER

3. 1. No litter is to be left in the reserve; all litter is to be removed by the contractor to the nearest municipal dump. This includes cement bags, plastic packets, boxes, building rubble, solid waste and all other rubbish.

3. 2. Contractor staff found littering or ignoring litter whether theirs or not, will be removed from the park with immediate effect.

4. LIQUID WASTE AND SEWERAGE

4. 1. The provision of chemicals toilets is the responsibility of the contractor.
4. 2. No contractor staff, sub contractors and their staff and suppliers will be permitted to use the toilets in the staff quarters or anywhere else within the park.
4. 3. Contractor staff, sub contractors and their staff and suppliers found urinating or defecating anywhere in the park will be removed from the park with immediate effect.
- 4.4. No contractor staff, sub contractors and their staff and suppliers will be permitted to use the showers or baths in the staff quarters or anywhere else within the park.

5. TOOLS AND EQUIPMENT

5. 1. All tools and equipment are the property of the state.
5. 2. No tools and equipment will be leant or borrowed to contractor staff, sub contractors and their staff and suppliers at any time.
5. 3. Contractor staff, sub contractors and their staff and suppliers found near or in the workshop area without permission or a valid reason will be removed from the park and may be charged with trespassing.
5. 4. Your personal items are your responsibility, should any of your personal items be destroyed or damaged due to fire, flood or any other reason, you will not be compensated for the loss of those items by EKZN Wildlife.

6. ALCOHOL AND DRUGS

6. 1. No contractor staff, sub contractors and their staff and suppliers are to be in possession of or under the influence of alcohol or illegal drugs whilst within the park.
6. 2. No contractor staff, sub contractors and their staff and suppliers are to be in possession of illegal drugs on the reserve at any time.
6. 3. Spot checks on contractor staff, sub contractors and their staff and suppliers for alcohol and drugs will be carried out routinely, this will include breathalyzer tests.

7. EKZN WILDLIFE STAFF LIVING QUARTERS

7. 1. The staff living quarters and all residential infra-structure in **Ezemvelo KZN Wildlife** are out of bounds to contractor staff, sub contractors and their staff and suppliers.
7. 2. The private properties are out of bounds to contractor staff, sub contractors and their staff and suppliers.
7. 3. Contractor staff, sub contractors and their staff and suppliers found within any of these restricted areas will be removed from the park immediately and may be charged with trespassing.

8. RESORTS AND VISITORS

8. 1. No contractor staff, sub contractors and their staff and suppliers or may interfere with tourists or EKZN Wildlife staff at any time.
8. 2. No contractor staff, sub contractors and their staff and suppliers or may enter the Resorts or curio shop/tea garden area at any time.

9. ENTRY AND EXIT TO/FROM THE PARK

9. 1. The main entrance gate opens at 06h00 every morning and closes at 18h00 every evening.
9. 2. All contractor staff, sub contractors and their staff and suppliers that for some reason are on the park outside of these hours will respect these gate times.

9. 3. No contractor staff, sub contractors and their staff and suppliers will be allowed to enter or exit the park outside of the official gate times.

10. DISHONESTY

10. 1. No contractor staff, sub contractors and their staff and suppliers may give, receive or attempt to give or receive any bribe or induce or attempt to induce any person to perform any corrupt act.

10. 2. No contractor staff, sub contractors and their staff and suppliers may deliberately give untrue or misleading information or testimony, whether verbally or in writing.

10. 3. No contractor staff, sub contractors and their staff and suppliers or may falsify or change a document with fraudulent intent or attempt to do so.

10. 4. No contractor staff, sub contractors and their staff and suppliers may falsify any records or keep inaccurate records.

11. AREA OF OPERATION

11. 1. The area of operation for all contractor staff, sub contractors and their staff and suppliers will be the construction site and the entrance and exit road only.

11. 2. Any contractor staff, sub contractors and their staff and suppliers found in any other area of the park without authority or a valid reason will be removed from the park immediately and may be charged with trespassing.

12. GENERAL

12. 1. Contractor staff, sub contractors and their staff and suppliers found fighting with each other will be removed from station with immediate effect.

12. 2. Insubordination to the authority of the conservation manager of any form will not be tolerated.

12. 3. Spot checks will be carried out randomly during the day.

12. 4. No contractor staff, sub contractors and their staff and suppliers may be in possession of any weapon whilst on station. This includes firearms, knives, knob kierries or spears.

12. 5. Movement on the park at night is prohibited. Contractor staff, sub contractors and their staff and suppliers found moving around at night with or without vehicles will be removed from the park immediately and charged with trespassing.

12. 6. No contractor staff, sub contractors and their staff and suppliers are permitted to sell any products at any time including alcohol or drugs to any other person on station this includes EKZN Wildlife staff or members of the public.

12. 7. No contractor staff is permitted to have visitors while living within the reserve during the course of the project.

12. 8. Should the Contractor and contractor staff be found in contravention of any of the above mentioned rules they will no longer be permitted to live on site and will have to be commuted into the reserve every day at the Contractors expense.

13. DECLARATION.

I the undersigned have read or have been explained the entire document "Ezemvelo KZN Wildlife contractor standing orders" and fully understand the contents of the said document.

I fully understand that in signing this standing order I take full responsibility of my staff, suppliers, sub-contractors or any other persons or group associated with my business within the Imfolozi Game Reserve.

I fully understand that if I contravene any provisions of the contractor standing orders, I may be liable to face immediate eviction from the Park and or cancellation of the contract.

Contractors name:

Signature:

Date:

Witness 1: **Witness2:**
EZEMVELO Project Manager

RESERVE RULES FOR CONTRACTORS

1. No person may leave or enter the Protected Area after set Gate closing hours without authorisation from the Officer in Charge or responsible Park Manager (OIC) of the Protected Area. The Gate opening and closing times may be seasonal and must be strictly adhered to.
2. No person may enter or exit the Protected Area except through an agreed designated point but, irrespective of whether or not a designated point is used the person will be bound by these Rules.
3. Should the Contractor wish to enter the Protected Area for business purposes after hours, this must be pre-arranged with the OIC of the Protected Area and the necessary authority obtained in advance. There shall be no after-hours access for private purposes.
4. Night driving in the Protected Area is prohibited unless on official business with appropriate prior authority from the OIC of the Protected Area.
5. No vehicle may leave the designated roads without the express permission of the OIC of the Protected Area.
6. Access to the Protected Area and construction sites within the Protected Area shall be by official work vehicles. No children shall be permitted entry to the construction areas.
7. All construction related activities must be conducted in accordance with the Reserve Rules, applicable legislation and the care due to a Protected Area.
8. All Reserve Rules must be adhered to by contractors, subcontractors and staff (this includes behaviour, disturbance and access). The lead contractor will be held responsible for subcontractors and their staff, although this does not prevent legal action being taken directly against the perpetrators.
9. Staff and subcontractors may be refused entrance from the Protected Area should they fail to comply with the EMPr, Reserve Rules or relevant legislation.
10. The principle of Minimum Tools applies within Protected Areas, both during construction work and rehabilitation work. Essentially this requires that the tools used are those that have the least impact on the environment. The contractor must designate a list of materials and tools/equipment/machinery/vehicles to Ezemvelo prior to starting work on site.
11. It must be clearly understood that the National Road Traffic Act applies to the Protected Area roads and will be enforced where necessary, in particular:
 - Non-licensed drivers will not be tolerated.
 - No person shall enter, drive or operate in the Protected Area, a motor vehicle that is not lawfully registered and licensed, in terms of the National Road Traffic Act (NRTA).
12. No person shall enter with or operate any vehicle other than a vehicle that conforms to the dimensions and other requirements prescribed by Ezemvelo. Special permission is required for construction type vehicles and the route to be followed may be specified in order to protect roads or avoid disturbance to visitors or particular species.
13. No person shall drive, park or stop in such a manner that it constitutes a nuisance, disturbance, inconvenience or danger to any other person, causes an obstruction, blocks the pathway of an emergency vehicle or causes damages of any kind including damage to plants.

14. Tourists have right of way and every effort should be made not to inconvenience them by inconsiderate driving or speeding. Tourists reporting such incidents will have their complaints fully investigated and offenders will be held accountable.
15. The maximum speed limit in the Reserve is 40 km/h unless indicated as a slower speed.
16. No-one is permitted to damage or potentially damage any road or property within the Protected Area without prior permission from the OIC of the Protected Area.
17. No one may damage, hurt or endanger any animal, human being, plant or property of Ezemvelo KZN Wildlife. No animal or plant may be disturbed, removed or harmed. No rocks may be defaced. It is forbidden to feed the animals.
18. Any person who causes any damage to any property within the Protected Area or to any animal or plant in the Protected Area shall be liable for the costs or repair or replacement of such property or the costs of treatment of such animal or plant. In addition the offending person may be prosecuted.
19. Littering and pollution is prohibited. No person may discard any article, including cigarette ends, or refuse of whatever nature, except in receptacles and containers provided specifically for this purpose. All other refuse or litter must be kept and removed from the Protected Area.
20. Designated toilets must be provided and only these may be used for ablutions.
21. No one may discard any burning object in any place where it may set fire to any other object or otherwise act in a manner likely to cause a fire other than where the making of a fire is specifically permitted. No open fires are permitted and the use of gas must be by prior arrangement with the OIC of the Protected Area.
22. No firearms will be permitted into the Protected Area. Any person wishing to bring a firearm into the Protected Area or construction site must make prior arrangement with the OIC of the Protected Area.
23. No animals are to be brought to site or into the Protected Area. No pets are permitted.
24. The consumption of alcohol is prohibited in all areas except booked accommodation and the designated, demarcated contractor's accommodation units.
25. Advertising or trading within the Protected Area is not allowed.
26. Any person to whom special permission of any nature whatsoever may be granted to enter into or reside in the Protected Area shall, in addition to the provisions of the Act, the regulations and these rules, observe all instructions which the OIC may deem fit to issue in connection with such permission.
27. Noise levels are to be kept to approved limits. Machinery must use appropriate silencers and must be well maintained to reduce pollution.
28. Night lighting must be appropriate and directed towards the construction works.
29. No person shall stay or overnight in any part of the Protected Area at any place other than a resort or any other place designated by the Authority for such stay.
30. Overnight security must be with the prior arrangement with the OIC of the Protected Area.

31. Contractors and their staff and sub-contractors must remain within the designated construction sites and access routes at all times.

32. No person shall fail to comply with a lawful instruction issued by the Authority or an officer while inside the Protected Area.

33. Any person who persists in causing a nuisance to any other user of the Protected Area or who persists in disregarding the applicable regulations, rules, notices or lawful instructions of an officer may be required to leave the Protected Area and may be prohibited from re-entering the Protected Area.



GENERIC

CONSTRUCTION PHASE

ENVIRONMENTAL MANAGEMENT PLAN (EMP)

1. PRINCIPLES

This development is taking place within a proclaimed protected area, which is considered to be a sensitive site in terms of the National Environmental Management Act and is subject to stringent protective controls. While construction activities can be disruptive and / or destructive by nature, it is essential that the impact of these activities in all protected areas is kept to a minimum. This means that environmental and cultural heritage protection and rehabilitation measures must become priority components of all development projects within protected areas, and conflicts or decisions must be resolved in their favour.

Therefore there are several general principles that form the basis of the EMP document for this proposed development and guide decisions. These are as follows:-

- To minimise and avoid damage to natural habitats, fauna and flora within the development area.
- To take active measures to minimise soil loss due to both wind and water action from the development area.
- To take active measures to manage potentially polluting activities and to prevent pollution of any sort both on the site and into the surrounding areas.
- To minimise and avoid damage to identified cultural heritage features within the development area.
- To minimise any disruptive impact that the development may have on visitors and on the sense of place of the protected area.

2. SITE PROTECTION MEASURES

In order to comply with the above principles, the following broad guidelines are applicable:

2.1 General

- a. All Reserve Rules must be adhered to by contractors, subcontractors and staff (this includes behaviour, disturbance and access. The lead contractor will be held responsible for subcontractors and their staff. Staff and subcontractors may be refused entrance from the protected area should they fail to comply with the EMP, Reserve Rules or relevant legislation.
- b. Open fires for heating and cooking shall only be permitted by agreement with Reserve and Camp Management, and only in designated areas at the staff accommodation. Fires are not permitted on the site.
- c. Areas disturbed by construction activities must be minimised. This will in turn reduce many of the construction related environmental impacts of the project and will also reduce rehabilitation requirements and costs.
- d. Contractors and construction staff may in no way interfere with visitors to the protected area. All interactions with visitors should be through the reserve management staff. Visitors shall likewise not be permitted to enter the construction site without permission and suitable signage must be in place.
- e. All relevant safety precautions must be taken and emergency plans put in place to prevent damage or injury to humans and animals due to construction or related activities or structures.
- f. Construction programming and methods should be designed to minimise construction impacts on the surrounding environment.

2.2 Site Establishment

- a. Areas for construction and related activities must be agreed upon by the relevant technical and ecological staff and roped off from the surrounding, undisturbed environments. Access routes and storage areas must be similarly demarcated and adhered to. No movement or storage of materials, machinery or personnel shall be permitted in the surrounding natural areas.
- b. Routes for construction access and haul roads shall be existing paths and routes. All contractors and construction staff, vehicles and materials movement shall be confined to these paths and roads.
- c. Site layout (including the contractors camp) must be designed to minimise impacts and risks to visitors to the protected area (such as visual or noise disturbance) and services (such as sanitation, waste and cooking facilities).
- d. All materials and machinery for construction or related activities are to be handled, stored, transported and maintained in accordance with the relevant regulations. No machinery is to be serviced on site.

- e. The Contractors and construction staff shall ensure that dust generation by construction and related activities, is kept to a minimum. Roads and working surfaces should be maintained regularly and this may include spraying with water to damp down excess dust. Water used for this purpose should not be in quantities great enough to generate run-off or cause erosion, nor contain pollutants.
- f. Contractors and construction staff shall ensure that the site is kept clean and tidy at all times. All designated working areas shall be cleared of all waste materials, be they rubble, building scraps, domestic or industrial wastes.

2.3 Vegetation and Animals

- a. Contractors and construction staff may in no way interfere with the natural vegetation, animals or surroundings. Any components of the natural environment that may be disturbed for construction related purposes must be specified and agreed to by reserve management or the regional ecologist.
- b. Burning of vegetation including tree trunks and stumps cut during site clearing and establishment shall not be permitted unless specifically authorised by the Reserve Management and Regional Ecologist. All cut vegetation shall be removed to the local landfill sites designated by the Regional Ecologist and Reserve Management. Smaller, thorny material may be kept and used for brush packing and rehabilitation if appropriate.
- c. Plants within the designated development area shall only be moved or removed as authorised by the Regional Ecologist and these should be set out in a schedule for reference. Any shrubs or trees of significant size shall be protected and permission obtained to cut or remove these as above. Ideally these should also be marked with danger-tape.
- d. Removal, damage or disturbance of any plant outside the designated area is not permitted. Gathering of firewood shall not be permitted.
- e. An alien plant control programme shall be put in place from the start of construction and all alien plants removed immediately. This must be a regular and managed programme until such time as natural vegetation has reclaimed previously disturbed areas. Alien plants should not be allowed to become established and build up a seed-bank in the soil, which will lead to more costly and longer term alien plant control programmes being required for the development.
- f. Animals resident within or moving through the designated area shall not be killed nor unnecessarily disturbed. Should contractors or construction staff notice any sensitive species on site, Reserve Management or the Regional Ecologist should be alerted and the appropriate action as advised by these specialists, taken.

2.4 Soils

- a. Topsoil must be conserved from all disturbed sites for use in rehabilitation.
- b. Topsoil stockpiles must not be compacted or allowed to exceed 1.5m in height.
- c. At all stages of the contract, erosion of bare soil, excavation surfaces and erosion of stockpiles shall be prevented by the application of appropriate erosion control measures (such a biddum cloth or berms).
- d. Stormwater drainage measures shall be constructed on access routes within the site. Access routes must not result in or contribute to erosion.

2.5 Wastes, Pollution and Nuisance

- a. All wastes (including pollutants, spills and spoil) arising from construction or related activities are to be handled, stored, transported and disposed of in accordance with the relevant regulations. All efforts should be made to minimise, reclaim or recycle waste materials and no construction wastes may remain on site at the end of the contract period.
- b. Only a single day's fuel requirements may be stored on the site at any time, with appropriate safety precautions. These shall be stored in a designated area with adequate pollution prevention and control measures (hardened surface area and bunding). Exceptions must be with the Reserve Manager's permission.
- c. No waste of a solid, liquid or gaseous nature shall be allowed to pollute the site or the surrounding environment.
- d. All waste emissions (hazardous, airborne, liquid and solid) from the construction site and related activities shall be kept within the limits of standards set in terms of the relevant national and local pollution legislation and regulations.
- e. Accidental pollution or spillage incidents shall be reported to the Regional Ecologist and Reserve Management immediately they occur and shall be cleaned up (to the satisfaction of the Regional Ecologist) by Technical Services staff. Expert help or advice may be requested from Reserve Management or the Regional Ecologist. Spills of over 200 litres shall be reported to the environmental authorities.
- f. Machinery shall be maintained so that excessive oil and fuel smoke is avoided. This is in the interests of the long term care of such machinery as well. Any item of machinery that breaks down must be removed to a suitable workshop for repairs and no drainage of lubricants or fuels shall be allowed on the construction site.
- g. Vehicle and plant maintenance shall only take place off-site and in areas demarcated for that purpose. Should any fuel, oil, transmission or hydraulic

fluid be spilled onto the soils on the construction site, this soil should be scraped up and placed in a suitable, non-permeable waste disposal container, provided for that purpose. The Regional Ecologist must be informed immediately and any additional steps to limit the impacts of the spill and protect the natural environment that are advised by him/her must be followed.

- h. All reasonable measures shall be taken to reduce air emissions in the form of dust, smoke and noxious gases. These measures may include the dampening of road surfaces to reduce vehicular dust.
- i. Contractors and construction staff shall not be permitted to use any stream, river, wetland or other naturally occurring water body or source adjacent to or within the designated area for the purposes of bathing, washing of clothes, vehicles, the disposal of any type of waste, nor any construction related activities.
- j. All truck washing and washing of cement mixing and transporting vehicles and other equipment shall take place away from the site and watercourses. This polluted water must be collected and directed through oil traps to settlement ponds. Wastewater on the construction site may not be disposed of directly into drainage lines, streams, rivers, or onto the soils and no polluted water shall be allowed to enter the natural environment without adequate treatment to purify it to an acceptable standard as directed by the Department of Water Affairs. Any polluted water or cement sediments shall be collected and disposed of as instructed by the Regional Ecologist and Reserve Management.
- k. Refuse shall be collected and stored in demarcated areas, skips or suitable bins. Waste disposal containers shall be placed at convenient locations throughout the site. The containers must be designed to prevent refuse being blown out by the wind and must be scavenger-proof. All food wastes should be removed from the site on a daily basis.
- l. All potentially hazardous waste generated at the site shall be removed and disposed of by qualified Technical staff, in a manner approved by the Regional Ecologist and Reserve Management.
- m. Appropriate directional and intensity settings aimed at minimising noise emitted from the construction site should be maintained on hooters and sirens, while adhering to safety standards. Silencer units on plant and vehicles shall be maintained in good working order.
- n. Contractors and construction staff shall not unnecessarily make other noise (such as radios).

2.6 Reinstatement and Rehabilitation

- a. All areas disturbed by construction and related activities must be fully rehabilitated before the development is considered complete. This would include alien plant control measures being applied and monitored.

2.7 Monitoring and Auditing

- a. Monitoring should be conducted at regular intervals in the development project life-cycle. Suitable staff (such as the Regional Ecologist together with the Reserve Manager) should conduct the monitoring and concerns and recommendations communicated to the project manager. Significant concerns that fail to be addressed should be reported to Reserve Management and the Planning Division.
- b. A final construction audit should be conducted immediately before site handover. Particular emphasis should be placed on the status of the site rehabilitation. A copy of this audit to be forwarded to the Planning Division.

PROJECT SPECIFICATION

NEW THATCHING

Thatch Grass

Thatch grass shall be fully-grown **Hyparrhenia Hirta** species, which has been harvested after the summer rain season, thoroughly dried, cleaned of leaf and have all seeds and heads removed at source in order to minimise the introduction of an alien species of grass into the area. It shall be free of insects and mould. Be free of loose material. Be workable. Not be cut in the growing season. Be fully grown and matured. Only thatch grass harvested in KwaZulu-Natal or Eastern Free State shall be used on this contract.

The thatch grass shall be beige/yellow in colour and shall have maximum body moisture of 10% to 15% by mass. Only straight pieces shall be used, cut above the first notch. The grass shall be 800mm to 1020mm in length, with ends ranging from 1.5mm to 2.5mm diameter.

The Contractor shall ensure that an adequate supply of thatch grass is located and available well in advance so that no delays in supply or availability occur.

The Contractor shall take special care in storing and stacking of thatch grass on site by stacking the bundles off the ground and under cover.

Roof Thatching

Roof thatching shall be 200mm nominal thickness at any point measured at right angles to the slope of the roof, with a tolerance of 10mm i.e., thatching may vary from 190mm to 210mm thick.

Roof thatching shall be evenly laid and thoroughly and evenly compacted to a density of approximately 30 to 50kg/m² of thatch and shall be secured to the roof battens by stitching with tarred sisal twine with a breaking strain of at least 30kg. Each stitch shall consist of two strands of twine, which shall be adequately tensioned to achieve the specified compaction.

Roof thatching shall be combed to an even finish externally. The eaves edges of roof thatching shall not cantilever more than 150mm from the tilting batten and shall be neatly trimmed at an angle of 30 degrees to the pitch of the thatch to an even straight line or curve. Roof thatching to ridges, apron, etc shall be neatly trimmed to an even straight line or curve to match existing.

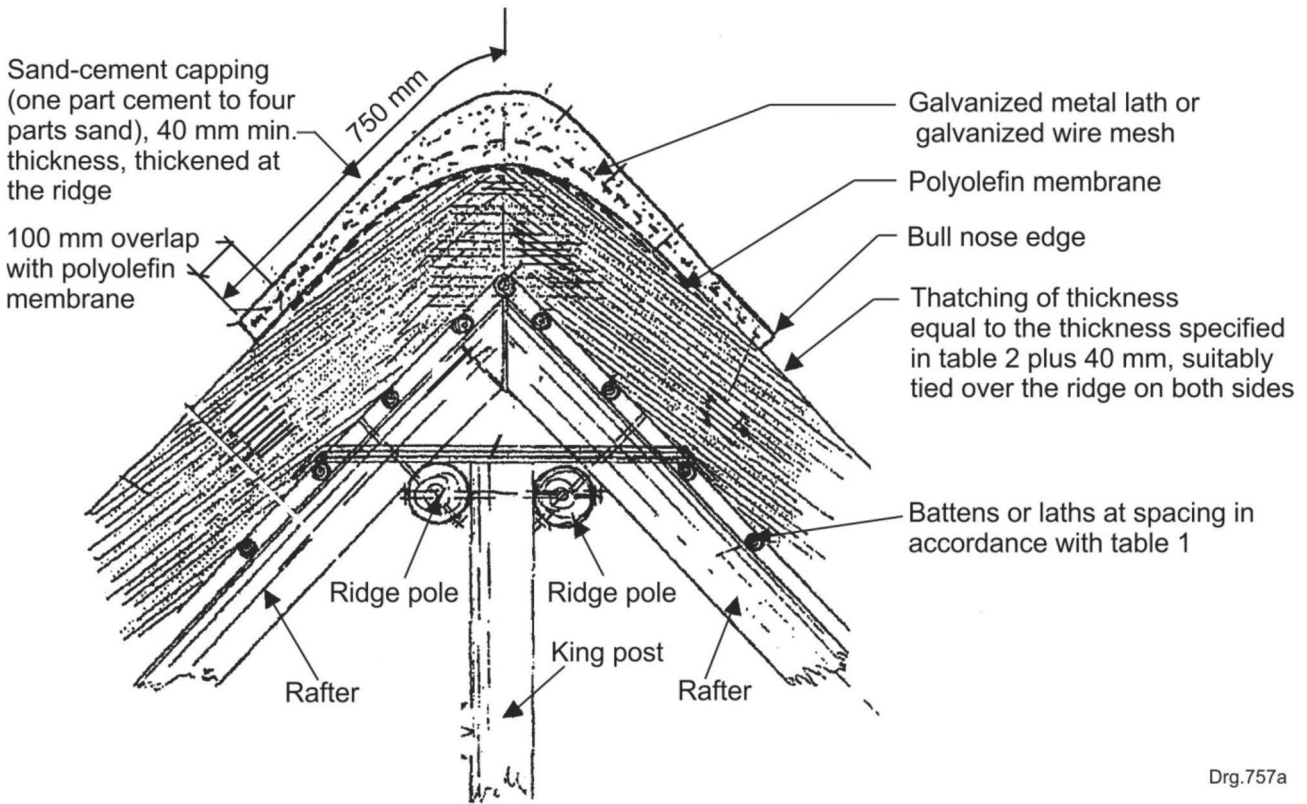
The exposed underside of roof thatching shall be finished fair by secret thatching with a spread layer of selected clean and straight thatch grass from which the seed heads have been cut off and which has been combed to ensure that the stalks are perfectly clean, inserted between the top of the battens and the underside of the general roof thatch. This thatch grass shall be 1000mm to 1500mm in length, with ends ranging from 1,5mm to 2,5mm in diameter. The secret thatching spread layer shall be sufficiently thick to conceal the seed heads of the general thatching and shall be within the nominal 200mm thickness of the roof thatching. The bottom ends of the thatch grass in the secret thatching layer shall be concealed behind a batten.

Ridge Capping

Ridge capping's shall comprise thatch underlayer, cement mortar ridge capping and acrylic waterproofing covering, all of dimensions, materials, and colour to match existing. The bundles of ridging grass or reed shall be bent over the ridge and securely anchored onto the opposite two topmost battens on both sides of the ridge with sways, using the same method of binding or fastening used on the rest of the roof.

The sand-cement ridge capping shall be a minimum of 40 mm thick (one part common cement to four parts of sand), and shall extend at least 750 mm from the ridge down each side of the thatching, be laid on a single polyolefin membrane layer, be reinforced with a galvanized metal lath or galvanized wire mesh, with a cover to the lath not less than 20 mm, and be suitably shaped and thickened at the ridge as shown. Lapping of joints in the polyolefin membrane shall not be less than 200 mm.

The materials in sand-cement ridges shall comprise common cement that complies with SANS 50197-1, sand that complies with the relevant requirements given in SANS 1083, galvanized wire mesh with a thickness not less than 0,8 mm and an opening that does not exceed 25 mm. Polyolefin membranes that have a thickness of not less than 250 µm, and that comply with the relevant requirements given in SANS 10183-1 and SANS 10183-2, for a type C sheeting.



Drg.757a

Waterproofing covering shall be "Sika Sealoflex" or other approved flexible acrylic waterproofing system, applied to exposed surfaces of ridge capping in accordance with the manufacturer's instructions.

Cleaning and bundling

After the grass has been cut and loosely bundled, each bundle is shaken vigorously to dislodge all loose material. The bundles are then cleaned by passing a sickle through them, working from top to bottom. This removes the remaining leaf growth from the lower two-thirds of the stalks.

The grass is then regrouped into bundles about one to 1,5 m long and between 75 and 100 mm in diameter. These bundles are each tied with a thong or twisted grass or with twine and packed in heaps (pyramid shape) about 2 m high and 2,5 to 3 m in diameter at the base.

The diameter of bundles should meet the provisions of the table below:

Grass Species	Diameter of the bundle mm	Approximate mass of the bundle kg	Thickness of thatch layer mm	Minimum mass of thatch layer per m ² kg
Common or fine thatching grass (Hyparrhenia Hirta)				
Minimum design mass of thatch layer : 90 kg	125	0,8 to 0,9	200	45

Workmanship

Thatching, ridges, etc, shall be executed by specialists in this type of work.

All thatching shall be executed in accordance with **CSIR Boutek Report No BOU/E9806 “A Guide to Good Thatching Practice”** (<https://www.sa-thatchers.co.za/wp-content/uploads/2022/05/GUIDE-TO-THATCH-CONSTRUCTION-IN-SOUTH-AFRICA-UPDATED-28-JULY-2019-compressed.pdf>) Where the Project Specification differs from the Guide, the Project Specification shall take precedence.

All Thatching to comply with the South African National Building Regulations SANS 10407/2016 and SANS 10400 Part L.

(https://www.thatchregulations.co.za/wp-content/uploads/2019/06/SANS10407_2016_Ed2Am1-1.pdf)