



OCCUPATIONAL HEALTH & SAFETY (OHS) SPECIFICATION

DBSA-NDoh-GF PSA OXYGEN PLANTS CLUSTER 2 HOSPITAL PROJECTS

Table of Contents

1. Project & Document Information.....	5
2. Context and Background.....	5
3. Applications and Interpretation.....	5
4. Abbreviations and Acronyms.....	6
5. Definitions.....	9
6. Scope of Work.....	10
7. Project Description.....	11
8. Application of the Construction Regulations 2014 and statutory framework.....	11
9. Construction Work Permit.....	12
10. Permit to Work (PTW) system and Lock Out Tag Out (LOTO).....	12
11. Communication, Liaison and Hospital Interface (PSA coordination).....	13
12. Legal Documentation and Mandatory Appointments (RFP returnables).....	13
12.1. Mandatory RFP returnables (to be submitted with tender).....	13
12.2. Mandatory written appointments (pre-mobilisation).....	14
13. Roles and responsibilities of the appointed professional team (DBSA appointments).....	15
13.1. Electrical Lead Engineer (DBSA appointed).....	15
13.2. Structural Engineer (DBSA appointed).....	15
13.3. Mechanical Engineer (DBSA appointed).....	16
13.4. Professional Construction Health & Safety Agent (PrCHSA) (DBSA appointed).....	16
13.5. Environmental Specialist (DBSA appointed).....	16
14. General Duties of the Principal Contractor (PC).....	16
15. Appointment of Occupational Health & Safety Committee (Section 19 OHS Act)	17
16. Administrative controls and the Site Health & Safety File (CR 7(1)(b)).....	17
17. Potential Sources of Risk.....	18
18. Safe Work Procedures (SWMS/RAMS / RAMS) and task verification.....	19
19. Safety of Pedestrians, Patients and the Public (hospital interface controls)....	19

20.	Checklists, Registers and Recordkeeping (minimum registers)	20
21.	OHS Bill of Quantities (OHS BOQ)	20
21.1.	Purpose	20
21.2.	Scope	20
21.3.	How to use	21
21.4.	Minimum OHS BOQ structure	21
22.	Training, Competence and Medical Surveillance (competence matrix)	24
23.	Health & Safety Audits, Inspections, KPIs and reporting regime	25
24.	Environmental controls and hazardous chemical agents (SDS)	25
25.	Fire prevention, BESS thermal runaway preparedness and emergency procedures	26
26.	First aid, rescue and emergency response teams (rescue capability)	26
27.	Accident / Incident reporting, investigation and statutory notification	26
28.	Plant, tools, electrical safety and high-risk equipment controls (SANS/IEC)	27
29.	Working at Height, Fall Protection, Scaffolding and Ladders (CR 10/11)	27
30.	Excavations, Temporary Works, Formwork and Shoring (CR 13 & TWD)	27
31.	Lifting, Crane Operations and Lifting Plans (CR 22)	28
32.	Noise, Dust, Manual Handling and Occupational Hygiene Controls	28
32.1.	Noise	28
32.2.	Dust	29
32.3.	Manual Handling	30
32.4.	Occupational Hygiene	31
33.	Working under Thermal Conditions (heat and cold)	31
34.	Testing, Commissioning, FAT/SAT and Handover Requirements (OEM witness) 33	
35.	Contractor Health & Safety Management System and H&S close-out pack	34
36.	Annexure and RFP templates (mandatory returnables)	34
36.1.	Annexure A — PHSP Minimum Content Checklist	34
36.2.	Annexure B — HIRA Template (5×5 Matrix)	35
36.3.	Annexure C — SWMS/RAMS / RAM Template (Task-Level)	36
36.4.	Annexure D — Permit to Work (PTW) Templates (Summary Table)	37

36.5.	Annexure E — LOTO Isolation Certificate Template and Isolation Diagram Guidance.....	38
36.6.	Annexure F — Lifting Plan Template and Crane Exclusion Zone Diagram	39
36.7.	Annexure G — FAT / SAT Witness Checklist (PV & BESS)	39
36.8.	Annexure H — Battery Thermal Runaway Response Plan (BTRRP)	40
36.9.	Annexure I — Site H&S File Index and Handover Checklist	41
36.10.	Annexure J — H&S Tender Returnables Checklist and Pre-mobilisation Verification.....	42
36.11.	Annexure K — Audit Checklist and Corrective Action Tracker	43
36.12.	Annexure L — Visitor Induction Form and Visitor Register Template	44
36.13.	Annexure X-1 — Thermal Risk Assessment Template	44
36.14.	Annexure X-2 — WBGT Monitoring Log.....	45
36.15.	Annexure X-3 — Work-Rest Schedule Template.....	45
36.16.	Annexure X-4 — Acclimatisation Record and Checklist	45
36.17.	Annexure X-5 — Heat-Illness Incident Report and Medical Follow-up Form	46
36.18.	Annexure X-6 — Battery Room Thermal Monitoring and Ventilation Acceptance Checklist	46
36.19.	Annexure M — Programme Delivery and Maintenance Plan Template	47
36.20.	Annexure N — Multi-site Logistics and Spare Parts Strategy Template	47
37.	Principal Contractor Acknowledgement and Acceptance	47
38.	Principal Contractor Declaration.....	48
39.	For Client Use Only	48

1. Project & Document Information

Project: DBSA-NDoH-GF PSA OXYGEN PLANTS Cluster 2 Hospital Projects — DBSA PSA Solar Backup Programme

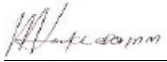
Project Sites (Cluster 2): Jubilee, Bela-Bela; Seshego; Mecklenburg; Lydenburg (Mashishing); Sabie; Tintswalo; Kwa-Mhlanga

Document: Project Specific Health & Safety Specification

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Distribution: Client; DBSA; NDoH; GF; Tenderers; Appointed Professional Team

2. Context and Background

The National Department of Health NDoH as Principal Recipient of the Global Fund grant has expanded the Development Bank of Southern Africa DBSA mandate as Implementing Agent to include a nationwide rollout of solar-powered backup systems. This initiative forms part of the Containerised Pressure Swing Adsorption PSA Oxygen Plants Programme and will be implemented across twenty 20 hospital facilities identified by the NDoH throughout South Africa. The objective is to ensure uninterrupted oxygen supply at these facilities through reliable backup power solutions. The programme includes a thirty-six 36 month post-installation maintenance and support period. The programme is being implemented on an accelerated timeline and will require appointment of multiple service providers to meet scale, delivery volumes and implementation deadlines.

Specialist service providers will be procured through an open tender on a design and build basis for the Design Supply Installation Commissioning and Maintenance of Solar-Powered Backup Systems across the twenty 20 hospital facilities identified by the Global Fund and NDoH.

3. Applications and Interpretation

This Project Specific Health & Safety Specification (the **Specification**) is the Client's mandatory health and safety requirement for the **DBSA-NDoH-GF PSA OXYGEN PLANTS Cluster 2 Hospital Projects**. It must be read and implemented in conjunction with the **Occupational Health and Safety Act 85 of 1993**, the **Construction Regulations 2014**, the **National Environmental Management Act (NEMA)**, applicable **SANS** and **IEC** standards, local municipal bylaws and the contract documents. Where this Specification imposes a higher standard than statutory minimums, the higher standard applies. The words **must**,

shall and **required** are mandatory. The **Principal Contractor (PC)** and all subcontractors are contractually bound to implement, verify and maintain compliance with this Specification.

4. Abbreviations and Acronyms

Acronym	Full term	Relevance / Where used (Part / Section)
OHS Act	Occupational Health and Safety Act 85 of 1993	Primary legislation governing duties (Sections 6 & 10).
CR	Construction Regulations 2014	Regulations under OHS Act setting Client (Reg 5) and PC (Reg 7) duties (Sections 6 & 10).
PC	Principal Contractor	Single point of responsibility for PHSP implementation and H&S File (Sections 10–12).
Client	Project Client / Employer	Provides site H&S specification and site information; retains stop-work authority (Sections 6 & 10).
PHSP	Project Health & Safety Plan	Site-specific H&S plan required by CR; tender and pre-mobilisation deliverable (Sections 10 & 33).
H&S File	Site Health & Safety File	Statutory file to be opened on site and handed over at completion (Sections 12 & 31).
HIRA	Hazard Identification and Risk Assessment	Consolidated risk register using a 5×5 matrix; maps to SWMS/RAMS and permits (Sections 15 & 16).
SWMS/RAMS	Safe Work Method Statement	Task-level method statements for high-risk activities; mandatory RFP returnable (Sections 15 & 33).
RAMS	Risk Assessment and Method Statement	Alternative term for SWMS/RAMS for complex tasks (Sections 15 & 33).
PTW	Permit to Work	Formal permit system for high-risk activities (Sections 8 & 16).

Acronym	Full term	Relevance / Where used (Part / Section)
LOTO	Lock Out Tag Out	Isolation procedure and written isolation certificate process for electrical/mechanical work (Sections 8 & 25).
CHSM	Construction Health & Safety Manager	Senior H&S manager; leads audits and investigations (Sections 10 & 20).
CHSO	Construction Health & Safety Officer	Site H&S officer; maintains PTW register and daily inspections (Sections 10 & 18).
PrCHSA	Professional Construction Health & Safety Agent	DBSA/Client appointed independent H&S professional for PHSP acceptance and oversight (Section 11).
SACPCMP	South African Council for the Project and Construction Management Professions	Registration body for CHSM/CHSO where applicable (Section 10).
DBSA	Development Bank of Southern Africa	Funder/technical oversight; appoints Engineer, PrCHSA and specialists (Section 11).
PSA	Pressure Swing Adsorption (oxygen plant)	Critical hospital plant; works affecting PSA require written approval (Sections 4 & 9).
BESS	Battery Energy Storage System	Battery storage system subject to OEM procedures and thermal runaway controls (Sections 4, 22 & 31).
PV	Photovoltaic	Solar array systems and associated works (Sections 4 & 25).
OEM	Original Equipment Manufacturer	Supplier of BESS/PV equipment; provides commissioning and safety procedures (Sections 11 & 31).
FAT	Factory Acceptance Test	Off-site equipment acceptance test to be witnessed where required (Section 31).

Acronym	Full term	Relevance / Where used (Part / Section)
SAT	Site Acceptance Test	On-site acceptance test and commissioning witnessed by Client/DBSA (Section 31).
ERP	Emergency Response Plan	Site emergency procedures including battery incident response and hospital coordination (Sections 22 & 23).
SDS	Safety Data Sheet	Supplier-provided hazard information for chemicals, fuels and battery electrolytes (Section 21).
NEMA	National Environmental Management Act	Environmental legislation governing hazardous waste and disposal (Section 21).
SANS	South African National Standards	National standards (e.g., SANS 10142-1, SANS 1200) applicable to works (Sections 24 & 25).
IEC	International Electrotechnical Commission	International standards for PV/BESS (e.g., IEC 62446, IEC 62109, IEC 62619) (Sections 24 & 31).
TRIR	Total Recordable Injury Rate	H&S KPI to be reported monthly (Section 20).
LTIFR	Lost Time Injury Frequency Rate	H&S KPI to be reported monthly (Section 20).
PPE	Personal Protective Equipment	Minimum and task-specific PPE requirements; must meet SANS standards (Sections 17 & 24).
TMP	Traffic Management Plan	Plan for deliveries, crane movements and hospital interface traffic control (Section 29).
TWD	Temporary Works Designer	Competent person responsible for temporary works design and certification (Sections 26 & 27).

Acronym	Full term	Relevance / Where used (Part / Section)
LOA	Letter of Appointment	Written appointment required for mandatory roles (must be submitted pre-mobilisation) (Section 10).
H&S File Index	Health & Safety File Index	Standardised index for the site H&S file contents and handover pack (Section 12).
DoEL / DEL	Department of Employment and Labour	Statutory inspectorate for incident reporting and enforcement (Sections 6 & 24).
QA / QC	Quality Assurance / Quality Control	Processes for design, testing and acceptance (FAT/SAT, test certificates) (Section 31).

5. Definitions

The following definitions are adopted from the Mahikeng template and tailored to the Bela-Bela project. Where the OHS Act or Construction Regulations provide a definition, that statutory definition applies.

- **Agent** — any competent person who acts as a representative for the Client.
- **Client** — the person or entity for whom construction work is being performed (DBSA/Client Representative for Bela-Bela Hospital).
- **Construction Regulations** — the Construction Regulations 2014 promulgated under the OHS Act.
- **Construction work** — any work in connection with construction, erection, alteration, renovation, repair, demolition or dismantling of a building or similar structure; civil engineering works; moving of earth; piling; excavations; or any similar work as defined in the CR.
- **Construction work permit** — a document issued in terms of CR 3 where applicable.
- **Contractor** — an employer who performs construction work.
- **Danger** — anything that may cause injury or damage to persons or property.
- **Employee** — any person who is employed by or works for any employer and who receives or is entitled to receive any remuneration or who works under the direction or supervision of an employer.

- **Employer** — any person who employs or provides work for any person or remunerates that person.
- **Health and Safety Plan / PHSP** — a site, activity or project specific documented plan that addresses hazards identified and includes safe working procedures to mitigate, reduce or control the hazards identified.
- **Health and Safety Specification** — this document; a site, activity or project specific document prepared by the Client pertaining to all health and safety requirements related to construction work.
- **Health and Safety File** — a file or other record containing the information required in the Construction Regulations to be kept on site.
- **Hazard Identification** — the identification and documenting of existing or expected hazards to the health and safety of persons associated with the construction work.
- **Competent person** — any person having the knowledge, training, experience and qualifications specific to the work or task being performed.
- **Machinery / Plant** — any article or combination of articles assembled, arranged or connected and used for converting energy to performing work, or used for developing, receiving, storing, containing, confining, transforming, transmitting, transferring or controlling any form of energy.
- **Medical Surveillance** — a planned programme of periodic examination of employees by an occupational health practitioner where required.
- **Risk** — the probability that injury or damage will occur.
- **Safe** — free from any hazard.
- **SDS** — Safety Data Sheet — supplier-provided document describing hazards, handling, storage and emergency measures for hazardous substances.
- **Temporary works** — temporary structures, scaffolding, formwork, shoring, propping and crane bases required for construction.
- **Critical hospital systems** — systems whose interruption could endanger patient care (PSA oxygen plant, emergency power, medical gas, critical HVAC).

6. Scope of Work

The works comprise the supply, delivery, offloading, storage, installation, testing, commissioning and handover of the DBSA PSA Solar Backup Programme at Bela-Bela Hospital, including but not limited to:

- **Civil works:** excavation, foundations, trenches, cable ducts, access roads, drainage and reinstatement.

- **Structural works:** carport and PV mounting structures, steelworks and roof penetrations.
- **PV works:** module mounting, stringing, DC cabling, array earthing, labelling and lightning protection interfaces.
- **BESS works:** delivery, offloading, storage, installation of battery containers/rooms, battery module handling, thermal management, battery monitoring and commissioning.
- **Electrical works:** LV distribution, inverter installation, earthing and bonding, protection coordination, temporary supplies and final connections to hospital systems.
- **Temporary works:** scaffolding, formwork, shoring, propping, crane bases and temporary services.
- **Testing and commissioning:** FAT, SAT, energisation, first charge and handover documentation.
- **Interfaces with hospital operations:** coordination with PSA oxygen plant, emergency power, patient access and hospital logistics.

All activities must be performed without compromising hospital clinical services and patient safety.

The programme scope includes site preparation, supply and installation of PV arrays and mounting structures, delivery and offloading of Solar-Powered Backup Systems, integration with PSA oxygen generation plants, commissioning, end-user and maintenance training, handover, and a 36-month post-installation maintenance and support period. Multiple service providers will be appointed to meet accelerated delivery timelines.

7. Project Description

The project is located across the **Cluster A Hospitals** and forms part of the DBSA PSA Solar Backup Programme. Installations include PV arrays on carports and roofs, BESS installations for backup power, LV distribution and protection, and civil works for foundations and cable routes. The hospitals remain operational throughout construction; the PC must ensure patient safety, maintain access and protect the PSA oxygen plant and other critical services.

8. Application of the Construction Regulations 2014 and statutory framework

This project is construction work as defined in the CR. The Client shall provide the PC with this Specification and any site information in the Client's possession that may affect H&S (known underground services, PSA plant details, access restrictions). The PC must accept

written appointment prior to any construction activity and must prepare, implement and maintain a site-specific PHSP in accordance with CR 7. The PC must open and maintain the site H&S File on site and ensure it is available for inspection by the Client and statutory inspectors. The Section 37(2) Health & Safety Agreement will be executed pre-mobilisation and incorporated into the contract; this allocation does not relieve any party of non-delegable statutory duties.

Contractual documents will reflect DBSA's role as Implementing Agent for a national rollout and include obligations for 36-month maintenance and multi-site delivery coordination.

9. Construction Work Permit

Where the project meets the thresholds in CR 3, the Client's Agent shall apply to the Department of Employment and Labour for a Construction Work Permit prior to commencement. A copy of the permit and the permit number must be displayed at the site entrance and retained in the H&S File. No construction activity may commence without the permit (where applicable) and without PHSP acceptance.

10. Permit to Work (PTW) system and Lock Out Tag Out (LOTO)

The PC shall implement a centralised, auditable PTW system controlled by the CHSO. Permit types shall include, at minimum:

- Electrical isolation / **LOTO** permit — isolation diagrams, unique lock/tag identifiers, written isolation certificates and verification by a registered electrician; isolation certificates retained in the H&S File.
- Hot works permit — welding, cutting, grinding; fire watch and hot works exclusion zones.
- Confined space permit — atmospheric testing, continuous monitoring, standby rescue team and rescue equipment.
- Working at height permit — fall protection measures, anchor certification and rescue plan.
- Excavation / trenching permit — service verification, shoring design and daily inspections.
- Lifting / crane operation permit — lifting plan, exclusion zones and banksman appointment.
- Energisation / commissioning permit — OEM presence, commissioning HIRA and PTW for first charge.
- Battery handling / thermal runaway permit — OEM procedures, thermal monitoring and suppression readiness.

Each permit must record the authoriser, permit holder, start and end times, conditions, required PPE, rescue arrangements and handback sign-off. Permits must be retained in the H&S File and be auditable.

PTW controls must explicitly cover first-charge energisation and recurring maintenance activities during the 36-month support period; PTW records must be retained for the full maintenance term

11. Communication, Liaison and Hospital Interface (PSA coordination)

The PC shall maintain continuous liaison with the Client Representative, hospital engineering team and DBSA appointed PrCHSA. A weekly H&S coordination meeting shall be held during mobilisation and critical phases; minutes and action logs must be recorded and retained. Any planned interruption to hospital services (including PSA oxygen, emergency power or medical gas) requires written approval from the hospital engineering team and the DBSA appointed Engineer and must be scheduled outside critical clinical windows. The PC shall provide a single H&S point of contact (name, mobile, email) and display contact details at site. All communications affecting patient safety must be escalated immediately to the Client Representative and DBSA appointed PrCHSA.

Programme coordination: DBSA, NDoH and hospital engineering will maintain a centralised programme coordination forum to schedule works across the 20-hospital rollout. Weekly programme coordination meetings are mandatory during mobilisation and critical phases. Maintenance handover procedures and escalation contacts must be included in the handover pack for each hospital.

12. Legal Documentation and Mandatory Appointments (RFP returnables)

12.1. Mandatory RFP returnables (to be submitted with tender)

Tenderers must submit the following with their RFP response. Failure to provide any mandatory returnable will render the tender non-compliant:

1. Draft **PHSP** tailored to this Specification.
2. Consolidated **HIRA** for all major activities (5×5 matrix).
3. **SWMS/RAMS / RAMS** for all high-risk activities (PV mounting, carport works, BESS delivery/installation, battery handling, electrical works, LOTO, working at heights, lifting, excavation, hot works, confined space, generator installation and commissioning).
4. Draft signed **appointment letters** and CVs for: Principal Contractor (PC), CHSM (if applicable) CHSO, Construction Manager (CM), Registered Electrician(s), Lifting Supervisor, Fire Safety Officer, First Aiders, Environmental Officer, Traffic Marshals,

Confined Space Supervisor, Battery OEM Representative. CHSM and CHSO must provide SACPCMP registration evidence where required.

5. Evidence of Compensation Fund registration (or equivalent) and proof of public liability and employer's liability insurance.
6. **OEM battery safety data** and battery manufacturer commissioning procedures and thermal runaway procedures (SDS and OEM manuals).
7. Evidence of competence for lifting equipment providers and crane operators (certificates and inspection records).
8. Proposed site layout showing segregation from hospital operations, access routes, temporary facilities and emergency access.
9. Proposed **ERP** summary and battery fire response outline.
10. Proposed programme showing the seven-day electrical load monitoring campaign and coordination with hospital operations.
11. Evidence of previous experience on PV/BESS projects (minimum three projects of similar scope) with references.
12. Evidence of capability to deliver and maintain systems across multiple sites concurrently.
13. Proposed resourcing plan for 36-month maintenance and support including spare parts logistics.
14. Programme delivery plan demonstrating ability to meet accelerated timelines and multiple concurrent site deliveries.

12.2. Mandatory written appointments (pre-mobilisation)

The following appointments are mandatory and must be made in writing prior to mobilisation. Each appointment must include scope, contact details and competency evidence:

- Client Representative / Client H&S Custodian.
- Principal Contractor (PC).
- Construction Manager.
- **Construction Health & Safety Manager – If applicable (CHSM)** — project level (SACPCMP registration where applicable).
- **Construction Health & Safety Officer (CHSO)** — site H&S officer (SACPCMP registration where applicable).
- Construction Supervisors (civil, structural, electrical, BESS/PV).
- Registered Electrician(s) (SANS 10142-1 compliance).

- Lifting Supervisor / Appointed Person.
- Crane Operators and Riggers (certified).
- Fire Safety Officer.
- First Aiders and Emergency Response Team.
- Environmental Officer / Waste Officer.
- Traffic Marshals.
- Confined Space Entry Supervisor.
- Battery OEM Representative / BESS Commissioning Engineer.
- DBSA appointed Engineer / Client Technical Representative.
- Temporary Works Designer.
- Professional Construction Health & Safety Agent (PrCHSA) — appointed by DBSA/Client.

13. Roles and responsibilities of the appointed professional team (DBSA appointments)

DBSA will appoint or require appointment of the following professional team members. Each role is mandatory for the project and must be integrated into the PHSP, HIRA and PTW arrangements. The PC must cooperate fully with these appointees.

DBSA will act as Implementing Agent for the nationwide rollout and will coordinate multi-supplier procurement, programme oversight and verification of maintenance obligations during the 36-month support period.

13.1. Electrical Lead Engineer (DBSA appointed)

Responsibilities: review and accept electrical design interfaces; verify earthing and bonding designs; approve temporary and permanent LV distribution arrangements; witness and accept electrical test regimes (continuity, insulation resistance, earth fault loop, RCD testing, PV string testing); review arc flash study and PPE requirements; approve energisation sequences and coordinate with OEM for inverter/BESS interfaces. **Deliverables:** signed electrical design drawings, test schedules, commissioning checklists, Certificates of Compliance where applicable, and witness statements for FAT/SAT. **Competence:** registered professional engineer (Pr Eng) or equivalent with demonstrable PV/BESS experience.

13.2. Structural Engineer (DBSA appointed)

Responsibilities: review and approve structural designs for carports, PV mounting systems and BESS foundations; verify load calculations, anchorages and crane base bearing

capacities; approve temporary works and lifting support arrangements; provide inspection and sign-off for structural elements prior to lifting or loading. **Deliverables:** structural design drawings, calculations, temporary works approvals, inspection certificates and sign-off for lifting operations affecting structures. **Competence:** registered professional structural engineer with relevant experience.

13.3. Mechanical Engineer (DBSA appointed)

Responsibilities: review mechanical interfaces for BESS thermal management, ventilation, HVAC modifications, generator interfaces and mechanical handling equipment; approve mechanical installation sequences and commissioning tests; verify mechanical lifting and handling procedures for battery modules. **Deliverables:** mechanical design drawings, ventilation calculations for battery rooms, commissioning checklists and mechanical FAT/SAT witness statements. **Competence:** registered mechanical engineer or suitably qualified mechanical specialist.

13.4. Professional Construction Health & Safety Agent (PrCHSA) (DBSA appointed)

Responsibilities: independent review and acceptance of the PC's PHSP and HIRA; periodic audits and verification of PHSP implementation; witness FAT/SAT and critical energisation events from an H&S perspective; provide technical H&S advice to Client and DBSA; review incident investigations and corrective actions. **Deliverables:** PHSP acceptance certificate, audit reports, witness statements for critical tests, H&S recommendations and final H&S close-out acceptance. **Competence:** registered PrCHSA with SACPCMP or equivalent registration and demonstrable experience in PV/BESS hospital projects.

13.5. Environmental Specialist (DBSA appointed)

Responsibilities: review and accept the Environmental Management Plan (EMP); verify hazardous waste handling and battery waste chain of custody; monitor environmental controls (dust, stormwater, noise) and advise on mitigation; witness environmental compliance during critical activities (fuel storage, bunding, battery disposal). **Deliverables:** EMP acceptance, environmental monitoring reports, waste disposal records and environmental non-conformance reports. **Competence:** qualified environmental practitioner with experience in hazardous waste and battery disposal regulations.

Integration and authority: DBSA-appointed professionals have the right to require corrective actions, witness critical tests and escalate H&S or environmental concerns to the Client. Their instructions on matters within their professional scope are binding on the PC for the purposes of PHSP acceptance and safe execution.

14. General Duties of the Principal Contractor (PC)

The PC shall:

- Accept written appointment and assume full responsibility for PHSP implementation and enforcement.
- Open and maintain the site H&S File and ensure availability for inspection.
- Appoint CHSM (if applicable) and CHSO in writing and ensure competency and presence on site.
- Ensure all subcontractors are appointed in writing, hold Compensation Fund registration and required insurances, and comply with the PHSP.
- Implement and maintain the PTW and LOTO systems and ensure SWMS/RAMS are approved and followed for all high-risk activities.
- Conduct daily pre-start checks, weekly inspections and monthly formal audits; maintain records and close out corrective actions within agreed timeframes.
- Report incidents and occupational diseases as required by the OHS Act and cooperate with statutory investigations.
- Ensure that no works that may interrupt the PSA oxygen plant supply are undertaken without prior written approval from the hospital engineering team and the DBSA appointed Engineer.
- Provide adequate resources for H&S including PPE, fire suppression, spill kits, rescue equipment and trained personnel.
- Cooperate with DBSA-appointed professionals and implement their reasonable instructions relating to safety, structural integrity, electrical safety, mechanical systems and environmental protection.

15. Appointment of Occupational Health & Safety Committee (Section 19 OHS Act)

Where two or more H&S representatives are designated, the PC shall establish an OHS Committee comprising all designated H&S representatives and management representatives (management members must not exceed the number of H&S representatives). The Client Representative shall attend as chairperson (non-voting). The committee shall meet monthly and consider at least: incident reports, audit findings, training needs, corrective actions and H&S performance. Minutes and attendance registers must be retained in the H&S File.

16. Administrative controls and the Site Health & Safety File (CR 7(1)(b))

The PC shall maintain a site H&S File containing, as a minimum:

- Construction work permit / notification (CR 3/4).
- Emergency contact numbers (verified).

- Contractor appointment letters and organogram.
- Health & Safety policy signed by CEO or authorised representative.
- PHSP and underpinning HIRAs and SWMS/RAMS/RAMS.
- Fall Protection Plan.
- Waste Management Plan and EMP.
- List of subcontractors and agreements; proof of Compensation Fund registration.
- Appointment letters and competency evidence for mandatory roles.
- Medical fitness certificates for safety-critical roles.
- Inspection and test certificates (lifting gear, electrical tests, scaffolding).
- PTW register and LOTO isolation certificates.
- Incident register (GAR 9) and investigation reports.
- Training records and toolbox talk registers.
- Audit reports and corrective action tracker.
- Environmental monitoring records and SDS for hazardous substances.
- FAT/SAT and commissioning records, as-built drawings and O&M manuals.
- H&S File Index (standardised).

The Client will periodically evaluate the H&S File and may withhold mobilisation approval until the H&S File meets acceptance criteria.

17. Potential Sources of Risk

Project-specific hazards include (not exhaustive):

- Battery delivery, offloading and handling: mechanical injury, chemical exposure, thermal runaway, damaged cell containment.
- Lifting operations adjacent to hospital access: dropped loads, exclusion zone breaches, crane failure.
- Excavations and trenches near underground services: service strikes, collapse, water ingress.
- Working at height on carports and roofs: fall from height, falling objects, anchor failure.
- PV DC electrical hazards: shock, arc flash, DC isolation complexity.

- Temporary works failure: scaffolding, formwork collapse, propping failure.
- Fire and smoke affecting clinical areas and PSA plant: patient evacuation risk, oxygen enrichment hazards.
- Noise and dust affecting patients and staff: clinical interference, infection control.
- Traffic interface with hospital visitors and emergency vehicles: collisions, access obstruction.
- Interruption to PSA oxygen plant or emergency power: life-threatening patient risk.

Each hazard must be addressed in the HIRA and SWMS/RAMS with hierarchy of controls and verification.

18. Safe Work Procedures (SWMS/RAMS / RAMS) and task verification

The PC shall prepare SWMS/RAMS/RAMS for all high-risk activities. Each SWMS/RAMS/RAMS must include:

- Activity title and scope.
- Sequence of operations and stepwise tasks.
- Identified hazards and risk ratings (pre- and post-controls).
- Controls using the hierarchy (elimination, substitution, engineering, administrative, PPE).
- Required competencies and training.
- Required permits and PTW references.
- PPE requirements and inspection criteria.
- Emergency and rescue procedures (including battery thermal runaway response).
- Verification checklist and sign-off by supervisor and CHSO.
- Review frequency and trigger events (e.g., design change, weather, incident).

SWMS/RAMS must be available at the workplace and be reviewed and re-issued when conditions change.

19. Safety of Pedestrians, Patients and the Public (hospital interface controls)

The PC shall ensure physical segregation of works from hospital pedestrian routes and clinical areas using robust fencing, covered walkways where required, signage, lighting and traffic control. Visitors must be inducted and recorded in a visitor register. The site perimeter

must be secured (minimum 1.6 m galvanised diamond mesh or equivalent) with controlled access gates. Noise, dust and vibration controls must be implemented to protect patients; any activity that could affect patient care must be coordinated and scheduled with the hospital. Patient transfer routes and emergency access must be maintained at all times.

20. Checklists, Registers and Recordkeeping (minimum registers)

The PC shall maintain and make available the following registers and checklists:

- Daily pre-start checklists and toolbox talk records.
- Incident register (GAR 9) and WCL accident/incident forms.
- PTW register and LOTO isolation certificates.
- Lifting equipment and crane inspection logs.
- Scaffolding inspection register.
- Temporary electrical installation inspection records.
- Portable tool inspection register.
- Fire equipment inspection and maintenance records.
- First aid box contents and treatment records.
- Training and medical surveillance records.
- Audit reports and corrective action tracker.
- Environmental and waste chain of custody records.

All records must be legible, dated and retained for the contract period and as required by law.

21. OHS Bill of Quantities (OHS BOQ)

21.1. Purpose

Provide a standard, client-level Bill of Quantities for health, safety and emergency items that Principal Contractors (PCs) must price and supply per site. The OHS BOQ ensures minimum, auditable provision of PPE, emergency response equipment, monitoring devices, temporary works safety items and BESS/PV-specific controls during construction, commissioning and the 36-month maintenance period.

21.2. Scope

The OHS BOQ applies to all Cluster 2 sites and must be completed by tenderers for each hospital. Quantities may be site-adjusted where justified; any deviation must be itemised, explained and approved by the Client at tender evaluation.

21.3. How to use

- Tenderers must complete the OHS BOQ per site and include unit rates and totals in the commercial submission.
- The completed OHS BOQ becomes part of the PHSP and the H&S File. Evidence of supply (delivery notes, certificates, calibration records) must be provided at mobilisation and retained for the maintenance period where applicable.
- The Client will verify BOQ items at site mobilisation and during audits.

21.4. Minimum OHS BOQ structure

(To be copied into tender returnables and H&S File)

Table columns (required): Item Code; Description; Specification / Standard; Unit; Qty (per site); Unit Rate (ZAR); Total (ZAR); Notes / Evidence required

Sample BOQ rows (tenderers must expand as site conditions require):

Item Code	Description	Specification / Standard	Unit	Qty (per site)	Unit Rate (ZAR)	Total (ZAR)	Notes / Evidence required
OHS-PPE-001	Hard hats (safety helmets)	SANS compliant	Each				Delivery note; certificate
OHS-PPE-002	High-visibility vests (Class 2/3)	SANS compliant	Each				Delivery note
OHS-PPE-003	Safety boots (steel toe)	SANS compliant	Pair				Supplier invoice; size list
OHS-PPE-004	Arc-flash PPE kit (for electricians)	Arc rating per arc-flash study	Kit				Certificates; arc-flash study ref

Item Code	Description	Specification / Standard	Unit	Qty (per site)	Unit Rate (ZAR)	Total (ZAR)	Notes / Evidence required
OHS-PPE-005	Hearing protection (earmuffs/plugs)	SANS	Each				Delivery note
OHS-SIG-001	Warning signage (standardised)	Reflective; bilingual where required	Set				Photos of installation
OHS-BARR-001	Pedestrian barriers / hoarding (1 m, 1 kN impact)	As per BRA	Linear m				Photos; barrier spec
OHS-FIRE-001	Portable fire extinguishers (ABC / CO ₂)	SANS; quantity per BESS/PSA risk	Each				Test certs; location plan
OHS-FIRE-002	Fire blankets and fire hoses	SANS	Each				Delivery note
OHS-SPILL-001	Spill kits (battery electrolyte / fuel)	Chemical absorbents; PPE	Kit				SDS; drill records
OHS-FIRST-001	First aid kits (site & remote)	Stipulated contents per site size	Each				First aid register
OHS-RESCUE-001	Fall-arrest rescue kit (for WAH)	Certified rescue equipment	Kit				Inspection tags; rescue plan

Item Code	Description	Specification / Standard	Unit	Qty (per site)	Unit Rate (ZAR)	Total (ZAR)	Notes / Evidence required
OHS-MON-001	WBGT meter (heat monitoring)	Calibrated instrument	Each				Calibration cert
OHS-MON-002	Dust monitor (PM2.5/PM10)	Portable; calibrated	Each				Calibration cert; logs
OHS-MON-003	Thermal sensors for BESS (spare)	OEM spec	Each				OEM spec; calibration
OHS-VENT-001	Battery room ventilation fans (spare)	OEM / design spec	Each				Installation cert
OHS-LOTO-001	LOTO locks, tags and hasps (set)	Unique ID system	Set				LOTO register
OHS-PTW-001	PTW boards, permit books and registers	Hardcopy and digital templates	Set				Sample completed permit
OHS-COMM-001	Two-way radios (site comms)	Intrinsically safe where required	Each				Inventory list
OHS-CRANE-001	Crane exclusion zone barricading	As per lift plan	Set				Photos; lift plan ref
OHS-BESS-001	BTRRP equipment pack (smoke hoods, gas monitors)	Per Annexure H	Set				BTRRP; training records
OHS-SPARE-001	Critical spare parts kit	Per OEM list	Kit				Spare parts list; storage plan

Item Code	Description	Specification / Standard	Unit	Qty (per site)	Unit Rate (ZAR)	Total (ZAR)	Notes / Evidence required
	(inverter/BMS fuses, contactors)						
OHS-TRAIN-001	Training & induction (per site)	Induction, SWMS, emergency drills	Lump sum				Training records; attendance sheets
OHS-AUDIT-001	FAT/SAT witness allowance (DBSA/PrCHSA)	Per site	Lump sum				Witness schedule
OHS-MAINT-001	36-month maintenance contingency (spares & labour)	SLA provision	Lump sum				SLA; maintenance plan

22. Training, Competence and Medical Surveillance (competence matrix)

- **Site induction:** mandatory for all personnel and visitors prior to entry; induction content must include site rules, PTW, LOTO, emergency procedures, battery hazards and hospital interface controls.
- **Task training:** mandatory for crane operators, riggers, electricians, battery handlers, confined space entrants, working at height personnel and rescue teams; certificates and refresher schedules must be maintained.
- **Competence matrix:** map tasks to required qualifications and training intervals; include SACPCMP registration evidence for CHSM (if applicable)/CHSO where applicable.
- **Medical fitness:** required for safety-critical roles (crane operators, confined space entrants, working at height rescue teams); records to be confidentially retained.

- **Toolbox talks:** daily or weekly as appropriate; records retained.
- **OEM training:** battery OEM must provide training for battery handling, commissioning and thermal runaway response; OEM attendance mandatory for first charge.

23. Health & Safety Audits, Inspections, KPIs and reporting regime

- **Daily:** pre-start checks and toolbox talks recorded by supervisors and CHSO.
- **Weekly:** formal site inspections by CHSO with written reports and immediate corrective actions.
- **Monthly:** formal audits by CHSM (if applicable)/CHSO with written audit reports submitted to the Client and DBSA appointed PrCHSA. Audit reports must include non-conformances, root causes and corrective action plans with closure dates.
- **Commissioning:** third-party audits and witness testing during FAT/SAT and energisation.
- **KPIs (minimum monthly reporting):** TRIR, LTIFR, near-miss reporting rate, permit compliance rate, audit closure rate. Targets and thresholds to be agreed pre-mobilisation.
- **Reporting:** CHSM (if applicable)/CHSO to submit monthly H&S performance dashboard to Client and DBSA appointed PrCHSA; immediate notification of critical incidents to DBSA and statutory authorities.

24. Environmental controls and hazardous chemical agents (SDS)

- **Environmental Management Plan (EMP):** implement measures for waste minimisation, erosion control, dust suppression, noise mitigation and prevention of water/soil contamination.
- **Hazardous substances:** all hazardous substances (fuels, oils, battery electrolyte, cleaning agents) must be accompanied by **SDS** and stored in bunded areas with secondary containment; SDS must be available at point of use.
- **Battery waste:** chain of custody procedures for damaged cells and battery waste; storage in designated, secure, labelled containers; disposal in accordance with NEMA and local regulations; DBSA appointed Environmental Specialist to approve disposal route.
- **Fuel storage:** bunding and spill control to municipal and fire code standards; spill kits located adjacent to storage and personnel trained in spill response.
- **Monitoring:** environmental monitoring where required (stormwater, dust deposition) and records retained.

25. Fire prevention, BESS thermal runaway preparedness and emergency procedures

- **Fire Safety Officer:** appointed in writing; responsible for fire prevention, hot works supervision and battery fire preparedness.
- **Battery Thermal Runaway Response Plan:** prepared with the OEM and Fire Safety Officer; must define detection thresholds, automatic isolation actions, suppression strategy (compatible extinguishing agents), evacuation distances, OEM escalation procedures, coordination with local fire services and post-incident remediation and disposal.
- **Detection and suppression:** battery rooms must have thermal monitoring, gas detection where applicable and suppression systems compatible with lithium battery incidents; design to OEM and SANS/IEC guidance.
- **Drills:** conduct battery incident and general emergency drills prior to energisation and at regular intervals thereafter; DBSA appointed PrCHSA to witness at least one full-scale drill prior to energisation.
- **Coordination:** ERP must be aligned with hospital emergency procedures and local emergency services; ensure patient protection measures and continuity of critical services.
- BTRRP and ERP must include programme-level escalation and spare-parts logistics to support response across multiple sites during the maintenance period.

26. First aid, rescue and emergency response teams (rescue capability)

- **First aid provision:** sized to workforce and risk profile; trained first aiders on site at all times; first aid equipment maintained and inspected.
- **Rescue teams:** confined space and working at height rescue teams trained and equipped; rescue plans documented and rehearsed.
- **Emergency contacts:** posted and included in ERP; rapid access for emergency services maintained; PC to ensure unobstructed routes for patient transfer if required.

27. Accident / Incident reporting, investigation and statutory notification

- **Incident register:** maintain GAR 9 incident register and WCL forms where applicable.
- **Statutory reporting:** reportable incidents notified to the Department of Employment and Labour in accordance with statutory timeframes.
- **Investigation:** CHSM (if applicable)/CHSO to lead investigations and submit root cause analysis and corrective action plan within 48 hours. Investigations documented

and corrective actions tracked to closure. Lessons learned to be communicated to site personnel and DBSA appointed PrCHSA.

28. Plant, tools, electrical safety and high-risk equipment controls (SANS/IEC)

- **Plant and lifting gear:** inspected, certified and maintained; inspection records retained.
- **Portable electrical tools:** inspected weekly; temporary electrical installations inspected and certified by a registered electrician.
- **Electrical installation and testing:** all electrical works to **SANS 10142-1** and IEC commissioning standards (IEC 62446 for PV); registered electricians to sign test certificates (continuity, insulation resistance, earth fault loop, RCD testing).
- **LOTO:** written LOTO procedures, isolation diagrams and authorised isolators list; only authorised persons to isolate and re-energise equipment.
- **Arc flash:** where applicable, arc flash studies to be completed and PPE and safe approach distances defined.
- **Battery handling equipment:** mechanical handling aids, certified lifting frames and transport trolleys; OEM handling procedures mandatory.

29. Working at Height, Fall Protection, Scaffolding and Ladders (CR 10/11)

- **Collective protection:** guardrails, edge protection and scaffolding preferred.
- **Personal fall arrest:** where used, harnesses, lanyards and certified anchor points; rescue plan for suspended workers.
- **Scaffolding:** erected and inspected by competent persons; daily pre-use checks recorded.
- **Ladders:** for short duration access only; inspected weekly and used per safe work procedures.
- **Fall Protection Plan:** prepared and included in PHSP; rescue arrangements and training documented.

30. Excavations, Temporary Works, Formwork and Shoring (CR 13 & TWD)

- **Service verification:** as-built records, CAT scanning and potholing prior to excavation.
- **Shoring and benching:** designs by competent engineer; daily inspections and monitoring for water ingress.

- **Temporary works:** designed by Temporary Works Designer (TWD), entered into temporary works register and inspected/certified prior to use and after any event affecting stability. Unknown services discovered trigger immediate stop-work and verification.
- **Formwork:** designed and inspected; propping and striking sequences controlled by supervisor and TWD.

31. Lifting, Crane Operations and Lifting Plans (CR 22)

- **Lifting plans:** required for all lifts above statutory thresholds or where lifts could affect hospital operations; include load calculations, crane selection, ground bearing assessments, exclusion zones, banksman and contingency measures.
- **Certification:** all slings, shackles and lifting accessories to have current test certificates and daily inspection logs.
- **Exclusion zones:** established and controlled during lifts; banksmen and signallers appointed in writing.
- **Crane positioning:** consider hospital access, overhead services and patient movement; DBSA Structural Engineer to approve crane bases where required.

32. Noise, Dust, Manual Handling and Occupational Hygiene Controls

This section is mandatory, detailed and prescriptive. Controls must protect workers, patients and hospital operations and be auditable in the PHSP and H&S File.

32.1. Noise

Risk identification and assessment

- Conduct a baseline noise survey at representative locations (workface, hospital façade, patient wards adjacent to works, temporary welfare areas) before noisy activities commence.
- Identify tasks likely to exceed action levels (e.g., concrete breaking, piling, generator operation, heavy plant movements, cutting and grinding). Include cumulative exposure from multiple sources.

Monitoring and measurement

- Use calibrated sound level meters and dosimeters; record LAeq, LAFmax and daily dose where applicable. Frequency of monitoring: baseline, weekly during noisy phases, and after any change in plant or process.
- Record monitoring results in the H&S File with date, time, location, equipment, and mitigation in place.

Hierarchy of controls

- **Elimination/substitution:** use quieter plant or alternative methods (hydraulic breakers with noise suppression, low-noise generators).
- **Engineering controls:** acoustic enclosures for generators, mufflers, barriers and acoustic screens between works and clinical areas. Locate noisy plant away from patient wards where practicable.
- **Administrative controls:** schedule noisy works outside sensitive clinical windows; implement time limits and rotation to reduce individual exposure; provide advance notice to hospital wards and coordinate with hospital staff.
- **PPE:** provide hearing protection (earplugs/earmuffs) where residual noise exceeds action levels; ensure fit testing and training. PPE must not be the primary control for patient-facing areas where communication is critical.

Patient protection and communication

- Notify hospital wards and clinical staff of planned noisy activities at least 48 hours in advance; provide contact details for immediate escalation.
- Implement additional acoustic screening and temporary patient relocation protocols where necessary for critical procedures.

Records and training

- Maintain noise monitoring logs, hearing conservation records and training records. Provide hearing conservation training to affected workers and supervisors.

32.2. Dust

Risk identification and assessment

- Identify dust-generating activities: excavation, cutting, grinding, concrete works, demolition, material handling and vehicle movements. Assess potential for airborne particulate migration into clinical areas and PSA plant.

Monitoring and measurement

- Conduct baseline particulate monitoring (PM10/PM2.5) at the site boundary and adjacent clinical façades during high-risk activities. Frequency: baseline, daily during dusty operations, and after mitigation changes. Record meteorological conditions.

Hierarchy of controls

- **Elimination/substitution:** use pre-cut materials or prefabrication to reduce on-site cutting.

- **Engineering controls:** local exhaust ventilation, water suppression for cutting and grinding, enclosed cutting booths, dust extraction on power tools, wheel wash and sealed loading points.
- **Administrative controls:** restrict dusty works to low-patient-impact windows; erect sealed barriers and negative-pressure enclosures where works abut clinical areas; implement vehicle speed limits and designated haul routes.
- **PPE:** provide respiratory protection (FFP2/FFP3 or equivalent) where controls cannot reduce exposures below action levels; ensure fit testing and training.

Hospital protection and infection control

- Coordinate with hospital infection control to ensure dust does not compromise sterile areas; provide temporary HEPA filtration or positive-pressure barriers where works are adjacent to critical clinical zones.

Waste and housekeeping

- Implement daily wet sweeping, sealed waste containers and immediate removal of dusty waste. Maintain records of dust monitoring and corrective actions.

32.3. Manual Handling

Risk identification and assessment

- Identify manual handling tasks: battery module handling, lifting of PV modules, material stacking, formwork handling and repetitive tasks. Use task-specific risk assessments to quantify load, frequency and posture.

Controls

- **Elimination/substitution:** use mechanical lifting aids (forklifts, hoists, vacuum lifters, lifting frames) for heavy or awkward loads.
- **Engineering controls:** provide mechanical aids, adjustable work platforms and ergonomic tools.
- **Administrative controls:** implement team lifts, limit manual handling durations, provide task rotation and training in safe lifting techniques. Document manual handling procedures in SWMS/RAMS.
- **PPE:** provide gloves with appropriate grip and cut resistance; ensure footwear and back support where required.

Battery handling specific controls

- Use certified lifting frames and handling trolleys for battery modules; follow OEM handling procedures; ensure slings and spreader beams are certified and inspected. Prohibit manual lifting of battery modules above safe manual handling limits.

Training and medical surveillance

- Provide manual handling training and maintain records. Where repetitive or heavy handling is identified, include medical surveillance and ergonomic assessments.

32.4. Occupational Hygiene

Scope and responsibilities

- The PC shall implement an occupational hygiene programme covering noise, dust, chemical exposures, biological hazards and thermal stress. The Environmental Specialist and CHSM shall review monitoring plans and results.

Monitoring and measurement

- Establish baseline monitoring for identified hazards (noise, particulates, VOCs, solvent exposures, welding fumes). Use accredited laboratories for sample analysis where required. Frequency: baseline, periodic during high-risk activities, and post-mitigation verification.

Control strategies

- Apply the hierarchy of controls for all hygiene hazards. Engineering controls (ventilation, extraction), administrative controls (work scheduling, rotation), and PPE (respirators, gloves) must be documented and enforced.

SDS and hazardous substances

- Maintain SDS for all hazardous substances on site and ensure availability at point of use. Implement storage, labelling, bunding and spill response per SDS and EMP.

Health surveillance

- Where exposures approach or exceed action levels, implement medical surveillance and biological monitoring as required. Maintain confidential medical records and follow statutory reporting.

Training and communication

- Provide occupational hygiene training to workers and supervisors; include hazard communication and SDS training. Maintain records in the H&S File.

33. Working under Thermal Conditions (heat and cold)

Insert location: this section is Section 30 and must be cross-referenced from Sections 15 (HIRA), 16 (SWMS/RAMS), 21 (BESS thermal controls) and 19 (medical surveillance). The PC must include a dedicated thermal risk assessment and monitoring plan in the PHSP.

Legal and regulatory basis

- Manage thermal risks in accordance with the **OHS Act**, the **Construction Regulations 2014**, and applicable Physical Agents / Thermal Stress Regulations. Use recognised guidance (e.g., WBGT methodology) for monitoring and action levels.

Risk assessment and planning

- Conduct task-based thermal risk assessments identifying high-metabolic tasks, PPE impacts, enclosed workspaces (battery rooms), and vulnerable workers. Integrate outcomes into HIRA and SWMS/RAMS.

Monitoring and measurement

- Implement WBGT monitoring at representative locations and times; increase frequency during heat waves. Where required, implement medically supervised physiological monitoring.

Hierarchy of controls

- **Elimination/substitution:** schedule hot tasks for cooler periods; use mechanical aids.
- **Engineering:** forced ventilation, spot cooling, thermal interlocks in battery rooms; Mechanical Engineer and OEM to verify ventilation design.
- **Administrative:** documented work-rest schedules, rotation, acclimatisation programmes, hydration protocols.
- **PPE:** provide heat-appropriate PPE and account for clothing adjustment factors.

Hydration, first aid and emergency response

- Provide potable water at the workplace; train first aiders in heat illness recognition; include cooling facilities and rapid evacuation procedures. Coordinate battery incident response with heat-illness response where applicable.

Medical surveillance and fitness for work

- Pre-placement screening for safety-critical roles; periodic surveillance where exposures reach action levels; confidential recordkeeping.

Training and supervision

- Train supervisors and workers on heat risks, symptoms and emergency procedures; OEM training for battery tasks mandatory.

Specific controls for BESS and enclosed battery workspaces

- Engineered ventilation and thermal control systems; continuous thermal monitoring with alarms; restrict access during high thermal events and use PTW for entry.

Responsibilities

- PC: implement thermal controls and include in PHSP.
- CHSM (if applicable)/CHSO: approve methodology and review monitoring.
- CHSO: maintain logs and enforce controls.
- Supervisors: implement SWMS/RAMS/RAMS and stop work if necessary.
- Workers: comply with schedules and report symptoms.
- DBSA specialists and OEM: review and accept thermal measures.

Records and PHSP integration

- Retain thermal risk assessment, WBGT logs, work-rest schedules, acclimatisation records, training and medical surveillance in the H&S File. Include thermal section in PHSP and reference Annexure X templates.

34. Testing, Commissioning, FAT/SAT and Handover Requirements (OEM witness)

- **FAT/SAT:** submit FAT procedures for major equipment and SAT procedures for site systems with tender; DBSA Engineer and Client Technical Representative to witness critical tests.
- **OEM commissioning:** OEM commissioning engineer to supervise first charge and initial energisation of BESS and provide commissioning certificates and warranty documentation.
- **Pre-commissioning checks:** mechanical integrity, electrical continuity, insulation resistance, earthing and functional tests; all test results recorded and retained.
- **Handover pack:** indexed H&S close-out pack at practical completion including H&S File, as-built drawings, test certificates, commissioning records, O&M manuals, training and medical fitness records, FAT/SAT witness statements and battery safety certificates; provide both hard copy and agreed electronic format. DBSA appointed PrCHSA to accept H&S close-out pack prior to final handover.
- **FAT/SAT witness:** OEM and DBSA/PrCHSA presence required for first charge at each site.
- **Handover:** include maintenance acceptance tests, SLA metrics and spare parts list for 36-month support.

35. Contractor Health & Safety Management System and H&S close-out pack

The PC shall maintain a Contractor H&S Management System implementing this Specification and the PHSP. The H&S close-out pack must be indexed and include PHSP, HIRA, SWMS/RAMS, PTW register, inspection and audit reports, incident register and investigation reports, FAT/SAT and commissioning records, O&M manuals, training and medical fitness records, and battery safety documentation. The DBSA appointed PrCHSA will verify the H&S close-out pack prior to final acceptance.

36. Annexure and RFP templates (mandatory returnables)

The RFP shall include the following Annexure as mandatory returnables and templates for completion by tenderers:

36.1. Annexure A — PHSP Minimum Content Checklist

Item No.	PHSP Section / Element	Required Content	Required Evidence / Deliverable
A1	Project description and scope	Clear description of works, interfaces with hospital and PSA plant	One-page project summary; site plan
A2	H&S governance and organogram	Names, roles, contact details, LOAs for PC, CHSM, CHSO, Construction Manager	Organogram; signed Letters of Appointment
A3	HIRA summary and methodology	Consolidated 5×5 HIRA; methodology and assumptions	Completed Annexure B HIRA; risk assessment method note
A4	SWMS/RAMS register and templates	List of SWMS/RAMS for all high-risk activities and templates	SWMS/RAMS register; sample SWMS/RAMS (Annexure C)
A5	PTW system description	Permit types, issue/authorisation/handback process and register	PTW templates; sample PTW register (Annexure D)
A6	LOTO procedures and isolation diagrams	LOTO policy, authorised isolators list, sample isolation certificate	LOTO procedure; Annexure E isolation certificate
A7	Temporary works register	TWD details, drawings, calculations and inspection regime	Temporary works register; TWD LOA

Item No.	PHSP Section / Element	Required Content	Required Evidence / Deliverable
A8	Competence and training matrix	Task-to-competency mapping, refresher intervals	Competence matrix; training plan
A9	Medical surveillance and fitness	Pre-placement and periodic surveillance requirements	Medical surveillance policy; sample certificates
A10	Emergency Response Plan (ERP)	Roles, communication tree, muster points, hospital coordination	ERP document; hospital liaison evidence
A11	Battery Thermal Runaway Plan	OEM BTRRP integrated with ERP	Completed Annexure H signed by OEM
A12	Environmental Management Plan (EMP)	Waste, spill, SDS register, battery waste chain of custody	EMP; SDS register; waste contractor LOA
A13	Testing and commissioning plan	FAT/SAT procedures, witness schedule, energisation controls	FAT/SAT procedures; witness list
A14	H&S File index and handover pack	Indexed contents and electronic format requirements	Annexure I H&S File Index
A15	Monitoring and KPIs	TRIR, LTIFR, permit compliance, audit closure	KPI reporting template and baseline targets
A16	Pre-mobilisation checklist	Items required before mobilisation	Completed Annexure J pre-mobilisation checklist

36.2. Annexure B — HIRA Template (5×5 Matrix)

Field	Instructions / Example
HIRA ID	Unique identifier (e.g., HIRA-001)
Activity / Task	Short title (e.g., Offloading BESS container)
Location	Precise location on site (e.g., Delivery yard north gate)

Field	Instructions / Example
Description of activity	Brief sequence of operations (one line)
Hazard(s)	List primary hazards (one line each; e.g., dropped load; battery leak)
Consequence (C)	Numeric 1–5 with descriptor (enter value)
Likelihood (L)	Numeric 1–5 with descriptor (enter value)
Risk Rating (C×L)	Calculated numeric value
Existing Controls	Controls already in place (one line each)
Additional Controls Required	Specific mitigations to reduce residual risk
Residual Risk (C×L)	Post-control rating
Control Owner	Person/role responsible (name/role)
Verification Method / Frequency	How control is verified and how often
SWMS/RAMS Reference	SWMS/RAMS ID (e.g., SWMS/RAMS-BATT-01)
PTW Required	Yes / No
Review Date	Next review date (DD-MM-YYYY)
Notes / Link to Evidence	File name or H&S File reference

HIRA scoring guidance (append to Annexure B): Consequence 1–5; Likelihood 1–5; Risk bands: 1–5 Low; 6–10 Medium; 11–15 High; 16–25 Extreme. Residual risk >10 requires escalation and written mitigation plan.

36.3. Annexure C — SWMS/RAMS / RAM Template (Task-Level)

Field	Instructions / Required Content
SWMS/RAMS ID	Unique code (e.g., SWMS/RAMS-PV-01)
Activity title	One line (e.g., PV module installation)

Field	Instructions / Required Content
Scope and location	One line description
Sequence of operations	Stepwise numbered tasks
Hazards per step	Hazard(s) for each step
Controls per step	Controls mapped to each hazard
Required competencies	Certificates/registrations required
PPE required	Specific PPE and standards
Permit type	PTW reference (e.g., Working at Height)
Emergency/rescue actions	Stepwise emergency response
Verification checks	Pre-task checklist items
Responsible supervisor	Name and contact
Review frequency	When SWMS/RAMS must be reviewed
Attachments	HIRA ID; drawings; equipment certificates

36.4. Annexure D — Permit to Work (PTW) Templates (Summary Table)

Permit Type	Key Fields Required	Minimum Authoriser
Electrical isolation / LOTO	Permit ID; equipment; isolator IDs; isolation certificate; authorised signatories; start/end times	Registered Electrician; CHSO
Hot works	Permit ID; location; fire watch; gas test; PPE; start/end times	Fire Safety Officer; CHSO
Confined space	Permit ID; atmospheric test results; rescue team; PPE; entry log	Confined Space Supervisor; CHSO

Permit Type	Key Fields Required	Minimum Authoriser
Working at height	Permit ID; anchor certification; harness checks; rescue plan	Construction Supervisor; CHSO
Excavation	Permit ID; service verification; shoring design; inspection log	Excavation Supervisor; CHSO
Lifting	Permit ID; lifting plan ref; crane details; exclusion zone	Lifting Supervisor; CHSO
Energisation / Commissioning	Permit ID; OEM present; commissioning HIRA; isolation plan	Electrical Lead Engineer; CHSM(if applicable)/CHSO
Battery handling / Thermal Runaway	Permit ID; OEM procedures; suppression readiness; exclusion zone	OEM Rep; Fire Safety Officer

Each PTW template must include fields for issue, authorisation, handback, and filing reference.

36.5. Annexure E — LOTO Isolation Certificate Template and Isolation Diagram Guidance

Field	Template Content
Isolation Certificate ID	Unique ID
Equipment / Circuit	One line description
Isolator ID(s)	Unique tag numbers
Isolation method	Lock, tag, padlock ID
Person isolating	Name, trade, signature, date/time
Verifier	Registered Electrician name, signature, date/time
Work to be done	Brief description
Re-energisation authoriser	Name, signature, date/time
Comments / Test results	Continuity/voltage checks

Field	Template Content
Diagram guidance	Single line diagram reference; show isolator locations and tag IDs

36.6. Annexure F — Lifting Plan Template and Crane Exclusion Zone Diagram

Field	Required Content
Lifting Plan ID	Unique ID
Lift description	Load, weight, dimensions
Crane type and capacity	Crane model, SWL
Ground bearing assessment	Bearing capacity report ref
Rigging gear	Sling types, certificates
Banksman and signaller	Names and LOAs
Exclusion zone	Diagram reference and radius
Weather limits	Wind speed thresholds
Emergency procedures	Drop/load failure plan
Inspection records	Pre-lift inspection checklist

Include a simple exclusion zone diagram with distances and hospital interface notes.

36.7. Annexure G — FAT / SAT Witness Checklist (PV & BESS)

Test / Check	Minimum Acceptance Criteria	Witness / Sign-off
Visual inspection (equipment)	No damage; correct labelling	OEM / Electrical Lead
Mechanical integrity (mounts)	Torque and alignment per drawings	Structural Engineer

Test / Check	Minimum Acceptance Criteria	Witness / Sign-off
Earthing and bonding tests	Earth resistance within spec	Registered Electrician
Insulation resistance	Values per SANS 10142-1	Registered Electrician
PV string I/V tests	Within manufacturer tolerance	Electrical Lead
Inverter functional tests	All functions pass	OEM / Electrical Lead
BESS first charge	Controlled per OEM; thermal stable	OEM / CHSM (if applicable/CHSO)
Protection coordination	Relay settings verified	Electrical Lead
FAT witness report	Signed FAT certificate	DBSA Engineer / Client Rep
SAT witness report	Signed SAT certificate	DBSA Engineer / Client Rep

36.8. Annexure H — Battery Thermal Runaway Response Plan (BTRRP)

Section	Content / Required Entries
Scope	BESS units, battery rooms, temporary storage
Definitions	Thermal runaway; BTR incident
Roles & responsibilities	Site Incident Controller; Fire Safety Officer; OEM; CHSM (if applicable)/CHSO; Environmental Officer
Detection & alarm criteria	Sensor types; thresholds; alarm routing
Immediate actions	Alarm; evacuation; isolation guidance; suppression initiation
Isolation & electrical actions	LOTO restrictions; who may isolate; PTW references
Suppression strategy	OEM-approved agents; application method; remote application

Section	Content / Required Entries
Evacuation & exclusion zones	OEM distances; hospital coordination
Communication & notification	Contact list; notification templates
PPE & responder safety	SCBA; structural PPE; medical monitoring
Rescue & medical treatment	Triage; transport; hospital liaison
Environmental & waste management	Containment; chain of custody; disposal route
Post-incident actions	Investigation timeline; corrective action plan
Training & drills	Drill frequency; attendance records
Documentation & records	Incident logs; OEM reports; disposal records
OEM sign-off	OEM Representative signature; date
Client / DBSA sign-off	DBSA Engineer; Client Representative signatures

36.9. Annexure I — Site H&S File Index and Handover Checklist

Index No.	H&S File Section	Contents / Documents
I1	Project documents	Contract; Specification; PHSP
I2	Appointments	LOAs; CVs; registrations
I3	SWMS/RAMS	Annexure B; Annexure C documents
I4	PTW & LOTO	PTW register; isolation certificates
I5	Temporary works	TWD drawings; inspections
I6	Plant & lifting	Certificates; inspection logs
I7	Electrical tests	Test certificates; COC

Index No.	H&S File Section	Contents / Documents
I8	FAT/SAT	FAT/SAT reports; witness statements
I9	Training & medical	Training matrix; medical records
I10	Incidents & audits	Incident register; audit reports
I11	Environmental	EMP; SDS register; waste records
I12	ERP & BTRRP	ERP; Annexure H signed
I13	Handover pack	As-built drawings; O&M manuals
I14	Close-out certificates	Client acceptance; PrCHSA sign-off

36.10. Annexure J — H&S Tender Returnables Checklist and Pre-mobilisation Verification

Item No.	Returnable / Pre-mobilisation Item	Required Evidence	Mandatory (Y/N)
J1	Draft PHSP	Full PHSP document	Y
J2	Consolidated HIRA	Annexure B completed	Y
J3	SWMS/RAMS / RAMS	Annexure C SWMS/RAMS set	Y
J4	LOAs & CVs	Signed LOAs; CVs; registrations	Y
J5	Compensation Fund & Insurance	Certificates	Y
J6	OEM battery data & procedures	SDS; OEM manuals; commissioning procedures	Y
J7	FAT/SAT procedures	FAT/SAT plan and witness schedule	Y
J8	PTW templates	Annexure D PTW templates	Y
J9	LOTO procedures	Annexure E isolation certificate	Y
J10	BTRRP	Annexure H signed by OEM	Y

Item No.	Returnable / Pre-mobilisation Item	Required Evidence	Mandatory (Y/N)
J11	EMP & SDS register	EMP document; SDS list	Y
J12	WBGT / thermal plan	Annexure X-2 monitoring plan	Y
J13	TMP	Traffic Management Plan	Y
J14	Site layout & segregation	Site plan showing segregation	Y
J15	Pre-mobilisation audit	Completed pre-mobilisation audit report	Y

36.11. Annexure K — Audit Checklist and Corrective Action Tracker

Audit Item	Check	Status (OK/NC)	NC Description	Corrective Action	Owner	Due Date	Closure Date
K1	PHSP available on site						
K2	PTW register current						
K3	LOTO certificates filed						
K4	SWMS/RAMS at workplace						
K5	PPE compliance						
K6	FAT/SAT witness records						
K7	BTRRP readiness						

36.12. Annexure L — Visitor Induction Form and Visitor Register Template

Field	Visitor Induction Form Content / Register Column
V1	Visitor name
V2	Company / affiliation
V3	Contact number
V4	Person to visit / host
V5	Reason for visit
V6	Date and time in
V7	Date and time out
V8	Induction topics covered (site rules, PPE, emergency procedures)
V9	Visitor signature
V10	Host signature

36.13. Annexure X-1 — Thermal Risk Assessment Template

Field	Content
T1	Task ID and title
T2	Location and timing
T3	Metabolic rate estimate
T4	Clothing / PPE adjustment factor
T5	WBGT baseline value
T6	Vulnerable persons identified
T7	Controls in place (engineering/admin/PPE)
T8	Work-rest schedule recommended
T9	Monitoring frequency

Field	Content
T10	Owner and review date

36.14. Annexure X-2 — WBGT Monitoring Log

Date	Time	Location	WBGT (°C)	Clothing adj. (°C)	Metabolic estimate	Control measures in place	Operator

36.15. Annexure X-3 — Work-Rest Schedule Template

WBGT Range (°C)	Metabolic Rate Category	Work : Rest Ratio	Notes
e.g., <26	Light work	Continuous work	
26–29	Moderate	45 min work : 15 min rest per hour	
29–31	Heavy	30 min work : 30 min rest per hour	
>31	Very heavy	Stop or extreme controls required	

(Adjust per SANS/Physical Agents Regulations and clothing factors.)

36.16. Annexure X-4 — Acclimatisation Record and Checklist

Worker Name	Start date	Day 1 exposure %	Day 2 exposure %	Day 3 exposure %

36.17. Annexure X-5 — Heat-Illness Incident Report and Medical Follow-up Form

Field	Content
HI1	Incident ID
HI2	Date/time
HI3	Person affected (confidential)
HI4	Symptoms observed
HI5	Immediate actions taken
HI6	Medical treatment provided
HI7	Transport to medical facility (Y/N)
HI8	Return-to-work authorisation (medical)
HI9	Corrective actions implemented
HI10	CHSM review and sign-off

36.18. Annexure X-6 — Battery Room Thermal Monitoring and Ventilation Acceptance Checklist

Item	Requirement	Status (Y/N)	Evidence / Comment
XM1	Ventilation design signed by Mechanical Engineer		
XM2	OEM ventilation acceptance		
XM3	Thermal sensors installed and calibrated		
XM4	Alarm routing to site control and CHSO		
XM5	Emergency ventilation interlocks tested		
XM6	Access control and PTW for entry		

36.19. Annexure M — Programme Delivery and Maintenance Plan Template

Template for tenderers to detail programme sequencing, concurrent site resourcing and 36-month maintenance strategy.

36.20. Annexure N — Multi-site Logistics and Spare Parts Strategy Template

Template for spare parts warehousing, distribution and response times during maintenance period.

Each annexure is a mandatory RFP returnable where indicated. Annexures are provided as editable templates to be completed and submitted with the tender.

The Client and DBSA appointed PrCHSA will use the mandatory Annexure RFP returnables for evaluation and pre-mobilisation verification.

37. Principal Contractor Acknowledgement and Acceptance

Project: DBSA-NDoH-GF PSA OXYGEN PLANTS — Cluster 2Hospital Projects **Document:** Project Specific Occupational Health, Safety & Environment Specification

Acknowledgement

The undersigned Principal Contractor acknowledges receipt of the **Project Specific Occupational Health, Safety & Environment Specification** issued by the Client for the DBSA-NDoH-GF PSA OXYGEN PLANTS Cluster 2Hospital Projects. The Principal Contractor confirms it has reviewed the Specification, understands the Client's minimum health, safety, environmental and commissioning requirements, and accepts responsibility to implement, maintain and verify the controls, permit systems and evidence requirements set out in the Specification.

Scope of Acceptance

The Principal Contractor accepts responsibility to:

- Implement the **minimum controls**, PTW/LOTO systems and administrative requirements specified in the OHS Specification.
- Prepare, submit and maintain the **Project Health & Safety Plan (PHSP)**, site H&S File and all mandatory RFQ/RFP returnables.
- Provide SWMS/RAMS, PTW records, LOTO isolation certificates, OEM battery safety data and TRP evidence, FAT/SAT witness arrangements and other evidence required for PHSP acceptance.
- Coordinate and obtain written approvals from hospital engineering for any works affecting PSA oxygen plants, emergency power or medical gas systems.

- Cooperate with DBSA-appointed professionals and comply with their reasonable instructions within their professional scope.
- Ensure all subcontractors comply with the Specification and submit required evidence prior to mobilisation.

38. Principal Contractor Declaration

I confirm that the Principal Contractor will submit the completed PHSP, the completed HIRA/BRA with PC residual scoring, and all mandatory tender returnables prior to mobilisation, and will not commence any construction activity until PHSP acceptance and any required permits are in place.

Principal Contractor Details

Company name: _____

Company registration number: _____

Address: _____

Primary H&S Contact name: _____

Primary H&S Contact mobile: _____

Primary H&S Contact email: _____

Authorised Representative

Name: _____

Position: _____

Signature: _____

Date: _____

39. For Client Use Only

Client Representative name: _____

Signature: _____

Date: _____

PHSP / OHS Specification Acceptance status: ☐ Accepted ☐ Accepted with conditions ☐ Not accepted

Conditions or comments: _____

