SECTION 2

Scope of Work with Annexures

PART C3: SCOPE OF WORK

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SECTION 1

1 Description of the works

1.1 Executive Overview

The International Ship and Port Facility Security (ISPS) code is an amendment to the Safety of Life at Sea (SOLAS) Convention (1974/1988) on minimum security arrangements for ships, ports, and government agencies. It prescribes responsibilities to governments, shipping companies, shipboard personnel, and port/facility personnel to "detect security threats and take preventative measures against security incidents affecting ships or port facilities used in international trade." To comply with the ISPS code, the South African ports must secure all their assets by means of physical barriers and systems. Transnet National Ports Authority (TNPA) is mandated to implement measures to protect its assets, customers, employees, passenger vessels, and port facilities against terrorism, sabotage, stowaways/illegal immigrants, armed robbery, etc. Under this mandate TNPA is obliged to provide adequate and effective port security fencing infrastructure, ensuring compliance with all relevant legislation and regulatory framework standards.

There are various areas in the Port of Ngqura that require replacement of security fencing (fence and gates) to comply with the legislative requirement in terms of the International Ship and Ports Facility Security (ISPS). These areas are facing the seaside and act as a boundary of the Port from the seaside. As a port of entry, it is a legislative requirement for the Port to secure all its assets by means of a physical barrier, to ensure a secure and safe environment. There are also areas in the Port that are currently not fenced off and require installation of a new fence as per the ISPS requirements.

The areas that require fencing are Eastern Breakwater (Including Lighthouse area), Sand Bypass, Western Breakwater, Multi-purpose Terminal, and Seawall between AMS and C-berth. The Eastern Breakwater, Western breakwater and Sand bypass are currently fenced off with steel palisade fencing which was installed in 2009 when the Port was being constructed. This fence has a life expectancy of 20 years. There are chemical reactions that take place on steel when exposed to the marine environment, resulting in the steel corroding at a higher rate than expected, reduction of panel size, loosening of panel bolts from anchoring posts and posts losing anchorage to the concrete. This has resulted in localized failure/collapse and the development of perimeter gaps, rendering the infrastructure incapable of preventing trespassing and subsequent non-compliance with the International Ship and Port Facility Security, National Ports Act and Maritime Security Regulations.

There are areas that were previously fenced off with palisade fencing and requires replacement. These areas include the Eastern breakwater (Lighthouse area) and Multi-purpose Terminal (including C100). There are also areas that were previously not fenced off and require installation,

these include the Seawall between Automatic Mooring System (AMS) and C-berth, and a section at Western Breakwater. For the purposes of site orientation figure 1 below is the depiction of different sites that require fencing:



Figure 1: Site location-Port of Ngqura.

The works that the Contractor is to perform involve the structural and civil works for the construction of the security fencing in various areas in the Port, as covered in this document, the specifications under Chapter 4 of this document, the drawings as referenced under Annexure A, the bills of quantities and further documents referenced in this Works Information. The works include the following main items:

- Removal of existing fencing (fence and gates) with care,
- Removal of fence existing intrusion detection cables with care and to be reinstated after the new fence has been installed.
- Installation of a hot-dipped galvanized mesh fence panel fencing (fence and gates) including all the fence accessories, and the construction concrete plinths and base foundations. The Contractor shall engage a reputable fence manufacturer to design, supply, and deliver all the new fences/walls, including gates and associated fixtures, that fully comply with the specifications and requirements outlined in this document.
- Installation of a new precast concrete wall panel fencing including all the fence accessories and the construction concrete plinths and base foundations. The Contractor shall engage a reputable fence manufacturer to design, supply, and deliver all the new fences/walls, including gates and associated fixtures, that fully comply with the specifications and requirements outlined in this document.

The Contractor shall also provide the Works in accordance with the technical, health and safety, environmental, quality, industrial relations and programming requirements as set out in the Works Information.

The project is aimed at replacing and upgrading security fencing in the Port of Ngqura and at Coega Kop Quarry to meet the minimum requirements of the ISPS code, ensure compliance with the relevant legislation and regulatory framework standards as well as address any security concerns posed by the condition of the existing fencing. The Coega Kop Quarry fencing requirements are also guided by the mining license conditions which must be complied to.

1.2 *Employer's* objectives

The *Employer* and owner of the works, Transnet National Port Authority (TNPA), aim to meet the requirements of the ISPS code, ensure compliance with the relevant legislation and regulatory framework standards as well as address the security concerns and risks through the execution of this project. The *Employer's* objective is to replace the existing damaged fence with a new hot-dipped galvanized mesh fence within the Port of Ngqura, and new a precast concrete walling at the Coega Kop Quarry. The new fence shall have a long design life with minimal maintenance. The fence is robust and cannot easily be damaged in comparison with the other options considered. The new fence shall be designed to withstand harsh and corrosive environments and cannot easily be scaled, greatly improving the ports' security measures.

The *Employer's* objectives are to:

- Provide security fencing in various areas in the Port and providing a security fence that will demarcate the port and restrict easy access in the port.
- Meet the requirements of the ISPS code, ensure compliance with the relevant legislation and regulatory framework standards as well as address the security concerns and risks.
- Achieve completion of the Works by meeting the completion date whilst maintaining the highest environmental, quality, and safety standards, minimizing disruptions to ongoing port and terminal operations.

Emphasis is placed on the *Employer's* commitment to environmental management and safety and their objectives of "Zero Harm", of achieving a zero Lost Time Injuries (LTI) and a zero environmental legal contravention construction contract. Furthermore, it is emphasized that the Works fall within an environmentally sensitive and protected zone and as such, it is the Employer's objective to ensure full compliance with the guidelines and recommendations of the Department of Environmental Affairs Environmental Authorization, Transnet's Construction Environmental Management Plan, Standard Environmental Specifications and all Permits and Licenses authorized by the relevant Authorities.

1.3 Interpretation and terminology

For the purposes of this Contract for all matters regarding technical decisions, Acceptance of Engineering related technical documents, Testing, Commissioning and any matters pertaining to the context of the Occupational Health and Safety Act, the *Contractor* is required to cooperate with the *Employer's* Engineers/Professional Engineers as per the NEC3 Engineering and Construction Contract (ECC) Core Clause 25.1 and Clause 14.2 as delegated by the *Project Manager* and the *Supervisor*, for the former and as applicable in the context. The instructions received by the *Contractor* shall be interpreted as lawful in matters pertaining to the former if the instruction has been endorsed by both the *Project Manager* or *Supervisor* and the *Employer's* Engineers/Professional Engineers as applicable in the context. The *Employer's* Engineers shall be named post-award of the Contract and prior to commencement of the Works. The *Contractor* is further advised that, in compliance with Clause 25.1, cooperation with the *Employer's* Engineers and other representatives of the *Employer* (*Others*) is a requirement of this Contract and the *Contractor* is to allow, grant and facilitate all reasonable access that may be required by the *Employer's* Engineers and *Others* as applicable, for the provision of the Works.

The following terminology is used in this document:

Term	Meaning given to the term
Drawings	The latest revision of the construction drawings
Specification/s	The document/s forming part of the Contract, in which methods of executing the various items of work, and the nature and quality of the materials to be supplied are described. The specification includes technical schedules and drawings attached thereto as well as all samples and patterns interpretation of incorporated documentation.
Supervisor	As defined in the NEC3 ECC contract. Responsible for checking that the works are constructed in accordance with the drawings and the specifications.
Project Manager	As defined in the NEC3 ECC contract. Responsible for contractual matters, cost, and time.
Contractor	As defined in the NEC3 ECC contract, the company engaged to construct the works.
Works	As defined in the NEC3 ECC contract. That which is to be constructed/executed.
Native	Original electronic file format of documentation
Reputable Manufacturer	A manufacturer with at least 15 years' experience in producing high security steel or precast concrete fencing

The following abbreviations are used in this document:

Abbreviation	Meaning given to the abbreviation
AIA	Authorised Inspection Authority
AASHTO	American Association of the State Highway and Transportation Officials
ASTM	American Society for Testing and Material
BS	British Standard
B-BBEE	Broad Base Black Economic Empowerment
CA	Contract Administrator
CD	Compact Disc
CDS	Contractor Documentation Schedule
CEM SOP	Standard Operating Procedure Construction Environmental Management
CESS	Transnet minimum Contractor's Environmental and Sustainable Specification
CIRP	Contractor's Industrial Relations Practitioner
CHSO	Construction Healthy and Safety Officer
CM	Construction Manager
CR	Construction Regulations
CPM	Critical Path Method
DWG	Drawings
CV	Curriculum Vitae
ECC	Engineering and Construction contract
EO	Environmental Officer
EN	Euro Norm
ID	Identification Document
ISO	International Organization for Standardization
IR	Industrial Relations
ISPS	International Ship and Port Facility Security
IRCC	Industrial Relations Co-ordinating Committee
LDV	Leyland Daf Vans
MGBS	Miled Granulated Blast Furnace Slag
NEC	New Engineering Contract
OHS	Occupational health and Safety
OMP	Occupational medical Practitioner

Abbreviation	Meaning given to the abbreviation
PDF	Portable document Format
PFMA	Public Finance Management
PES	Project Environmental Specifications
PPE	Personal Protective Equipment
PPM	Procurement Procedures Manual
PIRM	Project Industrial Relations Manager
PIRPMP	Project Industrial Relations Policy and Management Plan
PSCM	Procurement and Supply Chain Management
PVC	Polyvinyl Chloride
PQP	Project Quality Plan
QA	Quality Assurance
QMS	Quality Management System
R&D	Research and Development
SAGC	South African Geomatics Council
SANS	South African National Standards
SACPCMP	South African council for the project and Construction Management Profession
SME	Subject Matter Experts
SHE	Safety, Health and Environment
SES	Standard Environmental Specification
SIP	Site Induction Programme
SMP	Safety Management Plan
SSRC	Site Safety Review Committee
SOC	Safety Observation and Conversation
WGS84	World Geodetic System 1984
TNPA	Transnet National Ports Authority

2 Engineering and the *Contractor's* design

2.1 *Employer's* design

2.1.1 The Employer's design for the work are:

- New hot-dipped galvanized mesh fence
- New swing gates
- New turnstile gates
- New precast concrete wall system
- New pedestrian Gate

2.1.2 The Employer grants the Contractor a license to use the copyright in design data presented to the Contractor for the purpose of the works (and the Contractor's obligation under paragraph 2.2 of the Employer's Works Information) ONLY.

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2.2 Parts of the works which the Contractor's is to design

2.3 Permanent works

2.3.1 Concrete mix:

The concrete mix design is the Contractor's responsibility to ensure that the required strength is met.

2.3.2 Temporary works

Temporary works are all works other than the permanent works indicated in the project specifications, drawings, bill of quantities, and associated contract documentation. These include infrastructure to be removed from the Site at the end of construction, Protection of new and existing infrastructure/services, dismantling existing infrastructure/services where specified and the like.

Any temporary work that may be necessary should be approved by the *Project Manager* prior to construction. Any temporary work submitted is required in the format of both calculations and drawings. The temporary works shall be structurally adequate and the foundations adequate with no settlement.

2.3.3 General

All temporary *works* designed by the *Contractor* shall remain the *Contractor's* responsibility. The *Contractor* shall appoint suitably qualified, experienced, and professionally registered engineers and designers, to be approved by the *Employer*, to carry out detailed designs for the permanent and where applicable temporary *works*, in accordance with this Works Information, the drawings,

and the project specifications. The *Contractor* shall indemnify, and hold indemnified the *Project Manager* and *Employer* against any claims and actions that may arise out of the design and construction of such temporary works.

The *Contractor* shall be responsible for full compliance with all codes of practice, safety, professional procedures, checking, site approval, and requirements of the construction regulations with regard to the temporary and permanent works.

The *Contractor*'s temporary works designs shall be fully integrated with the design of the works as provided by the Employer.

Where temporary or permanent works are located close to or within infrastructure or property owned by others, e.g. Transnet Operating Divisions, or other service and utility owners as may be the case, the *Contractor* will be responsible for the following, but not limited to:

- Liaising with the relevant parties to ascertain impacts on existing property or any planned activities. Measures to eliminate or mitigate such impacts shall be developed and agreed to with all affected parties.
- Ensuring compliance with the applicable standards, procedures, and requirements of such third parties.
- Identify requirements and provide protection of all infrastructure owned by such third parties.

For temporary works, the following shall apply:

- The Contractor shall submit to the Employer and/or Supervisor for acceptance all design calculations and drawings for all temporary works.
- The Contractor shall submit detailed drawings and workshop details for all temporary works designs to the Project Manager for acceptance by the Employer's Engineers and/or Employer's Consultant.
- The Contractor shall be responsible for full compliance with all codes of practice, safety, professional procedures, checking, Site approval and requirement of the construction regulations with regards to permanent Works as listed under section 2.2.2 of the Employer's Works Information as well as all temporary Works.
- The Contractor is wholly responsible for all design coordination, integration and liaison activities involved the works, and shall take all measures necessary and make all arrangements for activities such as meetings, inspections, endorsements, and any other activities required for the timeous completion of the works and to the appropriate quality. When these activities require the involvement of the Employer's Engineering team or any other stakeholders, the Contractor is required to make these arrangements with due

consideration of the Employer's Engineering team's availability and the availability of other stakeholders.

- The Contractor shall thus be wholly accountable and responsible for all aspects of his designs, including the implementation of all statutory Safety, Health and Environmental Regulations of South Africa and the requirements, specifications, and regulations of the Employer pertaining to Health and Safety, Environment, Quality and Engineering.
- The Contractor shall be wholly accountable and responsible for the implementation of the aspects of his designs including commissioning, putting into service, and handover of his constructed designs to the Employer, and shall be held accountable and responsible for these aspects of the Works for the lifetime duration of the Works.

2.4 Procedure for submission and acceptance of *Contractor's* design

2.4.1 This is not applicable for the permanent works designs; the Employer shall provide specification drawings to the *Contractor*.

2.4.2 For the temporary works designs that need to be submitted by the Contractor to the *Employer*, the Contractor shall address the following procedures:

- Submit designs in electronic Adobe Acrobat (PDF) and native format to the Project Manager for the review and approval.
- The Contractor may not proceed with the works until written approval is obtained from the Project Manager.

2.4.3 The Contractor undertakes design safety reviews with the Project Manager

2.4.4 Documentation Submission

In undertaking the 'Works' (including all incidental services required), the Contractor shall conform and adhere to the requirements of the 'Contractor Document Submittal Requirements' Standard included in DOC-STD 0001.

2.4.5 Submission procedure

The Contractor shall address the following procedures:

- The Contractor shall submit detailed drawings of the design for the new fence for the Employer's acceptance, including, but not limited to, the proposed fence and swing gates as well as all fixtures, incorporating the free issued material provided by the Employer.

2.4.6 Documentation submission

The Contractor's documentation shall be issued to the Project Manager under cover of the Contractor's Transmittal Note stating all contract references (i.e. Project No, Contract No, etc.) as well as the Contractor's Project Document Number, Revision Number, Title and chronological listing of transmitted documentation.

Formats of Contractor data submitted are dependent on the project procedure and shall be specified by the Project Manager, upon the notified request of the Contractor.

The Contractor's Transmittal Note must state the purpose of the submission. Documentation for different purposes must be sent on separate transmittals.

All electronic documentation shall be submitted by the Contractor in Adobe Acrobat (PDF) and native file format, with drawings in 'rvt', 'dgn', 'dxf', 'dwg' or similar approved formats as requested by the Employer.

The Contractor shall also provide any design package software files to the Employer, in the format specified by the Employer, if so requested, in order to review and/or verify drawings and designs.

The Contractor shall submit their designs to the Project Manager for approvals before commencing with any manufacturing or construction.

The Contractor undertakes design safety reviews with the Project Manager, the NEC Supervisor, the Employer's Engineer and Professional team, the Employer's Health and Safety Representative, the Employer's Environmental Officer, the Employer's Quality Assurance and Quality Control Officer and any other Specialists and/or Subject Matter Experts (SME) as deemed necessary by the Employer for the provision of the Works.

2.5 Review and Acceptance of Contractor's documentation

2.5.1 The Contractor submits documentation as the Works Information to the Project Manager for review and acceptance.

2.5.2 The Project Manager may withhold acceptance of a submission if the document submission requirements stated in the Works Information are not adhered to.

2.5.3 The Contractor shall allow the Project Manager two weeks (unless otherwise stated and agreed) to review and respond to the Contractor's submission of their documentation, i.e. from time of receipt by the Employer to the time of despatch to the Contractor. However, work shall proceed without delay in the event of late return of the documentation by the Project Manager with prior notification in writing by the Contractor.

2.5.4 After review by the Employer, a copy of the original reviewed/marked-up drawing/document, with the Project Manager's consolidated comments and document status marked on the Contractor's review label, will be scanned and the hard copy will be returned to the Contractor under cover of the project's transmittal note for revision or re-submittal as instructed.

2.5.5 The Contractor will be advised by e-mail (accompanied by a copy of the project's Transmittal Note) that documentation is available for their collection.

2.5.6 On receipt of the reviewed documentation, the Contractor shall make any modifications as requested or marked up and resubmit the revised documentation to the Project Manager within

two weeks. Queries regarding comments or changes shall be addressed with the Project Manager prior to re-submittal.

2.5.7 Any re-submittals, that do not include the changes or comments as indicated by the Employer, will be returned to the Contractor to be corrected. The Contractor shall re-issue the revised documentation incorporating all comments and other specified details not included in the previous issue within two working days of receipt of the marked-up document.

2.5.8 The Contractor issues method statements in advance of carrying out items of work. The Contractor allows the period for reply for acceptance of method statements. Work does not commence until the Supervisor has accepted the relevant method statement. The Contractor does the work in accordance with the accepted method statement.

2.6 Use of Contractor's design

2.6.1 The Contractor grants the Employer a license to use the copyright in all design data presented to the Employer in relation to the works for any purpose in connection with the construction, reconstruction, refurbishment, repair, maintenance, and extension of the works, with such license being capable of transfer to any third party without the consent of the Contractor.

2.6.2 The Contractor vests in the Employer full title to the intellectual property and copyright in the design data created in relation to the works, irrespective of where or what those works may be.

2.6.3 The Contractor grants the Employer a non-exclusive license, in accordance with the provisions of Section 22 of the Copyright Act 1978, to copy any document/calculation compiled/done by the *Contractor* in connection with the Works, to make free and unrestricted use thereof for his own purposes, modify some or having it modified by a third party for any reasons, to provide copies thereof to a third party (*Contractor*s or *Consultants*) of the *Employer* to be used by them for the purposes of tendering or consultancy.

2.6.4 Furthermore, if any such document/calculation by any Principal *Contractor* or *Subcontractor* is used for the Works, the *Contractor* requests such Principal *Contractor* or *Subcontractor* to grant to the *Employer* a similar non-exclusive license for the purposes set out herein.

2.7 As-built drawings, operating manuals, and maintenance schedules

2.7.1 The *Contractor* provides the following:

- The Contractor prepares two (2) marked-up hard copies of the latest revision of the Employer's documents/drawings to represent the as-built/final state.
- The mark-ups shall be in RED and be complete and accurate. The Contractor submits the same to the Project Manager under cover of a Contractor's Transmittal Note.
- The Contractor provides manuals in an A4 hard-covered, red, grease, and waterproof binder, using 2-ring type binders. The manuals are well-indexed and user-friendly and include a summarized Table of Contents.

- Drawings and charts larger than A4 are folded and those greater than A3 are enclosed in an A4 plastic pocket of adequate strength.
- The Contractor submits the draft Table of Contents to the Project Manager for acceptance prior to the compilation and official submittal of the manuals.
- The originals of all brochures shall be issued to the Project Manager. When a general brochure applies to a range of equipment, then the specific item, catalogue number, or model number shall be stated, which is best achieved by introducing a separate index page, which cross-references the specific item to a tag number.
- Where manuals include drawings that still need to be revised to 'as-built' status, and such manuals are required prior to 'as-built' status, the manual will not be considered to be in its final form until the 'as-built' version of each such drawing has been incorporated. The required number of copies of the manual(s) shall be as specified by the Project Manager and submitted per type or model number of equipment included in the contract, or as specified by the Project Manager.

A typical example of what the binder/file(s) shall be marked with on the spine and the front cover is as follows:

- Project name and number
- Manual title, e.g. Installation, Maintenance, and Operating Manual
- Manual numbering (e.g. Volume 1 of 2, etc.)
- Contract number
- Contractor name

Unless otherwise stated, the required number of copies of all as-built/final/data packs shall be:

- 3 x hard copies (full size)
- Adobe Acrobat (.pdf) and 'native' formats

2.7.2 As-built/final documentation

In undertaking the works (including all incidental services required), the *Contractor* shall conform and adhere to the requirements of the '*Contractor* Document Submittal Requirements' Standard included in Annexure B.

2.7.3 Installation, Maintenance and Operating Manuals and Data Books

In undertaking the 'Works' (including all incidental services required), the Supplier shall conform and adhere to the requirements of the 'Data Books and Manuals' Standard included in DOC-STD 0014 and the 'Contractor Documentation Submittal Requirements' Standard included in DOC-STD 0001

3 Construction

3.1 Temporary works, site services & construction constraints

3.1.1 *Employer*'s site entry and security control, permits, and site regulations

The Port of Ngqura is a designated security area as per the ISPS requirements. Consequently, all access to the Port is strictly controlled. The *Contractor* shall comply with all the requirements of the *Employer* with regard to site entry. The cost of complying with this access security, including labour transport and access requirements and maintaining access cards for staff working on the site are included in the tendered price.

The *Contractor* complies with the following:

- The Contractor shall obtain the necessary entry permits for all staff working within the area in accordance with the access control requirements of the Employer and shall issue each personnel member with an appropriate identification card.
- The Contractor identification cards shall detail the individual's name and identity number. All costs incurred in providing construction personnel with ID cards shall be borne by the Contractor and shall be made by the Contractor to a standard acceptable to the Project Manager.
- The Contractor is also required to obtain the relevant permits for his Subcontractors and all Suppliers. The Contractor is required to make applications for these permits on behalf of his workers, Suppliers, and Subcontractors. The Contractor is to make a cost and time allowance for obtaining the necessary permits.
- Each of the Contractor's employees shall undergo a medical examination, inclusive of a drug test, certifying that the employee is fit and capable of undertaking the assigned tasks, as applicable. Medicals are to be signed off by an Occupational Medical Practitioner (OMP).
- All people working within the Port of Ngqura are to undergo an induction on the port's health and safety, security, and general procedures. The Contractor is to allow for a minimum of one day for the induction period.
- The minimum personal protective equipment (PPE) requirements for any of the Contractor's employees within the port boundaries shall include hard hats, reflective vests, gloves, safety glasses, and safety boots. Where special circumstances dictate this, or as per the Contractor's activity-based risk assessment, or where so advised by the Employer, the Contractor shall also provide his employees with, but not limited to, ear protection, dust masks, safety harnesses, and life jackets. It is required that employees wear long sleeve shirts/overalls and pants. No shorts and short sleeve clothing will be allowed.

- All drivers of vehicles using the port operational roads shall undergo an induction course to familiarise them with the terminal layout and the applicable regulations.
- Each of the Contractor's employees shall have a valid police clearance certificate.
- The Contractor is responsible for the security of the works until completion and hand-over and must make arrangements for security and the safekeeping of his property. The Contractor's watchmen are allowed on site for this purpose.
- The Contractor is to be in constant consultation with the Port's security operations to ensure compliance with all the required security procedures.

3.1.2 Restrictions to access on site, roads, walkways, and barricades

The Contractor's staff shall be confined to the working area and defined access routes and shall not be allowed to be present in other areas of the Employer. Contractor staff found disobeying this instruction will be subject to disciplinary action.

The Contractor complies with the following requirements of the Employer:

- Access to the area where the Contractor is working is to be strictly controlled and will be restricted to construction traffic only. No access will be given to private vehicles or public transport and, in this regard, the Contractor is to make provisions for transporting his labourers in from an external meeting/collection point.
- The Contractor shall provide adequate transport for all staff members between the construction site and the Contractor's yard, as well as transport to and from work.

3.1.3 Site management, traffic management, and site delivery

- The Contractor is required to establish a well-planned site management system. To achieve this, the Contractor will provide a comprehensive well-planned work method and schedule followed by the submission of a detailed risk assessment for approval and implementation.
- The Contractor shall develop a traffic management plan to ensure safety in construction as well as with the interface with operations and other Contractors.
- The Contractor shall plan the delivery of equipment and materials to site accordingly, minimizing the amount of material on site. The Contractor shall be responsible for temporarily upgrading the access route should the Contractor deem it necessary for the delivery of the Contractor's Equipment and/or Materials to site.
- The Contractor shall be responsible for always ensuring the safe passage of construction traffic to and around the site. The Contractor shall not traverse any areas outside the immediate vicinity of the construction site(s) or designated access routes approved by the Project Manager. Any person(s) found contravening these restrictions will be subject to disciplinary action and may be instructed to be removed off site.

3.1.4 People restrictions on site, hours of work, conduct, and records:

The working hours shall be in accordance with the requirements of the Department of Employment and Labour and the Industrial Relations Policy included in Annexure F of the Works Information. This information relating to working hours shall be supplied to the Project Manager, prior to commencement of the proposed working hours. Normal working hours shall be Monday to Friday 07h00 – 17h00. If the Contractor requires working extended hours, a formal request shall be submitted to the Supervisor for approval. The cost incurred by the Employer to accommodate extended hours may be for the Contractor's account. External lighting shall be directed at the working areas and not away from the site. Staff, with the exemption of security personnel, shall not remain on the site overnight without the agreement of the Project Manager.

3.1.4.1 The Contractor keeps daily records of his people engaged on the site and working areas (including Subcontractors) with access to such daily records available for inspection by the Project Manager at all reasonable times.

3.1.5 Health and safety facilities on site

At all times during construction, the Contractor is responsible for the safety of all persons on site and shall have the necessary systems and procedures in place to effectively manage this in relation to health and safety requirements as stipulated in the Occupation Health and Safety (OHS) Act 85 of 1993 and applicable Regulations.

3.1.6 Environmental controls, fauna & flora, dealing with objects of historical interest

The Contractor shall perform the works and all construction activities within the site and working areas having due regard for the environment and environmental management practices.

3.1.7 Title to materials from demolition and excavation

- The Contractor has no right to any materials arising from demolitions if such material is to be re-used and re-incorporated into the new works and is required for the completion of the works as specified in the Works Information or Pricing Instructions. The title to such materials remains with the Employer. The Project Manager shall instruct the Contractor how to label, mark, set aside, and/or dispose of such materials for the benefit of the Employer in accordance with NEC3 ECC Clause 73.1.
- Where such materials become available for spoiling the Project Manager shall instruct the Contractor how to label, mark, set aside, and/or dispose of such materials for the benefit of the Employer in accordance with NEC3 ECC Clause 73.1.

3.1.8 Cooperating with and obtaining acceptance from others

3.1.8.1 The Contractor must make allowance for the necessity to interface with the activities of others including the Employer, Project Manager, Others appointed by the Employer, and any other 3rd party stakeholders, to allow smooth, uninterrupted construction, mitigate risk which could cause,

and where possible completely avoid, delays in construction between Contractors and to allow for safe access and working conditions.

3.1.8.2 The Contractor shall organize the work to cause the least possible inconvenience to other construction activities or operations at the site. Access for Others to adjacent areas shall be always maintained. Temporary access points shall be provided for the Employer and other Contractors working on other packages.

3.1.8.3 The Contractor shall be responsible for his construction programme, which shall be subject to approval by the Employer and Project Manager. Contractors shall be deemed to have allowed in their tender for any additional cost to be incurred due to the foregoing. No claims for extra costs for coordination and cooperation with Others will be entertained.

3.1.8.4 The Contractor shall manage all persons executing the works, including all Subcontractors/OEMs and Suppliers undertaking temporary or permanent works, or supplying Plant and Materials to site.

3.1.8.5 The success of the project depends on the effective co-operation of all Contractors on site, and the Contractor, if necessary, must discuss his programme on a day-to-day basis with the Project Manager to ensure effective co-ordination.

3.1.8.6 The Contractor performs the works and co-operates with:

- All authorized officials and employees of the Employer.
- Other effected/associated 3rd parties.
- Any local and/or national authorities.

3.1.9 Risks

The Contractor will be required to provide method statements, risk assessments, job safety analyses, and the like, which shall specifically include measures to mitigate risks at identified high-risk locations. Particular risks that have already been identified at such locations are outlined below.

3.1.9.1 Relocation and protection of services and Infrastructure

- It is not foreseen that any existing services and/or infrastructure have to be relocated, however if required, risk assessments, method statements, and procedures must be compiled and approved by the Employer for these works, including in particular the tie-in of the existing and relocated sections of these services.
- Measures for the protection of any existing or new services and/or infrastructure shall also be documented. Risk assessments, method statements, and procedures shall be approved by the Employer prior to the commencement of works near such services and/or infrastructure.

3.1.9.2 The above lists do not constitute a comprehensive schedule of such risks but are intended only as an initial guideline to the Contractor.

3.1.10 Publicity and progress photographs.

The Contractor shall obtain the permission and approval of the Employer before erecting any notice boards, using the details of the contract in any advertising media, or revealing any details of the contract to the public. The Contractor does not advertise the contract or the project to any third party, nor communicate directly with the media (in any jurisdiction) whatsoever without the express written notification and consent of the Project Manager.

3.1.10.1 The site establishment area shall be clearly signposted and be compliant with the relevant safety regulations and restrictions that might be in place until the Contractor has de-established from site. And comply with OHS Act 85 of 1993.

3.1.10.2 The Contractor provides a comprehensive photographic record of the progress of the works by taking photographs at weekly intervals. The initial photographs are to be taken at the start of the project, immediately prior to the commencement of any work. As far as possible each set of photographs shall be taken from the same locations as the previous set.

3.1.10.3 The areas to be photographed and the number of photographs in each area will be determined by the Project Manager.

3.1.10.4 Photographs are to be submitted in JPEG format, with a minimum resolution of 1200 x 800. Each set of photographs must be accompanied by an index showing:

- Contract reference
- Photograph file reference
- Date of photograph
- Subject matter

3.1.11 Contractor's Equipment

3.1.11.1 The Contractor keeps daily records of his Equipment used on site and in the working areas (distinguishing between owned and hired equipment) with access to such daily records available for inspection by the Project Manager at all reasonable times.

3.1.11.2 The Contractor, within fourteen (14) days after completion, must completely remove from site all his plant, materials, equipment, stores, temporary accommodation, or any other asset belonging to him and leave the site in a tidy condition to the satisfaction of the Project Manager. The site must be left in a similar or better condition than during occupation. No excess or discarded materials, plants, or stores may be buried or dumped within the Employer's boundaries.

3.1.12 Equipment provided by the Employer

The Employer does not provide any Equipment for the Contractor.

3.1.13 Site services and facilities

No connection points for electricity power supply are available on site. The Contractor shall make arrangements for the connection of electricity power supply to his work site. The position of the existing supply connection points for water, if available, is to be indicated by the Project Manager. The Contractor is to make arrangements for the connection of such services to his working areas, for his use during construction. Where such services are purchased from the Port, the applicable tariffs will be those that the Local Authority charges the Port and shall be obtained by the Contractor. There is no water-borne sewage facility available. The Contractor shall provide everything else necessary for providing the works.

3.1.13.1 The Employer provides the following facilities for the Contractor:

- The site and access to the site will be made available to the Contractor for the duration of the works, subject to the limitations provided in this Works Information.
- Yard and laydown areas

The Contractor may establish a yard and laydown areas as indicated under Part C4 - Site Information. The provision of utility services shall be as detailed in the Site Information.

The Employer will not provide any further designated space on site for the establishment of offices, workshops, storage areas, or the like. The Contractor may however liaise with the Employer and Others engaged in concurrent construction activities to obtain their consent for temporary storage of materials and equipment outside of the designated yard and laydown areas. This will be at the sole risk of the Contractor.

The Contractor shall ensure that the areas are properly fenced and always secured and shall provide all access control. The areas may only be used for the storage of materials, temporary sanitation facilities, and other essential activities required for the works.

Accommodation of the Contractor's staff at the yard and laydown areas will not be permitted. The Contractor may retain 24-hour security at the yard and laydown areas, provided that proper temporary sanitation and shelters are provided.

3.1.13.2 Wherever the Employer provides facilities (including, inter alia, temporary power, water, waste disposal, telecommunications, etc.) for the Contractor's use within the working areas and the Contractor adapts such facilities for use, then the Contractor makes good and provides full reinstatement to the land (including all apparatus of the Employer and Others in, on or under the land) and surrounding areas to its original standard upon dismantling of such facilities and hand-back to the Employer.

3.1.14 Facilities provided by the Contractor:

3.1.14.1 The Contractor provides the following facilities for the Project Manager and Supervisor:

- The Contractor provides, maintains, moves to new positions as required, and finally removes proper portable toilets of sufficient number at his cost. Toilets are to be properly

constructed and placed in suitable positions and maintained in a clean and sanitary working condition. Where no suitable connection to a sewerage system is feasible, conservancy tanks or chemical-type toilets may be used. The Contractor shall make arrangements with the Local Authority for the disposal of night soil at his cost.

- The Contractor must make arrangements for the disposal of sewerage and wastewater. Sewerage may not be disposed of on site. Transnet facilities may not be used.
- Strictly no housing will be permitted within the Contractor's laydown area or anywhere else within the port boundaries. The Contractor shall make arrangements for housing his employees and transporting them to and from the working area.
- Temporary lighting and fencing
- The Contractor must ensure that the working area is well-lit at night and that all the fences, obstacles, and hazards are marked. The Contractor provides temporary lighting and fencing around every section occupied during the construction of the works. Such fencing demarcates and secures the construction area at each stage and is erected before work starts in that area and removed only upon completion of that area and re-erected as work proceeds. The Contractor is responsible for all costs such as lighting and fencing, including access control into and out of these restricted areas. The Project Manager's acceptance is to be obtained for the use of any temporary lighting on the site due to the impact that this may have on vessel traffic in the harbour and/or interference with surrounding communities.
- Temporary buildings and fencing shall be neat and presentable, and the site area shall be kept in a neat, clean, and orderly condition.

The Contractor submits the following drawings to the Project Manager for acceptance before commencing with the establishment of the site facilities:

- Location drawing showing the area to be occupied by the Contractor.
- Layout drawing of the proposed facilities.

3.1.14.2 Unless expressly stated as a responsibility of the Employer as stated under Section 3.1.13, all residual requirements for the provision of facilities and all items of equipment necessary for the Contractor to provide the works remain the responsibility of the Contractor.

3.1.15 Existing premises and inspection of adjoining properties and checking work of Others

The Contractor shall visit the site of the proposed works and acquaint themselves with the nature of the works, the conditions under which the works are to be performed, the means of access to the site, and all further matters that may influence or affect the execution of the works.

3.1.16 Survey control and setting out of the works

Any topographical survey carried out as part of the works shall be undertaken by a SAGC registered surveyor, to be appointed by the Contractor, and to be approved by the Employer.

The Contractor shall appoint such a competent surveyor post-award to properly set out all works prior to installation, as well as after installation for as-built documentation purposes. Should the Project Manager be unsatisfied with the setting out or any other associated survey details, he may request that an additional surveyor be appointed to validate all coordinates.

3.1.16.1 The Employer provides the following information and survey controls for the Contractor:

- Survey reference points will be provided by the Employer. The Contractor shall, within two weeks after the site has been handed over to him, ascertain the correctness of all surveys and reference points.
- Any discrepancy shall immediately be reported in writing to the Employer. Any costs arising from discrepancies that were not reported to the Employer within the period shall be the sole responsibility of the Contractor.
- The Contractor shall take care that property beacons, trigonometrical survey beacons, or setting-out beacons are not displaced or destroyed without the consent of the Employer. Property beacons and trigonometrical survey beacons that have been displaced or destroyed shall be replaced by a registered land surveyor, who shall certify such replacement.
- The cost of replacing any beacons displaced or destroyed during the contract without the consent of the Employer shall be to the Contractor’s account.
- The Contractor is to note that the coordinates shown on all drawings relate to the WGS 84 survey system. A local system using Lo25 has been used for this project.

3.1.17 Excavations and associated water control

It is the responsibility of the Contractor to ensure that all excavations are rendered safe and suitable for construction and conform to the requirements of the Construction Regulations (CR 13). The Contractor shall not continue construction in conditions that the Project Manager does not approve of. The Contractor will be required to design and submit for approval the methods of excavation.

3.1.17.1 The Contractor complies with the following requirements:

- The Contractor shall consult the Project Manager prior to undertaking any excavation work.
- All excavations deeper than 1.5 m below ground level shall either be fully shored or the sides shall be battered back to a safe angle as determined by the strength of the soil and approved by the relevant competent person appointed in writing in terms of the

Occupational Health and Safety Act 85 of 1993, Construction Regulations 2014. An evaluation of the stability of the ground, as far as reasonably practicable, is to be undertaken prior to excavation.

- The Contractor shall be responsible for the protection of the works including the provision of the temporary drainage works such as drains, open channels, and banks, and providing and operating temporary pumps and such other equipment as may be necessary for adequately protecting and dewatering the works. Work performed by the Contractor as part of the protection of the works shall be deemed included in the tendered rates for the various items captured in the pricing document.
- The Contractor shall obtain all the necessary work permits before starting any excavations in accordance with health and safety procedures.
- The Contractor shall be liable for all claims arising out of any damage caused by such excavation if the Contractor fails to exercise the requisite care and attention in carrying out the excavation.
- The control of water during construction, including in particular dewatering of deep excavations, shall be managed and controlled in accordance with method statements to be compiled by the Contractor and approved by the Project Manager prior to the commencement of the works. These method statements shall include all measures that are required to remove or mitigate adverse environmental impacts. The Contractor will only be allowed to construct such drainage water control systems once the method statement is approved by the Project Manager.

3.1.18 Underground services, other existing services, cable and pipe trenches, and covers

3.1.18.1 No excavations shall be done within and outside the port area, as applicable, in the absence of a written permit, to be issued by the port authorities and other relevant parties. The Contractor shall also ensure that any other required permits to excavate are in place.

3.1.18.2 The Contractor is required to liaise with the Project Manager or Supervisor and establish as accurately as possible, the location of the various existing services situated within the working areas and record all such information on a suitable ‘marked-up’ drawing for reference at all times. As far as possible, existing services have been shown on the drawings included in this contract. The drawings showing the existing services are supplied as a guide only.

3.1.18.3 The Contractor must thereafter exercise due care and attention in carrying out the agreed excavation work as may be directed by the Project Manager to avoid damage or disruption to existing services.

3.1.18.4 Where any live, existing, or new services are anticipated, the Contractor shall excavate by hand trial pits and proving trenches. Prior to commencing with such hand excavations, the Contractor shall provide detailed and specific method statements, risk assessments, and the like for approval by the Employer.

3.1.18.5 Care shall be taken by the Contractor to protect all existing services unless they are confirmed to be abandoned. The same care shall apply to any new services.

3.1.18.6 If any existing and/or new service is damaged, that should have been located or protected by the Contractor, the Contractor shall be required to carry the cost of the repair of that service.

3.1.18.7 Should any service be damaged by the Contractor, it is the responsibility of the Contractor to report such damage to the Project Manager immediately.

3.1.18.8 Where the Contractor encounters existing services the Contractor undertakes the following:

- Immediately notify the Project Manager, relevant utility owners, or officials of the located service.
- Ascertain whether the service is still required and must remain live, or whether the service has been abandoned.
- If the service is confirmed as abandoned, the Contractor shall remove such service, if so instructed by the Employer.
- If the service is deemed live, it shall be protected by the Contractor and marked on the specific record drawing(s) for that area or service discipline. The service shall be demarcated by the placement of brightly painted wooden stakes to provide clear visibility of such services to the construction teams and others working in the area.

3.1.19 Control of noise, dust, water, and waste

The Contractor shall take all reasonable steps to contain unacceptable levels of noise and dust, in accordance with the specified and referenced environmental, health and safety requirements. The control and disposal of water and waste must be expressly stated and approved by the Project Manager prior to any of these activities taking place.

3.1.19.1 The Contractor complies with the following:

- The Contractor is to provide dust suppression as per the CEMP, PES and SES documents to ensure that dust levels resulting from the Contractor's construction traffic are kept to the required safety and environmental standards as specified in the relevant project environmental specifications.
- The control of water during construction, including in particular drainage of deep excavations, shall be managed and controlled in accordance with method statements to be compiled by the Contractor and approved by the Project Manager prior to the commencement of the works. These method statements shall include all measures that are required to remove or mitigate adverse environmental impacts.
- The Contractor shall dispose of all waste products at an appropriately licensed and registered waste disposal site, to be approved by the Project Manager. The Contractor shall provide written proof that all permits for the waste disposal site are in place.

- All ferrous materials emanating from the works shall be stockpiled at a designated stockpile area, as described in Part C4 – Site Information, or as otherwise advised by the Project Manager. The ferrous materials will remain the property of the Employer.

3.1.20 Giving notice of work to be covered up

The Contractor shall notify the Supervisor prior to covering up any of the completed works, to allow the Supervisor time for inspection of those works. This notification is given not less than forty-eight (48) hours prior to the proposed covering up.

3.1.20.1 The Contractor notifies the Supervisor of the following elements of the works which are to be covered up:

- All excavations for posts
- Blinding under base plates
- Before casting ground beams
- All reinforcement and shuttering prior to concreting.

3.2 Completion, testing, commissioning, and correction of Defects

3.2.1 The work to be done by the Completion Date

On or before the Completion Date the Contractor shall have done everything required to provide the works including the work listed below which is to be done before the Completion Date and in any case before the dates stated. The Project Manager cannot certify completion until all the work listed below has been done and is also free of defects, which would have, in his opinion, prevented the Employer from using the works and Others from doing their work.

Item of work	**To be completed by**
Submission of all data packs, quality assurance records and as-built drawings	30 days after Completion date

The Contractor ensures that the Project Manager has a full and accurate dossier of as-built documents that represent the status of the completed works (to include Plant within the works) to present to the Employer.

3.2.2 The Contractor is permitted to carry out the following works after completion:

3.2.2.1 The Contractor is permitted to remove temporary facilities from the after completion.

3.2.3 Materials facilities and samples for tests and inspections

The Contractor provides the Employer with the following materials, facilities and samples during the provision of the works, as per NEC3 ECC Clause 40.2:

3.2.3.1 The Contractor is required to provide all materials, facilities and samples for any tests required in Section 4 Plant and Material Standards and Workmanship below.

3.2.3.2 The Contractor shall furnish samples of any Plant that is other than, or different to, that required by the Employer's Engineering specifications, that shall be utilised in the Contractor's designs, to the Supervisor for acceptance by the Employer's Engineers. The Contractor is prohibited from installing said Plant without the required prior authorization from the Employer's Engineers.

3.2.3.3 The Contractor shall furnish samples of any Plant that is proposed to be used in the Contractor's designs, to the Supervisor for acceptance by the Employer's Engineers. The Contractor is prohibited from designing with, and subsequently installing said Plant without the required prior authorization from the Employer's Engineers.

3.2.3.4 Samples, tests and inspections required of the Contractor, shall be as specified in Section 3 of C3.1 or any other standards, specifications or statutory requirements referred to therein or annexed thereto.

3.2.3.5 The Contractor shall give notice to the Supervisor of the required inspection not less than forty-eight (48) hours before the inspection is required.

3.2.4 The Employer will not provide any materials or facilities for the use of the Contractor, to perform tests and inspections.

3.2.5 The Contractor ensures that the documentation as described under paragraph 3.2.1 of the Works Information is presented to the Project Manager before completion.

3.2.6 The Contractor ensures that the Project Manager has a full and accurate dossier of as-built documents and maintenance manuals that represent the plant, services and systems that reflect the status of the completed works for Mechanical, Electrical, Civil and Structural (and including Plant within the works) to present to the Employer.

3.2.7 Upon completion of the works, the Contractor will ensure that the following requirements are in order:

The fencing and all gates should be free from:

- Bending
- Warping
- Excessive deflection
- Distortion
- Non-alignment; and
- Malfunction.

3.2.8 Should either of the fencing panels or gates experience anyone, or combination, of the above-mentioned defects, it should be corrected accordingly before commissioning

3.3 Access given by the Employer for correction of Defects

3.3.1 The Contractor complies with the following constraints and procedures of the Employer where the Project Manager arranges access for the Contractor after completion.

3.3.2 Where the Contractor has to return to site after completion to rectify notified defects, the Employer may either impose the same site access/egress restrictions as communicated elsewhere under C3.1 Employer's Works Information at the starting date/access date stated under Contract Data - Part One, or as the works are now in use or the Employer's occupation of the site may be incrementally or substantially changed post completion

4 Plant and Materials standards and workmanship

The Contractor/Supplier provides Plant and Materials for inclusion in the works in accordance with the standard specifications, unless otherwise stated elsewhere in the Works Information provided by the Employer. All Plant and Materials are new, unless the use of old or refurbished goods and/or Materials are expressly permitted as stated elsewhere in this Works Information or as may be subsequently instructed by the Project Manager.

The Contractor/Supplier replaces any Plant and Materials subject to breakages (whether in the working areas or not) or any Plant and Materials not conforming to standards or specifications stated and notifies the Project Manager and the Supervisor on each occasion where replacement is required.

- No plant or materials will be provided as free issue by the Employer, except for the coated posts and caps designated for the installation below the natural ground level."
- Only the coated post, including the caps to be installed below ground level, will be free-issued material by the Employer.
- All other materials shall be supplied by the Contractor.
- The Contractor/Supplier provides all Plant and Materials necessary for the works.
- The Contractor/Supplier supplies all certification including test certificates, user manuals, maintenance manuals and data books with respect to Plant and Materials procured for the works.
-

4.1 Language

- All data shall be in the English language.

4.2 Government Acts and Regulations

The Contractor/Supplier shall comply with all applicable government acts, by-laws and regulations, as amended from time to time, including, but not limited to, the following:

- Occupational Health and Safety Act 85 of 1993 and applicable Regulations.
- National Water Act 36 of 1998.
- Atmospheric Pollution Prevention Act 45 of 1965.
- Environmental Conservation Act 73 of 1989.
- Promotion of Access to Information Act 2 of 2000.
- National Road Traffic Act 93 of 1996.
- National Environmental Management Act 107 of 1998.

4.3 Investigation, Survey and Site Clearance

The Contractor/Supplier will be responsible for setting out the works.

4.4 Civil Engineering and Structural Works

The contractor shall engage a reputable fence manufacturer to design, supply, and deliver all the new fences/walls, including gates and associated fixtures, that fully comply with the specifications and requirements outlined in this document. The shop drawings, including the drawings and specifications from the reputable manufacturer, shall be submitted to the Employer for review and acceptance prior to commencing the works.

Prior to the removal of the existing fence, the Contractor shall remove all existing intruder detection devices along the fence and reinstate after the installation of the new fence. The Contractor to be held liable if any damages of the existing intruder detection devices.

Prior to any excavations, the Contractor shall provide and use detection equipment that is suitable for the location of underground services, pipes, and cables without disturbance of the surface. The Contractor shall provide proof of the capability of the proposed equipment. All services detected shall be red marked on the drawings.

4.4.1 The contractor shall design, supply and install the following for the scope of works:

Where the SANS 1200 series of specifications are used within the Works Information, the Following interpretations and meanings shall apply

- In case of any conflict in interpretation, ambiguity or discrepancy between any SANS 1200 specification (whether standard or written as a particular project specification) contained in the Works Information and the conditions of contract, the conditions of contract take precedence within the ECC contract.

- In case of any conflict in interpretation, ambiguity or discrepancy between any SANS 1200 specification (whether standard or written as a particular project specification) contained in this paragraph 4.3 of the Employer's Works Information and specific statements contained elsewhere in C3.1 Employer's Works Information, the specific statements contained elsewhere shall prevail, without prejudice to the Project Manger's express duty to resolve any ambiguity or inconsistency in the Works Information under NEC3 ECC Clause 17.1.
- In case of any conflict in interpretation, ambiguity or discrepancy between the Specifications on the Employer's Drawings listed in section 5.1 of the Employer's Works Information and the Specifications contained in this section 4.2 of the Employer's Works Information, the Specifications contained in this section 4.2 of the Employer's Works Information shall prevail.

a) Specification of new hot-dipped galvanized mesh fencing system

The following standards in Table 1 below shall be applied:

Table 1: Standards for the hot-dipped galvanized mesh fencing

Specifications	
SANS 23-4	Steel wire welded mesh fencing
SANS 10244 Part 2	Zinc and zinc alloy coatings
SANS 121	Specifications and test methods
ISO 9223	Corrosion of metals and alloys -Corrosivity of atmospheres-Classification, determination and estimation
SANS 301 part 12	Specification for steel palisade fences
S275JR or S355JR	Structural Steel & Steel Plate
BS EN 10025-2:2019	Chapter 2 Hot rolled products of structural steels
SANS 1700-5-8	Mechanical properties of corrosion-resistant stainless-steel fasteners — Bolts, screws and studs
ISO3506-1	Mechanical properties of corrosion-resistant stainless-steel fasteners
ASTM309	Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete

Specifications	
SANS 4628-3	Assessment of degree of rusting
SANS 935	Hot-dip (galvanized) zinc coating on steel wire
SANS 675	Zinc coating coated wire

b) Hot-dipped galvanized high security mesh fence with and without opening panels



Figure 2: Example of a hot-dipped galvanized mesh fencing system

- All mesh panels shall have a coating colour of black.
- The new hot-dipped galvanized mesh fence and steel panels shall be designed according to SANS 23-4.
- According to SANS 23-4, the steel grade wire should have ultimate tensile strength of 650 to 950 MPa prior to welding with a wire diameter of 4 mm (tolerances of +/- 0.03 mm). for both directions (horizontally and vertically). In addition, the mesh wire shall be produced by electrical resistance welding at every line wire/cross wire intersection.
- All mesh panel to be manufactured either from S275JR or S355JR according to BS EN 10025-2. All steel parts to be hot-dipped galvanized in accordance with SANS 121 (Table 3 and 4, page 9) The minimum galvanized coating thickness shall be 115 µm. All coating shall have a C5 corrosively category as per the ISO 9223. (Table C.1, Page 13). Hot dip galvanizing shall only be completed after the manufacturing processing (assembling, etc.) has been completed.
- All welding shall take place offsite (enclosed area).
- The mesh panel dimension shall have a height of 2.4m (tolerances of +/-0.5%) and a width between 3 to 3.5m. (Shorter lengths shall only be allowed for stepping purposes).

- The mesh panel aperture dimension shall be 76.2mm (tolerances of +/-1mm) x 12.7 mm (tolerances of tolerances of +/-1mm). Other aperture dimensions are accepted under the conditions that a more difficult/advanced aperture is introduced than recommended.
- Welding shear strength test shall be conducted according to the following SANS 23-4(Refer to clause 6.5) Weld Shear Strength. The shear strength for any welded section shall not be less than 75% of the ultimate tensile strength of the wire diameter under testing.
- The coating for non-ferrous metallic shall be zinc or zinc alloy.
- The minimum mass of zinc alloy shall be 290g/m2 (SANS 10244 Part 2, Table 1, page 5).
- The minimum mass of zinc shall be 505 g/m2 (SANS 121, Table 3, page 9).
- All coating for typical atmospheric environment shall have a C5 corrosively category as per the ISO 9223. (Table C.1, Page 13).
- The organic coating shall be polyvinyl chloride (PVC) and fusion-bond epoxy powder and applied over non-ferrous coating. The minimum coating thickness shall be between 650 – 750 µm.
- All miscellaneous material (where applicable) shall be galvanised steel, unless noted otherwise.
- Upon demolition of existing fences, the contractor shall install the new hot-dipped galvanized mesh fence on the same day in order not to leave the site exposed.

c) Baseplates

- The base plate design shall be designed by a reputable fencing manufacturer, with consideration given to ensuring the system's durability and ability to withstand the corrosive and harsh conditions of the port environment.
- The steel base plate shall be welded on the bottom of the post.
- All mesh panels shall have a coating colour of black.
- All welding shall take place offsite (enclosed area).
- Base plate shall be hot-dipped galvanized in accordance with SANS 121 (Table 3 and 4, page 9) The minimum galvanized coating thickness shall be 115 µm. All coating shall have a C5 corrosively category as per the ISO 9223. (Table C.1, Page 13). Hot dip galvanizing shall only be completed after the manufacturing processing (assembling, etc.) have been completed.
- The organic coating shall be polyvinyl chloride (PVC) and fusion-bond epoxy powder and applied over non-ferrous coating. The minimum coating thickness shall be between 650 – 750 µm.

- The base plate shall be fixed to the existing concrete with Grade 316L stainless steel threaded rod and anchored with chemical anchor. (All existing concrete walls and pavement structures shall be assessed by the Contractor to verify that its structural integrity is satisfactory. If the structure requires modifications, the contractor shall obtain approval from the employer before proceeding with the works).
- Base plate shall be fitted with a non-shrink cementitious grout.

4.4.1.1. Chemical Anchor

- The chemical anchor must be able to withstand High load capacity.
- The chemical anchor shall be fire-resistant.
- The chemical anchor shall be Shrinkage-free hardening.
- The chemical anchor must be able to withstand Marine environment.

4.4.1.2. Cementitious grout

- The cementitious grout must be able to withstand High load capacity.
- The cementitious grout shall be fire-resistant.
- The cementitious grout shall be Shrinkage-free hardening.
- The cementitious grout must be able to withstand Marine environment.
- The cementitious grout must non-hazardous.
- A minimum thickness of 10mm cementitious grout shall be applied.
- The cementitious grout shall have no segregation or bleeding when applied to the concrete surface.
- The grout must be non-corrosive.
- The cementitious grout must be able to withstand Marine environment.

d) Post:

- All posts shall have a minimum width of 85mm (tolerances of +/-1mm) x 85mm (tolerances of +/-1mm) x 3mm (tolerances of +/-0.03mm).
- All posts shall match the height requirements of the mesh panels.
- All posts shall be black to match the colour of the mesh panels and should be secured correctly to the mesh panels to avoid gaps or lose wires.
- To prevent any water or debris entrapment where the posts are hollow or opened, the post shall be closed.

- All Post to be manufactured from S275JR or S355JR grade steel according to BS EN 10025-2.
- All steel parts shall be hot dip galvanized in accordance with SANS 121(Table 3 and 4, page 9). The minimum galvanized coating thickness shall be 115 µm. All coating shall have a C5 corrosively category as per the ISO 9223. (Table C.1, Page 13) Hot dip galvanizing shall only be completed after the manufacturing processing (assembling, etc.).
- All post shall have Tubulars or IPE sections. For Tubular post, a groove weld shall be all around at the cap.
- All welding shall take place offsite (enclosed area).
- The organic coating shall be polyvinyl chloride (PVC) and fusion-bond epoxy powder and applied over non-ferrous coating. The minimum coating thickness shall be between 650 – 750 µm.
- All post shall be designed to ensure connections are fully enclosed within the fence structure, preventing external access and potential tampering or removal by unauthorized individuals.
- Upon demolition of existing fences, the Contractor shall install the new hot-dipped galvanized mesh fence on the same day in order not to leave the site exposed.
- None of the posts may be joined on site by welding in order to attain the specified height.

e) Hot-dipped galvanized mesh fence gates (Swing and Pedestrian) Dimensions:

Drawing number: XNQ.E.0018-C-LA-0001-01: TILE 1	
Name	Width
Gate 1: Swing Gate	10m
Drawing number: XNQ.E.0018-C-LA-0001-01: TILE 2	
Name	Width
Gate 1: Swing Gate	10m
Drawing number: XNQ.E.0018-C-LA-0001-02: TILE 3	
Name	Width
Gate 1: Swing Gate	14m
Gate 2: Swing Gate	10m
Gate 3: Pedestrian Gate	1.5m
Gate 4: Swing Gate	10m
Gate 5: Swing Gate	10m

Drawing number: XNQ.E.0018-C-LA-0001-02: TILE 4	
Name	Width
Gate 1: Swing Gate	10m
Gate 2: Swing Gate	10m
Gate 3: Swing Gate	6m
Drawing number: XNQ.E.0018-C-LA-0001-03: TILE 5	
Name	Width
Gate 1: Swing Gate	8m
Gate 2: Swing Gate	4.2m
Gate 3: Swing Gate	6m
Drawing number: XNQ.E.0018-C-LA-0001-04: TILE 6	
Name	Width
Gate 1: Swing Gate	10m

80 to 126

f) Hot-dipped galvanized mesh fence gates (Swing and Pedestrian) requirements

- All gates shall be designed by a reputable fencing manufacturer, considering the need for durability and resistance to the corrosive and harsh conditions prevalent in the port environment. Additionally, any supplementary elements required to ensure the gates' rigidity and stability shall be incorporated into the design.
- All gates shall match the height requirements of the mesh panels
- All gates shall be black to match the colour of the mesh panels.
- All welding shall take place offsite (enclosed area).
- All gates to be manufactured either from S275JR or S355JR according to BS EN 10025-2.
- All steel parts to be hot-dipped galvanized in accordance with SANS 121 (Table 3 and 4, page 9) the minimum galvanized coating thickness shall be 115 µm. All coating shall have a C5 corrosively category as per the ISO 9223. (Table C.1, Page 13). Hot dip galvanizing shall only be completed after the manufacturing processing (assembling, etc.).
- The organic coating shall be polyvinyl chloride (PVC) and fusion-bond epoxy powder and applied over non-ferrous coating. The minimum organic coating thickness shall be between 650 – 750 µm according to SAN 121, Table 3, page 9.

- Upon demolition of existing fences, the working team shall install the new gates are placed on the same day in order not to leave the site exposed.
- Each gate shall be provided with a manual locking mechanism and anti-tamper facilities shall be provided for each of these locking mechanisms.
- The swing and pedestrian gates shall be fitted with a manual locking mechanism and an anti-tamper facility shall be provided for the locking mechanism.

g) Turnstile

- All Turnstiles shall be designed by a reputable fencing manufacturer, considering the need for durability and resistance to the corrosive and harsh conditions prevalent in the port environment. Additionally, any supplementary elements required to ensure the turnstiles rigidity and stability shall be incorporated into the design.
- A 4 Arm single pedestrian turnstile shall be installed. The turnstile shall be manufactured from Grade 316L brushed stainless steel.
- The turnstile shall be fitted with a manual locking mechanism and an anti-tamper facility shall be provided for the locking mechanism. The design for the anti-tamper facility shall be submitted to the Employer for approval prior to placement of orders.
- The Contractor/Supplier shall be responsible for the design of the Turnstile.
- The Contractor/supplier is required to design the new turnstile and ensure that the new turnstile meets the height of 2.4m.

The turnstile shall be suitable for initial manual operation. Allowance shall however be made for future installation of an electrical/electronic access control system able, to include the following minimum features:

- Electrically controlled bi-directional rotation.
- Fail-secure auto-lock on power failure.
- Fail-safe auto-unlock on power failure.
- Free rotation when fire alarm triggered.
- Battery back-up (2 x 12V batteries).
- Card reader mounting brackets.

h) Anti-burrowing system (Plinth)

- The plinth foundation shall be 200 mm (W) x 200 mm (L) x 400 mm (D).
- The foundations shall be constructed with a minimum of 25 MPa concrete (unreinforced) and has a 20 mm chamfer around all edges visible above ground.
- Compact the ground bottom of the post shall be 93% of Mod. AASHTO.

- The mesh panel shall be 50mm (tolerance of +/- 10mm) above the anti-burrowing mesh fencing.

i) Hot-dipped galvanized mesh fence shall have accessories (fasteners, spikes, etc.)

- All mesh accessories shall be hot-dipped galvanized in accordance with SANS 121 (Table 3 and 4, page 9) the minimum galvanized coating thickness shall be 115 µm. All coating shall have a C5 corrosively category as per the ISO 9223.
- No fasteners shall not protrude above the surface on the fence.
- To prevent bi-metallic corrosion, Nylon washers shall be used between the products.
- All fasteners shall be corrosion-resistant stainless fasteners (Grade 316L) and shall not enhance stress corrosion cracking. All fasteners shall comply to SANS 1700-5-8 (Page 5-7) and ISO3506-1. All fasteners shall have no hexogen head type bolts and no self-tapping screws.
- All fencing wire to comply with SANS 675.
- 2mm Class “A” galvanized wire to be used as binding wire (if required).
- 4mm Class “A” galvanized wire to be used as strain wire.

j) Concrete post foundation

- The post foundation shall be 400 mm (W) x 400 mm (L) x 600 mm (D).
- The foundations shall be constructed with a minimum of 25 MPa concrete (unreinforced) and has a 20 mm chamfer around all edges visible above ground.
- Compact the ground bottom of the post shall be 93% of Mod. AASHTO.

k) The fence installation must conform to the following requirements:

- Certificate of compliance for all materials and coatings.
- Quality control program shall be submitted to the Project Manager for review prior to commencement of by any work.
- Product Performance Guarantee Certificate (min 20 years). The guarantee shall cover fence system including all the necessary fixtures.

l) Setting out

- The Contractor is to set out the fence line and gate positions in clearly identifiable markers and is to verify the actual positions, sizes and lengths on site with the Project Manager prior to manufacturing.

4.4.2 Specification of new precast-concrete wall

a) Precast concrete walling panels

- The total height above the natural ground level shall be 3.2 m (tolerances of +/-10mm)

- The total width of the concrete panel shall have a minimum thickness 120mm.
- The required concrete compressive strength in all prefabricated prestressed panels shall be a minimum of 40 MPa at 28 days, determined in accordance with SANS 2001-CC2.
- All concrete panels shall be cured in accordance with the recommendations given in SANS 2001-CC2.
- All steel used for reinforcements in prefabricated panels shall be high yield steel with a minimum characteristic strength of 450 MPa, and shall comply with SANS 920(Table 2, page 7).

b) Precast concrete column

- The column shall have a height of 4.8m (tolerances of +/-0.03 mm), where the length of column shall be the wall height plus the depth of foundation as detailed in the drawings The column support groove runs along the length of the element to accommodate walling panels.
- Columns shall be spaced at 5.0m (tolerances of +/- 10mm) centres.
- The minimum concrete cover shall be 50mm.

c) Concrete column foundation

- Each column shall be embedded to full depth in concrete in a foundation hole of at least 900mm x 900mm and a depth of 1200mm.
- Foundation shall be a minimum of 40 MPa at 28 days.
- Compact the ground bottom of the column shall be 93% of Mod. AASHTO.

d) The fence installation must conform to the following requirements:

- Certificate of compliance for materials
- Quality control program shall be submitted to the Project Manager for review prior to commencement of by any work.
- Product Performance Guarantee Certificate (min 20 years). The guarantee shall cover fence system including all the necessary fixtures.

e) Concrete Specification

And any other concrete work arising out of or incidental to the above or required by the Contractor for the proper completion of the works in accordance with the true meaning and intent of the contract documents. All in-situ concrete work (mass and reinforced) to comply with SANS Specification 2001-CC1 and SANS 2001-CC2, supplemented by the clauses in this section. Where the SANS Specifications and the clauses in this section are in conflict, the clauses in this section to take precedence. Where the term "plain concrete" appears in SANS Specification 2001-CC2, it is to be read as "mass concrete".

4.4.3 Specifications

Specifications	
SANS 2001-CC1	Construction Works: Concrete Works (Structural)
SANS 2001-CC2	Construction Works: Concrete Works (Minor works)
SANS 878	Ready-mixed concrete
SANS 920	Steel bars for concrete reinforcement
SANS 1024	Welded steel fabric for reinforcement of concrete
SANS 1083	Aggregates from natural sources
SANS 1491-1	Portland cement extenders – Part 1 Ground granulated blast furnace slag
SANS 1491-2	Portland cement extenders – Part 2 Fly ash.
SANS 1491-3	Portland cement extenders – Part 3 Condensed Silica Fume
SANS 50197-1	Cement – composition, specifications and conformity criteria. Part 1: Common cements
S420	Transnet Specification for Concrete Works

4.4.4.1 General

Where applicable, materials shall be in accordance with the relevant SANS and Transnet Specifications

4.4.4.2 Cement

- Cement is to be Portland cement complying with the requirements of SANS 50197-1. The Project Manager for test purposes may require samples of cement from any one consignment, or from every consignment. Cement in any consignment from which a sample has been taken for testing is not to be used until it has been accepted. Allowance to be made for possible Delay in that, tests may take up to 10 days to carry out.
- Bags of cement shall be stacked in a waterproof, solidly constructed shed with a central door and a floor rendered damp-proof with a tarpaulin. The bags of cement shall be closely stacked (but not against walls) in order to reduce air circulation in such a manner that the cement is used in the order in which it was received, i.e., first in first out.
- The site location is classified as a coastal zone in terms of Transnet Specification S420 clause 3.1.2.
- Cement shall be Type I, II or III in accordance with Transnet Specification S420 clause 3.1.2.

- When forwarding his method statement and programme to the Technical Officer, the Contractor shall submit, for approval, the type of cement he proposes to use.

4.4.4.3 Coastal Zones

- In all wet applications and within one kilometer of the sea, unless otherwise specified in the project specifications, one or more of the following cementitious binders shall be used in all applications, including prestressed concrete:
- Portland blast furnace cement, Type III/A, certified as containing not less than 40% and not more than 50% milled granulated blast furnace slag (MGBS), or a blend of Type I Portland cement with not less than 40% and not more than 50% MGBS. MGBS shall comply with SABS 1491 Part 1. (ii) Portland fly ash cement Type II/B-V or Portland fly ash cement Type II/B-W certified as containing not less than 25% and not more than 30% fly ash shall comply with SABS 1491 Part 2.
- Portland fly ash cement Type II/B-V or Portland fly ash cement Type II/B-W, certified as containing not less than 25% and not more than 30% fly ash shall comply with SABS 1491 Part 2.

4.4.4.3.1 Aggregates

Fine and coarse aggregate shall comply with the relevant clauses of SANS 1083. Where aggregates have constituents, which in the opinion of the Project Manager, may give rise to damage due to alkali-aggregate reactions, the provisions listed below shall apply.

4.4.4.3.2 Alkali reactive aggregate

If coarse aggregate known to be alkali reactive, are to be used in the proposed concrete, then one or more of the cementitious binders (i) and (ii) listed above shall be used. The equivalent Na2O content, defined as % Na2O = % Na2O + (0,658%K2O) shall be limited as follows:

- Malmesbury Group metasediments: 2,1 kg/m3 or equivalent to may be used
- Table Mountain Group orthoquartzite: 2,8 kg/m3 or equivalent to may be used.
- Cape Granite: 4,0 kg/m3 or equivalent to may be used.

Evidence of compliance of the aggregates with the requirements shall be furnished as early as practical. No aggregate shall be delivered for use in the works until approval is given.

4.4.4.3.3 Sand (fine aggregate):

The fine aggregates shall comply with the requirements of SANS Specification 1083. Other aggregates may be approved if they have a satisfactory history and / or test results.

No aggregate may be used until it has been approved. Samples having a mass of 25kg (16.5 liters) of the proposed aggregate to be used may be required by the Supervisor for test purposes. 16.5 litres of the proposed aggregate to be used may be required by the Supervisor for test purposes. Samples having a mass of 25kg shall be forwarded every 3 months during concrete work and if the source of supply is changed. Allowance must be made for possible delay in that the tests may take 14 days to carry out.

4.4.4.3.4 Admixtures

Admixtures containing chlorides will not be permitted in reinforced concrete.

4.4.4.3.5 Water

Clean, fresh water free from vegetable or organic matter, earth, clay, acid or alkaline substances either in suspension or in solution, other than those used for purification thereof by the responsible authority, is to be used throughout. Where there is any reason to suspect the presence of impurities, the Project Manager may require the Contractor to obtain a chemical analysis of the water by a competent analyst at Contractor's own cost. Should the water prove unsuitable for use the Contractor procures water of a good standard**.**

4.4.4.3.6 Cover blocks

Cover blocks used to ensure the cover to reinforcement shall be made of cement mortar. Cover blocks shall be dense and have a minimum 28 day crushing strength of 30 MPa and shall be cured in water for at least 14 days before being used.

Steeldale cover blocks or similar approved proprietary items shall be used - site made blocks will not be permitted. Cover/spacer blocks made of plastic will not be permitted.

4.4.4.3.7 Concrete quality

Prior to the start of any concrete work on site, the Contractor shall submit a quality assurance plan which will ensure compliance with specification and provide acceptable documentary evidence that all specified operations have been carried out satisfactorily.

Where the minimum dimension to be placed during a single pour is larger than 600mm, and the cement content of the reinforced concrete exceeds the following:

- Cement Types I and II/ * S 400 kg/m3
- Cement Types II/B-V and II/B-W : 450 kg/m3

The Project Manager may require that measures be instituted to reduce heat development in the concrete.

a. Concrete strength characteristics

Unreinforced concrete

Class A Concrete:

- Filling the cavity of hollow walls.

Unreinforced concrete cast against excavated surfaces

b. 15 MPa/19mm Concrete

Surface blinding under footings and bases.

Reinforced/Structural concrete

c. 40 MPa/19mm Concrete:

- Surface beds cast in panels on waterproofing.
- Panel walls in foundations (Provisional).
- Columns in foundations (Provisional).

4.4.4.3.8 Concrete Cover

Concrete cover to reinforcement, unless otherwise specified on the drawings, shall be 50mm thick.

4.4.4.3.9 Batching

All cementitious binders shall be batched by full sack or by mass batching with approved precision weighing equipment.

All aggregates shall be precisely measured by mass using approved precision weigh-batching equipment, unless otherwise permitted by the Project Manager.

Should any variation in the composition of the aggregate become apparent, the Project Manager shall be notified, and a further sample of aggregate submitted immediately for his approval.

Concrete mixed by hand and concrete mixed using a backhoe-loader-tractor (“digger-loader”), will not be permitted. Ready-mixed concrete shall be mixed in accordance with the requirements of SANS 50206:2015 (SANS 878).

The Supervisor reserves the right to take test cubes of any concrete used on the contract. The Contractor shall remove any non-conforming concrete at his own cost and shall replace it with concrete conforming to the specifications.

4.4.4.3.10 Concrete placing

The size, shape and depth of any excavation shall be approved by the Project Manager before concrete is placed. The forms to be filled in shall be clean internally. All excavations and other surfaces of an absorbent nature that will come into contact with the concrete shall be dampened with water. There shall be no free water on the surfaces against which concrete is to be placed.

Unless otherwise permitted by the Project Manager, no concrete shall be placed until the fixed reinforcement has been accepted by him and confirmed in writing by way of a release certificate.

Placement of concrete shall be in accordance with the requirements of SANS 2001 CC2, clause 4.7.7.

All exposed concrete to be chamfered 1mm by 19mm.

Slip Joints between Concrete and Brickwork

Slip joints shall be provided between brickwork and concrete slabs and beams by levelling up and trowelling smooth the bearing surfaces of brickwork with 3:1 cement mortar and covering the bearings before the concrete is basted, with two layers of one side smooth tempered hardboard, with the smooth sides in contact.

The ends and sides of beams and edges of concrete slabs shall be separated from the brickwork with 13mm thick bitumen impregnated soft board or expanded polyethylene strips placed vertically against the brickwork before the concrete is cast.

Similar slip joints shall be provided between brickwork and concrete lintels cast in situ, but without soft board or expanded polyethylene strips at ends.

Isolation Joints

Isolation joints of 10mm softboard shall be provided between the foundation of the columns and plinths along the new fence line. This applies to both hot-dipped galvanized mesh and precast concrete fencing.

4.4.4.3.11 Curing compound application:

As soon as it is practicable (including the period before the formwork is removed), all concrete shall be protected from moisture loss for the period necessary for hydration of the cement and hardening of the concrete by one or more of the methods set out in SANS 22001-CC2 (Section 4.7.10.2)

The total application rate of the curing compound shall be the greater of the Contractor/supplier ’s specification or 0.50 l/m2. On textured concrete surfaces, the total application rate shall be 0.90 l/m2. In cases of concrete surfaces with run-off problems, it may be necessary to apply more than one coat of membrane forming curing compound to obtain the specified total or cumulative application rate.

The curing compound shall comply with specification ASTM C309, except that the maximum permissible water loss in the test shall be 0,55 kg/m2.

On unformed surfaces the curing compound shall be applied after finishing and as soon as the free water on the surface has disappeared and no water sheen is visible, but not so late that the liquid curing compound will be absorbed into the concrete. On formed surfaces, the exposed concrete shall be wet with water immediately after the forms are removed and kept moist until the curing compound is applied.

Application of the curing compound shall begin once the concrete has reached a uniformly damp appearance with no free water on the surface. Application of the compound may be done by hand or power spray. The compound shall be applied at a uniform rate with two applications at right angles to each other to ensure complete coverage.

Pigmented compounds, without a thixotropic agent, shall be adequately stirred to assure even distribution of the pigment during application.

4.4.4.3.12 Curing period

Curing shall continue at least the appropriate according to SANS 2001-CC2 (Table 8, page 15), or until such time that the concrete in excavations is back filled. If plastic shrinkage occurs in the concrete, while

still plastic, the concrete shall be re-vibrated, floated and re-coated with curing compound as if no curing has previously taken place.

The curing period will start on completion of the concrete pour and for formed surfaces shall include the time for which forms are still in place after the pour.

4.4.4.3.13 Concrete records

The Contractor shall maintain the following daily records for every part of the concrete structure and shall always make these available during the progress of the work for inspection by the Project Manager:

- The date and time during which concrete was placed,
- The daily weather conditions,
- Identification of the part of the structure in which the concrete was placed,
- The mixed proportions and specified strength,
- The slump of the concrete,
- The identifying marks of test cubes made,
- Curing procedure applied to concrete placed,
- The times when shuttering was stripped, and props removed,
- The date of dispatch of the cubes to the testing laboratory,

4.4.4.3.14 The test results.

The records shall be delivered to the Project Manager each week except in the case of sub-standard concrete when the Project Manager shall be informed immediately.

4.4.4.3.15 Tolerances

Deviations shall be within the limits listed in SANS 2001-CC1 (Table 1, page 15) for degree of accuracy II, unless otherwise specified.

4.4.4.3.16 Testing and Acceptance

Where concrete of a particular grade is placed, frequency of sampling and testing shall be as specified in SANS 2001-CC1 (Section 5.1)

Should any valid test result obtained on concrete of a specific grade show that the strength is more than 3 MPa below the specified strength, the concrete yielding such result shall be deemed not to comply with the requirements of this part of SANS 2001.

The average of any three consecutive valid test results obtained on concrete of a specific grade shall exceed the specified strength by at least 2 MPa. Where the value of the age (in days) of such consecutive tests is at least equal to the value of the specified strength (in MPa), the concrete yielding such result shall be accepted but the mix design and standard of control shall be reviewed and adjusted if necessary.

4.4.4.3.17 Payment

The Contractor's tendered rates for the relevant items in the Bill of Quantities shall include full compensation for all possible additional costs which may arise from this, and no claims for extra payment due to inconvenience as a result of the modus operandi will be considered.

4.4.4.3.18 Pedestrian movement

The Contractor shall make provision for accommodating all pedestrian movements in the area of the works. Allowance shall be made in the relevant rates for any barricades, fencing and signs required.

4.4.4.3.19 Temporary Reinstatement

Provided always that if in the course or for the purpose of the execution of the works or any part thereof any road or way shall have been broken up, then notwithstanding anything herein contained:

if the permanent reinstatement of such road or way is to be carried out by the appropriate authority or by some person other than the contractor (or any subcontractor to him), the contractor shall at his own cost and independently of any requirement of or notice from the Project Manager be responsible for the making good of any subsidence or shrinkage or other defect, imperfection or fault in the temporary reinstatement of such road or way, and for the execution of any necessary repair or amendment thereof from whatever cause the necessity arises, until the end of the period of maintenance in respect of works beneath such road or way until the authority or other person as aforesaid shall have taken possession of the site for the purpose of carrying out permanent reinstatement (whichever is the earlier), and shall indemnify and save harmless that Employer against and from any damage or injury to the Employer or to third parties arising

out of or in consequence of any neglect or failure of the Contractor to comply with the foregoing obligations or any of them and against and from all claims, demands, proceedings, damages, costs, charges and expenses whatsoever in respect thereof or in relation thereto.

Where the authority or person as aforesaid shall take possession of the site as aforesaid in sections or lengths, the responsibility of the contractor under paragraph (a) of this sub-clause shall cease in regard to any such section or length at the time possession thereof is so taken, but shall during the continuance of the said period of maintenance continue in regard to any length of which possession has not been taken and the indemnity given by the Contractor under the said paragraph shall be construed and have effect accordingly.

4.4.4.3.20 Accommodation of Services

Further to the paragraphs related to existing and proposed services relocation, tenderers are to note that allowance must be made under this item and / or the appropriate rates, for all costs incurred as a result of complying with these clauses. It shall also cover liaison with TNPA and accommodation of their work gangs / contractors on site.

4.4.4.3.21 Restriction on Compaction Equipment

The Contractor is to note that where existing watermains or sewer pipes traverse the site of the works, special care is to be taken near these services. The existing mains and connections shall be proved on site by the Contractor prior to any construction work commencing in the vicinity of the watermains.

Under no circumstances will heavy road-making equipment, other heavy plant or vibratory compaction equipment be permitted to operate within 800 mm vertically or horizontally of the existing these services. The permissible compaction plant within this restricted area shall be the equivalent of a "Bomag 90" under static compaction, or similar approved plant. When the roadworks is far enough advanced to provide a minimum of 800 mm cover to the existing mains, the above restriction will fall away.

The Contractor is to take cognisance of the above requirements when entering rates in the Bill of Quantities and in the programming of the works. No claim for additional payment based on the inability to use plant as a result of the requirements of this clause will be accepted. The Contractor will be held liable for any costs should the watermain or electrical cables be damaged during construction of the layerworks for the stack areas or roadway areas.

4.4.4.4 Product specification requirements (hot-dipped galvanized mesh fence and precast concrete wall system)

For the hot-dipped galvanized mesh fence and concrete fencing system, the Contractor/Suppliers to demonstrate physically and provide research documents for the following:

- The time it takes to breach through the fence by using power tools such as grinders by minimum of 20 minutes.
- The time it takes to breach the fence by using non-electric tools (axe, clippers, crow bars, etc.) by minimum of 30 minutes.
- The Contractor/supplier to provide evidence of previous fence installations that were close to the ocean (as close as 0 m), and where the fence was exposed to harsh marine environment for a minimum period of 10 years.

The Guarantee (hot-dipped galvanized mesh fence and precast concrete wall system)

- The Contractor/supplier shall provide a guaranteed document for the new hot-dipped galvanized mesh fence and coating system including all accessories (spikes, bolts, etc.).
- The Contractor/supplier shall indicate the minimum duration of the guarantee (i.e. 20 years)
- The Contractor/supplier shall provide a guarantee for the concrete panels' walls/columns, including all accessories (spikes, razor wire, etc.)

The contractor shall engage a reputable fence manufacturer to design, supply, and deliver fences/walls, including gates and associated fixtures, that fully comply with the specifications and requirements outlined in the scope of works.

For Mesh Fence

It is important to note that the Employer will be providing 'free issue' material that includes the fencing post coated and post caps which are intended solely for the installation below the natural ground level.

It is expected that the Contractor provides an appropriate solution based on the material provided, clearly indicating the additional material to be procured. The material procured shall be fully compatible with the “free issue material” supplied by the employer.

The Contractor’s designated supplier shall retain full responsibility for the design of all materials, including free-issue materials, ensuring they adhere to the scope of work requirements and fulfil the required guarantee conditions.

It is the contractor’s responsibility to:

- Mount the new hot dipped galvanized mesh fence to the existing fencing. (details for mounting the new fence to the existing fence shall be designed by a reputable fence manufacturer, ensuring that the mounting system is robust enough to withstand the corrosive and harsh marine environment (high Wind Speeds, etc.).
- Mount the new hot dipped galvanized mesh fence to the existing concrete walls or pavement structure. (Details for mounting the new fence to the concrete structure shall be designed by a reputable fence manufacturer, ensuring that the mounting system is robust enough to withstand the corrosive and harsh marine environment (high Wind Speeds, etc.).
- Mount the new hot dipped galvanized mesh fence to the existing fencing. (details for mounting the new fence to the existing fence shall be designed by a reputable fence manufacturer, ensuring that the mounting system is robust enough to withstand the corrosive and harsh marine environment (High Wind Speeds, etc.).
- Assess the ground conditions below all new foundations (The contractor shall conduct an assessment to confirm the ground conditions below all new foundations and plinths and verify that the ground condition scan support the load of the new fence and withstand the environmental factors. If the ground requires modifications, the contractor shall obtain approval from the employer before proceeding with the works).
- Assess the existing concrete walls or pavement structures (All existing concrete walls and pavement structures shall be assessed by the Contractor to verify that its structural integrity is satisfactory. If the structure requires modifications, the contractor shall obtain approval from the employer before proceeding with the works).
- The specification and shop drawings from the supplier for the hot-dipped galvanized mesh fence and concrete wall including all accessories shall be submitted to the employer for review and acceptance prior to the ordering of new fence system.

5.1 List of drawings

5.2 Drawings Issued by the Employer

The list of drawings issued by the Employer at or before the contract date and which apply to the contract:

Civil Engineering		
Drawing number	Revision	Title
XNQ.E.0018-C-LA-0001-01-0A	0A	Replacement of the palisade fence. Plan layout 1: Port of Ngqura
XNQ.E.0018-C-LA-0001-02-0A	0A	Replacement of the palisade fence. Plan layout 2: Port of Ngqura
XNQ.E.0018-C-LA-0001-03-0A	0A	Replacement of the palisade fence. Plan layout 3: Port of Ngqura
XNQ.E.0018-C-LA-0001-04-0A	0A	Replacement of the palisade fence. Plan layout 4: Coega Kop Quarry
XNQ.E.0018-C-DE-0001-01-0A	0A	Replacement of the palisade fence. Typical detail drawing 1
XNQ.E.0018-C-DE-0001-02-0A	0A	Replacement of the palisade fence. Typical detail drawing 2

SECTION 2

6 Management and start-up

6.1 Management meetings

6.1.1 Regular meetings of a general nature may be convened and chaired by the *Project Manager* as follows:

Title and purpose	Approximate time & interval	Location	Attendance by:
Kick-off meeting	Prior to commencement of construction	Port of Ngqura	*Employer*, *Contractor* (key persons) and *Project Manager* (appropriate delegates)
Contract progress meeting	Fortnightly	Port of Ngqura	*Employer*, *Contractor* (key persons) and *Project Manager* (appropriate delegates)
Risk Register and Compensation Events	Weekly	Port of Ngqura	*Project Manager* (and appropriate delegates), *Supervisor* (and appropriate delegates) and *Contractor* (appropriate key persons)
Monthly SHE Meeting	Monthly	Port of Ngqura	*Employer*, *Project Manager* (and appropriate delegates), *Contractor* (line management, site *Supervisors*, safety officer, environmental officer and safety reps)

6.1.2 Meetings of a specialist nature may be convened as specified elsewhere in this Works Information or if not so specified by persons and at times and locations to suit the Parties, the nature and the progress of the works. Records of these meetings are to be submitted to the Project Manager by the person convening the meeting within five days of the meeting.

6.1.3 All meetings are to be recorded using minutes or a register prepared and circulated by the person who convened the meeting. Such minutes or register are not to be used for the purpose of confirming actions or instructions under the contract as these are to be done separately by the person identified in the conditions of contract to carry out such actions or instructions.

6.2 Documentation control

6.2.1 The *Contractor* provides documentation in accordance with the requirements of the Contractor Documentation Submittal Requirements and the Contractor Documentation Schedule (CDS) and makes specific reference thereto within his Quality Management System and Quality Procedures.

6.2.2 The Contractor Document Submittal Requirements are contained within Annexure B (Contractor Documentation Submittal Requirements) of the Works Information.

6.2.3 A standard Contractor Documentation set will be issued to the *Contractor* upon award and consists of the following:

a. Standard Project Drawing Sheet.
b. Contractor Document Register (DOC-FAT-0002);
c. A4 Review Coversheet for Documents (DOC-FAT-0067).
d. Document Deliverable Matrix (DOC-FAT-0075).

6.2.4 The *Contractor* shall assign a dedicated person to provide the services required to execute the documentation control function.

6.3 Health and Safety Management

6.3.1 The *Contractor* complies with the following H&S specifications and standards:

a. Health and Safety Project Specification (Annexure C)
b. Project Baseline Risk Assessment (Annexure G)
c. Occupational Health and Safety Act (Act 85 of 1993) and Regulations
d. Transnet Health and Safety policies and procedures

6.3.2 The *Contractor* ensures that appointed *Subcontractors* comply with the above and below-mentioned requirements.

6.3.3 The *Employer* will acknowledge the achievement of specific safety milestones set for the project regarding incident statistics, incident recording, safety observation and conversations (SOC's) participation, safety initiatives, etc.

6.3.4 The *Contractor* makes the H&S specification available to its employees and *Subcontractors* in the language of this contract and other local languages as required.

6.3.5 The *Contractor* conducts a method statement, risk assessment, and safe work procedures for each activity for the approval of the *Project Manager* prior to carrying out that activity.

6.3.6 The lines of communication of the various personnel acting on behalf of the *Project Manager*, who communicates directly with the *Contractor*, and his key persons are contained within Health and Safety Project Specification.

6.3.7 The *Contractor* shall appoint a full-time Construction Health and Safety Officer (CHSO) per shift, who is registered and in good standing with SACPCMP for the duration of the works, the number of which depending on the scope, complexity, and high-risk activities involved, as required by the

Construction Regulations of 2014, regulation 8(5). The Health and Safety Officer(s) must be on site when work commences at the start of the day and must remain on site until all activities for that day (including the activities of Subcontractors) have been completed.

6.3.8 The Construction Manager is responsible, within the context of the H&S project specification, for health and safety on the site and reports to the Project Manager. The Construction Manager's specific tasks are outlined in Health and Safety project Specification. The Construction Manager will be full-time on site and be registered and in good standing with SACPCMP as a PrCM.

6.3.9 All items of plant, equipment and vehicles travelling within the site shall be equipped with fully operational amber rotating flashing lights. All vehicles shall be roadworthy and shall at all times adhere to all traffic signage and speed limits. All plant, equipment and vehicles are to be inspected prior to entering the site and at required legislated intervals where stipulated. Maintenance records and inspections are to be available when requested.

6.3.10 All employees of the Contractors will undergo entry medicals before the commencement of the project and thereafter on an annual basis inclusive of exit medicals. Medicals to include drug tests and to be signed off by an Occupational Medical Practitioner (OMP).

6.3.11 Trainings as stipulated in the H&S project specification (legislated and those required by the Client) will be undertaken by relevant Contractor’s employees before the commencement of the project and when required during the execution of the project.

6.3.12 All will comply with PPE requirements as mentioned in this document as well as H&S project specification taking note that only long sleeve pants and shirts are allowed to be worn on site.

6.3.13 Transportation of employees will not be allowed at the back of LDV’s (bakkies) even if the vehicle is fitted with a canopy.

6.3.14 All permit costs required for any activities relating to the project shall be for the Contractor’s account.

6.3.15 All employees and visitors are to undergo daily documented alcohol testing by a trained person and calibration certificates are to be available upon request.

6.3.16 The Contractor shall further comply with all applicable legislative requirements and standards with respect to his own activities and others on the site. A health and safety file is to be submitted by the Contractor for acceptance by the Employer or Employer’s representative before site access can be granted. In addition, sufficient time to be allowed for health and safety file to be approved by the Employer’s SHEQ Department. All accepted health and safety files from all Contractors and subcontractors as per the close-out checklist are to be returned to the Employer upon completion of the project.

6.4 Environmental constraints and management

6.4.1 General

6.4.1.1 All work is to be conducted in accordance with the principles of the National Environmental Management Act, 1998 (Act no 107 of 1998) as well as all other applicable legislation, regulations and the accepted environmental good practice.

6.4.1.2 The following documents, included as Annexure D of the Works Information, provide the minimum acceptable standards that shall be adhered to:

i) Transnet Integrated Management Systems (TIMS) Commitment Statement – IMS-GRP-GDL-002-1.

ii) Transnet minimum Contractor's Environmental and Sustainable Specifications (CESS) (TRN-IMS-GRP-GDL-014.4)

iii) Standard Operating Procedure Construction Environmental Management (CEM SOP) (009-TCC-CLO-SUS-11386).

iv) Environmental Authorisation for Marine Infrastructure including General Cargo Berth and Liquid Bulk Berth: 14/12/16/3/3/2/475

6.4.1.3 The *Contractor* shall perform the works and all construction activities within the site and working areas having due regard for the environment and environmental management practices as more particularly described within the CESS and the CEM SOP.

6.4.1.4 The *Contractor* must appoint a suitably qualified Environmental Officer with a relevant environmental qualification and a minimum of 3 years of relevant construction environmental management experience.

6.4.1.5 The CEM SOP provides an integrated approach to environmental management. This approach is designed to guide the appropriate allocation of human resources, assign responsibilities, develop procedures, and ensure compliance with regulatory and best practice requirements.

6.4.1.6 The CESS describes the minimum acceptable standard for environmental management for a range of environmental aspects commonly encountered on construction projects and sets environmental objectives and targets, with which the *Contractor* must comply with. This requirement shall be applicable to the main *Contractor*, its *Subcontractors*, *Service Providers* and *Suppliers*. The *Contractor* must comply with all the requirements of the CESS and CEM SOP.

6.4.1.7 The roles and responsibilities of the *Contractor*'s Environmental Officer are clearly outlined in the CEM SOP. The appointed Environmental Officer is required to be on site daily on a full-time basis. The Environmental Officer must be a dedicated resource to the environmental discipline and may not be shared with any other discipline on site such as Health and Safety or Quality.

6.4.1.8 The *Contractor* will be required to submit an environmental file to the Project Manager post-award of tender. Requirements of the *Employer* will be made known on award of the contract. A site access certificate shall not be granted until the environmental file has been approved by the *Employer*.

6.4.1.9 The overarching obligations of the *Contractor* in terms of the CEM SOP before construction activities commence on the site and/or working areas is to provide environmental method

statements for all construction operations at the site and/or working area and where they are requested by the Construction Manager.

6.4.1.10 The *Contractor* shall comply with the following:

a. The *Contractor* shall identify the kinds of environmental impacts that will occur as a result of their activities and accordingly prepare separate method statements describing how each of these impacts will be prevented or managed so that the standards set out in the CESS are achieved.
b. Environmental method statements will be prepared in accordance with the requirements set out in the CESS. These method statements shall form part of the environmental file.
c. The *Contractor* shall ensure that his management, foremen, and the general workforce, as well as all suppliers and visitors to site have attended the Environmental Induction Programme prior to commencing any work on site.
d. If new personnel commence work on the site during construction, the *Contractor* shall ensure that these personnel undergo the Environmental Induction Programme and are made aware of the environmental specifications on site.

6.4.1.11 The *Contractor* shall take note of the environmental sensitivity of the project area and surrounding areas and shall erect and maintain a highly visible temporary fence/barrier along the boundaries of the site and around any no-go areas that may be pointed out by the Environmental Manager. Site demarcation must be done and be in place prior to the commencement of any construction-related activity, to the satisfaction of the Construction Manager and Project Environmental Manager.

6.4.1.12 The *Contractor* must take note of various environmental monitoring requirements during construction, as specified by the CEM SOP and CESS, and must make adequate allowance for undertaking specified monitoring.

6.4.1.13 During the construction period, the *Contractor* shall comply with the following:

a. Permits and licenses, CEM SOP, CESS, EMP and method statements shall be available on site, and the *Contractor* shall ensure that all the personnel on site (including *Subcontractors* and their staff) as well as *Suppliers* are familiar with and understand the specifications contained in these documents.
b. The *Contractor* must sign the declaration of understanding (T2.2.38) as part of the returnables, as a commitment to abide by the *Employer's* Environmental Governance Framework, project CEM SOP and CESS and also ensures sufficient environmental budget is allocated to meet all the project environmental requirements for the duration of the contract.
c. Method statements that are required during construction must be submitted to the *Project Manager* for approval at least 14 days prior to the proposed commencement of the activity. The activities requiring method statements cannot commence if the method statements have not been approved by TNPA's *Project Manager* and Project

Environmental Resource. The scope of the required method statements for completion by the *Contractor* shall, as a minimum, include all such items as are listed within the CESS.

d. Where applicable, the *Contractor* shall provide job-specific training on an ad hoc basis when workers are engaged in activities, which require method statements.

6.4.1.14 The *Contractor* shall ensure that anyone making deliveries to site is properly informed of all procedures and restrictions, e.g. which access roads to use, no-go areas, speed limits, noise and the like, as required by the relevant project authorisations and the CEM SOP and CESS, before they arrive at site.

6.4.1.15 The *Contractor* must appoint the waste removal *Service Providers* who is licensed. Ensure the disposal of all the waste that will be generated from this project is legally compliant, the waste removal service provider is authorized to transport all the waste that will be generated from this project and the disposal facility used has a valid license/authorization.

6.4.1.16 The *Contractor* shall be responsible for rehabilitation/reinstatement and cleaning of all areas to the satisfaction of the *Employer's* Project Environmental Manager or Environmental Officer as detailed in the CESS.

6.5 Quality assurance requirements

6.5.1 The *Contractor* shall ensure that all contractual deliverables required to be executed and completed are given due consideration to meet the *Employer's* technical specifications, drawings and General Quality Requirements for Contractors and Suppliers TNPA-QUAL-REQ-014.1.

6.5.2 The Contractor's Quality Management System (QMS) shall conform with the requirements of ISO 9001:2015 to ensure and demonstrate that material, workmanship, procedures, and services conform to the specified requirements.

6.5.3 The *Contractor* submits his quality documents to the *Employer* as part of his programme under the NEC ECC Clause 31.2 to include details of:

a. Project Quality Plan (PQP) detailing how the Contractor's Quality System will be applied to the Scope of Work specified in the Contract and be aligned to Section 4.5, 4.6 & 5 of the General Quality Requirements for Contractors and Suppliers - TNPA-QUAL-REQ-14.1.

b. Project Specific Quality Data Book Index.

c. Experience of Quality Officer submitted in a Curriculum Vitae and supplemented by Educational Qualifications – a minimum Quality Programme/Diploma OR Technical Diploma and ISO 9001:2015 Quality Management System (QMS) training certificates (QMS Implementation AND/OR QMS Auditing). The Quality Officer MUST have a minimum of 3 years' quality experience in Construction Engineering projects.

d. Quality Control Plans (QCPs) shall be in line with the scope of works detailing the Engineering works. These QCP's shall identify all inspections as detailed in the scope of works together with other tests and verifications required to demonstrate that the works comply with the scope of works, specifications, and drawings.

6.5.4 Project Quality Plan

6.5.4.1 The Project Quality Plan (PQP) shall outline the quality strategy, methodology, quality resource allocation, quality assurance, and quality control coordination activities to ensure that the scope meets the standards stated in the Works Information.

6.5.4.2 The *Contractor's* PQP shall provide a description of how documents provided by the *Employer* to the *Contractor* are to be managed. The *Contractor* develops and maintains a comprehensive register of documents that will be generated throughout the contract including all quality-related documents as part of its PQP.

6.5.4.3 The *Employer* indicates those documents required to be submitted for information, review, or acceptance and the *Contractor* indicates such requirements within his register of documents.

6.5.4.4 The register shall indicate the dates of issue of the documents with the *Employer* responding to documents submitted by the *Contractor* for review or acceptance within the period for reply prior to such documents being used by the *Contractor*.

6.5.5 Quality Officer

6.5.5.1 The *Contractor* shall nominate a suitably experienced Quality Representative as referenced above. The Quality Representative will be responsible to ensure that the PQP requirements are implemented on site. The *Contractor* shall submit the CV and qualifications/certificates of his nominated quality representative for the *Project Manager*'s review and approval.

6.5.6 Quality Data Book Index

6.5.6.1 The *Contractor* shall submit a project-specific quality data book index that lists all the project deliverables as per the contract requirements.

6.5.7 Quality Control Plan

6.5.7.1 The *Contractor* shall provide a Quality Control Plan (Inspection and Test Plan) specifying his proposed quality control activities for the entire scope of supply and scope of works. The Quality Control Plan shall reference the procedures, codes and standards which apply to the listed activities, the acceptance criteria, the records to be produced and similarly it shall incorporate all *Subcontractors* and *Supplier*'s activities. The Quality Control Plan shall be prepared in the *Contractor*'s/*Supplier*'s standard format.

6.5.7.2 Deviations from this Quality Control Plan may only be permitted following acceptance in writing by the Engineer and/or the appointed Third-Party Inspection Authority.

6.5.7.3 The *Contractor* shall not undertake any work in advance of the review and acceptance of the Quality Control Plan without the written consent of the *Employer*.

6.5.7.4 During the review of the Quality Control Plan, inspection and test intervention points will be included by the *Employer* to indicate the intended monitoring during manufacturing, fabrication, and installation.

6.5.7.5 The *Contractor*/*Supplier* shall ensure that any subcontracted work is covered by the Quality Control Plans.

6.5.8 Sub*contracti*ng

6.5.8.1 The *Contractor* shall also ensure that all *Subcontractors* are suitably qualified and experienced to carry out the work for which they have been subcontracted.

6.5.8.2 The *Employer* may, at its discretion, require a quality audit of *Subcontractor(s)* to ensure that the *Subcontractor(s)* have the necessary management, facilities, skilled staff, and quality control facilities to carry out the Works.

6.5.8.3 The *Contractor* shall accept full responsibility for the quality of the *Subcontractors'* work and of materials used, irrespective of any quality surveillance that may be carried out by the *Employer* or his representative.

6.5.9 Manufacture

6.5.9.1 The Contractor/supplier s shall have a certified Quality Management System for manufacturing (ISO 9001:2015). The Quality Management System is accepted by TNPA for a specific manufacturing facility. The Contractor/supplier's need to make sure if the manufacturing facility changes, the Quality Management System for the new manufacturing facility shall be evaluated before manufacturing can take place.

6.5.9.2 The new fencing system must clearly indicate the following:

6.5.9.3 The systems quality checking and holding points during the manufacturing process for the new fencing system and clearly demonstrate the procedure sample size, and "pass/fail" criteria.

6.5.9.4 Contractor/supplier s to indicate the tensile strength sample of the receiving raw material at the manufacturing premises.

6.5.9.5 Contractor/supplier to indicate whether the raw materials are pre-coated, coating mass sample testing must also be performed.

6.5.9.6 The Contractor/supplier to indicate the chemical composition of raw materials as part of the receiving process.

6.5.9.7 The Contractor/supplier to indicate the supply materials that could impose major risk to the quality of the material provide the documentation for the quality control process (wire product galvanizing)

6.5.9.8 The quality manual that will specify the inspection of the material prior it being released (weld strength, dimensions)

6.5.9.9 The manufacturing site can be visited by the client.

6.5.9.10 Installation:

6.5.9.11 The procedures to install the new hot-dipped galvanized mesh fence should be covered in the Quality Management System.

6.5.9.12 Detailed installation and training documentation should be available on site.

6.5.9.13 The Contractor/supplier s must be declared competent and be accredited. Relevant detail of installers must be available. This includes, training received, level of expertise and project involvement.

6.5.9.14 Contractor/supplier to clearly indicate the Holding and inspection points

6.5.10 Inspection

6.5.10.1 The final inspections must be done by the Contractor/supplier. Standardized check sheets shall be documented in the Contractor/supplier Quality Management system.

6.5.10.2 A final certificate of compliance (indicating the guarantee) shall be issued to the client by the Contractor/supplier.

6.5.11 Maintenance

6.5.11.1 Maintenance methods shall be specified in the document by the Contractor/suppliers and indicate nature of inspection, interval, treatment and repair.

6.5.12 Repair

6.5.12.1 The methods to repair secondary coatings must be specified by the Contractor/suppliers.

6.5.12.2 The repair proposals for the galvanized products shall align with the Galvanizing Association of South Africa.

6.5.12.3 All methods of repair must be accepted and approved by TNPA. The following minimum requirements are:

6.5.13 The area to be repaired is to be lightly blasted using a small blasting nozzle. This method is used so that to prevent damaging the surrounding hot dip galvanized coating. Alternatively, the defective area shall be cleaned with 80 grit abrasive paper or thoroughly cleaned preferably using a stainless-steel brush. All dust and debris shall be completely removed.

6.5.14 Contractor/supplier s shall add zinc rich epoxy or a suitable zinc rich paint, containing approximately 90% metallic zinc particles (by volume) in the dry fill to a thickness of 100 micro GalvPatch shall be used to repair smaller areas or edges.

6.5.15 Repairs to hot dip galvanized steel shall be according to SANS 121 (ISO 1461, C.5, page 12)

6.5.16 Life expectancy tests should be provided to prove that repair methods are adequate and meet the warrantee.

6.5.17 Quality Management System and Guarantee

6.5.17.1 The Contractor/supplier s shall provide a documented and maintained Quality Management System.

6.5.17.2 TNPA shall audit the Contractor/supplier quality management system in accordance with the ISO 9001:2015 QMS Requirements and General Quality Requirements for Contractors and Suppliers - TNPA-QUAL-REQ-14.1.

6.5.18 Guarantee

6.5.18.1 The Contractor/supplier shall provide a guarantee document for the new hot-dipped galvanized mesh fence and coating system.

6.5.18.2 The Contractor/supplier shall indicate the minimum duration of the guarantee (i.e. 20 years)

6.5.18.3 The Contractor/supplier shall in detail document what constitutes a “failure”.

6.5.18.4 The Contractor/supplier shall provide a guarantee for the concrete panel walls/columns, including all accessories (Spikes, steel etc.)

6.5.18.5 The Contractor/supplier shall provide a guarantee for the Mesh fencing system, including all accessories.

6.5.19 Coating system

6.5.19.1 TNPA requires performance guarantees for all the applied coating for the fencing system. The guarantees shall be provided by the Contractor/supplier s indicating the manufacturer and installer (product and workmanship guarantees) at the time of tender. The minimum guarantee that is required by TNPA is 20 years

6.5.19.2 The criteria for failure of the fencing coating system will not exceed the degree of rusting according to SANS 4628-3 (Table 1, page 2). Any defects of the fencing system noted during the guarantee period shall be repaired.

6.5.20 Transport and Storage

6.5.20.1 The procedure of transporting the materials to site shall form part of the Quality Management System and the new materials should include the stacking, loading, transport and inspection. These materials shall be inspected by the client and Quality manager.

6.6 Programming and Progress Reporting

6.6.1 General

6.6.1.1 The contract programme, progress reports, subsequent updates, revisions and supplementary programmes as detailed in this section are an essential part of the project control system used by the Employer for managing the works and monitoring the progress of the works. Key dates and completion dates, as defined in the Contract Data, are incorporated into the programme.

6.6.2 Tender schedule

6.6.2.1 The Contractor’s detailed programme, which complies with the requirements as indicated in the Works Information, shall be submitted in both hard and soft copy forms. The Contractor shall use a suitable computerised planning package (Primavera, MS Projects), as approved by the Project Manager.

6.6.2.2 The activity durations are estimated in working days and shall be realistic and based on quantities and applied resources.

6.6.2.3 The calendars used are based on normal working hours per day and working days per week, or as prescribed by the Project Manager.

6.6.3 Structure and methodology

6.6.3.1 The Critical Path Method (CPM) of planning and scheduling shall be used for the project. The Contractor shall provide a programme showing the critical path, together with a total float report for acceptance by the Project Manager.

6.6.3.2 The programme network shall have no fewer activities than the technical and commercial breakdowns listed in the activity programme.

6.6.3.3 Networks are constructed to reflect the sequence of activities, using resource scheduling to stagger the performance of activities into the most probable sequence.

6.6.3.4 The programme layouts shall take into account the approved Facility Breakdown Structure (FBS), reflecting the manner in which the works are to be performed. The following levels of programme are to be used for this project:

a. Level 1 Master Programme - defines the major activities and interfaces between engineering, procurement, fabrication and construction, transportation, installation, and pre-commissioning, commissioning, and start-up. This is a high-level summary programme, and is included in the monthly progress report.
b. Level 2 Project Programme - summary programme "rolled up" from the level 3 project programme. The structure and layout will be in accordance with the FBS as defined in the Level 3 programme.
c. Level 3 Project Programme - detailed programme, which is generated for tracking and control of various activities and deliverables for all phases of the project. The activities will be coded in accordance with the FBS. Various layouts and corresponding filters can be developed to reflect the requirements of the project leads and managers.
d. Level 4 Project Programme - This detailed, discipline-specific programme is developed and maintained by the Contractor and generated for tracking and control of various activities and deliverables for all phases of the project. This programme utilizes the FBS structure and relates to the programmed activities in the pricing activity programme or groups of activities. The programme represents the day-to-day activities by discipline that are work-unit based and become summarized in the Level 3 activities.

6.6.4 Reporting and report

6.6.4.1 Reporting and monitoring:

a. To demonstrate the actual progress and forecast completion of the works, the Contractor shall, on a weekly basis, update and submit to the Project Manager the latest accepted programme and progress report, including histograms and S-curves.
b. Monitoring and review of the progress of the works shall consist of an assessment of all activities currently in progress to determine the percentage complete, forecast

completion dates, manning histogram, showing plan versus forecast, deviations from the target programme, and actions required for remedy.

c. Weekly progress review meetings shall be conducted to report and assist in control of the works.

6.6.4.2 Reports

a. Level 4 programme - updated weekly, showing two separate bars for each task, i.e. the primary bar shall reflect the current forecast dates and the secondary bar the latest accepted programme.
b. 3-week look-ahead programme - in the same format as above, updated and issued weekly.
c. S-curves - updated and issued weekly, showing actual % complete versus planned % for the overall contract and utilizing the earned values as calculated by the detailed progress report.
d. Detailed progress report - updated and issued weekly, utilizing a spreadsheet to calculate earned progress of activities, as reflected on the Level 4 programme, based on installed quantities. Activities shall be weighted using man-hours. The reports shall indicate progress 'this period' and 'progress to date'.
e. Weekly report - a narrative report consisting of an executive summary, area/facility synopsis of the works that are in progress, and critical action items (top 10). The report shall be accompanied with a 3-week look-ahead programme and s-curve. A weekly health and safety report is to be submitted.
f. Monthly report - a narrative status report submitted a week before the last Friday of each month, or as required by the Project Manager. The report shall include, but not be limited to, the following:
    i. Summary of progress achieved during the reporting period;
    ii. Latest updated programme;
    iii. Project milestones table – planned versus actual and forecast;
    iv. Status and performance of on-site works;
    v. Status and performance of off-site works;
    vi. Histograms and s-curves;
    vii. Critical action items list (top 10); and
    viii. Health and safety monthly report.

6.7 *Contractor's* management, supervision and key people

6.7.1 The *Contractor* provides an organogram of all his key people, as required by the *Employer* and as stated in the Contract Data, and how such key people communicate with the *Project Manager* and the *Supervisor* and their delegates.

6.8 Training workshops and technology transfer

6.8.1 The *Contractor* facilitates the following requirements for training workshops:

a. Pre-mobilization workshop, scheduled for one week prior to site establishment. Workshop will be attended by the site management team including site agents, all *Contractor's Supervisors* and safety personnel.

b. Formal training as stipulated in the Health and Safety Project Specification be attended by *Contractors* identified personnel before commencement of any works.

6.8.2 The *Contractor* provides the following documentation to the *Employer*:

a. Health and Safety file as per the HS file assessment checklist, including Health and Safety Management Plan but not limited to:

6.8.3 Valid company letter of good standing

6.8.4 Medical certificates of fitness

6.8.5 Incident management procedures;

6.8.6 Performance reporting.

6.8.7 Site training packages.

6.8.8 Safe work method statements;

6.8.9 Safety procedures;

6.8.10 Risk assessment process and as well as risk assessments for all activities;

6.8.11 Insurance provided by the *Employer*.

6.9 The *Contractor's* invoices

When the *Project Manager* certifies payment (see NEC3 ECC Clause 51.1) following the assessment date, the *Contractor* complies with the *Employer's* procedure for invoice submission.

The invoice must correspond to the *Project Manager's* assessment of the amount due to the *Contractor* as stated in the payment certificate.

The invoices must be addressed to Transnet SOC Ltd and must state the following:

Invoice addressed to Transnet SOC Ltd;

Transnet SOC Limited's VAT No: 4720103177;

Invoice number;

The Contractor's VAT Number; and

The Contract number.

The invoice shall be presented electronically, submitted to the *Project Manager*.

Invoices are addressed to:

Transnet National Ports Authority (TNPA)

1st Floor, East Wing, eMendi Administration Building

Neptune Road
Port of Ngqura
Port Elizabeth
South Africa
6001
For the attention of the *Project Manager*

The invoice is presented as an original.

7 People

7.1 The minimum requirements of people employed on the site include the following:

a. Direct employment of labour is preferred
b. Wherever possible, general labour shall be recruited from the communities that are local to the Port of Ngqura.
c. Recruitment of labour in and around the site is not permitted.
d. Recruitment of personnel already employed within the Port of Ngqura is expressly prohibited.
e. All personnel shall provide proof of competency appropriate to their appointment.
f. All personnel shall undergo medical examination prior to undergoing site induction and be certified fit to work on the site, with particular reference to working on heights.

7.1.1 The Contractor performs the works having due regard and in compliance with the following Act/s:

- Basic Conditions of Employment Act.
- Labour Relations Act.
- Employee Equity Act.
- Workman's Compensation Act.
- Compensation of Occupational Injuries and Diseases Act.

The Contractor complies with Annexure F including the following requirements:

7.2 Contractor liability

7.2.1 The Contractor warrants that it will be liable to the Employer for any loss or damage caused by strikes, riots, lockouts or any labour disputes by and/or confined to the Contractor's employees, which loss will include any indirect or consequential damages.

7.2.2 The Contractor warrants that no negotiations or feedback meetings by the Contractor's employees shall take place on the Employer's premises, whether owned or rented by the Employer.

7.2.3 The Contractor shall give notice to the Employer of any industrial action by the Contractor's employees immediately upon becoming aware of any actual or contemplated action that is or

may be carried out on the Employer's premises, whether owned or rented and shall notify the Employer of all matters associated with such action that may potentially affect the Employer.

7.2.4 The Contractor is responsible for educating its employees on relevant provisions of the Labour Relations Act which deal with industrial action processes and the risks of non-compliance.

7.2.5 The Contractor is required to develop a contingency strike handling plan, which plan the Contractor is obliged to update on a three-monthly basis. The Contractor must provide the Employer with this plan and all updates to the plan. The Contractor is responsible to communicate with its employees on site details of the plan.

7.3 Industrial action by Contractor's employees

7.3.1 In the event of any industrial action by the Contractor's employees, the Contractor is required to provide competent contingency resources permitted in law to carry out any of the duties that are, or could potentially be, interrupted by industrial action in delivering the service.

7.3.2 The Contractor warrants that it will compensate the Employer for any costs the Employer incurs in providing additional security to deal with any industrial action by the Contractor's employees.

7.3.3 In the event of any industrial action by the Contractor's employees, the Contractor is obliged to prepare and deliver to the Employer, within two (2) hours of the commencement of industrial action, an industrial action report. If the industrial action persists, the Contractor is required to deliver the report at 08h30 each day.

7.3.4 The industrial action report must provide at least the following information:

a. Industrial incident report
b. Attendance registers
c. Productivity/progress to schedule reports
d. Operational contingency plan
e. Site security report
f. Industrial action intelligence gathered.

7.3.5 The final industrial action report is to be delivered 24 hours after finalization of the industrial action.

7.3.6 The management of the Contractor is required to hold a daily industrial action teleconference with personnel identified by the Employer to discuss the industrial action, settlement of the industrial action, security issues and the impact on delivery under the contract.

7.3.7 The resolution of any disputes or industrial action by the Contractor's employees is the sole responsibility of the Contractor.

7.3.8 Access to the Employer's premises by the Contractor and its employees is only provided for the purposes of the Contractor delivering its services to the Employer. Should the Contractor and its employees not, for any reason, be capable of delivering its services, the Employer is entitled to

restrict or deny access to its premises and, unless otherwise authorized, such person will be deemed to be trespassing.

7.3.9 The Contractor performs the works having due regard to the PIRPMP, statutory requirements and industry agreements.

7.3.10 The Contractor complies with the requirements of the IRCC involving the engineering construction Contractors engaged (including all future Contractors) by the Employer.

7.3.11 The roles and responsibilities of the various personnel acting on behalf of the Project Manager with respect to IR issues are stated in the following paragraphs.

7.3.12 The PIRM is responsible for ensuring that the Contractor complies with the PIRPMP. The PIRM acts on behalf of the Project Manager.

7.3.13 The PIRM specific tasks are:

a. As per Annexure F (Industrial Relations Policy and Management Plan);
b. To liaise with the Contractor prior to the commencement of construction activities, as per the Contractor's programme accepted by the Project Manager, with respect to IR issues;
c. Responsible, inter alia, for day-to-day IR on the site through the implementation of the PIRPMP
d. The PIRM reports directly to the *Project Manager*.

8 Subcontracting

Where the *Contractor* employs a *Subcontractor* who constructs or installs part of the works or who supplies plant and materials for incorporation into the works which involve a *Subcontractor* operating on the site, then the *Contractor* ensures that any such *Subcontractor* complies with the CEMPr as well as health and safety project specification as described in the Works Information, as appropriate. The subcontract documentation shall place back-to-back obligations on the *Subcontractor*, which reflect the *Contractor's* obligations under the CEMPr, all within the *Contractor's* quality management system, as per the Works Information.

Where the *Contractor* employs a *Subcontractor* who constructs or installs part of the works, or who supplies plant and materials for incorporation into the works which involve a *Subcontractor* operating on the site and/or working areas, then the *Contractor* ensures that any such *Subcontractor* complies with the PIRPMP as appropriate and that the subcontract documentation places back-to-back obligations on the *Subcontractor* which reflect the *Contractor's* obligations under the PIRPMP, all within the *Contractor's* quality management system as per the Works Information.

C4. Site Information

PART 4: SITE INFORMATION

1. Description of the Site and its surroundings

1.1. General description

The site is within the Nelson Mandela Bay Metropolitan Municipality region, situated in the Eastern Cape province. In the port of Ngqura, rainfall occurs all year round but is slightly heavier and more frequent during the winter months.

Figure1: Locality Map





The Port of Ngqura is in the process of erecting a new fence at the port of Ngqura in line with Port's requirement and the National perimeter fencing project. The port is experiencing numerous security breaches ranging from rusted fence, lack of CCTV covering the boundary and illegal access to the Port by the public and other deficiencies. Access to the port and the quarry is adequately controlled, reduce risk of injuries to members of the public who can take legal action against TNPA. Port complies with the International Ship and Port Facility Security (ISPS) code, Trespasser Act. 6 of 1959 etc. with respect to the latter (Trespasser Act. 6 of 1959) the onus lies with the landowner to ensure that the land is clearly demarcated with a perimeter fence and signage. In light of the above there is a need to ensure that the port is amongst other things is adequately secured against stowaways and trespassers. Port complies with the Water Use Authorizations Regulations.

1.2. Temperature

Winters present an average low temperature of about 8 to 14 degrees Celsius and daytime highs of approximately 18 degrees. The highest temperature ever recorded in Port of Ngqura was just less than 41 degrees, while the lowest temperature dropped to a below-freezing -0.5 degrees Celsius.

1.3. Visual inspections

The following are the identified deficiencies on the port perimeter fence:

- Some parts of the fence in the port are rusted and breaking away(existing concrete palisade fence).
- At Coega Kop Quarry, the existing fence is being bridged by intruders.
- The existing fence illumination is inadequate.
- The fence in the port is degrading and rusting.

1.4. Contractor Establishment

Upon receipt of the site access certificate, the contractor will be required to establish site offices and laydown areas. The facilities established on site will remain for the duration of the works, and connection points will be available for the contractor, however, the contractor will be required to pay for services utilized during the duration of the contract. The proposed contractor site establishment and laydown area is shown below.

Figure 2: Site Establishment



The proposed site establishment, including site office, storage facility, plant storage and ablution will be accommodated on an open field along the Klub Road. The contractor will bring their own ablution facilities. The Contractor must adhere to any additional requirements stipulated by TNPA. They must adhere to the basic screening (Alcohol and drug) requirements at all entry and exit points of the Port. If the contractor or its employees tested positive during the screening, employee will not be permitted onto TNPA premises.

1.5. Operations on the site

The works will be performed in an operational environment; the road will remain operational with on-going traffic for the entire duration of the contract. The contractor is to take cognizance of the TNPA employees and its stakeholders in and around the road.

1.6. Existing buildings, structures, and plant & machinery on the Site

The port of Ngqura is bounded by the following:

- Grown vegetation and subject to environmental conditions.
- Rail Infrastructure
- Free-standing buildings
- Plant & machinery
- Port Infrastructure
- Fence running in close proximity to the Marine fleet staging berth.

1.7. Hidden services

There are no Known Services shown on the drawings, but the Contractor shall nevertheless carry out visual inspections, using detecting apparatus, to identify Unknown Services and by making excavations to expose the position of the service at critical points. The contractor must submit the document with all the information required.

1.8. Other reports and publicly available information

This report is to be read in conjunction with the C3 Works Information Report provided.

Annexure A

Drawings

GENERAL NOTES

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5.THE NEW FENCE PANELS WITH INTEGRATED OPENING PANELS SHALL BE INSTALLED AT ALTERNATING INTERVALS. i.e., EVERY SECOND PANEL ALONG THE ENTIRE LENGTH OF THE NEW FENCE.

6.THE TYPICAL DETAILS SHOWN ON THIS DRAWING ARE FOR ILLUSTRIVE AND GUIDANCE PURPOSES ONLY

7. THE CONTRACTOR MUST ENSURE THAT ALL SERVICES THAT INTERSECT OR RUN ALONGSIDE THE NEW WORKS ARE IDENTIFIED BEFORE CONSTRUCTION COMMENCES. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY DAMAGES TO EXISTING SERVICES DUE TO NEGLIGENCE.

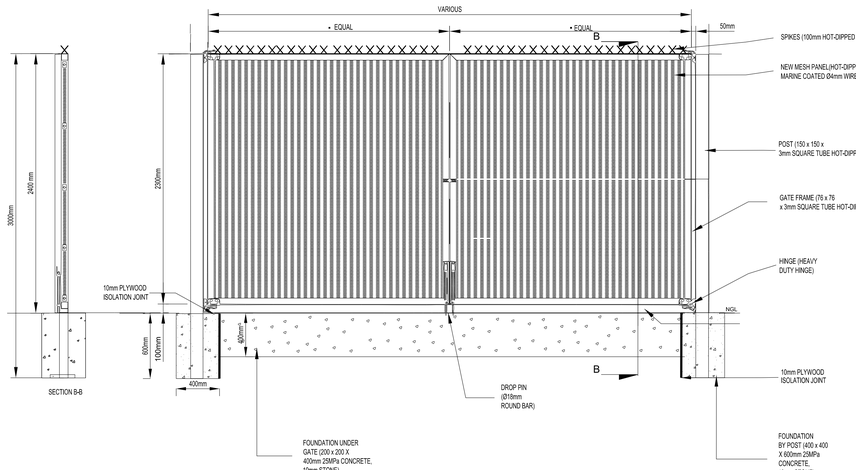
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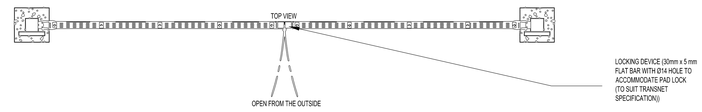
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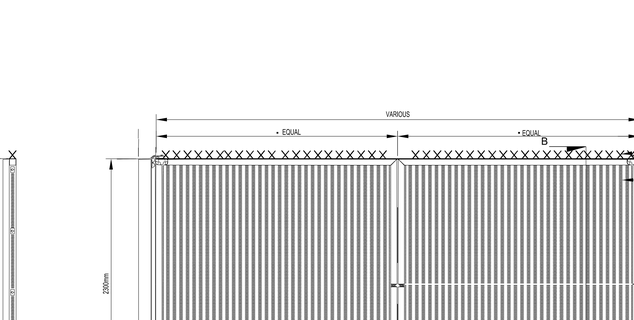
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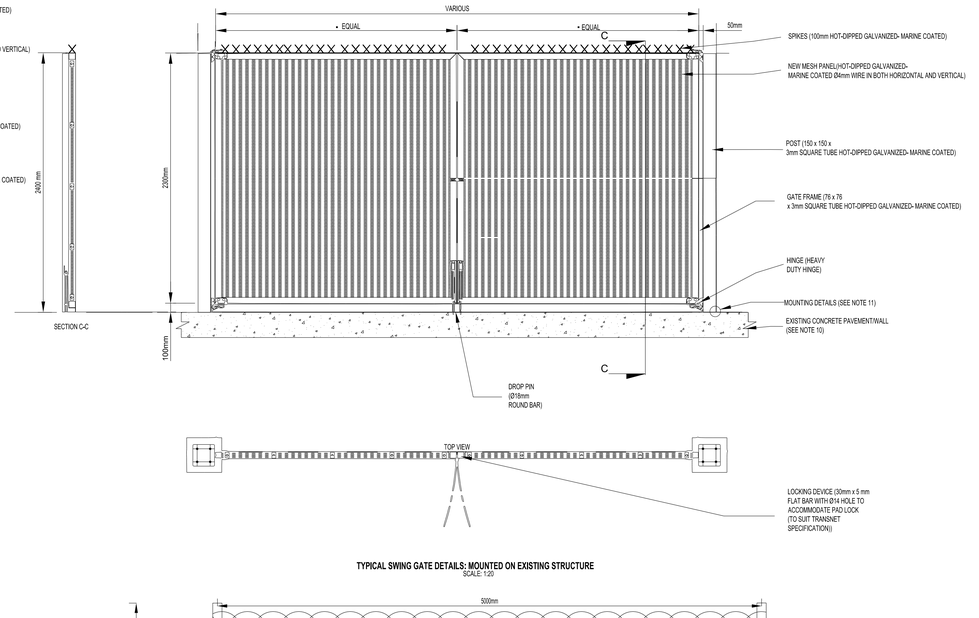


TYPICAL SWING GATE DETAILS
SCALE: 1:20

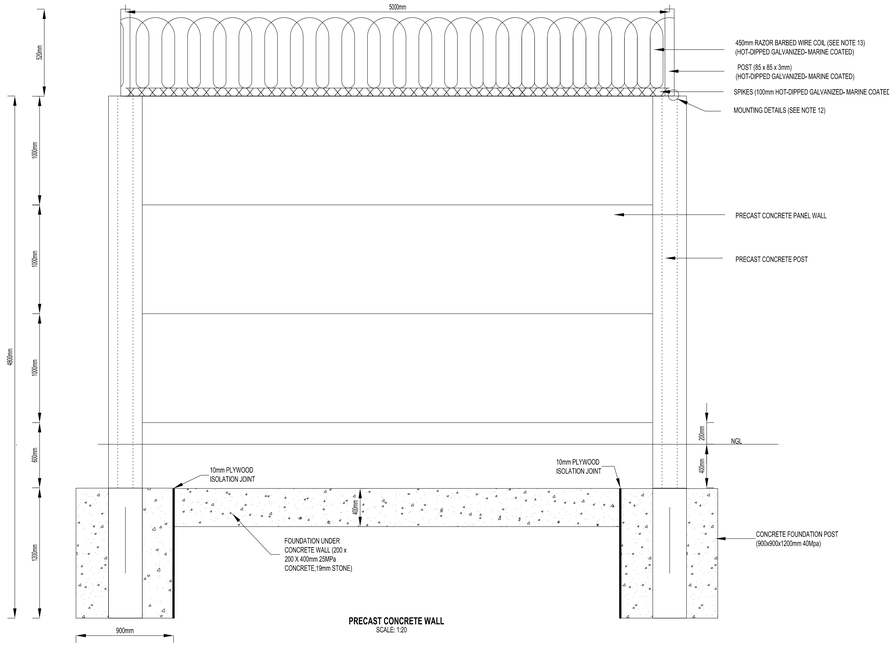


TYPICAL PEDESTRIAN GATE DETAILS: MOUNTED ON EXISTING STRUCTURE

SCALE: NTS



TYPICAL SWING GATE DETAILS: MOUNTED ON EXISTING STRUCTURE
SCALE: 1:20



PRECAST CONCRETE WALL
SCALE: 1:20

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TRANSNET NATIONAL PORTS AUTHORITY

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NAME	MOTEBANG MALAPANE	DATE
SIGNATURE		22 04 25
REG. NUMBER	PR 20150383	
SCALE		

TRANSNET

Transnet National Ports Authority

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PROJECT / AREA / ASSET / SUBJECT/DRAWING TITLE

PORT OF NGQURA

CIVIL AND PERWAY INFRASTRUCTURE

REPLACEMENT OF FENCE AT PORT OF NGQURA AND CKQ

DETAIL LAYOUT 1

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A0	NH7210007-001-0A	0A
	PROJECT ORG. NO.	REV.
	XNQ.E.0018-C-DE-0001-01-0A	0A

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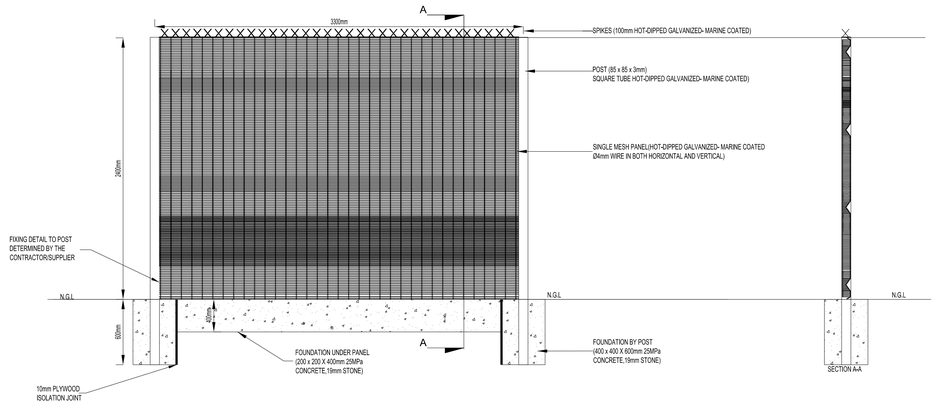
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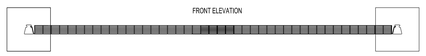
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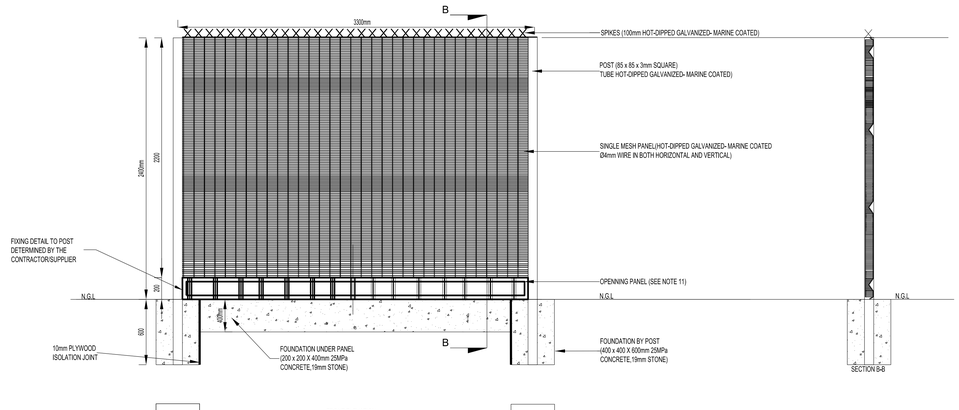
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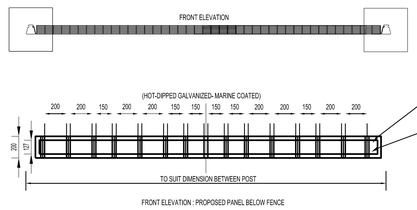
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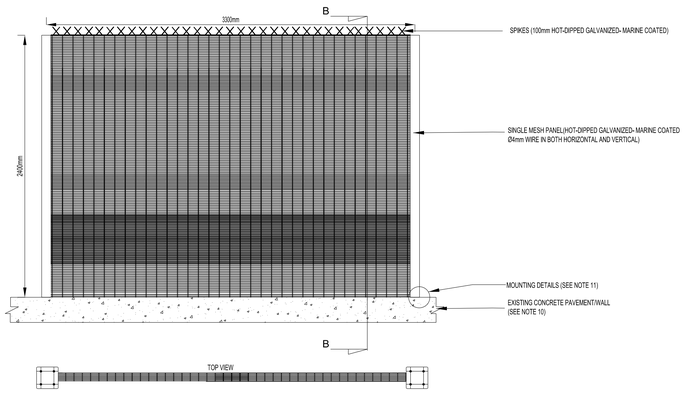


TYPICAL DETAIL A: NEW MESH FENCE
SCALE: 1: 20

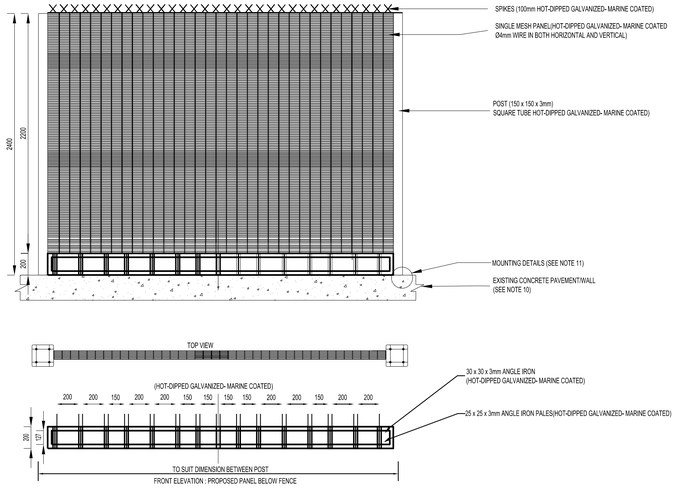




TYPICAL DETAIL B: NEW MESH FENCE WITH OPENING BELOW
SCALE: 1: 20



TYPICAL DETAIL C: NEW MESH FENCE WITH MOUNTED POST ON EXISTING CONCRETE PAVEMENT
SCALE: 1: 20



TYPICAL DETAIL D: NEW MESH FENCE WITH OPENING BELOW MOUNTED POST ON EXISTING CONCRETE PAVEMENT
SCALE: 1: 20

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PORT OF NGQURA

CIVIL AND PERWAY INFRASTRUCTURE

REPLACEMENT OF FENCE AT PORT OF NGQURA AND CKQ

DETAIL LAYOUT 2

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A0	NH7210007-002-0A	0A
	PROJECT DRG. NO.	REV.
	XNQ.E.0018-C-DE-0001-02-0A	0A

TILE 1

QUANTITIES: TILE 1

NEW FENCE TOTAL LENGTH (MOUNTED) : 90m

NEW MESH FENCE WITH OPENING BELOW TOTAL LENGTH (MOUNTED): 45m

NEW MESH FENCE TOTAL LENGTH (MOUNTED): 45m

NEW SWING GATE 1 - ENTRANCE TO THE LIGHT HOUSE.

- TOTAL WIDTH : 10m
- HEIGHT : 2.4m

FENCE LINE: CO-ORDINATE SYSTEM: WGS84 Lo25°		
POINTS	Y-COORDINATE	X-COORDINATE
P1	64247.642	-3743726.690
P2	64217.958	-3743718.308
P2A	64218.109	-3743717.757
P3	64214.741	-3743716.910
P4	64205.012	-3743714.610
P5	64184.311	-3743709.027
P6	64182.831	-3743714.517
P7	64193.661	-3743733.367

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4.THE NEW FENCE PANELS WITH INTEGRATED OPENING PANELS SHALL BE INSTALLED AT ALTERNATING INTERVALS, i.e., EVERY SECOND PANEL: ALONG THE ENTIRE LENGTH OF THE NEW FENCE

5.THE CONTRACTOR SHALL INSTALL THE NEW FENCE ALONG THE EXISTING FENCE LINE. ANY DEVIATIONS OR CHANGES TO THE ORIGNAL ALIGNMENT MUST BE NOTIFIED TO THE EMPLOYER IN ADVANCE AND APPROVED PRIOR TO IMPLEMENTATION

6.THE CONTRACTOR SHALL USE THEIR OWN DISCRETION WHEN INSTALLING THE NEW FENCE, WHILE ADHERING TO THE REQUIREMENTS OUTLINED IN THE SCOPE OF WORKS

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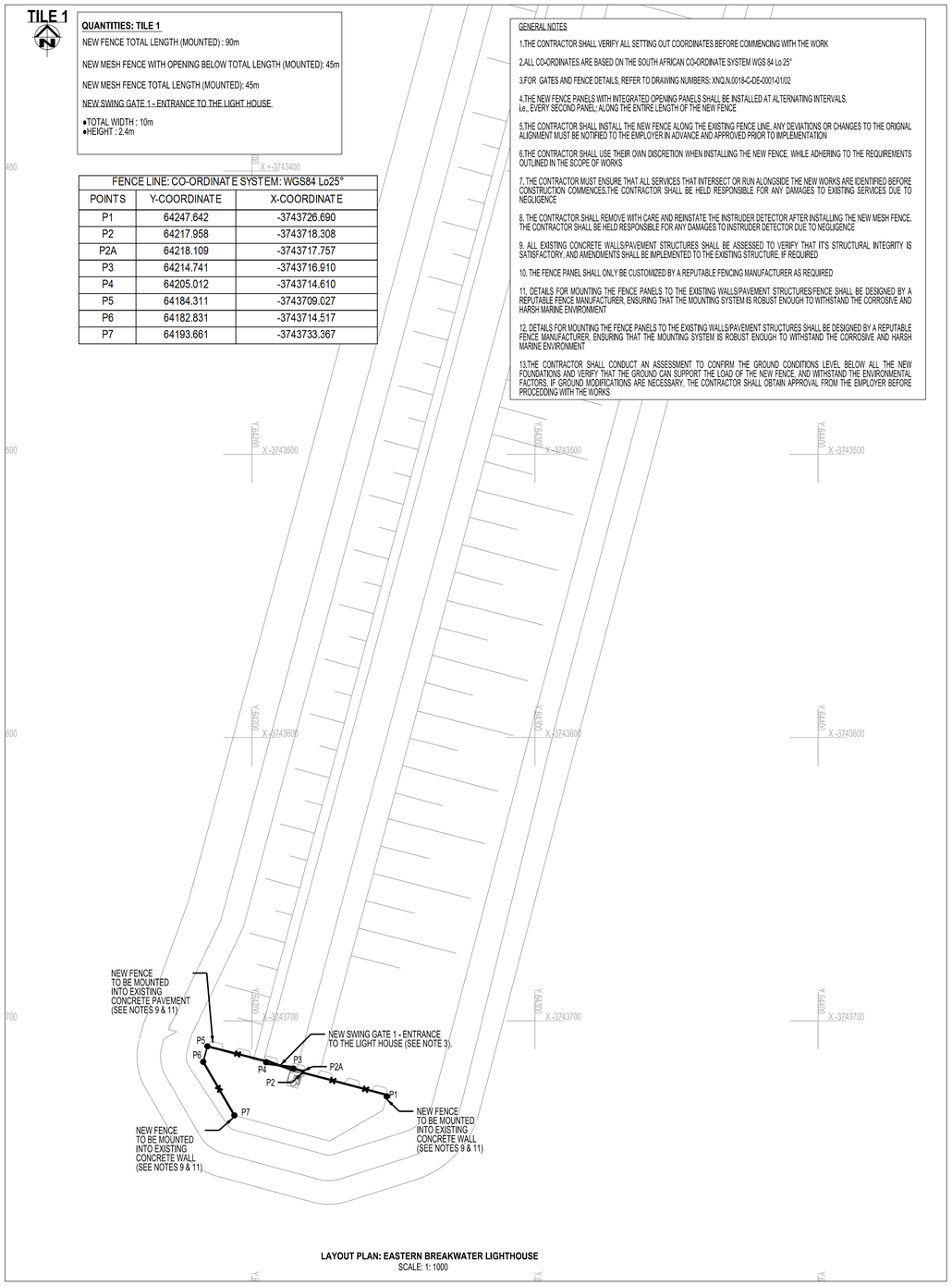
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13.THE CONTRACTOR SHALL CONDUCT AN ASSESSMENT TO CONFIRM THE GROUND CONDITIONS LEVEL BELOW ALL THE NEW FOUNDATIONS AND VERIFY THAT THE GROUND CAN SUPPORT THE LOAD OF THE NEW FENCE. AND WITHSTAND THE ENVIRONMENTAL FACTORS. IF GROUND MODIFICATIONS ARE NECESSARY, THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE EMPLOYER BEFORE PROCEDING WITH THE WORKS



LAYOUT PLAN: EASTERN BREAKWATER LIGHTHOUSE
SCALE: 1: 1000

TILE 2

QUANTITIES: TILE 2

NEW MESH FENCE TOTAL LENGTH (MOUNTED): 15m

NEW SWING GATE 1 - WESTERN BREAKWATERENTRANCE.

- TOTAL WIDTH : 10m
- HEIGHT : 2.4m

FENCE LINE: CO-ORDINATE SYSTEM: WGS84 Lo25°		
POINTS	Y-COORDINATE	X-COORDINATE
P43	63864.738	-3742761.398
P43A	63864.934	-3742761.685
P44	63859.088	-3742753.147
P44A	63858.847	-3742752.795

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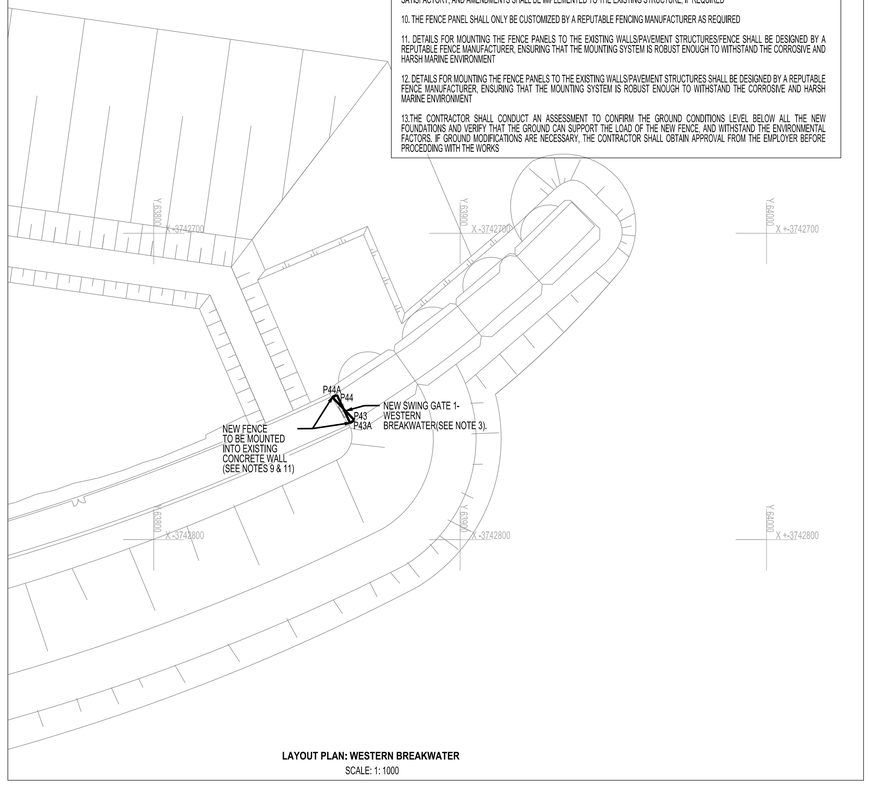
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13.THE CONTRACTOR SHALL CONDUCT AN ASSESSMENT TO CONFIRM THE GROUND CONDITIONS LEVEL BELOW ALL THE NEW FOUNDATIONS AND VERIFY THAT THE GROUND CAN SUPPORT THE LOAD OF THE NEW FENCE. AND WITHSTAND THE ENVIRONMENTAL FACTORS. IF GROUND MODIFICATIONS ARE NECESSARY, THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE EMPLOYER BEFORE PROCEDING WITH THE WORKS



LAYOUT PLAN: WESTERN BREAKWATER
SCALE: 1: 1000



LOCALITY PLAN
SCALE: NTS

PLAN LEGEND

- NEW FENCELINE
- NEW GATE
- P1 ● COORDINATE POINT
- TILE

SIGNATURE	DATE	SIGNATURE	DATE
SIGNATURE	DATE	SIGNATURE	DATE

NO.	DESCRIPTION	BY	CHKD	APPD	DATE
0A	ISSUED FOR TENDER PURPOSES	BE	MM	MM	2025-04-22

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PRIVATE OPERATOR LOGO

CONSULTANTS LOGO

CONTRACTOR / CONSULTANT

TITLE	NAME	SIGN	DATE
DRAWN	.		. . .
CHECKED	.		
DESIGNED	.		. . .
CHECKED	.		

PR.ENG. / PR.TECH./PR. ARCH

NAME	DATE
SIGNATURE	. . .
REG. NUMBER	
TITLE	

TRANSNET NATIONAL PORTS AUTHORITY

TITLE	NAME	SIGN	DATE
DRAWN	BE		22 04 25
CHECKED	MM		22 04 25
DESIGNED	BE		22 04 25
CHECKED	MM		22 04 25

PR.ENG. / PR.TECH./PR. ARCH

NAME	MOTEBANG MALAPANE	DATE
SIGNATURE		22 04 25
REG. NUMBER	PR 20150383	
SCALE	AS SHOWN	

TRANSNET

Transnet National Ports Authority

TRANSNET SOC Ltd (TRADING AS TNPA): REG No. 1990/000900/30
N2 NEPTUNE ROAD, OFF KLUB ROAD
COEGA
6100
TEL: 011 351 9001
FAX: 011 351 9023

PROJECT / AREA / ASSET / SUBJECT/DRAWING TITLE

PORT OF NGQURA

CIVIL AND PERWAY INFRASTRUCTURE REPLACEMENT OF FENCE AT PORT OF NGQURA AND CKQ

PLAN LAYOUT 1

PAPER SIZE	TRANSNET DRW. NO.	REV.
A1	NH7210007-001-00	0A
	PROJECT DRG. NO.	REV.
	XNQ.E.0018-C-LA-001-01-0A	0A

QUANTITIES: TILE 3

NEW MESH FENCE TOTAL LENGTH : 1113m

SEAWALL/TERMINAL)MOUNTED ON CONCRETE PAVEMENT/WALL : 165m (2.4m MESH FENCE)

SEAWALL/TERMINAL)MOUNTED ON CONCRETE PAVEMENT/WALL : 165m (2.2m MESH FENCE WITH 0.2m)

SEAWALL/TERMINAL)EXCAVATED FENCE : 392m (2.4m MESH FENCE)

SEAWALL/TERMINAL)EXCAVATED FENCE : 392m (2.2m MESH FENCE WITH 0.2m)

NEW SWING 1- GATE FOR ABNORMAL VEHICLE
- TOTAL WIDTH : 14m
- HEIGHT : 2.4m

NEW SWING 2- GATE FOR NORMAL VEHICLE
- TOTAL WIDTH : 10m
- HEIGHT : 2.4m

NEW PEDESTRIAN GATE 3- FOR REVERTMENT MAINTAINANCE
- TOTAL WIDTH : 1.5m
- HEIGHT : 2.4m

NEW SWING GATE 4- MAIN ENTRANCE
- TOTAL WIDTH : 10m
- HEIGHT : 2.4m

NEW SWING GATE 5-FOR FUTURE DEVELOPMENT
- TOTAL WIDTH : 10m
- HEIGHT : 2.4m

NEW TURNSTILE 6
- TOTAL : 1
- HEIGHT : 2.4m

FENCE LINE: CO-ORDINATE SYSTEM: WGS84 Lo25°		
POINTS	Y-COORDINATE	X-COORDINATE
P21	63452.802	-3741164.883
P22	63595.902	-3741365.094
P23	63601.820	-3741373.194
P24	63671.017	-3741470.305
P25	63635.493	-3741496.518
P26	63619.256	-3741473.327
P27	63596.795	-3741441.821
P28	63438.919	-3741219.578
P29	63417.715	-3741189.388
P30	63420.633	-3741187.340
P31	63428.735	-3741181.681
P32	63436.912	-3741221.031
P33	63425.611	-3741229.294
P34(NEW TURNSTILE)	63421.760	-3741232.077
P35	63415.399	-3741236.587
P36	63407.178	-3741242.274
P37	63396.433	-3741249.054
P38	63377.025	-3741221.554
P39	63264.597	-3741301.488
P40	63263.439	-3741302.442
P41	63143.292	-3741387.825
P42	63146.504	-3741395.440

GENERAL NOTES

1.THE CONTRACTOR SHALL VERIFY ALL SETTING OUT COORDINATES BEFORE COMMENCING WITH THE WORK

2.ALL CO-ORDINATES ARE BASED ON THE SOUTH AFRICAN CO-ORDINATE SYSTEM WGS 84 Lo 25°

3.FOR GATES AND FENCE DETAILS, REFER TO DRAWING NUMBERS: XNQ.N.0018-C-DE-0001-21/02

4.THE NEW FENCE PANELS WITH INTEGRATED OPENING PANELS SHALL BE INSTALLED AT ALTERNATING INTERVALS, i.e., EVERY SECOND PANEL, ALONG THE ENTIRE LENGTH OF THE NEW FENCE

5.THE CONTRACTOR SHALL INSTALL THE NEW FENCE ALONG THE EXISTING FENCE LINE ANY DEVIATIONS OR CHANGES TO THE ORIGINAL ALIGNMENT MUST BE NOTIFIED TO THE EMPLOYER IN ADVANCE AND APPROVED PRIOR TO IMPLEMENTATION

6.THE CONTRACTOR SHALL USE THEIR OWN DISCRETION WHEN INSTALLING THE NEW FENCE, WHILE ADHERING TO THE REQUIREMENTS OUTLINED IN THE SCOPE OF WORKS

7. THE CONTRACTOR MUST ENSURE THAT ALL SERVICES THAT INTERSECT OR RUN ALONGSIDE THE NEW WORKS ARE IDENTIFIED BEFORE CONSTRUCTION COMMENCES.THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY DAMAGES TO EXISTING SERVICES DUE TO NEGLIGENCE

8. THE CONTRACTOR SHALL REMOVE WITH CARE AND REINSTATE THE INSTRUDER DETECTOR AFTER INSTALLING THE NEW MESH FENCE. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY DAMAGES TO INSTRUDER DETECTOR DUE TO NEGLIGENCE

9. ALL EXISTING CONCRETE WALLS/PAVEMENT STRUCTURES SHALL BE ASSESSED TO VERIFY THAT IT'S STRUCTURAL INTEGRITY IS SATISFACTORY, AND AMENDMENTS SHALL BE IMPLEMENTED TO THE EXISTING STRUCTURE, IF REQUIRED

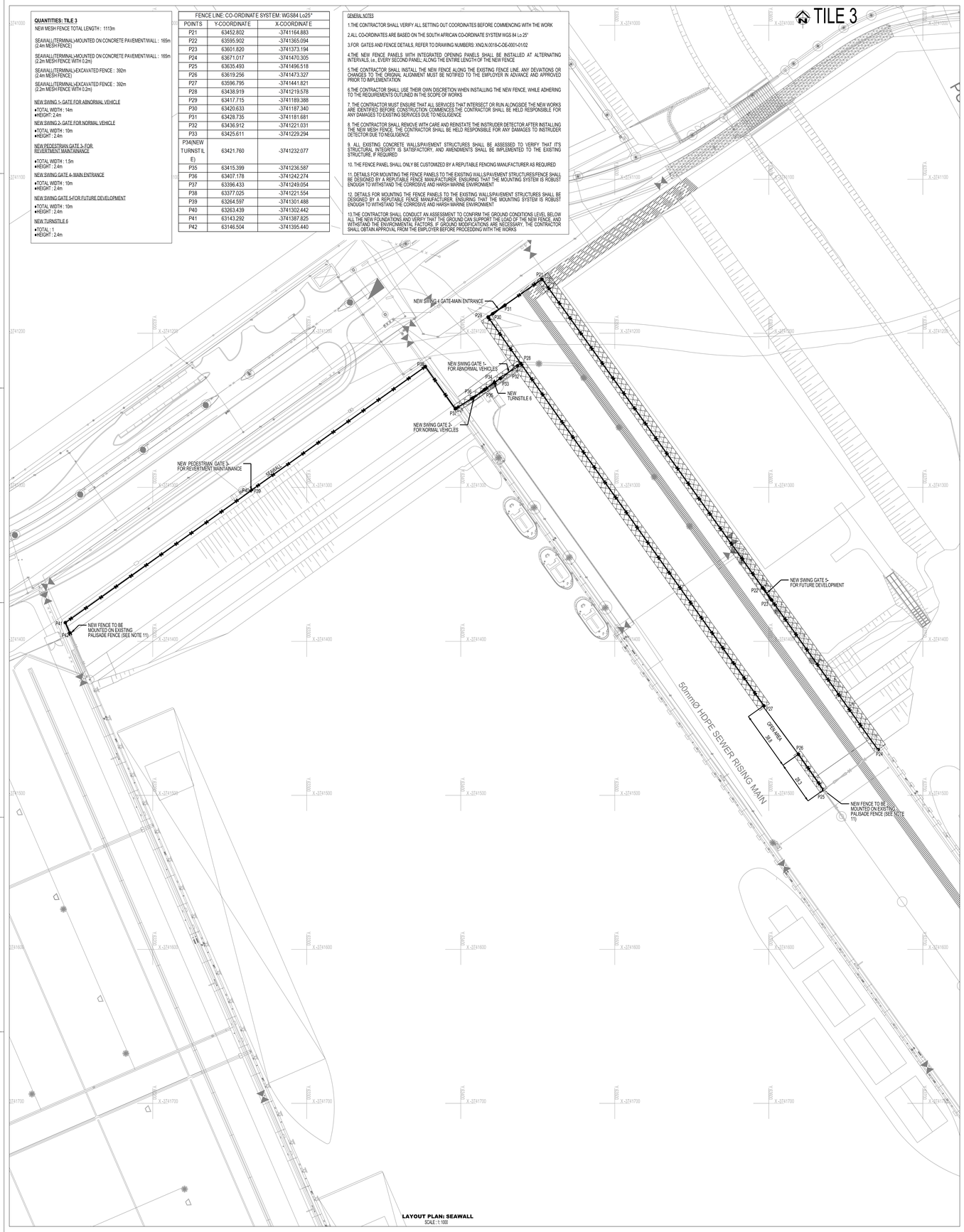
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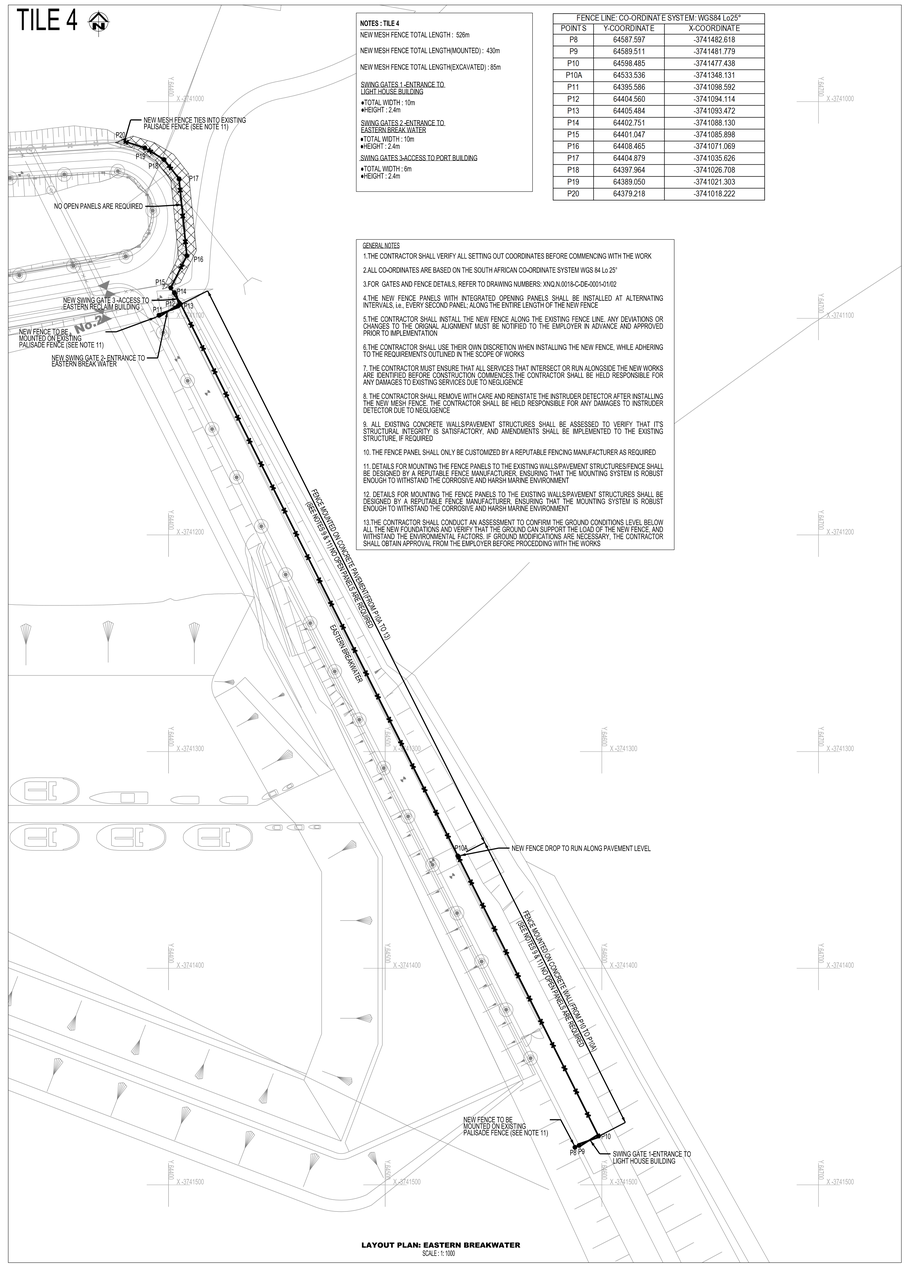
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TILE 3



LAYOUT PLAN: SEAWALL
SCALE 1: 1000

TILE 4



NOTES : TILE 4

NEW MESH FENCE TOTAL LENGTH : 526m

NEW MESH FENCE TOTAL LENGTH(MOUNTED) : 430m

NEW MESH FENCE TOTAL LENGTH(EXCAVATED) : 85m

SWING GATES 1 -ENTRANCE TO LIGHT HOUSE BUILDING
- TOTAL WIDTH : 10m
- HEIGHT : 2.4m

SWING GATES 2-ENTRANCE TO EASTERN BREAK WATER
- TOTAL WIDTH : 10m
- HEIGHT : 2.4m

SWING GATES 3-ACCESS TO PORT BUILDING
- TOTAL WIDTH : 6m
- HEIGHT : 2.4m

FENCE LINE: CO-ORDINATE SYSTEM: WGS84 Lo25°		
POINTS	Y-COORDINATE	X-COORDINATE
P8	64587.597	-3741482.618
P9	64589.511	-3741481.779
P10	64598.485	-3741477.438
P10A	64533.536	-3741348.131
P11	64395.586	-3741098.592
P12	64404.560	-3741094.114
P13	64405.484	-3741093.472
P14	64402.751	-3741088.130
P15	64401.047	-3741085.898
P16	64408.465	-3741071.069
P17	64404.879	-3741035.626
P18	64397.964	-3741026.708
P19	64389.050	-3741021.303
P20	64379.218	-3741018.222

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LAYOUT PLAN: EASTERN BREAKWATER
SCALE 1: 1000



PLAN LEGEND

- NEW FENCELINE
- NEW GATE
- COORDINATE POINT (P1)
- NEW TURNSTILE
- EXISTING ELECTRICAL (E)
- EXISTING COMMUNICATION (C)
- AREA WHERE FENCE IS EXCAVATED
- TILE

0A	ISSUED FOR TENDER PURPOSES	PM	BE	MM	2025-04-22
NO.	DESCRIPTION	BY	CHKD	APPD	DATE

REVISIONS

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DESIGNED	.		. . .
CHECKED	.		

PR.ENG. / PR.TECH./PR. ARCH

NAME	DATE
SIGNATURE	. . .
REG. NUMBER	
TITLE	

TRANSNET NATIONAL PORTS AUTHORITY

TITLE	NAME	SIGN	DATE
DRAWN	BE		22 04 25
CHECKED	MM		22 04 25
DESIGNED	BE		22 04 25
CHECKED	MM		22 04 25

PR.ENG. / PR.TECH./PR. ARCH

NAME	MOTEBANG MALAPANE
SIGNATURE	22 04 25
REG. NUMBER	PR 20150383
SCALE	

TRANSNET

Transnet National Ports Authority

TRANSNET SOC Ltd (TRADING AS TNPA); REG No. 1990/000900/30
N2 NEPTUNE ROAD, OFF KLUB ROAD
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6100
TEL: 011 351 9001
FAX: 011 351 9023

PROJECT / AREA / ASSET / SUBJECT/DRAWING TITLE

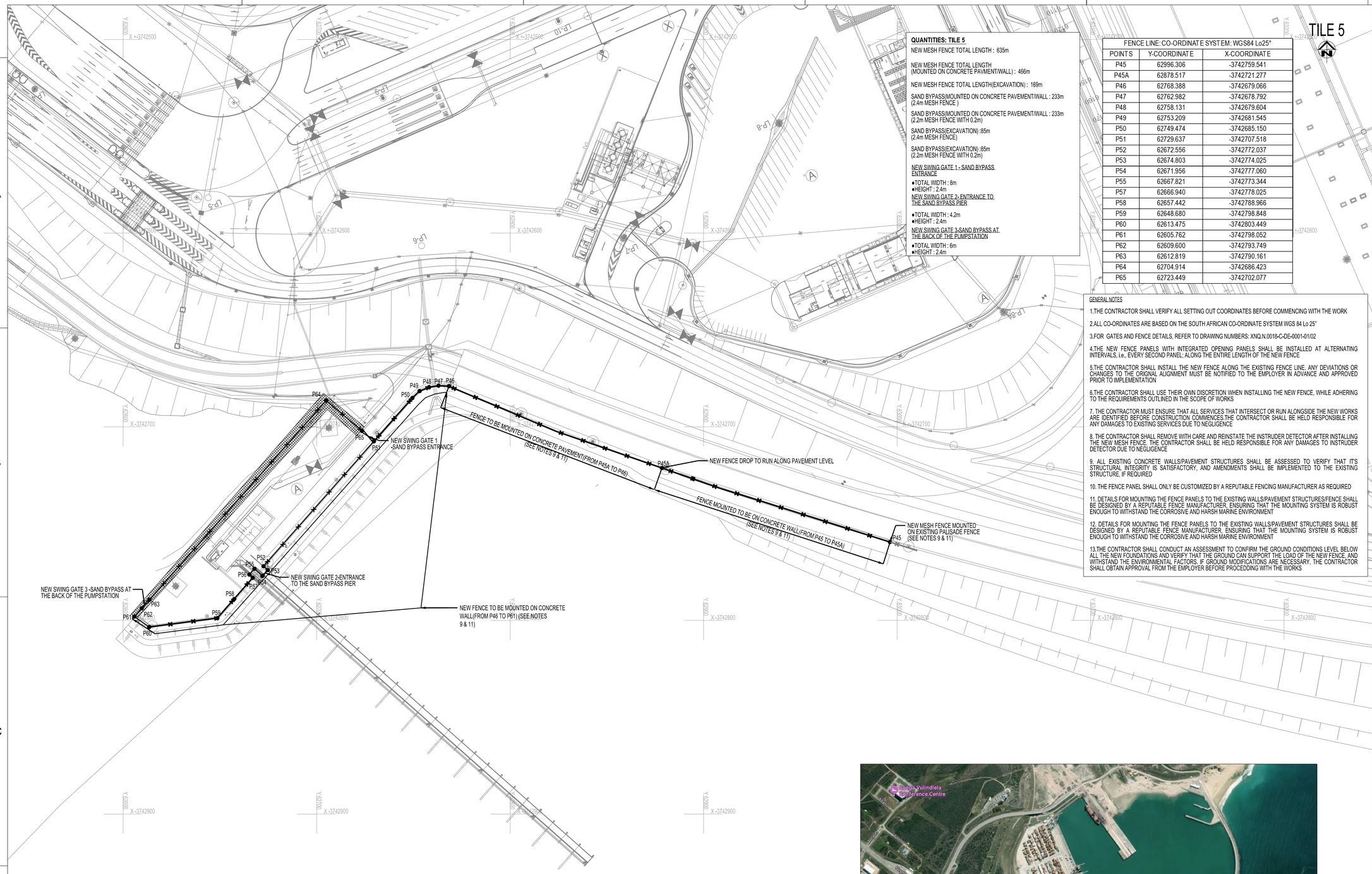
PORT OF NGQURA

CIVIL AND PERWAY INFRASTRUCTURE

REPLACEMENT OF FENCE AT PORT OF NGQURA AND CKQ

PLAN LAYOUT 2

PAPER SIZE	TRANSNET DRW. NO.	REV.
A0	NH7210007-002-0A	0A
	PROJECT DRG. NO.	REV.
	XNQ.E.0018-C-LA-0001-02-0A	0A


P64
P65
P51
P49
P48
P47
P46
P50
NEW SWING GATE 1
-SAND BYPASS ENTRANCE
FENCE TO BE MOUNTED ON CONCRETE PAVEMENT(FROM P46A TO P46)
(SEE NOTES 9 & 11)
P46A
NEW FENCE DROP TO RUN ALONG PAVEMENT LEVEL
FENCE MOUNTED TO BE ON CONCRETE WALL(FROM P45 TO P45A)
(SEE NOTES 9 & 11)
P45
NEW MESH FENCE MOUNTED
ON EXISTING PALISADE FENCE
(SEE NOTES 9 & 11)
P52
P55
P56
P53
P54
P57
NEW SWING GATE 2-ENTRANCE
TO THE SAND BYPASS PIER
NEW SWING GATE 3 -SAND BYPASS AT
THE BACK OF THE PUMPSTATION
P58
P63
P61
P62
P59
P60
NEW FENCE TO BE MOUNTED ON CONCRETE
WALL(FROM P46 TO P61) (SEE NOTES
9 & 11)
P-10
P-9
P-8
P-7
P-6
P-5
P-4
P-3
P-2
P-1
P-8A
P-8B
P-8C
P-8D
P-8E
P-8F
P-8G
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P-11X
P-11Y
P-11Z

TILE 6

P67

P68

NEW PRECASTED CONCRETE WALL

FENCE LINE: CO-ORDINATE SYSTEM: WGS84 Lo25°		
POINTS	Y-COORDINATE	X-COORDINATE
P66	57030.447	-3739239.698
P67	56428.269	-3738773.630
P68	56910.250	-3738150.913
P69	57512.400	-3738616.923
P70	57312.324	-3738875.666
P71	57306.125	-3738883.513

QUANTITIES : (TILE 6)

NEW PRECAST CONCRETE WALL

- TOTAL LENGTH : 3100m

NEW SWING GATE- MAIN ENTRANCE.

- TOTAL WIDTH : 10m
- HEIGHT : 2.4m

GENERAL NOTES

1.THE CONTRACTOR SHALL VERIFY ALL SETTING OUT COORDINATES BEFORE COMMENCING WITH THE WORK

2.ALL CO-ORDINATES ARE BASED ON THE SOUTH AFRICAN CO-ORDINATE SYSTEM WGS 84 Lo 25°

3.FOR GATES AND FENCE DETAILS, REFER TO DRAWING NUMBERS: XNQ.N.0018-C-DE-0001-01/02

4.THE CONTRACTOR SHALL INSTALL THE NEW FENCE ALONG THE EXISTING FENCE LINE. ANY DEVIATIONS OR CHANGES TO THE ORIGINAL ALIGNMENT MUST BE NOTIFIED TO THE EMPLOYER IN ADVANCE AND APPROVED PRIOR TO IMPLEMENTATION

5.THE CONTRACTOR SHALL USE THEIR OWN DISCRETION WHEN INSTALLING THE NEW FENCE, WHILE ADHERING TO THE REQUIREMENTS OUTLINED IN THE SCOPE OF WORKS.

6. THE CONTRACTOR MUST ENSURE THAT ALL SERVICES THAT INTERSECT OR RUN ALONGSIDE THE NEW WORKS ARE IDENTIFIED BEFORE CONSTRUCTION COMMENCES.THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY DAMAGES TO EXISTING SERVICES DUE TO NEGLIGENCE.

7. ALL EXISTING CONCRETE WALLS/PAVEMENT STRUCTURES SHALL BE ASSESSED TO VERIFY THAT ITS STRUCTURAL INTEGRITY IS SATISFACTORY, AND AMENDMENTS SHALL BE IMPLEMENTED TO THE EXISTING STRUCTURE, IF REQUIRED

8. THE FENCE SHALL ONLY BE CUSTOMIZED BY A REPUTABLE FENCING MANUFACTURER AS REQUIRED

9. DETAILS FOR MOUNTING THE FENCE PANELS TO THE EXISTING WALLS/PAVEMENT STRUCTURES/FENCE SHALL BE DESIGNED BY A REPUTABLE FENCE MANUFACTURER, ENSURING THAT THE MOUNTING SYSTEM IS ROBUST ENOUGH TO WITHSTAND THE CORROSIVE AND HARSH MARINE ENVIRONMENT.

10.THE CONTRACTOR SHALL CONDUCT AN ASSESSMENT TO CONFIRM THE GROUND CONDITIONS LEVEL BELOW ALL THE NEW FOUNDATIONS AND VERIFY THAT THE GROUND CAN SUPPORT THE LOAD OF THE NEW FENCE, AND WITHSTAND THE ENVIRONMENTAL FACTORS. IF GROUND MODIFICATIONS ARE NECESSARY, THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE EMPLOYER BEFORE PROCEEDING WITH THE WORKS

P66

P70

P71

P69

NEW SWING GATE 1- MAIN ENTRANCE

LAYOUT PLAN:COEGA KOP QUARRY
SCALE : 1 : 1000



LAYOUT PLAN: COEGA KOP QUARRY
SCALE : NTS

PLAN LEGEND.

- NEW GATE
- P56 COORDINATE POINT
- NEW PRECAST CONCRETE WALL
- TILE

SIGNATURE	DATE	SIGNATURE	DATE		
SIGNATURE	DATE	SIGNATURE	DATE		
0A	ISSUED FOR TENDER PURPOSES	BE	MM	MM	2025-04-22
NO.	DESCRIPTION	BY	CHKD	APPD	DATE

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PRIVATE OPERATOR LOGO | CONSULTANTS LOGO

CONTRACTOR / CONSULTANT

TITLE	NAME	SIGN	DATE
DRAWN	.		. . .
CHECKED	.		
DESIGNED	.		. . .
CHECKED	.		

PR.ENG. / PR.TECH./PR. ARCH

NAME	DATE
SIGNATURE	. . .
REG. NUMBER	
TITLE	

TRANSNET NATIONAL PORTS AUTHORITY

TITLE	NAME	SIGN	DATE
DRAWN	BE		22 04 25
CHECKED	MM		22 04 25
DESIGNED	BE		22 04 25
CHECKED	MM		22 04 25

PR.ENG. / PR.TECH./PR. ARCH

NAME	MOTEBANG MALAPANE	DATE
SIGNATURE		22 04 25
REG. NUMBER	PR 20150383	
SCALE		

TRANSNET

Transnet National Ports Authority
TRANSNET SOC Ltd (TRADING AS TNPA); REG No. 1990/000900/30
N2 NEPTUNE ROAD, OFF KLUB ROAD
COEGA
6100
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PROJECT / AREA / ASSET / SUBJECT/DRAWING TITLE

PORT OF NGQURA

CIVIL AND PERWAY INFRASTRUCTURE

REPLACEMENT OF FENCE AT PORT OF NGQURA AND CKQ

PLAN LAYOUT 4

PAPER SIZE	TRANSNET DRW. NO.	REV.
A0	NH7210007-004-0A	0A
	PROJECT DRG. NO.	REV.
	XNQ.E.0018-C-LA-0001-04-0A	0A

Annexure B

Contractor Documentation Submittal Requirements

CONTRACTOR ENVIRONMENTAL AND SUSTAINABILITY SPECIFICATION GUIDELINES

Document number	TRN-IMS-GRP-GDL-014.4
Version number	3.0
Classification	Unclassified
Effective date	01 October 2023
Review date	30 September 2028

SUMMARY VERSION CONTROL

VERSION NO.	NATURE OF AMENDMENT	PAGE NO.	DATE REVISED
3.0	• Addition of reference documents (section 3) • Inclusion of additional definitions • Removal of DEA and replacing it with DFFE • Removal of Transnet EO and replacing with Transnet Environmental Resource (PER) • Inclusion of additional abbreviations • Inclusion of minimum environmental requirements for construction (section 5) • Inclusion of details of site inspections/audits (table 1) • Inclusion of Records Management	6-7 7-10 11 12 12-23 23 45	June 2023

Note: Only latest amendments and/or additions are reflected in italics in the body of the document.

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DOCUMENTATION SIGN-OFF SHEET

I, the undersigned hereby approve this procedure.

ROLE	CAPACITY/ FUNCTION	SIGNATURE	DATE
Process Owner:	**Senior Specialist: Environmental Risk and Compliance**		01/10/2023
Accepts document for adequacy and practicability. Comments:			
Approval Committee:	**GM: Corporate Sustainability**		01/10/2023
Approves document for use. Comments:			

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1. PURPOSE

This document describes the minimum requirements for environmental management to which Contractors must comply. This document must be read in conjunction with the Transnet Construction Environmental Management Standard Operating Procedure (CEM SOP).

In this document, unless the context clearly indicates otherwise:

- Words importing any one gender shall include the other gender;
- The singular shall include the plural and vice versa; and
- Any reference in this document to legislation or subordinate legislation is to such legislation or subordinate legislation at the date of promulgation thereof and as amended and/or re-enacted from time to time.

2. APPLICABILITY

This standard applies to Contractors that work on site under the authority of Transnet SOC Ltd.

3. REFERENCE DOCUMENTS

Name	Applicable Section
Constitution of South Africa, Act 108 of 1996	Section 24
National Environmental Management Act, 107 of 1998	Section 2 National Environmental Management Principles
National Water Act, 36 of 1998	Section 164, Permissible Water Use
National Environmental Management: Waste Act, 58 of 2008	Part 1 15 (1) (i) and (2) Part 6 26 (10 (a) and (b) Schedule 3, Defined Wastes Category A: Hazardous Wastes Part 8: Contaminated Land
Environment Conservation Act, 73 of 1989	Section 20
Occupational Health and Safety Act, 85 of 1993	Asbestos Regulations, 2001

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Name	Applicable Section
	Government Notice R155 in Government Gazette 23108 of February 2002 General Safety Regulations-Reg. 2 (2) PPE
GNR 326, 7 April 2017 as amended, EIA Regulations	Chapter 15, Appendix 4
Transnet Environmental Risk Management strategy and Framework	2015:42
Environmental Management Systems ISO 14001: 2015	Clause 5, 6, 7, 8, 9 and 10

4. DEFINITIONS AND ABBREVIATIONS

4.1 Definitions

Compliance — Meeting of all the organization's regulatory requirements

Conformance — The action or fact of conforming to this standard and other internal Transnet policies, procedures, guidelines and best practice.

Construction Environmental Management Standard Operating Procedure — Is a document which is used to define how environmental management will be practiced on any construction site under the management of Transnet to ensure that the environment is considered, negative impacts avoided or minimized, and positive impacts are enhanced.

Contractor — The Principal Contractor as engaged by Transnet for infrastructure construction operations, including all sub-contractors appointed by the main contractor of his own volition for the execution of parts of the construction operations; and any other contractor from time to time engaged by Transnet directly in connection with any part of the construction operations which is not a nominated sub-contractor to the Principal Contractor.

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Contractor Environmental and Sustainability Specification Guidelines	A set of minimum environmental standards for all Transnet SOC Ltd-managed construction sites.
Environmental Aspect	Element of an organization's activities or products or services that interacts or can interact with the environment.
Environmental Impact	Change to the environment whether adverse or beneficial, wholly or partially resulting from an organization's environmental aspects.
Environmental Risk	The product of the likelihood and severity of an unforeseen occurrence/incident/aspect and the impact it would have, if realised, on the environment.
Fauna	A group of animals specific to a certain region or time period.
Flora	A group of plants specific to a certain region or time period.
General waste	Waste that does not pose an immediate hazard or threat to health or to the environment; and includes:- (a) domestic waste; (b) building and demolition waste; (c) business waste; (d) inert waste;
Indigenous vegetation	Plants that naturally occur in an area.
Liquid waste	Waste that appear in liquid form such as used oil, grease and/or contaminated water or waste water.

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Method statement	A document that describes how the Contractor will apply environmental management measures associated with a particular activity during construction.
Monitoring	Determining the status of a system, a process or an activity
Natural Vegetation	All existing species, indigenous or otherwise, of trees, shrubs, groundcover, grasses and all other plants found growing on the site.
Responsible Authority	A Responsible Authority, according to the National Water Act 36 of 1998, relates to specific power or authority in respect of water uses that is assigned by the Minister to a Catchment Management Agency or to a Regional Office.
Rehabilitation	Refers to measures that must be put in place to restore the site to its pre-construction or enhanced state, subsequent to construction taking place.
Scope of Work	The construction work for which the Contractor has been appointed in terms of the Contract with Transnet.
Sensitive area	Any area that is denoted as sensitive by this Specification due to its particular attributes, which could include the presence of rare or endangered vegetation, the presence of heritage resources (e.g. archaeological artefact or graves), the presence of a unique natural feature, the presence of a watercourse or water body, the presence of sensitive social receptors etc. As a minimum, habitats that fall under this definition include: mountain catchments, Ramsar wetland sites, coastal shores, estuaries and endangered ecosystems.
Solid waste	All solid waste, including construction debris, chemical waste, excess cement/ concrete, wrapping materials, timber, tins and cans, drums, wire, nails, food and domestic waste (e.g. plastic packets and wrappers).

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Spoil	Excavated material which is unsuitable for re-use as material in the Works or any other use; or is material which is surplus to the requirements of the Works.
Sub -Contractor	is a person or organisation who has a contract with the contractor to: Construct or install part of the contractor's work. Provide a service necessary to provide the works; or Supply plant and materials which the person or organisation has wholly or partly designed specifically for the works.
Temporary Storage	A once-off storage of waste for a period not exceeding 90 days.
Topsoil	Means a varying depth (up to 300 mm) of the soil profile irrespective of the fertility appearance, structure, agricultural potential, fertility and composition of the soil.
Waste	Any substance, material or object, that is unwanted, rejected, abandoned, discarded or disposed of, or that is intended or required to be discarded or disposed of, by the holder of that substance, material or object, whether or not such substance, material or object can be re-used, recycled or recovered and includes all wastes. Waste or a portion of waste ceases to be a waste only once the waste is, or has been re-used, recycled or recovered.
Wastewater	means water containing waste, or water that has been in contact with waste material
Watercourse	Refers to - a river or spring; a natural channel in which water flows regularly or intermittently;

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	a wetland, lake or dam into which, or from which, water flows; and any collection of water gazetted by the National Water Act, 36 of 1998 as a watercourse, and a reference to a watercourse includes, where relevant, its bed and banks.
Wetland	Land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.

4.2 Abbreviations

Acronym	Meaning In Full
CEM SOP	Construction Environmental Management Standard Operating Procedure
CM	Construction Manager
CV	Curriculum Vitae
DEFF	Department of Environment, Forestry and Fisheries
EA	Environmental Authorisation
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
CESSG	Contractor Environmental and Sustainability Specification Guidelines
EO	Environmental Officer

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Acronym	Meaning In Full
EMP	Environmental Management Plan
EMPr	Environmental Management Programme
EGF	Environmental Governance Framework
NEMA	National Environmental Management Act 107 of 1998
NEM:BA	National Environmental Management: Biodiversity Act 10 of 2004
NWA	National Water Act 36 of 1998
PER	Project Environmental Resource
PES	Project Environmental Specification
PM	Project Manager
SAHRA	South African Heritage Resource Agency
SDS	Safety Data Sheet
SHEQ	Safety, Health, Environment and Quality
TRANSNET	Transnet SOC Ltd

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5. MINIMUM ENVIRONMENTAL REQUIREMENTS FOR CONSTRUCTION

5.1 Tender Documents

Any construction-related tender issued to the market must include:

- Transnet Integrated Management System Policy Statement;
- The Transnet Construction Environmental Management Standard Operating Procedure (CEM SOP);
- The Contractor Environmental & Sustainability Specification Guideline; and
- The Project Environmental Specification (PES).

Any construction-related tender must be recommended for issue by the Transnet Project Environmental Resource/s before it is released to the market.

5.2 Project Environmental Specification (PES)

Must incorporate all relevant recommendations of the Environmental Impact Assessment (EIA) and other environmental studies for the project and the relevant conditions of the EA and/or other applicable environmental permit(s) and licence(s), and the Transnet Operating Division's Environmental Management requirements (where applicable) into an environmental performance specification for implementation during the construction phase of the project.

The PES need not be a separate document; however it can be in a format of an appendix/addendum making reference to environmental authorisation(s), permit(s) or licence(s) applicable to the project. In cases where the project does not trigger any of the NEMA listed activities or any permit(s)/licence(s); the PES may be compiled to prescribe additional environmental management measures over and above the measures stipulated in the MERC.

5.3 Contractor's Environmental Policy

The Contractor's Environmental Policy must be signed and dated by Top Management.

The content of the Contractor's Environmental Policy must:

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- be appropriate to the purpose and context of the Contractor's organization, including the nature, scale and environmental impacts of its activities, products and services;
- provide a framework for setting environmental objectives;
- include a commitment to the protection of the environment, including prevention of pollution and other specific commitment(s) relevant to the context of the Contractor's organization;
- include a commitment to fulfil compliance obligations; and
- include a commitment to continual improvement of the Contractor's environmental management system to enhance environmental performance

5.4 Contractor's Environmental Management Plan (EMP)

The Contractor's EMP must include:

- the name of the person who compiled the EMP;
- the expertise of the person who compiled the EMP, including a CV;
- a description of the Contractor's scope of work;
- a detailed description of the environmental aspects related to the Contractor's scope of work;
- a map at an appropriate scale which depicts all construction activities including associated structures, and infrastructure and environmental sensitivities affected by the construction footprint , as well as no go-areas and associated buffers;
    - The map must include the following:
    - an accurate indication of the project site position as well as the positions of the alternative sites, if any;
    - road names or numbers of all the major roads as well as the roads that provide access to the site(s)
    - a north arrow;
    - a legend;
    - the prevailing wind direction;
    - site sensitivities, including but not limited to vegetation, wetlands, watercourses, heritage sites, critical biodiversity area/s, World Heritage Site, etc. and it must be overlaid by the study area; and

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- GPS co-ordinates (Indicate the position of the proposed activity with the latitude and longitude at the centre point for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should be to at least three decimal places. The projection that must be used in all cases is the WGS-84 spheroid in a national or local projection).

- a description of the impacts and risks that need to be avoided, managed and mitigated during the execution of the Contractor's scope of work including (as relevant);
    - planning and design;
    - pre-construction activities;
    - construction activities;
    - rehabilitation; and
    - operation of Transnet assets.
- a description and identification of impact management outcomes required for the identified aspects;
- a description of proposed impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated above will be achieved, and must, where applicable, include actions to:
    - avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;
    - comply with any prescribed environmental management standards or practices; and
    - comply with any applicable local, provincial and national legislation.
- the method of monitoring the implementation of the impact management actions contemplated above;
- the frequency of monitoring the implementation of the impact management actions contemplated above;
- an indication of the persons who will be responsible for the implementation of the impact management actions;
- the timeframe within which the impact management actions contemplated above must be implemented;
- the mechanism for monitoring compliance with the impact management actions contemplated above;

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- a program for reporting on compliance, taking into account the requirements of this document;
- an environmental awareness plan describing the manner in which:
    - the Contractor intends to inform his employees of any environmental risk which may result from his scope of work; and
    - risks must be dealt with in order to avoid pollution or the degradation of the environment.
- any specific information that may be required by Transnet.

5.5 Contractor's Environmental Officer (EO)

The Contractor's EO should have relevant environmental qualifications and experience required for the project. The level of qualifications and experience must be in line with the complexity of the Contractor's scope of work coupled with the sensitivity of the site. The level of competency will be determined by Transnet during tender.

5.6 Management of Sub-Contractors

The Contractor must ensure that all his sub-contractors comply with this document in so far as it relates to their specific scope of work or services.

5.7 Pre-Site Access Environmental Governance

The Contractor must appoint the EO recommended in his tender proposal. Should the EO no longer be available, the Contractor must submit a CV of an alternative EO with similar or better qualifications and experience for approval by the Transnet PM and PER. The same principle will apply if the Contractor's EO is replaced for whatever reason at any stage. No construction may take place without a duly appointed Contractor's EO.

The Contractor must provide his EO with all environmental documents provided by Transnet during tender and submitted as a part of the Contractor's proposal.

The Contractor must obtain the contact details of the responsible Transnet PER and Transnet PER and provide these details to his EO.

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The Contractor's EO must develop an appropriate environmental file for approval by the Transnet PER, including but not necessarily limited to (the environmental file must always be available and up to date on the construction site):

- Documents from the tender as described above.
- His CV.
- An organogram indicating reporting lines of all Contractor's staff (with names included).
- Contact Information for: the overall responsible person acting on behalf of the Contractor to execute the construction works; Contractor's Construction Manager (CM); Contractor's EO; and all relevant emergency personnel.
- A list of the Contractor's plant and equipment indicating a description of the plant/equipment, its fuel capacity, any hazardous components (oils, greases etc.), individual service/maintenance cycles and noise levels.
- A list of hazardous substances to be used during construction indicating: official substance name from Material Safety Data Sheets (MSDS)/ Safety Data Sheet (SDS); quantity on site; storage method; transport method to site; and period to be used on site. All substances listed must have MSDS/ SDS on site in the environmental file.

The MSDS/ SDS should contain the following minimum requirements:

- Section 1: Product and company name
- Section 2: Hazard identification
- Section 3: Composition/information on ingredients
- Section 4: First aid measures
- Section 5: Fire fighting measures
- Section 6: Accidental release measure
- Section 7: Handling storage
- Section 8: Exposure controls/personal protection
- Section 9: Physical and chemical properties
- Section 10: Stability and reactivity
- Section 11: Toxicological Information
- Section 12: Ecological Information
- Section 13: Disposal Consideration

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- Section 14: Transportation
- Section 15: Regulatory Information
- Section 16: Other Information

- Photographic pre-construction report that details the site before any activities commence.
- Site Layout Plan indicating but not necessarily limited to,: access roads, site offices, material laydown areas, stockpile areas and parking areas, waste and effluent storage and handling facilities, entire construction footprint, no-go-areas, sewage and sanitary facilities. The plan must be appropriately drawn on a computer and must be clearly visible and properly scaled.
- A site establishment method statement (minimum requirements for method statements are described below in this document).
- Environmental Induction Material to be used to educate site staff and visitors (minimum requirements for environmental induction are described below in this document).
- An activity-based environmental risk assessment.

The Contractor's EO must submit the environmental file for acceptance to the Transnet PER.

The Contractor must obtain a Site Access Certificate from the Transnet PM before accessing the site.

5.8 Safety Data Sheets

Each hazardous substance used on site must have a valid SDS. The SDS must comply with the requirements of the Occupational Health and Safety Act, 85 of 1993.

5.9 Environmental Induction

The Contractor will ensure that all management, foremen and the general workforce, as well as all sub-contractors, suppliers and visitors to site have attended the Transnet Environmental Induction Programme prior to commencing any work on site. Where new personnel commence work on site during the construction period, the Contractor will ensure that these personnel also undergo the Transnet Environmental Induction Programme and are made aware of the environmental specifications on site.

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The Contractor must ensure that all of his personnel understand the requirements of the CEM SOP; MERC; EA, EMPr, relevant permits and licences and PES as relevant to their scope of work.

5.10 Environmental Method Statements

- Environmental Method Statements as identified by the Transnet PER based on the Contractor's activity-based environmental risk assessment will be written submissions by the Contractor to the Transnet CM and PER describing:
- The proposed activity, setting out the plant, equipment, materials, labour and method the Contractor proposes using to carry out an activity;
- The environmental management of site conditions – waste management, housekeeping, site establishment etc;
- Transportation of the equipment to and from site;
- How the equipment/ material will be moved while on site;
- How and where material will be stored;
- The containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur;
- Timing and location of activities;
- Description of potential positive and negative environmental impacts and how they will be managed;
- Conformance/ non-conformance with this document and any other statutory and best practice standards;
- Monitoring and reporting requirements;
- Records Management; and
- Any other information deemed necessary by the Transnet CM and Transnet PER as well as ECO where applicable.

The Environmental Method Statements will enable the potential positive and negative environmental impacts associated with the proposed construction activity to be identified and mitigation measures put in place. All method statements must be signed by the Contractor, Transnet CM and PER, with the addition of the ECO on authorized projects, thereby indicating that the works will be carried out according to the methodology described therein.

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Activities may only commence once the Environmental Method Statements have been approved by the Transnet CM, Transnet PER and ECO (where relevant). In some instances, local authorities may also need to approve the method statements. This will be highlighted in the Project Environmental Specification, where applicable.

All changes to the original Environmental Method Statements must be approved by the Transnet PER and Transnet CM prior to implementation.

To enable timely approvals, the environmental method statements will be submitted to the Transnet CM and Transnet PER for review two (2) weeks prior to the intended date of commencement of the activity, or as directed by the Transnet Project Manager/CM.

Emergency construction activity Environmental Method Statements may also be required. The activities requiring Environmental Method Statements cannot commence if they have not been approved by the CM and PER or ECO.

NOTE: No advice, approval of method statements or any other form of communication from Transnet will be construed as an acceptance by Transnet of any obligation that indemnifies the Contractor from achieving any required level of performance. Further, there is no acceptance of liability by Transnet which may result from the Contractor failing to comply with the specifications, i.e. the Contractor remains responsible for achieving the required performance levels.

5.11 Environmental Occurrences (Incidents)

The Transnet PER shall provide the Contractor with the procedure to follow in managing environmental occurrences during pre-site access governance.

The Contractor shall follow the procedure provided to him by the Transnet PER and maintain required records thereof.

In the event of an environmental occurrence, the Contractor must, as soon as is reasonably practicable:

- classify an environmental occurrence in line with the Transnet Environmental Management Occurrence process flow;

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- take all reasonable measures to contain and minimise the effects of the occurrence, including its effects on the environment and any risks posed by the occurrence to the health, safety and property of persons;
- undertake cleanup procedures;
- remedy the effects of the occurrence; and
- assess the immediate and long-term effects of the occurrence on the environment and public health

5.12 Environmental Non-Conformances (Defects)

Environmental Non-Conformances shall be handled as per the terms and conditions of the Contract.

The Transnet PER shall provide the Contractor with the procedure to follow in managing environmental non-conformances during pre-site access governance.

The Contractor shall follow the procedure provided to him by the Transnet PER and maintain required records thereof.

The Transnet Project Manager shall ensure that all Non-conformances are appropriately closed out within the timeframe specified in the Non-Conformance Report.

Any environmental non-conformance will be dealt with similarly to a Defect as defined in the Contract. A defect is due to non-compliance with the Works Information and it is the responsibility of the Contractor to correct the defect in order to ensure that the work takes place in accordance with the Works Information. Similarly, non-conformance/non-compliance with any other permit or licence will be regarded as a non-conformance with the Works Information. The Contractor is responsible for rectifying any defect (non-conformance) as defined above promptly.

The Contractor's EO shall be responsible to search for and identify non-conformances with the environmental specifications at inspection intervals agreed to with the Transnet PER. The Transnet PER shall also undertake such inspections on a monthly basis. If such monthly inspections indicate that any part of the Contractor's work is non-conformant with the environmental requirements, the Transnet PER shall advise the Transnet PM to issue a Defects Notification to the Contractor accordingly. The Contractor shall correct the non-

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conformance (defect) within the timeframes specified in the report and notification and submit proof of such correction to the Transnet PER.

The Transnet PER shall not recommend that a Site Closure Certificate be issued to the Contractor if any non-conformances have not been properly closed out. In such an event, the Transnet Project Manager may also make use of any reasonable contractual means to rectify the non-conformance(s) as allowed by the Contract (retention moneys etc.).

5.13 Community Grievances (Public Complaints)

The Transnet PER shall provide the Contractor with the procedure to follow in managing community grievances during pre-site access governance.

The Contractor shall follow the procedure provided to him by the Transnet PER and maintain required records thereof.

5.14 Environmental Inspections and Audits

Environmental inspections and audits may be conducted using five basic techniques:

- Interviews with Contractor's staff including Sub-contractors and suppliers;
- Document review;
- Observations;
- Monitoring; and
- Measurement and verification.

Table 1 sets out the areas and aspects of the construction site that will be inspected or audited, the frequency of such inspections/audits, the inspector/auditor and the inspected party/auditee. It should be noted that the list is not exhaustive and that each site will have specific issues that will need to be inspected/audited.

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Table 1: Details on Environmental Inspections/Audits (where Transnet is the Inspected Party/Auditee, respective Contractors must give full cooperation).

Place	**Inspector/Auditor**	**Inspected Party/ Auditee**	**Inspection/audit frequency**
Construction Site	Contractor's Environmental Officer	Contractor	Daily/Weekly Inspection
Project (including all construction sites).	Transnet Project Environmental Resource/Project Environmental Manager	Contractor	Monthly Inspection
Project (including all construction sites)	Transnet Environmental Specialist: Assurance	Transnet Project Environmental Resource	As stipulated on the annual audit plan
Project (as defined in Environmental Authorisation)	Environmental Control Officer	Transnet (represented by Transnet Environmental Resource)	As stipulated in the Environmental Authorisation
Project (as defined in Water Use Authorisation)	Independent Auditor	Transnet (represented by Transnet Environmental Resource)	As stipulated in the Water Use Authorisation

The Contractor's EO will be required to conduct inspections of all work areas for which the Contractor is responsible, at intervals agreed to with the Transnet PER. Monitoring shall

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be conducted as per the Contractor's approved EMP and all required records shall be maintained by the Contractor.

The Transnet PER will be required to conduct inspections of all work areas for which the Contractor is responsible on a monthly basis or at intervals agreed to with the Transnet Project Environmental Manager. Monitoring shall be conducted as per the Project Environmental Specification. The Inspection Checklist to be used shall be approved by the Transnet PER prior to each inspection.

5.15 Contractor's Environmental Performance

The Transnet PER will explain how the Contractor's performance will be scored during pre-site access governance to the Contractor's EO. The standard/minimum requirement for all environmental inspections will be 90%.

5.16 Site Planning and Establishment

The Contractor shall establish his construction camps, offices, workshops, eating areas and any other facilities on the site in a manner that does not adversely affect the environment. These facilities must not be sited in close proximity to sensitive areas; the buffer to be determined by the ecological requirements of the fauna/flora found on-site.

The site offices should not be sited in close proximity to steep areas. It is recommended that the offices, and in particular the ablution facilities, aggregate stockpiles, spoil areas and hazardous material stockpiles be located as far away as possible from any watercourse.

5.16.1 Site Layout Plan

The Site Layout Plan must as a minimum include but not limited to:

- Detailed layout of the construction works areas including access roads, site offices, material laydown areas, temporary stockpile areas and parking areas;
- Detailed locality and layout of all waste storage and handling facilities for litter, kitchen refuse and workshop-derived effluent;
- Proposed areas for the stockpiling of topsoil and excavated spoil material;
- Demarcation of the construction footprint including areas not to be disturbed by the development;

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- Location of sewage and sanitary facilities at the site offices and staff accommodation at all localities where there will be a concentration of labour.

Any changes to the location of the facilities and site activities as per the approved site layout plan shall be re-submitted to the Transnet CM and Transnet PER for approval prior to implementation.

The Contractor may be required to submit a separate layout plan dealing only with his site camp. If so this will be specified in the PES.

5.16.2 Identification and Establishment of Suitable Access Routes/Roads

Existing access routes to the construction/works areas must be used as far as possible. The building of access roads must be restricted to prevent unnecessary disturbance of the surrounding environment. Access tracks must be maintained in a good condition at all times during construction to minimize erosion and dust generation.

5.16.3 Demarcation of Site Limits

Prior to the commencement of construction, the site must be clearly demarcated by means of visible barriers. Vegetation within the demarcated zone may be cleared only upon obtaining approval from the Transnet PER. No activities are allowed outside of the approved footprint on the Site Layout Plan.

5.16.4 Eating Areas

The Contractor is responsible for providing adequate eating facilities within the works area to ensure that workers do not leave the site to eat during working hours. Refuse bags/bins must be provided at all established eating areas and when full it should be disposed of appropriately.

5.16.5 Liquid Waste Management

Liquid waste water from site shall be stored on-site in a properly designed and constructed system, situated so as not to adversely affect water courses. Only domestic type wastewater, i.e. toilet, shower, basin, kitchen water shall be allowed to enter the designated system.

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5.17 Sewage and Sanitation

The Contractor is responsible for providing adequate sanitary facilities including toilets, toilet paper, wash basins etc. to all workers on site and for enforcing the proper use of these facilities.

Toilet facilities shall be serviced regularly and the waste material generated from these facilities shall be disposed of at a registered waste water treatment works/macerator and relevant permits for transportation of waste and proof of servicing and disposal shall be maintained.

Toilets and latrines shall be easily accessible and shall be positioned within walking distance from wherever employees are employed on site, and away from sensitive areas. Use of open areas (i.e. the veld) is not allowed. For projects of high mobility a mobile toilet facility shall be made available by the Contractor.

Outside toilets shall be provided with locks and doors and shall be secured to prevent them from blowing over. Toilets must not be placed in areas susceptible to flooding and high winds. The Contractor shall arrange for regular emptying of toilets and shall be entirely responsible for enforcing their use and for maintaining such facilities in a clean, orderly and hygienic condition to the satisfaction of the Transnet CM.

5.18 Waste Management

Waste shall be grouped into "**general**" or "**hazardous**", depending on its characteristics. The classification shall determine handling methods and the ultimate disposal of material.

General waste which is likely to be generated on site during construction include but not limited to the following:

- Trash (waste paper, plastics, cardboard, etc.) and food waste from offices, warehouses and construction personnel;
- Uncontaminated construction debris such as used wood and scrap metal; and
- Uncontaminated soil and non-hazardous rubble from excavation or demolition.

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The Contractor shall classify all waste expected to be generated during the construction period. Examples of typical construction waste which could be expected on the site and how they should be classified are indicated in the following table:

TABLE 2: EXAMPLE OF CONSTRUCTION WASTE CLASSIFICATION

Waste	Classification	
	Hazardous	**General**
Aerosol containers	**X**	
Batteries, light bulbs, circuit boards, etc.	**X**	**X**
Clean soil		**X**
Construction debris contaminated by oil or organic compounds	**X**	
Domestic waste		**X**
Empty drums (depends on prior use)	**X**	**X**
Empty paint and coating containers		**X**
Explosive waste	**X**	
PCB waste	**X**	
Rubble (not contaminated by oil or organic compounds)		**X**
Waste Cable		**X**
Waste plastic		**X**
Waste paint and/or solvent	**X**	
Waste oil	**X**	
Waste concrete		**X**
Waste cement powder	**x**	
Waste empty cement bags (must be thoroughly decanted)		**x**
Waste containing fibrous asbestos	**X**	
Waste timber		**X**
Sewerage sludge	**X**	
Scrap metal		**X**

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Waste	Classification	
	Hazardous	General
Chemically-derived sanitary waste	X	

Waste will be managed in accordance with the Waste Management Hierarchy depicted in Figure 1 below:

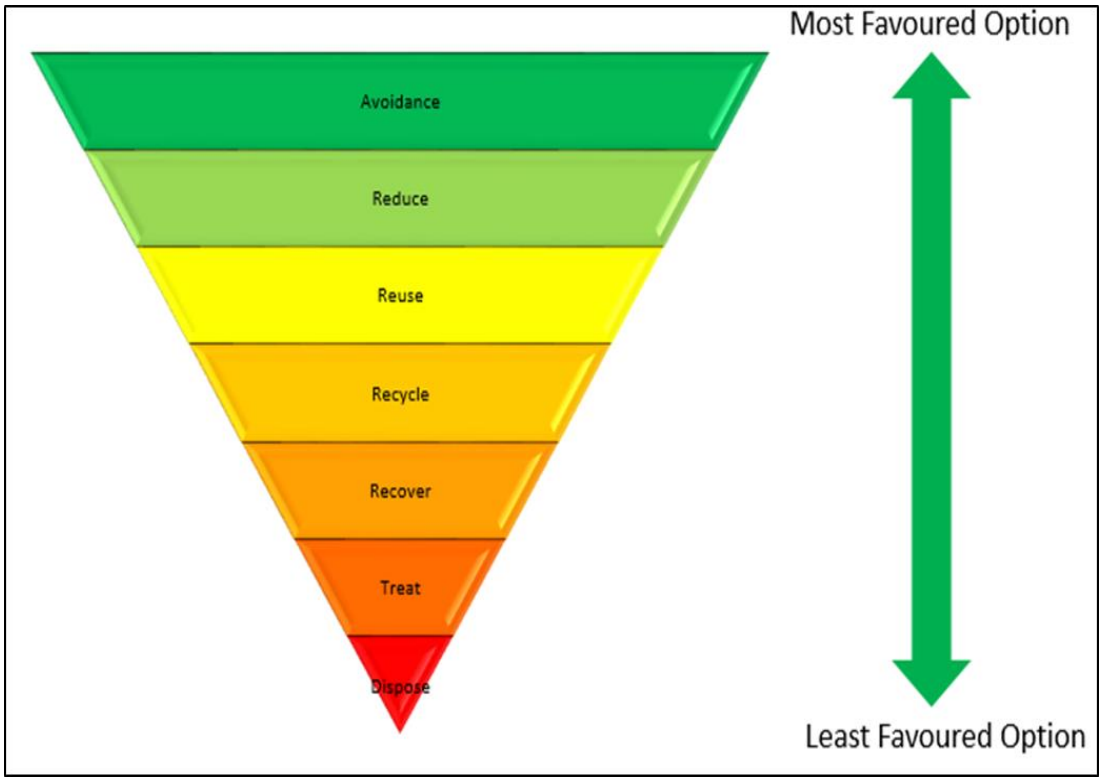


FIGURE 1: THE WASTE MANAGEMENT HIERARCHY

(Transnet Environmental Risk Management strategy and Framework, 2015:42)

1. **Avoidance/Prevention:** using goods in a manner that minimises their waste components
2. **Reduction/Minimisation:** reduction of the quantity and toxicity of waste generated during construction
3. **Re-use:** removing an article from a waste stream for use in a similar or different purpose without changing its form or properties

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4. **Recycling:** separating articles from a waste stream and processing them as products or raw materials
5. **Recovery:** reclaiming particular components or materials, or using the waste as a fuel
6. **Treatment:** processing of waste by changing its form or properties in order to reduce toxicity and quantity
7. **Disposal:** burial, deposit, discharge, abandoning or release of waste

The Contractor is responsible for the removal of all waste generated from site. The Contractor shall ensure that all waste is removed to appropriate licensed waste management facilities. (For the identification of an appropriate facility, the following source may be utilized: http://sawic.environment.gov.za/).

The Contractor shall manage **GENERAL WASTE** that is anticipated to be generated by operations as follows:

- Notify waste hauler when container is full so that it can be removed and replaced with an empty container/skip;
- No littering is allowed on site. In the event where staff mobility is high, refuse bags will be made available by the Contractor;
- Provide documented evidence of proper disposal of waste (Waste Disposal Certificate)

The Contractor shall recycle **GENERAL WASTE** (as far as practically possible) that is anticipated to be generated by its operations as follows:

- Obtain and label recycling containers for the following (whichever relevant) and locate them at secure designated locations on site:
  - Office Waste;
  - Aluminium;
  - Steel;
  - Glass;
  - Ferrous Metals;

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- Non Ferrous Metals; and
- Waste Timber

- Establish recycled material collection schedule;
- Arrange for full bins to be hauled away;
- Spent batteries, circuit boards, and bulbs, while non-hazardous, require separate storage, special collection and handling; and
- No burning, burying or dumping of waste of any kind will be permitted.

The Contractor shall manage **HAZARDOUS WASTE** anticipated to be generated by his operations as follows:

- Obtain and provide an acceptable container with correct and visible classification label;
- Place hazardous waste material in allocated container;
- Inspect the container on a regular basis as per the Contractor's EMP;
- Track the accumulation time for the waste, haul the full container to the registered hazardous disposal site;
- Notify the waste hauler when container is full so that it can be removed and replaced with an empty container/skip; and
- Provide documented evidence of proper waste disposal of the waste (Waste Disposal Certificate).

The Contractor shall maintain the following waste records for submission to the Transnet PER on request:

- Date of waste management activity;
- Activity Type (reuse, recycle, recover, treat, dispose);
- Description (e.g. contaminated soil, medical waste, tyres, plastic, domestic waste etc.)
- Classification (General/Hazardous);
- Estimated Quantity in kilograms
- Disposal Site Name and Reference Number (where relevant);
- Method of Transport; and
- Signed Collection or Disposal Records

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5.19 Workshops, equipment maintenance and storage

All vehicles and equipment must be kept in good working order to maximise efficiency and minimise pollution. Maintenance, including washing and refueling of plant on site must be done at designated locations approved on the Site Layout Plan. The Contractor must ensure that no contamination of soil or vegetation occurs around workshops and plant maintenance facilities.

All machinery servicing areas must be bunded. Stationary plant that leak harmful substances shall not be permitted on site. Washing of equipment should be restricted to urgent maintenance requirements only. Adequate wastewater collection facilities must be provided and the wastewater should be disposed of appropriately in accordance with its waste classification.

5.20 Vehicle and Equipment Refueling

5.20.1 Stationary/Designated Refuelling

No vehicles or machines shall be serviced or refueled on site except at designated servicing or refueling locations included on the approved Site Layout Plan.

The Contractor shall provide details of his refueling activities in his EMP or Refueling Method Statement. Facility design shall comply with the regulations of the National Water Act, (Act 36 of 1998), the Hazardous Substances Act, (Act 15 of 1973), the Environmental Conservation Act, (Act 73 of 1989), National Environmental Management Act, (Act 107 of 1998), and the Occupational Health and Safety Act, (Act 85 of 1993), mainly the Construction - and Hazardous Chemical Substances Regulations.

5.20.2 Mobile Refuelling

In certain circumstances, the refueling of vehicles or equipment in a designated area is not a viable/practicable option and refueling has to be done from a tank, truck, bowser or container moved around on site. In such circumstances, the Contractor may request approval from the Transnet CM to conduct mobile refueling subject to the following control measures:

- Secondary containment equipment shall be in place. This equipment shall be sized to contain the most likely volume of fuel that could be spilt during transfer.

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- Absorbent pads or drip trays are to be placed around the fuel inlet prior to dispensing.
- Mobile refueling units are to be operated by a designated competent person.
- The transfer of fuel must be stopped prior to overflowing. Fuel tanks or refueling equipment on vehicles may only be filled to 90% carrying capacity.
- Mobile fuelling equipment must be stored in areas where they are not susceptible to collisions.
- Mobile refueling operations shall not take place within 30 meters of any watercourses or 7.5 meter from other structures, property lines, public ways or combustible storage.

All mobile refueling tanks are to be properly labelled and fire extinguishers with valid service dates shall be located near the fuel storage areas. These extinguishers must be of a suitable type and size.

5.21 Spill Response

The Contractor shall have adequate spill response materials/equipment on site which must be aligned with the volumes of hazardous substances used on site and the risk of pollution to sensitive environmental features.

The Contractor shall have an approved Spill Response Plan, either in his EMP or in the form of a method statement approved by the Transnet CM and Transnet PER.

The Contractor shall instruct construction personnel on the following spill prevention and containment responsibilities:

- All plants to be inspected daily to ensure that they are in good condition;
- Immediately repair all leaks of hydrocarbons or chemicals;
- Take all reasonable measures to prevent spills or leaks;
- Do not allow sumps receiving oil or oily water to overflow;
- Prevent storm water runoff from contamination by leaking or spilled drums of oil or chemicals; and
- Do not discharge oil or contaminants into storm water or sewer systems.

If a spill occurs on land, the Contractor must:

- Immediately stop or reduce the spill;

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- Contain the spill;
- Recover the spilled product;
- Remediate the site;
- Implement actions necessary to prevent the spill from contaminating groundwater or off-site surface water; and
- Manage the contaminated material in accordance with Waste Management requirements in this document.

Any spill to water has the potential to disperse quickly, therefore, the spill must be contained immediately using appropriate containment equipment.

If a spill to water occurs, the Contractor must:

- Take immediate action to stop or reduce the spill and contain it;
- Notify the appropriate on-site authorities;
- Implement actions necessary to prevent the spread of the contamination by deploying appropriate absorbent material;
- Recover the spilled product; and
- Manage the contaminated material in accordance with Waste Management requirements in this document. Water samples to be taken downstream from where the spill took place to trace the extent of pollution.

All spills must be recorded as occurrences and managed in accordance with the requirements for Occurrences in this document.

5.22 Spray Painting and Sandblasting

Spray painting and sandblasting must be kept to a minimum. All painting must, as far as practicable, be done before equipment and material is brought on site. Touch-up painting is to be done by hand painting or as per the approved EMP or Method Statement.

The relevant Contractor will inform his EO when and where spray painting or sandblasting will be carried out prior to commencement of work. The Contractor's EO will monitor these activities to ensure that adequate measures are taken to prevent contamination.

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Sand may only be acquired from approved commercial sources and in instances where sand is collected from the natural surrounds, such collection must be approved by the Transnet PER.

If the area is in confined or high (elevated) areas, a protection plan must be issued for approval by the Transnet PER.

5.23 Dust Management

The usage of water for dust management will be minimized as far as practically possible. Discretion must be applied in this regard especially relating to drought conditions. Only water from approved sources may be used. Dust control measures must be approved by the Transnet PER prior to commencement of the Works.

The following minimum dust management practices must be implemented on site:

- Vehicles must be operated within speed limits, where no speed limit has been specified, the limit shall be 40km/h;
- Haulage distances must be minimized as far as reasonable practicable;
- Where water suppression is insufficient or impractical, environmentally friendly soil stabilizers must be used;
- Stockpiles and open areas that may cause dust must be stabilized and vegetated where required;
- Dust suppression measures must be implemented on inactive construction areas. (An inactive construction site is one on which construction will not occur for a month or more);
- Disturbance of natural vegetation must be minimized to reduce potential erosion, runoff, and air-borne dust;
- Material in transit must be loaded and contained within the load bin of the vehicle in such a way as to prevent any spillage or creation of dust clouds. If necessary, the load bin of the vehicle shall be covered with a tarpaulin;

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5.24 Storm Water and Dewatering Management

Apart from runoff from overburden emplacements and stock piles, storm water can also be contaminated from batch plants, workshops, vehicle wash-down pads, etc., and contaminants during construction may include hydrocarbons from fuels and lubricants, sewerage from employee ablutions and excess fertilizer from rehabilitated areas, etc.

Discharges to controlled waters such as the sea, rivers, and groundwater or to sewerage systems are controlled under South African Water Legislation. The following specific measures are required:

- Temporary drainage must be established and maintained on site during the construction period until permanent drainage is in place. Secondary drainage that prevents erosion must be provided, where necessary.
- Contractors must employ good housekeeping in their areas to prevent contamination of drainage water.
- Stagnant water shall be cleared at a frequency approved by the Transnet PER.
- Any surface water flows off-site must be approved by the Transnet PER. Where necessary, silt traps shall be constructed to ensure retention of silt on site and cut-off ditches shall be constructed to ensure no runoff from the site except at points where silt traps are provided. The Contractor shall be responsible for checking and maintaining all silt traps for the duration of the project.
- The removal from groundwater is defined as a water-use under the National Water Act 36 of 1998. Therefore, it must be ensured that the project has been authorised by the Responsible Authority to remove and discharge groundwater prior to dewatering taking place. If applicable, the Contractor shall be responsible for collection, management, and containment within the site boundaries of all dewatering from all general site preparation activities.
- On-site drainage shall be accomplished in accordance with a plan approved by a suitably qualified civil engineer.

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5.25 Erosion Control

Erosion control measures will be designed, implemented, and properly maintained in accordance with best management practices which will include, but not limited to the following:

- Activities must be scheduled to minimise the extent of disturbance of an area at any one time;
- Re-vegetation must be implemented as early as feasible;
- Construction traffic must be properly managed and controlled;
- Areas must be graded to the extent feasible at drainage ditches;
- Loose soil will be compacted as soon as possible after excavation, grading, or filling;
- Silt fences, geo-textiles, temporary rip-rap, soil stabilisation with gravel, diversionary berms or swales, small sedimentation basins must be used;
- The transport of sediment must be minimised;
- An erosion and sedimentation control plan must be developed, approved by the Transnet PER and communicated to staff; and
- The Contractor shall be responsible for checking and maintaining all erosion and sedimentation controls.

5.26 Noise Management

- The following specific measures are required:
- Keep all equipment in good working order;
- Operate equipment within its specification and capacity and don't overload machines;
- Apply regular maintenance, particularly with regards to lubrication;
- Operate equipment with appropriate noise abatement accessories, such as sound hoods;
- Relevant stakeholders shall be notified of any excessive noise-generating activities that could affect them;
- Ensure that the potential noise source will conform to the South African Bureau of Standards recommended code of practice, SANS 10103:2004 or the latest at the time, so that it will not produce excessive or undesirable noise when released;

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- All the Contractor's equipment shall be fitted with effective exhaust silencers and shall comply with the South African Bureau of Standards recommended code of practice, SANS 10103:2004 or the latest at the time, for construction plant noise generation
- Contractor's vehicles shall comply with the Road Traffic Act, (Act 29 of 1989) when any such vehicle is operated on a public road.
- If on-site noise control is not effective, protect the victims of noise by ensuring that all noise-related occupational health provisions are met. (Occupational Health and Safety Act, (Act 85 of 1993).

5.27 Protection of Heritage Resources

5.27.1 Archaeological Sites

If an artefact on site is uncovered, work in the immediate vicinity shall be stopped immediately. The Contractor shall take reasonable precautions to prevent any person from removing or damaging any such article and shall immediately upon discovery thereof inform the Transnet CM and Transnet PER of such a discovery. The South African Heritage Resources Agency (SAHRA) or relevant Authority is to be contacted and will appoint an Archaeologist to investigate the find. Work may only resume once clearance is given in writing by the Archaeologist.

5.27.2 Graves

If a grave is uncovered on site, or discovered before the commencement of work, all work in the immediate vicinity of the grave shall be stopped and the Transnet CM and PER informed of the discovery. The South African Heritage Resources Agency (SAHRA) or relevant Authority should be contacted and in the case of graves, arrangements made for an undertaker to carry out exhumation and reburial. The undertaker will, together with the SAHRA, be responsible for attempts to contact family of the deceased and for the site where the exhumed remains can be re-interred.

5.28 Fire Prevention

Fires shall only be allowed in facilities or equipment specially constructed for this purpose.

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A firebreak shall be cleared and maintained around the perimeter of the camp and office sites where and when necessary. In cases where construction is taking place in a Critical Biodiversity Area as listed under NEM:BA; it must be ensured that the requirement of a firebreak is screened against the NEMA Listing Notice 3 to confirm legislative requirements.

All conditions incorporated in the requirements of the Occupational Health and Safety Act shall be implemented.

5.29 Water Protection and Management

No water shall be abstracted from any water course (stream, river, or dam) without the expressed permission of the Transnet CM and Transnet PER. Such permission shall only be granted once it can be shown that the water is safe for use, that there is sufficient water in the resource to meet the demand, and once permission has been obtained from the Department of Water and Sanitation in accordance with the requirements of the National Water Act (Act 36 of 1998).

Water for human consumption shall be available at the site offices and at other convenient locations on site. The generally acceptable standard is that a supply of drinking water shall be available within 200m of any point on the construction site.

Method Statement(s) must be prepared by the Contractor for the various water uses. The Contractor shall keep a record of the quantities of water used on-site during construction (including use by sub-contractors), irrespective of the purpose of use.

5.30 Protection of Fauna and the collection of firewood

On no account shall any hunting or fishing activity of any kind be allowed. This includes the setting of traps, or the killing of any animal caught in construction works.

On no account shall any animal, reptile or bird of any sort be killed. This specifically includes snakes or other creatures considered potentially dangerous discovered on site. If such an animal is discovered on site, an appropriately skilled person should be summoned to remove the creature from the site. Consideration should be given to selection and nomination of such a person prior to site establishment. If no-one is available, training should be provided to at least two site staff members.

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

5.31 Environmental Awareness Training

An Environmental Awareness Program is considered a necessary part of the Construction Environmental Management Plan for the Project. Training of the appropriate construction personnel will help ensure that all environmental regulations and requirements are followed which must be defined in the relevant Method Statement to be prepared by the Contractor.

Objectives of environmental awareness training are:

- Environmental Management – protecting the environment from the effects of construction by making personnel aware of sensitive environmental resources.
- Regulatory compliance – complying with requirements contained in project – specific permit conditions, also complying with requirements in regional and local regulations.
- Problem recognition and communication – training personnel to recognise potential environmental problems, i.e. spills, and communicate the problem to the Contractor's EO for a solution.
- Liability control - non-compliance with regulatory requirements can lead to personal and corporate liability.

All individuals on the Project construction site will need to have a minimum awareness of environmental requirements and responsibilities. However, not all need to have the same degree of awareness. The required degree of knowledge is greatest for personnel in the Safety, Health, and Environmental Sections and the least for the manual personnel.

The Contractor shall present environmental awareness programmes on a weekly/bi-monthly basis (depending on project requirements) and keep record of all the environmental related training of the personnel.

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5.32 Handling and Batching of Concrete and Cement

Concrete batching shall only be conducted in demarcated areas which have been approved by the Transnet CM and Transnet PER.

Such areas shall be fitted with a containment facility for the collection of cement-laden water. This facility shall be bunded and have an impermeable surface protection so as to prevent soil and groundwater contamination. Drainage of the collection facility will be separated from any infrastructure that contains clean surface runoff.

The batching facility will not be placed in areas prone to floods or the generation of stagnant water. Access to the facility will be controlled so as to minimise potential environmental impacts. Hand mixing of cement and concrete shall be done on mortarboards and/or within the bunded area with impermeable surface or concrete slab. Bulk and bagged cement and concrete additives will be stored in an appropriate facility at least 10m away from any watercourses, gullies and drains.

Waste water collected in the containment facility shall be left to evaporate. The Contractor shall monitor water levels to prevent overflows from the facility. It is acknowledged that all waste water will evaporate; it must be ensured that the remaining water can be pumped into sealed drums for temporary storage and must be disposed of as liquid hazardous waste at an authorised hazardous waste management facility.

All concrete washing equipment, such as shovels, mixer drums, concrete chutes, etc. shall be done within the approved washout facility. Water used for washing shall be restricted as far as practically possible.

Ready-mix concrete trucks are not allowed to wash out anywhere other than in an area designated and approved by the Transnet CM and PER for this purpose.

The Contractor shall periodically clean out hardened concrete from the wash-out facility or concrete mixer, which can either be reused or disposed of as per accepted waste management procedures.

Empty cement and bags, if temporarily stored on site, must be collected and stored in weatherproof containers. Used cement bags may not be used for any other purpose and

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must be disposed of on a regular basis in accordance with the Contractor's solid waste management system.

Sand and aggregates containing cement will be kept damp to prevent the generation of dust.

Concrete and cement or any solid waste materials containing concrete and cement will be disposed of at a relevant registered disposal facility and SDCs kept on the file. Where disposal facilities for general waste are utilised, written consent from the relevant municipality must be obtained by the Contractor and filed in the Green file.

5.33 Stockpiling, Soil Management and Protection of Flora

The Contractor shall measure the extent of all areas cleared for construction purposes and keep this figure updated. Sensitive areas shall be cordoned off and avoided in this regard.

Stockpiling may only take place in designated areas indicated on the approved site layout plan. Any area to be used for stockpiling or material laydown shall be stripped of all topsoil.

Clearance of vegetation shall be restricted to that which is required to facilitate the execution of the works. Vegetation clearance shall occur in a planned manner, and cleared areas shall be stabilised as soon as possible when and where necessary. The detail of vegetation clearing shall be subject to the Transnet CM's approval and shall occur in consultation with the Transnet PER.

Stockpiles must be positioned in areas sheltered from the wind and rain to prevent erosion and dispersion of loose materials. Stockpiled soil shall be protected by adequate erosion-control measures. Soil stockpiles shall be located away from drainage lines, watercourses and areas of temporary inundation. Stockpiles containing topsoil shall not exceed 2m in height unless otherwise permitted by Transnet.

Topsoil shall be stockpiled separately from other materials and prevented from movement. Excavated subsoil, where not contaminated, must be used for backfilling, if possible, and topsoil for landscaping and rehabilitation of disturbed areas. Where topsoil

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has become mixed with subsoil or is not up to the original standard, fertiliser or new topsoil shall be provided by the Contractor.

No vegetation located outside the construction site shall be destroyed or damaged. As far as is reasonably practicable, existing roads must be used for access to the site. Before site clearance takes place, vegetation surveys must be conducted and protected species identified.

No protected plant species shall be removed without written consent from the relevant authorities. The development of new embankments or fill areas must be undertaken in consultation with the Transnet PER.

No dumping of solid waste or refuse shall be allowed within or adjacent to areas of natural vegetation.

The Contractor shall identify and eradicate all declared alien and invasive plant species occurring on site.

5.34 Traffic Management

Vehicles usage is permitted only on access roads. Vehicles should only be parked within designated parking areas as demarcated on the site layout plan.

Turning of vehicles should only take place within a clearly demarcated "turn area" located within the approved construction footprint.

The Contractor must co-ordinate the loading and offloading of material during the construction phase so as to ensure that vehicular movement is in one direction only at any one time and that side-tracks are not created on the site.

5.35 Transportation of Materials

The Contractor is responsible for ensuring that all suppliers and delivery drivers are aware of procedures and restrictions (e.g. no-go areas) in terms of the SOP CM and this Specification. Material must be appropriately secured to ensure safe passage between destinations during transportation. Loads must have appropriate cover, where ADTs are not utilised, to prevent spillage from the vehicles. The Contractor will be held responsible for any clean-up resulting from the failure to properly secure transported materials.

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5.36 Borrow Pits and Quarries

The Contractor shall ensure that suppliers of rock and sand raw materials are in possession of the required permit/license and keep record of the quantity of material supplied.

The Contractor will not make direct use of any borrow pits and quarries unless the borrow pit has a valid permit, he has obtained written approval from the Transnet CM and Method Statement has been submitted and approved. The Method Statement will provide the detailed description of the location of the borrow pits and/or quarries and the procedures that will be followed to adhere to any pertinent national or local legislation (e.g. mineral extraction, rehabilitation, safety and noise levels).

5.37 Social and Labour Issues

The criteria for and selection of labourers, sub-contractors and suppliers for the project shall demonstrate preference for the local community and shall be aligned with the criteria set by Transnet SOC Ltd in appointing the Contractor. The Contractor shall keep records of the identity of all staff.

Under no circumstances shall the Contractors engage in formal discussions with landowners without prior consent by the Transnet CM.

No activity on private property shall be allowed without written consent by the relevant landowner and Transnet CM/Transnet PER.

Any damage to private property caused by the Contractor during the construction period, shall be repaired to the satisfaction of the Transnet CM, the Transnet PER and the land-owner.

The Contractor shall keep record of any complaint raised during the construction period relating to the Contractor's activities.

No job-seekers shall be allowed on site and signs reflecting such shall be displayed on the notice boards.

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5.38 Energy Management

The Contractor shall measure and keep updated records of the following:

- Electricity consumption (to be measured in Kilowatt Hours)
- Fuel consumption (to be measured in liters)

5.39 Handling, Storage and Management of Hazardous Substances

All hazardous materials/substances shall be stored in a secured, designated area that is fenced, bunded and has restricted entry.

All storage shall take place using suitable containers to the approval of the Transnet CM and PER.

All hazardous liquids shall be located in a secure, demarcated area and an adequate bund wall (110% of the total volume stored) shall be provided. The floor and wall of the bund area shall be impervious to prevent infiltration of any spilled/leaked liquids into the soil.

No spillages or accumulated stormwater within this bunded area will be allowed to be flushed from the bund into the surrounding area.

Hazard signs indicating the nature and volume of the stored materials shall be displayed on the storage facility or containment structure.

Weigh bills of hazardous substances shall be sourced from suppliers and kept on site for inspection by the Transnet PER.

The Contractor must provide a method statement detailing the hazardous substances that are to be used during construction, as well as the storage, handling and disposal procedures for each substance. Emergency procedures in the event of misuse or spillage that might negatively affect the environment must be specified.

Information on each hazardous substance will be available to all persons on site in the form of MSDS/SDS. Training and education about the proper use, handling, and disposal of the material will be provided to all workers handling the material.

The Contractor's EO must be informed of all activities that involve the use of hazardous substances to facilitate prompt response in the event of a spill or release.

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5.40 Housekeeping

The Contractor must ensure proper housekeeping of the site for the duration of the project. If practical the contractor shall amongst construction personnel, assign one to be responsible for good housekeeping

Materials shall be stored in a neat and tidy manner in designated areas as per the approved site layout plan.

5.41 Rehabilitation

Contractors shall rehabilitate the entire site upon completion of work. Where applicable, rehabilitation must be in line with the measures outlined in the Project Environmental Specification. A rehabilitation plan will be submitted to the Transnet CM and PER for approval at least six weeks before project completion. The following, but not limited are critical issues to be included in the rehabilitation plan:

- Details of soil preparation procedures including proposed fertilisers or other chemicals being considered for use;
- A list of the plant species that will be used in the rehabilitation process. Note that these should all be indigenous species, and preferably species that are endemic to the area. The assistance of an appropriately qualified Botanist/Horticulturist should be sought in developing this list;
- Procedures for watering the planted areas (frequency of watering, methodology proposed etc.);
- An indication of the monitoring procedures that will be put in place to ensure the successful establishment of the plants (duration and frequency of monitoring, proposed criteria for declaring rehabilitation as being successful); and
- Procedures for the prevention of the establishment and spread of alien invasive species.

5.42 Documentation and Records Management

The Contractor's EO will complete and maintain copies of all documents and records and ensure that these documents and records are kept up to date.

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The Contractor's EO will submit these documents to the Transnet PER on a frequency as agreed to with the Transnet PER, except where documents have remained unchanged in which case written notification to this effect must be provided to the Transnet PER. The Contractor's EO must ensure that electronic copies of these documents are saved on the Transnet system.

Once the construction activities have been completed and the Transnet PER has conducted a site closure inspection and notified the Contractor that site closure will be granted, all documents described above must be handed over to Transnet after which a Site Closure Certificate will be issued by the Transnet Project Manager.

NOTE: All documents/records are to be retained, within the Transnet Document Control System, for a period of 10 years. In the event of environmental documentation/record being lost before receiving a Site Closure Certificate, the Contractor will be penalised according to the specifications laid down in the Contract.

6. RECORDS

Refer to CEM SOP.

7. ANNEXURES

None.

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Annexure C

Health and Safety Specification

Transnet Health and Safety Management

Health and Safety Specification:

Replacement of Palisade Fence – Port of Ngqura

Prepared by:

Reviewed by:

Approved by:

00	09/2024	Issued for Review
Rev No	**Date**	**Revision Details**

Transnet Health and Safety Management

Health and Safety Specification:

Replacement of Fence – Port of Ngqura & Coega Kop Quarry

Prepared by:	S.Ahmed Sharifa Ahmed Health & Safety Manager	18/10/2024 Date
Reviewed by:	 Nkosinathi Madondo Health & Safety Practitioner	21/10/2024 Date
Approved by:	 Themba Ntanzi Principal Project Manager	21/10/2024 Date

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Rev No	**Date**	**Revision Details**

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1. Project Description

The International Ship and Port Facility Security (ISPS) code is an amendment to the Safety of Life at Sea (SOLAS) Convention (1974/1988) on minimum security arrangements for ships, ports, and government agencies. It prescribes responsibilities to governments, shipping companies, shipboard personnel, and port/facility personnel to "detect security threats and take preventative measures against security incidents affecting ships or port facilities used in international trade." To comply with the ISPS code, the South African ports must secure all their assets by means of physical barriers and systems. Transnet National Ports Authority (TNPA) is mandated to implement measures to protect its assets, customers, employees, passenger vessels, and port facilities against terrorism, sabotage, stowaways/illegal immigrants, armed robbery, etc. Under this mandate TNPA is obliged to provide adequate and effective port security fencing infrastructure, ensuring compliance with all relevant legislation and regulatory framework standards.

There are various areas in the Port of Ngqura that requires replacement of security fencing (fence and gates) to comply with the legislative requirement in terms of the International Ship and Ports Facility Security (ISPS). These areas are facing the seaside and act as a boundary of the Port from the seaside. As a port of entry, it is a legislative requirement for the Port to secure all its assets by means of a physical barrier, to ensure a secure and safe environment. There are also areas in the Port that are currently not fenced off and require installation of a new fence as per the ISPS requirements.

The areas that require fencing are Eastern Breakwater (Including Lighthouse area), Sand Bypass, Western Breakwater, Multi-purpose Terminal, and Seawall between AMS and C-berth. The Eastern Breakwater, Western breakwater and Sand bypass are currently fenced off with steel palisade fencing which was installed in 2009 when the Port was being constructed. This fence have a life expectancy of 20 years. There are chemical reactions that take place on steel when exposed to the marine environment, resulting in the steel corroding at a higher rate than expected, reduction of panel size, loosening of panel bolts from anchoring posts and posts losing anchorage to the concrete. This has resulted in localized failure/collapse and the development of perimeter gaps, rendering the infrastructure incapable of preventing trespassing and subsequent non-compliance with the International Ship and Port Facility Security, National Ports Act and Maritime Security Regulations.

There are areas that were previously fenced off with wire mesh fence and requires replacement. These areas include the Eastern breakwater (Lighthouse area) and Multi-purpose Terminal (including C100). There are also areas that were previously not fenced off and require installation, these include the Seawall between AMS and C-berth, and a section at Western Breakwater.

2. Scope and Purpose

The project is aimed at replacing fencing in the Port of Ngqura and Coega Kop Quarry to meet the minimum requirements of the ISPS code, ensure compliance with the relevant legislation and regulatory framework standards as well as address any security concerns posed by the condition of the existing fencing.

The works that the Contractor is to perform involve the structural and civil works for the construction of the fencing in various areas in the Port.

The works include the following main items:

- Removal of existing fencing (fence and gates),
- Removal of fence existing intrusion detection cables with care and to be reinstated after the new fence has been installed.
- Construction of a hot-dipped galvanized mesh fence panel fencing (fence and gates) including all of the fence accessories and concrete plinths foundations.
- Construction of a new concrete wall panel fencing including all of the fence accessories and concrete plinths foundations.
- Installing a concrete wall at Coega Kop Qaurry.



figure 1: depiction of different sites that require fencing

The implementation of the Replacement of Palisade Fence project will ensure compliance to all relevant legislations and regulatory framework standards, retention of ISPS code certification and ensuring the safety of ports users, assets, and employees.

This health and safety specification outlines the working behaviours and safe work practices that must be implemented and complied with by all Transnet employees, Contractors, Consultants, Visitors and Suppliers, that will be undertaking activities associated with the project. The specification has been developed in accordance with the requirements of the Construction Regulation of 2014, Regulation 5(1)(b) as well as any other applicable legislation.

Appointed contractors must identify all requirements applicable to their scope of works and address these accordingly in their Contractor's Site Specific Health and Safety Management Plan. It is the contractor's responsibility to ensure that all sub-contractors comply fully with all legal requirements as well as the requirements of this Specification.

This Health and Safety Specification will be reviewed and updated periodically as and when necessary to address and / or include:

- Changes in legislation;
- Client requirements;
- Leading practices; and
- Lessons learnt from incidents.

3. Definitions

Acceptable Risk
A risk that has been reduced to a level that can be tolerated having regard for the applicable legal requirements and the Health and Safety Policy adopted for the project.

ALARP (As Low As Reasonably Practicable)
The concept of weighing a risk against the sacrifice needed to implement the measures necessary to avoid the risk. With respect to health and safety, it is assumed that the measures should be implemented unless it can be shown that the sacrifice is grossly disproportionate to the benefit.

Applicant (Permit to Work)
A person requesting permission to perform work for which a Permit to Work is required. Applicants must be authorised (in writing) to receive (or accept) Permits to Work and must be competent to do so by virtue of their training, experience and knowledge of the area or plant in which the work is to be performed.

Authorised Person (Permit to Work)
A person (typically a Project employee or an employee of the client) who has been authorised (in writing) by the nominated project management representative to issue Permits to Work within the scope of his designation. A person may only be appointed to issue Permits to Work if he has undergone training and has been assessed and found competent in systems, plant and equipment operation within the scope of his designation.

Barricade
A temporary structure that is erected as a physical barrier to prevent persons from inadvertently coming into contact with an identified hazard.

Consequence
The outcome of an event expressed qualitatively or quantitatively.

Contractor
An employer performing construction work, or providing related or supporting services, on a project site.

Competent Person
A person who has in respect of the work or task to be performed the required knowledge, training, experience and as per OSHAct, 1993 (Act 85 of 1993) and CR 2014.

Construction Supervisor
A competent person responsible for supervising construction activities on a construction site

Clearance Certificate
A signed declaration by an Isolation Officer that a specified hazardous energy source associated with a particular system, plant or item of equipment has been isolated in accordance with an approved Isolation and Lockout Procedure.

Discipline Lock (many locks with a restricted number of identical keys)
Attached at a Lockout Station or at a Local Isolation Point in order to lock out a system, plant or equipment. A Discipline Lock (e.g. A Low Voltage Electricity Discipline Lock) is owned by an Isolation Officer who has been authorised in writing to isolate and lockout a particular hazard (e.g. Low voltage electricity).

Implementing Agent
Contractor appointed by TRANSNET in order to involve an experienced associate in large projects to manage the entire, or parts of the, project on behalf of TRANSNET.

Equipment Lock (many locks with one unique key)
Attached directly to pieces of equipment in order to lock them out. Equipment Locks may only be used by Isolation Officers who have been authorised in writing to perform isolation and lockout procedures. The key must have a solid key ring that fits over an Isolation Bar.

Excavation
Any man-made cut, cavity, pit, trench, or depression in the earth's surface formed by removing rock, sand, soil or other material using tools, machinery, and / or explosives. Tunnels, caissons and cofferdams are specifically excluded and are not addressed in this standard.

First-Aid Injury (FA)
A first-aid injury is any one time treatment and any follow up visit for observation of minor scratches, cuts, burns, splinters and the like which do not normally require medical care. Such treatment is considered to be first aid even if administered or supervised by a medical practitioner. First aid includes any hands on treatment given by a first aider. (E.g. Band-Aid, washing, cleansing, pain, relief). The following procedures are generally considered first aid treatment:

- Application of Antiseptics.
- Application of Butterfly adhesive dressing or sterile strips for cuts and lacerations.
- Administration of tetanus shot(s) or booster(s). However, these shots are often given in conjunction with more serious injuries, consequently injuries requiring these shots may be recordable for other reasons.
- Application of bandages during any visit to medical personnel.
- Application of ointments to abrasions to prevent drying or cracking.
- Inhalation of toxic or corrosive gas, limited to the removal of the employee to fresh air or the one time administration of oxygen for several minutes.
- Negative X-Ray diagnosis.
- Removal of foreign bodies not embedded in the eye if only irrigation is required.
- Removal of foreign bodies from a wound if procedure is uncomplicated, for example by tweezers or other simple technique.
- Treatment for first degree burns.

- Use of non-prescription medications and administration of single dose of prescription medication on first visit for any minor injury or discomfort.

Hazard
A source of potential harm in terms of human injury or ill health, or a combination of these.

Hierarchy of Controls
A sequence of control measures, arranged in order of decreasing effectiveness, used to eliminate or minimise exposure to workplace health and safety hazards:

- Elimination – Completely removing a hazard or risk scenario from the workplace.
- Substitution – Replacing an activity, process or substance with a less hazardous alternative.
- Isolation (Engineering) Controls – Isolating a hazard from persons through the provision of mechanical aids, barriers, machine guarding, interlocks, extraction, ventilation or insulation.
- Administrative Controls – Establishing appropriate policies, procedures and work practices to reduce the exposure of persons to a hazard. This may include the provision of specific training and supervision.
- Personal Protective Equipment – Providing suitable and properly maintained PPE to cover and protect persons from a hazard (i.e. Prevent contact with the hazard).

Isolation and Lockout Procedure
A plant or equipment-specific procedure that describes the method, and sequence to be followed, for rendering equipment, plant and systems safe to work on.

Isolation Bar
A device used at a Lockout Station to which anyone is able to attach a Personal Lock making it impossible for an Isolation Officer to remove the key to the Equipment Locks, thus preventing the de-isolation of a system, plant or equipment while it is still being worked on. A Discipline Lock must always be the first lock attached to an Isolation Bar and last to be removed.

Isolation Officer
A person (typically a Project employee or an employee of the client) who has been authorised (in writing) by the nominated project management representative to perform isolation and lockout procedures. A person may only be appointed as an Isolation Officer if he has undergone training and has been assessed and found competent in the isolation and lockout of systems, plant and equipment within the scope of his designation.

Incident
An event (or a continuous or repetitive series of events) that results or has the potential to result in a negative impact on people (employees, contractors and visitors), the environment, operational integrity, assets, community, process, product, legal liability and / or reputation.

Likelihood
A description of probability or frequency, in relation to the chance that an event will occur.

Lost Time Injury (LTI)

Any occurrence that resulted in a permanent disability or time lost from work of one day/shift or more.

If an employee is injured and cannot return to work in the next shift (will ordinarily miss one whole shift), and the department brings the employee in to only receive treatment by the Supervisor/ Return to Work Coordinator in that shift, this is still considered an LTI.

Lost Time Injury Frequency Rate (LTIFR) - Number of LTI's multiplied by 1 million or 200,000 and divided by labour hours worked.

Light Vehicle

A vehicle that:

- Can be licensed and registered for use on a public road;
- Has four or more wheels, and seats a maximum of 12 adults (including the driver);
- Requires the driver to hold only a standard civil driving licence; and
- Does not exceed 4.5 tonnes gross vehicle mass (GVM), which is the maximum loaded mass of the motor vehicle as specified by:
  - The vehicle's manufacturer; or
  - An approved and accredited automotive engineer, if the vehicle has been modified to the extent that the manufacturer's specification is no longer appropriate.

Examples of light vehicles include passenger cars, four-wheel drive vehicles, sports utility vehicles (suvs), pick-ups, minibuses, and light trucks.

Any vehicle falling outside of this definition must be considered mobile equipment.

Medical Treatment Injury (MTI)

A work injury requiring treatment by a Medical Practitioner and which is beyond the scope of normal first aid including initial treatment given for more serious injuries. The procedure is to be of an invasive nature (e.g. Stitches, removal of foreign body).

The following procedures are generally considered medical treatment:

- Application of sutures (stitches).
- Cutting away dead skin (surgical debridement).
- Loss of consciousness due to an injury or exposure in the work environment.
- Positive X-Ray diagnosis (fractures, broken bones etc.).
- Removal of foreign bodies embedded in the eye.
- Removal of foreign bodies from the wound by a physician due to the depth of embedment, size or shape of object or the location wound.
- Reaction to a preventative shot administered because of an occupational injury.
- Sprains and strains - series (more than one) of hot and cold soaks, use of whirlpools, diathermy treatment or other professional treatment.
- Treatment of infection.
- Treatment for second or third degree burns
- Use of prescription medications (except a single dose administered on first visit for minor injury or discomfort.)

Mobile Equipment

A vehicle (wheeled or tracked) that generally requires:

- The driver to hold a specific state or civil license; or

- The operator to hold a nationally recognized certificate of competency.

Examples of mobile equipment include, but are not limited to, dump trucks, water trucks, graders, dozers, loaders, excavators, forklifts, tractors, back-actors, bobcats, mobile cranes, tele-handlers, drill rigs, buses and road-going trucks.

Near-Miss
An incident that has occurred that did not result in any injuries, illnesses, environmental or property damage but had the potential to cause an injury, illness, environmental or property damage.

Personal Lock
A single lock with one unique key controlled by the owner. Used for personal protection.

Regulation
In the context of this guideline, 'Regulation(s)' refers to the Construction Regulations, 2014 required by Section 43 of the Occupational Health and Safety Act 85 of 1993, published under Government Notice R 84 in Government Gazette 37305 of February 2014.

Risk
A combination of the likelihood of an occurrence of a hazardous event or exposure and the severity of injury or ill health that can be caused by the event or exposure.

Risk Assessment
A process of evaluating the risk arising from a hazard, taking into account the adequacy of any existing control measures, and deciding on whether or not the risk is acceptable.

Risk Management
The systematic application of management policies, processes and procedures to identifying hazards, analysing and evaluating the associated risks, determining whether the risks are acceptable, and controlling and monitoring the risks on an ongoing basis.

4. Abbreviations

DSTI - Daily Safety Task Instruction

CR – Construction Regulations

HIRA - Hazard Identification and Risk Assessment

IMS - Integrated Management System

MS - Management System

OHS Act - Occupational Health and Safety Act

SOC - Safety Observation and Conversation

VFL - Visible Felt Leadership

OHS - Occupational Health and Safety

SACPCMP - The South African Council for Project and Construction Management Professions, here in refer to as the registrar of Health and Safety Professionals

5. Contractor Health and Safety Management Plan

The contractor must prepare, implement and maintain a project-specific Health and Safety Management Plan. The plan must be aligned with the requirements set out in this specification as

well as all relevant/applicable legislation. It must cover all activities that will be undertaken as part of the Project from mobilisation and set-up to rehabilitation and decommissioning.

The plan must demonstrate the contractor's commitment to health and safety and must, as a minimum, include the following:

- A copy of the contractor's **Health and Safety Policy**; in terms of the OHS Act section 7
- Procedures concerning **Hazard Identification and Risk Assessment**, including both Baseline and Task-Based Risk Assessments;
- Arrangements concerning the identification of applicable **Legal and Other Requirements**, measures to ensure compliance with these requirements, and measures to ensure that this information is accessible to relevant personnel;
- Details concerning **Health and Safety Objectives** – a process must be in place for setting objectives (and developing associated action plans) to drive continual improvement;
- Details concerning **Resources, Accountabilities and Responsibilities** – this includes the assignment of specific health and safety responsibilities to individuals in accordance with legal or project requirements, including the appointment of a Project Manager, Health and Safety Officers, Supervisors, Health and Safety Representatives, and First Aiders;
- Details concerning **Competence, Training and Awareness** – a system must be in place to ensure that each employee is suitably trained and competent, and procedures must be in place for identifying training needs and providing the necessary training;
- **Communication, Participation and Consultation** arrangements concerning health and safety, including Safety Observations and Coaching, Toolbox Talks, Daily Safe Task Instructions, project health and safety meetings, and notice boards;
- **Documentation and Document Control** – project-specific documentation required for the effective management of health and safety on the project must be developed and maintained, and processes must be in place for the control of these documents;
- Processes and procedures for maintaining **Operational Control**, including rules and requirements (typically contained in Safe Work Procedures) for effectively managing health and safety risks, particularly critical risks associated with working at heights, confined spaces, mobile equipment and light vehicles, lifting operations, hazardous chemical substances, etc.;
- **Emergency Preparedness and Response** procedures;
- **Management of Change** – a process must be in place to ensure that health and safety risks are considered before changes are implemented;
- **Sub-contractor Alignment** procedures – a process must be in place for the assessment of sub-contractors and suppliers with regard to health and safety requirements and performance (before any contract or purchase order is awarded);
- **Measuring and Monitoring** plans, including a plan for the measuring and monitoring of employee exposure to hazardous substances or agents (e.g. Noise, dust, etc.) In order to determine the effectiveness of control measures;
- **Incident Reporting and Investigation** procedures describing the protocols to be followed with regard to incident reporting, recording, investigation and analysis;
- **Non-conformance and Action Management** procedures concerning the management of corrective actions;

- **Performance Assessment and Auditing** procedures concerning health and safety performance reporting, monthly internal audits to assess compliance with the project health and safety requirements, and daily site health and safety inspections; and
- Details concerning the **Management Review** process followed to assess the effectiveness of health and safety management efforts.

Prior to mobilisation, the Health and Safety Management Plan must be forwarded electronically, and as a hard copy, to the nominated TRANSNET project management representative for review. The plan will be audited for completeness and, if found to be adequate, will be accepted (typically "with comments"). Work may not commence until the plan has been accepted.

Once the plan has been accepted, the contractor must action and resolve any issues within 30 days from the start of work.

If the issues requiring corrective action are not resolved within this 30 day period, the contractor will be required to stop any work related to the outstanding actions until they have been resolved.

Any proposed amendments or revisions to the contractor's Health and Safety Management Plan must be submitted to the nominated project management representative for acceptance.

Should it be identified that the contractor has overlooked a high risk activity, and as a result has omitted the activity and associated control measures from the Health and Safety Management Plan, the plan will not be approved.

6. Policy

The contractor must develop, display and communicate a Health and Safety Policy that clearly states the contractor's values and objectives for the effective management of health and safety as required by OHS Act of 1993, 7(3). These values and objectives must be endorsed by the contractor's management representatives and must be consistent with those adopted for the project.

The policy must be signed and dated, and must be reviewed annually.

The policy must commit to:

- Compliance with all applicable legal requirements in the Transnet regulatory universe;
- The effective management of health and safety risks;
- The establishment of measurable objectives for improving performance, and the provision of the necessary resources to meet these objectives;
- The prevention of incidents; and
- Achieving continual improvement with regard to health and safety performance.

All employees of the contractor as well as the employees of any sub-contractors that may be appointed by the contractor must be made aware of the policy. This must be done through Health and Safety Induction Training and Toolbox Talks.

A copy of the policy must be displayed in each meeting room and on each notice board.

7. Hazard Identification and Risk Assessment (OHS Act, Constr. Regulations 9)

Detailed hazard identification and risk assessment processes must be followed for all work to be performed as well as for all associated equipment and facilities as required by the Construction Regulation of 2014, Regulation 9(1) – (7).

The Client will provide a baseline risk assessment informing the contractor on the hazards and risks on site. The Contractor must ensure that effective procedures and risk assessment systems are in place to control hazards and to mitigate risks to levels that are as low as is reasonably practicable.

The risk assessment processes must be applied to:

- The full life cycle of the project;
- Routine and non-routine activities;
- Planned or unplanned changes;
- All employees, sub-contractors, suppliers and visitors; and
- All infrastructure, equipment and materials.

The risk assessment processes and methodologies must be appropriate for the nature and scale of the risks, and must be implemented by competent persons.

The process of analysing and managing risk must include the following:

- Establishing the context of the risk assessment;
- Identifying hazards and determining possible risk scenarios (unwanted events);
- Evaluating risks and assigning ratings (classification);
- Recording the risk analysis in a risk register;
- Managing risks according to their classification (prioritising for action);
- Identifying and implementing control measures (through the application of the Hierarchy of Controls) to ensure that risks are managed to levels that are as low as is reasonably practicable (ALARP);
- Developing action plans for reducing risk levels (where possible);
- Verifying the completion of actions;
- Re-evaluating the risks and classifications as appropriate; and
- Reviewing and updating the risk register.

7.1 Baseline Risk Assessments

Prior to site establishment, TRANSNET (the Client) will conduct a detailed Baseline Risk Assessment identifying foreseeable hazards and risk scenarios associated with the contractor's scope of work on the project site(s) as required by Construction Regulations of 2014, regulation 5(1)(a). Details concerning proposed control measures must be included. The risk assessment process must be facilitated by a competent person who has been appointed in writing and must involve the participation of the contractor's site management representatives, supervisory personnel and technical experts. An attendance register must be completed and retained for reference purpose. The Baseline Risk Assessment must be reviewed and approved by the Project Health and Safety Manager and Project Construction Manager.

When carrying out a Baseline Risk Assessment or a Task-Based Risk Assessment (refer to Section 7.2), Hazard (Energy) Types must be specified in accordance with the categorisation detailed in Table 7-1. Risk scenarios must be described indicating the manner in which a person may come into contact with, or be exposed to, a specific hazard.

An initial risk rating must be assigned to each risk scenario without taking any control measures into consideration. Control measures for managing the risks to levels that are as low as is reasonably practicable must then be identified for implementation on the project, and a residual risk rating must be assigned to each risk scenario taking the identified control measures into consideration.

Ratings must be assigned qualitatively using TRANSNET consequence and likelihood scales and descriptors (i.e. TRANSNET 5x5 qualitative risk matrix). Refer to Tables 7-2, 7-3 and 7-4.

Table 7-1: Hazard (Energy) Types

Gravitational							
Falling or Rolling Object	Person Falling from Height	Slip, Trip or Fall (Same Level)	Collapsing Structure	Collapsing, Slumping or Flowing Material or Substance			
Mechanical							
Moving Component of Fixed Machinery	Moving Component of Powered Tool	Projectile	Moving Hand Tool	Sharp Object	Moving Mobile Equipment or Light Vehicle	Moving Person	Moving Object (Mechanically or Manually)
Elastic							
Object under Tension or Compression	Compressed Fluid (Gas or Liquid)						
Acoustic							
Noise							
Vibrational							
Hand / Arm Vibration	Whole Body Vibration						
Electrical							
Electricity	Electro-Magnetic Field						
Radiation							
Ionising Radiation	Non-Ionising Radiation						
Illumination							
Lighting							
Thermal							
Heat	Cold						
Fire							
Fire							
Explosion							
Explosion							
Particulates and Aerosols							
Dust	Fibres	Fume	Spray	Mist	Smoke		
Chemical							
Corrosive Substance	Irritant	Asphyxiate	Narcotic / Anaesthetic	Poison	Allergen / Sensitizer	Carcinogen	Teratogen / Mutagen	Venom
Microbiological							
Virus	Bacterium	Parasite	Fungus				
Weather							
Lightning	High Wind	Flooding	Hail				
Physiological							
Stress	Fatigue						
Ergonomic							
Exertion	Repetitive Movement	Awkward Posture	Awkward Movement				

Table 7-2: Consequence Descriptors

Consequence	Insignificant	Minor	Moderate	Major	Catastrophic
Health	Reversible health effects of little concern, requiring first aid treatment at most.	Reversible health effects of concern that would typically result in medical treatment.	Reversible health effects of concern that would typically result in a lost time illness.	Single fatality, or irreversible health effects or disabling illness.	Multiple fatalities or permanent disabling illness to multiple people.
Safety	Low-level, short-term subjective inconvenience or symptoms. Typically a first aid case requiring no medical treatment.	Reversible injury requiring treatment, but not leading to restricted duties. Typically a medical treatment case.	Reversible injury or moderate irreversible damage or impairment. Typically a lost time injury.	Single fatality, or considerable irreversible damage or impairment.	Multiple fatalities or permanent disabling injury to multiple people.

Table 7-3: Likelihood Descriptors

Likelihood	Likelihood Description	Frequency	Substance Exposure
Almost Certain	Recurring event during the life-time the project.	Typically occurs more than twice per year.	Frequent (daily) exposure at > 10 x OEL.
Likely	Event that may occur frequently during the life-time of the project.	Typically occurs once or twice per year.	Frequent (daily) exposure at > OEL.
Possible	Event that may occur during the life-time of the project.	Typically occurs once in 5 years.	Frequent (daily) exposure at > 50% of OEL. Infrequent exposure at > OEL.
Unlikely	Event that is unlikely to occur during the life-time of the project.	Typically occurs once in 10 years.	Frequent (daily) exposure at > 10% of OEL. Infrequent exposure at > 50% of OEL.
Conceivable but improbable	Event that is very unlikely to occur during the life-time of the project.	Typically occurs once in 100 years.	Frequent (daily) exposure at < 10% of OEL. Infrequent exposure at > 10% of OEL.

Table 7-4: Risk Matrix

Risk Calculator		Consequence				
		Insignificant	Minor	Moderate	Major	Catastrophic
Likelihood		1	2	3	4	5
Almost Certain	5	Moderate (5)	High (10)	High (15)	Extreme (20)	Extreme (25)
Likely	4	Low (4)	Moderate (8)	High (12)	Extreme (16)	Extreme (20)
Possible	3	Low (3)	Moderate (6)	Moderate (9)	High (12)	High (15)

Unlikely	**2**	**Low (2)**	**Low (4)**	**Moderate (6)**	**Moderate (8)**	**High (10)**
Conceivable but improbable	**1**	**Low (1)**	**Low (2)**	**Low (3)**	**Low (4)**	**Moderate (5)**

A Risk Register comprised of all significant risks (i.e. Risks rated as major or catastrophic) identified for the project will be compiled using the information contained in the project Baseline Risk Assessment as well as the contractor's Baseline Risk Assessment. Key control measures for managing each of these risks will be specified in the register.

For the significant risks in particular, action plans will be developed for reducing the risk levels (where possible).

The project Risk Register will be reviewed and, if necessary, updated:

- On a quarterly basis during construction;
- When changes are made to a design and / or the construction scope, schedule, methods, etc. That result in a change to the risk profile; and
- Following an incident.

The contractor must ensure that the hazards, risk scenarios and control measures identified in the contractor's Baseline and Task-Based Risk Assessments are taken into consideration when developing, implementing and maintaining the various elements of the contractor's health and safety management system for the project (e.g. Competence, training and awareness requirements).

All persons potentially affected must be made aware of the hazards, risk scenarios and control measures identified in the contractor's risk assessments. This must be done through training, Toolbox Talks, and Daily Safe Task Instructions.

7.2 Task-Based Risk Assessments

The contractor must carry out detailed project-specific Task-Based Risk Assessments which must be reviewed and approved by the Client's Project Health and Safety Practitioner and Project Construction Manager prior to the commencement of any work.

The risk assessment process must be facilitated by a competent person who has been appointed in writing in terms CR 9 sub regulation (1). The contractor's site management representatives, supervisory personnel, technical experts (as required) and workforce personnel directly involved with the task being examined must participate in the risk assessment process. An attendance register must be completed and retained.

Please Note: Under no circumstances may a Contractor Health and Safety Officer perform a risk assessment in isolation. The active participation of all persons referred to above is mandatory.

A Task-Based Risk Assessment must at least:

- Be accompanied by a Work Method Statement (describing in sufficient detail how the specific job or task is to be performed in a logical and sequential manner);
- Provide a breakdown of the job or task into specific steps;
- Identify the hazards and potential risk scenarios associated with each step;
- Include consideration of possible exposure to noise, heat, dust, fumes, vapours, gases, chemicals, radiation, vibration, ergonomic stressors, or any other occupational health hazard or stressor;

- Describe the control measures that will be implemented to ensure that the risks are managed to levels that are as low as is reasonably practicable; and
- Assign an initial risk rating (without taking any control measures into consideration) and a residual risk rating (taking the identified control measures into consideration) to each risk scenario.

A Task-Based Risk Assessment must be reviewed and, if necessary, updated:

- On an annual basis (as a minimum);
- When changes are made to the associated Work Method Statement; and
- Following an incident.

7.3 Pre-Task Hazard Assessments

A pre-task hazard assessment must be completed whenever a change is identified while carrying out an activity. Any deviation from what was discussed during the Daily Safe Task Instruction (prior to the activity commencing), or anything that was not discussed, constitutes a change.

Before carrying out the particular task that involves the identified change, a few minutes must be spent identifying the hazards and risks associated with that task as well as suitable control measures.

8. Legal and Other Requirements

The Contractor must comply with the requirements of all applicable health and safety legislation as well as TRANSNET project-specific standards and procedures as amended from time to time.

The Contractor must compile and maintain a register of all legal and other requirements applicable to the work that will be carried out and / or services that will be provided. This register must be updated regularly to ensure that it remains relevant.

Applicable laws and standards must be appropriately communicated to all employees of the contractor (as well as the employees of any sub-contractors that may be appointed by the contractor) through training, Toolbox Talks, and Daily Safe Task Instructions.

9. Health and Safety Objectives

In order to drive continual improvement, the contractor must set project-specific health and safety objectives, and must develop improvement action plans to achieve these objectives. The contractor's objectives must be aligned with the objectives set for the project as a whole as required by the Construction Regulations of 2014.

Eliminating health and safety hazards, minimising health and safety risks, preventing incidents, injuries and illnesses, and ensuring legal compliance must be the primary considerations for setting objectives.

When setting objectives, consideration must be given to the following:

- Leading indicators such as inspection findings, audit findings, hazard reporting, and observations;
- Lagging indicators (i.e. Incidents including Near Hits);
- Leading practices and lessons learnt; and
- Injury frequency rates with due understanding that the goal is "no harm".

The objectives must be specific and measurable. The improvement action plans must specify the resources (both human and financial) required to achieve the objectives, the person's responsible, and realistic timeframes for completion. The contractor must ensure that adequate resources are allocated and that progress towards meeting the objectives is monitored regularly.

The objectives and associated improvement action plans must be documented and must be communicated to all contractor employees. Furthermore, to ensure that the objectives remain relevant, they must be reviewed on a quarterly basis and whenever significant change has taken place on the project (i.e. Changes to activities, scope of work, operating conditions, etc.).

10. Resources, Accountabilities and Responsibilities

The Contractor must adequately allocate resources, responsibility and accountability to ensure the effective implementation, maintenance and continual improvement of the contractor's health and safety management system on the projects required by Construction Regulation 0f 2014, regulation 7(2)(c).

For each role that carries health and safety accountability and / or responsibilities (including legislative requirements), a role description detailing the accountability and / or responsibilities must be documented.

All health and safety appointments (i.e. the assignment of specific health and safety responsibilities to individuals in accordance with legal or project requirements) must be done in writing. Documented proof of each appointment (i.e. a signed appointment letter) must be retained.

Contractor should not discharge any legal responsibilities to employees who are not legally appointed.

The contractor must comply with the requirements of all applicable legislation concerning health and safety related appointments and delegations for the project.

A health and safety organisational chart specific to the project must be documented and maintained. All roles that carry health and safety accountability and / or responsibilities must be included, and all individuals that carry health and safety appointments must be clearly identified.

The provision of dedicated health and safety professionals on the project must be appropriate for the nature and scale of the work to be carried out.

The contractor is solely responsible for carrying out the work under the contract whilst having the highest regard for the health and safety of all persons on the project site(s).

Health and safety is the responsibility of each and every individual on the project site(s), but in particular, it is the responsibility of the contractor's management team who must set the tone.

Visible commitment is essential to providing and maintaining a safe workplace. The contractor's managers and supervisors at all levels must demonstrate their commitment and support by adopting a risk management approach to all health and safety issues. These individuals must consistently take immediate and firm action to address violations of health and safety rules, and must actively participate in day to day activities with the objective of preventing harm.

The contractor's management representatives are responsible and accountable for health and safety performance on the project. Key responsibilities include the following:

- Preparing, implementing and maintaining a risk-based Health and Safety Management Plan specific to the work that will be carried out;

- Establishing, implementing and maintaining health and safety programmes and procedures to ensure that all work is carried out in compliance with the requirements of this specification, the contract, and all applicable legislation;
- Establishing, implementing and maintaining effective hazard identification and risk management processes and procedures to ensure that all reasonably foreseeable hazards are controlled in order to minimise risk;
- Providing the resources necessary to meet the requirements of this specification;
- Ensuring that all contractor employees have clearly defined responsibilities with regard to health and safety, and that these responsibilities are clearly communicated and understood;
- Establishing, implementing and maintaining a system for on-going training and assessment of skills and competence;
- Establishing, implementing and maintaining procedures to ensure that only qualified and competent personnel are permitted to work on the project site(s);
- Establishing, implementing and maintaining effective communication and consultative processes concerning health and safety for the duration of the contract;
- Maintaining operational control for the protection of all persons on the project site(s) as well as the public;
- Establishing, implementing and maintaining effective emergency preparedness and response procedures;
- Establishing, implementing and maintaining effective management of change processes and procedures;
- Establishing, implementing and maintaining effective incident reporting and investigation processes and procedures;
- Establishing, implementing and maintaining effective auditing and inspection processes and procedures; and
- Formally reviewing the contractor's Health and Safety Management System annually to ensure that the system continues to be effective in managing health and safety performance and meeting project requirements.

All costs associated with meeting these responsibilities shall be borne by the contractor.

Any cost associated with any work stoppage due to non-compliance with a health and safety requirement shall be for the contractor's account.

10.1 Contractor Construction Manager

The Contractor must appoint a competent Construction Manager who is full-time on site and registered and in good standing with SACPCMP (South African Council for Project and Construction Management) as a Professional Construction Manager (PrCM) and who shall be responsible for the successful and safe completion of all work to be carried out by the contractor as required by the Construction regulations of 2014, regulation 8(1).

The contractor's Construction Manager shall be responsible for:

- Ensuring that a Health and Safety Policy that clearly states the contractor's values and objectives for the effective management of health and safety on the project is in place and is communicated to all contractor and sub-contractor employees;

- Ensuring that all applicable legal and project health and safety requirements are identified and complied with at all times;
- Ensuring that effective hazard identification and risk management processes are established and implemented for all work to be carried out by the contractor;
- Participating in the Baseline Risk Assessment for the contractor's scope of work (prior to site establishment);
- Participating in (and approving) all Task-Based Risk Assessments conducted for the work to be carried out by the contractor;
- Driving the achievement of agreed health and safety objectives;
- Ensuring that the necessary resources are made available for the effective implementation of the contractor's Health and Safety Management Plan;
- Ensuring that all work is adequately and competently supervised;
- Ensuring that all contractor employees have clearly defined responsibilities with regard to health and safety (assigned in writing), and that these responsibilities are clearly communicated and understood;
- Ensuring as far as is reasonably practicable that each contractor and sub-contractor employee is competent to perform his role, and has received appropriate workplace health and safety training and instruction;
- Managing all appointed sub-contractors with regard to health and safety performance;
- Establishing and maintaining effective communication and consultative processes to ensure that all contractor and sub-contractor employees are kept up to date with regard to health and safety information (e.g. Incidents and lessons learnt, leading practices, hazards, risks and control measures, etc.) And that feedback is provided promptly regarding issues and / or concerns raised;
- Participating in the project's Visible Felt Leadership (VFL) programme;
- Chairing monthly Contractor Health and Safety Meetings and attending monthly Site Health and Safety Meetings;
- Implementing programmes that encourage continual improvement and providing recognition for suggestions made by contractor and sub-contractor employees;
- Implementing the contractor's Health and Safety Management Plan and associated Safe Work Procedures;
- Acting consistently and strictly against any contractor or sub-contractor employee who transgresses a health and safety rule or requirement;
- Ensuring that an effective management of change process is in place;
- Implementing, testing and maintaining an effective Emergency Response Plan for all contractor and sub-contractor activities, and ensuring that the plan is adequately resourced;
- Ensuring that workplace exposure of contractor and sub-contractor employees to hazardous substances or agents is measured and monitored to determine the effectiveness of controls and compliance with legal (and project) requirements;
- Ensuring that all incidents are reported without delay and are investigated thoroughly;

- Participating in investigations into significant incidents;
- Ensuring that accurate health and safety statistics are maintained, and that health and safety performance reports are compiled as required;
- Providing the necessary resources for regular health and safety audits and inspections to be conducted, and supporting the auditing process;
- Participating in health and safety audits, and carrying out workplace inspections;
- Ensuring that corrective actions (arising from incident investigations, audits, inspections, etc.) Are implemented, and that adequate resources are provided for this purpose; and
- Participating in an annual review of the contractor's Health and Safety Management System.

10.2 Contractor Health and Safety Officer

The contractor must appoint a full-time Health and Safety Officer for the duration of the contract who is registered with the SACPCMP (The South African Council for Project Construction Management Professions). The project site(s) (directly or through sub-contractors), must appoint a full-time Health and Safety Officer, the number of which depending on the scope, complexity, budget and high risk activities involved, as required by the Construction regulations of 2014, regulation 8(5).

The Health and Safety Officer must be on site when work commences at the start of the day and must remain on site until all activities for that day (including the activities of sub-contractors) have been completed. A Health and Safety Officer must be present during all shifts, so if work is carried out over more than one shift per day, the contractor must make provision for additional Health and Safety Officers.

Each Contractor Health and Safety Officer shall be responsible for:

- Reviewing all applicable legal and project health and safety requirements and providing guidance to contractor and sub-contractor personnel (particularly the contractor's Project Manager) to help ensure compliance at all times;
- Assisting with the implementation of effective hazard identification and risk management processes for all work to be carried out by the contractor;
- Participating in the Baseline Risk Assessment for the contractor's scope of work (prior to site establishment) and ensuring that identified control measures are implemented;
- Participating in all Task-Based Risk Assessments conducted for the work to be carried out by the contractor and ensuring that identified control measures are implemented;
- Conducting contractor health and safety induction training for all contractor and sub-contractor personnel;
- Compiling and maintaining all health and safety related documents and records required of the contractor;
- Communicating relevant health and safety information to contractor and sub-contractor personnel (e.g. Incidents and lessons learnt, leading practices, hazards, risks and control measures, etc.);
- Carrying out Safety Observations and Conversations (one per day);
- Evaluating (on a daily basis) the content of the Daily Safe Task Instructions (DSTI's) conducted by the contractor's appointed supervisors, and attending at least one DSTI each day;
- Attending monthly Contractor and Site Health and Safety Meetings;

- Assisting with the implementation of the contractor's Health and Safety Management Plan and associated Safe Work Procedures;
- Carrying out Planned Task Observations on an ad hoc basis;
- Assisting with the implementation, testing and maintenance of an effective Emergency Response Plan for all contractor and sub-contractor activities;
- Responding to workplace incidents (as appropriate);
- Participating in incident investigations;
- Maintaining accurate health and safety statistics (for the contractor and all sub-contractors), and compiling health and safety performance reports as required;
- Auditing the health and safety management system and workplace activities of the contractor and each sub-contractor on a monthly basis to assess compliance with the project health and safety requirements; and
- Tracking and reporting on the implementation of corrective actions (arising from incident investigations, audits, inspections, etc.).

The contractor must ensure that each Health and Safety Officer is adequately equipped to enable him to perform his duties effectively. Each Health and Safety Officer must be provided with the following:

- A computer with access to all necessary systems, including access to e-mail and the internet;
- A mobile telephone on contract or with adequate pre-paid airtime; and
- A vehicle where required or instructed by a nominated project management representative (depending on the size and location of the project site(s)).

A Health and Safety Officer must over and above the SACPCMP registration as an Officer; be computer literate, fluent in English, and must have the following minimum qualifications, training and experience:

- At least 5 years' experience as a Health and Safety Officer on construction projects;
- SAMTRAC,NEBOSH or an equivalent training course with accredited health and safety service provider as a minimum qualification ;
- Experience and appropriate training with regard to implementing and maintaining a health and safety management system compliant with national legislation or an international standard;
- Experience and appropriate training with regard to construction related hazard identification and risk management processes;
- Competence, experience and relevant training with regard to incident investigation procedures and causation analysis;
- Health and safety auditing experience and training;
- A valid First Aid certificate of competency;
- Fire prevention and protection training; and
- A valid Driving Licence (light motor vehicle).
- Registered as a Health and Safety Officer with SACPCMP. The Client will stipulate which is required depending on the size of the project and on the risk.

Before placing a Health and Safety Officer on the project site(s), the contractor must forward a copy of the person's CV to the nominated TRANSNET Project Management Representative or to the Lead Health and Safety Manager for review and acceptance. A proposed candidate may be rejected should he/she not meet the experience and/or qualification requirements, or due to poor work performance on previous projects.

10.3 Contractor Supervisors

The contractor must ensure that all project and/or construction works are supervised at all times by an adequate number of qualified, competent and appointed supervisors who have experience in the type of work being carried out as required by Construction regulations of 2014, regulation 8(7) and 8(8).

No work may be carried out without an appointed supervisor being physically present in the work area(s) and without a daily safety task instruction having been completed.

Each Contractor Supervisor shall be responsible for:

- Ensuring that all work carried out under his supervision is done so in accordance with the requirements of all applicable legislation, rules, standards, specifications, plans and procedures;
- Participating in Baseline and Task-Based Risk Assessments;
- Ensuring that all employees under his supervision are made aware of the hazards, risk scenarios and control measures identified in relevant risk assessments;
- Ensuring that the control measures stipulated in all relevant risk assessments are in place and are implemented fully for all work carried out under his supervision;
- Ensuring that all employees under his supervision conduct pre-task hazard assessments when necessary;
- Driving the achievement of health and safety objectives set for his team;
- Ensuring that the necessary written appointments are in place for each employee under his supervision (e.g. First aider, mobile crane operator, etc.);
- Ensuring that all employees under his supervision attend all required training;
- Ensuring that no employee carries out any work that he is not competent to perform or has not been appointed to perform;
- Identifying training needs within his team;
- Carrying out Safety Observations and Coaching (one per day);
- Conducting a weekly Toolbox Talk with his team;
- Leading a Daily Safe Task Instruction discussion with his team;
- Attending Health and Safety Meetings as required;
- Maintaining a Health and Safety Management Information Notice Board in the work area for which he is responsible;
- Recording, on a daily basis, a description of the day's activities as well as a breakdown (by occupation) of the personnel on site under his supervision (e.g. 5 bricklayers, 2 carpenters, 3 welders, 22 general workers, and 1 supervisor);
- Ensuring that all Safe Work Procedures applicable to the work carried out under his supervision are adhered to and are fully implemented;

- Maintaining discipline and taking the necessary action whenever an employee under his supervision does not adhere to a rule or requirement;
- Carrying out Planned Task Observations (one per day);
- Ensuring that emergency response procedures are understood by all employees under his supervision and that these procedures are followed in the event of an emergency;
- Reporting all incidents immediately, participating in incident investigations, communicating the lessons learnt to all employees under his supervision, and implementing corrective actions where required; and
- Carrying out workplace health and safety inspections.

Each supervisor must accept these responsibilities in writing as part of his appointment.

Each supervisor must be equipped with a mobile telephone to ensure that effective communication can be maintained for the duration of the contract.

10.4 Health and Safety Representatives

The team of employees on site must have a health and safety representative deployed on the project site(s). A Health and Safety Representative must be elected and appointed. Taking into consideration the number of employees deployed, the geographical area in which the work is taking place, the different work disciplines, and the shift pattern (if applicable), the contractor must ensure that an adequate number of Health and Safety Representatives (at a minimum ratio of one Health and Safety Representative per 50 employees) are elected and appointed to effectively represent all site personnel as required by the OHS Act 85 of 1993, section 17 - 18.

Each Health and Safety Representative must attend an accredited training course for health and safety representatives. The cost of this training shall be for the contractor's account.

The contractor must make the necessary allowances for the Health and Safety Representatives to carry out their duties as specified in the applicable legislation.

The contractor must ensure that an appropriate sticker is affixed to the safety helmet of each Health and Safety Representative for identification purposes.

10.5 First Aiders

At least one trained and competent First Aider must be in place and must be appointed for the project site(s). Taking into consideration the number of employees deployed, the geographical area in which the work is taking place, the different work disciplines, and the shift pattern (if applicable), the contractor must ensure that an adequate number of First Aiders (at a minimum ratio of one First Aider per 50 employees) are in place and have been appointed to administer first aid treatment should this be required.

First Aid training must be done through an accredited training institution. The cost of this training shall be for the contractor's account.

The contractor must ensure that an appropriate sticker is affixed to the safety helmet of each First Aider for identification purposes.

10.6 Duties of Client

As per the Construction regulations of 2014, regulation 5(1) – (8)

Where a client requires additional work to be performed as a result of a design change or an error in Construction due to the actions of the client, the client must ensure that sufficient safety information and appropriate additional resources are available to execute the required work safely.

Where a fatality or permanent disabling injury occurs on a construction site, the client must ensure that the contractor provides the provincial director with a report contemplated in section 24 of the Act, in accordance with regulations 8 and 9 of the General Administrative Regulations, 2013, and that the report includes the measures that the contractor intends to implement to ensure a safe construction site as far as is reasonably practicable.

Where more than one principal contractor is appointed as contemplated in sub-regulation CR 5(1) (k), the client must take reasonable steps to ensure co-operation between all principal contactors and Contractors in order to ensure compliance with these Regulations.

10.7 Duties of the Designer

As per the Construction regulations of 2014, regulation 6(1) – (2) a designer must –

- Ensure that the applicable safety standards incorporated into these Regulations under section 44 of the Act are compiled within the design;
- Take into consideration the health and safety specification submitted by the client;
- Before the contract is put out to tender, make available in a report to the client—
- All relevant health and safety information about the design of the relevant structure that may affect the pricing of the construction work;
- The geotechnical-science aspects, where appropriate; and
- The loading that the structure is designed to withstand;
- Inform the client in writing of any known or anticipated dangers or hazards relating to the construction work, and make available all relevant information required for the safe execution of the work upon being designed or when the design is subsequently altered;
- When modifying the design or substituting materials; take into account the hazards relating to any subsequent maintenance of the relevant structure and must make provision in the design for that work to be performed to minimize the risk;
- When mandated by the client to do so, carry out the necessary inspections at appropriate stages to verify that the construction of the relevant structure is carried out in accordance with his design: Provided that if the designer is not so mandated, the client's appointed agent in this regard is responsible to carry out such inspections;
- When mandated stop any contractor from executing any construction work which is not in accordance with the relevant design's health and safety aspects: Provided that if the designer is not so mandated, the client's appointed agent in that regard must stop that contractor from executing that construction work;
- When mandated in his or her final inspection of the completed structure in accordance with the National Building Regulations, include the health and safety aspects of the structure as far as reasonably practicable, declare the structure safe for use, and issue a completion certificate to the client and a copy thereof to the contractor; and
- During the design stage, take cognisance of ergonomic design principles in order to minimize ergonomic related hazards in all phases of the life cycle of a structure.

The designer of temporary works must ensure that -

- All temporary works are adequately designed so that it will be capable of supporting all anticipated vertical and lateral loads that may be applied;
- The designs of temporary works are done with close reference to the structural;
- The designs of temporary works are done with close reference to the structural design drawings issued by the contractor, and in the event of any uncertainty consult the contractor;
- All drawings and calculations pertaining to the design of temporary works are kept at the office of the temporary works designer and are made available on request by an inspector; and
- The loads caused by the temporary works and any imposed loads are clearly indicated in the design.

10.8 Duties of Principal Contractor

As per the Construction regulations of 2014, regulation 7(1) – (8) a Principal Contractor and Contractor must

- Provide and demonstrate to the client a suitable, sufficiently documented and coherent site specific health and safety plan, based on the client's documented health and safety specifications contemplated in CR 5(1)(b), which plan must be applied from the date of commencement of and for the duration of the construction work and which must be reviewed and updated by the principal contractor as work progresses;
- Open and keep on site a health and safety file, which must include all documentation required in terms of the Act and these Regulations, which must be made available on request to an inspector, the client, the client's agent or a contractor; and
- On appointing any other contractor, in order to ensure compliance with the provisions of the Act:

Provide contractors who are tendering to perform construction work for the principal contractor, with the relevant sections of the health and safety specifications contemplated in CR regulation 5(1)(b) pertaining to the construction work which has to be performed;

- Ensure that potential contractors submitting tenders have made sufficient provision for health and safety measures during the construction process;
- Ensure that no contractor is appointed to perform construction work unless the principal contractor is reasonably satisfied that the contractor that he or she intends to appoint, has the necessary competencies and resources to perform the construction work safely;
- Ensure prior to work commencing on the site that every contractor is registered and in good standing with the compensation fund or with a licensed compensation insurer as contemplated in the Compensation for Occupational Injuries and Diseases Act, 1993;
- Appoint each contractor in writing for the part of the project on the construction site;
- Ensure that a copy of his or her health and safety plan contemplated in paragraph (a),
- As well as the contractor's health and safety plan contemplated in CR 7 sub-regulation (2)(a), is available on request to an employee, an inspector, a contractor, the client or the client's agent;
- Hand over a consolidated health and safety file to the client upon completion of the construction work and must, in addition to the documentation referred to in CR 7 sub-regulation (2)(b), include a record of all drawings, designs, materials used and other similar information concerning the completed structure;
- In addition to the documentation required in the health and safety file in terms of paragraph (c)(v) and CR 7 sub-regulation (2)(b), include and make available a comprehensive and updated list of all the contractors on site accountable to the principal contractor, the agreements between the parties and the type of work being principal contractor, the agreements between the parties and the type of work being done; and
- Ensure that all his or her employees have a valid medical certificate of fitness, inclusive of a drug test and specific to the Construction work to be performed and issued by an occupational health practitioner in the form of Annexure 3.

10.9 Duties of Contractor

A contractor must -

- Prior to performing any construction work, provide and demonstrate to the principal contractor a suitable and sufficiently documented health and safety plan, based on the relevant sections of the client's health and safety specification and provided by the principal contractor, which plan must be applied from the date of commencement of and for the duration of the construction work and which must be reviewed and updated by the contractor as work progresses;

- Open and keep on site a health and safety file, which must include all documentation required and must be made available on request to an inspector, the client, the client's agent or the principal contractor;
- Before appointing another contractor to perform construction work be reasonably satisfied that the contractor that he or she intends to appoint has the necessary competencies and resources to perform the construction work safely;
- Co-operate with the principal contractor as far as is necessary to enable each of them to comply with the provisions of the Act; and
- As far as is reasonably practicable, promptly provide the principal contractor with any information which might affect the health and safety of any person at work carrying out construction work on the site, any person who might be affected by the work of such a person at work, or which might justify a review of the health and safety plan.

Where a contractor appoints another contractor to perform construction work, the duties that apply to the principal contractor apply to the contractor as if he or she were the principal contractor.
A contractor must take reasonable steps to ensure co-operation between all contractors appointed by the principal contractor to enable each of those contractors to comply with these Regulations.

A contractor must ensure that all visitors to a construction site undergo health and safety induction pertaining to the hazards prevalent on the site and must ensure that such visitors have the necessary personal protective equipment.

A contractor must at all times keep on his or her construction site records of the health and safety induction training and such records must be made available on request to an inspector, the client, the client's agent or the principal contractor.

A contractor must ensure that all his or her employees have a valid medical certificate of fitness, inclusive of a drug test specific to the construction work to be performed and issued by a registered occupational health practitioner, in the form of Annexure 3.

11. Competence, Training and Awareness

Each employee (including sub-contractor employees) must be suitably trained and competent, and must understand the health and safety hazards, risks and control measures associated with his work as required by the OHS Act 85 of 1993.

The contractor must implement systems and procedures to ensure that:

- The necessary competencies required by employees are identified (by occupation), along with selection, placement and any training requirements;

Please Note: Specific competency profiles and selection criteria (fitness for work) must be developed for all roles where significant health or safety risk exists.

Please Note: A formal training needs analysis must be carried out based on the competency profiles and a training matrix must be developed for the project.

Roles requiring technical certification, registration or licensing are identified and documented, and these roles are filled only by suitably qualified personnel;

- Minimum core health and safety skills required by employees in leadership and supervisory roles are identified and suitable training is provided including hazard identification and risk assessment, incident investigation, and health and safety interactions (i.e. Observation and coaching techniques);

- Competency-based training is provided and it includes operational controls (procedures and work instructions), management of change, and emergency response;
- All employees hold and maintain the required competencies (including appropriate qualifications, certificates and licences) and are under competent supervision;
- A site-specific induction and orientation programme that highlights health and safety requirements, procedures, and significant hazards, risks and associated control measures is in place for all new employees and visitors (understanding must be assessed);
- Personnel are trained and / or briefed on new or amended standards, rules, safe work procedures, risk assessments, etc.;
- Refresher training is carried out as required (e.g. Re-induction following an absence from site);
- Records of education, qualifications, training, experience and competency assessments are maintained on site for all employees; and
- The effectiveness of training is reviewed and evaluated.

Prior to the commencement of any work, including mobilisation and site set-up activities, the contractor must provide, to the satisfaction of the nominated project management representative, current documentation verifying that the contractor's employees, as well as the employees of any appointed sub-contractors, are competent and have the necessary qualifications, certificates, licences, job skills, training and experience (as required by this specification and applicable legislation) to safely carry out the work that is to be performed.

The Contractor and sub-contractor must ensure that the following training takes place:

- health and safety induction training pertaining to the hazards prevalent on the site at the time of entry
- training for all persons required to erect, move or dismantle temporary works structures and instruction to perform those operations safely
- training of employees working from a fall risk position
- training to work or to be suspended on a platform which includes at least:
    - how to access and egress the suspended platform safely;
    - how to correctly operate the controls and safety devices of the equipment;
    - information on the dangers related to the misuse of safety devices; and
    - information on the procedures to be followed in the case of-
        - an emergency;
        - the malfunctioning of equipment; and
        - the discovery of a suspected defect in the equipment;
        - an instructions on the proper use of body harnesses.
- Training for all operators of construction vehicles and mobile plant.

A contractor must at all times keep on his or her construction site records of the health and safety induction training and such records must be made available on request to an inspector, the client, the client's agent or the principal contractor.

Please Note: Only certified copies of certificates, licences, etc. will be accepted.

An Employee Profile (dossier) must be completed for each employee who will be performing work on site. All documentation pertaining to an employee's competence (i.e. certified copies of

qualifications, certificates and licences as well as proof of job skills, training and experience) must be maintained in this dossier.

If it is determined through observation that an employee is not yet competent to carry out a particular task in a safe and capable manner, the employee will be required to cease work immediately and must either be reassigned or be retrained at the contractor's expense.

The contractor must provide proof that the training institutions and trainers that are used are appropriately registered with a governing authority (a trainer's registration certificate or registration number alone will not be adequate). The following must be made available for verification purposes:

- Proof of registration of the training institution including the training programmes that the institution is accredited to provide; and
- For each trainer, proof of competency and registration for the specific training programmes presented.

Foreign qualifications held by employees in health and safety critical roles must be verified against the requirements of local legislation.

11.1 Health and Safety Induction Training

Each employee must attend all mandatory Health and Safety Induction Training applicable to the project. No employee will be permitted to enter any project work site until he has attended this training. Each employee must carry proof that he has completed the induction training and may be removed from a site if such proof cannot be produced on request, this as required by the Construction regulations of 2014, Regulation 7(5).

Furthermore, employees must attend (where applicable) Area-Specific Health and Safety Induction Training pertaining to the particular hazards identified in the area(s) where the employees will be working. No employee will be permitted to enter a work area until he has attended the relevant area-specific training.

All visitors must receive a visitor induction briefing before entering any project work site. However, this induction does not permit a visitor to enter a site unescorted. Visitors must be accompanied at all times by an appropriately senior employee who has been fully inducted.

11.2 Specific Training and Competency Requirements

The following specific training and competency requirements must be complied with, where applicable to the project.

Please Note: An employee must be trained, assessed and found competent before he will be given authorisation to perform certain tasks or fill certain roles.

Table 11-1: Specific Training and Competency Requirements

Training	Applicable To
Health and Safety Induction	All employees
Safety Observations and Conversations (Safety Interactions)	All employees
Risk Assessment*	All managers and supervisors
Incident Investigation*	All managers and supervisors
Safety Leadership	All managers and supervisors
Legal Liability*	All managers and supervisors
Health and Safety Rep*	All elected Health and Safety Representatives
First Aid Levels 1, 2 and 3*	All nominated First Aiders
Fire Fighting (Fire Extinguisher Use)*	All employees

Training	Applicable To
Permit to Work	All Authorised Persons (i.e. Permit issuers) and all Applicants (i.e. Employees who will be applying for permits)
Isolation and Lockout	All Authorised Persons (i.e. Persons who authorise work that requires Isolation and Lockout), all Isolation Officers, and all Applicants (i.e. Persons who request permission to work on systems or equipment requiring Isolation and Lockout)
Mobile Equipment Site Licence*	All mobile equipment operators

Training requirements marked with an * must be arranged by the contractor through accredited external training institutions.

12. Communication, Participation and Consultation

The contractor must establish and maintain effective communication and consultative processes (allowing for a two-way dialogue) for the duration of the project to ensure that:

- All personnel are kept up to date with regard to health and safety matters (e.g. Hazards and risks, incidents and lessons learnt, leading practices, performance against objectives, etc.);
- General health and safety awareness levels are kept high;
- Prompt feedback is given to personnel with regard to health and safety issues or concerns that they raise; and
- Relevant, and often critical, health and safety related information (e.g. Design changes, instructions, reporting of hazardous conditions or situations, etc.) is effectively disseminated.

This must be achieved as follows:

12.1 Visible Felt Leadership (VFL) and Safety Observations and Conversations (SOC's)

The contractor's supervisory personnel (i.e. Managers and supervisors) must participate in the project's Visible Felt Leadership (VFL) programme. Each manager and each supervisor must, as part of his normal duties, perform Safety Observations and Coaching (SOC's). The intention of this programme is to encourage interaction between supervisors and workers concerning health and safety matters in order to:

- Reinforce behaviours consistent with standards, procedures and management system requirements;
- Correct behaviours inconsistent with standards, procedures and management system requirements; and
- Verify whether employees have the necessary training, certification, equipment, etc. To perform the work that they are carrying out.

Each manager, supervisor, safety personnel has a required number of SOCS to be completed per week. All SOC's that are recorded must be submitted to the nominated project management representative on a weekly basis.

The information that is gathered must be analysed and any trends that are identified must be acted on to correct unsafe behaviour or conditions.

12.2 Toolbox Talks

The contractor must prepare a Toolbox Talk on a weekly basis and must share it with all personnel for which the contractor is responsible (including all sub-contractors). Toolbox Talks must address health and safety issues that are relevant to the work performed on the project site(s) and must include information and / or knowledge sharing, lessons learnt from incidents that have occurred, information concerning specific hazards and / or risks and control measures to prevent injury, etc.

Attendance records must be kept and maintained in the contractor's health and safety file.

12.3 Daily Safe Task Instructions (DSTI's)

A Daily Safe Task Instruction (DSTI) is a pre-start discussion amongst the members of a work team, led by the appointed supervisor, aimed at anticipating hazards and potential risks associated with the activities planned for the day or shift, and ensuring that the necessary control measures are in place to prevent incidents.

At the start of each day or shift, prior to the start of any work, each appointed supervisor must inspect the work area for which he is responsible and ensure that it is safe. He must then conduct a DSTI with his work team specifically concerning the tasks that they will be performing during the course of the day or shift. The relevant Task-Based Risk Assessment for the activity must be used as the basis for the discussion. The correct work method must be reiterated and the identified hazards, risks and control measures must be discussed with the team (each team member must be given the opportunity to contribute and participate in the discussion).

Any team member arriving late must first be taken through the information that was discussed (work method, hazards, risks and control measures) before being permitted to start working. If the work method changes after activities have already begun, the DSTI must be revisited, updated and re-communicated with the team, and the changes must be signed off by the relevant Contractor Health and Safety Officer.

Every member of the work team must sign the DSTI attendance register. The attendance records must be kept and maintained in the contractor's health and safety file.

The contractor's Health and Safety Officer must evaluate the content of the DSTI's daily to ensure that they are task-specific. Furthermore, the Health and Safety Officer must attend the DSTI discussion but must not lead the DSTI discussions, as this is the responsibility of the appointed supervisor.

12.4 Health and Safety Suggestions

All employees must be encouraged to submit suggestions to enhance health and safety management on the project site(s). A process must be in place for documenting, evaluating, implementing (as appropriate), archiving and recognising the improvement ideas.

12.5 Health and Safety Meetings

13.5.1 Contractor Health and Safety Meetings (OHS Act Section 19)

The contractor must schedule and consistently hold monthly health and safety meetings. These meetings must be chaired by the contractor's Project Manager and the following persons must be in attendance:

- Contractor and sub-contractor management representatives;
- Contractor and sub-contractor supervisors;
- Contractor and sub-contractor appointed Health and Safety (Employee) Representatives;
- Contractor and sub-contractor Health and Safety Officers; and

The meeting must address the following as a minimum:

- New incidents for the period and corrective actions taken or to be taken;

- Implementation status of outstanding actions associated with previous incidents;
- SOC's, PTO's and DSTI's carried out for the period and action required to correct trends identified;
- Results of any audits, inspections (including H&S Rep inspections) or site visits carried out;
- A look ahead to ensure that appropriate health and safety planning and preparation is done for upcoming work;
- Risk Assessments, Safe Work Procedures, etc. That are outstanding or due for review (as well as the quality of these documents); and
- Any other health and safety related matter.

The contractor must compile minutes of each meeting and such minutes must be signed off by the Chairperson as a true reflection and attendance records must be kept. These records must be maintained in the contractor's health and safety file.

13.5.2 Site Health and Safety Meetings

In addition to the Contractor Health and Safety Meetings, the Project will schedule monthly Site Health and Safety Meetings that the contractor must attend. These meetings will be chaired by the Project Construction Manager and the following persons must be in attendance:

- Contractor management representatives;
- Contractor Health and Safety Officers;
- The Project Health and Safety Manager;
- Project Health and Safety Advisors; and
- Client representatives (ad hoc).

The meeting will address the following as a minimum:

- Feedback from the contractor concerning health and safety performance for the period;
- New incidents for the period and corrective actions taken or to be taken;
- Implementation status of outstanding actions associated with previous incidents;
- SOC's, PTO's and DSTI's carried out for the period and action required to correct trends identified;
- Results of any audits, inspections or site visits carried out;
- A look ahead to ensure that appropriate health and safety planning and preparation Is done for upcoming work;
- Risk Assessments, Safe Work Procedures, etc. That are outstanding or due for review (as well as the quality of these documents); and
- Any other health and safety related matter.

12.6 Health and Safety Performance Boards

The contractor must provide and maintain a Health and Safety Performance Board to be approved by the nominated project management representative and to be positioned at the entrance to the contractor's site office area. This board must display the following information as a minimum:

- The contractor's logo;
- Current manpower (heads) on site;
- Man-hours worked for the current month and project to date;
- Lost Time Injury Frequency Rate (LTIFR);
- Dates of last injuries (FAI, MTI and LTI);
- Number of hours worked since the last recorded LTI; and
- Names and contact telephone numbers for the appointed Project Manager and the Health and Safety Officers.

12.7 Health and Safety Management Information Notice Boards

The contractor must provide, for each construction site, a portable Health and Safety Management Information Notice Board to be placed in the work area. The following information and documentation, as a minimum, must be posted on these boards:

- The relevant Method Statements, Risk Assessments and Safe Work Procedures for the work that is being performed that day;
- The DSTI for the day;
- The most recent Toolbox Talk;
- Where applicable, all required permits and permissions for the work that is being performed;
- Safety Data Sheets (SDS's) for any chemical substances being used;
- The health and safety objectives for the work team;
- Details of the last incident involving the work team;
- The most recent weekly health and safety report;
- Emergency procedures;
- A site plan indicating evacuation routes and emergency assembly point locations;
- First Aider and Health and Safety Representatives names, contact telephone numbers as well as recent photo; and
- The appointed supervisor's contact details.

12.8 Involvement (Other)

The participation of all contractor (and sub-contractor) employees in activities that promote improvements in health and safety performance must be encouraged. In particular, this must include their appropriate involvement in:

- Hazard identification, risk analysis and determining control measures;
- Incident investigation; and
- Reviewing policy and objectives.

All regulations, instructions, signage, etc. Must be communicated in a language understood by all employees.

Health and safety personnel must be actively involved in planning activities so that they have the opportunity to highlight hazards and risks associated with upcoming work well in advance to ensure sufficient time to arrange and / or implement the necessary control measures.

13. Documentation and Document Control

The contractor must develop and maintain project-specific documentation required for the effective management of health and safety on the project.
All documents related to the contractor's health and safety management system must be effectively controlled.
The document control process must:

- Provide for the review, revision and version control of documents;
- Uniquely identify documents (as appropriate) to control their use and function;
- Require approval of the documents for adequacy prior to issue;
- Clearly identify changes and record the status of any revisions to documents; and
- Provide for the effective distribution of documents to, and where necessary the timely removal of obsolete documents from, all points of issue and use.

The contractor must establish a process for the systematic control of health and safety records and related data. Controls must be in place for the creation, receipt, secure storage, maintenance, accessing, use and disposal of such records and data.

Each record must be legible, identifiable and traceable, and must contain adequate information and data for its purpose.

The confidentiality and security of records and data must be maintained in a manner that is appropriate for the nature of the records and data, and in accordance with any applicable data or privacy protection legislation.

Personal information originating from medical surveillance and occupational hygiene monitoring must be reported in a form that respects the privacy of the individual, but enables management to fulfil their duty of care obligations to employees. The names of individuals must not be disclosed without their written authorisation.

Retention periods for all records (based on legal requirements and / or knowledge preservation considerations) must be established and documented in accordance with applicable legislation.

13.1 Contractor Health and Safety File Requirements

The contractor must compile and maintain a file containing all necessary health and safety related documentation. The contents of the file will be audited by a Project Health and Safety Practitioner on a monthly basis.

Required documentation will include as per the Transnet Health and Safety File Assessment Checklist and any other documents that may be applicable, aligned to the project scope.

The contractor must ensure that an equivalent file is compiled and maintained by each appointed sub-contractor.

14. Notification of Construction Work

A contractor who intends to carry out any construction work other than work contemplated in CR regulation 3(1), must at least 7 days before that work is to be carried out notify the provincial director in writing in a form similar to Annexure 2 if the intended construction work will—

- include excavation work;
- include working at a height where there is risk of falling;
- include the demolition of a structure; or
  include the use of explosives to perform construction work.

15. Operational Control

For project operations and activities, the contractor shall implement and maintain:

- Operational controls, as applicable to the organization and its activities;
- The organization shall integrate those operational controls into its overall OH&S Management System;
- Controls related to purchased goods, equipment and services;
- Controls related to contractors and other visitors to the workplace;
- Documented procedures, to cover situations where their absence could lead to deviations from the OH&S policy and the objectives;
- Stipulated operating criteria where their absence could lead to deviations from the OH&S policy and objectives.

16. Safe Work Procedures

The contractor must develop, document and implement Safe Work Procedures for all activities involving significant health or safety risk. These procedures must detail the control measures required to effectively manage the health and safety risks associated with the work activities.

Each Safe Work Procedure must be consistent with the Task-Based Risk Assessment completed for the activity.

Every person engaged in an activity for which a Safe Work Procedure has been developed must receive suitable training on the procedure.

Furthermore, the contractor must develop, document, communicate and implement formal procedures, work instructions and / or programmes for the operation, maintenance, inspection and testing of all plant and equipment (including protective systems and devices) brought onto the project site(s).

17. Planned Task Observations

All contractor, management supervisors must perform Planned Task Observations (PTO's) to verify that the control measures that have been identified in Safe Work Procedures (and associated Risk Assessments) are being adhered to and are being properly implemented, and to provide guidance where deviations are noted.

Each supervisor must complete at least two PTO per week involving one or more employees in his work team. This number of PTO's is at the discretion of TRANSNET's Project Manager or appointed Representative.

When an unsafe act or condition is identified, the supervisor must coach the work team to correct the act or condition in line with the Safe Work Procedure.

Where valid changes to the work method are identified, the supervisor must ensure that the Safe Work Procedure and Risk Assessment are updated to reflect the current practice.

Project representatives will carry out PTO's on contractor employees on an ad hoc basis. Should deviations from the contractor's Safe Work Procedures be observed, the work may be stopped until these deviations are rectified.

18. General Rules of Conduct

All persons are required to conform to the following rules of conduct while on the site.

The following acts are prohibited:

- Engaging in practical jokes, horseplay, scuffling, wrestling, fighting, or gambling;
- Assault, intimidation, or abuse of any person;
- Insubordination towards any supervisor or manager;
- Refusing to carry out a reasonable and lawful instruction concerning health and safety;
- Entry into any restricted area (including barricaded areas), unless authorised to do so by the responsible person;
- Unauthorised use / operation of any equipment or machinery;
- Negligently, carelessly or wilfully causing damage to any property;
- Destroying or tampering with safety devices, signs, or signals;
- The use of water from fire hydrants or hose reels for any purpose other than extinguishing a fire;
- The wilful and unnecessary discharging of fire extinguishers;
- Refusing to give evidence or deliberately making false statements during incident investigations;
- Bringing alcohol, drugs, or any other intoxicating substance onto site;
- Bringing a firearm, ammunition, or any other offensive weapon onto site;
- Bringing animals onto site;
- Running, except in an emergency;
- The use of cell-phones (or similar devices) whilst working on site;
- Sleeping on the job;
- Building fires on site, unless in a suitably constructed barbequing facility; and
- Pouring / pumping / flushing any substance (chemical / hydrocarbon / waste water) into a storm water drain, onto bare soil, or into any area where the substance is not effectively contained.

Any of the above actions may result in the temporary or permanent removal of the offending person(s) from site, as well as possible prosecution. The decision of the nominated project management representative shall be final and binding in respect of any dispute that may arise from the interpretation of these requirements.

TRANSNET will not get involved in contractor disciplinary rules and procedures. The contractor will simply be informed (with reasons) that the offending employee(s) will be denied access to the project site. Once the contractor has been informed, the employee(s) must be removed from the site immediately.

19. Site Access

The contractor may not hire any security services for the project site unless authorisation has been obtained in writing from a nominated project management representative.

19.1 Access Control

The contractor must comply with all access control, procedures and systems applicable to the project site.

Failure to comply with these requirements will be viewed as a serious safety breach and may result in the permanent removal of the individual(s) / contracting company from site or suspension without payment.

Access will be controlled as follows:

Contract period access – an access card valid for the full contract period will be issued to an individual once the following requirements have been met:

- Completion of a pre-employment medical examination which states that the employee is fit for duty;
- Completion of all required project induction training;
- Completion of special training / licensing if applicable (e.g. Driving/operating Licence).

Note: No access card will be issued unless proof of identification is provided (i.e. an identity document or a valid passport). For foreign labour, an access card will only be issued if a valid work visa is produced.

Note: A driving licence will not be accepted as proof of identification.

19.2 Trespassing

The contractor must ensure that no employee (including sub-contractor employees) trespasses on any land lying beyond the boundaries of the project site.

If instructed by a nominated project management representative to do so, the contractor must remove any employee who fails to comply with this requirement from the project.

The contractor's activities must be confined to the specified construction areas, and access to these areas may only be by means of specified routes.

All required barricading (fencing) must be erected and maintained by the contractor.

19.3 Visitors

Visitors (including reps and suppliers) must be advised in advance of the mandatory Personal Protective Equipment (PPE) requirements for the site, and must arrive with all of this PPE.

Upon arrival, all visitors must report to the Contractors designated Site Office where they must sign in.

All visitors must undergo a visitor induction briefing before entering the site.

Whilst on site, visitors must be accompanied at all times by an appropriately senior employee who has been inducted fully. The visitor(s) must be met at the designated Site Office, and when the visit is over, must be escorted back to the Site Office.

Note: Visitors are not permitted to perform any work on site.

Note: Any request (typically made by a government official) to carry out a site inspection must be referred to the nominated project management representative. The contractor must not arrange any such inspection without prior approval from the nominated project management representative.

19.4 Alcohol, Drugs and Other Intoxicating Substances

The contractor must ensure that all personnel under his authority do not at any time enter the site or perform any work whilst under the influence of alcohol, a drug, or any other intoxicating substance.

Selling or possessing drugs, alcoholic beverages or any other intoxicating substance on the site is strictly prohibited.

A drugs and alcohol testing program will be implemented. Persons entering the site will be daily tested. Any person who tests positive for alcohol or drug consumption will be subject to disciplinary action and willl be permanently removed from the site.

Any person have the opportunity to rather report that he/she is under the influence before accessing the project site – in these case the employee may only be send home for the day by the responsible project manager representative but will then be tested for the following five days (each day) on his return to the project site. If it is found that the same person is frequently reporting that he/she is under the influence before even accessing the project site, It shall be the responsibility of the nominated project management representative to take disciplinary action and remove such a person's form the project site.

Should the actions and / or demeanour of an employee suggest possible narcosis or drunkenness, the employee must be removed from the site. This may be done without testing.

Note: All personnel involved in an incident / accident must immediately be subjected to an alcohol test and a drug test as part of the investigation.

19.5 Firearms, Ammunition and Offensive Weapons

Firearms, ammunition, and offensive weapons of any kind are strictly prohibited. No person may enter /shall not be permitted to enter the site carrying any such item.

19.6 Vehicles

All vehicles brought onto site must meet safety requirements. Each vehicle to be used on site must be inspected and approved by the nominated project management representative before a site access permit will be issued for the vehicle / equipment. No vehicle shall be permitted to enter the site unless it is duly authorised. Access permits are vehicle-specific and may not be transferred between vehicles.

The contractor must allow any vehicle that is brought onto site (including privately owned vehicles) to be searched at any time while on the premises, or when entering or leaving the premises.

The contractor is solely responsible for the safety and security of all vehicles (including private vehicles) that is brought onto the site. All road-going vehicles used by the contractor on the site must be roadworthy and registered with the relevant traffic authority.

A vehicle will not be permitted to enter the site in an un-roadworthy condition. Access will be denied if, for example, but not limited to:

- The vehicle has a defective exhaust system;
- A serious oil or fuel leak is evident;
- The vehicle has unsafe bodywork or is carrying an unsafe load;
- The vehicle is fitted with extraneous or non-standard equipment;
- Passengers are not seated properly;
- The vehicle is not fitted with a seat belt for each occupant; or
- The vehicle has any obvious mechanical defect;
- Pre-inspection requirements are not met.

Overloaded vehicles will not be permitted to enter the site. The driver / operator of any vehicle / mobile equipment must carry a copy of his appointment with him at all times. Each driver / operator must:

- Comply with all site / project rules and regulations pertaining to traffic and the safe operation of vehicles / mobile equipment;
- Obey all road signs;
- Obey all instructions given by security or emergency services personnel;
- Remain within the boundaries of the site; and
- Ensure that the vehicle that he is operating is never overloaded, and that loads are always properly secured.

In the interest of safety, only the minimum number of vehicles required by the contractor to complete the work under the contract will be permitted to enter the site. When not in operation, the contractor's vehicles / mobile equipment must be parked within the boundaries of his lay-down area or yard.

Parking is only permitted in designated parking areas. All cars are parked on site at the owner's risk.

In the event of a vehicle accident on site, the driver(s) must report the incident immediately and must remain at the scene until a nominated project management representative arrives, or until a nominated project management representative authorises him to leave (unless, of course, the driver requires medical attention).

20. Mobile Equipment and Light Vehicles

All Contractors must ensure that mobile equipment and light vehicles comply with relevant/applicable legislation.

Each contractor must provide evidence to the nominated project management representative that all light vehicles and mobile equipment to be used on the project (including, but not limited to, lift and carry cranes (or mobi-lifts), mobile cranes, forklifts, mobile elevating work platforms (e.g. Cherry pickers), tractors, dozers, dump trucks, haul trucks, graders, excavators, loaders, back-actors, drill rigs, and road-going cars, light delivery vehicles, and trucks) comply with the requirements of relevant/applicable legislation. This evidence must be provided prior to the equipment being brought onto the project site. The contractor remains responsible for meeting this requirement even if the equipment to be used is leased or provided by a sub-contractor (i.e. not owned directly by the contractor).

An Equipment Profile (dossier) must be compiled for each light vehicle and each item of mobile equipment to be used on the project site. All mobile equipment and light vehicles (used for work purposes) must be subject to a risk assessment. The assessment must:

- Involve operators and maintenance personnel who will use and work on the equipment; and

- Address all aspects of safe operation including but not limited to handling, driver vision, brake failure, tyre blow out, and access and egress for operators and maintenance personnel.

Each light vehicle and each item of mobile equipment must be serviced and maintained as prescribed by the manufacturer of the vehicle or equipment. No major repairs or services may be carried out on site. No repairs may be carried out by a driver or operator. Only suitably qualified and competent persons may carry out repair work.

An appropriate pre-operation safety check based on a risk assessment must be carried out for each light vehicle or item of mobile equipment driven or operated for work purposes. For each vehicle or equipment type, an approved checklist must be in place (and must be used). The pre-operation check must include, but not be limited to, inspection and / or testing of the following safety critical features:

- Brakes (testing method must be provided);
- Wheels and tyres (including the spare);
- Lights and indicators;
- Steering;
- Seats and seat belts; and
- Windscreen and windows, including windscreen wipers and washers.

Should any critical feature be defective or damaged, the vehicle or equipment may not be operated until it has been fully repaired.

Supervisors must review the completed checklists on a daily basis to satisfy themselves that there are no major deficiencies that could place a driver or operator at risk. No person may drive or operate any light vehicle or item of mobile equipment without authorisation. All drivers and operators must be appointed in writing by the contractor's Project Manager.

No driver or operator may be appointed without proof that the individual has been trained, tested and found competent, or is currently licensed. The appointment letter must specify the type of vehicle or equipment for which authorisation is being given and must clearly confirm that the driver or operator:

- Is 18 (eighteen) years of age or older;
- Has undergone a medical examination and has been declared fit for work by an occupational medical practitioner; and
- Has received suitable training and has been found competent, or is in possession of a valid driving licence issued by a state, provincial or civil authority that is applicable to the class of vehicle or equipment that is to be driven or operated.

The principal accountability for preventing accidents and incidents lies with the driver or operator of a light vehicle or item of mobile equipment, as he is in full control of any given situation at any given time. It must be stressed to each driver and each operator that safety is his prime responsibility – this must be clearly instructed and understood.

Drivers and operators must be empowered to stop driving or operating immediately should an unsafe condition arise, and refuse to drive or operate any light vehicle or item of mobile equipment that is defective and / or has any inoperative safety features. Similarly, a supervisor must never force a driver or operator to drive or operate a defective vehicle or item of equipment.

If a driver or operator does not adhere to the site rules and regulations, his appointment must be withdrawn and he must not be permitted to continue with his duties. If necessary, site access will be denied (either temporarily or permanently) to any driver or operator who is deemed to not be adhering to site requirements.

No person may drive or operate a light vehicle or item of mobile equipment if he suffers from a medical condition that places both him and those around him at risk of injury. A fit-for-work policy must be in place. Daily alcohol testing and random drug testing must be carried out.

Supervisors must regularly check on the physical condition of drivers and operators during the course of a shift. A system must be in place to manage driver fatigue. No eating or drinking is permitted while driving or operating a light vehicle or item of mobile equipment.

A mobile phone, whether hands-free or not, may not be used by the driver or operator of a light vehicle or item of mobile equipment unless the vehicle/equipment is parked in a safe location and not operational. Behaviour-based observations and coaching must include the operation of light vehicles and mobile equipment.

A site-specific traffic management plan must be compiled and submitted to the nominated project management representative for approval. The plan must include, but not be limited to, (where relevant to the scope of work) the following:

- Segregation of pedestrians, light vehicles, and mobile equipment where possible (using barriers where feasible);
- Systems to control the movement of mobile equipment in areas accessible to pedestrians, the movement of mobile equipment into and out of workshops, and pedestrian and light vehicle movement around mobile equipment;
- Setting of appropriate speed limits for vehicle types, road surfaces and environmental conditions;
- Installation and maintenance of road traffic control signs;
- Right-of-way rules (including overtaking restrictions);
- Overtaking protocols;
- Clear communication protocols for interactions between all vehicles and equipment;
- Procedures for light vehicles and / or mobile equipment entering hazardous or restricted areas;
- Standards for safe following distances based on operational circumstances, environmental conditions and near sight (blind spot) limitations of mobile equipment;
- The minimum safe distance to be maintained between light vehicles and mobile equipment (i.e. 50 metres unless positive contact is made);
- Designated parking areas for mobile equipment and light vehicles, including parking associated with maintenance areas;
- Parking procedures (e.g. Safe parking distances, safe parking locations, requirements for reverse parking, etc.);
- Systems to control approaching, refuelling, parking, boarding and disembarking mobile equipment (a driver or operator must exit the cabin and must disembark the vehicle or equipment entirely when his direct involvement with maintenance or servicing is not required);
- Guidelines for abnormal road conditions (e.g. Heavy rain, fog, or high winds) providing "go / no go" criteria and contact details for the person(s) responsible for making the "go / no go" decisions;
- Truck loading and unloading procedures to avoid material or objects falling from the vehicle;
- Guidelines for wide or abnormal loads including offsite transport; and
- Systems to control mobile equipment use in the vicinity of overhead power lines.

The Traffic management Plan must be reviewed/revised where changes to the works areas require. A risk assessment must be carried out prior to any changes being made to traffic movements or road systems.

Designated walkways (both indoors and outdoors) must be provided for pedestrians, and pedestrians must make use of these walkways. Good lighting must be provided along all walkways,

particularly at road junctions. Wherever possible, rigid barricading must be used to separate pedestrians from moving light vehicles and / or mobile equipment.

All personnel must be transported to site and must be dropped off at a designated area. Controls must be in place to ensure the safety of people working on roads, including those working on broken-down vehicles.

High visibility clothing must be worn at all times whilst on the project site. Speed limits and traffic rules must be reviewed regularly and must be rigorously enforced. Local traffic rules must be complied with at all times.

Pedestrians must give way to light vehicles and / or mobile equipment except at pedestrian crossings. All light vehicles and mobile equipment must give way to emergency vehicles. Pedestrians and light vehicle drivers must be made aware of the blind spots associated with mobile equipment.

The driver or operator of a light vehicle or item of mobile equipment must stop the vehicle or equipment and sound the horn before proceeding at blind corners, where his view of the path or intended path is obstructed, and when entering or leaving a building. Whenever a light vehicle or item of mobile equipment is stopped or parked, the handbrake (if applicable) must be applied.

No light vehicle or item of mobile equipment may be left unattended with the engine running or with a key in the ignition. No light vehicle or item of mobile equipment may be parked so as to cause an obstruction to any roadway, passage or access way. No light vehicle or item of mobile equipment may be parked within 50 metres of a loading or off-loading point.

All loads must be secure and must be within the load limit of the vehicle or equipment. A load must be properly secured before the vehicle or equipment is set in motion. Adequate precautions must be taken for any overhanging load. No unauthorised light vehicle or item of mobile equipment may enter a restricted area or building.

20.1 Light Vehicles

All Contractors must ensure that Light vehicles have the following minimum safety features:

- Fixed seats and suitable seat (safety) belts for all occupants (i.e. Driver and all passengers);
- Roll-over protection for all vehicles intended to be driven on dirt or steep roads;
- Cargo barriers and load restraints for all vehicles designed for carrying loads (other than passengers), or that are unable to have cargo separated from the occupant-carrying space of the vehicle; and
- An air bag on the driver's side, and where available as a manufacturer fitted item, a passenger's air bag;
- A Reverse Alarm.

All Contractors must ensure that Light vehicles that interact with mobile equipment are equipped or fitted with:

- Systems that enable positive communication with the equipment operators (e.g. A two-way radio);
- A high visibility flag (e.g. A whip flag or buggy whip);
- An amber flashing light (revolving or strobe);
- Reflective taping; and
- High visibility signage (i.e. Vehicle call numbers) facilitating easy and positive identification from a reasonable distance.

All Contractors must ensure that Light vehicles carry:

- Emergency roadside triangles or beacons (three of either);
- Chock blocks for preventing uncontrolled movement of the vehicle when parked;
- A flashlight;
- A fire extinguisher (2.5kg DCP);
- A first aid kit; and
- Survival or emergency equipment (e.g. a vehicle recovery kit) suitable for the operating environment.

A change management process must accompany all vehicle modifications, including the attachment of any equipment. Examples of changes or modifications include, but are not limited to, any change or modification:

- Made to the overall structure or design of the vehicle body;
- Made to the original manufacturer-fitted type of tyres or wheels;
- Made to the suspension system of the vehicle;
- Made to the mechanical system of the vehicle;
- That may adversely alter the centre of gravity of the vehicle;
- That alters the load carrying capacity of the vehicle; and
- That may affect the ability of the vehicle to withstand a crash (e.g. the fitment of a "bull bar").

Vehicle selection must be based on a risk assessment where consideration is given to the tasks, the application, the environment, roll-over protection and the rating of sturdiness in the event of a crash.

All Contractors must have a formal inspection and preventative maintenance system in place to ensure that vehicles are maintained in a safe and roadworthy condition at all times and, as a minimum, are serviced in line with the vehicle manufacturer's service schedule.

Should any safety critical feature be defective or damaged, the vehicle must be withdrawn from service until it has been fully repaired. Inspection and maintenance must be undertaken on critical features such as:

- Wheels and tyres (including the spare);
- Steering, suspension and braking systems;
- Seats and seat belts;
- Lights, indicators and reflectors;
- Windscreen and windows, including windscreen wipers and washers;
- The vehicle structure itself; and
- Other safety-related items on the vehicle body, chassis or engine, including instrumentation.

Persons may only be transported in vehicles equipped with manufacturer fitted or approved seats and seat belts. Seat belts must be worn by all occupants of a light vehicle (i.e. the driver and all passengers) at all times.

Only the driver and one passenger are permitted in the cab (front) of a light delivery vehicle. No personnel may be transported in the load-bin of a light delivery vehicle, even if the vehicle is fitted with a canopy. Only tools and equipment may be transported in the load-bin. Furthermore, no persons may be transported in a trailer behind a vehicle.

A pre-operation vehicle safety check and familiarisation system must be in place and must be used by the driver. An approved checklist must be used. All vehicle faults that are recorded must be attended to immediately.

Light vehicle running lights (low-beam headlights) must be switched on at all times when the vehicle is in operation.

All Contractors must have a system is in place to ensure that drivers receive adequate training to ensure that the vehicle intended to be operated or driven can be operated or driven safely. As a minimum, training must include:

- Behaviour-based defensive driving principles;
- Vehicle familiarisation, taking into account the handling dynamics of the vehicle, maximum number of passengers, load limits and various features;
- Loading and restraining principles where the vehicle to be operated is designed for carrying cargo loads;
- Education and awareness concerning driving and travel risks that may be encountered within the environment where the vehicle may be operated or driven, and the requirements pertaining to traffic rules and speed limits;
- Securing (locking) equipment to prevent unauthorised use;
- Emergency crash and breakdown procedures; and
- Basic mechanical principles, including how to change a tyre and perform an adequate pre-operation check.

20.2 Mobile Equipment

All Contractors must ensure that Mobile equipment have the following minimum safety specifications:

- Fixed seats and seat belts for all occupants;
- Adequate lighting, including headlights, tail, turn and brake lights, and an amber flashing light (revolving or strobe);
- An identified isolation and lockout point;
- Adequate walkways, railings, steps and grab handle combinations, and boarding facilities including an alternative path of disembarking in the event of an emergency;
- Collision-avoidance technology and / or procedures;
- A reversing alarm or warning device;
- Chock blocks for preventing uncontrolled movement of rubber-tyred equipment when parked;
- A horn;
- Effective windscreen wipers;
- Effective guarding on accessible moving parts;
- A speedometer (if the mobile equipment is capable of exceeding the lowest applicable speed limit);
- High visibility signage (i.e. Mobile equipment call numbers) facilitating easy and positive identification from a reasonable distance; and
- A security system to prevent unauthorised operation.

Mobile equipment must have the following minimum safety specifications, unless a risk assessment stipulates otherwise:

- Approved or certified roll-over protection;
- Fail-to-safe brakes;
- A fire detection and suppression system capable of being activated from both ground level and cabin level (for certain types of mobile equipment, a suitably sized fire extinguisher may be adequate);
- A non-handheld two-way radio or another form of communication;
- Falling object protection (a protective structure over the operator cabin);
- An enclosed and tight-sealing air-conditioned cabin with suitable protective glass; and

- A means of moving supplies and personal items into and out of the operator cabin that enables an operator to continuously maintain three points of contact while boarding and disembarking the equipment (e.g. A backpack or shoulder strap bag).

When purchasing or hiring equipment, the ergonomics of the cabin must be considered, specifically with regard to the seating, operator controls and retrofitted devices.

Fleet and control consistency must be considered in order to minimise the possibility of operator error when changing machines.

For all new (to site) and modified mobile equipment, a formal risk-based selection and acceptance process must be followed prior to the equipment being used on site. Selection of equipment, and any modification, must be subject to a rigorous change management process.

An inspection and maintenance programme must be in place for all mobile equipment. The pre-operation inspection must include a brake functionality test. Registers must be maintained and audited, and must be kept on the machine.

Procedures must be in place to ensure that mobile equipment is only operated on sufficiently stable surfaces and on gradients that are within the limits of safe operation.

Seat belts must be used in all cases, by all occupants. Apart from the driver or operator, only an appointed flagman may be transported in mobile equipment (with the exception of buses) and **only if** the equipment is fitted with a passenger seat. No passengers are permitted on a lift and carry crane (or mobi-lift), mobile crane, forklift, mobile elevating work platform (e.g. A cherry picker), tractor, dozer, dump truck, grader, excavator, loader, back-actor, drill rig, or similar.

Risk assessments must be carried out as part of the planning process for mobile equipment operations and associated activities, and must consider the following:

- Maintenance activities;
- Risks associated with loading, unloading, towing and recovering mobile equipment; and
- The risk of fire.

Procedures must be in place for the safe isolation and lockout of mobile equipment.

Where two or more items of mobile equipment must be operated in proximity to each other, or where an item of mobile equipment must be operated in proximity to persons on foot, a risk assessment involving all persons who will be working in the area must be conducted prior to the work commencing. The risk assessment must be approved by the nominated project management representative. In such a work area:

- No item of mobile equipment may be driven to within 5 metres of another item of mobile equipment without the operator first making eye contact with, and signalling his intentions to, the other operator who must acknowledge that he understands and that it is safe to proceed.
- No person on foot may work or be positioned within 5 metres of an item of mobile equipment that is in operation. Before approaching mobile equipment on foot, a person must make eye contact with, and clearly signal his intentions to, the operator of the equipment. The operator must cease to operate the equipment, and must indicate that he understands and that it is safe to approach.

In certain circumstances (determined through risk assessment), mobile equipment may only move and operate with dedicated flagmen in place:

- Where flagmen are used, it must be ensured that the flagmen, mobile equipment operators, and all other personnel working in the vicinity of the mobile equipment, receive suitable training with regard to signals and signalling to ensure effective communication. The training must be formal and recorded, and competency must be tested.
- A flagman and the mobile equipment operator that he is directing must maintain eye contact. The flagman must never position himself where the equipment operator cannot see him.
- Should a mobile equipment operator lose sight of his flagman, he must stop his activities immediately until contact has been re-established.

A tyre management system must be in place to address issues including fire, heating, explosion, electrical contact, separations, maintenance, tyre changes, etc.
Operators must report conditions and practices that do not conform to procedure.

20.3 Training and Licensing

No person may drive a light vehicle or operate an item of mobile equipment unless he has been trained, tested and found competent, or is currently licensed to drive or operate that specific vehicle or item of equipment. The training must address hazards and risks assessed for that specific vehicle; and the tasks for which it is to be used.

No person may be appointed to drive a light vehicle or operate an item of mobile equipment unless he is in possession of a valid medical certificate of fitness (issued by an occupational medical practitioner).

Each person required to drive a light vehicle or operate an item of mobile equipment on the project site must have a project-specific site licence or appointment to drive or operate that vehicle or item of equipment.

The Contractor must ensure that Licenses and Operators' competency certificates are valid for the duration of their activities on site. No training of drivers or operators may be carried out on site unless authorised by a nominated project management representative.

21. Access Road to Project Site

The contractor shall ensure that trained flagman are placed at strategic positions that may be identified along the access roads where high risk activities are being undertaken and/or at points of traffic interface.

The project access roads may not be closed without permission from a nominated project management representative.

22. Signs and Notices

The contractor must ensure that all required safety signs and notices are prominently displayed in accordance with the applicable legislation and good safety practice. Signs and notices must be in English as well as any other language(s) commonly spoken on the project site.

All symbolic signs must comply with the applicable national standards. No person may deface or damage any safety sign or notice. No person may remove or alter any safety sign or notice unless authorised to do so.

23. Machinery

The contractor must ensure that all plant and equipment brought onto the site is:

- Appropriate for the type of work to be performed.

- Approved, inspected, tested, numbered and tagged (if appropriate) before being brought onto site.
- Properly maintained in accordance with the manufacturer's recommendations; and
- Placed on a register and checked at least once per month or as required by the applicable legislation.

Items of plant or equipment brought onto site by the contractor or his sub-contractors may be inspected by a nominated project management representative. Should the nominated project management representative determine that any item is inadequate, faulty, unsafe or in any other way unsuitable for the safe and satisfactory execution of the work for which it is intended, the contractor must, on instruction from the nominated project management representative, immediately remove the item from the site and replace it with a safe and adequate substitute.

24. Barricading

All applicable legislation concerning barricading must be complied with at all times.

Each contractor required to erect barricading on the project site(s) must develop, document and implement Safe Work Procedures that are aligned with the requirements of this standard.

Barricading must be erected to:

- Prevent persons from making contact with an identified hazard;
- Provide warning of the existence of a hazard;
- Prevent unauthorised access (by people, vehicles and mobile equipment) into an area where a hazard exists or where a hazardous activity is being carried out;
- Define the boundaries of a hazardous location and / or restricted area; and
- Allow a work team to perform hazardous tasks without persons unfamiliar with the hazard(s) accessing the area.

Although not limited to these situations, barricading must be erected or installed:

- Around excavations (trenches, pits, etc.);
- To protect openings and edges (to prevent persons from falling, all openings and edges associated with floors, stairs, and the open sides of buildings and structures during the course of construction must be protected by sturdy, rigid barriers capable of withstanding a force of at least 110 kilograms applied in any direction at any point);
- To prevent access into areas where overhead work is in progress;
- To route vehicles safety through (or around) construction areas; and
- To protect members of the public who may be in the vicinity of a work or construction site (by preventing access).

In all cases, the erection of barricading must be a temporary measure. It must only remain in place until the hazard is eliminated or the potentially dangerous situation is rectified.

A barricade must present a sturdy physical barrier to entering an area. Therefore, plastic cones, post and chain systems, "danger tape" and "snow netting" will not be accepted as barricading and may only be used for the purposes of low risk demarcation.

For example, snow netting may be used for the demarcation of lay down areas.

Acceptable forms of barricading include:

- Hoarding panels (no less than one metre in height) that can be securely fastened together to form a fence line may be used. Hoarding panels may be constructed from a variety of materials (e.g. wooden board, steel sheeting, wire mesh on a steel frame, etc.)

- Wire mesh fencing (no less than one metre in height with sturdy posts spaced at intervals of no more than 3 metres) may be used in certain circumstances, e.g. Around excavations.
- Sturdy, rigid, and securely fixed (i.e. bolted, welded, clamped, etc.) metal guard rails may be used, particularly for protecting openings, holes and edges associated with floors, platforms, walkways, etc. The top rail must be positioned at a height of one metre above the working surface, and a mid-rail must be provided.
- Concrete Jersey barriers must be used for the routing of traffic and when work is being conducted in or alongside a roadway.

Regardless of the type of barricade used, the following requirements must be met:

- The installation, alteration and removal of barricades must be supervised by a competent person;
- The barricading must be uniformly and intelligently configured;
- The barricading must be stable, conspicuous and effective;
- The barricading must completely surround the work or hazardous area;
- General access requirements around the work or hazardous area (such as pedestrian walkways, operational access, or general thoroughfares) must be taken into consideration when erecting a barricade;
- The extent of the area that is barricaded must be kept to a minimum so as not to unnecessarily restrict access to other areas. If access routes to other areas are blocked by the barricade, alternative routes must be identified and signposted.
- All barricaded areas must have properly designated points of entry and exit for persons and / or vehicles. Each pedestrian access point must be fitted with a self-closing gate. A sign indicating, "DESIGNATED ACCESS POINT – AUTHORISED PERSONNEL ONLY", must be fitted to each gate;
- Additional signage providing warning of specific hazards (e.g. falling objects, electricity, etc.) Including, "NO UNAUTHORISED ENTRY", must be attached to all gates and, where required, to the barricading itself. The signage must be visible from all angles and must be large enough to be read from a distance of 10 metres;
- Barricading must be clearly visible at all times (day and night). If necessary, flashing warning lights must be used;
- Tags must be attached to the barricading displaying the name and cell phone number of the person responsible for the barricade, and specifying the reason for the barricading and the date on which it is scheduled to be removed;
- Should a person require access to a barricaded area, authorisation must be obtained from the person responsible for the erection of the barricade. The hazards that are present and the Personal Protective Equipment that must be worn within the barricaded area must be communicated to the person seeking access;
- Each barricade must be listed in a register, and each must be inspected daily to ensure that it is still intact and that its positioning is still effective;
- All barricades must be properly maintained and repaired as required;
- When the work has been completed and the hazard has been eliminated, all barricading must be removed without delay. A barricade may not be left in place if no hazard exists;
- Before a barricade is removed (allowing general access), the area must be inspected by the person responsible for the work that was carried out, to ensure that the area is once again safe. If applicable, the person accepting the area back for general use shall do so on completion of his own safety inspection;
- Authorisation to remove (or modify) a barricade may only be granted by the person responsible for the erection of the barricade.

25. Excavations

Excavation work or activities which are required as part of the scope shall be undertaken in accordance with the requirements of this Specification as well as all applicable legislation concerning excavation work.

The contractor will be required to develop, document and implement Safe Work Procedures that are aligned with the requirements of this standard. All excavation work must be properly planned. Site-specific conditions and hazards must be considered, including traffic, overhead and buried utilities, proximity to nearby structures, soil properties, presence of surface and / or ground water, position of the water table, and weather conditions.

Excavation work may only be carried out under the personal supervision of a competent Excavation Supervisor who has been appointed in writing.

Before any excavation work is carried out, a Permit to Work authorising the activities will be issued. Similarly, no person may enter an excavation unless a Permit to Work has been issued providing authorisation for specific tasks to be carried out within the excavation.

Before issuing a Permit to Work for excavation works, the Authorised Person (i.e. Permit issuer) must verify that:

- A detailed Risk Assessment has been conducted for the work to be performed;
- A Safe Work Procedure is in place; and
- No buried services are present in the area where the excavation works are to be carried out.

As a minimum, the Risk Assessment must consider hazards and risks associated with:

- A person being trapped or buried as a result of an excavation collapsing;
- A person being struck by an object falling into an excavation;
- A person falling into an excavation;
- A person being exposed to a hazardous atmosphere within an excavation (i.e. An oxygen deficiency, explosive or flammable gases, and / or harmful concentrations of a contaminant);
- Contact with belowground services; and
- Mobile equipment and / or light vehicle movement in proximity to an excavation.

If buried services are identified (or are suspected to be present) then the safe work procedure must be altered if necessary to avoid these services. Machinery may not be used to excavate material lying within one metre of any belowground service (i.e. Cable or pipe).

Excavation work that is carried out must be limited to what is described in the Permit to Work. All controls, precautions and restrictions identified in the Permit to Work (and Risk Assessment) must be strictly observed and fully implemented. The Excavation Supervisor must discuss these controls, precautions and restrictions with all persons who will be carrying out the work. All excavation work must be carried out by persons who have been trained and are competent to perform the work.

Tools, equipment and materials may not be placed within two metres of the edges of an excavation. Alternatively, a suitable retaining device may be used to prevent tools, equipment and materials from falling, rolling or sliding into an excavation.

To prevent unauthorised entry into an excavation, rigid barricading must be erected around every excavation that is deeper than 500mm. Warning signage must be prominently displayed and, if necessary, flashing warning lights must be used at night.

The barricading must remain in place for as long as the hazard (i.e. the excavation) exists. Sections of barricading around an excavation may only be removed (and then only temporarily) to enable excavation work to continue.

If equipment is used to prevent water from entering an excavation or to prevent water accumulation within an excavation, then the equipment must be monitored by a competent person to ensure that it remains operational and effective.

A high standard of housekeeping must be maintained in and around all excavations. Tools that are not in use, and materials that are no longer required, must be removed from an excavation to prevent these items from causing injury or being lost (buried). A register of all excavations must be compiled and maintained.

A record of each inspection (including date, time, findings, and signature of the Excavation Supervisor who carried out the inspection) must be captured in the excavations register. Each inspection record must include a declaration as to whether the excavation is safe to work in or not. All excavations must be monitored closely throughout each work day (or shift) by the Excavation Supervisor.

Excavations must be backfilled as soon as possible, and the material used (usually the original material) must be properly compacted.

26. Working along/near/adjacent River

All applicable legislation concerning working along, near and/or adjacent to a river/water must be complied with at all times. Each contractor carrying out work along, near and/or adjacent the river/water must develop, document and implement Safe Work Procedures that are aligned with the requirements of this specification as well as any applicable legislation, standards and codes. A task specific risk assessment for the relevant work to be carried out along, near and/or adjacent to the river/water should be conducted before any such work commences and submitted to the TRANSNET Project Manager or Representative for approval before any work can commence. The Risk assessment should be reviewed periodically. All potential hazards involved in the work to be carried out along, near and/or adjacent to the river/water e.g. drowning, plant/equipment falling into water should be identified and mitigated.

Contractors Health and Safety Plan for such work should include, but not be limited to:

- Methodology for carrying out such work;
- Formulation of method statements/safe work procedures;
- Emergency preparedness e.g. contingence plans, rescue plans, evacuation plans.

Lifting equipment/mobile plant should be kept a safe distance from dangerous locations e.g. openings, edges close to the water. Lifting equipment/mobile plant carrying out work along, near and/or adjacent to the river/water should be fixed and securely anchored. The operating zone should be clearly demarcated. No lifting equipment/mobile plant should be allowed to operate beyond its safe working load. The suitability of the ground on which the lifting equipment/mobile plant will be stationed should be identified before work commences with these activities.

27. Cranes and Lifting Equipment

All applicable legislation concerning cranes and lifting equipment must be complied with at all times. Each contractor carrying out lifting operations on the project site(s) must develop, document and implement Safe Work Procedures that are aligned with the requirements of this Specification.

27.1 Design, Manufacturing and Safety Features

Before any crane or hoist is operated on the project premises (i.e. New to site), it must be formally accepted (authorised) by the nominated project management representative. The acceptance process must be based on an inspection and risk assessment, and must take the crane's or hoist's safety features and cabin ergonomics (if applicable) into account. The same process must be followed before any crane or hoist is returned to service following any modification or repair.

Note: An Equipment Profile (dossier) must be compiled for each crane.

As a minimum, the design and manufacturing of each crane or hoist used on the project premises must comply with the requirements of the relevant ISO standard. The Safe Working Load (SWL) must be clearly indicated on each crane, hoist, and item of lifting equipment.

If the safe working load (rated capacity) of a crane varies with the conditions of use (i.e. varies with the angle of the boom and the boom length) then the manufacturer's load chart(s) indicating the crane's rated capacity at various boom lengths and angles must be available in the crane cabin. If the crane has a single load chart, it must be displayed in a position visible to the crane operator. If the crane has numerous load charts, they must be easily accessible to the operator.

For each crane or hoist, the manufacturer's operating manual must be available to the operator. The load chart(s) and operating manual for a crane or hoist must be in a language understood by the operator.

All lifting hooks must be fitted with a safety latch to prevent the load from accidentally detaching. Each crane or hoist must be fitted with a load cell (with the mass of the load displayed in the visual range of the operator) and a load limiting device to prevent the crane or hoist from being operated outside of its safe working limits.

Where practicable, each crane must be equipped with an upper hoist limit switch (or anti two-block device) to prevent the hook block from colliding with the drum, and a lower hoist limit switch to prevent the rope on the drum from unwinding completely. These systems must provide both a visual and an audible alarm to the operator.

Under no circumstances may any limit switch or warning device be bypassed, disconnected, or adjusted in order to lift a load higher (or to lower a load lower) than the respective switches allow. Limit switches MAY NOT be adjusted to stop the hoist at a particular height under normal operating conditions – these are safety devices, and as such, should not be used as operating tools.

Under no circumstances may a load limiting device be bypassed or disconnected in order to lift a load that exceeds the rated capacity of the crane. Load limiting devices MAY NOT be used to "measure" or "test" the mass of a load.

For a vehicle-mounted crane, the operator control station must be located in a position protected from swinging loads and from the crane jib.

A fall protection system must be provided for the assembly, dismantling, operation, maintenance and inspection of any crane where falling from height is identified as a hazard.

Each crane should be fitted with a stability monitoring device to prevent it from toppling over.

Only items of lifting equipment (tackle) that have been designed and manufactured with adequate factors of safety may be used on site. The following minimum factors of safety (with respect to the Safe Working Load) must be met:

- Ten (10) for natural-fibre ropes;
- Six (6) for synthetic-fibre ropes or woven webbing;
- Six (6) for steel-wire ropes;
- Five (5) for steel chains; and
- Four (4) for high-tensile or alloy steel chains.

27.2 Planning and Risk Assessment

For each critical lift that must be carried out on site, a documented and detailed lift plan and risk assessment must be prepared to address all associated hazards.

Only suitably qualified, competent and experienced persons (lift planners) may evaluate critical lifts and prepare lift plans.

The lifting supervisor, crane operators, riggers and spotters responsible for carrying out a critical lift must have input into the lift plan and risk assessment and must be consulted before these documents are finalised.

All lift planners, lifting supervisors, crane operators, riggers and spotters (safety observers) must be appointed in writing. No critical lift may commence until the lift plan and risk assessment have been authorised by the nominated project management representative and a Permit to Work has been issued.

Critical lifts include, but not limited to:

- All multiple (including dual) crane lifts;
- Lifts where the operational arcs of two or more cranes can overlap;
- Lifts over operating facilities where this may endanger personnel;
- Lifts over or adjacent to power lines;
- Any lift carried out in close proximity to equipment or a vessel containing a flammable or toxic substance;
- Lifts where the centre of gravity of the load could change;
- Any lift where the total weight on the hook exceeds 20 tonnes;
- Lifts near the rated capacity of the crane (i.e. Exceeding 85% of the rated capacity at the working radius);
- Any lift when the wind speed (including gusting) exceeds 30 kilometres per hour;
- Lifts involving a man basket (safety cage);
- Lifts to and from water;
- Lifts requiring specialised equipment or involving complicated lifting or rigging configurations;
- Lifts requiring non-standard rigging or slinging techniques;
- Lifts involving the simultaneous use of more than one hoist on the same crane; and
- Any other lift deemed to be critical by the nominated project management representative, or assessed as critical during a risk assessment.

The lift plan for a critical lift must include as a minimum:

- General Information – crane manufacturer, crane model, items to be lifted, and reason for lift;

- Lift Data – load weight, lifting block and hook weight, hoist rope weight, rigging weight, total weight, height of lift, radius of lift, surface area of load, and centre of gravity of load;
- Rigging Data – sling material (chain, wire rope, or synthetic), sling diameter, sling length, sling configuration, sling capacity, hook type, shackle size and capacity;
- Lift Computation – boom length, jib length, radius of lift, crane capacity as configured, size of outrigger footplates, and wind speed;
- Proximity to Power Lines and Process Areas – mobile cranes working in proximity to energised power lines must operate under a Permit to Work, which must define exclusion zones and spotter duties;
- Local Hazards and Controls – including the route for the crane, ground stability, proximity of people or equipment, and agreed communication method; and
- Diagrams (sketches) – a rigging diagram, and a crane set-up diagram illustrating the positioning of the crane(s) in relation to surrounding structures and the initial and final positions of the load (including crane boom movement).

Lifts that are not subject to detailed lift plans (i.e. Lifts that are not considered critical) must nevertheless be subject to a risk assessment, and be properly planned and executed.

The use of a crane-suspended man basket (safety cage) may only be considered when all other avenues to safely perform the work (e.g. Scaffolding, mobile elevating work platform, etc.) have been exhausted.

Cranes used to lift or suspend personnel must be approved as suitable for this purpose. If a crane must be operated in proximity to energised overhead power lines (or any other exposed electrical conductors) then minimum clearance distances (specified by the electrical power utility or the nominated project management representative) must be observed. Whenever possible, power lines must be de-energised and isolated while lifting operations are carried out.

27.3 Operation

At the start of every day or shift, the operator of a crane or hoist must carry out a pre-operation safety check using a prescribed checklist.

As a minimum, the pre-operation safety check must include:

- A thorough visual inspection of all wire ropes, chains, hooks and safety latches, hook blocks, sheaves, hydraulic hoses, electrical cables, and the general condition of the crane or hoist;
- Checks to confirm the serviceability of the operating controls;
- Tests to confirm the correct operation of all limit switches, emergency shutdowns, load indicators, alarms and other safety devices; and
- A thorough visual inspection of all lifting equipment (tackle) to be used.

The operator must:

- Check for any loose or missing parts;
- Make sure that the wire rope (or chain) of the hoist is properly seated in its drum and sheave grooves without any slack or overlapping;
- Operate each control to make sure it functions properly, releases immediately, and does not stick. Each control must be labelled to indicate its function;
- Listen for any unusual mechanical noises and look for any jerky movements while operating the crane and / or hoist several feet in each direction that it travels;
- Check the functionality of the upper and lower hoist limit switches (if applicable) by slowly raising and then lowering the block to trip the respective switches;

- Check all hooks. Hooks must not be cracked, stretched, bent or twisted. Each hook must have a safety latch that automatically closes the throat of the hook. If the latch is bent, has a broken spring, or is otherwise damaged, it must be repaired before use. Hooks must rotate freely in the block assembly without any "grinding" felt or heard;
- Check the wire rope by lowering the block to its lowest level and looking for the following signs of damage:
    - Reduced rope diameter. This may indicate that the rope has been stretched, has lost its inner core support, or has worn outside wires;
    - Broken wire strands (any number);
    - Kinked, crushed, cut, or "bird caged" wiring, or wiring with heat damage.
- Check all chains for damage including wear at contact points, cracks, or distorted links (bent, twisted or stretched). All mechanical coupling links must be inspected to ensure that the linking pins are secure and in good condition. The capacity rating of each chain must be adequate for the load and the attachment method;
- Check the condition and capacity of wire rope and synthetic web slings. Capacity ratings must be legible on the manufacturer's label. The capacity of the sling being used must be adequate for the load and the attachment method. A sling must be replaced immediately if it is excessively worn.

The operator must report any fault, defect or damage to his supervisor immediately. A crane or hoist must not be operated if any safety device is out of order or defective, or if any rope, chain, hook or other component is worn or damaged.

Completed checklists must be made available (on request) for inspection by the nominated project management representative. Wherever possible, these checklists must be kept with the crane or hoist.

All lifting operations must be supervised by suitably qualified, competent and experienced supervisors.

An effective method of communication between the crane operator and those assisting with the lift must be in place. This must be documented and approved by the nominated project management representative.

Documented Safe Work Procedures must be in place to ensure the following:

- Access into an area where lifting operations are being carried out must be restricted. Such an area (i.e. where there is a risk of a load falling and striking a person) must be barricaded and only authorised persons may enter (i.e. those directly involved with the lifting operations). Warning signage must be conspicuously displayed;
- Where a load is being moved from one location to another (i.e. The lifting operations are not being carried out in a discrete area that can be barricaded), measures must be taken to ensure that all persons in the path of the suspended load are made aware of the approaching hazard and that they move, and remain, well clear of it. All persons potentially affected must be given warning before the load is lifted;
- A lift must be directed and controlled by a single person (a suitably qualified, competent and experienced rigger);
- Dedicated spotters must be in place during lifting operations to observe and provide warning (if necessary) to prevent incidents and ensure that safety protocols are adhered to;
- Before commencing with a lift, it must be verified that the load being lifted is both within the rated capacity of the crane (or hoist) and lifting equipment and within the limits set out in the lift plan and / or risk assessment. The rated load capacities of the crane, hoist, rope, chains, slings or other components may never be exceeded;
- Only certified lifting equipment (tackle) may be used to lift a load;

- No equipment (tackle) that has been used for towing may be used for lifting operations;
- Only an approved material box (skip box) may be used for lifting loose items or materials;
- Before commencing with a lift, it must be verified that no safety devices (including load limiting devices) have been bypassed, overridden or disconnected;
- To prevent the load from swinging as it is lifted, the hoist must be centred over the load (when using slings or chains) or positioned directly above the lifting point of the load;
- Hoisting ropes must be kept vertical. No side loading of a crane boom is permitted (i.e. A crane may not be used to make a side pull);
- Two full wraps of rope must remain on the hoisting drum at all times. If a lower hoist limit switch has been fitted, and it is working correctly, it should not be possible to lower the block below the point where less than two full wraps of rope are on the drum;
- Before commencing with a lift, it must be verified that all rigging connections are correct and secure. Slings, chains, or other lifting devices must be fully and securely seated in the saddle of the hook;
- Slack must be removed from the slings, chains and / or hoisting ropes before lifting the load. It must be ensured that multiple lines are not twisted around each other and that the hoist rope is not wrapped around the load;
- To ensure that the load is properly secured and balanced, it must initially only be lifted a few centimetres. Slings must be repositioned if required;
- Before moving a suspended load, it must be lifted high enough to clear all obstructions. The load must only be lifted to the height necessary to clear obstructions, and no higher;
- Directional movement must be made smoothly and deliberately (there must be no sudden acceleration or deceleration of the moving load). Abrupt, jerky movements of the load in any direction must be avoided;
- Tag lines must be used in situations where a load needs to be steadied or guided while suspended;
- When using tag lines to steady or guide a suspended load that is being moved using a mobile crane, personnel on foot must remain in sight of and in communication with the crane operator at all times, must never walk between the crane and the load, and must remain clear of the load and the crane at all times (at least 5 metres). The load must be moved at a slow walking speed;
- A suspended load must be monitored closely at all times;
- If a crane operator's view of a suspended load is unavoidably obscured (completely or partially), or if a suspended load is unavoidably obscuring (completely or partially) a crane operator's view, then suitably positioned spotters must be in place to provide guidance to the crane operator;
- A load MAY NOT be moved over, or be suspended above, any person or any occupied building. No person may walk beneath, or position himself below, a suspended load;
- No person may pass or work beneath the boom of a crane;
- No person may be positioned between a suspended load and a solid object where there is a risk of being crushed should the load swing;
- No person may be positioned within the radius of the boom of a crane unless directly involved with the lift;
- Under no circumstances may any person ride on a crane's hook or on a load;
- No load may be left suspended unless the operator is at the controls and is monitoring the load. In such a situation, the load must be kept as close as possible to the ground or floor to minimise the possibility of injury should the load drop;
- The controls of a crane or hoist may never be left unattended while a load is suspended. If it becomes necessary to leave the controls, the operator must lower the load to the ground or floor;

- With the exception of pick-up and carry operations, no lifting may be carried out using a mobile crane unless the outriggers have been deployed and are locked in position;
- Load spreaders or packing under the outriggers must be used irrespective of the underfoot conditions;
- Before a mobile crane is moved into position to carry out a lift, the area must be inspected by a suitably qualified person who must verify that the underfoot conditions are satisfactory;
- When using a mobile crane, slewing to test the effectiveness of the outriggers must be carried out prior to commencing with a lift;
- Slew pins must be securely in place while a mobile crane is travelling;
- Unauthorised use of a crane or hoist must be prevented by removing the keys, locking the cabin, isolating the controls, etc. When lifting operations have been completed;
- When not in use, lifting equipment must be stored off the ground and must be protected from the elements (rain, harsh sunlight, etc.) And contamination (dust, solvents and other chemicals) in order to prevent damage and / or deterioration.

A crane or hoist or an item of lifting equipment may only be used for the purposes for which it was designed.

27.4 Inspection, Testing and Maintenance

Any crane or hoist brought onto the project premises must have a current test certificate and record of inspection as well as a suitable checklist (derived from the crane or hoist manufacturer's inspection recommendations) for use by the operator(s) when carrying out pre-operation safety checks.

An Equipment Profile (dossier) must be compiled for each crane. A register of all cranes, hoists and lifting equipment (tackle) brought onto the project premises must be compiled and maintained.

Each crane, hoist and item of lifting equipment must have a unique identification code or number, which must be referenced in the register.

For each crane, hoist and item of lifting equipment, the following documentation must be kept on site and must be made available (on request) to the nominated project management representative for inspection:

- Test records and certificates;
- Inspection records;
- Maintenance records; and
- Details of any modifications or repairs made.

All cranes, hoists and lifting equipment must be inspected, tested and confirmed fit for purpose (i.e. Safe for use):

- Before being operated or put into service;
- Before being returned to service following any repair or modification; and
- Periodically as follows (unless local regulations require examination more frequently):
    - Each crane or hoist (including all ropes, chains, hooks or other attaching devices, sheaves, brakes and safety devices that form an integral part of the crane or hoist) must be thoroughly examined by a competent, experienced and appointed person every 6 months;
    - Each crane or hoist must be subjected to an annual performance test (i.e. A load test) by a competent, experienced and appointed person; and
    - All lifting equipment (tackle) must be thoroughly inspected by a competent, experienced and appointed person every 3 months.
    - The system of inspection and testing must provide verification that each crane or hoist is able to function to its design specifications, and must verify the integrity of:

- Mechanical and electrical components;
- Controls;
- Cables and all lifting attachments;
- Structural components including boom, hoist, brakes, wheels, hooks, baskets, out-riggers, hook-blocks and rails; and
- Load limiting devices, hoist limit switches, alarms or warning devices, and other safety devices and control systems (including independent fail-safe braking systems, devices to stop the crane or hoist such as a dead man's switch, and emergency shut-off switches).

A preventative maintenance system must be in place to ensure that all cranes and hoists are maintained in a safe and serviceable condition.

For any crane or hoist, all inspections, testing, maintenance and repairs must, as a minimum, be carried out in compliance with the requirements and specifications of the manufacturer as well as all applicable regulatory requirements (in terms of both the frequency of inspection, testing and maintenance, and the physical condition of the crane or hoist).

Repairs to a crane or hoist may only be carried out by competent persons. After repairs have been made, the crane or hoist must be tested and recertified fit for purpose (unless the repairs did not affect the integrity of the lifting mechanism).

Any modification to a crane or hoist must be subject to the approval of the original equipment manufacturer and a rigorous change management process. Each item of lifting equipment (tackle) must be tagged following each quarterly (3-monthly) inspection. Details of these inspections must be recorded in the lifting equipment register which must be made available to the nominated project management representative on request.

The following colour coding system must be used for the tagging of all lifting equipment:

Table 27-1 colour coding system for lifting equipment

Quarter	Tag colour
January – march	Blue
April – June	Red
July – September	Green
October – December	Yellow

The tag placed on an item of lifting equipment must be traceable to an entry in the lifting equipment register where the following information concerning the inspection of that item of equipment must be recorded:

- Item description;
- Unique item identification code or number;
- Item owner;
- Item location;
- Date of inspection;
- Name and signature of competent person who carried out the inspection; and
- Any comments concerning the inspection.

Any item of lifting equipment that is found to be damaged or defective must be removed from service (and tagged, "out of service") immediately and must then either be repaired and recertified (if possible) or destroyed to prevent further use. Similarly, any lifting equipment that is known (or

is suspected) to have been overloaded must be removed from service immediately and destroyed to prevent further use.

If an item of lifting equipment is removed from service or destroyed (scrapped), this must be indicated in the lifting equipment register. Any item of lifting equipment without a tag or with an out-of-date inspection may not be used.

27.5 Training and Competency

Only suitably trained, competent and experienced persons who have been authorised in writing by the contractor's project manager are permitted to:

- Evaluate and plan critical lifts;
- Supervise lifting operations;
- Operate cranes and hoists;
- Use lifting equipment, and rig (sling) loads;
- Provide signals for controlling lifts; and
- Inspect, maintain or test cranes, hoists and lifting equipment.

Each operator must meet the competency requirements for the particular class or type of crane or hoist to be operated. Depending on the project location and applicable legislation, operators may need to hold a certificate of competency issued by a recognised training institution.

28. Working at Heights

All applicable legislation concerning work performed from an elevated position must be complied with at all times. Fall prevention or fall protection measures must be in place whenever the potential exists for a person to fall.

28.1 Risk Assessment and Permitting

The following documentation is required for any work where fall protection is required (i.e. where a risk of falling exists):

- A Fall Protection (and Rescue) Plan;
- A Risk Assessment for the task to be performed;
- A Safe Work Procedure for the task to be performed; and
- A Permit to Work.

As part of the Risk Assessment and planning processes, the following must be considered, but not limited to:

- Hazards relating to accessing the location at height;
- The nature of the work location;
- The nature of the work activities to be undertaken at height;
- Environmental and weather conditions;
- The presence of nearby persons who may be at risk due to falling objects (potentially) or who's activities may be affected by the work being performed at height;
- The selection of fall protection equipment (considering fall clearances) and / or access equipment;
- The selection of anchorage points;
- The load ratings of access platforms, work areas, anchorage points, etc.;
- The condition of supporting structures such as roofs;
- The need for the work to be carried out by multiple persons and the means of communication;
- A rescue plan that addresses retrieval or rescue contingencies;
- Working above open furnaces or molten metal;
- Exposure to heat sources;

- The use of a mobile elevating work platform, man basket, suspended scaffold or boatswain's chair; and
- Any other conditions that may affect the safe execution of the task.

29. Falling Objects

In the process of planning work activities, the risks associated with falling objects (i.e. materials, tools or equipment) must be assessed and appropriate control measures must be identified, implemented, and monitored taking the following hierarchy of controls into consideration:

- Preventing objects from falling – by using containment sheeting, toe boards, lanyards to secure tools (to a person or to the structure), ropes or chains to secure equipment (to the structure), lift boxes, brick cages, etc. and by properly securing loads when lifted by crane or hoist;
- Protecting people from falling objects – by establishing barricaded exclusion zones, installing catch platforms or catch nets, displaying warning signage, and posting safety watchers and / or traffic controllers; and
- Personal Protective Equipment (particularly safety helmets and safety boots) – protective equipment is a last line of defence and must be worn.

Where overhead work is being carried out, barricading must be erected around the work area (at the level at which the work is taking place and at every level below including ground level) to prevent persons from entering such an area and potentially being struck by falling objects. Wherever hazards related to falling objects exist, appropriate warning signage (i.e. "Overhead Work In Progress" and "No Unauthorised Access") must be prominently displayed.

No items are permitted to lie loose in elevated positions (e.g. nuts and bolts must be securely stored) and good housekeeping standards must be maintained at all times. No tools, equipment, material, debris, waste, etc. may be dropped from height. Objects must be lowered or chuted to ground level in a safe and controlled manner.

29.1 Safe Access

Safe and convenient access must be provided to every scaffold platform by means of properly installed ladders or approved stairways, which must remain unobstructed at all times. Climbing up or down a scaffold on the braces or ledgers is forbidden.

All ladders used to access scaffolding must be securely attached to the scaffold structure. Hook-on and attachable ladders must be specifically designed for use with the type of scaffolding being used.

If a ladder is used to access a scaffold platform at a height greater than 1.5 metres above the ground, then the ladder must be secured internally (i.e. within the scaffold structure) and there must be an opening (closed with a trap-door) in the platform at the top of the ladder.

If the scaffold platform is at a height of less than 1.5 metres above the ground, then the ladder may be attached externally provided the guard rails around the platform are modified to allow access (the opening in the guard rails must be kept closed using a self-closing gate). No person may climb over or through the guard rails to gain access to a platform.

If a vertical ladder used on scaffolding is more than 5 metres in length it must be equipped with a ladder cage extending from a point 2 metres from the base of the ladder to a height of 1 metre above the platform (or the uppermost platform) that the ladder is providing access to.

The requirement for a ladder cage may be waived if platforms are provided at height intervals not exceeding 4 metres, with the vertical ladder secured on the inside of the scaffolding framework and an opening (closed with a trap-door) in each platform. Vertical ladders must be braced at three metre intervals (as a minimum) to prevent undue movement.

All vertical ladders providing access to a platform must be left in place for as long as the scaffold remains in place and must be inspected as part of the scaffold structure.
Any deviation from the requirements stipulated above must be subjected to a risk assessment and the nominated project management representative must authorise the deviation in writing.

30. Ladders

All ladders used on site must be of sound construction and adequate strength. Only non-conductive ladders made of wood or fibreglass may be used for electrical work or work being performed in proximity to energised electrical equipment. Metal ladders and ladders with metal reinforcing may not be used.

The use of makeshift ladders is forbidden. All ladders must be numbered, listed in a register, and inspected by a competent person on a monthly basis (the results of each inspection must be recorded in the register). Before using a ladder, the user must inspect it for damage.

Ladders with missing, broken, cracked or loose rungs, split stiles, missing or broken spreaders (stepladders) or any other form of damage or defect may not be used. A damaged ladder must be removed from service (and tagged, "Out of Service") without delay and must then either be repaired (if possible) or destroyed to prevent further use. Persons must receive instruction in the correct use and proper care of ladders.

Ladders may only be used as a means of access and egress. The use of ladders as working platforms is prohibited, except for inspection and carrying out minor tasks (i.e. light work and short duration) such as changing a light bulb.

Ladders may not be positioned horizontally and used as walkways or runways or as scaffolding.
All portable ladders must be fitted with non-skid safety feet (or some other means to prevent the base of the ladder from slipping) and the feet must always be placed (stand) on a firm level surface.
The use of bricks, stones, wood or any other material to level the stiles of a ladder is prohibited.
Ladders may not be placed on movable bases such as boxes, tables, trucks, etc.

The base or foot of a ladder must always be secured to prevent it from slipping. The ladder must be held by an assistant if the base cannot be secured in any other way (e.g. tied off). A straight ladder must extend at least one metre above its support (or above the working platform that it is providing access to). The top of the ladder must be tied off (or otherwise secured to its support) to prevent accidental movement.

A straight ladder must be placed at a safe angle, i.e. tilted at a ratio of approximately 4:1, meaning that the base of the ladder must be one metre away from the wall (or other vertical surface) for every four metres of height to the point of support.

A stepladder may never be used as a straight ladder. A stepladder must be opened fully and the spreaders must be locked securely. When using an extension ladder, at least four rungs must always overlap at the centre of the ladder. Ladders may not be joined together unless they have been specifically designed and manufactured for that purpose.

A suspended ladder (i.e. not standing on a base) must be attached in a secure manner to prevent undue swinging or swaying, and to ensure that it cannot be displaced.

A ladder may not be placed against a window, glass or any other material which is unlikely to withstand the force exerted on it by the top of the ladder. A ladder may not be placed in front of a door or window that opens towards the ladder unless the door or window has been locked or barricaded.

When a ladder is used near an entrance or exit, the base of the ladder must be barricaded. Materials and / or equipment may not be placed in close proximity to the base or landing of any ladder.

When ascending or descending a ladder, a person must always face the ladder and use both hands (i.e. maintain three points of contact).

Nothing may be carried up or down a ladder if it prevents the person from holding on to the ladder with both hands. Tools must always be properly secured. This can be achieved by attaching them to the wrist using lanyards or placing them in a tool belt around the waist. Tools and materials may also be carried in a bag over the shoulder or hoisted to the landing using a tool bag and rope. Only one person at a time may use (i.e. be positioned on) a ladder.

No person may stand or step above the third rung from the top of a straight ladder or above the second highest step of a stepladder.

Overreaching from a ladder is prohibited. If the target is not within comfortable reach, the person must climb down and reposition the ladder. No person may run up or down a ladder, or jump from the lower rungs or steps to the ground. All ladders must be properly maintained and cared for. Ladders must be stored under cover and should be hung in a horizontal position from several brackets.

No ladder may be left lying on the ground or be left exposed to the weather. A ladder left lying on the ground presents a tripping hazard and it may be damaged by vehicles running over it. No ladder may be left in such a position where it may fall over, be accidentally knocked over, or be blown over by the wind.

Ladders may not be painted, as the paint may conceal damage, defects, labels or other markings. Instead of paint, clear varnish or wood oil may be used to preserve wooden ladders. Ladders must be kept clean, as dirt may conceal damage or defects. Oil or grease accumulation on the rungs of a ladder may cause a person to slip.

Before making use of a ladder, each person must make an effort to remove mud, oil, grease, etc. from his boots.

31. Permit to Work

All personnel must comply with the Permit to Work system applicable to the project. A Permit to Work must be obtained before carrying out any work that involves, but not limited to:

- A hazardous energy source or system, including electricity, compressed fluids (e.g. hydraulics and pneumatics), chemical substances (e.g. toxic, corrosive, flammable or explosive gases and liquids), heat (e.g. steam), radiation, and machinery or materials with potential energy (gravitational and elastic) – isolation and lockout may be required;
- Confined space entry;
- Working at heights;
- A critical lift;
- Hot work outside of designated workshops;
- Excavation; or
- A service (e.g. water supply, fire suppression systems, etc.).

Note: A Permit to Work may only be issued by an Authorised Person, and may only be received (or accepted) by an appointed Applicant.
All costs associated with the Compliance to Permits section is for the Contractors account.

Each Permit to Work that is issued must make reference to an approved Task-Based Risk Assessment for the work that is to be carried out.

The Permit to Work system that is employed must incorporate the following basic procedures:

- Prior to meeting with the Authorised Person, the Applicant must familiarise himself with all of the hazards associated with the system, plant, equipment, structure or area on or in which the work must be performed. He must also consider the risks that may arise as a result of the tasks that will be carried out. A Task-Based Risk Assessment must be in place;
- The Applicant must then request permission to carry out the work and must meet with the Authorised Person to discuss and document the scope of the work as well as the hazards, risks and associated control measures. Isolation and lockout requirements must be identified (if applicable). The isolation and lockout process must be initiated by the Authorised Person who must contact the necessary Isolation Officers.

Note: The Applicant must ensure his own safety and that of his team, and has the right to accompany the Isolation Officers to verify that all of the necessary locks have been fitted to all of the isolation and lockout points in accordance with the applicable plant or equipment-specific Isolation and Lockout Procedure.

- Once all of the necessary isolations have been completed and the necessary Clearance Certificates have been issued by the Isolation Officer(s) (if applicable), and the Authorised Person is satisfied that the system, plant, equipment, structure or area is safe to work on or in provided all identified precautions are observed by the Applicant, then he must issue (sign) the Permit to Work to the Applicant;
- The Applicant must accept (sign) the Permit to Work. If equipment has been isolated, the Applicant must attach his Personal Lock to the relevant Isolation Bar (or Local Isolation Point) and must ensure that every other person working on the isolated equipment also attaches his or her Personal Lock to the Isolation Bar (or Local Isolation Point) before starting any work;
- Before commencing with any work, the Applicant must discuss the hazards, risks, control measures, precautions and limitations as stated in the Permit to Work (and associated Task-Based Risk Assessment) with all personnel who will be carrying out the work. A register must be kept and all persons must sign the register once they have been briefed by the Applicant;
- The work performed must be limited to what is described in the Permit to Work;
- When a particular employee has completed his work, he must sign the personnel register to this effect and (if applicable) must remove his Personal Lock from the Isolation Bar (or Local Isolation Point);
- Once all work is complete, the Applicant must:

- Ensure that all machine guards have been replaced;
- Ensure that all tools and materials have been removed from the work area;
- Ensure that the work area is clean and tidy;
- Ensure that all Personal Locks (including his) have been removed from the Isolation Bar or Local Isolation Point (if applicable);
- Inform the Authorised Person that the work has been completed; and
- Sign off the Permit to Work.

- Once the work is complete and the Applicant has signed off the Permit to Work, the Authorised Person must:
  - Ensure that the relevant Isolation Officers perform all of the necessary de-isolations (if applicable);
  - On completion of the de-isolations, sign off the Permit to Work accepting the system, plant, equipment, structure or area back for service; and
  - Inform all relevant personnel that the system, plant, equipment, structure or area is ready to use.
  - Where the work must continue over more than one shift, the Permit to Work must be reviewed at every shift change by an Authorised Person. If the scope of work has changed, the permit must be cancelled and a new permit must be issued.

If any of the original conditions or precautions pertaining to the work is not being complied with, is no longer adequate or is no longer applicable, the Authorised Person must cancel the Permit to Work and must ensure that all work stops until full compliance with either the original or amended (as required) conditions and precautions is achieved and a new permit has been issued.

The Applicant must ensure that the Permit to Work (including the personnel register) is kept where the work is being carried out (i.e. posted on a portable Health and Safety Management Information Notice Board) and that the work is monitored against the permit conditions.

All Permit to Work records must be retained and must be made available for inspection when required.

The implementation of the Permit to Work system applicable to the project must be audited on a regular basis by a nominated project management representative. Furthermore, planned task observations must be carried out periodically.

32. Isolation and Lockout

Isolation and lockout procedures that make it impossible to inadvertently energise any system, plant or equipment so isolated, must be in place for all work where hazardous energy sources exist, including electricity, compressed fluids (e.g. hydraulics and pneumatics), chemical substances (e.g. toxic, corrosive, flammable or explosive gases and liquids), heat (e.g. steam), radiation, and machinery or materials with potential energy (gravitational and elastic). These procedures must be strictly enforced. All personnel must comply with the isolation and lockout system and procedures applicable to the project.

All Isolation and Lockout Procedures must incorporate the following basic requirements:

- The issuing of a formal Permit to Work for any work that requires the isolation of any system, plant or equipment;
- The use of defined Equipment, Discipline and Personal Locks (see Definitions), and multiple lockout systems (i.e. Isolation Bars and lockout hasps);
- Clear identification of all isolation and lockout points ensuring there is no duplication;
- Isolation of the main energy source;

- The use of slip plates or the blanking off of pipelines or ducting, in addition to the chaining and locking of valves, as determined by a risk assessment;
- Suitable methods of preventing the movement of equipment; and
- Methods to test the effectiveness or completeness of the isolation.

Note: No work may commence on a system, plant or equipment until a Permit to Work has been issued by an Authorised Person.

Note: A Permit to Work may only be issued by an Authorised Person once all required Clearance Certificates have been issued by appointed Isolation Officers.

The isolation and lockout system that is employed must incorporate the following basic procedures:

- In accordance with a system, plant or equipment-specific Isolation and Lockout Procedure, an appointed Isolation Officer(s) must isolate all points that need to be isolated in order to render the system, plant or equipment safe to work on. An Equipment Lock (and a suitable, highly visible warning tag) must be attached to each isolation point;
- On completion of an isolation (and lockout), the Isolation Officer must clear the area of all persons and must then carry out tests to ensure that the isolation is effective. This may be done by pressing a start button or by asking a control room operator to try to start the equipment. Special care must be taken to ensure that the attempted starting of the equipment has not been deactivated by another interlock forming part of the system, or by a different up-stream isolation. Alternatively, appropriate equipment may be used to test for energy (e.g. voltage verification or continuity tests).

Note: In the case of electrical isolation, a test for voltage must be carried out, after the switching device, to ensure the absence of voltage.

- The Isolation Officer must place the key to the Equipment Locks on an Isolation Bar (at a Lockout Station) and must then attach a Discipline Lock (to prevent the key from being removed) before issuing a Clearance Certificate;
  The Discipline Lock must remain in place when handing over to subsequent shifts. All Discipline Locks for a particular discipline (e.g. low voltage electricity) must be keyed-alike so that any Isolation Officer appointed for that discipline (and issued with a key) can open any of the Discipline Locks used for that discipline. This enables an Isolation Officer to de-isolate equipment that may have been isolated by another Isolation Officer during an earlier shift. Appointed Isolation Officers for a particular discipline are the only persons permitted to hold keys to the Discipline Locks used for that discipline.

Note: Local isolations do not require the use of Equipment Locks (a Discipline Lock may be attached to the Local Isolation Point by the Isolation Officer, followed by the necessary Personal Locks).

Note: For local isolations, if the Isolation Officer is the only person who will be working on the isolated equipment, then he must attach his Personal Lock to the Local Isolation Point.

- Once all required Discipline Locks are in place (i.e. attached to the Isolation Bar) and all Clearance Certificates have been issued, the Permit to Work may be issued by the Authorised Person;
- Each person who will be working on the isolated system, plant or equipment must then attach his or her Personal Lock to the Isolation Bar before starting any work (including the Isolation Officer, if he intends to work on the isolated unit);
- The attachment of a Personal Lock to the Isolation Bar prevents the removal of the key to the Equipment Locks even if the Discipline Lock is removed;

- When called (by an Authorised Person) to de-isolate the system, plant or equipment (on completion of the work under the Permit to Work), the Isolation Officer must ensure that all Personal Locks have been removed from the Isolation Bar before removing the Discipline Lock and the key to the Equipment Locks;
- Before removing the Equipment Locks and de-isolating the energy source, the Isolation Officer must inspect the system, plant or equipment that was worked on to ensure that it is safe to perform the de-isolation. This includes guard inspections, housekeeping, ensuring that all doors and covers are in place, and most importantly, ensuring that no persons are present;
- Once all Equipment Locks have been removed and the system, plant or equipment is safe for use, the Isolation Officer must cancel the Clearance Certificate and inform the Authorised Person that the unit has been de-isolated.

Where a system, plant or equipment is sequence interlocked and a hazard could be created through the inadvertent start up or shut down of a system, plant or equipment lying before or after the unit to be worked on, then that system, plant or equipment must also be isolated and locked out. Redundant or out of service equipment must, in addition to being isolated and locked out using the relevant Discipline Lock, be fitted with a tag indicating why it is out of service, who performed the lockout, and the hazards associated with that equipment.

Where it is necessary to work on live equipment for the purposes of commissioning, testing, adjusting and sampling, such work must be carried out in accordance with a written Safe Work Procedure and controls must be in place to prevent unauthorised access into the work area. The implementation of the isolation and lockout system and procedures applicable to the project must be audited on a regular basis by a nominated project management representative. Furthermore, planned task observations must be carried out periodically.

32.1 Personal Locks

A Personal Lock must be such that it can only be unlocked by the person to whom it belongs. Combination locks may not be used. A Personal Lock, as well as the key(s) to the lock, must be kept under the exclusive control of the person to whom the lock belongs.

A Personal Lock must be issued to each person who requires one, and the person's details must be clearly and permanently engraved directly onto his Personal Lock. Alternatively, a thick durable plastic identification tag may be used that clearly displays the company's name, the employee's name, the employee's company number, and a contact telephone number (the tag must be securely fastened to the Personal Lock). Where the above is hand written, it must be done using a permanent marker pen and it must be legible.

Each person issued with a Personal Lock must be trained and certified competent in the correct use of such a lock.

A Personal Lock may NEVER be removed by anyone other than the person to whom it belongs, except if the removal (cutting) of the lock is authorised by the nominated project management representative (in the absence of this person, authorisation can only escalate upwards). Furthermore, the removal of the lock must be done under the personal supervision of the nominated project management representative, and in accordance with a written procedure. The removal (cutting) of a Personal Lock may be required if the person who applied the lock is unable or unavailable to remove it on completion of the work (e.g. lost his key, failed to remove his lock before going home, etc.).

33. Electrical Safety

All electrical work must be carried out by competent personnel in accordance with all legal requirements, codes, design criteria and safety standards applicable to the project. Each contractor carrying out electrical work on the project site(s) must develop, document and implement Safe Work Procedures that are aligned with the requirements of this standard.

All persons who will be carrying out electrical work must be certified against the requirements of job and equipment-specific electrical competency standards for the project, which must address job and equipment-specific Safe Work Procedures.

33.1 Electrical Installations

Each electrical installation (temporary or permanent) installed or worked on by a contractor must be inspected by a nominated project management representative to ensure that the installation complies with all statutory requirements, codes, design criteria and safety standards applicable to the project.

A nominated project management representative must approve all electrical work before the installation is energised. Any installation deemed unsatisfactory by a nominated project management representative must be removed, repaired or modified by the contractor at his expense.

For every permanent or temporary electrical installation, a certificate of compliance must be issued by a competent and appropriately qualified electrician. These certificates must be available for inspection.

Work on electrical installations (new installations, and modifications or repairs to existing installations) may only be carried out by qualified and authorised personnel (i.e. electricians).
Electrical safety devices (specifically, earth leakage protection and overcurrent protection) must be installed on all distribution circuits and the settings must be established by suitably qualified personnel.

To ensure the safety of the user, each distribution panel must be completely enclosed, must be of the dead-front type, and must be properly constructed and earthed.

All electrical cabling must be covered (e.g. in cable trenches) or elevated (in cable trays) to protect it from damage and to eliminate tripping hazards.

All permanent and temporary electrical installations (cabling, sockets, distribution panels, transformers, switchgear, etc.) must be inspected and tested by a competent and suitably qualified electrician on a monthly basis. The testing must include a grounding (earthing) continuity test and testing of the electrical safety devices. Details of these inspections and tests must be recorded in a register which must be made available to the nominated project management representative for inspection.

A rigorous Isolation, Lockout and Permit to Work system must be applied to all electrical work (i.e. work on electrical installations, machinery or equipment). All personnel must comply with the system and procedures applicable to the project.

Before any work on an electrical installation or equipment is carried out, the installation or equipment must be de-energised.

No electrical work may be performed live, regardless of the voltage, unless written approval is obtained from the nominated project management representative (a justification as to why it is necessary for the work to be carried out with the equipment in an energised state must be provided).

For all energised electrical work, a Safe Work Procedure must be in place and, with the exception of voltage testing and where no tools are used, a Permit to Work (specifically authorising energised electrical work) must be issued. When carrying out any energised electrical work, approved electrically insulated gloves, blankets, mats and other protective equipment must be used.

Control centres, switchgear rooms, substations, generators, transformers, capacitor banks, and other similar electrical plant and equipment must be appropriately guarded and labelled and, with the exception of emergency shut-off mechanisms, must be made inaccessible to unauthorised personnel (i.e. plant or equipment of this nature must be positioned within rooms or fenced enclosures which must be kept locked).

Appropriate warning signage must be prominently displayed within, and at all entrances to, these rooms or enclosures. The signage must indicate that unauthorised persons are prohibited from entering, that unauthorised persons are prohibited from handling or interfering with any electrical plant or equipment, the procedure to be followed in the event of a fire, and the first aid procedure to be followed should a person suffer electric shock. Suitable fire-fighting equipment must be provided in all such rooms or enclosures.

All electrical panels must be kept locked (using keyed-alike padlocks). Keys may only be issued to authorised personnel.

All un-insulated (bare) or partially insulated conductors must be enclosed and protected to prevent accidental contact therewith. Measures must be taken to prevent unauthorised access and appropriate warning signage must be conspicuously displayed.

Only authorised persons may enter rooms or enclosures housing electrical plant or equipment, and only authorised persons may access electrical panels or cabinets, and cable ducts or trenches. If any work must be carried out in such an area or on such equipment, a Permit to Work must first be obtained from the nominated project management representative.

No connection to any electrical system may be made without prior approval and a valid Permit to Work from the nominated project management representative.

No electrical equipment or apparatus may be modified without written authorisation from the nominated project management representative.

Conductive ladders may not be used in proximity to non-insulated electrically energised lines or equipment.
All permanent and temporary electrical cables, whether energised or not, must at all times be handled as if they are energised.

Only appropriately certified intrinsically safe electrical equipment may be used in flammable or potentially explosive atmospheres such as in confined spaces. Any equipment or structure on which electric charges may accumulate (such as storage tanks) must be grounded (earthed).

Grounding (earthing) and lightning protection systems and devices must be designed, engineered, selected and installed based on site-specific requirements where required.

33.2 Arc Flash Safety

Depending on the scope and nature of the work, a documented arc flash protection programme must be in place. The PPE required (specific to a task and the equipment on which the task is performed) and associated procedures to mitigate the hazard must be included.

An Arc Flash Hazard Assessment must be carried out based on accurate and current data. All electrical cabinets where the potential for an arc flash hazard exists must be labelled in accordance with the hazard assessment and the potential incident energies calculated. A process must be in place for updating the Arc Flash Hazard Assessment and labelling as changes and electrical upgrades occur that might affect the available short circuit current on the system.

In order to mitigate the hazard, Safe Work Procedures must be in place and all persons potentially exposed to arc flash hazards must be trained in these Safe Work Procedures and must be supplied with appropriate arc flash PPE.

33.3 High Voltage Power Lines

Before any mobile equipment (such as a crane, bulldozer, back-actor, boom truck or drill rig) is mobilised to a work site, an assessment must be carried out (including a thorough inspection of the work site and the access route) in order to clearly identify any overhead or underground power lines.

A system must be in place to mitigate the risks associated with working in close proximity to power lines and suitable measures must be taken to prevent personnel or equipment from coming into contact with power lines. Extreme caution must be exercised.

A procedure must be in place for the evacuation of mobile equipment or a vehicle in the event of accidental contact with power lines. All operators must be trained in this procedure and must follow it implicitly.

Scaffolding may not be erected within 5 metres of power lines or overhead track equipment.

34. Portable Electrical Equipment

Prior to site establishment, each contractor must provide a complete inventory of all portable electrical equipment that he and his sub-contractors intend to use on the site (including plant, machines, appliances, generators, hand tools, lighting, extension cords, etc.). The nameplate data for each item of equipment must be included.

All portable electrical equipment to be used on the site must be supplied and maintained in a serviceable condition. Any electrical equipment that is in poor condition or is not in proper operating order may not be used. Any electrical equipment that a nominated project management representative deems to be unsafe or unsuitable must be removed from site.

Electrical repair work or diagnostic work on electrical equipment may only be performed by personnel who are competent and authorised to perform this work (i.e. qualified electricians). With the exception of double-insulated equipment, all electrical equipment must have an equipment grounding (earthing) conductor that connects the frame of the equipment being utilised to the grounding (earthing) conductor of the electricity supply system.

All electrical equipment and all electricity supply systems used (including generators) must be inspected and tested by a registered and competent electrician to ensure that all equipment is properly grounded (earthed).

All electrical equipment used on site must be supplied electricity through (i.e. must be protected by) an approved and tested residual current device (or earth leakage device or unit). If a socket outlet does not have a residual current device in the circuit, a portable residual current device must be used. Outlets without residual current device protection must be labelled as such.

Any electrical equipment that causes an earth leakage device to trip or deactivate the circuit may not be used again until an electrician has inspected and tested the equipment and has recorded in a register that the equipment is safe to use.

All generators must be fitted with suitable overcurrent protective devices (i.e. circuit breakers or fuses). All generators must be used in compliance with the manufacturer's requirements. Any proposed modification to a generator must be authorised in writing by the manufacturer prior to the modification being made.

Each welding machine used on site must be fitted with a Voltage Reduction Device (VRD). If this is not practical (i.e. for arc welding processes other than stick welding), a dead man's (isolation) switch in the electrode circuit (operated by a trained observer) may be used as an alternative. All welding machines must be properly grounded (earthed).

All portable electrical hand tools used on the site must be double-insulated. Electrical equipment must be disconnected or unplugged when not in use. Portable lights must be stable and each light bulb must be protected by a substantial guard.

No person may wear a watch or any jewellery, or carry any metal objects such as a lighter or keys, while working on any electrical system or equipment. No person may work on or use electrical equipment if his clothing is wet or any part of his body is in contact with water.

No person may handle electrical equipment, equipment cords or extension cords with wet hands or if the floor or ground surface is wet.
Fire extinguishers filled with carbon dioxide must be used to fight electrical equipment fires (water may never be used). If possible, the electrical equipment should be de-energised before fire-fighting activities commence (refer to the Fire Protection and Prevention Standard).

When cleaning or performing maintenance work on an item of electrical equipment, the equipment must be unplugged.

Equipment may not be unplugged while that equipment is switched on. Nor may equipment be plugged into a receptacle (socket) with the equipment's switch turned on. Electrical equipment that has a defective plug or wiring may not be used. Repair work to defective or damaged electrical equipment may only be carried out by a qualified electrician. Extension cords may be used for temporary applications only. Permanent cabling must be installed for long-term needs.

Extension cords may not be run through doors, windows, ceilings or holes in walls. An extension cord must be uncoiled completely before it is used. An extension cord must be of sufficient current-carrying capacity to power the equipment that it is supplying electricity to. Cords must not be overloaded. Extension cords must be unbroken and continuous (i.e. no joins or splices in the cord are permitted). Extension cords may not be daisy-chained (i.e. one extension cord plugged into another extension cord).

Extension cords and equipment cords may not be modified to fit a receptacle (socket). Two-conductor extension cords may not be used. A three-conductor extension cord (i.e. a grounded or earthed cord) must be used even if the equipment that it is supplying electricity to uses a two-prong plug.

Extension cords that are frayed, have insulation tears, cracks or abrasions, have exposed conductors, or have bent, broken or "spread" plug prongs may not be used. Extension cords that will be used outdoors must have heavy duty insulation and must be weather and UV resistant.

All electrical equipment cords and extension cords must be covered or elevated to protect them from damage and to eliminate tripping hazards. Each contractor is responsible for protecting his electrical equipment from the weather and from possible mechanical damage.

All portable electrical equipment (including generators) must be inspected, tested and tagged by a competent and appropriately qualified electrician on a monthly basis. Details of these inspections and tests must be recorded in a register which must be made available to the nominated project management representative for inspection.

The inspection and testing must include a continuity test of the grounding (earthing) conductor (as applicable) and a complete examination of the equipment or system to assure safe use. The following colour coding system must be used for the tagging of all electrical equipment:

Table 34-1 Colour Coding System for Electrical Equipment

Month	Tag Colour	Month	Tag Colour
January	Red	July	Red
February	Blue	August	Blue
March	Orange	September	Orange
April	Green	October	Green
May	White	November	White
June	Yellow	December	Yellow

The tag placed on a piece of equipment must be traceable to an entry in a register where the following information concerning the inspection and testing of that piece of equipment must be recorded:

- Date of inspection and testing;
- Equipment description;
- Equipment owner;
- Equipment location;
- Name, signature and licence number of the electrician who carried out the inspection and testing; and
- Comments concerning the inspection and testing, and details of any repair work carried out or required.

Any item of electrical equipment that does not pass an inspection or test must be removed from service (and tagged, "Out of Service") immediately and must then either be repaired (if possible) or removed from site. Any item of electrical equipment without a tag or with an out-of-date inspection or test may not be used.

Any item of electrical equipment found without a tag or with an out-of-date inspection or test must be removed from service until it has been inspected and tested. If it is found that more than one

item of equipment being used by a contractor has not been inspected and tested as required, all work with electrical equipment must be stopped until it can be demonstrated to the satisfaction of the nominated project management representative that the contractor's systems and controls are adequate and fully implemented.

In addition to the formal monthly inspections and testing carried out by an electrician, electrical equipment (particularly extension cords, portable hand tools, welding machines, compressors and pumps) must be visually inspected by the user on a daily basis prior to use. Users must be trained to look for cracks in casings, loose casings, outer cord sheathing that is not being held firmly in position at the equipment, cuts or cracks in cord or cable insulation, exposed conductors, damaged plugs or sockets, and missing covers. Damage and / or defects must be reported immediately.

Personnel must immediately stop using and report any electrical equipment or machinery that is shocking, sparking, overheating or smoking. Corroded outlets, switches and junction boxes must also be reported.

35. Arc Welding

All welding machines must be fitted with voltage reducers. The supply cable to every welding machine must be correctly rated and fitted with an approved plug to be used only with an approved matching plug socket. The electrical circuit to every plug socket must be protected by a correctly rated circuit breaker and a supply voltage rated earth leakage unit. Welding cables must be properly insulated and correctly rated for the welding machines on which they are to be used.

Welding cable terminals must either be covered with a properly designed, constructed and installed cover so that inadvertent human contact with the terminals is impossible, whether the cables are connected or not, or the welding cables must be fitted with insulated plugs so that inadvertent human contact with any live part is impossible when the cables are plugged into the machine. Also the plug socket should be such that when the cables are not plugged in, inadvertent contact with a live part of the socket is impossible.

Earth cable clamps and electrode holders must be of an approved type. Earth clamps and electrode holders must be fixed to welding cables with eye terminals and bolts. All welding machines and safety devices must be subjected to regular planned maintenance and a monthly electrical inspection. The inspection must include a test to ensure that the voltage reducer is functioning properly, by measuring and confirming that the open circuit output voltage is reduced.

Before using a welding machine, the welder must ensure that he is wearing all the required and approved protective clothing and equipment:

- Persons assisting the welder must also wear all of the required personal protective Welding hood;
- Leather welding gloves;
- Safety boots with steel toe protection;
- Flame resistant overalls; and
- Any other clothing or equipment necessary to perform his work safely and efficiently.

When changing electrodes or moving the earth clamp, the welder or his helpers must wear gloves to avoid possible skin contact with live electrical parts and to prevent burns. When attaching welding cables to the terminals of the welding machine, the welder or his helpers must wear gloves, or preferably, the machine should be switched off to avoid possible electric shock.

Helpers who may be holding the work piece being welded must wear gloves and protective goggles. Where practicable the welder should place protective screens around the area where he is welding, to prevent injury to the eyes of passers-by.

The welder must ensure that the earth cable follows the shortest practical route between the welding machine and the work piece. The earth connection must be directly between the welding machine and the work piece and no building or other structure must form part of the earth return path.

As far as is practicable, the welder should avoid welding under wet or damp conditions. If this is unavoidable, the following precautions should be taken:

- Use only oil filled or other watertight type welding machine;
- Keep the electrode holder as dry as is practical;
- Keep as dry as possible. Stand on an elevated surface out of the water and wear watertight boots and a rain suit. Also ensure that the gloves are in good condition, free of holes.

Under conditions that result in high perspiration levels, the following measures should be implemented:

- Use an insulated electrode holder;
- Change clothing regularly (if possible);
- Use insulated material like rubber mats and/or timber tuck board to separate yourself from the work piece;
- Wear dry gloves on both hands during welding;
- Use fans and air-conditioning to reduce humidity and temperature; and
- Use an observer capable of responding in an emergency.

When working inside metal vessels or under other conditions where parts of his body may come into contact with conducting surfaces, the welder must take precautions to insulate himself from such surfaces.

When working in confined spaces, the welder must take steps to ventilate the area to prevent inhalation of fumes, which may endanger his health and the health of any assistants. Engine powered welding machines must not be used in any place that is not very well ventilated since the welder and his helpers may be overcome by carbon monoxide fumes.

The welder should take the necessary precautions when welding objects that may catch alight, explode or release poisonous fumes or gases.

36. Gas Welding and Burning

Welding or cutting torches and hoses shall not be connected to cylinders when stored. When work is stopped and equipment is unattended, all valves at the gas and oxygen cylinders shall be closed. The hoses shall be bled and a check shall be made later for possible pressure build-up. Torches shall be removed from the hoses prior to putting them into the toolbox. Smoking SHALL NOT be permitted during this stopping procedure.

Special care shall be taken during overhead cutting and welding operations to safeguard and prevent falling sparks from starting a fire. Warning signs shall be posted around and at each level below the area of each overhead welding or burning operation. Fire extinguishers shall be available and fire blankets shall be used for protection.

When welding or cutting, adequate ventilation must be ensured / provided. Hoses shall be kept clear from passageways, ladders and stairs. When hoses are subject to damage, they shall be

properly protected. Hoses shall be inspected daily. Fire extinguishers shall be ready for instant use in locations where cutting is performed.

Flash-back arrestors must be fitted to all cutting torches at the torch and at the bottle (a total of four arrestors).
Lighting of the cutting and welding torches must only be done using a striker and not an open flame. Soap Leak tests must be performed on all flash-back arrestors.

Hoses may only be secured using approved hose clips, and not by wire, cable ties or any other means. Special care shall be taken when welding with respect to piping that has been painted, as toxic fumes may be emitted in some cases. The supervisor's advice should be sought prior to the above welding operations being carried out.

37. Compressed Gas Cylinders

The contractor must establish a suitable storage area for oxygen, acetylene, LPG and argon cylinders in compliance with the following requirements:

- The storage area must be located at least 10 metres away from any building, and must be well ventilated;
- The storage area must have a concrete floor;
- The storage area must be enclosed using wire mesh fencing (as this will ensure adequate ventilation). This enclosure must be kept locked. Access into the storage area must be limited and controlled;
- A protective covering or roof must be fitted to the enclosure to provide shade;
- The enclosure may not be used for the storage of any other materials / equipment, and must be kept completely free of all combustible materials at all times;
- Appropriate warning signage (i.e. "No Smoking" and "No Naked Flames") must be prominently displayed on the enclosure;
- A 9kg dry chemical powder fire extinguisher must be mounted near the entrance to the enclosure;
- If electrical lighting is required, it must be of an approved intrinsically safe type;
- Oxygen, acetylene, argon and LPG cylinders must be stored separately in the enclosure. Furthermore, full and empty cylinders must be separated. Separate storage sections must be clearly designated within the enclosure for the different gas types, and for full and empty cylinders, i.e. oxygen – full, oxygen – empty, acetylene – full, acetylene – empty, etc.;
- When a cylinder is empty, the cylinder cap must be replaced to protect the valve. Empty cylinders must be clearly marked (there must be no need to open valves to check if cylinders are full or empty);
- All cylinders must be stored in an upright position and must be secured in this position by chaining, strapping or clamping them individually to a wall, a cylinder trolley, rack or carrier, or some other rigid structure;
- Cylinders must be stored in rows (when necessary due to the number of cylinders) with aisles between the rows to facilitate easy and rapid removal in the event of a fire;
- Oxygen cylinders may never be stored near highly combustible materials, particularly oil and grease, or near fuel gas cylinders. When in storage, oxygen cylinders must be separated from fuel gas (LPG and acetylene) cylinders by a distance of 6 metres or by a 2 metre high wall made of fire-resistant material;
- The total quantity of gases stored on site must be limited to a 2 week supply.

Compressed gas cylinders must always stand upright (i.e. when being used, stored or transported) and must be properly and individually secured to prevent them from falling over. Cylinders must be protected from flame, heat and from being struck by moving equipment and falling objects.

When handling gas cylinders (whether full or empty), care must be taken to prevent sudden impacts. Whenever a cylinder is not in use, the protective cap must be in place to prevent the valve from being damaged. Gas cylinders may not be carried, dragged, rolled or slid across a floor or surface. When gas cylinders are to be moved / used, they must be placed in a proper cylinder trolley fitted with a 1.5kg dry chemical powder fire extinguisher.

Gas cylinders may not, under any circumstances, be used as rollers or work supports. If transported by crane, hoist or derrick, compressed gas cylinders must be placed in a suitable cradle, net or skip box. Cylinders may NEVER be lifted using wire rope, fibre rope, a web sling or a chain sling. Before moving / transporting a gas cylinder, the regulator must be removed and the protective valve cap must be replaced.

Gas cylinders may not be taken into a confined space. Gas hoses that are run into a confined space must be removed during breaks. Gas cylinders may not be placed on scaffolding.

Cylinder valve keys must be in place. If no suitable valve key is available then the cylinder may not be used. Nothing but the manufacturer-supplied key may be used to open the valve. A flashback arrestor and a check valve (non-return valve) must be installed between the regulator and the hose and between the hose and the torch on the oxygen line and on the fuel (acetylene) line.

Connection fittings may not be forced and safety devices associated with cylinder valves or regulators may not be altered / tampered with. Gas hoses may not be joined. Only approved hose connectors of the crimp type are permitted. Wire and jubilee clamps are prohibited. Only high quality ancillary equipment may be used. This includes flashback arrestors, hoses, clamps, spindle keys, nozzles and torches. Only trained and competent personnel may operate gas welding / cutting equipment and appliances.

When an employee opens the valve to a cylinder, he must stand to one side and open it slowly. Valves may never be left partly open – they must either be closed or be opened fully. Leaking cylinders must immediately be removed from service and the workplace (if it is safe to do so).

Suitable firefighting equipment must be at hand wherever gas cylinders containing oxygen and / or fuel gas are being used. Gas cylinders must be prevented from coming into contact with electrical circuits, e.g. welding leads. Never strike an arc on a cylinder.

Oxygen may only be used for the purpose for which it is provided. Do not use oxygen in pneumatic tools or tyres, as an explosion may occur. Empty cylinders must immediately be marked as such and must be removed to the cylinder storage area at the end of each day / shift.

38. Electrically Powered Tools and Equipment

All powered hand tools, such as circular saws, drills, chainsaws, percussion tools, jigsaws etc., must be equipped with a constant pressure switch that will shut off the power when the pressure is released. (Exception: this requirement does not apply to concrete vibrators, concrete breakers, powered tampers, jack hammers, rock drills, and similar hand operated power tools).

Electrical power tools must be of the approved double-insulated type. The electric cord, pneumatic or hydraulic supply line of powered tools must not be used for hoisting or lowering of the tool. Loose clothing, jewellery or gloves that could get caught in the tool must not be worn when operating powered tools. Operators of powered tools who have long hair must keep their hair tied up.

The power source must be disconnected from the tool before making any repairs, servicing, adjustments, or replacing attachments such as drill bits.

38.1 Angle Grinders

The following personal protective equipment must be worn when using angle grinders:

- Safety helmet;
- Gloves;
- Safety glasses (or safety goggles) and a full face shield (i.e. double eye protection);
- Overalls with long sleeves and long pants, avoid any form of loose clothing;
- Safety boots with steel toe protection;
- Hearing protection;
- Breathing apparatus where dust or fumes may be generated;
- Where grinding machines are used, a face shield is to be worn as extra protection to the safety glasses; and
- Certain tasks may require the use of a leather apron as determined by a risk assessment.

A 230mm angle grinder may not be used for free cutting purposes. Exceptions may be approved only if alternative methods evaluated proved more hazardous or no alternative exists. The risk assessment for the task must then specifically include mitigating measures to ensure the safest possible way of performing the task.

The use of 230mm angle grinders for grinding purposes is acceptable, however should this form of grinding be required, the 115mm or 125mm grinders would be preferable. All angle grinders must have a dead man switch incorporated, with a pressure switch in the handle. A 230mm electrical angle grinder unit must incorporate a soft start to reduce the starting strain and a braking system to reduce run on after the unit has been switched off.

All angle grinders must have a spindle lock to assist with changing the disc or grinding wheel. Anti-vibration handles are recommended to further reduce the stress if used for extended periods. Angle grinders must be equipped and operated with disc guarding at all times. Angle grinder must not be stored with fitted discs, as this will lead to damaging of the discs.

Before use and mounting of discs it is essential to check the safety codes and specifications printed on the upper side of the disc. Such specifications include the following:

- Revolutions per minute (RPM). The allowable speed of the disc must be equal to or greater than the maximum achievable speed of the grinder;
- Physical dimensions of the disc must meet grinder specification; and
- The disc must be suitable for the material type to be cut / ground as indicated on the disk. Cutting discs must never be used for grinding and vice versa.

It is critical that the correct disc mounting procedure is followed:

- Check that the machine is plugged out;
- Check the machine spindle, backup washer and thread;
- Check the condition of spindle nut - ensure spanner drive holes are not elongated;
- Ensure spindle nut spanner is the tool recommended by machine manufacturers;
- Do not use a hammer, pipe or chisel to tighten the nut, or apply additional mechanical advantage to nut torque. A firm "nip" is sufficient to retain the disc;
- Ensure the spindle diameter is suited to disc bore. Excessive clearance will cause the machine to vibrate due to eccentricity;
- Check to see that the nut and backup washer do not "bottom out". This will result in the disc not being correctly clamped on the spindle;

- Ensure the spindle speed is marked on the grinder and that it is less than the allowable disc speed; and
- Fit the disc, with the metal ring or writing to the nut side.

39. Pneumatically Powered Tools and Equipment

Pneumatic powered tools must only be driven by filtered compressed air with an in-line lubrication system, or be lubricated prior to use if there is no in-line lubrication system. When using pneumatic powered tools the designated tool pressure must be attained by the use of a regulator.

Pneumatic powered tools must be disconnected when not in use. They must not be disconnected from the air supply until all the residual pressure has been released or contained by a shut-off device. Hoses must not be kinked as a means of containment.

Employees operating pneumatic powered tools, and any potentially affected employee in the vicinity of use, must wear suitable personal protective equipment. All rotary compressed air tools (e.g. drills) must have the rated revolution per minute (RPM) permanently marked on the casing. Only attachments of compatible RPM must be used with these machines.

The actual RPM of the tool must be checked every three months to ensure that the speed is as rated to manufacture specifications.

Pneumatic powered tools must be secured to the air supply hose by an approved positive means to prevent the tool from becoming accidentally disconnected. Safety clips or retainers must be securely installed and maintained on pneumatic impact (percussion) tools to prevent attachments from being accidentally expelled.

All pneumatically driven nailers, staplers, and other similar equipment provided with automatic fastener feed, which operate at more than 100 kPa pressure at the tool, must have a safety device on the muzzle to prevent the tool from ejecting fasteners unless the muzzle is in contact with the work surface.

Compressed air must not be used for cleaning purposes except where reduced to less than 30kPa, and then only with effective chip guarding and personal protective equipment in place. The 30kPa requirement does not apply to concrete form, mill scale and similar cleaning purposes.

The use of compressed air for cleaning purposes must be approved by the nominated project management representative. Compressed air must not be pointed at any part of the body or used for cleaning clothing.

Airless spray guns of the type which atomize paints and fluids at high pressures must be equipped with automatic or visible manual safety devices which will prevent pulling of the trigger to prevent release of the paint or fluid until the safety device is manually released. A diffuser nut which will prevent high pressure, high velocity release while the nozzle tip is removed, plus a nozzle tip guard which will prevent the tip from coming into contact with the operator, or other equivalent protection must be provided in lieu of the above.

Abrasive cleaning nozzles must be equipped with an operating valve, which must be held open manually to enable operation. A support must be provided on which the nozzle may be mounted when it is not in use.

40. Fuel Powered Tools and Equipment

Fuel powered tools must be shut down and allowed to cool before being refuelled, serviced, or maintained. Fuel must be transported, handled, and stored in approved fuel containers. Where possible, diesel driven engines must be used in preference to petrol driven engines. All fuel powered tools must be included on the contractor's Equipment Register and the register must be submitted to the nominated project management representative prior to the relevant work commencing.

When fuel powered tools are used in enclosed spaces, the space must be ventilated and the atmosphere monitored to measure toxic gas concentrations. Persons in the space must wear the necessary personal protective equipment. Confined Space Entry clearance may apply. This type of activity must only be undertaken in exceptional circumstances and requires the approval of the nominated project management representative.

41. Hydraulically Powered Tools and Equipment

Hydraulic powered tools must use only approved fluid that retains its operating characteristics at the most extreme temperatures to which it will be exposed. The manufacturer's stated safe operating pressures for hoses, valves, pipes, filters and fittings must not be exceeded. Only manufacturer approved hoses, valves, pipes, filters and fittings must be used.

42. Explosive Powered Tools

All operators shall be trained by the contractor. The contractor shall ascertain that the explosive charges to be used are of the correct strength for the purpose.

Projectiles from explosive powered tools shall NOT be driven into:

- Tile, terracotta, glazed brick, glass, marble, granite, thin slate or other brittle substances;
- High tensile steel, cast iron or steel hardened by heat treatment; or
- Concrete that contains aggregate that will not pass wholly through 25mm mesh screens.

Under no circumstances shall a tool be fired in such a manner as to cause the projectile to fly free. Suitable safety glasses and hearing protection shall be worn by operators when firing an explosive powered tool.

At all times when a tool is being used, the operator shall display clearly legible signs at or near the place where the tool is in use. Sign should read: WARNING: EXPLOSIVE POWERED TOOL IN USE – KEEP CLEAR. The operator shall warn all other employees in the vicinity of the area in which the tool is about to be used.

Tools shall never be stored in a loaded state. Cartridges and tools shall be stored separately in lockable containers. A logbook must be kept of the number of cartridges used and returned.

43. Hand Tools

Employees required to use hand tools must receive training relevant to the tool and have their competency assessed in the operation, inspection and maintenance of the tool. Where necessary, additional applicable personal protective equipment must be worn when using hand tools.

Wrenches, including adjustable, pipe, end, and socket wrenches, must not be used when the jaws are sprung to a point where slippage occurs. Impact tools such as drift pins, wedges and chisels, must be kept free of mushroomed heads. The wooden handles of tools must be kept free of splinters or cracks.

Adjustable wrenches must not be used in lieu of ring or open-end type spanners, unless a risk assessment has been conducted and the use of the adjustable wrench is approved by the nominated project management representative. Wherever possible, ring spanners must be used in preference to open end spanners.

Correct hand tools for the job must be used, e.g. screwdrivers must not be used as chisels, and pliers must not be used as hammers. All wedges and drifts that may spring, fly or fall to lower levels upon impact must be fitted with an attachment which attaches a safety "lanyard" to a solid structure to restrain the impact tool from becoming a projectile.

All hand tools used in elevated areas, that may be dropped or fall to lower levels must be fitted with safety lanyards and attached to solid structures or in the case of podges, scaffold keys etc., attached by wrist lanyard to the user.

43.1 Stanley Knives / Utility Knives

A utility knife must be used as a last resort, when it is the safest tool to use. Always consider alternatives that pose less of a risk to the operator.

Whenever a utility knife is used, ensure that a complete risk assessment is done and that all possible hazards have been addressed. Only utility knives with retractable blades are to be used. The blade is to be retracted at all times when the knife is not in use or is being stored.

Before using the utility knife, ensure that the tool is in a good condition and the blade is secure in the holder (seated correctly and that there is no play). Ensure that the blade is always sharp and in good condition. This will prevent the use of excessive force.

Always wear cut resistant gloves and safety glasses when using a utility knife. There is always a risk of the blade breaking under tension and becoming a projectile. Always ensure that you cut away from your body, and that no part of your body is in the firing line. Always ensure cleanliness of all equipment in use during the cutting operations.

44. Inspection of Equipment and Tools

All tools must be inspected by the user before, during and after use. If any faults are identified, the tool must be taken out of service and not used until repaired. Faulty tools that are not able to be repaired must be tagged "out of service" and removed from site.

45. Manual Handling and Vibration

Any handling or lifting task that can only be done manually must be planned and rehearsed before the task is done. If more than one person is involved in a task a communication procedure must be agreed in advance. Lowering the load must be done in a controlled manner. Dropping a load is dangerous and must be avoided.

As a guideline 25 kg is considered to be the limit of what a person can safely handle. Where there are loads exceeding 25 kg the risk of handling the load must be mitigated to assure minimal potential for any injury. When mechanical lifting aids are provided, they should be used.
Extra care should be taken when lifting awkwardly shaped objects. Correct lifting techniques must be used at all times when lifting a load manually.

The following, but not limited to, should be considered with conducting the Risk Assessment with regards Manual Handling and also take into consideration the task factors, physical demands and tools involved in the task:

- Load weight/frequency;
- Hand distance from lower back;
- Asymmetrical trunk/load;
- Postural constraints;
- Grip on the load;
- Floor surface;
- Environmental factors;
- Carry distance; and
- Obstacles en route.

Team Manual Handling:

- Load weight;
- Hand distance from lower back;
- Vertical lift region;
- Trunk twisting/sideways bending;
- Postural constraints;
- Grip on the load;
- Floor surface;
- Environmental factors; and
- Communication, co-ordination and control.

As far as possible, exposure to vibration must be eliminated. However, if this is not possible, short-term solutions to decrease exposure include:

- Reducing the vibration levels;
- Removing the person from the vibrating equipment / tools;
- Reducing the period of time that the person works with the vibrating equipment / tools (at least 40 minutes break after 20 minutes working with a machine that vibrates excessively).

In order to reduce exposure to vibration:

- Consider buying equipment that operates effectively at lower speeds;
- Buy equipment with built-in damping materials;
- Buy lighter tools if they are available - they require less of a grip;
- Maintain the equipment;
- Make sure equipment is balanced and there are no worn parts;
- Use remote controls when they are available;
- Reduce your grip on the equipment when it is safe. The less time you actually have your hands on the equipment the better. Relax your hands during these brief breaks;
- Take scheduled breaks; and
- Do other tasks that allow you to move away from vibrating tools and equipment.

The workplace must be assessed by a competent person for compliance with good design, layout and practice, to avoid or minimise adverse health consequences due to manual handling and vibration issues.

Quantitative evaluations of vibration produced by specific equipment must include the following measurement parameters: direction of movement, frequency, intensity, and variation with time and duration, as per documented methods.

Employees and contractors must be informed of the results of assessments and instructed in appropriate manual handling techniques, where the risk assessment indicates a need. Workplace vibration sources that could contribute to the exceedance of an Occupational Exposure Limit (hence potential for impact on worker musculo-skeletal fitness) must be identified and adequately characterised.

Manual handling tasks assessed as having the potential to cause a Lost Time Injury (i.e. with potential for impact on worker musculo-skeletal fitness) must be identified and adequately characterised. Workplace manual / materials handling tasks risk rated as "significant" must be assessed and recorded to include biomechanical factors (e.g. posture, bending, twisting, repetitive motions, working overhead, and exerting force away from the body).

46. Personal Protective Equipment

All applicable legislation concerning Personal Protective Equipment (PPE) must be complied with at all times. As a minimum, the following PPE must be worn by all persons (including visitors) at all times whilst on the project site:

- Safety footwear with steel toe protection;
- Safety glasses (individuals who wear prescription spectacles must be provided with either over-spec safety glasses or prescription safety glasses);
- Safety helmet (hard hat); and
- High visibility protective clothing with reflective taping (long trousers and long-sleeved shirts with collars and cuffs).
- Additional PPE requirements must be determined through hazard identification and risk assessment. This hazard-specific PPE (such as hand protection, hearing protection and respiratory protection) must be worn as required (e.g. when in a certain area, when performing a certain task, or when working with a certain substance);
- The correct PPE must always be worn:
    - In accordance with site requirements (as indicated at the entrances to a project site and at the entrances to buildings and / or designated areas on the premises);
    - In zoned areas (e.g. noise zones and respirator zones); or
    - As required by a Safe Work Procedure, a risk assessment, safety information boards or a Safety Data Sheet (SDS).

Each contractor must provide each of his employees with all required PPE (at no cost to the employee). The specific PPE that is provided to a particular employee must be based on the nature of that employee's work and the location in which the work is performed (i.e. must be based on the hazards to which the employee is exposed). PPE requirements for a particular job or for a particular area must be determined through a risk assessment for that job or area.

Any employee who does not have all of the PPE that is required for him to perform his duties safely will not be permitted to work. Each employee must care for his PPE, maintain it in good condition, and inspect it on a daily basis. If an item of PPE has worn out, has become damaged, or is found to be defective in any way, it must be replaced by the contractor.

PPE must be stored in accordance with the manufacturer's requirements and / or recommendations.

Each employee must receive training in the use, maintenance and limitations of the PPE that is provided to him, and must be made aware of why the PPE is necessary as well as the consequences of not wearing it as instructed (i.e. the potential for injury and / or disciplinary action). Training records must be retained.

Any person who refuses to wear PPE as required must be removed from the site. Symbolic signs indicating mandatory PPE requirements must be prominently displayed at the entrances to a project site and at the entrances to buildings and / or designated areas on the premises where additional PPE is required. These signs must comply with the applicable national standard (if one exists).

Contractors must appoint an employee to:

- Control the issuing and replacement of PPE;
- Keep an up-to-date register as proof that items of PPE have been issued to individuals (an employee must sign for the items that he receives);
- Ensure that there is an adequate supply of all required PPE (i.e. maintain PPE stock levels on site); and
- Carry out regular inspections to ensure that PPE is being used correctly, is being maintained in a good, serviceable and hygienic state, and is not being shared between employees.

46.1 Head Protection

A safety helmet (or hard hat) worn correctly will help protect the head in the event of:

- An employee being struck on the head by a falling or flying object;
- An employee striking his head against a fixed or protruding object; or
- Accidental head contact being made with an electrical hazard.

A safety helmet must be worn at all times on a project site, with the following exceptions:

- Vehicle and equipment operators inside enclosed cabs;
- In offices and in office or administration buildings; and
- At designated lunch and break areas (provided that no work is in progress in the immediate break area).

A safety helmet must be worn in accordance with the manufacturer's requirements. A safety helmet must be worn directly on the head. The wearing of a cap or other headgear beneath a safety helmet is prohibited unless the items have been specifically designed to be used in combination (i.e. the arrangement is approved by the safety helmet manufacturer).

The suspension system inside a safety helmet (that acts as a shock absorber) may not be removed. The painting of safety helmets is prohibited. Safety helmets may only be cleaned using a mild detergent and water. No solvents may be used.

46.2 Eye Protection

If an employee is carrying out, assisting with, or working adjacent to any activity where sparks or projectile particles are being generated, where chemical mists or fumes are being generated, where liquids may splash or spray, where harmful electromagnetic radiation (heat or light) is being generated, or where there is a risk of wind-blown particles entering the eyes, then suitable protective eyewear must be worn at all times (i.e. safety glasses, safety goggles, a face shield, a welding helmet, or a combination of these).

Such activities include:

- Working with rotating equipment (e.g. grinders, drills, mills, lathes, and saws);
- Welding and cutting;
- Chipping, chiselling or caulking;
- Using explosive powered tools;
- Abrasive blasting;
- Sanding; and
- Working with chemical substances (e.g. drilling fluids, acids, solvents, paints, pesticides, etc.).

For certain activities, special eye protection is required (e.g. a heat-resistant face shield is required when working near molten metal). Double eye protection is required for activities such as:

- Grinding, cutting, chipping, chasing and reaming (employees must wear both a full face shield and safety glasses or goggles); and
- Arc welding (welders must wear both safety glasses and a welding helmet).

Screens must be erected to protect passers-by, where practical.

Safety glasses must be worn at all times on a project site, with the following exceptions:

- Vehicle and equipment operators inside enclosed cabs with the windows fully closed;
- In offices and in office or administration buildings;
- At designated lunch and break areas (provided that no work is in progress in the immediate break area); and
- When another form of eye protection is required (e.g. safety goggles).

All safety glasses used on site must have suitable permanent side protection.

In strong sunlight, dark safety glasses should be worn to reduce eyestrain and fatigue. However, caution must be exercised when employees are required to frequently move between outdoor and indoor environments. Dark safety glasses may not be worn indoors or in poor daylight conditions. Prescription spectacles with tinted lenses are prohibited inside buildings or other structures with limited illumination unless the lenses are light-sensing and adjust to changing illumination levels.

Employees who wear prescription spectacles (i.e. require corrective lenses) must make use of either:

- Prescription safety glasses (with permanent fixed side shields) that conform to the requirements of a recognised national or international standard (e.g. CSA, ANSI, or equivalent); or
- Over-spec safety glasses or goggles.

The use of contact lenses in certain areas may not be suitable because of increased risk to the eye due to dust or heat.

46.3 Hearing Protection

Local regulations concerning occupational exposure to noise and the use of hearing protection must be complied with as a minimum. "Low noise" tools and machinery must be used wherever possible to reduce noise levels. Where noise cannot be reduced to an acceptable level through engineering and work practice controls, measures must be put in place to minimise the exposure of employees to the noise (i.e. administrative controls and personal hearing protection).

Areas where it is likely that the 95% upper confidence limit of an eight hour L_{eq} mean exceeds 85dB(A), or areas where impulse noise exceeds 140dB(C), must be designated as noise zones. These noise zones must be clearly demarcated and mapped, signs must be posted, and all employees must be made aware of the requirements for working in such an area.

Suitable hearing protection must be worn in all designated noise zones and when carrying out (or working in the vicinity of) any activity where the noise level exceeds 85dB(A).

Where hearing protection is required, a hearing conservation programme (applicable to all personnel and visitors) must be implemented. The programme must include training in the correct use and proper storage of hearing protection devices as well as replacement requirements. Training must be provided when hearing protection is first issued to an employee and refresher training must be carried out at least annually thereafter. Training records must be retained.

At least two types of personal hearing protection must be made available to employees. The hearing protection devices provided must have adequate noise reduction ratings (i.e. must be able to attenuate the noise level to below 85dB(A)).

Personal hearing protection must be issued on an individual basis and must not be shared. In addition to personally issued hearing protection, suitable disposable hearing protection must be made available at the entrances to all noise zones. All Hearing Protection Devices (except for disposable hearing protection) must be properly inspected and cleaned on a regular basis.

46.4 Respiratory Protection

Designated areas (respirator zones) must be established where:

- It is likely that the 95% upper confidence limit of a Similar Exposure Group's mean exposure concentration exceeds the relevant Occupational Exposure Limit (OEL) for agents resulting in chronic effects, such as total inhalable dust, respirable dust, respirable crystalline silica, PAH, fluorides, lead, mercury, asbestos or non-asbestos fibrous materials; or
- The concentration of an agent (particulate, vapour or gas) with an acute effect exceeds 50% of the relevant OEL.

Note: For a particular hazardous agent, the OEL to be adopted must be either the client's OEL or the OEL specified in local legislation, whichever is the most stringent.

Respirator zones identified must be clearly demarcated and mapped, signs must be posted, and all employees must be made aware of the requirements for working in such an area.

Suitable Respiratory Protection Devices (RPDs) must be worn in all designated respirator zones and when carrying out (or working in the vicinity of) any activity where the risk assessment has identified the need for respiratory protection.

RPD's must be selected based on:

- The type(s) of airborne contaminants that are present (gases, vapours, and particulates and aerosols including dusts, fumes, sprays, mists, and smoke);
- The potential particulate size distribution;
- Substance toxicity; and
- The likely concentrations.

Compatibility with the work tasks and other PPE, comfort (as it affects wear-time), and the ability to communicate adequately, must also be considered.

The risk assessment and method statement for the work to be performed, the information contained in the relevant Safety data sheets (SDSs), and the results of any air monitoring associated with the substances to be worked with or activities to be carried out, must be used to ensure that the most suitable RPD is selected.

Only RPDs certified to a recognised standard and approved by the nominated project management representative may be used.

Where respiratory protection is required, a respiratory protection programme (applicable to all personnel and visitors) must be implemented.

The respiratory protection programme must include:

- Periodic inspection of RPDs, including before each use;
- Periodic evaluation (by competent persons) of cleaning, sanitising, maintenance and storage practices;
- Performance of positive pressure and negative pressure fit checks by RPD wearers before each use to ensure that the respirator is functioning properly; and
- Training at first issue of a RPD and regular refresher training thereafter in accordance with regulatory requirements or at least once every two years (the training must cover fit testing, use, cleaning, maintenance, filter cartridge replacement, and storage). Training records must be retained.

RPDs must be used, maintained, and stored in compliance with the manufacturer's requirements as well as the respiratory protection programme. Suitable facilities must be provided for the cleaning and sanitary storage of RPD's.

As a minimum, qualitative and documented fit testing must be carried out (although quantitative fit testing is preferred) to ensure that the use of negative pressure RPDs (including disposable RPDs) is effective. Fit testing must be performed by a competent person when an RPD is first issued and must be repeated periodically in accordance with legal requirements or every two years as a minimum. A policy must be in place requiring a clean shaven face when using a negative or neutral pressure RPD for routine tasks (otherwise a positive pressure RPD must be used). A medical evaluation including a pulmonary function test may be required to determine whether or not an individual is medically fit to wear a respirator.

For air-supplied RPDs, breathing air must be effectively filtered and / or isolated from plant and instrument air, and isolated from sources of potential contaminants. The supplied air must be tested to determine if the air quality complies with the requirements of applicable standards for breathing air.

For nuisance dust, dust masks with a protection level of at least FFP2 must be worn.

46.5 Hand and Arm Protection

Gloves must be worn when handling or working with equipment, materials or substances with the potential to cause injury or illness. Suitable gloves must be selected based on the task to be performed and the specific hazard against which the employee requires protection, such as:

- Sharp edges;
- Sharp points and splinters;
- Abrasive surfaces;
- Hazardous chemical substances (toxic, corrosive, sensitising, etc.);
- Extreme temperatures; and
- Viruses, bacteria and parasites.

46.6 Foot Protection

Safety boots must be worn at all times whilst on a project site, with the exception of offices and office or administration buildings in which closed athletic, business or similar shoes may be worn. Sandals, slops, slippers, open-toed and high-heeled shoes are not permitted on any project premises.

Safety boots must provide the following protection:

- Steel toe cap to protect against crushing (impact and compression forces);
- Leather uppers that provide resistance against water penetration and water absorption;
- Slip resistant soles;

And where a risk assessment identifies the need:

- Puncture resistant soles (i.e. steel midsoles) for protection against sharp objects;

- Chemical resistant soles for protection against spilt chemical substances (such as solvents, hydrocarbons, acids, and alkalis);
- Heat resistant soles for protection against hot surfaces or molten metal; or
- Electrical shock resistant soles for protection (insulation) against live electrical conductors.
- Gumboots with steel toe caps must be worn when working in water or very wet conditions.

46.7 Clothing

All employees working on a project site must wear high visibility protective clothing with reflective taping. Trousers must be long and shirts must be long-sleeved. Shirts must be buttoned at the neck and wrists.

Protective clothing must preferably be made of natural fibres. Short pants, short-sleeved shirts, sleeveless shirts, and vests are prohibited as outer garments (with the exception of a high visibility vest worn over a long-sleeved shirt).

Loose clothing may not be worn where it may become caught in moving machinery or equipment. For hot work (e.g. welding, cutting, etc.), work in the vicinity of molten metal, and any work carried out in the vicinity of an open flame, the protective clothing worn (shirt and trousers) must be made of a suitable fire retardant fabric. Underwear and socks must be made of natural fibres (preferably wool) or fire retardant fabric.

46.8 Body Protection

Suitable body protection must be provided as required to protect employees against specific hazards. A range of work activities require body protection in one form or another, including but not limited to:

- Working in extremes of temperature, such as fire-fighting, attending to a heating furnace, working with molten metal, working in refrigerated environments, etc.;
- Hot work (e.g. welding, burning, cutting and grinding);
- Working with hazardous chemical substances (e.g. acids, solvents, pesticides, etc.); and
- Clean up and disposal of hazardous materials and wastes (e.g. asbestos, hydrocarbons, etc.).

A wide variety of protective garments are available, such as fire-fighting suits, furnace suits, freezer jackets, leather aprons, leather spats, laboratory coats, chemical resistant aprons, chemical resistant (or hazmat) suits, and disposable coveralls. Suitable items must be selected to provide protection against the specific hazard(s) to which an employee is exposed. Hazards must be carefully identified and characterised to ensure that the correct protection is used.

Body protection must be sized properly to prevent tearing, the parting of seams, tripping, or restriction of movement.

46.9 Electrical Protective Equipment

To reduce the risk of electric shock, electrical insulating equipment appropriate for the voltage that may be encountered must be worn when working on energised electrical installations and when working within two metres of exposed energised conductors.

All rubber electrical insulating equipment (including gloves, sleeves, matting, covers, blankets, and line hoses) must be inspected for damage prior to and after each use, and immediately following any incident that can reasonably be suspected of having caused damage.

Rubber insulating equipment with any of the following defects and / or damage may not be used:

- A cut, rip, tear, hole, or puncture;

- Ozone cutting or ozone checking (i.e. the cutting action of ozone on rubber under mechanical stress causing a series of interlacing cracks);
- An embedded foreign object;
- Chemical deterioration (texture changes) such as swelling, softening, hardening, or becoming sticky or inelastic; or
- Any other defect that damages the insulating properties.

Rubber insulating gloves must be electrically tested before first issue and every 12 months thereafter as a minimum. Insulating gloves must also be given an air test along with the daily inspection. Essentially, this involves filling a glove with air and checking for any holes or leakage.

Insulating equipment that fails an inspection or electrical test may be repaired only as follows:

- Rubber insulating line hose may be used in shorter lengths with the defective portion(s) cut off;
- A rubber insulating blanket may be repaired using a compatible patch that results in the patched area having electrical and physical properties equal to those of the blanket;
- A rubber insulating blanket may be salvaged by cutting the defective area off the undamaged portion of the blanket;
- Rubber insulating gloves and sleeves with minor physical defects, such as small cuts, tears, or punctures, may be repaired by applying compatible patches. The patched areas must have electrical and physical properties equal to those of the surrounding material.

Repairs to gloves are permitted only in the area between the wrist and the reinforced edge of the opening.

Repaired insulating equipment must be retested before it is put back into use. Insulating equipment must be cleaned as required to remove foreign substances (using a mild detergent).

Insulating equipment must be stored in such a location and in such a manner so as to protect it from light, temperature extremes, excessive humidity, ozone, and other damaging substances and conditions.

Leather protective gloves must be worn over rubber insulating gloves to provide mechanical protection against cuts, abrasions, and punctures.

Suitable arc flash PPE (e.g. voltage rated gloves, fire retardant clothing, arc rated face shield, arc flash hood, arc flash suit, etc.) must be worn whenever an employee is potentially exposed to an arc flash hazard. The appropriate level of PPE must be worn depending on the task and the potential energy exposure. These PPE requirements must be clearly specified as part of a project-specific arc flash protection programme.

46.10 Jewellery

Necklaces, dangling earrings, and bracelets may not be worn on a project site. No ring or watch may be worn where there is a risk that it may become caught in machinery or equipment. No jewellery or other conductive apparel (such as a key chain or watch) may be worn when carrying out energised electrical work.

46.11 Hair

Scalp hair that is longer than the top of the shoulders must be tied up and restrained within the person's safety helmet or within the collar of his or her overalls, shirt or jacket.

For negative or neutral pressure Respiratory Protection Devices, facial hair must not cause the seal between the respirator and facial skin to be broken (or prevent a seal from being formed in the first place).

46.12 Task-Specific PPE

In addition to the standard PPE required for a project site (including a safety helmet, safety glasses, safety boots, and high visibility protective clothing), the following task-specific PPE must be used as a minimum by any person carrying out or assisting with such a task:

- Arc Welding – safety glasses and welding helmet (i.e. double eye protection), respiratory protection against the specific airborne contaminants being generated (fumes, gases, dusts, etc.), leather welding gloves, leather apron, leather spats, leather yoke (for work above shoulder height), and knee pads for welders in kneeling positions;
- Gas Welding, Cutting or Brazing – gas cutting or welding goggles with shade 4 filter lenses and full face shield (i.e. double eye protection), respiratory protection against the specific airborne contaminants being generated (fumes, gases, dusts, etc.), leather gloves (long cuff for welding and cutting, short cuff may be used for brazing), leather apron, leather spats, and leather yoke (for work above shoulder height);
- Grinding – safety glasses or goggles and full face shield (i.e. double eye protection), hearing protection, respiratory protection where dust or fumes may be generated, leather gloves, leather apron, and leather spats;
- Abrasive Blasting – respiratory protection (air-supplied hood), hearing protection, leather gloves, and leather apron;
- Spray Painting – respiratory protection (air-supplied hood for confined spaces), safety goggles (if the respirator design does not provide this protection), hearing protection where air compressors are used), chemical resistant gloves, and chemical resistant disposable coveralls.

46.13 Sun Protection

The contractor must ensure that all personnel are protected in sunlight through the use of long sleeve shirts, long trousers, brims to safety helmets and UV factored sunscreen. Shade structures must also be made available to all employees.

The contractor must conduct training and awareness sessions with his employees, advising on the risks associated with working in the heat (including dehydration) and the precautions to be taken (e.g. ensuring adequate fluid intake).

47. Fuel / Flammable Liquid Storage and Refuelling

No fuel (diesel, petrol, paraffin, etc.) or any other flammable liquid (paints, solvents, etc.) may be stored on site unless approved in writing by the nominated project management representative.

If the on-site storage of a fuel or a flammable liquid is approved, the contractor must ensure the following:

- The quantity of fuel / flammable liquid to be stored on site must be kept to the minimum that is required;
- The storage area must be located in a well-ventilated area at least 10 metres away from any building, drain, boundary or any combustible material;
- If more than 200 litres of fuel / flammable liquid is to be stored, the tank must be installed / the containers must be positioned within a bund;
- If the fuel / flammable liquid are to be stored in bulk tanks / vessels, then the minimum capacity of the bund must be 110% of the volume of the largest tank / vessel. If many small containers (e.g. 210 litre drums) are to be stored, the bund must be able to contain 25% of the total volume of the stored products;
- The bund must be impermeable. It must have a solid concrete floor and the walls must be constructed out of brick and must be plastered on the inside;
- The bund must be fitted with a lockable drain valve (for draining away rainwater), which must remain locked in the closed position. The valve may only be opened under supervision and in accordance with a written procedure;

- The fuel / flammable liquid storage area may not be used for the storage of any other materials / equipment, and must be kept completely free of all combustible materials (including rubbish, brush and long grass) at all times;
- Access to the storage area must be controlled (wire mesh fencing and gate);
- Appropriate warning signage (i.e. "Flammable Liquid", "No Smoking" and "No Naked Flames") must be prominently displayed at the storage area. The contents and volume of each tank must be indicated;
- In order to contain spillages, the offloading / refuelling bay at the fuel / flammable liquid storage area must have a solid concrete base surrounded by bund walls, ramps or humps and / or spill trenches (covered with steel grating) that lead into a sump;
- Fuel dispensing pumps must be protected against impact damage;
- All fuel / flammable liquid storage tanks and dispensing equipment must be electrically bonded and properly earthed;
- All electrical installations and fittings must be of an approved intrinsically safe type;
- Two 9kg dry chemical powder fire extinguishers must be mounted in an easily accessible position near the entrance gate to the fuel / flammable liquid storage area. Depending on the size of the storage area, additional fire extinguishers may be required to ensure that an extinguisher is no further than 15 metres away from any point on the perimeter of the storage area;
- A fire extinguisher must be at hand wherever refuelling is carried out;
- Smoking or open flames within 10 metres of a fuel / flammable liquid storage / refuelling area is strictly prohibited;
- No petrol or diesel powered vehicle or equipment may be refuelled while the engine / motor is running;
- Cellular phones must be switched off in fuel / flammable liquid storage / refuelling areas;
- Spill clean-up kits (containing a suitable absorbent fibre product) must be provided;
- Any spillages must be cleaned up immediately and all contaminated cleaning materials must be disposed of in accordance with the applicable legislation;
- If a flammable liquid is spilt or is leaking from a container / vessel, the area must be cordoned off and appropriate warning signage must be displayed to keep unauthorised personnel away from the affected area. Every effort must be made to contain the spillage. All hot work in the vicinity must be stopped immediately. If the spilt product is volatile and the possibility exists that a vapour cloud may form, or if the leak or spillage cannot be contained or stopped, then appropriate emergency response procedures must be activated, including the evacuation of all persons in the vicinity. Suitable fire fighting equipment must be positioned ready for use should the spilt product ignite;
- The manual decanting of fuel or a flammable liquid from a large container should only be done using a stirrup pump (or similar) or a purpose-made frame which allows the container / drum to tilt for decanting and then return to the upright position;
- Drip trays must be used wherever required;
- All tanks, drums, cans, etc. containing flammable liquids must be tightly closed and properly sealed except for when a container is being filled or when a product is being decanted;
- The transport or storage of corrosive or flammable liquids in open containers is strictly prohibited;
- Daily-use quantities of fuel (up to a maximum of 20 litres) must be handled in an approved safety can with a flash arresting screen, spring closing lid and spout cover that will safely relieve internal pressure if the can is exposed to fire;
- Where safety cans may be impracticable, only approved metal containers with screw caps may be used. Each container must be clearly labelled to indicate its contents;
- Only small quantities of flammable liquids (paints, solvents, etc.) may be stored within a building. Each product must be kept either in its original container or in an approved container which must be properly sealed. Each container must be clearly labelled to

indicate its contents. When not in use, all such containers must be stored in a well-ventilated steel cabinet which must be kept locked to prevent unauthorised access;

- Not even small quantities of flammable liquids may be stored or dispensed in buildings or places of public assembly, in general warehouses, or in buildings containing sources of ignition such as space heaters, cooking devices, open electric motors, motor vehicles, or where welding, cutting, or grinding activities are being carried out;
- Safe Work Procedures must be compiled for the transportation (including delivery), offloading, storage, handling and use of any fuel / flammable liquid on site;
- All personnel that will be required to work with or may come into contact with a flammable liquid must be made aware of the hazards associated with the product and must be thoroughly trained in the safe transportation, use, handling and storage thereof.

48. Fire Protection and Prevention

The contractor must compile a Fire Protection and Prevention Plan for the work that will be carried out on site.

The contractor must assess / survey his area of responsibility and identify locations where the risk of fire is high. Cognisance must be taken of the fact that certain locations may need to be designated as high risk due to the presence of large quantities of flammable or combustible materials / substances. For all high risk areas, the contractor must ensure that additional precautions are taken to prevent fires and strict control is exercised over any hot work (i.e. welding, cutting, grinding, etc.) that is carried out.

The contractor must supply and maintain all required fire-fighting equipment. The type, capacity, positioning, and number of fire-fighting appliances must be to the satisfaction of the nominated project management representative and must meet the requirements of the applicable legislation. Fire mains, hydrants and hose reels will rarely be available on site, so use must primarily be made of portable fire extinguishers.

Fire-fighting equipment, fixed and portable, must be strategically located with a view to being able to rapidly deploy the equipment in order to bring potentially dangerous and destructive fires under control while still in their infancy.

All fire extinguishers (and any other fire-fighting equipment) placed on site must be:

- Conspicuously numbered;
- Recorded in a register;
- Visually inspected by a competent person on a monthly basis (the results of each inspection must be recorded in the register and the competent person must sign off on the entries made); and
- Inspected and serviced by an accredited service provider every six months (the nominated project management representative may require that this frequency be increased depending on the environmental conditions (e.g. high dust levels, water, heat, etc.) to which the fire extinguishers are exposed).

Any fire extinguisher that has a broken seal, has depressurised, or shows any sign of damage must be sent to an accredited service provider for repair and / or recharging. Details must be recorded in the register.

Fire-fighting equipment may not be used for any purpose other than fighting fires. Disciplinary action must be taken against any person who misuses or wilfully damages any fire-fighting equipment.

Access to fire-fighting equipment, fixed or portable, must be kept unobstructed at all times. Approved signage must be in place to clearly indicate the location of each permanently mounted fire extinguisher, fire hose reel, etc.

The contractor must ensure that all persons working in / entering his area of responsibility are made aware of where all fire-fighting appliances and alarm points are located. The contractor must ensure that his employees (and those of any appointed sub-contractors) are trained in fire-fighting procedures and the use of fire-fighting equipment.

The contractor must compile an emergency response procedure detailing the actions that must be taken in the event of a fire or a fire / evacuation alarm. All personnel working within the contractor's area of responsibility must be trained, and all visitors must be instructed, on this procedure. Copies of the procedure must be prominently displayed in the workplace in all languages commonly used on the site.

Used fire extinguishers must be replaced by the contractor without delay.

No hot work (i.e. welding, cutting, grinding, etc.) or any other activity that could give rise to a fire may be performed outside of a designated workshop without a Permit to Work having been issued.

Wherever hot work is being carried out, a fire extinguisher must be at hand. Where the risk assessment determents that it is necessary, a fire watch must be stationed. Supervisors must carry out workplace inspections regularly to ensure adherence to fire prevention measures and procedures.

At the end of every working period (i.e. before each tea / lunch break and at the end of every shift / day), the workplace must be thoroughly inspected to ensure that no material is left smouldering and no condition / situation exists that could give rise to a fire.

The contractor must ensure that all supervisors and all employees carrying out or assisting with any hot work or any other activity that could give rise to a fire have been trained in fire-fighting procedures and the use of fire-fighting equipment. The training must be conducted by an accredited training provider.

When using electrical equipment, all cables must be in good condition and the nearest convenient socket must be used. No power socket may be loaded beyond its rated capacity through the use of adaptors, etc. Makeshift electrical connections are not permitted under any circumstances. Water-based fire-fighting equipment must not be used on electrical equipment or burning liquids.

Each vehicle used on site for work purposes and each item of mobile equipment with a diesel or petrol engine must be fitted with a permanently mounted fire extinguisher. Smoking is only permitted in designated smoking areas. Cigarette ends / butts must be properly stubbed out in the ashtrays provided and never thrown into waste bins.

The contractor must ensure that good housekeeping practices are enforced, as this is crucial to the prevention of fires.

All combustible waste materials must be removed from the workplace on a daily basis (at the end of each shift) and placed in waste receptacles located at least 5 metres away from any structure. The accumulation of waste materials in out-of-the-way places is prohibited. Offices, desks, cabinets, etc. must always be kept tidy and uncluttered. Waste paper bins must be emptied regularly.

The storage of combustible materials under stairways or in attics is prohibited. The storage of any materials against the exterior of a building or any other structure is prohibited. All walkways, passages and stairways must be kept clear (i.e. must be unobstructed) at all times, as they may need to be used as a means of escape.

The areas around and the routes to all exits, fire escape doors, fire hydrants, fire hose reels and fire extinguishers must be kept clear (i.e. must be unobstructed) at all times. "No Smoking" signs must be conspicuously displayed in and around all storage areas / rooms. Waste may not be burned under any circumstances.
No flammable liquid (such as petrol, acetone, alcohol, benzene, etc.) may be used for starting fires or as a solvent for cleaning clothes, tools, equipment, etc. Only solvents approved by the nominated project management representative may be used for cleaning purposes.

Whenever any work is carried out involving the use of a flammable substance / material, the area must be cordoned off and appropriate warning signage (i.e. "No Unauthorised Entry", "No Smoking" and "No Naked Flames") must be displayed.

49. Smoking

The contractor must not permit smoking on site except within designated smoking areas selected in accordance with the applicable legislation. Such an area must be clearly demarcated and the required signage must be displayed.

Any person found smoking or discarding a cigarette butt outside of a designated smoking area may be removed (temporarily or permanently) from site. In all designated smoking areas, adequate non-combustible commercial ashtrays and / or cigarette butt receptacles (butt cans) must be provided.

Ashtrays and other receptacles provided for the disposal of smoking materials must not be emptied into rubbish bins or any other container holding combustible materials. "No Smoking" signs must be strictly observed.

50. Housekeeping

The contractor must maintain all work areas in a tidy state, free of debris and rubbish. Unless directed otherwise, the contractor must dispose of all debris, rubbish, spoil and hazardous waste off site in a designated and authorised area or facility. The contractor must familiarise himself with the waste management plan for the site including collection and disposal arrangements, and must align his waste management activities accordingly.

In cases where an inadequate standard of housekeeping has developed and compromised safety and cleanliness, a nominated project management representative may instruct the contractor to cease work until the area has been tidied up and made safe. Neither additional costs nor contract deadline extensions will be allowed as a result of such a stoppage. Failure to comply will result in a clean-up being arranged through another service provider at the cost of the non-complying contractor.

The contractor must carry out housekeeping inspections on a weekly basis to ensure maintenance of satisfactory standards. The contractor must document the results of each inspection. These records must be maintained and must be made available to the nominated project management representative on request.

The contractor must implement a housekeeping plan for the duration of the contract ensuring that the site housekeeping is maintained. Furthermore, at the end of every shift, the contractor must ensure that all work areas are cleaned, all tools and equipment are properly stored, and construction rubble is removed.

Where the contractor fails to maintain housekeeping standards, the nominated project management representative may instruct the contractor to appoint a dedicated housekeeping team for the duration of the project at the contractor's expense. Littering is prohibited.

51. Waste Management

Waste may not be disposed of unless the disposal of that waste is authorised by law. The contractor must therefore ensure that all waste that is generated is handled, stored, transported and disposed of in accordance with the requirements of the applicable legislation / local authority.

52. Stacking and Storage

All irregular shaped items will be stacked at floor / ground level in designated stacking areas on a level, firm base capable of withstanding the weight of the commodities being stacked and stacked in such a manner that the items do not topple over or change position due to subsidence or weight transfer when being moved.

Where these commodities are stacked on shelves or racks, the shelves or racks must be designed to carry the weight of the commodity being stacked. All racks or shelves where heavy material or commodities are stacked will have a weight carrying limitation clearly marked on the structure and have a safety factor of at least +10% of maximum total carrying capacity.

All materials, commodities or articles, which could be damaged due to inclement weather, must be stored under cover. Waste material that is combustible must not be allowed to accumulate in sufficient quantities to create a hazard.

No commodities or equipment may be stacked or stored within 500mm of rolling stock tracks or where mobile equipment travels. The storage of material, small equipment, tools, files and general items in cupboards and on shelves must be neat and controlled at all times. Incompatible substances must not be stored in or on the same cupboard or shelf.

No equipment, tools, files or documents may be stored or stacked on top of cupboards which are higher than 1.5 metres in height.

53. Demarcation

No demarcation of floors is required inside offices.

Temporary demarcation may be used to demarcate areas where there is, for relatively simple reasons, restricted access. Where hazards exist and entry must be specifically excluded for safety or health reasons, hazard tape in any form must not be used in isolation. A robust and substantial barrier of timber, rope or other material must be used in conjunction with barrier tape, to prevent entry to unauthorised persons.

Outside storage areas where it is impractical to use floor demarcation, demarcation may take the form of creosote poles and wire rope or similar. Spans between uprights should be painted yellow.

54. Facilities

Sanitary conveniences must be provided and maintained at a rate of at least one shower facility for every 20 workers, at least one toilet facility for every 10 workers, separate male and female changing facilities and sheltered eating areas.

Where chemical toilets are provided, one toilet for every 10 employees must be allocated. All toilets must be cleaned daily, disinfected and provided with toilet paper. All employees making use of these facilities have the responsibility to help keep the facilities neat, clean and hygienic.

Washing facilities, including soap and towels, must be made available for use by the contractor's employees.

Drainage from all washing / toilet facilities must be properly designed and constructed to prevent employee exposure to waste water (and the associated biological hazards). Waste water may not accumulate or stand in pools at any location on the project site.

Change rooms must be provided and must be kept clean and free from odours at all times. No chemicals, except those normally used for domestic cleaning of these facilities, may be stored in the facilities.

No equipment or items (other than those normally associated with hygiene facilities) may be stored in the facilities. All entrances must be constructed in a way to afford privacy to users.

Drinking water must be provided from an approved source. A sheltered (covered) area must be set aside on site to be used as a dining facility (eating area). Adequate seating must be provided for the maximum number of employees. The facility must be kept clean and tidy.

A suitably sized, impervious receptacle (bin) must be provided for the disposal of waste food and other refuse generated at the dining facility. This bin must be emptied and cleaned regularly (i.e. promptly after meal times).

Food may only be consumed in authorised sheltered areas. Adequate refrigerated storage must be provided to the contractor's employees for the storage of food and drinks. Fridges must not be overstocked and must maintain sufficiently low temperatures.

55. Occupational Health and Hygiene

The contractor must ensure that the exposure or potential exposure of his employees to any of the following health and hygiene stressors is assessed and measured where practical:

- Noise;
- Thermal stress (heat and cold);
- Particulates (dust);
- Silica (free crystalline silica);
- Gases or vapours;
- Lead;
- Chemicals;
- Vibration (hand / arm vibration and whole body vibration);
- Ergonomics; and
- Illumination.

If it is determined that exposure levels for a particular stressor are unacceptable, then a monitoring and control plan must be implemented to manage any risk of overexposure.

Note: Where chemical substances are to be used as part of the refurbishment process, the contractor must ensure that the chemical composition of each substance is known.

Carcinogenic (cancer-causing) ingredients must be specifically identified with due understanding that no chemical known to cause cancer will be permitted for use on site (an alternative will need to be sourced).

55.1 Lighting

For all work areas and access ways, if the natural lighting available is inadequate it must be supplemented by artificial lighting to meet the minimum levels required.

A lighting survey to determine luminance must be conducted for all work areas, at least once prior to work commencing for the first time in any area.

Emergency lighting must be provided in all indoor workplaces that do not have adequate natural lighting or in which persons work at night. The emergency sources of lighting that are provided must be such that, when activated, an illuminance of not less than 0.3 lux is obtained at floor level, to enable employees to evacuate safely.

Where it is necessary to stop machinery or shut down plant or processes before evacuating the workplace, or where dangerous materials are present or dangerous processes are carried out, the illuminance must not be less than 20 lux.

Windows and translucent sheeting must be kept adequately clean and clear of obstructions as far as reasonably practicable. Light fittings, i.e. lenses and reflectors must be kept clean. If a light intensity meter is used, a valid calibration certificate must be available.

Neon lights must not be installed in areas where moving parts of machinery or equipment cannot be fully guarded, i.e. lathes, bench grinders, etc. in order to eliminate the stroboscopic effect. No person may use a portable electrical light where the operating voltage exceeds 50 volts, unless:

- It is fitted with a non-hydroscopic, non-conducting handle;
- All metal parts which may become live are protected against accidental contact;
- The lamp is protected by means of a guard firmly attached to the handle; and
- The cable can withstand rough use.

No person may use a portable electric light in damp or wet conditions or in closely confined spaces, inside metal vessels or when in contact with large masses of metal, unless:

- The lamp is connected to a source incorporating an earth leakage; and
- The operating voltage of the lamp does not exceed 50 volts.

All lighting on site must comply with the requirements of the Environmental Regulations for Work Places GNR2281 of 16 October, 1987.

55.2 Noise

A hearing conservation program must be implemented and protection against the effects of noise exposure must be provided when the noise exposures equal or exceed an 8-hour time-weighted average sound level of 85 decibels measured on the A-weighted scale of a standard sound level meter at slow response.

For the hearing conservation program to be effective it must include as a minimum:

- Monitoring of the workplace to determine the representative exposure of employees to excessive noise levels;
- An audiometric testing program for employees, which must include:
    - A baseline audiogram for all employees exposed to noise levels equal to or in excess of the standard;
    - Audiograms for each overexposed employee at a frequency determined by the OMP;
    - Analysis of audiogram results with retesting and/or referral to an otolaryngologist or qualified physician when a significant threshold shift (STS) occurs; and
    - Written employee notification of the STS.
- A training program for all employees exposed to noise;
- Provision of personal protective equipment to all affected employees when administrative or engineering controls fail to reduce sound levels to within the levels of the standards.

Monitoring of employee exposures to noise shall be conducted by an Approved inspection Authority (AIA).

The monitoring requirement may be met by either area monitoring or personal monitoring that is representative of employee exposures. Personal monitoring is preferred, and may be required based on the type(s) of noise sources.

For purposes of the hearing conservation program, employee noise exposures shall be computed in accordance with local legislation. A person-task specification shall be available for every job category and shall be submitted with an employee for audiometric testing.

Audiometric test results obtained from the pre-employment medical examination for a new employee shall be used as the baseline audiogram. Testing to establish a baseline audiogram shall be preceded by at least 14 hours without exposure to workplace noise.

Hearing protectors shall not be used as a substitute for the requirement that baseline audiograms be preceded by 14 hours without exposure to workplace noise. Employees shall be notified of the need to avoid high levels of non-occupational noise exposure during this 14-hour period.

Record-keeping for the audiogram shall include, as a minimum:

- Name and job classification of the employee;
- Date of the audiogram;
- The examiner's name;
- Date of the last acoustic or exhaustive calibration of the audiometer;
- Employee's most recent noise exposure assessment.

Audiometric test results shall be maintained in the employee's medical file. To control noise exposure, its three basic elements shall be examined, i.e. source of the sound, travel path, and effect on receiver or listener. Solution of a given noise problem might require alteration or modification of any or all of these three basic elements.

Controlling noise at the noise source can be achieved by the following:

- Select quiet equipment initially. In selecting quiet equipment the following features shall be considered:
- Low-noise certification;
- Advertisement of "quiet" operation, evidence of noise control design;
- Evidence of "lower" and "slower" operating characteristics;
- Side-by-side noise testing of equipment; and
- "On-site" or "in operation" inspection of mechanical equipment before purchase.

- Reduce operating noise by considering the following control measures:
- Reduce impact or impulse noise by reducing weight, size, or height of fall of impacting mass;
- Reduce speed in machines and flow velocities and pressure in fluid systems;
- Balance rotating parts – to control machinery noise and vibration of fans, fly wheels, pulleys, cams, etc.
- Reduce frictional resistance between rotating, sliding or moving parts in mechanical systems: frequent lubrication, proper alignment of moving parts; static and dynamic balancing of rotating parts; correction of eccentricity or "out-of-roundness" of wheels, gears, rollers, pulley, etc.;
- Reduce resistance in air or fluid systems: use of low flow velocities, smooth boundary surfaces of duct or pipe systems, and long-radius turns and flared actions in pipes, etc., to reduce turbulence noise;
- Isolate vibration elements in machinery; install motors, pumps, etc. on most massive part of machine; use belt or roller drives in place of gear trains; use flexible hoses and wiring instead of rigid piping and stiff wiring, etc.
- Apply vibration damping materials such as liquid mastic; pads of rubber, felt, foam or fibrous blankets; or sheet metal visco-elastic laminates or composites to vibrating machine surfaces; and;
- Reduce noise leakage from the interior of machines such as compressors by sealing or covering all openings or applying acoustical materials to machine interiors.

Controlling noise in the transmission path can be achieved by the following:

- Separate the noise source and receiver as much as possible;
- Use sound-absorbing materials on ceiling, floor or wall surfaces as close to the machine as possible;
- Use sound barriers and deflectors in the noise path;
- Use acoustical lining on inside surfaces of such passageways as ducts, pipe chases, or electrical channels;
- Use mufflers, silencers or snubbers on all gasoline or diesel engines, regardless of size; and particularly on equipment when large quantities of high-pressure, high-velocity gases, liquids, steam or air are discharged into the open air; and
- Use vibration isolators and flexible couplers where the noise transmission path is structure borne in character.

Protection for the receiver – when engineering controls fail to reduce the levels to within the levels specified in local legislation, the following measures shall be implemented:

- Personal protective equipment shall be provided and replaced as necessary at no cost to employees;
- Supervisors shall ensure that hearing protective devices are worn by all employees who are exposed to a time-weighted average of 85 decibels or greater and who have experienced a significant threshold shift;
- Employees shall be given the opportunity to select their hearing protectors from a variety of suitable protectors.

Noise zones shall be indicated by means of signs at every entrance to such zones. When noise levels exceed 100 dB(A), a combination of earplugs and earmuffs may be required to achieve protection of the worker. It is important to note that using double protection will add only 5 to 10 dB of extra attenuation above that of a single Hearing Protection Device. Where an earmuff and earplugs are used together, OSHA recommends using this simple calculation: Take the higher rating of the two devices, and add five. Hearing Protection Devices should be worn for the full noise exposure period.

Where an audiometry programme is required, it must meet the following standards:

- All testing must be by pure tone audiometry in an approved audiometry booth or quiet room, with measured noise levels less than 40 dB(A);
- The initial audiogram must be taken prior (minimum of 24 hours) to exposure to significant noise. Further audiograms must be taken periodically; annually where exposures are over 85 dB(A) Leq or where continued deterioration to hearing is occurring;
- Testing must be performed by trained and competent personnel;
- Audiometers must be calibrated according to the manufacturer's guidelines. As a minimum these will be a weekly biological calibration using an employee unexposed to noise, or a bio-acoustic simulator, and an annual quantitative check. All results must be documented; and
- Audiograms must be read by trained persons who will identify any increasing hearing loss and then determine if this is noise induced. Any employee with a significant downward shift in one or both ears (measured as an average non age-adjusted loss from baseline of 10 dB at 2, 3 or 4 kHz) must be retested following removal from noise for a minimum of 24 hours, usually after a days-off period. If the downward shift persists the employee must be reviewed by a physician and improved hearing protection considered.

55.3 Particulate and Gas / Vapour Exposure

Designated areas must be created where:

- It is likely that the 95 per cent upper confidence limit of a Specific Exposure Group's (SEG) mean exposure concentration for agents resulting in chronic effects (such as total inhalable dust, respirable dust, respirable crystalline silica, PAH, fluorides, lead, mercury, asbestos or non-asbestos fibrous materials) exceeds the relevant OEL; and
- Agents with an acute effect, such as particulate hazards, or gases (e.g. CO, SO2, NH3, HF, etc.), or vapours exceed 50 per cent of the relevant OEL.

Designated areas must:

- Be identified and mapped, signposted or otherwise clearly communicated to employees working in the area. Signposting, where necessary, must use appropriate wording or symbols on signs to identify the hazard;
- Have a documented respiratory protection programme based on suitable risk assessment and standards, which is applied to employees, contractors and visitors;
- Have regular monitoring of SEGs working in the area; and
- Have a formal review of the practicality of engineering controls at least every two years, or less where it is a critical control for a significant risk.

Particulate and gas / vapour monitoring must be appropriate to the exposure conditions and toxicants, and based on the use of equipment approved by local regulatory authorities, as per documented methods.

Where risk assessment indicates the possible presence of levels of gas or vapour sufficient to cause health effects in less than one shift (e.g. confined space entry), continuous monitoring is required as long as the potential for harm exists.

Employees and contractors must be covered by a medical surveillance programme when:

- Their Specific Exposure Group TWA mean exposure to respirable crystalline silica, total inhalable dust, respirable dust, lead or asbestos is greater than 50 per cent of the relevant OEL;
- The medical adviser considers that it is advisable; or
- There is a legal requirement for medical monitoring.

Where risk assessment indicates a risk of a respiratory condition, assessment programmes must include chest x-rays and / or lung function tests. The test or tests chosen must enable the earliest

detection of adverse effects from the exposure of concern. Where indicated, they must meet the following standards:

- High quality chest x-rays will be taken every five years, unless local legislation requires these to be more frequent;
- All chest x-rays for pneumoconiosis surveillance will be read to International Labour Organisation (ILO) standards by an ILO B reader, wherever possible, and if not, by a competent radiologist using verifiable quality criteria;
- Any progression of more than one step on the ILO extended scheme to a reading above 1/0 will be reviewed by a physician;
- Any reading suggesting active lung disease will be reviewed by a physician; and
- All spirometry will be performed by trained staff following the American Thoracic Society guidelines or equivalent and be offered at a frequency determined by the likely rate of detectable change in lung function.

Controls must be of an adequate standard such that surfaces are adequately cleaned to avoid:

- Dust generation due to material dislodgment (e.g. windblown), where practicable; or
- Fume generation from accumulated dust during welding / heating or cutting operations.

Where risk assessment indicates the need to reduce exposures to toxic substances for employees or their families, good personal hygiene must be enforced. The programme must include:

- No smoking, eating or drinking in designated hazard areas;
- Washing of hands and face prior to drinking, eating or smoking;
- Showering at work post shift or after exposure to 'dirty' conditions; and
- Laundering of contaminated clothing by the contractor.

Abrasive blast cleaning must be conducted so as to protect worker health and minimise dust emissions. Substitutes must be used whenever practicable for abrasives containing crystalline silica. However, if such abrasives are used, workers must be aware of the hazards and exposure monitoring conducted. The hazardous properties of alternative materials must be considered before use.

Where required, training in the recognition of signs and symptoms of hazardous particulate and gas / vapour exposure, emergency procedures and preventative measures must be provided.

55.4 Respiratory Protection Devices

The selection of Respiratory Protection Devices (RPD's) must be based on:

- The potential particulate size distribution, gas / vapour types, substance toxicity and likely concentrations;
- Compatibility with the work tasks and other PPE; and
- Comfort (as it affects wear-time) and allowance for adequate communication.

Only RPD's approved by the nominated project management representative may be used. Suitable facilities must be available for cleaning and sanitary storage of RPD's.

Half-mask and full-face air-purifying respirators must NOT be used where:

- The atmosphere is oxygen deficient (< 19.5 per cent);
- The atmosphere is immediately dangerous to life or health (e.g. in areas where CO concentrations are > 1500 ppm, HF > 30 ppm or NH4 > 300 ppm);
- Gases and vapours are more than ten times their OEL or greater than 1000 ppm for half-mask respirators, or more than 100 times their OEL for full-face respirators; or
- Particulates are more than five times their OEL for half-mask respirators, or more than 50 times their OEL for full-face respirators.

For atmospheres that are oxygen deficient, or contain unknown hazards, or have concentrations of gases and vapours that are unknown, or could potentially exceed levels that are immediately dangerous to life or health, an air-supplied type respirator must be worn.

For effective use of negative pressure RPD's (including disposable RPD's), fit testing must be qualitative and documented as a minimum, although quantitative fit testing is preferred. Fit testing must be performed by a competent person when RPD's are first issued and must be repeated periodically according to legal requirements or two-yearly as a minimum frequency. There must be a policy requiring a clean shaven face when using a negative or neutral pressure RPD for routine tasks, or the use of a positive pressure RPD will be required. A pulmonary function test and medical evaluation may be required to determine whether or not an individual is medically fit to wear a respirator.

For air-supplied RPD's, breathing air must be effectively filtered and / or isolated from plant and instrument air, and isolated from sources of potential contaminants. The quality of the breathing air must be checked for conformance with applicable standards.

The respiratory protection programme must include:

- Periodic inspection of RPD's, including before each use;
- Periodic evaluation of cleaning, sanitising, maintenance and storage practices by competent persons;
- Performance of positive and negative fit checks before each use by RPD wearers to ensure that the respirator is functioning properly; and
- Training at first issue of a RPD and regular refresher training thereafter in accordance with regulatory requirements or at least once every two years.

55.5 Hazardous Chemical Substances

No chemical substance may be brought onto site unless it has been approved for use by the nominated project management representative. The contractor must develop and maintain a hazardous chemical substance register specifying as a minimum the type and volumes of substances on site.

If the contractor wishes to make use of a chemical substance that does not appear on the register, then the contractor must provide the following minimum information to the nominated project management representative for review PRIOR to bringing the substance onto site:

- A detailed 16-point Safety Data Sheet (SDS) issued by the manufacturer / supplier of the substance;
- The reason for wanting to bring the substance onto site (i.e. the intended use of the substance);
- The proposed method of transportation;
- The proposed arrangements for the safe storage of the substance;
- The quantity to be stored on site;
- The proposed methods for handling / using the substance (including PPE);
- The proposed method of disposal of the waste;
- Proof that the contractor is able to readily provide the necessary first aid measures as specified in the SDS; and
- A risk assessment covering the transportation, use, handling, storage and disposal of the substance with specific reference to the substance's compatibility with other chemicals.

This information must be provided at least five (5) working days prior to the date on which the contractor intends to bring the substance onto site for use. Any chemical substance brought onto

site without adherence to the requirements stipulated above shall be removed from site immediately.

If the nominated project management representative approves the substance for use, the contractor must ensure that all necessary precautions are taken concerning the transportation, use, handling, storage and disposal of the substance, and that all required PPE and first aid materials / equipment (as stipulated in the SDS) are readily available on site.

The contractor must ensure that a Safety Data Sheet (SDS) is obtained for each chemical substance brought onto site. A file, or files, containing all of the SDS's must be maintained and must be readily available to all personnel on site (particularly first aiders) as well as other potentially affected parties (e.g. emergency services personnel, persons from the local community, etc.). The SDS's must be in the language(s) commonly used on site.

The contractor must appoint a trained and competent Hazardous Chemical Substances Coordinator who understands and is able to evaluate the risks associated with a wide variety of substances. This person shall be responsible for:

- Assessing the hazardous properties and risks associated with all chemical substances brought onto site by the contractor and appointed sub-contractors (using the SDS's);
- Determining precautions and safe practices for transportation, use, handling, storage and disposal (including PPE requirements) (using the SDS's);
- Determining first aid and emergency response requirements / procedures (using the SDS's);
- Maintaining the SDS file;
- Managing and monitoring the consumption of inventory; and
- Providing an "as needed" service to site personnel and suppliers.

The risks associated with the transportation, use, handling, storage and disposal of all hazardous chemical substances brought onto site must be assessed and managed by the contractor through a process that incorporates risk reduction using the hierarchy of controls as described as described by this Specification. Whenever a task-based risk assessment is carried out, consideration must be given to the use of chemical substances (e.g. greases, solvents, etc.).

The contractor must provide Safe Work Procedures for the transportation, use, handling, storage and disposal of all hazardous chemical substances to be used on site.

The contractor must provide his employees with all of the Personal Protective Equipment that is necessary to prevent exposure / injury while handling / using the hazardous chemical substances that they will be required to work with. Appropriate PPE must be selected with consideration given to the potential hazards, permeability, penetration, resistance to damage and compatibility with the work tasks.

The contractor's employees must be trained in the safe transportation, use, handling, storage and disposal of the hazardous chemical substances that they will be required to work with or may come into contact with. The training must specifically address PPE requirements (including the correct selection, fitment and use thereof).

All personnel must be trained to understand the potential health effects associated with exposure to hazardous chemical substances and therefore the importance of Safe Work Procedures and PPE. All personnel must be trained on emergency response procedures and first aid measures. Behaviour-based observations and coaching must include the use / handling of hazardous chemical substances.

An appropriate occupational exposure monitoring and medical surveillance programme must be in place for all personnel potentially exposed to hazardous chemical substances which have the potential to cause immediate or long-term harm.

Emergency showers and eyewash stations must be provided where required by law, or where a risk assessment indicates a need. The emergency showers and eyewash stations must be appropriately located, signposted, and regularly tested and maintained. Employees must receive training on the location and use of the showers / eyewash stations.

An emergency response plan for incidents involving hazardous chemical substances must be in place. Regular and appropriately staged emergency drills (possibly involving external spill response and ambulance support services) must be held and lessons learnt must be incorporated into the emergency response plan.

The contractor must provide appropriate storage facilities for all hazardous chemical substances to be used on site. The storage facilities must be secure and protected from damage. They must also be designed for easy access for firefighting purposes. Where applicable, the storage facility must protect chemical containers from physical damage due to temperature extremes, moisture, corrosive mists or vapours, and vehicles.

The inventory of hazardous chemical substances stored on site must be kept to a minimum. The quantity of each chemical stored must be justifiable.

Storage and segregation requirements for all hazardous chemical substances to be used on site must be based on:

- The quantities of the substances stored;
- The physical state of the substances (solid, liquid or gas);
- The degree of incompatibility; and
- The known behaviour of the substances.

Access to areas where hazardous chemical substances are stored and handled must be limited and controlled.

Every chemical substance container must be adequately and clearly labelled to identify its contents, to indicate precautionary requirements for the substance, and to indicate the date of expiry (if applicable). Pipes used to transfer / convey / distribute chemical substances must be clearly identified (e.g. colour coding). Directional flow must be indicated where practical.

Before any item, equipment or empty container containing a chemical residue is disposed of as general waste, it must be properly decontaminated (where applicable). Before being disposed of, empty chemical containers must also be rendered unusable for carrying water (by puncturing, cutting or crushing them).

Hazardous chemical substance waste (i.e. redundant / expired hazardous chemical substances, containers containing residues, contaminated items / materials, etc.) must be disposed of in accordance with the applicable legislation.

Maintenance, inspection and testing schedules and procedures must be in place for critical equipment associated with hazardous chemical substances. A system must be in place to ensure that the risks are assessed before any changes are made to equipment and / or processes for the transportation, storage, handling, use or disposal of a hazardous chemical substance.

A programme must be in place to continually investigate possibilities / opportunities for replacing hazardous substances with safer alternatives.

55.6 Thermal Stress

Hot areas or activities where employees have experienced or could experience excessive fatigue, muscle cramp, dehydration, dizziness and other symptoms of heat stress must be identified and described.

Where a risk of thermal stress is determined, a competent person must conduct monitoring surveys on site, in consultation with workers.

For defined extreme thermal conditions and job activities, medical examinations must include information about the operator's physiological and biomedical aspects, and an assessment of fitness for the working conditions.

Cold areas or activities where employees have experienced or could experience pain or loss of feeling in extremities, frostbite, severe shivering, excessive fatigue and other symptoms of cold stress must be identified and described.

Workplace thermal stress levels (temperature, air movement, humidity, etc.), activities (work level, etc.) and conditions (clothing, health, etc.) that have the potential to exacerbate thermal stress effects must be adequately characterised and described. Workplace exposure assessment must be repeated according to regulatory requirements or whenever there is a change in production, work organisation, process or equipment which may impact thermal stress levels.

Detailed heat stress assessment of identified tasks or jobs must be tiered to:

- Commence with the use of a simple heat stress index as a screening tool; then, if necessary;
- Use rational heat stress indices in an iterative manner to determine the 'best' control methods for alleviating potential heat stress; and
- Undertake physiological monitoring when exposure times are calculated to be less than 30 minutes, or where high level PPE that limits heat loss must be worn.

Detailed cold stress assessment of identified tasks or jobs must be conducted according to current appropriate guidelines that incorporate a cold stress index, to determine the 'best' control methods for alleviating potential cold stress.

When a risk of thermal stress is identified, the following exposure controls must be implemented:

- An acclimatisation period for new workers and those returning from extended leave or sickness;
- Training in the recognition of signs and symptoms of heat or cold stress, emergency procedures and preventative measures;
- Protective observation (buddy system or supervision); and
- A requirement for self-paced working.

The following exposure controls must be considered by a competent person:

- Work / rest regimes and job rotation based on measurements conducted;
- Suitable rest areas with a provision of cool drinking water and cool conditions for high temperatures, or provision of warm drinks and warm conditions for cold temperatures;
- Selection of appropriate clothing or other PPE for extreme temperature conditions;
- The use of engineering controls; and
- Undertake hot / cold tasks during a cooler / warmer time of the day.

Where thermal stress is assessed to be a risk, the operation must develop a suitable emergency response plan.

55.7 Fitness for Work

The contractor must develop and implement a programme to manage employee fitness for work. All employees working on site for whom the contractor is responsible (i.e. direct employees of the contractor as well as the employees of any appointed sub-contractors) must be subject to this programme.

All safety critical jobs (i.e. roles where fatigue or other causes of reduced fitness for work could lead to serious injury, illness or death to employees, significant equipment / plant damage, or significant environmental impact) must be identified and the risks associated with reduced fitness for work in these roles must be assessed.

A programme to manage these risks must be implemented, and it must include:

- Mechanisms for managing fatigue, stress and lack of fitness;
- An alcohol and other (including prescription, pharmaceutical or illicit) drugs policy that includes testing;
- An Employee Assistance Programme providing confidential access to resources and counsellors; and
- Training and awareness programmes.

Each employee has an obligation to present himself fit for work at the start of the day / shift, and to remain fit for work throughout the work period. Reporting for work under the influence of alcohol or any other intoxicating substance will not be tolerated. Any transgression concerning the alcohol and other drugs policy applicable to the project may result in the offending employee's access to the project premises being temporarily or permanently withdrawn.

Alcohol and drug testing on the project premises will be carried out randomly (as employees report for duty and during the course of the day / shift), following any incidents (all persons involved), and whenever there is reasonable suspicion. Alcohol and drug testing must also be carried out as part of a Pre-Employment Medical Examination.

Sleep deprivation during shift work or from excessive working hours is a known cause of fatigue. Fatigued employees are at increased risk of accidents. Shift system design must consider:

- The effect on worker fatigue;
- The effects of activities carried out during scheduled and overtime hours;
- The impact on sleep cycles of activities such as commuting to and from site; and
- The monitoring and control of working hours.

The contractor is responsible for the administration of the working hours of his employees as well as the employees of any appointed sub-contractors. The maximum working hours per day and the minimum rest times between shifts must be specified in the contractor's Health and Safety Management Plan and must comply with all applicable legislation.

All employees are required to undergo fitness assessments (medical examinations) which must be carried out prior to the commencement of employment on the project, prior to a change in role, periodically based on an employee's individual risk profile, and on termination of employment on the project:

- Pre-Employment Medical Examination – to assess the physical suitability of the person for the role and environment in which he will work (carried out prior to the commencement of employment on the project and prior to induction). The contractor must take note that employee medicals for this project must include a drug test;
- Periodic (Surveillance) Medical Examination – to assess the ongoing physical condition of an employee to determine if his role is impacting on his health and whether the employee's fitness level is still adequate for the role he holds (these medical examinations are "risk driven" – the specific protocol followed and the frequency of the examinations will depend on the applicable legal requirements and the employee's individual risk profile as determined by his personal fitness, the nature of his role / duties, and the environment in which he works / occupational health hazards to which he is exposed).
- The periodic medical assessment programme must include:
  - The identification of modifiable risk factors that may impact fitness for work;
  - Education and support to maintain health or address identified risk factors; and
  - Education and support to help employees regain their fitness for work.
- Role Change Medical Examination – to assess an employee's physical suitability for a different role and work environment (carried out prior to a change in role / duties);
- Exit (Post-Employment) Medical Examination – to determine the total physical impact of the work the employee performed (carried out on termination of employment on the project).

Note: The results of an Exit Medical Examination from previous employment will not be accepted as a Pre-Employment Medical Examination.

Note: The medical examinations described above may only be carried out by an Occupational Medical Practitioner.(i.e. a medical doctor who holds a qualification in occupational medicine).

A detailed job (role) description and an exposure profile (noise, dust, heat, fumes, vapours, etc.) must be provided for each employee or group of employees. The medical examinations that an employee undergoes must be based on (i.e. the employee's fitness must be assessed against) the information contained in these documents as well as the baseline risk assessment for the work. This information must be made available to the occupational medical practitioner performing the medical examination.

For each role, the medical criteria for fitness must be documented and these must be based on an evaluation of the physical and medical requirements for the role. Depending on the circumstances, certain vaccinations may need to be provided to employees.

The medical examinations carried out for all drivers and operators must include testing / assessment for medical conditions that could affect the safe operation of vehicles or equipment.

Specific testing / questioning must be carried out to determine if an individual:

- Suffers from epilepsy or any other medical condition deemed to be a risk by the occupational medical practitioner;
- Makes use of chronic medication that could affect performance;
- Is colour-blind; or
- Has poor day or night vision.

The medical examinations carried out for employees that are required to work at height must include testing / questioning to determine if an individual suffers from epilepsy, hypertension (high blood pressure) or any other medical condition deemed to be a risk (with regard to working at height) by the occupational medical practitioner. Electricians must be tested for colour-blindness.

With regard to the placement of new employees:

- Prospective employees must be referred to a suitable occupational medical practitioner (doctor) for a "Pre-Employment Medical Examination";
- If an individual is found to be medically "unfit for placement", the doctor will indicate which work activities cannot be performed by the person;
- The individual may still be employed on the project if his medical restrictions can be accommodated and provided that no legislation is transgressed.

A process must be established to manage medical restrictions that may be placed on an employee. For every employee with a medical restriction, regular follow up visits with the occupational medical practitioner must be arranged to ensure that each case is proactively managed.

An employee in a safety critical job must report (to his supervisor) any condition that might impair his ability to safely perform the duties associated with his role. A mechanism must be in place for such reports to be referred to an occupational medical practitioner to determine if the employee is fit to continue with his work.

Proof of all medical examinations (i.e. certificates of fitness signed by an occupational medical practitioner) must be kept on site and these records must be readily available for inspection by the nominated project management representative.

An employee's certificates of fitness must be included in his Personal Profile (dossier). If an Employee Personal Profile (dossier) hasn't already been compiled for a particular employee, then this must be done without delay following the employee's Pre-Employment Medical Examination.
No employee may commence work on site without proof that he has undergone a Pre-Employment Medical Examination.

Occupational medical examinations and data interpretation may only be carried out by medical practitioners that are appropriately qualified and certified to do so. Occupational medical data contained in reports to management must be grouped and summarised to ensure that the confidentiality rights of each individual employee are maintained. All occupational medical data and records must be retained for at least 40 years.

55.8 HIV / Aids

The contractor must assess the risks posed by HIV. Appropriate mitigation strategies must be implemented as required. Discrimination towards employees on the basis of actual or perceived HIV status is forbidden. All information on the HIV status and condition of employees including that relating to counselling, care and treatment and receipt of benefits, must be maintained in medical confidence.
HIV / AIDS screening may not be a requirement for recruitment or a condition of employment.

55.9 Measuring and Monitoring

The workplace exposure (or potential exposure) of persons to hazardous substances or agents must be measured and monitored to determine the effectiveness of control measures as well as compliance with legal and other requirements, particularly Occupational Exposure Limits. All such measuring and monitoring must be carried out by an Approved Inspection Authority (i.e. a specialist service provider that is appropriately registered with a governing authority).

Each exceedance of a specified requirement or limit must be recorded, investigated and reported. Appropriate corrective actions must be identified and implemented.

56. Emergency Preparedness and Response

The contractor must develop, implement, test and maintain an Emergency Response Plan (incorporating emergency evacuation procedures) that focuses specifically on the contractor's team and work activities. The plan must be risk-based and must detail the procedures that must be followed when responding to all potential emergency scenarios such as a medical emergency (including first aid response), a fire, an explosion, a hazardous substance spill, flooding, rescue from height, rescue from a confined space, etc.

Potential off-site emergency scenarios must be included (e.g. emergency scenarios related to the transport of personnel, the transport of hazardous materials, and personnel performing work in remote locations).

Consideration must be given to surrounding Port users and tenants, and to the availability and capability of local emergency services. Details of any arrangements with external emergency response service providers must be included.

The Emergency Response Plan must satisfy and comply with all applicable legal requirements. The plan must be adequately resourced to ensure effective implementation. These resources must include appropriate personnel, external emergency response service providers, emergency response equipment, and warning devices. All equipment and warning devices must be identified, maintained and tested to ensure availability at all times.

Accountability for the Emergency Response Plan must be clearly defined. An Emergency Response Team (ERT) responsible for the implementation, management and execution of the Emergency Response Plan must be established. The roles and responsibilities of each team member must be clearly defined in the plan. Each team member must receive appropriate training to ensure that each role is performed competently.
The process for managing incident communication, notification, and reporting must be incorporated into the Emergency Response Plan. The responsible person(s) must be clearly identified, and the protocols for communicating with internal and external stakeholders must be defined.

Emergency evacuation procedures must be developed and included in the Emergency Response Plan. A copy of the plan must be provided to the nominated project management representative for approval prior to site establishment. The Emergency Response Plan must be formally reviewed (and amended if necessary) when project needs require, and following any emergency situation, to ensure that it remains appropriate and effective.

At each project work site, as a minimum:

- A suitable evacuation alarm (siren) must be provided. All persons working in an area where an evacuation alarm is sounded must respond to it immediately.
- Suitable fire-fighting equipment must be provided and maintained, and personnel must be trained in fire-fighting procedures and the use of fire-fighting equipment.
- Suitable first aid equipment and supplies must be provided and maintained, and an adequate number of appropriately trained First Aiders must be in place.
- Emergency assembly points positioned in safe locations away from buildings, plant and equipment must be designated (and conspicuously signposted). In the event of an evacuation, all persons (i.e. personnel and visitors) must assemble and be accounted for at these emergency assembly points.
- All personnel must receive awareness training on the applicable emergency response procedures, and all visitors entering the site must be properly instructed in these procedures.
- The emergency response procedures must be displayed on each notice board.

- A diagram (site plan) indicating evacuation routes, emergency assembly point locations, and the positioning of emergency equipment (fire extinguishers, first aid boxes, etc.) must be prominently displayed in all buildings and plants, in all offices, on all notice boards, and in other locations on the site as may be required.
- An up-to-date list of emergency telephone numbers must be compiled and maintained. A copy of this list must be posted at each site entrance, in each office, near each telephone, and on every notice board.
- Emergency response drills must be conducted to test the effectiveness of the emergency procedures and equipment, as well as the knowledge and proficiency of the response personnel. Where appropriate, drills must include liaison with and the involvement of external emergency response service providers. A variety of emergency scenarios must be tested including, but not limited to, medical emergencies, fires, rescues, and hazardous substance spills. A drill must be carried out one month after site establishment and then again six months thereafter.

Each drill must be monitored and the outcomes (highlights and shortcomings) must be documented. Corrective actions must be identified and implemented to address the shortcomings, and the Emergency Response Plan and associated procedures must be amended as required.

56.1 Fire Fighting

The contractor must ensure that Fire Fighting requirements are complied with.

56.2 First Aid

The contractor must ensure that First Aiders are trained and appointed as described in this Specification and in accordance with relevant legislative requirements.

56.3 First Aid Kits

A suitable first aid kit (i.e. appropriate to the level of training) must be readily available to each First Aider. All kits must be provided and maintained by the contractor.

Taking into account the type of injuries that are likely to occur in the workplace, each first aid kit must contain suitable equipment and supplies. First aid equipment and supplies required by applicable legislation must be provided as a minimum.

The contents of each first aid kit must be kept clean and dry. Each kit must be contained in either a portable weather-proof case / bag or a steel box mounted to a fixed structure. Access to first aid equipment / supplies must be limited to train First Aiders only. Access to portable kit bags must be controlled and steel first aid boxes mounted in the workplace must be kept locked. Approved signage must be in place to indicate the locations of the first aid boxes / bags. A record of each treatment administered must be kept in a suitable register.

No tablets or medication not stipulated within table 61-1 are to be stored in the first aid box.
No tablets or medication to be administered by first aiders or other personnel to employees who are not feeling well or have been injured.

The first aid kits must, as a minimum, contain the following equipment and supplies:

Table 56-1 Minimum Requirements to be included when equipping first aid boxes

Item 1:	Wound cleaner/ antiseptic – 100ml;
Item 2:	Swabs for cleaning wounds;
Item 3:	Cotton wool for padding – 100g;
Item 4:	Sterile gauze – minimum quantity 10;
Item 5:	1 x Pair of forceps – for splinters;
Item 6:	1 x Pair of scissors – minimum size 100mm
Item 7:	1 x Set of safety pins;
Item 8:	4 x Triangular bandages;
Item 9:	4 x Roller bandages – 75mm x 5m;
Item 10:	4 x Roller bandages – 100mm x 5m;
Item 11:	1 x Roll of elastic adhesive – 25mm x 3m;
Item 12:	1 x Non-allergenic adhesive strip – 25mm x 3m;
Item 13:	1 x Packet of adhesive dressing strips – minimum quantity 10 assorted sizes;
Item 14:	4 x First aid dressings – 75mm x 100mm;
Item 15:	4 x First aid dressings – 150mm x 200mm;
Item 16:	2 x Straight splints;
Item 17:	2 x Pairs large and 2 x pairs medium disposable latex gloves;
Item 18:	2 x CPR mouth pieces or similar devices.

Additional items / supplies may need to be provided depending on the nature of the workplace (specific hazards) and the level of training of the first aider in position of the kit.

57. Management Review

A review of the contractor's Health and Safety Management System must be undertaken as required within the project timeframe to ensure that the system continues to be effective in managing health and safety performance and meeting project requirements.
The review must evaluate if there is any need for change and must identify actions to improve the system.

The review must be led by senior management and the following must be considered:

- The suitability of the policy adopted for the project;
- The impact of changing legislation;
- The management of risk;
- Health and safety objectives and performance indicators;
- Changing expectations and requirements of relevant stakeholders;
- Changes to the contractor's scope, schedule, designs, etc.;
- Changes to the contractor's organisational structure;
- Communication and feedback (particularly from employees, Project representatives, and client representatives);
- The effectiveness of the management of change process;
- Workplace exposure monitoring and medical surveillance;
- The status of corrective actions;
- Performance statistics, including an annual summary of safety statistics, and occupational hygiene monitoring and medical surveillance results;
- Non-conformances (findings) from completed audits;
- Follow up on actions from previous management reviews; and
- Recommendations and opportunities for improving the effectiveness of the management system.

A record of each completed management review must be retained and it must include all decisions and identified actions concerning alterations, modifications or improvements to the management system that demonstrate a commitment to continual improvement.

58. Management of Change

To ensure that proposed changes do not give rise to unacceptable health or safety risk, the contractor must develop and implement a process for identifying and managing change in the workplace (e.g. changes to scope, schedule, procedures, work methods, site conditions, designs, plans, plant and equipment, materials, processes, etc.) that may impact on health or safety performance.

The management of change process must take into consideration that changes may be planned or unplanned, sudden or gradual, temporary or permanent.

The process must aim to ensure that:

- Changes are identified and assessed before they are implemented;
- Careful consideration is given to managing the risks associated with any change;
- Due diligence can be shown to have taken place;
- The number of unsatisfactory or unnecessary changes is minimised;
- The right people are involved in the change process; and
- All statutory requirements are met.

All risks associated with a proposed change must be evaluated and ranked. The risks that are ranked as moderate or higher must be managed to prevent serious injury or illness.

It must not simply be assumed that a change will not result in significant risks. All proposed changes must be formally evaluated. The evaluation or review must include:

- An appropriate level of technical expertise;
- The involvement of the workforce potentially affected by the proposed change; and
- Approval of the change by a person with at least the same level of authority as those who control the existing process or item being changed.

59. Sub-contractor Alignment

Processes must be in place to ensure that the health and safety risks associated with the procurement of materials, equipment, services and labour are identified, evaluated and effectively managed.

A process for evaluating a sub-contractor's (or supplier's) ability to provide materials, equipment, services and labour that meet defined specifications must be in place. A prospective sub-contractor's health and safety management expertise, experience and capability (including previous health and safety performance) must be formally assessed prior to any contract or purchase order being awarded.

Each appointed sub-contractor must develop and implement a detailed Health and Safety Management Plan based on the requirements of the contractor's Health and Safety Management Plan and the Health and Safety Specification for the project. This plan must be reviewed and approved by the contractor prior to the commencement of any work.

The properties of all materials provided to the project must be adequately understood, documented and integrated into operating procedures where exposure to these materials presents a significant health or safety risk.

Procedures, commensurate with the evaluated risk, must be in place for the receiving, storing, dispatching and transporting of all equipment and materials.

Before work commences on any contract, all sub-contractor personnel must receive comprehensive orientation and induction training as required by this Specification. All work carried out by a sub-contractor must be managed (activity supervised) throughout the contract period and performance must be reviewed (audited) on a regular basis.

60. Incident Reporting and Investigation

The contractor must establish a procedure for the management of all health and safety incidents. This procedure must define the responsibilities, methodologies and processes that must be followed for:

- Reporting an incident;
- Investigating an incident;
- Analysing an incident to determine the root cause;
- Identifying and implementing corrective actions to prevent a recurrence; and
- Communicating information concerning an incident to relevant persons and / or groups.

Please Note: Arrangements must be in place to ensure that proper medical care is provided to any contractor (or sub-contractor) employee that suffers an occupational injury or illness. These arrangements must be described briefly in the contractor's Health and Safety Management Plan and in detail in the Incident Management Procedure.

An incident may have multiple impacts. For each impact, the Actual Consequence and the Maximum Reasonable Outcome must be evaluated. Each impact must be evaluated independently, with the most significant classification forming the primary rating of the incident.
A near-miss is an incident. All near-miss incidents must be reported.

Using the defined consequence scales contained in TRANSNET 5x5 qualitative risk matrix, the Actual Consequence of each impact must be categorised as:

- A Near-miss;
- Insignificant (Level 4; as per TRANSNET incident level classification guidance);
- Minor (Level 3; as per TRANSNET incident level classification guidance);
- Moderate (Level 2; as per TRANSNET incident level classification guidance);
- Major (Level 1; as per TRANSNET incident level classification guidance); or
- Catastrophic (Level 1; as per TRANSNET incident level classification guidance).

The Maximum Reasonable Outcome (MRO) is based on a risk evaluation of the maximum reasonable consequence of an impact and the likelihood of the event occurring again given a reasonable failure of existing controls. Using the matrix referred to above, each impact must be evaluated and classified as:

- Low;
- Moderate;
- High; or
- Extreme.

An incident must be reported on the same work day or shift on which it occurs and preliminary details must be recorded and a TRANSNET Incident Flash Report must be completed and submitted within 24 hours to the relevant Project Construction Manager or representative. Depending on the Actual Consequence and Maximum Reasonable Potential Outcome of the impact(s), the relevant internal and external parties must be notified in accordance with specified protocols and timeframes, and legislative requirements.

In the event of a significant incident (i.e. an incident with an Actual Consequence of Moderate, Major or Catastrophic, or a Maximum Reasonable Potential Outcome of High or Extreme), work must cease and must only resume once the necessary actions (including the re-evaluation of any relevant risk assessments) have been taken to eliminate or reduce the risk of recurrence. Work must only be permitted to recommence once formal authorisation has been granted by the Project Construction Manager. In the case of incidents with an Actual Consequence of Major or Catastrophic, work must not be permitted to recommence until authorisation has been granted by the relevant government authorities (i.e. the South African Police, the Department of Labour or the Department of Mineral Resources).

The Project Construction Manager must ensure that an investigation is completed for each incident that occurs, and that appropriately senior personnel participate in, and authorise the outcomes of, each investigation. Incident investigations must be facilitated by competent and experienced persons who have been trained in the appropriate methodology. (e.g TCAM – Transnet Causal Analysis Methodology).

All significant incidents (i.e. incidents with an Actual Consequence of Moderate, Major or Catastrophic, or a Maximum Reasonable Outcome of High or Extreme) must be investigated using the approved Transnet investigation methodology. Such an investigation must be facilitated by a trained project representative within 7 calendar days.

For all other incidents (i.e. incidents with an Actual Consequence of Insignificant or Minor, or a Maximum Reasonable Outcome of Low or Moderate) other methodologies approved by the Project Health and Safety Manager may be used.

Each incident (including near-miss incidents) must be investigated to a level of detail that is appropriate for the Maximum Reasonable Potential Outcome of the incident.

Each incident must be analysed to determine the root cause, and corrective actions must be identified and prioritised for implementation to eliminate or reduce the risk(s) in order to prevent recurrence of the incident.

For each corrective action, a responsible person must be designated and an appropriate timeframe (target date) for completion of the corrective action must be specified. Progress on implementing corrective actions (i.e. closing incidents) must be monitored and reported on. The implementation of corrective actions must be verified during monthly audits by the TRANSNET Project Health and Safety Practitioners but also no later than 30 calendar days after the conclusion of the incident investigation. The contractor must document the results of each investigation and a report must be submitted to the nominated project management representative within a stipulated time frame as determined by the nominated project management representative.

As a minimum, each incident report must include:

- The date, time and location of the incident;
- A detailed description of the incident, including photographs;
- The names of any injured persons;
- Injury details (if applicable);
- A summary of the first aid and / or medical treatment provided (if applicable);
- The current status of any injured persons;
- The root causes of the incident; and
- Detailed corrective actions, including responsible persons and target dates for implementation.

Each significant incident must be summarised for its lessons learnt following the investigation. This information must be reviewed by the contractor's Project Manager to assure completeness, accuracy and relevance before it is shared with (communicated to) all project personnel. Refer to the Transnet Health and Safety Management Occurrence Reporting and Investigation HAS-P-0002.

61. Non-conformance

Non-conformance Reports (NCR) will be issued to Contractors upon the identification of non-compliances to this specification. NCR's will be issued to Contractors for their response and implementation of corrective actions. NCR's must be closed out within a 48hour period depending on the severity of the non-conformance.

The contractor must establish a process for identifying and recording corrective actions arising from:

- Non-compliances;
- Incident investigations;
- Hazard identification and risk assessment;
- Measurement and monitoring;
- Improvement plans and suggestions;
- Managing change;
- Audits and inspections; and
- Safety observations and coaching (safety interactions).

The contractor must establish a procedure for managing actions that addresses:

- Identification, categorisation and prioritisation of actions;
- Formal evaluation and approval of actions (management of change process);
- Assignment of responsibilities, resources and schedules for implementation;
- Implementation of actions;
- Tracking and reporting on implementation status; and
- Monitoring and verifying the effectiveness of the actions.

62. Performance Assessment and Auditing

The contractor must establish and maintain programmes for measuring and monitoring health and safety performance on a regular basis. Metrics must include leading and lagging indicators, and be based on qualitative and quantitative data.

62.1 Reporting on Performance

Reports summarising the contractor's health and safety performance on the project must be compiled on a weekly and a monthly basis.

The contractor must be prepared to discuss the content of these reports at scheduled health and safety meetings.

The reports must contain the following minimum information:

- Number of contractor and sub-contractor employees on site;
- Total hours worked on site by contractor and sub-contractor employees (by company);
- Number of incidents by category (i.e. Near-miss, FAI, MTI and LTI);
- Lost Time Injury Frequency Rate (LTIFR) (project to date and 12-month rolling);
- Details of all new incidents for the reporting period and the corrective actions taken or to be taken;
- Feedback (progress updates) on all open incidents and outstanding corrective actions;
- Status and feedback on any employee that may have been injured and has not yet returned to work;

- Details of all health and safety training carried out during the reporting period;
- Number of SOC's (Safety Observations and Coaching) carried out during the reporting period;
- SOC trends identified and proposed action for the coming week or month to maintain positive trends and / or address negative trends;
- Details of all audits, inspections and site visits carried out during the reporting period, and the corrective actions taken (or to be taken) to address all non-conformances;
- Feedback (progress updates) on all open non-conformances and outstanding corrective actions;
- Number of Toolbox Talks conducted during the reporting period (monthly);
- Number of Planned Task Observations (PTO's) carried out during the reporting period (monthly);
- Details of all active risk assessments and Safe Work Procedures highlighting those that are due for review in the coming month (monthly);
- A look ahead (to the coming week, month or quarter) to ensure that appropriate health and safety planning and preparation is done for upcoming work;
- Challenges faced with regard to health and safety; and
- Any other health and safety related information specific to the project that may be required.

Leading indicators (e.g. audit findings, observations, etc.) must be analysed, and any negative trends identified with regard to unsafe behaviour or conditions must be appropriately addressed to prevent incidents.

Lagging indicators (e.g. injuries, illnesses, near-miss, etc.) must be investigated in detail to determine the root causes. Corrective actions must be identified, implemented and integrated into Safe Work Procedures to prevent recurrences.

63. Audits and Inspections

On a monthly basis, the health and safety management system and workplace activities of the contractor will be audited by a Project Health and Safety Practitioner to assess compliance with the project health and safety requirements. Any deviation from these requirements (i.e. non-conformance) that places the health or safety of any person in immediate danger will result in the specific activity being stopped until the non-conformance is corrected.

For each non-conformance determined during any audit, the contractor must identify and implement appropriate corrective actions.

For each corrective action, a responsible person must be designated and an appropriate timeframe (target date) for completion of the corrective action must be specified. Progress on implementing corrective actions (i.e. closing non-conformances) must be monitored and reported on. The implementation of corrective actions will be verified during the monthly audits.

Should it be determined that the contractor's level of compliance is unsatisfactory, all work being performed by the contractor on the project site may be stopped (at the contractor's expense) until an investigation into the reasons for the poor performance has been carried out, a corrective action plan has been developed, and corrective actions have been implemented.

In addition to the audit carried out by the Project Health and Safety Practitioner, the contractor must carry out an internal audit on a monthly basis to assess compliance with the project health and safety requirements (including the requirements of this specification and the contractor's Health and Safety Management Plan). Furthermore, the contractor must ensure that each

appointed sub-contractor is audited and measured to the same standard. Copies of these audit reports must be submitted to the Project Health and Safety Practitioner on a monthly basis.

The contractor must carry out internal health and safety inspections as follows:

- General site health and safety inspections on a daily basis; and
- Inspections of plant, tools and equipment prior to establishment or use on site, and at least monthly thereafter.

All audits and inspections must be carried out by competent persons who have been appointed in writing.

A schedule of planned audits and inspections must be compiled and maintained ensuring that:

- All work areas and all activities are covered at regular intervals;
- All applicable legal requirements are complied with; and
- Areas or activities with significant associated hazards or risks receive greater attention.

Annexure D

Environmental Management Programme

Transnet Integrated Management System (TIMS)
POLICY COMMITMENT STATEMENT

Transnet is a State-Owned Company that operates as an integrated freight transport company. It is structured around six core Operating Divisions, namely Transnet Freight Rail (TFR), Transnet Engineering (TE), Transnet National Ports Authority (TNPA), Transnet Port Terminals (TPT), Transnet Pipelines (TPL) and Transnet Property (TP) as well as the Transnet Academy, a specialised unit, a skills development provider in the transportation, freight, maritime, logistics and associated industries.

Transnet has developed and implemented a Transnet Integrated Management System (TIMS) programme, which sets out Systems, Policies, Procedures and Processes, providing a foundation and framework for conducting its core business. We are committed to **transporting freight, passengers and providing excellent customer service** to our customers along the key transport corridors. Our aim is to **competitively grow our business**, **enhance customer satisfaction** and ensure **sustainable business development** for the benefit of the South African economy.

TIMS is established, implemented, and maintained in accordance with recognised best practices that will enable us to:

- Incorporate and comply with applicable **legislation, regulations, codes, standards, protocols, best practices and customer requirements** to which we subscribe, in order to achieve our business objectives.
- Set and achieve **objectives and targets** that address significant enterprise-wide **strategic, tactical, and operational risks, opportunities and mitigate the consequences** thereof.
- Proactively implement **strategies** to prevent **environmental degradation, protect ecosystems and drive climate change mitigation and adaptation.**
- Continually promote the prudent and **sustainable** use of **energy and natural resources.**
- Provide **quality products** and **services** to meet our customers' requirements.
- Create a **safe and secure environment** for our employees and stakeholders.
- Carry out our business in a manner which **protects our assets and information** and **prevents injuries and ill health** to our employees and stakeholders.
- Promote **safe operational principles** during operations to minimise occurrences.
- Strategically **source our contractors** through fair, equitable and transparent processes.
- Provide **socio-economic development** as a good corporate citizen.
- Uphold **food safety practices** in our food preparation and handling environments.
- Ensure **proficiency and preparedness** to deal with and **effectively recover** from any **emergency situations.**
- **Develop, train and manage our employees** through inspirational leadership, providing the necessary **organisational information, knowledge and resources** to achieve the intention of this policy statement.
- Build relationships based on care, openness, mutual trust and involvement while protecting **personal and confidential information** of internal and external stakeholders. **Communicate**, **engage**, **support** and promote TIMS risk awareness culture.
- Allocate **responsibilities** and **accountabilities** to meet the requirements of the TIMS Policy Statement. Drive an **integrated assurance management programme** to ensure **continual improvement** of TIMS.

The TIMS Policy Commitment Statement shall be **reviewed every three (3) years** or **as circumstances dictate** to ensure that it remains **current and relevant**. Our progress on the achievement of the policy statement commitments shall be reported to the respective Governance Structures. Transnet Leadership, employees and stakeholders have a role to play in delivering on the commitment set out in this policy statement. The TIMS Policy Commitment Statement can be made available to external stakeholders on request.

Group Chief Executive

Date: 10/05/24

Next Review Date:

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STANDARD OPERATING PROCEDURE

CONSTRUCTION ENVIRONMENTAL MANAGEMENT

Document number	009-TCC-CLO-SUS-11386
Version number	1.0
Classification	Unclassified
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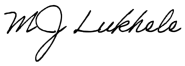
SUMMARY VERSION CONTROL

VERSION NO.	NATURE OF AMENDMENT	PAGE NO.	DATE REVISED
1.0	New Procedure		

Note: Only latest amendments and/or additions are reflected in italics in the body of the document.

DOCUMENTATION SIGN-OFF SHEET

I, the undersigned hereby approve this procedure.

ROLE	CAPACITY/ FUNCTION	SIGNATURE	DATE
Process Owner:	**Senior Specialist: Environmental Compliance and Permitting**		01/10/2023
Accepts document for adequacy and practicability. Comments:			
Sponsor:	**General Manager: Corporate Sustainability**		01/10/2023
Approves document for use. Comments:			

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1. PURPOSE

1.1 The purpose of this Standard Operating Procedure (SOP) is to define how environmental management will be practiced on any construction project under the management of Transnet to ensure that the environment is considered, negative impacts avoided or minimized, and positive impacts are optimized and/or enhanced throughout the lifecycle of the asset.

1.2 It further defines environmental management responsibilities for key stakeholders involved in the construction management process.

1.3 It must be read in conjunction with the Contractor Environmental and Sustainability Specification Guidelines (CESSG) and the Project Environmental Specification (PES) relevant to the project.

1.4 In this document, unless the context clearly indicates otherwise:

- Words importing any one gender shall include the other gender.
- The singular shall include the plural and vice versa; and
- Any reference in this document to legislation or subordinate legislation is to such legislation or subordinate legislation at the date of promulgation thereof and as amended and/or re-enacted from time to time.

2. APPLICABILITY

2.1 The SOP applies to any construction project under the management of Transnet SOC Ltd or its Construction Agent.

3. REFERENCE DOCUMENTS

Name	Applicable Section
Constitution of South Africa, Act 108 of 1996	Section 24 (a) right to an environment that is not harmful to health or wellbeing Section 24(b) (i) right to have environment protected for current and future generations through legislation and measures that prevents pollution and ecological degradation.
Capital Governance and Assurance Policy	Entire document
Capital Governance and Assurance Framework	Entire document
Capital governance and Assurance Manual	Entire document.
PLP Manual – Execution	Entire document
National Environmental Management Act, 107 of 1998	Section 2 National Environmental Management Principles (4) (viii), (e), (h), (j) and (p).
National Water Act, 36 of 1998	Section 164, Permissible Water Use Section 19
National Environmental Management: Waste Act, 58 of 2008	Part 1 15 (1) (i) and (2) Part 6 26 (10 (a) and (b) Scheduled 3, Defined Wastes Category B: Hazardous Wastes Part 8: Contaminated Land
Environment Conservation Act, 73 of 1989	Section 20
Occupational Health and Safety Act, 85 of 1993	Asbestos Regulations, 2001 Government Notice R155 in Government Gazette 23108 of February 2002

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Name	Applicable Section
	General Safety Regulations-Reg. 2 (2) PPE
GNR 326, 7 April 2017 as amended, EIA Regulations	Chapter 15
Integrated Management System – Policy Statement Procedure (TRN-IMS-GRP-PROC-002)	Whole document
Integrated Management System – Competency, Awareness and Training Procedure	Whole document
Integrated Management System[1] – Document, Data and Record Management Procedure (TRN-IMS-GRP-PROC-010)	Whole document
Integrated Management System – Occurrence and Non-Conformance Management Procedure (TRN-IMS-GRP-PROC-013)	Whole document
Transnet Environmental Risk Management Strategy and Framework	2015:42
Environmental Management Systems ISO 14001: 2015	Clause 5, 6, 7, 8, 9 and 10

[1] Management of certain documents, data and records will be in accordance with NEC3 – Engineering and Construction Contract prescripts

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4. DEFINITIONS AND ABBREVIATIONS

4.1 DEFINITIONS

Compliance	The action or fact of complying with legislation or regulations.
Conformance	The action or fact of conforming to this standard and other internal Transnet policies, procedures, guidelines and best practice.
Contractor	The **Principal Contractor** as engaged by Transnet for infrastructure construction operations, including all sub-contractors appointed by the main contractor of his own volition for the execution of parts of the construction operations; and any other contractor from time to time engaged by Transnet directly in connection with any part of the construction operations which is not a nominated sub-contractor to the Principal Contractor.
Contractor Environmental and Sustainability Specification Guidelines (CESSG)	A set of minimum environmental standards for all Transnet SOC Ltd-managed construction sites.
Corrective Action	It is generally a reactive process used to address problems after they have occurred. Corrective action may be triggered by a variety of events, e.g. Non-conformance to documented procedures and work instructions, non-conformances raised through internal audits, unacceptable monitoring and measurement results, internal & external SHEQ complaints, etc.
Emergency	Sudden unforeseen event needing immediate or prompt action.

Environment	Surroundings in which the Contractor operates, including air, water, land, natural resources, flora, fauna, humans and their interrelations.
Environmental Aspect	Element of an organization's activities or products or services that interacts or can interact with the environment
Environmental Authorisation (EA)	Environmental Authorisation is the authorisation granted by a competent authority of a listed activity or specified activity in terms of National Environmental Management Act 107 of 1998 (as amended).
Environmental Impact	Change to the environment whether adverse or beneficial, wholly or partially resulting from an organization's environmental aspects
Environmental Management Plan (EMP)	A plan generated by the Contractor describing the relevant roles and responsibilities and how potential environmental risks will be assessed and managed including the monitoring and recording thereof.
Environmental Management Programme (EMPr)	A programme that has been approved by the Competent Authority in terms of NEMA, 107 of 1998 stipulating information on any proposed management, mitigation, protection or remedial measures that will be undertaken to address the environmental impacts that have been identified
Environmental Risk	The product of the likelihood and severity of an unforeseen occurrence/incident/aspect and the impact it would have, if realised, on the environment

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Incident/Occurrence	An undesired event occurring at work that results in physical harm to a person or death, or damage to the environment, plant and/or equipment, and/or loss of production.
Non-conformance	An action or situation that does not conform to Transnet's SHEQ standards, procedures or legislative requirement(s) and that can be, or lead to, an unacceptable SHEQ incident.
Non-compliance	Contravention to environmental legislative requirements.
Project Environmental Specification (PES)	Describes standards specific to a particular project. Variations and additions to the MESC are set out in this PES. These would include the EA issued to the project or elements generally drawn from the EA or permits for that project or from specific requirements set by the Transnet Operating Divisions. The PES may also require a more stringent standard to that described in the MESC if required by the EA or a particular industry code to which Transnet subscribes including any environmental constraints at a construction site.
Sub -Contractor	A person or organisation who has a contract with the contractor to - Construct or install part of the contractors work. - Provide a service necessary to provide the works; or - Supply plant and materials which the person or organisation has wholly or partly designed specifically for the works.

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4.2 ABBREVIATIONS

Acronym	Meaning in Full
CESSG	Contractor Environmental and Sustainability Specification Guidelines
CM	Construction Manager
CV	Curriculum Vitae
CEM	Construction Environmental Management
DFFE	Department of Forestry, Fisheries and the Environment
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
ECO	Environmental Control Officer
EO	Environmental Officer
EMI	Environmental Management Inspectorate
NCR	Non-conformance Report
NEMA	National Environmental Management Act 107 of 1998 (as amended)
PER	Project Environmental Resource
PES	Project Environmental Specification
PLP	Project Life-cycle Process
PM	Project Manager

Acronym	Meaning in Full
SAHRA	South African Heritage Resources Agency
SOP	Standard Operating Procedure
SHEQ	Safety, Health, Environment and Quality
Transnet	Transnet SOC Ltd

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5. ACCOUNTABILITY, RESPONSIBILITY AND AUTHORITY

5.1 Transnet Procurement Department

5.1.1 Ensures that this SOP (and relevant associated environmental specifications) is included in any construction-related request whether open market, quotation or confinement process.

5.1.2 The Procurement Department shall further ensure that the relevant environmental personnel are consulted during tender review, tender evaluation and contract award.

5. Transnet Project Manager (PM)

5.2.1 Takes overall accountability for the project including ensuring that this SOP is implemented by all relevant stakeholders.

5.2.2 The specific tasks during construction will include:

- Appointment of the Transnet Environmental Resource/s;
- Certifying site access to the Contractor;
- Giving instructions to the Contractor on recommendation from the Transnet Environmental Resource/s (e.g. defects, non-conformances etc.); and
- Certifying site closure to the Contractor.

5.3 Transnet Project Environmental Resource

5.3.1 The Transnet Project Environmental Resource (PER) will be responsible for ensuring that this SOP and associated specifications or requirements are complied with. The Transnet PER will report functionally to the relevant PM.

5.3.2 The specific tasks will include:

- Preparation of the PES;
- Tender evaluation, development of environmental criteria and adjudication thereof;
- Liaison with the relevant environmental Competent Authorities;

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- Review and approve site layout plan including any subsequent revisions thereof;
- Environmental Induction of Contractor's staff;
- Generate an inspection checklist prior to construction commencement;
- Review and Sign off Method Statements prepared by Contractor;
- Prepare environmental monitoring protocols/checklists to be used during construction;
- Prepare monthly conformance audit reports, including sign-off on Monthly Inspection Reports;
- Conduct monthly observation & inspections of all work places based on the approved inspection checklist;
- Audit conformance to Method Statements;
- Monitor the Contractor's compliance with this SOP and any other environmental requirements relevant to the site;
- Develop an Audit Finding and Close out Register that documents all audit findings, close out actions and the time frame allowed for in order to close the finding/s;
- Ensure that all environmental monitoring programmes (sampling, measuring, recording etc. when specified) are carried out according to protocols and schedules;
- Measurement of completed work (e.g. areas top soiled, re-vegetated, stabilised etc.);
- Attendance at scheduled SHE meetings, as and when required, and project coordination meetings;
- Ensure that site documentation (permits, licenses, EA, EMPr, SOP-CEM, method statements, audit reports, waste disposal slips etc.) related to environmental management is maintained on the relevant Document Control System;
- Inspect and report on environmental incidents and check corrective action;
- Keep a photographic record of all environmental incidents;

- Environmental incident management as required by Transnet policies and procedures;
- Implementation of environmental-related actions arising out of the minutes from scheduled meetings;
- Management of complaints register;
- Conduct any environmental incident investigations;
- Coordinate and/or facilitate any environmental monitoring programmes e.g. EMI Inspections, ECO Audits, Transnet Environmental Assurance Audits etc.
- Collate information received, including monitoring results into a monthly report that is supported with photographic records to the Transnet CM and Transnet PM showing progress against targets; and
- Report environmental performance of the project on a monthly basis through relevant governance channels.

5.3.3 The tasks stipulated above may be conducted by one or more Project Environmental Resource, depending on the scale, complexity and sensitivity of the environment. Discretion to be taken by the Environment Lead within the area of control of the project site.

5.4 Transnet Construction Manager (CM)

5.4.1 The Transnet Construction Manager (CM) has overall responsibility for environmental management on site and reports to the Transnet PM. The Transnet CM is supported by the Transnet PER.

5.4.2 The specific tasks during the construction stage will include:

- Reviewing the monthly reports compiled by the Transnet PER;
- Approving method statements prepared by the Contractor;
- Communicating directly with the Contractor on environmental issues observed on-site; and
- Escalating any relevant environmental matters to the Transnet PM.

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5.6 Environmental Control Officer

5.6.1 The Environmental Control Officer is an independent person legally appointed to monitor compliance of construction related activities with the conditions of the Environmental Authorisation. The ECO fulfils an autonomous role and submits reports to the Competent Authority at timeframes specified in the Environmental Authorisation.

5.6.2 The Environmental Control Officer will conduct the following tasks:

- Monitors compliance to the conditions of the EA, Environmental Management Programme (EMPr) and can include permits and licences applicable to a project;
- Attends project meetings as and when required;
- Conducts audits at a frequency stipulated on the EA/EMPr; and
- Compiles audit reports and submits them to relevant authorities.

5.7 Contractor's Environmental Officer

5.7.1 The Contractor's Environmental Officer (EO) must ensure implementation of the requirements of this SOP on site.

5.7.2 The Contractor's EO will liaise with the Transnet PER on site. It will be the responsibility of the Contractor's EO to ensure that all work is conducted according to the approved Method Statements and that the Contractor team's roles and responsibilities as set out in this document are fulfilled.

5.7.3 The Contractor EO's tasks will include:

- Developing an appropriate environmental file for approval by the Transnet PER prior to site access, including but not necessarily limited to (the environmental file must always be available and up to date on the construction site):
  - All environmental documents provided by Transnet in the tender e.g. policies, SOPs, standards, environmental approvals;



- Contractors commitments to comply with this SOP and associated documents as signed during tender;
- The Contractor's EMP;
- His/her CV;
- An organogram indicating reporting lines of all Contractor's staff (with names included);
- Contact Information for: the overall responsible person acting on behalf of the Contractor to execute the construction works; Contractor's CM; Contractor's EO; all relevant emergency personnel;
- A list of the Contractor's plant and equipment indicating a description of the plant/equipment, its fuel capacity, any hazardous components (oils, greases etc.), individual service/maintenance cycles and noise levels;
- A list of hazardous substances to be used during construction indicating: official substance name from Material Safety Data Sheet (MSDS); quantity on site; storage method; transport method to site; period to be used on site (all substances listed must have an MSDS on site in the environmental file);
- Site Layout Plan indicating but not necessarily limited to, access roads, site offices, material laydown areas, stockpile areas and parking areas, waste and effluent storage and handling facilities, entire construction footprint, no-go-areas, sewage and sanitary facilities. The plan must be appropriately drawn on a computer and must be clearly visible and properly scaled;
- A site establishment method statement (for more details on what method statements should entail the Contractor must refer to the Minimum Requirements for Construction Environmental Management)

- Conducting an activity-based environmental risk assessment based on the Contractor's scope of work;
- Agreeing on an appropriate inspection schedule with the Transnet PER (either daily or weekly);



- Ensuring that all required Contractor staff attends the environmental induction to be given by the Transnet PER (any Contractor's staff, sub-contractors or visitors to site must subsequently be inducted by the Contractor's EO);
- Inspection of the work area(s) as per schedule or authorised through written instruction by Transnet PER;
- Preparing activity-based Method Statements that indicate how environmental risks will be managed on site OR ensuring that the necessary environmental information is included in the Contractor's method statements (all method statements must be maintained in the Contractor's Environmental File);
- Identify local, provincial and national environmental legislation that applies to the Contractor's activities;
- Conduct ongoing Environmental Awareness Training of the Contractor's site personnel;
- Reporting, investigating and recording of any environmental incidents caused by the Contractor or due to the Contractor's activities, including their sub-contractors and visitors;
- Close out of environmental incidents;
- Attendance at all SHE meetings and induction programmes, and toolbox talks where required
- Monitor Waste Management;
- Monitor Water Management;
- Monitor Energy Management;
- Ensure that environmental signage and barriers are correctly placed;
- Taking required corrective action within specified time frame and close out of non-conformances; and
- Maintain site documentation related to environmental management on site.

5.7.4 The Contractor's EO will be expected to submit reports to the Transnet PER on a daily/weekly basis.

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5.8 The Contractor

5.8.1 The Contractor shall comply with the requirements of this SOP and abide by the Transnet PM's instructions regarding the implementation of this SOP.

5.8.2 The Contractor must confirm that he will conform to the requirements of this SOP and any other documents provided to him by Transnet during tender.

5.8.3 The Contractor must recommend a suitably qualified, competent person to fulfill the role of the Contractor's EO at tender and if accepted by Transnet this person must be appointed when the Contract is awarded for the duration of construction. Should this person be replaced for whatever reason, the Contractor shall ensure that a person of similar qualification and competency is appointed in his/her place before the previous incumbent vacates his/her position.

5.8.4 The Contractor must obtain any relevant environmental approvals required by his activities that have not been obtained by Transnet e.g. permits for the destruction of protected plant species; grave relocation permits etc.

5.8.5 The Contractor shall have overall accountability for environmental compliance on site and will be held liable for any non-compliance with environmental statutes or non-conformances with this SOP due to his negligence.

5.9 Reporting Lines

5.9.1 The organisational structure identifies and defines the responsibilities and authority of the various entities involved in the project. All instructions and official communications regarding environmental matters will follow the organisational structure shown in Figure 1.

5.9.2 All instructions that relate to the SOP will still be given to the Contractor via the Transnet PM. In an emergency situation, however, the Transnet PER may give an instruction directly to the Contractor. Environmental Management of the site will be an item on the agenda of the monthly site meetings, and the Transnet PER will attend these meetings on request by the contractor. If at any time the Transnet

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PM is uncertain in any way with respect to an environmentally related issue or specification in the SOP, he will consult with the Transnet PER .

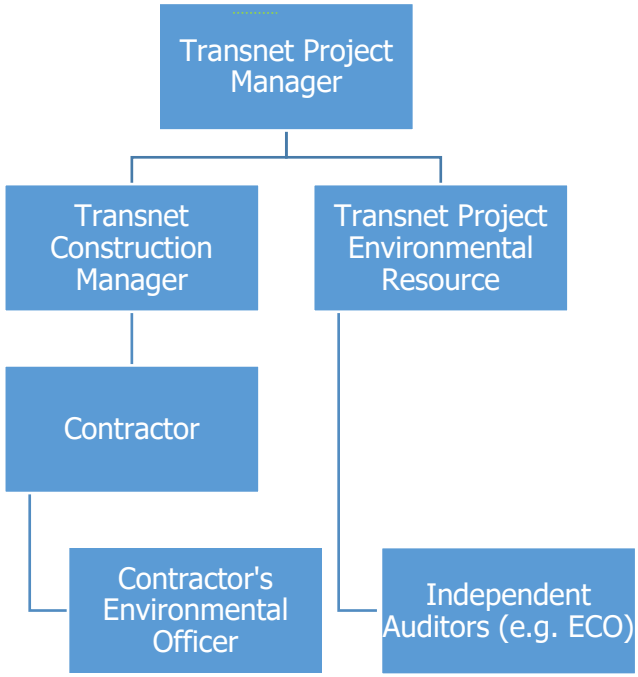


Figure 1: Typical Transnet Organogram for Construction Environmental Management[2]

6. STANDARD OPERATING PROCEDURE

6.1 Tender Stage (prior to Contract Award)

- The Transnet PM appoints or assign a Project Environmental Resource/s[3].
- The Transnet PER requests the draft tender from the Transnet Procurement Department
- Transnet Procurement routes the draft tender to the Transnet PER

[2] Structure dependent on OD own structure and organizational operating model

[3] Project complexity will determine the final environmental management structure on the project.

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- The Transnet PER ensures the tender includes all relevant environmental documents and signs the routing slip.
- The Transnet Procurement Department issues the tender to prospective Contractor(s).
- The Contractor submits his bid which MUST include: a commitment to conform to this SOP signed by the duly delegated person; recommendation of a suitably qualified, competent person to fulfill the role of the Contractor's EO; Environmental Policy; and EMP
- After submission the Transnet Procurement Department will invite the Transnet PER to evaluate tender submissions (environmental section);
- The Transnet PER evaluates the prospective Contractor's environmental submission.
- The Contract is awarded to the successful bidder.

6.2 Construction Stage (prior to Site Access)

- The Contractor appoints the Contractor's Environmental Officer (EO) accepted by Transnet SOC Ltd.
- The Contractor provides his EO with all documents submitted during tender, including but not necessarily limited to:
  - All environmental documents provided by Transnet in the tender e.g. policies, SOPs, standards, environmental approvals etc;
  - commitment to conform to this SOP; and
  - The EMP.
- The Contractor's EO conducts an activity-based environmental risk assessment;
- The Contractor's EO develops an appropriate environmental file for approval by the Transnet PER, including but not necessarily limited to all the documents specified in Section 5.7 above (the environmental file must always be available and up to date on the construction site);
- The Contractor's EO submits the environmental file for acceptance to the Transnet PER;



- Once accepted, the Transnet PER recommends that site access be granted to the Transnet PM; and
- The Transnet PM issues the Contractor with a Site Access Certificate

6.3 Construction Stage (post Site Access)

- The Transnet PER inducts all Contractor's staff on the environmental requirements of the site;
- The Transnet PER has an inception meeting with the Contractor's EO on site where the following is agreed:
  - The contents of the contractor's environmental file (in addition to what was approved prior to granting site access). This will include but not necessarily be limited to: a list of interested and affected parties that may be impacted by construction e.g. surrounding landowners, nearby communities etc.; energy consumption information; water use information; environmental induction and awareness information; activity-based environmental method statements; complaints records; record of external communications; environmental incident reports; minutes of contractors environmental meetings.
  - The composition of the Project Environmental Specification (PES) and how it will be implemented. This will include but may not necessarily be limited to: Environmental Approvals (e.g. Environmental Authorisations, Water Use Licenses, Waste Management Licences, Atmospheric Emissions Licences etc.); Environmental Management Programmes/Plans approved by external parties/authorities; and any third party auditors/monitoring specialists (e.g. Environmental Control Officers; Independent Auditors; Transnet Environmental Assurance Specialists; Water Quality Monitoring experts etc.) that have a bearing on the contractor's scope of work.
  - The frequency of inspections to be conducted by the Contractor's EO (e.g. daily, weekly etc.)
  - The frequency of inspections to be conducted by the Transnet PER (e.g. daily, weekly and/or monthly). Notwithstanding that the frequency of



Transnet PER inspections will be agreed, the Contractor may never refuse the Transnet PER

- The format used and elements to be checked during Contractor's inspections
- Reporting frequency and requirements
- The process to be followed in handling Environmental Occurrences and – Non-conformances

- **Note:** All the aforementioned agreements will be formalized in the form of minutes which the Transnet - and Contractor's EO must sign and must subsequently be approved by the Transnet Project Environmental Resource.
- The Transnet PER reviews the Contractor's activity-based environmental risk assessment and instructs the Contractor's EO to submit activity-based method statements for construction activities that may pose an environmental risk (for more details on what method statements should entail the Contractor must refer to the Minimum Environmental Requirements for Construction). Only once a method statement has been approved by the Transnet PER and Transnet CM and ECO (where relevant) may the Contractor execute the relevant activity.
- The Contractor's EO submits the method statements to the Transnet PER for approval (these must also be approved by the Transnet CM);
- The Transnet PER compiles a site audit checklist (covering all environmental compliance and conformance requirements) for approval by the Transnet Project Environmental Manager
- Whilst the Contractor executes the work in terms of the requirements of the Contract, the Contractor's EO and Transnet PER execute their monitoring functions as per this SOP and other monitoring stakeholders/auditors as per the PES.
- The Transnet PER shall submit monthly reports to the Transnet CM and PM indicating the following:
  - Date of the inspection(s);
  - Details and expertise of the Transnet PER;



- Scope and purpose for which the report was prepared;
- Description of the methodology used during the inspection and report compilation;
- Compliance and/or conformance status of all relevant/individual elements as per the inspection checklist culminating in an overall compliance/conformance percentage for the project;
- Assumptions;
- Description of consultation processes undertaken during the inspection(s) with a summary and associated records of such consultations;
- Environmental incidents and non-conformances;
- Photos of pertinent construction and environmental matters that occurred on site;
- Water abstracted/withdrawn during the month (in kiloliters) as well as an indication of the source;
- Water recycled and/or reused during the month (in kiloliters);
- Waste water discharged (in kiloliters);
- Waste (both general and hazardous) disposed (in tonnages) with an indication of waste type;
- Waste recycled (in tonnages);
- Alien invasive species eradicated (in hectares);
- Number of listed species safely relocated;
- Environmental Fines, Non-Compliances or Directives issues by authorities;
- Any NEMA Section 30 or NWA Section 19 incidents;
- Environmental Grievances;
- Rehabilitated Land (in hectares);
- Number of graves and/or heritage artifacts moved;
- Energy consumption for the project [Electricity(kWh); Gas (GJ); Oil(l); Diesel(l); Petrol(l); LPG(GJ)];
- Status of previous findings and/or observations; and
- Recommendations for improvement.

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6.4 Post Construction

- The Contractor's EO submits a rehabilitation and site closure method statement for approval by the Transnet PER and Transnet CM.
- Once approved, the Contractor implements the rehabilitation method statement accordingly.
- The Contractor's EO submits a site close-out report for acceptance by the Transnet PER and CM.
- Post rehabilitation, the Transnet PER conducts a site closure inspection to ensure all requirements of the rehabilitation method statement have been met.
- Once rehabilitation has been accepted by the Transnet PER, the Contractor's EO sends the Transnet PER a copy of the entire environmental file (original to be handed over to Transnet as per document handover requirements of the Contract).
- On receipt of the environmental file, the Transnet PER recommends that a site closure certificate can be issued to the Transnet PM.
- The Transnet PM issues the Contractor with a Site Closure Certificate.

7. RECORDS

7.1 The responsibility for maintaining all records required by this SOP shall rest with the Contractor's EO; Transnet PER as specified below:

Record	Maintained By
1. Transnet PER Appointment Letter	Transnet PER
2. Signed Tender Routing Slip	Transnet PER
3. Contractor's Confirmation to conform to this CEM SOP	Transnet PER; Contractor's EO
4. Recommendation of Contractor's EO	Transnet PER

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Record	Maintained By
5. Contractor's Environmental Policy	Transnet PER; Contractor's EO
6. Contractor's Environmental Management Plan	Transnet PER; Contractor's EO
7. Tender Evaluation Records from Transnet PER	Transnet PER
8. Contract	Transnet PER
9. Contractor EO's Appointment Letter and CV	Transnet PER
10. Activity-Based Environmental Risk Assessment	Transnet PER; Contractor's EO
11. Contractor's Organogram	Transnet PER; Contractor's EO
12. Contractor's Contact Information	Transnet PER; Contractor's EO
13. List of Contractor's Plant and Equipment	Contractor's EO
14. List of Hazardous Substances used by Contractor	Contractor's EO
15. Material Safety Data Sheets	Contractor's EO
16. Site Layout Plan	Transnet PER; Contractor's EO
17. Site Establishment Method Statement	Transnet PER; Contractor's EO
18. Minutes of Transnet PER – Contractor's EO Inception Meeting	Transnet PER; Contractor's EO
19. Environmental Induction Attendance Register (including material used during induction)	Transnet PER; Contractor's EO
20. Activity-based Method Statements	Transnet PER; Contractor's EO

Record	Maintained By
21. Contractor's Inspection Reports	Transnet PER; Contractor's EO
22. Transnet PER Inspection Reports	Transnet PER
23. List of Local, Provincial and National Environmental legislation applicable to the site	Contractor's EO
24. Environmental Awareness Attendance Registers (including material used)	Contractor's EO
25. Environmental Incident Reports	Transnet PER; Contractor's EO
26. Minutes of SHE Meetings	Transnet PER; Contractor's EO
27. Waste Records	Transnet PER; Contractor's EO
28. Water Records	Transnet PER; Contractor's EO
29. Energy Records	Transnet PER; Contractor's EO
30. Non-Conformance Records	Transnet PER; Contractor's EO
31. Approval of Contractor's Environmental File	Transnet PER
32. Site Access Certificate	Transnet PER
33. Approved Transnet PER Checklist	Transnet PER
34. Transnet Monthly PER Reports	Transnet PER
35. Rehabilitation Method Statement	Transnet PER; Contractor's EO
36. Contractor's Site Close-Out Report	Transnet PER; Contractor's EO
37. Transnet PER Site Closure Report	Transnet PER
38. Contractor's Environmental File Handover Transmittal	Transnet PER; Contractor's EO
39. Site Closure Certificate	Transnet PER

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8. ANNEXURES

8.1 List of Construction Environmental Management Templates, Forms and Guidelines

8.2 009-TCC-CLO-SUS-TMP-11386.22 - Construction Environmental Management File Index

8.3 009-TCC-CLO-SUS-TMP-11386.23 - *Construction Environmental Management Process Flow*

Annexure 8.1 List of Construction Environmental Management Templates, Forms and Guidelines

No	Item Description	Document No
1.	Construction Environmental Management File Index	009-TCC-CLO-SUS-TMP-11386.1
2.	Project Environmental Specification (PES)	009-TCC-CLO-SUS-TMP-11386.2
3.	Declaration of Understanding (Signed)	009-TCC-CLO-SUS-TMP-11386.3
4.	Contractor's Information	009-TCC-CLO-SUS-TMP-11386.4
5.	Appointment of Contractors EO and Declaration of Understanding (Including CV and Job Profile)	009-TCC-CLO-SUS-TMP-11386.5
6.	Schedule of Contractor's Construction Plant and Equipment	009-TCC-CLO-SUS-TMP-11386.6
7.	Hazardous Substances Register	009-TCC-CLO-SUS-TMP-11386.7
8.	Emergency Contacts Register	009-TCC-CLO-SUS-TMP-11386.8
9.	Energy Consumption Register	009-TCC-CLO-SUS-TMP-11386.9
10.	Water Usage Register	009-TCC-CLO-SUS-TMP-11386.10
11.	Project Start-Up Checklist	009-TCC-CLO-SUS-TMP-11386.11
12.	Site Access Certificate	009-TCC-CLO-SUS-TMP-11386.12
13.	Method Statement Register	009-TCC-CLO-SUS-TMP-11386.13
14.	Method Statements	009-TCC-CLO-SUS-TMP-11386.14
15.	Waste Disposal Register	009-TCC-CLO-SUS-TMP-11386.15
16.	Daily Inspection Checklist	009-TCC-CLO-SUS-TMP-11386.16
17.	Weekly Inspection Checklist	009-TCC-CLO-SUS-TMP-11386.17
18.	Monthly Inspection Checklist	009-TCC-CLO-SUS-TMP-11386.18

No	Item Description	Document No
19.	Public Complaints Register	009-TCC-CLO-SUS-TMP-11386.19
20.	Application for Exemption	009-TCC-CLO-SUS-TMP-11386.20
21.	Site Closure Certificate	009-TCC-CLO-SUS-TMP-11386.21
22.	Contractor's Environmental Management File Handover	009-TCC-CLO-SUS-TMP-11386.22
23.	Basic Environmental Rules for Visitors	009-TCC-CLO-SUS-GDL-11386.23
24.	Basic Environmental Rules for Contractors	009-TCC-CLO-SUS-GDL-11386.24
25.	Basic Site Procedure	009-TCC-CLO-SUS-GDL-11386.25
26.	Contractor Environmental and Sustainability Specification Guidelines (CESSG)	TRN-IMS-GRP-GDL-014.04

Annexure 8.2 Construction Environmental Management File Index

No	Item Description	Document No
1	Transnet Integrated management System (TIMS) Policy Statement	-
2.1	Standard Operating Procedure (SOP) - Construction Environmental Management (CEM)	009-TCC-CLO-SUS-11386
2.2	Environmental and Sustainability Specification Guidelines	TRN-IMS-GRP-GDL-014.04
3	Project Environmental Specification (PES)	009-TCC-CLO-SUS-TMP-11386.2
4	Declaration of Understanding (Signed)	009-TCC-CLO-SUS-TMP-11386.3
5.1	Contractor's Information	009-TCC-CLO-SUS-TMP-11386.4
5.2	Contractor's Environmental Policy	-
5.3	Contractor's Organogram	-
5.4	Contractor's Environmental Management Plan	-
5.5	Appointment of Contractors EO and Declaration of Understanding (Including CV and Job Profile)	009-TCC-CLO-SUS-TMP-11386.5
6	Schedule of Contractor's Construction Plant and Equipment	009-TCC-CLO-SUS-TMP-11386.6
7	Hazardous Substances Register	009-TCC-CLO-SUS-TMP-11386.7
8	Emergency Contacts Register	009-TCC-CLO-SUS-TMP-11386.8
9	Energy Consumption Register	009-TCC-CLO-SUS-TMP-11386.9
10	Water Usage Register	009-TCC-CLO-SUS-TMP-11386.10
11	Training Attendance Register	TIMS Procedure
12	Project Start-Up Checklist	009-TCC-CLO-SUS-TMP-11386.11
13	Site Access Certificate	009-TCC-CLO-SUS-TMP-11386.12
14	Method Statement Register	009-TCC-CLO-SUS-TMP-11386.13

No	Item Description	Document No
15	Method Statements	009-TCC-CLO-SUS-TMP-11386.14
16	Waste Disposal Register	009-TCC-CLO-SUS-TMP-11386.15
17.1	Daily Inspection Checklist	009-TCC-CLO-SUS-TMP-11386.16
17.2	Weekly Inspection Checklist	009-TCC-CLO-SUS-TMP-11386.17
17.3	Monthly Inspection Checklist	009-TCC-CLO-SUS-TMP-11386.18
17.4	Environmental Inspection Findings Close-out Register	TIMS Procedure
18	Public Complaints Register	009-TCC-CLO-SUS-TMP-11386.19
19	Occurrence Register	TIMS Procedure
20	Transnet Occurrence Notification Report	TIMS Procedure
21.1	Environmental Occurrence Technical Form	TIMS Procedure
21.2	On-site Investigation Form – Incident Commander Report	TIMS Procedure
21.3	Investigation Form Report for Level 3 & 4 Occurrences	TIMS Procedure
21.4	Incident Commander Appointment Letter	TIMS Procedure
22	Non-Conformance Register	TIMS Procedure
23	Non-Conformance Report Form	TIMS Procedure
24	Non-Compliance Stop Certificate	TIMS Procedure
25	Application for Exemption	009-TCC-CLO-SUS-TMP-11386.20
26.1	Site Closure Inspection Form	TIMS Procedure
26.2	Site Closure Certificate	009-TCC-CLO-SUS-TMP-11386.21
26	Contractor's Environmental Management File Handover	009-TCC-CLO-SUS-TMP-11386.22

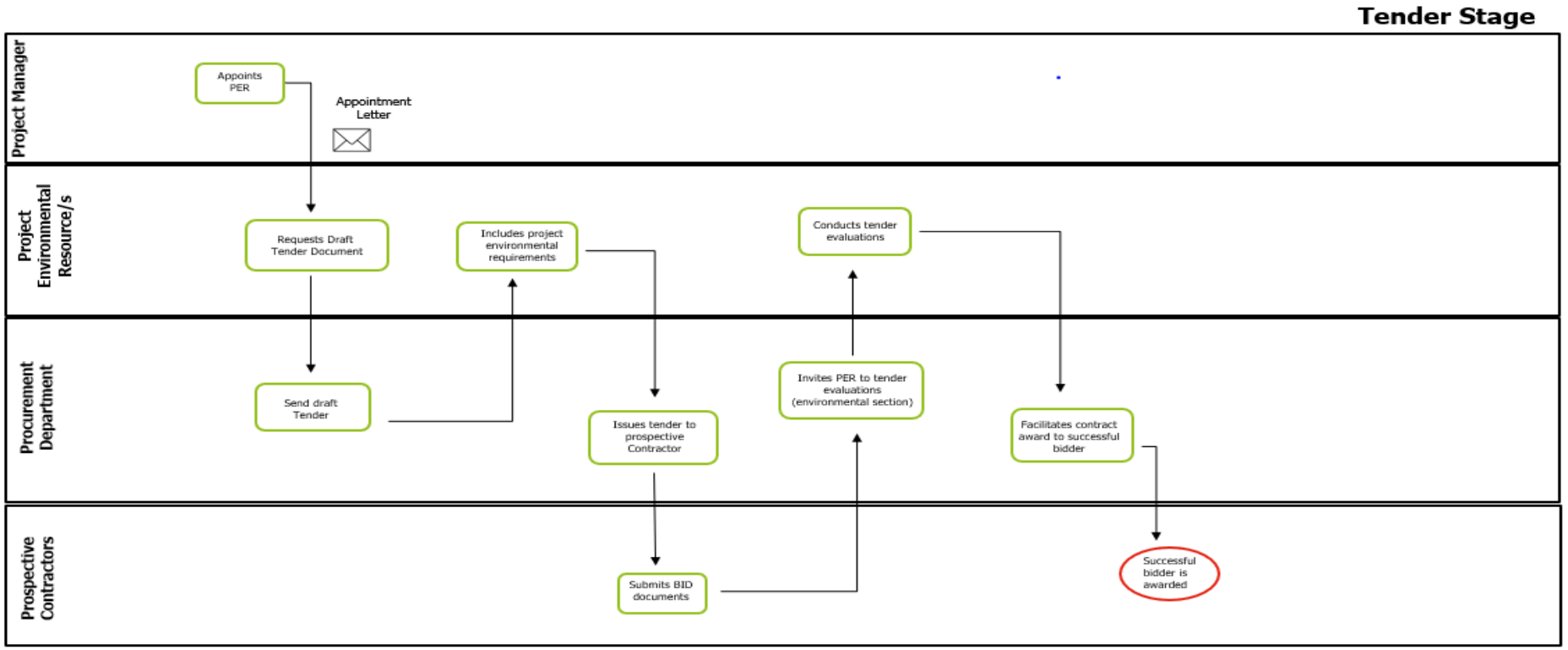
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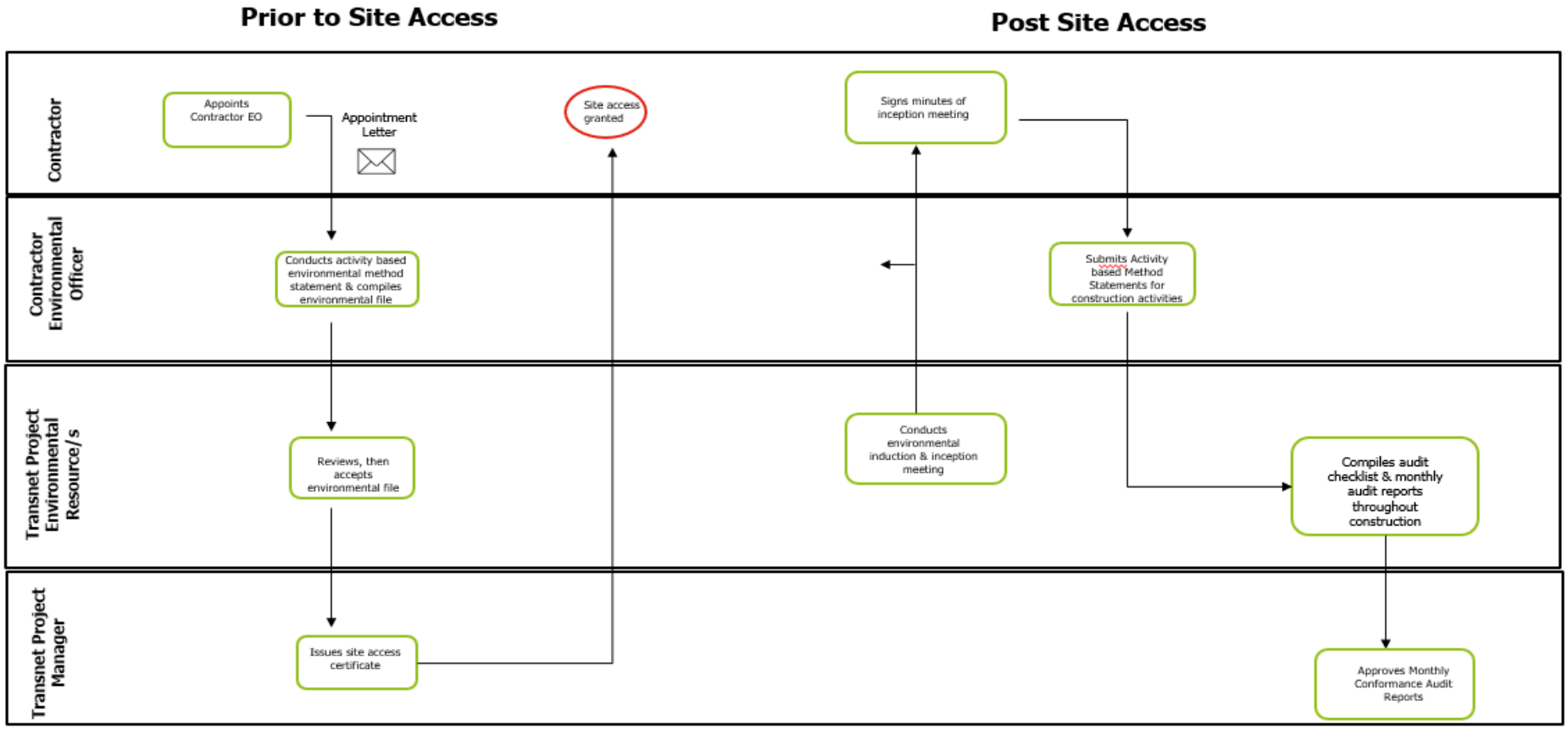
No	Item Description	Document No
27.1	Basic Environmental Rules for Visitors	009-TCC-CLO-SUS-GDL-11386.23
27.2	Basic Environmental Rules for Contractors	009-TCC-CLO-SUS-GDL-11386.24
27.3	Basic Site Procedure	009-TCC-CLO-SUS-GDL-11386.25

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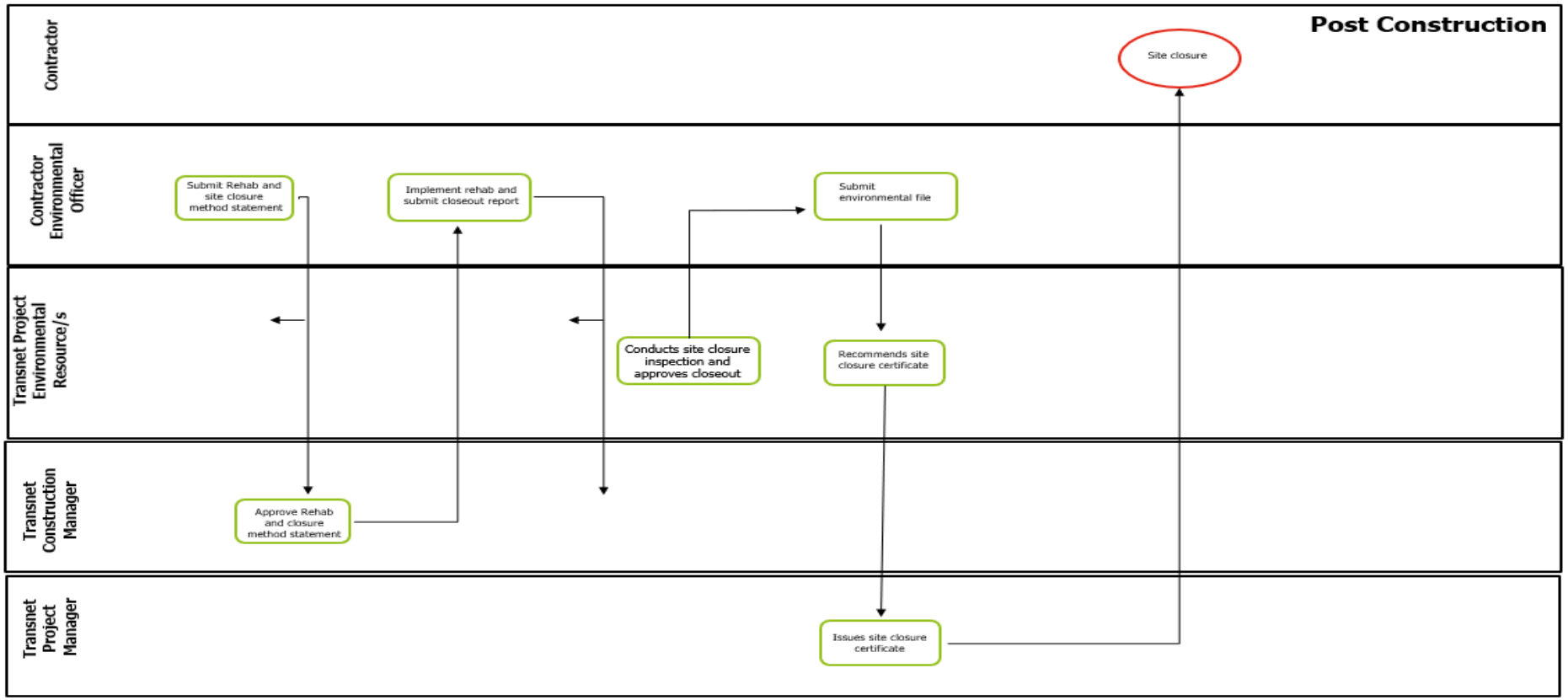
Annexure 8.3 Construction Environmental Management Process Flow





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Post Construction
Contractor
Site closure
Contractor Environmental Officer
Submit Rehab and site closure method statement
Implement rehab and submit closeout report
Submit environmental file
Transnet Project Environmental Resource/s
Conducts site closure inspection and approves closeout
Recommends site closure certificate
Transnet Construction Manager
Approve Rehab and closure method statement
Transnet Project Manager
Issues site closure certificate

CONTRACTOR ENVIRONMENTAL AND SUSTAINABILITY SPECIFICATION GUIDELINES

Document number	TRN-IMS-GRP-GDL-014.4
Version number	3.0
Classification	Unclassified
Effective date	01 October 2023
Review date	30 September 2028

SUMMARY VERSION CONTROL

VERSION NO.	NATURE OF AMENDMENT	PAGE NO.	DATE REVISED
3.0	• Addition of reference documents (section 3) • Inclusion of additional definitions • Removal of DEA and replacing it with DFFE • Removal of Transnet EO and replacing with Transnet Environmental Resource (PER) • Inclusion of additional abbreviations • Inclusion of minimum environmental requirements for construction (section 5) • Inclusion of details of site inspections/audits (table 1) • Inclusion of Records Management	6-7 7-10 11 12 12-23 23 45	June 2023

Note: Only latest amendments and/or additions are reflected in italics in the body of the document.

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DOCUMENTATION SIGN-OFF SHEET

I, the undersigned hereby approve this procedure.

ROLE	CAPACITY/ FUNCTION	SIGNATURE	DATE
Process Owner:	**Senior Specialist: Environmental Risk and Compliance**		01/10/2023
Accepts document for adequacy and practicability. Comments:			
Approval Committee:	**GM: Corporate Sustainability**		01/10/2023
Approves document for use. Comments:			

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1. PURPOSE

This document describes the minimum requirements for environmental management to which Contractors must comply. This document must be read in conjunction with the Transnet Construction Environmental Management Standard Operating Procedure (CEM SOP).

In this document, unless the context clearly indicates otherwise:

- Words importing any one gender shall include the other gender;
- The singular shall include the plural and vice versa; and
- Any reference in this document to legislation or subordinate legislation is to such legislation or subordinate legislation at the date of promulgation thereof and as amended and/or re-enacted from time to time.

2. APPLICABILITY

This standard applies to Contractors that work on site under the authority of Transnet SOC Ltd.

3. REFERENCE DOCUMENTS

Name	Applicable Section
Constitution of South Africa, Act 108 of 1996	Section 24
National Environmental Management Act, 107 of 1998	Section 2 National Environmental Management Principles
National Water Act, 36 of 1998	Section 164, Permissible Water Use
National Environmental Management: Waste Act, 58 of 2008	Part 1 15 (1) (i) and (2) Part 6 26 (10 (a) and (b) Schedule 3, Defined Wastes Category A: Hazardous Wastes Part 8: Contaminated Land
Environment Conservation Act, 73 of 1989	Section 20
Occupational Health and Safety Act, 85 of 1993	Asbestos Regulations, 2001

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Name	Applicable Section
	Government Notice R155 in Government Gazette 23108 of February 2002 General Safety Regulations-Reg. 2 (2) PPE
GNR 326, 7 April 2017 as amended, EIA Regulations	Chapter 15, Appendix 4
Transnet Environmental Risk Management strategy and Framework	2015:42
Environmental Management Systems ISO 14001: 2015	Clause 5, 6, 7, 8, 9 and 10

4. DEFINITIONS AND ABBREVIATIONS

4.1 Definitions

Compliance — Meeting of all the organization's regulatory requirements

Conformance — The action or fact of conforming to this standard and other internal Transnet policies, procedures, guidelines and best practice.

Construction Environmental Management Standard Operating Procedure — Is a document which is used to define how environmental management will be practiced on any construction site under the management of Transnet to ensure that the environment is considered, negative impacts avoided or minimized, and positive impacts are enhanced.

Contractor — The Principal Contractor as engaged by Transnet for infrastructure construction operations, including all sub-contractors appointed by the main contractor of his own volition for the execution of parts of the construction operations; and any other contractor from time to time engaged by Transnet directly in connection with any part of the construction operations which is not a nominated sub-contractor to the Principal Contractor.

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Contractor Environmental and Sustainability Specification Guidelines	A set of minimum environmental standards for all Transnet SOC Ltd-managed construction sites.
Environmental Aspect	Element of an organization's activities or products or services that interacts or can interact with the environment.
Environmental Impact	Change to the environment whether adverse or beneficial, wholly or partially resulting from an organization's environmental aspects.
Environmental Risk	The product of the likelihood and severity of an unforeseen occurrence/incident/aspect and the impact it would have, if realised, on the environment.
Fauna	A group of animals specific to a certain region or time period.
Flora	A group of plants specific to a certain region or time period.
General waste	Waste that does not pose an immediate hazard or threat to health or to the environment; and includes:- (a) domestic waste; (b) building and demolition waste; (c) business waste; (d) inert waste;
Indigenous vegetation	Plants that naturally occur in an area.
Liquid waste	Waste that appear in liquid form such as used oil, grease and/or contaminated water or waste water.

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Method statement	A document that describes how the Contractor will apply environmental management measures associated with a particular activity during construction.
Monitoring	Determining the status of a system, a process or an activity
Natural Vegetation	All existing species, indigenous or otherwise, of trees, shrubs, groundcover, grasses and all other plants found growing on the site.
Responsible Authority	A Responsible Authority, according to the National Water Act 36 of 1998, relates to specific power or authority in respect of water uses that is assigned by the Minister to a Catchment Management Agency or to a Regional Office.
Rehabilitation	Refers to measures that must be put in place to restore the site to its pre-construction or enhanced state, subsequent to construction taking place.
Scope of Work	The construction work for which the Contractor has been appointed in terms of the Contract with Transnet.
Sensitive area	Any area that is denoted as sensitive by this Specification due to its particular attributes, which could include the presence of rare or endangered vegetation, the presence of heritage resources (e.g. archaeological artefact or graves), the presence of a unique natural feature, the presence of a watercourse or water body, the presence of sensitive social receptors etc. As a minimum, habitats that fall under this definition include: mountain catchments, Ramsar wetland sites, coastal shores, estuaries and endangered ecosystems.
Solid waste	All solid waste, including construction debris, chemical waste, excess cement/ concrete, wrapping materials, timber, tins and cans, drums, wire, nails, food and domestic waste (e.g. plastic packets and wrappers).

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Spoil	Excavated material which is unsuitable for re-use as material in the Works or any other use; or is material which is surplus to the requirements of the Works.
Sub -Contractor	is a person or organisation who has a contract with the contractor to: Construct or install part of the contractor's work. Provide a service necessary to provide the works; or Supply plant and materials which the person or organisation has wholly or partly designed specifically for the works.
Temporary Storage	A once-off storage of waste for a period not exceeding 90 days.
Topsoil	Means a varying depth (up to 300 mm) of the soil profile irrespective of the fertility appearance, structure, agricultural potential, fertility and composition of the soil.
Waste	Any substance, material or object, that is unwanted, rejected, abandoned, discarded or disposed of, or that is intended or required to be discarded or disposed of, by the holder of that substance, material or object, whether or not such substance, material or object can be re-used, recycled or recovered and includes all wastes. Waste or a portion of waste ceases to be a waste only once the waste is, or has been re-used, recycled or recovered.
Wastewater	means water containing waste, or water that has been in contact with waste material
Watercourse	Refers to - a river or spring; a natural channel in which water flows regularly or intermittently;

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	a wetland, lake or dam into which, or from which, water flows; and any collection of water gazetted by the National Water Act, 36 of 1998 as a watercourse, and a reference to a watercourse includes, where relevant, its bed and banks.
Wetland	Land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.

4.2 Abbreviations

Acronym	Meaning In Full
CEM SOP	Construction Environmental Management Standard Operating Procedure
CM	Construction Manager
CV	Curriculum Vitae
DEFF	Department of Environment, Forestry and Fisheries
EA	Environmental Authorisation
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
CESSG	Contractor Environmental and Sustainability Specification Guidelines
EO	Environmental Officer

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Acronym	Meaning In Full
EMP	Environmental Management Plan
EMPr	Environmental Management Programme
EGF	Environmental Governance Framework
NEMA	National Environmental Management Act 107 of 1998
NEM:BA	National Environmental Management: Biodiversity Act 10 of 2004
NWA	National Water Act 36 of 1998
PER	Project Environmental Resource
PES	Project Environmental Specification
PM	Project Manager
SAHRA	South African Heritage Resource Agency
SDS	Safety Data Sheet
SHEQ	Safety, Health, Environment and Quality
TRANSNET	Transnet SOC Ltd

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5. MINIMUM ENVIRONMENTAL REQUIREMENTS FOR CONSTRUCTION

5.1 Tender Documents

Any construction-related tender issued to the market must include:

- Transnet Integrated Management System Policy Statement;
- The Transnet Construction Environmental Management Standard Operating Procedure (CEM SOP);
- The Contractor Environmental & Sustainability Specification Guideline; and
- The Project Environmental Specification (PES).

Any construction-related tender must be recommended for issue by the Transnet Project Environmental Resource/s before it is released to the market.

5.2 Project Environmental Specification (PES)

Must incorporate all relevant recommendations of the Environmental Impact Assessment (EIA) and other environmental studies for the project and the relevant conditions of the EA and/or other applicable environmental permit(s) and licence(s), and the Transnet Operating Division's Environmental Management requirements (where applicable) into an environmental performance specification for implementation during the construction phase of the project.

The PES need not be a separate document; however it can be in a format of an appendix/addendum making reference to environmental authorisation(s), permit(s) or licence(s) applicable to the project. In cases where the project does not trigger any of the NEMA listed activities or any permit(s)/licence(s); the PES may be compiled to prescribe additional environmental management measures over and above the measures stipulated in the MERC.

5.3 Contractor's Environmental Policy

The Contractor's Environmental Policy must be signed and dated by Top Management.

The content of the Contractor's Environmental Policy must:

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- be appropriate to the purpose and context of the Contractor's organization, including the nature, scale and environmental impacts of its activities, products and services;
- provide a framework for setting environmental objectives;
- include a commitment to the protection of the environment, including prevention of pollution and other specific commitment(s) relevant to the context of the Contractor's organization;
- include a commitment to fulfil compliance obligations; and
- include a commitment to continual improvement of the Contractor's environmental management system to enhance environmental performance

5.4 Contractor's Environmental Management Plan (EMP)

The Contractor's EMP must include:

- the name of the person who compiled the EMP;
- the expertise of the person who compiled the EMP, including a CV;
- a description of the Contractor's scope of work;
- a detailed description of the environmental aspects related to the Contractor's scope of work;
- a map at an appropriate scale which depicts all construction activities including associated structures, and infrastructure and environmental sensitivities affected by the construction footprint , as well as no go-areas and associated buffers;
    - The map must include the following:
    - an accurate indication of the project site position as well as the positions of the alternative sites, if any;
    - road names or numbers of all the major roads as well as the roads that provide access to the site(s)
    - a north arrow;
    - a legend;
    - the prevailing wind direction;
    - site sensitivities, including but not limited to vegetation, wetlands, watercourses, heritage sites, critical biodiversity area/s, World Heritage Site, etc. and it must be overlaid by the study area; and

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- GPS co-ordinates (Indicate the position of the proposed activity with the latitude and longitude at the centre point for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should be to at least three decimal places. The projection that must be used in all cases is the WGS-84 spheroid in a national or local projection).

- a description of the impacts and risks that need to be avoided, managed and mitigated during the execution of the Contractor's scope of work including (as relevant);
    - planning and design;
    - pre-construction activities;
    - construction activities;
    - rehabilitation; and
    - operation of Transnet assets.
- a description and identification of impact management outcomes required for the identified aspects;
- a description of proposed impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated above will be achieved, and must, where applicable, include actions to:
    - avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;
    - comply with any prescribed environmental management standards or practices; and
    - comply with any applicable local, provincial and national legislation.
- the method of monitoring the implementation of the impact management actions contemplated above;
- the frequency of monitoring the implementation of the impact management actions contemplated above;
- an indication of the persons who will be responsible for the implementation of the impact management actions;
- the timeframe within which the impact management actions contemplated above must be implemented;
- the mechanism for monitoring compliance with the impact management actions contemplated above;

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- a program for reporting on compliance, taking into account the requirements of this document;
- an environmental awareness plan describing the manner in which:
    - the Contractor intends to inform his employees of any environmental risk which may result from his scope of work; and
    - risks must be dealt with in order to avoid pollution or the degradation of the environment.
- any specific information that may be required by Transnet.

5.5 Contractor's Environmental Officer (EO)

The Contractor's EO should have relevant environmental qualifications and experience required for the project. The level of qualifications and experience must be in line with the complexity of the Contractor's scope of work coupled with the sensitivity of the site. The level of competency will be determined by Transnet during tender.

5.6 Management of Sub-Contractors

The Contractor must ensure that all his sub-contractors comply with this document in so far as it relates to their specific scope of work or services.

5.7 Pre-Site Access Environmental Governance

The Contractor must appoint the EO recommended in his tender proposal. Should the EO no longer be available, the Contractor must submit a CV of an alternative EO with similar or better qualifications and experience for approval by the Transnet PM and PER. The same principle will apply if the Contractor's EO is replaced for whatever reason at any stage. No construction may take place without a duly appointed Contractor's EO.

The Contractor must provide his EO with all environmental documents provided by Transnet during tender and submitted as a part of the Contractor's proposal.

The Contractor must obtain the contact details of the responsible Transnet PER and Transnet PER and provide these details to his EO.

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The Contractor's EO must develop an appropriate environmental file for approval by the Transnet PER, including but not necessarily limited to (the environmental file must always be available and up to date on the construction site):

- Documents from the tender as described above.
- His CV.
- An organogram indicating reporting lines of all Contractor's staff (with names included).
- Contact Information for: the overall responsible person acting on behalf of the Contractor to execute the construction works; Contractor's Construction Manager (CM); Contractor's EO; and all relevant emergency personnel.
- A list of the Contractor's plant and equipment indicating a description of the plant/equipment, its fuel capacity, any hazardous components (oils, greases etc.), individual service/maintenance cycles and noise levels.
- A list of hazardous substances to be used during construction indicating: official substance name from Material Safety Data Sheets (MSDS)/ Safety Data Sheet (SDS); quantity on site; storage method; transport method to site; and period to be used on site. All substances listed must have MSDS/ SDS on site in the environmental file.

The MSDS/ SDS should contain the following minimum requirements:

- Section 1: Product and company name
- Section 2: Hazard identification
- Section 3: Composition/information on ingredients
- Section 4: First aid measures
- Section 5: Fire fighting measures
- Section 6: Accidental release measure
- Section 7: Handling storage
- Section 8: Exposure controls/personal protection
- Section 9: Physical and chemical properties
- Section 10: Stability and reactivity
- Section 11: Toxicological Information
- Section 12: Ecological Information
- Section 13: Disposal Consideration

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- Section 14: Transportation
- Section 15: Regulatory Information
- Section 16: Other Information

- Photographic pre-construction report that details the site before any activities commence.
- Site Layout Plan indicating but not necessarily limited to,: access roads, site offices, material laydown areas, stockpile areas and parking areas, waste and effluent storage and handling facilities, entire construction footprint, no-go-areas, sewage and sanitary facilities. The plan must be appropriately drawn on a computer and must be clearly visible and properly scaled.
- A site establishment method statement (minimum requirements for method statements are described below in this document).
- Environmental Induction Material to be used to educate site staff and visitors (minimum requirements for environmental induction are described below in this document).
- An activity-based environmental risk assessment.

The Contractor's EO must submit the environmental file for acceptance to the Transnet PER.

The Contractor must obtain a Site Access Certificate from the Transnet PM before accessing the site.

5.8 Safety Data Sheets

Each hazardous substance used on site must have a valid SDS. The SDS must comply with the requirements of the Occupational Health and Safety Act, 85 of 1993.

5.9 Environmental Induction

The Contractor will ensure that all management, foremen and the general workforce, as well as all sub-contractors, suppliers and visitors to site have attended the Transnet Environmental Induction Programme prior to commencing any work on site. Where new personnel commence work on site during the construction period, the Contractor will ensure that these personnel also undergo the Transnet Environmental Induction Programme and are made aware of the environmental specifications on site.

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The Contractor must ensure that all of his personnel understand the requirements of the CEM SOP; MERC; EA, EMPr, relevant permits and licences and PES as relevant to their scope of work.

5.10 Environmental Method Statements

- Environmental Method Statements as identified by the Transnet PER based on the Contractor's activity-based environmental risk assessment will be written submissions by the Contractor to the Transnet CM and PER describing:
- The proposed activity, setting out the plant, equipment, materials, labour and method the Contractor proposes using to carry out an activity;
- The environmental management of site conditions – waste management, housekeeping, site establishment etc;
- Transportation of the equipment to and from site;
- How the equipment/ material will be moved while on site;
- How and where material will be stored;
- The containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur;
- Timing and location of activities;
- Description of potential positive and negative environmental impacts and how they will be managed;
- Conformance/ non-conformance with this document and any other statutory and best practice standards;
- Monitoring and reporting requirements;
- Records Management; and
- Any other information deemed necessary by the Transnet CM and Transnet PER as well as ECO where applicable.

The Environmental Method Statements will enable the potential positive and negative environmental impacts associated with the proposed construction activity to be identified and mitigation measures put in place. All method statements must be signed by the Contractor, Transnet CM and PER, with the addition of the ECO on authorized projects, thereby indicating that the works will be carried out according to the methodology described therein.

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Activities may only commence once the Environmental Method Statements have been approved by the Transnet CM, Transnet PER and ECO (where relevant). In some instances, local authorities may also need to approve the method statements. This will be highlighted in the Project Environmental Specification, where applicable.

All changes to the original Environmental Method Statements must be approved by the Transnet PER and Transnet CM prior to implementation.

To enable timely approvals, the environmental method statements will be submitted to the Transnet CM and Transnet PER for review two (2) weeks prior to the intended date of commencement of the activity, or as directed by the Transnet Project Manager/CM.

Emergency construction activity Environmental Method Statements may also be required. The activities requiring Environmental Method Statements cannot commence if they have not been approved by the CM and PER or ECO.

NOTE: No advice, approval of method statements or any other form of communication from Transnet will be construed as an acceptance by Transnet of any obligation that indemnifies the Contractor from achieving any required level of performance. Further, there is no acceptance of liability by Transnet which may result from the Contractor failing to comply with the specifications, i.e. the Contractor remains responsible for achieving the required performance levels.

5.11 Environmental Occurrences (Incidents)

The Transnet PER shall provide the Contractor with the procedure to follow in managing environmental occurrences during pre-site access governance.

The Contractor shall follow the procedure provided to him by the Transnet PER and maintain required records thereof.

In the event of an environmental occurrence, the Contractor must, as soon as is reasonably practicable:

- classify an environmental occurrence in line with the Transnet Environmental Management Occurrence process flow;

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- take all reasonable measures to contain and minimise the effects of the occurrence, including its effects on the environment and any risks posed by the occurrence to the health, safety and property of persons;
- undertake cleanup procedures;
- remedy the effects of the occurrence; and
- assess the immediate and long-term effects of the occurrence on the environment and public health

5.12 Environmental Non-Conformances (Defects)

Environmental Non-Conformances shall be handled as per the terms and conditions of the Contract.

The Transnet PER shall provide the Contractor with the procedure to follow in managing environmental non-conformances during pre-site access governance.

The Contractor shall follow the procedure provided to him by the Transnet PER and maintain required records thereof.

The Transnet Project Manager shall ensure that all Non-conformances are appropriately closed out within the timeframe specified in the Non-Conformance Report.

Any environmental non-conformance will be dealt with similarly to a Defect as defined in the Contract. A defect is due to non-compliance with the Works Information and it is the responsibility of the Contractor to correct the defect in order to ensure that the work takes place in accordance with the Works Information. Similarly, non-conformance/non-compliance with any other permit or licence will be regarded as a non-conformance with the Works Information. The Contractor is responsible for rectifying any defect (non-conformance) as defined above promptly.

The Contractor's EO shall be responsible to search for and identify non-conformances with the environmental specifications at inspection intervals agreed to with the Transnet PER. The Transnet PER shall also undertake such inspections on a monthly basis. If such monthly inspections indicate that any part of the Contractor's work is non-conformant with the environmental requirements, the Transnet PER shall advise the Transnet PM to issue a Defects Notification to the Contractor accordingly. The Contractor shall correct the non-

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conformance (defect) within the timeframes specified in the report and notification and submit proof of such correction to the Transnet PER.

The Transnet PER shall not recommend that a Site Closure Certificate be issued to the Contractor if any non-conformances have not been properly closed out. In such an event, the Transnet Project Manager may also make use of any reasonable contractual means to rectify the non-conformance(s) as allowed by the Contract (retention moneys etc.).

5.13 Community Grievances (Public Complaints)

The Transnet PER shall provide the Contractor with the procedure to follow in managing community grievances during pre-site access governance.

The Contractor shall follow the procedure provided to him by the Transnet PER and maintain required records thereof.

5.14 Environmental Inspections and Audits

Environmental inspections and audits may be conducted using five basic techniques:

- Interviews with Contractor's staff including Sub-contractors and suppliers;
- Document review;
- Observations;
- Monitoring; and
- Measurement and verification.

Table 1 sets out the areas and aspects of the construction site that will be inspected or audited, the frequency of such inspections/audits, the inspector/auditor and the inspected party/auditee. It should be noted that the list is not exhaustive and that each site will have specific issues that will need to be inspected/audited.

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Table 1: Details on Environmental Inspections/Audits (where Transnet is the Inspected Party/Auditee, respective Contractors must give full cooperation).

Place	**Inspector/Auditor**	**Inspected Party/ Auditee**	**Inspection/audit frequency**
Construction Site	Contractor's Environmental Officer	Contractor	Daily/Weekly Inspection
Project (including all construction sites).	Transnet Project Environmental Resource/Project Environmental Manager	Contractor	Monthly Inspection
Project (including all construction sites)	Transnet Environmental Specialist: Assurance	Transnet Project Environmental Resource	As stipulated on the annual audit plan
Project (as defined in Environmental Authorisation)	Environmental Control Officer	Transnet (represented by Transnet Environmental Resource)	As stipulated in the Environmental Authorisation
Project (as defined in Water Use Authorisation)	Independent Auditor	Transnet (represented by Transnet Environmental Resource)	As stipulated in the Water Use Authorisation

The Contractor's EO will be required to conduct inspections of all work areas for which the Contractor is responsible, at intervals agreed to with the Transnet PER. Monitoring shall

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be conducted as per the Contractor's approved EMP and all required records shall be maintained by the Contractor.

The Transnet PER will be required to conduct inspections of all work areas for which the Contractor is responsible on a monthly basis or at intervals agreed to with the Transnet Project Environmental Manager. Monitoring shall be conducted as per the Project Environmental Specification. The Inspection Checklist to be used shall be approved by the Transnet PER prior to each inspection.

5.15 Contractor's Environmental Performance

The Transnet PER will explain how the Contractor's performance will be scored during pre-site access governance to the Contractor's EO. The standard/minimum requirement for all environmental inspections will be 90%.

5.16 Site Planning and Establishment

The Contractor shall establish his construction camps, offices, workshops, eating areas and any other facilities on the site in a manner that does not adversely affect the environment. These facilities must not be sited in close proximity to sensitive areas; the buffer to be determined by the ecological requirements of the fauna/flora found on-site.

The site offices should not be sited in close proximity to steep areas. It is recommended that the offices, and in particular the ablution facilities, aggregate stockpiles, spoil areas and hazardous material stockpiles be located as far away as possible from any watercourse.

5.16.1 Site Layout Plan

The Site Layout Plan must as a minimum include but not limited to:

- Detailed layout of the construction works areas including access roads, site offices, material laydown areas, temporary stockpile areas and parking areas;
- Detailed locality and layout of all waste storage and handling facilities for litter, kitchen refuse and workshop-derived effluent;
- Proposed areas for the stockpiling of topsoil and excavated spoil material;
- Demarcation of the construction footprint including areas not to be disturbed by the development;

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- Location of sewage and sanitary facilities at the site offices and staff accommodation at all localities where there will be a concentration of labour.

Any changes to the location of the facilities and site activities as per the approved site layout plan shall be re-submitted to the Transnet CM and Transnet PER for approval prior to implementation.

The Contractor may be required to submit a separate layout plan dealing only with his site camp. If so this will be specified in the PES.

5.16.2 Identification and Establishment of Suitable Access Routes/Roads

Existing access routes to the construction/works areas must be used as far as possible. The building of access roads must be restricted to prevent unnecessary disturbance of the surrounding environment. Access tracks must be maintained in a good condition at all times during construction to minimize erosion and dust generation.

5.16.3 Demarcation of Site Limits

Prior to the commencement of construction, the site must be clearly demarcated by means of visible barriers. Vegetation within the demarcated zone may be cleared only upon obtaining approval from the Transnet PER. No activities are allowed outside of the approved footprint on the Site Layout Plan.

5.16.4 Eating Areas

The Contractor is responsible for providing adequate eating facilities within the works area to ensure that workers do not leave the site to eat during working hours. Refuse bags/bins must be provided at all established eating areas and when full it should be disposed of appropriately.

5.16.5 Liquid Waste Management

Liquid waste water from site shall be stored on-site in a properly designed and constructed system, situated so as not to adversely affect water courses. Only domestic type wastewater, i.e. toilet, shower, basin, kitchen water shall be allowed to enter the designated system.

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5.17 Sewage and Sanitation

The Contractor is responsible for providing adequate sanitary facilities including toilets, toilet paper, wash basins etc. to all workers on site and for enforcing the proper use of these facilities.

Toilet facilities shall be serviced regularly and the waste material generated from these facilities shall be disposed of at a registered waste water treatment works/macerator and relevant permits for transportation of waste and proof of servicing and disposal shall be maintained.

Toilets and latrines shall be easily accessible and shall be positioned within walking distance from wherever employees are employed on site, and away from sensitive areas. Use of open areas (i.e. the veld) is not allowed. For projects of high mobility a mobile toilet facility shall be made available by the Contractor.

Outside toilets shall be provided with locks and doors and shall be secured to prevent them from blowing over. Toilets must not be placed in areas susceptible to flooding and high winds. The Contractor shall arrange for regular emptying of toilets and shall be entirely responsible for enforcing their use and for maintaining such facilities in a clean, orderly and hygienic condition to the satisfaction of the Transnet CM.

5.18 Waste Management

Waste shall be grouped into "**general**" or "**hazardous**", depending on its characteristics. The classification shall determine handling methods and the ultimate disposal of material.

General waste which is likely to be generated on site during construction include but not limited to the following:

- Trash (waste paper, plastics, cardboard, etc.) and food waste from offices, warehouses and construction personnel;
- Uncontaminated construction debris such as used wood and scrap metal; and
- Uncontaminated soil and non-hazardous rubble from excavation or demolition.

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The Contractor shall classify all waste expected to be generated during the construction period. Examples of typical construction waste which could be expected on the site and how they should be classified are indicated in the following table:

TABLE 2: EXAMPLE OF CONSTRUCTION WASTE CLASSIFICATION

Waste	Classification	
	Hazardous	**General**
Aerosol containers	**X**	
Batteries, light bulbs, circuit boards, etc.	**X**	**X**
Clean soil		**X**
Construction debris contaminated by oil or organic compounds	**X**	
Domestic waste		**X**
Empty drums (depends on prior use)	**X**	**X**
Empty paint and coating containers		**X**
Explosive waste	**X**	
PCB waste	**X**	
Rubble (not contaminated by oil or organic compounds)		**X**
Waste Cable		**X**
Waste plastic		**X**
Waste paint and/or solvent	**X**	
Waste oil	**X**	
Waste concrete		**X**
Waste cement powder	**x**	
Waste empty cement bags (must be thoroughly decanted)		**x**
Waste containing fibrous asbestos	**X**	
Waste timber		**X**
Sewerage sludge	**X**	
Scrap metal		**X**

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Waste	Classification	
	Hazardous	General
Chemically-derived sanitary waste	X	

Waste will be managed in accordance with the Waste Management Hierarchy depicted in Figure 1 below:

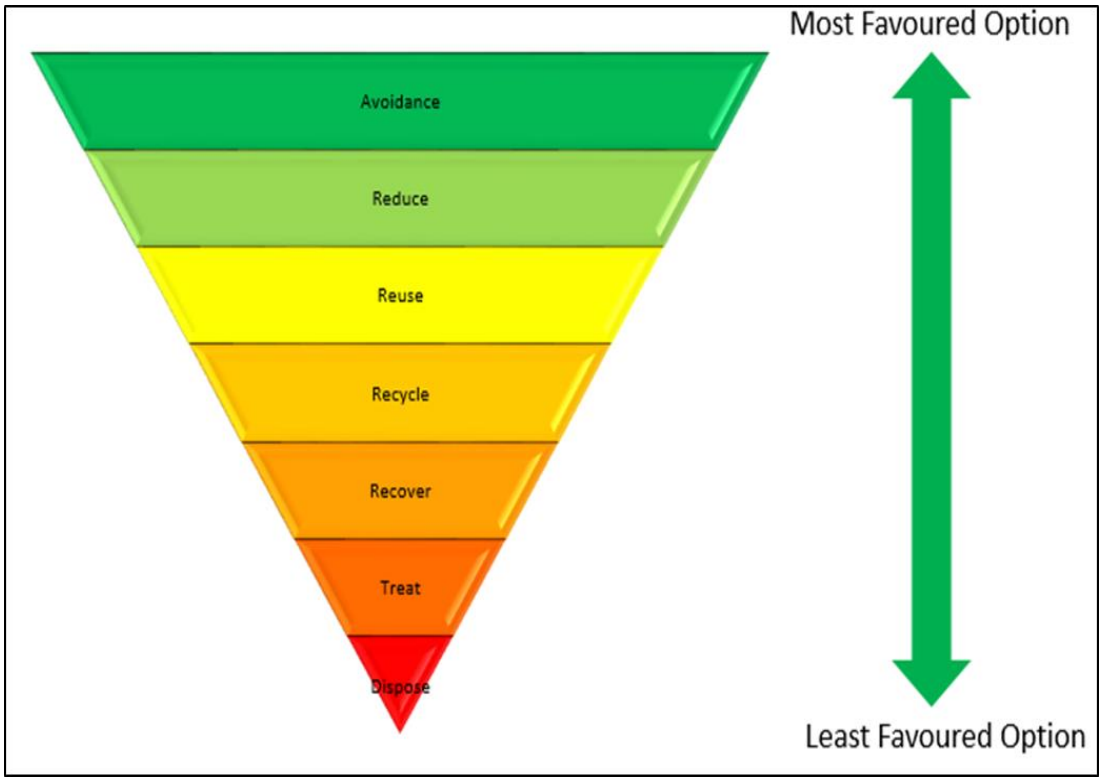


FIGURE 1: THE WASTE MANAGEMENT HIERARCHY

(Transnet Environmental Risk Management strategy and Framework, 2015:42)

1. **Avoidance/Prevention:** using goods in a manner that minimises their waste components
2. **Reduction/Minimisation:** reduction of the quantity and toxicity of waste generated during construction
3. **Re-use:** removing an article from a waste stream for use in a similar or different purpose without changing its form or properties

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4. **Recycling:** separating articles from a waste stream and processing them as products or raw materials
5. **Recovery:** reclaiming particular components or materials, or using the waste as a fuel
6. **Treatment:** processing of waste by changing its form or properties in order to reduce toxicity and quantity
7. **Disposal:** burial, deposit, discharge, abandoning or release of waste

The Contractor is responsible for the removal of all waste generated from site. The Contractor shall ensure that all waste is removed to appropriate licensed waste management facilities. (For the identification of an appropriate facility, the following source may be utilized: http://sawic.environment.gov.za/).

The Contractor shall manage **GENERAL WASTE** that is anticipated to be generated by operations as follows:

- Notify waste hauler when container is full so that it can be removed and replaced with an empty container/skip;
- No littering is allowed on site. In the event where staff mobility is high, refuse bags will be made available by the Contractor;
- Provide documented evidence of proper disposal of waste (Waste Disposal Certificate)

The Contractor shall recycle **GENERAL WASTE** (as far as practically possible) that is anticipated to be generated by its operations as follows:

- Obtain and label recycling containers for the following (whichever relevant) and locate them at secure designated locations on site:
  - Office Waste;
  - Aluminium;
  - Steel;
  - Glass;
  - Ferrous Metals;

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- Non Ferrous Metals; and
- Waste Timber

- Establish recycled material collection schedule;
- Arrange for full bins to be hauled away;
- Spent batteries, circuit boards, and bulbs, while non-hazardous, require separate storage, special collection and handling; and
- No burning, burying or dumping of waste of any kind will be permitted.

The Contractor shall manage **HAZARDOUS WASTE** anticipated to be generated by his operations as follows:

- Obtain and provide an acceptable container with correct and visible classification label;
- Place hazardous waste material in allocated container;
- Inspect the container on a regular basis as per the Contractor's EMP;
- Track the accumulation time for the waste, haul the full container to the registered hazardous disposal site;
- Notify the waste hauler when container is full so that it can be removed and replaced with an empty container/skip; and
- Provide documented evidence of proper waste disposal of the waste (Waste Disposal Certificate).

The Contractor shall maintain the following waste records for submission to the Transnet PER on request:

- Date of waste management activity;
- Activity Type (reuse, recycle, recover, treat, dispose);
- Description (e.g. contaminated soil, medical waste, tyres, plastic, domestic waste etc.)
- Classification (General/Hazardous);
- Estimated Quantity in kilograms
- Disposal Site Name and Reference Number (where relevant);
- Method of Transport; and
- Signed Collection or Disposal Records

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5.19 Workshops, equipment maintenance and storage

All vehicles and equipment must be kept in good working order to maximise efficiency and minimise pollution. Maintenance, including washing and refueling of plant on site must be done at designated locations approved on the Site Layout Plan. The Contractor must ensure that no contamination of soil or vegetation occurs around workshops and plant maintenance facilities.

All machinery servicing areas must be bunded. Stationary plant that leak harmful substances shall not be permitted on site. Washing of equipment should be restricted to urgent maintenance requirements only. Adequate wastewater collection facilities must be provided and the wastewater should be disposed of appropriately in accordance with its waste classification.

5.20 Vehicle and Equipment Refueling

5.20.1 Stationary/Designated Refuelling

No vehicles or machines shall be serviced or refueled on site except at designated servicing or refueling locations included on the approved Site Layout Plan.

The Contractor shall provide details of his refueling activities in his EMP or Refueling Method Statement. Facility design shall comply with the regulations of the National Water Act, (Act 36 of 1998), the Hazardous Substances Act, (Act 15 of 1973), the Environmental Conservation Act, (Act 73 of 1989), National Environmental Management Act, (Act 107 of 1998), and the Occupational Health and Safety Act, (Act 85 of 1993), mainly the Construction - and Hazardous Chemical Substances Regulations.

5.20.2 Mobile Refuelling

In certain circumstances, the refueling of vehicles or equipment in a designated area is not a viable/practicable option and refueling has to be done from a tank, truck, bowser or container moved around on site. In such circumstances, the Contractor may request approval from the Transnet CM to conduct mobile refueling subject to the following control measures:

- Secondary containment equipment shall be in place. This equipment shall be sized to contain the most likely volume of fuel that could be spilt during transfer.

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- Absorbent pads or drip trays are to be placed around the fuel inlet prior to dispensing.
- Mobile refueling units are to be operated by a designated competent person.
- The transfer of fuel must be stopped prior to overflowing. Fuel tanks or refueling equipment on vehicles may only be filled to 90% carrying capacity.
- Mobile fuelling equipment must be stored in areas where they are not susceptible to collisions.
- Mobile refueling operations shall not take place within 30 meters of any watercourses or 7.5 meter from other structures, property lines, public ways or combustible storage.

All mobile refueling tanks are to be properly labelled and fire extinguishers with valid service dates shall be located near the fuel storage areas. These extinguishers must be of a suitable type and size.

5.21 Spill Response

The Contractor shall have adequate spill response materials/equipment on site which must be aligned with the volumes of hazardous substances used on site and the risk of pollution to sensitive environmental features.

The Contractor shall have an approved Spill Response Plan, either in his EMP or in the form of a method statement approved by the Transnet CM and Transnet PER.

The Contractor shall instruct construction personnel on the following spill prevention and containment responsibilities:

- All plants to be inspected daily to ensure that they are in good condition;
- Immediately repair all leaks of hydrocarbons or chemicals;
- Take all reasonable measures to prevent spills or leaks;
- Do not allow sumps receiving oil or oily water to overflow;
- Prevent storm water runoff from contamination by leaking or spilled drums of oil or chemicals; and
- Do not discharge oil or contaminants into storm water or sewer systems.

If a spill occurs on land, the Contractor must:

- Immediately stop or reduce the spill;

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- Contain the spill;
- Recover the spilled product;
- Remediate the site;
- Implement actions necessary to prevent the spill from contaminating groundwater or off-site surface water; and
- Manage the contaminated material in accordance with Waste Management requirements in this document.

Any spill to water has the potential to disperse quickly, therefore, the spill must be contained immediately using appropriate containment equipment.

If a spill to water occurs, the Contractor must:

- Take immediate action to stop or reduce the spill and contain it;
- Notify the appropriate on-site authorities;
- Implement actions necessary to prevent the spread of the contamination by deploying appropriate absorbent material;
- Recover the spilled product; and
- Manage the contaminated material in accordance with Waste Management requirements in this document. Water samples to be taken downstream from where the spill took place to trace the extent of pollution.

All spills must be recorded as occurrences and managed in accordance with the requirements for Occurrences in this document.

5.22 Spray Painting and Sandblasting

Spray painting and sandblasting must be kept to a minimum. All painting must, as far as practicable, be done before equipment and material is brought on site. Touch-up painting is to be done by hand painting or as per the approved EMP or Method Statement.

The relevant Contractor will inform his EO when and where spray painting or sandblasting will be carried out prior to commencement of work. The Contractor's EO will monitor these activities to ensure that adequate measures are taken to prevent contamination.

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Sand may only be acquired from approved commercial sources and in instances where sand is collected from the natural surrounds, such collection must be approved by the Transnet PER.

If the area is in confined or high (elevated) areas, a protection plan must be issued for approval by the Transnet PER.

5.23 Dust Management

The usage of water for dust management will be minimized as far as practically possible. Discretion must be applied in this regard especially relating to drought conditions. Only water from approved sources may be used. Dust control measures must be approved by the Transnet PER prior to commencement of the Works.

The following minimum dust management practices must be implemented on site:

- Vehicles must be operated within speed limits, where no speed limit has been specified, the limit shall be 40km/h;
- Haulage distances must be minimized as far as reasonable practicable;
- Where water suppression is insufficient or impractical, environmentally friendly soil stabilizers must be used;
- Stockpiles and open areas that may cause dust must be stabilized and vegetated where required;
- Dust suppression measures must be implemented on inactive construction areas. (An inactive construction site is one on which construction will not occur for a month or more);
- Disturbance of natural vegetation must be minimized to reduce potential erosion, runoff, and air-borne dust;
- Material in transit must be loaded and contained within the load bin of the vehicle in such a way as to prevent any spillage or creation of dust clouds. If necessary, the load bin of the vehicle shall be covered with a tarpaulin;

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5.24 Storm Water and Dewatering Management

Apart from runoff from overburden emplacements and stock piles, storm water can also be contaminated from batch plants, workshops, vehicle wash-down pads, etc., and contaminants during construction may include hydrocarbons from fuels and lubricants, sewerage from employee ablutions and excess fertilizer from rehabilitated areas, etc.

Discharges to controlled waters such as the sea, rivers, and groundwater or to sewerage systems are controlled under South African Water Legislation. The following specific measures are required:

- Temporary drainage must be established and maintained on site during the construction period until permanent drainage is in place. Secondary drainage that prevents erosion must be provided, where necessary.
- Contractors must employ good housekeeping in their areas to prevent contamination of drainage water.
- Stagnant water shall be cleared at a frequency approved by the Transnet PER.
- Any surface water flows off-site must be approved by the Transnet PER. Where necessary, silt traps shall be constructed to ensure retention of silt on site and cut-off ditches shall be constructed to ensure no runoff from the site except at points where silt traps are provided. The Contractor shall be responsible for checking and maintaining all silt traps for the duration of the project.
- The removal from groundwater is defined as a water-use under the National Water Act 36 of 1998. Therefore, it must be ensured that the project has been authorised by the Responsible Authority to remove and discharge groundwater prior to dewatering taking place. If applicable, the Contractor shall be responsible for collection, management, and containment within the site boundaries of all dewatering from all general site preparation activities.
- On-site drainage shall be accomplished in accordance with a plan approved by a suitably qualified civil engineer.

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5.25 Erosion Control

Erosion control measures will be designed, implemented, and properly maintained in accordance with best management practices which will include, but not limited to the following:

- Activities must be scheduled to minimise the extent of disturbance of an area at any one time;
- Re-vegetation must be implemented as early as feasible;
- Construction traffic must be properly managed and controlled;
- Areas must be graded to the extent feasible at drainage ditches;
- Loose soil will be compacted as soon as possible after excavation, grading, or filling;
- Silt fences, geo-textiles, temporary rip-rap, soil stabilisation with gravel, diversionary berms or swales, small sedimentation basins must be used;
- The transport of sediment must be minimised;
- An erosion and sedimentation control plan must be developed, approved by the Transnet PER and communicated to staff; and
- The Contractor shall be responsible for checking and maintaining all erosion and sedimentation controls.

5.26 Noise Management

- The following specific measures are required:
- Keep all equipment in good working order;
- Operate equipment within its specification and capacity and don't overload machines;
- Apply regular maintenance, particularly with regards to lubrication;
- Operate equipment with appropriate noise abatement accessories, such as sound hoods;
- Relevant stakeholders shall be notified of any excessive noise-generating activities that could affect them;
- Ensure that the potential noise source will conform to the South African Bureau of Standards recommended code of practice, SANS 10103:2004 or the latest at the time, so that it will not produce excessive or undesirable noise when released;

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- All the Contractor's equipment shall be fitted with effective exhaust silencers and shall comply with the South African Bureau of Standards recommended code of practice, SANS 10103:2004 or the latest at the time, for construction plant noise generation
- Contractor's vehicles shall comply with the Road Traffic Act, (Act 29 of 1989) when any such vehicle is operated on a public road.
- If on-site noise control is not effective, protect the victims of noise by ensuring that all noise-related occupational health provisions are met. (Occupational Health and Safety Act, (Act 85 of 1993).

5.27 Protection of Heritage Resources

5.27.1 Archaeological Sites

If an artefact on site is uncovered, work in the immediate vicinity shall be stopped immediately. The Contractor shall take reasonable precautions to prevent any person from removing or damaging any such article and shall immediately upon discovery thereof inform the Transnet CM and Transnet PER of such a discovery. The South African Heritage Resources Agency (SAHRA) or relevant Authority is to be contacted and will appoint an Archaeologist to investigate the find. Work may only resume once clearance is given in writing by the Archaeologist.

5.27.2 Graves

If a grave is uncovered on site, or discovered before the commencement of work, all work in the immediate vicinity of the grave shall be stopped and the Transnet CM and PER informed of the discovery. The South African Heritage Resources Agency (SAHRA) or relevant Authority should be contacted and in the case of graves, arrangements made for an undertaker to carry out exhumation and reburial. The undertaker will, together with the SAHRA, be responsible for attempts to contact family of the deceased and for the site where the exhumed remains can be re-interred.

5.28 Fire Prevention

Fires shall only be allowed in facilities or equipment specially constructed for this purpose.

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A firebreak shall be cleared and maintained around the perimeter of the camp and office sites where and when necessary. In cases where construction is taking place in a Critical Biodiversity Area as listed under NEM:BA; it must be ensured that the requirement of a firebreak is screened against the NEMA Listing Notice 3 to confirm legislative requirements.

All conditions incorporated in the requirements of the Occupational Health and Safety Act shall be implemented.

5.29 Water Protection and Management

No water shall be abstracted from any water course (stream, river, or dam) without the expressed permission of the Transnet CM and Transnet PER. Such permission shall only be granted once it can be shown that the water is safe for use, that there is sufficient water in the resource to meet the demand, and once permission has been obtained from the Department of Water and Sanitation in accordance with the requirements of the National Water Act (Act 36 of 1998).

Water for human consumption shall be available at the site offices and at other convenient locations on site. The generally acceptable standard is that a supply of drinking water shall be available within 200m of any point on the construction site.

Method Statement(s) must be prepared by the Contractor for the various water uses. The Contractor shall keep a record of the quantities of water used on-site during construction (including use by sub-contractors), irrespective of the purpose of use.

5.30 Protection of Fauna and the collection of firewood

On no account shall any hunting or fishing activity of any kind be allowed. This includes the setting of traps, or the killing of any animal caught in construction works.

On no account shall any animal, reptile or bird of any sort be killed. This specifically includes snakes or other creatures considered potentially dangerous discovered on site. If such an animal is discovered on site, an appropriately skilled person should be summoned to remove the creature from the site. Consideration should be given to selection and nomination of such a person prior to site establishment. If no-one is available, training should be provided to at least two site staff members.

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

5.31 Environmental Awareness Training

An Environmental Awareness Program is considered a necessary part of the Construction Environmental Management Plan for the Project. Training of the appropriate construction personnel will help ensure that all environmental regulations and requirements are followed which must be defined in the relevant Method Statement to be prepared by the Contractor.

Objectives of environmental awareness training are:

- Environmental Management – protecting the environment from the effects of construction by making personnel aware of sensitive environmental resources.
- Regulatory compliance – complying with requirements contained in project – specific permit conditions, also complying with requirements in regional and local regulations.
- Problem recognition and communication – training personnel to recognise potential environmental problems, i.e. spills, and communicate the problem to the Contractor's EO for a solution.
- Liability control - non-compliance with regulatory requirements can lead to personal and corporate liability.

All individuals on the Project construction site will need to have a minimum awareness of environmental requirements and responsibilities. However, not all need to have the same degree of awareness. The required degree of knowledge is greatest for personnel in the Safety, Health, and Environmental Sections and the least for the manual personnel.

The Contractor shall present environmental awareness programmes on a weekly/bi-monthly basis (depending on project requirements) and keep record of all the environmental related training of the personnel.

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5.32 Handling and Batching of Concrete and Cement

Concrete batching shall only be conducted in demarcated areas which have been approved by the Transnet CM and Transnet PER.

Such areas shall be fitted with a containment facility for the collection of cement-laden water. This facility shall be bunded and have an impermeable surface protection so as to prevent soil and groundwater contamination. Drainage of the collection facility will be separated from any infrastructure that contains clean surface runoff.

The batching facility will not be placed in areas prone to floods or the generation of stagnant water. Access to the facility will be controlled so as to minimise potential environmental impacts. Hand mixing of cement and concrete shall be done on mortarboards and/or within the bunded area with impermeable surface or concrete slab. Bulk and bagged cement and concrete additives will be stored in an appropriate facility at least 10m away from any watercourses, gullies and drains.

Waste water collected in the containment facility shall be left to evaporate. The Contractor shall monitor water levels to prevent overflows from the facility. It is acknowledged that all waste water will evaporate; it must be ensured that the remaining water can be pumped into sealed drums for temporary storage and must be disposed of as liquid hazardous waste at an authorised hazardous waste management facility.

All concrete washing equipment, such as shovels, mixer drums, concrete chutes, etc. shall be done within the approved washout facility. Water used for washing shall be restricted as far as practically possible.

Ready-mix concrete trucks are not allowed to wash out anywhere other than in an area designated and approved by the Transnet CM and PER for this purpose.

The Contractor shall periodically clean out hardened concrete from the wash-out facility or concrete mixer, which can either be reused or disposed of as per accepted waste management procedures.

Empty cement and bags, if temporarily stored on site, must be collected and stored in weatherproof containers. Used cement bags may not be used for any other purpose and

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must be disposed of on a regular basis in accordance with the Contractor's solid waste management system.

Sand and aggregates containing cement will be kept damp to prevent the generation of dust.

Concrete and cement or any solid waste materials containing concrete and cement will be disposed of at a relevant registered disposal facility and SDCs kept on the file. Where disposal facilities for general waste are utilised, written consent from the relevant municipality must be obtained by the Contractor and filed in the Green file.

5.33 Stockpiling, Soil Management and Protection of Flora

The Contractor shall measure the extent of all areas cleared for construction purposes and keep this figure updated. Sensitive areas shall be cordoned off and avoided in this regard.

Stockpiling may only take place in designated areas indicated on the approved site layout plan. Any area to be used for stockpiling or material laydown shall be stripped of all topsoil.

Clearance of vegetation shall be restricted to that which is required to facilitate the execution of the works. Vegetation clearance shall occur in a planned manner, and cleared areas shall be stabilised as soon as possible when and where necessary. The detail of vegetation clearing shall be subject to the Transnet CM's approval and shall occur in consultation with the Transnet PER.

Stockpiles must be positioned in areas sheltered from the wind and rain to prevent erosion and dispersion of loose materials. Stockpiled soil shall be protected by adequate erosion-control measures. Soil stockpiles shall be located away from drainage lines, watercourses and areas of temporary inundation. Stockpiles containing topsoil shall not exceed 2m in height unless otherwise permitted by Transnet.

Topsoil shall be stockpiled separately from other materials and prevented from movement. Excavated subsoil, where not contaminated, must be used for backfilling, if possible, and topsoil for landscaping and rehabilitation of disturbed areas. Where topsoil

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has become mixed with subsoil or is not up to the original standard, fertiliser or new topsoil shall be provided by the Contractor.

No vegetation located outside the construction site shall be destroyed or damaged. As far as is reasonably practicable, existing roads must be used for access to the site. Before site clearance takes place, vegetation surveys must be conducted and protected species identified.

No protected plant species shall be removed without written consent from the relevant authorities. The development of new embankments or fill areas must be undertaken in consultation with the Transnet PER.

No dumping of solid waste or refuse shall be allowed within or adjacent to areas of natural vegetation.

The Contractor shall identify and eradicate all declared alien and invasive plant species occurring on site.

5.34 Traffic Management

Vehicles usage is permitted only on access roads. Vehicles should only be parked within designated parking areas as demarcated on the site layout plan.

Turning of vehicles should only take place within a clearly demarcated "turn area" located within the approved construction footprint.

The Contractor must co-ordinate the loading and offloading of material during the construction phase so as to ensure that vehicular movement is in one direction only at any one time and that side-tracks are not created on the site.

5.35 Transportation of Materials

The Contractor is responsible for ensuring that all suppliers and delivery drivers are aware of procedures and restrictions (e.g. no-go areas) in terms of the SOP CM and this Specification. Material must be appropriately secured to ensure safe passage between destinations during transportation. Loads must have appropriate cover, where ADTs are not utilised, to prevent spillage from the vehicles. The Contractor will be held responsible for any clean-up resulting from the failure to properly secure transported materials.

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5.36 Borrow Pits and Quarries

The Contractor shall ensure that suppliers of rock and sand raw materials are in possession of the required permit/license and keep record of the quantity of material supplied.

The Contractor will not make direct use of any borrow pits and quarries unless the borrow pit has a valid permit, he has obtained written approval from the Transnet CM and Method Statement has been submitted and approved. The Method Statement will provide the detailed description of the location of the borrow pits and/or quarries and the procedures that will be followed to adhere to any pertinent national or local legislation (e.g. mineral extraction, rehabilitation, safety and noise levels).

5.37 Social and Labour Issues

The criteria for and selection of labourers, sub-contractors and suppliers for the project shall demonstrate preference for the local community and shall be aligned with the criteria set by Transnet SOC Ltd in appointing the Contractor. The Contractor shall keep records of the identity of all staff.

Under no circumstances shall the Contractors engage in formal discussions with landowners without prior consent by the Transnet CM.

No activity on private property shall be allowed without written consent by the relevant landowner and Transnet CM/Transnet PER.

Any damage to private property caused by the Contractor during the construction period, shall be repaired to the satisfaction of the Transnet CM, the Transnet PER and the land-owner.

The Contractor shall keep record of any complaint raised during the construction period relating to the Contractor's activities.

No job-seekers shall be allowed on site and signs reflecting such shall be displayed on the notice boards.

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5.38 Energy Management

The Contractor shall measure and keep updated records of the following:

- Electricity consumption (to be measured in Kilowatt Hours)
- Fuel consumption (to be measured in liters)

5.39 Handling, Storage and Management of Hazardous Substances

All hazardous materials/substances shall be stored in a secured, designated area that is fenced, bunded and has restricted entry.

All storage shall take place using suitable containers to the approval of the Transnet CM and PER.

All hazardous liquids shall be located in a secure, demarcated area and an adequate bund wall (110% of the total volume stored) shall be provided. The floor and wall of the bund area shall be impervious to prevent infiltration of any spilled/leaked liquids into the soil.

No spillages or accumulated stormwater within this bunded area will be allowed to be flushed from the bund into the surrounding area.

Hazard signs indicating the nature and volume of the stored materials shall be displayed on the storage facility or containment structure.

Weigh bills of hazardous substances shall be sourced from suppliers and kept on site for inspection by the Transnet PER.

The Contractor must provide a method statement detailing the hazardous substances that are to be used during construction, as well as the storage, handling and disposal procedures for each substance. Emergency procedures in the event of misuse or spillage that might negatively affect the environment must be specified.

Information on each hazardous substance will be available to all persons on site in the form of MSDS/SDS. Training and education about the proper use, handling, and disposal of the material will be provided to all workers handling the material.

The Contractor's EO must be informed of all activities that involve the use of hazardous substances to facilitate prompt response in the event of a spill or release.

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5.40 Housekeeping

The Contractor must ensure proper housekeeping of the site for the duration of the project. If practical the contractor shall amongst construction personnel, assign one to be responsible for good housekeeping

Materials shall be stored in a neat and tidy manner in designated areas as per the approved site layout plan.

5.41 Rehabilitation

Contractors shall rehabilitate the entire site upon completion of work. Where applicable, rehabilitation must be in line with the measures outlined in the Project Environmental Specification. A rehabilitation plan will be submitted to the Transnet CM and PER for approval at least six weeks before project completion. The following, but not limited are critical issues to be included in the rehabilitation plan:

- Details of soil preparation procedures including proposed fertilisers or other chemicals being considered for use;
- A list of the plant species that will be used in the rehabilitation process. Note that these should all be indigenous species, and preferably species that are endemic to the area. The assistance of an appropriately qualified Botanist/Horticulturist should be sought in developing this list;
- Procedures for watering the planted areas (frequency of watering, methodology proposed etc.);
- An indication of the monitoring procedures that will be put in place to ensure the successful establishment of the plants (duration and frequency of monitoring, proposed criteria for declaring rehabilitation as being successful); and
- Procedures for the prevention of the establishment and spread of alien invasive species.

5.42 Documentation and Records Management

The Contractor's EO will complete and maintain copies of all documents and records and ensure that these documents and records are kept up to date.

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The Contractor's EO will submit these documents to the Transnet PER on a frequency as agreed to with the Transnet PER, except where documents have remained unchanged in which case written notification to this effect must be provided to the Transnet PER. The Contractor's EO must ensure that electronic copies of these documents are saved on the Transnet system.

Once the construction activities have been completed and the Transnet PER has conducted a site closure inspection and notified the Contractor that site closure will be granted, all documents described above must be handed over to Transnet after which a Site Closure Certificate will be issued by the Transnet Project Manager.

NOTE: All documents/records are to be retained, within the Transnet Document Control System, for a period of 10 years. In the event of environmental documentation/record being lost before receiving a Site Closure Certificate, the Contractor will be penalised according to the specifications laid down in the Contract.

6. RECORDS

Refer to CEM SOP.

7. ANNEXURES

None.

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environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

Private Bag X 447· PRETORIA · 0001· Environment House, 473 Steve Biko Road, Arcadia, Pretoria,
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NEAS Reference: DEA/EIA/0001700/2013
DEA Reference: 14/12/16/3/3/2/475
Enquiries: Mahlatse Shubane
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Mr Rajan Chetty
Transnet SOC Limited
P.O Box 38163
POINT
4069

Fax no: (031) 361 1799

PER FACSIMILE / MAIL

Dear Mr Chetty

ENVIRONMENTAL AUTHORISATION IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998: GN R.543; R.544; R545 AND R546: THE PROPOSED PROVISION OF MARINE INFRASTRUCTURE, INCLUDING A GENERAL CARGO BERTH AND LIQUID BULK BERTHS AT THE PORT OF NGQURA WITHIN THE COEGA INDUSTRIAL DEVELOPMENT ZONE WITHIN NELSON MANDELA BAY METROPOLITAN MUNICIPALITY IN THE EASTERN CAPE PROVINCE

With reference to the above application, please be advised that the Department has decided to grant authorisation. The environmental authorisation (EA) and reasons for the decision are attached herewith.

In terms of regulation 10(2) of the Environmental Impact Assessment Regulations, 2010 (the Regulations), you are instructed to notify all registered interested and affected parties, in writing and within 12 (twelve) days of the date of the EA, of the Department's decision in respect of your application as well as the provisions regarding the submission of appeals that are contained in the Regulations.

Your attention is drawn to Chapter 7 of the Regulations, which prescribes the appeal procedure to be followed. This procedure is summarised in the attached document. Kindly include a copy of this document with the letter of notification to interested and affected parties.

Should the applicant or any other party wish to appeal any aspect of the decision a notice of intention to appeal must be lodged by all prospective appellants with the Minister, within 20 days of the date of the EA, by means of one of the following methods:

By post: Private Bag X447,
Pretoria, 0001; or

By hand: Environment House,
473 Steve Biko Road, Arcadia,
Pretoria.

If the applicant wishes to lodge an appeal, it must also serve a copy of the notice of intention to appeal on all registered interested and affected parties as well as a notice indicating where, and for what period, the appeal submission will be available for inspection, should you intend to submit an appeal.

Please include the Department *(Attention: Director: Integrated Environmental Authorisations)* in the list of interested and affected parties, notified through your notification letter to interested and affected parties, for record purposes.

Appeals must be submitted in writing to:

Mr Z Hassam Director: Appeals and Legal Review, of this Department at the above mentioned addresses or fax number. Mr Hassam can also be contacted at:

Tel: 012-399-9356
Email: AppealsDirectorate@environment.gov.za

The authorised activities shall not commence within twenty (20) days of the date of signature of the authorisation. Further, please note that in terms of Section 43(7) of the National Environmental Management Act, 1998, an appeal under Section 43 of that Act will suspend the environmental authorisation or any provision or condition attached thereto. In the instance where an appeal is lodged, you may not commence with the activity until such time that the appeal is finalised.

Yours faithfully

Mr Ishaam Abader
Deputy Director-General: Legal, Authorisations, Compliance and Enforcement
Department of Environmental Affairs
Date: 24/11/2014

CC:	Mr I Banoo	CSIR	Tel: 031-242-2378	Fax: 031-261-2509
	Mr A Struwig	Provincial Department: DEDEAT	Tel: 041-508-5800	Fax: 041-585-1958
	Mr J Mkosana	Nelson Mandela Bay Metropolitan Municipality	Tel: 041-506-5464	Fax: 041-505-4491

APPEALS PROCEDURE IN TERMS OF CHAPTER 7 OF THE NEMA EIA REGULATIONS, 2010 (THE REGULATIONS) AS PER GN R. 543 OF 2010 TO BE FOLLOWED BY THE APPLICANT AND INTERESTED AND AFFECTED PARTIES UPON RECEIPT OF NOTIFICATION OF AN ENVIRONMENTAL AUTHORISATION (EA)

APPLICANT	INTERESTED AND AFFECTED PARTIES (IAPs)
1. Receive EA from the relevant Competent Authority (the Department of Environmental Affairs [DEA]).	1. Receive EA from Applicant/Consultant.
2. Within 12 days of date of the EA notify all IAPs of the EA and draw their attention to their right to appeal against the EA in terms of Chapter 7 of the Regulations.	2. N/A.
3. If you want to appeal against the EA, submit a notice of intention to appeal within 20 days of the date of the EA with the Minister of Environmental Affairs (the Minister).	3. If you want to appeal against the EA, submit a notice of intention to appeal within 20 days of the date of the EA. with the Minister of Environmental Affairs (the Minister).
4. After having submitted your notice of intention to appeal to the Minister, provide each registered IAP with a copy of the notice of intention to appeal within 10 days of lodging the notice.	4. After having submitted your notice of intention to appeal to the Minister, provide the applicant with a copy of the notice of intention to appeal within 10 days of lodging the notice.
5. The Applicant must also serve on each IAP: • a notice indicating where and for what period the appeal submission will be available for inspection.	5. Appellant must also serve on the Applicant within 10 days of lodging the notice, • a notice indicating where and for what period the appeal submission will be available for inspection by the applicant.
6. The appeal must be submitted in writing to the Minister within 30 days after the lapsing of the period of 20 days provided for the lodging of the notice of intention to appeal.	6. The appeal must be submitted to the Minister within 30 days after the lapsing of the period of 20 days provided for the lodging of the notice of intention to appeal.
7. Any IAP who received a notice of intention to appeal may submit a responding statement to that appeal to the Minister within 30 days from the date that the appeal submission was lodged with the Minister.	7. An Applicant who received notice of intention to may submit a responding statement to the appeal to the Minister within 30 days from the date that the appeal submission was lodged with the Minister.

NOTES:

1. **An appeal must be:-**
   a) submitted in writing;
   b) accompanied by:
   - a statement setting out the grounds of appeal;
   - supporting documentation which is referred to in the appeal; and
   - a statement that the appellant has complied with regulation 62 (2) or (3) together with copies of the notices referred to in regulation 62.



environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

Environmental Authorisation

In terms of regulation 36 of the Environmental Impact Assessment Regulations, 2010

Provision of marine infrastructure, including a General Cargo Berth and Liquid Bulk Berths at the Port of Ngqura within the Coega Industrial Development Zone

Nelson Mandela Metropolitan Municipality

Authorisation register number:	*14/12/16/3/3/2/475*
NEAS reference number:	*DEA/EIA/0001700/2013*
Last amended:	*First issue*
Holder of authorisation:	*TRANSNET SOC LIMITED*
Location of activity:	*EASTERN CAPE PROVINCE: Within the Nelson Mandela Metropolitan Municipality*

This authorisation does not negate the holder of the authorisation's responsibility to comply with any other statutory requirements that may be applicable to the undertaking of the activity.

Decision

The Department is satisfied, on the basis of information available to it and subject to compliance with the conditions of this environmental authorisation, that the applicant should be authorised to undertake the activities specified below.

Non-compliance with a condition of this authorisation may result in criminal prosecution or other actions provided for in the National Environmental Management Act, 1998 and the EIA regulations.

Details regarding the basis on which the Department reached this decision are set out in Annexure 1.

Activity authorised

By virtue of the powers conferred on it by the National Environmental Management Act, 1998 (Act 107 of 1998) and the Environmental Impact Assessment Regulations, 2010 the Department hereby authorises –

TRANSNET SOC LIMITED

with the following contact details –

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to undertake the following activity (hereafter referred to as "the activity") indicated in Listing Notices 1, 2 & 3 (GN R. 544, GN R. 546):

Listed activities	**Activity/Project description**
GN R. 544 Item 11 The construction of: (ii) channels; (iii) bridges; (vi) bulk storm water outlet structures; (viii) jetties exceeding 50 square metres in size; (x) buildings exceeding 50 square metres in size; or (xi) infrastructure or structures covering 50 square metres or more Where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.	The proposed project will include the construction of the new Liquid Bulk Berths, which will each cover an estimated length of 350 m and 50 m in width, as well as the construction of a General Cargo Berth which will cover an approximate length of 300 m and will occur within 32 m of the watercourse (Coega Estuary).
GN R. 544 Item 13: The construction of facilities or infrastructure for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 but not exceeding 500 cubic metres.	Above-ground storage tanks (diesel) with a maximum capacity of 500m³ will be constructed to allow for the storage of diesel and other fuels.
GN R. 544 Item 14: The construction of structures in the coastal public property where the development footprint is bigger than 50 square metres, excluding (i) the construction of structures within existing ports or harbours that will not increase the development footprint or throughput capacity of the port or harbour; (ii) the construction of a port or harbour, in which case activity 24 of Notice 545 of 2010 applies; (iii) the construction of temporary structures within the beach	The proposed project will include a Liquid Bulk Berth A100 (17 500m²), Liquid Bulk Berth A101 (20 000m²), General Cargo Berth B101 (15 000m²), Access Road to the Liquid Bulk Berth A100 (3 000m²), Access Road to the Liquid Bulk Berth A101 (3 000m²), Access road to the Rear Berth (3 000m²), Klub Road Diversion (15 000m²), Revetment and Foreshore Stabilisation (97 900m²), Navigation Channel (304 500m²), Temporary

Listed activities	Activity/Project description
zone where such structures will be demolished or disassembled after a period not exceeding 6 weeks.	and permanent relocation of the Cerebos Ltd Seawater Intake Pipeline (560m²) and Relocation of the Klub Road Causeway (500m²)
GN R. 544 Item 16: Construction or earth moving activities in the sea, an estuary, or within the littoral active zone or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever is the greater, in respect of - (i) fixed or floating jetties and slipways; (iv) rock revetments or stabilising structures including stabilising walls; (v) buildings of 50 square metres or more; or (vi) infrastructure covering 50 square metres or more - but excluding (a) if such construction or earth moving activities will occur behind a development setback line; or (b) where such construction or earth moving activities will occur within existing ports or harbours and the construction or earth moving activities will not increase the development footprint or throughput capacity of the port or harbour; (c) where such construction or earth moving activities is undertaken for purposes of maintenance of the facilities mentioned in (i)-(vi) above; or (d) where such construction or earth moving activities is related to the construction of a port or harbour, in which case activity 24 of Notice 545 of 2010 applies.	The proposed project will include a Liquid Bulk Berth A100 (17 500m²), Liquid Bulk Berth A101 (20 000m²), General Cargo Berth B101 (15 000m²), Access Road to the Liquid Bulk Berth A100 (3 000m²), Access Road to the Liquid Bulk Berth A101 (3 000m²), Access road to the Rear Berth (3 000m²), Klub Road Diversion (15 000m²), Revetment and Foreshore Stabilisation (97 900m²), Navigation Channel (304 500m²), Temporary and permanent relocation of the Cerebos Ltd Seawater Intake Pipeline (560m²) and Relocation of the Klub Road Causeway (500m²) and will occur within 100 m inland of the high-water mark of the sea, in the Coega Estuary
GN R. 544 Item 18: The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from: (i) a watercourse;	The total in-situ material to be dredged for the construction of the proposed berths and to be deposited at the existing offshore disposal site is approximately 4 million m³. An additional 500 000m³ of material is planned to be excavated in the dry for the construction of the General Cargo Berth

Listed activities	Activity/Project description
(ii) the sea; (iii) the seashore; (iv) the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever distance is the greater- but excluding where such infilling, depositing, dredging, excavation, removal or moving; (a) is for maintenance purposes undertaken in accordance with a management plan agreed to by the relevant environmental authority; or (b) occurs behind the development setback line.	(B101).
GN R. 544 Item 22: The construction of a road, outside urban areas, (i) With a reserve wider than 13.5 metres or (ii) where no reserve exists where the road is wider than 8 metres.	The proposed project will entail the construction of access road to the proposed Berth A100, Berth A101 and Rear Berth. Each access road will be approximately 300m long and 10m wide. Will include relocation of the Klub causeway and will be approximately 10m wide and 50m long. The diverted section of the road will contain similar dimensions to that of the existing road (i.e. approximately 25m wide (including sidewalks)). Therefore, the diverted section of Klub Road will cover an approximate length of 600m and width of 25m. The estimated road reserve will be 30m wide.
GN R. 544 Item 23: The transformation of undeveloped, vacant or derelict land to - (ii) residential, retail, commercial, recreational, industrial or institutional use, outside an urban area and where the total area to be transformed is bigger than 1 hectare but less than 20 hectares.	The proposed project will include a Liquid Bulk Berth A100 (17 500m²), Liquid Bulk Berth A101 (20 000m²), General Cargo Berth B101 (15 000m²), Access Road to the Liquid Bulk Berth A100 (3 000m²), Access Road to the Liquid Bulk Berth A101 (3 000m²), Access road to the Rear Berth (3 000m²), Klub Road Diversion (15 000m²), Revetment

Listed activities	Activity/Project description
	and Foreshore Stabilisation (97 900m²), Navigation Channel (304 500m²), Temporary and permanent relocation of the Cerebos Ltd Seawater Intake Pipeline (560m²) and Relocation of the Klub Road Causeway (500m²). The total area to be transformed will be greater than 1 hectare but less than 20 hectares.
GN R. 544 Item 40: The expansion of (i) jetties by more than 50 square metres; (iv) Infrastructure by more than 50 square metres within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, but excluding where such expansion will occur behind the development setback line.	Bulk Berth A100 (3 000m²), Access Road to the Liquid Bulk Berth A101 (3 000m²), Access road to the Rear Berth (3 000m²), Klub Road Diversion (15 000m²), Revetment and Foreshore Stabilisation (97 900m²), Navigation Channel (304 500m²), Temporary and permanent relocation of the Cerebos Ltd Seawater Intake Pipeline (560m²) and Relocation of the Klub Road Causeway (500m²) and will occur within 32 m of the watercourse (Coega Estuary).
GN R. 544 Item 43: The expansion of structures in the coastal public property where the development footprint will be increased by more than 50 square metres, excluding such expansions within existing ports or harbours where there would be no increase in the development footprint or throughput capacity of the port or harbour.	The proposed General Cargo Berth will extend approximately 300m in length and 50m in width, and will be an inshore extension of the existing Berth B100. Therefore, General Cargo Berth will cover a total area of approximately 15 000m². The proposed project will increase the existing development footprint of the Port of Ngqura and its throughput capacity
GN R. 544 Item 45: The expansion of facilities in the sea, an estuary, or within the littoral active zone or a distance of 100 metres inland of the high-water mark of the sea or an estuary whichever is the greater, for- (i) fixed or floating jetties and slipways; (vi) infrastructure by more than 50 square metres;	The proposed extension may take place within a distance of 100 metres inland of the high water mark of the sea or estuary.

Listed activities	Activity/Project description
(vii) facilities associated with the arrival and departure of vessels and the handling of cargo; (xii) coastal harbours or ports; where such expansion will result in an increase in the development footprint of such facilities but excluding where such expansion occurs: (a) behind a development setback line; or (b) within existing ports or harbours where there will be no increase in the development footprint or throughput capacity of the port or harbour.	
GN R. 544 Item 54: The expansion of an island, anchored platform or any other permanent structure on or along the sea bed, where the expansion will constitute an increased development footprint.	The proposed construction of the General cargo Berth will be an inshore extension of the existing Berth B100, which will cover an estimated length of 300m and width of 100m. Thus, this entails expansion of the development footprint.
GN R. 545 Item 14: The construction of an island, anchored platform or any other permanent structure on or along the sea bed excluding construction of facilities, infrastructure or structures for aquaculture purposes.	The proposed project will include the construction of permanent structures along the sea bed in the form of the new general cargo berth. The proposed project will include the temporary and permanent relocation of the Cerebos Limited Seawater Intake Pipeline (approximately 560m^2), which will extend along the seabed.
GN R. 545 Item 24: Construction or earth moving activities in the sea, an estuary, or within the littoral active zone or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever distance is the greater, in respect of: (i) facilities associated with the arrival and departure of vessels and the handling of cargo; but excluding - (a) activities listed in activity 16 in Notice 544 of 2010, (b) construction or earth moving activities if such construction or earth moving activities will occur behind a development	The proposed construction of the General Cargo Berth will occur within 100m inland of the high water mark of the Coega Estuary and the sea.

Listed activities	Activity/Project description
setback line; (c) where such construction or earth moving activities will occur in existing ports or harbours where there will be no increase of the development footprint or throughput capacity of the port or harbour; or (d) where such construction or earth moving activities takes place for maintenance purposes.	
GN R. 546 Item 4: The construction of a road wider than 4 metres with a reserve less than 13,5 metres. **(a) In Eastern Cape** ii. Outside urban areas, (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve; (hh) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined.	The proposed project will entail the construction of an estimated 10m wide and 300m long access road to the liquid Bulk Berths. The proposed project is situated in the Eastern Cape Province, outside urban areas in a critical biodiversity area in terms of Eastern Cape Biodiversity Conservation Plan (ECBCP).
GN R. 546 Item 10: The construction of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres. **(a) In Eastern Cape** ii. Outside urban areas, in (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area	The proposed Berths will serve as designated Liquid Bulk Berths for operators to store and handle various bulk liquids, such as Liquid petroleum Gas, Petrol and Diesel. Hence, the proposed project will entail the construction of facilities or infrastructure for the storage and handling of dangerous goods in excess of 30m³, but not exceeding 80m³. The proposed project is situated in the Eastern Cape Province, outside urban areas in a critical biodiversity area in terms of Eastern Cape Biodiversity Conservation Plan

Listed activities	Activity/Project description
identified in terms of NEMPAA or from the core areas of a biosphere reserve; (hh) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined; (ii) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined; (jj) Within 500 metres of an estuary.	(ECBCP).
GN R. 546 Item 16: The construction of: (i) jetties exceeding 10 square metres in size; (ii) slipways exceeding 10 square metres in size; (iv) infrastructure covering 10 square metres or more where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line. **(a) In Eastern Cape** i. In an estuary; ii. Outside urban areas, in: (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve; (ii) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined.	The proposed General Cargo Berth will extend approximately 300m in length and 50m in width. Therefore, the General Cargo Berth will cover a total area of approximately 15 000m², of which approximately 9 600m² of the construction activities will occur within 32m of the Coega Estuary, outside urban areas in a critical biodiversity area in terms of Eastern Cape Biodiversity Conservation Plan (ECBCP) and 10 km of the Addo Elephant National Park. Portions of the infrastructure will occur within the Coega Estuary and within 1km of the high water mark of the sea.

Listed activities	Activity/Project description
GN R. 546 Item 24: The expansion of (a) jetties where the jetty will be expanded by 10 square metres in size or more; (d) infrastructure where the infrastructure will be expanded by 10 square metres or more where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line. **(a) In Eastern Cape** ii. Outside urban areas, in: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve; (hh) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined.	The proposed project entails the expansion of jetties and infrastructure by more than 10m². The proposed project will occur within 32m of the Coega Estuary, outside urban areas in a critical biodiversity area in terms of Eastern Cape Biodiversity Conservation Plan (ECBCP) and 10 km of the Addo Elephant National Park. Portions of the infrastructure will occur within the Coega Estuary and within 1km of the high water mark of the se

as described in the Environmental Impact Assessment Report (EIAR) received by the Department on 11 April 2014 at:

Site Alternative per component	Latitude (S)	Longitude (E)
A100 Berthing Pocket	33° 47' 46.84" S	25° 41' 28.23" E
A101 Berthing Pocket	33° 47' 38.33" S	25° 41' 17.79" E
B100 Berthing Pocket	33° 47' 56.16" S	25° 41' 19.54" E
B101 Berthing Pocket	33° 47' 48.25" S	25° 41' 12.76" E

Permanent Revetment (purple area)	33° 47' 37.68" S	25° 41' 5.31" E
Navigation Channel	33° 47' 46.74" S	25° 41' 18.99" E
Temporary Revetment	33° 47' 40.96" S	25° 41' 14.20" E
Permanent Revetment	33° 47' 41.93" S	25° 41' 28.16" E

- for the provision of Marine Infrastructure, including a General Cargo Berth and Liquid Bulk Berths at the Port of Ngqura within the Coega Industrial Development Zone within Nelson Mandela Bay Metropolitan Municipality in the Eastern Cape Province, hereafter referred to as "the property".

The infrastructure associated with this development includes:

- **Liquid Bulk Berths**:

  Two Liquid Bulk Berths (i.e. Berth A100 and Berth A101) will be constructed as part of the proposed project. The proposed location for Berth A100 is east of the Coega River outfall with the B-series berths towards the south. The proposed location for Berth A101 is upstream and west of the proposed Berth A100. Berth A101 will also extend beyond or upstream of the existing Klub Road Causeway. Berths A100 and A101 will respectively be approximately 350m and 400m long. In addition, Berth A100 will be angled at a maximum angle of 30 degrees towards the north, measured from the berthing line of the future A-series Berths. The back of quay for the Liquid Bulk Berths will extend approximately 50m in width; however each berth will have a 75m wide berth pocket (extending from the berthing line), which is the pocket within which the vessels will berth.

  The Liquid Bulk Berths will be designed to handle Liquid Bulk vessels of typically 100 000 DWT and 166 000 DWT in size and will contain an estimated maintained berth depth of - 18 m Chart Datum (CD) (Port). Liquid Petroleum Gas (LPG) vessels of a typical size of 8400 DWT will also be handled at the proposed Liquid Bulk Berths. Furthermore, deepening the maintained berth depth to - 21 m CD is a future possibility. In addition, a Rear Berth of approximately 250m in length is proposed to be constructed as part of the project to serve as a bunker barge facility used to supply fuel to bunker barges operating within the Port of Ngqura.

The Liquid Bulk Berth A100 will be designed as an island berth and will be constructed with deck-on-piles (i.e. deck-on-pile dolphin structure). In terms of Liquid Bulk Berth A101, a continuous quay structure is the preferred form of construction for this particular berth.

The Berth A100 will typically comprise of a loading platform, a facilities platform, berthing dolphins and mooring dolphins. The Rear Berth is proposed to consist of an independent access road and pipe route (for Bulk Liquid Pipelines), a facilities platform, berthing dolphins and mooring dolphins.

Access roads will be constructed to both Berth A100 and the Rear Berth. Furthermore, vehicle access to Berth A101 will largely be positioned on the back of quay. The proposed access roads will be approximately 300m long and 10m wide. The access roads will be suitable for small vehicles, maintenance plant and emergency vehicles.

- **General Cargo Berth**:

A General Cargo Berth will be constructed towards the west of the Coega River and will extend approximately 300m in length (as an inshore extension of the existing Berth B100). The back of quay area for Berth B101 will extend 50m in width and the berth pocket (seaward of the berthing line) will be 60m wide. The General Cargo Berth quay wall will most likely be a reinforced concrete diaphragm wall and will possibly be constructed in the dry. Berth B101 is estimated to contain a maintained berth depth of - 18 m CD (Port) and will be designed to handle General Cargo and future Bulk product vessels that are approximately 100 000 DWT in size.

Approximately 500 000m^3 of material is planned to be excavated in the dry for the construction of the proposed General Cargo Berth. It is proposed that suitable excavated material could be transported via trucks to spoil at the eastern beach to supplement the existing sand bypass system (no foreign material will be placed at the eastern beach). It is estimated that approximately one third (i.e. 170 000 m^3 of the 500 000 m^3) will comprise clean sand that can be used for the purposes of beach nourishment. Alternatively, the excavated material could possibly be stockpiled for subsequent backfilling material or for future use within the Port of Ngqura.

- **Dredging:**

  It is proposed that dredging will take place in the areas allocated for the proposed Liquid Bulk Berth A100, in the access channel to the proposed Rear Berth, in the access channel between the Liquid Bulk Berths and the existing Berth B100, and at the General Cargo Berth for the proposed excavation of the reclamation area and land seaward of the diaphragm wall. It is likely that the construction of Berths A100 and A101 may be phased, therefore requiring separate mobilisation for a dredger for the construction of Berth A101. On the other hand, it is planned to avoid mobilising a dredger twice for the construction of Berths A100 and B101.

  Dredge disposal is expected to take place at the existing offshore disposal site. The existing disposal site is located approximately 9 km offshore and covers an estimated area of 680 hectares. The dredge volume for the proposed project is estimated to range between 3 - 4 million m^3, with a possible 10% over-dredging and 25% bulking factor resulting in 5.5 million m^3 of dredge spoil that may need to be dredged and disposed at the offshore dredge spoil disposal site.

- **Foreshore Stabilization and Revetment**:

  Revetment structures are planned to be constructed in the vicinity of the proposed Liquid Bulk Berths and General Cargo Berth. Permanent revetment structures are proposed to be constructed between Berth B101 and Berth A101 (upstream of the existing Klub Road Causeway), as well as along the eastern beach behind Berth A100.

  However, temporary revetment structures are also required between Berth B101 and Berth A100 (downstream of the existing Klub Road Causeway). This temporary structure, which is required for stabilisation for the proposed Berth A100, will be removed when Berth A101 is being constructed.

  The revetments are proposed to be constructed by undertaking dredging to form stable natural foreshore slopes, followed by the placement of rock (of a specific grading) to form a stable slope at a suitable gradient. Revetments may also be required at other locations that interface between the marine and onshore works, such as between the quay walls and onshore infrastructure.

- **Relocation of the Cerebos Limited Seawater Intake Pipeline:**

  An existing seawater intake pipeline that is currently supplying the nearby Cerebos Limited Evaporation Area is located within the marine channel for the construction of the proposed Liquid Bulk Berths. As such, the relocation of the Cerebos Limited intake pipeline will be undertaken as part of this proposed project. Temporary relocation of the intake pipeline, to facilitate the dredging and reclamation works, will initially be required prior to permanent relocation. It may be necessary to complete the temporary diversion of the seawater intake pipeline before commencing works on the approach trestle structure to the Liquid Bulk Berths. At this point it is planned that the intake pipeline will be diverted in between the D-series and C-series berths.

- **Diversion of the Klub Road and Klub Road Causeway and Adjacent Services:**

  To enable the construction of the proposed General Cargo Berth (i.e. Berth B101) and Liquid Bulk Berth A101, as well as to facilitate the future expansion of the Port of Ngqura, the existing Klub Road Causeway (River Crossing) will possibly need to be relocated further up the Coega River. In order to allow Berth A101 to be constructed, it is likely that the Klub Road Causeway will need to be diverted to at least 300 m upstream of its existing location. The diverted causeway is planned to contain a similar design to the existing causeway. The existing Klub Road Causeway contains 20 concrete pipes (of 1050 mm diameter each) and is designed as a low level bridge to allow for over washing. In terms of phasing, the diversion of the Klub Road Causeway is expected to take place when the proposed Berth A101 is being constructed.

  A section of the existing 400 mm diameter sand bypass pipeline, including general services that feed the Admin Craft Basin area and Port Control, are currently positioned parallel to Klub Road, and will therefore also be diverted.

  The diversion of the Klub Road causeway will also entail the relocation/re-alignment of Klub Road, where required. It is likely that Klub Road will be diverted approximately 300 m upstream of its existing position, along the west bank of the Coega River. The diverted section of the road will contain similar dimensions to that of the existing road (i.e. approximately 25 m wide (including sidewalks)). It is estimated that a 600 m long section of Klub Road will need to be relocated to about 300 m upstream of its existing location.

- **Navigation Channel:**

  An approximately 325 m – 350 m wide channel is planned to be constructed between the proposed Liquid Bulk Berths and Berth B100 to allow for one-way navigation of large vessels. However, small vessels and tugs will most likely utilise the channel for two-way navigation if permissible. The existing approach channel is maintained at a depth of -18 m CD.

- **General Services:**

  The following services will be provided:

  - Access roads (approximately 300 m long and 10 m wide) will be provided to Berths A100, A101 and the Rear Berth.
  - An approximately 400 mm and 200 mm diameter potable water pipeline will be provided to the proposed Liquid Bulk Berths and General Cargo Berth respectively. Water will be required for fire protection.
  - Storm water pipelines ranging between approximately 450 mm and 900 mm in diameter will be provided at the General Cargo Berth and the Liquid Bulk Berths. The storm water infrastructure will extend approximately 300 m in length for Berths B100 and B101, 350 m in length for Berth A100, and 400 m in length for Berth A101. Associated storm water infrastructure will also be provided.
  - Electricity cables and double-run ducting will be provided alongside the proposed Liquid Bulk Berths and General Cargo Berth for power and communication requirements. The Liquid Bulk Berths and General Cargo Berth will require a 400V x 1 kVA power supply. All cable routes from the supply substations to the berths will be routed underground through dedicated ducts, where necessary.
  - A fire-fighting system will be provided at the proposed Liquid Bulk Berths. The fire-fighting system will be powered by electrical and/or diesel driven pumps. The system design will allow for foam to be introduced into the water supply.
  - Lighting, fencing, security systems and ablutions will be provided at the berths in line with the operator requirements.



- **Operation of Berth B100:**

  Berth B100 is an existing (and authorised) Liquid Bulk Berth at the Port of Ngqura which is used on an ad-hoc basis. Berth B100 extends 300 m in length (constructed 452m long, with 152m backfilled for future construction) and is located towards the west of the Coega River. Berth B100 will be available for use by the operator of the proposed tank farm, in the event that the construction of the proposed Liquid Bulk Berths (i.e. Berths A100 and A101) cannot be completed or authorised in time to allow the Tank Farm Operator to install the operational equipment on the berth by the required operational date.

Above-ground storage tanks with a maximum capacity of 500m^3 will be constructed to allow for the temporary storage of diesel and other fuels (i.e. dangerous goods).

During the operational phase, maintenance dredging, maintenance of quay furniture and services, and maintenance of terminal operating equipment will be undertaken for the proposed General Cargo Berth and Liquid Bulk Berths.

Conditions of this Environmental Authorisation

Scope of authorisation

1. The preferred site alternative with the abovementioned co-ordinates as indicated in the EIAR and the preferred activity alternative (Island Berth: Deck on Piles) received by the Department on 11 April 2014 is hereby authorised.
2. Authorisation of the activity is subject to the conditions contained in this authorisation, which form part of the environmental authorisation and are binding on the holder of the authorisation.
3. The holder of the authorisation is responsible for ensuring compliance with the conditions contained in this environmental authorisation. This includes any person acting on the holder's behalf, including but not limited to, an agent, servant, contractor, sub-contractor, employee, consultant or person rendering a service to the holder of the authorisation.
4. The activity authorised may only be carried out at the property as described above.
5. Any changes to, or deviations from, the project description set out in this authorisation must be approved, in writing, by the Department before such changes or deviations may be effected. In assessing whether to grant such approval or not, the Department may request such information as

it deems necessary to evaluate the significance and impacts of such changes or deviations and it may be necessary for the holder of the authorisation to apply for further authorisation in terms of the regulations.

6. This activity must commence within a period of five (5) years from the date of issue of this authorisation. If commencement of the activity does not occur within that period, the authorisation lapses and a new application for environmental authorisation must be made in order for the activity to be undertaken.
7. Commencement with one activity listed in terms of this authorisation constitutes commencement of all authorised activities.
8. The holder of an environmental authorisation must notify the competent authority of any alienation, transfer and change of ownership rights in the property on which the activity is to take place.

Notification of authorisation and right to appeal

9. The holder of the authorisation must notify every registered interested and affected party, in writing and within 12 (twelve) calendar days of the date of this environmental authorisation, of the decision to authorise the activity.
10. The notification referred to must –
    - 10.1. specify the date on which the authorisation was issued;
    - 10.2. inform the interested and affected party of the appeal procedure provided for in Chapter 7 of the Environmental Impact Assessment Regulations, 2010;
    - 10.3. advise the interested and affected party that a copy of the authorisation will be furnished on request; and
    - 10.4. give the reasons of the competent authority for the decision.
11. The holder of the authorisation must publish a notice –
    - 11.1. informing interested and affected parties of the decision;
    - 11.2. informing interested and affected parties where the decision can be accessed; and
    - 11.3. drawing the attention of interested and affected parties to the fact that an appeal may be lodged against this decision in the newspaper(s) contemplated and used in terms of regulation 54(2)(c) and (d) and which newspaper was used for the placing of advertisements as part of the public participation process.



Management of the activity

12. The Environmental Management Programme (EMPr) submitted as part of the Application for EA is hereby approved. This EMPr must be implemented and adhered to.

Monitoring

13. A suitably qualified independent Environmental Control Officer (ECO) must be appointed who would act on behalf of the applicant and is required to report to the Coega Environmental Management Committee (EMC) via the ECO for the IDZ on a monthly basis regarding monitoring the project compliance with conditions of the environmental authorisation and recommendations of the EMPr.
    13.1. The ECO must be appointed before commencement of any authorised activities.
    13.2. Once appointed, the name and contact details of the ECO must be submitted to the *Director: Compliance Monitoring* of the Department.
    13.3. The ECO must keep record of all activities on site, problems identified, transgressions noted and a task schedule of tasks undertaken by the ECO.
    13.4. The ECO must remain employed until all rehabilitation measures, as required for implementation due to construction damage, are completed and the site is ready for operation.

Recording and reporting to the Department

14. All documentation e.g. audit/monitoring/compliance reports and notifications, required to be submitted to the Department in terms of this authorisation, must be submitted to the *Director: Compliance Monitoring* at the Department.
15. The holder of the authorisation must submit an environmental audit report to the Department within 30 days of completion of the construction phase (i.e. within 30 days of site handover) and within 30 days of completion of rehabilitation activities.
16. The environmental audit report must indicate the date of the audit, the name of the auditor and the outcome of the audit in terms of compliance with the environmental authorisation conditions as well as the requirements of the EMPr.

17. Records relating to monitoring and auditing must be kept on site and made available for inspection to any relevant and competent authority in respect of this development.

Commencement of the activity

18. The authorised activity shall not commence within twenty (20) days of the date of signature of the authorisation.
19. In terms of Section 43(7), an appeal under Section 43 of the National Environmental Management Act, 1998 will suspend the environmental authorisation or any provision or condition attached thereto. In the instance where an appeal is lodged you may not commence with the activity until such time that the appeal has been finalised.

Notification to authorities

20. Fourteen (14) days written notice must be given to the Department that the activity will commence. Commencement for the purposes of this condition includes site preparation. The notice must include a date on which it is anticipated that the activity will commence, as well as a reference number. This notification period may coincide with the notice of intent to appeal period.

Operation of the activity

21. Fourteen (14) days written notice must be given to the Department that the activity operational phase will commence.

Site closure and decommissioning

22. Should the activity ever cease or become redundant, the applicant shall undertake the required actions as prescribed by legislation at the time and comply with all relevant legal requirements administered by any relevant and competent authority at that time.

Specific conditions

23. Domestic wastewater must be discharged to the existing sewer/treatment facilities.
24. Vegetation can only be removed in the construction areas.
25. Appropriate dust suppression techniques must be implemented on all exposed surfaces during periods of high wind. Such measures may include wet suppression, chemical stabilization, the use of a wind fence, covering surfaces with straw chippings and re-vegetation of open areas.
26. No exotic plants may be used for rehabilitation purposes. Only indigenous plants of the area must be utilised.
27. A re-vegetation and habitat rehabilitation plan must be implemented during the construction and operation phases, including timeframes for restoration, which must indicate rehabilitation within the shortest possible time after completion of construction activities to reduce the amount of habitat converted at any one time and to speed up the recovery of natural habitats. The rehabilitation plan must include the management and control alien invasive plants.
28. Silt curtains or similar measures must be deployed to limit the ingress of fine sediments into Coega River Estuary.
29. Should any archaeological resources be discovered, the construction work must stop immediately and the relevant heritage resources be notified immediately.
30. Dredging activities must be confined to the Port of Ngqura area ensuring minimal export of turbidity to the adjacent environment.
31. Fuel storage tanks must be bunded (110% of the proposed tank's capacity) to contain any possible spills and to prevent any infiltration of fuel into the ground.
32. The area surrounding the tank must be kept clean of flammable material and the required warning signs must be erected and be visible.
33. A storm water management plan must be compiled and included as part of the Operational Management Plan for the site in order to prevent off-site migration of contaminated storm water or increased soil erosion and storm water runoff.
34. An Emergency Response Plan must be compiled and included as part of Operational Management Plan to address the fuel spills/leaks at the tank farm and outline procedures that ensure adequate control, communication, co-operation and competency of all parties that may be involved in responding to an emergency. Spill clean-up equipment and associated waste containers must be available at all times at the site.

35. An integrated waste management approach must be implemented that is based on waste minimisation and must incorporate reduction, recycling, re-use and disposal.

General

36. A copy of this authorisation and the approved EMPr must be kept at the property where the activity/ will be undertaken. The authorisation and approved EMPr must be produced to any authorised official of the Department who requests to see it and must be made available for inspection by any employee or agent of the holder of the authorisation who works or undertakes work at the property.
37. The holder of the authorisation must notify both the *Director: Integrated Environmental Authorisations* and the *Director: Compliance Monitoring* at the Department, in writing and within 48 (forty eight) hours, if any condition of this authorisation cannot be or is not adhered to. Any notification in terms of this condition must be accompanied by reasons for the non-compliance.
38. National government, provincial government, local authorities or committees appointed in terms of the conditions of this authorisation or any other public authority shall not be held responsible for any damages or losses suffered by the applicant or his successor in title in any instance where construction or operation subsequent to construction be temporarily or permanently stopped for reasons of non-compliance by the applicant with the conditions of authorisation as set out in this document or any other subsequent document emanating from these conditions of authorisation.

Date of environmental authorisation: 24 NOVEMBER 2014

Mr Ishaam Abader
Deputy Director-General: Legal, Authorisations, Compliance and Enforcement
Department of Environmental Affairs

Annexure 1: Reasons for Decision

1. Information considered in making the decision

In reaching its decision, the Department took, *inter alia*, the following into consideration -

a) The information contained in the EIAR received by the Department on 11 April 2014;
b) The comments received from the organs of state and interested and affected parties as included in the EIAR received by the Department on 11 April 2014;
c) Mitigation measures as proposed in the EIAR received by the Department on 11 April 2014 and the EMPr;
d) The information contained in the specialist studies contained within the EIAR; and
e) The objectives and requirements of relevant legislation, policies and guidelines, including section 2 of the National Environmental Management Act, 1998 (Act 107 of 1998).

2. Key factors considered in making the decision

All information presented to the Department was taken into account in the Department's consideration of the application. A summary of the issues which, in the Department's view, were of the most significance is set out below.

a) The findings of all the specialist studies conducted and their recommended mitigation measures.
b) The need for the proposed project aims to provide electricity supply to the mine and neighbouring community.
c) The EIAR received by the Department on 11 April 2014 identified all legislation and guidelines that have been considered in the preparation of the EIAR received by the Department on 11 April 2014.
d) The methodology used in assessing the potential impacts identified in the EIAR received by the Department on 11 April 2014 and the specialist studies have been adequately indicated.
e) A sufficient public participation process was undertaken and the applicant has satisfied the minimum requirements as prescribed in the EIA Regulations, 2010 for public involvement.

3. Findings

After consideration of the information and factors listed above, the Department made the following findings -

a) The identification and assessment of impacts are detailed in the EIAR received by the Department on 11 April 2014 and sufficient assessment of the key identified issues and impacts have been completed.
b) The procedure followed for impact assessment is adequate for the decision-making process.
c) The proposed mitigation of impacts identified and assessed adequately curtails the identified impacts.
d) The information contained in the EIAR received by the Department on 11 April 2014 is accurate and credible.
e) EMPr measures for the pre-construction, construction and rehabilitation phases of the development were proposed and included in the EIAR and will be implemented to manage the identified environmental impacts during the construction process.

In view of the above, the Department is satisfied that, subject to compliance with the conditions contained in the environmental authorisation, the proposed activity will not conflict with the general objectives of integrated environmental management laid down in Chapter 5 of the National Environmental Management Act, 1998 and that any potentially detrimental environmental impacts resulting from the proposed activity can be mitigated to acceptable levels. The environmental authorisation is accordingly granted.

Annexure E

General Quality Requirements for Contractors and Suppliers

TRANSNET

GENERAL QUALITY REQUIREMENTS FOR CONTRACTORS AND SUPPLIERS

Document Number	TNPA-QUAL-REQ-014.1
Version Number	02
Classification	Unclassified
Effective date	01 September 2023
Review date	31 August 2026

SUMMARY VERSION CONTROL

VERSION NO.	NATURE OF AMENDMENT	PAGE NO.	DATE REVISED
1	Replacing Transnet Group Capital with Transnet		11/08/2020
2	Updated with ISO 9001:2015 referencing and adding clause numbering against requirements,		01/09/2023
3	Document number changed from TNPA-QUAL-STD-0001 to TNPA-QUAL-REQ-014.1		01/09/2023

Note: Only the latest amendments and/or additions are reflected in italics in the body of the document.

DOCUMENTATION SIGN-OFF SHEET

I, the undersigned hereby approve this procedure.

ROLE	CAPACITY/ FUNCTION	SIGNATURE	DATE
Process Owner	**Quality Manager**		01/09/2023
Accepts document for adequacy and practicability. Comments:			

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1. Purpose

This Specification outlines the minimum requirements to ensure that products and services supplied to TRANSNET are manufactured, provided, constructed or installed in accordance with all specified requirements as defined in the Contract, all associated specifications, drawings, codes and standards.

2. Definitions / Abbreviations

Term, Abbreviation	Meaning
Contract:	Formal document evidencing agreement between *Employer* and *Contractor* for supply of on site or off-site services (generic term used for Purchase Orders, Contracts and Service Orders in this Standard).
Contractor:	The party to a *contract* that provides services to the *Employer* (Generic term used for Vendors, Suppliers, Contractors, Consultants, etc.).
Contractor Documentation Schedule (CDS)	A schedule specifying the *Employer's* requirements for the document types to be submitted by the *Contractor* at various stages of the *Contract* and the timing of the submissions.
Data:	All drawings/documents/data/information/DPs and IOMs required to be supplied under the *Contract*.
Data Pack (DP):	A compilation of manufacturing data, certification, inspection and testing records prepared by the *Contractor* to verify compliance with the Contractual requirements.
Employer:	The party to a *Contract* or Purchase Order to whom the goods are supplied or for whom the work or services are performed. In the context of this document, Transnet Capital Projects is the *Employer*.
Field Inspection Checklist (FIC):	A document that details the checks, requirements and test parameters for each type of equipment to permit field installation and pre-commissioning of the equipment
Inspection Release Report (IRR):	A document issued to the *Contractor* by TRANSNET advising release of materials for shipment. This does not relieve the *Contractor* of its obligations in accordance with the Terms and Conditions of the *Contract*.
Inspection Waiver Report (IWR):	A document issued to the *Contractor* by TRANSNET advising that TRANSNET has waived final inspection for the materials listed in this document. The issue of this report does not preclude further inspections by TRANSNET. It is issued without prejudice and does not relieve the *Contractor* from the guarantees and obligations included in the *Contract*.
Installation and Operating Manual (IOM):	A document prepared by the *Contractor* providing relevant information applicable to the installation and maintenance of the specific equipment, including data relating to consumables (e.g., Oils, etc.)
ISO 9001:2015 terms	"shall" indicates a requirement
Non-Conformance (NC)	Material, product or workmanship which is not in accordance with the requirements of the *Contract.*
Non-Conformance Report (NCR):	A document initiated by either TRANSNET or the *Contractor* advising that certain materials/products/workmanship provided by the *Contractor* do not conform to the required standards and specifications.
Project Quality Plan (PQP):	A document that outlines the *Contractor's* strategy, methodology, resources allocation, Quality Assurance and Quality Control coordination activities to ensure that Goods and Services supplied meet or exceed the requirements defined in the *Contract* drawings, codes and standards.

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Term, Abbreviation	Meaning
Quality Assurance (QA):	A formal methodology designed to assess the quality of products or services provided.
Quality Control (QC):	A set of activities intended to ensure that quality requirements are being met.
Quality Control Plan (QCP):	A document outlining specific manufacturing/construction inspection and testing requirements, including responsibilities, test acceptance criteria, nomination of witness and hold points.
Technical Query Note (TQN):	A document used by the *Contractor* to formally clarify a Technical Query related to the scope of supply. This should not be used where a Non-Conformance Report has already been initiated.
TRANSNET:	Transnet SOE Limited
Works Information:	Refers to the *Works Information* as defined in the *Contract*

3. Applicable Documents

3.1 General

All work performed shall comply with the requirements of this Specification, the documentation referenced in the *Contract* and the latest revision/edition of the relevant Codes and Standards referenced herein.

3.2 Statutory Regulations

Occupational Health & Safety Act, Act No 85, of 1993 and Regulations as amended.

3.3 Codes; Standards and Procedures

Document No.	Title
ISO 9001: 2015	Quality management systems – Requirements
ISO 10005:2018	Quality Management systems- Guidelines for Quality plans
PROCEDURE 014	Contractor Management

4. Quality System

4.1 General

4.1.1 The Contractor will be responsible for all quality activities necessary to ensure the Work meets the requirements specified in the Contract and shall manage and coordinate all Quality aspects of the Work in accordance with the requirements of this Specification, together with the Contractor's PQP and QCPs once reviewed and accepted by TRANSNET.

4.2 Contractor Quality System Requirements

4.2.1 The *Contractor* shall have and maintain a documented Quality Management System. The *Contractor* may be required to demonstrate its use to TRANSNET. The *Contractor's* Quality Management System should be in accordance with the requirements of *International Standard ISO 9001:2015 Clause 4.4.1 Quality Management System and its process.*

4.3 Kick Off Meeting

4.3.1 After the *Contract* start date, and prior to manufacture or construction activities, TRANSNET will require a Kick-Off Meeting with the *Contractor* to discuss fully the importance of meeting TRANSNET's quality requirements. This meeting may be held as part of the *Contract* kick-off meeting for each package or may be a separate meeting, subject to the critical or complex nature of the work. This requirement for a pre-inspection meeting may be repeated when Sub-Contractors of key equipment are engaged.

Note: The above requirement must be applied in conjunction with ISO 9001:2015 Clause 8.4.3

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4.4 Contractor / *Supplier* Documentation Submittal Requirements

4.4.1 The *Contractor sha*ll make a formal submission of his Quality Documentation on award of the *Contract* and at the times defined in the *Contractor's* Documentation Schedule, included in the *Works Information* for the *Contract*.

4.4.2 The Contractor's responsibilities are defined in terms of *DOC-STD-0001* which outlines the standard requirements for preparation, submission, receipt, review, and collection of Technical and (or) Deliverable Documentation, as detailed in the Contractor Documentation Schedule (CDS).

4.4.3 TRANSNET uses the *Contractor's* Documentation Schedule (CDS), included in the *Works Information* for the *Contract*, to indicate those documents required to be submitted for information/review and/or acceptance.

4.4.4 The *Contractor* shall develop and maintain a comprehensive register of documents (*Contractor's* Documentation Register – CDR) that will be generated throughout the project. The CDR includes all quality-related documents. The CDR is a 'live' document and is submitted to TRANSNET for review following each revision by the *Contractor*. The CDR indicates the dates of issue of the documents considering sufficient time to allow for the TRANSNET review/acceptance cycle prior to the document being required for use. A sample of a CDR (DOC-FAT-0002) is issued by TRANSNET at the start of every *contract.*

Note: The above requirements must be applied in conjunction with ISO 9001:2015 Clause 8.4.3 Information for external providers

4.5 Project Quality Plan

4.5.1 Where specified, the *Contractor* submits a PQP to TRANSNET within the period stated in the CDS and in any event not later than 28 days after the *Contract* start date. The PQP details how the *Contractor's* Quality System will be applied to the Scope of Work specified in the *Contract*, and shall address the following:

a) Satisfying the technical and quality requirements of the Contractor's Scope of Work, and relevant elements of the applicable ISO 9001:2015 standard and should be developed with the reference to ISO 10005:2013 Guidelines.
b) Include all quality activities relevant to the Scope of Work, identifying all procedures, reviews, audits, controls, objectives, and records used to control and verify compliance with the specified Contractual requirements.
c) Include a listing of all special processes (e.g., welding and non-destructive testing, cube testing etc.) envisaged for use, including confirmation of personnel certification as required.
d) Include all proposed method statements (for site-based work activities).
e) Include a description of the Contractor's project organisation, with key positions and responsibilities identified and individuals named. The organisation structure shall also indicate the resources committed to the management and coordination of QA / QC activities.
f) Include a listing of all Quality Control Plans (QCPs), and associated Field Inspection Checklists (FICs), as applicable.
g) Identify in the PQP any Sub-Contractor/Sub-Supplier work. Sub-Contractor/Sub-Supplier plans are approved by the Contractor, and a copy forwarded to TRANSNET for information.
h) Include the proposed Authorised Inspection Authority (where applicable - for pressurised equipment and systems).
i) Include proposed quality records.

4.5.2 The PQP shall be controlled and re-submitted for approval when required to incorporate any change necessary during the *Contract* duration to ensure that the document is maintained as an effective control, change management and records. The change management will be done to an agreed policy or procedure.

Note: Where the *Contractor* is required to provide a PQP, no work shall commence until the PQP is accepted by TRANSNET.

Note: The above requirements must be applied in conjunction with ISO 9001:2015 Clause 8 Operations

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4.6 Procedures

4.6.1 The *Contractor's* PQP and procedures shall address the system elements and activities appropriate to the Scope of Work, in compliance with the specified Quality Standard.

4.6.2 Where specified, the *Contractor* shall submit copies of Quality Procedures for review. In addition, the *Contractor* shall ensure that copies of all Procedures relevant to the Scope of Work are available for reference by TRANSNET at each work location.

4.6.3 These will include, as applicable, the following:

a) Document Control, the *Contractor's* PQP shall provide a description of how documents provided by TRANSNET to the *Contractor* are to be managed. The description shall address as a minimum:
- Management tools and databases
- Receipt, registration and maintenance
- Internal and external distribution to Employer, third parties and Sub-Contractors
- Management of Codes, Standards and Specifications
- Internal review and approval routines and authorities
- How it is ensured that the correct revisions of documents are available at the point of use including retention periods for all documentation

Note: The above requirement must be applied in conjunction with ISO 9001:2015 Clause 7.5 Documented Information

b) Design Control procedure, where the *Contractor* is responsible for any aspect of design related to the Scope of Work, the Quality Plan shall describe the *Contractor's* methods and procedures for the control of these design activities.

Note: The above requirement must be applied in conjunction with ISO 9001:2015 Clause 8.3 Design and development of products and services

c) Procurement procedure, where the *Contractor* is responsible for any aspect of procurement related to the Scope of Work, the Quality Plan shall describe the *Contractor's* methods and procedures for the control of these activities.

5. Quality Audits

5.1 Contractor Audits

5.1.1 The *Contractor* shall Carry out audits in accordance with its Quality System at its own and Sub-Contractor's facilities to ensure project quality requirements are being achieved.

5.1.2 The *Contractor* shall include a QA Audit Schedule in the *Contractor* PQP submitted to TRANSNET prior to commencement of the Scope of Work. The Audit Schedule shall include all audits to be implemented by the *Contractor* and Sub-Contractor during the execution of the *Contract*.

5.1.3 The *Contractor* shall, where stipulated in the *Contract*, perform an audit within three months after the *Contract* start date and thereafter at a minimum frequency of three months. Audit reports are submitted to TRANSNET at the completion of each Audit. Where unsatisfactory performance is evident, TRANSNET will direct the *Contractor* to perform additional audits.

Note: The above requirements must be applied in conjunction with ISO 9001:2015 Clause 9.2 Internal Audit

5.2 Transnet Audit

5.2.1 Upon the appointment of the Contractor, the project Quality Officer will schedule and conduct the QMS Audit at the contractor's head office to assess the *Contractor's* ISO 9001:2015 Quality Management System status.

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5.2.2 TRANSNET reserves the right to perform quality audits or participate as an observer in *Contractor* audits to verify compliance with the Contractual requirements. The *Contractor* shall, within the time frame as agreed upon, correct any adverse audit finding advised by TRANSNET.

5.2.3 The *Employer* may, at own discretion, require a Quality Audit of sub-contractor(s) to ensure that the sub-Contractor(s) have the necessary management, facilities, skilled staff, and quality control facilities to carry out the Works to ensure compliance with the Works Information.

6. Quality Control Plans

Note the of requirements of 6.1 to 7.7 9must be applied in conjunction with ISO 9001:2015 Clause 8.5 Production and Service; ISO 10005:2018

6.1 Quality Control Plans

6.1.1 The *Contractor* shall prepare and submit QCPs to TRANSNET for review in accordance with the requirements of the Contract and PQP.

6.1.2 QCPs must clearly identify all inspection, test and verification requirements to meet the Contractual obligations, specifications, drawings and related details including destructive and non-destructive testing, acceptance criteria, witness and hold points.

6.1.3 The *Contractor* shall NOT commence fabrication or manufacture prior to review and approval of the applicable QCP by TRANSNET.

6.1.4 QCPs shall include reference to all tests specified in the *Works Information*.

6.2 Intervention Points

6.2.1 The QCP identifies points in the fabrication, manufacturing and/or installation process that are selected for inspection. These points are denoted by the following inspection codes:

a) Hold Point (H) — Inspection points in the manufacturing cycle, beyond which work shall not proceed without the specified activity, work or function being witnessed. Hold points require written notification to TRANSNET.

b) Witness Point (W) — An inspection point in the manufacturing cycle that will be witnessed or verified. If TRANSNET confirms it is unable to attend after being provided with the written notification, then manufacture may proceed. Witness points require written notification to TRANSNET.

c) Review Point (R) — A point at which products and quality records are verified and endorsed. Review points are not points that require notification to TRANSNET.

d) Surveillance (S) — An inspection point in the manufacturing cycle during which any activity, work or function is observed. No formal notification is required.

6.3 Field Inspection Checklists

6.3.1 For site installation and construction activities, the *Contractor* shall prepare Field Inspection Checklists (FICs) to permit inspection and testing of installed equipment and constructed facilities in accordance with the respective QCPs.

6.3.2 FICs are used to record the results of inspection and testing (where applicable). On completion, FICs are submitted to TRANSNET to confirm satisfactory completion of the tests and inspections at nominated QCP witness and hold points.

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7. Inspection and Testing

7.1 General

7.1.1 Inspection means all activities such as measuring, examining, testing, gauging one or more characteristics of material or service and comparing these with specified requirements to determine conformity.

7.1.2 TRANSNET may, at its discretion, perform surveillance inspections at the *Contractor's* premises, the premises of any Sub-Contractor or at the location of the Scope of Work.

7.1.3 Dependent on the nature of the Scope of Work and the frequency of inspections, TRANSNET may elect to have inspection personnel resident at the place of manufacture, fabrication, or assembly.

7.1.4 The Contractor shall ensure free entry and access is given to TRANSNET, certifying authorities and statutory authorities to inspect the Scope of Work and review procedures and quality records at all parts of the *Contractor's* and Sub-Contractor's premises, or at the location of the Scope of Work while any work or test is in progress.

7.1.5 The *Contractor* shall provide TRANSNET with all necessary tools, calibrated measuring equipment, safety equipment and workspace to verify or witness tests in progress.

7.1.6 While TRANSNET is at the *Contractor's* premises, the *Contractor* shall provide, free of charge, reasonable facilities including office facilities and reasonable access to a telephone, facsimile machine and computer connection point.

7.1.7 The *Contractor* shall provide written notice within a time frame as agreed upon, to allow the attendance of TRANSNET and other representatives at nominated witness and hold points.

7.2 Schedule of Inspection

7.2.1 The *Contractor* shall submit a Schedule showing the proposed dates for inspections and tests nominated in the QCP where witness and hold points are required. The Schedule shall be regularly updated with progress and issued to TRANSNET to show the current inspection and test status.

7.3 Contractor's Inspection

7.3.1 The Contractor shall, as a minimum, carry out the inspections as detailed in the Quality Control Plan and maintain the required records for verification by the Employer and/or Third-Party Inspection Authority.

7.3.2 For sub-contracted material or services, the Contractor shall ensure that controls are effective, including, where necessary, monitoring of the Subcontractor's works and retention of the necessary records.

7.3.3 Signing-off of the Quality Control Plan progressively by all relevant parties is a mandatory requirement following the indicated inspection activity.

7.4 Readiness for Inspection

7.4.1 Material or services shall be deemed ready for inspection by the Employer and/or Project Manager only when:

a) The Contractor has firstly carried out his own inspection at the stage identified on the relevant Quality Control Plan and is satisfied that material, workmanship and services meet the specified requirements. Documented evidence shall be maintained by the Contractor including signing-off the Quality Control Plan.
b) The Contractor shall ensure that the latest revisions of approved drawings and/or procedures with evidence of acceptance by Transnet, his nominated representative or Third-Party Inspection Authority are available.

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7.5 Inspection Notification

7.5.1 The *Contractor* shall notify TRANSNET in writing for inspections or tests within the country, arrangements are confirmed at least two working days before the event. For inspection and tests outside of the country, arrangements are confirmed at least seven working days before the event.

Inspection notifications include the following essential information:

- Contract Number
- Location of Inspection or Test
- Nature of Inspection or Test
- Date and Time of Inspection or Test
- Name and telephone number of the *Contractor's* Representative.

7.6 Cancellation of Inspection

7.6.1 Contractors are advised that it is a condition of Purchase / Contract that all costs of Employer's representative and/or Third-Party Inspection Authority will be passed on to the Contractor for cancellation of inspection visits.

7.6.2 A visit is considered cancelled if:

a) The Contractor advises "readiness" for inspection and upon arrival of Employer's representative or Third-Party Inspection Authority, the material, or Services and/or the associated documentation is not ready; or
b) If Employer's personnel identify that material or services are to specification such that the Contractor's Inspector should have identified the non-conformity prior advising readiness for Employer's or Third-Party Inspection Authority inspection.

7.7 Inspection Waiver

7.7.1 Any Employer's Witness, or review or Hold point may, at the sole discretion of Employer, be waived, which will be followed by an inspection waiver report.

8. Fabrication Process and Factory Acceptance Test

8.1 Fabrication Process

8.1.1 It is the *Contractor's* responsibility to ensure that all processes which require prequalified procedures and/or work methods are tested and qualified before work begins at the manufacture's premises. This typically covers such activities as welding, non-destructive testing, special fabrication techniques and painting. When such procedures are requested, no work shall commence at the manufacturer's premises until procedures are approved by TRANSNET.

8.1.2 It is the *Contractor's* responsibility to ensure all operators are qualified for the processes in accordance with the procedure and/or applicable standards. Records of qualification of operators shall be maintained by the *Contractor* and made available to TRANSNET when requested.

8.1.3 Records of qualification of procedures and processes shall be maintained by the *Contractor* in accordance with the applicable procedure or code.

8.1.4 The Employer's representatives are also required to do inspections during fabrication to ensure that the fabrication process is in accordance with the designs, specifications, and standards to ensure the work meets the requirements specified in the Contract.8.1.1 Welding Procedures

8.1.5 Where the *Contractor's* Scope of Work includes fabricated weldments, Welding Procedure Specifications (WPS) defining the method, preparation and sequences to be adopted to achieve a satisfactory welded joint shall be provided for all weld types required in the execution of the *Contractor's* Scope of Work. The procedure shall only be submitted to TRANSNET when requested in the *Contract*.

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8.1.6 WPS includes all welding essential and non-essential variables for each process used, including appropriate test results. WPS comply fully with the standard or code pertaining to welding required in the execution of the *Contractor's* Scope of Work.

8.1.7 When requested in the *Contract*, a suitably marked "weld map" is completed by the *Contractor* for all items to be fabricated. A summary of WPS is prepared and, when used, is identified on the weld map.

8.1.8 Where TRANSNET approval is required, fabrication is not to commence until written approval of WPS and Welding Procedure Qualification Records (WPQR) is received by the *Contractor*. No welding fabrication will be accepted that is not covered by a TRANSNET approved WPS/WPQR.

8.1.9 Welding Procedure Qualification (WPQ) tests may be witnessed by TRANSNET and/or an independent inspection authority. Testing of the specimens prepared during the WPQ Tests is carried out by an approved testing laboratory, independent of both TRANSNET and the *Contractor*. In certain instances, a certificate to EN 10204 3.1 B may be required which will be clarified at Tender review and clarification stage.

8.1.10 Where actual weld deposit analysis and weld metal physical properties are required for procedure qualification, the information is taken from the procedure qualification tests. Data listed in the catalogues of the manufacturer of welding consumables is not acceptable.

8.1.11 Welders/welding operators are qualified in accordance with the relevant welding code prior to commencing production fabrication. Specific Welder Qualification (WQ) records will be reviewed by TRANSNET in the *Contractor's* works and should NOT be submitted for review.

8.1.12 A register of welders qualified to work shall be maintained by the *Contractor*.

8.2 Material Traceability

8.2.1 Where, and to the extent that material traceability is required, the *Contractor* shall provide its procedures for the maintenance of material identification throughout all phases of manufacture. Methods of identification, routines for re-stamping or stenciling as appropriate shall be defined and agreed with the *Employer*.

8.2.2 Adequate records shall be maintained throughout construction enabling traceability of key materials from final product back to original material certificates. The material traceability records shall form part of the DP.

8.2.3 The *Contractor* shall prepare a schedule of materials and equipment that are subject to traceability requirements.

8.3 Material Certification

8.3.1 Where specified in the Contract the following certificates shall be provided to TRANSNET and included in the DP.

a) *Type A:* A *Contractor's* certificate of compliance with the *Contract*. This certifies that the goods or services are supplied in compliance with the *Contract* without mention of any test results (EN10204 certificate 2.1).
b) *Type B:* A certificate issued by a laboratory or test facility independent of the *Contractor's* works. It shall quote test results carried out on the product supplied and state whether compliance with the relevant technical standard, code, etc., has been complied with. (EN10204 certificate 3.1B).
c) *Type C:* The same as Type B, the tests are to be witnessed by a third party (EN10204 certificate 3.1C).

8.4 Factory Acceptance Test

8.4.1 The factory acceptance test (FAT) is a process that evaluates the equipment during and after the assembly process by verifying that it is built and operating in accordance with design specifications.

8.4.2 The Contractor shall conduct a Factory Acceptance Test for all Plant's to be installed as part of the Works to be executed in this Contract prior to delivery to site. The Factory Acceptance Test shall be conducted in the presence of the Employer's representatives (Quality, Engineering and/or the Third-Party Inspection Authority).

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8.5 Inspection Release

8.5.1 At completion of the Scope of Work, either in total or in phases, TRANSNET may issue an Inspection Release Report (IRR) or an Inspection Waiver Report (IWR).

8.5.2 The issue of either an inspection release or waiver of inspection does not relieve the *Contractor* of its obligations under the *Contract*. The *Contractor* ensures that a copy of the release note and final expediting release note for transport, where appropriate, is attached to the delivery docket and accompanies the Work to the designated destination indicated in the *Contract.* Items delivered to TRANSNET without a copy of these documents may not be accepted.

8.5.3 A copy of the inspection release or waiver of inspection is included in the DP.

9. Non-Conforming Products

9.1 General

Note the requirements of 9.1 to 9.3 must be applied in conjunction with ISO 9001:2015 Clause 10.2 Nonconformity and Corrective action

9.1.1 The *Contractor* shall establish and maintain procedures to control material or products that do not meet the specified requirements.

9.1.2 All Contractor product and/or materials identified as not conforming to requirements shall be dealt with promptly as follows:

a) If the *Contractor* discovers material or product which is not in accordance with the requirements of the *Contract*, i.e., a non-conformance, the *Contractor* shall immediately initiate the non-conformance procedure in terms of the *Contractor's* Quality Management System, advise TRANSNET promptly, and provide a copy of the non-conformance report (NCR) to TRANSNET
b) If TRANSNET or its agent identifies a non-conformance, a TRANSNET NCR may be raised.

9.1.3 Originals of all closed out NCRs shall be included in the DP.

9.2 Defects

9.2.1 The project Quality officer will notify the NEC supervisor / Construction Manager of any defects observed and long them on the snag list.

9.3 Corrective and Preventative Action

9.3.1 If the Contractor proposes a disposition of any non-conforming materials or product which varies from the requirements of the Specification or *Contract*, such a proposal shall be submitted in writing to TRANSNET whose decision on the proposal shall be obtained in writing before the non-conforming material or product is covered up or incorporated into the Works, or is the subject of any other disposition.

9.3.2 The disposition of non-conformances which do not vary the requirements of the *Contract*, specification or drawings may be approved by the *Contractor* following discussion and agreement with TRANSNET.

10. Concession Requests and Technical Queries

10.1 Concession Requests

10.1.1 Where a *Contractor* requests a Concession to deviate from the requirements of the *Contract* or specified requirements, the *Contractor* raises the request for TRANSNET review and approval.

10.1.2 The Concession Requests shall clearly identify all elements of the proposed deviation together with any resulting technical, commercial and/or schedule impacts.

10.1.3 Completed original Concession Requests shall be included in the DP.

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Note: The above requirements must be applied in conjunction with ISO 9001:2015 Clause 8.7 Control of Non-Conforming outputs

10.2 Technical Queries

10.2.1 For clarification of technical issues (only), the *Contractor* may submit a Field Engineering Query (FEQ) to TRANSNET in accordance with the *Contract*.

10.2.2 The FEQ shall clearly identify all elements of the query, and all supporting documentation and/or drawings shall be attached where appropriate.

Completed original FEQ's shall be included in the DP.

11. Inspection, Measuring and Test Equipment

Note the requirements of 11.1 to 11.3 must be applied in conjunction with ISO 9001:2015 Clause 7.1.5.1 &7.1.5.2 General and Measurement traceability

11.1 Calibration

11.1.1 The *Contractor*, including its Sub-Contractors/Sub-Suppliers, shall ensure the calibration of test and measuring equipment is performed and maintained in accordance with the relevant *Contractor* procedures and/or the equipment manufacturer's specifications.

11.1.2 Where calibration is required by an external laboratory, the *Contractor* shall ensure that the facility selected for calibration possesses current certification. Calibration certificates shall contain a statement that the test equipment is accurate to within specified tolerances.

11.1.3 The Contractor should establish the frequency of calibration for each item of equipment (including jigs, fixtures or templates) and record the details in a 'Measuring and Test Equipment Register' (or similar).

11.2 Use of Inspection, Measuring and Test Equipment

11.2.1 The *Contractor* shall ensure that authorized equipment users:

a) Use the equipment in accordance with manufacturer's instructions, and accepted industry practices
b) Ensure the equipment is covered by a current calibration certificate
c) Conduct the measurements or tests in accordance with the equipment manufacturer's specifications or other relevant specification
d) Prior to commencement of each inspection or test activities:
   - Identify the measurements to be made
   - Determine the accuracy required
   - Select the appropriate inspection, measuring or test equipment for the scope of work.

11.3 Verification of Previous Test Results

11.3.1 Where the calibration status of the equipment is unknown, expired or has doubtful accuracy, the equipment shall immediately be quarantined, and tagged according to *Contractor's* Quality System procedures. The *Contractor* shall then arrange for either in-house or external calibration, and:

a) review all previous test results associated with the suspect equipment;
b) identify the inspections, measurements or tests required to re-validate the results;
c) ensure that suitable re-testing is performed with calibrated equipment;
d) record the results of the re-testing on the respective inspection and test documentation.

12. Quality Personnel Qualifications

12.1.1 The contractor shall nominate/appoint a Quality officer with minimum experience and qualifications specified in the Tender documents.

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12.1.2 The Contractor shall submit the CV and relevant qualifications of its nominated/appointed quality representative for the Project Manager's review and approval.

12.1.3 Should the approved qualify officer be no longer available, the contractor will notify the Project Manager in writing and upon agreement the contractor will provide the CV and qualifications of the proposed resource that is equivalent to the previously approved.

Note: The above requirements must be applied in conjunction with ISO 9001:2015 Clause 7.2 Competence

13. Quality Records

13.1.1 *Contractors* shall maintain Quality Records necessary to provide objective evidence that demonstrates and verifies achievement of the QA / QC requirements associated with the Scope of Work.

13.1.2 All Quality Records, including original source material test certificates and non-destructive test reports, shall be retained by the *Contractor* during the project, and be provided to TRANSNET at the times, and in the quantities specified in the *Contract*.

13.1.3 The *Contractor* shall collate all quality records in the Data Pack (DP) and submit the DP to TRANSNET in accordance with the *Contract* and all referenced standards and specifications. This DP shall be compiled progressively and shall be available for review at all phases of manufacture or construction activities.

13.1.4 The Scope of Work shall not be complete until the *Contractor's* DP, including the quality records from Sub-Contractors/Sub-Suppliers, has been reviewed and accepted by TRANSNET.

13.1.5 The *Contractor* compiles the DP progressively during the execution of the Scope of Work and makes the DP available for review by TRANSNET as required.

13.1.6 The *Contractor* shall retain a copy of all Quality documentation generated during the *contract*, including a copy of the complete DP, for his own records for a minimum period of five years after the completion of the work.

Note: The above requirements must be applied in conjunction with ISO 9001:2015 Clause 7.5.3 Control of Documented Information

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Annexure F

Zone Labour Agreement (ZLA)

COEGA INDUSTRIAL DEVELOPMENT ZONE

ZONE LABOUR AGREEMENT

between

SOUTH AFRICAN FEDERATION OF CIVIL ENGINEERING CONTRACTORS
(SAFCEC)
CONSTRUCTIONAL ENGINEERING ASSOCIATION (SA)
(CEA(SA))
EAST CAPE MASTER BUILDERS ASSOCIATION
(ECMBA)
ELECTRICAL CONTRACTORS ASSOCIATION
(ECA)
ELECTRICAL CONTRACTING AND ALLIED INDUSTRIES ASSOCIATION (EAST CAPE)
(ECAIA)
REPRESENTATIVES OF CATERING AND SERVICE CONTRACTORS
(SERVICE CONTRACTORS)

("the Employer Organisations")

and

NATIONAL UNION OF MINE WORKERS
(NUM)
BUILDING CONSTRUCTION AND ALLIED WORKERS UNION
(BCAWU)
NATIONAL UNION OF METAL WORKERS OF SOUTH AFRICA
(NUMSA)
NATIONAL EMPLOYEES TRADE UNION
(NETU)
AMALGAMATED UNION OF BUILDING TRADE WORKERS
(AUBTW)
SOUTH AFRICAN EQUITY WORKERS ASSOCIATION
(SAEWA)
MWU SOLIDARITY
(SOLIDARITY)
METAL AND ELECTRICAL WORKERS UNION OF SOUTH AFRICA
(MEWUSA)

("the Trade Unions")

Endorsed by the Coega Development Corporation (CDC) and the National Port Authority (NPA)

Updated 01 September 2024

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1 DEFINITIONS

1.1. **"Act"** means the Labour Relations Act 66 of 1995, as amended from time to time.

1.2. **"Agreement"** means the Zone Labour Agreement (ZLA) applicable to construction activities for the Coega Industrial Development Zone.

1.3. **"Bargaining Unit"** means all employees referred to in the wage schedules annexed hereto on the Industrial Development Zone, excluding supervisors and above, employed by the Contractors, on the Industrial Development Zone for construction activities.

1.4. **"CDC"** means Coega Development Corporation, or its designated representative, which is responsible for the development and operation of the IDZ.

1.5. **"Coega Project"** means the construction development situated north-east of Port Elizabeth which is being developed by the Zone Operator in terms of its provisional operator's licence issued by the South African Government and the Port of Ngqura which is being developed by the NPA in terms of the Port of Ngqura Act.

1.6. **"Contractors"** means those Building Contractors, Civil Engineering Contractors, Electrical Contractors, MEIP Contractors, Service Providers, joint venture partnerships and their sub-contractors, who are employers of labour conducting construction work and related activities on the IDZ.

1.7. **"Construction Site(s)"** means the workplace(s) within the boundaries of the IDZ.

1.8. **"Core Employee"** means an employee of the Contractor, either on permanent staff or contracted in, whose skills are deemed to be essential and integral to the construction activities of the Contractor.

1.9. **"Employee"** means any person employed on the IDZ in terms of an employment contract.

1.10. **"Employer Organisations"** means the Employer Organisations representing Contractors that are signatories to this agreement.

1.11. **"Essential Services"** means security services, fire fighting, village services, medical facilities and any other service the interruption of which endangers the life, personal safety and or health of the whole or part of the population, or work to be performed in the event of an emergency, or work to be performed in terms of Legislation.

1.12. **"General Construction Manager" (GCM**) means a contracting entity that performs the role of a managing contractor, for a project or development, for and on behalf of the Zone Operator, an owner or an investor, during the construction phase, irrespective of the contractual arrangement between themselves.

1.13. **"IDZ"** means the Coega Industrial Development Zone.

1.14. **"Industrial action"** means any lockout or strike as defined in the Act.

1.15. **"Industry Agreement"** means the minimum wage rates, conditions of employment and regulating mechanisms for the Metal and Engineering Industries (MEIP) the Main Agreement, and/or, the Sectoral Determination for the Civil Engineering Industry and/or the Building Industry Collective Agreements and/or Bargaining Council Agreement for the Electrical Industry of South Africa, and/or applicable Wage Determinations for the Services Industries.

1.16. **"Legislation"** means the Legislation of the Republic of South Africa as amended from time to time.

1.17. "**Limited Duration Contract employee**" means an employee employed for a specific task or limited period on the IDZ in terms of a limited duration contract of employment.

1.18. **"Local employee"** means a person who normally resides in the Nelson Mandela Metropolitan Municipality (NMMM) and who is employed by a Contractor on the IDZ, on a Limited Duration Contract of Employment.

1.19. **"NMMM"** means Nelson Mandela Metropolitan Municipality.

1.20. **"NPA"** means the National Ports Authority of South Africa, or its designated representative(s), who is responsible for the development and operation of the Port of Ngqura.

1.21. **"Parties"** means the Employer Organisations and the Trade Unions who are signatories to this Agreement on the IDZ.

1.22. **"PLA"** means a Project Labour Agreement to be negotiated between the Employer Organisations or Contractors and Trade Unions involved in a specific project on the IDZ which employs more than 1000 employees, and which shall only apply to that specific project.

1.23. **"Permanent Employee"** means an employee who has entered into a permanent employment contract with a contractor prior to secondment to the IDZ.

1.24. **"Seconded employee"** means an employee who is a core employee of a contractor and who is seconded to a project on the IDZ. In instances where the Contractor is permanently based in the NMMM, his permanent employees will be deemed to be "core" employees and will be seconded to a project on the IDZ on a Secondment Contract of Employment.

1.25. **"Service Provider"** means a contractor to the Zone Operator or to projects or developments, providing services on the IDZ that are not associated with direct construction activities.

1.26. **"Site/Shop Steward"** means a duly elected worker representative from within the labour force of a Contractor.

1.27. **"Trade Unions"** mean the Trade Unions that are signatories to this Agreement.

1.28. **"Village Services"** means the service provided in the construction village including but not limited to food preparation and service, stores, house keeping, cleaning, washing, laundry, bar service, village administration, and security and access control on the construction village premises.

1.29. **"Working day"** means any day on which work will be performed in terms of Industry Agreements and Legislation.

1.30. **"Zone Operator"** means the CDC and/or the NPA.

2. PREAMBLE

2.1 A key component in assuring the success of the IDZ lies in the human resources framework that is developed and adopted. The Zone Operator recognises the fundamental role that people will play in successful delivery. Accordingly, human resources development and people management systems and processes will be central to success and sustainability. Industrial relations are considered a key element in ensuring success.

2.2 It is therefore the desire of the Zone Operator that industrial relations practices, procedures and processes that are implemented on the IDZ during the development and construction phases of projects are uniform and of the highest possible standard. The objective is to promote an environment that is healthy, safe, and free of disruption, efficient, productive and harmonious.

2.3 The Trade Unions represent employees in the various industries, who will perform work on the IDZ. To this end the Trade Unions enter into negotiations with the Employer Organisations to agree conditions of employment for their members and prospective employees who may be employed on the IDZ.

2.4 Based on the aforementioned the Parties agree in principle that Agency Shop Agreements for individual projects may be beneficial on the IDZ. To this end such an agreement for the IDZ may be entered into in terms of the Act

2.5 The specific role of the Zone Operator relative to industrial relations, is to provide an overall framework within which labour agreements can be developed, that reflect the particular needs of the IDZ and specific projects or developments, whilst taking due cognisance of the overall philosophy and framework. To achieve this the Zone Operator requested the parties to conclude a ZLA for the IDZ.

2.6 The Parties acknowledge that establishing sound and fair labour relations' practices and structures are essential for the well being and development of the IDZ, the construction industry, contractors and employees, as well as the successful completion of projects on the IDZ.

2.7 The Parties are committed to the successful completion of Projects on the IDZ within budget, within time and to world-class standards.

2.8 The Parties support the principle of freedom of association.

2.9 The Parties commit themselves to the promotion of co-operation, industrial peace and harmony on the IDZ and shall endeavour to ensure that fair and proper channels, practices, policies and procedures are followed pro-actively to resolve differences between and amongst all of the Parties.

2.10 The Parties commit themselves to the principle of employment equity. Where possible, with due regard to inherent job requirements, health, safety and risk, suitable employment may be considered.

2.11 The Parties agree that in the event of the occurrence of industrial action, stay-away or unauthorised absenteeism, the principle of "No Work - No Pay" shall be applied on the IDZ.

2.12 It is recognised that this Agreement forms the basis of the relationship between the Parties, and confirms that the provisions of Legislation and Industry Agreements shall apply to this Agreement and amendments to it from time to time.

2.13 In instances where the ZLA does not cover a particular aspect of the employment relationship in respect of projects or developments on the IDZ, or where specific circumstances relative to such projects and developments need to be accommodated, then the Employer Organisations and Trade Unions party to this agreement shall, upon a request by the respective GCM, negotiate a Project Labour Agreement (PLA) for that specific Project.

2.14 Issues not covered by Industry Agreements or the ZLA may be negotiated on a project.

2.15 Any condition agreed to in a PLA, shall not be in conflict with the principles of this agreement.

2.16 The signing of this Agreement is provisional, subject to the resolution of the issues referred to in clauses 4.5 and 14.1.5, by no later than 31 January 2003. Resolution of those issues will be recorded in an addendum to this Agreement. Failure to resolve those issues may result in the parties reviewing their status as signatories to this Agreement.

2.17 The parties will appoint sub committees, which will attempt to facilitate resolution of the above issues.

3 APPLICATION OF THIS AGREEMENT

3.1 This Agreement shall apply to all Construction Sites and Projects for the duration of construction activities on the IDZ.

3.2 Any other registered Employer Organisation or Trade Union, which is party to any of the industry bargaining structures, may become party to this Agreement upon accepting the conditions herein and signing this Agreement.

3.3 Where a Contractor, Employer Organisation or a Trade Union who is not party to any of the industry bargaining structures applies to become a party to this Agreement, such applicant will contact the Zone IR Coordinator who in turn will notify all parties.

3.4 Should there be no objection, the provisions of clause 3.2 will become operational 14 days after the distribution of such notice. Objections will be dealt with on a consensus basis.

4 LIMITED DURATION CONTRACTS OF EMPLOYMENT

4.1 The Parties agree that where local non-core employees are employed on the IDZ, such employees will be employed, on Limited Duration Contracts. A prescribed contract is annexed hereto as **Annexure A**.

4.2 The employment conditions not specified in a Limited Duration Contract of Employment, will be those in the applicable industry agreements.

4.3 The Parties agree that where Limited Duration Contracts of Employment are in effect, the termination thereof shall be in terms of the Demobilisation Procedure annexed hereto as **Annexure G.**

4.4 In cases of labour demobilised by one Contractor and then employed by another Contractor, a new employment contract will be entered into.

4.5 The Parties agree that the Trade Unions made a demand for recognition of service for employees employed on Limited Duration Contracts of Employment, which the employer organisations did not agree to.

5 INDUCTION PROGRAMMES

5.1 The Zone Operator shall provide an IDZ specific Induction Programme for the benefit of all projects; developments, service providers, contractors and employees that are contracted to undertake activities on the IDZ. The employee shall confirm attendance by signing an induction attendance register, before being permitted to commence work on the IDZ.

5.2 Generally, the Induction Programme shall cover the following areas:

5.2.1 Uniform objectives of the Zone Operator, investors, projects, developments, contractors and employees relative to the IDZ;

5.2.2 The expectations of the Zone Operator relative to the conduct of industrial relations on the IDZ, including the role and content of the ZLA;

5.2.3 Occupational health, safety and environmental issues;

5.2.4 Rules and regulations and Disciplinary procedures applicable on the IDZ;

5.2.5 Accommodation, meals and transport arrangements applicable to the IDZ;

5.2.6 Payment of wages and benefits through a wage bureau;

5.2.7 Standard wage rates; and

5.2.8 Any other matter of relevance.

5.3 The Zone Operator shall provide all attendees with an induction booklet covering the topics that were dealt with in the Induction Programme.

5.4 Where there are specific issues relative to individual projects or developments that are not covered by the Zone Operator's induction programme, then a site-specific induction programme shall be provided by the specific project GCM.

5.5 In addition, all contractors and service providers shall induct employees into specific conditions of employment and administrative requirements that prevail at the level of the contractor or service provider. The contractor or service provider, in respect of all his employees, shall retain a summary of the programme content, together with a register of attendance and signed acknowledgement of understanding.

5.6 The Contractor shall be required to provide, each employee prior to demobilisation with a "Skills Record Log Book" in which will be recorded the relevant details of job category, nature of work performed, skills, training undertaken, skills and credits acquired and duration of service with the Contractor on the IDZ.

5.7 All training provided and undertaken on the IDZ shall be consistent with the requirements of the Skills Development Act, the respective SETA's and Industry Agreements.

6 INDUSTRIAL RELATIONS PROCEDURES PRACTICES AND STANDARDS

6.1 The following procedures, practices and standards shall be implemented and operated on the IDZ and observed by the Contractors, and all their employees:

6.1.1	Limited Duration Contract of Employment	Annexure – A
6.1.2	Secondment Contract of Employment – Permanent Employees	Annexure – B1
6.1.3	Secondment Contract of Employment – Core Employees	Annexure - B2
6.1.4	Disciplinary Policy Procedure and Code guidelines	Annexure - C
6.1.5	Grievance Procedure	Annexure - D
6.1.6	Dispute Resolution Procedure	Annexure - E
6.1.7	Absenteeism Procedure	Annexure - F
6.1.8	Demobilisation Procedure	Annexure – G
6.1.9	Civil Engineering, Building and Electrical Construction Job Category Structure & Standard Wage Rates	Annexure – H1
6.1.10	MEIP Job Category Structure & Wage Rates	Annexure – H2
6.1.11	Public Holidays	Annexure – I
6.1.12	Tool Policy for Shutter hands	Annexure – J
6.1.13	Picketing Rules	Annexure – K
6.1.14	Services Contractors Job Category Structure & Wage Rates	Annexure – L

6.2 The Parties agree that the responsibility and authority for maintaining discipline on the IDZ is vested in the management of the Contractors. A breach of this Agreement by any of the parties, or a breach by an employee of his/her terms and conditions of employment, or misconduct, shall be dealt with in terms of the standard procedures referred to herein or those contained in applicable Project Labour Agreements.

7 OCCUPATIONAL HEALTH, SAFETY AND ENVIRONMENTAL

7.1 Introduction

7.1.1 The Parties confirm that all involved on the IDZ have a responsibility to ensure the implementation of successful hygiene, occupational health, safety and environmental standards.

7.1.2 The Parties agree to approach occupational health and safety matters in strict adherence to Legislation and requirements of the Zone Operator.

7.2 Protective Clothing

7.2.1 The Contractor will provide suitable and adequate protective clothing and safety equipment free of charge. This shall include an approved safety helmet, safety glasses where required, safety boots or Wellington gum boots, 2 sets of overalls issued at the same time and other items as prescribed in the appropriate legislation.

7.2.2 Other items such as safety harnesses, gloves and protective glasses shall be provided to employees where the work processes performed require the issue of such equipment.

7.2.3 All employees shall wear protective clothing and equipment required on the IDZ. Failure to comply with this will render employees liable to be dealt with in terms of the Disciplinary Code and Procedure annexed hereto as **Annexure C.**

7.2.4 Protective clothing and safety equipment remains the property of the Contractor and must be returned to the Contractor by the employee prior to demobilisation.

7.2.5 The two sets of overalls issued will be replaced once per annum, on the anniversary date of the employee's employment with an individual contractor on the IDZ. Safety boots will be replaced when no longer serviceable.

7.2.6 There shall be no charge levied against employees for safety equipment and protective clothing, save in instances where equipment is lost or damaged as a result of the employees' negligence.

7.3 **Acquired Immune Deficiency Syndrome (HIV/AIDS)**

The Parties shall promote and encourage observance by all of policies implemented on the prevention and the spreading of HIV/AIDS. A policy document will be developed by the Zone Operator and provided to the Parties.

8 TRADE UNION FACILITIES

8.1 **Facilities**

8.1.1 The Zone Operator shall supply an office with reasonable facilities to each of the Trade Unions party to this Agreement for trade union activities. These facilities will be outside the IDZ but in close proximity to the IDZ.

8.1.2 Pre-paid telephones will be installed in each of the above offices, and the Zone operator will provide each Trade Union with a voucher to the amount of R 250 per month.

8.1.3 Each Trade Union may for as long as such Trade Union remains sufficiently representative of employees on a Project, appoint one Fulltime Site / Shop Steward. Details hereof will be contained in a PLA.

8.2 **Stop Orders**

8.2.1 Trade Union membership dues will be deducted at the level of the individual contractor, from the wages of employees who are members of the Trade Unions who are parties to this Agreement, in terms of a written authorisation submitted to the individual Contractor.

8.2.2 The dues so deducted will be paid to the Trade Unions, in terms of the provisions of the Act.

8.2.3 Arrangements regulating the procedures for deducting Trade Union dues will be contained in a PLA.

8.2.4 The number of stop orders processed by the Wage Bureau will determine Representivity of the Trade Unions.

9 RIGHTS AND RESPONSIBILITIES OF SITE / SHOP STEWARDS

9.1 The Contractors will individually recognise Site / Shop Stewards for employees, employed by an individual Contractor

9.2 The rights and responsibilities of Site / Shop Stewards will be negotiated between the Parties and confirmed in a PLA.

10 NEGOTIATIONS AND NEGOTIATING PROCEDURE

10.1 The Parties recognise that the Industry Agreements regulates conditions of employment, and that no negotiations on any matter provided for in the Industry Agreement shall take place on the IDZ.

10.2 The Parties may negotiate annually on conditions of employment not covered by the Industry Agreements, or this Agreement, and confirm that they will be mandated to enter into agreements that will be binding on them and their members/constituents.

10.3 In order to give effect the above, the Parties will each appoint a negotiating team that will negotiate on their behalf.

10.4 The date of implementation will be determined at the onset of negotiations.

10.5 Proposals shall be submitted to each other at least 30 days prior to the negotiations commencing. Upon receipt of proposals a meeting will be convened at which a timetable and agenda will be agreed upon.

10.6 No negotiations on wages, interim increases or other proposed variations of conditions of employment other than what is provided for herein will be considered and or implemented.

11 SETTLEMENT OF DISPUTES

11.1 The Parties undertake to do all that is necessary to promote fair and proper labour practices. In order to give effect to this principle, the Parties agree to comply with the dispute resolution procedure as is set out in **Annexure E**.

11.2 The parties agree that normal work shall continue until such time as the procedures herein contained have been exhausted.

11.3 The Parties agree that disputes should be resolved at the earliest possible opportunity at the level of the individual Contractor.

11.4 Where a dispute arises at the level of an individual Contractor, it shall be dealt with at that level and shall exclude Parties not involved in the dispute.

12 INDUSTRIAL ACTION

12.1 Objective

The Parties reaffirm their fundamental belief in consultation and negotiation as the preferred method of conducting their relationship and agree that industrial action should only be engaged in as the last resort.

12.2 Attempts to Resolve

The Parties shall make themselves available prior to and during the period of the industrial action in order to attempt to resolve the dispute.

12.3 Picketing Rules

The Picketing Rules contained in **Annexure K** of this Agreement shall be strictly observed during any period of industrial action. A Project on the IDZ may vary the Picketing rules by negotiation to cater for specific Project circumstances.

12.4 Right to Continue Work

Employees that participate in industrial action shall not interfere with any employee from the contractor, other contractors or operations who choose to work during industrial action.

12.5 Conduct

Any party (Contractors, trade unions, employees, picketers) who participate in industrial action shall not threaten clients, customers, suppliers or any other party whomsoever.

12.6 **Shut Down Procedure**

12.6.1 The Parties shall not engage in industrial action until they have observed the shutdown procedures required by the Act and Safety legislation. Any other requirement, which Contractors may have, will be agreed in a PLA.

12.6.2 The Parties agree that during the 48 hour notice period provided for in section 64(1)(b) of the Act, and before employees engage in industrial action, they will ensure that any equipment or materials on which, or with which employees are working, are left secured in such a way that it does not pose a threat of injury to people or loss or damage to property, equipment or materials.

12.7 **Protection of Property**

The Parties agree that the employees shall neither damage nor threaten to damage any property.

12.8 **Unprotected Industrial Action**

12.8.1 Should any employee promote or participate in industrial action not in compliance with the provisions of this Agreement, or the provisions of the Legislation, the Trade Unions and/or Site / Shop Stewards shall take all necessary steps within 12 hours from the commencement of the unprotected industrial action, to persuade employees to cease such action and to observe their conditions of employment.

12.8.2 The Parties shall not initiate, promote or participate in any industrial action not in compliance with the provisions of this Agreement, or the provisions of the Legislation.

12.8.3 All periods of unprotected industrial action will be treated as "No work No Pay".

12.8.4 Should the dispute not be resolved in accordance with the provisions of clause 12.8.1 above. The contractor reserves the right to take action in terms of section 6(2) of Schedule 8 of the Act.

12.9 **Peace Obligation**

12.9.1 The Parties shall not sanction, promote or participate in industrial action directed against any other party until such time as the procedures contained or referred to in this Agreement and Legislation have been exhausted, save that no industrial action shall take place:

12.9.1.1 concerning any issue which is the subject matter of this Agreement, a PLA or an Industry Agreement; and/or

12.9.1.2 after the Parties have agreed to refer the dispute to mediation or arbitration; and/or

12.9.1.3 following an Arbitration Award; and/or

12.9.1.4 in breach of the provisions of the Act; and/or,

12.9.1.5 in respect of an issue that the parties agree to refer to arbitration, as well as disputes relating to essential services and emergency work, as defined.

13 SECURITY

13.1 The Contractors and employees will be required to conform and comply with all security procedures as detailed and determined from time to time by the Zone Operator, or applicable GCM.

13.2 The Zone Operator will issue all employees with an IDZ Access Permit.

13.3 IDZ Access Permits shall be returned to the contractor upon demobilisation from the Contractor.

13.4 No person will be allowed on the IDZ without his/her valid IDZ Access Permit clearly visible to the security personnel or any other authorised personnel. The Zone Operator will supply a Procedure document to the Parties once it becomes available.

13.5 All persons on the IDZ shall, on request by a security official, be required to show the contents of any package, bag, suitcase, etc. in their possession or in any locker allocated to them.

14 IDZ CONDITIONS OF EMPLOYMENT

14.1 Standard Wage Rates

14.1.1 Standard wage rates as contained in **Annexures H 1 & H 2 & L** shall be paid to all local and seconded Core employees working for the contractors on the IDZ.

14.1.2 No Flat Rates will be paid on the IDZ.

14.1.3 Permanent employees will be seconded to the IDZ on their employment conditions not amended by a secondment contract.

14.1.4 Task Grade A (Civils, Building and Services), employees will commence employment on an entry rate. After 12 weeks of continued employment with the same contractor, employees will be paid the IDZ Rate as is contained in Annexures H 1 and L.

14.1.5 It is recorded that a dispute relating to the future of the Building Industry Bargaining Council in Port Elizabeth exists. Until such time as this dispute has been resolved, the provisions of clause 14.1.4 shall apply.

14.1.6 Category 1 (MEI) employees will commence on the entry rate. After 16 weeks of continued employment with the same contractor employees will automatically increase to the Category 1 rate in terms of the Main Agreement

14.1.7 Local employees who can produce an industry skills record log book will undergo competency assessment by the Zone Operators' Labour and Business Management Services Contractor at recruitment stage to ensure that the employee is competent to perform the work for which he/she is employed.

14.2 Payment of Wages

14.2.1 Wages of all local and seconded core employees shall be paid in arrears, by bank transfer through a wage bureau that will be established on the IDZ.

14.2.2 Frequency of payment will be agreed in a PLA for a project.

14.2.3 Pay slips will be issued during working hours and pay queries will be addressed with the individual Contractor concerned, in terms of his procedures. The Contractor will address pay queries.

14.2.4 The Contractor by whom they are permanently employed will continue to pay permanent employees seconded to a project on the IDZ, through the head office.

14.3 **Hours of Work and Overtime**

14.3.1 The IDZ hours of work will comply with current Legislation and Industry Agreements.

14.3.2 All hours worked in excess of the normal time limitations in the Industry Agreement will be paid at the applicable overtime rates.

14.3.3 Included in the working periods will be a 30-minute unpaid lunch break as well as one 15 minute paid rest break. Should the daily hours on a working day be more than 8.5 hours a second 15-minute paid rest break will be implemented in the afternoon. Details to be agreed in a PLA

14.3.4 Pay weekends will be from 12:00 on Pay Fridays until normal start time on the following Monday. On Pay Fridays there will be no lunch break.

14.3.5 Projects shall agree working hour arrangements and payment thereof in a PLA.

14.3.6 Special night shift arrangements may be agreed at Project level in a PLA where continuous processes need to be implemented

14.3.7 Night Shift allowances will be paid as per Industry Agreements.

14.4 **Public Holidays**

14.4.1 The IDZ will observe all statutory Public Holidays, as set out in **Annexure I**.

14.4.2 Employees required to work on statutory Public Holidays will be paid in terms of the provisions of the Industry Agreements.

14.5 **Long Week-ends**

Long weekends on the IDZ will be granted as follows:

14.5.1 Easter Weekend.

14.5.2 Two weekends between Easter and Christmas.

14.5.3 A Long weekend will commence at the end of the normal shift on a Wednesday and work commences at 07h00 the following Tuesday.

14.5.4 The scheduling of long weekends and payments will be agreed in a PLA on a project.

14.6 **Tool Arrangements**

14.6.1 **Employee Private Tools**

14.6.1.1 Contractors on a Project will provide safe lock-up areas for the safe keeping of employee tools.

14.6.1.2 Employees shall declare all tools brought onto a Project. This declaration shall be verified and signed by the project security and/or the employee's supervisor.

14.6.1.3 The employee will accept full responsibility for safe guarding his tools whilst on the IDZ. The contractors will apply the provisions of the applicable Industry Agreements in this regard.

14.6.1.4 Save, for the provisions contained in Annexure J for Civil Engineering Shutter hands, the industry agreements will apply to all other employees in respect of tool arrangements.

14.6.2 **Contractors Tools, Equipment and Property**

Employees issued with tools and property provided by the contractors will in writing confirm responsibility for the safe and efficient use of these items and will ensure no damage, abuse or loss. In the event of negligent and/or wilful loss or damage, the Contractor may recover from the employee the replacement value of such items.

14.6.3 **Tools and Equipment for Shutter hands**

The above will be dealt with in terms of the provisions of the Tools Policy for Shutter hands annexed hereto as **Annexure J.**

14.7 **Transport**

14.7.1 **Local Transport**

14.7.1.1 Contractors shall provide daily transport for local employees, from designated pick up points to and from each of the Projects on the IDZ.

14.7.1.2 Contractors shall provide daily transport for seconded employees from the Construction Village, and each of the Projects on the IDZ.

14.7.1.3 Transport arrangements will be coordinated through the NMMM Transport Forum.

14.7.2 **Transport for Long Weekends**

Employees seconded from outside the NMMM will be provided with free bus transport to the main centre nearest to their homes for Christmas, Easter and two more trips during the year.

14.8 **Accommodation**

Accommodation and full board will only be provided to Employees seconded from outside the NMMM ~~in a construction village situated near the IDZ~~.

14.8.1 Local employees shall not be accommodated ~~in the Construction Village, but shall receive a lunch pack on each working day~~.

14.8.2 In instances where a contractor is permanently based in the NMMM, his permanent employees shall be deemed to be "core" employees and shall be seconded to a project on the IDZ on a "Secondment Contract of Employment". Such employees shall ~~not, however, be accommodated in the Construction Village, but shall~~ continue to reside locally.

14.9 **Inclement Weather**

Inclement weather will be dealt with as follows:

14.9.1 If work is not possible any time during the first four (4) hours of work due to inclement weather, four, (4) hours will be paid provided that the employee has reported for work.

14.9.2 If work is not possible any time after four, (4) hours have been worked due to inclement weather, the actual hours worked for that day will be paid.

14.9.3 If Contractor Management advises employees the day before not to report for work the following day because work will not be possible due to inclement weather, then no payment will be made for that day.

14.9.4 In cases where work can continue under cover, the provisions of this clause shall not apply.

14.9.5 Notwithstanding the above, employees shall in any event be paid not less than 66% of their weekly wage based on normal hours, irrespective of the number of hours by which the Project hours for that week were reduced as a result of inclement weather.

14.9.6 The provisions of this clause shall not apply to essential services.

14.10 **Annual Leave**

14.10.1 Annual paid leave will be granted as provided for in the Industry Agreements.

14.10.2 Upon demobilisation, all accrued leave will be paid out on a pro-rata basis.

14.10.3 Accrued leave will be paid out at the time of the annual shutdown.

14.11 **Annual Bonus/Leave Enhancement Bonus**

Annual bonus/leave enhancement bonus will be paid as provided for in the Industry Agreements.

14.12 **Sick Leave**

Sick leave will be paid as provided for in the Industry Agreements.

14.13 **IDZ Bonus**

14.13.1 An IDZ Bonus equal to 9.25 hours wages will accrue for each completed month worked on a Project on the IDZ for an individual Contractor.

14.13.2 The IDZ Bonus will only be paid upon demobilisation and not in the event of resignation or dismissal.

14.13.3 The IDZ Bonus will only be paid to the employee, provided that during his/her period of employment the employee:

14.13.3.1 is not absent without consent;

14.13.3.2 does not participate in any unprotected disruption or unprotected industrial action;

14.13.3.3 does not refuse to work on a working Saturday or work contractual/agreed overtime in terms of this agreement if requested to do so.

14.13.4 In the event of unauthorised absence, or refusal to work on a working Saturday or work contractual /agreed overtime, the employee will forfeit 100% of his/her IDZ Bonus for that month in which the unauthorised absence or refusal occurs.

14.13.5 In the event of the employee participating in any unprotected disruption or unprotected industrial action, the total IDZ Bonus accrued will be forfeited.

14.14 **Services Contractors Conditions of Employment**

14.14.1 The principles contained in this Agreement shall be applicable to all Services Contractors working on the IDZ.

14.14.2 Applicable practices and procedures, in line with the relevant industry agreements will apply.

14.15 **Allowances, Subsidies and Bonus**

No allowances, subsidies or bonuses, other than those contained in Industry Agreements, this Agreement or agreed in a PLA, will be considered or paid on the IDZ.

14.16 **Skills Transfer/Upgrading**

Contractors shall provide where applicable on the job training so as to upgrade the general skills of employees as required by the IDZ. A training Policy will be provided to the parties by the Zone Operator once it becomes available.

14.17 **Exemptions**

In order to achieve and maintain commonality, and after consultations, the Parties agree to, where necessary approach their respective centralised collective bargaining bodies to apply for exemption from Industry Agreements applicable on the IDZ.

15 RECRUITMENT

15.1 Preference for employment in TASK grade A to D (Civils and Building) and Category 1 to 3 (MEI) shall be given to local candidates residing in the NMMM who are in possession of appropriate qualifications, skills or experience in the construction or contracting industries.

15.2 Recruitment of local employees shall only take place through the recruitment centre provided by the Zone Operator.

15.3 Contractors will be entitled to staff a project on the IDZ with seconded labour for core skills in categories other than those referred to in clause 15.1.

16 NON-COMPLIANCE

In the event of a party failing to comply with the provision of this Agreement or any Agreement reached in terms of this Agreement and after attempts have failed to resolve the breach, the matter will be dealt with in terms of the Dispute Resolution Procedures as contained in **Annexure E**.

17 DURATION OF THIS AGREEMENT

This Agreement shall come into operation on the date of execution hereof and shall remain in effect for the duration of the construction and commissioning periods of projects on the IDZ.

18 DOMICILIA NOTICES

18.1 For the purposes of this Agreement, including the giving of all notices and services of legal process, the Parties choose domicilium citandi et executandi (domicilium) as set out below.

18.2 A party may at any time change its address by notice, in writing, to the other Parties, provided that the new domicilium is or includes a physical address at which process can be served. The new domicilium will become effective ten (10) days after notice has been served.

18.3 Any notice given in connection with or required by this Agreement shall be in writing and be delivered by hand or sent by prepaid registered post or sent by prepaid telegram or facsimile or electronic mail to the domicilium of the other Parties.

SIGNED AND DATED AT PORT ELIZABETH ON THIS 25th DAY OF SEPTEMBER 2002.

_____ _____

Signed for BCAWU Witness

Name:
Designation

Address:

Fax No:
E/Mail:

_____ _____

Signed for NUM Witness

Name:
Designation

Address:

Fax No:
E/Mail:

_____ _____

Signed for NUMSA Witness

Name:
Designation

Address:

Fax No:
E/Mail:

_____ _____

Signed for NETU Witness

Name:
Designation

Address:

Fax No:
E/Mail:

_____ _____

Signed for SAFCEC Witness

Name:
Designation

Address:

Fax No:
E/Mail:

_____ _____

Signed for CEA(SA) Witness

Name:
Designation

Address:

Fax No:
E/Mail:

_____ _____

Signed for ECMBA Witness

Name:
Designation

Address:

Fax No:
E/Mail:

_____ _____

Signed for AUBTW Witness

Name:
Designation

Address:

Fax No:
E/Mail:

_____ _____

Signed for MWU Solidarity Witness

Name:
Designation

Address:

Fax No:
E/Mail:

_____ _____

Signed for MEWUSA Witness

Name:
Designation

Address:

Fax No:
E/Mail:

_____ _____

Signed for SAEWA Witness

Name:
Designation

Address:

Fax No:
E/Mail:

_____ _____

Signed for ECA Witness

Name:
Designation

Address:

Fax No:
E/Mail:

_____ _____

Signed for ECAIA(EC) Witness

Name:
Designation

Address:

Fax No:
E/Mail:

_____ _____

Signed for SERVICES CONTRACTORS Witness

Name:
Designation

Address:

Fax No:
E/Mail:

ANNEXURE "A"

Company letterhead

LIMITED DURATION CONTRACT OF EMPLOYMENT (LDC)
FOR LOCAL EMPLOYEES

The Contractor : _____

hereby agrees to engage the service of the

Employee: _____

1 EMPLOYMENT

1.1 The nature of the Contractor's operations relates to a specific construction/ contract being : _____ on the Coega Industrial Development Zone (Specify Contract No. and package description) consequently the Contractor is not in a position to offer permanent employment but is able to offer employment of a temporary nature.

1.2 The Employee acknowledges that this contract is of a temporary nature and for a limited duration, and no expectation of permanent employment is created.

1.3 The Employee will be engaged as a _____ in _____ (Employment Group as per Industry wage schedule).

1.4 The Employee's employment on the project will commence on _____ and will terminate on completion of the task/job for which the employee was employed. The period of employment on the project shall not exceed the time for which the employee's services are required for a task/job on the Project or a particular phase thereof.

2 WAGES

2.1 The Employee's rate of pay will be _____ (as per Standard Wage Rates).

2.2 The Employee's wages will be paid by bank transfer, ~~weekly/fortnightly~~ in arrears.

3 HOURS OF WORK AND OVERTIME

3.1 The hours of work will be:

	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun .
Week 1							Rest
Week 2							Rest

3.2 There will be … paid 15-minute rest interval from …..

3.3 There will be a 30 minute unpaid lunch break from ….

3.4 The hours set out in Clause 3.1 could be increased or reduced according to project requirements.

3.5 Hours worked in excess of normal hours (as set out in Industry Agreements) per fortnight will be paid as overtime in accordance with the applicable industry agreement.

3.6 Twice per year at Easter and Christmas the IDZ/Project will shutdown, and a further two long weekends will be implemented between Easter and Christmas.

4 TRANSPORT

The employee will be provided with transport from designated pick up points to the Project site and return on a daily basis.

~~5 LUNCHPACK~~

~~The employee will be provided with a daily lunch pack.~~

6 NOTICE

Notice of termination of employment upon completion of task or when operational requirements necessitate a reduction of manning levels, will be dealt with in terms of the Demobilisation Procedure.

7 OTHER CONDITIONS

7.1 The conditions of employment not specifically dealt with above will be those prevailing in the applicable industry agreement, Zone Labour Agreement, applicable Project Labour Agreement, Contractor's policy and general rules and regulations.

7.2 The Employee shall be evaluated for the job category for which he is tendering his services, to the satisfaction of the Contractor.

7.3 The Employee shall, upon termination of employment, receive a "Skills Record Logbook" recording his/her employment and training on the IDZ.

7.4 The Employee shall be required to complete a pre and post Declaration of Medical History.

8 OCCUPATIONAL HEALTH AND SAFETY

The employee acknowledges that exposure to hazardous conditions may occur. The employee undertakes to take all reasonable steps to protect himself from the dangers of contracting any such diseases or injury and to comply with any IDZ procedures, recommendations, guidelines and preventative measures that may apply with regard to Occupational Health, Safety and Hygiene.

9 CONTRACTORS TOOLS, EQUIPMENT AND PROPERTY

9.1 The employee accepts responsibility for the safe and efficient use of the Contractors tools, equipment and property, and will ensure that no abuse, loss or negligent damage takes place.

9.2 In the event of abuse, loss or negligent or wilful damage the Contractor is entitled to recover the replacement value of such items from the employee, subject to an enquiry or investigation.

10 IDZ BONUS

10.1 An IDZ Bonus of 9.25 hours wages for each completed month worked with the same contractor will be paid upon demobilisation.

10.2 The IDZ Bonus will be affected should the employee participate in one or all of the following:-

10.2.1 be absent without permission;
10.2.2 participate in any unprotected disruption or unprotected industrial action;
10.2.3 refuse to work on a working Saturday or work contractual/agreed overtime in terms of this agreement if requested to do so.

10.3 In the event of unauthorised absence, or refusal to work on a working Saturday or work contractual/agreed overtime, the employee will forfeit 100% of his/her IDZ Bonus for that month in which the unauthorised absence occurs.

10.4 In the event of the employee participating in any unprotected disruption or unprotected industrial action, the total IDZ Bonus accrued prior to the disruption or unprotected industrial action will be forfeited.

11 SECURITY

The Employee will be issued with an IDZ access permit, which will be worn at all times for identification purposes. Without this card the Employee will not be permitted on the IDZ. Should the card be lost, the cost of a replacement card (R 50-00) will be deducted from the Employee's wages.

12 EMPLOYEE UNDERTAKING

I undertake to: -

12.1 Abide by all conditions of employment;
12.2 Channel all grievances through the correct procedure;
12.3 Respect fellow employees as individuals and respect each individual's freedom of choice;
12.4 Work safely and not endanger fellow workers;
12.5 Recognise that the success of the IDZ represents an important development milestone for the Eastern Cape Region;
12.6 Not participate in unlawful or unprocedural industrial action;
12.7 Abide by all IDZ rules and regulations;
12.8 Comply with the IDZ Labour Agreement (ZLA) and applicable PLA, as may be amended from time to time;
12.9 Agree to work the hours in the ZLA and applicable PLA and overtime when required to do so;
12.10 Not be absent without permission;
12.11 Undertake to work to the best of my ability in compliance with my contractual obligations towards my employer.

I _____ acknowledge that the conditions set out in clauses 1-12 have been explained to me and I understand the contents of this contract and signify acceptance thereof, during my period of employment on the Coega Industrial Development Zone.

Signed at : _____ on _____

For the Company : _____

Employee: _____

Witness: _____

Employee Address: _____

_____

_____

Bank details are as follows: -

Bank: ……..

Account Number:……

Branch:.……..……

ANNEXURE "B 1"

Company Letterhead

Employee Name:

SECONDMENT CONTRACT OF EMPLOYMENT IN RESPECT OF PERMANENT EMPLOYEES SECONDED TO THE COEGA INDUSTRIAL DEVELOPMENT ZONE

The employee confirms that he has been in the full time permanent employ of the Contractor since ……

There are specific conditions of employment applicable to the Coega Industrial Development Zone and this need to be accepted by you prior to your secondment to the …… project on the IDZ.

Your conditions of employment specific to the … project on the IDZ for the duration of your secondment will be in accordance with the Zone Labour Agreement and the applicable PLA for the Coega Industrial Development Zone and as follows :

1 **POSITION AND WAGES**

1.1 Your occupation on the IDZ will be …….. (Group Wage Schedule) but you will be required carry out other types of work if and when required, as is provided for in the applicable industry agreement.

,

1.2 Your rate of pay upon secondment to the IDZ will be your current rate of R…….. per hour.

1.3 Increases to your wage will be as per the applicable industry agreement. No other increases will be applicable to you whilst you are on the IDZ, unless you are promoted to a higher job category.

1.4 Payment of wages will be made from the Company's Head Office.

2 **PERIOD OF SECONDMENT TO THE IDZ**

2.1 The period of your secondment on the IDZ shall not exceed the time for which your services are required on the IDZ or a particular phase thereof, with due regard for the requirement of your particular skill at that time where-after you will be demobilised and returned to your Company home base.

2.2 Your secondment will automatically terminate if the Zone Operator or GCM requests your removal from the IDZ, for a valid reason.

3 HOURS OF WORK AND OVERTIME

3.1 The hours of work on the ……..… project will be:

	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun .
Week 1							Rest
Week 2							Rest

3.2 Shift start and finish times will be as agreed.

3.3 There will be … paid 15-minute rest interval from …..

3.4 There will be a 30 minute unpaid lunch break from ….

3.5 The hours set out in Clause 3.1 could be increased or reduced according to project requirements.

3.6 Hours worked in excess of normal hours per fortnight will be paid as overtime in accordance with the applicable industry agreement.

4 TRANSPORT

4.1 You will be provided with free bus transport to the IDZ at the start of your Secondment Contract and return upon your demobilisation from the IDZ to your Company home base.

4.2 You will be provided with free return bus transport to the main centre nearest to your home during Easter and Christmas shutdowns and two long weekends.

5 ACCOMMODATION AND MEALS

You will be provided with single status full board and lodging ~~in the Construction Village, which includes a daily lunch pack.~~

6 OTHER CONDITIONS

6.1 The conditions of employment not specifically dealt with above will be those prevailing in the applicable industry agreement, Zone Labour Agreement, applicable Project Labour Agreement, Company's policy and general rules and regulations.

6.2 You shall, upon demobilisation, receive a "Skills Record Logbook" recording your employment and training on the IDZ.

6.3 You shall be required to complete a pre and post Declaration of Medical History.

7 HEALTH

You acknowledge that exposure to hazardous conditions may occur. You undertake to take all reasonable steps to protect yourself from the dangers of contracting any such diseases or injury and to comply with any IDZ procedures, recommendations, guidelines and preventative measures that may apply with regard to Health, Safety and Hygiene.

8 CONTRACTORS TOOLS, EQUIPMENT AND PROPERTY

8.1 You accept responsibility for the safe and efficient use of the Contractors tools, equipment and property, and will ensure that no abuse, loss or negligent damage takes place.

8.2 In the event of abuse, loss or negligent damage the Contractor is entitled to recover the replacement value of such items from you, subject to an enquiry and or investigation.

9 IDZ BONUS

9.1 An IDZ Bonus of 9.25 hours wages for each completed month worked with the same contractor will be paid upon demobilisation.

9.2 The IDZ Bonus will be affected should you participate in one or all of the following:-

9.2.1 be absent without permission;
9.2.2 participate in any unprotected disruption or unprotected industrial action;
9.2.3 refuse to work on a working Saturday or work contractual/agreed overtime in terms of this agreement if requested to do so.
9.2.4 be absent without permission, or refuse to work on a working Saturday or work contractual/agreed overtime, the employee will forfeit 100% of his/her IDZ Bonus for that month in which the unauthorised absence occurs.
9.2.5 In the event of you participate in any unprotected disruption or unprotected industrial action, the total IDZ Bonus accrued prior to the disruption or unprotected industrial action will be forfeited.

10 RULES AND REGULATIONS

10.1 You will be required to adhere to all rules and regulations, including any specific occupational health and safety regulations in place on the IDZ. These rules and regulations will be explained to you at the induction course when you arrive on the IDZ.

10.2 In the event of disciplinary action being taken against you whilst on secondment, the effect of such disciplinary action will be the same as if the Company took such action.

10.3 In the event of you being dismissed whilst on secondment your contract of employment with the Company will also terminate.

11 SECURITY

You will be issued with an IDZ Access Permit, which you will wear at all times for identification purposes. Without this card, you will not be permitted on the IDZ or in the Construction Village. Should you lose this card, the cost of replacement card (R50.00) will be deducted from your wages.

12 EMPLOYEE UNDERTAKING

I undertake to: -

12.1 Abide by all conditions of employment;
12.2 Channel all grievances through the correct procedure;
12.3 Respect fellow employees as individuals and respect each individual's freedom of choice;
12.4 Work safely and not endanger fellow workers;
12.5 Recognise that the success of the IDZ represents an important development milestone for the E/Cape Region;
12.6 Not participate in unlawful or unprocedural industrial action;
12.7 Abide by all IDZ and Project rules and regulations;
12.8 Comply with the Zone Labour Agreement (ZLA) and PLA, as may be amended from time to time;
12.9 Work the hours in the ZLA and PLA and overtime when required to do so;
12.10 Not be absent without permission;
12.11 Work to the best of my ability in compliance with my contractual obligations towards my employer.

13 HOME ADDRESS

The employee confirms the home address to be: -

Name:_____

Contact Person:_____

Address:_____

Telephone:_____

14 **HOME BASE PERMANENT CONDITIONS OF EMPLOYMENT**

The conditions contained herein will be valid during your secondment to the Coega Industrial Development Zone. Upon demobilisation, you will revert to the permanent employment conditions applicable to you prior to your secondment to the IDZ.

I,……., the undersigned hereby acknowledge that the conditions of this Secondment Contract of Employment, as set out in Clause 1 to 15 above, have been explained to me and that I understand and accept these terms and conditions as binding upon me during my period of employment on the Coega Industrial Development Zone.

Signature of Employee

Signature-Authorised Employer Representative

Date:

ANNEXURE "B2"

Company Letterhead

Employee Name:

SECONDMENT CONTRACT OF EMPLOYMENT IN RESPECT OF CORE EMPLOYEES SECONDED TO THE COEGA INDUSTRIAL DEVELOPMENT ZONE

There are specific conditions of employment applicable to the Coega Industrial Development Zone and these need to be accepted by you prior to your secondment to the …. Project on the IDZ.

Your conditions of employment specific to the ….. Project on the IDZ for the duration of your secondment will be in accordance with the Zone Labour Agreement, for the Coega Industrial Development Zone and as follows :

1 POSITION AND WAGES

1.1 Your occupation on the IDZ will be …… (Group Wage Schedule) but you will be required carry out other types of work if and when required, as is provided for in the applicable industry arrangements.

1.2 Your rate of pay upon secondment to the IDZ will be R…….. per hour.

1.3 Increases to your wage will be as per the applicable industry agreement. No other increases will be applicable to you whilst you are on the IDZ, unless you are promoted to a higher job category.

1.4 Payment of wages will be in accordance with the provisions of the ZLA and applicable PLA.

2 **PERIOD OF SECONDMENT TO THE IDZ**

2.1 The period of your secondment on the IDZ shall not exceed the time for which your services are required on the IDZ or a particular phase thereof, with due regard for the requirement of your particular skill at that time where-after you will be demobilised and returned to your Company home base.

2.2 Your secondment will automatically terminate if the Zone Operator or GCM requests your removal from the IDZ for a valid reason.

3 HOURS OF WORK AND OVERTIME

3.1 The hours of work on the … project will be:

	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun .
Week 1							Rest
Week 2							Rest

3.2 Shift start and finish times will be as agreed.

3.3 There will be … paid 15-minute rest interval from …..

3.4 There will be a 30 minute unpaid lunch break from ….

3.5 The hours set out in Clause 3.1 could be increased or reduced according to project requirements.

3.6 Hours worked in excess of normal hours per fortnight will be paid as overtime in accordance with the applicable industry agreement.

4 TRANSPORT

4.1 You will be provided with free bus transport to the IDZ at the start of your Secondment Contract and upon your demobilisation from the IDZ to your Company home base.

4.2 You will be provided with free return bus transport to the main centre nearest to your home during Easter and Christmas shutdowns and two long weekends.

5 ACCOMMODATION AND MEALS

You will be provided with single status full board and lodging ~~at the Construction Village which include a daily lunch pack~~.

6 OTHER CONDITIONS

6.1 The conditions of employment not specifically dealt with above will be those prevailing in the applicable industry agreements, Zone Labour Agreement, applicable Project Labour Agreement, Company's policy and general rules and regulations.

6.2 You shall, upon demobilisation, receive a "Skills Record Logbook" recording your employment and training on the IDZ.

6.3 You shall be required to complete a pre and post Declaration of Medical History.

7. OCCUPATIONAL HEALTH

You acknowledge that exposure to hazardous conditions may occur. You undertake to take all reasonable steps to protect yourself from the dangers of contracting any such diseases or injury and to comply with any IDZ procedures, recommendations, guidelines and preventative measures that may apply with regard to Occupational Health, Safety and Hygiene.

8. CONTRACTORS TOOLS, EQUIPMENT AND PROPERTY

8.1 You accept responsibility for the safe and efficient use of the Contractors tools, Equipment and Property, and will ensure that no abuse, loss or negligent damage takes place.

8.2 In the event of abuse, loss or negligent damage the Contractor is entitled to recover the replacement value of such items from the employee, following an enquiry or investigation.

9. IDZ BONUS

9.2 An IDZ Bonus of 9.25 hours wages for each completed month worked with the same contractor will be paid upon demobilisation.

9.3 The IDZ Bonus will be affected should the employee participate in one or all of the following:-

9.3.1 be absent without consent;
9.3.2 participate in any unprotected disruption or unprotected industrial action;
9.3.3 refuse to work on a working Saturday or work contractual/agreed overtime in terms of this agreement if requested to do so.
9.3.4 in the event of unauthorised absence, or refusal to work on a working Saturday or work contractual/agreed overtime, you will forfeit 100% of your IDZ Bonus for that month in which the unauthorised absence occurs.
9.3.5 in the event of you participating in any unprotected disruption or unprotected industrial action, the total IDZ Bonus accrued prior to the disruption or unprotected industrial action will be forfeited.

10. RULES AND REGULATIONS

You will be required to adhere to all rules and regulations, including any specific occupational health and safety regulations in place on the IDZ. These rules and regulations will be explained to you at the induction course when you arrive on IDZ.

In the event of disciplinary action being taken against you whilst on secondment, the effect of such disciplinary action will be the same as if the Company took such action.

In the event of you being dismissed whilst on secondment your contract of employment with the Company will also terminate.

11. SECURITY

You will be issued with an IDZ Access Permit, which you will wear at all times for identification purposes. Without this card, you will not be permitted on the IDZ or in the Construction Village. Should you lose this card, the cost of replacement card (R50.00) will be deducted from your wages.

12. EMPLOYEE UNDERTAKING

I undertake to:-

- Abide by all conditions of employment;
- Channel all grievances through the correct procedure;
- Respect fellow employees as individuals and respect each individual's freedom of choice;
- Work safely and not endanger fellow workers;
- Recognise that the success of the IDZ represents an important development milestone for the E/Cape Region;
- Not participate in unlawful or unprocedural industrial action;
- Abide by all IDZ and Project rules and regulations;
- Comply with the Zone Labour Agreement (ZLA) and PLA, as may be amended from time to time;
- Agree to work the hours in the ZLA and PLA and overtime when required to do so;
- Not be absent without permission;
- Work to the best of my ability in compliance with my contractual obligations towards my employer.

13. HOME ADDRESS

The employee confirms the home address to be:-

Contact Person:_____

Name :_____

Address:_____

Telephone:_____

14. PAYMENT OF WAGES/SALARIES

Payment of wages/salaries will be done fortnightly in arrears by electronic transfer into your bank account.

Details of my banking account are as follows:

Bank/Building Society :
……

Account Number :
……

Branch :
……

15. HOME BASE CONDITIONS OF EMPLOYMENT

The conditions contained herein will be valid during your secondment to the Coega Industrial Development Zone. Upon demobilisation, you will revert to the conditions applicable to you prior to your secondment to the IDZ.

I, the undersigned, …….. hereby acknowledge that the conditions of this Secondment Contract of Employment, as set out in Clause 1 to 15 above, have been explained to me and that I understand and accept these terms and conditions as binding upon me during my period of employment on the Coega Industrial Development Zone.

Signature of Employee

Signature-Authorised Employer Representative

Date

ANNEXURE "C"

DISCIPLINARY POLICY, PROCEDURE AND CODE GUIDELINE

1. PREAMBLE

All Contractors operating on the IDZ must have certain rules and regulations to carry out its activities in an orderly and meaningful manner.

It is the duty and prerogative of management and supervision to correct working practices that do not conform to the disciplinary code with which employees are required to comply for the safe and efficient operation of the work

Employees should know what is expected of them and management and supervision must be aware of the method of dealing with alleged ill discipline.

2. POLICY

The guidelines are established to ensure that a common framework exists for disciplinary action to be taken across the IDZ.

2.1 Enforcement of discipline is management's prerogative and all levels of management must take appropriate disciplinary action when warranted. The intention of this action must be preventative and corrective and not punitive. To achieve this aim, the following principles will be observed:

2.1.1 Management will, in the first place seek to correct an employee's poor performance or conduct through informal counselling.

2.1.2 Management will apply the formal disciplinary process only when informed that counselling is inappropriate or has failed.

2.1.3 Clear evidence of a breach of rules and regulations or unsatisfactory performance must be established.

2.1.4 Management accepts that no employee will be formally disciplined without a fair hearing and an opportunity to put his case.

2.1.5 Careful consideration of the circumstances of the alleged offence must be given before disciplinary action is taken.

2.1.6 Disciplinary action must be prompt and fair.

2.1.7 Management must strive wherever possible and with due reference to the circumstances of each individual case to be consistent in taking disciplinary action.

2.1.8 Where applicable, the contractor may consider suitable counselling and rehabilitation, as an alternative to dismissal.

3. DISCIPLINARY CODE

The disciplinary code is the establishment of a formal framework for disciplinary action. It sets out rules and regulations with which employees are required to comply. The code is based on the following principles:

3.1 The right of management to take disciplinary steps against any employee who acts in a manner conflicting with the interest of the company.

3.2 The company recognises the differences between warning offences and dismissible offences.

3.3 The company recognises the right of the employee to appeal against any disciplinary measure considered unjust or unfair.

4. NATURE OF DISCIPLINARY MEASURES

4.1 There are four types of disciplinary measures, depending on the circumstances, which may be applied. In order of severity, these are :

- Verbal warning/counselling
- Written warning
- Final written warning
- Dismissal

The time periods relating to the expiry of warnings are as follows :

- Verbal warnings : three months
- Written warnings : six months
- Final written warnings : twelve months

Whenever formal disciplinary action is taken against an employee a hearing will be held into any offence, which may result in a Final Written Warning or Dismissal.

All disciplinary warnings are cumulative.

4.2 The Disciplinary Procedure

4.2.1 Level One - Verbal Warning/Counselling

If the immediate management is of the opinion that the conduct or performance of an employee is unsatisfactory, but does not warrant disciplinary action, then a verbal warning/counselling will be given.
The verbal warning/counselling will be noted on the Disciplinary Report Form and placed in the employee's personal file and a copy given to the employee. This verbal warning/counselling shall remain valid for a period of three months from date of issue. The employee has the right to be represented.

4.2.2 Level Two - Written Warning

If subsequent to issuing a verbal warning/Counceling, management is still not satisfied with the performance of the employee, or if the employee commits another offence, which requires a written warning, management and immediate superior shall discuss the nature of the transgression, the corrective action and the disciplinary steps with the employee.

Management must then complete the Disciplinary Report Form and secure the signature of the employee and the employee representative thereon as an acknowledgment of receipt of the written warning, even though the employee may not necessarily agree with the disciplinary action applied. Should the employee refuse to sign the warning, and then the immediate manager shall merely note the fact thereon. The employee has the right to be represented.

The disciplinary warning should then be placed in the employee's personal file and a copy given to the employee. This written warning shall remain valid for a period of six months from date of issue.

4.2.3 Level Three - Final Written Warning

If, subsequent to issuing a written warning, management is still not satisfied with the performance or behaviour of the employee, or if the employee commits another offence within the prescribed period of six months, or if an employee commits any offence which warrants a final warning, then the same procedure as detailed in level two shall be followed. The final written warning shall remain valid for a period of 12 months from date of issue.

Management shall ensure that the employee and the employee's representative are aware of the fact that, should the employee commit a further offence within the period of twelve months following receipt of the final written warning, then that offence shall be subject to the decision reached at the formal disciplinary enquiry.

4.2.4 Level Four - Formal Disciplinary Enquiry

If, subsequent to issuing a written warning, the supervisor is still not satisfied with the performance or behaviour of the employee, or the employee commits a further offence within the prescribed period of twelve months, or if an employee commits an offence which could render him liable for dismissal, then the supervisor shall request a formal disciplinary enquiry.

The supervisor shall complete the Disciplinary Report Form, stating the ground for an enquiry, will report the matter to the senior manager and hand over the disciplinary report. In the absence of the senior manager of the department concerned, the supervisor may hand the disciplinary report to any designated senior manager.

The senior manager shall inform the employee in writing by way of the Formal Disciplinary Enquiry Notification.

The senior manager shall, after a minimum period of 24 hours, and within two clear working days, conduct a formal enquiry in the presence of the employee, the employee representative, immediate management and any witnesses.

The senior manager shall ensure that a record of the proceedings is kept. The senior manager shall ensure that the enquiry is conducted in a fair and proper manner. The senior manager shall, within two clear working days of the enquiry, give a decision on the matter. The decision shall be recorded on the disciplinary report and a copy, signed by the parties , made available to the employee and the Site / Shop steward or employee representative.

The senior manager shall ensure that the employee and the employee's representative are made aware of the right of the employee to appeal against the disciplinary action taken.

4.2.5 Level Five - Appeal Hearing

Any employee disciplined in terms of this procedure but not dismissed may appeal, in writing, to the next level of management, i.e. to the more senior supervisor or manager to the one who implemented the disciplinary action.

The employee may be represented at the Appeal hearing by a Site / Shop Steward, employee representative or a Trade Union Official.

Any employee dismissed in terms of the disciplinary procedures shall have the right to appeal. The grounds for the appeal against dismissal or disciplinary action shall be submitted in writing to the manager concerned within three working days of the disciplinary action.

The manager concerned shall, as soon as possible, but within two clear working days of receipt of the appeal application, conduct a formal appeal hearing. The appeal hearing shall be conducted along similar lines to the disciplinary enquiry. The Manager concerned shall, within two clear working days of the appeal hearing give a decision, which will be final, unless the dispute is referred to the Commission for Conciliation, Mediation and Arbitration (CCMA) or relevant Bargaining Council.

4.3 Employee Representative

Any employee disciplined in terms of levels two, three or four or appealing in terms of level five of the disciplinary procedure may nominate any fellow employee representative from his place of work to act as a representative during the proceedings.

4.4 Dispute Resolution

Following conclusion of the procedure as above, nothing contained herein will prohibit the parties to take any action that they are entitled to in terms of this Agreement or the Act.

4.5 Disciplinary Code

A Disciplinary Code will be issued to all Contractors and employees as a guideline.

4.6 Management and employees may agree to pre-dismissal arbitration by the CCMA, relevant accredited Bargaining Council or any other accredited organisation.

DISCIPLINARY REPORT FORM	
Department / Section :	
Employee :	Senior Manager :
Supervisor :	Date :
LEVEL ONE : VERBAL WARNING/COUNCELING	
Incident :	Time :
Date :	Place :
Witness :	
Witness :	
Witness :	
Nature of Transgression :	
Disciplinary Action :	
Consequences of a re-occurrence :	
Signature of Supervisor :	
Signature of Employee :	

The signature of the employee signifies that the employee has received the notice of disciplinary action, whether or not the employee agrees with the action.

DISCIPLINARY REPORT FORM	
Department / Section :	
Employee :	Senior Manager :
Supervisor :	Date :
LEVEL TWO : WRITTEN WARNING	
Incident :	Time :
Date :	Place :
Witness :	
Witness :	
Witness :	
Nature of Transgression :	
Disciplinary Action :	
Consequences of a re-occurrence :	
Signature of Supervisor :	
Signature of Employee :	
Signature of Representative :	

The signature of the employee signifies that the employee has received the notice of disciplinary action, whether or not the employee agrees with the action.

DISCIPLINARY REPORT FORM	
Department / Section :	
Employee :	Senior Manager :
Supervisor :	Date :
LEVEL THREE : FINAL WRITTEN WARNING	
Incident :	Time :
Date :	Place :
Witness :	
Witness :	
Witness :	
Nature of Transgression :	
Disciplinary Action :	
Consequences of a re-occurrence :	
Signature of Supervisor :	
Signature of Employee :	
Signature of Representative :	

The signature of the employee signifies that the employee has received the notice of disciplinary action, whether or not the employee agrees with the action.

FORMAL DISCIPLINARY ENQUIRY NOTIFICATION	
Department / Section :	
Employee :	
Senior Manager :	Date :

NOTIFICATION OF FORMAL DISCIPLINARY ENQUIRY

You are hereby notified that a full disciplinary enquiry into the transgression as detailed hereunder is to be held as follows

Date :	Time :
Place :	
Details of Transgression :	

Handed to the Employee on :
Signature of Senior Manager :
Signature of Supervisor :
Signature of Employee :

The signature of the employee signifies that the employee has received the notice of disciplinary enquiry, whether or not the employee agrees with the action.

Please note that your rights at the enquiry are as follows:

- The right to be represented by a fellow employee.
- The right to a fair and proper hearing.
- The right to call and cross-examine witnesses.
- The right to appeal against any disciplinary action.
- The right to an interpreter if required.

DISCIPLINARY REPORT FORM	
Department / Section :	
Employee :	Senior Manager :
Supervisor :	Date :

LEVEL FOUR : FORMAL ENQUIRY

Disciplinary report handed to Chairman by Supervisor on :
Letter of advice of enquiry handed to Employee on :
A formal enquiry was held on :
Outcome of hearing :
Disciplinary action :
The signature of the employee signifies that the employee has received the notice of disciplinary action, whether or not the employee agrees with the action. The employee has the right to appeal within 3 (three) working days of the disciplinary action.
Signature of Chairman :
Signature of Employee :
Signature of Employee Representative :
Signature of Supervisor :
Date :

DISCIPLINARY REPORT FORM	
Department / Section :	
Employee :	Senior Manager :
Supervisor :	Date :

LEVEL FIVE : APPEAL

A Disciplinary Report handed to the Project Manager or his nominated representative on :
and the final decision made on :
was as follows:
Signature of Project Manager or Nominated Representative :
Date :

ANNEXURE "D"

GRIEVANCE PROCEDURE

1 OBJECTIVE

The objective of the grievance procedure is to provide individual employees with and effective method of voicing without prejudice, a grievance, complaint, problem, dissatisfaction or feeling of injustice regarding the work situation to more than one level of management, and to enable a grievance to be settled as close to its source as quickly as possible.

The purpose of implementing this procedure is to prevent these grievances from accumulating of festering to such an extent that they are expressed in some sort of conflict, and to also protect the interest of management and employees.

2 DEFINITION

A grievance is a complaint that is expressed formally and triggers the formal procedural machinery to bring to management's attention any dissatisfaction or feeling of injustice relating to an employee's or group of employees work situation.

The grievance procedure is not intended to deal with collective grievance such as wages and working conditions, which are normally convened by the appropriate collective bargaining machinery, nor is the grievance procedure to be used as an appeal mechanism against disciplinary action as a result of the disciplinary procedure. Such appeals are covered by the disciplinary procedure.

3 GENERAL

A grievance is an employee's feeling of dissatisfaction or injustice with conditions of employment. The grievance procedure allows employees to formally discuss and resolve any complaint that they may have and to provide a channel for the equitable settlement of complaints and grievances. It serves to bring employee problems to the notice of management so that they become aware of employee frustration, problems and expectations before they erupt into dispute.

The grievance procedure should ensure that grievances :

- are openly and properly aired.
- are being settled as close to the point of origin and as quickly as possible.
- are resolved in a manner that ensures fairness and equity.

4 GRIEVANCE PROCEDURE

(a) Level One

The employee must raise the grievance verbally with the immediate supervisor. (This is done without prejudice to the employee). The supervisor must, to the best of his ability :

- Listen to the employee in private.
- Encourage the employee to express the grievance freely and openly.
- Obtained all relevant facts about the grievance distinguishing fact from opinion.

The supervisor must then endeavour to resolve the grievance as quickly as possible and within, at most, three clear working days. If the supervisor's decision is unacceptable to the employee, level two becomes effective and the supervisor must advise the employee of the subsequent stages of the procedure and of the employee's right to seek the assistance of a Site / Shop steward or employee representative.

(b) Level Two

Any employee making use of the grievance procedure may nominate a Site / Shop steward or employee representative from within his work area to act as a representative during the proceedings of levels two, three and four.

The employee should discuss his grievance with the Site / Shop steward or employee representative. The employee, with assistance of the Site / Shop steward or employee representative, should again raise the grievance verbally with the immediate supervisor. If the supervisor's decision is unacceptable to the employee, level three becomes effective.

(c) Level Three

The employee who elects to proceed with the grievance must, with the assistance of the Site / Shop steward or employee representative, record the relevant details on the grievance form. The signed form must be handed to the supervisor whose findings must be recorded on the grievance form and returned to the employee to proceed to level four, if so desired.

(d) **Level Four**

The employee may forward the grievance form and all facts pertaining thereto to the senior manager, who shall hold an enquiry into the matter within two clear working days of receipt. The enquiry shall be attended by the senior manager, the supervisor, the employee, the Site / Shop steward or employee representative and/or a Trade Union official (if applicable). A record of the enquiry must be kept. The senior manager must give a decision within one clear working day of the enquiry. The senior manager's decision must be recorded on the grievance form and a signed copy handed to the employee.

(e) **Dispute Resolution Committee**.

If the grievance remains unresolved, the employee may, with the assistance of the Site / Shop steward or employee representative, submit the grievance to the relevant project Dispute Resolution Committee.

5. **ROLE OF PARTICIPANTS**

(a) **The role of management**

It is important for the supervisor and management to encourage the employee to express the grievance freely and openly. The supervisory should:

- Explain the procedure
- Clarify the grievance with the employee.
- Distinguish fact from opinion.
- Note the relevant facts of the grievance.
- Ask the employee the settlement desired.
- Verify facts from witness and other people who may be able to contribute.
- Obtain assistance from other members of management if necessary.
- Monitor adherence to the grievance procedure by all participants at all times.
- Seek an appropriate resolution of the grievance.

(b) **The role of the Site / Shop steward or employee representative**

- Listen to the employee's grievance and encourage the employee to express the grievance freely and openly without fear of victimisation or intimidation.
- Investigate the grievance together with the employee to ensure that all the circumstances and the facts relating to the grievance are accurate, and assist the employee to prepare a reasonable case for presentation to management.

- Counsel the employee as to the validity of the grievance, and if it does not merit management's attention, assist the employee by advising how best it can be resolved.
- Attend the meeting with management to discuss the employee's grievance, and support the employee by assisting with the presentation of the employee's case to management.
- Monitor the grievance procedure to ensure that all participants adhere it to at all times.
- Endeavour to formulate an appropriate resolution to the grievance.

(c) **The role of the employee**

- Discuss the grievance with the Site / Shop steward or employee representative to establish the best method of resolving the grievance.
- Be clear and concise when explaining the grievance to management.
- Express the grievance freely and openly to management without fear of being victimised or intimidated.
- Give though to what would be an acceptable solution to the grievance prior to meeting with management, so that management may be assisted in helping to resolve the grievance.

GRIEVANCE PROCEDURE

Employee has grievance

Level One	Raise verbally with supervisor
	If not resolved at Level 1
Level Two	Discuss with employee Representative and raise again with supervisor
	If not resolved at Level 2
Level Three	Grievance form to supervisor
	If not resolved at Level 3
Level Four	Grievance form to senior manager to hold enquiry within two days (Decision within one day)
	If not resolved at Level 4
	Grievance Procedure Ends

Refer grievance to Project Dispute Resolution Committee (Dispute resolution procedure commences)

GRIEVANCE FORM

NAME: _____ DEPARTMENT: _____

EMPLOYEE NUMBER: _____ DATE _____

EMPLOYEE REPRESENTATIVE : _____

NATURE OF GRIEVANCE, CAUSE AND DATE OF GRIEVANCE:

_____

_____

_____

_____

_____

_____

SETTLEMENT DESIRED: _____

_____

_____

_____

_____

SIGNATURE: _____ DATE: _____

GRIEVANCE FORM HANDED TO : _____ DATE: _____

AGREEMENT OR SETTLEMENT OF GRIEVANCE OR REASONS FOR FAILURE TO REACH AGREEMENT: _____

_____

_____

_____

_____

DATE _____ NAME & SIGNATURE OF SUPERVISOR: _____

SIGNATURE OF EMPLOYEE: _____

SIGNATURE OF EMPLOYEE REPRESENTATIVE: _____

ANNEXURE "E"

DISPUTE RESOLUTION PROCEDURE

1 INTRODUCTION

In order to facilitate the speedy resolution of disputes on the IDZ, individual projects will implement the undermentioned Dispute Resolution Procedures.

2 DECLARATION OF DISPUTE

The aggrieved party shall furnish particulars of the issue in dispute in writing to the other party at the level of the individual Contractor and to the Contractors IR Coordinator, within three (3) working days of the occurrence. Such notice shall set out the nature of the dispute and the proposed terms of settlement.

3 ANSWERING STATEMENT

Within one (1) working day of a receipt of the statement of dispute, the answering party shall serve on the aggrieved party and the Contractors IR Coordinator, an answering statement, in which it shall respond to the allegations in the statement of dispute and shall further set out a statement of the party's position with regard to the proposed terms of settlement.

4 MEETING OF THE PARTIES

The parties to the dispute shall meet within two (2) working days of the answering statement being filed, and shall attempt to resolve the dispute. Further meetings may be convened by mutual agreement. The Contractors IR Coordinator shall be kept appraised of developments and may attend the meeting as an observer.

5 DISPUTE RESOLUTION COMMITTEE

5.1 Should the dispute remain unresolved, the parties shall convene a meeting being chaired by the Contractors IR Coordinator, or his delegated representative, for resolution in two (2) days.

5.2 The Chairman shall be empowered to resolve the issue by applying mediation, fact finding or advisory arbitration skills.

5.3 The Dispute Resolution Committee shall complete its deliberations within three (3) working days. Failure to do so shall result in the dispute being declared unresolved.

6 CONCILIATION MEDIATION AND/OR ARBITRATION

Should the parties together with the Dispute Resolution Committee, fail to resolve the dispute, they shall be entitled to refer the dispute to the CCMA or the respective Bargaining Council or any other third party intervention, for resolution.

7 VARIATION OF THE PROCEDURE

The Parties may by mutual agreement, reduce or extend any time period of amend any step referred to in this procedure.

The Zone Operator is considering an ADR system, which may impact on the above dispute procedure. Proposals will be considered from service providers' whereafter this procedure may be amended.

ANNEXURE "F"

ABSENTEEISM PROCEDURE

1 OBJECTIVE

To prescribe the procedure to be followed in the case of absenteeism/ abscondment /desertion or prolonged absence.

2 DEFINITION

An employee who is absent for five (5) consecutive working days or longer without authorisation or notification, will be regarded as an absconder and treated according to this procedure.

3 ABSENCE WITHOUT AUTHORISATION

3.1 When an employee is absent without authorisation or notification for one to five consecutive working days and he/she returns without a valid reason (e.g. Doctor's certificate), the Site Manager must take disciplinary action as laid down in the Disciplinary Procedure.

3.2 If the employee has not returned on the 5th day the Site Manager must complete a termination form and mark it appropriately, i.e. abscondment.

The Site Manager must make every effort to contact the employee and establish the reason for absence or non-communication prior to commencing with the implementation of any abscondment documentation/procedure.

3.3 Should the employee return after having been terminated because of abscondment, the Site Manager must then convene an enquiry in accordance with the Disciplinary Procedure in order to formally determine the reason for the absence and to decide whether to uphold the abscondment termination or to take any other appropriate action.

3.4 Where an employee is classified as an alleged absconder, the Site Manager, will request that the (dismissed) employee's money due be paid to him/her. The money will be paid as per normal pay procedure.

ANNEXURE "G"

DEMOBILISATION PROCEDURE

1 PURPOSE

The purpose of this procedure is to provide for a smooth process of demobilisation of the Contractor's Labour from the IDZ.

2 DEMOBILISATION OF SECONDED EMPLOYEES

Seconded employees will be demobilised from the IDZ and returned to their Company Home base.

3 DEMOBILISATION OF LOCAL EMPLOYEES ON LIMITED DURATION CONTRACTS

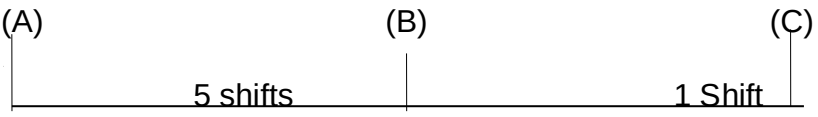
3.1 Selection

Selection will be based on the following criteria: -

- Date of appointment
- The completion of the portion/section of work where the employee(s) is involved
- Operational requirements
- Skills and inherent job requirements
- As a last resort, when there is a need to choose between two or more employees with similar skills and service only then will the disciplinary record of an employee be considered.

Where possible attempts will be made to move affected employees to other Contractors on the Project and thereafter the IDZ.

3.2 Consultations **and Notice Period**



A = Consultation with worker representatives and advise him/her of the names

B = Notify individual employees and issue written notification

C = Cease work and receive pay

3.3 **Documentation to be provided to terminated local employees**

3.3.1 The following standard documentation shall be given to each employee upon demobilisation: -

* Payslips
* Procedures for claiming benefits and contact addresses of the various Department of Labour Offices (obtainable from the Department of Labour)
* Certificate of Service
* Any training certificates that may have been issued on the IDZ
* Tax Certificates where applicable
* Skills Record Log book.

3.3.2. All demobilised employees shall return their security passes and shall sign an Acknowledgment of Receipt Form in respect of the above documentation and monies upon termination, prior to any payment being made.

3.3.3 Should an employee not return his security pass, ***R50.00*** will be deducted from his final wages.

COEGA INDUSTRIAL DEVELOPMENT ZONE
IDZ WAGE RATES: CIVIL ENGINEERING, BUILDING AND ELECTRICAL CONSTRUCTION INDUSTRY JOB CATEGORY STRUCTURE

From 01 September 2024

Civil Engineering: Job Structure and Standard Wage Rates

Grade	Occupational group	Job Title	Zone Rate: Rand Per Hour
Task Grade A	General	General Worker	R51.00
		Watchman	
Task Grade B	Concrete	Reinforcing Steel Bending Machine Operator	R52.20
		Structures Construction Hand	
	General	Civil Construction Bricklayer Grade 2	
	Plant Operators & Drivers	Boom Scraper Operator	
		Crusher Assistant	
		Hoist / Lift Operator	
		Pedestrian Roller Operator	
	Rail Construction	Perway Construction Hand	
	Roads, Earthwork & Drainage	Premix Paving Checker / Tallyman	
	Site Support	Artisan Aid	
		Materials Tester Assistant	
		Safety Watcher	
		Survey Assistant	
Task Grade C	Construction Hand Grade 3	Concrete Hand Grade 2	R54.66
		Shutter hand Grade 3	
	Piling	Bore Pile Operator	
		Frontman	
		Nozzleman	
	Plant Operators & Drivers	Winch Operator	
		Track Rig Operator (general)	
	Roads, Earthwork & Drainage	Pipelayer Grade 2	
		Rakerman	
	Site Support	Banksman / Rigger Assistant	
		Junior Site Clerk	
		Welder Semi-Skilled	
	Tailings	Mudguard	
		Reclamation Attendant	

Grade	Occupational group	Job Title	Zone Rate: Rand Per Hour
Task Grade D	Concrete	Concrete Hand Grade 1	R61.58
		Reinforcing Hand Grade 2	
		Scaffold Erector	
		Shutterhand Grade 2	
	Piling	Continuous Flight Auger Operator	
	Plant Operators & Drivers	Articulated Dumper Truck Operator	
		Bulldozer Operator	
		Concrete Dumper Operator	
		Concrete Mixer Operator	
		Concrete Pump Operator	
		Crusher Operator	
		Driver Operator	
		Excavator Operator	
		Forklift Operator	
		Front End Loader Operator	
		Grader Operator	
		Hauler Driver (Bituminous)	
		Heavy Duty Driver /Extra Heavy	
		Duty Driver (rigid)	
		Light Motor Vehicle Driver	
		Mechanical Broom Operator	
		Milling Machine Operator	
		Motorcycle Driver	
		Paver Operator	
		Road Recycler Operator	
		Roller Operator	
		TLB Operator	
		Tower Crane Operator	
		Tractor Driver	
	Roads, Earthwork & Drainage	Blasting Assistant	
		Fence Erector	
		Guard Rail Erector	
		Sprayer Operator (Bituminous)	
	Site Support	Formwork Controller	
		Materials Tester	
		Storeman	
		Tools and Small Plant Repair	
		Wedge Welder	
	Building Skills	Semi-Skilled	
		Light Motor Vehicle Driver	
		Hoist Operator	
		Driver (Code 9)	

Grade	Occupational group	Job Title	Zone Rate: Rand Per Hour
Task Grade E	Concrete	Reinforcing Hand Grade 1	R72.53
		Scaffold Inspector	
		Shutter hand Grade 1	
	General	Civil Construction Bricklayer Grade 1	
	Piling	Piling Auger Machine	
		Operator	
	Plant Operators & Driver	Batch Plant Operator	
		Heavy Duty Driver /Extra	
		Heavy Duty Driver (Articulated)	
		Mobile Crane Operator	
		Scraper Operator	
		Screed Operator	
	Roads, Earthwork & Drainage	Kerb layer	
		Pipelayer Grade1	
	Site Support	Assistant Surveyor	
		Extrusion Welder	
	Building Skills	Journeyman's Assistant	
		Heavy Duty Driver (Code 10)	
		Crane Operator	
		Machine Minder and Sawyer	
		Mechanical Handling Equipment Driver	
Task Grade F	Plant Operators and Drivers	Grader Operator (final levels)	R105.12
		Sprayer Driver (Bituminous)	
	Site Support	Senior Material Tester (Field)	
		Senior Material Tester (Lab)	
		Site Clerk	
	Supervisors	Team Leader Grade 2	
	Building Skills	Artisan / Journeyman	
Task Grade G	Site Support	Plant Serviceman	R112.04
	Supervisors	Supervisor Grade 2	
	Building Skills	Artisan Journeyman with N2	
Task Grade H	Supervisors	Supervisors Grade 2	R117.35
Task Grade I	Artisan	Diesel Mechanic, Fitter & Turner, Auto Electrician, Boilermaker, Spray Painter, Welder	R164.71

This Schedule will be adjusted annually on the first Monday of September in line with the increases granted in the Civil Engineering Industry.

ANNEXURE "H 2"

COEGA PROJECT

IDZ WAGE RATES: MECHANICAL / ELECTRICAL / INSTRUMENTATION JOB CATEGORY STRUCTURE

From 01 July 2024

CAT	ENTRY RATE R Per Hour	PROJECT RATE R Per Hour	RIGGING / STRUCTURAL	PAINTING / DRIVING / ADMIN.	WELDING	PIPE FITTING	SCAFFOLDING	ELECTRICAL	INSTRUMENT MECH.	MECHANICAL
5		R 150.50	Artisan Rigger		Artisan Welder – 6G	Artisan Pipe Fitter		Artisan Electrician	Artisan Instrument Mechanic	Artisan Boilermaker Artisan Mech. Fitter
4		R 125.18	Erection of structural steel utilising drawings and cranes under supervision. Carry out on site modifications. Use of Theodolite	Supervise painting Operating mobile crane over 25T	Welding subject to ultrasonic and radiographic examination.	Pipe Fitter Levelling and installing pre-prepared pipe work and fittings using drawings		Termination of cables including soldering and including harnessing wires to pre-prepare schedules	Install small bore tubing – Termination of ends to pre-prepared schedules, running of harnesses and installation of terminal blocks.	Installing, setting out and install to drawing. Carry out on site modifications. Fabricate to drawings.
3		R 86.40	Supervise cladding. Complete H/rail installation. Assy s/work to drawings. Supervise Cat 1&2. Drill including sharpen. Use dumpy level. Sort s/work to drawing.	Supervise Cat 1 & 2. Stores attendant. Clerical Assistant. Operating mobile crane up to 25T. Truck Driver Site Clerk Store man	Welding 2G to 5G.	Setting and aligning pipes and joints. Drilling including sharpening	Supervision of erection of scaffolding utilising drawings.	Mounting of junction boxes and auxiliary equipment including trays/racks/panels. Drilling Glanding	Install air supply tubing. Install brackets, frames and wire-ways. Install control panels, equipment and instruments under supervision.	Assembly, Assembly of pre-fabricated components.
2		R 73.46	Steel catching. Bolt including torqueing. Slinging. Operate power hoists. Affix cladding. Operate gas-cutting equipment. Lift by rope, chain block, hand winch, and tirfor. Secure slings. Grind to marks. Install flooring, handrails, stair treads. Assembling on ground including bolting.	Operate shot blast gun. Operate mobile lift LDV Driver Tractor Driver Forklift Driver Stores attendant, Clerical Assistant Application of coatings other than anti-corrosive Application of anti-corrosive coatings. Cleaning by W/brush.	Tack welding runs up to 50mm. Welding in jigs. Learner welder	Preparing, cutting, dressing by hand of piping to be erected. Cutting by oxy-acet. To marks. Install pre-prepared flanged and screwed pipes. Cutting to stops and marks. Grind to marks.	Erection of scaffolding under supervision using pipes and fittings. Erection of scaffolding frames under supervision	Prepare cables for termination. Laying of cables in prepared routes/ trenches/ ducts including binding and strapping.	Laying of cables in prepared routes / trenches / ducts / racks including binding and strapping.	
1	R 52.08	R 62.19	**GENERAL LABOURER**							

This Schedule is reviewed annually on the first Monday in July, in line with the increase granted in the MEI Industry

ANNEXURE "I"

PUBLIC HOLIDAYS

2024	
New Year's Day	1 January
Human Rights Day	21 March
Good Friday	29 March
Family Day	01 April
Freedom Day	27 April
Workers' Day	01 May
Youth Day	16 June
National Women's Day	09 August
Heritage Day	24 September
Day of Reconciliation	16 December
Christmas Day	25 December
Day of Goodwill	26 December

2025	
New Year's Day	1 January
Human Rights Day	21 March
Good Friday	18 April
Family Day	21 April
Freedom Day	28 April
Workers' Day	01 May
Youth Day	16 June
National Women's Day	09 August
Heritage Day	24 September
Day of Reconciliation	16 December
Christmas Day	25 December
Day of Goodwill	26 December

ANNEXURE "J"

CIVIL ENGINEERING INDUSTRY
TOOL POLICY FOR SHUTTERHANDS

The Contractor will assist employees who qualify to acquire a basic set of tools required to perform their duty by purchasing the tools on their behalf.

1. **EMPLOYEES IN POSSESSION OF THEIR OWN TOOL BOX AND TOOLS**

   1.1 The employee's toolbox will be inspected in February and August by the Foreman according to the Toolbox Inspection Form attached.

   1.2 Any shortfall or damaged tools will be supplied or replaced by the Contractor and the cost thereof will be deducted from his March and September wages respectively.

   1.3 Each employee will receive a tool allowance of R250.00 in March and also in September of each year.

2. **EMPLOYEES NOT IN POSSESSION OF THEIR OWN TOOLBOX AND TOOLS**

   2.1 The Contractor will purchase the toolbox and tools on the employee's behalf as per the Tool Issue Form attached.

   2.2 The cost thereof will be deducted form the employee's wages at R50.00 per month starting in the first month after the tools were issued to the employee.

   2.3 If the employee leaves the Project prior to the full payment of the amount, the amount outstanding will be deducted prior to departure.

   2.4 These employees will then be in possession of a toolbox and tools and will then qualify for the tool allowance, etc. as stipulated in items 1.1, 1.2 and 1.3 above. The first tool allowance will be calculated on a pro-rata basis depending on the date the new tools were bought.

3. Any employee seconded to the Project, who has more favourable conditions, will continue to receive them.

CIVIL ENGINEERING CONTRACTORS

TOOLBOX INSPECTION FORM

EMPLOYEES NAME: _____COMPANY NO. _____

OCCUPATION: _____DATE OF INSPECTION: _____

QUANTITY	TOOL DESCRIPTION	CHECKLIST BY FOREMAN	AMOUNT R c
	Toolbox krost		
	Fish line 30m x 60 kg		
	Chalk line		
	Rafter square 600 x 400		
	Nail bag		
	Cross cut saw 600 mm		
	Hack saw		
	5 m GP tape		
	Spirit level 750 mm		
	Shifting spanner 350		
	Estwing claw hammer		
	Wrecking bar 750mm		
	Padlock		
	Cold chisel 25 x 300 mm		
	2 kg Hammer		
	Ring/Flat spanner 16mm		

I the undersigned acknowledge receipt of tools to the value of R_____. This full amount can be deducted from my wages at the same time the tool allowance is paid.

EMPLOYEES SIGNATURE: _____ DATE: _____

FOREMAN'S SIGNATURE: _____ DATE: _____

COMPANY REPRESENTATIVE
SIGNATURE: _____ DATE: _____

COPIES TO: SITE ADMIN, FOREMAN, WAGE DEPT, AND PERSONNEL DEPT.

ANNEXURE "K"

PICKETING RULES

1. INTRODUCTION

These rules are to regulate any pickets staged by striking employees employed on the Project. This procedure is intended to facilitate the proper and orderly expression of the rights of employees to picket.

2. PURPOSE OF THE PICKET

The purpose of the picket is to peacefully encourage non-striking employees and members of the public to support striking employees, to encourage employees not to work during the strike, to dissuade replacement labour from working and to persuade members of the public or other employers and their employees not to do business with the employers whose employees are on strike.

3. WHO MAY PICKET

3.1 Employees who wish to strike.

3.2 The supporters of striking employees shall be obliged to comply with the normal security requirements of the Engineer.

3.3 The supporters in respect of whom permission has been granted by the employer shall be provided with written authority by the union to picket in it's support, which must be carried by the supporters at all times.

3.4 The Trade Unions shall ensure that the supporters remain in the designated area and ensure that, on request by the Contractor/Engineer their supporters, who gather in any area other than the designated area, immediately return to the designated area.

3.5 The Trade Unions further undertake to do everything reasonably possible to ensure that union supporters conduct themselves in accordance with the provisions of these rules, and agree that these rules shall in all respects apply equally to the union supporters.

4. WHERE PICKETERS MAY PICKET

The details of where employees may picket will be agreed in a PLA

5. FACILITIES AVAILABLE TO PICKETERS

Union officials and office bearers shall be entitled to have access to an employer telephone for the purpose of making calls to the union office.

6. CONDUCT OF THE PARTIES

6.1 Picketers must conduct themselves in peaceful, unarmed and lawful manner.

6.2 Picketers may carry placards, chant slogans and sing and dance.

6.3 Picketers may not:

- physically prevent members of the public, including customers, other employees and service providers, from gaining access to or leaving the employer's premises;
- commit any action which is or may be perceived to be violent;
- threaten, intimidate or assault non-striking employees, or prevent employees who wish to work from commencing work or continuing with their work.

6.4 Management and picketers will refrain from using inflammatory or derogatory language on placards or otherwise, with the intention of insulting or provoking other employees or persons.

6.5 Management and picketers will refrain from behaviour which is provocative or which could incite violence, and will not discriminate against or victimise any other employees or persons.

6.6 No weapons of any kind may be carried by any person who is picketing or by any member of management or by persons appointed by management and who have contact with the picketers.

7. CONTROL OF THE PICKETERS

7.1 The Trade Unions will appoint marshals for the purpose of controlling pickets and monitoring the behaviour of the picketers.

7.2 The union appointed marshals should take all reasonable steps to ensure that the behaviour and conduct of the picketers complies with these rules.

7.3 The union appointed marshal should wear a garment clearly identifying them as marshals.

8. IMPLEMENTATION

8.1 The employers shall make available to the unions facilities for making copies of these rules for distribution to picketers.

8.2 The marshals shall explain these rules to picketers and make the necessary arrangements, for example regarding the appointment of marshals.

9. DISPUTES

9.1 In the event of a dispute arising over compliance with the terms and conditions of this agreement, one union official for each of the signatory Trade Unions in charge of a picket, and three designated officials from the company's management team shall meet in an endeavour to resolve the dispute.

9.2 Should the parties fail to reach agreement over any dispute arising over compliance with the terms and conditions of this procedure and the picketing rules set out in it, that dispute shall be resolved in terms of the Dispute Resolution Procedure, Annexure E.

Annexure "L"

COEGA INDUSTRIAL DEVELOPMENT ZONE

IDZ WAGE RATES: SERVICE PROVIDERS JOB CATEGORY STRUCTURE

From 01 September 2024

Grade	Job Title	Entry Rate: Rand Per Hour	Zone Rate: Rand Per Hour
Task Grade E	Senior Clerk Security Officer Grade A Receptionist Chef Handy Man		R70.82
Task Grade D	Housekeeping Assistant Kitchen Supervisor Laundry Supervisor Security Officer Grade B Driver Clerk		R60.09
Task Grade C	Cashier Barman Store man Security Officer Grade C Clerical Assistant		R53.34
Task Grade B	Cook Security Officer Grade D		R44.93
Task Grade A	Watchman Security Officer Grade E Laundry Assistant Housekeeping Assistant General Assistant	R39.82	R42.88

This Schedule is reviewed annually on the first Monday of September, in line with the increases granted in the Civil Engineering Industry

Annexure G

Health & Safety Basic Risk Assessment

Replacement of Fence – Port of Ngqura & Coega Kop Quarry

Baseline Risk Assessment

Prepared by: S.Ahmed — 18/10/2024
Sharifa Ahmed
Health and Safety Manager
Date

Reviewed by: — 21/10/2024
Nkosinathi Madondo
Health and Safety Practitioner
Date

Approved by: — 21/10/2024
Themba Ntanzi
Principal Project Manager
Date

Rev no.	Date	Revision details
00	09/2024	Issued for review

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1. Definitions and abbreviations

Abbrevation	Description
DSTI	Daily Safe Task Instruction
HME	Heavy Mobile Equipment
MDS	Material Data Sheet
PPE	Personal Protective Equipment
SWP	Safe Work Procedure

2. Project background

There are various areas in the Port of Ngqura that requires replacement of security fencing (fence and gates) to comply with the legislative requirement in terms of the International Ship and Ports Facility Security (ISPS). These areas are facing the seaside and act as a boundary of the Port from the seaside. As a port of entry, it is a legislative requirement for the Port to secure all its assets by means of a physical barrier, to ensure a secure and safe environment. There are also areas in the Port that are currently not fenced off and require installation of a new fence as per the ISPS requirements.

The areas that require fencing are Eastern Breakwater (Including Lighthouse area), Sand Bypass, Western Breakwater, Multi-purpose Terminal, and Seawall between AMS and C-berth. The Eastern Breakwater, Western breakwater and Sand bypass are currently fenced off with steel palisade fencing which was installed in 2009 when the Port was being constructed. This fence have a life expectancy odf 20 years. There are chemical reactions that take place on steel when exposed to the marine environment, resulting in the steel corroding at a higher rate than expected, reduction of panel size, loosening of panel bolts from anchoring posts and posts losing anchorage to the concrete. This has resulted in localized failure/collapse and the development of perimeter gaps, rendering the infrastructure incapable of preventing trespassing and subsequent non-compliance with the International Ship and Port Facility Security, National Ports Act and Maritime Security Regulations.

There are areas that were previously fenced off with wire mesh fence and requires replacement. These areas include the Eastern breakwater (Lighthouse area) and Multi-purpose Terminal (including C100). There are also areas that were previously not fenced off and require installation, these include the Seawall between AMS and C-berth, and a section at Western Breakwater

3. Project Scope

The project is aimed at replacing fencing in the Port of Ngqura and Coega Kop Quarry to meet the minimum requirements of the ISPS code, ensure compliance with the relevant legislation and regulatory framework standards as well as address any security concerns posed by the condition of the existing fencing.

The works that the Contractor is to perform involve the structural and civil works for the construction of the fencing in various areas in the Port.

The works include the following main items:

- Removal of existing fencing (fence and gates),
- Removal of fence existing intrusion detection cables with care and to be reinstated after the new fence has been installed.
- Construction of a hot-dipped galvanized mesh fence panel fencing (fence and gates) including all of the fence accessories and concrete plinths foundations.
- Construction of a new concrete wall panel fencing including all of the fence accessories and concrete plinths foundations.
- Installing a concrete wall at Coega Kop Quarry.



4. Risk Assessment

Risk Assessment Title	Baseline Risk Assessment for the Replacement of Fence at the Port of Ngqura and Coega Kop Quarry.

Risk Assessment Team				
	Name	**Designation**	**Contact number**	**E-mail**
Facilitator	Sharifa Ahmed	Health and Safety Manager	083 400 6108	Sharifa.Ahmed@transnet.net
Team Member 1	Nkosinathi Madondo	Health and Safety Practitioner	081 853 5321	Nathi.madondo@transnet.net
Team Member 2	Yandisa Siralarala	Construction Manager	060 569 4491	Yandisa.siralarala@transnet.net
Team Member 3	Themba Ntanzi	Principal Project Manager	072 216 7437	Themba.ntanzi@transnet.net

Activities covered
This baseline risk assessment focuses on the high-level health and safety hazards and risks anticipated during construction taking into consideration all construction methods.
Geographical location: Within the Port of Ngqura and Coega Kop Quarry, Eastern Cape

Risk Controls
Legal requirements pertaining to the specific task step's control measures are assumed to be implemented and will not be repeated in the baseline risk assessment. Proposed Risk Controls focus on unique risks anticipated, and/or specific client requirements.

Scope of Risk Assessment
The risks identified are those that will have a direct effect on the contractor during construction but also those that could have a detrimental effect on the project directly or indirectly from a time delay and/or cost point of view.

	Hazards, Associated Risks, and Ratings						
	Task steps / Short risk name	**Hazards**	**Associated risk event**	**Risk controls**	**Risk rating with controls**		
					L	**C**	**R**
Occupational Health & Hygiene							
1.	Noise - Working close or adjacent to the moving of construction plant (equipment and machinery), and public/port vehicles.	Noise exposure due to operations or working in close proximity of noisy mobile plant, equipment/machinery.	Overexposure to noise levels - Short and long term may result in potentially permanent health impact (noise-induced hearing loss)	Occupational hygiene monitoring and medical surveillance. Hearing conservation programme. PPE (Ear protection-ear muffs). Compliance with Project Health and Safety Specification.	**Possible**	**Major**	**High**
2.	Working in extreme temperatures/ adverse weather conditions.	Exposure to extreme ambient temperatures during winter and summer days, UV exposure, windy/rainy conditions.	Overexposure may result in health conditions such as heat exhaustion and hypothermia. Lung/chest/eye infections from particles being blown into eyes and inhaled.	Occupational hygiene monitoring and medical surveillance. Specialised PPE (e.g. lined gloves, balaclavas, eye protection, dust masks/specialised FFP1/FFP2), Compliance to Project Health and Safety Specification (i.e. drinking sufficient potable water).	**Possible**	**Minor**	**Medium**

	Hazards, Associated Risks, and Ratings						
	Task steps / Short risk name	**Hazards**	**Associated risk event**	**Risk controls**	**Risk rating with controls**		
					L	**C**	**R**
3.	Ergonomics – including manual handling.	Working on awkward work positions (i.e. restricted space). Use of self-improved /improper tools and machinery. Heavy load manual handling; repetitive work.	Musculoskeletal injuries due to manual handling, bending, twisting, prolonged, muscle strains; fatigue.	Compliance with Project Health and Safety Specification (i.e., lifting techniques), Task-based risk assessment, DSTI and toolbox talks, correct lifting and handling practices, and ergonomic awareness.	**Rare**	**Moderate**	**Low**
4.	Dust particles – i.e., digging, mobile plant.	Excessive exposure to solid dust airborne particles from construction activities.	Inhalation exposure to solid dust results in respiratory infection (potentially permanent health impact). Lung irritation/damage to eyes/red eyes.	Compliance with Project Health and Safety Specification, Occupational health assessment; Hygiene monitoring; Medical surveillance; Dust suppression; FFP2 dust masks and safety goggles.	**Possible**	**Major**	**High**

	Hazards, Associated Risks, and Ratings						
	Task steps / Short risk name	**Hazards**	**Associated risk event**	**Risk controls**	**Risk rating with controls**		
					L	**C**	**R**
5.	Port operation activities resulting in Manganese dust exposure.	Exposure to Manganese dust during loading operations and from stockpile areas.	Inhalation exposure can result in respiratory infection (potentially permanent health impact). Lung irritation/damage to eyes/red eyes. Diseases such as lung disease, and cancers.	Inductions are to be arranged with Transnet before any work commences in/near such areas so that PPE and safe work requirements can be communicated. Contractor to take extra precautions during manganese operations. PPE requirements to be adhered to.	**Possible**	**Critical**	**High**
6.	Vibration and fumes – HCS related activities.	Exposure to vibrations as well as fumes emitting from various construction activities and associated plant/equipment. Fumes from various HCS used.	Vibrations from various plant/equipment can result in carpal tunnel syndrome/white finger vibration as well as affect employees' kidneys. Inhalation exposure to fumes results in Respiratory infection (potentially permanent health impact). Lung irritation/damage to eyes/red eyes.	Compliance with Project Health and Safety Specification, Occupational health assessment; Hygiene monitoring; Medical surveillance; FFP2 masks and safety goggles and all other required PPE.	**Possible**	**Major**	**High**

	Hazards, Associated Risks, and Ratings						
	Task steps / Short risk name	**Hazards**	**Associated risk event**	**Risk controls**	**Risk rating with controls**		
					L	**C**	**R**
7.	Communicable and other infectious diseases.	Contact with an infected person or area; Sneezing or coughing without closing the mouth; Unhygienic practices.	Fatalities and diseases.	Training on communicable and infectious diseases during DSTI and toolbox talks; Washing of hands regularly; Employees reporting to management when sick; Drinking plenty of water and keeping hydrated.	**Possible**	**Major**	**High**
Site establishment							
8.	Transportation of personnel to site.	Sub-standard/un-roadworthy vehicles; Driver under the influence of intoxicants; incompetent/unlicensed drivers; speeding by driver; overcrowding of vehicles, loading equipment and tools with employees, vehicle not fitted with seat belts.	Road accidents with potential for injuries and fatalities; property damage.	Use of vehicles to comply with the National Road Traffic Act (No. 93 of 1996). Compliance with Project Health and Safety Specification.	**Possible**	**Critical**	**High**
9.	Use of equipment and tools.	Improper use of tools and equipment;	Pinch points, cuts, laceration incidents (caught by, in between) resulting in	Compliance with Project Health and Safety Specification; Correct tools	**Likely**	**Major**	**High**

	Hazards, Associated Risks, and Ratings						
	Task steps / Short risk name	**Hazards**	**Associated risk event**	**Risk controls**	**Risk rating with controls**		
					L	**C**	**R**
		Incompetent/untrained operators/users; Substandard tools and equipment; No safeguards where required; Homemade tools, no SWP.	LTI's, medical treatment cases or First Aid Injuries; damage to property.	for the job and correct use of the tools; All tools and equipment to be numbered and placed on registers and inspected when required by competent persons; Operators/users to have competency/training and experience. All machine guarding to be in place before equipment is used; PPE (use of suitable gloves mandatory, eye protection).			
10.	Lifting operation - Placement of containers/offices.	Incompetent crane drivers/operators and riggers performing lifting activity; Heavier loads exceeding lifting capacity of cranes; No rigging studies done before lifts;	Objects falling onto people (employees) and or property resulting in Fatalities, Injuries and Property Damage from crane failure, unfavourable conditions, incompetent operators; Property damage to existing buildings, cars, and vegetation.	Compliance with Project Health and Safety Specification; Crane operator and rigger competency to be verified before activities take place. Rigging studies to be done where required. Ground stability, weights and	**Possible**	**Critical**	**High**

	Hazards, Associated Risks, and Ratings						
	Task steps / Short risk name	**Hazards**	**Associated risk event**	**Risk controls**	**Risk rating with controls**		
					L	**C**	**R**
		Mobile cranes/lifting equipment not in safe and serviceable condition; No valid inspections and load test certificates available; Sub-standard lifting tackle equipment being used may cause loads to fall; Incorrect use of Lifting tackle may cause load to fall; Use of mobile cranes in high wind conditions; Employees falling from the top of containers while tying/untying ropes; Uneven/unsuitable ground surfaces on which crane will stand.		placement of outriggers to be verified and ensured. Load test certificates and inspections by competent persons to be in place prior. Ensure registration and verification of LMI's and LME's. Wind monitoring tools to be available. Employees to undergo formal height work training.			
11.	Underground services.	Failure to detect existing ground services; Live underground services (i.e. electrical cables and water pipes).	Electrocution by live electrical wires; Damage to cables and services results in disruption to operations and services; Fires, explosions and water	Permit system must be followed; Survey and detection results to be made known; Additional use of detection equipment where required. Updated	**Possible**	**Major**	**High**

	Hazards, Associated Risks, and Ratings						
	Task steps / Short risk name	**Hazards**	**Associated risk event**	**Risk controls**	**Risk rating with controls**		
					L	**C**	**R**
			wastage from damaged cable pipes.	drawings indicating services, manual proof trenching.			
12.	Employees facilities	Failure to provide employees facilities on site (i.e. eating and ablution facilities).	Health, hygiene and environmental sicknesses (i.e. food poisoning).	Compliance with Project Health and Safety Specification; Awareness Training on health and hygiene requirements; Comply with Facilities Regulations.	**Unlikely**	**Moderate**	**Medium**
13.	Temporary electrical installations.	Incompetent installers; Unsafe installations due to faulty wiring; Lack of insulation & openings; Substandard electrical tools (e.g. portable electrical grinders, drills) being used; Contact with live electrical conductors; Failure to adhere to isolation and lockout procedures.	Fatality and injuries resulting in permanent disabilities (electrocution, burns etc.) and property damage.	Compliance with Project Health and Safety Specification; Ensure competency of electrical installers and use of certified equipment. Company to be registered as an Electrical Contractor. Inspections of installations and fire safety equipment by competent inspectors. Task Risk assessment with SWP and work permits;	**Possible**	**Critical**	**High**

	Hazards, Associated Risks, and Ratings						
	Task steps / Short risk name	**Hazards**	**Associated risk event**	**Risk controls**	**Risk rating with controls**		
					L	**C**	**R**
				Issuing of COC upon completion.			
14.	Stacking and storage.	Incorrect control of stacked materials; incorrect method of stacking materials/articles may cause injury to employees and property damage.	Medical Treatment Injury Lost time injury; Damage to property.	Compliance with Project Health and Safety Specification; PPE compliance; Appointment of stacking and storage personnel.	**Rare**	**Moderate**	**Low**
15.	Site access.	Failure to obtain site access certificate; Failure to provide security or unauthorised person entering site; Failure to test for intoxication.	Injuries, property damage/loss, and theft.	Compliance with Project Health and Safety Specification; Security Management Plan including Site Access Control Plan; Mandatory alcohol testing.	**Possible**	**Minor**	**Medium**
Project Construction Activities							
16.	Clear and grub - bush clearing by means of a TLB and in certain areas manually.	Unfavourable environmental conditions; Disturbance of animal from their habitats; Incompetent person operating TLB; Operators not medically fit; Operators under the influence of alcohol while operating TLB;	Exposure to venomous snakes, insects, poisonous spiders and scorpions; Incidents resulting in fatalities, injuries or property damage; fatalities from man/machine interface back strains from manual activities	Compliance with Project Health and Safety Specification and Client inductions; Contractor emergency management plan including employee awareness training;	**Likely**	**Critical**	**Extreme**

	Hazards, Associated Risks, and Ratings						
	Task steps / Short risk name	**Hazards**	**Associated risk event**	**Risk controls**	**Risk rating with controls**		
					L	**C**	**R**
		TLB operators expose to high levels of noise and vibration; TLB not in safe and serviceable condition; collision between operators and site personnel. Uneven terrain; manual handling.		Verification of competent operators training and appointments as well as medical assessments. Dedicated pedestrian walkways to prevent man/machine interface; flagmen/spotters to be appointed to regulate traffic. Inspection of TLB and construction vehicles prior to site mobilization; Required PPE to be worn by operators and site personnel. Periodic breaks during manual labour.			
17.	Use of mobile Plant (i.e. HME -TLB, graders, excavators, tipper trucks, water trucks, cranes).	Defective mobile plant, incompetent operator, open/uneven surfaces; collision with Port equipment; intoxicated operator; medically unfit operator; lack of plant inspection and service history; man/machine	Multiple injuries/fatalities; property damage.	Compliance with Project Health and Safety Specification, legislation, policies and procedures; Client inductions to be conducted before work commences; Pre-use and daily inspections of Plant; Plant to be checked and	**Possible**	**Major**	**High**

	Hazards, Associated Risks, and Ratings						
	Task steps / Short risk name	**Hazards**	**Associated risk event**	**Risk controls**	**Risk rating with controls**		
					L	**C**	**R**
		interface; congested areas; speeding of operators; collision of operators with Port users; property damage caused by operators.		approved for site before plant mobilisation on site, plant service history to be available; Competence verification of operators; valid medical assessments; solid barricading of potential hazards; daily alcohol testing of all personnel; required PPE to be worn and especially reflector vests for high visibility; appointment of spotters/flagmen at strategic locations as per traffic management plan; designated walkways for personnel to prevent plant/people interface; speeding checks to be conducted by the Port at ad hoc times and locations.			

	Hazards, Associated Risks, and Ratings						
	Task steps / Short risk name	**Hazards**	**Associated risk event**	**Risk controls**	**Risk rating with controls**		
					L	**C**	**R**
18.	Excavation and trenching (i.e. foundation).	Inclement weather (poor visibility conditions i.e. fog, rain, blind spots); mechanical failure of machines (brakes, steering, park brake, leaks, exc.); Machines not in safe and serviceable condition; Unprotected excavations; Underground services being struck/damaged.	Collisions resulting in fatality, injuries resulting in permanent disabilities, property damage.	Project health and safety specification; Ensure competent, trained personnel are used. Dedicated pedestrian walk ways where practical; Adequate barricading of excavations; Safe access and warnings. Competent and certified operators; Detection to be conducted where uncertainty exists prior to use of any mechanical excavation equipment and must where possible have underground services isolated; Adequate supervision to stop all excavation work at the first visible sign of foreign material (e.g. electric cable sheath, PVC piping material).	**Possible**	**Major**	**High**

	Hazards, Associated Risks, and Ratings						
	Task steps / Short risk name	**Hazards**	**Associated risk event**	**Risk controls**	**Risk rating with controls**		
					L	**C**	**R**
19.	Backfilling.	Movement of machinery (TLB); dust emissions; noise; improper use of tools.	Injuries/fatalities, property damage, lung infections	Dust suppression methods to be implemented; Trained flagmen/spotters to be appointed; all tools to be inspected before use and to be placed on registers.	**Possible**	**Minor**	**Medium**
20.	Concrete works (pouring).	Improper handling or working with concrete (i.e. contact with eyes or skin); Holding of concrete weighted equipment; Incompetent concrete mix operator; Spillages of concrete.	Skin and or eye irritation; Back pain; Incidents (collision) resulting in fatalities.	Project health and safety specification; Medical Surveillance (Fitness for Duty Certificate); Concrete mix equipment inspection; DSTI and toolbox talk; Use of correct PPE (i.e. long sleeve overall, footwear, eye and hand protection etc); Spotter for concrete truck mixer; Supervision; Communication of the SDS relating to concrete/cement.	**Rare**	**Minor**	**Low**

	Hazards, Associated Risks, and Ratings						
	Task steps / Short risk name	**Hazards**	**Associated risk event**	**Risk controls**	**Risk rating with controls**		
					L	**C**	**R**
21.	Working at elevated position.	Working on uneven edges; Working during inclement weather conditions; Slippery surfaces.	Slipping and falling from height resulting in injuries, property loss due to tools/equipment falling.	Project health and safety specification; weather conditions to be monitored and documented; Surfaces to be checked and made even and safe before working.	**Possible**	**Critical**	**High**
22.	Working next to/near train operations.	Employees working too close to operational railway lines; construction activities preventing employees from hearing/observing oncoming trains.	Fatalities/injuries/property damage due to fast moving trains and slow stoppage times of trains.	Methodologies/procedures relating to work near railway lines to be in place emphasising caution and safe methods of working near railway lines. Spotters with relevant flagmen training to be appointed as lookout for approaching trains. If necessary and required, lanes close to the construction activities will be temporary closed with communication to all affected parties. Relevant train working rules to be adhered to.	**Unlikely**	**Critical**	**High**

	Hazards, Associated Risks, and Ratings						
	Task steps / Short risk name	**Hazards**	**Associated risk event**	**Risk controls**	**Risk rating with controls**		
					L	**C**	**R**
23.	Working next to/near water.	Working next to unprotected edges; tools and equipment falling into the water; Working during inclement weather conditions such as gale force winds; medically unfit and untrained employees; Slippery surfaces due to water splashes.	Slipping and falling into the water resulting in injuries, drownings leading to fatalities; property loss due to tools/equipment falling into water.	Project health and safety specification; SWP's to be developed and communicated to employees; where required, life jackets to be worn; employees to have valid medicals; weather conditions to be monitored and documented;	**Possible**	**Critical**	**High**
24.	Construction within operational areas.	Congested work areas; man/machine interface;	Fatalities, injuries, property damage.	Construction methodology to identify procedures of staggered operational/construction areas. Signages to be placed informing affected people of the construction activities and the hazards. Communications to be sent out informing the tenants/affected people about the construction activities taking place.	**Possible**	**Critical**	**High**
25.	Use of ladders.	Person falling from the ladder;	Injury requiring medical treatment and fatalities;	Project health and safety specification;	**Possible**	**Major**	**High**

	Hazards, Associated Risks, and Ratings						
	Task steps / Short risk name	**Hazards**	**Associated risk event**	**Risk controls**	**Risk rating with controls**		
					L	**C**	**R**
		Carrying tools while ascending/descending ladder. Defective ladder used; overloading the ladder; ladder placed on uneven surfaces, too close to excavation.	Lost Time Injuries.	Inspection of Ladders before use; Three-point contact when climbing ladders; Correct type of ladder for the job; ladder to be extended correctly as per SWP.			
26.	Hot works – Welding, grinding, cutting during removal and installation.	Incompetent operators; Substandard electrical tools (e.g., portable electrical grinders, drills, welding machines, generators) being used; Performing hot work activities in wet weather conditions; Oil/Fuel leaking generators; sparks originating from activities	Injuries/burns requiring medical treatment; Lost Time Injuries Fatalities, fires and explosions.	Project health and safety specification; Daily electrical equipment/tools inspection by a competent person; Verified competency training for any person operating electrically driven tools and equipment; All electrical equipment run from portable generators to be double insulated; Generators to be inspected daily; Proper earthing processes to be followed for all activities;	**Possible**	**Moderate**	**High**

	Hazards, Associated Risks, and Ratings						
	Task steps / Short risk name	**Hazards**	**Associated risk event**	**Risk controls**	**Risk rating with controls**		
					L	**C**	**R**
				All tools to be inspected and checked before use including use of correct cutting disk and backing plates; Grinders may only be used on solid surface; All electrically driven tools must be double insulated and must have a dead man switch fitted; Fire extinguisher and fire fighter to be available during execution. Hot work permit must be applied for before execution.			
27.	Concrete work.	Defective/handmade tools; Grout in the eyes; Skin irritation; Incompetent personnel.	Cuts, lacerations, bruises; Eye injuries; Dermatitis.	All tools/equipment to be placed on a register and inspected before use and at regular intervals; No handmade tools; Mandatory PPE to be worn at all times, only competent person to do the job.	**Likely**	**Minor**	**Medium**

	Hazards, Associated Risks, and Ratings						
	Task steps / Short risk name	**Hazards**	**Associated risk event**	**Risk controls**	**Risk rating with controls**		
					L	**C**	**R**
28.	Installation and testing of installation.	Incompetent installer, incorrect plant and equipment used, lacking quality of material installed, not adhering to design plan.	Lacking security installation; Inadequate port security; Unauthorized entry into the port; Injuries, fatalities and property damage;	Project health and safety specification, approved design specification, appointment of competent person for installation, commissioning, and testing. Compiling and acceptance of commissioning plan. Quality assurance and control by Employer.	**Possible**	**Critical**	**High**
29.	Contractor interface.	Contractors exposed to construction activities from other Contractors.	Fatality, injuries resulting in permanent disabilities, property damage.	Compliance with Project health and safety specification and Client inductions; Alignment between various contractors through frequent meetings chaired by the Client, contractors to do site specific induction and indicate in their HS plans how they will control interface on site.	**Possible**	**Critical**	**High**

	Hazards, Associated Risks, and Ratings						
	Task steps / Short risk name	**Hazards**	**Associated risk event**	**Risk controls**	**Risk rating with controls**		
					L	**C**	**R**
30.	Close out of construction activities.	Poor housekeeping.	Injuries, falls, slips and trips, property damage.	Adherence to project health and safety specification; close out checklist to be conducted before product handover to Client.	**Possible**	**Minor**	**Medium**
31.	Driving inside the Port/Port traffic.	Incompetent drivers; LV not in safe and serviceable condition; Uneven road conditions; Speeding; Fatigue; Poor visibility - dust/sun; Heavy loaded trucks transporting HCS and other commodities; pedestrians walking in the Port; train shunting/movements.	Multiple fatalities, injuries resulting in permanent disabilities, property damage, explosions, vehicle/train accidents due to impatient vehicle drivers, man/plant/vehicle accidents.	Project health and safety specification; Ensure drivers are competent including random verification of licences and competencies of operators; Daily inspections of vehicles; Ensure selection of correct vehicle type for conditions - including tyre selection; Fatigue management plan as working hours need to be regulated; Signage and all Port rules to be obeyed through attendance of inductions. Contractor to be informed	**Unlikely**	**Critical**	**High**

	Hazards, Associated Risks, and Ratings						
	Task steps / Short risk name	**Hazards**	**Associated risk event**	**Risk controls**	**Risk rating with controls**		
					L	**C**	**R**
				that heavy load trucks and trains have right of way and traffic laws to be complied with. Transnet flagmen to be obtained at all times especially during shunting and train movements. Emergency Preparedness Plan to include all scenarios and mitigations.			
32.	Local community/ contractor strikes.	Community riots; blocking/barricading of entry and exit routes.	Injuries; Project delays; Property damage; Theft (looting).	Local Economic Development personnel; Stakeholder engagement; Supplier Development targets as per Transnet procedures; Security Management Plan; Emergency Preparedness Plan.	**Possible**	**Major**	**High**
33.	Public Safety/Protection of 3rd parties/Security.	Public gaining access into construction sites due to lack of security, gates not locked, and locks broken	Members of the public enter construction sites and fall into excavations, resulting in injuries and fatalities.	Security to be appointed by the Contractor throughout the project	**Possible**	**Critical**	**High**

	Hazards, Associated Risks, and Ratings						
	Task steps / Short risk name	**Hazards**	**Associated risk event**	**Risk controls**	**Risk rating with controls**		
					L	**C**	**R**
		into. Lack of barricading or failure to adhere to barricading requirements. Contractor employees exposed to public entering construction sites	Public could get injured/fatalities occur by construction plant, equipment. Contractor employees could get injured/fatalities by public entering sites	duration, covering day/night shift. Construction site to be fenced off and demarcated. Signage to be placed at strategic places informing public of the dangers in languages relevant to the area.			

Monitor and Review the Risk Controls
It is important to monitor risk controls and review risk assessments regularly. Review is required when there is a change in the process, relevant legal changes, and where a cause for concern has arisen. Reviews could be scheduled on an annual basis. If the risk assessment has substantially changed a new risk assessment is warranted.

5. Risk Matrix

Likelihood	Consequence				
	Insignificant	Minor	Moderate	Major	Critical
Almost certain	Medium	Medium	High	Extreme	Extreme
Likely	Low	Medium	High	High	Extreme
Possible	Low	Medium	High	High	High
Unlikely	Low	Low	Medium	Medium	High
Rare	Low	Low	Low	Low	Medium

Assessed Risk Level	Description of Risk Level	Action required
Low	If an incident were to occur, there would be little likelihood that an injury would result.	Undertake the activity with the existing controls in place.
Medium	If an incident were to occur, there would be some chance that an injury requiring First Aid would result.	Additional controls may be needed.
High	If an incident were to occur, it will be likely that an injury requiring medical treatment would result.	Controls will need to be in place before the activity is undertaken.
Extreme	If an incident were to occur it, it would be likely that a permanent or death would result.	Consider alternatives to doing the activity. Significant control measures will need to be implemented to ensure safety.

Likelihood	Description of likelihood
1. Rare	Will only occur in exceptional circumstances
2. Unlikely	Not likely to occur within the foreseeable future, or within the project lifecycle.
3. Possible	May occur within the foreseeable future, or within the project lifecycle.
4. Likely	Likely to occur within the foreseeable future, or within the project lifecycle.
5. Almost certain	Almost certain to occur within the foreseeable future or within the project lifecycle.

Consequence	Description of consequence
1. Insignificant	No treatment required.
2. Minor	Minor injury requiring first aid treatment (e.g. minor cuts, bruises, bumps).
3. Moderate	Injury requiring medical treatment or lost time.
4. Major	Serious injury (injuries) requiring specialist medical treatment or hospitalisation.
5. Critical	Loss of life, permanent disability or multiple serious injuries.