

PART C3: SCOPE OF WORK

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C3.1 EMPLOYER’S WORKS INFORMATION

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SECTION 1

1 Description of the *works*

1.1 Executive overview

- 1.1.1 The works that the Contractor is to perform involve supply, installation, testing and commissioning of 3KV DC Traction Substation Equipment's at Orkney, Bloemhof and Christiana Traction Substations.
- 1.1.2 Implementation requirements will differ from site to site, depending on the scope of required service per site. However, adherence to the projects technical specification is mandatory

1.2 *Employer's objectives*

The objective is to reinstate these 3 traction substations back onload. Minimise the use of copper by using more aluminium where possible and improve the security features of the substations.

1.3 Interpretation and terminology

The following abbreviations are used in this Works Information:

Abbreviation	Meaning given to the abbreviation
AIA	Authorised Inspection Authority
BBBEE	Broad Based Black Economic Empowerment
CEMP	Construction Environmental Management Plan
CD	Compact Disc
CDR	Contractor Documentation Register
CDS	Contractor Documentation Schedule
CRL	Contractor Review Label
CSHEO	Contractor's Safety, Health and Environmental Officer
CM	Construction Manager
DTI	Department of Trade and Industry
DGN	
DWG	Drawings
EDMS	
EO	Environmental Officer
HAW	Hazard Assessment Workshop
HAZOP	Hazard and Operability Study
HSSP	Health and Safety Surveillance Plan
INC	Independent Nominated Consultant
IP	Industrial Participation
IR	Industrial Relations
IPP	Industrial Participation Policy
IPO	Industrial Participation Obligation
IPS	Industrial Participation Secretariat
IRCC	Industrial Relations Co-ordinating Committee
JSA	Job Safety Analysis
CIRP	Contractor's Industrial Relations Practitioner
Native	Original electronic file format of documentation
PES	Project Environmental Specifications

PHA	Preliminary Hazard Assessment
PIRM	Project Industrial Relations Manager
PIRPMP	Project Industrial Relations Policy and Management Plan
PLA	Project Labour Agreements
PSIRM	Project Site Industrial Relations Manager
PSPM	Project Safety Program Manager
PSSM	Project Site Safety Manager
ProgEM	Programme Environmental Manager
ProjEM	Project Environmental Manager
QA	Quality Assurance
R&D	Research and Development
SANS	South African National Standards
SASRIA	South African Special Risks Insurance Association
SES	Standard Environmental Specification
SHE	Safety, Health and Environment
SHEC	Safety, Health and Environment Co-ordinator
SIP	Site Induction Programme
SMP	Safety Management Plan
SSRC	Site Safety Review Committee

2 Engineering and the *Contractor's* design

2.1 *Employer's* design

- 2.1.1 The *Employer's* designs are already contained in relevant Transnet specifications
- 2.1.2 The *Employer* grants the *Contractor* a licence 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.

2.2 Parts of the *works* which the *Contractor* is to design

- 2.2.1 The *Contractor* is to design the following parts of the *works*:
- Outdoor yard equipment and indoor substation equipment's as specified in relevant Transnet specifications
- 2.2.2 The *Contractor* is responsible in his design for the overall integration of the design of the *works* with the design of the *Employer*
- 2.2.3 Unless expressly stated to form part of the design responsibility of the *Employer* as stated under 2.1 *Employer's* design above and whether or not specifically stated to form part of the design responsibility of the *Contractor* under this paragraph 2.2, all residual design responsibility and overall responsibility for the total design solution for the *works* rests with the *Contractor*.

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

- 2.3.1 The *Contractor* must submit all designs to the Project Manager and to TFR Technical Office (JHB) for approval prior to any construction taking place.
- 2.3.2 The *Contractor* undertakes design safety reviews [TCP-HAS-STD-001] with the Project Manager and his representatives.
- 2.3.3 Documentation Submission

In undertaking the 'Works' (including all incidental services required), the Supplier shall conform and adhere to the requirements of the 'Contractor Document Submittal Requirements' Standard included in Annexure 1 (Refer to BBB 2721).

2.4 Review and Acceptance of *Contractor* Documentation

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

In undertaking the 'Works' (including all incidental services required), the Supplier shall conform and adhere to the requirements of the 'Contractor Document Submittal Requirements' Standard included in Annexure 1 (Refer BBB 2721).

2.5 Other requirements of the *Contractor's* design

N/A

2.6 Use of *Contractor's* design

- 2.6.1 The *Contractor* grants the *Employer* a licence 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, re-construction, refurbishment, repair, maintenance and extension of the *works* with such licence 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 guarantee in the intellectual property and copyright in the design data created in relation to the *works*.

2.7 Design of Equipment

- 2.7.1 The *Contractor* submits his design details of his proposed principal Equipment to the *Project Manager* for his information only:

2.8 Equipment required to be included in the *works*

- 2.8.1 Various indoor and outdoor traction substation equipment's

2.9 As-built drawings, operating manuals and maintenance schedules

2.9.1 As-Built/Final Documentation

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

2.9.2 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 Annexure 10 (Refer BBB 5452) and the 'Contractor Documentation Submittal Requirements' Standard included in Annexure 1 (Refer to BBB 5452).

3 Construction

- A. Strip out the existing indoor electrical equipment and associated cables and busbar. Transport and deliver to the Infrastructure Maintenance Depot in Millsite, Krugersdorp.
- B. Supply, install and commission new indoor electrical equipment in accordance with Transnet specification BBB 5452. The panels shall also cater for:

- DC earth leakage relay in polycarbon box outside the panel
 - Auxiliary isolating short-circuiting switch.
 - Protection relay for main and auxiliary transformers and AC earth leakage protection. The currently approved relay is FP 2005/2T
 - 5-pin 63A male/female socket outlet for calibration.
 - 220V AC and 110V DC light.
- C. Supply and install one (1) freestanding 110Volt battery charger in accordance with Specification no. BBB 2502 (Version 6)
- D. Install, all equipment in accordance with Transnet specification BBB 5452 version-5 Only equipment approved by Transnet shall be accepted.
- E. All installations shall include the necessary required insulators, bolts and fasteners.
- F. Works should include supply and installation of safety doors, single and double safety doors.
- G. All copper connections to steel (galvanised) shall be tinned or silver coated and connection grease shall be used.
- H. Nuts and bolts on busbar connections shall be stainless steel.
- I. If necessary, where old equipment is removed, modified or new equipment installed, the rectifier bay fence must be suitably modified to close off the rectifier HT bay. If circumstances require replacement of the existing fence, the Contractor shall supply and install a new HT fencing similar to the existing fence.
- J. Supply cables in accordance with Transnet specification BBC 0198 version-1.
- K. All cabling shall be clearly marked with high quality permanent markers. Sticker marking numbers on cables will not be accepted.
- L. The following cables shall be supplied and installed:
- 110V DC supply cable (16mm² x 2 core) from control panel to all the high-speed circuit breakers.
 - 110V DC cable (16mm² x 2 core) from the battery bank to the panel.
 - Control cable (2.5mm² x 12 core) from control panel to all the high speed circuit breakers.

- Control and protection cables to the control panel from the AC disconnects (2.5mm² x 4 core), CT's (4mm² x 4 core), PCB (2.5mm² x 19 core and 2.5mm² x 2 core for heater), transformer (2.5mm² x 4 core)
- Wiring cables and DB panel for lights, plugs and switches
- Auxiliary transformer (25mm² x 4 core)
- Multi core cable (1.5mm² x 40 core) from control panel to Tele-control.
- Ensure that painting of steel components of electrical equipment is in accordance with Transnet specification CEE.0045-2001/2.
- Ensure that all steelwork is galvanised in accordance with SANS 121.
- Ensure that all concrete work (i.e. casting of plinths and foundations) is in accordance with Transnet specification S420 (1999)
- Patch up walls and floors where the old equipment has been removed.
- On completion of the installation the Contractor shall submit as build drawings and schematic diagrams of all new equipment, indicating interfaces with existing equipment.

OUTDOOR WORK

- Strip out and dismantle the existing main high voltage outdoor equipment, and transport to the Infrastructure Maintenance Depot in Millsite, Krugersdorp.
- Supply and install outdoor equipment in accordance with Transnet specification BBB 2721 ver 10.
- All fasteners (nuts & bolts) shall be secured using flat or bevelled washers as necessary, as well as lock washers.
- All steelwork shall be galvanised in accordance with SANS 121, CEE 0183 and where required, painted in accordance with specification CEE 0045.
- Cables and earthing conductors connected to the equipment installed on steel support structures shall be supported to the structure by means of a cable tray.
- When doing trenching in the substation outdoor yard for laying cables, the ballast stone shall be removed, soil shall be properly compacted back and the ballast cleaned and placed back neatly.
- Joints in cables and busbars will not be accepted.

- Junction boxes underground, shall not be used.
- All equipment, tools, material, cleaning agents etc. for execution of the work done in the substation outdoor yard shall be provided by the Contractor.
- Upon completion of the work, the Contractor shall submit as-build drawings, diagrams, catalogues and manuals.

OUTDOOR EARTHING

- Conduct and record earth resistivity measurements. Design a suitable earth system for the specific location in accordance with specification no. BBB 3059 and drawing no. BBB 3620.
- Remove the necessary crusher stone before excavation commences.
- Excavate trenches for the interconnecting conductors between structures and the earthing system.
- Supply and install earth spikes, interconnecting conductors, bonding cables and connections between the various structures. This shall include connections to all steel structures, screens, fences and the substation main earth spike/mat.
- All electrical equipment shall be connected as prescribed by Specification no. BBB 3059 (Ver 1), section 8.0 and drawing no. BBB 3620.
- Close up trenches, compact refill material and restore the crusher stone to its original condition
- The installed earth system at each substation shall be tested for compliance with the requirements of specification BBB 3059. Transnet Freight Rail's representative shall witness tests.

DESIGN OF THE OUTDOOR EARTH SYSTEM

- The successful tenderer shall conduct tests, measuring the average resistivity of the soil condition for every substation outdoor yard. (This survey shall form part of the work scope and costs incurred must be included in the tendered amount per substation).

- Drawing no. BBB 3620 (Ver4) shall be used as a guideline for designing the earthing systems at every substation. The contractor shall submit his design to the Maintenance Manager prior to any physical work commences at the substations.
- Thus, cognisance shall be taken of the earth resistivity at the individual substations, the local conditions, size and configuration of substation yards when designing the earth system.

TRENCHING

- Before any trenching commences, the contractor shall consult with Transnet Freight Rail staff for supervision and approval of the routing of the trenches in the outdoor yard.
- The contractor shall ensure that the crusher stone is not contaminated during excavations.
- The depth of the trenches shall be a minimum of 700mm.
- The design/s of the earthing system at the substation and tendered prices shall allow for and include excavation in soil.
- Should excavation be done in soft or hard rock, such excavation will be paid for at the relevant rates in Appendix 2 of Specification no. CEE.0023-ISS-2012.

Notes: Soft rock will be taken as broken or friable rock which can be removed by pick or mechanical excavator, or paving breaker. Hard rock will be taken as rock which cannot be removed by mechanical excavator and requires drilling and blasting or splitting. This includes reinforced or plain concrete.

- The contractor and Transnet Freight Rail staff shall inspect the trenches before being backfilled.
- Care should be taken not to damage existing cables and services during trenching.
- All materials to be used shall be in accordance with Specification no BBB 3059 Ver 1.

MECHANICAL INTERLOCKING DEVICES

- Supply and install two (2) complete sets of interlocking mechanisms (similar to existing installation) of the key exchange type, which must include the AC disconnects, positive isolator, auxiliary transformer short out links to the HT bay gate in the correct sequence in accordance with the specification BBB 5452 version-5.

EARTHING AND CHEQUER PLATES

- The Contractor shall re-do / repair earthing in every substation equipment in accordance with the drawing no. CEE-TBD-7
- The crimping lugs of the interconnection cables shall be correspondingly marked with the busbar as shown on drawing no. CEE-TBD-7.
- Only hexagon crimps will be accepted on all crimping lugs.
- Resistance between the DC earth leakage busbar and the substation earth matt shall not be less than 25 Ohms.
- All exposed cable trenches shall be covered with chequer plates resting on a frame 3 mm below the floor level.
- Should any modification or addition to the chequer plates be necessary, it shall have a thickness of 3 mm and shall be earthed to the DC earth leakage system.
- Contractor shall use welded bolts on the chequer plates with crimping lugs of 95 mm² welding cable to connect the chequer plates to the DC earth leakage system.
- The Contractor shall connect all existing checker plates as well as existing equipment (all indoor steelwork) to the DC earth leakage system

INSTALLATION

- The Contractor shall be responsible for the transport to site, off-loading, handling, storage and security of all material required for the construction/execution of the works. The Contractor shall arrange own security for the duration of the installation until commissioning of the substation.
- All fasteners on steelwork, components and electrical connections (nuts and bolts) shall be secured using flat as well as lock washers.

INTERCONNECTION OF EQUIPMENT

- High conductive silicon grease shall be liberally applied to all the connections.
- All dissimilar metal connections (Cu to Al) shall be made using bi-metallic clamps that are specifically designed and manufactured to make that particular connection (ad hoc fabricated clamps are not acceptable).
- Conductors between separately mounted outdoor equipment shall incorporate a degree of flexibility to avoid over-stressing of the connections.
- All HT electrical equipment interconnections shall be done using conductors similar to that being used in the existing installation.

WORK TO BE DONE BY TRANSNET.

- Transnet shall have an electrician available for arranging work permits, isolation of electrical equipment, erection of barriers to live electrical equipment and supervision.
- Upon completion of the works and to the satisfaction of Transnet, the required protection tests and commissioning of the equipment shall be performed by Transnet.
- Transnet personnel shall verify the correctness of the wiring to the tele-control equipment in the substation.

INSPECTION AND HANDOVER

- The contractor shall arrange and conduct on site tests. The Transnet Freight Rail supervisor or His designate shall be present to witness such tests.
- The contractor shall issue test certificates for every installation successfully completed, indicating the date of testing, number of rods installed, length earth conductor installed and test results obtained.
- Transnet Freight Rail shall conduct inspections on completed installations and a defect list shall be completed.
- All defects noted at the inspections mentioned shall be rectified within 14 (fourteen) days from the date of inspection.
- Transnet Freight Rail reserves the right to withdraw the handover certificate should the Contractor fail to correct the defects mentioned, to the satisfaction of the Contract Supervisor.

3.1 Completion, testing, commissioning and correction of Defects

- 3.1.1 The *work* to be completed on or before the Completion Date the Contractor shall have done everything required to provide the Works and in any case before the date stated. The Project Manager cannot certify Completion until all the work listed above 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.
- 3.1.2 The *Contractor* is permitted to carry out the following *works* after Completion: Minor Defects that does not prevent the normal operation of the substation.
- 3.1.3 The *Contractor* ensures that the documentation as described under paragraph 3.8 of the *Works Information* is presented to the *Project Manager* before Completion.
- 3.1.4 The *Contractor* ensures that the *Project Manager* has a full and accurate dossier of As-built documents that represent the state combination of Mechanical, Electrical, General Layout as appropriate status of the completed *works* (to include Plant within the *works*) to present to the *Employer*.
- 3.1.5 The *Contractor* ensures that the *Project Manager* has a full and accurate dossier of state Maintenance and Operating Manuals as appropriate at the earlier of take-over or Completion.
- 3.1.6 Where the *Contractor* has presented state Maintenance and Operating Manuals as appropriate to the *Project Manager* at take-over, the *Contractor* modifies and updates As-built documents as necessary prior to Completion.
- 3.1.7 Access given by the *Employer* for correction of Defects

4 Plant and Materials Standards and Workmanship

4.1 Investigation, Survey and Site Clearance

- 4.1.1 During the site briefing session, the Contractor is to conduct all necessary investigation regarding the Service.
- 4.1.2 This investigation might not be sufficient, and *Contractor* might want to carry out further investigation of the site before submitting the offer or design. For this, arrangements can be made with the Project Manager for further site visits.

4.2 Building works

- 4.2.1 Where the Association of South African Quantity Surveyors Model Preamble for Trades 1999 are used within the Works Information, the following interpretations and meanings shall apply:
- 4.2.2 In case of any conflict in interpretation, ambiguity or discrepancy between any Model Preamble for Trades 1999 (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.
- 4.2.3 In case of any conflict in interpretation, ambiguity or discrepancy between any Model Preamble for Trades 1999 (whether standard or written as a particular project specification) contained in this paragraph 4.2 of C3.1 *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 Manager's* express duty to resolve any ambiguity or inconsistency in the *Works Information* under ECC Clause 17.1.
- 4.2.4 Within the Model Preambles for Trades 1999, the following amendments and interpretations shall apply:

Where the word or expression "Principal Agent" is used, read "*Project Manager*" or "*Supervisor*" as the context requires.

Where the word or expression "*Contractor*" is used, read "*Contractor*".

Where the word or expression "Engineer" is used, read "*Project Manager*" or "*Supervisor*" as the context requires.

Where the Model Preambles for Trades 1999 mention "rates" for measured work and any contractual statements relating to payment, all such statements shall be discounted, with the ECC *conditions of contract* taking precedence.
- 4.2.5 Within the Model Preambles for Trades 1999, A. GENERAL, the following amendments and interpretations shall apply:

Where the word or expression "bills of quantities" is used, this shall be discounted for the purposes of the *Works Information*. The ECC Contract Data - Part One states the main option to apply within the ECC Contract between the Parties.
- 4.2.6 Within the Model Preambles for Trades 1999, B. ALTERATIONS, B.2 MATERIALS FROM THE ALTERATIONS, CREDIT, ETC and C. EARTHWORKS, C1.4 Materials from demolitions shall not apply. C3.1 *Employer's Works Information* paragraph 3.1.6 states details of the *Contractor's* title (if any) to Materials arising from excavations and/or demolitions and how such Materials are either to be disposed of or re-used in the *works*.
- 4.2.7 Within the Model Preamble for Trades 1999 Q. PLUMBING AND DRAINAGE, Q.24 TESTS shall be deemed to be included within paragraph 3.2.1 of C3.1 *Employer's Works Information*.
- 4.2.8 Within the Model Preamble for Trades 1999 U. EXTERNAL WORKS, U.3.8 Process control tests shall be deemed to be included within paragraph 3.2.1 of C3.1 *Employer's Works Information*.
- 4.2.9 The principles, meanings and interpretation stated and established within paragraphs 6.2.1 to 6.2.8 with respect to the Model Preambles for Trades 1999 equally apply to the other Model Preambles for Trades 1999 references used within this paragraph 4.2 of C3.1 *Employer's Works Information*.

4.3 Civil Engineering and Structural Works

- 4.3.1 Where the SANS 1200 series of Specifications are used within the Works Information, the following interpretations and meanings shall apply:
- 4.3.2 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.
- 4.3.3 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 Manager's express duty to resolve any ambiguity or inconsistency in the *Works Information* under ECC Clause 17.1.
- 4.3.4 Within SANS 1200 A: GENERAL, the following amendments and interpretations shall apply:
- Where the word or expression "Employer" is used, read "*Employer*";
- Where the word or expression "Contractor" is used, read "*Contractor*";
- Where the word or expression "Engineer" is used, read "*Project Manager*" or "*Supervisor*" as the context requires;
- Where the word or expression "schedule of quantities" is used, this is deleted in entirety. Assessment and payment is in accordance with the *conditions of contract* (and the ECC main and secondary options stated therein);
- 4.3.5 Within SANS 1200 A: GENERAL 2.3 DEFINITIONS, the following apply:
- "Acceptable. Approved (Approval)" is interpreted as either a *Project Manager* or a *Supervisor* communication or instruction in relation to Works Information compliance, consistent with the *conditions of contract* as the context requires;
- "Adequate" is deleted. The *Project Manager* notifies the *Contractor* where the *Contractor* has not complied with the *Works Information*;
- "Measurement and payment" and the further definitions contained within 6.3 c) are deleted. Assessment and payment is in accordance with the conditions of contract (and the ECC main and secondary options stated therein);
- 4.3.6 Within SANS 1200 A: GENERAL 2.6 APPROVAL, the following applies:
- "Approval" by either the *Project Manager* and/or the *Supervisor* is without prejudice to ECC Clause 14.1 and, inter alia, ECC Clauses 13.1, 14.3 and 27.1.
- 4.3.7 SANS 1200 A: GENERAL 2.8 ITEMS IN SCHEDULE OF QUANTITIES, is deleted in entirety. Assessment and payment is in accordance with the *conditions of contract* (and the ECC main and secondary options stated therein).
- 4.3.8 SANS 1200 A: GENERAL 3.2 STRUCTURES AND NATURAL MATERIAL ON SITE, applies only to the extent that it is consistent with paragraph 3.1.6 of C3.1 *Employer's Works Information*.
- 4.3.9 Within SANS 1200 A: GENERAL 7.1 PLANT, the following applies:
- Where the word or expression "Plant" is used, read "Equipment".
- 4.3.10 SANS 1200 A: GENERAL 7.2 CONTRACTOR'S OFFICES, STORES AND SERVICES, applies but the *Project Manager* resolves any inconsistency with statements included within paragraph 3.1.12 of C3.1 *Employer's Works Information*.
- 4.3.11 SANS 1200 A: GENERAL 3.1 SURVEY, applies only to the extent that it is consistent with paragraph 3.1.14 of C3.1 *Employer's Works Information*.
- 4.3.12 Within SANS 1200 A: GENERAL 3.2 WATCHING, BARRICADING, LIGHTING AND TRAFFIC CROSSINGS, the following applies:
- Where the word or expression "specification" is used, read "*Works Information*".

- 4.3.13 SANS 1200 A: GENERAL 3.4 PROTECTION OF OVERHEAD AND UNDERGROUND SERVICES applies only to the extent that it is consistent with the specific statements made elsewhere in C3.1 *Employer's Works Information* and in any case and at all times consistent with the *conditions of contract*.
- 4.3.14 Within SANS 1200 A: GENERAL 5 TESTING, the following applies:
Where the word or expression "Engineer" is used, read "*Supervisor*".
- 4.3.15 SANS 1200 A: GENERAL 8 MEASUREMENT AND PAYMENT, is deleted in entirety. Assessment and payment is in accordance with the conditions of contract (and the ECC main and secondary options stated therein).
- 4.3.16 The principles, meanings and interpretation stated and established within paragraphs 6.3.1 to 6.3.15 with respect to SANS 1200 series and to SANS 1200 A: GENERAL equally apply to the other SANS 1200 specification references [state particulars of SANS 1200 used] used within this paragraph 6.3 of C3.1 *Employer's Works Information*.

4.4 Electrical & mechanical engineering works

- 4.4.1 Where SANS 10142 and/or SANS 10198 specifications are used within the Works Information, then where the term "Equipment" (or the like) is used with the meaning of installation and items left behind in the *works*, then please read this term as "Plant" for ECC defined term compliance.
- 4.4.2 The electrical works involve various indoor and outdoor 3kV DC traction substation equipment's

5 List Of Drawings

5.1 Drawings issued by the *Employer*

This is the list of drawings issued by the *Employer* at or before the Contract Date and which apply to this contract.

Note: Some drawings may contain both Works Information and Site Information.

Drawing number	Revision	Title
BBB 5452	1	3 kV DC Traction Substation Equipment's

SECTION 2

6 Management and start up

6.1 Management meetings

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:
Risk register and compensation events	Weekly	On Site / Project Managers Office	Project Manager (and appropriate delegates), Supervisor (as necessary and appropriate delegates) and Contractor (appropriate key persons)

Overall contract progress and feedback	Weekly	On Site / Project Managers Office	Employer, Contractor (appropriate key persons), Supervisor (as necessary and appropriate delegates), and Project Manager (and appropriate delegates)
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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.

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

In undertaking the '*Works*' (including all incidental services required), the *Contractor* shall conform and adhere to the requirements of the 'Contractor Documentation Submittal Requirements' Standard included in Annexure 1 (refer DOC--STD-0001).

The *Contractor* is to ensure that the latest versions of the required application software and a suitable 'IT' Infrastructure are in place to support the electronic transmission of documentation.

6.3 Safety risk management

- 6.3.1 The *Contractor* complies with the following SMP: Site cardinal rules, Project site induction, Hazard management on site, Risk assessment, Daily safe task instructions, Occupational health and hygiene, Safe systems of work, Incident management, Site management (as a minimum)
- 6.3.2 The *Contractor* ensures that its Subcontractors comply with the requirements of the SMP.
- 6.3.3 The *Contractor* performs the *works* having due regard to the HSSP.
- 6.3.4 The *Contractor* in the performance of the *works* establishes an incentive programme for its employees with respect to SMP compliance.
- 6.3.5 The *Contractor* complies with the requirements of the SSRC with respect to his own activities and others on the Site and Working Areas.
- 6.3.6 The *Contractor* makes the SMP available to its employees and Subcontractors in the *language of this contract* and other local languages as required.
- 6.3.7 The *Contractor* participates in a HAZOP at intervals upon the instruction and direction of the *Project Manager*.
- 6.3.8 The *Contractor* completes a JSA prior to carrying out any operation on the Site and/or Working Area to the approval of the Project Manager
- 6.3.9 The lines of communication of the various personnel acting on behalf of the *Project Manager* who communicate directly with the *Contractor* and his key persons with respect to the SMP are contained within the *Annexure*.
- 6.3.10 The roles and responsibilities of the various personnel acting on behalf of the *Project Manager* with respect to the SMP and health and safety issues are as stated in the paragraphs.
- 6.3.11 The CM is responsible (in the context of the SMP only) for health and safety on the Site and Working Areas and reports to the *Project Manager*.

6.4 Environmental constraints and management

- 6.4.1 The *Contractor* complies with the following ENV-STD-001 Rev01 (CEMP):

The *Contractor* performs the *works* and all construction activities within the Site and Working Areas having due regard to the environment and to environmental management practices as more particularly described within the SES and PES.

The SES describes the minimal acceptable standard for environmental management for a range of environmental aspects commonly encountered on construction projects and sets environmental objectives and targets, which the *Contractor* observes and complies.

The PES may require higher minimal standards than those described in the SES as may be required by the *Project Manager* or Others.

The overarching obligations of the *Contractor* under the CEMP before construction activities commence on the Site and/or Working Areas is to provide an environmental method statement for a particular construction operation at the Site and/or Working Area by the *Contractor* and where requested by the CM and to comply with the following:

Where relevant, method statements, as detailed in the SES and PES, shall be provided by the *Contractor*. These include, but are not limited to, the following where applicable:

- Establishment of construction lay down area
- Hazardous and non-hazardous solid waste management
- Storm water management
- Contaminated water management
- Prevention of marine pollution
- Hydrocarbon spills
- Diesel tanks and refuelling procedures
- Dust control
- Spoil dumping
- Sourcing, excavating, transporting and dumping of fill material
- Noise and vibration control
- Removal of rare, endemic or endangered species
- Removal and stockpiling of topsoil
- Rodent and pest control
- Environmental awareness training
- Site division
- Emergency procedures for environmental incidents
- *Contractor's* SHE Officer
- Closure of construction laydown area

The *Contractor* shall ensure that his management, foremen and the general workforce, as well as all suppliers and visitors to Site have attended the Induction Programme prior to commencing any *work* on Site. If new personnel commence work on the Site during construction, the *Contractor* shall ensure that these personnel undergo the Induction Programme and are made aware of the environmental specifications on Site.

Where applicable, the *Contractor* ensures that he appoints a suitably qualified Subcontractor, to be approved by the *Project Manager*, to undertake the "Removal of rare, endemic or endangered species". This appointment must be completed at least three weeks before commencement of any other work on Site.

The Protection of the Environment Form shall be signed and submitted to the CM within 14 days after the Contract Date.

Where required, one of the first actions to be undertaken by the *Contractor* shall be to erect and maintain a temporary fence along the boundaries of the Site and Working Areas as applicable, and around any no-go areas identified on the layout plans, to the satisfaction of the *Project Manager*.

The plant search and rescue (if applicable) must be undertaken and completed prior to any Site clearance or any other construction activity that may damage the vegetation can commence on Site.

The *Contractor* must appoint a sufficient number of named assistants to the CSHEO to monitor environmental issues e.g., litter, spills, illegal activities, fence patrol, dust etc. These

appointments, along with details of the individuals being appointed and job descriptions, must be sent to the *Project Manager* for his approval.

During the construction period, the *Contractor* complies with the following:

A copy of the SES, and the relevant PES 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 the SES (as amended by the PES).

Method statements that are required during construction must be submitted to the *Project Manager* for approval at least 20 days prior to the proposed commencement of the activity. Emergency construction activity method statements may also be required. The activities requiring method statements cannot commence if they have not been approved by the *Project Manager*.

The method statements for Completion by the Contractor are contained within Annexure.

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

The *Contractor* shall ensure that any Materials delivery drivers are informed of all procedures and restrictions (e.g. which access roads to use, no go areas, speed limits, noise, etc) required by the CEMP before they arrive at Site and off load any Materials.

The *Contractor* shall be responsible for rehabilitating and re-vegetating all areas to the satisfaction of the *Project Manager* as detailed in the SES and PES.

The *Contractor* shall clear and clean the Site and Working Areas and ensure that everything not forming part of the *works* is removed from the Site and Working Areas and that all rehabilitation has taken place in accordance with the PES. An Environmental Closure Certificate has been issued by the SHEC and signed off by the *Project Manager*.

The Contractor complies with environmental inspections and audits as contained within Annexure ENV-STD-001 Rev01.

The *Contractor* makes copies of the CEMP, SES and PES available at the offices of the *Contractor* on Site. The *Contractor* ensures that all personnel on Site (including Subcontractors) are familiar with and understand the requirements of the CEMP.

6.4.2 The *Contractor* complies with the following SES:

The *Contractor* shall identify the kinds of environmental impacts that will occur as a result of his activities and then prepare separate method statements describing how each of those impacts will be prevented or managed so that the standards set out in this document are achieved. These method statements will be prepared in accordance with the requirements set out in the CEMP.

To ensure that environmental issues are taken into account in the establishment of the Site offices and all other facilities on Site.

6.4.3 The *Contractor* must comply with the PES, CEMP and SES. The Contractor abides by the instructions of the Project Manager regarding the implementation of the CEMP.

6.4.4 The lines of communication of the various personnel acting on behalf of the *Project Manager* who communicate to the *Contractor* and his keys persons with respect to the CEMP are contained within Annexure.

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

6.4.6 The ProjEM is responsible for ensuring that the *Contractor* complies with the CEMP. The ProjEM acts on behalf of the *Project Manager*.

6.4.7 The *Contractor* complies with the CEMP, SES and PES. The *Contractor* abides by the instructions of the *Project Manager* regarding the implementation of the CEMP.

6.5 Quality assurance requirements

6.5.1 The *Contractor* shall have, maintain and demonstrate its use to the *Project Manager* (and/or the *Supervisor* to satisfy the requirements of paragraphs 7.4, 7.5, 3.2.1 and 3.2.8 as appropriate) the documented Quality Management System to be used in the performance of the *works*. The

Contractor's Quality Management System shall conform to International Standard ISO 9001 (or an equivalent standard acceptable to the Project Manager).

- 6.5.2 The *Contractor* submits his Quality Management System documents to the *Project Manager* as part of his programme under ECC Clause 31.2 to include details of:
- Quality Plan for the contract;
 - Quality Policy
 - Index of Procedures to be used; and
 - A schedule of internal and external audits during the contract
- 6.5.3 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 Quality Plan.
- 6.5.4 The *Project Manager* indicates those documents required to be submitted for either information, review or acceptance and the *Contractor* indicates such requirements within his register of documents. The register shall indicate the dates of issue of the documents with the *Project Manager* 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 The Quality Plan means the *Contractor's* statement, which outlines strategy, methodology, resources allocation, QA and Quality Control co-ordination activities to ensure that the *works* meet the standards stated in the *Works Information*.

6.6 Programming constraints

- 6.6.1 The *Contractor* shows on each programme he submits to the *Project Manager*, the requirements of the CEMP, SES, PES and SMP as described under paragraph 2.4 of the *Works Information*, together with the associated environmental method statements.
- 6.6.2 The *Contractor* shows on each programme he submits to the *Project Manager*, the requirements of Health and Safety issues, design issues, construction operations and procurement issues.
- 6.6.3 The *Contractor* complies with the *Employer's* programme when he submits his first programme.
- 6.6.4 The *Contractor* presents his first programme and all subsequently revised programmes (see ECC Clauses 31.2 and 32.1) in hard copy format and in soft copy format.
- 6.6.5 The *Contractor* uses Microsoft Project for his programme submissions or a similar programme software package equivalent to Microsoft Project subject to the prior written notification and acceptance by the *Project Manager*.
- 6.6.6 The *Contractor* shows on his Accepted Programme and all subsequently revised programmes schedules showing the critical path or paths and all necessary logic diagrams demonstrating sequence of operations.
- 6.6.7 The *Contractor's* programme shows duration of operations in working days [please state here or by cross-reference elsewhere in C3.1 *Employer's Works Information* to normal hours of a working days and what is a normal working week].
- 6.6.8 The *Contractor* submits programme report information to the *Project Manager* on weekly intervals in addition to the intervals for submission of revised programmes stated under Contract Data Part One.
- 6.6.9 The *Contractor's* weekly programme narrative report includes:
- Level 4 Project Schedule – showing two separate bars for each task i.e. the primary bar must reflect the current forecast dates and the secondary bar the latest Accepted programme.
 - 3-week Look ahead Schedule - showing two separate bars for each task i.e. the primary bar must reflect the current forecast dates and the secondary bar the latest Accepted programme.
 - Manpower Histogram – reflecting actual, forecasted and planned activities
 - S-curves – reflecting the actual percentage complete versus the planned percentage for the overall contract utilising the earned values as calculated by the detailed progress report.

6.7 Contractor's management, supervision and key people

6.7.1 The *Contractor* employs a CSHEO as a key person under ECC Clause 24.1

6.7.2 The CSHEO reports to the SHEC on the Site. The CSHEO ensures that the *works* (to include any part thereof) are subject to a prior environmental method statement(s) approved by the Project Manager, CM or SHEO and ensures that the CEMP is implemented by the *Contractor* in a timely and proper manner. The SCHEO provides the *Project Manager* with all environmental method statements.

6.7.3 The CSHEO tasks are:

Daily inspections of the Site and Working Areas.

Monitor compliance with the CEMP (to include the SES and PES) and the environmental method statements submitted to the *Project Manager*.

- Reporting of an environmental incident to the *Project Manager*.
- Attendance at all SHE meetings, toolbox talks and induction programmes.
- Litter control and ensuring the *Contractor* clears litter from the Site and Working Areas; and
- Ensuring that environmental signage and barriers are correctly placed

The CSHEO submits daily checklists to the SHEC.

6.7.4 The *Contractor* employs a CIRP as a key person under ECC Clause 24.1.

6.7.5 The CIRP is based on the Site and ensures that all reports and IR requests are submitted accurately and in a timely manner to the Project Manager, CM, PIRM, PSIRM or SIRM.

6.7.6 The CIRP tasks are:

- Dedicated to human resources, industrial relations and any other *Contractor* employee related function;
- Resolve all human resources and industrial relations matters arising from the *Contractor's* employees;
- Represent the *Contractor* at all industrial relations meetings [state specific details within paragraph 6.1 management meetings of the *Works Information*];
- Represent the *Contractor* on the IRCC.

6.7.7 The *Contractor* employs an HSR as a *key person* under ECC Clause 24.1

6.8 Training workshops and technology transfer

6.8.1 The *Contractor* arranges for the following technology transfer to the *Employer*:

- An overview of the full operation of the bundwall should the oil leak occur together with the processes to be followed thereafter.

6.9 Insurance provided by the Employer

6.9.1 Insurance provided by the *Employer* is contained in the Contract Data – Part 1.

6.10 Contract change management

6.10.1 No additional requirements apply to ECC Clause 60 series.

6.11 Provision of bonds and guarantees

6.11.1 The form in which a bond or guarantee required by the conditions of contract (if any) is to be provided by the *Contractor* is given in Part 1 Agreements and Contract Data, document C1.3, Sureties.

6.11.2 The *Contractor* provides a bond or guarantee as required by the conditions of contract concurrently with the execution by the Parties of the form of agreement for the ECC contract.

6.12 Records of Defined Cost, payments & assessments of compensation events kept by Contractor

6.12.1 The *Contractor* keeps the following records available for the *Project Manager* to inspect:

Records of design employees location of work (if appropriate)

6.12.2 The *Contractor* keeps the following records available for the *Project Manager* to inspect:

- Records of design employees location of work (if appropriate);
- Records of Equipment used and people employed outside the Working Areas (if applicable).

6.13 The Contractor's Invoices

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

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

6.13.3 The invoice states 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.

Purchase Order number

The invoice contains the supporting details.

6.13.4 The invoice is presented either by post or by hand delivery.

6.13.5 Invoices submitted by post are addressed to:

Transnet SOC Ltd

P O Box 8621

Johannesburg

2000

For the attention of Central Accounting

A copy of the Invoice must also be submitted to the *Project Manager* either by email or by hand.

The invoice is presented as an original.

6.13.6 The invoice is presented either by post or by hand delivery.

6.14 People

6.14.1 Minimum requirements of people employed on the Site.

Safety File approved by Transnet safety officers.

People on site must have a valid medical certificate and they must appear on the organogram on the safety file.

Attend the compulsory Transnet Freight Rail safety induction.

Have all appropriate Personal Protective Equipment (PPE)

6.14.2 The *Contractor* complies with the following PIRPMP

- 1.1. The *Contractor* warrants that it will be liable to Transnet 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;

- 1.2. The *Contractor* warrants that no negotiations or feedback meetings by the *Contractor's* employees shall take place on Transnet premises, whether owned or rented by Transnet.
- 1.3. The *Contractor* shall give notice to Transnet 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 Transnet's premises, whether owned or rented, and shall notify Transnet of all matters associated with such action that may potentially affect Transnet.
- 1.4. 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.
- 1.5 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 Transnet with this plan and all updates to the Plan. The *Contractor* is responsible to communicate with its employees on site details of the plan

2. INDUSTRIAL ACTION BY CONTRACTOR EMPLOYEES

- 2.1. 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.
- 2.2. The Contractor warrants that it will compensate Transnet for any costs Transnet incurs in providing additional security to deal with any industrial action by the Contractor's employees.
- 2.3. In the event of any industrial action by the Contractor's employees, the Contractor is obliged:
 - 2.3.1. To prepare and deliver to Transnet, 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 8h30 each day.
 - 2.3.2. The Industrial Action Report must provide at least the following information:
 - 2.3.2.1. Industrial incident report,
 - 2.3.2.2. Attendance register,
 - 2.3.2.3. Productivity / progress to schedule reports,
 - 2.3.2.4. Operational contingency plan,
 - 2.3.2.5. Site security report,
 - 2.3.2.6. Industrial action intelligence gathered.
 - 2.3.3. The final Industrial Action Report is to be delivered 24 hours after finalisation of the industrial action.
 - 2.3.4. The management of the Contractor is required to hold a daily industrial action teleconference with personnel identified by Transnet to discuss the industrial action, settlement of the industrial action, security issues and the impact on delivery under the contract.
- 2.4. The resolution of any disputes or industrial action by the Contractor's employees is the sole responsibility of the Contractor.
- 2.5. Access to Transnet premises by the Contractor and its employees is only provided for purposes of the Contractor delivering its services to Transnet. Should the Contractor and its employees not, for any reason, be capable of delivering its services Transnet is entitled to restrict or deny access onto its premises and unless otherwise authorized; such person will be deemed to be trespassing.

- 6.14.3 The *Contractor* complies with the requirements of the IRCC involving the engineering construction *Contractors* engaged (including all future *Contractors*) by the *Employer*.
- 6.14.4 The roles and responsibilities of the various personnel acting on behalf of the *Project Manager* with respect to IR issues are stated in the paragraphs following:
- The PIRM is responsible for ensuring that the Contractor complies with the PIRPMP. The PIRM acts on behalf of the *Project Manager*.
- 6.14.5 The PIRM specific tasks are:
- To complete the PLA prior to the Contract Date; and
 - To assign specific duties to the PSIRM.
- 6.14.6 The SIRM is responsible, *inter alia*, for day-to-day IR on the Site and Working Areas through the implementation of the PIRPMP. The SIRM reports directly to the PSIRM and the *Project Manager*.
- 6.14.7 The SIRM specific tasks are:
- 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 under the SIP.

6.15 Plant and Materials

- 6.15.1 The *Contractor* provides Plant and Materials for inclusion in the *works* in accordance with SANS 1200A sub-paragraph 2.1, 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*.
- 6.15.2 Where Plant and Materials for inclusion in the *works* originate from outside the Republic of South Africa, all such Plant and Materials are new and of merchantable quality, to a recognised national standard, with all proprietary products installed to manufacturers' instructions.
- 6.15.3 The *Contractor* 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.
- 6.15.4 The *Contractor* provides all Plant and Materials necessary for the *works*. The Employer will not be providing any "free issue" Plant and Materials.

6.16 Tests and inspections before delivery

- 6.16.1 The *Contractor* submits to the Supervisor details to certify that tests and inspections have been carried out on Plant and Materials by others which include:
- AIA and INC