

	User Requirement Specification (URS)	Unique Identifier	240-86056088
		Document Type	Form
		Revision	2
		Effective Date	01 August 2020

Project Name: System Operating Control (SOC) New Building Project _ Back-up NMC Emkhiweni
Substation Name: NA
Transmission Region/Grid: System Operator
Project No: C. TXS0203
Registered Property Co-ordinates : Near Emkhiweni SS
Originator (AIP): MM Palamootil

High level Scope (Give brief description of project requirements)- Back- up NMC at Emkhiweni

Add the facilities to accommodate a Back-up NMC at Emkhiweni SOC building. The scope of work and technical Specification is as per the report “ **Back-Up Network Management Centre User Requirement Specification Rev 2** “UID ETSP-2023117 signed on 28 March 2024. This document is attached.

Design Type	New ☐	Refurbishment ☒	Extension ☐		
Busbar Cross flow studies required	YES ☐	NO ☐			
Fault Levels (kA)	Existing 1Φ	Existing 3Φ	New 1Φ		
V1:					
V2:					
V3:					
Power Transformers	MVA N/A Voltage N/A	Quantity N/A	Comments.....		
Scope Description					
VOLTAGE 1:					
DESCRIPTION	NEW	REFURB	DECOMM		
Feeder Bays					
Busbar					
Bus Coupler					
Bus Section					
TRFR Bay					
<table border="1"> <tr> <td>ADDITIONAL REQUIREMENTS / COMMENTS</td> <td></td> </tr> </table>				ADDITIONAL REQUIREMENTS / COMMENTS	
ADDITIONAL REQUIREMENTS / COMMENTS					
Approval Documentation Attached					
	No. & Rev	Date	Comments		
TP DOCUMENTS					
PLANNING REPORT	Back-Up Network Management Centre User Requirement Specification Rev 2	28/03/2024			
AUDIT REPORT / INITIATING REPORT					

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SYSTEM STUDIES & RESULTS				
Equipment Specialists				
Clearances requirements	OHS ACT			
Minimum Basic Insulation Level (BIL)	V1:	V2:		
	V3:			
Pollution Level	Heavy ☒	Extra Heavy ☐		
Insulator Type Preference	Porcelain ☒	Composite ☐		
Transformers condition monitoring requirements	Online Drying System ☒	Online Oil Monitoring System ☒		
	Comments:			
Terrace Extension required		YES ☐	NO ☒	
Comments / Special Requirements				
ADDITIONAL REQUIREMENTS / COMMENTS				
Secondary Plant Engineering				
Substation DC Voltage				
Bus-zone Ratios	V1:	V2:	V3:	
Tele-Protection Requirements				
Protection Equipment to be replaced				
Revision Control				
Rev. No	Date	By	Comments	
0	19 Mar 2024	MM Palamootil	SURS for Back – up NMC	

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<u>Originator Representative</u> Tx AM- AIP	Mini Palamootil Name	 Signature	19 Apr 2024 Date
<u>Projects Execution Representative</u> Transmission TPD	Salamina Khanyile Name	 Signature	 Date
<u>Transmission Telecoms NMC</u>	Unathi Dyantyi Name	 Signature	 Date
<u>System Ops NCC</u> Tx SO (if applicable)	Gav Hurford Name	 Signature	 Date
<u>Senior Manager Tx Telecoms</u> (if applicable)	Alison Maseko Name	 Signature	 Date
<u>Instrument Transformers & Line Traps</u> PDE – HV Plant (if applicable)	N/A Name	 Signature	 Date
<u>Transformers and Reactors</u> PDE – HV Plant (if applicable)	N/A Name	 Signature	 Date

	Specification	Transmission Telecoms
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Title: **Back-Up Network Management Centre User Requirement Specification**
 Document Identifier: **ETSP-2023117**

Alternative Reference Number: **N/A**

Area of Applicability: **Transmission**

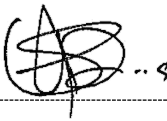
Functional Area: **Transmission Telecoms**

Revision: **2**

Total Pages: **22**

Next Review Date: **Not Applicable**

Disclosure Classification: **Confidential**

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Date: 28 March 2024	Date: 28 March 2024	Date: 28/03/2024

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1. Introduction

Eskom Transmission (TX) is planning on building a new Standby Operations Centre (SOC) in eMkhiweni, Mpumalanga (co-ordinates: 25°52'30"S, 29°24'05"E). This includes the construction of infrastructure to house various facilities, as per the user requirements from the TX business, including TX Telecommunications (Telecoms) and System Operator (SO). This document covers the requirement for the Back-Up Telecoms Network Management Centre (NMC). This requirement is aimed at providing redundancy for the primary NMC located at the Matumi building, in the Simmerpan Complex, Germiston, Johannesburg in Gauteng.

2. Supporting Clauses

2.1 Scope

This document covers the requirements for the Back-Up NMC, also referred to as Disaster Recovery (DR) site, interchangeably in this document. The document covers requirements which include the construction of a building which will house facilities such as a Data Centre (server room), office amenities (including kitchen area, ablution facilities, and Network Operating Centre (NOC), as well as supporting back up power capability. This will serve to provide information to the contractor for the scope of works and technical requirements specifications for the multidisciplinary scope of the NMC DR Site, as listed below:

- a) Design
- b) Construction
- c) Construction Monitoring
- d) Supply
- e) Fabrication
- f) Installation and testing
- g) Professional certification
- h) Commissioning and handover

2.1.1 Purpose

The purpose of this document is to provide the information to the contractor for the scope of works and technical requirements specifications for the multidisciplinary scope of the Back-Up NMC, which will serve as the DR site for the main/production site, located at the Simmerpan Complex, in Germiston, Johannesburg.

2.1.2 Applicability

This document shall apply throughout Transmission Telecoms.

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2.1.3 Effective date

This document is effective from the date of Authorization.

2.2 Normative/Informative References

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs.

2.2.1 Normative

- [1] ISO 9001 Quality Management Systems.
- [2] OHS-Act, 85 of 1993: Act 8, General duties of the employers.
- [3] 240-79537982 Threat and Risk Assessment Standard.
- [4] Gov. Gazette No. 37305 Construction Regulations, 2014
- [5] 32-894 Eskom Server Rooms and Data Centres Standard.
- [6] 240-84323647 Network Management Centre Redundancy Standard
- [7] 240-118870219 Standby Power Systems Topology and Autonomy for Eskom Sites
- [8] Occupational Health and Safety Act (Act 85 of 1993) with associated Regulations
- [9] SANS 60598-1 Luminaires Part 1: General requirements and tests
- [10] SANS 475, Luminaires for interior lighting, streetlighting and floodlighting – Performance requirements
- [11] EN 55015, Limits and methods of measurement of radio disturbance of electrical lighting or equipment
- [12] SANS 10108, The classification of hazardous locations and the selection of equipment for use in such locations

2.2.2 Informative

- [13] 200-35208 - Environmental Management Plan
- [14] National Environmental Management Act, 1998 (Act 107 of 1998)
- [15] National Environmental Management Waste Act, 2008 (Act 59 of 2008)
- [16] National Water Act, 1998 (Act 36 of 1998)
- [17] Government Notice 704, National Water Act 1998
- [18] The Environmental Conservation Act (Act No 73 of 1989)
- [19] South African National Standards (SANS), relevant and applicable
- [20] 240-135089195 Generic Technical Requirements For Eskom Telecoms Contracts
- [21] 240-56364545 Structural Design and Engineering Standard
- [22] 240-57127955 - Geotechnical and Foundation Engineering Standard

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- [23] 240-57127951 – Standard for the Execution of Site Investigations
- [24] 240-57127953 – Execution of Site Preparation and Earthworks Standard
- [25] 200-16817 - Excavation permit Application Procedure
- [26] 240-85549846- Standard for Design of Drainage and Sewerage Infrastructure
- [27] SANS 1200 complete series
- [28] SANS 2001 CC1 complete series
- [29] 240-52599753 Workplace space and furniture standard for commercial properties
- [30] SANS 10400 – The application of the national Building Regulations
- [31] SANS 204:2011 Energy efficiency in buildings
- [32] SANS 10400-XA:2011 Energy usage in buildings
- [33] 240-56177186 Standard for Battery room design
- [34] 240-57127953, Execution of Site Preparation and Earthworks Standard
- [35] SANS 10161, The design of foundation for buildings
- [36] SANS 10100-1, The structural use of concrete (specifically Part 1: Design)
- [37] SANS 10162, The structural use of steel
- [38] SANS 10163, The structural use of timber
- [39] SANS 10164, The structural use of masonry
- [40] 240-85067224, Substation Platform and Access Road Design Standard
- [41] South African Pavement Engineering Manual (SAPEM) ISBN 978-1-920611-00-2
- [42] 240-84418186, Roads Specification Manual
- [43] 240-153000199, Substation Drainage
- [44] 240-102393009, Standard for Substation Flood Analysis Design
- [45] 240-126468603 Operational Standard for Fire Management in Generation
- [46] 240-54937450 Fire Protection and Life Safety Design Standard
- [47] 240-56356376 On-Site Commissioning for Low Pressure Systems Standard
- [48] 240-105020315, Standard for Low Pressure Valves
- [49] 240-106628253, Standard for Welding Requirements on Eskom Plant
- [50] 240-123801640, Standard for Low Pressure Pipelines
- [51] 240-61227631 Piping and Instrumentation Diagram (PID) Standard
- [52] 240-106680663 Lifts, Escalators, Lifting and Crane Design Guideline
- [53] 240-82172806 Air conditioning in transmission substation buildings and telecommunication sites
- [54] 240-56737448 – Fire Detection and Life Safety Design Standard
- [55] 240-54937439 Fire Protection/Detection Assessment Standard
- [56] 240-56737450 Fire Protection and Life Safety Design Standard

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- [57] SANS 10139 – Fire System Design
- [58] 240-56355466 – Alarm Management System Guideline
- [59] 240-56227516 - LV Switchgear Control Gear Assembly Associated Equipment for Voltage 1000V AC and 1500V Standard
- [60] 240-56227443 - Requirements for Control and Power Cables for Power Station Standard
- [61] 240-56356396 - Earthing and Lightning Protection Standard
- [62] 240-56176852 - Essential Power Supplies for Power Stations Standard
- [63] 240-56355815 - Junction Boxes and Cable Termination Standard
- [64] SANS 10142-1 - The wiring for premises Part 1: low-voltage installations
- [65] SANS 10114-1 - Interior lighting Part 1: Artificial lighting of interiors
- [66] SANS 10114-2 - Interior lighting Part 2: Emergency lighting
- [67] 240-83382122 – Emergency lighting
- [68] 240-139282493 - Security Lighting for Eskom Applications
- [69] ISO 9001 Quality Management Systems
- [70] ISO 14001:2015 Environmental Management Systems
- [71] Occupational Health and Safety Management Systems Requirements (OHSAS 18001)
- [72] 200-46362 - Site Inspections Procedure
- [73] 200-15406 - Issue Takeover Certificate
- [74] 32-421 - Eskom Life Saving Rules
- [75] PWI 200 – 5664: Engineering Change Management Work Instruction
- [76] 240-103414344 - Summary of corporate identity manual
- [77] Policy ESK PB AAQ 3 - Interior Specifications for Eskom
- [78] 240-76666863 Telecommunications Network Architecture Standard
- [79] 240-101578948 - Specification for CCTV Surveillance and Intruder Detection Systems
- [80] 240-60725641 Specification for Standard (19 inch) equipment cabinet

2.3 Definitions

Controlled disclosure: controlled disclosure to external parties (either enforced by law, or discretionary).

Definition	Description
Contractor	Refer to Construction Regulations section 1 “Definitions” for technical definition
Design	Refer to Construction Regulations section 1 “Definitions” for definition

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Definition	Description
Designer	Refer to Construction Regulations section 1 “Definitions” for definition
Employer	Eskom, or Transmission NMC representative
Professional Engineer	Refer to Construction Regulation section 1 “Definitions” for definition
Professional Technologist	Refer to Construction Regulation section 1 “Definitions” for definition
System	An integrated set of constituent pieces that are combined in an operational or support environment to accomplish a defined objective. These pieces include people, hardware, software, firmware, information, procedures, facilities, services, and other support facets

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2.4 Abbreviations

Abbreviation	Description
AIA	Approved Inspection Authority
CAD	Computer-aided design
CCTV	Close Circuit Television
DC	Data Centre
DR	Disaster Recovery
HVAC	Heating, Ventilation and Air Conditioning
ISO	International Organization for Standardization
IT	Information Technology
LAN	Local Area Network
LED	Light Emitting Diode
LLD	Low-level Design
LV	Low Voltage
NCC	National Control Centre
NKP	National Key Point
NMC	Network Management Centre
NOC	Network Operations Centre
OHS	Occupational Health and Safety
OT	Operational Technology
PID	Piping and Instrumentation Diagram
PSIM	Physical Security Information Management
QMS	Quality Management System
SANS	South African National Standards
SHEQ	Safety, Health, Environmental, and Quality
SO	System Operator
SOC	Standby Operations Centre
SAPEM	South African Pavement Engineering Manual
TX	Transmission
UPS	Uninterruptible Power Supplies
URS	User Requirement Specification
VSAT	Very Small Aperture Terminal
WAN	Wide Area Network

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2.5 Roles and Responsibilities

The parties with the overall responsibility for the execution of this document are Asset Management (Transmission Real Estate) and TX Telecoms.

2.5.1 Architect

The Architect is responsible for the conceptual and detailed design of the building, the specification of finishes and the submission of plans for acceptance to local council, ensuring compliance with *Employer's* planning requirements and national building regulations.

2.5.2 Contractor

The contractor is to deliver a fully functional and compliant DR Site structure, including associated facilities, in accordance to the technical specification outlined herein.

2.5.3 Contractor's Designer

Refer to Construction Regulations section 6 "Duties of Designer".

For Civil, Structural, and Electrical engineering applications the duties of the designer, as defined in the Construction Regulations, shall be assigned to the Professional Engineer\Technologist.

2.5.4 Project Manager

The *Project manager* is the delegated authority from the *Employer* representing the *Employer* to manage the defined scope of work. The *Project manager* coordinates the execution of the Works to achieve the required cost, schedule, and quality objectives.

The *Project manager* is Eskom's representative(s) that officially communicates with the *Contractor*.

2.5.5 Quality Management

Quality ensures *Contractors* build plant according to contractual specifications, and user requirements and codes. Quality is the custodian of the Quality Management System (QMS) and quality records and facilitates the work of the Approved Inspection Authority (AIA). The Quality Function's responsibility is to ensure *Contractors* have a sound quality system in place. Quality checks these systems on behalf of the *Employer*.

2.6 Process for Monitoring

Accountability for compliance with this specification shall be the responsibility of TX Real Estate.

2.7 Related/Supporting Documents

Not applicable.

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3. BACK-UP NMC GENERAL REQUIREMENTS

3.1 SHEQ Requirements

3.1.1 The Contractor shall comply with the latest revision of, including but not limited to, the Regulations, site specific procedures and stipulations of the OHS Act and SANS requirements. The Contractor shall ensure:

- a. Compliance with all requirements of the Occupational Health and Safety Act no 85 of 1993 and its regulations to ensure the health and safety of persons carrying out the Works.
- b. Compliance with Eskom's SHE policies, procedures, standards, guidelines, specifications, and site regulations.
- c. All employees are medically, physical, and psychologically fit to perform the Works. Employees shall have a valid medical certificate of fitness specific to the work to be performed.
- d. All employees undergo the relevant training as per their functional requirement.

3.2 Requirements for Lighting and small power

3.2.1 All lighting to be used shall be LED luminaires and shall comply to the SANS 60598, SANS 475 and the SANS 55015. All the LED luminaires used shall be tested by the Eskom lighting Laboratory for compliance to the above standards.

3.2.2 Emergency lighting shall be provided.

3.2.3 The lighting and power points for each room shall be divided into two separate circuits and supplied from different distribution boards.

3.2.4 Each lighting circuit shall supply the correct illumination for the room.

3.2.5 Each lighting circuit shall be separately switched.

3.2.6 Lighting for hazardous locations shall comply to the SANS 10108. The hazardous location shall be zoned and equipment used shall be according to the zone classification.

3.2.7 The power supply shall be 400 Volt and 230Volt 50Hz.

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3.3 Contractor's Design and Construction Scope

- 3.3.1 The scope of work for the project entails engineering and architectural design, construction, supply and construction supervision, construction monitoring by design professionals, installation, commissioning, and certification of the NMC DR Site building.
- 3.3.2 The Contractor shall consider green building principles (taking into consideration environment sustainability for the design and construction of the above-mentioned building).
- 3.3.3 The building shall be ergonomically designed and supplied in accordance with this specification.

3.4 Location of the Building

- 3.4.1 The building shall be located at eMkhiweni site, Mpumalanga (co-ordinates: 25°52'30"S, 29°24'05"E).

3.5 Overview of Contractor's Design Scope

- 3.5.1 An overview of the design scope is provided below:
- a. All civil and structural elements (architectural design, civil design, electrical design, mechanical design, geotechnical investigation, roads and paving, parking areas and paved walkway areas, stormwater, and internal drainage);
 - b. All areas including control rooms, server rooms, administrative/office areas, boardrooms, computer centre/rooms, locker rooms, workshops & storages, kitchens, ablutions facilities, and all other areas for supportive services and equipment as indicated in the user requirements specification (URS);
 - c. Heating, Ventilation, and Air-conditioning (HVAC) system complete with structural supports);
 - d. Electrical supply and distribution (incl. earthing, lighting and small power);
 - e. Active and passive fire protection);
 - f. Fire detection);
 - g. Access Control);
 - h. Blast protection building design);
 - i. During the design and construction phase the Contractor shall make provision to perform a topographic survey before finalising detail design of the works);
 - j. Design integration to ensure functionality of the building and services);

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3.6 Design Requirements

- 3.6.1 All design work shall be compliant with, including but not limited to, the employer's standards, specifications and other relevant codes listed under section 2.2 of this document.
- 3.6.2 All design work shall be compliant with, including but not limited to, relevant and applicable standards, codes of practice, regulations, and legislative requirements.

3.7 Design constraints due to limited available information.

- 3.7.1 The following information that could influence the design of some structural elements, that may not have been available at the time of finalising this document, including:
- a. Latest topographic survey - The *Contractor* shall make provision to perform a topographic survey before finalising detail design of the works);
 - b. The weights of the heaviest components to be handled in the various rooms/areas and the areas over which these loads are to be applied have not been specified. The *Contractor* shall make provision to verify the weights prior to finalising the design);
 - c. Requirements for the use of forklifts for operational activities. The *Contractor* shall include provision to finalise the use of forklifts requirements with the *Project Manager* during concept and detailed design stages);
 - d. The appointment of experienced blast and design engineers is recommended and engagements with the National Key Point (NKP) Regulator must commence as soon as a concept design is available.

3.8 Overview of Construction Scope

- 3.8.1 An overview of the construction scope includes, but not limited to, the below:
- a. Civil and structural elements (including architectural, mechanical, electrical, geotechnical works, roads and paving, parking and paved walkway areas and stormwater) for the building);
 - b. All areas as stipulated in the User Requirements Specification);
 - c. HVAC system);
 - d. Electrical supply and distribution (incl. earthing, lighting, and small power));
 - e. All building finishes);
 - f. Biometric units);
 - g. Fire Detection System);
 - h. Active and passive fire protection);
 - i. Telecommunications);
 - j. Security.
- 3.8.2 The Contractor shall be responsible for the supply of all materials. This includes:
- a. The complete building structure and all associated components);
 - b. HVAC systems);

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- c. Fire protection systems (passive fire protection and active fire protection);
- d. Fire detection);
- e. Small power and lighting);
- f. Ablution and kitchen facilities);
- g. Storage/racking systems all as indicated in this document and in the URS (user requirement specification).

3.8.3 The Works to be provided by the Contractor shall include, but is not limited to

- a. All scaffolding);
- b. Site cranes);
- c. lifting equipment);
- d. Construction vehicles and all required plant to execute the scope);
- e. All excavations, earthworks and terracing as required);
- f. All signage required;
- g. Any modifications required for the use of existing infrastructure;
- h. All materials, facilities and samples required to perform inspections, tests, and commissioning as per the relevant statutory and regulatory standards and as per this Technical Specification.

3.8.4 The Contractor shall perform all its duties in accordance with the Construction Regulations, Eskom procedures and specifications and, including but not limited to, relevant SANS specifications, regulatory, and legislative requirements.

3.8.5 The Contractor shall include provision for all incidental works.

4. Technical Requirements Specifications for Facilities

4.1 Data Centre (DC)

All DC-related installations and requirements, including room infrastructure, in-room electrical, standby power, cooling systems, access control, and fire suppression systems, are outlined in this section of this document:

4.1.1 The Data Centre (DC) shall be co-located but NOT co-exist with the TX National Control (NCC) DC, as specified by the NMC Redundancy Standard.

4.1.2 The DC shall be a robust, modular, flexible, and productive environment that hosts the NMC's most critical applications and intellectual property (Tier 4 as per Table 1).

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Table 1:DC Tier Requirements

PARAMETERS	TIER 1	TIER 2	TIER 3	TIER 4
Uptime guarantee	99.671%	99.741%	99.982%	99.995%
Downtime per year	<28.8 hours	<22 hours	<1.6 hours	<26.3 minutes
Component redundancy	None	Partial power and cooling redundancy (partial N+1)	Full N+1	Fault tolerant (2N or 2N+1)

4.1.3 Room Infrastructure

- a. The DC shall have no building exterior doors or exterior windows);
- b. All DC perimeter walls need to be full height, hard wall construction);
- c. The entrance/exit to the DC will be covered by a digitally recorded closed circuit television (CCTV) camera, monitored by security personnel located at Zero Control, in Simmerpan);
- d. Employee entrances will be controlled by a biometric access control system and equipped with local door alarms that will sound if the door is propped open for an extended period of time);
- e. Emergency exit doors are to be located outside of the DC (not leading in/out of the DC) and shall be alarmed and of solid metal);
- f. There should be no access through the DC to another room not related to the DC, such as offices or an electrical room.

4.1.4 Provisioning and Installation of Cabinet space

- a. The cabling contractor shall install all networking cabinets (and their power strips) in the DC);
- b. The floor space must make provision for a minimum of ten (10) standard-sized cabinets (1000mm deep x 600mm wide x 2000m tall).

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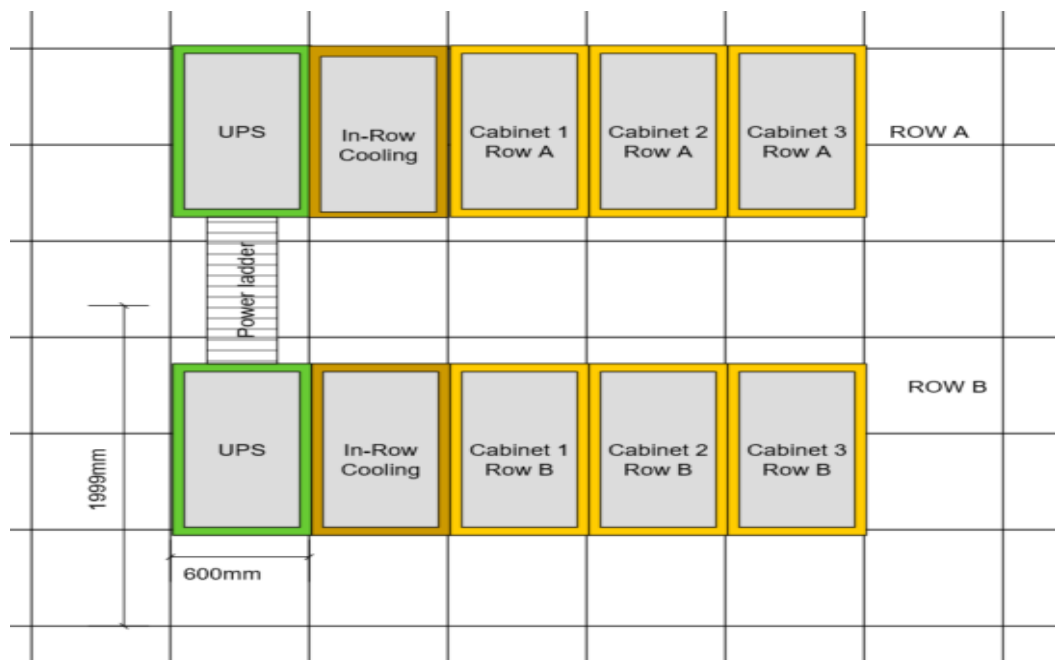


Figure 1: Proposed Cabinet Layout

4.1.5 In-room Electrical system

- Power shall be provided from Power Distribution Units (PDUs) and carried to electrical panels installed at one end of each row;
- Each panel will be fed by a different PDU;
- Each cabinet will be equipped with dual power supply to provision for redundancy.

4.1.6 Room Lights

- All room lights are to be connected to the standby power system.

4.1.7 Standby Power

- The DC standby power system shall be designed with an Uninterruptible Power Supply (UPS), placed in a dedicated cabinet(s) within the server room, equipped with associated accessories such as batteries and power modules etc);
- The standby generator shall be located outside of the building with a minimum capacity of 200KVA);
- The UPS and standby generator will each have a capacity no less than 20 percent greater than the maximum possible electrical load in the DC);
- As a minimum requirement for the initial construction, the UPS capacity shall have a capacity of no less than 9.3KW);
- The UPS and generator will be sized for N+1 coverage of the DC);

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- f. When the DC is at full load, the UPS must run for a minimum of twenty minutes and the generator must run for a minimum of eight hours without refuelling.

4.1.8 Heating, Ventilation, and Air Conditioning (HVAC)

- a. The DC shall be designed with N+1 cooling coverage);
- b. The DC will be maintained at 20 to 23 degrees Celsius, 24 hours a day, 7 days a week (365/24/7);
- c. The server room shall have a constant humidity level of 50 percent, plus or minus 10 percent (40 percent to 60 percent);
- d. As a minimum requirement for the initial construction, the cooling system capacity shall accommodate no less than 31,408 BTU/h.

4.1.9 Fire suppression system

- a. The DC shall be equipped with a continuous air-sampling system that will provide early warning of a fire (smoke detection system);
- b. The fire suppression system shall provide for total flooding of the DC with a gaseous fire suppression agent that is clean, dry, noncorrosive, nondamaging, and nondeteriorating);
- c. The nozzles to be installed for the gas flooding system shall be of the low Noise Nozzle type (see Figure 2), to avert possible damage on some data storage systems);



Typical Nozzle



Low Noise Nozzle

Figure 2: Example of Nozzles

- d. The fire suppression system shall also provide for particle and air sampling to initiate stages of alarms in preparation for release of the agent);
- e. Fire suppression system cylinders shall preferably be located outside the DC in a controlled room);
- f. Fire extinguishers will be installed within the DC, wall-mounted in multiple locations around the room. These handheld extinguishers will be of the appropriate type for a room containing electronic equipment.

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4.2 Kitchen

4.2.1 The NMC requires a kitchen area to accommodate personnel, as a basic condition of service. The kitchen area shall have the following minimum requirements.

- a. The kitchen shall be fully equipped with running water);
- b. The kitchen area shall be equipped with an ablution facility (sink) for hygiene purposes);
- c. The kitchen area shall be equipped with a coffee station, including a water dispensary system to provision for both boiling and freezing water);
- d. The kitchen area shall be equipped with a seating area for personnel to utilise during tea/lunch breaks. This shall accommodate six (6) personnel at minimum);
- e. The kitchen area shall be equipped with Fire extinguishers as well as a First Aid Kit box in plain sight of the staff);
- f. The kitchen area shall be equipped with a stroller for personnel with special needs and/or injuries);
- g. Cabinetry – Kitchen cupboard carcass and doors made from 18mm thick melamine 32mm thick high-density particleboard, finish to be low glare continuous decorative laminate with matching edging.



Figure 3: Kitchen Sample image Example

4.3 Ablution Facility

4.3.1 The NMC requires a dedicated ablution facility, to accommodate personnel as a basic condition of service. The facility shall have the following minimum requirements.

- a. Restrooms shall be provisioned to accommodate for gender diversity, exclusively (i.e. minimum of one male and one female facility, each);

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- b. The restrooms shall be equipped with a toilet each, and urinal(s) for the male facility, as a standard requirement.

4.4 Office Space

4.4.1 The NMC requires some office space to accommodate personnel who may be required to perform operational work for the NMC, with the following minimum requirements:

- a. The office area/room shall be of an open office type and accommodate a minimum of six (6) personnel each with their own dedicated workdesk/office desk);
- b. The office area/room shall have ample space to accommodate a storage cabinet with dimensions 1500 x 1200 x 450mm 32mm Top 16mm backing;
- c. The Office desk shall be the standard Eskom D2 workstation. Work surface to be made of 32mm thick high-density particleboard with a minimum of 0.5mm low glare continuous decorative laminate finish, top to rest on 75mm diameter steel tubing with a minimum wall thickness of 1.6mm and a pedestal with three drawers);

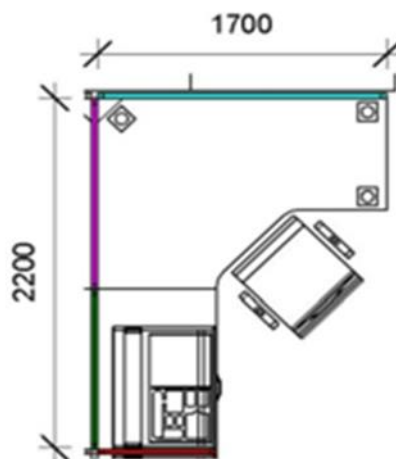


Figure 4: Eskom D2 Office Desk Dimensions (mm)

- d. The office space shall provision connection points, each dedicated to an work desk, for telephony which shall be linked with the primary NMC voice system (call management infrastructure to be synchronized);
- e. The office space shall provision for ethernet connection points that will accommodate the specified minimum quantity of personnel, to provision access to the following Eskom networks:
 - o Transmission Telecoms Operational Technology (OT) Wide Area Network (WAN).
 - o Eskom Corporate Network (Group IT Network).
- f. The Office area shall be equipped with an air-conditioning system);

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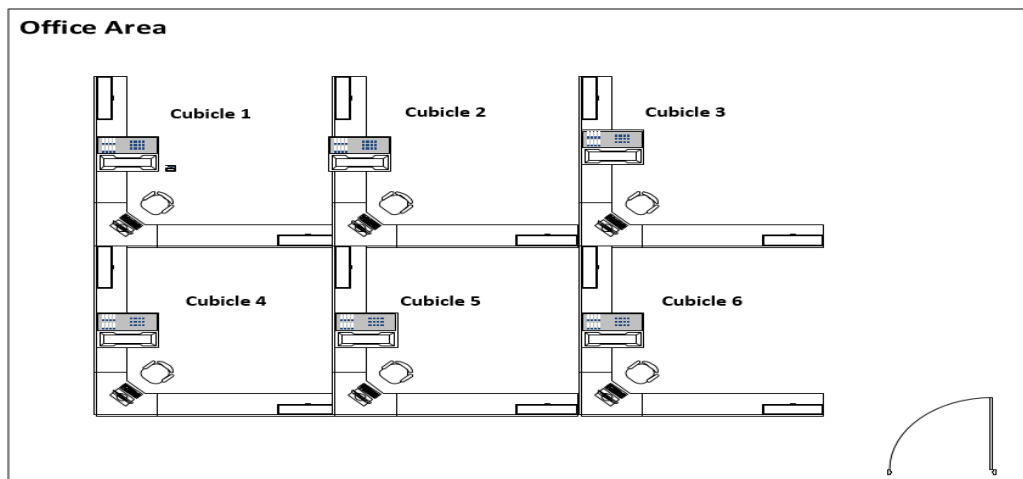


Figure 5: Example of proposed office space

5. Post Implementation Hand over requirements

5.1 The Contractor will provide sufficient documentation at Handover of the complete scope of all the buildings and components indicated in this document to the Project manager for safe and sustainable maintenance and operation of the building and its contained systems. This will include but not be limited to Construction handover documentation, Design handover documentation and all statutory documentation in 3 x sets of hardcopy format and soft copy format.

5.2 Construction handover documentation

5.2.1 Construction handover documentation shall include but is not limited to the following:

- a. As built documentation in 3 x sets of hardcopy format and soft copy format.

5.3 Design handover documentation

5.3.1 Design handover documentation shall include but is not limited to the following:

- a. Native/CAD drawing files in pdf format and soft copies;
- b. Operating manuals where applicable in pdf format and soft copies;
- c. Computer design models for all designs;
- d. Fenestration calculation reports;
- e. Architectural design reports;
- f. Structural/building design calculation reports;
- g. Civil design calculation reports;

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h. Other technical/handover documents not listed above;

4. Acceptance

This document has been seen and accepted by:

Name	Designation
Alison Maseko	Senior Manager: Eskom Telecommunications
Mfundiso Hina	Manager: NPAE
Zane Hassen	Regional Manager: Western Region
Petros Masoka	Regional Manager: Northern Region
Unathi Dyantyi	Manager: Network Management Centre
Numpumelelo Khumalo	Manager: Business Architecture
Bheki Nala	Regional Manager: Eastern Region
Craig Pitt	Manager: SHEQS
Mark Ganesan	Manager: Central Region
Muzi Mlangeni	Manager: Customer Service Management

5. Revisions

Date	Rev.	Compiler	Remarks
27 March 2024	1	Oscar Ngwenya	Reviewed Document: Changed Report to Specification
26 June 2023	0	Oscar Ngwenya	First issue (Draft)

6. Development Team

The following people were involved in the development of this document:

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- Jacques Schutte
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7. Acknowledgements

None

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