Eskom	Scope of Work – Substation Engineering	Technology

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National Security Project 1
Security Build 2

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1. INTRODUCTION

This project was initiated to ensure adequate upgrade of the security systems and infrastructure at Pembroke substation to comply with OHS Act, National Key Point and Eskom latest policies and standards. Existing access control building, perimeter lighting, fences and access gates will be refurbished to achieve the required quality of security systems and infrastructure. This document covers the construction work that will be done at Pembroke Substation.

2. REFERENCES

[1] 240-55922824 Substation layout design guidelines
[2] Occupational health and safety act (OHS Act) 85 of 1993
[3] (32-1205) Eskom maintenance management policy
[4] (TST41-794) Substation and facility maintenance
[5] (32-727) Eskom safety, health, environment and quality policy
[6] (32-846) Operating regulations for high voltage systems
[7] (SANS 1200) General civil
[8] SABS 10229-1:2010 Transport of Dangerous Goods
[9] SABS 10231: 2019 transport of Dangerous Goods by Road
[10] National Environmental Management Waste Act 59 of 2008
[11] OHSA act (Act 85 of 1993)
[12] SANS 10400 – The application of the national Building Regulations
[13] National Building Regulations and Building Standards Act No. 103 Of 1977
[14] (240-109644476) - Standard for Implementation of Substation Layouts for Transmission Substations
[15] (240-1001183119) - Standard for Fences in Eskom Transmission Stations
[16] (240-139282493) – Security Lighting for Eskom applications
[17] (240-78980848) – Non-lethal Fence Specification

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3. SCOPE OF WORK

This scope of work is to be read in conjunction with drawings listed in section 4 of this document. All construction is to be carried out in accordance with Eskom Safety, Health, Environment & Quality Policy and all necessary safety procedures must be strictly adhered to.

The Civil scope of work includes but not limited to:

a) Access control building refurbishment
b) Perimeter fence lighting upgrade
c) Upgrade of the existing non-lethal electric fence to a 24-strand galvanised wire with concrete plinth on either side for the prevention of vegetation grown/interference.
d) Evaluation and review of the existing drainage and mitigate any deficiencies that are affecting the effectiveness of the barrier fences.

3.1 IDENTIFIED SUBSTATION

a) Pembroke substation, this scope of work only applies to this project.

3.2 DETAILED SCOPE OF WORK

3.2.1 Access control building-Fibre Comms

a) Construction of flexible cable sleeves with draw boxes for the gate and Fibre comms from the access control building to the control building.
b) Sleeves from the ACB manhole to the gate

3.2.2 Perimeter fence lighting upgrade

Refer to drawings PEM25P19-SE-E43 sht.1-2

a) New installation of 115 lighting poles, at 15m intervals.
b) Installation of 115, 60W LED luminaires on top of the poles.
c) Installation of two Security lighting distribution boards (SLDB) at positions shown on drawing.
d) Install Supply cables from ACDB in control building to SLDB 1 & 2
e) Install cables from SLDB to luminaires.
f) Install control cables from SLDB's to access control building.
g) Install 10mm DIA copper rod around the complete substation, 3 Km in total.
h) Terminate, test and commission.

3.2.3 Operational Floodlighting

Refer to drawings PEM13P01-SE-E44 sht.1-3

a) Complete refurbishment of the Floodlighting installation
b) Supply and install new supply cables to existing masts
c) Supply and install new Distribution Board fully equipped according to sheet 2 and 3
d) Supply and install DB's and JB's for each mast
e) Supply and install new 244W led Luminaires
f) Supply and install cables inside masts and cables from JB to luminaires
g) Terminate, test and commission.

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3.2.4 Inner fence upgrade

a) The project will be responsible for upgrading the existing inner security fence.
b) The contractor will be responsible for all fencing works, including excavation for fence posts, anti-tunnelling, installation of fence panels, gates, overhangs, etc.
c) Replace inner fence as specified on drawings 0.54/5633 sheets 1-3.

3.2.5 Installation of access gates

a) The access gates must be removed completely and spoiled,
b) A totally new access gate must be installed according to drawings 0.54/10230 sheets 1-6,
c) Complete with gate motors, gates and sleeves as shown on the drawing and,
d) The contractor should also install a fibre optic sleeve pipe with draw boxes in accordance to drawing 0.53-2129

3.2.6 Non Lethal Fence

a) The non-lethal fence complete with the protection slab must be removed and spoiled,
b) A totally new non-lethal fence must be installed in accordance with Eskom's specification of 240- 78980848,
c) The details according to the specification is drawing 0.54-8282.
d) Existing stone verge shall remain.

4. DRAWINGS LIST

ITEM	DESCRIPTION	DRAWING NUMBER
1	Access control building refurbishment	PEM25P19-SE-E47 sht. 1 - 5
2	Security fence general upgrade	PEM25P19-SE-E11
3	Security lighting layout	PEM25P19-SE-E43 sht.1-2
4	Access control building electrical installation and schematic diagram	PEM25P19-SE-E43 sht. 3
5	Operational floodlighting cable route and mast location layout. And schematic layout	PEM13P01-SE-E44 sht. 1-3

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5. AUTHORISATION

This document has been seen and accepted by:

Name	Designation
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6. REVISIONS

Date	Rev.	Compiler	Remarks
27 August 2025	1	Nhlakanipho Gwala	Second Issue

7. DEVELOPMENTAL TEAM

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

- Nhlakanipho Gwala
- Anton Naude
- Senzo Duma

8. ACKNOWLEDGEMENTS

None

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