

	<p style="text-align: center;">INFORMATION TECHNOLOGY HIGH LEVEL DESIGN</p>	<p style="text-align: center;">GROUP INFORMATION TECHNOLOGY</p>
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Title: **IT HIGH LEVEL DESIGN FOR
Lethabo SOLAR PV SITE**

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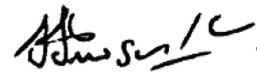
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1. Introduction

Group IT was approached by the Lethabo Solar PV project team, to assist in determining the appropriate IT solution for the new Lethabo PV plant.

2. Supporting Clauses

2.1 Scope

Group IT was requested to supply an architectural design to cater for an IT/OT interface via a secure Firewall and DMZ connection, for remote control and monitoring of the plant. Remote access to the security system is also required, along with general office access to the Eskom business network.

2.2 Applicability

This document shall apply to the Lethabo Solar PV plant situated in the Gauteng Operating Unit.

2.2.1 Effective date

November 2021 (Initial Document)

2.3 Abbreviations

Abbreviation	Explanation
IT	Information Technology
OT	Operational Technology
ET	Eskom Telecoms
LAN	Local Area Network
UC	Unified Communication (Voice & Video)
WAN	Wide Area Network
MPLS	Multiprotocol Label Switching
UTP	Unshielded Twisted Pair
CAT6	Category 6 LAN Cabling Standard for Ethernet Networks
UPS	Uninterruptable Power Supply
PSU	Power Supply Unit
GIT	Eskom Group Information Technology
SS	Substation
BESS	Battery Energy Storage Site
PV	Photovoltaics
SCADA	Supervisory, Control and Data Acquisition
EAL	Eskom Academy of Learning
MWP	Megawatt Park

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Abbreviation	Explanation
O&M	Operations and Maintenance Services

3. Current Infrastructure

This is a brownfield” project, which will involve the construction of the Substation and Solar PV area. OT equipment will need to be procured, however the MPLS network is in operation with connection points at Lethabo Power Station.

4. Prescribed Standards

4.1 Alignment to existing GIT Network Standards

The detailed LAN & WAN design must comply with the existing GIT network standards with regards to equipment vendor, hardware model, IOS software versions and LAN & WAN topologies. The Ethernet network standard is in use in the Eskom environment, along with CAT6 UTP as the current LAN cabling standard. As this is a high level design, equipment vendor details and device model numbers will be specified later in the process as required.

4.2 IT Device / System Monitoring and Reporting

All IT network devices will be connected to the current centralised monitoring systems. These are used to alert support staff of any current or potential failures on the system. They include,

- Network monitoring system
- Automated ticket generation and tracking system

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4.3 Proposed IT Connectivity Solution

The proposed solution connect to an existing Lethabo Wan Link supplied by GIT. The IT LAN already connects IP phones, printers, desktops and laptops as required for access to current Eskom IT systems. There is dual IT firewall (DMZ) installation; this will be reused to enable the PV LAN connection. The OT DMZ need to be created to enable segregation between existing OT and IT. The remote support for the PV OT LAN will be through the GIT infrastructure, the new connection will be through the existing GIT DMZ.

High Level Design:

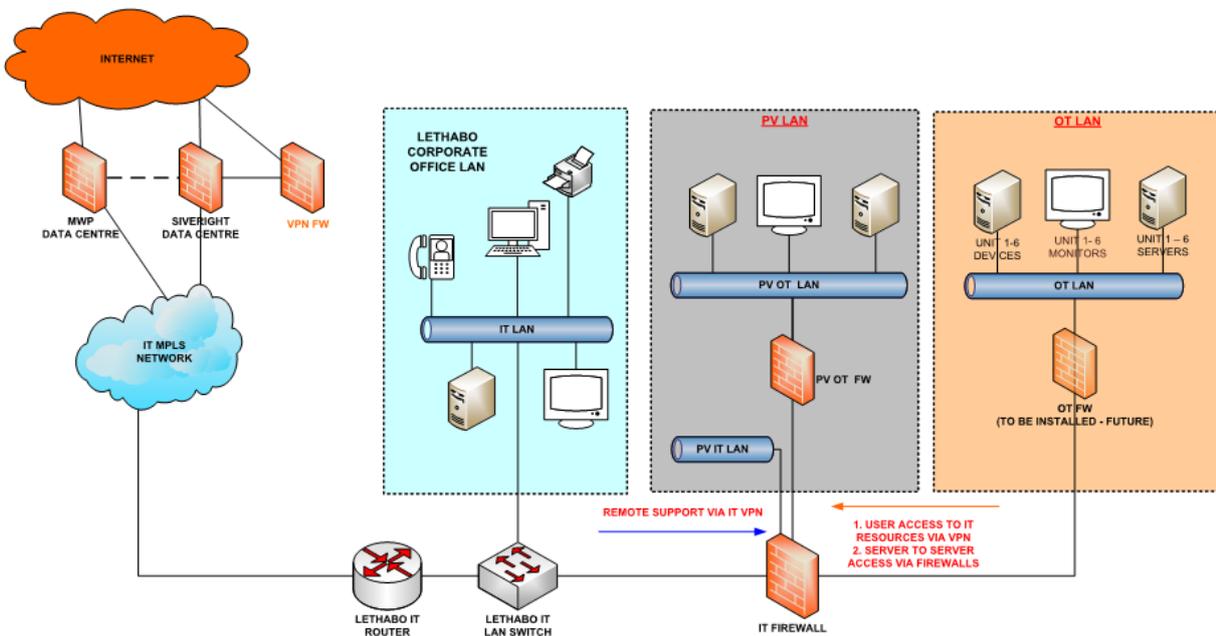


Figure 1 High Level Lethabo Design

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4.4 OT Requirement to Lethabo PV LAN

GIT will be required to supply connectivity, via their MPLS network. The OT/PV networks at the PV site, which includes firewalls, routers and switches, are to be supplied, configured and installed by the contractor.

4.5 OT Requirement to 3rd Party Remote Monitoring Centre

Connectivity between the PV network at Lethabo and the 3rd party Remote Monitoring Centre, for support and maintenance services, will be via an IPSec VPN tunnel through the existing Group IT MPLS network. As with Section 4.4, the OT/PV networks are to be supplied, configured and installed by the contractor.

5. Conclusion

This solution will leverage off the existing IT MPLS networks to provide secure, remote OT/IT connectivity to the site. Due to the site's geographical position, WAN connectivity and network support will be conducted from Lethabo Power Station. See Appendix A, figure 2.

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6. Acceptance

This document has been seen and accepted by:

Name	Designation
Rajiv Beharie	C&I Senior Engineer Lethabo Power Station
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Aradhna Pandarum	EDWL and Project manager for Lethabo solar PV project

7. Revisions

Date	Rev.	Compiler	Remarks
Owen Maphumulo	0.9		
Rajiv			

8. Development Team

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Appendix A – Site Location

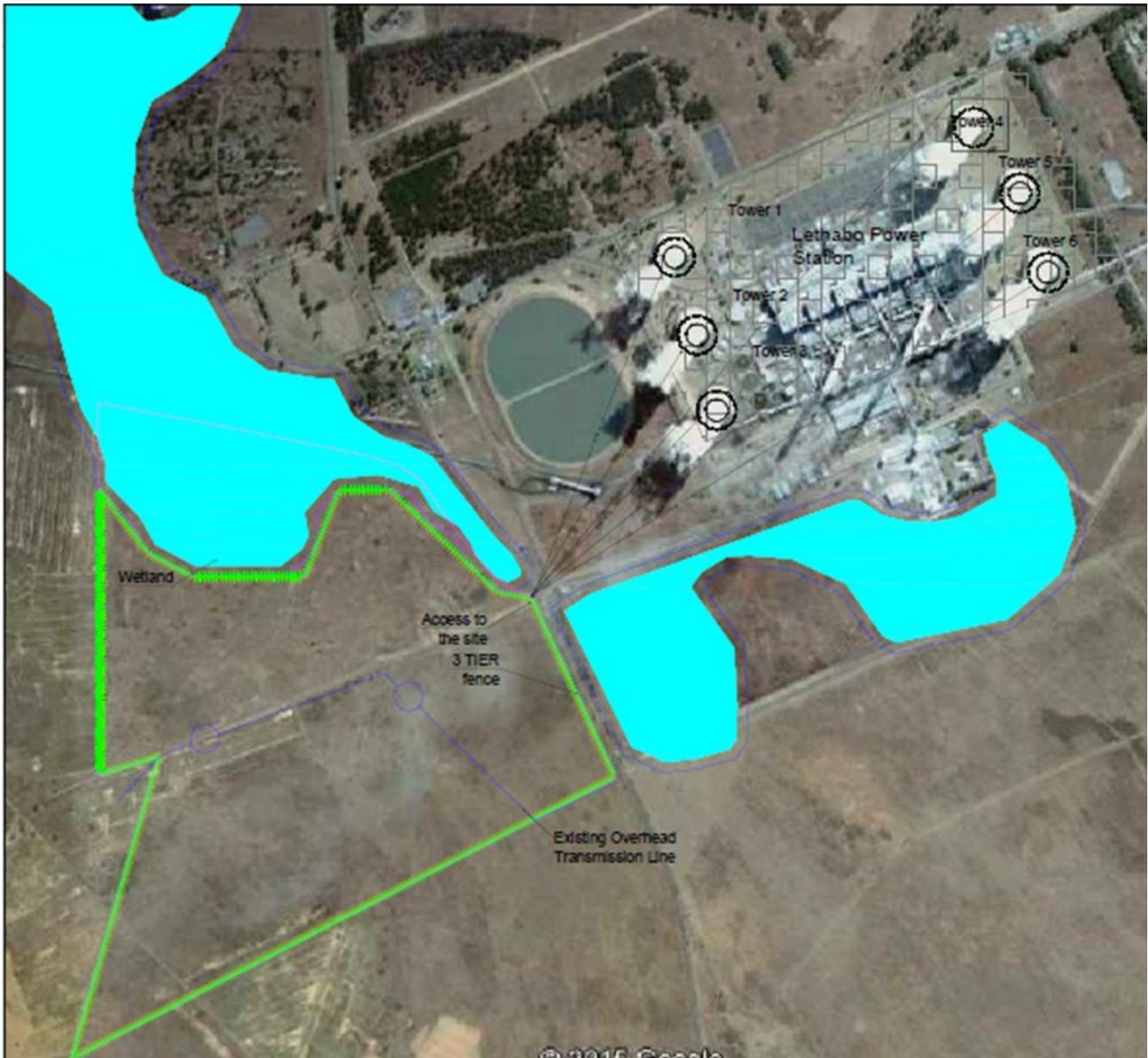


Figure 2: Lethabo solar PV site

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