

**VERGENOEGD**  
**Portion 15 of Farm 653, Stellenbosch**

**Electrical Installation:**  
**Electrical Engineering Report**

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**Prepared for**

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**TABLE OF CONTENTS**

	<b>Page No</b>
1. Brief	3
2. Development and Infrastructure Description	3
3. Energy Demand Calculation	4
4. Supply Authority Confirmation	5
5. Infrastructure Requirements	5
6. Development Contributions	5
7. Conclusion	6

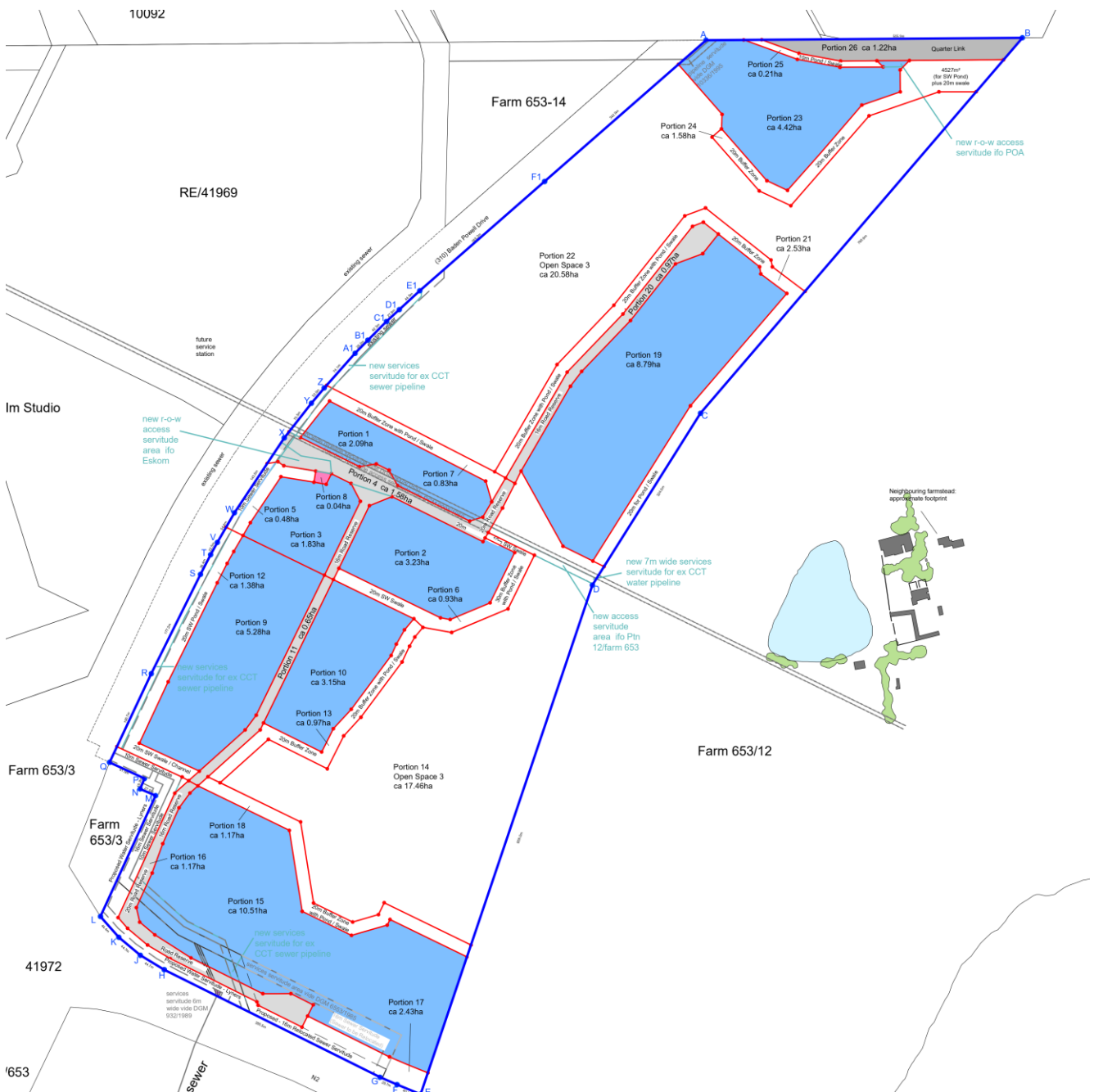


**1. Brief**

The brief for this report is to determine the maximum energy demand required for the new Vergenoegd development and how this demand can be accommodated by the existing Supply Authority infrastructure in the vicinity.

**2. Development and Infrastructure Description**

The proposed Vergenoegd development is a light industrial precinct situated on the corner of the N2 and Baden Powell Drive in Stellenbosch, Cape Town. The current proposal is presented below.





The existing electrical infrastructure in the vicinity is owned, managed and maintained by Eskom. Converge Consulting has engaged with Eskom and presented a preliminary design and load calculations, which have been approved in principle.

### 3. Energy Demand Calculation

The maximum demand calculations have been undertaken utilising a bulk factor of 60% for most of the sites and applying a loading of 50VA/m<sup>2</sup>. The larger sites have been allocated a larger bulk supply for potential large power users. Please refer to the load calculation below:

Portions 1, 2, 3, 9, 10, 15, 19, 23	GB2	39,31 ha @60% bulk, 50VA/sqm	11,79 MVA
<b>TOTAL ESTIMATED SUPPLY REQUIRED</b>			<b>11,79 MVA</b>

**The current anticipated maximum demand is thus 12MVA, however we have applied for a full allocation 14MVA .**

### 4. Supply Authority Confirmation

As the Client's Electrical Consulting Engineers on the development, we have engaged with Eskom to determine the impact of the required supply on the current infrastructure. The load calculations and diversified maximum demand for the current scheme have been reviewed by Eskom and approval granted for the application for 14MVA supply.

The supply to the site will be made available in 2 phases as Eskom continues to strengthen the network in the vicinity. Currently there is 2MVA available from nearby 11kV overhead lines, which shall be made available under Phase 1. The full supply to the new development of 14MVA will be made available via new cable feeds from the existing Eskom Khayelitsha Substation once a new secondary Eskom 11kV brick-built substation is constructed, commissioned and handed-over on the Vergenoegd site.

### 5. Infrastructure Requirements

The Developer shall be responsible for the installation of the new 11kV infrastructure to the development, which shall be handed over to Eskom upon completion. The entire electrical infrastructure shall be constructed under a Self-Build Agreement with Eskom.

The Developer shall also be responsible for the issuing of the required bank guarantee on completion of the project and prior to Eskom's acceptance of the works. The estimated value of this guarantee, which must be valid for 15 months, is R3 200 000.00.

In order to commence construction of the project and increase capacity until the new 11kV brick-built substation is complete, the supply will be provided to site in the following phases:



## **5.1 Phase 1**

Phase 1 will allow for 2MVA to be provided to the site. This will be supplied via an 11kV ring main unit (RMU) installed on the site, fed from the existing 11kV overhead lines via line taps and new underground cable feeds. Supply to the new buildings on site shall be provided via a new 11kV cable ring circuit. The application, planning and approvals process and subsequent implementation to obtain this supply should take 9-12 months from date of payment of the application quotation.

## **5.2 Phase 2**

Phase 2 will provide the full 14MVA capacity to the development. This will be made available once the new cable feeds from Khayelitsha Substation have been installed to the Developer's new secondary 11kV substation, and the full installation commissioned, which includes incorporating the 11kV cable ring installed under Phase 1, plus three additional 11kV cable rings installed to provide the full 14MVA capacity. The timing of the full supply is based on Eskom's approval of the new substation and infrastructure design, and the implementation of the construction program on site. We estimate this process should be complete in 18-24 months.

## **6. Development Contributions**

As the Developer is responsible for the cost of the necessary infrastructure, there is no development contribution applicable for the 11kV infrastructure installation. Each new land owner/tenant shall be responsible for their own development contributions upon application for the supply to the individual sites, however, as the 11kV infrastructure has been installed by the Developer, each site's development contribution portion shall be without the usual costs associated with Eskom's 11kV infrastructure, and as shall be lower than normal.

The Developer shall be responsible for the payment of Cost Estimate quotation letters that shall be issued by Eskom to for their project approval and commissioning costs.

## **7. Conclusion**

The current load calculations for the proposed Vergenoegd development project a diversified maximum demand of 12-14MVA depending on the final zoning and site usage. The supply authority, Eskom, has confirmed that the current electrical infrastructure can currently provide 5MVA to the site with the full 13MVA planned in 24-30 months' time. The Developer shall be responsible for the installation of the 11kV infrastructure for handover to Eskom, and as such, no development contribution is applicable to the Developer.