PROJECT	:	**PROPOSED GREENGATE EXTENSIONS 140 & 142 ON PORTION 268 RIETFONTEIN 189 IQ.**
INSTALLATION	:	**ELECTRICAL SERVICES**
SCHEDULE	:	**EXTERNAL SERVICES REPORT**
DATE	:	**28th JANUARY 2025**
REF	:	

1. GENERAL

1.1 Proposed new Townships located on Portion 268 Rietfontein 189 IQ for the proposed Greengate Extensions 140 & 142. The proposed development will comprise of the following zoning categories:

1.2

a) Extension 140-Erven 1 to 4: Residential 3 – 60 dwelling units per hectare.

b) Extension 140- Erf 5: Funeral Undertaker

c) Extension 142-Erf 1: Residential 3 – 60 dwelling units per hectare

d) Erven-3 & 7: Sensitive Private open spaces.

e) Erf-8: Special for access and access control.

1.3 The request for the investigative report was forwarded by Synchronicity Development Planning on the 30th of October 2024.

1.4 The purpose of the report is to highlight the pertinent information and provide technical details for the purpose of providing the required electrical services for the proposed development. This information is intended to be used to review and approve the technical, operational, and financial aspects in connection with the external electrical services.

2. SITE LOCALITY

2.1 The proposed developments are indicated on the site layout plans in section 8 Annexure 1 on 5.5655 hectares which forms part of Portion 268 of the farm Rietfontein 189 IQ

2.2 The Supply Authority for this area is Eskom.

3. DESIGN PARRAMETERS

3.1 The relevant standards and equipment specifications have been verified with the Supply Authority which including the guidelines below, will be complied with.

a) All electrical services shall be designed in accordance with the standards and specifications of the Supply Authorities by a Professional Electrical Engineer.
b) The electrical infrastructure shall be designed to comply fully with the standards and requirements of the Supply Authority where applicable and in accordance with NRS 034:1:1999, Electricity Distribution – Guidelines for the provision of electrical distribution in residential areas, SANS 10142-1, The Wiring of Premises – Low Voltage Installations and SANS 10142-2 The Wiring of Premises – Medium Voltage Installations above 1kV but not exceeding 22kV.
c) The maximum demand will be calculated in accordance with SANS 204 Energy Efficiency in Buildings, SANS 10142-1 The wiring of Premises – Low Voltage Installations and SANS 10400 Part X & XA Application of the National Building Act – Energy Usage.
d) If required, the Developer shall provide street lighting designed to comply with the standards and requirements of the Supply Authority and in accordance with SANS 1098: Part 1-2: Public Lighting.

4. SUPPLY AUTHORITIES' REQUIREMENTS

The general requirements and acceptance procedures of the Supply Authority are detailed below as follows:

4.1 Approval

a) Detail designs shall be submitted for review and approval by the Supply Authority prior to the commencement of construction.
b) The Developer shall submit a "formal application" for the MV/LV electrical connection to Eskom's Department of Infrastructure- Electricity.
c) The developer shall accept the conditions as set out in the "Formal Application" and that all connection costs and any other costs with respect to any special arrangements, are paid in full.
d) The Supply Authority reserves the right to only confirm the availability of the bulk supply capacity at final application thereof.
e) All bulk services contribution charges are paid in full.
f) A Services Agreement is drafted, reviewed, and signed between the Developer and Supply Authority.

4.2 Handing Over

a) The electrical infrastructure shall be tested and approved in accordance with the conditions as laid down by the Supply Authority.
b) The Supply Authority shall authorize the energizing of the electrical network once the final tests have been carried out, approved, and accepted.
c) A provisional asset register will be submitted to the Supply Authority once the design documentation has been approved. The asset register shall be updated once the services have been installed and the network accepted by the Supply Authority.
d) Ownership of the electrical services shall be transferred from the Developer to the Supply Authority upon the successful testing and commissioning of the services. The Supply Authority will thereafter be responsible for the maintenance of the electrical services.

4.3 Revenue Collection

a) Ownership as well as responsibility for revenue collection for the Supply Authority ends at the "Point of Connection", defined as where the Supply Authorities meters are installed. After the meters, ownership including revenue collection rests with the Developer.
b) The Supply Authority shall determine the type of "Point of Connection" and the position thereof will be confirmed at the detailed design stage. Either an individual Low Voltage connection or a Low Voltage Bulk Connection will be provided. Where a Bulk Meter Kiosk is to be provided or a Medium Voltage Bulk Connection, a Ring Main Unit including a Metering section shall be provided.

4.4 Demand Estimation

a) The notified "Maximum Demand" for the proposed developments have been calculated in accordance with the requirements as set out in SANS 204 and SANS 10142-1
.
b) Based on the guidelines as set out, the following calculated allowances would apply.

- **Extension 140**

- Erven 1 to 4 – Residential 3 (2.8205Ha)

  From the guidelines set out in SANS for "Residential 3" or similar zoning at 80VA/m2, the estimated load requirement ADMD for Erf 1 to 4 amounts to 300 kVA or 450 A 3 phase + N.

- Erf 5 – Funeral Undertaker (0.1572Ha)

  From the guidelines set out in SANS for "Residential 3" or similar zoning at 80VA/m2, the estimated load requirement ADMD for Erf 5 amounts to 56 kVA or 80 A 3 phase + N.

- Erf 6 – Guard House (0.0421Ha)

  From the guidelines set out in SANS for "Special Access/Control" or similar zoning at 80VA/M2 the estimated load requirement for Erf 6 amounts to 56 kVA or 80 A 3phase + N.

- Erf 7 – Private Open Space (1.3951Ha)

  No Provision

- Erf 8 – Special for Access/Control/Roads(0.5786Ha)

  From the guidelines set out in SANS for "Special Access/Control/Roads" or similar zoning at 80VA/M2 the estimated load requirement for Erf 8 amounts to 40 kVA or 60 A 3phase + N.

  Total Estimated ADMD for Extension 140: 375 kVA

  Extension 142

  Erf 1 – "Residential 3"(1.0051Ha)

From the guidelines set out in SANS for "Residential 3"or similar zoning at 80VA/m2 the estimated load requirement ADMD for Erf 1 amounts to 120 kVA or 180 A 3phase + N.

- Erven 2&3 – Private Open Space (2.4201Ha)

  No Provision

- Erf 4 – Special for Access/Control/Roads(0.5786Ha)

  From the guidelines set out in SANS for "Special Access/Control" or similar zoning at 80VA/M2 the estimated load requirement for Erf 8 amounts to 40 kVA or 60 .A 3phase + N.

Total Estimated ADMD for Extension 142: 128 kVA

4.5 Energy Efficiency Demand Estimation

a) When energy efficiency measures are considered, the following " Regulatory Standards" are to be adopted:

- SANS 204 Energy Efficiency in buildings
- SANS 10400 Part X & XA application of the National Building – Energy usage.

b) From an energy usage point of design, the following should be considered:

- Energy efficient electrical stoves or gas stoves.
- Gas and/or solar geysers or heat pumps.
- Energy efficient lighting, i.e., LED.
- Solar PV/UV systems.

5. EXISTING INFRASTRUCTURE

5.1 General

a) The existing network capacity and proposed future supply services have been discussed and verified with the Supply Authority and these factors taken into consideration. The available network electrical capacity for developments in the area is limited but sufficient for this project
.

b) There is an existing 11 000-volt Eskom overhead power line which is located in Larsens Road within close proximity to the northern boundary of Extension 140. Power will be catered for from line to both extensions 140 & 142.

6. NEW MV/LV SUPPLY PROPOSAL

6.1 General

a) The following new work would need to be carried out to provide sufficient electricity supply to the proposed new development.

- Application to Eskom to establish a new MV/LV service connection in the total magnitude of 500kVA to the boundary of ERF 6, (Gatehouse) which will cater for 375 kVA for Extension 140 and 128 kVA for Extension 142. Final position of the supply point to be confirmed with the detailed design.
- The supply to Extension 142 will be by means of an L.V. underground cable in a servitude along the new road. (Erf 8) to the boundary of Extension 142.

7. COST ESTIMATE

7.1 General

a) The following is a cost estimate in connection with the establishment of the electrical services as detailed below.

- Cost for the new 500kVA electricity connection Fee : R 2 000 000.00
- Cost for 500 kVA minisub station : R 750 000.00
- Cost of the L.V. feeder cable to Extension 142: R 800 000.00

8. SITE LOCALITY PLAN

8.1 Annexure 1