



de villiers & moore



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CONSULTING ENGINEERS ELECTRICAL, MECHANICAL, ENERGY

Reg No. 99/006693/07

Our Ref: R4666M/L004
Date: 2020-02-24

Your Ref:

Branch Offices:
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RAITHBY: ERF 298 & 252 **ELECTRICAL BULK SERVICES REPORT: REV 002**

SCOPE

De Villiers & Moore have been appointed by Annandale Road Properties (Pty) Ltd to compile a report on the availability of the electrical bulk supply to the site.

The report covers the medium voltage bulk electrical supply to Erf 298 and 252, Raithby.

The electrical bulk supply requirements are based on the revised development proposal document dated January 2020 (Alternative 2), prepared by Planning Partners and in particular the site layout as contained in the document.

It is noted that the requirements detailed below have been discussed with various roleplayers at Eskom, who are the supply authority in the area.

NOTIFIED MAXIMUM DEMAND

The estimated after diversity maximum demand of 482kVA for the development has been based on the following table:

| Type | Area (m ²) | No | ADMD | Total (kVA) |
|---------------------------|------------------------|----|------|----------------|
| Single Residential | 400-550 | 32 | 4,0 | 128 |
| Town Housing | 200 | 30 | 3,5 | 105 |
| Apartments/Flats | 5 blocks | 54 | 3,5 | 189 |
| Clubhouse | | 1 | 50,0 | 50 |
| Street Lighting/Pumps etc | | 1 | 10,0 | 10 |
| Total | | | | 482 kVA |

Based on this notified maximum demand we obtained the following confirmation from Eskom by way of an email on 6 June 2018.

EXISTING MUNICIPAL NETWORK

11kV Overhead Lines

The existing overhead lines in the area belong to Eskom.

PROPOSED ELECTRICITY DISTRIBUTION NETWORK

In order to supply the proposed development, the following bulk service upgrading will be required to be done. (Refer to attached drawing R4666M/1_Rev B)

1. 11kV Distribution Cabling

- a) The existing 11kV overhead lines in the immediate vicinity of the development will not be able to be used due to the fact that the tying in onto the overhead lines will require traversing private property as well as wetlands. The routes also have extensive trees along the way

Registered Member : Consulting Engineers South Africa (CESA)



DIRECTORS: R.G. HALL Pr Eng B.Sc., Eng, C.H. KOCH Pr Eng B.Eng., T.H. HEYNS Pr Tech Eng
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ASSOCIATE: G.F. ARENDSE Pr Tech Eng

- b) The point of supply to the development will be transformer point F48A7174 from where a new 185mm² x 3c (Al) 11kV XLPE cable will be required to be laid along the road reserve to Erf 298. In this way the Raithby development will be integrated into the existing network in the area.
 - c) The pole mounted transformer at point F48A7174 will be replaced with a new Type B 315kVA 11000/400V mini-substation complete with SF6 ring main unit.
 - d) The existing 95mm² x 3c (Cu) 11kV PILC cable will be terminated to the one isolator switch on the ring main unit.
 - e) The new 185mm² x 3c (Al) 11kV XLPE cable will be terminated to the other isolator and laid in the road reserve to erf 298, a distance of approximately 700m.
 - f) The existing overhead line currently feeding transformer point F48A7174 will be removed once the above-mentioned infrastructure is in place.
 - g) The development's internal ring feed will be a 185mm² x 3c (Al) 11kV XLPE cable to match the incomer and will supply mini-substations situated at the identified load centres within the development.
 - h) All the above-mentioned work will be for the account of the Developer.
2. Metering
- a) Metering will be done on a per erf basis.

IMPACT

1. Impact on Existing Electricity Consumers
The development will have no detrimental effect on the quality of supply to the existing consumers due to the fact that the development will be supplied by its own substations which in turn will be supplied from a completely upgraded 11kV system of adequate capacity from the new point of supply, namely transformer point F48A7174.
- 2) Impact on Distribution Authority Operating Costs
The development will have no negative effect on the electrical costs of the distribution authority, due to the fact that the complete electrical infrastructure required for the development will be supplied and installed by the Developer.
- 3) Impact on the Environment
The proposed network will improve the area due to the replacement of a length existing overhead power line with underground cable. The entire external and internal electrical distribution network will be designed carefully to blend in with the development as a whole as well as the natural environment.
Services will be located within the road reserves to prevent additional disturbances of vegetation.
The internal electrical infrastructure design will take into account energy saving technologies which may include load control, the use of energy efficient lighting for both domestic and commercial use and the use of alternative means of water heating.

Yours faithfully



R G HALL Pr Eng
DE VILLIERS & MOORE (PTY) LTD



FOR INFORMATION

GENERAL SPECIFICATIONS

1. POSITION OF ELECTRICAL EQUIPMENT ON DRAWINGS IS TO BE CONFIRMED WITH THE ARCHITECT BEFORE INSTALLATION.
2. ALL MATERIAL SHALL BE SUITABLE FOR THE CONDITIONS ON SITE AND WHERE REQUIRED SHALL BEAR THE APPROPRIATE SABS MARK OF APPROVAL.
3. THE CONTRACTOR IS TO MAKE ARRANGEMENTS WITH LOCAL SUPPLY AUTHORITY FOR THE MAIN SUPPLY.
4. CONDUITING SHALL COMPLY WITH SABS 850 AND INSTALLED IN ACCORDANCE WITH SABS 10142:2003.
5. PVC INSULATED COPPER CONDUCTORS SHALL BE USED EXCLUSIVELY AND IN ACCORDANCE WITH THE DISTRIBUTION BOARD SCHEMATIC DIAGRAMS.
6. WIRING SHALL BE EXECUTED ACCORDING TO THE LOOP-IN SYSTEM UTILISING CONDUIT.
7. ALL SWITCHES AND SOCKET OUTLETS SHALL COMPLY WITH SABS 156 AND SHALL BEAR THE SABS MARK.
8. THE DISTRIBUTION BOARD SHALL BE MOUNTED ACCORDING TO REGULATIONS WITH BAKED ENAMEL WITH DOORS. EQUIPMENT SHALL BE IN ACCORDANCE WITH THE DISTRIBUTION BOARD SCHEMATIC DIAGRAM.
9. THE CIRCUIT BREAKERS SHALL COMPLY WITH SABS 156 AND BEAR THE SABS MARK.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR BALANCING THE LOAD ACROSS THE THREE PHASES (WHERE APPLICABLE).
11. THE COMPLETE INSTALLATION SHALL BE EFFECTIVELY EARTHED IN ACCORDANCE WITH SABS 10142:2003. THE SPECIFIC REQUIREMENTS OF THE LOCAL SUPPLY AUTHORITY.
12. ON COMPLETION OF THE INSTALLATION A CERTIFICATE OF COMPLIANCE SHALL BE ISSUED TO THE RELEVANT PARTIES.
13. ALL QUERIES REGARDING THE DRAWINGS AND INSTALLATION SHALL BE ADDRESSED TO THE ELECTRICAL ENGINEER IN WRITING FAX/EMAIL.
14. THE CONTRACTOR WILL BE REQUIRED TO FAMILIARIZE HIM/HERSELF WITH THE ELECTRICAL AND ARCHITECTURAL DRAWINGS (E.G. CEILING HEIGHTS, WALL STRUCTURES, EXPANSION JOINTS, NEW OR EXISTING SERVICES, BUILDING FINISHES ETC.)

| REVISIONS/HERSIENINGS | | | |
|-----------------------|------------------------|------------|-------|
| REV | DETAIL | DATE | DATUM |
| B | LAYOUT REVISED | 2020-02-25 | |
| A | ISSUED FOR INFORMATION | 2019-05-07 | |

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 Signed: [Signature] P. Eng.
 Date: [Date] P. Eng.

Client
 ANNANDALE PROPERTIES

Project Title
 RAITHBY
 ERF 298

Scale
 1 : 1250

Date
 2019-05-07

Drawn
 R.R.

Designed
 R.H.

Drawing Title
 ELECTRICAL INSTALLATION
 BULK SUPPLY INTENT

Client Drawing Number
 R4666M/1

Drawing Number
 Tekeningnummer

Revision No.
 Hersiening Nr. AB