



de villiers & moore
CONSULTING ENGINEERS
Electrical, Mechanical, Fire

Our Ref: R5200J/L003a
Date: 2023-08-26

Your Ref:

Attention: Mr C Elion

Sir

SEDGEFIELD: ERF 1627: PROPOSED SUB-DIVISION ELECTRICAL RETICULATION BULK SERVICES: REV 001

This report has been compiled by de Villiers & Moore Consulting Engineers, having been instructed our Client with purpose of informing the team of the extent of the electrical bulk services required to be put into place to provide the electrical supply to the Development.

LOCATION

The Development is situated on erf 1627 in the administrative district of Knysna Municipality.

SUPPLY AUTHORITY

The Development is situated in the electrical supply area of Knysna Municipality.

DRAWINGS

Attached to this report is drawing R5200J/1_Rev A which details the electrical point of supply and the point of supply to the Development as well as the existing 11kV cables to the area.

PHASING OF THE DEVELOPMENT

The Development will be done in two phases

Phase 1	61 Single Residential Erven
Phase 2	Group Housing and Apartments (this phase may be done in sub-phases)



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EXISTING ELECTRICAL DISTRIBUTION NETWORK



There is an existing municipal 95mm² x 3c (Cu) 11kV PILC cable which supplies the mini-substation next to the Engen Garage. The cable is terminated on the overhead line on the other side of the N2.

There is also an existing 95mm² x 3c (Cu) 11kV PILC cable on Dr Malan Drive supplied from the main 66/11kV substation.

It is the Municipality's intention to connect the two cables together to strengthen their network in the area by creating a ring feed.

The Municipality confirmed during our meeting with them as well as by email that there is capacity on this cable to supply the required demand.

Extract from email received from the Sedgefield Municipal Electrical Planning Department:

Good afternoon Rob

I see that I maybe would need to put a logger up. But I did reset the ammeters and from the time we had the site meeting, the MD on those were about 100A on the 1 the two minisubs which you mentioned it won't be more than 15 – 20A, therefore the max together with the two new minisubs for the new development would be capacity on the transformer is more than enough. This give me a good idea that there should be sufficient capacity for this development. I should maybe just do some on a thumb suck it should be more than capable for the added demand for the new development. I am waiting for Naki to get the logger, then I will get some data w/ But I am 90% sure we get by without the upgrade of supply from the substation or on the existing network. Then it should only be the ring that we discussed on the ma to work out the costs more or less. If you could just add that the costs for Power measurement need to be added, maybe you could consult with JP regarding the cos and commissioning.

Regards

Jaco Barnard Senior Suprintendent: Electrical(Sedgefield Section)

P.O. Box 24, Kestel, 6570, Western Cape, South Africa

DEMAND REQUIREMENTS

The demand calculated for the Development is as follows and this will be taken into account when calculating the Development Charges as well as the capacity on the existing network.

E5200J_Load
Calcs

SEDFIELD

ERF 1627: SUB-DIVISION

ELECTRICAL MAIN SUPPLY LOAD

SCHEDULE

ESTIMATED

Type	m ²	Number	ADMD	TOTAL
Group Housing		61	3,00	183
Duplex Sectional Title (65)		48	2,00	96
Duplex Sectional Title (66)		32	2,00	64
Duplex Sectional Title (67)		24	2,00	48
TOTAL ADMD				391
PHASE 1				183
PHASE 2				208

PROPOSED ELECTRICAL MV DISTRIBUTION NETWORK

The medium voltage network currently in place is sufficient to supply both phases of the intended Development.

Point of Connection

Phase 1 – 61 Single Residential Erven

A ring main unit will be cut into the existing 95mm² x 3c (Cu) 11kV PILC cable as indicated on the drawing. From here a 95mm² x 3c (Cu) 11kV PILC cable will be installed to an MV Bulk Metering Unit positioned at the load centre between Phase 1 and Phase 2. From then MV Bulk Metering Unit, a mini-substation will be installed to supply the erven.

Based on the current demand calculations this mini-substation will be a 200kVA unit.

Phase 2 – Group Housing and Apartments

A ring main unit will be cut into the existing 95mm² x 3c (Cu) 11kV PILC cable as indicated on the drawing. From here a 95mm² x 3c (Cu) 11kV PILC cable will be installed to the MV Bulk Metering Unit positioned at the load centre between Phase 1 and Phase 2. From then MV Bulk Metering Unit, a mini-substation will be installed to supply the group housing sites and apartments.

Based on the current demand calculations this mini-substation will be a 315kVA unit.

It should be noted that a servitude will be required to link the two phases together.

Once Phase 2 is completed the ring required by the Knysna Municipality will be completed.

METERING AND RESPONSIBILITY

On completion of the installation and after the one year guarantee period, the responsibilities will be as follows:

The Knysna Municipality will be responsible for the maintenance of the MV cable and MV Bulk Metering Unit. The mini-substations, medium voltage network to the mini-substations, low voltage network including the low voltage cables, metering kiosks, service connections, street lighting and earthing network will be the responsibility of the Developer/HOA.

The development will receive a one electrical account and the metering of the individual erven will be the responsibility of the Developer/HOA. To this end there are private metering companies who can assist with setting up the infrastructure and accounting systems.

ENERGY SAVING MEASURES

The use of the following equipment will be made mandatory

Water and sewage pumps to be supplied with energy efficient motors and vsd motor control.

Water heating to be done using gas or heat pumps.

Lighting to make use of LED lamps only.

Use of motion sensor lighting control.

Photovoltaic Systems will be encouraged.

COST ESTIMATE AND ELECTRICAL DEVELOPMENT CHARGES

The Developer will be responsible for all costs associated with the supply and installation of the electrical infrastructure required to service the Development.

A detailed design of the proposed medium voltage, low voltage and earthing will be submitted to Knysna Municipality for approval prior to construction commencing on site.

A detailed cost estimate will be submitted as part of a different process.

The development will attract Development Charges as published in the Municipal Tariff Structure. It is noted that the amount is adjusted each year at the end of June.

Further to the requirement by the Municipality to strengthen the MV network in the area it will be important to ascertain what rebate will be offered against the Development Charges since a portion of the MV cable installation is specifically for this.

This is specifically with reference to

The fact the Developer is required to close a ring feed

The fact that the specified cable (95mm² x 3c (Cu) 11kV PILC) is larger than the cable which is required to service the demand to the development (25mm² x 3c (Cu) 11kV PILC).

Unfortunately the technical personal are not authorized to make these decisions and so this will have to be negotiated at a higher level.

In order to assist these negotiations we will prepare a cost estimate with the pro-rata costs involved.

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 substation which in turn will be supplied from the 11kV system.

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

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, the use of alternative means of water heating and inverter type HVAC equipment

CONCLUSION

We trust the information provided is of sufficient detail to allow for an informed decision to be made. Please do not hesitate to contact the undersigned should additional information be required.

Yours faithfully



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