

BEL HEIGHTS (PTY) LTD

ELECTRICAL SERVICES REPORT

FOR

**PROPOSED NEW DEVELOPMENT
ON PORTION 45 OF THE FARM
UITZIGHT No. 216**

AT

KNYSNA

REPORT NO G/19491/R

NOVEMBER 2024



CLINKSCALES MAUGHAN-BROWN
**CONSULTING MECHANICAL
& ELECTRICAL ENGINEERS**

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A	Drawing No. 19491/E/01 – Plan Layout of Proposed MV and LV Reticulation
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1.0 **INTRODUCTION**

This report has been prepared by Clinkscales Maughan-Brown at their George office, who has been appointed by the Developer, Messrs. Bel Heights (Pty) Ltd, as the Electrical Consultants for this project.

The purpose of this report is to provide the necessary information on the proposed electrical services within the Development and the connection to the existing municipal network in the area to obtain all the necessary statutory approvals and to draw up a services agreement.

2.0 **DRAWINGS**

The following drawing is annexed to this report:

Annexure A Drawing No. 19491/E/01 –
Plan Layout of Proposed MV and LV Reticulation

The drawing provides the following information:

- (i) Location and layout of the Development.
- (ii) Layout of the Supply Authority, Knysna Municipality's existing Medium Voltage (MV – 11kV) network in the vicinity of the Development.
- (iii) The proposed Point of Connection to the Supply Authority's network, together with upgrade measures required.
- (iv) The proposed Point of Supply to each erf of the Development, which is further detailed hereafter.

3.0 **LOCATION AND EXTENT OF DEVELOPMENT**

Drawing No. 19491/E/01 depicts the location of the Development, which is situated Southwest of Belvidere, between Belvidere Heights and the main road to Brenton.

The Development will consist of 14 erven in total. Of the 14 erven, 5 erven are existing and is supplied from an existing municipal Pole Mounted Transformer "PMT-TX HUISE BO", located near Erf No. 3 as indicated on the drawing. The houses on Erf No. 2, 3, 4 and 7 have been demolished since presumably the fire disaster in 2017. The balance of 9 erven is new.

4.0 **SUPPLY AUTHORITY**

The Supply Authority is Knysna Municipality in which boundaries the Development falls.

5.0 **BASIS OF REPORT**

The report is based on the following:

- (i) General information obtained from the Developer, Mr. Gavin White.
- (ii) Site Plan obtained from Messrs. Marike Vreken Urban & Environmental Planners.
- (iii) CMB's records of the existing electrical network in the vicinity of the Development.
- (iv) Site survey completed by CMB on 17 October 2024.

- (v) Meeting with Mr. Ndiphiwe Naki of Knysna Municipality on 17 October 2024 to discuss the electrical requirements.
- (vi) Telephone conversation between the writer and Mr. Ndiphiwe Naki on 12 November 2024 regarding the proposed MV connection point, i.e. the existing Ring Main Unit "RMU-BELVIDERE HEIGHTS".

6.0 **DEMAND**

Based on the information currently available, the peak kVA demand of the Development has been estimated at:

Item	Description	kVA
(i)	14 Residential Erven @ 13,8kVA (60A, 1-phase) each x 0,58 cf	112
(ii)	Pump Stations	5
	Total	117
	, where cf = co-incidence factor	

7.0 **ENERGY SAVING MEASURES**

The peak kVA demand is a provisional calculation and will be finalised after all the network load particulars have been concluded. Energy saving measures and alternative energy resources as mentioned hereunder will be investigated and implemented where economically viable to reduce the demand on the national grid:

- Small Scale Embedded Generator (SSEG) installations by means of Solar Photo Voltaic (PV) rooftop installations and/or diesel generators.
- Natural ventilation is to be considered in designs of buildings.
- Energy efficient lighting design and making use of LED lamps.
- The installation of energy efficient equipment.

8.0 **AVAILABILITY OF CAPACITY**

As mentioned before, there is an existing Pole Mounted Transformer "PMT-TX HUISE BO", located close to Erf No. 3. It is in a very bad condition (partially damaged by the fire disaster in 2017) and even so does not have the spare capacity to supply the entire development.

The pole mounted transformer is supplied with an MV underground cable from the existing Ring Main Unit (RMU) "RMU-BELVIDERE HEIGHTS" which is an old oil insulated type RMU.

The Municipality has indicated that there is adequate spare capacity available on their MV network to supply this development.

9.0 **BULK AND LINK SERVICES**

Refer to Drawing No. 19491/E/01 for reference.

The existing municipal pole mounted transformer, its Low Voltage (LV) distribution kiosk located at ground level below same and the MV underground cable shall be disconnected and removed. The existing ring main unit "RMU-BELVIDERE HEIGHTS" is of the oil insulated type.

A new MV underground cable shall be installed from the said RMU up to and including a new 315kVA 11/0,4kV miniature substation. This substation will be the new Point of Connection for all erven. From the substation, main LV underground cables shall be laid up to and including seven LV distribution kiosks, located in approximate positions as indicated.

The LV distribution kiosks shall each be fitted with the required number of tariff circuit breakers, one per erf, and each erf will have a municipal prepayment kWh energy meter.

10.0 **INTERNAL SERVICES**

All cables and electrical equipment will be installed in servitudes, road reserves or open spaces and will be accessible to the Municipality at all times.

It is proposed that the Municipality take over the entire electrical network on completion thereof. The Municipality will become the owner and be responsible for operating and maintaining same. For this reason, the installation would have to comply with their technical requirements and supply conditions.

It is proposed that the Point of Supply for each stand / erf be at Low Voltage (LV) at a split prepayment kWh energy meter, one per erf. The Metering Control Unit (MCU) of the meter will be situated inside the LV distribution kiosk whilst the Customer Interface Unit (CIU) will be situated inside the house adjacent to the electrical distribution board.

Each consumer (erf owner) will have to enter into a separate supply agreement with the Municipality. In terms of capital contribution costs, the Municipality has indicated that they will provide credit for 5 erven.

No conventional streetlights will be installed.

11.0 **TECHNICAL PARTICULARS**

All drawings and specifications of the network must comply with Knysna Municipality's technical requirements and must be submitted to them for official approval before any construction can commence.

The MV underground cable shall be underground, paper insulated, lead covered with three stranded copper conductors, Table 18. The LV network will be underground cables and ground mounted LV distribution kiosks. The LV underground cable shall be PVC insulated, PVC bedded, galvanised steel wire armoured 600/1000V with four copper conductors. The LV distribution kiosks shall be of the polyethylene type, colour grey, with doors both front and back. Kiosks will be fitted with a mains circuit breaker per erf.

Underground service cables will be taken from the kiosks up to one (1) meter inside each individual erf boundary, except for those erven situated immediately adjacent to a kiosk. At this point a 1-meter coil of cable will be buried below ground level and marked for future extension and connection by the Builder's Electrician. The building's internal electrical installation and earthing will be the responsibility of the Builder's Electrician. The earthing system will be the TN-C-S system in terms of SANS 10292:2013 Edition 2.

The internal network will be designed so that any internal faults do not cause nuisance tripping of the upstream municipal network. No switching of supplies or work in proximity to existing cables shall be carried out without prior arrangement with the Municipality's Electrical Department.

The Electrical Contractor will also be required to liaise with the Municipality's Civil Department and Telkom to ensure that no damage is caused to existing underground pipe services during construction.

12.0 ENVIRONMENTAL REQUIREMENTS

All work on site will comply in all respects with the environmental management requirements.

13.0 PROGRAMME

A programme for the completion of this project is to be made available to the Municipality once this has been finalised.

14.0 CAPITAL CONTRIBUTION COSTS

It is acknowledged that the total construction cost of the Bulk Link- and Internal Services will be for the account of the Developer, which will be done by an Electrical Contractor approved by the Municipality and appointed by the Developer. This work will be done under the supervision of the Developer's Consulting Electrical Engineers, who will have a registered professional engineer or technologist in charge of the project.

The calculation of the Capital Contribution Fee for the provision of bulk electrical services is based on the relevant clauses as per the Municipal Tariffs, Charges and Fees for 2024/25 document. It is noted that this document is available on the Municipality's website and is revised annually on 1 July. Refer to Item No. 6, Electricity Trading Service, page 22 of the latter document.

Capital Contribution Fee:

Item 6.17.1. Electricity Capital Contribution per Equivalent Residential Unit (ERU) =
R 30 846.86, incl. VAT (2024/25)

With the credit for the existing 5 erven, the total capital contribution fee would therefore be 9 erven at R 30 846.86/ERU = R 277 621.74, incl. VAT.

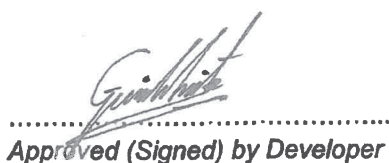
15.0 CONCLUSION

It is trusted that this report provides the required information and can assist with the approval of the building plans and can serve as a basis for the Services Agreement.

Yours faithfully



Stiaan Adams Pr Tech Eng
CLINKSCALES MAUGHAN-BROWN



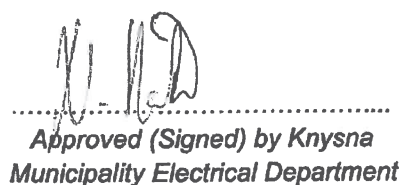
Approved (Signed) by Developer

Gavin White

Name

26/11/2024

Date



Approved (Signed) by Knysna
Municipality Electrical Department

NDIPHIWE NAKI

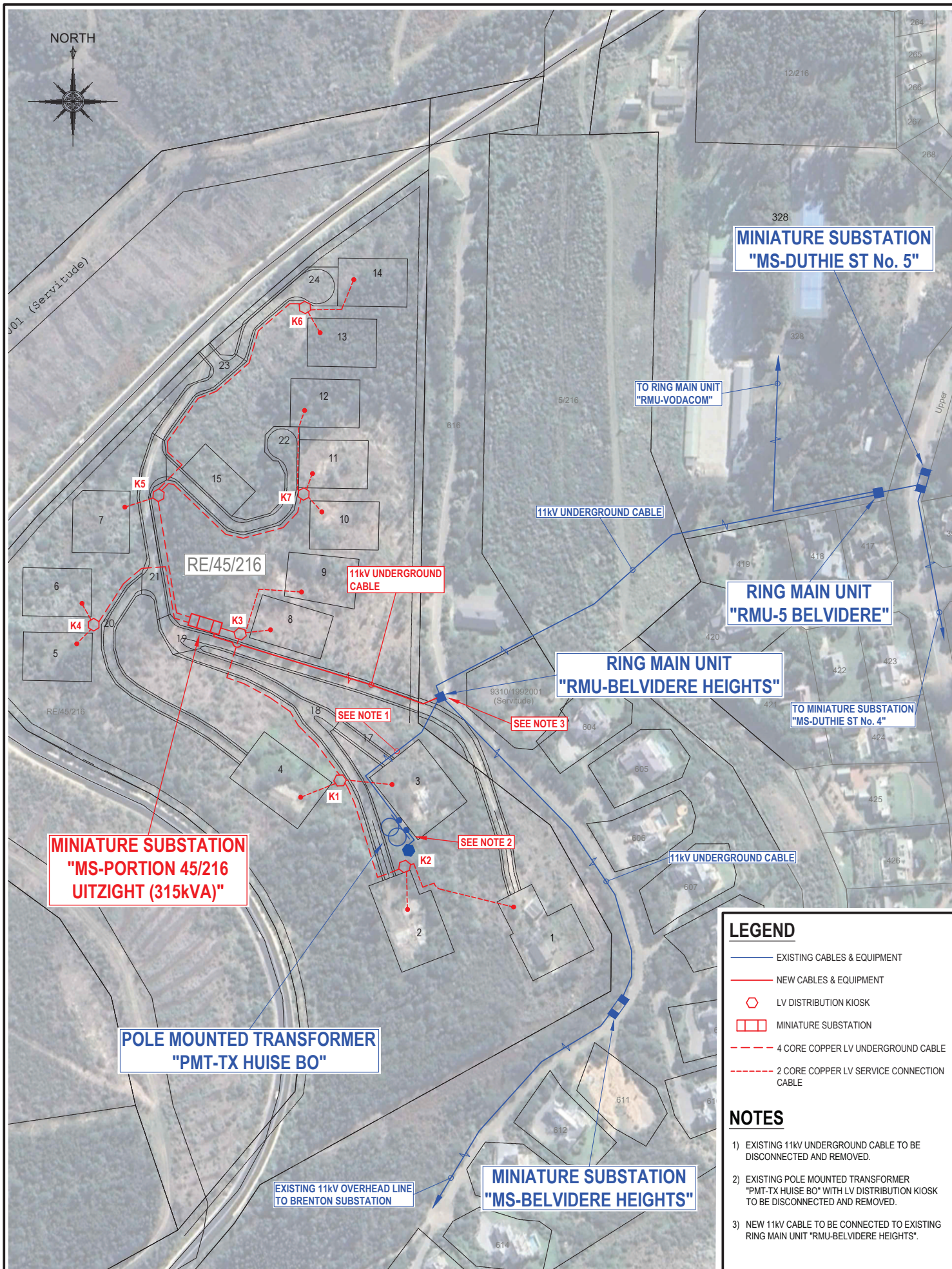
Name

26/11/2024

Date

ANNEXURE A

Drawing No. 19491/E/01 –
Plan Layout of Proposed MV and LV Reticulation



LEGEND

- EXISTING CABLES & EQUIPMENT
- NEW CABLES & EQUIPMENT
- LV DISTRIBUTION KIOSK
- MINIATURE SUBSTATION
- 4 CORE COPPER LV UNDERGROUND CABLE
- 2 CORE COPPER LV SERVICE CONNECTION CABLE

NOTES

- EXISTING 11kV UNDERGROUND CABLE TO BE DISCONNECTED AND REMOVED.
- EXISTING POLE MOUNTED TRANSFORMER "PMT-TX HUISE BO" WITH LV DISTRIBUTION KIOSK TO BE DISCONNECTED AND REMOVED.
- NEW 11kV CABLE TO BE CONNECTED TO EXISTING RING MAIN UNIT "RMU-BELVIDERE HEIGHTS".

No.	DATE	DRAWN	DESCRIPTION
A	13/11/2024	KJM	POSITIONS OF "MS-PORTION 45/216 UITZICHT (315kVA)" AND KIOSKS "K1" & "K3" REVISED. NOTES REVISED.
REVISIONS			



CLINKSCALES MAUGHAN-BROWN

CONSULTING MECHANICAL & ELECTRICAL ENGINEERS

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CLIENT
BEL HEIGHTS (PTY) LTD

PROJECT
PROPOSED NEW DEVELOPMENT
ON PORTION 45 OF THE FARM
UITZICHT No. 216, KNYSNA

DRAWING TITLE
PLAN LAYOUT OF PROPOSED
MV & LV RETICULATION

DRAWN	DESIGNED	CHECKED	APPROVED
KJM	GSA	GSA	
SCALE	DATE	CAD REF No.	DWG-SIZE
1:2000	31/10/2024	19491-E-01	A3
DRAWING NO.	REVISION		
19491/E/01	A		