NEWCARE INNOVATIONS (Pty) Ltd

ELECTRICAL SERVICES REPORT

FOR

PROPOSED RESIDENTIAL DEVELOPMENT ON REMAINDER OF ERF 2833, GREAT BRAK RIVER

REPORT NO: G/19059/R1

Dated: 28 June 2023

Prepared by:
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cmb
CLINKSCALES MAUGHAN-BROWN
CONSULTING MECHANICAL
& ELECTRICAL ENGINEERS

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1.0 INTRODUCTION

This report has been prepared by Clinkscales Maughan-Brown at their George office, who have been appointed by the Developer, Newcare Innovations (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 in order to obtain all the necessary statutory approvals and to draw-up a services agreement.

2.0 LOCATION

The property to be developed is the remainder of Erf 2833 situated to the North of Sandkraal Road in Great Brak River, as indicated on Drawing No. 19059/E/01 which is attached as Annexure A. The erf is presently zoned as "Agricultural Zone 1". The proposed development consists of 12 single residential and 32 general residential erven which will be within a gated area.

3.0 SUPPLY AUTHORITY

The Supply Authority for the area is Mossel Bay Municipality, and therefore their Electricity Department were consulted on all matters relating to the electrical services.

4.0 BASIS OF REPORT

The report is based on the following:

(i) Site development Drawing No. P.2 Revision 2 dated 25.05.2023 prepared by Messrs Jan Vrolijk Townplanner.
(ii) Information obtained from Mossel Bay Municipality's Electrical Department during discussions on 21 and 22 June 2023.
(iii) E-mail from Mr. Petrus Harmse from Mossel Bay Municipality's Electrical Department on 28 June 2023.
(iv) General information received from the Client and other members of the professional team.

5.0 DEMAND

Based on the information presently available, the peak kVA demand of the Development has been calculated as follows:

44 residential erven @ 10.35kVA (45A 1Ø) each x 0.37 diversity = 168.5kVA
This would necessitate the installation of a 250A three phase tariff circuit breaker (standard size) which is equal to 173.2kVA.

The following objectives will be set to reduce the impact on the municipal network and national grid:

- Comply with SANS 10400.
- Energy efficient light fittings, air conditioning, mechanical ventilation, refrigeration and water heating installations, electric motors, etc.
- Use of LPG gas instead of electrical appliances for cooking where economically feasible.
- Use of energy efficient appliances.
- Building and plant load management systems to reduce power consumption.
- Installation of Photo Voltaic (PV) and other Small Scale Embedded Generators (SSEG), where it can be economically justified.

6.0 AVAILABILITY OF CAPACITY

Based on the present zoning of the erf, i.e. Agricultural Zone 1, 3 x 13.8kVA (60A) = 41.4kVA capacity should be available to the erf.

The new capacity is estimated at 173.2kVA. Thus, the additional capacity required is estimated at 131.8kVA. It is assumed that this capacity is available at the identified point of connection.

As part of the environmental approval process, a letter of confirmation on the availability of capacity is normally required from the Supply Authority.

7.0 BULK AND LINK SERVICES

The identified point of connection for this development is at the existing 120mm² Cu x 3 core 11kV cable running inside the Sandhoogte Road reserve on the southern side of the development, in the position as indicated on the drawing.

The Developer will not be required to install any bulk or link infrastructure upstream from the Point of Connection.

8.0 INTERNAL SERVICES

It is proposed that a new 400kVA (minimum standard size used by the Municipality) miniature substation be installed inside the Sandhoogte Road reserve in the approximate position as indicated.

It is proposed that a low voltage cable be installed from the new miniature substation to a LV bulk metering / distribution kiosk located on the erf boundary in the approximate position as indicated. This cable will have to cross Sandhoogte Road in a sleeve to be installed using the directional drilling method.

The Municipality's responsibility will end at the Point of Supply, i.e. load terminals of the new LV bulk meter to be installed. The Developer will have to enter into a supply agreement with the Municipality. The Developer will be responsible for operating and maintaining the internal network downstream from the meter.

The Developer will be responsible for metering of each individual residential unit's consumption, sending out accounts, debt collection, etc. The services of a metering agent could be employed to assist in this regard and using prepayment metering.

Any streetlights along private roads will not be taken-over, must be separately metered, and will have to be maintained by the Developer.

9.0 TECHNICAL PARTICULARS

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

The distribution substation will be the fully enclosed miniature type housing a 11kV ring main unit similar or equal to the SF6 insulated Schneider Ringmaster or Lucy Aegis type, 11kV/420V transformer and low voltage (LV) distribution equipment and area lighting control equipment.

The LV bulk kWh/kVA consumption meter will be the SL7000 type and must have the ability to be remotely read from the electrical department's offices.

The Low Voltage (LV) network will be underground cables and ground mounted distribution kiosks. The LV cable type will be PVC insulated, PVC bedded, galvanised steel wire armoured 600/1000V with four copper or aluminium conductors. The LV distribution kiosks will be glass fibre or polyethylene type with doors both front and back, and will be installed to act as the distribution / metering point for the service connections.

Underground service cables will be installed from the kiosks up to 1 meter inside each individual erf boundary, for erven which are not immediately adjacent to the kiosk. At this point the cable end will be sealed and marked for future extension and connection by the Builder's Electrician.

The buildings' internal electrical installations and earthing will be the responsibility of the Builder's Electrician and must comply with the latest edition of SANS 10142-1: 2020. The earthing system will be the TN-C-S system in terms of SANS 10292:2013 Edition 2.

Private road lights will be the post top and / or bollard type to suit the architectural theme.

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 close proximity of existing cables will be carried out without prior arrangement with the Municipality's electrical department. The Electrical Contractor will also be required to obtain wayleaves and liaise with the Municipality's civil department and telecommunication service provider to ensure that no damage is caused to existing underground piped services during construction.

10.0 ENVIRONMENTAL REQUIREMENTS

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

11.0 PROGRAMME

It is expected that construction of services will commence soon after all the necessary approvals have been received and the feasibility has been accepted.

It is expected that the electrical demand will grow slowly thereafter over a period of between 1 to 5 years, due to the residential nature of the development.

12.0 CAPITAL COSTS

The Developer will be responsible for the following:

(i) Supply, installation and commissioning of the complete internal installation as described above.

(ii) Standard municipal development contribution towards upstream bulk infrastructure. This amount is provisionally estimated at 131.8kVA x R5 800.00, incl. VAT per kVA = R764 440.00, incl. VAT.

All work will be done under the direction of the Developer's Electrical Consultant, i.e. Messrs Clinkscales Maughan-Brown, and by an Electrical Contractor to be approved by the Developer and the Municipality.

The municipal contributions payable must be agreed and finalised when the services agreement is compiled.

It is noted that the municipal contributions are normally payable before the network is taken-over by the Municipality, and are adjusted annually.

13.0 CONCLUSION

We trust that this information is sufficient to obtain the necessary statutory approvals for the development and to draw up the services agreement.

Please contact the writer should more information be required.

In order to speed-up the process, we will also forward a copy of this report directly to the Municipality's electrical department, for their approval and any further comments they may have.

R.L. Steenekamp Pr Eng Pr CPM
CLINKSCALES MAUGHAN-BROWN

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ANNEXURE A

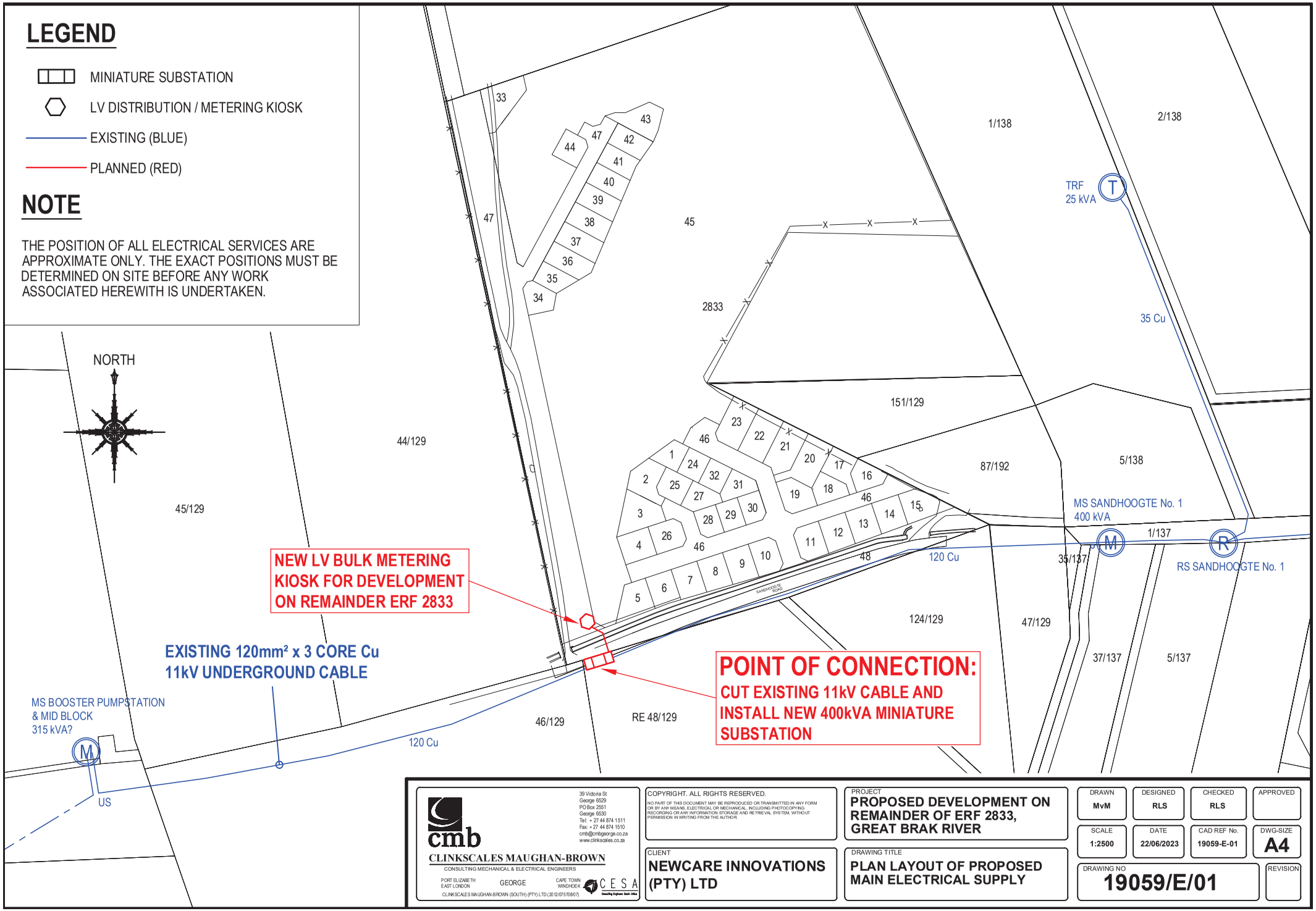
Drawing No. 19059/E/01

LEGEND

- MINIATURE SUBSTATION
- LV DISTRIBUTION / METERING KIOSK
- EXISTING (BLUE)
- PLANNED (RED)

NOTE

THE POSITION OF ALL ELECTRICAL SERVICES ARE APPROXIMATE ONLY. THE EXACT POSITIONS MUST BE DETERMINED ON SITE BEFORE ANY WORK ASSOCIATED HEREWITH IS UNDERTAKEN.



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PROJECT	PROPOSED DEVELOPMENT ON REMAINDER OF ERF 2833, GREAT BRAK RIVER
CLIENT	NEWCARE INNOVATIONS (PTY) LTD
DRAWING TITLE	PLAN LAYOUT OF PROPOSED MAIN ELECTRICAL SUPPLY

DRAWN	DESIGNED	CHECKED	APPROVED
MvM	RLS	RLS	

SCALE	DATE	CAD REF No.	DWG-SIZE
1:2500	22/06/2023	19059-E-01	A4

DRAWING NO	REVISION
19059/E/01	