



PROPOSED DEVELOPMENT

OF

ERF 20 & ERF 21 (PORTION 234)

OF THE

FARM ZEEKOEWATER 311JS

ELECTRICAL ENGINEERING SERVICES REPORT

M.A.DIEDERICKS (Pr. Eng)

28 SEPTEMBER 2020

EXECUTIVE SUMMARY

This Electrical Engineering Services Report has been compiled on behalf of Messrs Meronox (Pty) Ltd for submission to the Department of Electrical Engineering of the Emalahleni Local Municipality.

The document provides details of the proposed development in terms of the intended land use and the expected electrical Maximum Demand requirement of the development. Both properties, on which the development will take place, are zoned for "Business 2" purposes. (Refer to [Annexure A](#) for copies of the applicable Zoning Certificates).

The report aims to inform the municipality of the expected future maximum demand requirement of the proposed development and to request the following from the municipality:

- Confirmation of the availability, sufficiency and accessibility of a bulk municipal electrical supply to the development.
- Conditions to which the developer have to comply, to have the power made available to the development.
- Any costs and/or charges that needs to be paid by the developer.



M.A. Diedericks (Pr.Eng)
Managing Director

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ANNEXURES:

Annexure A	Copies of Zoning Certificates
Annexure B	Proposed Layout drawing

1. INTRODUCTION

Messrs. RDV Consulting Engineers are the appointed professional electrical engineers for the proposed development.

2. LOCATION OF THE SITE

The location of the development area is depicted on the aerial map below. The GPS coordinates of the site is: S – 25° 52' 59.10" E – 29° 15' 26.25



3. GUIDELINE DOCUMENTS AND STANDARD

From an Electrical Engineering Perspective, the following acts, municipal by-laws, codes of practice and regulations will be used as guidelines, standards and technical requirement in the design of the electrical engineering infrastructure and services for the development:

- 3.2.1 The code of practice for the wiring of premises, SABS 0142 where applicable.
- 3.2.2 The Occupational Health and Safety Act, act 85 of 1993, as amended.
- 3.2.3 The Municipal by-laws and special requirement of the supply authorities of the area or district concerned.
- 3.2.4 The regulations of the local Fire Department.
- 3.2.5 The regulations of the Post Office and Telkom.
- 3.2.6 The National Building Regulations and Building Standards Act, Act 103 of 1977 and SABS 0400 of 1990.

4. BULK SUPPLY TO THE STAND

During a meeting between RDV Consulting Electrical Engineers and the Emalahleni Local Municipality on 11 September 2020, Mr. Sibusiso Mvubelo, Representing the municipality, confirmed that the following bulk services need to be installed for the filling station:

1. A 315kVA\11kV, 420V\242V miniature substation, to be installed by the owner of the property. The miniature substation shall be installed on the stand boundary and shall be connected by means of a T3 Ring Main Unit into an existing 70mm², 11kV, XLPE municipal cable that feeds the “Nissan Substation” (Behind Nissan) as indicated on the drawing. (Refer to **Annexure B**). Since there are a number of cables installed at this position, the developer will be responsible, with the aid of the municipality, to locate and identify the correct cable.
2. The 315kVA miniature substation that will be installed by the Developer, will be handed over to the Emalahleni Municipality once the miniature substation has been installed and connected to the electrical network.
3. The municipality will be at liberty to make use of any surplus miniature capacity not utilized by the developer. At such time, that the developer decides to move forward with the development of the balance of the stands, the developer will be required to lodge a new application with the municipality.

5. EXISTING SERVICES ON STAND

Currently there is no electrical supply to the stand.

6. LINK SERVICES TO THE SUPPLY TO THE STAND

No link supply to the stand will be required.

7. BULK SERVICE CONTRIBUTIONS

The Bulk Service contribution is payable to the Emalahleni Local. The Developer will submit a formal request to the Municipality in this regard.

8. LOAD REQUIREMENTS

The estimated load required by the filling station is 200kVA. This figure should be treated as a non-confirmed estimate until the contractual agreements with the key tenant has been concluded.

9. DESIGN METHODOLOGY AND VARIABLES

The internal electrical reticulation of the development shall comprise the following:

- A The supply, delivery and installation of a 315kVA\11kV miniature sub-station complete with Elster Kent Bulk meter for metering.
- B Cutting into the existing 70mm², 11V, 3 core, XLPE cable feed behind Nissan.
- C Performing of a Cable verification confirmation test \ Cable identification test to ensure that the correct cable is used for cutting into the network
- D. The supply, delivery and installation of a 300A, 3 Phase MCCB for the supply to the filling station
- E. All area lighting will be LED lights

10. DESIGN METHODOLOGY

1	Supply voltage	11 kV
2	Transformer capacity	1 x 315kVA (11kV/420V/242V)
3	Medium voltage	11 kV
4	Frequency	50 Hz
5	Transformer earth	5 ohm
6	Earthing	earth spikes and trench earth
7	Symmetrical fault level	250 MVA
8	Impulse withstand required	95 kV
9	One minute power frequency withstand voltage	18 kV
10	Normal low voltage	420V/242V
11	Earthing	Earth wire with cables from minisub to kiosks.
12	Declared voltage	242 V
13	Voltage regulation limits assumed voltage drop in system for low voltage design : (I) 11kV network (ii) Low voltage	4% 10%
14	LT supplies	300A (Three phase) circuit breaker and approved three phase metering for the filling station.

11. ENERGY EFFICIENT REQUIREMENTS

The Developer will, as far as possible, install low wattage energy saving LED light at the filling station and will comply with the energy efficient requirements of the Municipality. All outside lights and area lighting will also be of LED type.

12. LOAD BALANCING

Load balancing will be carried out at the miniature sub-stations.

13. PROVISION OF TELKOM INSTALLATION

No provision for Telkom will be made.

14. PROPOSED LAYOUT DRAWING

Please refer to **Annexure B** for a proposed layout drawing of the development.

Please do not hesitate to contact us should you need any further information.

Yours faithfully

A handwritten signature in black ink, appearing to be 'M.A. Diedericks', written in a cursive style. The signature is positioned above a horizontal line.

M.A. Diedericks, Pr. Eng

ANNEXURE A

ZONING CERTIFICATES

OF

DEVELOPMENT AREA



EMALAHLENI Local Municipality

P.O. BOX 3
eMalahleni
MPUMALANGA
1035

TEL.: 013 390 6911
FAX. 013 690 6207

www.emalahleni.gov.za

eMalahleni, Mandela Street
Tel.: 013 690 6911

Ga-Nala, Quintin Street
Tel.: 017 648 2241

Ogies, Hoofweg Str
Tel.: 013 643 1027

Refer to: N.Nkosi
09 September 2020

Zoning Certificate

This is to certify that Erf 20 President Park is zoned "**Business 2**". Primary uses are: Auction house, Carwash, Confectioner, Conference centre, Drive-thru restaurant, Garden service establishment, Government use, Gymnasium, Hotel, Institution, Laboratory, Laundromat, Liquor enterprise, Medical suites, Motor dealer, Office, Parking garage, Place of refreshment, Residential building, Service enterprise, Shop, Social hall, Step down facility, Tavern, Tuck shop, Veterinary clinic.

Height : 3
Coverage : 70%
FAR : 1.2
Building Lines : Rear - 2m
: Street- 5m
: Side - Multi storey : 3m
: -Single storey : 2m

This zoning certificate is issued in terms of Emalahleni Land Use Scheme 2020.



T. BUTHELEZI
ASSISTANT MANAGER: SPATIAL PLANNING

Vision: To be a centre of excellence and innovation



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Refer to: N.Nkosi
09 September 2020

Zoning Certificate

This is to certify that Erf 21 President Park is zoned "**Business 2**". Primary uses are: Auction house, Carwash, Confectioner, Conference centre, Drive-thru restaurant, Garden service establishment, Government use, Gymnasium, Hotel, Institution, Laboratory, Laundromat, Liquor enterprise, Medical suites, Motor dealer, Office, Parking garage, Place of refreshment, Residential building, Service enterprise, Shop, Social hall, Step down facility, Tavern, Tuck shop, Veterinary clinic.

Height : 3
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ANNEXURE B

PROPOSED LAYOUT DRAWING

NOTA:
 DIENSAANSLUITING IS 1m VANAF DIE NAASTE ERFRENS EN 1m IN DIE ERF
 ALLE LAAGSPANNINGSKABEL GEINSTALLEER IS KOPERKABEL
 ALLE HUISAANSLUITINGSKABELS IS 10mm² AIRDAC BEHALWE WAAR ANDERS AANGEDUI

LEGEND

- 3 100mm DIA KABELHULS
- (DIE NOMMER DUI DIE AANTAL KABELHULSE AAN)
- STRAATLIG
- "T" LAS
- METERKAS
- MINISUB
- LAAGSPANNINGSKABEL
- HOOGSPANNINGSKABEL
- ALLE HUISAANSLUITINGS KABELS IS 10mm² AIRDAC
- KABELLAS
- ALLE STRAATLIGKABELS IS 10mm² AIRDAC



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 1035

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PROJEK PROJECT

ERF 20 & 21
 PRESIDENT PARK X6

VOLLE BESKRYWING FULL DESCRIPTION
 VAN TEKENING OF DRAWING

ELECTRICAL
 BULK SUPPLY

SKAAL 1 : 500 (A1) ERF NOMMER SITE NUMBER
 1 : 1000 (A3)

WOONGEBIED STREEK REGION
 PRESIDENT PARK X6

GETEKEN DRAWN DATUM DATE
 NJVN 14-09-2020

NAGESIEN CHECKED DATUM DATE
 M.A.DIEDERICKS

AANBEVEEL RECOMMENDED DATUM DATE



EMALAHLENI
 Local Municipal Council

WYSIGINGS VARIATIONS

Nr. No.	DATUM DATE	PARAAF INITIAL	BESKRYWING DESCRIPTION

TEKENINGNOMMER DRAWING NUMBER

RDV 2122-01E

EXISTING 11 kV CABLE

PRESIDENTSTRAAT/STREET

Portion 353

RE. 120/311
 (NISSAN)

Remainder of Portion 34

NISSAN DEALERSHIP

315kVA

Remainder of Portion 120
 NITA AVE

MANDELA DR

SITE (±4200m²)

23

234/311

Portion 234
 RE/21

RE/20

22

New 70mm²
 11kVA, XLPE CABLE

2X160Ø

R.O.W.

ZEEKOE WATER No. 311-JS

R.O.W.