

## OFFICES / KANTORE:

### BDE GEORGE

73 MEADE STREET  
MEADESTRAAT 73  
PO BOX / POSBUS 1862  
GEORGE 6530  
TEL: (044) 801 9700  
FAX: (044) 801 9709  
CELL: 082 574 2391

### BDE CAPE TOWN

21A FIRST AVENUE  
RONDEBOSCH EAST  
CAPE TOWN 7780  
PO BOX 53036  
KENILWORTH 7745  
TEL: (021) 696 4065  
FAX: (021) 696 4065

### BDE MOSSELBAAI

TEL: (044) 693 0121  
FAX: (044) 693 0121  
CELL: 082 822 1349

## GENERAL CONTACT DETAILS

www.bdeconsult.co.za  
bde @ bdeconsult.co.za  
E-Fax: 086 591 5888

## IN ASSOCIATION WITH / IN SAMEWERKING MET

### CAPE TOWN CM<sup>3</sup>

TEL: (021) 948 4381  
FAX: (021) 948 4381

### RANDBURG ELEXPERT

TEL: (011) 787 7566  
FAX: (011) 787 7566

### TYGER VALLEY PJ TECHNOLOGIES

TEL: (021) 975 0016  
FAX: (021) 976 2404

### STELLENBOSCH WOLHUTER ASSOCIATE

TEL: (021) 880 2037  
FAX: (021) 880 2530

## PROPOSED NEW DEVELOPMENT OF PORTION 7 OF FARM BUFFELFONTEIN 204, SITUATED IN THE GEORGE MUNICIPAL AREA, WESTERN CAPE



## ELECTRO TECHNICAL REPORT

Submitted by:

**BDE Consulting Engineers**

27 November 2018

Reference: GRG 234, Revision 2

**TABLE OF CONTENTS**

<b>TABLE OF CONTENTS .....</b>	<b>2</b>
<b>1. INTRODUCTION AND SCOPE .....</b>	<b>3</b>
<b>2. EXISTING INFRASTRUCTURE .....</b>	<b>3</b>
<b>3. EXPECTED DEMAND .....</b>	<b>3</b>
<b>4. CAPACITY OF THE EXISTING ELECTRICAL NETWORK .....</b>	<b>3</b>
<b>5. MUNICIPALITY AUGMENATION FEES / CAPITAL CONTRIBUTIONS.....</b>	<b>3</b>
<b>6. PROPOSED ELECTRICITY DISTRIBUTION NETWORK.....</b>	<b>3</b>
6.1 DESIGN RESPONSIBILITY.....	4
6.2 MEDIUM VOLTAGE POINT OF SUPPLY .....	4
6.3 LOW VOLTAGE NETWORK .....	4
6.4 CONSUMPTION METERING .....	4
6.5 AREA/STREET LIGHTING .....	4
<b>7. ENVIRONMENTAL IMPACT.....</b>	<b>4</b>
7.1 IMPACT ON EXISTING ELECTRICITY CONSUMERS .....	4
7.2 ENVIRONMENTAL IMPACT.....	5
<b>8. ENERGY EFFICIENCY AND RENEWABLE ENERGY.....</b>	<b>5</b>
<b>9. CONCLUSION.....</b>	<b>5</b>

## **1. INTRODUCTION AND SCOPE**

This electrical engineering services report covers the external bulk electricity supply (municipal point of supply) to the proposed Buffelfontein- Heroldsbaai Landgoed- Development

The supply authority is George Municipality.

The development will consist of residential, service station and commercial properties.

## **2. EXISTING INFRASTRUCTURE**

The development site is adjacent to the new Herolds Bay 66/11 kV substation, as well as the Oubaai 11 kV Substation.

The existing infra structure in the area is a High Voltage (66/11 kV) substation (SS Herolds Bay) and a Medium Voltage (11kV) substation (SS Oubaai). Both are adjacent to the proposed development.

The municipality requires various servitudes within the development to extend their infrastructure from the adjacent substations to the remainder of Herolds Bay.

## **3. EXPECTED DEMAND**

The maximum expected electricity after diversity demand (ADMD) for the development is 718 kVA.

The maximum demand as reflected will be impacted by any energy saving measures implemented as well as the final design.

## **4. CAPACITY OF THE EXISTING ELECTRICAL NETWORK**

There is sufficient capacity at the adjacent substations to accommodate the development.

## **5. MUNICIPALITY AUGMENTATION FEES / CAPITAL CONTRIBUTIONS**

The standard Municipal fees will be applicable which will be finalized by the Municipality when plans are submitted for approval and construction of the development is intended.

## **6. PROPOSED ELECTRICITY DISTRIBUTION NETWORK**

The complete electrical distribution network shall comply with the Municipality's standard requirements, and technical specifications.

The complete electrical distribution network will, after construction, be handed over to the municipality, who will be responsible for the individual metering of consumers.

The internal streetlight network will be metered by the municipality and the home owners' association (HOA) will be responsible for the electricity consumption cost and maintenance thereof.

The new network installation and all related costs will be the responsibility of the developer and not the supply authority.

Details of the proposed electrical distribution network is summarised as follows:

### **6.1 Design Responsibility**

There are 5 or more users on the erf and therefor a competent person in terms of the OHS Act (such as an electrical engineer) must be responsible for the entire electrical network up to the consumer outlets (such as sockets) from commencement to commissioning. Also refer to the Electrical Certificate of Compliance (CoC) in this regard under responsibility.

### **6.2 Medium Voltage Point of supply**

An 11 kV underground cable from the adjacent 66/11kV substation will be installed through the development to supply the consumers via strategically placed a miniature substations.

### **6.3 Low voltage network**

The low voltage distribution system will be supplied from the above 11/0.4 kV miniature substation via underground low voltage cabling and will supply strategically positioned distribution kiosks.

The supply cable to the kiosks will be protected with optimally specified feeder circuit breakers housed inside the mini-substation.

Service connections will be done with underground service cables from these kiosks mentioned above, ending 1 meter x 1 meter inside each single residential site and at a connection box on an external wall for apartment and other buildings as applicable;

### **6.4 Consumption Metering**

The individual consumers will be metered by the municipality. Standard municipal pre-payment meters will be installed in all residential units and a municipal bulk meter will be installed at the service station and commercial area.

### **6.5 Area/Street lighting**

Street lighting will be of the low energy, LED type area luminaires, positioned at carefully selected places.

## **7. ENVIRONMENTAL IMPACT**

### **7.1 Impact on existing electricity consumers**

The development will not have a negative effect on the quality of supply to the existing customers due to the fact that the development will be supplied directly from an 11kV network, which has adequate capacity. The development will however have a positive impact as it will enable the municipality to install additional feeder cables from their adjacent substations to

surrounding areas by way of servitudes through the development to improve the quality of supply in the surrounding areas.

## **7.2 Environmental impact**

The entire internal electrical distribution network will be carefully designed to blend in with the development as well as the natural environment as a whole. All structures, equipment and switchgear will be low profile following natural contours.

The colours and shapes of all structures, equipment and switchgear, will be selected carefully to blend in with the environment.

Services will generally be located within the road reserves to prevent additional disturbance of vegetation. The environmental management plan for the development will form an integral part of the specification and requirements for the electrical construction work.

The developer will upgrade a 500m long portion of an internal road to provide access through the development by a low-bed truck to the new 66/11 kV Herolds Bay substation. The road will be designed to accommodate the weight and turning circle of a low-bed truck. The municipality will therefore not be required to build their own second access road to the substation over the property

Referring to the George Draft Spatial Development Framework, August 2018-11-26, it is clear that this development will address the condition to “Improve services to Herolds Bay”

## **8. ENERGY EFFICIENCY AND RENEWABLE ENERGY**

The use of cost effective alternative energy sources, such as gas and solar will be considered as well as the installation of energy efficient installations as required by the National Building regulations.

## **9. CONCLUSION**

The Maximum demand estimated for the proposed development is in the order of 718 kVA which can be connected to the existing medium voltage network.

Energy efficiency should be considered and implemented to the maximum effect.

The details of this report shall be confirmed with the Municipality in writing during detail design.

\*\*\*\*END\*\*\*\*