

**MARINERS VILLAGE, HERMANUS,
ERVEN 10527-10530, 10532, HERMANUS**

1 INTRODUCTION

PJ Technologies were instructed to prepare an electrical services report for Mariners Retirement Village on the electrical infrastructure for erven 105327-10530, 10532, Hermanus. This report covers the electrical impact of the retirement village on the existing networks.

2 TERMS OF REFERENCE

The terms of reference for this Services Report on the electrical can be summarized as follows:

- Obtain all services information relating to the proposed subdivision
- Liaise with Overstrand Municipality to identify the capacity available.
- Provide an Engineering Services Report.
- Provide a layout of internal services for the development once the development has been approved.

3 LEVEL OF SERVICE

The design parameters used to determine the level of service for this Preliminary Services Report are in accordance with the following:

- The requirements of the Overstrand Municipality;
- SANS electrification standards & guidelines Technology.

4 LOCATION

These erven is located in the greater development which is known as Mariners Village, off Church Street, Hermanus.

5 BULK SERVICES

A preliminary investigation was undertaken with Overstrand Municipality for the proposed development. At the time of investigation, it was stated that there are sufficient capacity in the bulk services to service the proposed development. This is to be confirmed with a letter confirming the condition of the supply.

The existing supply to the area is via an existing 11kV cable that was sized for the development and four minisubs were installed as part of the Mariners Village development.

5.1 Infrastructure contribution

Infrastructure contribution will be applicable in accordance with the by-laws of the Municipality and the published rates.

5.2 System loading

Expected maximum demand of the development.

The following is a breakdown of the expected impact of the development on the system at the point of supply substation level.

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5.2.1 Erf 10527 (Flats and semidetached units)

i. Existing electrical loading of development

In the initial development of Mariners Village the following has been included in the capacity of the development:

- Erf 10527: 144kVA (36 units at 4kVA ADMD)

ii. Additional capacity required for proposed development

Based on the information above the following is a summary of the additional capacity that is required due to the Retirement Village

- Expected electrical requirement of new development : 155kVA

The existing minisub (MS 4) has sufficient capacity to supply the additional capacity required.

5.2.2 Erf 10528 (Frail care and assisted living)

i. Existing electrical loading of development

In the initial development of Mariners Village the following has been included in the capacity of the development:

- Erf 10528: 144kVA (36 units at 4kVA ADMD)

ii. Additional capacity required for proposed development

Based on the information above the following is a summary of the additional capacity that is required due to the Retirement Village

- Expected electrical requirement of new development : 310 kVA

The existing minisub (MS 3) does not have sufficient capacity to supply the additional electrical loading and must be upgraded to a 800kVA minisub.

5.2.3 Erf 10529 (Flats and semidetached units)

i. Existing electrical loading of development

In the initial development of Mariners Village the following has been included in the capacity of the development:

- Erf 10529: 144kVA (36 units at 4kVA ADMD)

ii. Additional capacity required for proposed development

Based on the information above the following is a summary of the additional capacity that is required due to the Retirement Village

- Expected electrical requirement of new development : 178kVA

The existing minisub (MS 3) does not have sufficient capacity to supply the additional electrical loading and must be upgraded to a 800kVA minisub.

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5.2.4 Erf 10530 (Flats and semidetached units)

i. Existing electrical loading of development

In the initial development of Mariners Village the following has been included in the capacity of the development:

- Erf 10530: 144kVA (36 units at 4kVA ADMD)

ii. Additional capacity required for proposed development

Based on the information above the following is a summary of the additional capacity that is required due to the Retirement Village

- Expected electrical requirement of new development : 178kVA

The existing minisub (MS 2) has sufficient capacity to supply the additional capacity required

5.2.5 Erf 10532 (Flats and semidetached units)

i. Existing electrical loading of development

In the initial development of Mariners Village the following has been included in the capacity of the development:

- Erf 1053: 144kVA (36 units at 4kVA ADMD)

ii. Additional capacity required for proposed development

Based on the information above the following is a summary of the additional capacity that is required due to the Retirement Village

- Expected electrical requirement of new development : 190kVA

The existing minisub (MS 1) has sufficient capacity to supply the additional capacity required

5.2.6 Network upgrading

The proposed electrical upgrade envisaged is to replace MS 3 with the uprated size and the existing erven will be supplied from the minisubs as listed above.

The exact configuration of the supply and metering must be confirmed by the Electricity Department, but the developer will be required to pay for the full upgrade of the system from the point of connection.

5.3 Design standards

The following standards shall apply in the design and construction of the network:

Diversity curves to be used on the calculations of voltage drop:

- Diversity correction factor : $(DCF(n) = 1)$
- Unbalance correction factor: Calculated neutral current

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5.4 Voltage drop

- Voltage drop : on low voltage (LV) network : 8% on feeders
- Voltage regulation: 420 V (100% ± 5%) on LV terminals of transformer at full load.

6 ELECTRICAL SERVICES

The bulk electrical supply to the proposed development shall be done by the existing 11kV feeder to the internal network of the developments. No additional provision for the upgrading of the external MV network has been envisaged. The development shall be provided with power and reticulated as follows:

- The development shall be treated as a private development. Up to the point of supply unit shall be the responsibility of the Municipality and the HOA for all the internal network ;
- An internal network of MV cables, minisubs and the low voltage network ;
- The networks shall be by means of underground cables;
- Underground service connections to each property;
- A standard service connection to each residential property shall be provided. Any deviation from this standard service connection shall be submitted to the local supply authority for approval;
- The development shall be administered as an HOA. THE HOA shall be responsible for the Municipal account and recovering all revenue from the units by means of a dispensing system similar to the Municipality's prepaid system.
- Any non-residential properties e.g. pump station, commercial and large power user (=> 100kVA) shall be supplied in accordance with the applicable tariff and conditions for this electrical supply;
- The street lighting shall be in accordance with the requirements of the SANS and the supply authority. Provision must be made for suitable fittings that shall be in accordance with the theme of the development;
- Existing supply points shall be incorporated in the design of the networks ;

The design of the networks shall be in accordance with the latest guidelines of the Local Authority; Eskom, SANS and the NRS and subject to their approval.

6.1 Additional items

The following items need to be included in contracts with the HOA:

- The internal network will be operated by the HOA and in the contract for electricity, the HOA will be responsible for the contractual requirements of the supply contract with the Municipality;
- The tariff structure for the Municipality includes a charge for the notified demand. This is payable from the moment the electricity is made available and even if no electricity is being used.
- Essential services – It is envisaged that a single generator is to be provided for the frailcare. This unit will also be utilised to power each building with flats the respective essential power network by means of a dedicated network linked to the generator.

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7 TELKOM

No provision has been made any Telkom ducts or services to be included in this cost estimate.

8 CONCLUSION

- The proposed development can be adequately serviced with external and internal services.

9 GENERAL TERMS AND CONDITIONS

- i. The submission of this engineering report to the client with the undertaking that the cost to date involved is borne by the consulting engineer and that the client undertake to retain their services for the balance of the project. If not, the engineer is entitled to claim, in accordance with the published ECSA guidelines for work done. In the event that the project is delayed and cannot proceed to the further stages for reasons outside the control of the engineer, we are entitled to be reimbursed for the services rendered to date.
- ii. All reports, designs, drawings, recommendations and software issued as part of the project, will only be used for their intended purposes. The client undertakes to treat all the material as confidential and the intellectual ownerships shall vest with the company. The client undertakes not to hand over any of the reports, designs, drawings and recommendations to any third party without the prior consent and written permission of PJ Technologies.
- iii. Ownership of all intellectual material will only transfer from the supplier to the purchaser upon full and final payment.
- iv. PJ Technologies holds themselves available for any technical or commercial discussions the customer wish to have. We look forward to the opportunity to supply the equipment called for in this enquiry to the customer.

Jurgens J Daniel Pr Eng
PJ TECHNOLOGIES (Cape) cc

**COMMENTS FROM THE ENGINEERING SERVICES DEPARTMENT FOR:
APPLICATION FOR DEPARTURE, AMENDMENT OF CONDITIONS OF
APPROVAL, AMENDMENT OF THE SITE DEVELOPMENT PLAN, AMENDMENT
OF THE SPATIAL DEVELOPMENT FRAMEWORK, CONSENT USE AND
AMENDMENT OF THE OVERSTRAND GROWTH MANAGEMENT STRATEGY:
ERVEN 10527 - 10532, WESTCLIFF (2954)**

Stormwater (SW) :	According to the master plan by the Developer
Electricity :	According to PJ Technologies Electrical report
Water :	According to GLS Report
Sewer :	According to GLS Report
Roads and traffic :	Revised TIA to be submitted

Conditions:

1. That a Bulk Services Contribution Levy (BICL) be paid by the developer to supplement municipal services and amenities in accordance with the relevant legislation and as determined by the Council. The BICL tariff is adjusted by Council annually. The total BICL payable will be the amount as determined by the BICL Policy and tariff at the date of **actual payment**. BICL amounts quoted in any document will normally be applicable to the particular year in which the document was compiled and Council will not be bound by the quoted amounts.

1.1 Developments containing Sectional Title Units/ Commercial Buildings
(non-free standing properties – property is not to be subdivided)

The BICLs are to be paid in full **prior** to submission of the building plans. Building Plans will not be accepted unless the BICL is paid in full.

1.2 Developments with free standing properties (property that is subdivided and plots to be sold individually).

The BICLs are payable **prior** to clearance being issued by the Income Department of the Municipality.

The contribution according to the current policy (**2015/2016**) is as follows:

Apartments up to 2 bedrooms:

Water (W7A)	R 24 851.00 x 185 x 0.5 = R 2 298 717.50
Sewerage (SEW5A)	R 19 945.00 x 185 x 0.5 = R 1 844 912.50
Roads & (SW) (RDST1)	R 6 500.00 x 185 x 0.5 = <u>R 601 250.00</u>
	R 4 744 880.00

Semi-detached units:

Water (W7A)	R 24 851.00 x 21 x 0.5 = R 260 935.50
Sewerage (SEW5A)	R 19 945.00 x 21 x 0.5 = R 209 422.50
Roads & (SW) (RDST1)	R 6 500.00 x 21 x 0.5 = R <u>68 250.00</u>
	R 538 608.00

Frail Care**Equivalent Units:**

Water (W7A)	R 24 851.00 x 20.45	= R 508 202.95
Sewerage (SEW5A)	R 19 945.00 x 20.45	= R 407 875.25
Roads & (SW) (RDST1)	R 6 500.00 x 20.45	= R 132 925.00
		R 1 049 003.20

TOTAL (inclusive of VAT) = R 6 332 491.20

Note:

1.1 The above figures are estimates

1.2 That Overstrand Municipality's Electrical Department be contacted regarding the bulk electricity cost.

2. that the developer at his cost constructs the internal municipal civil and electrical services for the development as well as any link or bulk municipal services that need to be provided;
 - 2.1 the Director: Infrastructure and Planning may require the developer to construct internal, link, and/or bulk municipal services to a higher capacity than warranted by the development for purposes of allowing other existing or future developments to also utilise such services, provided;
 - 2.2 the rates and prices of such work be established in terms of a system which is fair, equitable, transparent and cost effective;
 - 2.3 if link municipal services have already been provided, the developer to contribute towards the cost thereof, the Director: Infrastructure and Planning to determine the amount of such contribution in terms of a system which is fair and equitable;
3. that servitudes for municipal services be registered in favour of the Council at the developer's cost in respect of all main services to be taken over by the Council and all existing municipal services concerned crossing private property;
4. that the developer indemnifies and keep the Council indemnified against all actions, proceedings, claims and demands, costs, damages and expenses arising out of the establishment of the township, the provision of services to the township or the use of servitude areas or municipal property:
 - 4.1 for a period which shall commence on the date that the installation of the services to the township are commenced with and shall expire after completion of the maintenance period;
 - 4.2 the developer to submit an acceptable public liability insurance policy to the Council and to pay the premium in advance for the period as set out above before any work concerned may commence;

- 4.3 the insurance to be to an amount which shall not be less than that required by the SAACE;
- 4.4 such indemnification against loss, claims or damages, to include claims pertaining to consequential damages by third parties and whether as a result of the damage to or interruption of or interference with the Council's services or apparatus or otherwise;
5. that a plan of all existing services be submitted to the Director: Infrastructure and Planning, by the developer and that any of the services that need to be relocated, be done by the developer at his cost to the satisfaction of the Director: Infrastructure and Planning:
 - 5.1 way-leaves must be obtained from the Operational Manager;
 - 5.2 such way-leaves to be obtained prior to any excavation on public property or property where existing services are located;
6. that the developer may enter into an agreement with the Council to install or upgrade bulk and/or link municipal services and amenities at an agreed cost, subject to the following:
 - 6.1 such costs to be established in accordance with a system which is fair, equitable, transparent, competitive and cost effective;
 - 6.2 such costs shall be set-off against (part or full) development contributions payable in respect of engineering services;
 - 6.3 to the extent that such costs exceed the development contributions payable, the Council will refund the developer the difference with interest calculated at the prime rate, when funds are available;
7. that plans of all the internal municipal civil and electrical (high and low voltage supply) services and such link services as required by the Director: Infrastructure and Planning, prepared by an ECSA registered professional engineer/technologist, be submitted to the Director: Infrastructure and Planning for his prior approval;
8. the "Guidelines for the Provision of Engineering Services in Residential Townships" (Blue Book), SABS 1200 specifications and the Design and Construction Standards for civil and electrical services of the Council to be used as the standard design and construction criteria with which such plans must comply;
9. the Director: Infrastructure and Planning to be notified in writing of all deviations from the Standard Design and Construction Criteria when plans are submitted for his approval and such deviations to be separately approved in writing by the Director: Infrastructure and Planning;

10. the successful completion of such works to be supervised and certified by an independent professional civil engineer/technologist i.e. a professional civil engineer/technologist who has no direct financial interest in the development, other than payment as standard professional fees for the work concerned; and
11. such independent professional civil engineer/technologist to furnish the Director: Infrastructure and Planning with satisfactory proof of his professional indemnity insurance to an amount which shall not be less than that required by the SAACE and which insurance shall be valid for the relevant contract and maintenance period;
12. that all municipal civil and electrical services installed or constructed by the developer, be maintained after completion thereof for a maintenance period, as described in the General Condition of Contract for works of Civil Engineering Construction – 2004, of 12 months, and
13. that a Certificate of Completion together with as-built services plans be provided by the independent professional engineer/technologist to the Overstrand Municipality. As-built plans to be on quality paper, together with a DXF file thereof;
14. that the developer furnish the Council with a bank guarantee equal to 2.5% of the value of the provided municipal civil and electrical services as certified by the independent professional engineer/technologist. The guarantee shall be to the satisfaction of the Director: Infrastructure and Planning and valid for the 12 months maintenance period which commences from date of the Certificate of Completion;
15. that the Home Owners Association be responsible for the operational costs and maintenance of street lighting, electrical reticulation and metering and all internal services;
16. that the developer provide bulk water meters at approved positions as well as individual meters at each consumption point;
17. that an approved refuse collection area/room to sufficiently accommodate the refuse generated by the development and which is to be proved with the following:
 - a. properly ventilated;
 - b. a cement floor;
 - c. a tap and running water, as well as a drainage point which is connected to the sewer network;
 - d. at a position nearest to an access road for the development and be accessible for the refuse truck at all times, to the satisfaction of the Director: Infrastructure and Planning;
18. that the refuse collection area be constructed in accordance with the requirements of the Overberg District Municipality;

19. that a stormwater management plan, which may include attenuation facilities to ensure that the pre-development run-off is not exceeded and that erosion and pollution is minimised, be submitted to the Director: Infrastructure and Planning for approval and that the approved management plan be implemented by the developer at his cost to the satisfaction of the Director: Infrastructure and Planning;
20. that the above stormwater management plan include the following:
 - 20.1. pre-development run-off from the catchment area;
 - 20.2. post-development run-off from catchment area;
 - 20.3. existing stormwater reticulation system and the capacity thereof;
 - 20.4. connection of internal stormwater reticulation system;
 - 20.5. overland escape routes;
21. that the connection to the stormwater reticulation system be provided according to the stormwater management plan, by the developer at his cost and approved by Overstrand Municipality ;
22. that the developer apply for a temporary water connection on the prescribed application form at Overstrand Municipality's Finance Department, before commencement of construction;
23. that the developer apply for a bulk water connection on the prescribed application form, at Overstrand Municipality's Finance Department and that the installation of the bulk water meter, by the developer, be done under the supervision of the Operational Manager, Hermanus;
24. that the connection to the main water line will only be done by the Operational Department after payment of the connection fee, by the developer;
25. that any additional cost related to the upgrading of bulk civil services will be for the developer's account;
26. that no off-street parking will be allowed;
27. that damage to the existing roads, used as routes for access to the development, for the provision of services, be repaired by the developer.



**DENNIS HENDRIKS
SENIOR MANAGER:
ENGINEERING SERVICES**

17/11/2015

DATE