

31 March 2016

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**Attention: Ms Jolandie Linnemann**

Dear Madam

**LA MOTTE HOUSING DEVELOPMENT, FRANSCHHOEK : CAPACITY ANALYSIS OF THE BULK WATER & SEWER SERVICES**

Your request regarding comments on the bulk water and sewer supply to the proposed development (La Motte residential development, Franschhoek), refers.

This document should inter alia be read in conjunction with the Water Master Plan (performed for the Stellenbosch Municipality) dated December 2011 and the Sewer Master Plan dated December 2011.

The proposed development areas B and C were not taken into consideration for the December 2011 master plans for the Franschhoek water and sewer networks. However, future development area LM1, which includes the proposed development area A, was conceptually taken into consideration for the master plans for the water and sewer networks.

**1. WATER DISTRIBUTION SYSTEM**

*1.1 Distribution zone*

The master planning indicated that the proposed development areas A to C should be accommodated in the existing La Motte reservoir zone. The connection to the existing system for development area A should be done at the future 160 mm diameter pipe in Bergendal Street, the connection to the existing system for development area B should be done at the existing 200 mm diameter pipe in Bergendal Street and the connection to the existing system for development area C should also be done at the future 160 mm diameter pipe in Bergendal Street, as shown on Figure 1 attached.

The development is situated inside the water priority area.

*1.2 Water demand*

The original water analysis for the master plan was done with a total annual average daily demand (AADD) for future development area LM1, which includes development area A, of 205 kℓ/d. Development areas B and C were not considered for the master plan.

For this re-analysis, the AADD and fire flows for the proposed development was calculated as follows:

Development area A :

- 6,2 ha GLA Business and Commercial area @ 18 kℓ/d/ha = 111,6 kℓ/d

Development area B :

- 322 Affordable housing units @ 450 ℓ/d/unit = 144,9 kℓ/d

Development area C :

- 106 Affordable housing units @ 450 ℓ/d/unit = 47,7 kℓ/d

Fire flow criteria (Moderate risk) = 25 ℓ/s @ 7 m

### 1.3 Present situation

#### 1.3.1 Network conveyance

Accommodation of the development in the present system will require upgrading of the existing system to comply with the pressure and fire flow criteria as set out in the master plan.

The following master plan items will be required to connect development area A to the proposed connection point and to improve network conveyance to development areas B and C:

Network upgrade

• Item 1	: 665 m x 160 mm Ø supply pipe	R	581 000 *
• Item 2	: 471 m x 160 mm Ø supply pipe	R	417 000 *
• SFW 9.1	: 574 m x 160 mm Ø supply pipe	R	<u>504 000 *</u>
		Total R	1 502 000 *

(\* Including P & G, Contingencies and Fees, but excluding VAT – Year 2015/16 Rand Value. This is a rough estimate, which does not include major unforeseen costs).

Take note that the route of the proposed pipeline is schematically shown on Figure 1, but has to be finalised subsequent to a detail pipeline route investigation.

NOTE: The diameters of the existing network pipes in the La Motte reservoir network are unknown. If the pipe diameters are 100 mm or larger, master plan item 2 does not need to be implemented. However should the diameters be smaller than 100 mm, the network upgrade is necessary to accommodate development area C.

#### 1.3.2 Reservoir capacity

The existing La Motte reservoir has insufficient spare capacity to accommodate the proposed development.

The following master plan item needs to be implemented in order to provide the necessary reservoir spare capacity:

- SFW.B1 : New 1 Mℓ reservoir R 3 741 000 \*

(\* Including P & G, Contingencies and Fees, but excluding VAT – Year 2015/16 Rand Value. This is a rough estimate, which does not include major unforeseen costs).

## 2. SEWER NETWORK

### 2.1 Drainage area

The development falls within the existing La Motte Gravity drainage area. The recommended position for the sewer connection for development areas A and B is at the 250 mm diameter bulk sewer and the recommended position for the sewer connection for the development area C is at the existing 160 mm diameter outfall sewer, as shown on Figure 2 attached.

The development is inside the sewer priority area.

### 2.2 Sewer flow

The original water analysis for the master plan was done with a peak day dry weather flow (PDDWF) for future development area LM1, which includes development area A, of 163,2 kℓ/d. Development areas B and C were not considered for the master plan.

For this re-analysis, the AADD and fire flows for the proposed development was calculated as follows:

- Development area A = 78,1 kℓ/d
- Development area B = 101,4 kℓ/d
- Development area C = 33,9 kℓ/d

### 2.3 Present situation

There is sufficient capacity in the sewer reticulation system to accommodate the proposed development.

The following link services items will however be required to connect development area A to the existing sewer system:

#### Link services

• SFS4.1	: New pump station	R	446 000 *
• SFS4.2	: 640 m x 80 mm Ø new rising main	R	<u>403 000 *</u>
		Total R	849 000 *

(\* Including P & G, Contingencies and Fees, but excluding VAT – Year 2014/15 Rand Value. This is a rough estimate, which does not include major unforeseen costs).

Take note that the route of the proposed pipeline is schematically shown on Figure 2, but has to be finalised subsequent to a detail pipeline route investigation.

### 3. CONCLUSION

The developer of the La Motte housing developments in Franschoek will be liable for the Bulk Services Levy (as calculated by the Drakenstein Municipality) as a contribution towards water infrastructure and the Bulk Services Levy (as calculated by the Drakenstein Municipality) as a contribution towards sewer infrastructure.

The minimum requirements to accommodate the proposed development in the existing water network are master plan items 1, SFW9.1 and SFW.B1. Item 2 is only required if it is found that the existing water systems' pipes are smaller than 100 mm diameter.

The minimum requirements to accommodate the proposed development in the existing sewer reticulation system are link services items SFS4.1 and SFS4.2 in order to connect development area A to the existing sewer system.

We trust you find the above of value.

Yours sincerely

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Per: JJ STREICHER (Director)

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