



23 June 2017

Nadeson Consulting Engineers  
4<sup>th</sup> Floor, 33 on Heerengracht  
CAPE TOWN  
8001

**Attention: Mr Clint Stockwell**

Dear Sir

**GREEN VALLEY AFFORDABLE HOUSING PROJECT ON PORTION 28 AND 32 OF ERF 306, PLETTENBERG BAY: PRELIMINARY CAPACITY ANALYSIS OF THE BULK WATER & SEWER SERVICES**

Your request regarding comments on the bulk water and sewer supply to the proposed development (affordable housing development on portion 28 and 32 of erf 306, Plettenberg Bay), refers.

This document should inter alia be read in conjunction with the Water Master Plan (performed for the Bitou Municipality) dated June 2016 and the Sewer Master Plan dated June 2016.

Future development area P100, which includes the proposed development area, was conceptually taken into consideration for the master plans for the water and sewer networks.

## **1 WATER DISTRIBUTION SYSTEM**

### *1.1 Water demand*

For this preliminary capacity analysis of the Plettenberg Bay water system, the total annual average daily demand (AADD) and fire flows for the proposed housing developments were calculated as follows:

- 800 low cost housing units @ 450 l/d/unit = 360,0 kl/d
- Fire flow criteria (Moderate risk) = 25 l/s @ 10 m

### *1.2 Present situation*

#### Network capacity

It is proposed in the master planning that the proposed housing development is supplied with water from the proposed future Green Valley booster zone.

The existing system however has insufficient capacity to accommodate the proposed development and various network upgrades are proposed, as seen in Figure 1 attached.

#### **GLS Consulting (Pty) Ltd**

T +27 21 880 0388 | F +27 21 8800 389

13 Elektron Street, Techno Park, Stellenbosch, 7600 | PO Box 814, Stellenbosch, 7599, South Africa

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### Reservoir capacity

It is proposed that the development be accommodated in a new reservoir and booster zone. A new reservoir and booster pump station are thus required in order to accommodate the proposed development.

### Bulk supply

The bulk water system supplying bulk water from the Plettenberg Bay Water Treatment Plant (WTP) to Green Valley and Wittedrift has insufficient capacity to accommodate the proposed development.

### Water Treatment Plant

The existing Plettenberg Bay WTP (with a treatment capacity of 27,0 Ml/d) has sufficient capacity to accommodate the proposed development.

## 1.3 *Implementation of the master plan*

- See Figure 1
- Refer to June 2016 water master plan.

The following master plan items will be required to accommodate the proposed development:

### Bulk Supply (Phase 1)

• BPW.B94 : New 25 kℓ sump	= R	163 000*	
• BPW.B41 : New booster pump station to Wittedrift reservoir		=	R
1 559 000*			
• BPW.B72 : New booster pump station to proposed reservoir	= R	1 648 000*	
• BPW.B73 : 738 m x 160 mm Ø new rising main	= R	759 000*	
• BPW.B74 : New 1 000 kℓ reservoir	= R	4 222 000*	
• BPW.B75 : New booster pump station for development	= R	1 517 000*	
	Total	= R	9 868 000*

### Bulk Supply (Phase 2)

• BPW.B69 : 4 923 m x 355 mm Ø new bulk supply pipe	= R	13 584 000*	
• BPW.B71 : 355 m x 160 mm Ø new bulk supply pipe	= R	360 000*	
	Total	= R	13 944 000*

Notes:

(\* Including P & G, Contingencies and Fees, but excluding VAT - Year 2016/17 Rand Value. This is a rough estimate, which does not include major unforeseen costs).

The routes of the proposed pipelines are schematically shown on Figure 1 attached, but have to be finalised subsequent to detail pipeline route investigations.

## **2 SEWER NETWORK**

### 2.1 *Drainage area*

The Green Valley housing development falls within a proposed new Green Valley PS 2 drainage area

### 2.2 *Sewer flow*

For this preliminary capacity analysis, the peak day dry weather flow (PDDWF) for the proposed development was calculated as 252,0 kℓ/d.

### 2.3 *Present situation*

#### Network capacity

There is insufficient capacity in the existing sewer network to accommodate the proposed development. Various master plan items are required to connect the proposed development to the existing sewer system.

#### Wastewater Treatment capacity

The existing "Gansevallei" Wastewater Treatment Plant (WWTP) in Plettenberg Bay (with a treatment capacity of 9,0 Mℓ/d) has sufficient capacity to accommodate the proposed development.

### 2.4 *Implementation of the master plan*

The following master plan items are required to accommodate the proposed developments:

#### Bulk sewer supply

• Item 1	: New Green Valley Main PS	= R 1 800 000*
• Item 2	: 5 191 m x 160 mm Ø new gravity sewer	= R 5 036 000*
	Total	= R 6 836 000*

Note:

(\* Including P & G, Contingencies and Fees, but excluding VAT - Year 2016/17 Rand Value. This is a rough estimate, which does not include major unforeseen costs).

The route of the proposed pipeline and position of the proposed pumping station is schematically shown on Figure 2 attached, but have to be finalised subsequent to detail pipeline route and pumping station position investigations.

## 3 **CONCLUSION**

The existing Plettenberg Bay water reticulation system has insufficient capacity to accommodate the proposed affordable housing development. Various master plan items are proposed to accommodate the proposed developments as discussed in paragraph 1.3.

There is insufficient capacity in the existing sewer reticulation system to accommodate the proposed affordable housing development in Green Valley in Plettenberg Bay. The master plan items proposed to accommodate the developments are discussed in paragraph 2.4.

The existing Plettenberg Bay Water Treatment Plant (with an existing water treatment capacity of 27,0 Mℓ/d) and the existing Goose Valley Wastewater Treatment Plant (with an existing sewage treatment capacity of 9,0 Mℓ/d) have sufficient capacity to accommodate the proposed development.

Take note that this is a preliminary bulk water and sewer capacity report based in the 2016 Plettenberg Bay water and sewer master plans in order to determine the major bulk infrastructure required to accommodate the proposed development in the existing Plettenberg Bay water and sewer systems. A more detailed bulk water and sewer capacity report will be required before implementation of the proposed development areas in order to:

- Determine the recommended connection points for the development to the existing water and sewer systems and any link services items required to connect the proposed development to the existing water and sewer systems,

- verify the sizes and costs of the required bulk infrastructure as described in this report,
- determine if the proposed development can be phased, and
- prepare detailed drawings (where required) showing the required master plan and link services items.

We trust that you find this of value.

Yours sincerely

GLS CONSULTING (PTY) LTD  
REG. NO.: 2007/003039/07



Per: \_\_\_\_\_  
JJ STREICHER (Director)

cc. The Director: Services and Infrastructure  
Bitou Municipality  
Private Bag X1002  
Plettenberg Bay  
6600

Attention: Mr Omar Essa