MOSSEL BAY: PROPOSED DEVELOPMENT OF ERF 21244: AALWYNDAL, MOSSEL BAY

ENVIRONMENTAL IMPACT ASSESSMENT: CIVIL SERVICES SUPPORTING INFORMATION

February 2019

Compiled for:

Kobus Steyn
Groot Karoo Eco Investments

Tel No: 081 586 4848
kobusteyn24@gmail.com

Compiled by:

V3 CONSULTING ENGINEERS

Contact person: Dean Jacobs
34 Upper Cross Street, Mossel Bay, 6506
PO Box 730, Mossel Bay, 6500
South Africa
Tel.: +27 (0) 44 691 2305/57
Fax: +27 (0) 44 691 3248

V3 CONSULTING ENGINEERS

CLIENT	KOBUS STEYN
CONTRACT NO:	10456000
PROJECT DESCRIPTION	MOSSEL BAY: PROPOSED DEVELOPMENT OF ERF 21244: AALWYNDAL, MOSSEL BAY
REPORT DESCRIPTION	MOSSEL BAY: PROPOSED DEVELOPMENT OF ERF 21244: AALWYNDAL, MOSSEL BAY

Revision				
Date	21/02/2019			
Author(s)	Danie Wessels			
Approver	Dean Jacobs			

Approver's signature

Date 21-02-2019

INDEX

1. INTRODUCTION

V3 Consulting Engineers (Pty)Ltd. have been appointed by mr. Kobus Steyn on behalf of Great Karoo Eco Investments to prepare a report regarding the civil services for the proposed development of Erf 21244, Mosel Bay

2. PROPOSED LAYOUT

The proposed Location- and Site Development Plans are attached as Appendix A.

Proposed number of units:

(i) 480 Residential units

(ii) Clubhouse

3. INFORMATION REQUESTED

3.1 Design and Construction Standards

All the civil services and pertaining infrastructure will be designed in accordance with the "Guidelines for Human Settlements, Planning and Design" as compiled under patronage of the Department of Housing by CSIR Building & Construction Technology (also known as the "Red Book"). The relevant code of standards (i.e. SABS 1200, etc.) will be applicable to material and construction standards. In addition, the Contractor will be required to adhere to any specific requirements or standards identified in the EIA.

3.2 Water (*Refer to GLS report attached as Annexure B).*

The water usage for domestic use can be categorized under different headings:

3.2.1 Bulk Water Supply for Domestic Usage

Potable water for human consumption and domestic use will be required and will be provided by Mossel Bay Municipality from their water treatment works in Klein Brakriver. Based on the Guidelines for the Provision of Municipal Infrastructure as well as the Water Master Plan for the Mossel Bay Area, it is estimated that the water demand that will be required for domestic usage is as follows:

i) Per annum:105820 kℓ/y

Average per day: 290 kℓ/day

Allowance will be made for bulk supply to the proposed development to allow for peak and fire demand (Fire flow criteria of 15 ℓ/s is applicable).

Bulk water to the proposed development will be supplied from the existing Aalwyndal reservoir.

An additional 7,0 ℓ/s pumping supply capacity will be required from the existing Langeberg to Aalwyndal reservoirs. There is however sufficient pumping capacity at the Aalwyndal pumping station and rising main to meet the increased required capacity.

Two reinforcing gravity supply pipelines, 2370 m x 250 mm ø and 680 m x 160 mm ø, between the Aalwyndal reservoir and the proposed development will be required to accommodate the development. The pipelines will supply water to the proposed development as well as the adjacent future development area. A proposed PRV will be required to reduce potential high static pressures in the lower laying areas of the zone. PRV pressure setting to be confirmed during final design.

The Mossel Bay Municipality confirmed that enough water is available to supply in this demand.

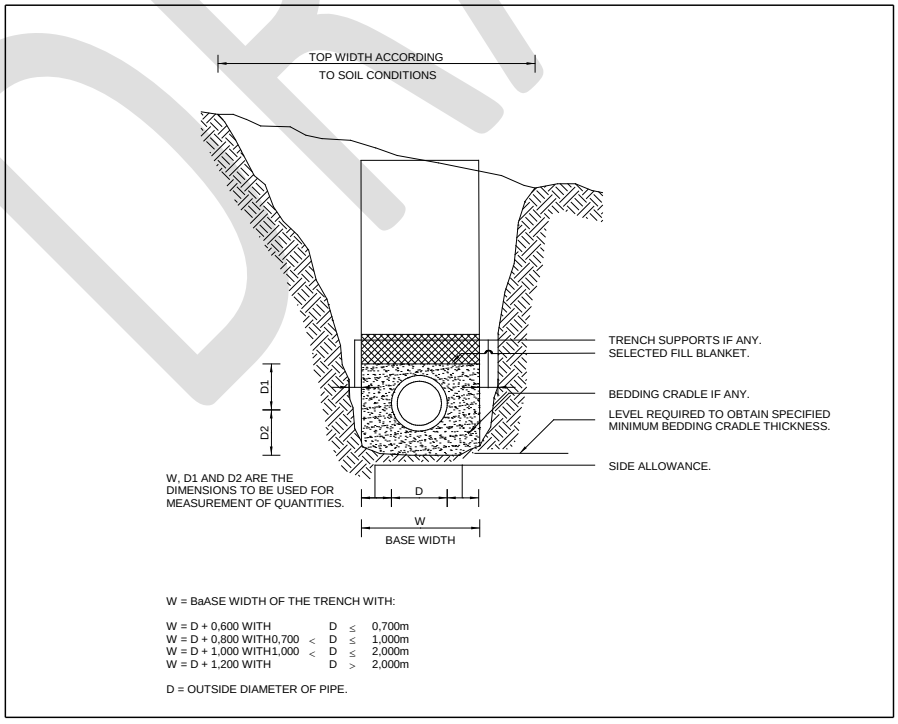
3.2.2 Internal Water Supply

The internal water supply for the development will consist of a water reticulation network supplying water through UPVC pipes.

The network will consist of UPVC water pipes ranging in diameter from 75 mm to 160 mm requiring pipe trenches varying between 675 mm and 850 mm in width. Recommended trench depths will be between 800 mm and 1500 mm. Based on the preliminary design the total length of pipe to be installed is estimated at 3000 m.

The network will be sized to supply in the peak demands including fire-fighting demands (taking into consideration the relevant fire-risk category).

Isolating and scour valves as well as fire hydrants will be installed in valve chambers and placed according to the design guidelines.



Typical pipe trench for water and sewer pipes

3.3 Sewerage (Refer to GLS report attached as Annexure B)

3.3.1 Internal Sewage Removal

3.3.1.1 Layout

An internal gravity sewer system will collect the sewage from the development and deliver it to a proposed new pumping station.

From there sewage will discharged to the existing Municipal system at Voorbaai.

The hydraulic loading of the sewage system is estimated at 261,0 kℓ/day.

The gravity sewer network will consist of 2560 m UPVC sewer pipes ranging between 160 mm and 200 mm and 1,0 m diameter concrete sewer manholes. Pipe trench widths required by SABS 1200 is between 760 mm and 800 mm. Trench depths will be determined by the topography but is expected to be between 1,0 to 3,0 m deep.

3.3.2 Bulk Sewage Removal

All the sewage from the proposed development will gravitate to a proposed new pumping station and rising main. From this pumping station the sewage from the proposed Development will be pumped to the existing Voorbaai pumping station.

From the Voorbaai pumpstation the sewage will be pumped through the existing sewage rising main to the connection point at the existing Municipal outfall sewer. From the connection point the sewage will gravitate through the existing 2 x 450 mm HDPE (Class 12) siphons from Hartenbos to the Inletworks at the Hartenbos Regional Sewage Treatment Works.

The Mossel Bay Municipality confirmed that the necessary capacity is available at their Hartenbos Regional Treatment Works to handle the additional sewage inflow from this development.

3.4 Roads and Stormwater (Refer Annexure A)

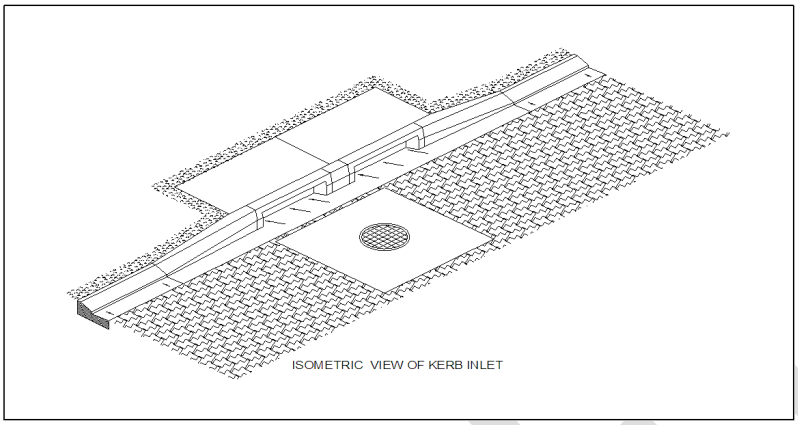
3.4.1 Access Roads

The main access to the proposed development will be from Aalwyn Road and the proposed new regional road upgrades. It is planned that Henning Street be closed in the future.

A TIA is being done by Others and all the recommendations will be agreed upon with the Municipality implemented by Developer.

3.4.2 Internal Roads

The internal road network comprise of approximately 32300 m² of premix / paver roads.



Typical storm water inlet structure

3.4.3 Stormwater drainage

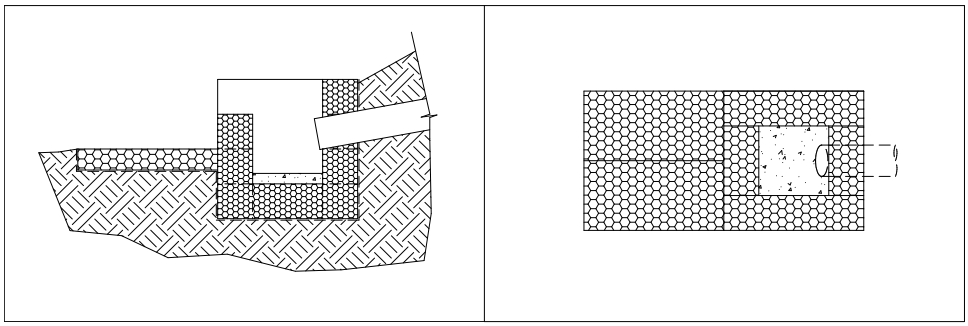
As is standard practice, a stormwater management plan will be handed in to the controlling bodies for approval. For this development, the 1:50 year and 1:100 flood lines **are not applicable**.

The stormwater plan will be based on the following:

3.4.3.1 Up to 1:5 year flood to be handled in channels and/or underground pipes. Stormwater runoff from the roads will be channeled along concrete channels and/or road kerbs to catch pits from where it will be piped to low points. Bigger floods to run on surface as is the standard.

The stormwater network will consist of 450 mm concrete pipes. Pipe trench widths required by SANS 1200 is 900 mm. Trench depths will be determined by the topography but will be between 1,0 to 3,0 m deep.

3.4.3.2 Due to the nature of the development we do not expect screening and/or treatment of the run-off to be necessary.



Typical energy dissipating structure at storm water pipe outlet

3.5 Refuse Removal

Refuse removal will be handled by Mossel Bay Municipality as per standard service.

4. CONSTRUCTION STAGE

To prevent soil erosion and possible pollution as a result of storm water runoff during the construction stage, erosion control methods such as silt fences and silt traps, energy breakers in the form of logs secured with stakes, brush-packing and mulching and re-seeding need to be considered. It will be the responsibility of the Developer to ensure Contractors apply erosion control measures throughout the period of risk and that the works are protected from damage that may be caused through runoff of rainwater.

Example of soil erosion protection by means of silt fences and logs

Detail of such requirements as well as demarcating of sensitive areas, environmental awareness training of construction personnel, possible restrictions of certain construction activities, accommodation of staff on site, access to the site, site camps and offices, fire prevention measures, dust control, noise control and alien vegetation clearing, etc. will be addressed in the Construction Environmental Management Plant after the project has been approved.

A Health and Safety Agent will be appointed by the Developer to ensure all activities pertaining to the project will be conducted in such a manner that it complies with the Occupational Health and Safety Act as well as the Construction regulations.

APPENDIX A

PROPOSED LOCATION- AND SITE DEVELOPMENT PLANS

ANNEXURE B

GLS REPORT ON WATER AND SEWER