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6 July 2022

ENGINEERING SERVICES REPORT FOR PROPOSED TOURIST FACILITY, ERF 2003, WILDERNESS

A. INTRODUCTION

Background

Our offices were appointed by Wentzel Christoffel Coetzer & Wessel Philippus Wessels to provide an Engineering Services report in support of an application for the proposed tourist facilities to be constructed on erf 2003, Wilderness, in the George Municipal Area.

It was requested by the George Municipality that an Engineering Services Report be submitted along with the development application.

Locality

The site is located in Wilderness, within the George Municipal area. The site is bordered to the north by a servitude road and to the east, south and west by natural forest.



Figure 1: Locality plan

The proposed development

The proposed development will consist of the following tourist facilities:

- a) New main house 200m², 175m² deck & 30m² pool
- b) Four new cottages of 98m², each with a 42m² deck

Please refer to **Annexure A** for the site development plan.

B. ENGINEERING SERVICES

Water demand for the proposed development

The water demand for the development is calculated (in accordance with the Guidelines for Human Settlement Planning and Design) as follows:

WATER DEMAND						
DEVELOPMENT	Units	l/ unit/ day	Area (m ²)	l/ 100m ²	TOTAL (l/d)	TOTAL (l/s)
Main House	1	1 000			1 000	0.012
Cottages	4	800			3 200	0.037
TOTAL					4 200	0.049
Annual Average Daily Demand (AADD)		4 200 l/d 0.049 l/s				
Peak Factor		4.0				
Peak Demand		16 800 l/d 0.194 l/s				

From a fire water requirement perspective, the site is classified as low risk, therefore a minimum total water flow of 15 l/s will be required for a design period of one hour.

There is an existing municipal 50mm Class 12 uPVC pipe located on the western side of Remskoek Street. Refer to **Annexure B** for the position.

It is proposed that a 25mm connection is made to supply the proposed development with both domestic and fire water.

The internal water reticulation network of the proposed development must comply with the minimum specification as given in the Red Book - Guidelines for Human Settlement Planning and Design and the minimum standards of George Municipality.

Sewer run-off for the propose development

The sewerage flow for the development is calculated (in accordance with the Guidelines for Human Settlement Planning and Design) as follows:

SEWER FLOW	
Average Dry Weather Flow (ADWF) (90% of annual average daily water demand)	3 780 l/d (0.04375l/s)
Peak Factor	4.0
Peak Dry Weather Flow (PDWF)	0.175 l/s
Peak Wet Weather Flow (PWWF)	0.201 l/s

Currently there is no sewer reticulation in close proximity to the site. It is proposed that sewerage is accommodated by means of a conservancy tank.

Due to the topography of the site, sewerage collection trucks will be unable to access the site. It is therefore proposed that a conservancy tank with a pump system and 110mm rising main is installed. This will pump sewerage from the lower lying (secondary conservancy tank) to the primary conservancy tank, located on the property boundary along Remskoek Street.

Inline the SANS 10400 P requirements, the size of the conservancy tanks will be 5.1m³ requiring to be serviced every alternate day.

The internal sewer reticulation network of the proposed development must comply with the minimum specification as given in the Red Book - Guidelines for Human Settlement Planning and Design and the minimum standards of George Municipality.

Roads

Access to the proposed development will be off the existing servitude road linking to Remskoek Street. One access gate will be provided at the northern most corner of the site and a second access gate at the north eastern corner of the site, both linking to existing servitude road.



Figure 2: Servitude roads (highlighted yellow)

A total of eight parking bays will be provided on site. One parking bay will be provided per cottage and four parking bays will be provided at the main house. This is deemed to be adequate for dealing with the parking requirements of the proposed development.

All internal roadways will comply with the minimum specification as given in the Red Book - Guidelines for Human Settlement Planning and Design.

Stormwater

The addition of the main house and the cottages, will have a minimal impact in terms of additional hard areas (less than 4%) and the stormwater runoff generated from site.

It proposed that as far as possible, roof water in gathered and stored in Jo-Jo Tanks at each of the cottages and the main house. From these tanks overflows will be provided onto a stone pitched base (1m x 1m x 0.2m thick), acting as energy breaker, before the stormwater dissipates into the surrounding forest.

C. CONCLUSION

We trust that the abovementioned information provided relating to the engineering services is sufficient for the application of the proposed tourist facility on erf 2003, Wilderness.

Please do not hesitate to contact the undersigned should you require any additional information.

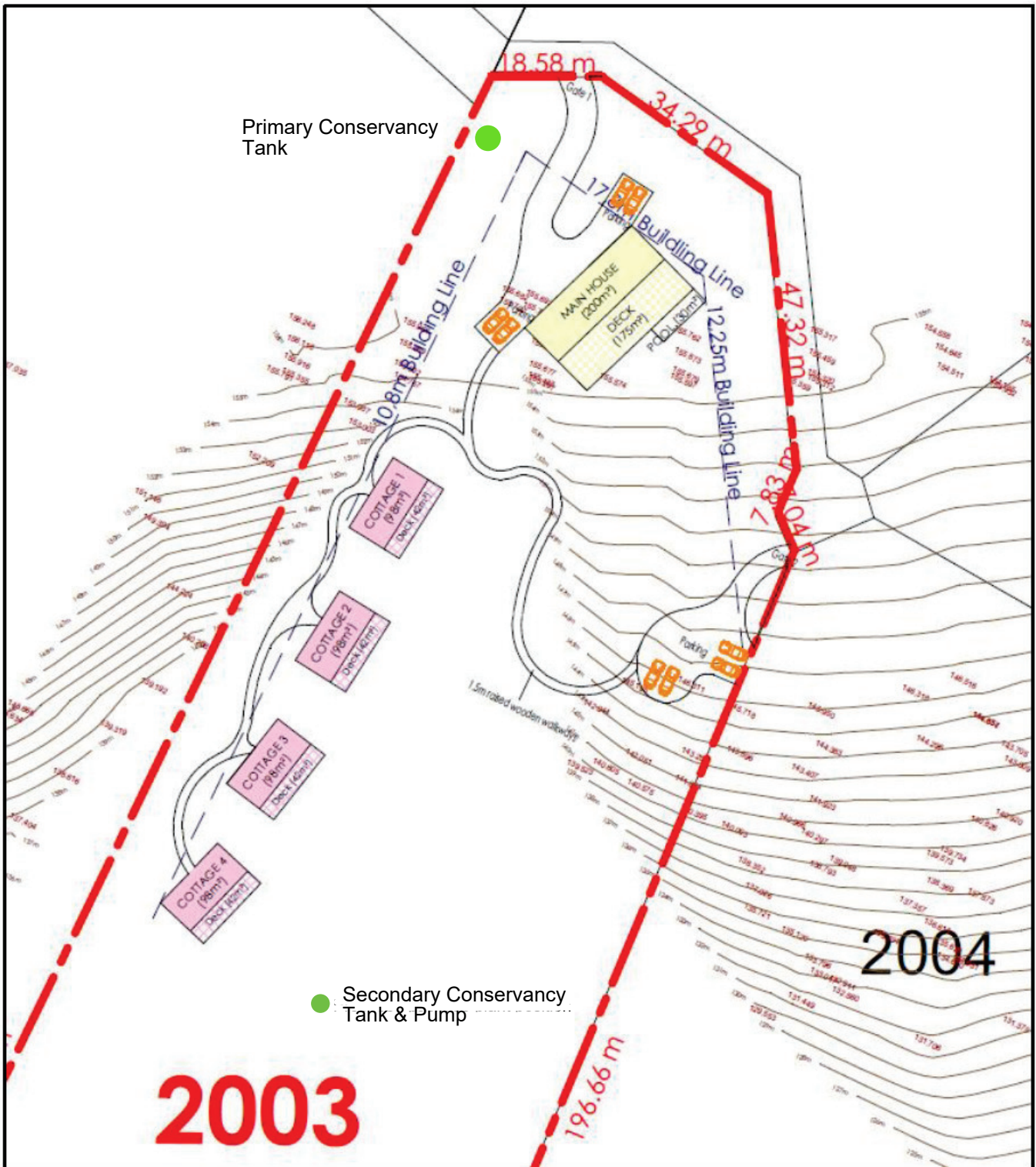
Yours faithfully



Christiaan Mostert

ANNEXURE A

Site Development Plan



ANNEXURE B

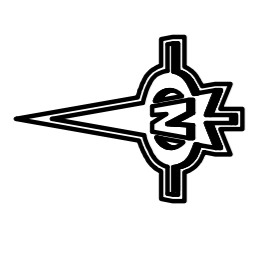
Existing services & proposed services



Erf 2003 Wildernis

2022-06-07 14:11





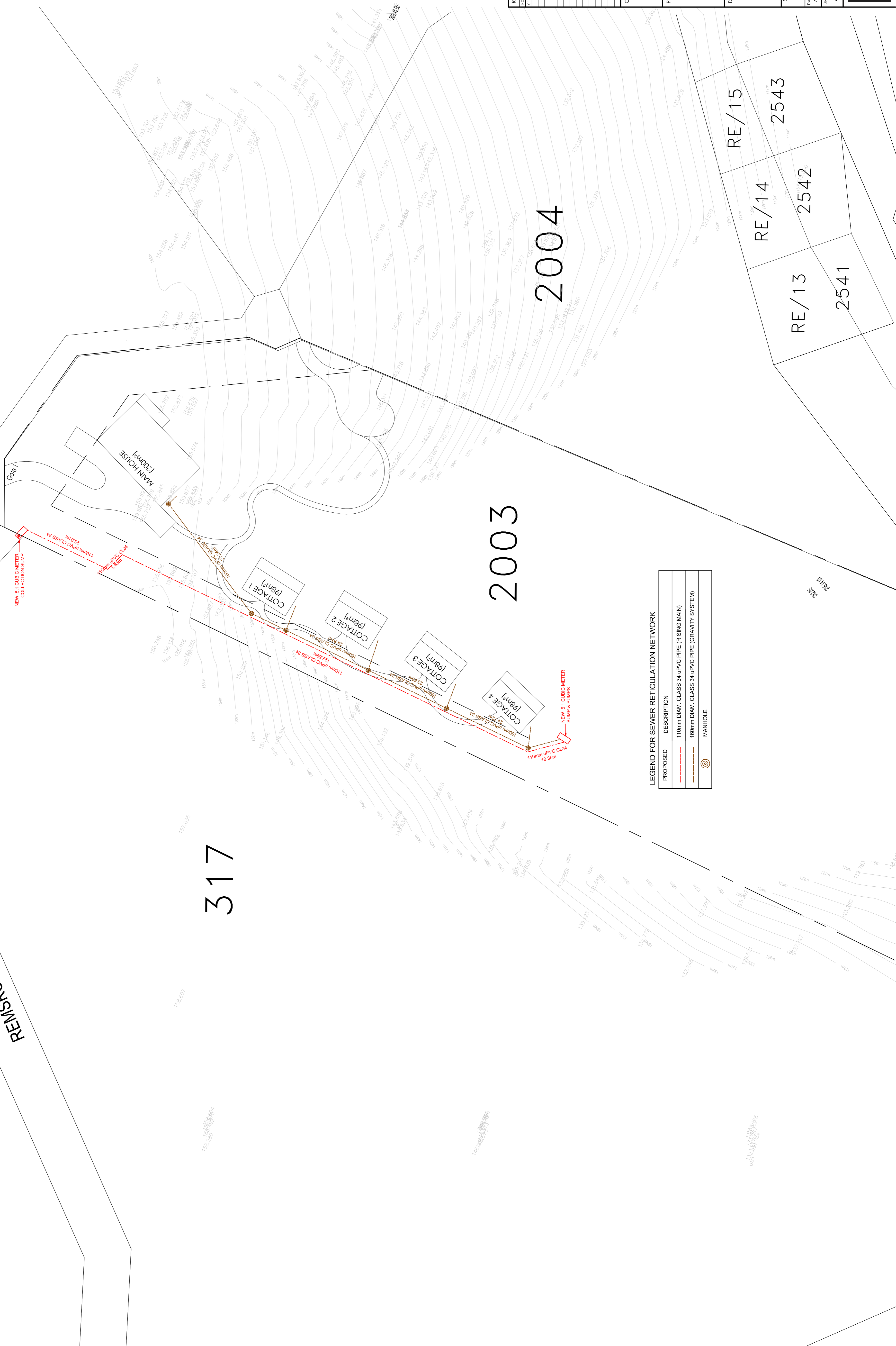
REMSKON STREET (12.59M)

2002

317

2003

2004



LEGEND FOR SEWER RETICULATION NETWORK

PROPOSED	DESCRIPTION
	110mm DIAM. CLASS 34 uPVC PIPE (RISING MAIN)
	160mm DIAM. CLASS 34 uPVC PIPE (GRAVITY SYSTEM)
	MANHOLE

REVISIONS	
NO.	DESCRIPTION
01	REVISED SEWER LAYOUT

DATE	DRAWN	CHECKED
14/08/2022	CA	CA

DRAWING NO.	SHEET NO.	SCALE
A22078/C/01	01	1:500

SIGNATURE: STRUCTURAL ENGINEERS	
...2017/170105...Pr. Tech. Eng.	

CLIENT	MR W COETZER
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PROJECT	NEW TOURIST FACILITIES ON ERF 2003, WILDERNESS
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DRAWING TITLE	PROPOSED GRAVITY SEWER & RISING MAIN
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