17 May 2021

LJR Civil Consultants cc
89 Rauch Avenue
Georgeville
Pretoria
0002

Attention: Mr Louis Roets

Dear Sir

PROPOSED DEVELOPMENT OF HARTENBOS GARDEN ESTATE ON ERF 3122 HARTENBOS HEUWELS: BULK WATER AND SEWER SERVICES

The request by Mr Louis Roets regarding comments on the existing water and sewer system and conceptual design of infrastructure required to accommodate the proposed development, refers.

This document should inter alia be read in conjunction with the following reports:

- *"Mossel Bay Municipality Water Master Plan"* dated April 2017.
- *"Mossel Bay Municipality Sewer Master Plan"* dated April 2017.

Please note that this report supersedes the previous report dated 06 March 2018 in this regard.

1. WATER DISTRIBUTION SYSTEM

1.1 *Existing water distribution system*

The proposed development is located at Hartenbos Heuwels to the west of Hartenbos near the Hartenboskop reservoir. The proposed development will be supplied from the existing 3500 kl Hartenboskop reservoir (TWL = 137 m). The Hartenboskop reservoir is supplied via an existing booster pumping station located at the lower 9140 kl Hartenbos reservoir (TWL = 80 m).

1.2 *Water demand*

The annual average daily water demand (AADD) for the proposed development as well as the existing stands (fully occupied) in the Hartenboskop reservoir zone was calculated as follows:

• Hartenboskop zone fully occupied	=	539	kL/d
• Proposed development	=	365	kL/d
Total	=	904	kL/d

A fire flow criteria of 15 L/s is applicable.

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1.3 *Future water distribution system*

In the Water Master Plan it was proposed that the erven for this development be supplied from the Hartenboskop reservoir via a proposed booster pumping station (see Figure 1 attached).

1.4 *Proposed water supply*

Reservoirs

The annual average daily water demand (AADD) for the Hartenboskop reservoir zone was calculated taking into consideration the existing stands (fully occupied), the proposed development on ERF 3122 and including all the proposed future developments in the reservoir supply area as listed in the 2017 Master plan.

The total future water demand, supplied as proposed from the Hartenboskop reservoir, was calculated as follows:

• Future development Erf 3122	=	365	kL/d
• Hartenboskop zone fully occupied	=	539	kL/d
• Other developments and rezoning	=	900	kL/d
Total	=	1 804	kL/d

The total future water demand of 1 804 kL/d amounts to a required reservoir storage capacity of 3 608 kL to comply with the required 48 hours of AADD reservoir storage capacity. The existing 3 500 kL Hartenboskop reservoir will in future have a marginal deficit of 108 kL, which amounts to 47 hours of storage capacity.

The 3 500 kL capacity should be sufficient to accommodate the proposed development including other future developments as stipulated in the Master Plan (Developments P01, A05, U04 and R05 in Brandwacht), to comply with roughly 48 hours of AADD reservoir storage capacity.

Pumping stations

There is sufficient capacity at the existing Hartenbos Heuwels pumping station to meet the increased demand at the Hartenboskop reservoir, i.e. 50 L/s with two duty pumps and one standby. The duty point should however be verified.

Pipelines

A new parallel reinforcing 200 m x 160 mm Ø supply pipeline at the pumping station is proposed. It was proposed in the Master plan to implement a new 1620 m x 200 mm Ø gravity pipeline from the Hartenboskop reservoir, within the road reserve of the Erf 3122 development, to supply water to future development area (A5) and to rezone water supply to Seemeeu Park in future. The installation of this pipeline should be strongly considered and it should be noted that this pipeline should be separated from the booster pipe network of the proposed development.

2. SEWER SYSTEM

2.1 *Existing sewer system*

The existing sewage gravitates from Hartenbos Heuwels to the Cemetery pumping station. The Cemetery pumping station pumps the sewage directly to the existing Hartenbos WWTP.

2.2 *Sewage flow*

The AADD for the future development was calculated as 365 kL/d. The peak day dry weather sewer flow (PDDWF) was calculated as 313 kL/d. The instantaneous peak dry weather flow (IPDWF) was calculated as 7 L/s and the instantaneous peak wet weather flow (IPWWF) was calculated as 8 L/s.

2.3 *Proposed sewer system*

Pipelines and pumping stations

The existing Cemetery sewer pumping station and rising main have sufficient capacity to accommodate the additional sewage from the proposed development.

3. COSTS IMPLICATIONS

3.1 *Water*

The developer of the proposed development will be liable for the Bulk Service Levy (as calculated by the Mossel Bay Municipality) as a contribution towards water infrastructure.

3.2 *Sewerage*

The developer of the proposed development will be liable for the Bulk Service Levy (as calculated by the Mossel Bay Municipality) as a contribution towards sewer infrastructure.

3.3 *Total cost*

The cost of the internal booster pumping station, and the water and sewer reticulation systems (not estimated in this study) will be for the developer's own account. The cost of the required 200 m x 160 mm Ø pipeline will be for the developers own account. The cost of the 200 mm Ø gravity main indicated in the Master plan to supply other future areas should be recovered from the Mossel Bay Municipality, if implemented.

We trust you find the above of value.

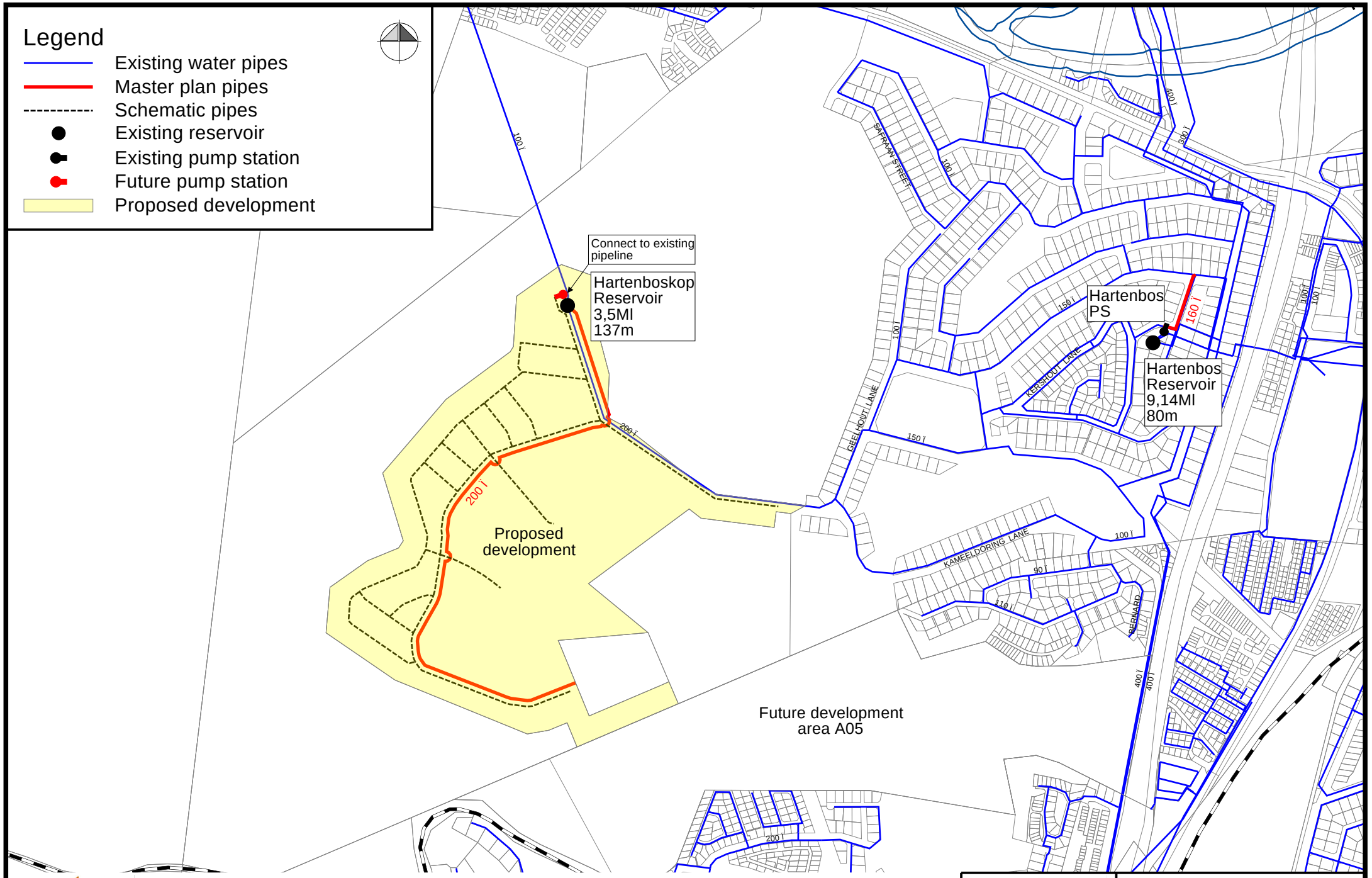
Yours sincerely

GLS Consulting (Pty) Ltd
REG. NO.: 2007/003039/07

Per: JJ STREICHER

cc. The Manager: Civil Engineering Services
Mossel Bay Municipality
Private Bag X29
MOSSEL BAY
6500

Attention: Mr Eric Louw



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Proposed development of Hartenbos Garden Estate on Erf 3122 Hartenbos Heuwels

0 62.5 125 250 500 m

Scale 1:12000

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Figure 1

Existing water reticulation and proposed upgrades

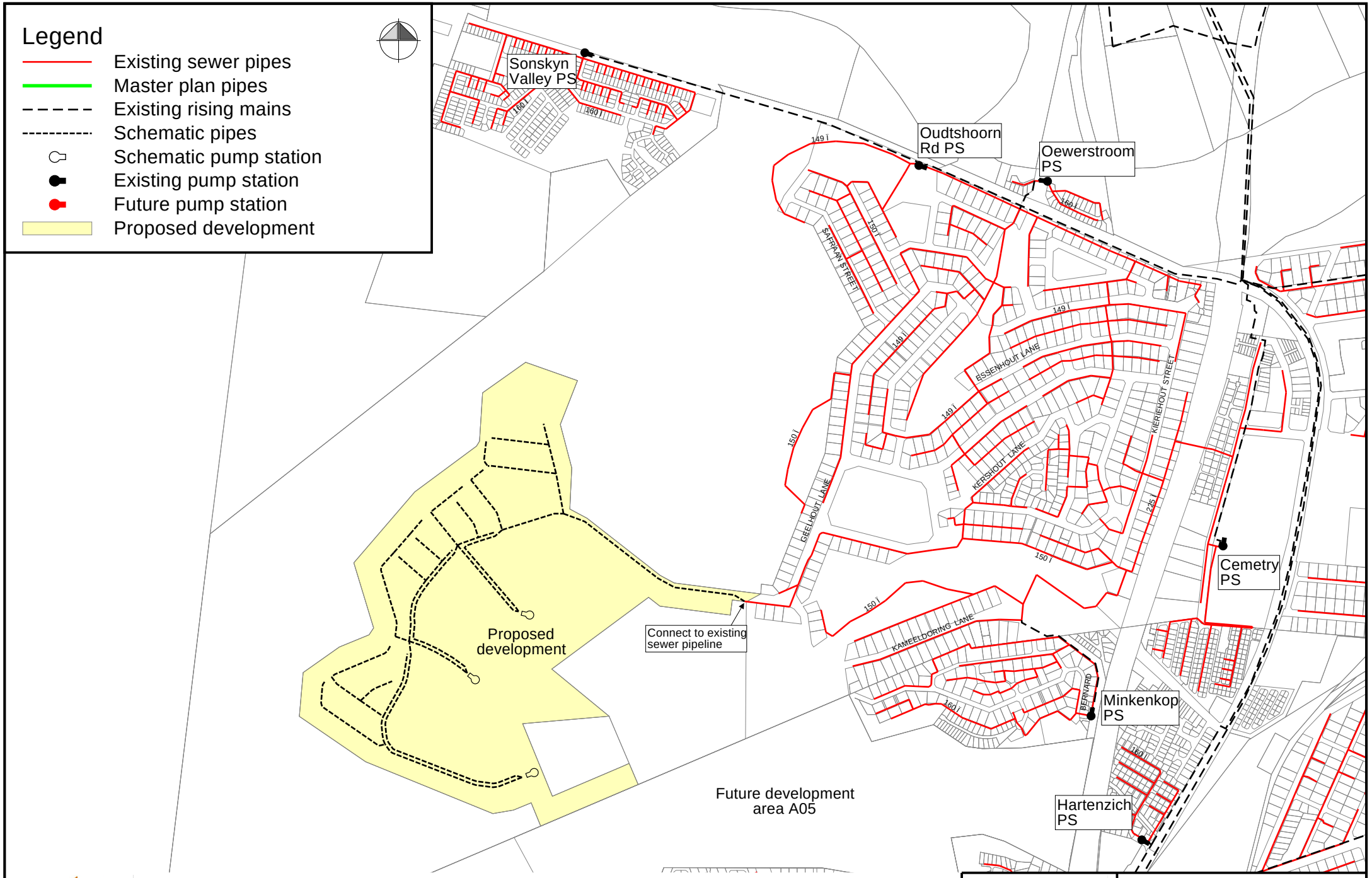

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Figure 2

Existing sewer reticulation and proposed upgrades