ANNEXURE F: ENGINEERING SERVICES REPORT

ENGINEERS REPORT FOR THE PROPOSED REZONING OF ERF 155 KEURBOOMSTRAND

AUGUST 2020

Prepared for Messrs Ferpa (Pty) Ltd

TUINIQUA CONSULTING ENGINEERS

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ENGINEERS REPORT ON PROPOSED REZONING
ERF 155 KEURBOOMSTRAND

1. INTRODUCTION AND BACKGROUND.

Tuiniqua (Pty) Ltd was appointed by Messrs Ferpa (Pty) Ltd to investigate and report on services for the proposed subdivision, rezoning and development of a portion of Erf 155 Keurboomstrand.
See Annexure A site plan- attached.
The rezoning is to allow for the development of a preferred low density option for 3 houses (Annexure F), with alternatives of a proposed 6 residential units (Annexure D) and a proposed 12 residential units (Annexure E).

In order to determine existing services and Municipal requirements for the proposed rezoning the site was inspected, available services plans were checked and reports by GLS (Consulting engineers tasked with Bitou municipality water and sewer capacity checks) were checked.

The portion under consideration is situated within the Keurbooms township area and is bordered by undeveloped erven 152 and municipal erf 391 with Provincial Main Road MR394 to the south and Main street along the northern boundary.
(See Annexure A).

2. SCOPE OF THE REPORT

2.1 The services report deals with the stormwater disposal, water supply and sewage disposal for the proposed 3 new residential units.
.
2.2 The report provides current Municipal augmentations fees
2.3 Electricity supply and traffic statement has been dealt by others
2.4 Capital contributions for use of municipal infrastructure is not included and is calculated by Bitou Municipality.

3. TECHNICAL REFERENCE

This report and services designs will be based on the following:

3.1 Bitou Municipality: 2016 Water and sewer masterplans and GLS Report dated 10 November 2020 with recent confirmations.
3.2 Augmentation and transport levies according to Council minute no 495. -revised – July 2020.
3.3 Guidelines for the provision of engineering services for residential townships-Dept of Community Development
3.4 Guidelines for Human Settlement Planning and Design

4. EXISTING SERVICES.

4.1 The development is situated inside the water priority area.

4.2 Water lines: There is an existing 75 mm diameter municipal distribution main on the northern side of the property within the municipal erf 391. There is a 110 mm uPVC line on the northern side of the adjacent municipal erf. There is a 200 mm bulk water supply mains from the Matjiesfontein reservoir that runs through the property in an unregistered servitude.(See Annexure B)

4.3 Sewer: The development is inside the municipal sewer priority area. There is a sewer gravity mains in Main street to the north of the property and a 160 mm diameter sewer gravity main to the south of the property along Provincial Main Road MR394 gravitating west towards the Municipal pump station
There are sewer manholes in the road reserve adjacent to the property.

4.4 Stormwater: There is a stormwater catch pit in the road reserve on the southern side of adjacent erf 152 with a stormwater pipe crossing MR 395 with a concrete headwall on the southern side of the road discharging towards the ocean.
There is a stormwater catch pit on the eastern side of adjacent erf 152 that conveys stormwater from the northern side of the MR395 to the southern side of the road and discharges towards the ocean.

4.5 Access is proposed directly off Main street as described in the traffic statement.

5. WATER SUPPLY AND STORAGE

5.1 Total water demand

In terms of GLS Figures for capacity analysis the Annual Average Daily Demand AADD on erf 155 can be calculated as follows:

· 3Single residential units@ 1,0 kℓ/d/unit = 3,0kℓ/d (Preferred option)
or
· 6 Residential units @ 0,8 kL/d = 4,8 kL/d
or
· 12 Residential units @ 0,8 kL/d = 9.6 kL/d

· Fire flow criteria (Low risk) = 15 L/s @ 7 m

Water masterplan: GLS have confirmed that there is adequate capacity in the existing water network to accommodate the preferred option.

5.2 Water sources for domestic supply

5.2.1 Connection to Municipal reservoir.

The master planning indicated that the proposed development should be supplied with water from the existing Keurboomstrand reservoir. The proposed connection point for the development on Erf 155 is at the existing 75 mm water main in adjacent park erf 691.
It is proposed that a 75 mm bulk meter connection be made to the municipal mains.

5.2.2 Additional source of water: Collection of rainwater in tanks.

Due to possible contamination, Guidelines for Human Settlement recommends that rainwater harvesting be considered a supplementary supply for non-potable use, unless treated.
Rainwater can be used for non-potable requirements without further treatment.
It is recommended that at least one 5 000 liter tank be installed for each dwelling to augment water supply.

5.3 Provision of water for fire fighting

Fire flow:

Fire flow criteria (Low risk) = 15 ℓ/s @ 7 m
The criteria for the total reservoir volume used in the Plettenberg Bay Water Master Plan is 48 hours

The required storage is therefore 6kl.

5.4 Capacity in existing water distribution network and reservoir.

Based on recent reports by GLS, there is adequate capacity in the water network and reservoir to supply the proposed development.

It is recommended that one above ground fire hydrant be installed on the boundary of the site.

5.5 Augmentation fees

The estimated augmentation fees are set out below:

Based on current advertised fees (July 2020)

Water augmentation-:

Table 1	Augmentation Levies – Water – Revised July 2020			
Description	Capacity	No/units//(m^2)	Water levy/unit --- R	Total
Resort zone units	➢ 200 m^2	**3**	65 180	195 540
			Total R	R 195 540

(Figures exclude VAT and are increased by the Municipality from time to time)

5.6 Capital contributions

Further capital contributions for the pro-rata use of the existing municipal network will be required and needs to be calculated by Bitou Municipality. These costs will be confirmed in the Service Level agreement.

6. SEWERAGE

6.1 Sewer flow

In terms of GLS master planning figures the Peak Day Dry Weather Flow (PDDWF) for the proposed development is estimated as follows

· 3 Single residential units@ = 2,1 kℓ/d. Preferred option
or
· 6 Residential units = 3.36 kL/d
or
· 12 Residential units = 6.72 kL/d

6.2 Sewer connection

The existing sewage main runs in the road reserve adjacent to the proposed development area towards the Keurboom Main Pump station.
It is proposed that a 160 mm connection be made to this line for the development once upgrades have been completed.
The sewage system has adequate capacity up to the Matjiesfontein pump station.
The Matjiesfontein pump station does not have spare capacity and already requires upgrading from 30 liters per second to 50 liters per second. (This upgrade has partially been agreed to by others in a services agreement and a pro-rata contribution will be required.
The pumps of the Aventura pump station have already been upgraded to a potential capacity of 72 L/s.
The diameter of the downstream rising main is to be upgraded according to the master plan to 355 mm.

Sewer augmentation-:

Table 2	Augmentation Levies – Sewer – Revised July 2020			
Description	Capacity	No/units//(m^2)	Sewer levy/unit --- R	Total
Resort zone units	➢ 200 m^2	**3**	10 602	31806
			Total R	R 31 806

(Figures exclude VAT and are increased by the Municipality from time to time)

6.3 Capacity in the existing Municipal sewer network

In terms of the Municipal Sewer Masterplan and already approved developments there is no spare capacity for the proposed development in the following sections of the sewer network and upgrades are required to accommodate this development:

- Upgrade existing Matjiesfontein PS to a capacity of 50 ℓ/s

(*increase of 20l/s)*
= R1 600 000
(R 342 000- 2015 GLS estimate)

- BPS38.2 : Matjiesfontein to Aventura:1 780 m x 200 mm Ø New rising main
= R2 550 000 *(R 1 542 000 -2015 GLS estimate) increase of 40l/s*

- BPS34.2 : 5 410 m x 355 mm Ø replace existing 140 mm Ø rising main
= R 12 243 000 (2015 GLS estimate) increase of 42 l/s

(figures give are estimates excluding VAT)

6.4 Capital contribution

In terms of the Guidelines the peak flow can be calculated as 0,0333 l/s per dwelling and the total peak design flow for the preferred option is 0,1 l/s
Based on pro rata flow the estimated total contribution toward the required upgrade is therefore R 43 525,00.

Further capital contributions for the pro-rata use of the existing municipal network from Keurboomstrand to Matjiesfontein pump station and the Aventura pump station will be required and needs to be calculated by Bitou Municipality.
These costs will be confirmed in the Services Agreement.

6.5 Alternate servicing

Due to capacity constraints an alternative to the municipal connection is proposed to provide a combined 24 000 liter conservancy tank as an interim alternative.
The municipal approved conservancy tank is to be constructed at an approved position to allow municipal and or private tanker access.

Due to the capacity constraints in the sewer system the preferred option of 3 units is strongly recommended.

7. ROADS and STORMWATER

7.1 Road network

The site is well served by existing road infrastructure. The access point to the site would be on the northern side of the proposed development area directly from Main Street across the municipal erf.

7.2 Access to the site

Access is proposed directly off Main Street . The current speed limit in the area of the proposed access is 40 km/ h.

A 4.5 m paved surface shared access road to the units is proposed.

7.3 Collection conveyance and storage of development's runoff

The site slopes from north to south. The road below the site, Provincial Main Road MR394, has two Municipal stormwater catch-pits within the road reserve to the east of the property boundary conveying stormwater away from the site and towards the ocean. Provincial Main Road MR394 slopes away from the south western corner of the property also conveying stormwater and discharging towards to ocean.
The site receives limited rainwater runoff from neighboring properties as Main road forms a cutoff drain from erven above.

It is recommended that runoff from roofs to be harvested for use.

8 RECOMMENDATION

Subject to the requirements as listed in the report above, the proposed rezoning and development of the portion of erf 155 Keurboomstrand is recommended for the preferred option of 3 dwellings from a servicing point of view.

Francois Scholtz Pr.Eng.

TUINIQUA (PTY)LTD

Location Plan
NTS

Revisions

No.	Detail	Date

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Project
New Development

For
Three Houses on a
Ptn of Erf 155
Keurboomstrand

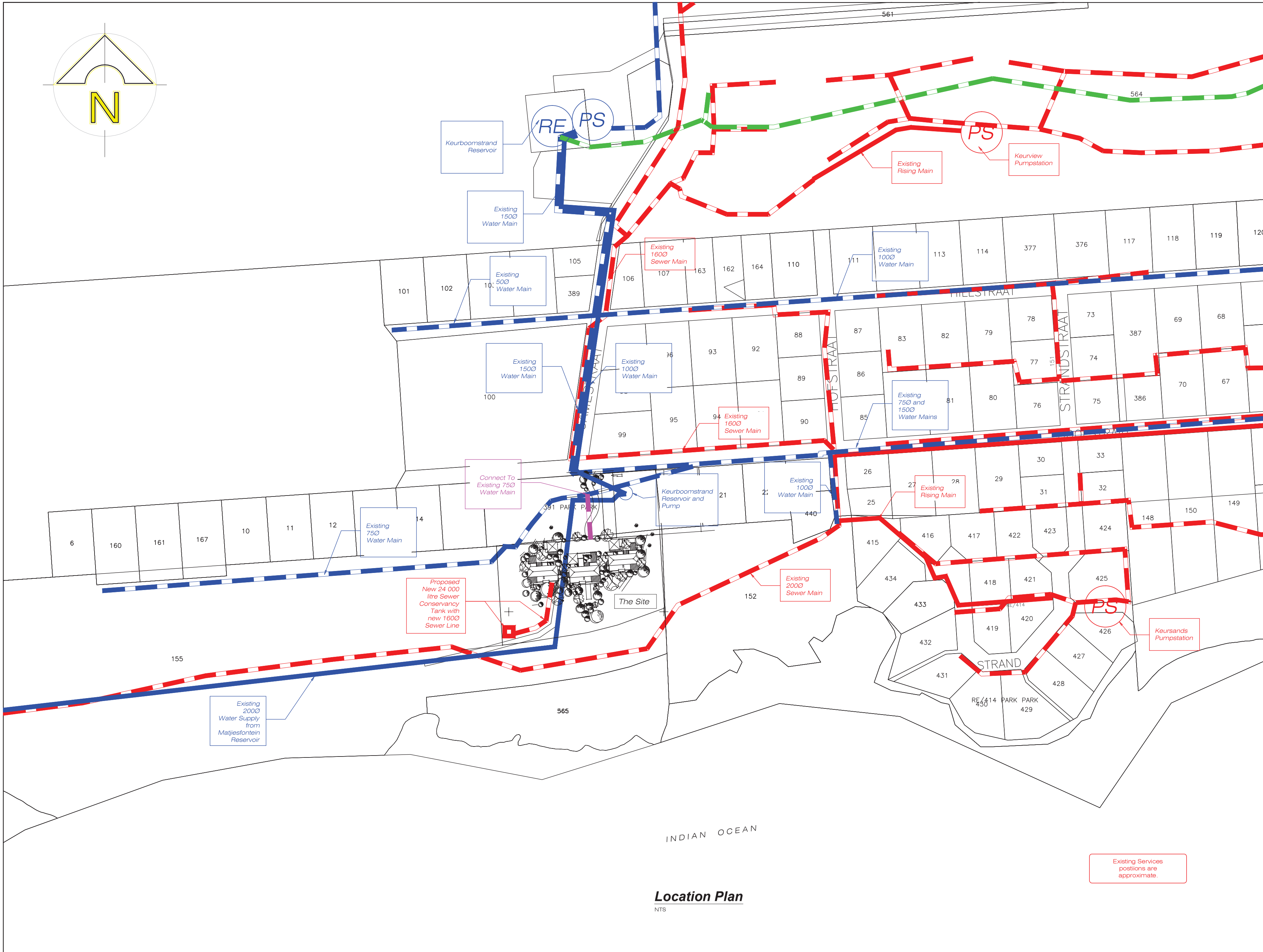
Description
Location Plan

Scale: —— AS SHOWN

Prepared By: SvN | Approved By:
F. Scholtz Pr. Eng. Reg no. 970144

Date: 25 - 08 - 2020
Drg No: A

Project No: TP801/152/04-19
Rev: 00



Location Plan

NTS

TUINIQUA

Project: New Development

For: Three Houses on a Ptn of Erf 155 Keurboomstrand

Description: Bulk Water and Sewer Plan

Scale: AS SHOWN

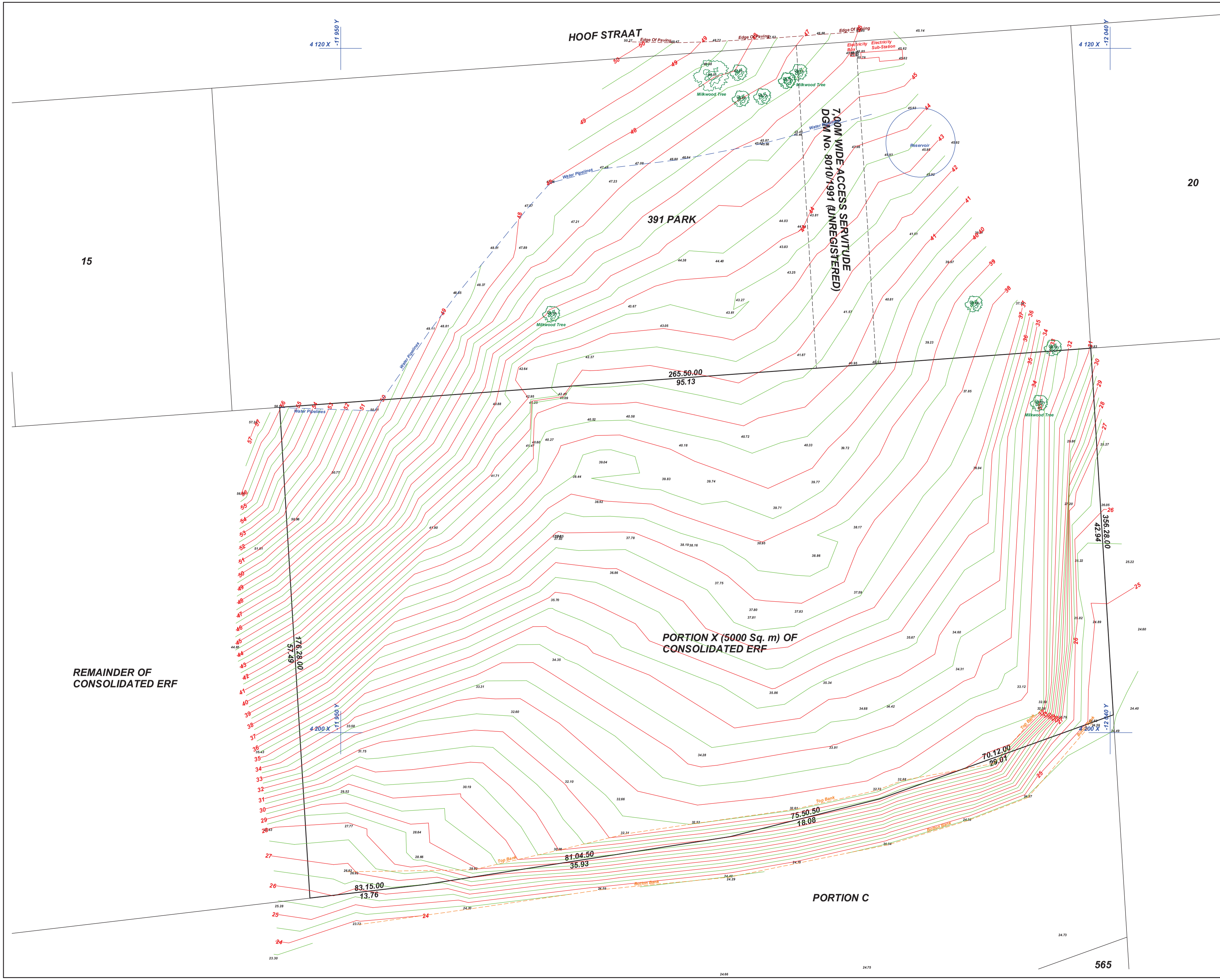
Prepared By: SvN

Date: 25 - 08 - 2020

Drg No: B

Project No.: TP801/152/04-19

Rev: 00



C		
B		
A		
NO	DATE	DESCRIPTION

REVISIONS

DATE MAY 2016 | SCALE 1:200

SURVEYED P.G. TEGGIN | APPROVED

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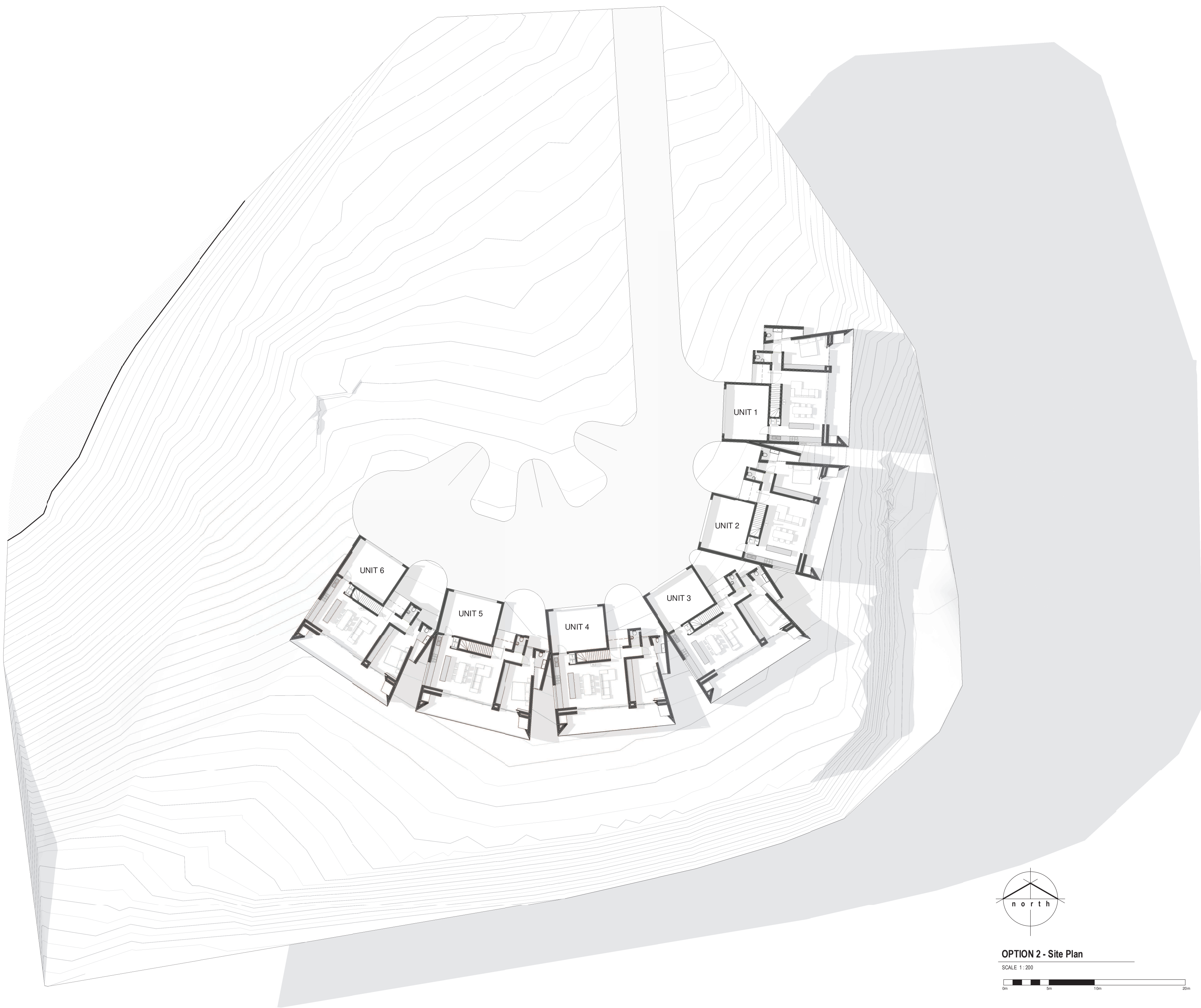
Beacon Survey
Professional Land Surveyors
and Sectional Title Practitioners
103 Longships Drive P.O.Box 350 Plettenberg Bay
Tel: (044) 533 2230 Fax: (044) 533 0264
e-mail: beaconsurvey@mweb.co.za

CLIENT
Keurprop Inv. (Pty) Ltd

PROJECT
5000 Sq. m PORTION OF CONSOLIDATED ERF

TITLE
CONTOUR PLAN

DRG NO **MARECONPTNX-1** REV



OPTION 2 - Site Plan

SCALE 1 : 200

notes

OPTION 1 AREAS

UNIT 1	Ground Floor	105m²
	Lower Ground Floor	87m²
	Garage	50m²
	Total	**242m²**
UNIT 2	Ground Floor	105m²
	Lower Ground Floor	87m²
	Garage	50m²
	Total	**242m²**
UNIT 3	Ground Floor	105m²
	Lower Ground Floor	87m²
	Garage	50m²
	Total	**242m²**
UNIT 4	Ground Floor	105m²
	Lower Ground Floor	87m²
	Garage	50m²
	Total	**242m²**
UNIT 5	Ground Floor	105m²
	Lower Ground Floor	87m²
	Garage	50m²
	Total	**242m²**
UNIT 6	Ground Floor	105m²
	Lower Ground Floor	87m²
	Garage	50m²
	Total	**242m²**
GRAND TOTAL		**1452m²**

No.	Description	Date

issue status

FOR INFORMATION

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telephone + 27 21 887 3385
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www.slee.co.za

Johann Clemens Slee: SACAP Reg Nr: **Pr Arch 3782**

project title

Holiday Development - Keurprop INV.(Pty)Ltd.

Portion of ERF 155 Keerboomstrand

drawing title

OPTION 1 - Site Plan

scale @ A1:	date:	drawn:	proj. no:	dwg.no:	rev.no:
1 : 200	06/26/20	MAF	J360	W_705	

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notes

 All dimensions to be checked on site before any work is put in hand. **ANY DISCREPANCY** between all drawings should immediately be brought to the attention of the Architect and resolved before work commences. This drawing is to be read in conjunction with '**SPECIFICATION OF MATERIAL & LABOUR**' for this project. **Site instructions take preference over legend of materials.**

OPTION 2 AREAS

UNIT 1	Ground Floor	87m²
	Lower Ground Floor	75m²
	Garage	40m²
	Total	**202m²**
UNIT 2	Ground Floor	85m²
	Lower Ground Floor	75m²
	Garage	40m²
	Total	**200m²**
UNIT 3	Ground Floor	83m²
	Lower Ground Floor	75m²
	Garage	40m²
	Total	**198m²**
UNIT 4	Ground Floor	83m²
	Lower Ground Floor	75m²
	Garage	40m²
	Total	**198m²**
UNIT 5	Ground Floor	80m²
	Lower Ground Floor	75m²
	Garage	40m²
	Total	**195m²**
UNIT 6	Ground Floor	86m²
	Lower Ground Floor	75m²
	Garage	40m²
	Total	**201m²**
GRAND TOTAL		**1194m²**

No.	Description	Date

issue status

FOR INFORMATION

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Portion of ERF 155 Keerboomstrand

drawing title

OPTION 2 - Site Plan

scale @ A1:	proj. no:	dwg.no:	rev.no:
1 : 200	J360	W_705	
date: 06/26/20 drawn: MAF			

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2020/06/26 4:26:32 pm

25 1989 - 2014 celebrating 25 years of excellence

10 November 2016

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

Attention: Mr Pikkie Lombard

Dear Sir

DEVELOPMENT OF ERF 155, KEURBOOMSTRAND: CAPACITY ANALYSIS OF THE BULK WATER & SEWER SERVICES

The request by Mr Willem de Kock of WM de Kock Town Planners regarding comments on the bulk water and sewer supply to the proposed development (residential development on Erf 155, Keurboomstrand), 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.

The proposed development was not 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 should be supplied with water from the existing Keurboomstrand reservoir. The proposed connection point for the development on Erf 155 is at the existing 75 mm water main in Game Street, as shown on Figure 1 attached.

The development is situated inside the water priority area.

1.2 Water demand

No provision was made in the original water analysis for the master plan for development on Erf 155.

For this re-analysis the AADD and fire flows for the proposed development on Erf 155 was calculated as follows:

- 3 Single residential units@ 1,0 kℓ/d/unit = 3,0kℓ/d
- Fire flow criteria (Low risk) = 15 ℓ/s @ 7 m

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Reg no: 2007/003039/07

1.3 Present situation

1.3.1 Reticulation network

Accommodation of the development in the present system will require no upgrading of the existing system to comply with the pressure and fire flow criteria as set out in the master plan.

1.3.2 *Reservoir capacity*

The criteria for the total reservoir volume used in the Plettenberg Bay Water Master Plan is 48 hours of the AADD (of the reservoir supply zone).

No additional reservoir storage capacity will be required in order to accommodate the proposed development.

1.3.3 *Bulk supply*

The existing Keurboomstrand reservoir is supplied with bulk water from the Matjiesfontein reservoir, and the Matjiesfontein reservoir is supplied with bulk water from the Town reservoirs (situated at the Plettenberg Bay Water Treatment Plant) through a dedicated bulk pipeline. The bulk supply system between the Town reservoirs and the Matjiesfontein reservoir also supplies bulk water to the Wittedrift reservoir (from where water is supplied to Wittedrift and Green Valley) and the Aventura reservoir.

Currently bulk water supply to the Matjiesfontein reservoir is also augmented with water from the Goose Valley reservoir zone through a connection between the Goose Valley reservoir network and the existing bulk system. An existing connection also exists between the water network of the Town reservoir zone and the water network of the Goose Valley reservoir zone, which results that bulk water supply to the Matjiesfontein reservoir is augmented with water from the Town reservoir zone through the existing Goose Valley zone.

Table 1 attached is a summary of the capacity of the existing bulk supply system from the Plettenberg Bay Water Treatment Plant (WTP) to supply water to the draw off point to the Wittedrift reservoir, to the draw off point of the Aventura reservoir, to the Matjiesfontein reservoir and to the Keurboomstrand reservoir, for the recommended scenario where the bulk supply system is isolated from the network reticulation system. The routes of the bulk pipelines are shown on Figure 2 attached.

The results can be summarized as follows:

Pipes with sufficient capacity:

- The 150 mm diameter bulk pipe between the draw off point to the Wittedrift reservoir and the draw off point to the Aventura reservoir has sufficient capacity to accommodate the proposed development.

- The 200 mm diameter bulk pipe from the draw off point to the Aventura reservoir and the Matjiesfontein reservoir has sufficient capacity to accommodate the proposed development.

- The 200 mm diameter bulk pipe from the Matjiesfontein reservoir to the Keurboomstrand reservoir has sufficient capacity to accommodate the proposed development.

Pipes with insufficient capacity:

- The 150 mm diameter bulk pipeline between the Town reservoir C and the draw off point to the Wittedrift reservoir is currently at capacity and has insufficient capacity to accommodate the proposed development.

1.4 Implementation of the master plan

The capacity of the existing 150 mm diameter bulk water supply pipe between the Town reservoir and the draw off point to the Wittedrift reservoir can be augmented through the implementation of a cross-connection between the 150 mm bulk pipeline and an existing 300 mm network pipe (supplied with water from the Town reservoir A). The proposed cross-connection is shown on Figure 2 attached.

Bulk supply augmentation

- BPW.B40 : 50 m x 315 mm Ø inter-connection between existing 150 mm & 300 mm diameter pipes = R 131 000*

It is also proposed that the existing Goose Valley reservoir zone is isolated from the existing bulk supply to the Matjiesfontein reservoir through the implementation of two new zone valves:

• BPW.B66	: Close existing valve	= R	0 *
• BPW.B68	: Insert new zone valve	= R	97 000 *
	Total	= R	97 000 *

(* 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 inter-connection pipeline is schematically shown on Figure 2 attached, but has to be finalised subsequent to a detail pipeline route investigation.

2 SEWER NETWORK

2.1 Drainage area

The development falls within the existing Keurboom Main pump station (PS) drainage area. The proposed connection point for the development is at the existing 160 mm outfall sewer to the south of the development area, as shown on Figure 3 attached.

Sewage is currently pumped from the Keurboom Main PS to the Matjiesfontein PS through a 200 mm diameter rising main and from the Matjiesfontein PS to the Aventura PS through a 200 mm diameter rising main. From the Aventura PS sewage is pumped through the old 140 mm diameter and new 200 mm diameter rising mains to the Ganse Valley Wastewater Treatment Plant (WWTP).

The development is inside the sewer priority area.

Note: Bitou Municipality should verify if the old 140 mm diameter rising main is operational.

2.2 Sewer flow

No provision was made in the original sewer master plan for development on Erf 155.

For this re-analysis, the PDDWF for the proposed development was calculated as 2,1 kℓ/d.

2.3 *Present situation*

2.3.1 Gravity sewer system

There is sufficient capacity in the existing gravity sewer system between the proposed development and the existing Keurboom Main PS to accommodate the proposed development.

2.3.2 Pump Station Capacity

Keurboom Main PS

The existing Keurboom Main PS (with a capacity of 27 ℓ/s and an accompanying 200 mm diameter rising main) has sufficient capacity to accommodate the proposed development.

Matjiesfontein PS

The existing Matjiesfontein PS has a capacity of 30 ℓ/s with an accompanying 200 mm diameter rising main.

The existing instantaneous peak flow at the Matjiesfontein PS (with the proposed development accommodated in the existing system) is as follows:

Peak flow from Matjiesfontein PS drainage area		=	1,7 ℓ/s
Flow from upstream Sanderlings PS, Oakley PS & the Dunes PS		=	5,6 ℓ/s
Allowance for rainwater infiltration		=	3,1 ℓ/s
Flow from upstream Keurboom Main PS		=	27,0 ℓ/s
	Total	=	37,4 ℓ/s

The combined instantaneous peak flow that can arrive at the Matjiesfontein PS (when the upstream Sanderlings PS, Oakley PS, The Dunes PS and Keurboom Main PS are pumping simultaneously) is more than the capacity of the Matjiesfontein PS (37,4 ℓ/s versus capacity of 30,0 ℓ/s) and overflowing of the Matjiesfontein PS will therefore occur if the size of the existing sump of the Matjiesfontein PS is insufficient to balance out the peak flows from the respective pumping stations.

From the information available it therefore appears that there is not sufficient capacity in the existing Matjiesfontein PS to accommodate the proposed development. It is however proposed that flow readings are taken at the Matjiesfontein PS to have this verified.

The existing 200 mm diameter Matjiesfontein PS rising main has a capacity of 47,1 ℓ/s (at a flow velocity of 1,5 m/s through the rising main). If the Matjiesfontein PS is upgraded to a capacity of 50,0 ℓ/s in order to accommodate the proposed development, the flow velocity through this pipeline will be 1,6 m/s and still be acceptable. The existing rising main therefore has sufficient capacity to accommodate the proposed development, but upgrading will be required when the capacity of the Matjiesfontein PS is upgraded to more than 50,0 ℓ/s.

Note: The capacity of the pump stations and the diameter of the accompanying rising mains should be verified by the Bitou Municipality.

Aventura PS

The existing Aventura PS has a capacity of 30 ℓ/s with accompanying 200 mm and 140 mm diameter rising mains.

The existing instantaneous peak flow at the Aventura PS is as follows:

Flow from upstream Wittedrift PS		=	8,0 ℓ/s
Flow from upstream Twin Rivers PS2		=	5,0 ℓ/s
Flow from upstream Aventura resort PS		=	5,0 ℓ/s
Flow from upstream Matjiesfontein PS		=	30,0 ℓ/s
	Total	=	48,0 ℓ/s

The combined instantaneous peak flow that can arrive at the Aventura PS (when the upstream Wittedrift PS, Twin Rivers PS2, Aventura resort PS and Matjiesfontein PS are pumping simultaneously) is more than the capacity of the Aventura PS (48,0 ℓ/s versus capacity of 30,0 ℓ/s)

and overflowing of the Aventura PS will therefore occur if the size of the existing sump of the Aventura PS is insufficient to balance out the peak flows from the respective pumping stations.

From the information available it therefore appears that there is not sufficient capacity in the existing Aventura PS to accommodate the proposed development. It is however proposed that flow readings are taken at the Aventura PS to have this verified.

The existing 200 mm and 140 mm diameter Aventura PS rising mains have a combined capacity of 70,2 ℓ/s (at a flow velocity of 1,5 m/s through the rising main) and has sufficient capacity to accommodate the proposed development.

Notes:

- The capacity of the pump stations and the diameter of the accompanying rising mains should be verified by the Bitou Municipality.
- Bitou Municipality should verify if the old 140 mm diameter rising main is operational.

2.3 Implementation of the master plan

The following master plan items will be required to reinforce the existing system in order to accommodate the proposed development.

Network upgrade (Minimum requirement)

- BPS34.1a : Upgrade existing Aventura PS to a capacity of 70 ℓ/s = R 342 000 *
- BPS38.1a : Upgrade existing Matjiesfontein PS to a capacity of 50 ℓ/s = R 276 000 *

Total = R 618 000 *

When other future development areas within the greater Matjiesfontein PS drainage area develop in future, upgrading of the Matjiesfontein PS to a capacity of above 50,0 ℓ/s will be required. This subsequently will result that the Aventura PS and the diameters of the Matjiesfontein and Aventura rising mains are upgraded as well.

Network upgrade (Longer term)

- BPS34.1b : Upgrade existing Aventura PS to a capacity of 85 ℓ/s = R 389 000 *
- BPS34.2 : 5 410 m x 355 mm Ø replace existing 140 mm Ø rising main = R 12 243 000 *
- BPS38.1b : Upgrade existing Matjiesfontein PS to a capacity of 70 ℓ/s = R 342 000 *
- BPS38.2 : 1 780 m x 200 mm Ø New rising main = R 1 542 000 *

Total = R 14 516 000 *

(* 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 routes of the proposed pipelines are schematically shown on Figure 4 attached, but have to be finalised subsequent to detail pipeline route investigations.

3 CONCLUSION

The developer of Erf 155 in Keurboomstrand will be liable for the augmentation and transportation fees (as calculated by the Bitou Municipality) as a contribution towards water infrastructure and the augmentation and transportation fees (as calculated by the Bitou Municipality) as a contribution towards sewer infrastructure.

Accommodation of the development in the present reticulation system will require no upgrading of the existing reticulation system to comply with the pressure and fire flow criteria as set out in the master plan.

Upgrading of the existing bulk supply system is however proposed in order to isolate the existing bulk and reticulation systems and to augment bulk water supply to the Matjiesfontein reservoir.

It appears that the existing bulk sewer system downstream of the development has insufficient capacity to accommodate the proposed development. It is proposed that flow readings are taken at the Matjiesfontein and Aventura pumping stations to have this verified.

Based on the available information of the pumping stations, the minimum requirements to accommodate the proposed development in the existing sewer system are master plan items BPS34.1a and BPS38.1a required to augment the capacity of the existing sewer system between the Matjiesfontein PS and the Ganse Valley WWTP.

We trust that you find this of value.

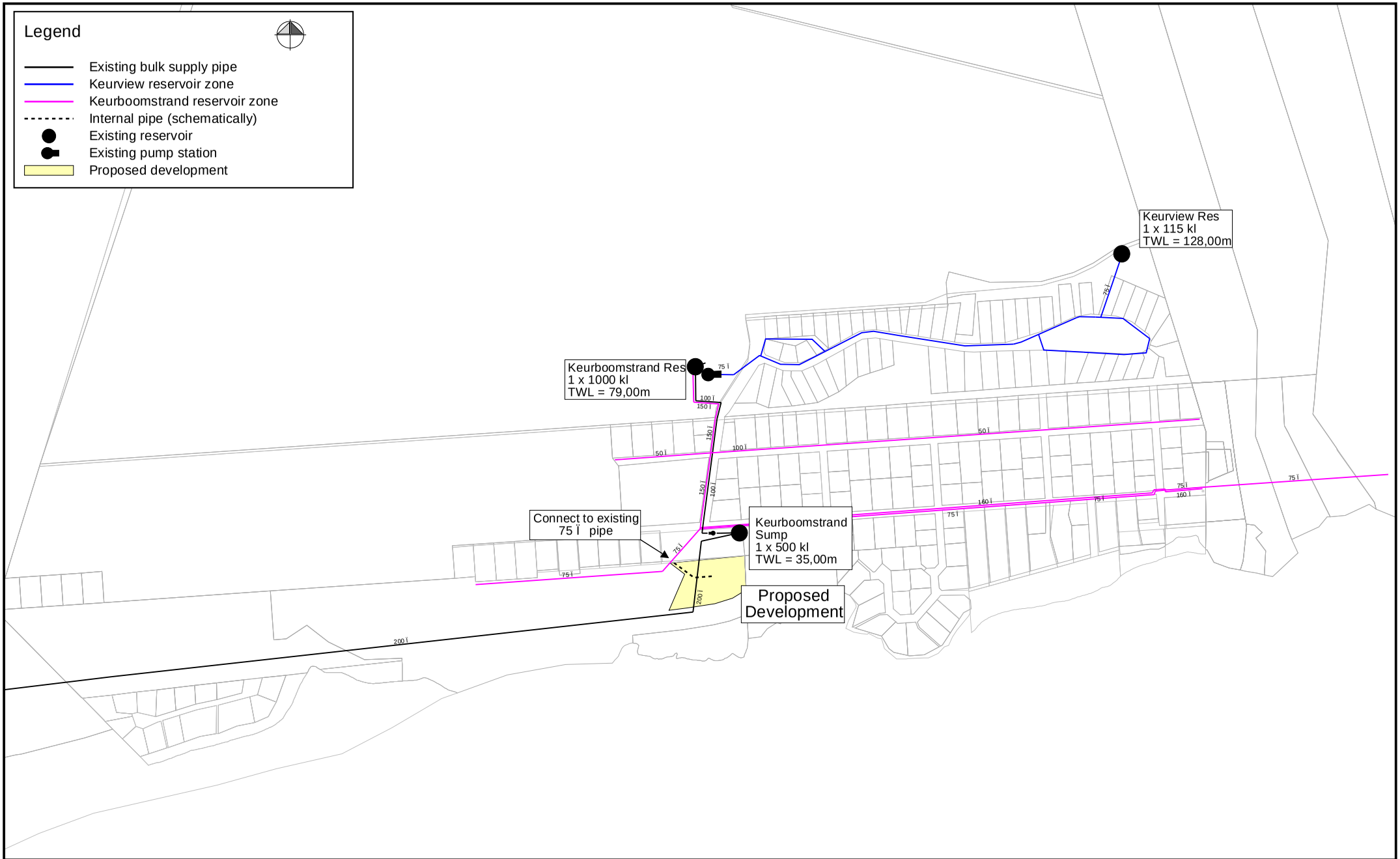
Yours sincerely

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

Per: JJ STREICHER (Director)

cc. WM de Kock Town Planners
P. O. Box 9934
George
6530

Attention: Mr Willem de Kock

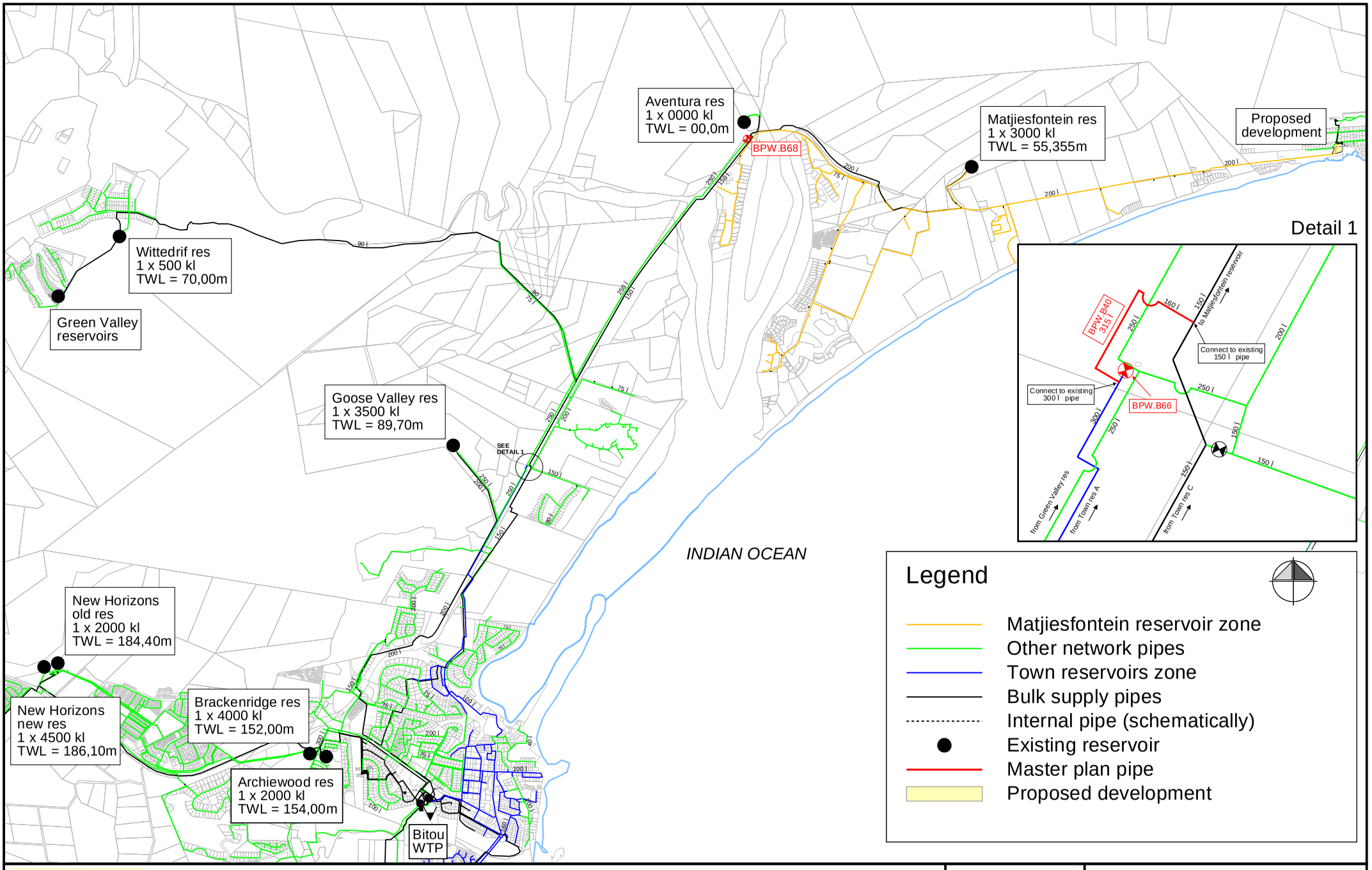


November 2016

Erf 155, Keurboomstrand

Figure 1

Proposed Development
Erf 155, Keurboomstrand
Existing Water System



Bitou municipality
to be the best together

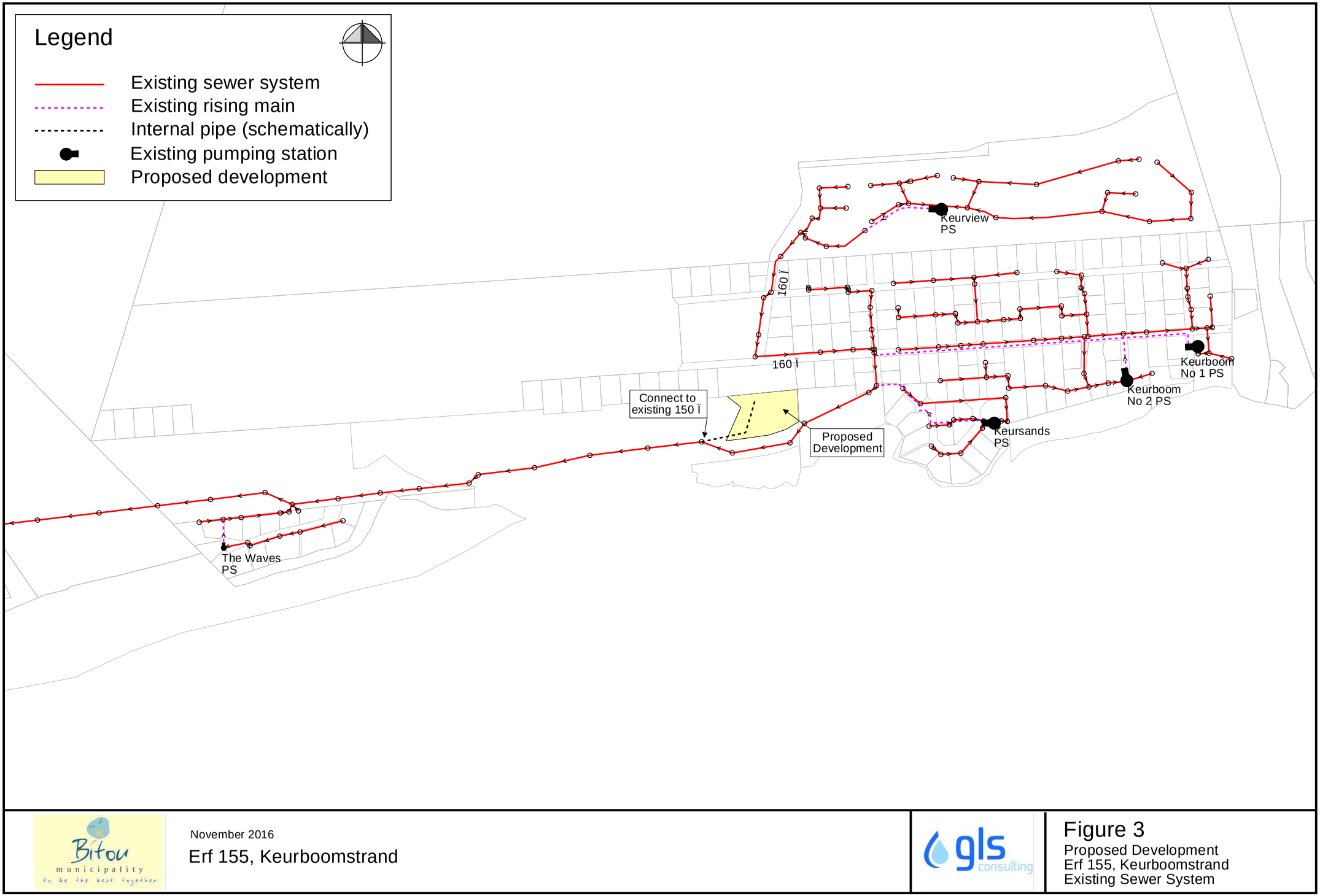
November 2016

Erf 155, Keurboomstrand

gls consulting

Figure 2

Proposed Development
Erf 155, Keurboomstrand
Water master plan



Bitou municipality
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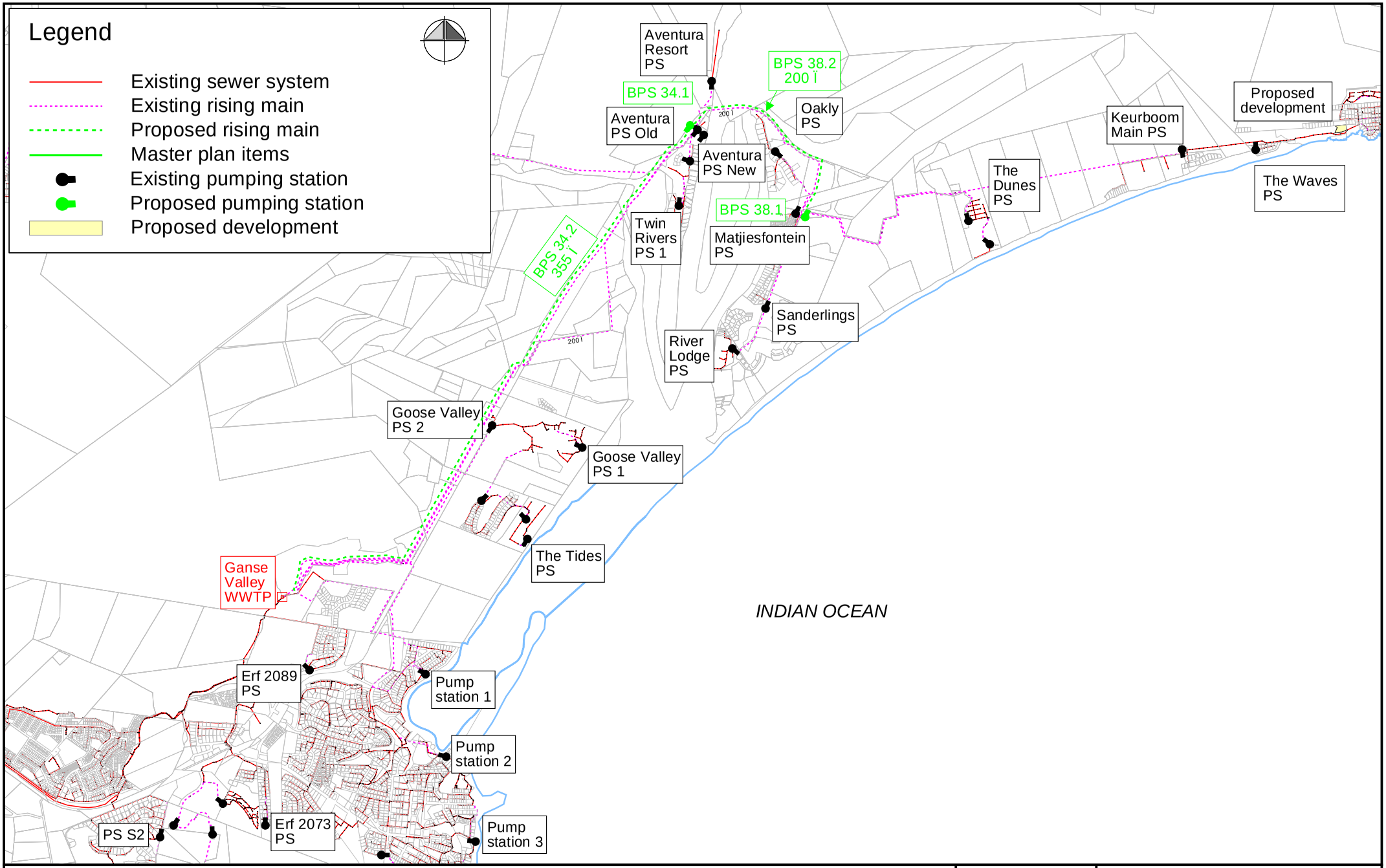
Erf 155, Keurboomstrand

gls consulting

Figure 3
Proposed Development
Erf 155, Keurboomstrand
Existing Sewer System



November 2016

Erf 155, Keurboomstrand

Figure 4

Proposed Development
Erf 155, Keurboomstrand
Sewer master plan

Table 1: Capacity of the Plettenberg Bay bulk supply system (from the Plettenberg Bay WTP to the Keurboomstrand reservoir)

Bulk pipe segment (see Figure 2)	Existing system									
	Existing diameter of bulk pipes	Existing capacity @ 1,2 m/s flow velocity	AADD served	Area/ reservoirs served	Existing capacity required	Spare capacity (excluding development)		Peak day flow required for development	Spare capacity (including development)	
	(mm)	(l/s)	(kl/d)		(l/s)	(l/s)	%	(l/s)	(l/s)	%
From Town reservoirs to the Wittedrift reservoir draw off point, to the Aventura reservoir draw off popint & to the Matjiesfontein reservoir.										
From the Town reservoir C to the Wittedrift reservoir draw off point	150	21.2	918	Wittedrift Green Valley Aventura res Matjiesfontein res Keurboomstrand	21.3	0.0	0%	0.4	0	-2%
From the Wittedrift reservoir draw off point to the Aventura reservoir draw off point	150	21.2	715	Aventura res Matjiesfontein res Keurboomstrand	16.6	4.7	22%	0.4	4	20%
From the Aventura reservoir draw off point to the Matjiesfontein reservoir	200	37.7	640	Matjiesfontein res Keurboomstrand	14.8	22.9	61%	0.4	22	60%
From the Matjiesfontein reservoir draw off point to the Keurboomstrand reservoir	200	37.7	486	Keurboomstrand	11.3	26.4	70%	0.4	26	69%

Note: Peak day factor of 2,0 x AADD used in calculations for supply to reservoirs

391 PARK PARK

14

15

20

21

N

5000l Roof Run-off Collector with 25mm outlet at base (Always open).

5000l Roof Run-off Collector with 25mm outlet at base (Always open).

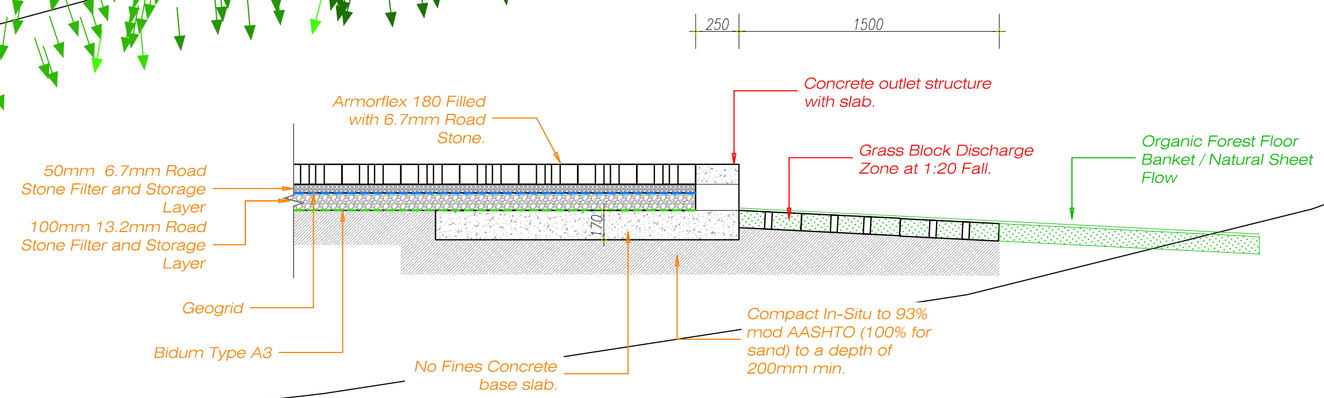
5000l Roof Run-off Collector with 25mm outlet at base (Always open).

LEGEND

- Organic Forest Floor Blanket/ Natural Sheet Flow Areas
- Permeable Pavement Layers
- Pavement Discharge Zones
- Roofs and Built up Zones
- Rainwater Collectors and Storage

Site Stormwater Control Layout

1:250



Permeable Pavement and Discharge detail

1:25

Revisions		
No.	Detail	Date

TUINIQUA

Tuiniqua (Pty) Ltd Reg. 2001/018866/07
Ph (+27) 44 533 6369 Email engineer@tuiniqua.co.za
Fax (+27) 44 533 2858 Web www.tuiniqua.co.za

Project

New Development

For

Ptn of Erf 155
Keurboomstrand

Description

Proposed Stormwater Management Plan

Scale: ——— 1:250

Prepared By: SvN

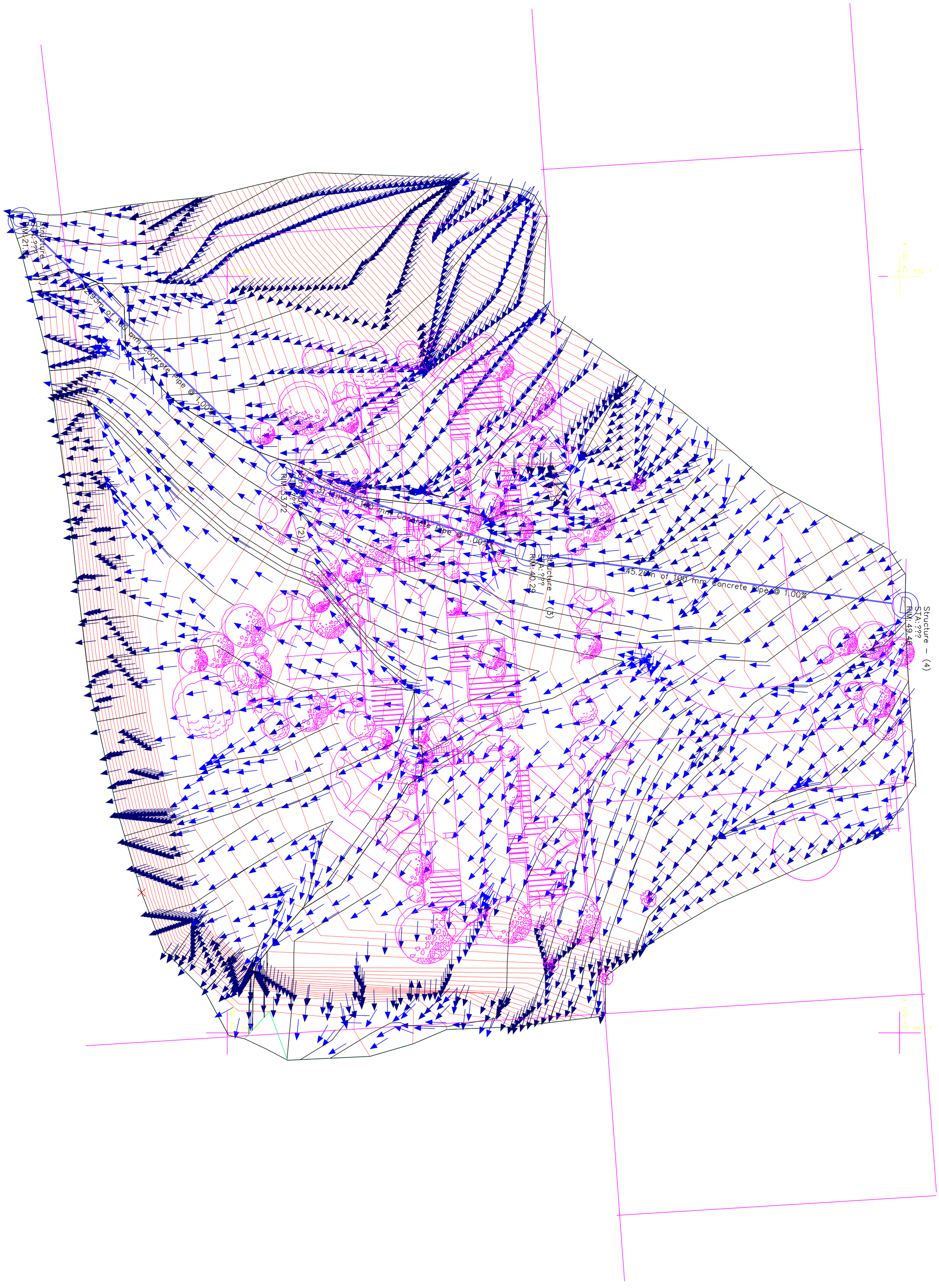
Approved By: F. Schaltz Pr. Eng. Reg no. 970144

Date: 07 - 10 - 2020

Drg No: C

Project No.: TP801/152/04-19

Rev: 00


Structure – (1)
STA: ???
RIM: 21.04
129.5m of 100 mm Concrete Pipe @ 1.00%
Structure – (2)
STA: ???
RIM: 33.72
32.14m of 100 mm Concrete Pipe @ 1.00%
Structure – (3)
STA: ???
RIM: 40.29
45.26m of 100 mm Concrete Pipe @ 1.00%
Structure – (4)
STA: ???
RIM: 49.46

FERPA (Pty) Ltd.

ELECTRICAL SERVICES REPORT

FOR

PROPOSED DEVELOPMENT OF THREE HOUSES ON A PORTION OF ERF 155, KEURBOOMSTRAND

REPORT NO: G/19011/E/R1

Dated: 20 August 2020

Prepared by:
Clinkscales Maughan-Brown (South) (Pty) Ltd.
39 Victoria Street
GEORGE
6529
Contact: R. Steenekamp
Tel. No. 044-8741511

cmb
CLINKSCALES MAUGHAN-BROWN
CONSULTING MECHANICAL
& ELECTRICAL ENGINEERS

INDEX

1.0 INTRODUCTION

This report has been prepared by Clinkscales Maughan-Brown at their George office, who have been appointed by the Developer, Messrs Ferpa (Pty) Ltd, as the Electrical Consultants for this project. The purpose of this report is to provide the necessary information on the proposed electrical services within this Development and the connection to the existing municipal network in the area, in order to obtain all the necessary statutory approvals and to draw up a services agreement.

2.0 LOCATION

The development is planned on a portion of Erf 155 at Keurboomstrand, as indicated on Drawing No. 19011/E/01 which is attached as Annexure A. The development includes for the rezoning and subdivision of a portion of Erf 155 to permit a residential development of three houses in a sectional title scheme. This is the preferred low density development option and is being addressed in this report.

The following site development alternatives were also considered, and is commented on from an electrical point of view under Item 13.0 below:

Option 1: Six dwellings with double storeys, using the same developable area as before, to increase the development density somewhat, if the low density development is deemed undesirable; and

Option 2: Twelve housing units, based on the exact same layout, using the same developable footprint, but creating even smaller higher density units, to get to 12 in total, if a medium density development is also not acceptable.

No development option: Retaining the site as is for private open space and whatever facilities could fit on there without requiring any authorisation other than a building plan, e.g. viewing deck, tennis court, etc.

3.0 SUPPLY AUTHORITY

The Supply Authority for the area is Bitou Municipality, and therefore their Electricity Department was consulted on matters related to the electrical services.

4.0 BASIS OF REPORT

The report is based on the following:

(i) Site development layout drawing received from Messrs Slee & Co Architects (Pty) Ltd on 19 August 2020.
(ii) Information obtained from Mr. Mandla Mangembe from Bitou Municipality's Electricity Department on 19 August 2020.
(iii) General information received from other members of the professional team.

5.0 DEMAND

Based on the information currently available, the peak kVA demand of the Development has been calculated as follows:

3 Units @ 13.8kVA (60A single phase) each @ 1 diversity = 41.4 kVA

Energy saving measures and alternative energy resources as mentioned hereunder will be considered and implemented where economically viable:

- Comply with SANS 10400.
- The use of solar geysers or heat pumps to heat water instead of electric heater elements.
- The electricity used to heat water to be reduced by reducing the amount of hot water used by fitting low-flow faucet aerators.
- Thermal insulation of geysers (geyser blankets) and hot water pipes.
- Load management systems to limit load in buildings, i.e. geyser control relays to switch of geysers during peak periods, load control relays to prevent geysers and other high load appliances in buildings from operating simultaneously, etc.
- Heating, ventilation and air conditioning generally use the most electricity in a building. Through efficient operational management of these systems, the demand can be reduced by at least 15%.
- The use of LPG gas for heating and cooking.
- Energy efficient lighting design, making use of LED lighting and motion / photo detectors to switch off lighting in un-used sections of buildings and to automatically adjust lighting levels according to the amount of natural lighting in buildings, etc.
- The installation of energy efficient appliances and electronic devices, i.e. refrigerators, motors, pumps, fans, etc.
- Consideration will also be given to install a rooftop Photo Voltaic (PV) installation to reduce electricity consumption from the municipal grid, and to supplement the supply as necessary.

6.0 AVAILABILITY OF CAPACITY

The required capacity should be available at the identified point of connection.

As part of the environmental approval process, a letter of confirmation on the availability of capacity will be required from Bitou Municipality.

7.0 BULK AND LINK SERVICES

The Developer will not be required to install any bulk or link infrastructure upstream from the Point of Connection.

It is proposed that the supply be connected at the low voltage busbars of existing miniature substation “MS-2” located along Hoofstraat as indicated on the attached drawing.

In terms of the available plans of the Municipality’s existing electrical network, the existing 11kV underground cables between the Keurboomstrand Main Intake point and miniature substation “MS-2”, crosses this property in the approximate position as indicated on the attached drawing. The exact positions of these cables must be determined on site by digging inspection trenches. Should these cables fall within the building footprint, the cables will have to be relocated and a servitude registered for same.

8.0 INTERNAL SERVICES

It is proposed that a low voltage cable be installed from MS-2 to a bulk metering / distribution kiosk located on the northern boundary of the development along the route as indicated.

The Municipality’s responsibility will end at the Point of Supply, i.e. load terminals of the new LV bulk meter to be installed. The Developer will have to enter into a supply agreement with the Municipality. The Developer will be responsible for operating and maintaining the internal network downstream from the meter.

The Developer will be responsible for metering of each individual residential unit's consumption, sending out accounts, debt collection, etc. The services of a metering agent could be employed to assist in this regard and using prepayment metering.

9.0 TECHNICAL PARTICULARS

All drawings and specifications of the network must comply with the Municipality's technical requirements and must be submitted to them for official approval before any construction can commence.

The Low Voltage (LV) network will be underground cable and a ground mounted distribution kiosk. The LV cable type will be PVC insulated, PVC bedded, galvanised steel wire armoured 600/1000V with four copper or aluminium conductors. The LV distribution kiosk will be glass fibre or polyethylene type with doors both front and back, and will be installed to act as the distribution point for the service connections.

The main consumer circuit breaker and kWh consumption meters for each service connection will be installed inside said kiosk.

Underground service cables will be installed from the kiosk to the houses distribution boards by the Builder's Electrician. The building's internal electrical installation and earthing will be the responsibility of the Builder's Electrician.

Private road and walkway lights will be the post top and / or bollard type to suit the architectural theme.

The internal network will be designed so that any internal faults do not cause nuisance tripping of the upstream municipal network.

No switching of supplies or work in close proximity of existing cables will be carried out without prior arrangement with the Municipality's electrical department. The Electrical Contractor will also be required to liaise with the Municipality's civil department and communication service providers to obtain the necessary wayleaves and ensure that no damage is caused to existing underground services during construction.

10.0 ENVIRONMENTAL REQUIREMENTS

All work on site will comply in all respects with the environmental management requirements.

11.0 PROGRAMME

It is expected that construction of the houses will commence as soon as all the necessary approvals have been received and the feasibility has been accepted.

12.0 CAPITAL COSTS

The Developer will be responsible for the following:

(i) Supply, installation and commissioning of the complete internal installation and connection to the existing municipal network as described above.

(ii) Payment of a pro-rata transformer fee towards the future replacement cost of the transformer, low voltage panel and MV switchgear inside the miniature substation where the supply is to be connected. This fee is provisionally calculated as follows:
= Pro-rata % payable x replacement cost of miniature substation
= 4% x R679 000-00, excl. VAT.
= R27 160.00, excl. VAT.

(iii) Payment of the standard municipal augmentation fee towards the future upgrading of the Municipality's primary network beyond the point of connection for the demand required.

This fee has been provisionally calculated as follows based on this financial year's charge:

= Number of Equivalent Residential Units (ERU's) x Cost per ERU
= ((41.4kVA x 1 network factor) ÷ (10.35 x 1 diversity factor)) x R17 175.77
= 4 ERU's x R17 175.77
= R68 703.08, excl. VAT.

All work will be done under the direction of the Developer's Electrical Consultant, i.e. Messrs Clinkscales Maughan-Brown, and by an Electrical Contractor to be approved by the Developer and the Municipality.

These calculations/amounts are provisional and must be agreed and finalised when the services agreement is compiled. The amounts are normally payable to the Municipality before the supply is energized.

It is noted that all municipal fees are adjusted annually on 1 July.

13.0 ALTERNATIVE SDP OPTIONS

All the abovementioned items will be applicable to all the proposed development options, with the exception of Items 12.0 (ii) and (iii). For these items, the municipal transformer fee and augmentation fees payable will be adjusted in accordance with the higher number of units proposed.

14.0 CONCLUSION

We trust that this information is sufficient to obtain the necessary approvals and for the Municipality to draw-up the Services Agreement.

Please contact the writer should more information be required.

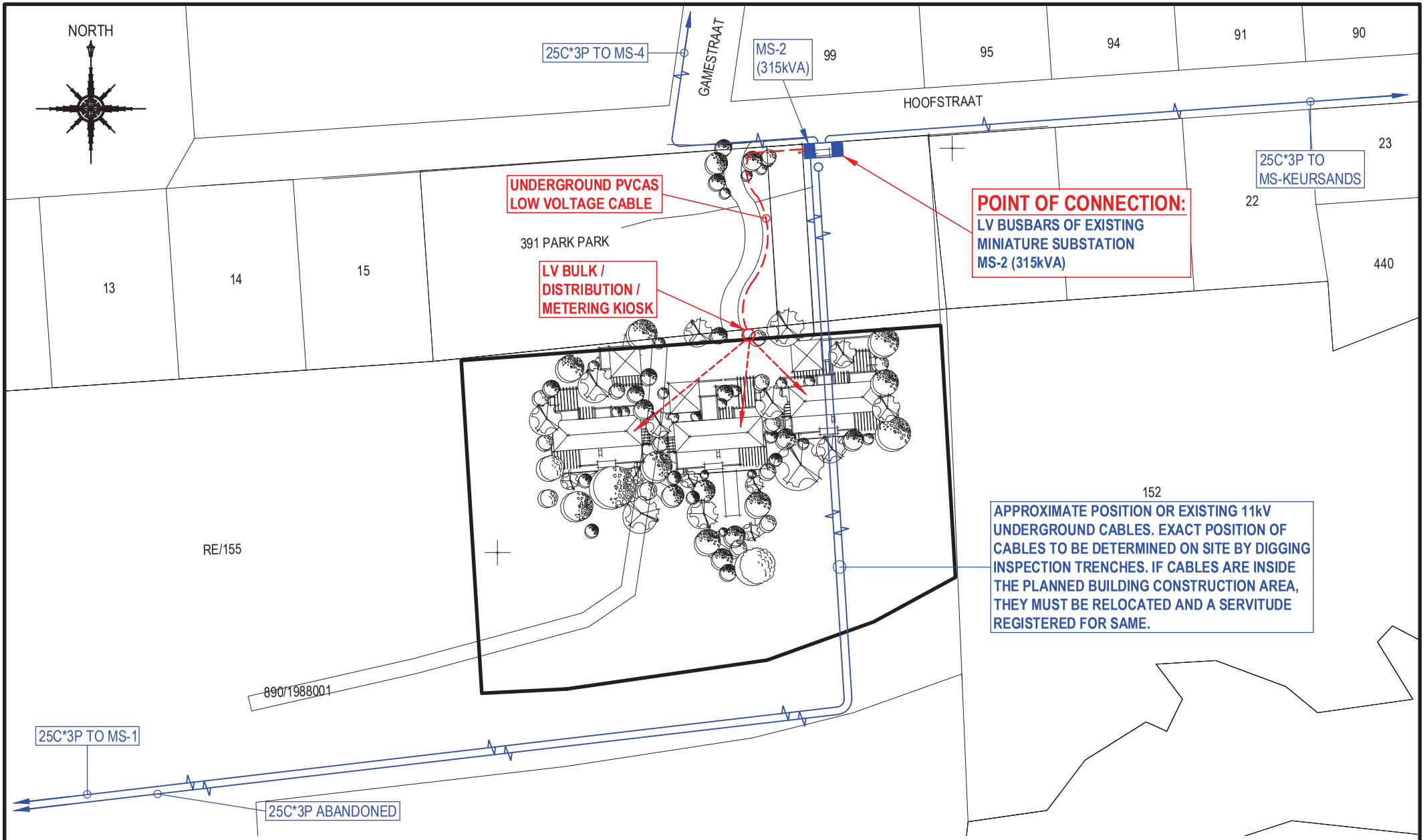
In order to speed-up the process, a copy of this report will also be forwarded directly to the Town Electrical Engineer, for their approval and comments.

R.L. Steenekamp Pr Eng Pr CPM
CLINKSCALES MAUGHAN-BROWN

---ooo0ooo---

ANNEXURE A

Drawing No: 19011/E/01 - Plan layout of proposed electrical connection



cmb
CLINKSCALES MAUGHAN-BROWN
CONSULTING MECHANICAL & ELECTRICAL ENGINEERS
PORT ELIZABETH EAST LONDON GEORGE CAPE TOWN WINDHOEK CESA
CLINKSCALES MAUGHAN-BROWN (SOUTH) (PTY) LTD (2012/075708/07)
39 Victoria St
George 6529
PO Box 2551
George 6530
Tel: +27 44 874 1511
Fax: +27 44 874 1510
cmb@cmbgeorge.co.za
www.clinkscales.co.za

PROJECT
THREE HOUSES ON A PORTION OF ERF 155 KEURBOOMSTRAND

CLIENT
FERPA (PTY) LTD

DRAWING TITLE
PLAN LAYOUT OF PROPOSED ELECTRICAL CONNECTION

DRAWN	DESIGNED	CHECKED	APPROVED
MvM	RLS	RLS	

SCALE	DATE	CAD REF No.	DWG-SIZE
1:1000	20/08/2020	19011-E-01	A4

DRAWING NO
19011/E/01

REVISION

INNOVATIVE TRANSPORT SOLUTIONS

29 De Havilland Crescent
Pro Park, Building 1
Persequor Technopark
Pretoria 0020
+27 (012) 349 1664
gauteng@itsglobal.co.za

5th Floor, Imperial Terraces
Carl Cronje Drive,
Tyger Waterfront
Bellville 7530
+27 (021) 914 6211
westerncape@itsglobal.co.za

www.itsglobal.co.za

FERPA (PTY) LTD
P.O. Box 35097
Menlo Park
1020

24 August 2020

Our Reference: 4228

Attention: Dupré Lombaard

TRANSPORT IMPACT STATEMENT: PORTION OF ERF 155, KEURBOOMSTRAND

We refer to our appointment to evaluate the expected transport related impacts associated with the proposed development on a Portion of Erf 155, Keurboomstrand. This report is in support of a rezoning and subdivision application on the property.

The property is located to the north of MR394 and to the south of the Main Street in Keurboomstrand. See **Figure** 1 in Annexure A for a Locality Plan.

Proposed Development

It is proposed to subdivide and rezone a portion of Erf 155 to develop a three dwelling houses on the new rezoned erf. For the purposes of this study the layout with three dwelling houses is the preferred alternative. As part of the application process two different development alternatives, i.e. 1) with 6 dwelling units and 2) with 12 apartments were also evaluated. Refer to **Figure 2A, 2B & 2C** in Annexure A for the proposed site development plans.

Existing Traffic Conditions

Existing Roadways in Site Vicinity

Keurboomstrand Road (Provincial Main Road MR394): Class 3 Minor Arterial, one lane per direction, 60 km/h posted speed limit with gravel shoulders and a walkway along the northern side of the road.

Main Street: Class 5 Local Street, one lane per direction, no shoulders and no sidewalks in the site vicinity

Photo 1 to **4** in Annexure B shows the typical cross sections of the roads in the site vicinity.

Transport Impact Analysis

Existing Conditions

A site visit was conducted on Wednesday 19 February 2020 during the p.m. peak traffic hour of the day. The existing traffic volumes and traffic demand on the surrounding road system as observed during the site visit are relatively low, not only on the side streets, but also along MR394. The Annual Average Daily Traffic (AADT) along MR394 is approximately 1 200 with approximately 120 two-way peak hour trips. The directional split is close to 50/50 meaning the peak hour traffic volume in the peak direction is in the order of 55 vehicles per hour. The existing low traffic demand along the surrounding roads results in many gaps in the traffic stream, which enables side road traffic to enter these roads with minimal delay. No significant conflict situations were observed during the site visit.

Year 2025 Background Traffic Conditions (No-Go Alternative)

The 2025 Background Traffic conditions are based on the 2020 existing traffic volumes adjusted with a growth rate of 3 percent per annum over a five-year period without the proposed development. Due to the low traffic volumes along the surrounding road network the intersections and road network will continue to operate at acceptable levels-of-services during the 2025 background traffic conditions.

Trip Generation and Trip Distribution

The preferred alternative for the proposed development is 3 single residential units. A residential development in this area with 3 units could generate approximately 3 vehicle trips during the peak traffic hours (2 outbound and 1 inbound during the a.m. peak hour and 1 outbound and 2 inbound during the p.m. peak hour). These trips are based on a trip generation rate of 1 vehicle trip per residential unit and a 25/75 split during the a.m. peak hour and a 70/30 split during the p.m. peak hour as suggested in the Committee of Transport Official's South African Trip Data Manual (TMH17).

Option 1 has 6 single residential units, which could generate 6 vehicular trips (1 trip per unit) and Option 2 has 12 residential units that that could generate approximately 10 vehicular trips (0.85 trips per Townhouse unit) during the typical weekday peak hours.

It is expected that all trips will travel along MR394 to form the N2.

Traffic Impact

From the observations during the site visit it is evident that all the intersections in the vicinity of the site have sufficient capacity to accommodate the additional trips that will be generated by the proposed development. Based on the nature and extent of the proposed development and the current traffic conditions it is concluded that the transport impact of the proposed development will be insignificant. Therefore, no specific road improvements other than the access off Main Street will be required to accommodate the additional trips that will be generated by the proposed development. Option 1 and Option 2 will both have slightly higher transport impacts due to the

slightly higher number of trips. However, the transport impact associated with both Option 1 and Option 2 will also be of low negative significance.

During the peak holiday periods during Easter weekend and the Christmas holidays the traffic volumes along the road network in the surrounding area can increase to almost double the volumes during the typical weekday peak hours. However, due to small size of the proposed development the surrounding road network will have sufficient capacity to accommodate the new trips associated with the proposed development even during the peak holiday periods.

Access, Access Spacing and Shoulder Sight Distance

Access is proposed via a new servitude access off Main Street over the property to the north of the site, as shown on the SDP **Figure 2A** in Annexure A.

The proposed access is a low volume driveway and the proposed access is sufficient in terms of the minimum access spacing requirements. The available shoulder sight distance to the west of the access is limited. However, due to the topography of the area the operational speed along Main Street in the site vicinity is in the order of 20km/h and the available shoulder sight distance of approximately 40 metres is sufficient.

Parking

It is recommended that parking should be provided at a rate of 2 bays per residential unit. Based on the information provided on the SDP, sufficient parking is provided on site.

Public Transport and Non-Motorised Transport

It is not expected that the proposed development will generate a significant demand for public transport or non-motorised transport. No dedicated public transport or non-motorised transport facilities are recommended for the proposed development.

Conclusions and Recommendations

Based on the evaluation in this report, the conclusions and recommendations are as follows:

- The existing traffic volumes along the surrounding road network in the site vicinity is low.
- Trips generated by the proposed development will be less than 10 trips during the typical weekday peak hours, which is low.
- The surrounding road network has sufficient capacity to accommodate the trips associated with the proposed development, even during the peak holiday periods.
- The access spacing is acceptable and the available shoulder sight distance in both directions along Main Street is sufficient.
- No public transport or NMT facilities are recommended for the development.

- The proposed development will have a low negative significance in terms of the transport impact.
- It is recommended that the development be approved from a transport impact perspective.

We hope this adequately addresses the expected transport impact associated with the proposed development. Please do not hesitate to contact us should you required any further information.

Yours sincerely,

Christoff Krogscheepers
For *Innovative Transport Solutions*

Annexure A: Figures

PROJECT:	FIGURE:	NUMBER:
ERF 155, KEURBOOMSTRAND	LOCALITY MAP	1

G:\4228 TIS Erf 155, Keurboomstrand, Western Cape\11 Drawings, Figures & GIS\CAD\4228 TIS Erf 155 Keurboomstrand_LP_PA_2020-07-07.dwg

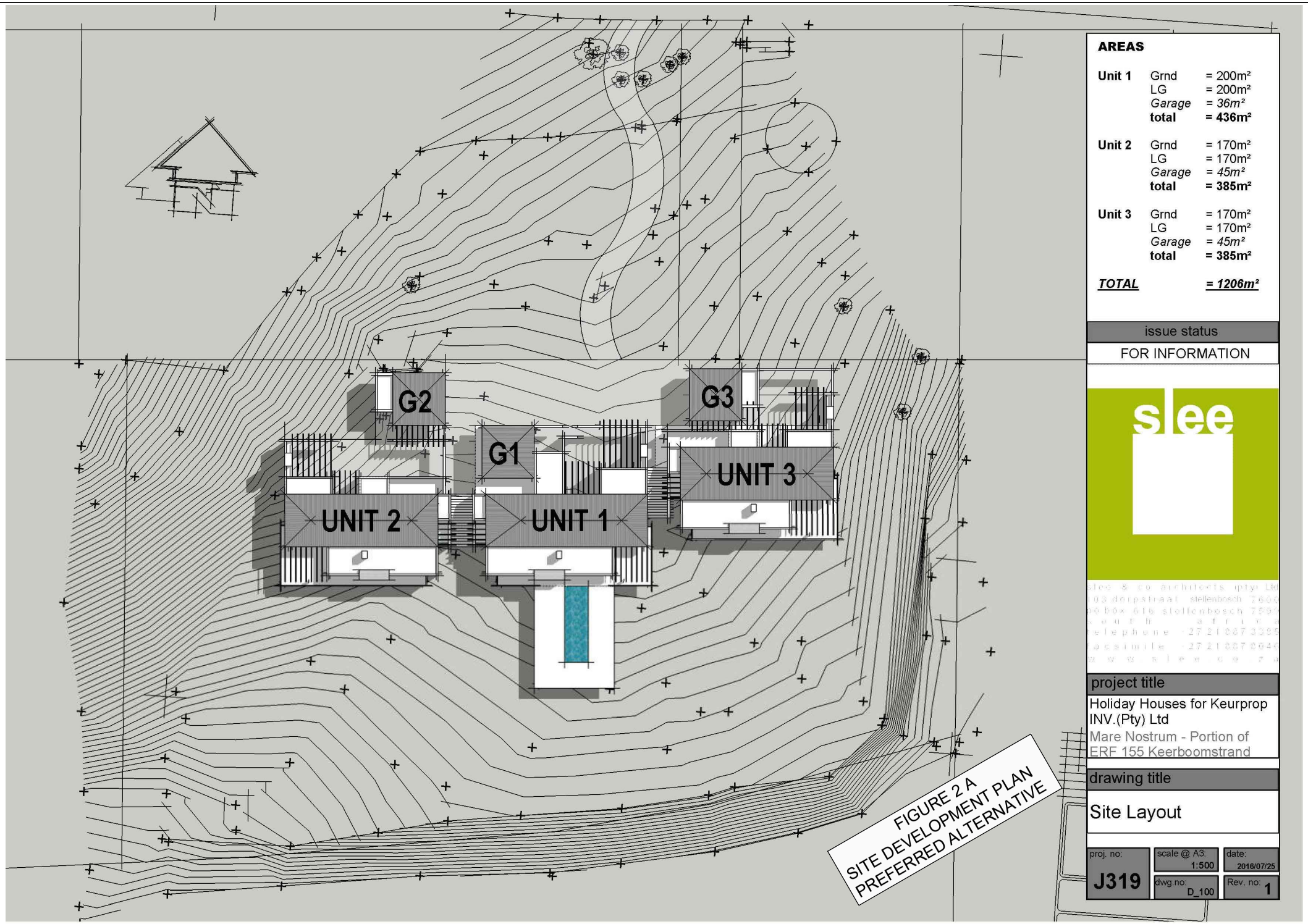


FIGURE 2 A
SITE DEVELOPMENT PLAN
PREFERRED ALTERNATIVE

AREAS

Unit 1	Grnd	= 200m²
	LG	= 200m²
	Garage	*= 36m²*
	total	**= 436m²**
Unit 2	Grnd	= 170m²
	LG	= 170m²
	Garage	*= 45m²*
	total	**= 385m²**
Unit 3	Grnd	= 170m²
	LG	= 170m²
	Garage	*= 45m²*
	total	**= 385m²**
TOTAL		***= 1206m²***

issue status

FOR INFORMATION

slee

slee & co architects (pty) ltd
103 dorpstraat stellenbosch 7600
po box 615 stellenbosch 7599
south africa
telephone +27 21 887 3395
facsimile +27 21 887 8644
www.slee.co.za

project title

Holiday Houses for Keurprop INV.(Pty) Ltd
Mare Nostrum - Portion of ERF 155 Keerboomstrand

drawing title

Site Layout

proj. no:	scale @ A3:	date:
J319	1:500	2016/07/25
	dwg.no: D_100	Rev. no: 1

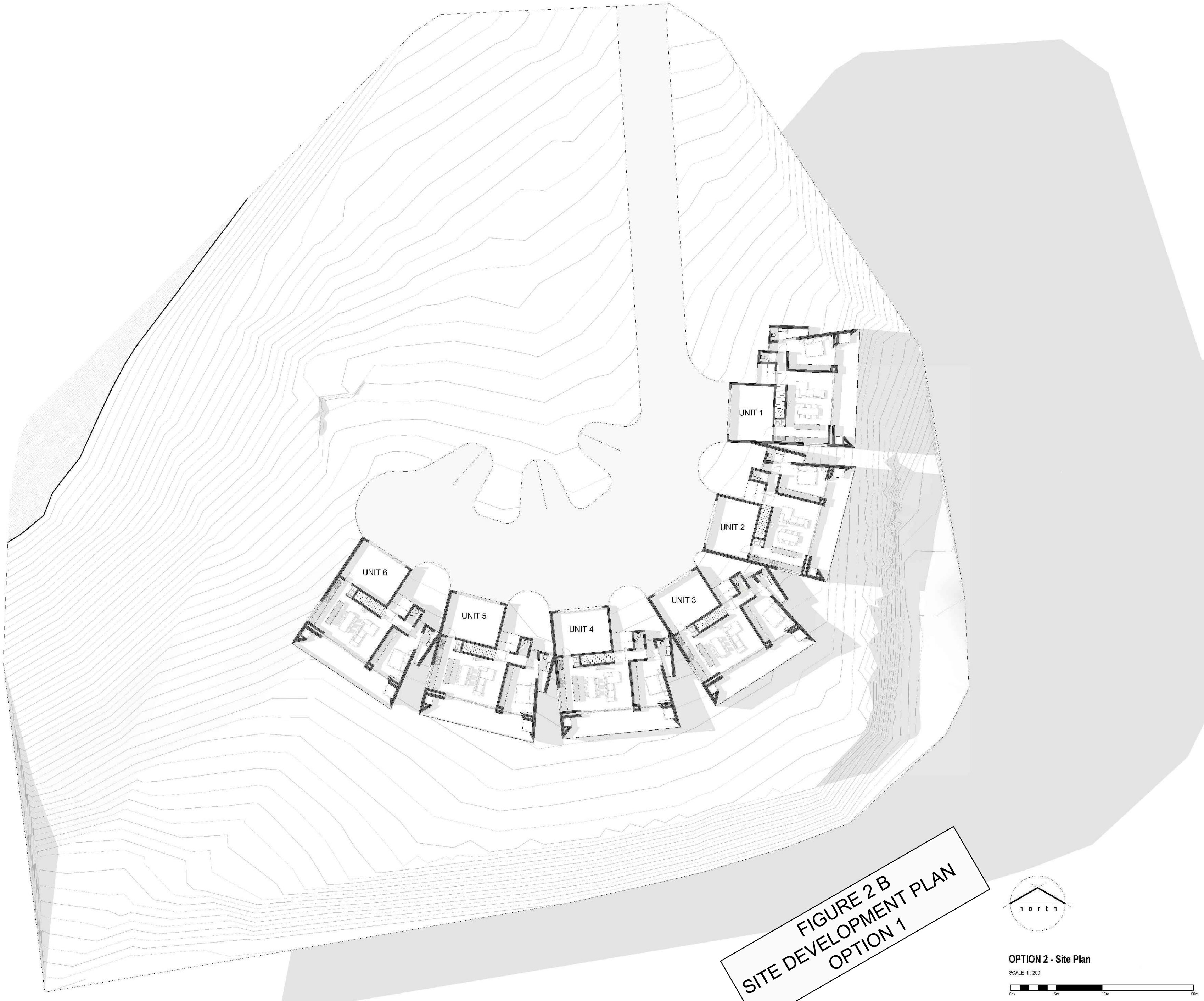


FIGURE 2 B
SITE DEVELOPMENT PLAN
OPTION 1

notes

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OPTION 1 AREAS

UNIT 1	Ground Floor	105m²
	Lower Ground Floor	87m²
	Garage	50m²
	Total	**242m²**
UNIT 2	Ground Floor	105m²
	Lower Ground Floor	87m²
	Garage	50m²
	Total	**242m²**
UNIT 3	Ground Floor	105m²
	Lower Ground Floor	87m²
	Garage	50m²
	Total	**242m²**
UNIT 4	Ground Floor	105m²
	Lower Ground Floor	87m²
	Garage	50m²
	Total	**242m²**
UNIT 5	Ground Floor	105m²
	Lower Ground Floor	87m²
	Garage	50m²
	Total	**242m²**
UNIT 6	Ground Floor	105m²
	Lower Ground Floor	87m²
	Garage	50m²
	Total	**242m²**
GRAND TOTAL		**1452m²**

No.	Description	Date

issue status

FOR COMMENT

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slee & co. architects (pty) Ltd
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po box 616 stellenbosch 7599
south africa
telephone +27 21 887 3385
facsimile +27 21 887 3346
www.slee.co.za
Johann Clemens Slee SACAP Reg No: Pr Arch 3782

project title

Holiday Development - Keurprop INV.(Pty)Ltd.
Portion of ERF 155 Keerboomstrand

drawing title

OPTION 1 - Site Plan

scale @ A1:	proj. no:	dwg.no:	rev.no:
1 : 200	J360	W_705	
date: 06/26/20 drawn: MAF			

FIGURE 2 C
SITE DEVELOPMENT PLAN
OPTION 2

notes

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OPTION 2 AREAS

UNIT 1	Ground Floor	87m²
	Lower Ground Floor	75m²
	Garage	40m²
	Total	**202m²**
UNIT 2	Ground Floor	85m²
	Lower Ground Floor	75m²
	Garage	40m²
	Total	**200m²**
UNIT 3	Ground Floor	83m²
	Lower Ground Floor	75m²
	Garage	40m²
	Total	**198m²**
UNIT 4	Ground Floor	83m²
	Lower Ground Floor	75m²
	Garage	40m²
	Total	**198m²**
UNIT 5	Ground Floor	80m²
	Lower Ground Floor	75m²
	Garage	40m²
	Total	**195m²**
UNIT 6	Ground Floor	86m²
	Lower Ground Floor	75m²
	Garage	40m²
	Total	**201m²**
GRAND TOTAL		**1194m²**

No.	Description	Date

issue status

FOR COMMENT

slee & co. architects (pty) Ltd
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Johann Clemens Slee: SACAP Reg Nr: **Pr Arch 3782**

project title

Holiday Development - Keurprop INV.(Pty)Ltd.
Portion of ERF 155 Keerboomstrand

drawing title

OPTION 2 - Site Plan

scale @ A1:	proj. no:	dwg.no:	rev.no:
1 : 200	J360	W_705	
date: 06/26/20 drawn: MAF			

Annexure B: Photos

Photo 1: MR394 Eastbound View towards Keurboomstrand

Photo 2: MR394 Westbound View towards the Site

Photo 3: Main Street Eastbound View from the Access

Photo 4: Main Street Westbound View from the Access

Western Cape Government

Department of Infrastructure
Vanessa Stoffels
Chief Directorate: Road Planning
Vanessa.Stoffels@westerncape.gov.za | Tel: 021 483 4669

Ref: 16/9/6/1-22/69 (Application 24809-2)

Tuiniqua Consulting Engineers
PO Box 544
PLETTENBERG BAY
6600

Attention: Mr F Scholtz

Dear Sir

PROPOSED AMENDED INTERNAL SEWER LAYOUT: ERF 155, KEURBOOMSTRAND

1. Your e-mail on 22 April 2024 on behalf of Tuiniqua Consulting Engineers to Mr E Burger at this Branch refers.

2. Your proposed sewer layout as depicted on your drawing TP801/152/04-19 Revision 01 dated 19 – 14 – 2024 (*sic*) results in this Branch not being affected in terms of either construction or servicing of the associated sewer infrastructure, as that will now entirely be able to be done *via* the approved access from the north. This Branch, from both an environmental and development approval perspective, offers an unconditional no objection to this proposed sewer layout.

Yours Sincerely

SW CARSTENS
***For* DEPUTY DIRECTOR-GENERAL: TRANSPORT INFRASTRUCTURE BRANCH**
DATE: 15 MAY 2024