



Eco Route

ENVIRONMENTAL CONSULTANCY

REGISTRATION NO. 1998/031976/23

DR. COLLEEN EBERSOHN

PhD Univ. Pretoria

Cell: 072 222 6013

email: ebersohn@cyberperk.co.za

MS. JANET EBERSOHN

BSc. Hons. Environmental Management

Cell: 082 557 7122

e-mail: janet@ecoroute.co.za

APPENDIX D: PLANNING AND BULK SERVICES - DBAR – ERF 7614

**ERF 7416
KNYSNA**

**REZONING ,SUBDIVISION &
DEPARTURE APPLICATIONS**



Lelieskloof

VPM PLANNING

30 OCTOBER 2020



TABLE OF CONTENTS

1. Introduction	3
2. Background	3
3. Property Description	6
3.1 LOCALITY	6
3.2 PROPERTY DETAIL	6
4. Bio – Physical Site Analysis	7
4.1 TOPOGRAPHY	7
4.2 ENVIRONMENTAL CONSIDERATIONS	7
4.3 IMPROVEMENTS	9
5. Proposal	9
5.1 THE DEVELOPMENT CONCEPT	9
5.2 PHASED DEVELOPMENT AND SUBDIVISION	10
5.3 ACCESS	11
5.4 BUILDING DESIGN AND PLACEMENT	14
5.5 HOUSING TYPOLOGY	15
5.6 OPEN SPACE	16
5.7 PARKING	16
5.8 ZONING PARAMETERS	17
5.9 ENGINEERING SERVICES	17
5.9.1 WATER SUPPLY	18
5.9.2 SEWER DISPOSAL	18
5.9.3 STORMWATER MANAGEMENT	19
5.9.4 ELECTRICITY	19
5.9.5 SOLID WASTE	19
6. Motivation	19
6.1 NEED	20
6.1.1 NEED FOR AFFORDABLE HOUSING	20
6.1.2 THE NEED FOR HIGHER DENSITY	21
6.1.3 SOCIO-ECONOMIC NEED OF THE BROADER COMMUNITY	21
6.2 DESIRABILITY	23
6.2.1 LOCALITY	23
6.2.2 BIO-PHYSICAL SITE CHARACTERISTICS	23

6.3 URBAN CONTEXT.....	24
6.3.1 STRATEGIC VIEW OF THE AREA	24
6.3.2 IMPACT ON THE LARGER KNYSNA AREA.....	29
<i>7. Conclusion.....</i>	<i>32</i>

List Of Plans

- Diagram 1: Locality Plan
- Diagram 2: Aerial Photo
- Diagram 3: Contour Plan and Slope Analysis
- Diagram 4: CBA Map
- Diagram 5: Zoning Map
- Diagram 6: Land Use Map
- Diagram 7: Site Development Plan
- Diagram 8: Subdivision Plan KN7614/8 dated 12/10/20

List Of Annexures:

- Annexure A: Power of Attorney and Company Resolution
- Annexure B: Copy of the Title Deed
- Annexure C1: Surveyor General Diagram: Erf 7614 Knysna
- Annexure C2: Surveyor General Diagrams: Unregistered subdivided Erven 13554 - 13558 Knysna
- Annexure C3: Surveyor General Diagrams: Previous General Plan Nr 9115/1994
- Annexure D1: Previous Approvals: Rezoning Approval of June 2008
- Annexure D2: Previous Approvals: SDP and Subdivision Approval October of 2009
- Annexure D3: Previous Approvals: Amendment of the SDP Approval June 2014
- Annexure E: Request for the extension of the Approval, February 2016
- Annexure F: Letter from Municipal Manager dated April 2017
- Annexure G: Engineering Report dated October 2020
- Annexure H: Stormwater Management Plan
- Annexure I: Map of existing Services on the site.
- Annexure J: Pre-liminary design of the new public access road
- Annexure K: Traffic Impact Assessment
- Annexure L: Electrical Report

Executive summary

Erf 7416 Knysna, better known as “Lelies Kloof” has a planning history that dates to the 80ties. Despite its ideal location close to the Knysna Town Centre and the fact that development rights have been granted several times through the years, this property is still undeveloped. The site measures ±5.6ha in size and is the only extensive portion of vacant land within walkable distance to the Knysna CBD.

This large site with its unique topographical consideration and its proximity to town affords a once-off opportunity to provide affordable middle-income housing in a designed and secure environment, within walking distance to job opportunities and social amenities.

This development could have the potential to be the start of an urban renewal process which will provide a platform for building a strong and cohesive community, in which everyone, regardless of race, faith, gender, age, and disability, has a real stake.

The property has been earmarked for urban development for the past 30 years in various Structure Plans, Guide plans, and Spatial Development Frameworks of the past. Presently, the Spatial Development Framework for Knysna 2020, like all the preceding spatial plans, also earmarks the site as urban land within the urban edge. The site is also included in the recently introduced “re-structuring zone”.

In 2008, the Knysna Municipal Council approved the rezoning of the property from “Undetermined to Subdivisional area”. The final development planned allowed 274 flats which calculate to a density of 50 units per ha. These rights were never implemented and have subsequently lapsed.

The purpose of this application is to re-instate the development rights and the subdivision of the property as previously granted.

The development concept includes ±274 flats in a number of 2-4 storey buildings, surrounded by communal open space and parking areas. There will be a mixture of housing options with average unit sizes between 30m² to 65m². There will be a pleasing degree of consistency of architectural character that will create a harmonious development, without being monotonous.

The present zoning of the property is “Undetermined Zone” and the intention is to make an application for the rezoning of the land to “Sub-divisional Area” which would allow for the further subdivision of the land into 3 “General Residential III” erven, 1 communal “Open Space II” erf, and 2 “Public Road” erven as indicated on the proposed subdivision plan. Detailed Site Development plans will be submitted for each phase before building plan approval.

The property is ideal for residential development. The site does not have any agricultural or conservation value. It is within walking distance from the Knysna CBD and is easy to access by car due to the existing surrounding road network. It can conveniently connect to the existing municipal services networks because it is surrounded by existing urban areas.

The topography of the site creates a natural “bowl” which lends itself to graduating the building heights (4 – 2 storeys) from the uppermost edge of the site to the lower edge while remaining below the ridgelines with the resultant minimal visual impact but, maximising on the views over the lagoon.

The proposal responds to the need for affordable middle-income housing in Knysna and will contribute to job creation and economic growth in the town. The development of vacant land within the urban edge resonates with spatial planning policies at every level of government. The proposal does not impact negatively on the scarce natural and agricultural resources or the surrounding built environment.

1. Introduction

VPM Planning CC has been appointed by Bugali Investments CC on behalf of the landowner to prepare and submit the following applications to the relevant authorities (See Power of Attorney and Company Resolution attached as “**Annexure A**”).

- (i) Section 15 (2) (a): Application for the rezoning of the land from “Undetermined Zone” to “Subdivisional Area”;
- (ii) Section 15 (2) (d): Application for the subdivision of the land into 3 “General Residential III” erven, 1 Open Space I (Public Open Space) erf and 2 Transport II (Public Road) erven as indicated on the Subdivision Plan attached as Diagram KN 7416/8 dated 12-10-2020;
- (iii) Section 15 (2) (b): Application for a permanent Departure from the Knysna Zoning Scheme By-law to allow the relaxation of the parking ration from 2 bays per unit to 1,5 bays per unit.

2. Background

The history of the Lelieskloof property dates back as far as August **1989** when Knysna Council approved the subdivision of Erven 211, 214, 215, and 4972 to allow 48 “Single Residential” stands. The development rights were never implemented. At the time, these properties belonged to the Knysna Municipality.

Later, in 1991, Council decided to request tenders for the development of the said land parcels for affordable middle-income housing. The tender was granted to a development company that proceeded to obtain the necessary land use permissions. The rezoning of the land from “Undetermined to “Subdivisional area” was approved in 1993 to allow a residential development and the subdivision plan was endorsed in December 1993. This plan indicated 13 Residential stands, 3 “Group sites” and 65 “group housing” erven and 6 “Public Open Space” erven.

In 1994 erven 7611 (Ptn of 211), 7612 (Ptn of 215), 7613 (Ptn of 214), and 7790 (Ptn of 229- Road) were consolidated into Erf 7614 and the Surveyor-General approved the following General Plans.

GP No 6113/1994, GP No 6114/1994, GP No 6115/1994, and GP No 6116/1994. These GP's reflected the approved subdivision plan of 1993 and are attached as "**Annexure C3**". The development company however never took transfer of the property and went bankrupt before the project was implemented.

In 2000 the Municipality again invited proposals for the purchase of the land and the implementation rights attached thereto and subsequently entered into a sales agreement with Bitline SA III CC who took over the contract.

The developers could not proceed with the development until the property was transferred to them. The transfer only took place in June 2006 due to delays caused by a prolonged court battle to evict Council's tenants and illegal squatters from the site. The land was sold to them with the approved GP's. At the time the subdivision had already expired, but based on the conditions contained in the Sales Agreement, could be re-instated. The Sales Agreement effectively granted an extension of the validity of the approval.

The new owners soon realised that the implementation of the plan in its current format would cause great difficulties in terms of service provision, access, and affordability. The cost involved in the implementation of the plan seriously affects the financial feasibility of the project. A new development concept based on higher-density apartment blocks and communal parking areas was developed. This concept was more compatible with the challenging terrain and could create more cost-effective housing opportunities.

In June 2008, an application for the rezoning of the property from "Undetermined" to "Subdivisional Area" was approved. The final development concept allowed the development of Erf 7614 into 3 "General Residential" Erven, one "Public Open Space" and two "Street Zone" erven (See letter of approval dated 24 June 2008, attached hereto as "**Annexure D1**").

The Site Development Plan for the entire site and a phased Subdivision Plan was approved on 5 October 2009. This Site Development Plan consisted of 3 distinct precincts with 220 units in total (see Site Development Plan No S0009 dated 27.08/2009 attached hereto as "**Annexure D2**"). The three precincts were subdivided as individual properties as indicated on the approved Subdivision Plan K7416/3/dated

25/08/2009 attached as ***“Annexure D2”***. SG Diagrams for the 3 precincts were prepared and approved by the Surveyor-General. The SG Diagrams are attached as ***“Annexure C2”***.

One of the conditions of the Rezoning approval was that Site Development plans for each phase be submitted for approval. In May 2014, an application for the approval of a site development plan for Precinct 2 (Erf 13556) was approved. The approval also included an increase of density from 18 to 72 units. The approval is attached as ***“Annexure C3”***.

In a Council resolution dated 20 April 2011, the development rights were extended for a further five year period as from 28 April 2011. The development rights, therefore, expire on 27 April 2016.

In April 2013, Service Level Agreements for all three phases of the development were submitted to the municipality for approval. Since then, and on many occasions Bitline’s director and shareholder together with its Consulting Engineer have tried to procure a signed Services Agreement from the Municipality so that the project can proceed. These delays were mostly due to the unrealistic demands made by the municipality that were not entrenched in the conditions of approval or the conditions of the sale of the land.

As a result of the Council’s delay in returning the signed Services Agreement, the project was delayed by more than three years. In light of this ongoing delay, the previous developers requested another extension of the development period from 27 April 2016 for a further five-year period to enable the development to take place. For some reason, this application was never processed or considered. The letter dated 2 February 2016, addressed to the then Municipal Manager, is attached as ***“Annexure E”***.

In 2017 the Service agreement was still not signed by the municipality and the Landowners were then informed by the Department of Technical Services that the development rights have lapsed and that they can therefore no longer consider the Service Level Agreement. This matter was discussed with the Municipal Manager of the time who advise that the only way forward would be to submit a new application. He did acknowledge the Municipality's conduct in this unfortunate turn of events and committed to fast-tracking a new application and waiving the application fees (See letter from the Municipal Manager attached as ***“Annexure F”***).

Unfortunately, the development company was subsequently liquidated and the property was auctioned to the current owner who took transfer of the land later in 2017.

3. Property Description

3.1 LOCALITY

Erf 7614 Knysna, generally referred to as “Lelieskloof”, is situated north of the Knysna CBD, to the west of Concordia Road, as indicated on the attached Locality Plan (Diagram 1). Rio Street forms the northern boundary of the property.

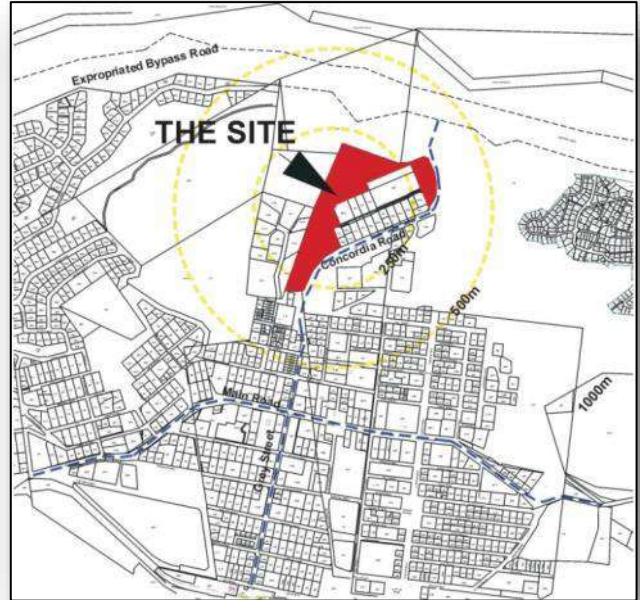


Figure 1: Locality Plan

3.2 PROPERTY DETAIL

Title Deed Description:	Erf 7614 Knysna, in the municipality and Division of Knysna
21 Digit code	C03900050000761400000
Title Deed Number:	T 56805/2017
SG/GP Diagram No:	SG No 6111/1994
Title Deed Restrictions:	None
Property Size:	5,6273ha
Property Owner:	Donald William Russell Fraser
Bonds:	None
Land Use	Vacant
Zoning:	Undetermined

4. Bio –Physical Site Analysis

4.1 TOPOGRAPHY

The property is situated in a natural “bowl” sloping in a south- easterly direction. The lower-lying areas of the property have a relatively even gradient. Some sections of the western portion of the property are very steep with gradients steeper than 1:2. The Contour Plan and Slope Analysis are attached as Diagram 3 to illustrate the topography of the site.



Figure 2: Topography

4.2 ENVIRONMENTAL CONSIDERATIONS

The property is not situated in Critical Biodiversity Areas, Ecological Support Areas, or Protected Areas. The development site is heavily infested with black wattle and other exotic invader vegetation. The alien vegetation is presently being removed. Being situated in an urban area and not close to water bodies or identified Critical Biodiversity Areas, the application will not trigger any listed activities in terms of NEMA. The property does however fall in an OSCAE area and the necessary OSCAE permits will have to be obtained before any construction can take place.



Figure 3: Ongoing alien clearing



Figure 4: Vegetation on the eastern precinct

4.3 IMPROVEMENTS

The site is vacant with no improvement apart from an access road and municipal services as indicated on the Hofmeyr and Associates Plan nr 06/187-1 dated 27/03/2009 attached as **“Annexure I”**.

In the past, there were several dwellings on the site, but these were destroyed in the 2017 fires.

5. Proposal

5.1 THE DEVELOPMENT CONCEPT

This application intends to re-instate the previously approved development rights which consisted of 274 residential opportunities.

The vision is to create a pleasant yet affordable residential neighbourhood that will appeal to a large variety of income groups. The unique opportunity that this site offer could be the start of an urban renewal process that will provide a platform for building a strong and cohesive community, in which everyone, regardless of race, faith, gender, age, and disability, has a real stake. This site with its unique topographical consideration and its proximity to town affords a once-off opportunity to provide affordable middle-income housing in a designed secure environment. A variety of unit options will afford residents a choice of purchase or rental options. Although portions of the site are too steep to develop, the planned increase in height will permit an increased density, which is a principal requirement to reduce cost and to achieve affordability levels that will resonate with local needs and financial ability. Smaller, low maintenance units will accommodate a wide range of buyers from holidaymakers who are looking for a lock-up and go holiday apartment to retired people looking for a low maintenance secure environment to live in, or first time homeowners that seek an affordable investment.

KSDF POLICY H:

Foster distinctive, attractive settlements with strong sense of place

5.2 PHASED DEVELOPMENT AND SUBDIVISION

It is proposed that the development will occur in phases. To allow the phased implementation of the development it is proposed that the site be subdivided into 3 General Residential III properties, as previously approved. The subdivision plan is attached as Diagram

The property was previously subdivided to allow 3 General Residential Sites, 2 Public Roads, and 1 Public Place. The previously approved subdivision plan and approved S.G. diagrams are attached as “*Annexure C2*”. This application intends to re-instate these SG Diagrams.

Portion A represent residential Precinct 1, which is the largest phase and is situated in the northwestern portion of the site and is also described as unregistered Erf 13555, measuring 3,4466ha (see SG Diagram 147/2010) . This precinct comprises 8 buildings containing approximately 142 units.

Portion B represents residential Presinct 2 and is situated to the east of the site is, also known as unregistered Erf 13556 measuring 6531m²(see Sg Diagram 148/2010). The amended SDP for this precinct was approved for 72 units.

Portion C represents residential Presinct 3 and is situated to the south of the development property and is known as unregistered Erf 13554 (See SG Diagram146/2010), measuring 1.1054ha. The preliminary Site Development plan indicates two 4 storey buildings with a total of 60 units in this precinct.

Portion D is a 15m wide public road reserve, as originally requested by the Directorate Technical Services. The position of this road stems from the originally approved GP 6113/1994. The public road on Portion D (Erf 13557 – See SG Diagram 149/2010) will only be partially constructed, to the point where access is required for Portion A. Portion D is 15m wide and will be transferred to the Municipality. A preliminary road design for a 6m wide public road has been prepared by Hofmeyr and Associates to ensure that the road cadastral is sufficient to accommodate the planned link to Lelieskloof Avenue. The proposed design from Hofmeyr and Associates is attached hereto as “*Annexure J*”.

Portion E presents an existing public road that provides access to The Knoll development on Erf 4972 as well as to Portion C. This road portion is known as unregistered Erf 15559 (see Sg Diagram 151/2010) and

will be transferred to the Knysna Municipality. The position of this road stems from the originally approved GP 6113/1994.

Portion F presents a Public Open Space to the east of the planned access road to Portion C. This Public Place has its origins in the originally approved GP and is required for the functioning of the Stormwater system, as can be seen on the Stormwater Plan attached as **“Annexure H”**.

Subdivision Table

Portion Nr	Erf Nr	SG Nr	Size	Zoning	Nr of units	Density
Portion A	13555	147/2010	3,4466ha	General Residential Zone III	142	41.2
Portion B	13556	148/2010	6531m ²	General Residential Zone III	72	110.2
Portion C	13554	146/2010	1.1054ha	General Residential Zone III	60	53
Portion D	13557	149/2010	1846m ²	Transport Zone II	0	0
Portion E	15559	151/2010	758m ²	Transport Zone II	0	0
Portion F	13558	150/2010	1623m ³	Open Space Zone I	0	0
TOTAL			5,6278ha		274	48.7

5.3 ACCESS

Each precinct will have its own access and will not be linked internally. This will lower traffic flow through the development and will also disperse traffic more evenly through the existing road networks. Precincts will be connected via pedestrian ways, as the proximity to town will allow many people to walk to town.

A Traffic Impact Assessment (TIA) was prepared for the development in 2007 and approved by the Knysna Municipality at the time. The initial TIA assessed a total of 220 residential units. In 2014 the TIA was revised to accommodate the increase of the units to 274. The 2014 TIA is attached as **“Annexure K”**.

The Traffic Impact Study addresses the suitability and safety of proposals for access to and egress from the site, as well as the capacity of the existing and future road network within the influence radius. At the time it was confirmed that the traffic impact of the envisaged development is within acceptable limits and that the suggested improvements conform to the standards and parameters set by the authority.



Figure 5: Access Plan

Access 3 is situated along Concordia Road, at the originally approved public access point (Portion E). This access point will provide access to Portion C. The current informal access to the development and the Gardeners kloof residential area is further south and traverses over the southern portion of the site and dangerously intersects with Gray Street. This access point will be closed and new access will be constructed. Shoulder sight distance of approximately 320m to the north and 140m to the south is achieved at this intersection with the existing public road. This portion of the property will be subdivided and transferred to the Knysna Municipality. Due to the steepness of the terrain, the rest of the originally proposed Gardeners Kloof Avenue cannot be constructed. Only Portion A will obtain access from this access point.

Access 2 is an existing access road, which serves Oaklands Development as well as Portion B of the development. The TIA recommended that vegetation be cleared on both approaches to this access, particularly the section towards Rio Drive such that shoulder sight distance can be improved. Should this be done, acceptable sight distances of approximately 100m to the south and 120 to the north can be achieved.

Access 1 is also an existing access point to the site from Rio Street and will provide access to Portion A. Safe shoulder sight distances of approximately 120 and 130m are achieved to the east and west respectively.

Pedestrian access is afforded to town with dedicated pedestrian footpaths.

5.4 BUILDING DESIGN AND PLACEMENT

The final design of each phase will be subject to the approval of detailed Site development plans, as previously stated in condition [b]I of the rezoning approval dated 24 June 2008.

In general, building design will take advantage of the slope of the site allowing ground contact at two levels, hence reducing the height. Buildings higher than 3 storeys will have lift access.

The natural “bowl” lends itself to graduating the building heights (4 – 2 storeys) from the uppermost edge of the site to the lower edge while remaining below the ridgelines with the resultant minimal visual impact. but maximising views. Slopes steeper than 25 % will be avoided.

The Architectural style for the development is subject to advise from Aesthetic Committee.

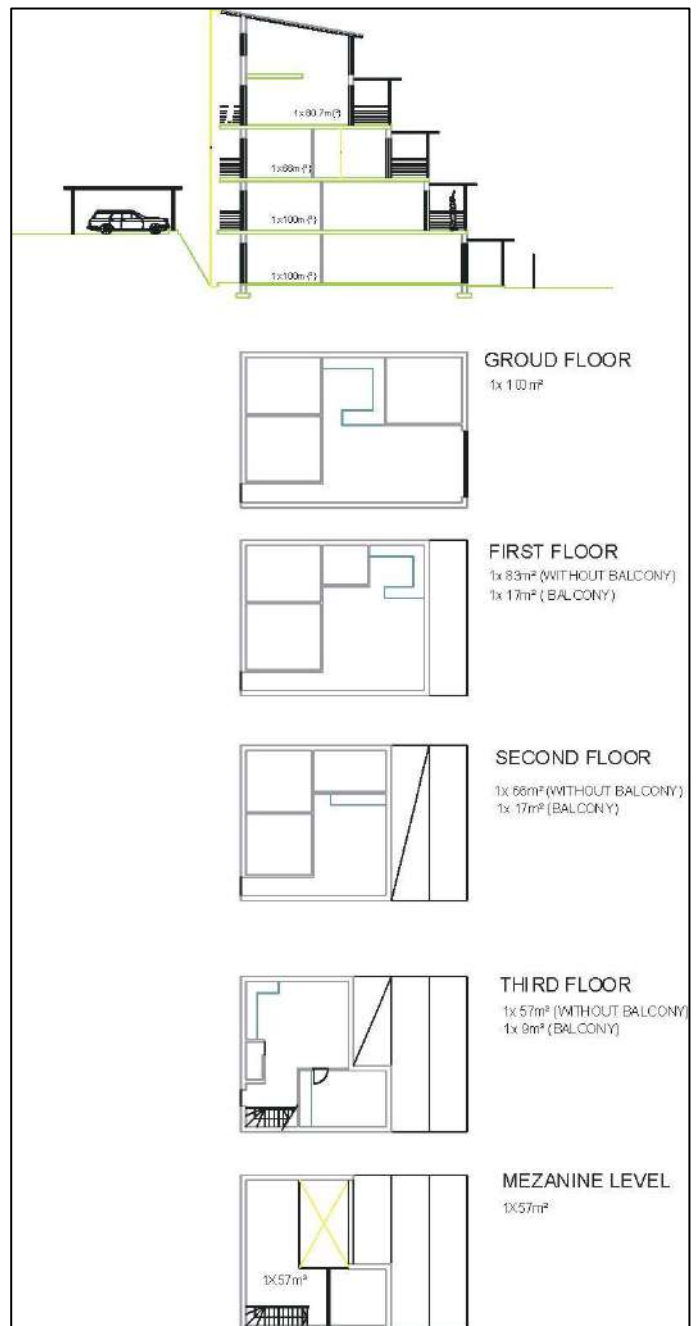


Figure 6: Building Design Proposal

The proposed residential buildings will not exceed the 12m-height limitation as prescribed in the Knysna Zoning Scheme Bylaw. The development parameters pertaining to flats do not limit the number of storeys. Due to the slope of the land, some of the buildings will be able to achieve 4.5 storeys within the 12m height limitation. Some of the buildings, especially those that could impact on the views of surrounding properties will be limited to 2 storeys or 8,5m.

The Figure7 below indicates that only certain buildings, or portions thereof will achieve 4 ½ residential levels. This will not only result in achieving an optimal density but will also create an interesting built environment where differentiation in roof heights and shapes will contribute to the aesthetic quality of the neighborhood. As a result of previous public participation processes, some buildings will be restricted to 8,5m or 2 storeys to ensure the protection of views from the surrounding residential properties.

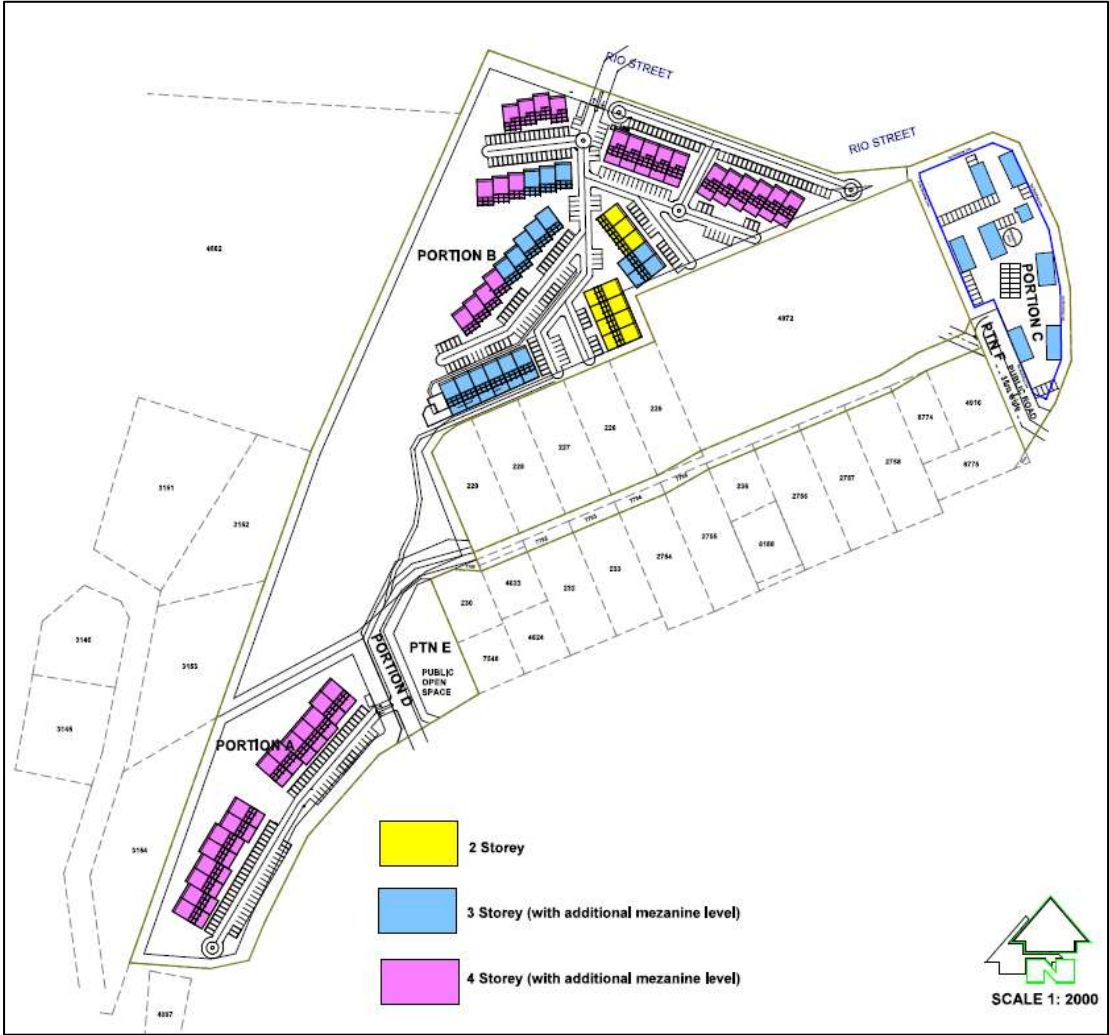


Figure 7: Building Height

5.5 HOUSING TYPOLOGY

The developer aims to create affordable housing for the middle-income group. Units will cater to a wide variety of residents.

UNIT TYPE	SIZE	% OF DEVELOPMENT	UNIT NR
Bachelor flat	30-35m ²	±20%	55
One-bedroom flat	35-40m ²	±35%	96
2 bedroom flat	40-50m ²	±25%	68
3 bedroom flat	50-60m ²	±20%	55

5.6 OPEN SPACE

Play spaces will be provided for children at convenient locations adjacent to buildings. Parking areas are fragmented to reduce the impacts and traffic calming is ensured by the provision of parking courts. The areas are to be extensively landscaped and treed.

Rehabilitation of the undeveloped steeper areas by the removal of alien trees and the planting of indigenous material is proposed to enhance the sense of place. These areas will afford residents' braai/picnic areas and walking trails in the security of the estate. Appropriate architecture and landscaping will play a vital role in creating a high-quality living environment. The site will require some buffering, screening, and landscaping between Concordia Road and Rio Street and the development. The 5m building line along this road will be landscaped to ensure privacy and to reduce road noise.

5.7 PARKING

The previously approved Site Development Plan provided parking at a ratio of 1,5 bays per unit as this was the ratio required by the previous Knysna Zoning Scheme. The new Zoning Scheme By-law required 1.75 bays per unit and 0.25 bays per unit for guests, effectively 2 bays per unit.

Application is made for relaxation from this parking ratio to 1,5 parking bays as previously approved. Given the unit sizes and income levels of the residents, it is unlikely that many units will have 2 cars. The proximity to town and the fact that the site is on a taxi route also reduces the need for car ownership.

Furthermore, the Knysna Spatial Development Framework recommends that the parking provisions and ratios for the Restructuring Zone in terms of the Zoning Scheme By-Law should be reviewed. In doing so,

provision should be made for parking to be provided collectively in a shared location as opposed to on a site by site basis (KSDFdraft4 May 2020 pg 88).

5.8 ZONING PARAMETERS

GRZ III	Parameters	Compliance	
Erf Size		5.6273ha	
Maximum Coverage	60%	56 273m ² x 60% = 33 763m ²	
		% COVERED AREA	TO BE COMPLIED WITH
Maximum Floor Factor	1.0 (excluding covered parking)	56 273m ² x 1 = 56 273m ²	
		TOTAL FLOOR AREA	TO BE COMPLIED WITH
Maximum Storey's	NOT SPECIFIED	4,5	
Maximum Height	12m	12m	
Parking bays	2 bays per unit	DEPARTURE REQUESTED FOR 1.5	
Street Building Line	5m	5m	
Lateral and rear Building Line	4.5m	4.5m	

Table 1: Zoning Parameters

5.9 ENGINEERING SERVICES

Hofmeyr and Associates Consulting Engineers was appointed in 2013 to calculate the service demand of the development and to investigate the availability of bulk supply. The service demand remains the same and they have issued an updated Service Report which is attached as **"Annexure G"**. Recent consultation with the Department of technical services confirmed that bulk services as previously agreed on will be available.

After the approval of the development, the detailed service level agreements will be re-submitted to the Engineering department for approval.

5.9.1 WATER SUPPLY

The report confirms that the municipal water main can supply the water demand for the planned development. A separate bulk water connection will be created for each precinct. Internal reticulation will be constructed from these points to supply all units within the planned development.

Annual average Daily Water Demand (AADD) :

274 Units @ AADD of 1 000 litres / day / unit

Total AADD of development = 274 000 litres / day

Instantaneous peak flow for the development

At peak flow factor of 8 = 25,3 litres / sec

Fire Flow (fire category moderate risk to low risk Group 1) = 15 litres / sec

The existing Municipal water storage reservoirs for the area are located at the water treatment works and have a full supply level of approximately 125m above MSL. These reservoirs feed several gravity water mains in the area.

Municipal water pipes are running through the property as indicated on Plan No 06/187/1 attached as "**Annexure I**" attached hereto. These pipes will be retained or rerouted if necessary and will be protected by servitudes.

5.9.2 SEWER DISPOSAL

The Municipality will provide a connection point from the existing surrounding network to each property and has adequate capacity in the bulk system to accommodate the full sewage flow of the development.

These requirements are summarized as follows:

Daily sewage discharge : 274 Units @ 800 litres / day = 219 200 l / day

Peak flow (including 15%extraneous flow) @ peak factor 2,5 = 7,29 l /sec

Municipal sewer pipes are running through the property as indicated on Plan No 06/187/1 attached as "**Annexure I**". These pipes will be retained or rerouted if necessary and will be protected by servitudes.

5.9.3 STORMWATER MANAGEMENT

The developer will supply a system to ensure that the concentrated flow of floodwater from higher-lying areas is channeled into, and accommodated in the development's stormwater drainage system. The stormwater disposal system is explained in the Services Report and includes a series of retention ponds. The existing and proposed stormwater reticulations are shown on Drawing **no 06/187-02Rev A attached as "Annexure H"**. The stormwater system shall lead all stormwater to a location(s) outside the borders of the township, as indicated by the Municipality. An effort will be made to ensure that no erosion occurs at the stormwater outlets from the development.

5.9.4 ELECTRICITY

The Service agreement states that the maximum demand for the development is in the order of 600kVA. The Development will connect to the surrounding 11kva network. Internal circulation will be done by the developer. The electrical reticulation service agreement is attached as **"Annexure L"**.

5.9.5 SOLID WASTE

Communal refuse storage facilities will be constructed for each block of apartments. These facilities will be emptied on a regular basis by the Municipal refuse collection service.

6. Motivation

In terms of the NEMA EIA principles, when considering an application the decision-making authority must have regard to a number of specific considerations including specifically having to consider **"the need for and desirability of the activity"**. The proposal will be motivated by confirming the **need** for the planned residential land use. The application will further be motivated by investigating the **desirability** of the property for the planned land use. Desirability refers to the place, i.e. is the land suitable for locating the type of land-use/activity being proposed, and is the proposal compatible with Spatial plans and policies applicable in the area?

Lastly, the development will be evaluated against the **anticipated impacts** on the surrounding environment and adjacent properties.

6.1 NEED

6.1.1 NEED FOR AFFORDABLE HOUSING

The first question that needs to be asked when any development is considered is whether there is a need for the contemplated land use in the market place. This is normally a question that the potential investor would investigate before they embark on a long and expensive application process. Development, like any other business, is about supply and demand.



KSDF POLICY F:
Promote inclusive urban
development

The lack of affordable housing in the Garden Route is a well-known problem. Due to relatively high land prices and building costs, profit-driven private developments are often forced to cater to the higher income brackets. The Local and Provincial Government, on the other hand, have a certain obligation to provide housing for the poor. Subsequently, the middle-income earners are not being catered for at all. This has a negative effect on the upward mobility of the workforce and the self-esteem of the individual.

The developers have identified this problem and they intend to provide for this lower-middle-income market. A certain density is required to ensure an economy scale that will guarantee the financial viability of the project and at the same time to reach the affordability level of the target market. Presently standard mortgage rate is at its lowest level in almost 50 years which acts as a positive catalyst in the lower bracket of the residential property market. Lower rates make it easier for first-time property buyers to enter the market. This development will facilitate access for lower-income groups to enter the property market and to establish themselves in a well-planned and managed residential estate.

6.1.2 THE NEED FOR HIGHER DENSITY

It is generally accepted worldwide that future urban development must focus on a more compact urban form where higher densities, mixed land uses, and “walkable communities” will bring about a more efficient and environmentally sustainable living and working environment. Current densification policies, at national, provincial, and municipal levels, encourage the densification of existing urban areas through the development of under-utilized vacant land within urban areas.

Densities of 25 du/ha have been recommended as the average densities within urban areas. This density is derived from local and international research, which has found that this is a minimum density at which urban settlements begin to significantly improve their urban performance. Presently the density of most Knysna is less than 10du/ha. This is less than 50% of what average gross densities should be to achieve adequately performing urban settlements. Taking into account that there is very limited remaining development land available within the urban area, it implies that any future development within the urban area must be developed at much higher densities to compensate for the historical low densities. The density of this development is calculated at approximately ±50 units per ha.

6.1.3 SOCIO-ECONOMIC NEED OF THE BROADER COMMUNITY

South Africa has the challenge of high unemployment and skills shortages. At the end of 2018, the unemployment rate was reported to be 27,2%5, and one of the main goals that South Africa has set itself in the National Development Plan is to cut the unemployment rate to 6% by 2030.

Knysna has a very similar demographic profile to the rest of the country. Socio-economic studies included in the SDF indicate high levels of poverty and unemployment. The social needs of the larger community should receive due consideration when the Spatial Development Framework is prepared.

The National Development Plan aims to eliminate poverty and reduce inequality by 2030. According to the plan, South Africa can realise these goals by drawing on the energies of its people, growing an

KSDF POLICY B:

Manage the growth of urban settlement in Knysna to ensure the optimum and efficient use of existing infrastructure and resources and in turn, secure the Municipality's fiscal sustainability and resilience, while preventing further loss of natural and agricultural assets and functional ecosystems services.

inclusive economy, building capabilities, enhancing the capacity of the state, and promoting leadership and partnerships throughout society. Growth and jobs, education and skills, and a capable and developmental state are the main aims of this document.

Any development will create construction jobs for local contractors and laborers. The employment opportunities associated with the construction phase are frequently dismissed as temporary employment. However, while these jobs may be classified as “temporary” it is worth noting that the people employed in the construction industry by its very nature rely on “temporary” jobs for their survival. In this regard “permanent” employment in the construction sector is linked to the ability of construction companies to secure a series of temporary projects over a period of time. Each development, therefore, contributes to creating “permanent” employment in the construction sector. The scale and nature of this development will ensure jobs for many years.

The construction industry is an important player in job creation, not only in the construction sector but in other sectors of the economy as well. The construction industry uses a wide range of inputs such as manufacturing of construction materials and equipment, mining of raw materials, forestry, transportation, real estate, finance, and professional services which all contribute indirectly to more jobs that are created across several sectors.

Knysna also needs a larger permanent residential base that can support the local service industry. The availability of affordable new homes will attract people to the town and thereby contributing to a vibrant economic self-sufficient community.

From studying the content of the draft KSDf 2020, it appears that the SDF does in principle promote growth and development as mechanisms to stimulate the economy and create jobs. The new SDF confirms that *...“ without more economic investment and in particular, job-generating economic activity it will be difficult for the Municipality to maintain a sustainable revenue base and raise sufficient revenue to subsidise a growing poor population. The Municipality is considered to have reached the limit of the burden it can place on existing ratepayers”* (pg. 13 KSDf2019 DraftV2).

KSDf POLICY E:

Direct public and private fixed investment to and within existing settlements reinforcing their economic development potential. In this way, the impact of public and private investment is maximised and the majority of residents benefit.

It also acknowledges that ...” New businesses and households’ contribution to municipal revenue will expand the rates base and reduce the pressure on existing ratepayers to shoulder higher and higher costs. (pg. 17 KSDF2020).

South Africa is mandated by the National Development Act to be a developmental state. In this light, it will be difficult for any decision-making body to deny any form of economic activity unless there are substantial negative environmental impacts that cannot be mitigated.

6.2 DESIRABILITY

Desirability refers to the place, i.e. is the land suitable for locating the type of land-use/activity being proposed. Desirability factors include the location of the site as well as its physical constraints and opportunities:

6.2.1 LOCALITY

Location is critical when creating a high-density residential development. It should be located within or adjacent to established urban areas with convenient access to basic urban amenities such as shops schools, entertainment, and transport.

The property is situated within an existing urban area and adjacent to one of the main feeder roads in town. It represents an infill development close to the Central Business District (CBD). The property is included in the Urban Edge of Knysna (KSDF 2008) and is also in an area identified as a “Restructuring Zone”. The site is conveniently located along a main distributor road and taxi route and is within walking distance of schools, shops, and other social facilities.

6.2.2 BIO-PHYSICAL SITE CHARACTERISTICS

The biophysical character of the site has been carefully assessed and was taken into account during the conceptual planning:

- The site does not contain any natural vegetation and has been earmarked for development in the past. The conservation value of the development area can be described as poor;

- The property is suitable for development in terms of topography (slopes not steeper than 1:4). Although there are steep areas the development will be compacted in the areas of suitable gradient;
- The development area has suitably accessible through an existing road network and is situated close to the CBD;
- The property is an unutilized piece of land within the urban area of Knysna.

It can be concluded that the site has limited constraints that classify this site as highly desirable for development.

6.3 URBAN CONTEXT

The urban context concerns the broader setting of a development. This would include the existing physical surroundings, its social and economic environment, and the strategic view of the area in which it is located and its role over time. All new developments should make a positive contribution to an area's character, protecting and contributing to its valued natural, built, and community qualities.

The introduction of high-density residential development implies a change in the urban context. Components of any new development would inevitably have an impact on areas external to the project. This external impact could be either beneficial or detrimental.

6.3.1 STRATEGIC VIEW OF THE AREA

A number of forward planning documents set out the strategic view of the area. The most important of those are the Knysna SDF, the Eden SDF, and the Provincial SDF as well as the Development principles set out in SPLUMA.

6.3.1.2 Knysna Spatial Development Framework November 2020 (KSDF)

The property is situated within the Knysna CBD and directly adjacent to Grey Street/ Concordia Road, which is regarded as the Main Activity Corridor. This street is important in terms of integrating urban activities throughout the town.

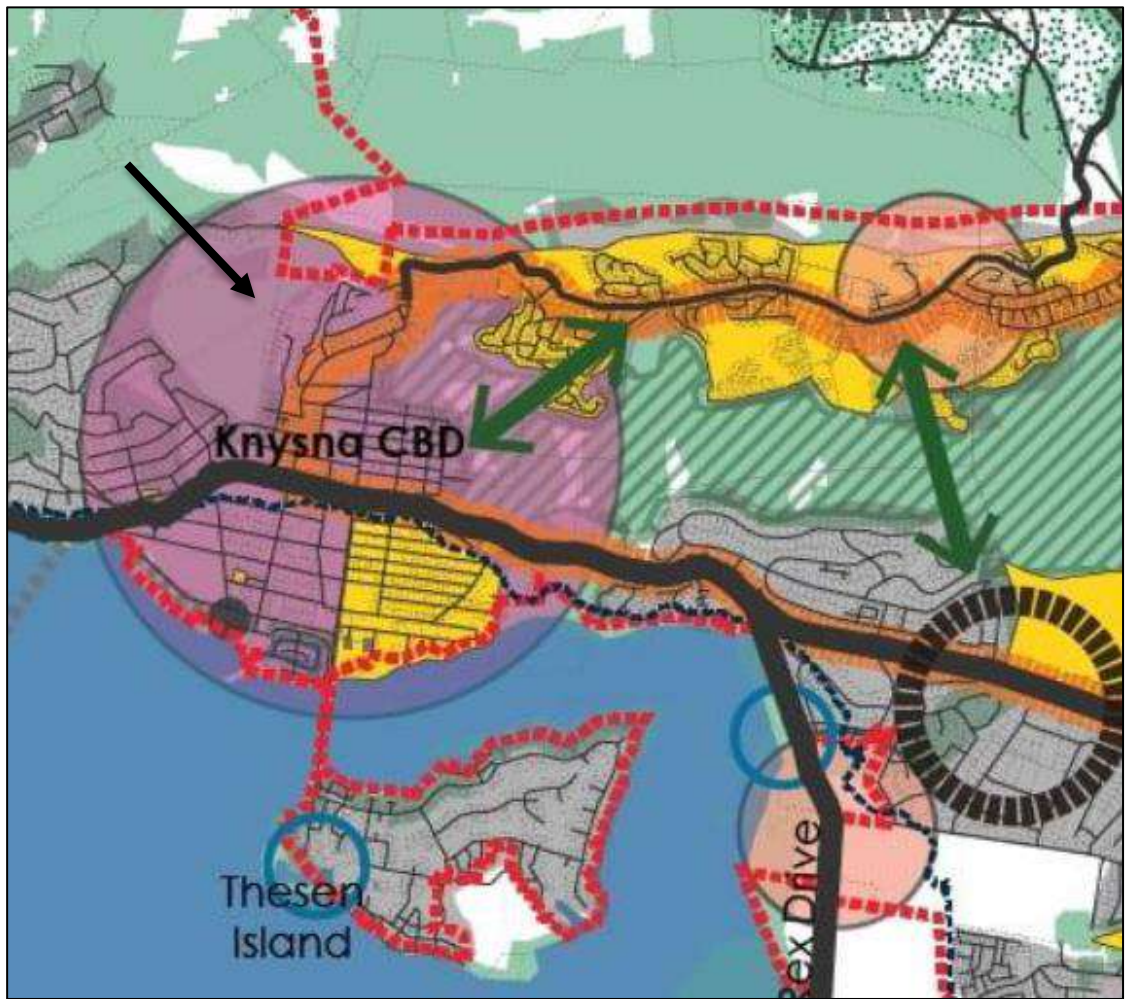


Figure 8: Extract from the KSDf2020

The KSDf document clearly states that development should be limited to urban densification and infill areas. Densification is strongly encouraged in urban areas throughout the municipality, specifically along activity streets and around urban nodes.

Furthermore, the application area also falls within the Restructuring Zone. This zone aims to promote spatial transformation; i.e. creating affordable housing opportunities within proximity to jobs and services. This transformation area is identified on the map below.

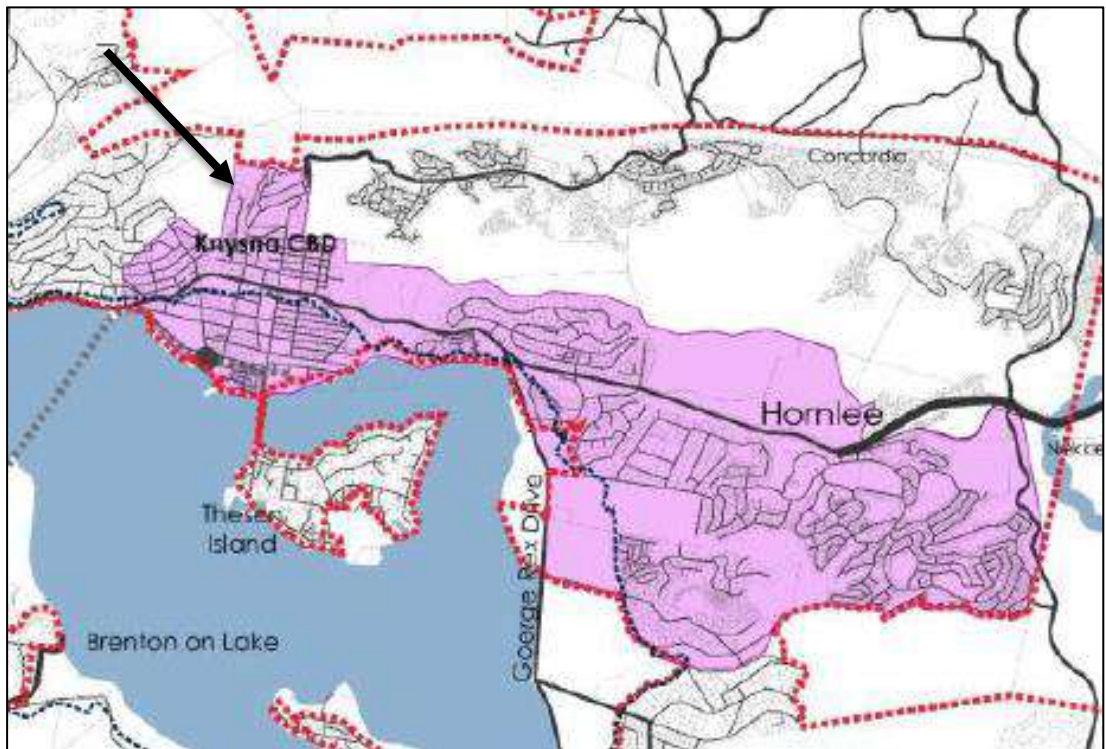


Figure 9: Restructuring Zone

The planned development is situated in an area where dense urban development is promoted. The planned development will also facilitate convenient and affordable access to social, economic, and affordable housing opportunities.

The inclusive nature of the planned development aligns with the policies and policy guidelines set out in this MSDF.

6.3.2.2 Eden Spatial Development Framework 2017

The Eden SDF aims to promote balanced development that supports the integration and densification of settlements within the District. In general, it promotes the creation of a walkable, integrated, and compact urban environment. This proposal is exactly what the Eden SDF supports.

The report states that the financial and economic viability of towns in the District should be improved by promoting the intensification of existing urban areas. This can be achieved through infill, densification, and redevelopment, which in turn makes the use of existing infrastructure capacity and services more efficient.

Policy 3.3. Optimise existing infrastructure capacity and economic opportunity by directing mixed-use, higher density development to areas of opportunity:

Land should only be developed in areas that are identified and suitable for urban growth. Vacant and underutilised land within the existing settlement footprint should be prioritised for development before new greenfield areas are considered for new development. This vacant site presents an ideal opportunity for densification.

Guideline 3.3.7.

Promote compact development:
Densification should occur within 800-1600m or 10-20 minutes from transport hubs and areas with mixed-use activity. This will encourage the use of non-motorised forms of transport such as walking and cycling. The site is within 1600m from the CBD, schools, and other amenities of town.

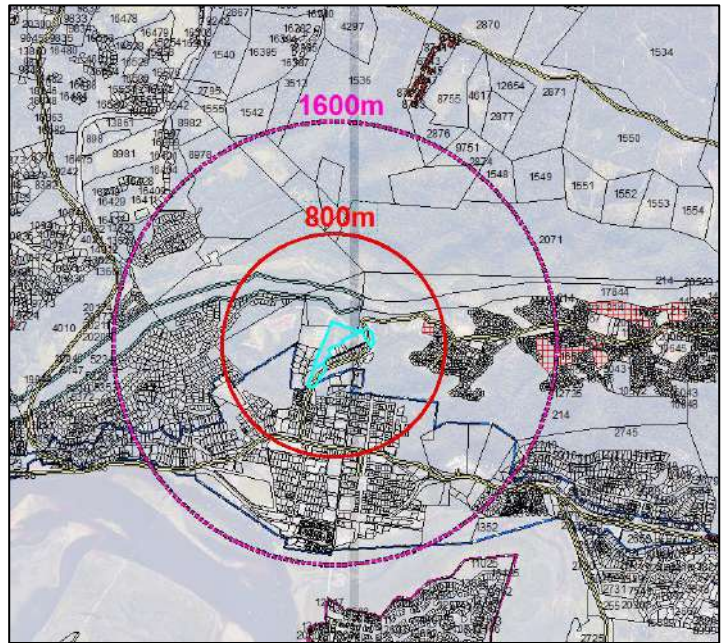


Figure 10: Distance from CBD

The proposal is in line with the proposals for the compaction of existing urban areas. The development of vacant urban land within urban edges is promoted.

6.3.2.3 Western Cape Provincial Spatial Development Framework 2014

The sustainable use of provincial assets is one of the main aims of the WCPSPDF. The protection of the non-renewable natural and agricultural resources is achieved through clear settlement edges for towns by defining limits to settlements and through establishing buffers/transitions between urban and rural areas. The urban fringe must ensure that urban expansion is structured and directed away from environmentally sensitive land and farming land; agricultural resources are reserved; environmental resources are protected; appropriate levels of services are feasible

to support urban fringe land uses, and land use allocations within the urban fringe are compatible and sustainable.

This property has been included in the urban edge and has been earmarked for urban development since 1989. The value of this property does not lie in its agricultural potential of conservation status, but in its proximity to the town. The proposal to develop this site is not in conflict with the aims of the PSDF.

6.2.3.4 SPLUMA Development Principles

In considering the application, the decision-maker needs to be guided by the DEVELOPMENT PRINCIPLES contained in (Chapter II) of Spatial Planning and Land Use Management Act 2013 (Act no 16 of 2013) SPLUMA and Chapter VI of the Land Use Planning Act, 2014 (Act 3 of 2014) (LUPA).

Section 7 of the Act describes a set of development principles that need to be considered when evaluating any development application. These principles include the following:

Spatial Justice:

Spatial justice principles seek to eliminate spatial injustices that result from discrimination and marginalisation. Inequitable access to housing, educational and economic opportunities, and health facilities are consequences of spatial injustice. The instruments used to promote spatial justice are varied and include Spatial Development Frameworks, Precinct Plans, and Urban Regeneration Plans and Policies. The principle of spatial justice requires that past spatial and other development imbalances must be redressed through improved access to and use of land, and this is mainly done through government intervention. The location of this development between the CBD and the previously disadvantaged areas creates an ideal opportunity for restructuring and integrating the existing inequitable urban system. The proposed higher density and more affordable development will promote the integration of various socio-economic groups and thereby eventually assist in the restructuring of the town.

Spatial Sustainability:

The proposal supports this principle of spatial sustainability in the sense that it proposes a compact development within the urban edge. The purpose of urban densification and infill is to minimise the consumption of scarce environmental resources such as agricultural land or

conservation worthy natural areas. The densification of existing urban areas protects the surrounding natural and agricultural resources from further development pressure.

Spatial Efficiency:

Efficiency relates to the form of settlements and use of resources - compaction as opposed to sprawl; mixed-use, as opposed to mono-functional land, uses; residential areas close to work opportunities as opposed to dormitory settlement. The proposal supports the efficient use of existing resources and infrastructure with minimum negative financial, social, economic, or environmental impacts. The development of this large undeveloped piece of land in the CBD will contribute to a more spatially sound town.

Spatial Resilience and Good Administration:

These principles mostly relate to spatial plans, policies, land use schemes, and procedures, which, although important on a wider scale, does not have direct relevance on a proposal of this nature.

The Knysna Spatial development framework for example attempts to address the concept of good administration where it states that the restructuring zone should be the beneficiary of incentives geared at making inclusive development a viable proposition for the private sector and reducing development costs to optimise the affordability of the end product. Incentives could include expedited development permissions, additional development bulk allowances, or financial incentives associated with development contributions for example.

6.3.2 IMPACT ON THE LARGER KNYSNA AREA

6.3.2.1 Impact on the Character of the Area

The property is situated in a mixed-use area close to the Central Business District.

The existing Gardenerskloof residential area is surrounded by the proposed development. This area is characterised by Single Residential, Group Housing, and General Residential properties. Erf 9753 known as Kloof Gardens contains a sectional title scheme consisting of 20 flats. The residential density calculates to 65 units per ha. Erf 4927 contains another sectional title scheme known as Oaklands on the Knoll, consisting of 32 semi-attached double-story Group housing units with a residential density of 25 units per ha.

To the west of the site, situated on the ridgeline approximately 25m higher than the lowest point on Portion B, is the SANEL Epileptic Center. Further south along this ridgeline is the Telfin Heights Residential Development, which consists of single residential dwelling houses and townhouses. There is vacant municipal land to the north of Rio Street.

The proposed density and land-use are compatible with the surrounding area in terms of land use and density.

The layout and position of the planned residential buildings will take the privacy and views of the surrounding properties into account. As can be seen in Fig7. the building heights have been limited to 2 storeys in the areas where the view of adjacent properties could be impacted.

Furthermore, the site is currently vacant and regarded as a maintenance burden and security and fire risk to the developer and existing residents in the areas. There is a dire need to turn the development into success not just for the developer but also for the residents in the surrounding area.

6.3.2.2 Socio-Economic Impact

The development will have a positive impact on the local economy. The development will be implemented in phases so it is therefore anticipated that there will be a relatively long construction period that will provide temporary employment to many locals. The development will also address the shortage in more affordable housing which will give individuals and families the opportunities to upgrade their living conditions. In addition, the development is expected to increase the buying power of the town and this economic benefit will improve the sustainability of many struggling local businesses.

6.3.2.3 Visual Impact

The proposed development will not be visible from any identified scenic route. Road users of Concordia and Rio Street may observe the property, but bearing in mind that the property is within the urban area and earmarked for development, the expected visual impact will therefore

be low. Architecturally designed units situated in a landscaped garden could contribute to a positive feeling of well-being and prosperity in the area.

Some of the buildings will be 4 storeys high, which will increase the visual impact. The careful placement of the 4 storey buildings will ensure that the views of the surrounding properties are not impacted. The 4 -storey buildings are set against Concordia Road and Rio Street away from existing residential properties. It is also the intention to landscape along the Concordia Road, not only to reduce the noise factor associated with the high order road but also to reduce the visibility of the estate.

6.3.2.4 Traffic impact

According to the 2014 TIA, the traffic generated by the proposed residential development will have little impact on the capacity of the Main Road / Gray Street and Gray Street / Rio Drive intersections with the intersections continuing to operate at LOS C and A respectively after development implementation. The TIA also included an analysis of the intersections with growth in future background traffic which indicates marginal increases in delays at these intersections for the 2019 planning horizon. The results of the analyses also indicate that the proposed access points will operate at acceptable levels of service for both the 2014 and 2019 planning horizons, with average intersection delays ranging from 2 seconds to 7 seconds.

6.3.2.5 Impact on Biodiversity

The subject property has not been listed as a “Critical Biodiversity” area, “Ecological Support” area or a “Protected” area. Due to the high occurrence of alien vegetation, the potential negative impact on biodiversity will be negligible. The concentration of development within urban areas will indirectly have a positive impact on the biodiversity of the larger area as it will reduce development pressure in more sensitive areas.

7. Conclusion

Application is made to re-instate the previously approved development rights on the property which consisted of 274 apartments in 3 phases. The vision is to develop Erf 7416 into a pleasant yet affordable residential neighbourhood that will address the need for middle-income housing. The development facilitates the implementation of municipal policies on integration, inclusion, and the optimal use of urban land.

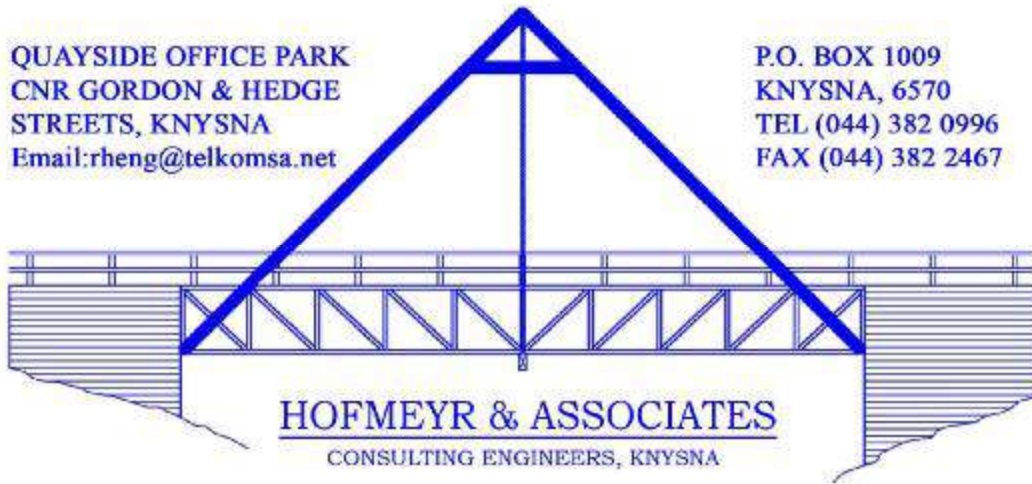
Application is made for the Rezoning of the property to Subdivisional Area, and for the Subdivision of the site into 3 General Residential III erven, 2 Transport Zone II erven and one Open Space I erf, as previously approved. Being situated within the restructuring zone, directly adjacent to the CBD, this site is easily accessible and can be serviced cost-effectively.

The proposal is sensitive towards the character of the area and attempts to create a unique sense of place that will blend in and complement the character of the surrounding area. The Layout has taken the topography of the site into account, leaving large open spaces that can be rehabilitated and which will enhance the quality of the urban environment.

This development complies with the criteria for sustainable development and will have many positive impacts on the large community.

QUAYSIDE OFFICE PARK
CNR GORDON & HEDGE
STREETS, KNYSNA
Email: rheng@telkomsa.net

P.O. BOX 1009
KNYSNA, 6570
TEL (044) 382 0996
FAX (044) 382 2467



**DEVELOPMENT OF
SPINNAKERS ON KLOOF
PRECINCT 1 – ERF 13555
PRECINCT 2 – ERF 13556
PRECINCT 3 – ERF 13554**

REPORT ON ENGINEERING SERVICES

Rev C 29 OCTOBER 2020

Prepared by Rein Hofmeyr
Civil Engineer

1. Introduction

1.1 Proposed Development

The proposed development consists of the subdivision and rezoning of Erf 7614 Knysna to facilitate the construction of approximately 274, one, two and three-bedroom, affordable apartments. The layout of the proposed development is shown on the attached SDP layouts produced by Peter Loebenberg Architects:

Annexure A – SDP Precincts 1, 2 & 3 (dwg no S0009 – 27 Feb 2009).

Annexure B – SDP Precinct 2 Revised (dwg no 2013-001 – July 2009).

1.2 Location

The sites for the proposed development are:

- a) The sloping hillside situated between Rio Street in the North, Sanel and League Street in the West, existing residential development in the East and Concordia road or Upper Grey Street in the South. Precinct 1 is in the Northern lobe of this area and Precinct 3 is in the Southern lobe.
- b) The Eastern lobe (Precinct 2) is bordered on the North side by Rio Street, on the West side by an existing residential development and on the East and South side by Concordia Road.

1.3 Access

The Development is accessed from 3 sides:

The Southern part is accessed from Upper Grey Street or the Concordia Road. The Northern part is accessed from Rio Street. The Eastern part will be accessed from the Concordia Road. All 3 accesses will be designed and drawings submitted to Council for approval prior to construction.

1.4 Engineering Services

Engineering services for the proposed development will be provided using the existing Municipal infrastructure, extended where necessary.

2. Topography & Vegetation

2.1 Topography

The Western part of the development is situated on the sloping ground situated between Rio Street in the North, Sanel and League Street in the West, Concordia Road in the South and the existing residential development in the East. The slopes vary between moderate and steep, over the site. The Eastern part of the development is situated on relatively flat ground bordered on the West by existing residential development on the North by Rio Street and on the East and South by the Concordia Road.

2.2 Vegetation

The development site is heavily infested with Black Wattle and other exotic invader vegetation. As part of this development, this exotic vegetation will be removed and replaced with indigenous vegetation.

3. Geotechnical

A detailed geotechnical investigation and report will be done on approval of the development. The design of roads, pipelines and foundations to buildings, will be done using the conclusions and recommendations of this report.

4. Water Supply

4.1 Water requirements of the development

Water requirements have been assessed using "The Guidelines for provision of Engineering services and amenities in residential township development as issued by the department of national Housing" The Red Book.

Annual average Daily Water Demand (AADD)

274 Units @ AADD of 1 000 litres / day / unit

Total AADD of development = 274 000 litres / day

Instantaneous peak flow for the development

At peak flow factor of 8 = 25,3 litres / sec

Fire Flow (fire category moderate risk to low risk Group 1) = 15 litres / sec

4.2 Existing Reservoir Storage & Water Reticulation

The existing Municipal water storage reservoirs for the area are located at the water treatment works and have a full supply level of approximately 125m above MSL. These reservoirs feed several gravity water mains in the area.

4.2.1 Northern Lobe – Precinct 1

There is an existing 300mm diameter Municipal water main on the North side of Rio Street. This main reduces to 250mm diameter North of the development. A 150mm diameter main tees off from this main and splits into 2 lines. A 150mm diameter main running Southwards to Erf 4972 will be relaid to facilitate proposed buildings and a servitude will be registered over it. A second line runs Westwards to feed an area below League Street and Sanel. A section of this line will be relaid to facilitate proposed buildings a servitude will be registered over this line.

4.2.2 Eastern Lobe – Precinct 2

There are 2 Municipal mains running through this property. The first water main runs through the middle of the property and down Gardeners Kloof Street in a straight line. The portion of this line running through the property will be retained and a servitude registered over it. A second water main runs Northwards along the Western boundary of the property from the Concordia Road. It then runs Westwards down Gardeners Kloof Street. It will not be necessary to register a servitude over this pipeline, unless it lies outside the strip between the boundary and building line.

4.2.3 Southern Lobe – Precinct 3

An existing 110mm diam municipal water main extends from upper Gardeners Kloof Street into Precinct 3.

4.3 Proposed Water Supply

4.3.1 Northern Lobe – Precinct 1

A bulk water connection will be created on the 150mm diameter water main inside the development close to the entrance off Rio Street. An internal water reticulation will be constructed from this point to feed all apartments in Precinct 1 of the development. The pressure range within this part of the development will vary between 3 bars at the Northern end and 5 bars at the southern end of Precinct 1.

The municipal water main has capacity to supply the water demand of Precinct 1.

4.3.2 Eastern Lobe – Precinct 2

A bulk water connection will be created on the 200mm diam Municipal water main running in the access road to the property. An internal reticulation will be constructed from this point to supply all units within Precinct 2. The pressure range within this part of the development will vary between 2 bars at the Northern end and 4 bars at the southern end of Precinct 2.

The municipal water main has capacity to supply the water demand of Precinct 2.

4.3.1 Southern Lobe – Precinct 3

An existing 110mm diam municipal water main extends from upper Gardeners Kloof Street into Precinct 3 and will form the bulk water connection for Precinct 3. An internal water reticulation will be constructed from this point to feed all apartments in Precinct 3 of the development. The pressure range within this part of the development will vary between 6 bars at the Northern end and 8.5 bars at the Southern end of Precinct 3.

The municipal water main has capacity to supply the water demand of Precinct 3.

Drawings of the proposed reticulations will be submitted to council for approval prior to construction of services.

5. Sewage Disposal

5.1 Requirements of the development

The sewage disposal requirements of the development have been assessed using “The Guidelines for provision of Engineering services and amenities in residential township development as issued by the department of national Housing” The Red Book.

These requirements are summarized as follows:

Daily sewage discharge: 274 Units @ 800 litres / day	=	219 200 l / day
Peak flow (including 15% extraneous flow) @ peak factor 2,5	=	7,29 l /sec

5.2 Existing Sewers

5.2.1 Northern Lobe – Precinct 1

There is an existing sewer connection for Erf 4662 (Sanel) and another for the 3 existing houses in the Northern part of the property. Existing sewers from these connections lead to the North West corner of Erf 227, from which point a Municipal sewer runs Southwards down the Western boundary of Erf 227.

The sewer line from Erf 4662 (Sanel) will be rerouted around the proposed buildings and a servitude registered over this sewer. The other sewer line serving the 3 houses will be abandoned as these 3 houses do not form part of the proposed development.

5.2.2 Eastern Lobe – Precinct 2

There are no Municipal sewers running through this property. There is an existing 160mm diameter municipal sewer servicing the properties lying between Lelieskloof Avenue and the Concordia Road. This sewer extends up to the Western boundary of Erf 15396 and Erf 4916 to service these 2 erven.

There is another existing 160mm diameter municipal sewer running on the south side of the Concordia Road opposite the development.

5.2.3 Southern Lobe – Precinct 3

There is an existing 160mm diameter Municipal sewer running through the car parking areas of this section of the proposed development. This sewer will be retained and a servitude registered over it.

5.3 Proposed Sewer Reticulation

5.3.1 Northern Lobe – Precinct 1

An internal reticulation of 110mm & 160mm diameter uPVC sewers will be laid within the development to service all apartments in Precinct 1. At the Southern end of the development this internal sewer will be connected to the existing 160mm diameter Municipal sewer at the North West corner of erf 227.

5.3.2 Eastern Lobe – Precinct 2

An external 160mm diameter sewer will be laid from an existing manhole on the municipal sewer (across the Concordia Road from the development) to the South West corner of Precinct 2.

An internal reticulation of 110mm & 160mm diameter uPVC sewers will be laid within the development to this connection point, to service all units in Precinct 2.

5.3.3 Southern Lobe – Precinct 3

An internal reticulation of 110mm & 160mm diameter uPVC sewers will be laid within the development to service all apartments in Precinct 3. These internal sewers will be connected to the existing 160mm diameter Municipal sewer running through Precinct 3.

Drawings of the proposed internal reticulations will be submitted to council for approval, prior to construction of these services.

6. Refuse Removal

6.1 Requirements of the development

The refuse removal requirements of the development have been assessed using "The Guidelines for provision of Engineering services and amenities in residential township development as issued by the Department of National Housing" The Red Book, as well as discussions with employees of the Knysna Municipality Health Department. The requirements are summarized as follows:

Total volume of refuse generated by the development

27 units @ 160 litres / per unit / week = 43,2 m³ / week.

When compacted this reduces to 43,2/ 2,8 = 15,4 m³ / week.

6.2 Proposed refuse removal system for the development

Communal refuse storage facilities will be constructed for each block of apartments. These facilities will be emptied on a regular basis by the Municipal refuse collection service.

7. Access, Internal Roads & Parking

7.1 Northern Lobe – Precinct 1

Access to this portion of the development will be off Rio Street. Internal roads will be at least 5.5m wide brick paved roads with precast concrete kerbing on both sides. Roads will have 3% crossfall and a maximum grade of 1:6.

There are 142 units within this portion of the development. At 1.5 parking bays per unit there will be 213 parking bays in Precinct 1. 142 of these bays will be covered bays.

7.2 Eastern Lobe – Precinct 2

Access to this portion of the development will be off the Concordia Road on the existing access to erf 4972. Internal roads will be at least 5.5m wide brick paved roads with precast concrete kerbing on both sides. Roads will have 3% crossfall and a maximum grade of 1:6. There are 68 units within this portion of the development. At 1,5 parking bays per unit there will be 102 parking bays.

7.3 Southern Lobe – Precinct 3

Access to this portion of the development will be off Grey Street / Concordia Road. This access road will also provide access to residents on Upper Gardeners Kloof Street. Internal roads will be at least 5.5m wide brick paved roads with precast concrete kerbing on both sides. Roads will have 3% crossfall and a maximum grade of 1:6. There are 60 units within this portion of the development. At 1.5 parking bays per unit there will be 90 parking bays in Precinct 3.

Plans of the accesses, internal roads and parking will be submitted to council for approval prior to construction of services.

8. Stormwater Disposal System

8.1 Northern Lobe – Precinct 1

8.1.1 Stormwater from Concordia Road & North of Rio Street

Stormwater from Concordia Road area passes under the West end of Rio Street through a 600mm diameter pipe culvert. Stormwater from North of Rio Street flows to the dip on the North side of Rio Street from where it flows under Rio Street through a 450mm diameter pipe culvert. From these points stormwater flows in unlined channels over Precinct 1 to an existing 1m x 1m brick and concrete lined stormwater channel running South Westwards through Erf 227.

The 50 year flow from this combined catchment is calculated to be approximately 1,4m³/sec. The proposal is to create a new brick and concrete lined stormwater channel along the North side of Rio Street from the Concordia Road to a stormwater retention pond to be constructed in the dip on the North side of Rio Street (municipal land).

Stormwater from Concordia Road and North of Rio Street would be channeled into this retention pond. Two 450mm diameter outlet pipes from the retention pond (with a flooded capacity of 0,48m³/sec) would feed into a 900mm diameter pipe culvert to be laid under Rio Street and into the stormwater reticulation of Precinct 1.

8.1.2 Stormwater from Rio Street

Stormwater from a section of Rio Street flows in two or three 450mm diameter pipe culverts under Rio Street and the Sanal access road onto Precinct 1. This stormwater flows in unlined channels over Precinct 1 to the existing 1m x 1m brick and concrete lined stormwater channel running South Westwards over Erf 227.

The 50 year flow from this catchment is calculated to be approximately 0,5m³/sec.

The proposal is to create a stormwater retention pond just North of Precinct 1 to catch this stormwater. One 450mm diameter outlet pipe from the retention pond (with a flooded capacity of 0,24m³/sec) would feed into the stormwater reticulation of Precinct 1.

8.1.3 Precinct 1 - Stormwater

The stormwater reticulation of Precinct 1 will be designed to cater for the 0,48m³/sec and 0,24m³/sec flows from the stormwater retention ponds in 8.1.1 and 8.1.2 above as well as the bulk of the 50 year flow of 1,28m³/sec from Precinct 1 and leads it through a 1,5m wide x 1m deep brick and concrete lined channel around Erven 228 and 229. This will greatly reduce the flow through the existing 1m x 1m brick and concrete lined stormwater channel over Erven 227, 228 and 229, which has overflowed during periods of very heavy rainfall in the past.

Only an area of 0,34 hectares of Precinct 1, which is too low lying to be drained around the North West corner of the development on Erven 228 & 229, will be drained through this brick and concrete lined channel. The 1,5m wide x 1,0m deep, brick and concrete lined stormwater channel running around the North West corner of Erf 229 will run Southwards, pick up the flow of the stormwater channel through Erven 227, 228 and 229 and discharge into the stormwater system of Precinct 3 after passing under Gardeners Kloof Street.

8.2 Eastern Lobe – Precinct 2

There is no stormwater from outside of this precinct which will flow onto it. Stormwater from this precinct (with a 50 year runoff flow of 0,12m³/sec) will flow overland to the low point adjacent to Lelieskloof Avenue. A stormwater retention pond will be constructed at this low point to capture this stormwater.

One 300mm diameter outlet pipe (with a flooded capacity of 0,086m³/sec) will feed into the existing 300mm diameter stormwater pipe under the access road to erf 4972 at this point.

8.3 Southern Lobe – Precinct 3

Stormwater from Precinct 1 (with a 50 year flow of 2m³/sec) and stormwater from the existing Lelieskloof residential area (with a 50 year flow of 0,78m³/sec) will flow into a stormwater retention pond to be constructed on the East side of the access road to Precinct 3 and residents in Lelieskloof Avenue. From this retention pond a 2m wide x 1,0m high box culvert section will be laid under the parking areas of Precinct 3 where it will collect the stormwater of Precinct 3 and discharge into the open natural channel at the Southern end of Precinct 3.

The existing and proposed stormwater reticulations are shown in the attached drawing:

Annexure C – STORMWATER - Precincts 1,2 & 3 (dwg no 06/187-02Rev A – 08 April 2013).

9. Telkom Reticulation

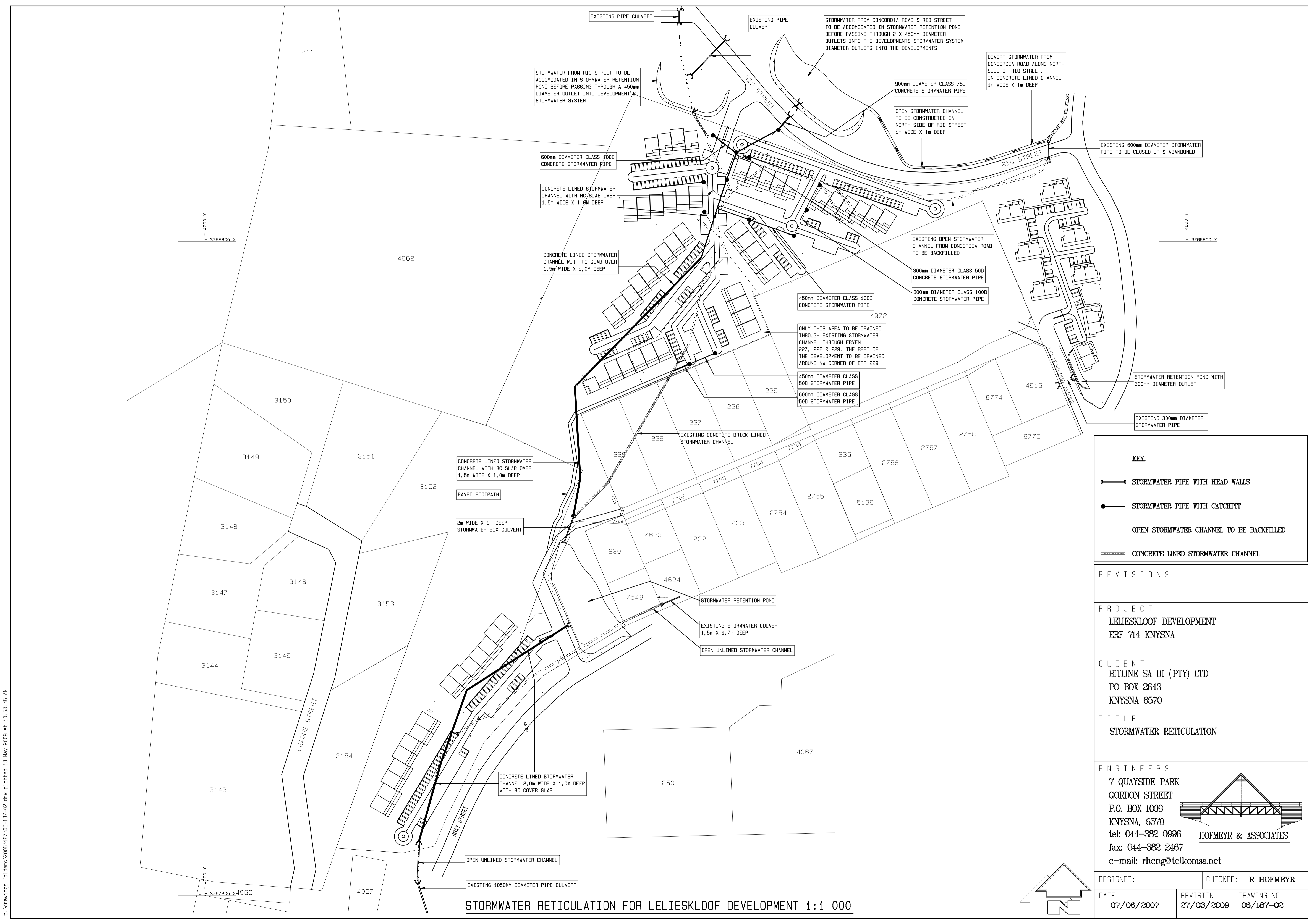
A system of 110mm diameter uPVC pipes with 600 x 600 brick junction boxes will be provided throughout the development for the provision of Telkom wiring to all apartments.

Telkom pipes and junction boxes will be provided to Telkom specifications with draw wires in each pipe. Connection junction boxes will be provided for connection to existing Telkom services in Concordia Road and Rio Street.

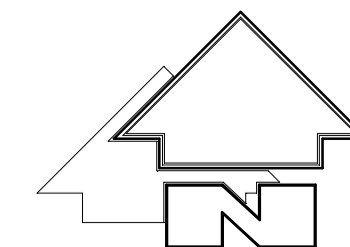
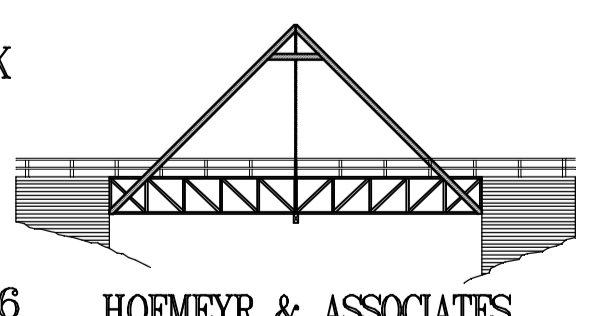
10. Electrical Supply

The electrical supply will be constructed in accordance with the design of project electrical engineers – MVD Consulting Engineers.

They will submit plans to council for approval to construction and will submit a separate services report for electrical supply.

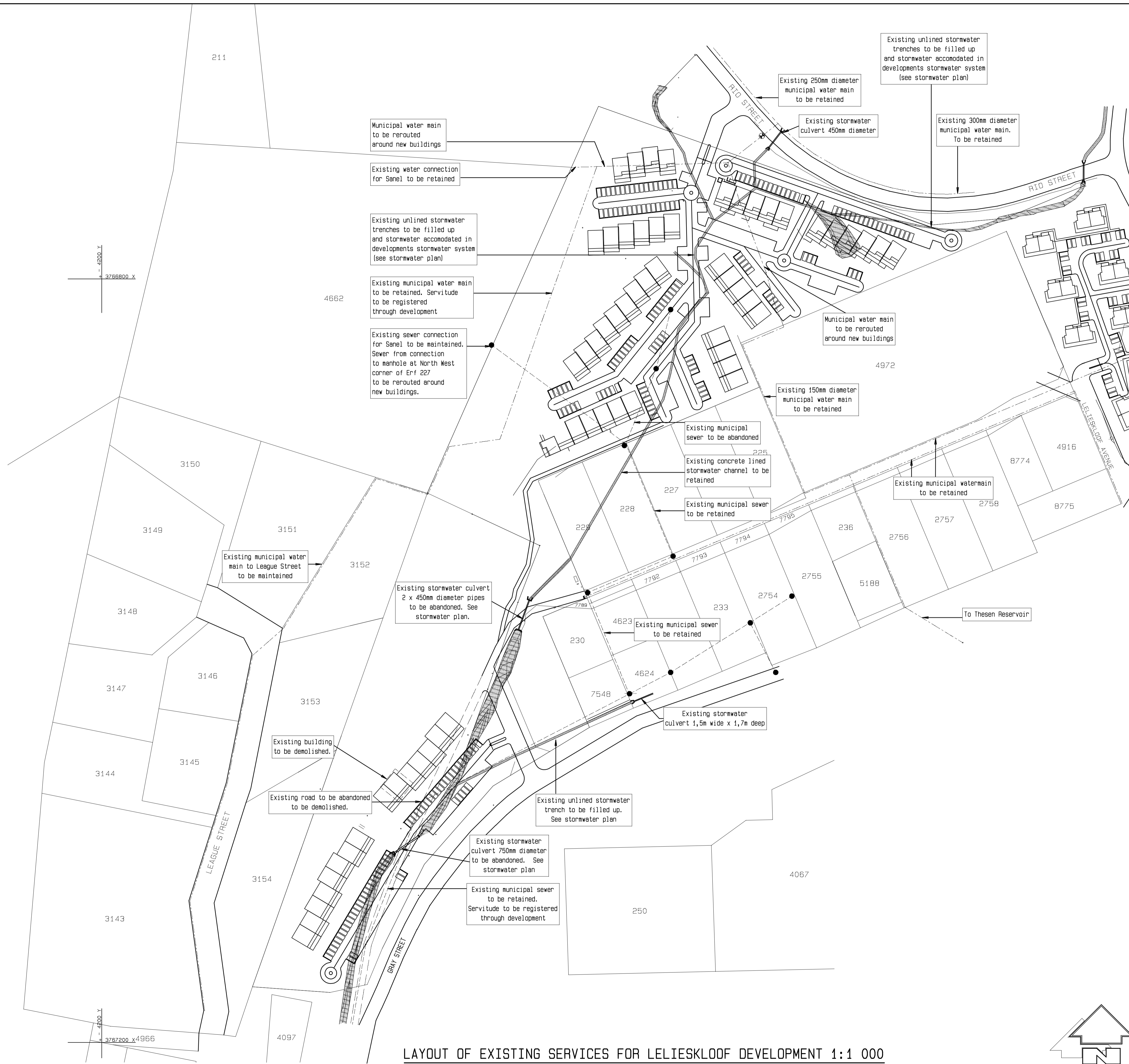


<p>KEY</p> <ul style="list-style-type: none"> —●— STORMWATER PIPE WITH HEAD WALLS —●— STORMWATER PIPE WITH CATCHPIT - - - - OPEN STORMWATER CHANNEL TO BE BACKFILLED ==== CONCRETE LINED STORMWATER CHANNEL 		
<p>REVISIONS</p>		
<p>PROJECT LELIESKLOOF DEVELOPMENT ERF 714 KNYSNA</p>		
<p>CLIENT BITLINE SA III (PTY) LTD PO BOX 2643 KNYSNA 6570</p>		
<p>TITLE STORMWATER RETICULATION</p>		
<p>ENGINEERS 7 QUAYSIDE PARK GORDON STREET P.O. BOX 1009 KNYSNA, 6570 tel: 044-382 0996 fax: 044-382 2467 e-mail: rheng@telkomsa.net</p>		
<p>DESIGNED:</p>		<p>CHECKED: R HOFMEYR</p>
<p>DATE 07/06/2007</p>	<p>REVISION 27/03/2009</p>	<p>DRAWING NO 06/187-02</p>



z:\drawings\folders\2006\187\06-187-02.dwg plotted 18 May 2009 at 10:53:45 AM

STORMWATER RETICULATION FOR LELIESKLOOF DEVELOPMENT 1:1 000



Municipal water main to be rerouted around new buildings

Existing water connection for Sanel to be retained

Existing unlined stormwater trenches to be filled up and stormwater accommodated in developments stormwater system (see stormwater plan)

Existing municipal water main to be retained. Servitude to be registered through development

Existing sewer connection for Sanel to be maintained. Sewer from connection to manhole at North West corner of Erf 227 to be rerouted around new buildings.

Existing 250mm diameter municipal water main to be retained

Existing stormwater culvert 450mm diameter

Existing unlined stormwater trenches to be filled up and stormwater accommodated in developments stormwater system (see stormwater plan)

Existing 300mm diameter municipal water main. To be retained

Municipal water main to be rerouted around new buildings

Existing 150mm diameter municipal water main to be retained

Existing municipal sewer to be abandoned

Existing concrete lined stormwater channel to be retained

Existing municipal sewer to be retained

Existing municipal watermain to be retained

Municipal water main shown on master plan (not confirmed by inspection). Water main if it exists to be retained. Servitude to be registered through the development.

KEY

- EXISTING MUNICIPAL WATER MAINS
- EXISTING MUNICIPAL SEWERS
- EXISTING UNLINED STORMWATER TRENCHES
- EXISTING STORMWATER CLUVERTS

REVISIONS

REV 'A' 16 MARCH 2009. EXISTING SERVICES MORE ACCURATELY LOCATED BY SURVEY & PLOTTED ON LATEST SDP

PROJECT

LELIESKLOOF DEVELOPMENT
ERF 714
KNYSNA

CLIENT

BITLINE SA III (PTY) LTD
PO BOX 2643
KNYSNA 6570

TITLE

EXISTING MUNICIPAL SERVICES

ENGINEERS

7 QUAYSIDE PARK
GORDON STREET
P.O. BOX 1009
KNYSNA, 6570
tel: 044-382 0996
fax: 044-382 2467
e-mail: rheng@telkomsa.net

HOFMEYR & ASSOCIATES

DESIGNED:	CHECKED: R HOFMEYR
DATE 07/06/2007	REVISION A 27/03/2009
DRAWING NO 06/187-1	

LAYOUT OF EXISTING SERVICES FOR LELIESKLOOF DEVELOPMENT 1:1 000

z:\drawings folders\2006\187\06-187-01 a.dwg plotted 18 May 2009 at 01:46:35 PM

AE27-01

2006-10-31

VPM Planning
PO Box 173
KNYSNA
6570

Attention: Ms L Botha

vpm.survey@pixie.co.za

KNYSNA: LIELIESKLOOF DEVELOPMENT: ELECTRICAL RETICULATION

Further to our meeting on 2006-10-27 at the offices of the Knysna Municipality regarding the electrical bulk services to the above-mentioned development, the following:

We estimate that, once fully developed, the development will have an electrical maximum demand of 600kVA which will be supplied via two mini-substations situated the load centres of the development.

The Electrical Department of Knysna Municipality have indicated that their network in the immediate area will not be able to accommodate this load due to the fact that the transformer at the Salt River Substation is at capacity.

As you are aware, the upgrading of the Salt River Substation is being investigated by ourselves and we have a further meeting with Knysna Municipality on 2006-11-02 in order to finalise the fast tracking of the installation of the transformer. Should these negotiations be successful, it would mean that the possibility exists that the Developer would be able to buy into the capacity created on the transformer and hence ensure that the required demand would be available.

The internal reticulation to the units does not present any problems. The final costing of the electrical network can be done once we have achieved finalization of the above negotiations.

We trust that the above meets with your approval. Please do not hesitate to contact the undersigned should you require any additional information. Note that we are available at short notice to discuss the above with your client.

Yours faithfully

R.G.HALL Pr Eng
for AILSA ELECTRICAL CONSULTANTS cc

Member R.G.Hall Pr Eng BSc (Elec) Eng (UCT) Gov Cert
e-mail: ailsa@telkomsa.net

A
I
L
S
A

C
O
N
S
U
L
T
I
N
G

C
C

0
8
3
4
5
3
3
0
0
8

C
K
2
0
0
4

1
0
3
6
3
5

2
3