



MEMORANDUM IN SUPPORT OF THE APPLICATION FOR ESTABLISHMENT OF THE PROPOSED TOWNSHIP “*ST LEGER*” ON REMAINDER OF THE BOSCH HOEK 3345 HS.

1. GENERAL INFORMATION

1.1 Introduction and Property Description

Application is made according to Chapter 4 (Section 40) of the Kwazulu-Natal Planning and Development Act 2008 for the establishment of a Township (*Development of Land situated outside area of scheme*) on Remainder of the farm Bosch Hoek 3345HS

The new township will be known as “*St Leger*”.

The farm for the proposed township is located directly south of an existing informal settlement “Siyahlalala” or Fairview in Newcastle. The farm is within the existing “Urban Edge” and is earmarked according to the Newcastle Housing Spatial Framework as “Future Urban Area”

Access to the development will be from Boundary Road. All the services such as water, electricity and sewer will be available within the next two years.

The proposed township will provided 2588 houses /stands in the affordable market – serviced stand @ R110 000-00 or a typical house for R399 000-00 for a household income of R10 – R15 000-00 per month. The stands will be sold on a freehold basis.



The erf to the north of the of the township (erf 2588 -70ha in extent) is in the process to be transferred to the Newcastle Municipality and subdivided into residential erven for low-cost or subsidy housing. Supportive land uses such as retail, schools, crèche's, churches, community facilities and open spaces will for part of the proposed township.

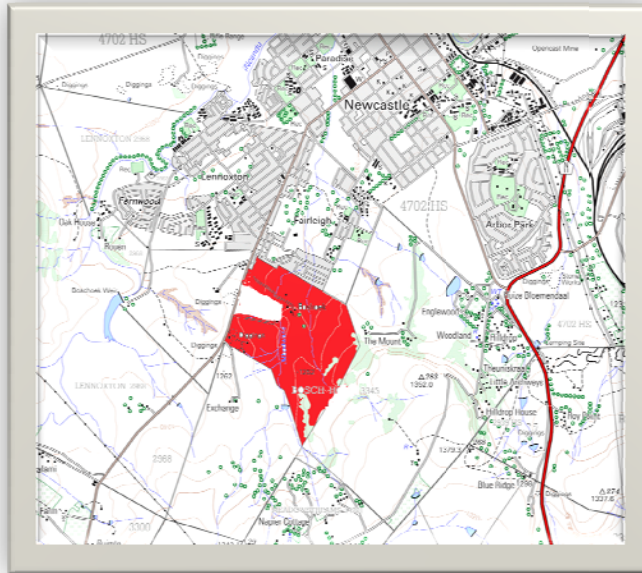
1.2 Local Authority

Newcastle Municipality - Kwazulu Natal Province.

1.3 Registered Owner

The property is registered in the name of several individuals, as stated in the title deed T8871/1966. *Meadowood Investments 10 Pty Ltd*, represented by *Willoughby St Leger Denny* was granted a Power of Attorney, who appointed Town Planning Studio with a Power of Attorney to submit the application according to the relevant acts and Ordinances and to the relevant authorities.

1.4 Locality



The project is known as **ST LEGER** on the Remainder of the farm Bosch Hoek 3345, falls which is located on the urban periphery of the town Newcastle. The property /development are within the jurisdictional area of the Newcastle Municipality, Kwazulu Natal Province.

ST LEGER is situated south of the town of Newcastle and is located to the east of Boundary Road (Normandien Provincial Road P39-1).



The informal settlement of Siyahlalala (Fairleigh) is located directly to the North of the proposed township. Other developments to the North of the proposed township include Lennoxton.

1.5 **Property Size**

The property and proposed township measured 202,6170 hectare in extend. The northern portion of the farm, measuring 70 hectare will be transferred to the Newcastle Municipality for mainly low cost housing (subsidy). The remainder of the development, 132 hectare will be used for affordable housing with minimum residential stand sizes of 250m².

1.6 **Bond**

No bond is registered over the property.

1.7 **Servitudes**

Servitudes for power lines, storm water, and water- and sewerage lines will be registered for existing and proposed service lines.

Other restrictive conditions will be removed from the title deed as the development conditions will be regulated by the Newcastle Town Planning Scheme.

1.8 **Mineral Rights**

The mineral rights are not served from the property rights of the land.

2. **THE SITE**

2.1 **Topography**

The surface topography of the site is characterized as being gently undulating landscape over the central and western parts of the site and to roughly undulating landscape across The site is bisected by two prominent northerly flowing drainage features and surface drainage takes place via sheetwash towards these features at gradients ranging from 3% to 10% respectively.

The farm is mostly in an undisturbed condition with small areas cultivated to produce grass for feeding cattle. The vegetation on the site exists mainly of natural grass land, marshy areas along the low-lying areas with scattered bush. The most abundant species that were observed are *Acacia karoo*; *Acokanthera oppositifolia*; *Cussonia paniculata*; *Maytenus heterophylla*; *Grewia flava*; *Euclea crispa* *Rhus dentata*; *Rhus pyroides* and *Ziziphus mucronata*. The surface cover over the central and western parts of the site



consists of veld grass and scattered *Acacia karoo* trees whereas the rocky ridges that occupy the higher-lying eastern portion, is densely vegetated by indigenous flora.

At an elevation ranging from 1 220m to 1 290m above sea level the natural ground slope of the site is generally steep with a slope between 5% and 13% and in one area up to 15% occurring in the eastern part of the study area.

A contour survey at a 0.5m intervals were done by “Foto-Graminsura” on the total area for development. These contours were used to establish the flood lines, township designs and services designs.

The township layout is generally favourable gravity services such as sewerage and storm water runoff.



2.2 Geology

A detailed Geotechnical report was carried out. The Phase 1 geotechnical investigation consisted of a detailed geotechnical investigation during which time a number of 30 test pits were excavated by back-actor across the site, combined with soil sampling and testing and visual observations of soil and rock exposures over the development area.

The objectives of the investigation were to: -

- Determine the engineering properties of the site soils and bedrock including potentially expansive material, low bearing capacity soils, areas difficult to excavate, shallow ground water conditions and the quality of the in situ soils in terms of road construction.



- Present appropriate recommendations for residential design and precautionary measures in accordance with the requirements of the National Home Builders Registration Council's guidelines.

The detailed descriptions of the test pit profiles and laboratory test results are available on request and forms part of the detailed Geotechnical Report.

SITE SOILS AND GEOLOGY

The entire study area is underlain by transported silty, clayey and gravelly soils that are underlain by residual soils developed over weathered and unweathered dolerite bedrock belonging to a Post Karoo intrusive sill. The site has been apportioned into four prominent material zones, Soil Zones "A" to "D" as shown on the attached "Geotechnical Map" in the detailed Geotechnical Report, available on request.

This investigation serves as a Phase 1 geotechnical investigation in terms of the National Department of Housing's Generic Specification GFSH-2 that specifies that a Phase 2 investigation should also be carried out. The Phase 2 investigation comprises the appointment of a competent person by the developer during the installation of township services. Such an investigation comprises observations and in some instances, additional investigations after the township has been pegged, to confirm the site class designation of individual erven in accordance with the NHBR requirements for enrolment of top structures in the Warranty Scheme under the provisions of the Housing Consumer Protection Measures Act, 1998 (Act No 95 of 1998) and the Joint Structural Division of the South African Institution of Civil Engineering and Institution of Structural Engineers' code of practice for foundations and superstructures for single storey residential buildings of masonry construction.

These soil zones classify as a Site Class "P" according to the guidelines of the NHBR Standards and Guidelines of 1999 due to the fact that these soil zones occupy areas that may be affected by *seasonal flooding* and disturbed ground conditions and respectively and it is recommended that these areas be excluded from development. It is also recommended that the flood line be determined accurately and that those portions of the site that may be affected by these adverse conditions, be excluded from the development.

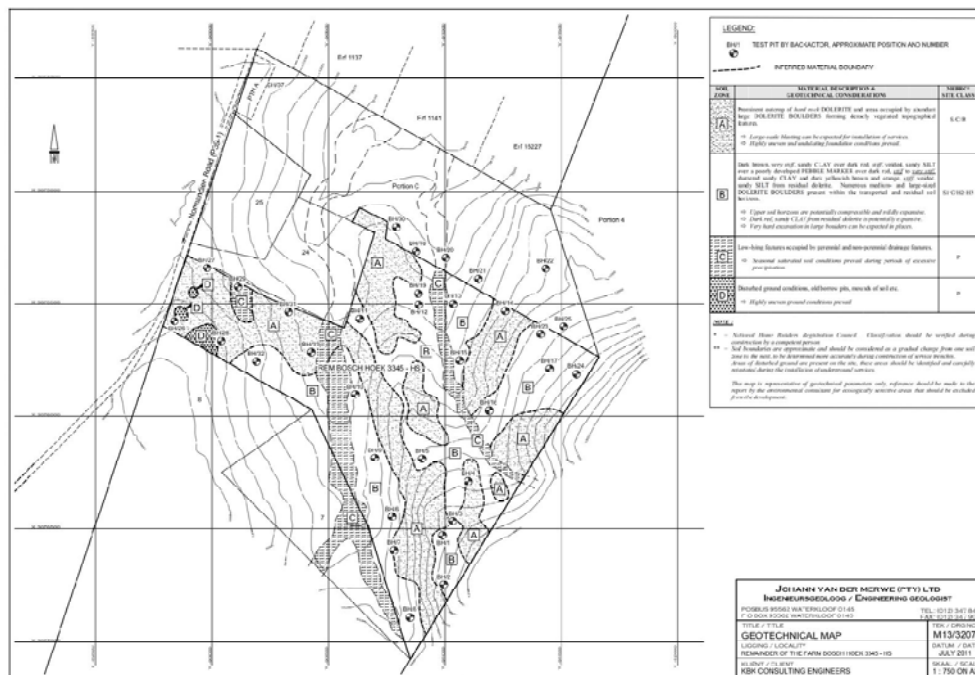
The design and construction of raft foundations (whether soil or concrete) should be done in accordance with and under supervision of a civil or structural engineer. The NHBR soil classes on the site are tentative and should be verified during construction by a competent person. The design of heavier structures such as double- and triple-storey structures should take cognisance of the potentially problematic soil conditions. Areas of disturbed ground conditions caused by past agricultural and other activities (old borrow pits, septic tanks, test pits etc.) should be identified and carefully reinstated during the



construction of township services.

Cognizance should be taken of the ecologically sensitive areas on the site, the results of **this investigation did not incorporate zones that cannot be developed due to ecological constraints.**

In view of the above observations and recommendations, it is concluded that the Remainder of the farm Bosch Hoek 3345-HS is suitable for the proposed *Residential Township Development*.



2.3 Pollution

The area in which the township is being established as a residential area and no problems with pollution are foreseen. All sewer will be managed with a piped waterborne system to be connected to the existing sewer lines and sewerage works. Solid waste will form part of the existing waste removal system.



2.4 Hydrology

The 1:50 year flood lines were calculated by SRK Consulting in July 2011, and incorporated in the town planning. No residential erven have been planned below these flood lines as indicated on the layout plan.

2.5 Existing Structures

There is an old dwelling-house with outbuildings on the property. The existing house will be retained on a separate stand, erf 2588 -9894m².

3. PLANNING POLICIES

3.1 Newcastle Integrated Development Plan Review 2011/12

Housing development has increased substantially since 1996 due to the National Government Subsidy Policy. Newcastle Municipality has benefited from the programme although supply cannot meet the rapid increase in demand especially in a secondary city such as Newcastle.

A recent call for the re-development of the housing waiting list has resulted in approximately 32000 applications being received. These are in the process of being captured onto a data base to determine specific requirements.

The Housing Sector Plan was approved by Council in February 2010.

The issue of housing in an urban core is a complex one especially in a secondary city such as Newcastle. The city is growing at a fast rate with a lot of in migration from the surrounding rural hinterlands by people in search of employment while others are being chased away by rural poverty. The urban core is growing and hence cannot cope with the demands of a fast growing city. The housing waiting list stands at 16000 and has been like this for the past three years. The influx of people into the city has resulted in the creation of various informal settlements or back-yard shacks.

The supply of housing cannot meet demand and as more people get houses, more people come into the city. Formal housing provision has grown considerable by more than 20% since 1996. Informal settlements growth has remained stagnant.

As people are provided with housing more people invade land with the hope of getting subsidised housing. Disused classroom blocks on a former training centre in Madadeni have been illegally converted into homes for the homeless and some of the classrooms are occupied by the working class who has hope of getting a site in the neighbouring upcoming housing project.



The housing problem has been compounded by the National Housing Strategy which seems to focus more on slums clearance programmes with little scope for green-field development.

The municipality has not put in place a housing strategy to guide it in the provision of housing. Too much focus has been put in slums clearance at the expense of people on the waiting list. This has led to the enormous growth of informal settlements. Some prospective home owners book sites on the informal settlements to ensure they are catered for in the particular slums clearance project. The municipality has of late put a number of controls in place to discourage the growth of these settlements by putting security and working together with the community to control the growth of the settlements. Controls such as policing and controlled access points to the squatter camps have been put in place and seem to be very effective.

One of the more urgent priorities is the relocation of informal settlers from the Fairleigh – Siyahlalala settlement. However the development of approximately 1500 units is pending the upgrading of bulk water and sanitation infrastructure in Newcastle West in line with the WSDP. The Project has accordingly been given top priority on the MIG List.

Table 1: Services Profile: Housing

HOUSING TYPE	PERCENTAGE GROWTH	TOTAL FOR 2007
INADEQUATE HOUSING		
Informal Dwellings	5.3% (average)	12313
Traditional Dwellings	9.5%	7966
ADEQUATE HOUSING		
Dwellings on Separate Stands	3.8%	57151
Flats	17.9%	18275

- Demand Analysis
- Backlog Estimated at between 19000 and 30000
- Housing Waiting list of 32 000
- Only 9000 units built over the past 12 years



The Site

3.2 Newcastle South Spatial Development Framework (NSSDP)

The Newcastle Council has instituted a Spatial Development Plan for the area containing the application site, and as a result of that process has identified the site as suitable for residential development. Within the introduction in the NSSDP the Fairleigh area has been identified as an area containing middle- income housing which would tie in with the proposals to be outlined within this document.

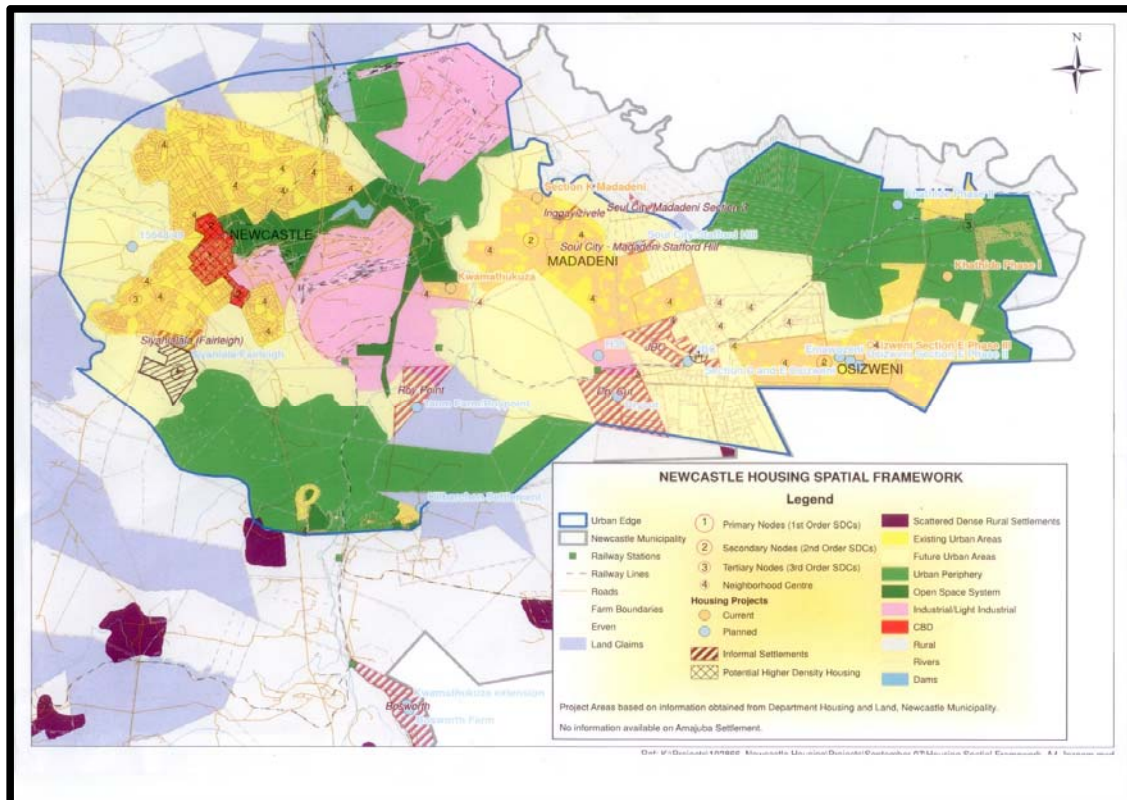
Studies have revealed that the total demand for dwelling units can be calculated at approximately 19000 units. A study of household income reveals that approximately 68% of the households in the Newcastle area are eligible for a housing subsidy.

A total of 9082 dwelling units have been supplied between 1996 and 2007 in the Newcastle Municipal area however when considering what can be termed as inadequate housing, it can be estimated that the backlog is between 19 000 and 30 000. Although the number of units supplied by the Municipality was the aforesaid 9082 units over the



past 10 years, the number of applications for new dwelling units as derived from the waiting list (32400) and the estimated number of households living in informal settlements (19 000) gives a rough estimate of the possible backlog in the Newcastle Municipal area.

3.3 Newcastle Housing Plan



The housing vision for the Newcastle Municipality is “Striving for excellence in providing housing and land to the people of the Greater Newcastle area”

The mission of the Municipal Housing and Land Department is to facilitate the provision of applicable land and housing opportunities that would be instrumental in contributing towards a better standard of living of the people resulting in sustainable human settlement and economic growth, and as such, this application to convert this agriculturally zoned area for use as housing, would be in keeping with the Councils’ vision.

The following principals were derived from the Housing Act, the Development Facilitation Act and the National Environmental Act and were work shopped with stakeholders to ultimately direct the activities of the Newcastle Municipal Housing and Land Department:



Sustainability:

- To ensure economically, fiscally, socially and financially sustainable housing development by promoting the establishment of viable communities.
- To take cognizance of the impact of housing development on the environment and ensure the protection of the environment.

Integration:

- To promote housing development close to economic opportunities or integrated with each other.
- To promote integrated development and discourage urban sprawl in urban and rural areas through housing development.
- To address historically distorted spatial and social residential development.

Optimise utilisation of land, facilities and services:

- To optimize the use of existing resources such as roads, infrastructure etc. for housing development.
- To promote the provision of community and recreational facilities in residential areas through housing development.
- To promote higher housing development and ensure the economical utilization of land and services.

Adequate and Secure Housing Provision:

- To ensure that housing development in the Municipal area results in security of tenure and provides for the widest possible range of tenure and housing options.
- To address the housing needs of the disabled, marginalized and disadvantaged groups.
- Ensure the utilization of land in a safe manner by taking into account aspects such as hazardous geological conditions etc.

Empowerment and Equal Access:

- To promote the development of skills, consumer education and capacities of disadvantaged communities and to empower communities by allowing them to actively participate in the process of housing development and also in respect of housing maintenance.
- To support communities and individuals to fulfill their housing needs by assisting them to access land, services, technical assistance.

Strategic Planning and Management:

- To ensure the elimination and prevention of slums.
- To discourage the illegal occupation of land.



Good Governance:

- Ensure the efficient and effective management of departmental housing assets.
- Attempt to maximize the effectiveness and efficiency of housing delivery efforts by aligning and synchronizing the policies, plans and budgets of relevant stakeholders.
- Proper use and application of public resources and monies.
- Facilitate participation of all relevant stakeholders in housing development in an open and transparent manner.
- To promote speedy housing development.
- To encourage the contribution of all sectors of the economy (government and non-government) to residential development.

The Newcastle Spatial Development Framework, addresses the spatial context of housing within the Newcastle area in a comprehensive manner and identifies specific objectives linked to housing development including:

- Identify sufficient land for future housing development.
- Quantify housing backlogs and future needs.
- Locate new housing development within a rational urban structure and urban development boundary to ensure sustainable development.

The Housing Plan should support the above objectives and housing related spatial proposals should adhere to and be incorporated with the responses contained in the current Spatial Development Framework, which when considered in conjunction with this application can be seen to be totally aligned.

The Council has established criteria for determining the location of such housing the key elements being to promote the economic and social sustainability of communities by developing residential areas close to job opportunities and social amenities. The provision of housing on infill land and located within existing urban areas are thus essential which again highlights the importance of the development of the application site for housing purposes.

Over and above these criteria the Newcastle Spatial Framework has targeted a number of key elements, these being:-

Availability of Bulk Infrastructure.

Bulk infrastructure including electricity, water and sewer are available in or close to existing urban areas. Infill development in these areas is thus the first option and as can be seen from the location of the application site, the site fulfils the above requirement.

**Land Ownership.**

Municipal and government owned land should be first option for the development of affordable housing. Time consuming and expensive purchase and transfer of privately owned land can be avoided by considering the options of municipal and or government owned land. To this extent the land owner has indicated his willingness to negotiate the sale of a portion of his site accommodate the extension of the adjoining informal housing settlement.

Access to Social Amenities and Economic Opportunities.

It is proposed that affordable housing projects should be located close to existing and planned social and economic nodes to ensure that reasonable access is provided to social amenities and economic opportunities. Whilst the application site is relatively close to facilities, it is proposed to provide opportunities to develop facilities such as retail elements and or a crèche, or some form of educational facility.

Access to Public Transportation.

It is important to locate affordable housing close to public transportation routes as these households are dependent on public transport and walking as their mode of transport. The application site is adjoining a major public access route and will therefore fulfil this criterion.

Integrated Development.

The focus of the Spatial Development Framework is to ensure integration of the fragmented urban structure through corridor development using residential infill. This will contribute to the establishment of integrated, economically viable and sustainable communities. This site represents the extension of the urban edge as opposed to an infill development.

Housing Development within the Urban Edge.

To obtain urban integration and limit sprawl the Spatial Development Framework proposes that no affordable housing projects must be developed outside the boundaries of the urban edge. The municipal housing need is located in the areas of Madadeni, Osizweni and the informal JBC area and should therefore be the focus of affordable housing developments.

Upgrading of Informal Settlements.

The Newcastle Spatial Development Framework suggests that the same criteria for developing housing projects should apply to the selecting and prioritization of informal settlement upgrading projects. This implies that informal settlements that do not adhere to criteria should be relocated. The urban edge should be of utmost importance in these circumstances as consideration should be given to any informal settlement established outside the edge to be relocated to an area within the urban edge, furthermore rural settlement should be upgraded in terms of applicable policies and legislation.



When considering the Development Framework Plan contained in the NSSDP it can be seen that the proposals for the application site outlined in the above plane are for, Social Housing, Lower Income Housing, Middle Income Housing, Upper Income Housing, New Streets, Public Open Space and Facilities. The purpose of this report is to therefore investigate these proposals, to possibly “fine-tune” them, and then to outline the processes necessary to take these forward to Statutory approval.

4. **ENVIRONMENTAL Sensitivity study (wetlands report)**

A comprehensive Environmental Impact Assessment report and procedures were undertaken by LEAP. Several issues were addressed in the EIA report that is not addressed in this memorandum. The most important report, “Sensitivity Report” will follow:

4.1 **General**

This report addresses the wetlands and potential ecological impact of the new development.

4.2 **Wetland**

The wetland areas are typical wetlands with wetland vegetation and wetland soil types. Two hydro-geomorphic types of wetland were identified, namely channelled valley bottom wetland as spruits and Hillslope seepage as wetlands. The Present Ecological Status (PES) score is B, indicating that the wetlands are in a good condition, largely natural with few modifications. A slight change in ecosystem processes is discernable and a small loss of natural habitats and biota may have taken place. The Ecological Importance and Sensitivity (EIS) score is C, indicating moderate importance and sensitivity. These are wetlands that are considered to be ecologically important and sensitive on a provincial or local scale.

Although most of the (terrestrial) area is suitable for development, the wetlands and spruits are protected by law and no development should take place within the 1:100 year flood line or within 32 m from the edge of the spruit or wetland. This is in line with the legal requirements for wetlands inside the urban edge. Although it is not realistic to exclude all activities from the buffer zone, it should still be considered as a sensitive feature of the landscape in which mitigation measures should be implemented.

The following applies:

- The site does not fall within a conservancy.
- The site does not fall within a protected area.
- There are wetlands on the site.



- The site is topographically complex with ridges, valleys, plains and stream present.

4.3 Description of the Receiving Environment

A review of available literature and spatial data formed the basis of a characterisation of the biophysical environment in its theoretically undisturbed state and consequently an analysis of the degree of impact to the ecology of the study site in its current state.

The site falls within the Sub-Escarpment Grassland Bioregion of Mucina & Rutherford (2006) but is relatively complex topographically. It slopes and drains towards the town in the north, with two main dolerite ridges running approximately north-south across the site and two deeply incised streams running in the valleys between the ridges (Figure 2). There are also two wetlands draining down into the western stream.

There was a clear division between the sandy, gravelly slopes, with exposed rocks on the ridges and slopes, and the dark clay soils in the valley bottoms. There are at least four dwelling areas on the site (and more in the excised areas east of Boundary Road). There are signs of old croplands on the alluvial soils around the northern ends of the streams, but most of the site and surrounding habitats are natural grasslands that have been used for grazing livestock. There are also various other human impacts, such as small dams on the streams, vehicle tracks and foot paths, and a series of borrow pits in the elevated southwest corner. Woody vegetation is found mainly along the two ridges, mainly as scattered trees and bushes but forming dense clumps on the crest and western aspects of the ridges. Apart from a patch of alien wattle trees planted at the head of the more eastern stream, most of the areas have low alien infestation, except around the dwellings, including pine, syringe, eucalyptus, willow and mesquite trees.



Figure 2: Satellite image showing the location of the farm Boschhoek south of Newcastle, where residential development is proposed (purple polygon). The main features of ridges, streams and dwelling houses (H) are indicated.

4.4 Vegetation Types

The site is located directly south of Newcastle. The regional geology is dominated by Mudstone and shale of the Mid-Ecca Group of the Karoo Supergroup. The deep structureless soils of the plains are of the Avelon form while shallower soils on the ridges and rocky outcrops are of the Mispah or Glenrosa forms. The valley floors, especially the wetland soils are of the Katspruit or Rensburg forms.

The site is situated within the Natal Sour Sand Veld as described by Acocks (1988), but North-eastern Sandy Highveld is also prominent in the area. Low & Rebelo (1996) described the vegetation of the area as North Eastern Moist Grassland.

According to the most recent vegetation map of South Africa the vegetation on the study site is Low Escarpment Moist Grassland, though the site is close to the border of Northern KwaZulu-Natal Moist Grassland (Mucina & Rutherford, 2006). Within this vegetation type about 6% have been transformed by plantations or cultivated land and only 2% is statutorily conserved.

In general the area is covered by primary grassland, mainly dominated by *Hyparrhenia hirta*, but the rocky areas have an open shrubby component. Some areas were ploughed in the past and are now covered by *Hyparrhenia hirta*.

Wetlands, forming part of the drainage systems of two larger spruits, are prominent features of the landscape.



A surface water spatial layer reflected the presence of two perennial watercourses and two wetlands on the site (CDSM, 1996). The study site falls within Quaternary Catchment V31J. In this catchment, the ratios of Mean Annual Precipitation (MAP) to Potential Evapotranspiration (PET) is 0.441 (Table 1). This value indicates that wetlands lose more water through evapo-transpiration than they received through precipitation, unless they are associated with water input from river systems.

4.5. RESULTS: VEGETATION AND FLORA

4.5.1 Wetland Delineation

Wetlands are identified based on the following characteristic attributes (DWAF, 2005):

- The presence of plants adapted to or tolerant of saturated soils;
- Wetland (hydromorphic) soils that display characteristics resulting from prolonged saturation; and
- A high water table that results in saturation at or near the surface, leading to anaerobic conditions developing within 50cm of the soil surface.

Several points were sampled during the course of the field investigation to determine compliance with the definition of wetland conditions. Details of vegetation and soil characteristics recorded are discussed below.

4.5.2 Vegetation Characteristics

EcoAgent described the vegetation and flora of the study site in a separate report (EcoAgent CC 2011).

Two different wetland plant communities / ecosystems were identified. They coincide with the hydro-geomorphic types.

1. Spruits
2. Wetland Drainage and Seepage Systems

Both these wetland communities were considered to have a high ecological sensitivity.

The species richness is medium along the spruit. All water courses have high conservation value and are therefore considered to be sensitive. Plant species recorded reflected the hydrological zonation of the wetlands associated with the study site.



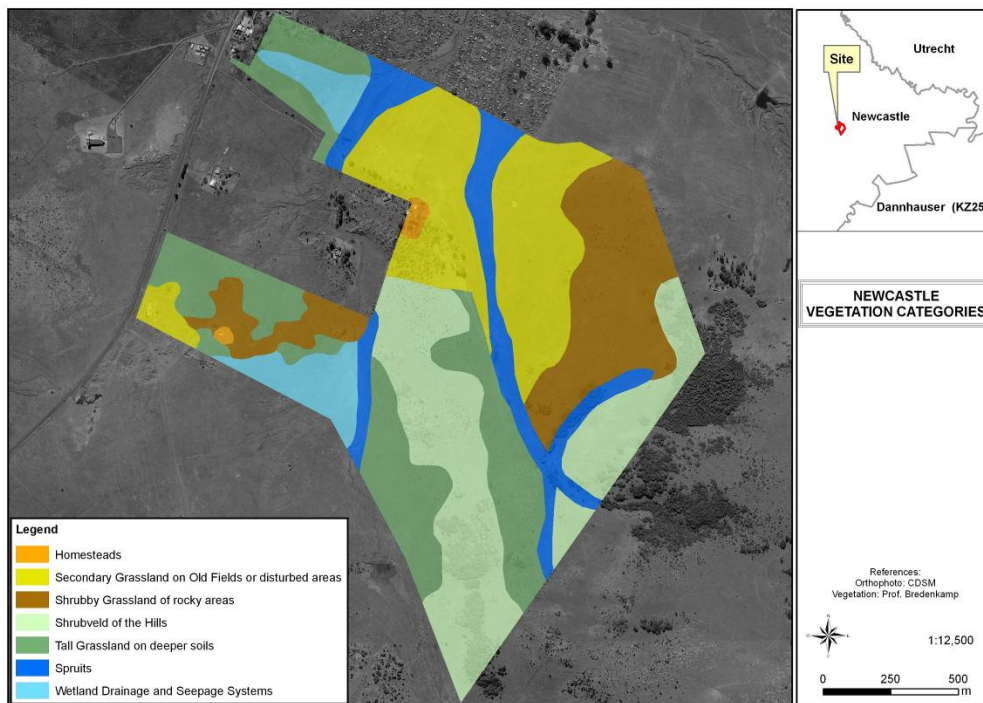
Upper reaches of the eastern spruit – the channel very narrow and grassland growing to the spruit edge. This is only briefly mentioned, as this is highly disturbed area.



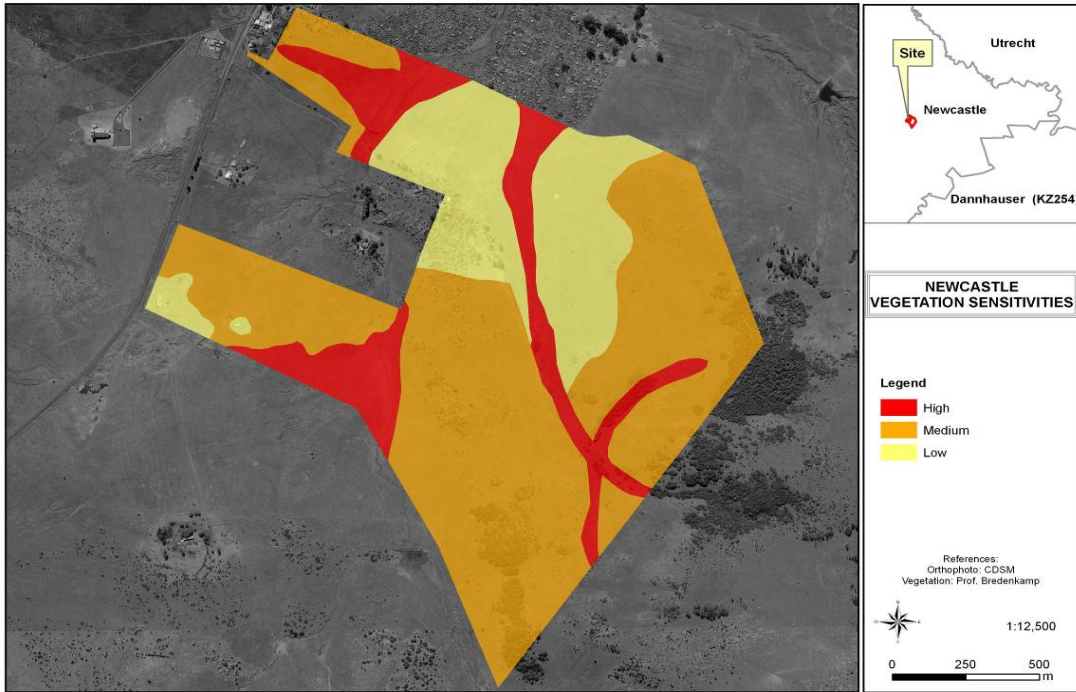
The western spruit with rocks and with grassland growing to the spruit edge



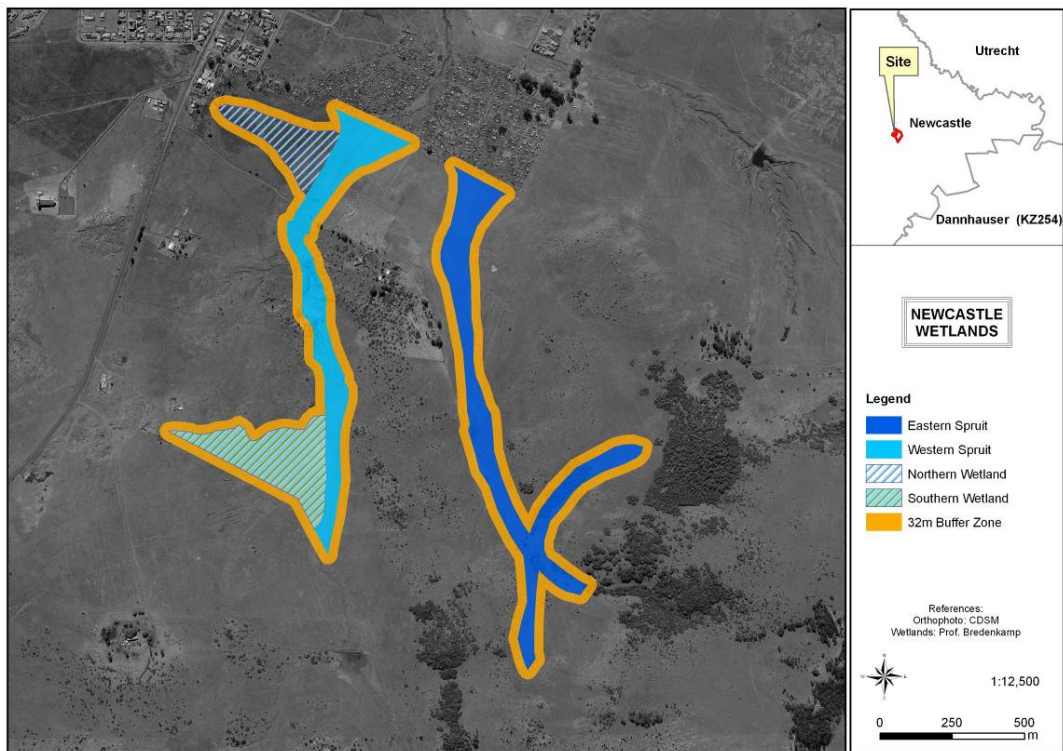
A small dam in the spruit, with *Typhacapensis* prominent.



Vegetation map of the site (from EcoAgent 2011)



Sensitivity map of the site (from EcoAgent 2011)



Wetland delineation and buffer zones



An assessment of both the streams and wetlands identified within the study site show that the wetland's current functionality, ecological status and sensitivity results in scores that can be summarised as reflecting largely natural streams and wetlands in the Moderate Ecological Importance and Sensitivity.

To comply with the laws and regulations protecting wetlands, it is suggested that the streams and wetland be considered as no-go areas, applying the 32 m buffer zone and with low impact recreational spaces consisting of un-compacted playgrounds, hiking trails, picnic sites, bird hides or other forms of low intensity utilization that could ideally be connected to the proposed development.

The areas identified were discussed in more detail in the Wetlands report. The area's indicated in figure 11 were accommodated in the layout plan as open space and areas for sport facilities.

These aspects were incorporated and addressed in detail in the EIA process as submitted by LEAP to the department for authorisation and the issuing of a Record of Decision (ROD)

5. TOWNSHIP LAYOUTPLAN FOR “*ST LEGER*”.

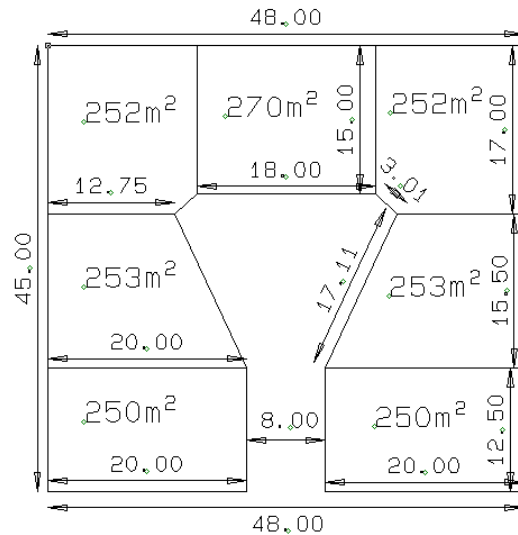
The layout plan for the proposed township was done taking into consideration the limiting factors such as:

- Gradient or slope of the land
- Wetlands and sensitive area's
- Flood lines
- Existing and future roads
- Existing and future services infrastructure
- Existing and future developments

Due to the principle of maximizing the area for development and to accommodate the maximum number of residential stands on a portion of land, a ***cul de sac*** layout were done. This maximized the development with more than 40%. The ***cul de sac*** layout also contributed to the saving in services cost as most of the services such as water, sewer and electricity can be provided in a midblock system, resulting in tremendous savings. Additional contributions from this ***cul de sac*** layout is to create a "sense of place" to the residents in the ***cul de sac***. Safety will also increase with this layout as no "thru" traffic will be created, and people not staying in the ***cul de sac*** will be identified by the known residents in the ***cul de sac***.



The design as shown in the figure were optimized as per the dimensions indicated, creating stand sizes between exactly 250m² and 270m² and is well known as a “**Super Block**”.



“Guidelines for Middle-Low Income Housing” and the “Guidelines for the provision of engineering services and amenities in residential township development” issued by the National Housing Board were used in the planning process.

5.1 Proposed Land Use (see layout plan)

LAND USE	NO OF STANDS	AREA ± (HA)	STAND NO'S	% OF LAND
Residential 1	2588	67.75	1-2588	33.4
Residential 1 (Municipality)	1	70.00	2589	34.5
Business	3	2.96	2603-2605	1.5
Community facility and Clinic	3	0.70	2600-2602	0.1
Church & Crèche	7	1.46	2589-2595	0.1
Primary & Secondary School	1	6.60	2598	3.2
Primary School	2	4.50	2596-2597	2.2
Community and Sport facilities	1	1.46	2599	0.1
Community facility	3	0.70	2600-2602	0.1
Public open space	6	14.60	2606-2611	7.2
Streets	-	32.16	-	15.8
TOTAL	2611	202.60		100%



5.2 **Access to “ST LEGER”**

The proposed development will gain access from the Provincial Road P39-1 to the west and eventually also from the new proposed Ring-Road to the north passing through portion 1 of Bosch Hoek 3345 HS to be developed by the Newcastle Municipality. It is therefore important to establish a cooperation agreement with the Local Authority during the planning phase of both proposed townships

The detail regarding access and other road issues will be done under point 6.1 – Engineering services - Roads

5.3 **Residential**

Residential neighbourhoods will be defined by the major collector routes that will form a clear boundary. An aspect in defining boundaries is to have relative few access roads (points) to the neighbourhood. Although *ST LEGER* will be one community it would be possible to define the township into smaller neighbourhoods. This will also be useful in the phase construction of services.

The proposed township layout of *ST LEGER* makes provision for 2588 single residential erven (number 1-2588). The erven will not be smaller than 250 m² and will not be larger than 500m² (adjacent to the 1:50 year flood-line). Larger stands were provided in areas where limiting factors such as flood lines and steep gradients that affects the properties. A depth to a width ratio of approximately 3:2 has been applied for the rectangular shape of each erf. Stands will thus measure a minimum size of 20 m X 12 m. It is further proposed that groups (blocks) consisting of 7 erven or more, grouped round short 8 m roads be provided in order to make provision and instalment of services more cost effective. The Major routes are minimised due to this design which also has a cost implication. This concept is a variation of the provision of the so called “Super Block” design. With this design services are provided mid-block which has a detrimental effect on the cost effectiveness. This “Super Block” has proven to be cost effectiveness in various townships.

The erf 2589 of approximately 70 hectare is to be bought by the Newcastle Municipality for subsidy housing. This type of housing to the north of the layout will contribute to the housing variety and housing choice in the area.

The existing homestead (erf 2588) on the farm will be accommodated on a single residential stand of 9894m².

The aim of the layout was to provide the maximum residential stands on the property in the most cost effective manner. With this compact layout the constraints such as



sensitive areas, flood-lines and gradient were taken into account. The design considered the gradient especially for services such as storm-water and sewer.

5.4 Schools

The township layout made provision for 3 Primary Schools where two of the primary schools (erven 2597 – 2,8ha & 2598 – 1,7ha) have their own sports facilities. The third primary school forms part of the secondary school where the sports facilities are being shared. The primary school ratio will be for every 860 stands a primary school will be provided. Access to the primary school (erf 2598) will also be from the 20m major collector route. The other Primary school on erf 2597 gains access from a 16m collector route and is situated in a more defined residential community area. The maximum walking distance to a Primary school does not exceed 630m.

Combinations of primary and secondary schools are possible when sport facilities are shared by a primary and secondary school. By combining sport facilities it becomes more feasible to provide good facilities. The “combined school” on erf 2599 (6,6ha) is located in an area where an underground wetland can exist, thus creating sport’s facilities on that area. The school buildings will fall outside the wetland area.

The secondary school will have access from the major collector route (bus route) to link up with the Normandien Provincial Road P39-1 to the west and the future low-cost development and Fairleigh to the north of the township. The combined school will thus be highly accessible. The maximum walking distance to the secondary school will be 1200m. More secondary schools can be provided on erf 2589, when developed by the Newcastle Municipality. This can result in the walking distance being decreased to a secondary school.

5.5 Crèches & Churches

Crèches & Churches can be provided on the same stand. The reason for this is to utilise the property to a maximum, crèche during the week and church on Sunday’s when the crèche is not in use. Seven erven were provided throughout the proposed township for crèche and church uses:

- Erf 2590 – 1118m² Crèche
- Erf 2591 – 1118m² Church
- Erf 2592 – 2613m² Church & Crèche
- Erf 2593 - 3300m² Church
- Erf 2594 – 1466m² Crèche
- Erf 2595 - 1027m² Church & Crèche
- Erf 2596 - 4039m² Church & Crèche



5.6 **Business**

In total 3 business sites are provided:

- Erf 2604 – 1,1832ha (6000m² let-able area)
- Erf 2605 - 1,6578ha (8289m² let-able area)
- Erf 2606 - 1275m²

Two second order sites are provided at the intersection with the 20m major collector route and the Normandien Provincial road P39/1. These sites will be able to accommodate retail, office and commercial uses. A filling–station would also be proposed on one of these sites. These sites will be highly accessible and visible when entering or exiting the township. Sufficient public transport such as bus and taxi facilities can be provided at these sites.

A convenient shopping centre (erf 2606 – 1275m²) will be provided at the centre of the township for mostly retail facilities. This site forms a community node with other uses in the direct vicinity such as the primary school, community facility stand and open space area.

5.8 **Community Sports facilities**

A stand (erf 2599 – 1,4661ha) for community sports facilities will be provided in order to accommodate sport's clubs. This stand is opposite the combined school for the possible sharing of more expensive equipment and buildings if required. The stand is planned on the major collector route (linked to provincial road) for maximum accessibility. The proposed stand is further more adjacent to a public open space and can thus be expanded to this area (east) for sports fields.

5.8 **Clinic and Community Centre's**

Three community facility stands were provided in the proposed township layout. Community facilities on these stands included clinics, municipal offices, halls, places of safety and police stations. These stands can be used for needs as required by the community. The clinic and Community Centre are proposed on:

- Erf 2601 – 3132m²
- Erf 2602 - 2388m²
- Erf 2603 - 1511m²

These community facility sites are located on the major 20m collector routes for accessibility and visibility. Taxi stands can also be provided at these community facility nodes.



5.9 Public Open Spaces

Public Open Spaces should normally be provided to a ratio of 36 m² per residential site. A total of 9 ha need to be provided in this case. In the proposed layout a total of 12,6 ha public open space was provided along the 1:50 flood lines, wetlands and steeper areas. Recreational facilities can sufficiently be provided in this area such as hiking routes and natural conservation areas.

The danger usually exists that these open space area can be used as “dumping sites”, creating health and visual hazards. The development and upkeep of these open space areas must become a community effort and be properly developed. If these public open space areas are well maintained, the upside of improved property values will definitely be of benefit to the community as a whole.

6. ENGINEERING SERVICES, BULK & INTERNAL.

The Developer St Leger Denny Developments appointed KBK Engineers (Pty) Ltd as Consulting Civil Engineers for the design of internal and external civil engineering services for the proposed development.

The document prepared by KBK Engineers is for the following services:

- Roads
- Storm water
- Domestic water supply
- Sewage
- Solid waste disposal

The purpose of this report is to provide information on current services, planned for services as well as the overarching principles that would be adhered to for the design and specifications of the new services.

The Newcastle Municipality will, after the installation of the services and after approval by the Engineer and the Municipality, take over all services.

6.1 ROADS DESIGN STANDARD

The design and construction of all the roads for the proposed development will be designed and constructed according to the AGuidelines for Human Settlement Planning and Design@ by Department of Housing (Red Book) and to the minimum Standards of the Local Authority where applicable.



External Roads

WSP Engineers has been appointed by the Developer to conduct a Traffic Impact Study with specific reference to the major routes to and from the site taking into consideration the present Spatial Development Framework. WSP will compile a report to be read together with this Service Report.

At present the main access to the site will be from the Provincial Road P39-1 between Newcastle and Normandien and this road will traverse in an easterly direction through the proposed development to eventually connect to the N11 from Newcastle to Ladysmith. Provision is also made for a south-north route for the proposed development connecting to the future planned Ring-Road (Major arterial) directly north of the proposed development.

This development will not be responsible for the construction of any of the future external road networks as discussed above except to provide for these routes in the proposed township layout and to upgrade the intersection on P39-1 to the standards set by the Provincial Roads Department.

Internal Roads

The proposed township layout makes provision for Collector roads, Bus routes and Access streets of varying road reserve and road widths.

Road reserve widths will vary between 20 m, 16 m, 13 m and 8 m with road widths between 10,5 m and 4,0 m. Collector and bus routes will be paved and standards of all other roads to be agreed upon in cooperation with the Local Authority.

The construction cost of all internal roads will be at the cost of the Developer.

6.2 STORMWATER DESIGN STANDARDS

Storm water run-off will be calculated using a hydrological rainfall run-off simulation model AHydrosim@. All designs will be done according to the AGuidelines for Human Settlement Planning and Design@ Department of Housing (Red Book) and General Engineering Practices which must also allow for the 1 in 2 year (Micro) and 1 : 20 year (Macro) recurrence periods.

External storm water

The proposed development is traversed by two well defined natural water ways into which storm water will be released. No external storm water upgrading will be required.



Internal storm water management

Storm water from rainfall would mainly be generated on the site itself. The development is traversed by two well defined natural waterways running in a south-north direction through the site. Stormwater from the site will be released, on a regular, into these waterways.

Stormwater will be collected via catchpits within paved roads and then piped and discharged into the waterways. If alternative roads, for instance gravel roads, be considered stormwater will be managed via open canals at the elevated side of the road reserve with concrete or gabion drifts where these canals crosses any road intersection. These canals will also discharge into the waterways.

Pipes will be concrete pipes with ogee joints and pipes to be installed to the appropriate trenching and bedding requirements as per SANS1200.

The rainfall average for this area is 820 mm/year with average rainy days of 120 days/year.

In terms of Section 144 of the National Water Act (Act 36) of 1998 the proposed township is affected by two 1 : 50 and 1 : 100 flood lines. The flood lines as indicated on the drawing were calculated by SRK Engineers and their report is available separately to this report.

6.3 WATER

STANDARD AND SPECIFICATIONS

The water reticulation will be designed and constructed according to the "Guideline for Human Settlement Planning and Design – Department of Housing (Red Book).

External water supply

Water for the town of Newcastle is supplied from the Ngagane water purification plant. This plant is at present running at 110% of the design capacity with the consequence that no water is available for any new development within Newcastle. The supply line for raw water, from the Ntshingwayo dam, is also at capacity.

A new pump-line was designed to pump water from the purification plant to a new proposed reservoir positioned close to the northeast corner of Bosch Hoek 3345. This pump-line can also provide water for the proposed Bosh Hoek townships. The pump-line and reservoir still have to be put out on tender for construction. The size of the reservoir (5 Ml at present) has to be re-evaluated in the light of this new proposed township and other areas that may benefit from such a reservoir.



The Municipality has appointed consultants (SSI) to do a complete network analyses of the existing water network and will extend their appointment to also include the upgrading of the water purification works, raw water supply and reservoir size for Bosch Hoek.

Mr R Gillmer of Uthukela Water indicated that, due to the above constraints, water for the proposed Bosch Hoek township and Siyhlalala Project will not be available within two years at the earliest.

The old, decommissioned water purification works on the Bosch Hoek farm can be re-commissioned to provide partially in the required water demand. This however is not an option for the development as raw water supply to the plant from the river cannot be guaranteed over a 12 month period due to flow constrains of the river especially during dry spells.

Internal water supply

The water supply network within the boundaries of the proposed township will be designed according to the Red Book Standards.

The water pipes to be used will be uPVC pipes, Class 12, with a minimum size of 75 mm diameter up to sizes as indicated from the network analyses to be done.

Fittings will be uPVC and cast iron. Valves and fire hydrants will be to the requirement of the Municipality and Local Fire Department.

The internal pipe network will be installed at the cost of the Developer.

The calculated water demand for the proposed development is based on the proposed layout at this stage and is briefly calculated below:

Affordable houses	:	2 700 erven x 600 ℓ/erf	=	1 620 kℓ/day
General Business (9 sites)	:	5,575 ha/100 m ² x 0,5 x 400 ℓ	=	112 kℓ/day
Sport (1 site)	:	1,288 ha x 12,5 kℓ/ha	=	16 kℓ/day
School (3 sites)	:	10,616 ha x 15,0 kℓ/ha	=	159 kℓ/day
Crèche (4sites)	:	0,919 ha x 12,5 kℓ/ha	=	12 kℓ/day
Church (3 sites)	:	3 x 2 000 ℓ/erf	=	6 kℓ/day
Clinic (1 site)	:	0,623 / 100 m ² x 0,5 x 500 ℓ	=	16 kℓ/day
Total water demand per day			=	1 941 kℓ/day
			→	2 000 kℓ/day



Reservoir capacity required for storage of 48 hours is thus 4 Ml excluding fire storage requirements.

6.4 **SEWERS**

STANDARDS AND SPECIFICATIONS

The sewerage reticulation will be designed and constructed according to the A Guideline for Human Settlement Planning and Design – Department of Housing (Red Book).

External sewage accommodation

The sewer network within the proposed township will be a full waterborne sanitation system and will drain in a northwest direction to connect to the network of the proposed Siyhlalala Project.

The existing outfall sewer to service these developments is at present a concrete pipe sewer and no spare capacity is available to accommodate the additional sewage flow. The pipe is also in a poor condition and has to be upgraded or replaced with a new pipeline.

This outfall sewage line drains to the Voortrekker pump station. The sewage is then pumped from Voortrekker pump station to pump station no. 1 and from there to the treatment works. To accommodate the additional sewage generated by the proposed developments the following needs to be done as indicated by Mr R Gillmer:

- The pump station at Voortrekker is too small and has to be upgraded.
- The capacity and condition of the rising main to pump station No. 1 needs to be evaluated.
- The pumps at pump station No. 1 are in good condition and will have capacity but the temporary storage facility needs upgrading.
- The pumpline and outfall pipelines to the treatment works also need maintenance and/or upgrading.

It was indicated by the Municipality that they will also appoint Consulting Engineers (SSI) to investigate and prepare a report on the actions to be implemented and associated costs.

This proposed development on the remainder of Bosch Hoek 3345 as well as the Siyhlalala Project cannot be developed before the above upgrading takes place.

A time frame was not provided but can be done within the two year period required for the upgrading of the bulk water supply.



Internal sewer network

The sewer network within the boundaries of the proposed township will be designed according to the Red Book Standards and specific requirements of the Local Authority.

All erven will be provided with a 110 mm diameter sewer connection to the main sewer. The main sewer lines will have a minimum diameter of 160 mm. The sewer connection to business and school erven will be a 160 mm diameter connection. The sewer pipes to be used will be Marley Twinwall heavy duty pipes. Manholes will be 1 000 mm diameter chamber precast manholes or as specified by the Local Authority.

The installation of the internal sewer network will be at the cost of the Developer.

The calculated sewage flow for the proposed development is based on the proposed layout at this stage and is briefly calculated below:

Affordable houses	:	2 700 x 500 ℓ/erf	=	1 350 kℓ/day
General Business (7 sites)	:	5,575 ha/100 m ² x 0,5 x 400 ℓ	=	112 kℓ/day
Sport (1 site)	:	500 m ² /100 m ² x 300 ℓ	=	2 kℓ/day
School (3 sites)	:	10,616 ha/100 m ² x 0,1 x 600 ℓ	=	64 kℓ/day
Crèche (4 sites)	:	0,919 ha/100 m ² x 0,2 x 600 ℓ	=	11 kℓ/day
Church (3 sites)	:	0,571 ha/100 m ² x 0,3 x 300 ℓ	=	5 kℓ/day
Clinic (1 site)	:	0,623 ha/ 100 m ² x 0,5 x 500 ℓ	=	16 kℓ/day
Design flow			=	1 560 kℓ/day

6.5 SOLID WASTE DISPOSAL

The responsible authority for solid waste disposal will be the Newcastle Municipality.

6.6 ELECTRICAL

Newcastle Council will supply electrical services to the development, The electrical reticulation must conform to Council standards and requirements and will be handed over to Newcastle Council after commissioning.

The following will have an impact on electrical services installation:

- There are overhead rural power lines traversing the farm, which needs to be re-located when service installation commences.
- An initial geotechnical survey of the ground formations indicate that the area is largely covered by shallow rock, which will make trenching difficult.



- c) Due to the shallow rock formations electrical and civil services must be largely combined in single trenches.

The main aim of this report is to clarify the requirements for the electrical supply network to service the development adequately with electricity.

Electrical Demand Calculation

The following table shows a maximum demand calculation by using coincidental simultaneous demand estimates of household appliances for the worst case winter load:

Appliance	Quantity	Consumption / Unit (W)	Coincidence Factor	Load (W)
Geyser	1	3000	0.9	2700
Lighting (Rooms)	8	60	0.8	384
Heating	1	2000	0.8	1600
Television	1	120	0.8	96
Oven / Stove	1	2000	0.6	1200
Fridge	1	100	0.4	40
Hair dryer	1	600	0.2	120
Microwave	1	800	0.2	160
Washing machine	1	1000	0.2	200
Kettle	1	1800	0.2	360
TOTAL (W)				6,860
TOTAL 1ph (A)				30

This

represents the maximum expected snapshot demand of a typical house. For domestic purposes the power factor is close to unity and we assume that kW demand is roughly equal to kVA for our purposes.

Since all the houses will not draw maximum power simultaneously the diversified demand per house will be lower than 6.86 kVA, typically at 30% of the maximum, namely 2.1 kVA.

Previous bulk measurements at distribution substation level for a supply to large townships with similar electrical consumption revealed a unit demand of anything between 1.5 and 3 kVA per unit.

For our purposes we propose an “after diversity maximum demand” (ADMD) of 2.8 kVA for this town to base bulk calculations on for the case where conventional geysers are used. With the use of solar assisted heating the geyser elements for 150L geysers can



be reduced from 3kW to 1.5 kW and the ADMD can be lowered to about 2 kVA per unit, as measured at the distribution supply substation.

It must be noted that the diversity decreases the closer one measures to the point of consumption and the lower the number of connection points included in the measurement.

For this reason we propose the use of 3.5 kVA as standard ADMD for internal reticulation design purposes

In summary, the following ADMD's are proposed to be used:

- For calculations on the total bulk supply (assuming solar geysers): 2 kVA
- For calculations at mini-sub and low voltage feeder level: 3.5 kVA

The total load as measured for the Council supply network for the private and neighbouring developments can then be calculated as follows:

Area of Development	Number of Connections	Total Demand (kVA)
Private	2,800	5,600
Siyahlala Ph1	1,200	2,400
SUBTOTAL : INITIAL DEVELOPMENT		8,000
Siyahlala Ph2	1,300	2,600
TOTAL : FINAL DEVELOPMENT		10,600

The non-residential load, i.e. schools, businesses etc. is not listed separately for now, but the unit load assumption for the residential connections allows sufficiently for the marginal additional non-residential load.

Bulk Electrical Supply

The development will be supplied from the Council's Lennox 132/11kV distribution station off Hathornstreet in Lennoxton suburb. In a meeting with Council officials it was indicated that there is adequate capacity on the Lennox substation transformers for this development.

It was furthermore indicated that the combined final load of 10.6 MVA for both private and Council developments would in the long run necessitate a new 132kV substation infeed. It was indicated that the process for this new future 132kV substation infeed may be a Council budgeting process independent of the private development. There is a possibility that the private developer may be approached for provision of space for this new substation.

It is envisaged that two supply cables must be installed from Lennox substation up to a central point in the private development. The supply to the 2,800 stand, 5,6 MVA private

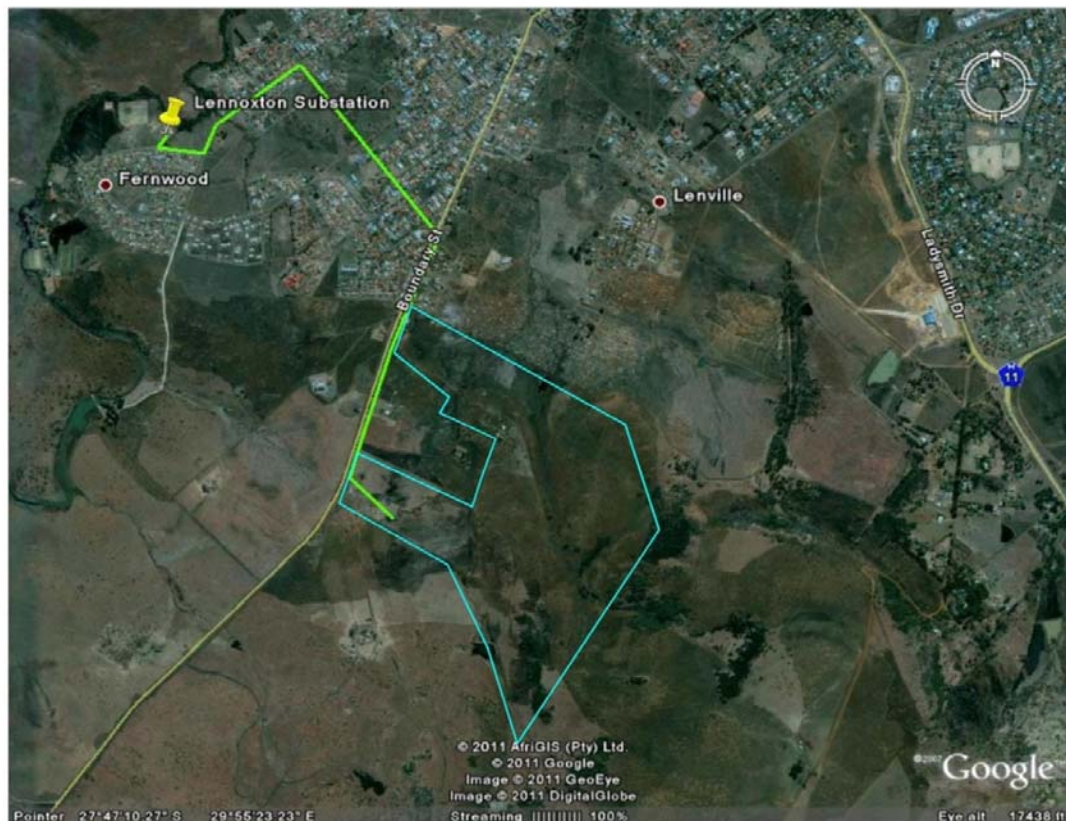


development will be separate from the supply to the neighbouring Siyahlala development. A separate set of cables will in future need to be installed for the Siyahlala neighbouring development. The internal reticulation of the private and Council developments will also be independent.

There is adequate space for an additional 2 x 11kV rackable panels in the Lennox substation 11kV switchgear building. This may serve the private development or the Council development supply. The building will need to be extended.

The supply cable must be of type 11kV 240mm² 3c Aluminium PILC and may be of length 5.5km x 2, depending on the final cable route.

The following picture shows a possible cable route from Lennox substation to the development:



Council officials indicated that all electrical services will be underground.

Provision must be made for a central building housing 7 x 11kV rackable panels from where the development can be served with two 11kV cable rings.



Electrical services must be installed appr. 750mm from the stand boundaries in the road servitudes. A minimum distance of 500mm will be maintained between water and electrical services running parallel.

MINIATURE SUBSTATIONS

It is proposed that miniature substations be standardized on 500kVA and 315 kVA, 11kV/400V, with the following overall characteristics:

- Type B with HT, LT, transformer and street light compartments
- Vacuum insulated 11kV ring main unit – breaker type with relay
- Mild steel powder coated avocado green
- Main circuit breaker rated for 120% capacity
- Provision for K-clamp termination of LV cables

Not SF6 or oil insulated 11kV ring main units are allowed by the Council.

MV CABLES

The internal MV cable rings will consist of 11kV, 3 core 150mm² aluminium PILC DSTA cables to Table 18 of SANS 97.

LV NETWORKS AND SERVICES

Power may be reticulated to the stands by means of 95, 120 and 185mm² 4-core, aluminium, PVC Insulated PVC bedded SWA PVC served cables.

Multi-way metering kiosks will be installed with the following characteristics:

- Planted
- 3CR12
- 1-pole 40A, 5kA, slow curve circuit breakers for residential connections
- Space provision for smart meters

The aim will be to standardize on 9-way metering kiosks.

The services will consist of: 3 core, 10 mm² and 16 mm² copper cables.

Smart Meters will be installed by Council in the metering kiosks with a wireless split system to the controller in the houses. No pilot wires will be required.

STREET LIGHTING

The use of normal 7, 9 and 11m galvanized pole street lighting may be discussed with Council.

TELECOMMUNICATION

At this stage no provision of Telkom ducts and draw boxes is foreseen.



7 CONCLUSION

The modern planning paradigm in South-Africa mainly focuses on densification, sustainability, integration that optimizes the usage of land, infrastructure and other resources. This application exactly contributes to the aforementioned.

The need for smaller stand sizes has been proved over the last few years. The infrastructure in the city must be used to the optimal in order to maximise these services.

The main objective with the provision of new townships should be the following:

- To promote the quality of both life and the environment.
- A Balanced Residential environment with supporting functions must be associated broadening of the dwelling workplace relationship. The preservation, protection and improvement of the quality of the residential environment should remain an important target.
- Residential densification, particularly that closely associated with designated public transport corridors, must be purposefully pursued.

The quality of life in existing and new residential areas should be improved by:

- the strengthening and preservation of the identity of communities.
- the conservation and improvement of the quality of the natural and man made environment.
- helping to ensure a balance in the provision of different dwelling types for the various social economic groups.
- protection against the intrusion of undesirable uses and (increased) vehicular traffic.

The proposed township development as motivated in this memorandum, complies with the requirements as stated in the Kwazulu-Natal Planning and Development Act 2008, confirms to the bulk of numerous appropriate and informing policies and legislation that include the **Newcastle Integrated Development Plan Review 2011/12, Newcastle South Spatial Development Framework, Newcastle Housing Plan.**

We have motivated the *need* and *desirability* of the new township “St Leger” for affordable housing to the Newcastle community. The application complies furthermore with basic town planning principles regarding desirability and include the promotion of:

- a harmonious development
- health
- safety
- good order
- attractiveness and
- comfort



We can recommend that this application have merit to be approved.

HEINRICH KIESER TRP(SA)

P/A TOWN PLANNING STUDIO (PTY) LTD

P O BOX 26368

MONUMENTPARK

0105

CELL: 082 7777 949

TEL: 086 123 2232

FAX: 086 124 2242