PROPOSED GOLF COURSE DEVELOPMENT AT BELMONT VALLEY, GRAHAMSTOWN, EASTERN CAPE PROVINCE OF SOUTH AFRICA

DEDEA REF NO.: ECO4/LN2/M/11-98

ENVIRONMENTAL IMPACT REPORT
VOLUME 3: ENVIRONMENTAL IMPACT ASSESSMENT REPORT

FINAL REPORT

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REPORTS PRODUCED AS PART OF THIS EIA:

Volume 1: Scoping and Terms of Reference Report
Volume 2: Specialist Reports
Volume 3: Environmental Impact Assessment Report
Volume 4: Environmental Management Plan

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EXECUTIVE SUMMARY

Background to the study

Belmont Dev. Co. (the applicant) intends to develop a golf course on Portion 6 of the Farm Belmont No. 332 and Portions 1 and 2 of the Farm Willow Glen No. 445, Grahamstown, South Africa. The proposed development site for the construction of the new golf course is approximately 222 ha in extent. The property currently consists of natural areas (i.e. thicket vegetation and the Bloukrans River), fallow lands previously used for agricultural purposes and road infrastructure. A railway reserve (Farm 444) traverses the proposed development site. Currently approximately 29.2% (65 ha) of the proposed development site is being considered for the proposed development of an 18-hole golf course, a club house, a driving range and a parking area.

In addition to this a new access road will need to be constructed from the existing Belmont Valley Road to the proposed new clubhouse. This road will have to cross the Bloukrans River via a low level causeway. This causeway used to exist but has subsequently been destroyed and therefore will need to be rebuilt. An application has been made for a water use licence in terms of Section 21c and i, to the Department of Water Affairs. This application is currently being processed and a site visit by the case officer has been undertaken but the application is dependent upon additional information being submitted, as requested by the Department of Water Affairs (the letter issued by the Department of Water Affairs is available in Appendix A of this EIR document). The development will also include the construction or appropriate upgrading of existing infrastructure such as electricity, water and sewerage.

In accordance with the requirements of the National Environmental Management Act, No. 107 of 1998, and relevant Environmental Impact Assessment (EIA) regulations made in terms of this Act (Government Notice No R.543) and promulgated in 2010, the proposed project requires a full Scoping and EIA.

Need and desirability

According to the Makana Municipality SDF the considerable tourism potential of the region should be developed in an effort to broaden the tourism and recreation base of the region. Plans to extend these facilities should be encouraged as they serve both the development of tourism opportunities as well as the protection of natural assets. The existing golf course is not very scenic and the potential of it as a tourist attraction is therefore limited. Belmont Valley on the other hand provides this scenic component. Furthermore, the proposed development of the golf course will be limited mainly to fallow lands, leaving the natural vegetation intact. In addition to this the existing golf course currently falls within the urban edge. The land swap between Belmont Dev. Co. and the golf club will therefore enable land within the urban edge to become available for urban development. According to the Makana Municipality SDF there is a housing backlog within the Grahamstown Area and thus there is a need for housing developments.

This theme is pursued by Hamer and Snowball (2008) in their study entitled “Tourism: A pillar of local economic development in Makana Municipality, where they argue that ecotourism draws a significant number of national and international tourists to the area, but few of them stay on to travel in the Makana region. For them this represents a missed opportunity. More efficient marketing and development of Makana tourism “trails”, including the golf trail envisaged for the new golf course to be situated in Belmont valley, could be used to take advantage of the presence of these tourists. This is recognised by the developers who state in an information document that:

It is further envisioned that the proposed development of the Belmont Golf Course will increase Grahamstown’s tourism appeal. The 18-hole golf trail will capitalise on the thriving Garden Route and Sunshine Coast golf tourism market and provide world-class recreational facilities for cultural and festival tourists to the town. It is anticipated that this will increase the overall time and money spent by tourists in Grahamstown.

Hamer and Snowball (2008) point out that a better understanding of how services and facilities are rated in Makana would assist in the development of strategies to encourage tourists to stay longer or see more while in Makana: "The constraints (absence of transport for large groups, lack of non-student related entertainment in Grahamstown, absence of hotels where large groups can be accommodated) act against the emergence of large-scale tourism in Makana". The proposed Belmont Golf Course is tailor-made to provide non-student related entertainment, comprising as it will a world class 18-hole golf trail, situated in the picturesque Belmont Valley of Grahamstown.

Furthermore, according to STATSSA, the unemployment rate for both the Eastern Cape and the Makana Municipality is relatively high. The proposed development will result in much needed employment opportunities both during the construction phase (temporary employment for construction workers) and the operational phase (permanent employment in the retail and golfing industry).

Possible benefits of the development to the local community are many. As outlined above the development is expected to generate employment both during the construction and operational phases of the project. In addition, the Belmont Dev. Co. also undertakes to establish the Belmont Treasury Trust which will be used to provide upliftment to the local community through projects which will promote skills development and training, entrepreneurship training, sports development, agricultural development, as well as provide funding for promising secondary and tertiary education learners. The trust will obtain funding in perpetuity through a mechanism whereby a percentage of all future sales that are concluded through this new development proposal are diverted into the trust. The trust will be managed and audited to ensure that it is effective in carrying out its aim of upliftment.

The aims of the Trust are in line with the objectives of the Cacadu District Municipality strategy document entitled Cacadu District Municipality: A proposed three pronged strategy for inclusive and job rich economic growth which states that "…immense untapped resources exist in the business and farming communities. Unemployment and a low local skills base do not serve the business community and is indeed a major growth and investment constraint. The experience of Johannesburg (The CJP and the JDA) and Cape Town (the CTP) is that the private sector is willing to invest in partnership initiatives that improve the urban environment. There are many examples of pro–active projects with the farming sector, a local example of which is the composting initiative in Sundays River Valley. Tapping into these resources will require a bold and proactive approach that… is therefore (able) to utilise the institutional capacity of the District to leverage the available resources of government and unlock private sector resources.

Legal requirements

In accordance with the requirements of the National Environmental Management Act (Act No 107 of 1998) (NEMA), and relevant EIA regulations made in terms of this Act and promulgated in April 2010 (Government Notice No 543), and listed activities under (Government Notice Nos 544, 545 and 546), the proposed project requires a full Scoping and Environmental Impact Assessment (EIA).

The activities triggered by the proposed gold course development are listed in Table 1-1 below.

Table 1-1: Listed activities triggered by the proposed golf course development.

Number and date of the relevant notice	Activity No(s)	Description of listed activity
GNR544	(11)	The construction of: (i) canals (ii) channels (iii) bridges (iv) weirs (v) bulk storm water outlet structures; Where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.
	(26)	Any process or activity identified in terms of section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).
	(39)	The expansion of: (i) canals (ii) channels (iii) bridges (iv) weirs (v) bulk storm water outlet structures; Within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, where such expansion will result in an increased development footprint but excluding where such expansion will occur behind the development setback line.
	(55)	The expansion of a dam where: (i) The highest part of the dam wall, as measured from the outside toe of the wall to the highest part of the wall, was originally 5 meters or higher where the height of the wall is increased by 2.5 meters or more; or (ii) Where the high-water mark of the dam will be increased with 10 hectares or more.
GNR 545	(15)	Physical alteration of undeveloped, vacant or derelict land for residential, retail, commercial, recreational, industrial or institutional use where the total area to be transformed is 20 hectares or more.
GNR 546	(4)	The construction of a road wider than 4 metres with a reserve less than 13.5 metres. (a) In Eastern Cape Province: ii. Outside urban areas, in: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans.
	(14)	The clearance of an area of 5 hectares or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation. In Eastern Cape: All areas outside urban areas.

Number and date of the relevant notice	Activity No(s)	Description of listed activity
	(16)	The construction of: (iii) buildings with a footprint exceeding 10 square metres in size; or (iv) infrastructure covering 10 square metres or more Where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line. In Eastern Cape: ii. Outside urban areas, in: (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans.
	(19)	The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre. In Eastern Cape Province: ii. Outside urban areas, in: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ii) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined.

Because the proposed development triggers a listed activity from GNR.545, it will require a full Scoping and EIA. This process is regulated by Chapter 3, Part 3 of the EIA regulations and is as shown in Figure 1-1.

The competent authority that must consider and decide on the application for authorisation in respect of the GNR 545-546 activities listed in Table 1-1 is DEDEAT, and is the relevant authority which will review the Scoping Report and Environmental Impact Report (EIR) and issue the environmental authorisation.

In addition to this, the applicant has submitted an application for a Water Use Licence (Issued by the Department of Water Affairs – DWA) in terms of the National Water Act (Act No. 36 of 1998) for the construction of a low level causeway and a weir on the Bloukrans River. These activities are listed under section 21a, c and i of the National Water Act. The application is currently being processed by the Department of Water Affairs provided that additional information requested is supplied by the applicant.

The Environmental Impact Assessment Process

The EIA process is divided into two main phases, which are the Scoping Phase and the Environmental Impact Assessment Phase. The overall aims of these phases are –

(a) ***Scoping*****:** To identify in broad terms the most important environmental issues and project alternatives that must be assessed in the subsequent EIA phase. Explicit provision is made in the Scoping Phase for the involvement of interested and affected parties (I&APs) in the EIA process.

(b) ***Environmental Impact Assessment*****:** To undertake a comprehensive study of the natural and social environment that may be impacted by the proposed development. During the EIA Phase the significance of these impacts is assessed, and recommendations made on how negative impacts may be mitigated and benefits enhanced.

A detailed description of the scoping phase for the proposed golf course development and the outcomes thereof are included in **Volume 1: "Coastal & Environmental Services, December 2011: *Final Environmental Scoping Report: Proposed Golf Course at Belmont Valley, Grahamstown, Eastern Cape Province*, CES, Grahamstown".**

Following review of the FSR, DEDEA issued their approval of the FSR and Plan of Study (PoS) for EIA and instructed the EAP to proceed with the EIA Process as contemplated in the PoS on the 21st of March, 2012.

This EIR phase includes the following steps -

1. **Specialist Studies,** which include the specialist assessments identified in the Scoping Report and any additional studies required by the authorities. This requires the appointment of specialists to gather baseline information in their fields of expertise, and to assess the impacts and make recommendations to mitigate negative impacts and optimise benefits. The resulting information is synthesised into the Environmental Impact Assessment Report (EIR).
2. **Environmental Impact Assessment Report**. The main purpose of this report is to gather and evaluate environmental information, so as to provide sufficient supporting arguments to evaluate overall impacts, consider mitigation measures and alternative options, and make a value judgement in choosing the best development alternative. The EIR is made available for public and authority review. The availability of the report is advertised at least one Provincial newspaper and is situated at an easily accessible location.
3. **Comments Report,** which compiles comments, issues and concerns raised by I&APs and the authorities and the relevant responses to these comments.
4. **Environmental Management Plan** informs the client and the technical team of the guidelines which will need to be followed during construction and operation to ensure that there are no lasting or cumulative negative impacts of these processes on the environment.

Project Description

Belmont Dev. Co. (the applicant) intends to develop a golf course on Portion 6 of the Farm Belmont No. 332 and Portions 1 and 2 of the Farm Willow Glen No. 445, Grahamstown, South Africa.

18-hole golf course and driving range

The proposed new 18-hole golf course will consist of approximately 18 hectares of fairways and tees, 1 hectare of greens and 2 hectares for the driving range. The majority of the golf course (13 of out 18 holes) will be situated on fallow lands. According to the ecological specialist, Warren Lange, previously cultivated lands can be considered as those with low sensitivity. Though these areas appear spectrally indistinguishable from adjacent natural grasslands with similar speciation, the natural return to pristine veld condition is a long-term process. The ubiquitous incidence of this type of vegetation is further considered as an area of least concern. Two of the holes and the driving range will be situated partially on fallow land and partially on natural vegetation, i.e. Kowie Thicket, while a further two holes will be completely situated in natural vegetation. According to the vegetation specialist the upland areas, although lower in species richness but still part of the Kowie Thicket vegetation, forms an integral aspect of the riparian ecosystem and is the interface between the adjacent vegetation types. In lieu of this, The Kowie thicket is classified as a highly sensitive area where any development is concerned. It is important to note that several alien species were identified in the study area. Despite some of these species being category 1 species, the study area is dominated by endemic vegetation which is indicative of the sites importance as a corridor of succession. However, it can also function as a corridor for alien and invasive succession so future environmental management plans are required for long term endemic sustainability and eradication programs. Should the development be authorised all invasive species listed in terms of the Conservation of Agricultural Resources Act must be eradicated from site. The remaining hole will be situated in close proximity to the Bloukrans River and will encroach on riparian vegetation.

According to the ecological specialist, this area is species rich, offers increased habitat creation, is an area towards the end of its distribution zone and includes a watercourse and wetland zones. The likelihood of additional species of concern that were not recorded in the field study is high, especially due to this zones richness in bio-diversity. It is important to note that the Bloukrans River serves as a transport method for alien species with eroded river banks serving as prime germination zones for transported seed. Should the development be authorised care must be taken not to create additional habitat for alien invasives by clearing large areas of riparian vegetation.

It proposed to use either Kikuyu or Cynodon for the golf course and driving range. A major consideration when selecting a grass species for a golf course is maintenance which could potentially be very costly. According to the developer Kikuyu grass is better suited for the proposed golf course for the following reasons:

- Kikuyu is least affected by pests and fungi and therefore required minimal chemical control. Preventative and curative spraying is expensive and could be harmful to the environment.
- Bermuda grass (similar in disease tolerance) is more expensive and have less playability during winter months. This grass species need interseeding and/or overseeding during the cooler seasons as their mass and density does not allow for ball holding capacity and would therefore be unplayable in the winter season as the ball roll through the green would be excessive especially since the contouring and slopes of this particularly course may be considered extreme.
- Bermuda grass (both Cynodon dactylon and Cynodon transvalences) are drought tolerant species and would therefore require less water than Kikuyu. However, due to an average rainfall in excess of 550 mm per annum in the general Grahamstown area, water usage of both species would be similar.
- It is assumed that due to the fact that Bermuda grass is indigenous it is less invasive. However, Cynodon dactylon (seeded variety) and Cynodon transvalenses (vegetative variety) are aggressive regardless of excess watering and fertilization. Furthermore, all seeded varieties are purchased from the United States and have been hybridized specifically for utilization on golf courses. Vegetative species would have to be harvested from local drainage lines or catchment areas. Cyndon species require more fertilizing and water than Kikuyu resulting in an increased risk of contamination of water resources.
- Cool season grasses (rye, fescues and bents) could also be used on golf courses and are non-invasive, however requires continuous watering, pest control and fertilization. These grasses generally use approximately 5 times the amount of water (i.e. 2-3 million litres per day) compared to Bermuda and Kikuyu grass (375 000 litres per day).

Even though Kikuyu grass is an exotic species, it is not listed in terms of the Conservation of Agricultural Resources Act. Every effort will be made to prevent the spread of Kikuyu into indigenous areas; these may include but are not limited to:

- Designing the irrigation system not to be head to head and rather centreline out. This means that the last sprayer closest to the semi rough line (outer edge of the mowable area) only gets a single precipitation rate as opposed to double coverage and ends 5m short of the wild indigenous gasses. Hence a buffer zone - 5m semi rough and 5m of an annual veld grass variety planted which is bunch type and non-invasive. Any stray stolon's from the Kikuyu are easily detected and removed.
- A cart path with 220m deep edging (curbing) is also installed down one side causing a barrier for any encroachment. This also serves as a clear border for edging and mechanical control of invading grasses.

Clubhouse

The proposed clubhouse is estimated to be approximately 1 300 m^2 in size. The breakdown of the proposed clubhouse and the area covered by the various components are shown in Chapter 2 of this document. The proposed clubhouse will consist of two storeys, i.e. a basement and a ground

floor. The architectural design of this building is not yet complete. The clubhouse will be constructed on the footprint of the existing farmhouse and therefore minimal clearing of natural vegetation will be required.

Parking area

It is proposed parking area for the proposed development is estimated to be approximately 2 600 m^2 in size. According to the architect, Mr H Frankenfeld, the proposed parking area will either be grassed or paved. The preferred option at this stage is to use paving which will allow for some storm water seepage.

Storm water

The proposed development site consists of two ridges and a central valley through which the Bloukrans River drains. Storm water run-off flows from the north and the south to the river which then drains in a general easterly direction. The proposed development will result in a few impervious surfaces (i.e. the roof of the clubhouse, the access road and parking area), which will result in an increase in run-off. These areas have a relatively small footprint and it is therefore anticipated that storm water will only increase marginally. The majority of the property will consist of fairways and greens for the golf course. These areas will allow for the seepage of excess storm water. Therefore storm water within the area will not be considered as a major concern.

Water

Rainwater tanks will be installed to supply potable water to the proposed club house. An existing weir is currently present on the proposed development site. This weir has been damaged and will be repaired and water will thus be abstracted from the river for the irrigation of the golf course. There is currently an existing dam on the property, north of the Bloukrans River. Water will be extracted from the river and stored in the dam before being pressurized into the irrigation system. The dam will act as a reservoir, and this will therefore be where the irrigation pump station will be located. It was established that the previous owner of the property abstracted water from this area for farming activities. The rate of abstraction was approximately 980 kl/day. The estimated water requirement for the irrigation of the golf course is approximately 370 kl/day. Therefore it is estimated that there will be a saving of approximately 60% in water use due to the change in land use. An application for the repairing of the weir and the abstraction of water from the Bloukrans River in terms of Section 21a, c and i of the National Water Act has been submitted to the Department of Water Affairs (contact person Lizna Fourie). The applicant is currently waiting for authorization which is subject to various conditions (Appendix A).

Sewage

The only anticipated source of sewerage will be from the proposed clubhouse. According to MBB Consulting Engineers the expected flows are as follows:

- With an estimated attendance of 30 people per day for 5 days a week (week days) and 60 people for 2 days a week (weekends) at 25 litres per person per day the sewage generated per week is estimated to be 6 750 litres, that is, an average of 964 litres per day. An average of 1000 litres per day was therefore estimated.
- A septic tank with a capacity of 3 600 litres (just over three and a half cubic metres) was therefore recommended. This will work in conjunction with the Lilliput sewage treatment plant.

MBB Consulting Engineers recommended that the Lilliput Treatment System be implemented (described in Chapter 2 of this EIR).

It is currently unclear whether the treated effluent from the Lilliput system will be used for irrigation of the golf course or if it will be discharged into the Bloukrans River. In either case the applicant will

have to apply for a water use licence to the Department of Water Affairs. To date this has not been undertaken. It is also recommended that a permeability test is undertaken by the applicant prior to the installation of the Lilliput System to determine the coefficient of the permeability of the soil to ensure that there is no potential for pollution of ground and surface water resources.

Description of Affected Area

Geology and Soils

Grahamstown is situated in the eastern part of the Cape Fold Belt and is underlain mainly by rocks of the Witteberg Group of the Cape Supergroup, and the Dwyka and Ecca groups of the Karoo Supergroup.

Vegetation

The study site falls within the Thicket biome of South Africa and forms part of the Albany Centre of Floristic Endemism. Various authors have described the vegetation on the site. These include Mucina and Rutherford (2006), who classified the vegetation as Kowie Thicket, Bisho Thornveld, Suurberg Shale Fynbos and Suurberg Quartzite Fynbos (all classified as Least Threatened); and STEP (2006), which classified the vegetation as Grahamstown Grassland Thicket, Albany Thicket and Suurberg Grassy Fynbos (All classified as Least Threatened). A brief survey during a site visit indicates that large tracts of the natural vegetation have been cleared for agricultural purposes. It is important to note that whenever possible development will be restricted to areas of fallow land, existing development (i.e. the club house will be constructed in the position of the existing farm house) and areas heavily infested with alien vegetation (mainly Acacia mearnsii). It may be possible that remnants of natural vegetation are present within these areas. If that is the case permits will be applied for from the relevant government departments for their removal. The proposed development site is classified partially as a CBA 1 and partially as a CBA 2 by the ECBCP. No development will take place within CBA 1 areas.

Fauna

Lack of pristine terrestrial habitat in the Grahamstown area, particularly due to the loss of natural vegetation as a result of infestation by alien invasive species as well as urban development, has impacted on terrestrial fauna. Despite this, a few large mammals occur in the region, along with small and medium sized animals. Reptiles and amphibians occurring in the area include many species of frogs, tortoises and terrapins, lizards and snakes. Important mammals occurring in the vicinity of the study area include 5 IUCN Red Data listed species. Due to the fact that large areas within the cadastral boundary of the site remains to a degree in its natural state it is possible that some smaller mammals frequent the site. An Ecological Assessment is currently being undertaken for the proposed development site that will identify any potential no-go areas in terms of faunal sensitivity.

Socio-economic profile

The proposed development site is surrounded mainly by agricultural land, natural areas and road infrastructure. The construction of the new golf course will create tourism opportunities (during the operational phase) as well as employment opportunities (both during the construction and operational phases of the project). Furthermore, the proposed land swap between Belmont Dev. Co. and the golf club will result in the supply of much needed housing opportunities to residents and students within the urban edge of Grahamstown.

Approach to the EIA Process

Based largely on the issues raised during the Scoping phase (refer to Chapter 6 of **Volume 1: "Coastal & Environmental Services, December 2011: *Final Environmental Scoping Report: Proposed Golf Course at Belmont Valley, Grahamstown, Eastern Cape Province*, CES,**

Grahamstown"), various specialist assessments were required. The key findings of these assessments are summarised in Chapter 9 of this report, and the complete reports are included as Volume 2 of this assessment.

Key Findings of the Specialist Studies

Archaeological Impact Assessment

According to the Archaeological Impact Assessment the entire site (north and south of Belmont Valley Road) contained no archaeological remains. Furthermore, there was no material evidence of a pre-colonial archaeological landscape within the area proposed for development. However, evidence from a wider region stipulates that the activities on the pre-colonial landscape ranged from the Early Stone Age, Middle Stone Age and Later Stone Age. Evidence points to a predominantly historical archaeological landscape colonised during the early 1800's and settled from the 1820's. A modern farmhouse and associated infrastructure has been built on the area north of Belmont Valley Road. The original farmhouse and associated features and infrastructure including an access bridge, which has been washed away by flooding, packed stone foundations and entry walls to the original farmhouse are situated on the proposed area for development of the clubhouse. The remains of the original farmhouse are in a dilapidated state. A dumping area containing mainly shards of ceramics and broken glass was documented upslope and adjacent to the remains of the original farmhouse. The old railway from Grahamstown to the farming communities to the south stretches across the area proposed for development. These remains provide evidence of historical settlements on the landscape.

The recommendations made by the Archaeological Impact Assessment are as follows:

The area is of a low cultural sensitivity and development may proceed as planned, although the following recommendations must be considered.

- A historian or built environment specialist should be appointed to assess the significance of the original farmhouse and associated infrastructure.
- Construction managers/foremen must be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites.
- If concentrations of archaeological heritage material and human remains are uncovered during construction, all work must cease immediately and be reported to the Albany Museum in Grahamstown (046 622 2312) and/or the South African Heritage Resource Agency (SAHRA) so that systematic and professional investigation and/or excavation can be undertaken.

Heritage Impact Assessment

The proposed Belmont development is from lot 6 Belmont to parts 1 & 2 of Willow Glen, less than a kilometre along the Belmont Valley road to Port Alfred; both sections run north east and south west of this road.

Buildings: There are two sheds present on the south west boundary of Willow Glen, south of the road. This area borders on the portion of the original farm called "Willow Glen" which is part of this HIA. The site is noted but as nothing exists of the structure, no preservation is required. The Willow Glen Annexe farmhouse (known as Sonny Clark's house) on the portion to be developed is just a shell of the original farmhouse, the date of which is still unknown. The remaining walls are, according to accounts, hazardous and not worth saving. The historical specialist was not able to visit the site as the stream, embankment and hill on which the ruin is situated, seemed impassable. The Belmont Development Co may decide to include the footprint of the original Willow Glen Annexe farmhouse and include some features of the historical farmhouses in the design for the new Grahamstown Golf Clubhouse which will possibly be erected on the site of the original farmhouse (Sonny Clark) so that the new structure has links with the history of the Belmont Valley farms and architecture of the 19th Century.

Presence of graves: Belmont had a graveyard for farm workers situated between the railway siding and the road." (Wendy Butterworth) These graves need to be located and protected by a fence. (Heritage Resources Act 1999) No graves were located on 20 March 2012 or two subsequent visits. However there were stones piled up between the siding and the road. The pile of stones may or may not be the graves mentioned; this however, falls on the boundary of the area designated for the Belmont Development and Golf Course. Any further development has to take into account the possibility of a farm or church cemetery. If any further graves are discovered in the clearing of the farms, development must be halted for inspection by an archaeologist.

Railway remains: There were two railway sidings in the valley: Oak Valley (a ruin on Belmont) and Harper's Halt on Lower Melrose (the property of Jannie Zakarillis who has left the country). There is a railway track running through Willow Glen (which used to run twice a day bringing mail and goods. The area of the railway track, the siding, and signage are the property of Transnet. The railway track, signs and bridges need to be preserved.

Cement slipway and weir: The cement slipway and broken weir are already in an unsound condition. The weir serves no purpose as it stands; it restricts the water flow and the two round culverts are on the bank of the Kowie river. The cement slipway may have connections with the loading on the railway of the citrus as it is just below the railway line and above the river but the road to and from Willow Glen Annexe ends at this point. There is no oral evidence or proof of the use of cement slipway.

Sites of interest but fall outside the area designated for the Grahamstown Golf Course:

- The Fairyvale house
- The farmhouse and farm of Elandskloof
- The ruin of Mary Early's house
- ruins of farmhouse of Clement Clark junior "Sonny" Clark's

<u>Paleontological Impact Assessment</u>

According to the Paleontological Impact Assessment the eastern side of the valley is comprised entirely of Dwyka Group diamictite and products of its breakdown. This was confirmed during the site visit, though it was found that the contact with underlying Witteberg strata was somewhat to the west of the position shown on the map.

In the extreme east of the study area remnants of the silcrete that caps the ridge are encountered. Immediately to the east of the study area this silcrete overlies kaolin clay derived from leached Dwyka diamictite. An old kaolin prospecting pit however reveals that within the study area the Dwyka diamictite, even immediately below the silcrete, is not leached to the grade of kaolin but exists as a crumbly yellowish sub clay.

Small outcrops of diamictite are found throughout the western side of the study area, extending to the west of the mapped area. These are well exposed in the roadside sloot.

The western side of Belmont Valley exposes overturned strata representing the locally stratigraphically uppermost strata of the Witteberg Group and the stratigraphically lowermost deposits of the Dwyka Group (Karroo Supergroup). The contact (red line) between these strata is well exposed in a small quarry.

Within this quarry the strata are near vertical and overturned such that the stratigraphically overlying Dwyka Group deposits physically underlie Witteberg group strata. The adjacent uppermost Witteberg Group strata exhibit overturned ripple cross beds highlighted by iron concentrated in palaeoripple troughs. Other, more clay rich strata preserve fossilised plant fragments.

Quartzitic strata that define the valley side and that have been mapped as belonging to the upper Lake Mentz subgroup are also near vertical to overturned.

The most westerly (stratigraphically lowest) quartzites within the study area were considered by the Geological Survey to belong to the Witpoort Formation (lower Lake Mentz Subgroup, Witteberg Group). A reassessment of the local boundary between these units is, however, in great need of review.

The presence of impressions of mud chip lag deposits in Witteberg strata suggests probable proximity to a river mouth. No plant stem or bone impressions were, however, observed.

The recommendations made by the Paleontological Impact Assessment are as follows:

It can be said with confidence that within the Belmont Valley study area, all land to the east of the Bloukrans River, (chiefly underlain as it is by weathered Dwyka diamictite) has an almost zero likelihood of containing any paleontological material.

However, to the west of the Bloukrans River, where Witteberg Group strata underlie the study site, particularly where mudstones and shales are likely to be exposed, (such as between the river and the foot of the hills it is probable that plant (and possibly fish) fossils will be disturbed by earth moving activities such as road construction and the landscaping of the proposed golf course. Though the disturbance of such fossils is likely to be localised, a particularly significant find could be of international importance. Destruction of material would be of a severe permanent nature though long term benefit could be gained from the discovery of significant new material.

Although it is difficult to numerically quantify potential paleontological impacts according to standard models it can be said that potential paleontological impacts to the east of the Bloukrans River in Belmont Valley are of Moderate Significance. Any negative impact resultant from disturbance of fossiliferous bedrock could be mitigated to a benefit to science if the disturbed material was sampled and studied.

It is therefore recommended that within this restricted area all large scale earthworks including road construction, pond excavation, levelling etc. should be monitored by a palaeontologist.

<u>Botanical Impact Assessment</u>
According to the botanical specialists the proposed site for development consists of Grassy Fynbos and Kowie River Thicket. Several alien species were identified in the study area. Despite some of these species being category 1 species (in terms of CARA), the study area is dominated by endemic vegetation which is indicative of the sites importance as a corridor of succession. It can also function as a corridor for alien and invasive succession so future environmental management plans is required for long term endemic sustainability and eradication programs. The Bloukrans River serves as a transport method for alien species with eroded river banks serving as prime germination zones for transported seed. Two tree species protected in terms of the National Forest Act was found on site, i.e. Sideroxylon inerme and Podocarpus falcatus. These species require permits to be removed. However, it was recommended by the specialist that the removal of these species is avoided.

Despite the fact that these vegetation types are classified as least threatened, and the presence of few species listed as protected under the National Forestry Act of 1998, or of special concern, certain areas of the site can be considered as sensitive. Riparian zones are also known as process areas. These areas are species rich, offers increased habitat, is an area towards the end of its distribution zone and includes a watercourse and wetland zones. The likelihood of additional species of concern that were not recorded in the field study is high, especially due to this zones richness in biodiversity.

The upland areas, although lower in species richness but still part of the Kowie Thicket vegetation, forms an integral aspect of the riparian ecosystem and is the interface between the adjacent vegetation types. In lieu of this, The Kowie thicket is classified as a highly sensitive area where any development is concerned.

Previously cultivated lands can be considered as those with low sensitivity. Though these areas appear spectrally indistinguishable from adjacent natural grasslands with similar speciation, the natural return to pristine veld condition is a long-term process. The ubiquitous incidence of this type of vegetation is further considered as an area of least concern. The presence of Species of Concern was not recorded in the field study and the likelihood of such species being present is low due to the past agricultural usage.

Traffic Impact Assessment

A concern was raised by some I&APs during the Scoping Phase of the EIA with regard to possible road damaged that might occur as a result of the development, as well as the possible increase in traffic volumes (especially on the Belmont Valley Road). Therefore, a Traffic Impact Assessment has been compiled by Engineering Advise and Services for the project.

The following conclusions can be drawn from the study:

- Belmont Valley Road can be considered to be in a fair to good condition at present although it is noted that this condition could be attributed to low traffic volumes;
- Excessive fine material was observed along the road creating visibility concerns in dry weather and slippery conditions in wet weather;
- Road traffic signage is lacking along the entire length of the road, particularly on the approaches to and through sharp curves;
- Upgrading of the road traffic signs will contribute significantly to safer operating conditions;
- The new golf course can be expected to generate an average of 180 vehicle trips (1 trip = 1 direction) on the three busiest days each week (Wednesday, Thursdays and Saturdays) with fewer trips on the remaining days;
- Based on the anticipated daily traffic volumes, the road can be categorized as a medium to high volume gravel road;
- Construction traffic is anticipated to damage the road during the construction phase, particularly the section between Grahamstown and the proposed golf course;
- The provision of additional road traffic signage as indicated in Chapter 9, will result in safer operation;
- Given that the golf course development will result in an increase of traffic making use of the road, the development should contribute towards maintenance required to ensure that the road remains in a suitable condition after construction has been completed.

In view of the findings of this study, it is recommended by Engineering Advice and Services that:

- The developer install additional road traffic signs as indicated in Chapter 9, and that such signage be installed as soon as development commences;
- The developer ensure that the standard of the road remains at an acceptable level during construction;
- The developer upgrades the road to a suitable gravel standard once construction of the golf course has been completed.

Socio-economic Impact Assessment

Various I&APs have raised comments related to the socio-economic impacts of the development (however, mostly pertaining to the housing development which is not discussed in this report). For this reason the proponent has agreed to undertake a Socio-Economic Impact Assessment for the proposed development. Consequently, a Socio-Economic Impact Assessment was undertaken in 2011 to assess the area's growth trends, employment rates and employment sectors (inter alia) to delineate the effects the proposed golf course will have on this region. This section of the report only provides a brief summary of the most important findings of this assessment.

The planned development will comprise an 18-hole golf course, the construction of which will be mostly on limited fallow lands. It will include a clubhouse, a driving range and road infrastructure. Concerning the latter, an access road of approximately 1km will have to be constructed from Belmont Valley Road, the latter which is an existing gravel road that traverses the proposed

development site to the proposed club house on a portion of the property south of the Bloukrans River. The development will have a direct impact on the Makana Local Municipality's economy, mostly as it will fuel the growing tourist sector.

According to the Socio-Economic Impact Assessment Report (2011) , the Eastern Cape economy reflected the general slowdown in the South African economy from a growth of 4.4% in 1Q2011 to 1.3% in 2Q2011. In contrast to the slowdown in the real value added by the primary and secondary sectors, the tertiary sector experienced a noticeable expansion, causing the service sectors to be the largest contributors to the quarteron-quarter growth of 1.3% in 2Q2011.

Although a contentious issue, the population of the Makana Local Municipality can roughly be estimated at 74, 054 (in 2011) as a whole. The greater Grahamstown area (including Rhini) accounts for approximately 81% of the municipality's population, with the other settlements located in the Makana area thus making marginal contributions to the total regional population. Despite various estimates, it can be deduced that the Makana population stabilised and peaked in the late 1900s, and has been slowly declining until and including 2007. Over the period 1995-2007, the Makana economy grew at a much slower pace compared to the Cacadu District and the Eastern Cape. There was thus a fall in the Makana area's contribution to district and provincial output.

The economically active population (i.e. from 15 to 64 years of age) of the Makana area stands at approximately sixty six percent of the total population, which leads to the conclusion that the area consists of a fairly large group of people who can benefit from employment opportunities that the golf course will ensure. Employment is also highly needed in the area, as reflected by the high unemployment rates. For example, the unemployment rate for 2010 can be estimated at approximately 32.9%.

Above the overall plateau in population growth, informal settlement populations increased. This may indicate migration from farms and areas in the Grahamstown periphery to the core in search for economic opportunities and improved service provision. Urban growth in the towns of Cacadu has been driven by the private sector in the form of retirement investment and tourism, as well as by the government through its investments in housing, improving the health and education systems and investing in infrastructure, as well as the roll-out of social grants. Added to these 'pull' factors are the 'push' factors off farms in the rural areas around Grahamstown due to increasing capital intensification (increased mechanisation) and the tendency towards changed labour recruitment practices. That the population will increase is borne out by the Makana SDF which states that Makana has a population density of 16.1 people per square kilometre, which is high when compared to the district population density of 6.6 people per square kilometre. This indicates a high level of urbanisation in the area, which puts pressure on the municipality to provide essential services. In addition, the growth of the Rhodes University over the next few years, in line with the agreement with the National Ministry of Education, will add to this demand. Therefore, the commercial component of the golf course development is also in line with the SDF of the Cacadu District Municipality.

As concerns have been raised in terms of general service delivery issues that will be triggered by the development, it was also necessary to analyse the sewage system of the Makana Local Municipality in the Socio-Economic Specialist Report. According to MBB Consulting Engineers, both the Belmont Valley and Mayfield Sewerage Treatment Works are currently exceeding its capacity. Future development will therefore be hampered unless these constraints are removed. According to the Makana Municipality, it is anticipated that the Belmont Valley Sewerage Treatment Works will be upgraded by 2014. This has not yet been included in the IDP of the Municipality, however the IDP is currently under revision. The municipality has sourced funds for the upstream requirements at the water works, but it is imperative that the downstream treatment of the waste be upgraded simultaneously.

The golf course will undoubtedly fuel a growing tourist sector of the area. According to the Makana Municipality's SDF, the considerable tourism potential of the region should be developed in an effort to broaden the tourism and recreation base of the region. Plans to extend these facilities

should be encouraged as they serve both the development of tourism opportunities as well as the protection of natural assets. The existing Grahamstown golf course is not very scenic and the potential of it as a tourist attraction is therefore limited. Belmont Valley, on the other hand, provides this scenic component. Furthermore, the proposed development of the golf course will be limited to fallow lands, leaving the natural vegetation intact. In many ways, some people are of the opinion that tourism opportunities must increase in the area, while more efficient marketing and development in terms of this sector are needed. The latter can be accomplished, for example, through tourism trails, including the golf trail envisaged for the new golf course to be situated in Belmont Valley. This could be used to take advantage of the presence of these tourists. The developers have also stated that the development will increase Grahamstown's tourism appeal, as the 18-hole golf trail will capitalise on the thriving Garden Route and Sunshine Coast golf tourism market and provide world-class recreational facilities for cultural and festival tourists to the town. The construction of the new golf course will also create tourism opportunities (during the operational phase) as well as employment opportunities (both during the construction and operational phases of the project).

Lastly, possible benefits of the development to the local community are many. As already mentioned, the development is expected to generate employment both during the construction and operational phases of the project. In addition, the developers also plan to establish the Belmont Treasury Trust which will be used to uplift the local community through projects which will promote skills development and training, entrepreneurship training, sports development, agricultural development, as well as provide funding for promising secondary and tertiary education learners

Impact Assessment

There are several issues that will arise as a result of the proposed project, these have been divided into construction phase and operational phase impacts and are discussed and assessed in detail in Chapter 10 and has been summarised below:

Summary of Issues

CONSTRUCTION PHASE				
Impact study	**Impact number**	**Impact type**	**Significant**	
			Without mitigation	**With mitigation**
Topography and geology			**LOW-**	**LOW-**
Traffic			**MODERATE-**	**LOW-**
Health and safety			**LOW-**	**LOW-**
Biodiversity	1	Impacts on ecological processes	**VERY HIGH-**	**MODERATE-**
	2	Impacts on species of special concern	**VERY HIGH-**	**HIGH-**
	3	Impacts of alien species	**MODERATE-**	**LOW+**
Removal of topsoil and soil erosion			**VERY HIGH-**	**MODERATE-**

CONSTRUCTION PHASE				
Impact study	**Impact number**	**Impact type**	**Significant**	
			Without mitigation	**With mitigation**
Air quality			**MODERATE-**	**LOW-**
Noise			**MODERATE-**	**LOW-**
Surface and groundwater pollution			**HIGH-**	**LOW-**
Archaeology, palaeontology and heritage	1	Negative impact on archaeological remains and sites	**LOW-**	**LOW-**
	2	Negative impact on original farmhouse and associated infrastructure and railway line	**LOW-**	**LOW+**
	3	Negative impact on historical buildings and infrastructure	**HIGH-**	**MODERATE-**
	4	Negative impact on paleontological resources	**HIGH-**	**MODERATE-**
Water courses			**HIGH-**	**LOW-**
Cumulative	1	Bloukrans River	**HIGH-**	**MODERATE-**

OPERATIONAL PHASE				
Impact study	**Impact number**	**Impact type**	**Significant**	
			Without mitigation	**With mitigation**
Loss of agricultural land			**HIGH-**	**HIGH-**
Surface and ground water pollution			**HIGH-**	**LOW-**
Storm water management			**LOW-**	**LOW-**
Visual			**LOW-**	**LOW-**
Socio-economic			**MODERATE+**	**HIGH+**
Traffic	1	Increase in traffic volumes	**HIGH-**	**MODERATE-**
	2	Increased accidents	**HIGH-**	**LOW-**

	3	Increased dust	**HIGH-**	**MODERATE-**
	4	Increased noise	**MODERATE-**	**MODERATE-**
Cumulative	1	Impacts on Bloukrans River	**HIGH-**	**MODERATE-**

The no-go alternative was assessed for each of the impacts listed above and is described in detail in Chapter 10 of this report.

Recommendations

Many of both the construction and the operational impacts can be reduced with effective management of the site and progressive rehabilitation. Furthermore, various positive impacts may result from the proposed development, i.e. job creation, alien eradication, tourism opportunities, etc. With this said, it is the opinion of the EAP that the environmental authorisation for this project should be granted under certain conditions, in order to address those impacts with a high significance rating, and included in Chapter 10 of this report. Below is a list of these conditions.

1. The applicant must appoint an Environmental Control Officer prior to construction to preform regular environmental audits to ensure that the conditions as set out in the EMP and the environmental authorization are adhered to.
2. The applicant must receive water use licenses from the Department of Water Affairs for the abstraction of water from the Bloukrans River, the construction of the causeway and the weir and the discharge of effluent from the Lilliput system (whether being used for irrigation or discharged into the Bloukrans River), prior to the construction of any of these structures.
3. The applicant must receive the relevant permits from the Department of Forestry should any of the protected trees listed in terms of the National Forest Act such as Sideroxylon inerme, need to be removed for construction. It is recommended that a qualified botanists mark all protected trees prior to construction.
4. Prior to the removal of any vegetation on site a qualified botanist should be employed to identified all species of special concern on site. These will have to be relocated to an on-site nursery prior to construction and used in rehabilitation.
5. Minimise the total amount of bare soil exposed to erosive forces by (1) controlling the amount of ground that is cleared at one time in preparation for construction, and (2) limiting the amount of time that bare ground may remain exposed before rehabilitation measures are put into place.
6. The two CBA 1 areas as identified in the ECBCP should be maintained as open space and further development should be prohibited.
7. A permeability test should be undertaken prior to the installation of any septic tank to ensure that there is no possibility of surface and/or groundwater pollution.
8. Any graves found on site must be reported to SAHRA immediately and the existing graves on site should be preserved.
9. Construction managers/foremen must be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites.
10. If concentrations of archaeological heritage material and human remains are uncovered during construction, all work must cease immediately and be reported to the Albany Museum in Grahamstown (046 622 2312) and/or the SAHRA (021 642 4502) for systematic and professional investigation before excavation can be undertaken.
11. It is recommended that the railway line, footprint of the second Willow Glen farmhouse on portion 1 and 2 of Willow Glen (known as Willow Glen Annexure), the railway track, the railway bridge and any other property of Transnet be retained within the area to be developed.

12. The sites of the graves on Willow Glen are protected under the Heritage Act Section 36b and should be maintained.
13. If any further graves are discovered in the clearing process, development must halt for an inspection by an archaeologist.
14. Should any further plans come to light, the Belmont Dev. Co. may decide to include the footprint of the original Willow Glen Annexe farmhouse and include some features of the historical farmhouses in the design for the new Grahamstown Golf Clubhouse which will possibly be erected on the site of the original farmhouse (Daniel Thomas McLean/Sonny Clark) so that the new structure has links with the history of the Belmont Valley farms and architecture of the 19th Century.
15. All large scale earthworks including road construction, pond excavation, levelling etc. should be monitored by a palaeontologist.
16. An alien eradication programme must be implemented prior to the clearing of the proposed development site and all alien invasive species listed in terms of CARA must be removed.
17. Silt fences have to be erected along the Bloukrans River to prevent siltation during the construction phase, especially when constructing the tee and green that is situated in close proximity to the river and the access road.
18. The developer must install additional road traffic signs as indicated in the Traffic Impact Assessment.
19. The developer must ensure that the standard of the road remains at an acceptable level during construction.
20. The developer must upgrade the road to a suitable gravel standard once construction of the golf course has been completed.
21. Organic fertilizer, pesticides and herbicides must be used as far as possible. When the application of inorganic fertilizer, pesticides or herbicides are unavoidable a nutrient management plan should be in pace prior to application.
22. The proposed development site must be fenced. The fencing used must however allow for the migration of small mammals that may utilize the area. It is also recommended that access to the proposed golf course is controlled and that a 24-hour security guard is employed and stationed at the access point.

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BID:	Background Information Document
CBA:	Critical Biodiversity Area
CES:	Coastal and Environmental Services
CITES:	Committee for International Trade in Endangered Species
DEA:	Department of Environmental Affairs (formerly the Department of Environmental Affairs and and Tourism)
DEDEA:	Department of Economic Development and Environmental Affairs
DMS:	Degrees, Minutes, Seconds
DWA:	Department of Water Affairs
EAP:	Environmental Assessment Practitioner
ECO:	Environmental Control Officer
ECBCP:	Eastern Cape Biodiversity Conservation Plan
EIA:	Environmental Impact Assessment
EIR:	Environmental Impact Report
EMPr:	Environmental Management Programme
GNR:	Government Notice Regulation
ha:	Hectare
I&APs:	Interested and Affected Parties
IDP:	Integrated Development Plan
Ltd:	Limited
NEMA:	National Environmental Management Act 107 of 1998 as amended
NLM	Ndlambe Local Municipality
PoS:	Plan of Study
PPP:	Public Participation Process
RDB:	Red Data Book
SSC:	Species of Special Concern
ToR:	Terms of Reference

1. INTRODUCTION

1.1 Background to the study

Belmont Dev. Co. (the applicant) intends to develop a golf course on Portion 6 of the Farm Belmont No. 332 and Portions 1 and 2 of the Farm Willow Glen No. 445, Grahamstown, South Africa. The proposed development site for the construction of the new golf course is approximately 222 ha in extent. The property currently consists of natural areas (i.e. thicket vegetation and the Bloukrans River), fallow lands previously used for agricultural purposes and road infrastructure. A railway reserve (Farm 444) traverses the proposed development site. Currently approximately 29.2% (65 ha) of the proposed development site is being considered for the proposed development of an 18-hole golf course, a club house, a driving range and a parking area.

In addition to this a new access road will need to be constructed from the existing Belmont Valley Road to the proposed new clubhouse. This road will have to cross the Bloukrans River via a low level causeway. This causeway used to exist but has subsequently been destroyed (Plate 1-1) and therefore will need to be rebuilt. An application has been made for a water use licence in terms of Section 21c and i, to the Department of Water Affairs. This application is currently being processed and a site visit by the case officer has been undertaken but the application is dependent upon additional information being submitted, as requested by the Department of Water Affairs (the letter issued by the Department of Water Affairs is available in Appendix A of this EIR document). The development will also include the construction or appropriate upgrading of existing infrastructure such as electricity, water and sewerage.

Plate 1-1: Area where the causeway is proposed to be constructed. This area was previously crossed by a causeway

In accordance with the requirements of the National Environmental Management Act, No. 107 of 1998, and relevant Environmental Impact Assessment (EIA) regulations made in terms of this Act (Government Notice No R.543) and promulgated in 2010, the proposed project requires a full Scoping and EIA.

1.2 The Environmental Impact Assessment Process

The International Association for Impact Assessment (1999) defines an Environmental Impact Assessment (EIA) as, "*the process of identifying, predicting, evaluating and mitigating the biophysical, social, and other relevant effects of development proposals prior to major decisions being taken and commitments made*."

The EIA process is guided by regulations made in terms of Chapter 5 of the National Environmental Management Act, No. 107 of 1998 (NEMA), published as Government Notice No R.543 in Government Gazette No 33306 of 2 August 2010. The regulations set out the procedures and criteria for the submission, processing and consideration of and decisions on applications for the environmental authorisation of activities.

Three lists of activities, published on 21st April 2006 and amended on 2md August 2010, as Government Notice Numbers R.544, R.545, and R.546 define the activities that require, respectively, a Basic Assessment (applies to activities with limited environmental impacts), or a Scoping and Environmental Impact Assessment (applies to activities which are significant in extent and duration).

The activities triggered by the proposed golf course development are listed in Table 1-1 below.

Table 1-1: Listed activities triggered by the proposed golf course development.

Number and date of the relevant notice	Activity No(s)	Description of listed activity
GNR544	(11)	The construction of: (vi) canals (vii) channels (viii) bridges (ix) weirs (x) bulk storm water outlet structures; Where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.
	(26)	Any process or activity identified in terms of section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).
	(39)	The expansion of: (i) canals (ii) channels (iii) bridges (iv) weirs (v) bulk storm water outlet structures; Within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, where such expansion will result in an increased development footprint but excluding where such expansion will occur behind the development setback line.
	(55)	The expansion of a dam where: (i) The highest part of the dam wall, as measured from the outside toe of the wall to the highest part of the wall, was originally 5 meters or higher where the height of the wall is increased by 2.5 meters or more; or (ii) Where the high-water mark of the dam will be increased with 10 hectares or more.
GNR 545	(15)	Physical alteration of undeveloped, vacant or derelict land for residential, retail, commercial, recreational, industrial or institutional use where the total area to be transformed is 20 hectares or more.

Number and date of the relevant notice	Activity No(s)	Description of listed activity
GNR 546	(4)	The construction of a road wider than 4 metres with a reserve less than 13.5 metres. (b) In Eastern Cape Province: iii. Outside urban areas, in: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans.
	(14)	The clearance of an area of 5 hectares or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation. In Eastern Cape: All areas outside urban areas.
	(16)	The construction of: (iii) buildings with a footprint exceeding 10 square metres in size; or (iv) infrastructure covering 10 square metres or more Where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line. In Eastern Cape: iii. Outside urban areas, in: (gg) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans.
	(19)	The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre. In Eastern Cape Province: iii. Outside urban areas, in: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ii) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined.

Because the proposed development triggers a listed activity from GNR.545, it will require a full Scoping and EIA. This process is regulated by Chapter 3, Part 3 of the EIA regulations and is as shown in Figure 1-1.

The competent authority that must consider and decide on the application for authorisation in respect of the GNR 545-546 activities listed in Table 1-1 is DEDEAT, and is the relevant authority which will review the Scoping Report and Environmental Impact Report (EIR) and issue the environmental authorisation.

In addition to this, the applicant has submitted an application for a Water Use Licence (Issued by the Department of Water Affairs – DWA) in terms of the National Water Act (Act No. 36 of 1998) for the construction of a low level causeway and a weir on the Bloukrans River. These activities are listed under section 21a, c and i of the National Water Act. The application is currently being processed by the Department of Water Affairs provided that additional information requested is supplied by the applicant.

1.2.1 The EIA process to date

The overall EIA process is summarised in Figure 1-1 below.

A detailed description of the Scoping phase for the proposed golf course development and the outcomes thereof are included in **Volume 1: "Coastal & Environmental Services, December 2011: *Final Environmental Scoping Report: Proposed Golf Course Development at Belmont Valley, Grahamstown*, Eastern Cape Province, CES, Grahamstown".**

A Plan of Study (PoS) for the detailed EIR phase was also submitted together with the Final Scoping Report (FSR), in fulfilment of section 28 (1) (n) of the EIA regulations (2010).

DEDEA advised the EAP in terms of Regulation 31(1) (a) to, "*proceed with the tasks contemplated in the PoS for environmental impact assessment*" i.e. the detailed EIA Phase.

DEDEA also requested that "*comments from all relevant authorities be submitted to the Department with the Final Environmental Impact Report".*

Following review of the FSR, DEDEA issued their approval of the FSR and PoS for EIA and instructed the EAP to proceed with the EIA Process as contemplated in the PoS on the 21st of March 2012 (Appendix A)

The aim of the detailed EIA Phase is to undertake a comprehensive evaluation and study that addresses all the issues raised in the Scoping Phase, and produce a report that contains all the relevant information that is necessary for the competent authority to consider the application and to reach a decision contemplated in Regulation 36. More specifically, the EIA Phase has seven key objectives:

- Describe the biophysical and socio-economic environment that is likely to be affected by the proposed development.
- Undertake specialist studies to address the key biophysical and socio-economic issues.
- Assess the significance of impacts that may occur from the proposed development.
- Assess the alternatives proposed during the Scoping Phase.
- Provide details of mitigation measures and management recommendations to reduce the significance of impacts.
- Provide a framework for the development of Environmental Management Plans (EMPs).
- Continue with the public participation process.

This EIR phase includes the following steps -

1. **Specialist Studies,** which include the specialist assessments identified in the Scoping Report and any additional studies required by the authorities. This required the appointment of specialists to gather baseline information in their fields of expertise, to assess the impacts and make recommendations to mitigate negative impacts and optimise benefits.
2. **Environmental Impact Assessment Report**. The main purpose of this report, the EIR, is to gather and evaluate environmental information, so as to provide sufficient supporting arguments to evaluate overall impacts, consider mitigation measures and alternative options, and make a value judgement in choosing the best development alternative.
3. **Comments Report,** which compiles comments, issues and concerns raised by I&APs during the EIR review period and the authorities and the relevant responses to these comments.
4. **Environmental Management Programme,** which informs the client and the technical team of the guidelines which will need to be followed during construction and operation to ensure that there are no lasting or cumulative negative impacts of these processes on the environment.

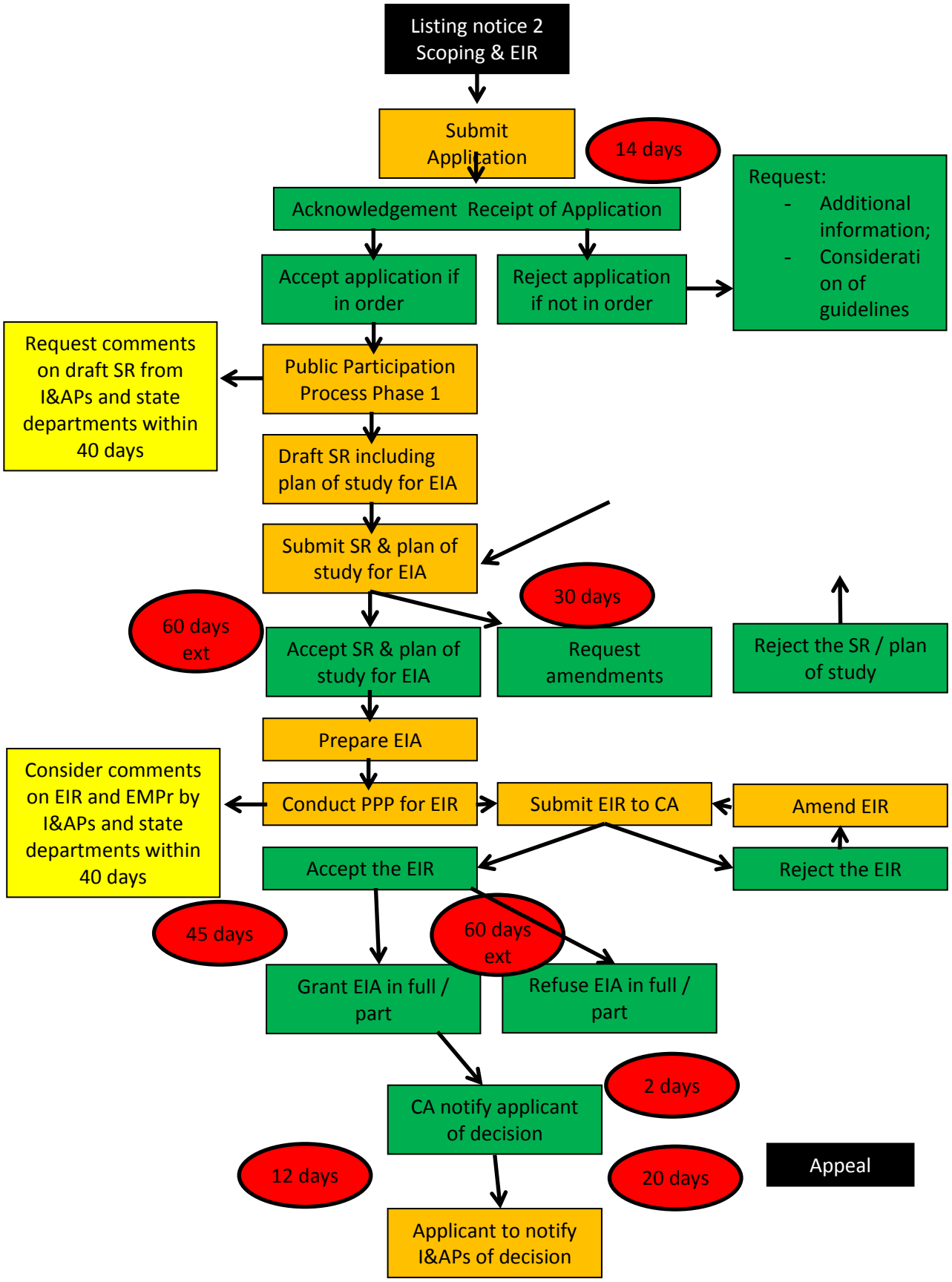

Figure 1-1: The EIA process under current legislation (NEMA 1998)

1.3 Details and Expertise of the Environmental Assessment Practitioner

In terms of Section 31 (2), ***an environmental impact assessment report must include-***

(a) The details of -
(i) The EAP who compiled the report; and
(ii) The expertise of the EAP to carry out an environmental impact assessment.

In fulfillment of the above-mentioned legislative requirement as well as Section 17 of the EIA Regulations (2010) which states that, "*an EAP must have expertise in conducting environmental impact assessments, including knowledge of the Act, these Regulations and any guidelines that have relevance to the proposed activity*", provided below are the details of the Environmental Assessment Practitioner (EAP) that prepared this Environmental Impact Assessment Report (EIR) as well as the expertise of the individual members of the study team.

1.3.1 Details of EAP

Coastal and Environmental Services (CES)
Physical Address: 67 African Street, Grahamstown 6139
Postal Address: P.O. Box 934, Grahamstown 6140
Telephone: +27 46 622 2364
Fax: +27 46 622 6564
Website: www.cesnet.co.za
Email: t.avis@cesnet.co.za

1.3.2 Expertise of the EAP

CES is one of the largest specialist environmental consulting firms in southern Africa. Established in 1990, and with offices in Grahamstown and East London, we primarily specialise in assessing the impacts of development on the natural, social and economic environments. CES's core expertise lies in the fields of strategic environmental assessment, environmental management plans, environmental management systems, ecological/environmental water requirements, environmental risk assessment, environmental auditing and monitoring, integrated coastal zone management, social impact assessment and state of environment reporting. In addition to adhering to all relevant national legislative requirements, which we are often required to review and summarise for specific projects, acquisition of equity funding from the majority of financial institutions demands that developments must meet certain minimum standards that are generally benchmarked against the Policy and Performance Standards of the International Finance Corporation and the World Bank Operational Directives and Policies. The quality of our work during our long and extensive association with heavy mineral mining in Africa (we have worked on large projects in South Africa, Mozambique, Malawi, Kenya, Madagascar and Egypt) has been acknowledged by international lenders such as the World Bank and the International Finance Corporation, and the large mining companies continue to approach us as their preferred environmental consultant for this type of project.

Provided below are short *curriculum vitae* (CVs) of each of the team members involved in the proposed Pinedale Eco-estate Project EIA.

Dr Ted Avis *(Project Leader and Report Reviewer)*
Ted is a leading expert in the field of Environmental Impact Assessments, having project-managed numerous large-scale EIAs to international standards (e.g. World Bank and International Finance Corporation). Ted has also project managed and provided professional input to the State of Environment reports and Strategic Environmental Assessments produced by CES.

Dr Chantel Bezuidenhout *(Report Production)*
Chantel holds a MSc and PhD in Botany and a BSc degree in Botany and Geography from NMMU. Chantel's main focus is estuarine ecology and as a result she has been involved in a number of ecological reserve determination studies. Recently she has been focused on environmental management and has been involved in number of environmental impact assessments and management plans. She is currently employed in the Grahamstown office of CES.

Ms Amber Jackson *(Public Participation, Maintenance of I&AP Database)*
Amber has an MPhil in Environmental Management from the University of Cape Town. Topics covered included environmental management theory, social and ecological systems, climate change and environmental law. With a dissertation in food security that investigated the complex food system of soft vegetables produced in the Philippi Horticultural Area and the soft vegetables purchased at different links, both formal and informal, in the food system. Prior to this she obtained a BSc degree in Zoology and 'Ecology, Conservation and Environment' and a BSc (Hons) in 'Ecology, Conservation and Environment'from the University of the Witwatersrand. Her honours thesis title was: Landscape Effects on the Richness and Abundance of the Herpetofauna in the Kruger National Park.

Mr Thomas King *(Public Participation, Map Production)*
Thomas holds a BSc degree with specialisation in Zoology from the University of Pretoria and an Honours degree in Biodiversity and Conservation from Rhodes University. As part of his Honours degree, Thomas was trained in Geographical Information Systems (GIS) and Community Based Natural Resource Management (CBNRM) in addition to the required biological sciences courses. His honours thesis investigated the rate at which Subtropical Thicket recovers naturally after heavy grazing by ostriches (Struthio camelus). His interest areas are: climate change and the investigation of possible solutions, waste management, and rehabilitation ecology.

To view CVs detailing the expertise of each of these specialists to undertake these studies as well as a declaration of their independence to conduct these studies, please refer to Appendix C.

1.4 The Environmental Impact Report

In accordance with regulation 31 of GNR. 543 of the EIA regulations which states that, "*an environmental impact assessment report must contain all information that is necessary for the competent authority to reach a decision contemplated in terms of regulation 35* - Decisions on applications", the overall purpose of the EIR is to communicate the findings of the EIA to the authorities in order to inform the decision as to whether or not to authorise the proposed project. More specifically, the objectives of the EIR are to -

- Confirm which issues have been investigated further and addressed in the EIR;
- Identify and assess impacts of feasible alternatives within the development proposal;
- Provide a comprehensive assessment of predicted impacts that may result from the proposed project, in accordance with the specified impact assessment methodology;
- Where alternatives have been assessed, make recommendations for the best practice environmental option (BPEO);
- Recommend actions to mitigate negative impacts or enhance benefits;
- Provide recommendations for monitoring programmes.

This report is the third of a number of reports produced in the EIA process. This EIR has been produced in accordance with the requirements as stipulated in Section 31 (2) of the EIA regulations (GNR 543), which clearly outlines the content of environmental impact assessment reports, and Chapter 6 (GNR 543) which covers the activities necessary for a successful Public Participation Process (PPP). The Sections below, provides the detailed structure of this Final EIR and outlines the limitations and assumptions under which this report was compiled.

1.4.1 Nature of this report

In accordance with the EIA Regulations (2010), an EIA report must contain all the information that is necessary for the competent authority to consider the application and to reach a decision. In order to facilitate review by the competent authority, this report, which forms Volume 3 of the suite of EIA documents related to the proposed project, is structured around these requirements.

The structure of this report is therefore as follows:-

Chapter 1 - Introduction: Provides background information on the proposed project, a brief description of the EIA process required by NEMA and its regulations, and describes the key steps in the EIA process that have been undertaken. The details and expertise of the Environmental Assessment Practitioner (EAP) who compiled this report are also provided in this Chapter.

Chapter 2 – Project Description: Provides a detailed description of the proposed development, the property on which the development is to be undertaken and the location of the development on the property.

Chapter 3 – Description of the Affected Environment: Provides a description of the environment that may be affected by the proposed activity and the manner in which the physical, biological, social, economic and cultural aspects of the environment may be affected.

Chapter 4 – Public Participation Process: Provides details of the public participation process conducted in terms of regulation (31) sub-regulation (1) including -

- Steps undertaken in accordance with the Plan of Study (PoS);
- A list of all persons, organisations and organs of stated that were identified and registered in terms as I&APs in relation to the application.
- A summary of the comments received from, and a summary of the issues raised by registered I&APs, the date of receipt of these comments and the response of the EAP to those comments; and
- Copies of any representations, objections and comments received from registered I&APs.

Chapter 5 – Need and Desirability: Provides a description of the need and desirability of the proposed activity, including advantages and disadvantages of the proposed activity.

Chapter 6 – Alternatives: Provides a description of the alternatives to the proposed development or parts of the proposed development. It also includes a comparative assessment of viable alternatives.

Chapter 7 – Methodology for Assessing Impacts: Provides an indication of the methodology used in determining the significance of potential environmental impacts.

Chapter 8 – Key Findings of the Specialist Studies: This Chapter summarises the findings of the specialist studies which are included in detail in ***Volume 2: Proposed Golf Course and Residential Housing Developments at Belmont Valley, Grahamstown, Eastern Cape Province, South Africa: Specialist Report (CES, May 2012).***

Chapter 9 – Assessment of Impacts: Provides:-

- A description of all environmental issues relating to all phases of the proposed development that were identified during the EIA process, an assessment of the significance of each issue and an indication of the extent to which the issue could be addressed by the adoption of mitigation measures.
- An assessment of each identified potentially significant impact, including -
    i. Cumulative impacts;
    ii. The nature of the impact;

iii. The extent and duration of the impact;
iv. The probability of the impact occurring;
v. The degree to which the impact can be reversed;
vi. The degree to which the impact may cause irreplaceable loss of resources; and
vii. The degree to which the impact can be mitigated.

Chapter 10 – Conclusions and Recommendations: Provides -

- An opinion as to whether the activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation.
- An environmental impact statement which contains –
    i. A summary of the key findings of the environmental impact assessment; and
    ii. A comparative assessment of the positive and negative implications of the proposed activity and identified alternatives.

References: Cites any texts referred to during preparation of this report.

Appendices

Volume 1 - Final Scoping Report: The FSR has already been submitted to and approved by the DEDEAT (Appendix D). This report is not included in the Final EIA submission as it has already been approved by the Department.

Volume 2 - Specialist Reports: Provides copies of the specialist reports complying with Regulation 32 of the EIA Regulations (GNR 543).

Volume 3 – Environmental Impact Assessment report: This report represents the Final EIR. The DRAFT EIR was released for public review and were subsequently revised to include all comments received during the review period. The FINAL EIR will be submitted to the relevant competent authority for Environmental Authorization.

Volume 4 - Environmental Management Plan: Provides an Environmental Management Plan (EMP) that complies with Regulation 33 of the EIA Regulations (GNR 543).

1.4.2 Assumptions and Limitations

The following limitations and assumptions are implicit this report –

- The primary assumption underpinning this EIA and the individual specialist studies upon which this EIR is based is that all information received from the proponent (Mr David Davies) and other stakeholders including registered I&APs was correct and valid at the time of the study.
- To ensure that the significance of impacts was not under-estimated, the specialists assessed impacts under the worst-case scenario situation.

2. PROJECT DESCRIPTION

According to regulation 31 (2) of the EIA regulations (2010), *An environmental impact assessment report must include –*

(b) a description of the proposed activity;

(d) a description of the environment that may be affected by the activity and the manner in which the physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed activity;

In fulfilment of the above legislative requirement, this chapter of the EIR identifies the location and size of the site of the proposed golf course development and provides a description of its various components and arrangement on the site.

2.1 Location of the study area

Belmont Dev. Co. (the applicant) intends to develop a golf course on Portion 6 of the Farm Belmont No. 332 and Portions 1 and 2 of the Farm Willow Glen No. 445, Grahamstown, South Africa (Figure 2-1).

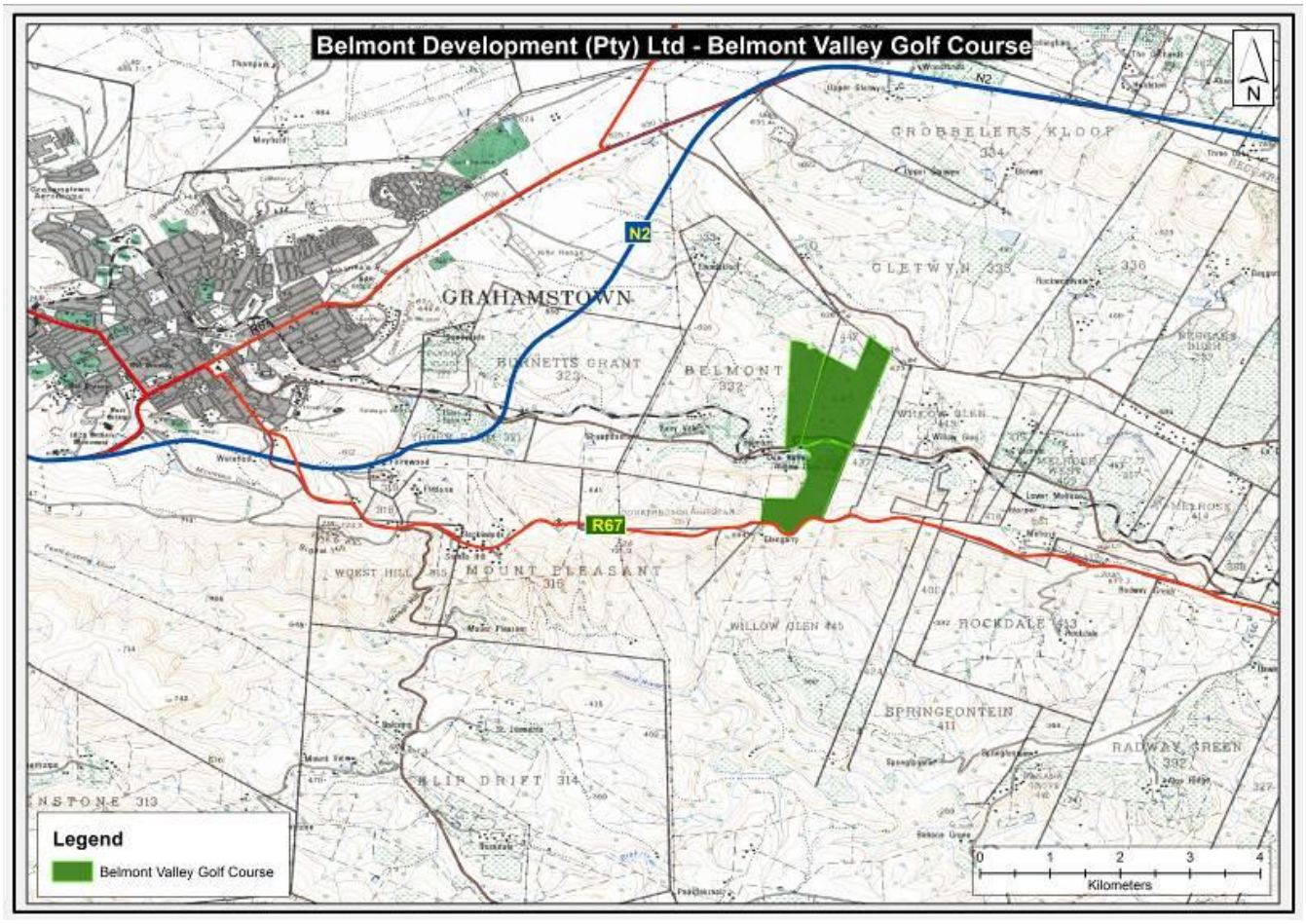

Figure 2-1: Location of the proposed golf course development and surrounding land uses (the property boundary is demarcated by the green shaded area).

2.2 Technical description of proposed infrastructure

2.2.1 18-hole golf course and driving range

The proposed new 18-hole golf course will consist of approximately 18 hectares of fairways and tees, 1 hectare of greens and 2 hectares for the driving range (Figure 2-2). The majority of the golf course (13 of out 18 holes) will be situated on fallow lands. According to the ecological specialist, Warren Lange, previously cultivated lands can be considered as those with low sensitivity. Though these areas appear spectrally indistinguishable from adjacent natural grasslands with similar speciation, the natural return to pristine veld is a long-term process.

Two of the holes (holes numbers 7 and 12) and the driving range will be situated partially on fallow land and partially on natural vegetation, i.e. Kowie Thicket, while a further two holes (holes number 8 and 10) will be completely situated in natural vegetation. According to the vegetation specialist the upland areas, although lower in species richness, still part of the Kowie Thicket vegetation and form an integral aspect of the riparian ecosystem, which is the interface between the adjacent vegetation types. In lieu of this, the Kowie thicket is classified as a highly sensitive area.

It is important to note that several alien species were identified in the study area. Despite some of these species being category 1 species (in term of Conservation of Agricultural Resources Act), the study area is dominated by indigenous vegetation which is indicative of the sites importance as an ecological corridor. However, it can also function as a corridor for alien species to invade, and hence future environmental management plans are required for long term eradication. Should the development be authorised all invasive species listed in terms of the Conservation of Agricultural Resources Act must be eradicated from site. Hole number 1 will be situated in close proximity to the Bloukrans River and will encroach on riparian vegetation. According to the ecological specialist, this area is species rich, offers increased habitat creation, is an area towards the end of its distribution zone and includes a watercourse and wetland zones. The likelihood of additional species of concern that were not recorded in the field study is high, especially due to this zones richness in bio-diversity. It is important to note that the Bloukrans River serves as a transport method for alien species with eroded river banks serving as prime germination zones for transported seed.

It proposed to use either Kikuyu or Cynodon for the golf course and driving range. A major consideration when selecting a grass species for a golf course is maintenance, which could potentially be very costly. According to the developer Kikuyu grass is better suited for the proposed golf course for the following reasons:

- Kikuyu is least affected by pests and fungi and therefore requires minimal chemical control. Preventative and curative spraying is expensive and could be harmful to the environment.
- Bermuda grass (similar in disease tolerance) is more expensive and has less playability during winter months. This grass species needs inter-seeding and/or over-seeding during the cooler seasons as their mass and density do not allow for ball holding capacity. Therefore the course would be unplayable in the winter season as the ball roll through the green would be excessive, especially since the contouring and slopes of this particularly course may be considered extreme.
- Bermuda grass (both *Cynodon dactylon* and *Cynodon transvalences*) are drought tolerant species and would therefore require less water than Kikuyu. However, due to an average rainfall in excess of 550 mm per annum in the general Grahamstown area, water usage of both species would be similar.
- It is assumed that due to the fact that Bermuda grass is indigenous it is less invasive. However, *Cynodon dactylon* (seeded variety) and *Cynodon transvalenses* (vegetative variety) are aggressive regardless of excess watering and fertilization. Furthermore, all seeded varieties are purchased from the United States and have been hybridized specifically for utilization on golf courses. Vegetative species would have to be harvested from local drainage lines or catchment areas. *Cyndon* species require more fertilizing and water than

Kikuyu resulting in an increased risk of contamination of water resources.

- Cool season grasses (rye, fescues and bents) could also be used on golf courses and are non-invasive. However they require continuous watering, pest control and fertilization. These grasses generally use approximately 5 times the amount of water (i.e. 2 million litres per day) compared to Bermuda and Kikuyu grass (375 000 litres per day).

Even though Kikuyu grass is an exotic species, it is not listed in terms of the Conservation of Agricultural Resources Act. Every effort will be made to prevent the spread of Kikuyu into indigenous areas. Intervention may include but are not limited to:

- Designing the irrigation system not to be head to head but rather centreline out. This means that the last sprayer closest to the semi rough line (outer edge of the mowable area) only gets a single precipitation rate as opposed to double coverage and ends 5m short of the wild indigenous gasses. Hence a buffer zone - 5m semi rough and 5m of an annual veld grass which will be a bunch type and non-invasive grass. Any stray stolon's from the Kikuyu are easily detected and removed.
- A cart path with 220m deep edging (curbing) is also installed down one side causing a barrier for any encroachment. This also serves as a clear border for edging and mechanical control of invading grasses.

2.2.2 Clubhouse

The proposed clubhouse is estimated to be approximately 1 300 m2 in size. The breakdown of the proposed clubhouse and the area covered by the various components are shown in Table 1-1 below. The proposed clubhouse will consist of two storeys, i.e. a basement (Figure 2-3) and a ground floor (Figure 2-4). The architectural design of this building is not yet complete. The clubhouse will be constructed on the footprint of the existing farmhouse and therefore minimal clearing of natural vegetation will be required.

Table 1-1: Breakdown of the proposed clubhouse.

Area Schedule (Gross Building)	
Area	Name
28.09 m²	Basement Extra Store/Admin space
41.49 m²	Basement Golf Car parking
34.37 m²	Basement Green Fee Off & Pro-Shop
41.20 m²	Basement Internal Passage
43.53 m²	Basement Ladies Changeroom & lockers
65.94 m²	Basement Male Changerooms & Lockers
205.38 m²	Basement paving
4.59 m²	Basement Shop Store
13.85 m²	Club Bar storage
27.37 m²	Club Committee Room
12.06 m²	Club Covered Porch
66.24 m²	Club Foyer / Lobby
74.02 m²	Club Function Room
49.18 m²	Club Kitchen & Laundry
15.72 m²	Club Kitchen service passage
101.34 m²	Club Ladies bar
14.18 m²	Club Toilets Female
16.07 m²	Club Toilets Males
226.37 m²	Covered deck
92.25 m²	Flat Caretakers
5.66 m²	Flat deck
8.68 m²	Internal Stair
17.02 m²	Open entrance deck
27.07 m²	Open Service & Drying Yard
6.69 m²	Staff toilet
42.12 m²	Workshop and Bulk Bar STore
1280.47 m²	

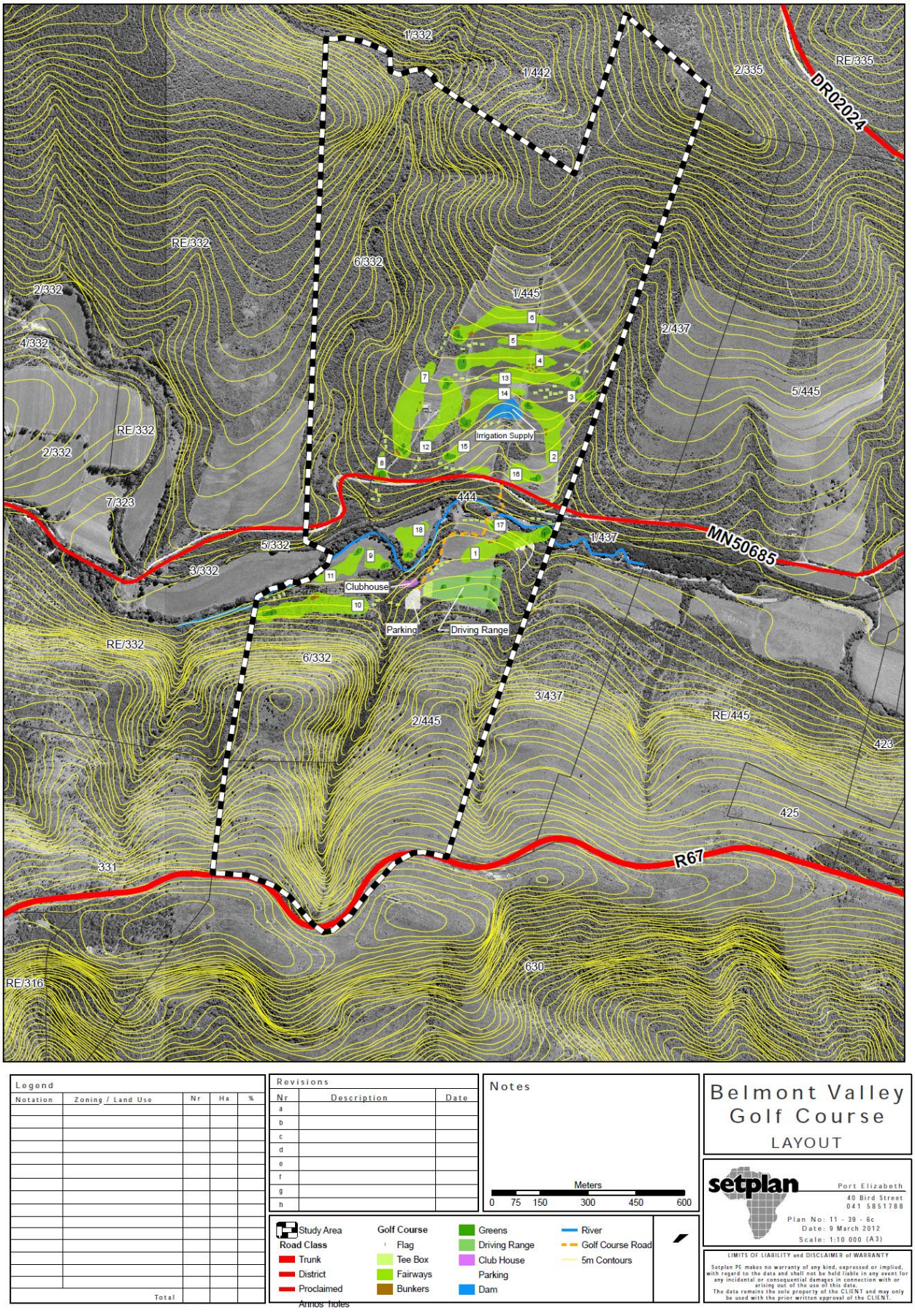

Figure 2-2: Layout for the proposed new golf course development in Belmont Valley

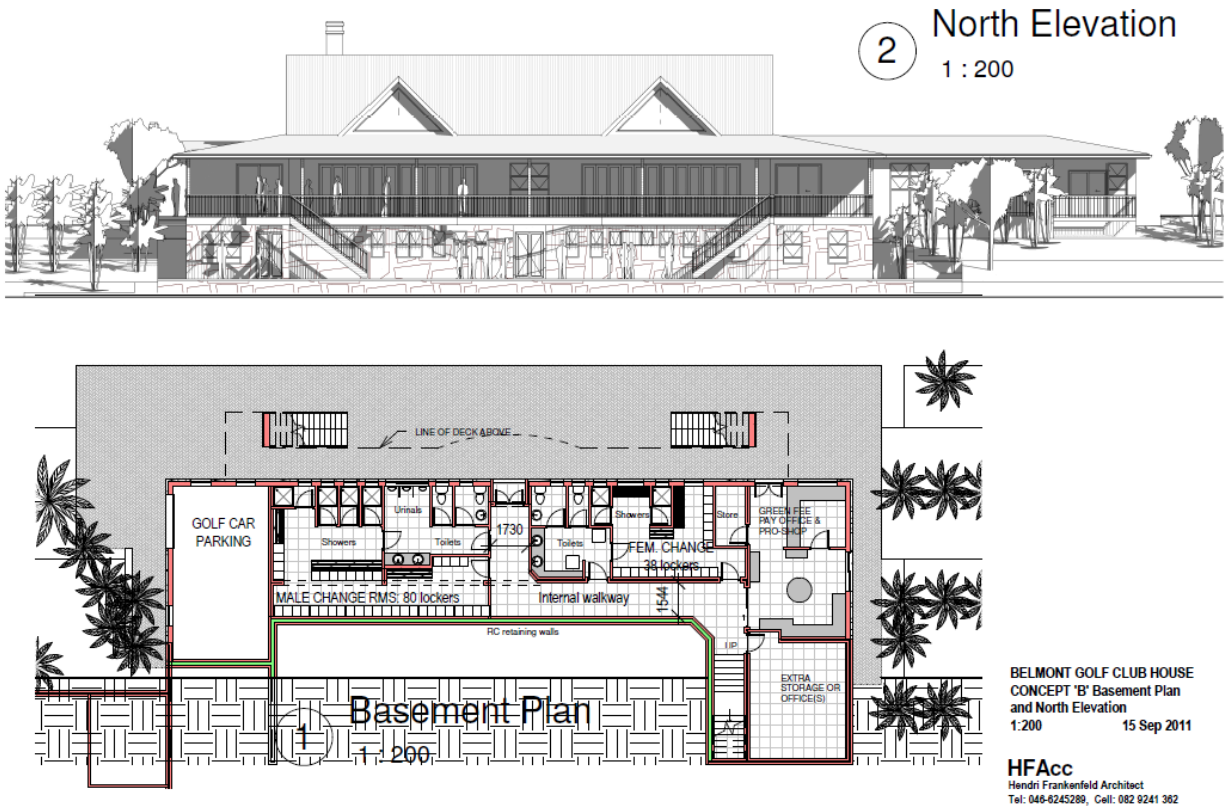

Figure 2-3: Layout of the Basement of the proposed clubhouse.

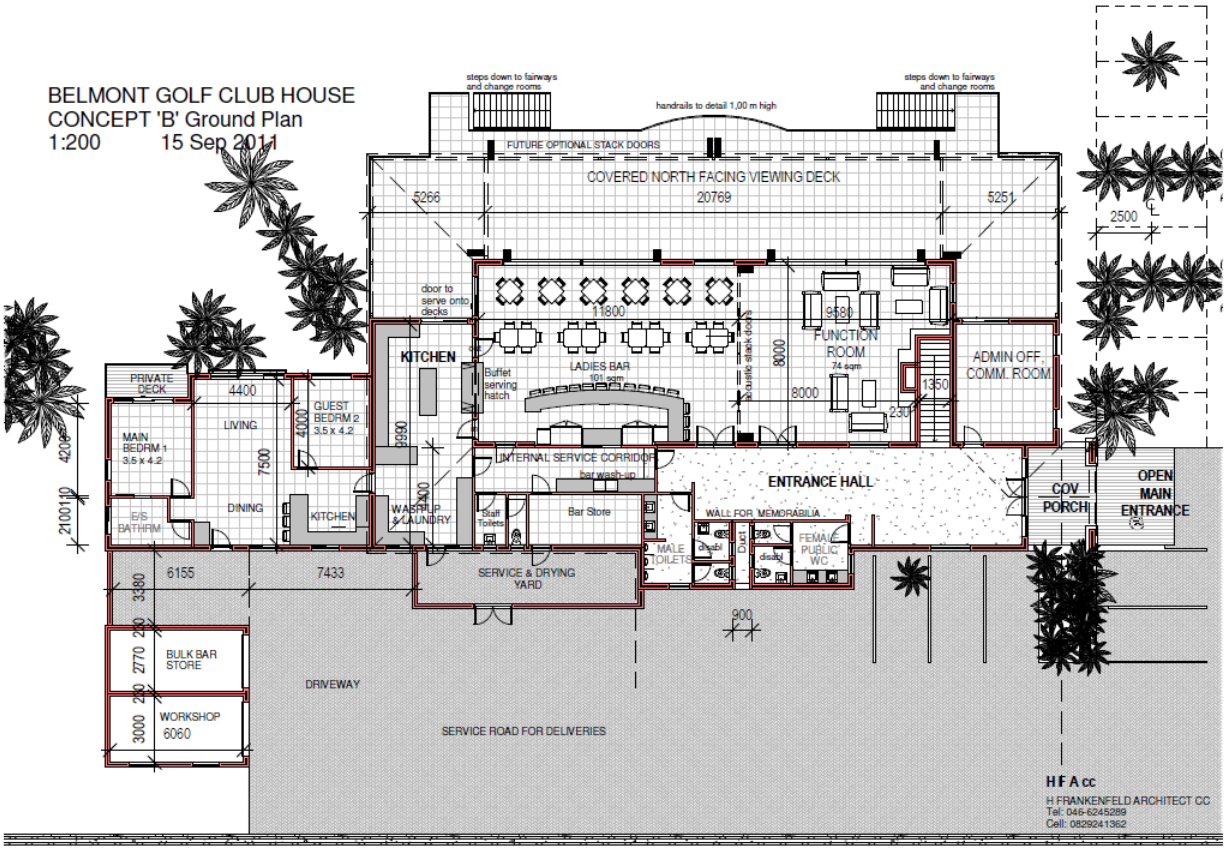

Figure 2-4: Layout of the Ground Floor of the proposed clubhouse.

2.2.3 Parking Area

It is proposed parking area for the proposed development is estimated to be approximately 2 600 m^2 in size. According to the architect, Mr H Frankenfeld, the proposed parking area will either be grassed or paved. The preferred option at this stage is to use paving which will allow for some storm water seepage.

2.3 Technical description of proposed supporting infrastructure

2.3.1 Stormwater management

The proposed development site consists of two ridges and a central valley through which the Bloukrans River drains. Storm water run-off flows from the north and the south to the river which then drains in a general easterly direction (Figure 2-5). The proposed development will result in a few impervious surfaces (i.e. the roof of the clubhouse, the access road and parking area), which will result in an increase in run-off. These areas have a relatively small footprint and it is therefore anticipated that storm water will only increase marginally. The majority of the property will consist of fairways and greens for the golf course. These areas will allow for the seepage of excess storm water. Therefore storm water within the area will not be considered as a major concern.

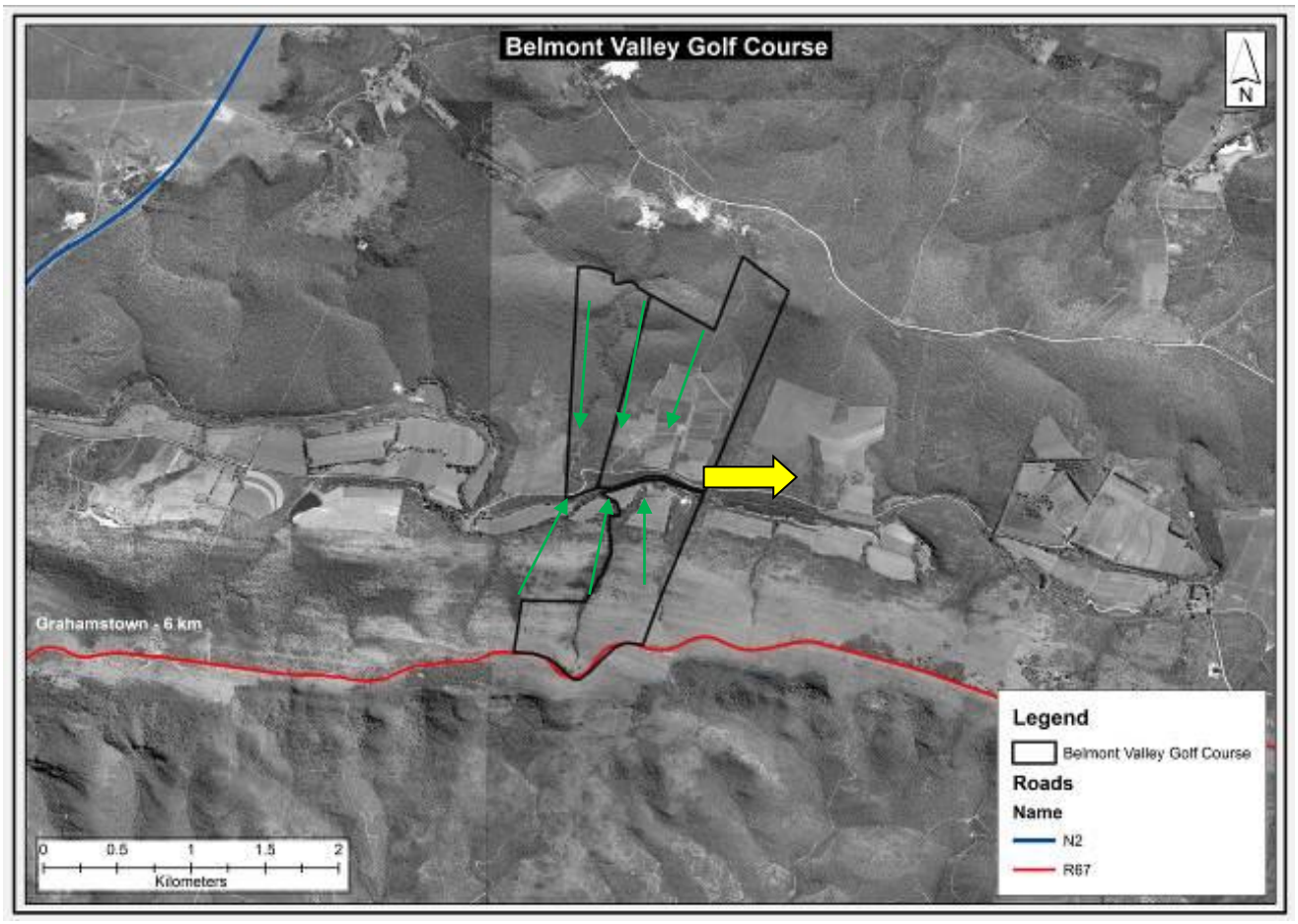

Figure 2-5: Aerial photo showing the Bloukrans River that traverses the proposed development site. The direction of flow of run-off is indicated by the green arrows and the direction of flow of the river is indicated by the yellow arrow.

2.3.2 Water

Rainwater tanks will be installed to supply potable water to the proposed club house. An existing weir (Figure 2-6; Plate 2-1) is currently present on the proposed development site. This weir has been damaged and will be repaired and water will thus be abstracted from the river for the irrigation of the golf course. There is currently an existing dam on the property, north of the Bloukrans River. Water will be extracted from the river and stored in the dam before being pressurized into the irrigation system. The dam will act as a reservoir, and this will be where the irrigation pump station will be located.

It has been established that the previous owner of the property abstracted water from this area for farming activities. The rate of abstraction was approximately 980 kl/day (Appendix F). The estimated water requirement for the irrigation of the golf course is approximately 370 kl/day. Therefore it is estimated that there will be a saving of approximately 60% in water use due to the change in land use. An application for the repairing of the weir and the abstraction of water from the Bloukrans River in terms of Section 21a, c and i of the National Water Act has been submitted to the Department of Water Affairs (contact person Ms. Lizna Fourie). The applicant is currently waiting for authorization which is subject to various conditions (Appendix A).

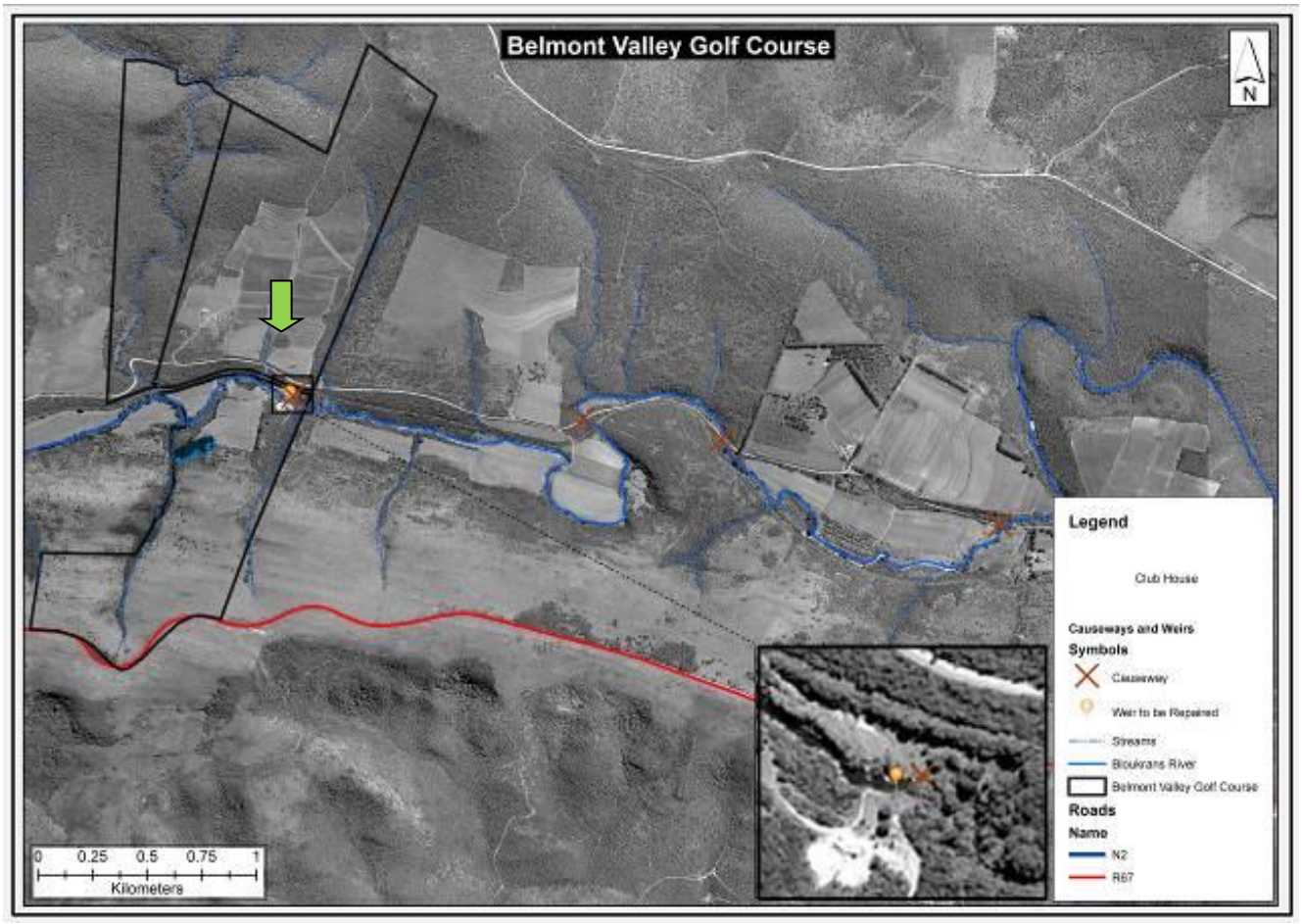

Figure 2-6: The positions of causeways in the vicinity of the proposed development as well as the existing weir. The green arrow shows the position of the existing dam.

Plate 2-1: The existing weir that will be repaired.

2.3.3 Sewage treatment

The only anticipated source of sewerage will be from the proposed clubhouse. According to MBB Consulting Engineers the expected flows are as follows:

- With an estimated attendance of 30 people per day for 5 days a week (week days) and 60 people for 2 days a week (weekends) at 25 litres per person per day the sewage generated per week is estimated to be 6 750 litres, that is, an average of 964 litres per day. An average of 1000 litres per day was therefore estimated.
- A septic tank with a capacity of 3 600 litres (just over three and a half cubic metres) was therefore recommended. This will work in conjunction with the Lilliput sewage treatment plant.

MBB Consulting Engineers recommended that the Lilliput Treatment System be implemented. A brief synopsis is provided below, as well as short technical explanation of the treatment process, as provided by Brett Keulder of Lilliput and available on the website (www.lilliputsystems.com).

The Lilliput treatment system is specially designed for the purification of organic wastes, especially domestic sewage (both foul and grey waters) so as to permit safe discharge to the environment, or selective re-use of the treated stream. Developed in 1996, the system has received numerous awards and letters of commendation. Major advantages of the system are that the effluent discharged from the system is re-useable – for every litre of sewage received by the plant, a litre of 'clean' water is made available, thus reducing the demand on the incoming potable stream by between 40 – 60%. Further, the water released consistently adheres to requirements of the Department of Water Affairs (DWA) General Authorization Limits for final discharge standards.

Raw sewage is pre-digested in a septic or Lilliput tank, by anaerobic bacteria converting most of the complex organic matter into simple but toxic chemicals. The solution produced is pumped into the Bio-reactor, which contains randomly packed media. Air is introduced and aerobic bacteria oxidise the harmful, malodourous chemicals converting them to safe, 'clean' salts. At times of surge flow excess effluent is returned to the septic tank to ensure complete treatment. If the discharge is other than to irrigation, a clarifier is used to extract excess solids and return them to the septic tank. The final stage of treatment is disinfection, which ensures that any pathogens are removed.

In addition, since the power requirement for the sewage pump is very low it is also possible and it is recommended to use solar power to run the pump.

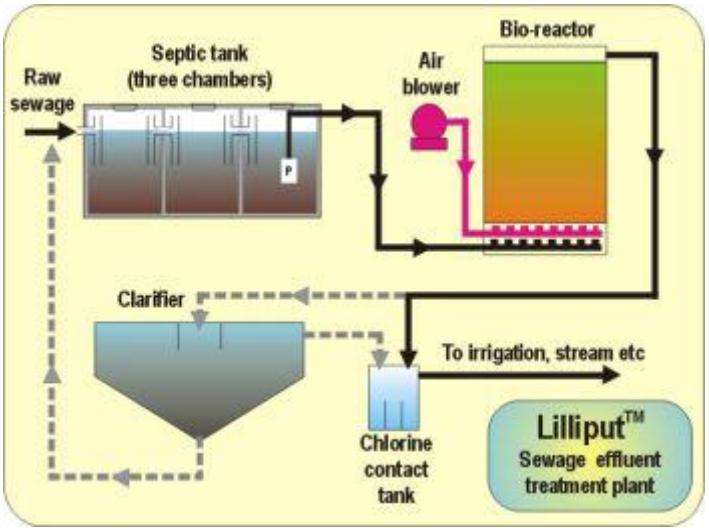

Figure 2-7: The Lilliput treatment process

In summary, the Lilliput treatment process provides the following advantages:

- Lilliput treated water is clean, clear, and 100% reusable;
- Consistently complies to the Department of Water Affairs and Forestry discharge standards;
- Compact design enables easy placement, which can be hidden or camouflaged with only a 10% footprint of other conventional systems;
- Few moving parts (two), requiring replacement every 3.5 – 4.5 years;
- All mechanical and electrical components are readily available of the shelf;
- Modular design, therefore there is no limit to the capacities Lilliput can handle;
- Exceptionally reliable;
- Minimal power requirements;
- The Lilliput system is not soil dependant therefore is able to function in a wide range of conditions;
- Simple to install, and simple to operate, requiring only a five minute maintenance check per week by a non-skilled person;
- Minimal human input;
- Biological process negates the need for excessive use of harsh chemicals;
- Can be installed as a new system, or as a retro-fit add-on;
- Lilliput plants are comprised of closed anaerobic and aerobic vessels therefore odourless and virtually silent (dB40);
- Environmentally friendly; and
- The owner of a Lilliput plant will save approximately 40% - 60% on their usual water usage, and will have the opportunity to recycle their own water and utilise it a second time, at virtually no cost to them.

It is currently unclear whether the treated effluent from the Lilliput system will be used for irrigation of the golf course or if it will be discharged into the Bloukrans River. In either case the applicant will have to apply for a water use licence to the Department of Water Affairs. To date this has not been undertaken. It is also recommended that a permeability test is undertaken by the applicant prior to the installation of the Lilliput System to determine the coefficient of the permeability of the soil to ensure that there is no potential for pollution of ground and surface water resources.

2.3.4 Electricity supply

There is an overhead Eskom power line in close proximity to the proposed development. The proposed clubhouse and pump for the Lilliput system could therefore tap into this line, since minimal power will be required for the proposed development.

However, the applicant has committed to using solar panels for the generation of electricity, should Eskom not be able to supply power to the proposed development.

2.3.5 Roads and road networks

The R67 runs along the southern cadastral boundary of the proposed development site and Belmont Valley road currently traverses the proposed site. General access to the proposed golf course will be from the existing Belmont Valley Road, however an additional access road will have to be constructed to the club house and parking area (Figure 2-8). This access road will be approximately 1 km in length and will be constructed in an area that has existing vehicle tracks and has been infested with alien vegetation. It will cross the Bloukrans River in an area where there previously was a causeway. This causeway will be re-constructed. The final design for the proposed causeway has not been completed and must incorporate sufficient culverts to allow for the flow requirements of the Bloukrans River. An application has been submitted to the Department of Water Affairs. The Department of Water Affairs is currently processing this application subject to various conditions (see Appendix A). No additional internal roads will be constructed.

2.3.6 Solid waste collection and disposal

It is anticipated that the proposed development will produce solid waste in the form of building rubble such as excavated soil and vegetation and excess concrete, bricks, etc. and general waste such as litter during the construction phase. All construction waste will be removed from site and disposed of at the nearest registered waste disposal site (Makana Municipality).

During the operational phase solid waste will mainly consist of general household wastes. Refuse will be collected and stored at a central point on the proposed development site. From here it will be collected by a private contractor on a weekly basis and disposed of at a registered waste disposal site.

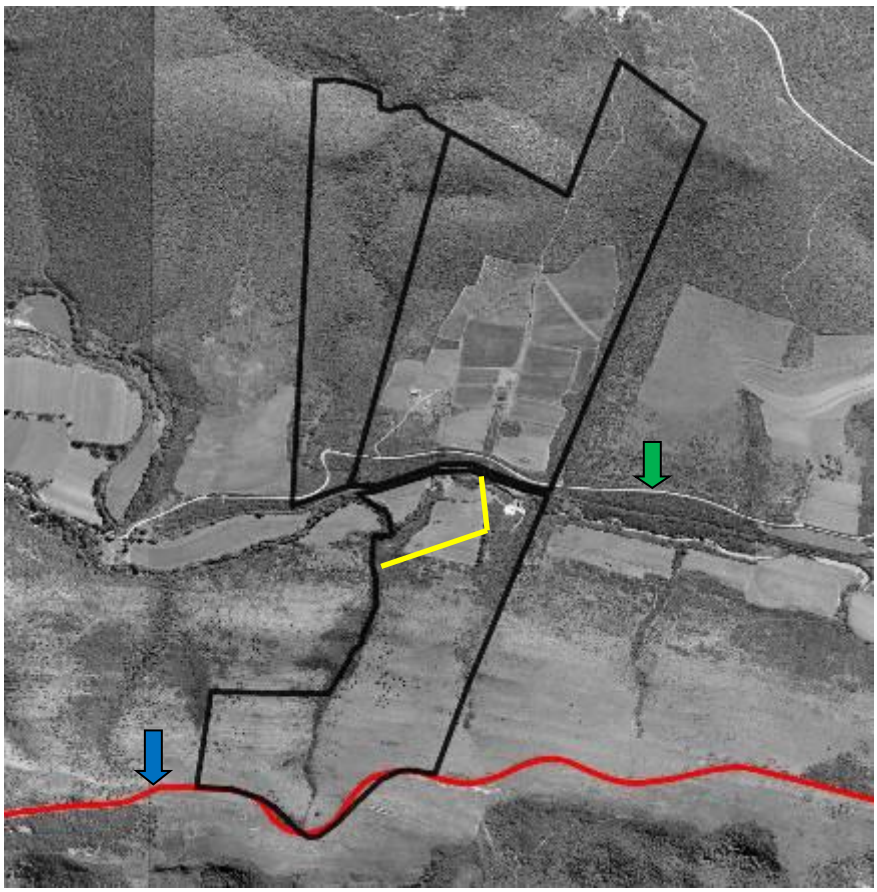

Figure 2-8: Existing road network. The R67 (blue arrow) runs along the southern cadastral boundary and Belmont Valley Road (green arrow) traverses the proposed site. The approximate location of the new access road is indicated in yellow.

3. RELEVANT LEGISLATION

According to regulation 31 (1) and (2) of the EIA regulations (2010), *A scoping report must include –*

1(f) an identification of all legislation and guidelines that have been considered in the preparation of the scoping report

(2) In addition, a scoping report must take into account any guidelines applicable to the kind of activity which is the subject of the application.

In line with the above-mentioned legislative requirement, the development of the proposed golf course described in Chapter 2 above will be subject to the requirements of a number of laws as follows:

3.1 The Constitution

This is the supreme law of the land. As a result, all laws, including those pertaining to the proposed development, must conform to the Constitution. The Bill of Rights - Chapter 2 of the Constitution, includes an environmental right (Section 24) according to which, everyone has the right:

a) To an environment that is not harmful to their health or well-being; and

b) To have the environment protected for the benefit of present and future generations, through reasonable legislative and other measures that:

(i) Prevent pollution and ecological degradation;

(ii) Promote conservation; and

(iii) Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

Relevance to the proposed golf course development:

- Obligation to ensure that the proposed development will not result in pollution and ecological degradation; and
- Obligation to ensure that the proposed development is ecologically sustainable, while demonstrating economic and social development.

3.2 The National Environmental Management Act (NEMA) (107 of 1998)

The objective of NEMA is: "*To provide for co-operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and procedures for coordinating environmental functions exercised by organs of state; and to provide for matters connected therewith*."

A key aspect of NEMA is that it provides a set of environmental management principles that apply throughout the Republic to the actions of all organs of state that may significantly affect the environment. The proposed development has been assessed in terms of possible conflicts or compliance with these principles. Section 2 of NEMA contains principles (see Box 3) relevant to the proposed project, and likely to be utilised in the process of decision making by DEA.

BOX 3: NEMA ENVIRONMENTAL MANAGEMENT PRINCIPLES

(2)	Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably.
(3)	Development must be socially, environmentally and economically sustainable.
(4)(a)	Sustainable development requires the consideration of all relevant factors including the following: i. That the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied; ii. That pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied;

	iii. That waste is avoided, or where it cannot be altogether avoided, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner.
(4)(e)	Responsibility for the environmental health and safety consequences of a policy, programme, project, product, process, service or activity exists throughout its life cycle.
(4)(i)	The social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed and evaluated, and decisions must be appropriate in the light of such consideration and assessment.
(4)(j)	The right of workers to refuse work that is harmful to human health or the environment and to be informed of dangers must be respected and protected.
(4)(p)	The costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment.
(4)(r)	Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure.

As these principles are utilised as a guideline by the competent authority in ensuring the protection of the environment, the proposed development should, where possible, be in accordance with these principles. Where this is not possible, deviation from these principles would have to be very strongly motivated.

NEMA introduces the duty of care concept, which is based on the policy of strict liability. This duty of care extends to the prevention, control and rehabilitation of significant pollution and environmental degradation. It also dictates a duty of care to address emergency incidents of pollution. A failure to perform this duty of care may lead to criminal prosecution, and may lead to the prosecution of managers or directors of companies for the conduct of the legal persons.

In addition NEMA introduced a new framework for environmental impact assessments, the EIA Regulations (2006) discussed previously.

Relevance to the proposed golf course development:

- The developer must be mindful of the principles, broad liability and implications associated with NEMA and must eliminate or mitigate any potential impacts.
- The developer must be mindful of the principles, broad liability and implications of causing damage to the environment.

3.3 The National Environment Management: Biodiversity Act (10 of 2004)

This Act provides for the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act 107 of 1998 (see Box 4 below). In terms of the Biodiversity Act, the developer has a responsibility for:

- The conservation of endangered ecosystems and restriction of activities according to the categorisation of the area (not just by listed activity as specified in the EIA regulations).
- Application of appropriate environmental management tools in order to ensure integrated environmental management of activities thereby ensuring that all developments within the area are in line with ecological sustainable development and protection of biodiversity.
- Limit further loss of biodiversity and conserve endangered ecosystems.

BOX 4: MANAGEMENT AND CONSERVATION OF SOUTH AFRICA'S BIODIVERSITY WITHIN THE FRAMEWORK OF NEMA

CHAPTER 4	
	Provides for the protection of species that are threatened or in need of national protection to ensure their survival in the wild; o to give effect to the Republic's obligations under international agreements regulating international trade in specimens of endangered species; and o ensure that the commercial utilization of biodiversity is managed in an ecologically sustainable way.
CHAPTER 5 (Part 2)	
Section 73	A person who is the owner of land on which a listed invasive species occurs must: a) notify any relevant competent authority, in writing, of the listed invasive species occurring on that land; b) take steps to control and eradicate the listed invasive species and to prevent it from spreading; and c) take all required steps to prevent or minimise harm to biodiversity.
Section 75	• Control and eradication of a listed invasive species must be carried out by means of methods that are appropriate for the species concerned and the environment in which it occurs. • Any action taken to control and eradicate a listed invasive species must be executed with caution and in a manner that may cause the least possible harm to biodiversity and damage to the environment. • The methods employed to control and eradicate a listed invasive species must also be directed at the offspring, propagating material and re-growth of such invasive species in order to prevent such species from producing offspring, forming seed, regenerating or re-establishing itself in any manner.

The objectives of this Act are to provide, within the framework of the National Environmental Management Act, for:

- The management and conservation of biological diversity within the Republic;
- The use of indigenous biological resources in a sustainable manner.

The Act's permit system is further regulated in the Act's Threatened or Protected Species Regulations, which were promulgated in February 2007.

Relevance to the proposed golf course development:

- The proposed development must conserve endangered ecosystems and protect and promote biodiversity;
- Must assess the impacts of the proposed development on endangered ecosystems;
- No protected species may be removed or damaged without a permit;
- The proposed site must be cleared of alien vegetation using appropriate means

3.4 The National Forests Act (84 of 1998)

The objective of this Act is to monitor and manage the sustainable use of forests. In terms of Section 12 (1) (d) of this Act and GN No. 1012 (promulgated under the National Forests Act), no person may, except under licence:

- Cut, disturb, damage or destroy a protected tree; or
- Possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree or any forest product derived from a protected tree.
- of any protected tree or any forest product derived from a protected tree.

Relevance to the proposed golf course development:

- If any protected trees in terms of this Act occur on site, the developer will require a licence from the DWAF to perform any of the above-listed activities.

3.5 National Heritage Resources Act (25 of 1999)

The protection of archaeological and palaeontological resources is the responsibility of a provincial heritage resources authority and all archaeological objects, palaeontological material and meteorites are the property of the State. "*Any person who discovers archaeological or palaeontological objects or material or a meteorite in the course of development must immediately report the find to the responsible heritage resources authority, or to the nearest local authority offices or museum, which must immediately notify such heritage resources authority*".

Relevance to the proposed golf course development:

- An archaeological impact assessment must be undertaken during the detailed EIR phase of the proposed project.
- No person may alter or demolish any structure or part of a structure, which is older than 60 years or disturb any archaeological or palaeontological site or grave older than 60 years without a permit issued by the relevant provincial heritage resources authority.
- No person may, without a permit issued by the responsible heritage resources authority destroy, damage, excavate, alter or deface archaeological or historically significant sites.

3.6 Atmospheric Pollution Prevention Act 45 of 1965

This Act is currently the central legislation for the prevention of air pollution. Part IV deals with dust control – "*Whenever dust originating on any land in a dust controlled area is causing a nuisance to persons residing or present in the vicinity of that land, the owner or occupier may be required to take the prescribed steps or adopt the "best practicable means" for the abatement of the dust*".
This Act will apply until the more recent National Environmental Management: Air Quality Act (see section 3.2.7 below) comes into force.

Relevance to the proposed golf course development:

- The "best practicable means" for the abatement of dust during construction if approved have to be taken.
- All appliances used for preventing or reducing to a minimum the escape into the atmosphere of noxious or offensive gases have to be properly operated and maintained and the best practice means for achieving this implemented.

3.7 National Environmental Management: Air Quality Act (39 of 2004)

As with the Atmospheric Pollution Prevention Act 45 of 1965, the objective of the new Air Quality Act is to protect the environment by providing the necessary legislation for the prevention of air pollution.

3.8 Occupational Health and Safety Act (85 of 1993)

The objective of this Act is to provide for the health and safety of persons at work (See Box 5 below). In addition, the Act requires that, "*as far as reasonably practicable, employers must ensure that their activities do not expose non-employees to health hazards*" (Glazewski, 2005: 575). The importance of the Act lies in its numerous regulations, many of which will be relevant to the proposed golf course development. These cover, among other issues, noise and lighting.

Relevance to the proposed golf course development:

- The developer must be mindful of the principles and broad liability and implications contained in the OHSA and mitigate any potential impacts.

BOX 5: HEALTH AND SAFTY OF PERSONS AT WORK ACCORDING TO THE OCCUPATIONAL HEALTH AND SAFETY ACT

8: GENERAL DUTIES OF THE EMPLOYERS TO THEIR EMPLOYEES	
(1)	Every employer shall provide and maintain, as far as is reasonably practicable, a working environment that is safe and without risk to the health of his employees.
(2)	Without derogating from the generality of an employer's duties under subsection (1), the matters to which those duties refer include in particular- a) The provision and maintenance of systems of work, plant and machinery that, as far as is reasonably practicable, are safe and without risks to health; b) Taking such steps as may be reasonably practicable to eliminate or mitigate any hazard or potential hazard to the safety or health of employees, before resorting to personal protective equipment; d) Establishing, as far as is reasonably practicable, what hazards to the health or safety of persons are attached to any work which is performed, any article or substance which is produced, processed, used, handled, stored or transported and any plant or machinery which is used in his business, and he shall, as far as is reasonably practicable, further establish what precautionary measures should be taken with respect to such work, article, substance, plant or machinery in order to protect the health and safety of persons, and he shall provide the necessary means to apply such precautionary measures; e) Providing such information, instructions, training and supervision as may be necessary to ensure, as far as is reasonably practicable, the health and safety at work of his employees; f) As far as is reasonably practicable, not permitting any employee to do any work or to produce, process, use, handle, store or transport any article or substance or to operate any plant or machinery, unless the precautionary measures contemplated in paragraphs (b) and (d), or any other precautionary measures which may be prescribed, have been taken; g) Taking all necessary measures to ensure that tire requirements of this Act are complied with by every person in his employment or on premises under his control where plant or machinery is used; h) Enforcing such measures as may be necessary in the interest of health and safety; i) Ensuring that work is performed and that plant or machinery is used under the general supervision of a person trained to understand the hazards associated with it and who have the authority to ensure that precautionary measures taken by the employer are implemented; and authority as contemplated in Section 37 (1) (b).
14: GENERAL DUTIES OF EMPLOYEES AT WORK **Every employee shall at work:-**	
(a)	Take reasonable care for the health and safety of himself and of other persons who may be affected by his acts or omissions;
(b)	As regards any duty or requirement imposed on his employer or any other person by this Act, cooperate with such employer or person to enable that duty or requirement to be performed or complied with;
(c)	Carry out any lawful order given to him, and obey the health and safety rules and procedures laid down by his employer or by anyone authorized thereto by his employer, in the interest of health or safety;
(d)	If any situation which is unsafe or unhealthy comes to his attention, as soon as practicable report such situation to his employer or to the health and safety representative for his workplace or section thereof, as the case may be, who shall report it to the employer; and
(e)	If he is involved in any incident which may affect his health or which has caused an injury to himself, report such incident to his employer or to anyone authorized thereto by the employer, or to his health and safety representative, as soon as practicable but not later than the end of the particular shift during which the incident occurred, unless the circumstances were such that the reporting of the incident was not possible, in which case he shall report the incident as soon as practicable thereafter.
15: DUTY NOT TO INTERFERE WITH, DAMAGE OR MISUSE THINGS **[S. 15 substituted by S. 3 of Act No. 181 of 1993.]**	
	No person shall intentionally or recklessly interfere with, damage or misuse anything which is provided in the interest of health or safety.

3.9 National Water Act (36 of 1998)

The Act regulates the protection, use, development, conservation, management and control of water resources in South Africa. The principal concerns in terms of the Act are the potential for the golf course development to pollute surface and groundwater resources, and to ensure that water is used as efficiently as possible.

According to Section 21 of the National Water Act a water use is defined broadly, and includes taking and storing water, activities which reduce stream flow, waste discharges and disposals, controlled activities (activities which impact detrimentally on a water resource), altering a watercourse, removing water found underground for certain purposes, and recreation. In general a water use must be licensed unless it is listed in Schedule 1, is an existing lawful use, is permissible under a general authorisation, or if a responsible authority waives the need for a licence. Therefore a Water Use License is required for the repair of the weir, the re-construction of the causeway and the abstraction of water from the Bloukrans River.

Relevance to the proposed golf course development:

19 (1) An owner of land, a person in control of land or a person who occupies or uses the land on which—
(a) any activity or process is or was performed or undertaken; or
(b) any other situation exists, which causes, has caused or is likely to cause pollution of a water resource, must take all reasonable measures to prevent any such pollution from occurring, continuing or recurring.

3.10 National Environmental Management: Waste Act (59 of 2008)

This legislation aims to enforce an integrated approach to waste management, with emphasis on prevention and reduction of waste at source and, where this is not possible, to encourage reuse and recycling in preference to disposal. Section 16 (Chapter 4) of this Act deals with the general duty in respect to waste management and emphasises that, "*A holder of waste must, within the holder's power, take all reasonable measures to:- avoid the generation of waste and where such generation cannot be avoided, to minimise the toxicity and amounts of waste that are generated; reduce, re-use, recycle and recover waste; where waste must be disposed of, ensure that the waste is treated and disposed of in an environmentally sound manner; manage the waste in such a manner that it does not endanger health or the environment or cause a nuisance through noise, odour or visual impacts; prevent any employee or any person under his or her supervision from contravening this Act; and prevent the waste from being used for an unauthorised purpose*". Chapter 4, Part 3 of this Act deals with reduction re-use and recovery of waste, Part 4 deals with waste management activities, Part 5 covers storage collection and transportation of waste, Part 6 deals with treatment, processing and disposal of wastes, Part 7 covers industry waste management plans and Part 8 deals with contaminated land. Chapter 5 covers all issues regarding the licensing of waste management activities.

3.10.1 National Waste Management Strategy, Norms and Standards

National standards

The Minister must, by notice in the *Gazette,* establish national standards for*:*

- the classification of waste;
- the provision of waste management services;
- waste avoidance, waste minimisation, recovery, re-use and recycling;
- the remediation of contaminated land; and
- waste treatment and disposal.

The Minister may, by notice in the *Gazette,* establish national standards for:

- the categorisation of waste;
- the regionalisation of waste management services;
- producer responsibility; and
- the collection and verification of waste management data.

Provincial standards

The MEC, by notice in the *Gazette* may establish provincial standards for–

- the provision of waste management services;
- the regionalisation of waste management services within the province;
- waste avoidance, waste minimisation, recovery, re-use and recycling, with the exception of standards that may have national implications; and
- waste disposal.

Local standards

A municipality in terms of a by-law –

- must establish service standards and levels of service for the collection of waste;
- may identify requirements in respect of the separation, compacting and storage of waste;
- may identify requirements for the management of waste, including requirements in respect of the avoidance of the generation of waste and the recovery, re-use and recycling of waste;
- the requirements in respect of the directing of waste to specific treatment and disposal facilities.

If national or provincial standards have been passed in terms of section 8 or 9, the municipality may not alter the national standard or provincial, except to make the requirements more stringent.

3.10.2 General duty in respect of waste management

Any holder of waste must take all reasonable measures to –

- avoid the generation of waste and where such generation cannot be avoided, to minimise the toxicity and amounts of waste that are generated;
- re-use, recycle or recover waste;
- where waste must be disposed of, to ensure that the waste is treated and disposed of in an environmentally sound manner;
- manage the waste in such a manner that it does not endanger health or the environment or cause a nuisance through noise, odour or visual impacts;
- within that person's power, prevent any other person from contravening a provision of this Act in respect of the waste; and
- take reasonable measures to prevent the waste from being used for an unauthorised purpose.

Subsection (1)(e) and (f) does not apply to the owner or occupier of premises for domestic waste which is produced on the property where such waste is collected by a municipality or municipal service provider. Any person who sells a product that may be used by the public and which will result in the generation of hazardous waste must take reasonable steps to inform the public of the impacts of that waste on human health and the environment.

The measures contemplated in this section may include measures to –

- investigate, assess and evaluate the impact of the waste in question on health and the environment;

- cease modify or control any act or process causing the pollution, environmental degradation or harm to health;
- comply with any prescribed standard or management practise;
- eliminate any source of pollution or environmental degradation; and
- remedy the effects of the pollution or environmental degradation.

3.10.3 General requirements for the storage of waste

Any person who stores waste must at least take steps, unless specified otherwise in this Act, to ensure that –

- the containers in which any waste is stored are intact and not corroded or in any other way rendered unfit for the safe storage of waste;
- measures are taken to prevent accidental spillage or leaking;
- the waste cannot be blown away;
- nuisances such as odour, visual impacts and breeding of vectors do not arise; and
- pollution of the environment and harm to health are prevented.

3.10.4 Collection of waste

No person may allow waste to be removed from his or her premises unless the waste is collected by –

- a municipality or municipal service provider;
- a person authorised by law to collect that waste, where authorisation is required; or
- a person who is not prohibited from collecting that waste.

3.10.5 Separation, treatment, processing, transformation and disposal

No person may establish, provide or operate any waste handling, treatment or disposal facility or close any such facility which was not permitted when this Act came into effect–

- without obtaining a waste management licence; or
- without complying with the relevant standard.

3.10.6 Prohibition of unauthorised disposal

No person may –

- dispose of waste, or knowingly cause or permit waste to be disposed of in or on any land or at any facility unless the disposal of such waste is authorised by law; or
- dispose of waste in a manner likely to cause pollution of the environment or harm to human health.

It shall be a defence for a person charged with an offence under this section to prove that –

- the waste was generated as a result of normal household activities and that the municipality does not render a collection service in that area and that the most environmentally and economically feasible option for the management of the waste was adopted; or
- the disposal of the waste occurred as a result of an emergency beyond his control.

3.10.7 Licensing Of Waste Management Activities

Licensing authority

The department is the licensing authority where –

- unless otherwise indicated by the Minister by notice, the waste management activity involves the establishment, operation, cessation or closure of a facility at which hazardous waste is to be or has been stored, treated or disposed of;

- the waste management activity involves obligations in terms of an international obligation, including the importation or exportation of hazardous waste;
- the waste management activity will be undertaken by –
    - a national department;
    - a provincial department responsible for environmental affairs; or
    - a statutory body, excluding any municipality, performing an exclusive competence of the national sphere of government; or
- the waste management activity will affect more than one province or traverse international boundaries.

With the exception of the instances set out in subsection (1), the provincial department responsible for environmental affairs where the waste management activity will be, or is being, carried out, is the licensing authority.

The Minister and an MEC may agree that applications for waste management licences with regard to any waste management activity or class of waste management activity –

- contemplated in subsection (1) may be dealt with by the provincial department responsible for environmental affairs; or
- in respect of which the provincial department responsible for environmental affairs has been identified as the licensing authority, may be dealt with by the department.

The licensing authority may dispense with the requirement for a waste management licence if it is satisfied that the purpose of this Act will be met by the grant of a licence, permit or other authorisation under any other law.

In the interests of co-operative governance, a licensing authority may promote arrangements with other organs of state to combine their respective licence requirements into a single licence requirement.

Implications for the proposed golf course development:

- All reasonable measures must be taken to avoid the generation of waste and where such generation cannot be avoided, minimise the toxicity and amounts of waste that are generated; reduce, re-use, recycle and recover waste; where waste must be disposed of, ensure that the waste is treated and disposed of in an environmentally sound manner;
- Manage the waste in such a manner that it does not endanger human health or the environment or cause a nuisance through noise, odour or visual impacts.
- Prevent any employee or any person from contravening this Act; and prevent the waste from being used for an unauthorised purpose.

3.11 Hazardous Substances Act (15 of 1973)

The Act aims to manage hazardous substances. It is the principal national legislation that controls the transportation, and manufacturing, storage, handling, treatment or processing facilities for any substance that is dangerous or hazardous (Groups I-IV). Specific regulations governing the conveyance of hazardous substances, including Group I substances, by road may also be relevant.

Implications for the proposed golf course development:

- Manage the hazardous waste in such a manner that it does not endanger human health or the environment.
- Prevent the waste from being used for an unauthorised purpose.

3.12 The Environment Conservation Act (73 of 1989)

The purpose of this Act is to provide for the effective protection and controlled utilization of the natural environment governed by the following regulations:

Protection of the natural environment:

- An area can be declared by a competent authority to be a protected natural environment.
- Every owner/holder of land situated within a declared protected natural environment shall comply with directions issued by the competent authority.

Control of activities which may have a detrimental effect on the environment

- No person shall undertake an activity or cause an activity which may have a detrimental effect on the environment without written consent from the competent authority
- Such land activities include:
    - Land use and transformation;
    - Water use and disposal;
    - Resource removal, including natural living resources;
    - Resource renewal;
    - Agricultural processes;
    - Industrial processes;
    - Transportation;
    - Energy generation and distribution; and
    - Recreation.

Implications for the proposed golf course development:

- The developer must be mindful of the principles, broad liability and implications associated with the ECA and must eliminate or mitigate any potential impacts.
- The developer must be mindful of the principles, broad liability and implications of causing damage to the environment.

3.13 Nature and Environmental Conservation Ordinance (19 of 1974)

The purpose of this ordinance is to consolidate and amend the laws relating to nature and environmental conservation. This ordinance provides a schedule of endangered and protected wild animals and flora.

The competent authority may:

- Establish a provincial nature reserve on any land under his control or management; and
- By agreement or expropriation acquire any land which he considers necessary and suitable for the purpose of establishing a provincial nature reserve thereon.

Responsibility of a private nature reserve owner:

- Manage, control and develop such reserve for the propagation, protection and preservation of fauna and flora

Implications for the proposed golf course development:

- If any fauna and/or fauna listed in terms of the Nature and Environmental Conservation Ordinance are found on site the appropriate permits will have to be acquired for the removal thereof.

3.14 Conservation of Agricultural Resources Act (43 of 1983)

The purpose of this Act is to provide for control over the utilization of the natural agricultural resources in order to promote the conservation of the soil, the water sources and the vegetation and the combating of weeds and invader plants.

This is achieved by

- Production potential of land is maintained,
- Preventing and combating erosion,
- Preventing and combating weakening or destruction of the water sources, and
- Protecting vegetation and combating of weeds and invader plants.

The Act provides a list of declared weeds and invader plants as well as indicators of bush encroachment.

In terms of weeds and invader plants:

- A land user shall control any category 1 plants that occur on any land or inland water surface.
- No person shall, except in or for purposes of a biological control reserve –
    - Establish, plant, maintain, multiply or propagate weeds and invader plants;
    - Import or sell propagating material of category weeds and invader plants; and
    - Acquire propagating material of weeds and invader plants

Implications for the proposed golf course development:

- If any declared weed and/or invader species listed in terms of this Act is present on site, it will have to be removed.

3.15 Municipal by-laws and planning instruments

There will be certain requirements related to the health and safety during construction and approval of method statements, particularly for excavation work. Certain activities related to the proposed development may, in addition to National legislation, be subject to control by municipal by-laws including the Makana Municipality and Cacadu District Municipality Integrated Development Plans (IDPs)

3.15.1 Makana Local Municipality IDP

According to the Makana Local Municipality (NLM) Integrated Development Plan (IDP) Review (2011/12) there is a need to develop recreational facilities such as sports facilities for youth in urban and rural areas, as there is a lack of such in the majority of areas. Development of such facilities will allow for the exploration of youth talent in sport, music and other cultural activities. However, the major constraint to investment is lack of financial resources in urban areas and availability of land in rural areas. In addition to this the existing golf course currently falls within the urban edge.

The land swap between Belmont Dev. Co. and the golf club will therefore enable land within the urban edge to become available for urban development. According to the IDP Makana Municipality's challenges of strategic focus areas have been identified and distilled over a number of years. Due to the lack of resources to address some of the strategic focus areas, most of the strategic issues still remain relevant to date. For the next financial year the municipality will focus on a number of these key issues of which addressing the housing backlog within the area and fragmented spatial planning in urban areas are priorities.

Other priorities that have emerged from the consultation processes and shaped the recent IDP include the provision of quality housing, provision of community amenities and facilities, development, provision and maintenance of services and poverty eradication and job creation.

3.15.2 Makana Local Municipality SDF

According to the Makana Municipality SDF the considerable tourism potential of the region should be developed in an effort to broaden the tourism and recreation base of the region. Plans to extend these facilities should be encouraged as they serve both the development of tourism opportunities as well as the protection of natural assets. The existing golf course is not very scenic and the potential of it as a tourist attraction is therefore limited. Belmont Valley on the other hand provides this scenic component. Furthermore, the proposed development of the golf course will be limited mainly to fallow lands, leaving the natural vegetation intact. In addition to this the existing golf course currently falls within the urban edge. The land swap between Belmont Dev. Co. and the golf club will therefore enable land within the urban edge to become available for urban development.

According to the Cacadu District Municipality SDF (2007) settlements that are located within the district vary in scale and more importantly differ in terms of areas of functionality. The Makana Municipality includes three nodes (Grahamstown, Alicedale and Riebeeck East). The proposed development site falls in the Grahamstown node. The Cacadu SDF classified Grahamstown as Level 3 (involves the provision of adequate funding to strategically targeted development zones which have development potential) while the remaining nodes are classified as Level 1 (Fulfils basic human rights in the provision of basic services to both urban and rural areas, at a minimum level in terms of available resources). Due to Grahamstown's rich historical background and high population growth (especially students) housing within the area is in high demand. According to the Makana Municipality SDF (2008) the housing backlog, increase in the housing demand and the total future housing demand is reflected below:

Table 3-1: Housing need within the Makana Municipal Area

Settlement	Housing Backlog	Increase in households at 2012	Increase in households at 2020
Grahamstown	12000	500	2000
Alicedale	500	50	150
Riebeeck East	500	25	69
Rural	Unknown	26	80

From the above table it is clear that there is a need for housing developments within the greater Grahamstown area. The proposed development site falls outside the urban edge and is therefore not ideal for urban development. However, if the land swap is permitted to occur land will become available within the urban edge for the development of residential and/or commercial development.

3.16 Possible benefits of the development to the local community

The construction of the new golf course will create tourism opportunities (during the operational phase) as well as employment opportunities (both during the construction and operational phases of the project). Furthermore, the proposed land swap between Belmont Dev. Co. and the golf club will result in the supply of much needed housing opportunities to residents and students within the urban edge of Grahamstown.

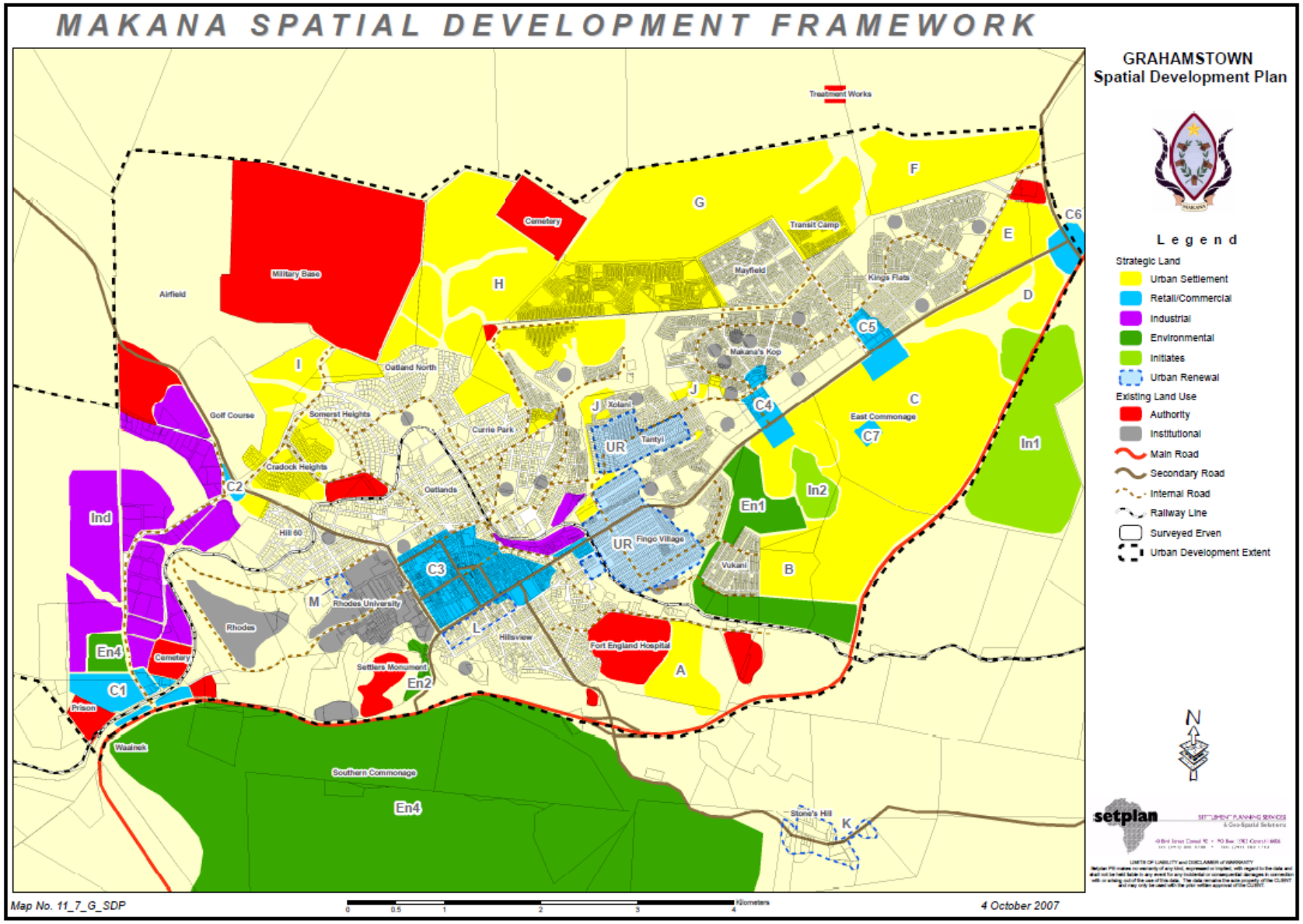

Figure 3-1: Makana Municipality Spatial Development Framework: Desired Spatial Form. Note: The proposed development lies outside the scope of this map, i.e. outside the urban edge.

4. DESCRIPTION OF THE AFFECTED ENVIRONMENT

According to regulation 31 (2) of the EIA regulations (2010), *An environmental impact report must include –*
(d) a description of the environment that may be affected by the activity and the manner in which the physical, biological, social, economic and cultural aspects of the environment my be affected by the proposed activity.

In line with the above-mentioned legislative requirement, this chapter provides a description of the natural and socio-economic environments that could potentially be impacted by the proposed golf course development.

4.1 Climate

Due to the location of the study area at the confluence of several climatic regimes, namely temperate and subtropical, the Eastern Cape Province of South Africa has a complex climate. There are wide variations in temperature, rainfall and wind patterns, mainly as a result of movements of air masses, altitude, mountain orientation and the proximity of the Indian Ocean.

The Makana region falls in the heart of three major transitional climatic regions:

- From the south-western region there is a maritime influence of winter rainfall. In this region it changes to spring and autumn rainfall with south easterly winds bringing torrential rains which are very variable and inconsistent.
- From Grahamstown north-eastwards the rainfall changes to a general summer rainfall.
- The interior south of the Winterberg is affected by both these climatic patterns, with cold fronts and little winter rain, but summer rain from sporadic thunder showers.

Winds and alternating cold and warm fronts thus make for a very variable climate throughout the region. Grahamstown normally receives approximately 466mm of rainfall per year and because it receives most of its rainfall during winter it has a Mediterranean climate. Grahamstown receives the lowest rainfall (16mm) in July and the highest (57mm) in March. The monthly distribution of average daily maximum temperatures indicates that the average midday temperatures for Grahamstown range from 18.9°C in July to 26.8°C in February. The region is the coldest during July when the mercury drops to 5.6°C on average during the night.

4.2 Topography

The Eastern Cape Province contains a wide variety of landscapes, from the stark Karoo (the semi-desert region of the central interior) to mountain ranges and gentle hills rolling down to the sea. The climate and topography give rise to the great diversity of vegetation types and habitats found in the region. The mountainous area on the northern border forms part of the Great Escarpment. Another part of the escarpment lies just north of Bisho, Somerset East and Graaff-Reinet. In the south of the province, the Cape Folded Mountains start between East London and Port Elizabeth and continue westward into the Western Cape. As is the situation in KwaZulu-Natal, the Eastern Cape is characterised by a large number of short, deeply incised rivers flowing parallel to each other.

The proposed development site consists of two ridges (at an altitude of 665 and 620 m.a.s.l respectively) and a central valley (at an altitude of 444 m.a.s.l.) through which the Bloukrans River drains.

4.3 Geology and Soils

Grahamstown is situated in the eastern part of the Cape Fold Belt and is underlain mainly by rocks of the Witteberg Group of the Cape Supergroup, and the Dwyka and Ecca groups of the Karoo Supergroup (Figure 4-1).

In the general area, the oldest rocks of the Cape Supergroup are the shales and sandstones of the Weltevrede Formation, overlain by resistant quartz arenites of the Witpoort Formation. These quartzites are overlain by fine-grained shales and thin sandstones of the Lake Mentz and Kommadagga subgroups (Jacob *et al.*, 2004). The published geological map of the Grahamstown region (Council for Geoscience, 1995) does not indicate the presence of the Kommadagga Subgroup in the Grahamstown area (Figure 4-1). However, the Miller, Swartwaterspoort and Soutkloof formations of the Kommadagga Subgroup crop out west of Grahamstown, as well as the lowermost Dirkskraal Formation, immediately below the Dwyka Group. The rocks in the Kommadagga Subgroup are mainly shales, with minor greywacke and arenite sandstone units. Feldspar content increases upward in these rocks near the base of the Dwyka Group, reflecting cooler and drier conditions at the onset of glaciation.

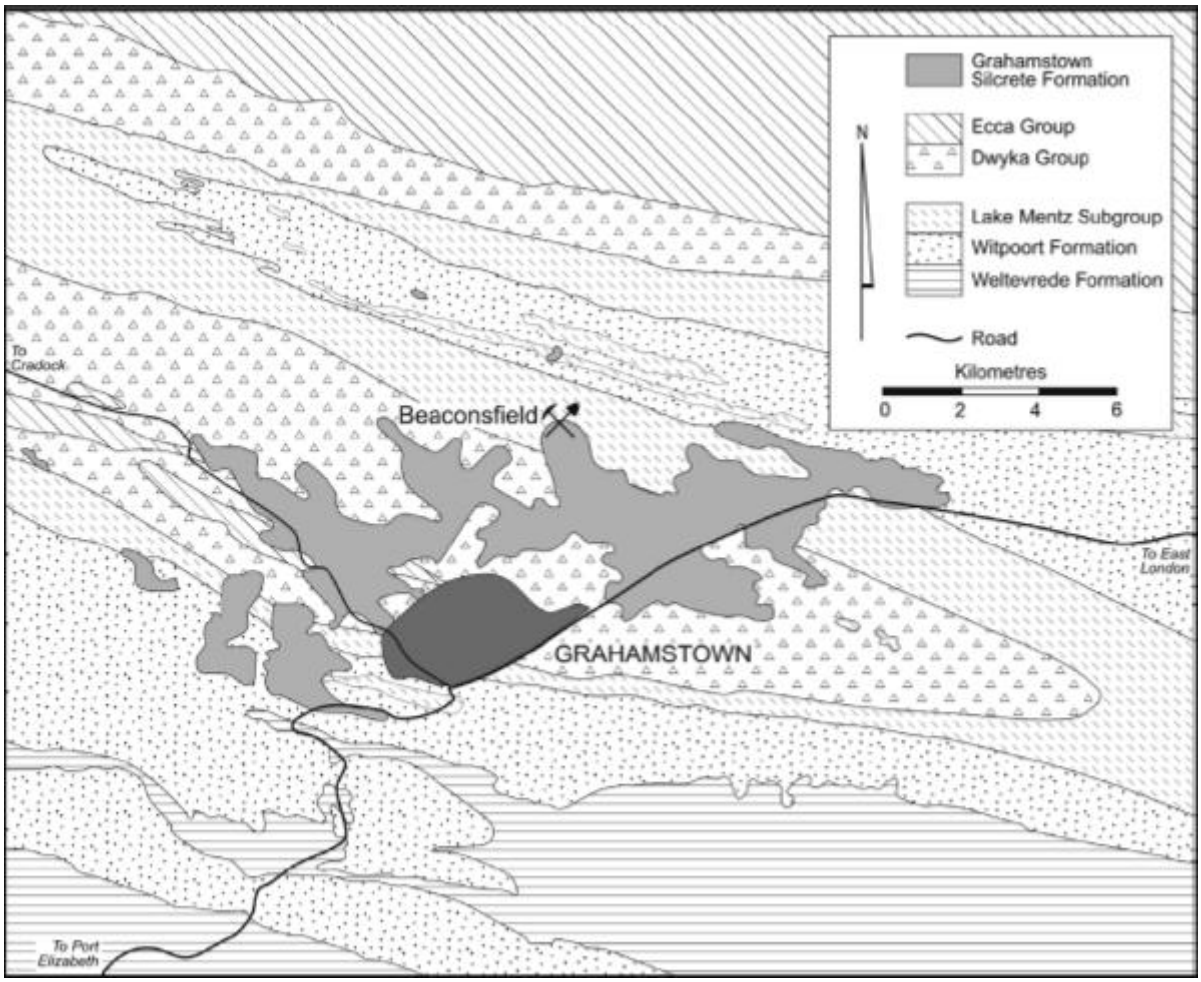

Figure 4-1: Simplified geological map of Grahamstown and the surrounding areas (adapted from the 1:250000 scale sheet 3326 Grahamstown).

The Witteberg Group rocks are overlain by rocks of the Dwyka Group, the basal unit of the Karoo Supergroup. The contact generally is poorly exposed but probably is paraconformable (Jacob *et al*., 2005). The Dwyka consists mainly of glacial diamictite and is composed of a variety of angular to rounded clasts of various igneous and sedimentary rocks set in a fine-grained, dark, massive argillaceous matrix. The overlying argillaceous and arenaceous rocks of the Ecca Group occur mainly to the north of the area. In the area around Grahamstown, the Dwyka Group forms a syncline with a folded axial trace trending east south east (ESE) (Figure 4-1). This syncline plunges at a low angle to the west north west (WNW). To the north and south of the syncline, quartzite ridges of the Witpoort Formation form the higher-lying hills that enclose the area where the Grahamstown peneplain was developed. The peneplain varies in altitude from 620 to 660m above sea level. The original peneplain extended more than 300 km^2. However, only a remnant, approximately 34 km^2, remains. Remnants of this peneplain owe their preservation to the resistant

layer of silcrete, which hinders erosional destruction. Clay deposits underlie the peneplain and represent mainly the deeply weathered profile that developed during Cretaceous to Tertiary times.

According to the AGIS database the simplified geology on site consists of the Dwyka Group (Figure 4-2).

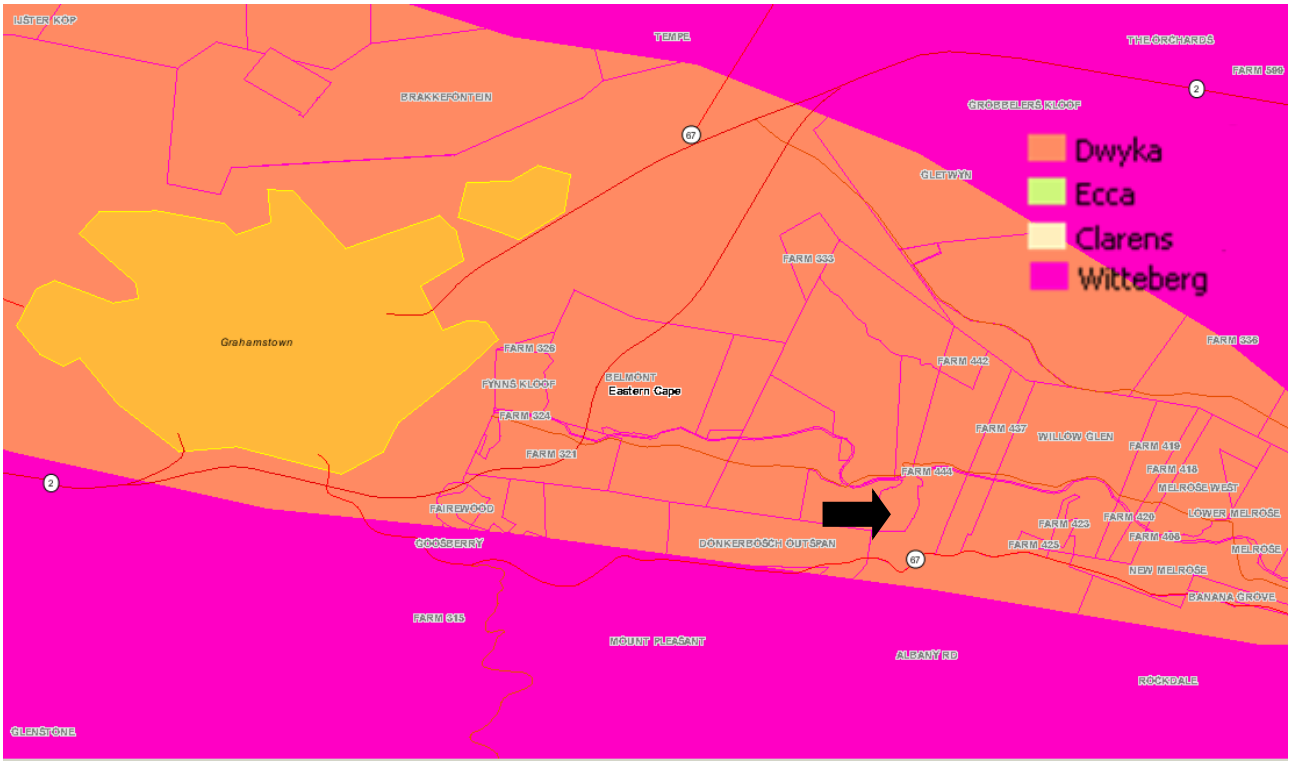

Figure 4-2: Simplified geological map of Grahamstown and the surrounding areas according to the AGIS database

4.4 Vegetation and Floristics

The vegetation of the Eastern Cape is complex and is transitional between the Cape and subtropical floras and many taxa of diverse phytogeographical affinities reach the limits of their distribution in this region. The region is best described as a tension zone where four major biomes converge and overlap (Lubke *et al.* 1988). The dominant vegetation is Succulent Thicket (Spekboomveld or Valley Bushveld), a dense spiny vegetation type unique to this region. While species in the canopy are of subtropical affinities, and generally widespread species, the succulents and geophytes that comprise the understorey are of karroid affinities and are often localised endemics.

The Makana Municipal area is a region of floral transition and complexity, as it forms a major climatic, topographical, geological and pedological (soil) transition zone where four phytogeographical regions (plant regions) converge. The Cape floral elements extend eastwards along the Cape mountains and diminish in abundance from Grahamstown to the east. The Tongoland-Pondoland flora enters the region along the east coast, and thicket vegetation penetrates up the river valleys. The succulent and sub-desert shrublands of the Karoo-Namib region extend down the dry river valleys from the arid interior. Afromontane elements of grassland and forest vegetation types extend down the mountains of Africa. In many of the plant communities of the area, a great complexity of floral elements is evident, and the area is described as a phytochorologically mixed flora. This means that the area is rich in plant diversity, with numerous interesting plants from a range of plant regions.

Albany, honouring the Duke of York, was the name given to the region (formerly called Zuurveld) around Grahamstown in 1814. This name has been used by botanists and phytogeographers to

recognise a centre of endemism, an area with unusually high concentrations of plant species with restricted distributions (van Wyk and Smith, 2001). The Albany Centre is an important area of succulent endemism, many of which are associated with the Xeric thicket vegetation in the region.
As described above, Grahamstown falls within the Albany Centre of Floristic Endemism; also known as the Albany Hotspot (Figure 4-3). This is an important centre for plant taxa, and, according to van Wyk and Smith (2001), contains approximately 4000 vascular plant species with approximately 15% either endemic or near-endemic (Victor and Dold, 2003). This area was delimited as the '*region bounded in the west by the upper reaches of the Sundays and Great Fish River basins, in the east by the Indian Ocean, in the south by the Gamtoos–Groot River basin and in the north by the Kei River basin*' (Victor and Dold, 2003)

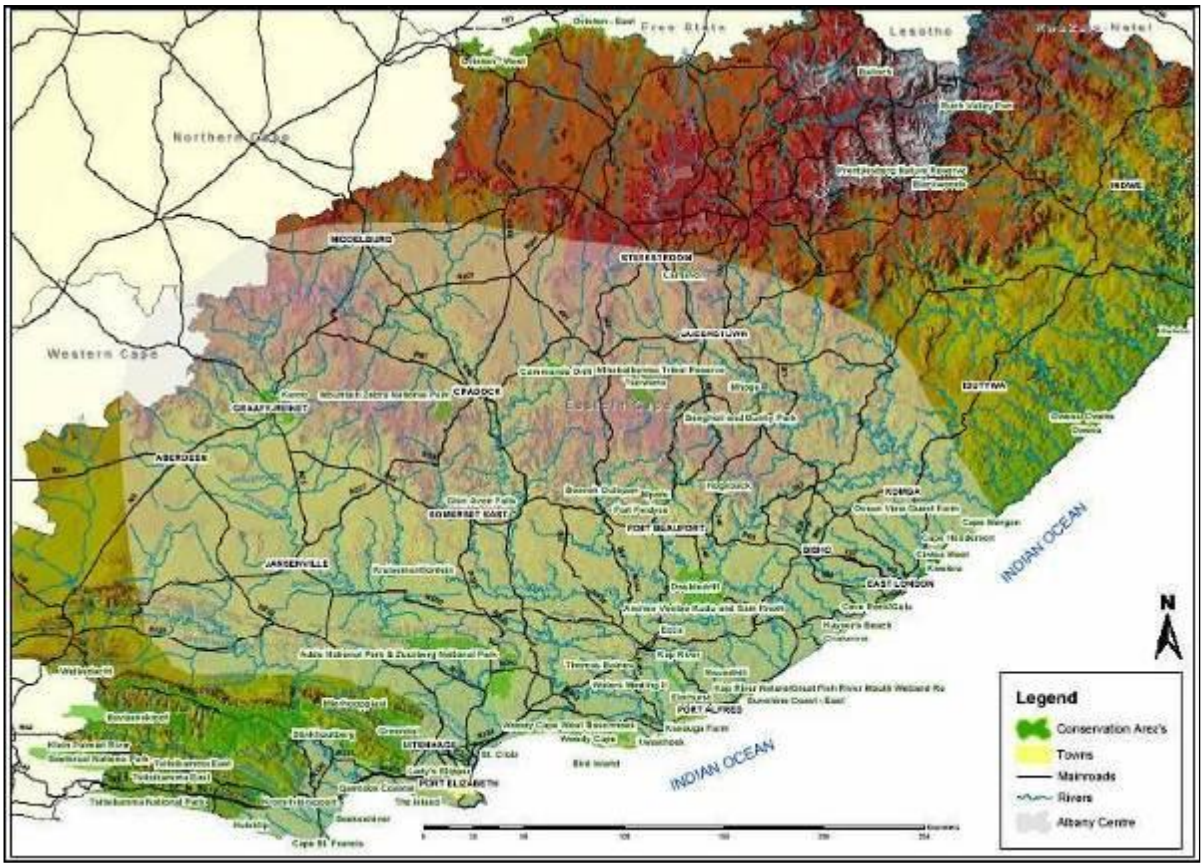

Figure 4-3: The Albany Centre of Endemism, also known as the 'Albany Hotspot', has long been recognised as an important centre of plant species diversity and endemism (Source: van Wyk and Smith 2001).

According to Mucina and Rutherford (2006) the vegetation on the proposed development site contains four vegetation, types, namely Kowie Thicket, Bisho Thornveld, Suurberg Shale Fynbos and Suurberg Quartzite Fynbos (Figure 4-4).

Kowie Thicket is restricted to river valleys in the Eastern Cape Province. It occurs mainly on steep and north-facing (dry) slopes. These tall thickets are dominated by succulent euphorbias and aloes with a thick understory composed of thorny shrubs, woody lianas (*Capparis, Secamore, Rhoicissus, Aloe*), and shrubby succulents (*Crassulaceae, Asphodelaceae*). The moister south-facing slopes support thorny thickets dominated by low evergreen trees (*Azima, Carissa, Gymnosporia, Putterlickia*) with fewer succulent shrubs and trees. The herbaceous layer is poorly developed (Mucina and Rutherford 2006). Kowie Thicket is listed as Least Threatened, with a conservation target of 19%. Approximately 5% is statutorily conserved and 14% is conserved in private conservation areas. Approximately 7% is transformed, primarily by cultivation. This vegetation type is the core of the Albany Thicket Biome and the major florisitc node of the Albany Centre of endemism (Mucina and Rutherford 2006).

Bisho Thornveld is limited to the Eastern Cape Province inland from the coast from Mthatha to north of East London as far as Fort Beaufort, and also occurs near Grahamstown (Mucina and Rutherford 2006). Bhisho Thornveld occurs on undulating plains and shallow drainage valleys. It comprises open savannah characterised by small trees of *Acacia natalitia* with a short to medium, dense, sour grassy understory, usually dominated by *Themeda triandra*. A diversity of other woody species may occur, increasing under conditions of overgrazing. The vegetation type is wide-ranging and fire and grazing are important determinants (Mucina and Rutherford 2006). Bisho Thornveld is classified as 'Least Threatened'. Currently the conservation target is 25%, with only 0.2% statutorily conserved and 2% privately conserved. Approximately 20% has been transformed, mainly for cultivation, urban development and/or plantations (Mucina and Rutherford 2006).

Suurberg Shale Fynbos is restricted to the Eastern Cape Province and occurs on low mountains or hills. It supports low to medium high, closed, ericoid shrubland or grassland, with closed restioid and/or grass understory. Graminoid fynbos, with localised patches of dense proteoid fynbos, also occurs. This vegetation type is very similar to Suurberg Quartzite Fynbos. Suurberg Shale Fynbos is listed as Least Threatened, with a conservation target of 23% and approximately 46% statutorily conserved. Approximately 1% has been transformed (Mucina and Rutherford 2006). Suurberg Quartzite Fynbos occurs in the Eastern Cape Province along the Suurberg, Somerset East and Alicedale and around Grahamstown. It occurs on low rounded hills and mountains and comprises a low to medium high, closed, ericoid, shrubland or grassland, with a closed restioid and/or grass understory.

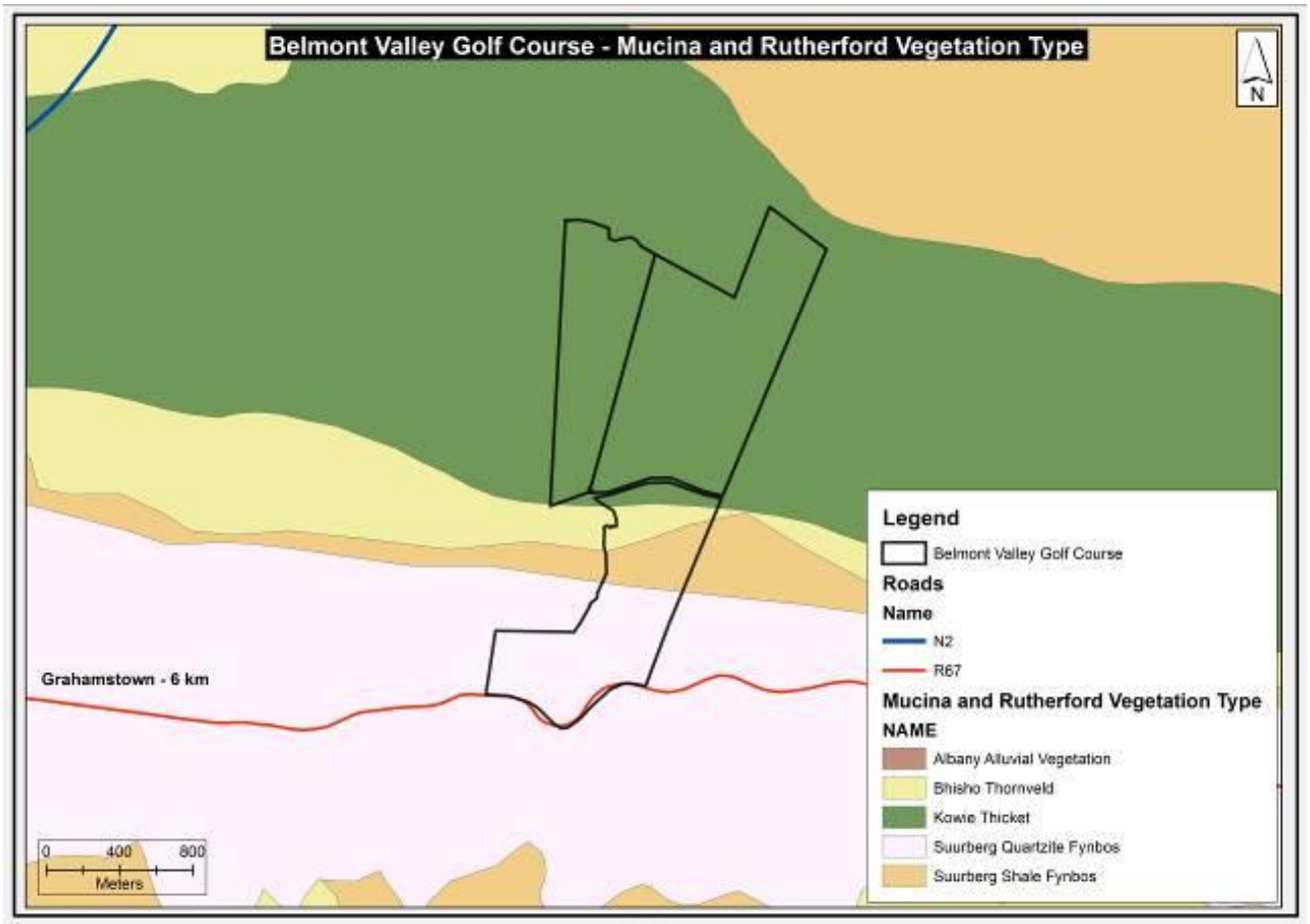

Figure 4-4: Classification of the vegetation type according to Mucina and Rutherford (2006).

Suurberg Quartzite Fynbos or Grassy fynbos is the most common constituent with localised patches of proteoid and ericaceous fynbos. South-facing slopes always contain fynbos whereas north-facing slopes are dominated by grassland. Suurberg Quartzite Fynbos is listed as Least Threatened. The conservation target is 23%, with 15% statutorily conserved and 16% privately conserved. Only 1% has been transformed for cultivation although over burning has become an issue and leads effectively to transformation (Mucina & Rutherford 2006).

The STEP Project covers the south-eastern Cape region, which extends from the Kei River to Riversdale. The project area covers the unique, indigenous vegetation type known as thicket, with the aim being to assess the region's biodiversity. The assessment measured how much of the thicket vegetation had been damaged or destroyed through anthropogenic impacts and determined the degree to which biodiversity is endangered in different areas. The project aims to guide the necessary but destructive development away from areas of endangered biodiversity and promote sustainable land use.

STEP (2006) classifies the vegetation on the site as Grahamstown Grassland Thicket, Albany Thicket and Zuurberg Grassy Thicket (Figure 4-5).

Grahamstown Grassland Thicket consists of thicket clumps that are typical of Albany Thicket, and contain taaibos (*Rhus pallens*), katdoring (*Scutia myrtina*), kiepersol (*Cussonia spicata*) and poison peach (*Diospyros dicrophylla*) (Pierce and Mader 2006). The grassland matrix has many fynbos elements (*Erica* sp and *Restio triticeus*) as well as numerous rare localised endemic species, such as the genus *Brachystelma*. Grahamstown Grassland Thicket is listed as Least Threatened by STEP (Pierce and Mader 2006).

Figure 4-5: Classification of the vegetation type according to STEP (2006).

Albany Thicket tends to be very forest-like in places. It is dominated by spike thorn (*Gymnosporia buxifolia*), wild olive (*Olea africana* subsp. *africana*), bosboerboon (*Schotia latifolia*) and false current (*Allophylus decipiens*). The tree euphorbia, *Euphorbia triangularis*, is typically present, as is the turkey-berry tree (*Canthium inerme*). Albany Thicket is listed as Least Threatened by STEP (Pierce & Mader 2006).

Zuurberg Grassy Fynbos is mostly very grassy with restios (*Restio triticeus*). Proteas (*Protea nerriifolia* and *Protea repens*) are locally common on moist sites but conebushes (invariably *Leucodendron salignum*) are usually present. Rabbits ears (*Oldenbergia grandis*) are characteristically present on quartzite outcrops. Zuurberg Grassy Fynbos is listed as Least Threatened by STEP (Pierce & Mader 2006).

In terms of STEP (2006), a feature that has much more extant habitat than is needed to meet its target, is considered Currently Not Vulnerable OR Least Threatened (Table 4-1).

For Currently Not Vulnerable vegetation, STEP recommends three land use management procedures, these include:

1. Proposed disturbance or developments should preferably take place on portions which have already undergone disturbance or impacts rather than on portions that are undisturbed or unspoilt by impacts.
2. In response to an application for a non-listed activity which will have severe or large-scale disturbance on a relatively undisturbed site (unspoilt by impacts), the Municipality should first seek the opinion of the local conservation authority.
3. For a proposed "listed activity", EIA 2.1 authorisation is required by law.

From a Spatial planning (forward planning – Spatial Development Framework (SDF's)) point of view, for Currently Not Vulnerable vegetation, STEP presents two restrictions and gives examples of opportunities. The two spatial planning restrictions are as follows:

1. Proposed disturbance or developments should preferably take place on portions which have already undergone disturbance or impacts rather than on portions that are undisturbed.
2. In general, Class IV land can withstand loss of disturbance to natural areas through human activities and developments.

Opportunities depend on constraints (such as avoidance of spoiling scenery or wilderness, or infra-structure limitations) and the extent to which Class IV land can withstand loss of, or disturbance to, natural areas. Within the constraints, this class may be suitable for a wide range of activities (e.g. extensive urban development, cultivation, tourist accommodation, ecotourism and game faming).

Table 4-1: Summary of the STEP Project conservation priorities, classifications and general rules (Pierce, 2003).

Conservation priority	Classification	Brief Description	General Rule
IV	Currently not vulnerable area	Ecosystems which cover most of their original extent and which are mostly intact, healthy and functioning	Depending on other factors, this land can withstand loss of natural area through disturbance or development
III	Vulnerable area	Ecosystems which cover much of their original extent but where further disturbance or destruction could harm their health and functioning	This land can withstand limited loss of area through disturbance or development
II	Endangered area	Ecosystems whose original extent has been severely reduced, and whose health, functioning and existence is endangered	This land can withstand minimal loss of natural area through disturbance or development

Conservation priority	Classification	Brief Description	General Rule
I Highest Priority	Critically endangered area	Ecosystems whose original extent has been so reduced that they are under threat of collapse or disappearance. Included here are special ecosystems such as wetlands and natural forests	This Class I land can NOT withstand loss of natural area through disturbance or development. Any further impacts on these areas must be avoided. Only biodiversity-friendly activities must be permitted.
High Priority	Network Area	A system of natural pathways e.g. for plants and animals, which if safeguarded, will ensure not only their existence, but also their future survival.	Land in Network can only withstand minimal loss of natural area through disturbance and developments
Highest Priority	Process Area	Area where selected natural processes function e.g. river courses, including their streams and riverbanks, interfaces between solid thicket and other vegetation types and sand corridors	Process area can NOT withstand loss of natural area through disturbance and developments
	Municipal reserve, nature reserve, national parks	Protected areas managed for nature conservation by local authorities, province or SA National Parks	No loss of natural areas and no further impacts allowed
Dependant on degree on existing impacts	Impacted Area	Areas severely disturbed or destroyed by human activities, including cultivation, urban development and rural settlements, mines and quarries, forestry plantations and severe overgrazing in solid thicket.	Ability for this land to endure further disturbance of loss of natural area will depend on the land's classification before impacts, and the position, type and severity of the impacts

In addition to the endemic taxa, there are also a number of species expected to be found in the study area, some of which are listed as protected by various conservation bodies. The list is not complete as many species and taxa require additional study. The taxa with many data deficient species include specifically the Mesembranthemaceae family, which Victor and Dold (2003) estimate would have 72 species that should, but do not, occur on the list. Thus all species of the family are included as Species of Special Concern (SSC). Victor and Dold (2003) also include a number of other taxa as important; including members of the Amaryllidaceae (Amaryllids), Iridaceae (Irises), Orchidaceae (Orchids) and Apocynaceae (Lianas), as well as members of the genus *Aloe*.

Potential Species of Special Concern (PSSC) include all those plants listed in terms of the IUCN, CITES and both national and provincial legislation that may occur in the area of study. If any of these species are found to occur on site, they are given the status of Confirmed Species of Special Concern (CSSC). Such a list will be produced in the EIA phase of the proposed development. The list of PSSC includes over 133 species which are listed individually by Victor and Dold (2003), the IUCN red data list, the South African National Biodiversity Institute (SANBI), the Forests Act and the Provincial Nature Conservation Ordinance (PNCO) 16 of 1974 for the Eastern Cape. In addition, the PNCO lists eight plant families and six plant genera that are afforded blanket protection throughout the province.

Details on the Eastern Cape Biodiversity Conservation Plan (ECBCP) is provided in section 4.6 below.

4.5 Fauna

4.5.1 Habitats

Lack of pristine terrestrial habitat in the Grahamstown area, particularly due to the loss of natural vegetation as a result of infestation by alien invasive species as well as urban development, has impacted on terrestrial fauna. Despite this, a few large mammals occur in the region, along with small and medium sized animals. Reptiles and amphibians occurring in the area include many

species of frogs, tortoises and terrapins, lizards and snakes. Important mammals occurring in the vicinity of the study area include 5 IUCN Red Data listed species.

4.5.2 Vertebrates

Amphibians and Reptiles

Over one hundred species of reptiles and amphibians occur on the Eastern and Southern Cape Coastal Belt (Branch, 1998). Most are generalists, and represent the transition from temperate to tropical fauna, some montane forms occur in the Cape Fold Mountains (Branch 1998).

Amphibians are an important and often neglected component of terrestrial vertebrates. They are well represented in sub-Saharan Africa, from which approximately 600 species have been recorded (Frost 1985). Currently amphibians are of increasing scientific concern as global reports of declining amphibian populations continue to appear. Although there is no consensus on a single cause for this phenomenon, there is general agreement that the declines in many areas, even in pristine protected parks, are significant and do not represent simple cyclic events. Frogs have been aptly called bioindicator species, whose abundance and diversity is a poignant reflection of the general health and well-being of aquatic ecosystems. They are important components of wetland systems, particularly ephemeral systems from which fish are either excluded or of minor importance. In these habitats, they are dominant predators of invertebrates, many of which may impact significantly on humans (e.g. as vectors of disease).

A relatively rich amphibian fauna occurs in the Eastern and Southern Cape coastal region, where 27 species are found, only three of which are endemic (Branch 1998). A list of amphibian species possibly found in the proposed project area is provided in Table 4-2.

Table 4-2: Common species of frogs that may be present in the proposed development area (Branch, 1998).

Species	Common name	Notes
Pyxicephalus adspersus	Giant Bullfrog	Southern most limit is Port Elizabeth.
Bufo pardalis	Leopard toad	Occur in gardens
Bufo rangeri	Raucous toad	
Hyperolius marmoratus	Painted reed frog	Occurs in wetter regions
Xenopus laevis	Plantanna	Common, aquatic
Strongylopus sp.	Stream frogs	Common along river courses.
Rana sp.	River frogs	
Cacosternum sp.	Cacos	Common but rarely seen.
Phrynobatrachus sp.	Puddle frogs	
Kassina senegalensis	Kassinas	
Semnodactylus wealei		

The Eastern Cape is home to 133 reptile species including 21 snakes, 27 lizards and eight chelonians (tortoises and turtles) (Branch, 1998). Five species of tortoises occur in the Eastern Cape, three of which occur within the coastal belt. The Eastern Cape has the richest diversity of tortoises in the world. These three coastal belt species include the leopard tortoise (*Geochelone pardalis*), the angulate tortoise (*Chersina angulata*) and the parrot-beaked tortoise (*Homopus areolatus*). All three of these tortoise species are listed on the CITES Appendix II list. The cape terrapin (*Pelomedusa subrufa*) is also found in the region (Branch, 1998).

There are many lizard species that occur in the region as shown in Table: 4-3.

More than 30 species of snakes occur in the Grahamstown region, of these; only six species are considered dangerous (Branch, 1998). A list of snakes potentially occurring in the region is provided in Table 4-4.

Table 4-3: Lizard species present in Grahamstown and surrounding areas (Branch, 1998).

Species	Common name	Notes
Phyllodactyllus prophyreus	Marbled leaf-toed gecko	Translocated to Grahamstown from Cape Town and surrounds.
Hemidactylus mabouia	Tropical house gecko	Considered invasive in the Eastern Cape
Cordylus cordylus	Cape girdled lizard	CITES Appendix II listed
Acontias meleagris	Cape legless skink	
Acontias percivali tasmani	Tasman's legless skink	
Bradypodion ventral	Southern dwarf chameleon	CITES Appendix II listed
Varanus niloticus	Water monitor lizard	
Varanus albigularis	Rock monitor lizard	

Table 4-4: Snakes that may occur within the proposed development site.

Species	Common name	Notes
Lycophidion capense	Wolf snake	
Psammophis crucifer	Cross-barred sand snake	
Lamprophis fuliginosus	Brown house snake	
Lamprophis inornatus	Olive house snake	
Pseudaspis cana	Large mole snake	
Philothamnus natalensis	Water snake	
Philothamnus hoplogaster	Water snake	
Lycodonomorphus rufulus	Olive water snake	
Crotaphopeltis hotamboeia	Red-lipped snake	
Duberria lutrix	Slug eater	
Psammophis notostictus	Karoo whip snake	
Psammophylax rhombeatus	Rhombic skaapsteker	
Bitis arietans	Puff adder	Poisonous
Bitis atropus	Berg adder	Poisonous
Causus rhombeatus	Night adder	
Naja nivea	Cape cobra	Poisonous
Homoroselaps lacteus	Harlequin snake	
Dispholidus typus	Boomslang	Poisonous
Bitis albanica	Albany dwarf adder	
Lamprophis fuscus	Yellow-bellied house snake	Rare (Red Data List)

Birds

Several birds of conservation importance occur in Grid Reference 3326, these include: 11 "Vulnerable", and 9 "Near Threatened" species (IUCN 2008), 15 CITES Appendix II, and one CITES Appendix I bird species (CES 2009). Four Species of Special Concern (SSC) species which are all rated as "Vulnerable" occur in the Grahamstown area and hence may occur in the study area, these include: Denham's Bustard, Martial Eagle, Black Harrier, and Blue Crane (CES 2009). According to BirdLife International the proposed development site does not form part of any important bird areas (Figure 4-6).

Table 4-5: Birds species of special concern that occur in the Grahamstown area and may utilise the proposed development site.

English name	Scientific name	Status	IUCN RDS	CITES	SABAP %
Knysna Turaco	*Tauraco corythaix*	E-C		II	30
African Crowned Eagle	*Stephanoaetus coronatus*	R-U	NT	II	21
Secretarybird	*Sagittarius serpentarius*	R-U	NT	II	17
Knysna Woodpecker	*Campethera notata*	E-U	NT		14
Denham's Bustard	*Neotis denhami*	R-U	Vu		12
Martial Eagle	*Polemaetus bellicosus*	R-U	Vu	II	11

English name	Scientific name	Status	IUCN RDS	CITES	SABAP %
Black Harrier	*Circus maurus*	E-U	Vu	II	11
Blue Crane	*Anthropoides paradisea*	E-U	Vu	II	11
Lanner Falcon	*Falco biarmicus*	R-C	NT	II	7
Black Stork	*Ciconia nigra*	R-U/R	NT	II	5
Half-collared Kingfisher	*Alcedo semitorquata*	R-U	NT		5
Black-winged Lapwing	*Vanellus melanopterus*	R/BM-LC	NT		2
Spotted Eagle-Owl	*Bubo africanus*	R-C		II	2
Greater Painted Snipe	*Rostratula benghalensis*	R-U	NT		1
African Marsh-Harrier	*Circus ranivorus*	R-C	Vu	II	1
African Finfoot	*Podica senegalensis*	R-U	Vu		1
Barn Owl	*Tyto alba*	R-C		II	1
Peregrine Falcon	*Falco peregrinus*	R/NBM-R	NT	I	
Cape Eagle-Owl	*Bubo capensis*	R-U		II	
Cape Vulture	*Gyps coprotheres*	E-LC	Vu	II	
Lesser Kestrel	*Falco naumanni*	NBM-VC	Vu	II	
Striped Flufftail	*Sarothrura affinis*	R-U	Vu		
Kori Bustard	*Ardeotis kori*	R-R	Vu		
Southern Ground-Hornbill	*Bucorvus leadbeateri*	R-LC	Vu	II	

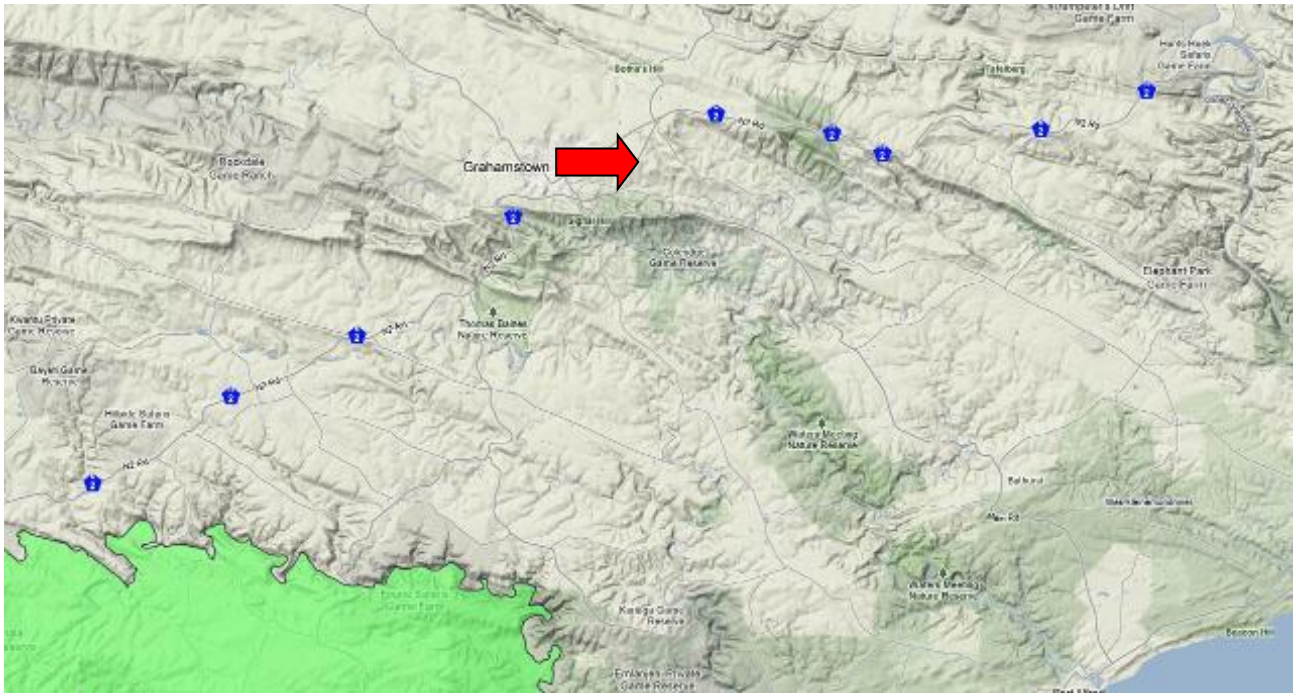

Figure 4-6: The proposed development site (red arrow) does not form part of any important bird areas. The closest IBA is the Alexandria Coastal Belt to the south-west (green shaded area).

Mammals

Large game makes up less than 15% of the mammal species in South Africa and a much smaller percentage in numbers and biomass. In developed and farming areas, this percentage is greatly reduced, with the vast majority of mammals present being small or medium-sized. Of the 62 mammal species known or expected to occur in the region, none are now considered endemic to

the coastal region. Although historical records show that many large animals such as various antelope, elephants, hippopotamuses and lions did occur in the region, they no longer do (Perrin, 1998). The conservation status of South African mammals has recently been re-assessed. The conservation status of some has been downgraded, with the african wild cat, aardvark, blue duiker, and honey badger no longer considered threatened. A list of mammals that are species of special concern and may potentially be present within the development area is presented in Table 4-6.

Table 4-6: Mammal species of special concern that may utilise the proposed development site.

Species	Common name	IUCN Status
Chlorotalpa duthieae	Duthie's golden mole	Vulnerable
Eidolon helvum	Straw-coloured fruit bat	Near Threatened
Miniopterus schreibersi	Schreiber's long-fingered bat	Near Threatened
Felis nigripes	Black-footed cat	Vulnerable

Faunal species of special concern
The following species may occur within the cadastral boundary of the proposed development site and are of conservation concern:

Reptiles:
- Endemic and Endangered
  - Albany dwarf adder (*Bitis albanica)*
- IUCN Red Data Species
  - Southern dwarf chameleon (*Bradypodion ventrale*)
  - Cape girdled lizard (*Cordylus cordylus)*
  - Leopard or Mountain Tortoise (*Geochelone pardalis*),
  - Angulate Tortoise (*Chersina angulata*), and
  - Parrot-beaked tortoise (*Homopus areolatus*)
  - Yellow-bellied house snake *(Lamprophis fuscus)*

Mammals:
- Black-footed Cat (*Felis nigripes*)
- Duthie's golden mole (*Chlorotalpa duthieae*)
- Straw-coloured fruit bat (*Eidolon helvum*)
- Schreiber's long-fingered bat (*Miniopterus schreibersi*)

4.5.3 Terrestrial Invertebrates

Of nearly 650 butterfly species recorded within the borders of South Africa, 102 are considered to be of conservation concern and are listed in the South African Red Data Book (RDB) for butterflies. Two have become extinct, whilst three rare butterflies are known from a number of scattered localities in the Coega region.

According to the most recent IUCN red data list there are no members of the Athropoda (insects arachnids and crustaceans) Phylum in the area that can be defined as SSC.

4.6 Land Use (Eastern Cape Biodiversity Conservation Plan)

The Eastern Cape Biodiversity Conservation Plan (ECBCP) is responsible for mapping areas that are priorities for conservation in the province, as well as assigning land use categories to the existing land depending on the state that it is in (Berliner et al. 2007).

The proposed development site is classified partially as a CBA 1 and partially as a CBA2 by the ECBCP (Figure 4-7). Critical Biodiversity Areas (CBA) are defined by Berliner et al. (2007) as:

" terrestrial and aquatic features in the landscape that are critical for conserving biodiversity and maintaining ecosystem functioning".

Biodiversity Land Management Classes (BLMCs) are also used in the plan: "Each BLMC sets out the desired ecological state that an area should be kept in to ensure biodiversity persistence. For example, BLMC 1 refers to areas which are critical for biodiversity persistence and ecosystem functioning, and which should be kept in as natural a condition as possible". Table 4-7 shows how the BLMCs relate to the CBAs.

Table 4-7: Terrestrial critical biodiversity areas and biodiversity land management classes as described by the Eastern Cape Biodiversity Conservation Plan.

CBA map category	Code	BLMC	
Terrestrial CBAs and BLMCs:			
Protected areas	PA1	BLMC 1	Natural landscapes
	PA2		
Terrestrial CBA 1 (not degraded)	T1		
Terrestrial CBA 1 (degraded)	T1	BLMC 2	Near-natural landscapes
Terrestrial CBA 2	T2		
	C1		
	C2		
Other natural areas	ONA T3	BLMC 3	Functional landscapes
	ONA		
Transformed areas	TF	BLMC 4	Transformed landscapes

Table 4-8: Terrestrial BLMC's and land use objectives (Berliner *et al.,* 2007).

BLMC	Recommended land use objective
BLMC 1: Natural landscapes	Maintain biodiversity in as natural state as possible. Manage for no biodiversity loss.
BLMC 2: Near natural landscapes	Maintain biodiversity in near natural state with minimal loss of ecosystem integrity. No transformation of natural habitat should be permitted.
BLMC 3: Functional landscapes	Manage for sustainable development, keeping natural habitat intact in wetlands (including wetland buffers) and riparian zones. Environmental authorisations should support ecosystem integrity.
BLMC 4: Transformed landscapes	Manage for sustainable development.

As most of the site falls within a CBA2 area, the BLMC 2 requirement is to "maintain biodiversity in near natural state with minimal loss of ecosystem integrity. No transformation of natural habitat should be permitted".

Ten principles of land use planning for biodiversity persistence

1. Avoid land use that results in vegetation loss in critical biodiversity areas.
2. Maintain large intact natural patches – try to minimise habitat fragmentation in critical biodiversity areas.
3. Maintain landscape connections (ecological corridors) that connect critical biodiversity areas.
4. Maintain ecological processes at all scales, and avoid or compensate for any effects of land uses on ecological processes.
5. Plan for long-term change and unexpected events, in particular those predicted for global climate change.
6. Plan for cumulative impacts and knock-on effects.
7. Minimise the introduction and spread of non-native species.
8. Minimize land use types that reduce ecological resilience (ability to adapt to change), particularly at the level of water catchments.
9. Implement land use and land management practices that are compatible with the natural potential of the area.

10. Balance opportunity for human and economic development with the requirements for biodiversity persistence.

It is important to note that STEP and Mucina and Rutherford are not considered to be accepted bioregional plans, however the ECBCP is.

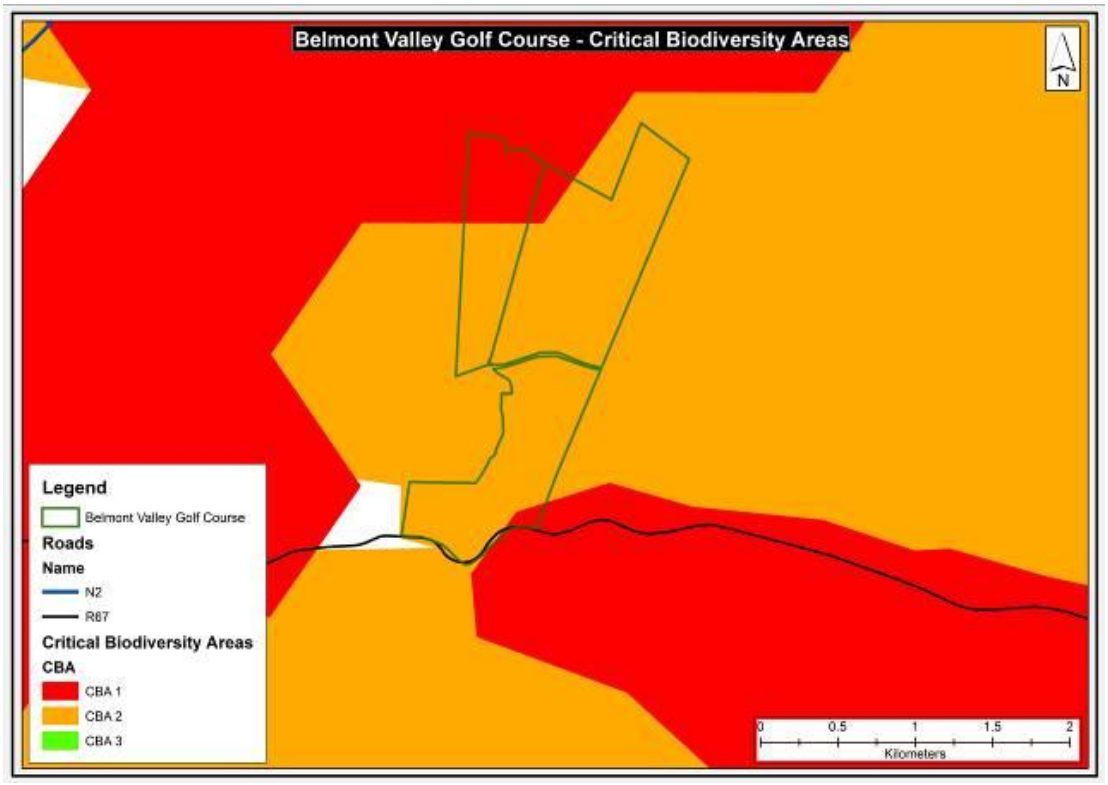

Figure 4-7: The proposed development site is classified partially as a CBA 1 and partially as a CBA 2 by the ECBCP. It is important to note that no development will take place in either of the CBA 1 areas.

4.7 Socio-economic Environment

The economy of the Eastern Cape has grown faster than the national economy over the past few years, although this has been off a low base. Economic growth has been led by the manufacturing sector, which accounts for over 16 percent of the total value of the province's production of goods and services, and 20 percent of employment (Eastern Cape Economy – CDC, 2004). According to the Eastern Cape Development Corporation (ECDC), the manufacturing sector grew by 21 percent in real terms from 1998 to 2001, compared to 9 percent for South Africa as a whole. The province's manufacturing sector is well integrated into the world economy. Table 4-11 indicates the sectoral production and employment in the Eastern Cape. These sectors have been identified as areas of opportunity by the ECDC. The other important areas of the Eastern Cape's economy are agriculture, textiles, clothing and leather, wool processing, timber and transport, and tourism. It is clear from Table 4-11, that the manufacturing sector is the largest contributor and employer in the Eastern Cape Province. This sector is also highly reliant on electricity and will therefore be affected by electricity availability.

Table 4-9: Sectoral production and employment in the Eastern Cape economy

Production sector (source: StatsSA)	Value of output (Rm)	% of total EC output	No. of Employees	% of total
Agriculture, hunting, forestry, fishing	2 063	3.6	70 470	13.2
Mining & quarrying	57	0.1	7 154	1.4
Manufacturing	14 783	25.8	97 035	18.1
Electricity, gas & water supply	874	1.7	5 598	1.0
Construction	1 892	3.3	43,635	8.1
Wholesale, retail trade & accommodation	9 339	16.3	83 818	15.7
Transport, storage & communication	5,501	9.6	32 851	6.1
Financial, insurance, real estate & business services	7 048	12.3	35 181	6.6
Community, social & personal services	15 643	27.3	159 453	29.8
Total:	**57 300**	**100.0**	**535 195**	**100.0**

The area of the Cacadu district municipality includes nine local municipalities, of which Makana is one (Cacadu IDP 2007). The proposed golf course is to be developed in the Makana Local Municipality. It is likely that the proposed development will have direct and indirect socio-economic impacts on the municipal area and its population. Accordingly the discussion that follows provides a brief socio-economic profile of the municipal area. The Makana Municipality is situated in the Eastern Cape Province, the second largest province in South Africa, covering approximately 169 580 square kilometres, or 13.9% of South Africa's total land area. With more than six million people, the Eastern Cape has the third largest provincial population. The demographics of the Makana Municipality according to StatsSA (Census, 2001) are outlined in Tables 4-9 – 4.10. These statistics show a predominantly black population, with low incomes, and high levels of unemployment.

Table 4.10: Synopsis of Makana Municipality (Census, 2001)

Category		Makana	Cacadu
Population		74 529	388 209
Demographic (%)	Black	77.25	52.11
	Coloured	12.37	36.34
	White	9.77	11.36
	Asian	0.61	0.19
Gender (%)	Female	53.11	52.11
	Male	46.89	47.89
Age (%)	0-4 years	7.35	8.54
	5-19 years	31.41	30.55
	20-64 years	55.11	54.23
	65+	6.13	6.68
Monthly Income Levels (%)	0-R400	22.78	26.75
	R401-R3200	56.66	59.49
	R3201+	20.56	13.76

Based on the Census data (2001), Makana Municipality's population accounts for 19.2% of the Cacadu District's population. According to the Makana Municipality IDP the greater Grahamstown Area (including Rhini) accounts for approximately 81% of the municipality's population, with the other settlements located in the Makana area thus making marginal contributions to the total regional population. Makana has a population density of 16.1 people per km^2, which is high when compared to the district population density of 6.6 people per km^2. This indicates a high level of urbanization in the municipality, which puts pressure on the municipality to provide services.

According to Census Data (2001) approximately 55% of the total population falls within the economically active age of 20-64. This shows a dependency ratio of 1:1.2, i.e. every economically

active person supports an average of 1.2 people made up of youth and the elderly. This may be compared to the provincial dependency ratio of 1:1.81, which is higher (IDP). Due to the fact that the municipality hosts a range of educational facilities, including Rhodes University the population consists mostly of younger people. The implication of this is that extra pressure is placed on the need for employment creation opportunities in the municipality.

Education levels have a direct impact on economic development and the quality of life enjoyed by residents of an area. This is because it influences the skills profile and thus the employability of a population. Education affects the potential that workers have, their productivity and also income levels. Education is therefore linked to the economic development of an area. According to the Makana Municipality IDP 6.19% of the population have received no schooling, which is below the provincial level of 9.4% and the district level of 12.3%. With regards to literacy, 36.11% of the Makana population have only been educated up to primary level, which is better than the provincial level. The Makana area excels in terms of the proportion of the population that has completed matric, and attained tertiary levels of education. Approximately 22.07% of Makana residents have an education level of matric or higher, which is almost twice the provincial level of 13.33%. The implication of this is that a large proportion of the population is able to become fully economically active members of society as their employability is higher than those of uneducated people.

Black persons make up 77.25% of the Makana Municipal population, with much smaller representation of Whites, coloured and Asians. The ratio of male:female is close to 50:50, with 53.11% being female, and 46.89% being male. Almost 80% of the monthly income levels are less than R3200.

Table 4.11 shows the employment status of the workforce in the Makana area. The high level of unemployment as opposed to not economically active means that the percentage of people in Makana actively looking for work that have not yet been discouraged by long term unemployment is higher than the provincial and district level. This means that there is a perception of there being employment opportunities present in the area that drives people to continue in their search for employment. This is comparable with the provincial and district scenarios in which a higher number of people are no longer seeking work even though they are not employed which is an indicator of limited opportunities. The breakdown of people between unemployed and not economically active statuses may also be indicative of the temporary nature of jobs. This is in line with the dominant activities in Makana which consist of the following:

- Tourism (e.g. the national arts festival)
- Community service (e.g. Rhodes University)
- Trade and Agriculture (can be cyclical and seasonal)

Table 4.11: Employment status of work force

Area	Employed	Unemployed	Not Economically Active	Total
Makana Municipality	14 922	14 489	21 504	50 915

5. PUBLIC PARTICIPATION PROCESS

According to regulation 31 (2) of the EIA regulations (2010), *An environmental impact report must include –*

(e) details of the public participation process conducted in terms of regulation 31(1) including –

(i) the steps undertaken in accordance with the plan of study;

(ii) a list of all persons, organisations and organs of state that were registered as interested and affected parties;

(iii) a summary of comments received from, and a summary of issues raised by registered interested and affected parties, the date of receipt of these comments and the response of the EAP to those comments;

(iv) copies of any representations and comments received from registered interested and affected parties.

In line with the above-mentioned legislative requirement, this chapter of the EIR provides the details of the public participation process conducted for the proposed golf course. There are four key steps within the overall public participation process. These include -

- Notifying I&APs of the Draft EIA report;
- Making provision for I&APs to review and comment on all reports before they are finalised and submitted to the competent authority;
- Making a record of responses to comments and concerns available to I&APs; and
- Informing the I&APs of the competent authority's decision on the EIR.

Each of the above-mentioned steps, which comprised the public participation process of the proposed development, are discussed in detail in Sections 5.1 - 5.3 following. All supporting documentation related to the public participation process for the proposed golf course development is contained in Appendix E of this report.

Please refer to Chapter 5 of **Volume 1: "Coastal & Environmental Services, December 2011: *Final Environmental Scoping Report: Proposed Golf Course Development at Belmont Valley, Grahamstown, Eastern Cape Province, South Africa*, CES, Grahamstown"** for the first phase of the public participation process conducted for the EIA for the golf course development. This section of the report outlines the following:

- Notifying interested and affected parties
  - Written notices
  - Advertisements
- Public review of the Draft EIR
- Registration of I&APs and comments database

5.1 Notifying Interested and Affected Parties of the Draft Environmental Impact Report

5.1.1 Written notices

Written notices of the release of the draft EIR, in the form of e-mails were sent to the landowners, adjacent landowners, registered IA&Ps as well as relevant governmental departments. The wording of the notification letter is shown in Appendix E.

Letters were sent to:

- Adjacent landowners
- Registered IAPs
- Local and District Municipality (Makana and Cacadu respectively)
- Department of Water Affairs
- Provincial Department of Environmental Affairs
- Department of Agriculture
- Eskom

- WESSA

5.1.2 Advertisements

An advertisement was placed in one Provincial and one Local newspaper namely, the Eastern Province (EP) Herald and the *Grocotts Mail* newspaper in order to:

- Advise readers of the availability of the Draft EIR; Invite the public to comment on the draft EIR.
- The date, time and location of the public meeting.
- Inform the public of the process to be followed when submitting comments and length of the comments period.

A sample of the advertisement is included in Appendix E.

A period of 40 days excluding public holidays were allowed for registration of any new I&APs, and for I&APs to submit comments after the advertisement(s) appeared.

5.2 Public Meetings

A public meeting was held during the review period of the Draft EIR. A meeting was held on the 7th of June 2012 at the Graham Hotel in Grahamstown. Due to the poor turn out another meeting was held on the 3rd of July at the CES Offices. All potential I&APs, neighbouring landowners and key stakeholders was notified and an advertisement was placed in the local newspaper. A copy of the attendance register and the comments and response trail from the meetings is provided in Appendix E.

5.3 Comments from of Interested and Affected Parties on the EIR

The public participation undertaken during the EIR phase is a continuation of the public participation process undertaken during the Scoping Phase. All I&APs identified have been carried forward to the EIR phase. All comment received during public consultation is provided in Appendix E.

6. NEED AND DESIRABILITY ASSESSMENT

In terms of section 31 (f) of the EIA regulations (2010), *an environmental impact assessment report must include:-*

(f) A description of the need and desirability of the proposed activity…

In accordance with the above-mentioned legislative requirement, this Chapter of the report identifies the need and desirability of the proposed golf course development.

According to the Makana Municipality SDF the considerable tourism potential of the region should be developed in an effort to broaden the tourism and recreation base of the region. Plans to extend these facilities should be encouraged as they serve both the development of tourism opportunities as well as the protection of natural assets. The existing golf course is not very scenic and the potential of it as a tourist attraction is therefore limited. Belmont Valley on the other hand provides this scenic component. Furthermore, the proposed development of the golf course will be limited mainly to fallow lands, leaving the natural vegetation intact. In addition to this the existing golf course currently falls within the urban edge. The land swap between Belmont Dev. Co. and the golf club will therefore enable land within the urban edge to become available for urban development. According to the Makana Municipality SDF there is a housing backlog within the Grahamstown Area and thus there is a need for housing developments.

This theme is pursued by Hamer and Snowball (2008) in their study entitled "Tourism: A pillar of local economic development in Makana Municipality", where they argue that ecotourism draws a significant number of national and international tourists to the area, but few of them stay on to travel in the Makana region. For them this represents a missed opportunity. More efficient marketing and development of Makana tourism "trails", including the golf trail envisaged for the new golf course to be situated in Belmont valley, could be used to take advantage of the presence of these tourists. This is recognised by the developers who state in an information document that:

> It is further envisioned that the proposed development of the Belmont Golf Course will increase Grahamstown's tourism appeal. The 18-hole golf trail will capitalise on the thriving Garden Route and Sunshine Coast golf tourism market and provide world-class recreational facilities for cultural and festival tourists to the town. It is anticipated that this will increase the overall time and money spent by tourists in Grahamstown.

Hamer and Snowball (2008) point out that a better understanding of how services and facilities are rated in Makana would assist in the development of strategies to encourage tourists to stay longer or see more while in Makana: "The constraints (absence of transport for large groups, lack of non-student related entertainment in Grahamstown, absence of hotels where large groups can be accommodated) act against the emergence of large-scale tourism in Makana". The proposed Belmont Golf Course is tailor-made to provide non-student related entertainment, comprising as it will a world class 18-hole golf trail, situated in the picturesque Belmont Valley of Grahamstown.

Furthermore, according to STATSSA, the unemployment rate for both the Eastern Cape and the Makana Municipality is relatively high. The proposed development will result in much needed employment opportunities both during the construction phase (temporary employment for construction workers) and the operational phase (permanent employment in the retail and golfing industry).

Possible benefits of the development to the local community are many. As outlined above the development is expected to generate employment both during the construction and operational phases of the project. In addition, the Belmont Dev. Co. also undertakes to establish the Belmont Treasury Trust which will be used to provide upliftment to the local community through projects which will promote skills development and training, entrepreneurship training, sports development,

agricultural development, as well as provide funding for promising secondary and tertiary education learners. The trust will obtain funding in perpetuity through a mechanism whereby a percentage of all future sales that are concluded through this new development proposal are diverted into the trust. The trust will be managed and audited to ensure that it is effective in carrying out its aim of upliftment.

The aims of the Trust are in line with the objectives of the Cacadu District Municipality strategy document entitled "Cacadu District Municipality: A proposed three pronged strategy for inclusive and job rich economic growth" which states that "…immense untapped resources exist in the business and farming communities. Unemployment and a low local skills base do not serve the business community and is indeed a major growth and investment constraint. The experience of Johannesburg and Cape Town is that the private sector is willing to invest in partnership initiatives that improve the urban environment. There are many examples of pro–active projects with the farming sector, a local example of which is the composting initiative in Sundays River Valley. Tapping into these resources will require a bold and proactive approach that… is therefore (able) to utilise the institutional capacity of the District to leverage the available resources of government and unlock private sector resources".

7. ALTERNATIVES

According to regulation 31 (2) of the EIA regulations (2010), An environmental impact assessment report must include –

(g) a description of identified potential alternatives to the proposed activity, including advantages and disadvantages that the proposed activity or alternative may have on the environment and the community that may be affected by the activity.

One of the objectives of an EIA is to investigate alternatives to the proposed project. There are two types of alternatives - Fundamental Alternatives and Incremental Alternatives.

7.1 Fundamental Alternatives

Fundamental alternatives are developments that are totally different from the proposed project and usually involve a different type of development on the proposed site, or a different location for the proposed development.

7.1.1 A different type of development

The proposed development is currently zoned as agriculture 1 and is vacant and unutilized. The property is outside of the urban edge. A land swap is proposed between Belmont Dev. Co. and the golf club. The agreement was to construct a new golf course to replace the existing one, so that land would become available for development within the urban edge. For this reason no activity alternatives will be considered.

7.1.2 A different location

Belmont Dev. Co. currently owns property outside of the urban edge, whereas the property for the existing golf course is owned by the golf club. Belmont Dev. Co. have a written agreement with the current golf club stating that if a new golf course is constructed on the property owned by the applicant they will do a land swap, so that the proposed residential/commercial development can take place within the urban edge. An application has been placed to DEDEA for the construction of the residential/commercial development (Ref No EC04/LN2/M/11-97). These two environmental assessments have therefore run in parallel since they are dependent upon one another. Furthermore, the Spatial Development Framework for the Makana Municipality (more specifically Grahamstown) shows no available land for recreational purposes and/or sport fields within the urban edge as is demonstrated by Figure 7.1. There is however provision for urban settlement (yellow shading). It is unlikely that any of these areas could be used for recreational development, since according to the SDF there is a housing backlog within the Grahamstown area and thus there is a need for housing development.

The right to shelter is entrenched in the Constitution and requires the municipality to address the housing requirements for the residents. Integral to this is the need to accurately establish the housing need/backlog in Grahamstown. According to the Makana Municipality SDF the list of nearly 13 000 persons in Grahamstown has not been verified to accurately establish the need for housing and thereafter the prioritization of beneficiaries. The provision of alternative housing forms, especially rental housing and multi-storey buildings need to be accommodated in the housing strategy for Makana. A housing plan is currently being prepared for the municipality and therefore until such time that the actual need for housing developments is established, land set aside for urban development in the SDF should be maintained for this purpose. In addition to this and according to the Makana Municipality SDF the considerable tourism potential of the region should be developed in an effort to broaden the tourism and recreation base of the region. Plans to extend these facilities should be encouraged as they serve both the development of tourism opportunities as well as the protection of natural assets. The existing golf course is not very scenic and the potential of it as a tourist attraction is therefore limited. Belmont Valley on the other hand provides this scenic component. For these reasons no location alternatives were considered.

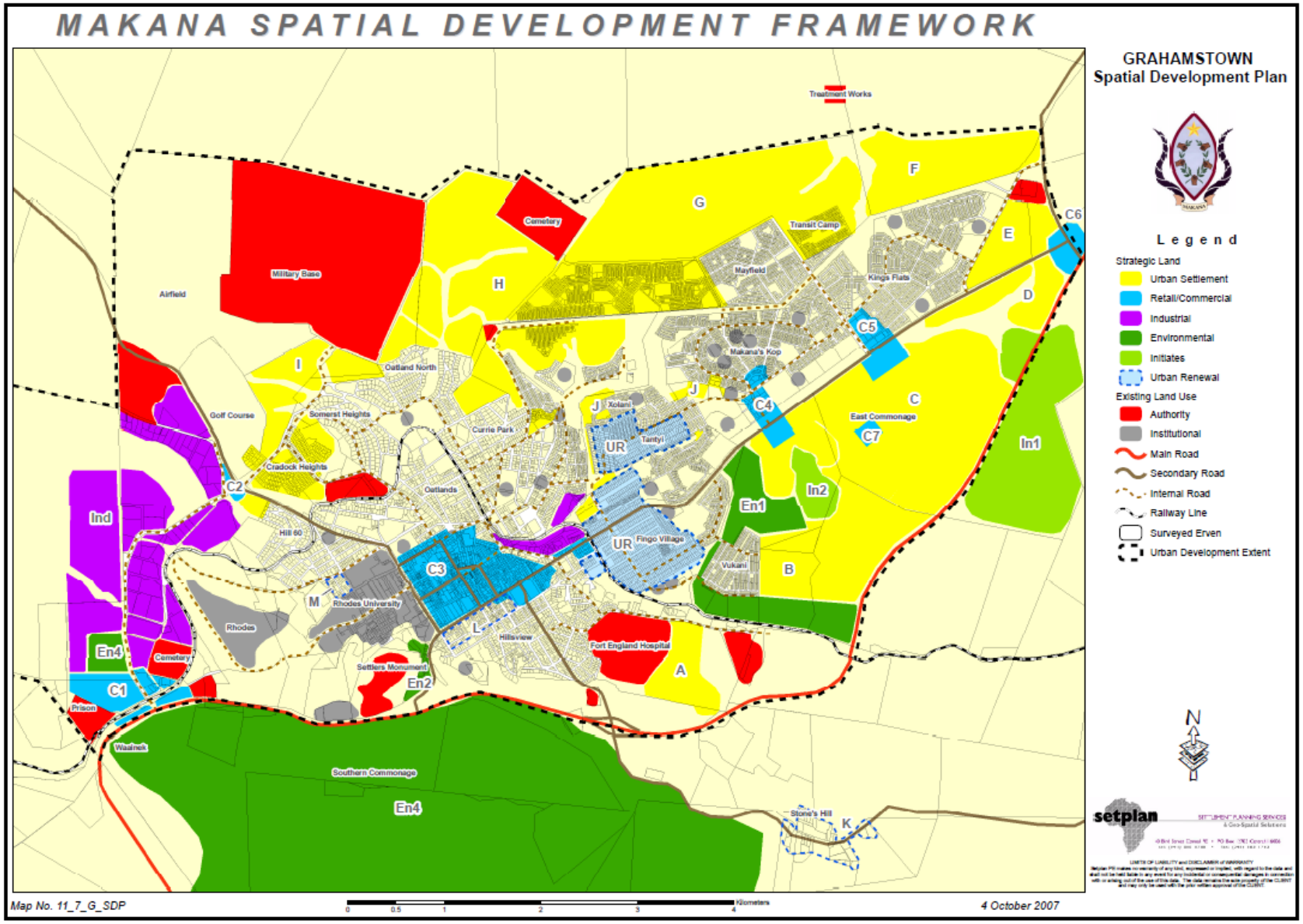

Figure 7-1: Makana Municipality Spatial Development Framework: Desired Spatial Form. Note: The proposed development lies outside the scope of this map, i.e. outside the urban edge.

7.1.3 No development

The 'no-go' option assumes the site remains in its current state, i.e. open space (area zoned for agriculture, but currently not used for this purpose).

It may be argued from an environmental perspective that the no-go option is the favourable alternative as open space is maintained, however there is no guarantee of the land being properly managed or of the critical biodiversity areas as identified in the ECBCP (Figure 7-2) being preserved. Alien vegetation has invaded natural areas consisting of fynbos, thicket and riverine vegetation. If left in its current fallow state, it is possible that alien vegetation may further invade natural areas. This may eventually lead to a shift in species composition. Current practices are therefore not necessarily beneficial to the long-term ecological functioning of the site. Large areas within the cadastral boundary of the site have been cleared of all natural vegetation and consist of fallow land and therefore opportunities for development exist.

In addition to this are the obvious economic benefits associated with a project of this nature which would not accrue from the "no-development" alternative.

It is therefore recommended that the 'no-go' option may not be viable in terms of ecological and economical sustainability. It will however be used as a baseline throughout the assessment process against which potential impacts will be compared in an objective manner.

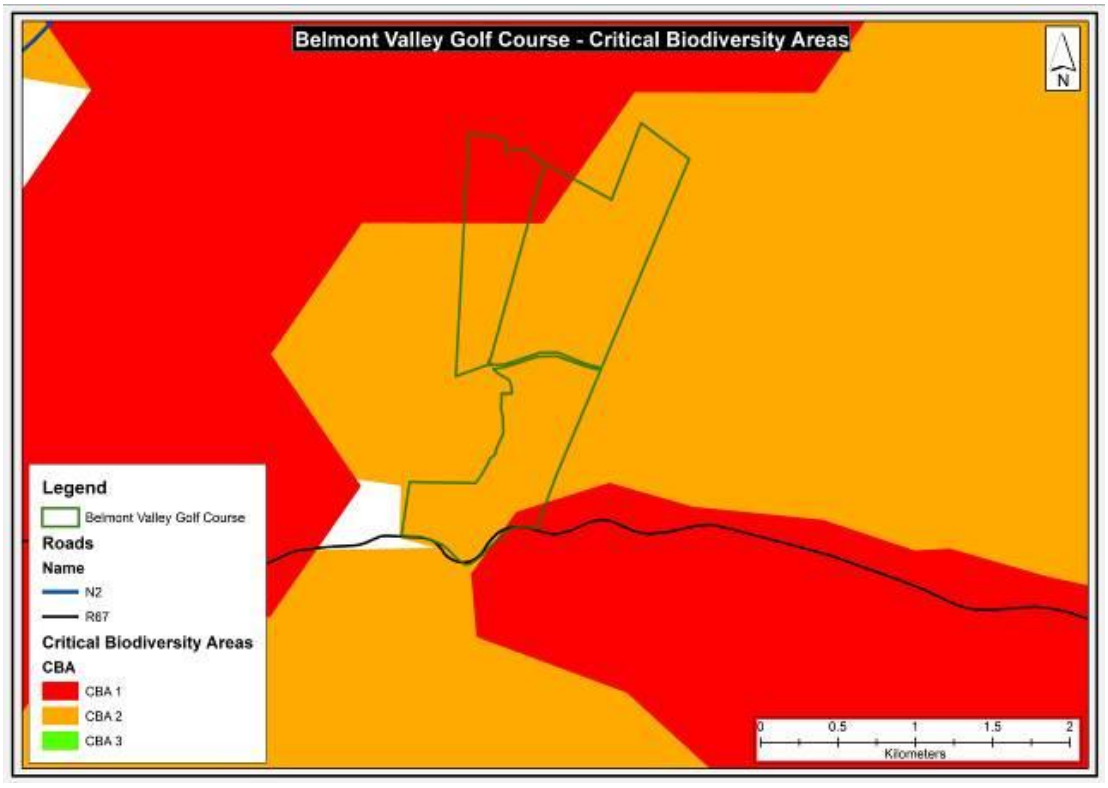

Figure 7-2: The proposed development site is classified partially as a CBA 1 and partially as a CBA 2 by the ECBCP. It is important to note that it is recommended that no development take place in either of the CBA 1 areas.

7.2 Incremental Alternatives

Incremental alternatives are modifications or variations to the design of a project that provide different options to reduce or minimise environmental impacts. There are several incremental alternatives that can be considered, including:

- The design or layout of the activity (see section 7.2.1 below);
- The technology to be used in the activity, and (see section 7.2.2 below);
- The operational aspects of the activity.

7.2.1 Alternative Designs

No fundamental changes have been made to the layout since the inception of the project. The layout has, however, been refined to avoid natural vegetation as far as possible, as shown on Figures 7-3 and 7-4. The majority of the proposed development will be situated on fallow land, however small portions may need to encroach on natural areas, mainly Kowie Thicket and riverine areas. These relate to holes 1, 2 and 17, and small sections of holes 3, 6, 10 and 16. These areas have been invaded by various alien species, which may in the long term further encroach on natural areas. The removal of these relatively small areas (in terms of the size of the entire property) for the purpose of development may be considered acceptable, since all alien species listed in terms of CARA will have to be removed from site, prior to construction. This may result in various environmental benefits, such as increased availability of water and habitat for indigenous vegetation. It is also recommended that the CBA 1 areas identified in terms of the ECBCP be maintained as open space and managed as such in the future to offset the golf course development. For this reason no alternative layouts have been considered.

Figure 7-3: Initial layout provided to the EAP at the inception of the project.

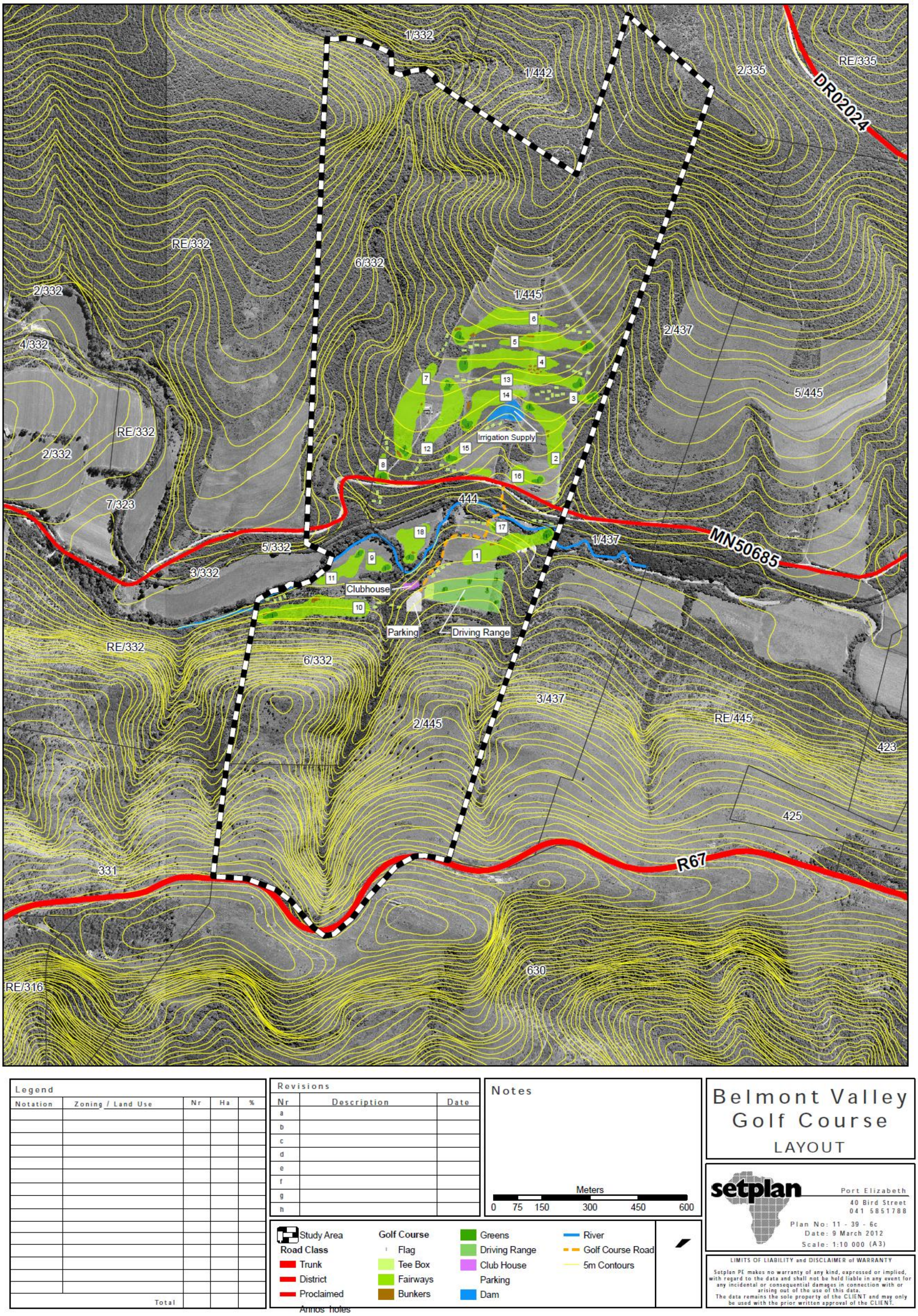

Figure 7-4: Detailed golf course design and preferred layout plan.

7.2.2 Alternative Technology

Alternative technologies include the use of alternative sewerage facilities, electricity sources etc. The environmental implications of each must be considered against the cost of implementation.

Alternative Sewage Treatment options

The proposed development cannot be connected to any municipal systems as the distance from the development site to the nearest treatment works is too great and the needs for sewage facilities are small (i.e. the only source of sewerage will be from the proposed club house). The development would therefore need to be self-sufficient.

There are two basic options for the treatment of sewage which are considered here, namely septic tanks and package treatment plants. A further option, which is based on the septic tank system, is the use of a Lilliput system (see option 2 below).

1. Septic Tank

A typical septic tank system normally operates by gravity, and consists of a tank and a soakaway drain. The tank usually incorporates two chambers (each of which is equipped with a manhole cover) which are separated by means of a dividing wall which has openings located about midway between the floor and roof of the tank.

Untreated wastewater flows into the first chamber of the septic tank, where the solids separate from the liquids. Some solids, such as soap scum and fat, will float to the top of the tank to form a scum layer. Heavier solids, such as human and kitchen wastes, settle to the bottom of the tank as sludge. Self generating bacteria in the tank help the system “digest” these solids or sludge where a natural process of anaerobic decomposition occurs in the tank which reduces the amount of solid matter and provides some treatment of the waste. The liquid component flows through the dividing wall into the second chamber where further settlement takes place with the excess liquid then draining in a relatively clear condition from the outlet into the soakaway where it is eventually taken up through the root systems of plants or added to the groundwater. The remaining impurities decompose in the soil.

The size of the soakaway is proportional to the volume of wastewater and inversely proportional to the porosity of the drainage field. Some septic tank designs have a second stage where the effluent from the anaerobic first stage is aerated, before it drains into the seepage field.

The term "septic" refers to the anaerobic bacterial environment that develops in the tank and which decomposes or mineralizes the waste discharged into the tank. Adding a supplemental bacterial agent to the tank will accelerate the digestion of solids in the tank. Septic tanks can be coupled with other on-site wastewater treatment units such as Biofilters or aerobic systems involving artificial forced aeration e.g. Lilliput system.

Waste that is not decomposed by the anaerobic digestion eventually has to be removed from the septic tank. In most jurisdictions this maintenance is required by law, yet often not enforced. Those who ignore the requirement will eventually be faced with extremely costly repairs when solids escape the tank and destroy the clarified liquid effluent disposal system.

How often the septic tank has to be emptied depends on the volume of the tank relative to the input of solids, the amount of indigestible solids and the ambient temperature (as anaerobic digestion occurs more efficiently at higher temperatures). In general it is rare for a septic tank system to require emptying more than once a year, and by careful management many users can reduce emptying to every 3 to 5 years. When emptying a tank, only a small residue of sludge should be left in the tank. Anaerobic decomposition is rapidly re-started when the tank re-fills.

There are two primary ways in which the sludge can be disposed of. Firstly, it can be used as a fertilizer provided that the sludge meets regulations set out in the Permissible Utilisation and Disposal of Sewage Sludge guidelines (DWAF, 1997 & 2002). If the sludge is in compliance with these guidelines, the sludge may be used as fertiliser at a maximum application rate of 8 dry tonnes per hectare per year. Secondly, it can be taken to a municipal treatment works for disposal.

A properly designed, maintained and normally operating septic system is odour free and, besides periodic inspection and sludge removal, should last for decades with no maintenance.

Advantages of the Septic tank system

- Most compact sewage system
- No moving parts
- Requires no power
- Minimal operating cost
- Simple to use
- Minimal human input
- Efficient process
- System operation is odourless and silent
- Last longer than most other systems

Potential problems with the Septic tank system

Excessive dumping of cooking oils and grease can fill up the upper portion of the septic tank and can cause the inlet drains to block. Oils and grease are often difficult to degrade and can cause odour problems and difficulties with the periodic emptying. It is proposed that this be mitigated by using fat filters. Flushing non-biodegradable hygiene products such as sanitary towels and cotton buds will rapidly fill or clog a septic tank and these materials should not be disposed of in this way. Excessive water entering the system will overload it and cause it to fail. Checking for plumbing leaks and practising water conservation will help the system's operation.

Certain chemicals may damage the working of a septic tank, especially pesticides, herbicides, materials with high concentrations of bleach or caustic soda (lye) or any other inorganic materials such as paints, solvents etc.

Roots from trees and shrubbery growing above the tank or the drain field may clog and or rupture them.

Covering the drainage field with an impervious surface, such as a driveway or parking area, will seriously affect its efficiency and possibly damage the tank and absorption system.

Some pollutants, especially sulphates, under the anaerobic conditions of septic tanks, are reduced to hydrogen sulphide, a pungent and toxic gas. Likewise, nitrates and organic nitrogen compounds are reduced to ammonia. Because of the anaerobic conditions, fermentation processes take place, which ultimately generate carbon dioxide and methane, both of which are known greenhouse gases.

The fermentation processes cause the contents of a septic tank to be anoxic with a low redox potential, which keeps phosphate in a soluble and thus mobilized form. Because phosphate can be the limiting nutrient for plant growth in many ecosystems, the discharge from a septic tank into the environment can trigger prolific plant growth including algal blooms which can also include blooms of potentially toxic cyanobacteria.

Soil capacity to retain phosphorus is large compared with the load through a normal residential septic tank. An exception occurs when septic drain fields are located in sandy or coarser soils on property adjoining a water body. Because of limited particle surface area, these soils can become saturated with phosphate. Phosphate will progress beyond the treatment area, posing a threat of

eutrophication to surface waters.

2. Lilliput Treatment Systems

Raw sewage is pre-digested in a septic tank, or with the 'full kit' plant, in Lilliput tanks, by anaerobic bacteria converting most of the complex organic matter into simple but toxic chemicals. The solution produced is pumped into the Bio-reactor, which contains randomly packed media. Air is introduced and aerobic bacteria oxidise the harmful, malodourous chemicals converting them to safe, 'clean' salts. At times of surge flow excess effluent is returned to the septic tank to ensure complete treatment. If discharge is other than to irrigation, a clarifier is used to extract excess solids and return them to the septic tank. The final stage of treatment is disinfection, which ensures that any pathogens are removed.

All waste water undergoes pre-treatment in an anaerobic, pre-digestion environment which is usually a septic tank. At this stage microbial digestion takes place - complex organic compounds convert to simple soluble organic compounds.

The resulting solution is pumped to the base of the Lilliput Bio-Reactor. This Aerobic Upflow Submerged Bio-Reactor contains the fixed-growth media which serves as the main anchor for the bacterial population, optimising critical surface area and voidage. The media is underlain by a porous membrane air diffuser for the purpose of introducing a fine bubble oxygen supply. Carbonaceous degradation and nitrification are achieved within the biofilm adhering to the media. The fixed film biomass allows for chemical shock tolerance and regenerative capabilities unattainable in activated sludge systems.

Once the solution has passed through the Bio-Reactor it is sent for final cleaning. Fine particles of humus can be removed in a Clarifier before the final disinfection in the Chlorine Contactor.

For a single house application the final cleaning by a clarifier is not necessary. Treated/disinfected effluent may be used for irrigation or water features, or discharged to water courses, dams, lakes or storm water systems.

For a well-maintained septic tank, waste sludge needs to be removed every three to five years by a vacuum tanker. There are two primary ways in which the sludge can be disposed of. Firstly, it can be used as a fertilizer provided that the sludge meets regulations set out in the Permissible Utilisation and Disposal of Sewage Sludge guidelines (DWAF, 1997 & 2002). If the sludge is in compliance with these guidelines, the sludge may be used as fertiliser at a maximum application rate of 8 dry tonnes per hectare per year. Secondly, it can be taken to a municipal treatment works for disposal.

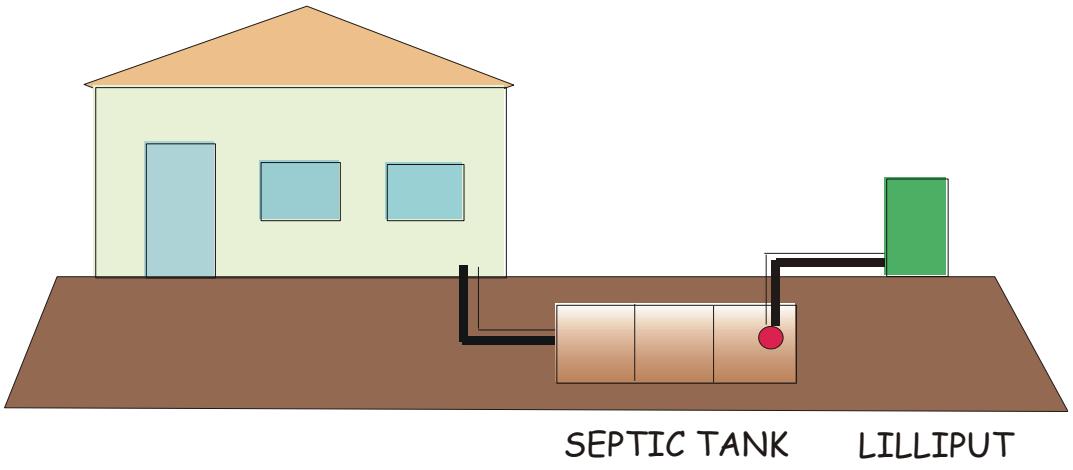

Figure 7-5: Layout of a typical single household Lilliput System

Advantages of the Lilliput system

- Compact design, frees up valuable land space
- Has few moving parts
- Requires little power
- Minimal operating cost
- Simple to use
- Minimal human input
- Modular design therefore can be increased to meet development needs
- Can be supplied as a new system or a retrofit add-on
- Meets national standards and requirements
- Can be installed in any soil or topographic conditions
- Efficient process
- System operation is odourless and virtually silent
- The Lilliput water is clean, clear & 100% re-usable

Potential Problems

Excessive dumping of cooking oils and grease can fill up the upper portion of the septic tank and can cause the inlet drains to block. Oils and grease are often difficult to degrade and can cause odour problems and difficulties with the periodic emptying. Flushing non-biodegradable hygiene products such as sanitary towels and cotton buds will rapidly fill or clog a septic tank and these materials should not be disposed of in this way. Excessive water entering the system will overload it and cause it to fail. Checking for plumbing leaks and practicing water conservation will help the system's operation.

Certain chemicals may damage the workings of a septic tank, especially pesticides, herbicides, materials with high concentrations of bleach or caustic soda (lye) or any other inorganic materials such as paints, solvents etc. Roots from trees and shrubbery growing above the tank or the drain field may clog and or rupture them.

Some pollutants, especially sulphates, under the anaerobic conditions of septic tanks, are reduced to hydrogen sulphide, a pungent and toxic gas. Likewise, nitrates and organic nitrogen compounds are reduced to ammonia. Because of the anaerobic conditions, fermentation processes take place, which ultimately generate carbon dioxide and methane, both of which are known greenhouse gases.

The fermentation processes cause the contents of a septic tank to be anoxic with a low redox potential, which keeps phosphate in a soluble and thus mobilized form. Because phosphate can be the limiting nutrient for plant growth in many ecosystems, the discharge from a septic tank into the environment can trigger prolific plant growth including algal blooms which can also include blooms of potentially toxic cyanobacteria. The Lilliput system solves many of the problems associated with septic tank soakaways. However, the system also adds significantly to the cost of the development. The lifespan of the systems could not be verified but it is likely that they will need to be replaced before the septic tanks have reached the limit of their lifespan.

There is also a visual impact associated with the system which would need to be considered.

The system would need to be placed behind the clubhouse rather than below it and would therefore be visually exposed and requires pumps which are will generate noise which would be difficult to mitigate.

3. Activated Sludge Package Plant

The package plant employs the extended aeration activated sludge principal using diffused aeration and air blowers to treat sewage from septic tanks. The activated sludge process is a suspended growth system comprising a mass of microorganisms constantly supplied with organic

matter and oxygen. The microorganisms grow in flocs[1], and these microorganisms are responsible for the transformation of the organic material and nutrients into new bacteria, carbon dioxide and water. The flocs are constantly washed out of the reactor to the secondary sedimentation tank by the flow of incoming septic tank effluent. Here they flocculate and settle under quiescent conditions. A fraction of this settled sludge is recycled back to the aeration tank in order to provide sufficient biomass to achieve efficient biodegradable organic matter removal (Horan, 1990).

If one was to use this system, raw sewage from the clubhouse is collected in a large, single three chamber concrete septic tank with a 24-hour minimum retention time. The purpose of the septic tank is:

- To trap fat, rags and paper
- To reduce the organic loading by removal of faecal solids by approximately 30%
- To provide some degree of flow balancing

The reactor operates on the extended aeration diffused air activated sludge principle in which a culture of micro-organisms (activated sludge) are continuously mixed and aerated with the septic tank effluent. Air is provided via two blowers.

Most systems are capable of producing a treated effluent that meets the South African General Limit and is suitable for irrigation or direct river discharge.

An advantage of this system is that it requires a relatively small area (200m^2 to 400m^2) since no evaporation ponds and solids disposal area are required.

Waste sludge needs to be removed every 6 to 12 months by vacuum tanker and disposed of in the same way as for the septic tanks in both the alternatives.

Advantages of the activated sludge system

- Modular design therefore can be increased to meet development needs
- Produces effluent that meets national standards and requirements
- Compact design, frees up valuable land space
- Can be supplied as a new system or a retrofit add-on
- Meets national standards and requirements
- Can be installed in any soil or topographic conditions
- Efficient process
- The effluent water is clean, clear & 100% re-usable

Potential Problems

The system does not respond well to fluctuating volumes of influent. During low periods (i.e. out of holiday season), the microorganisms die off as the available nutrient sources are depleted. During holiday periods there will be a sudden increase in influent and as a result the population will increase but there will be a lag between the increase in influent and the increase in microorganisms creating a situation where the effluent may not be of low quality. The system also requires more active management which may pose a problem. It would require training of staff that would need to be available on a permanent basis to ensure that the treatment works are always properly functioning.

It is expensive to install. It will require the pumping of sewage to the treatment works which would require more infrastructure and higher monitoring and maintenance requirements. As with both other options, excessive dumping of cooking oils and grease can cause the inlet drains to block. Oils and grease are often difficult to degrade and can cause odour problems and difficulties with

[1] Flocculation refers to the process by which fine particulates are caused to clump together into floc. The floc may then float to the top of the liquid, settle to the bottom of the liquid, or can be readily filtered from the liquid.

the periodic emptying.

4. Comparison of Alternatives

A table comparing the various alternatives has been drawn up. The various issues were scored on the basis that the alternative which had the highest risk scored 3, the moderate risk scored 2 and the lowest risk scored 1. Where no difference between options exists, they scored equally. For example, septic tanks are the cheapest alternative (score 1), followed by the Lilliput System (score 2) and then by the activated sludge package plant (score 3).

Table 7-1: Comparison of proposed alternatives

Issue	Septic tank with soakaway	Lilliput System	Activated sludge package plant
Cost	1	2	3
Visual impact	1	2	3
Noise impact	1	2	3
Pollution risk	3	1	2
Longevity	1	2	2
Efficient functioning	1	2	3
Maintenance and technical input	1	2	3
Sludge retention time	1	1	3
TOTAL	**10**	**14**	**20**

The results show that septic tanks with soakaways are consistently lower risk than the other alternatives apart from the possible environmental impact due to leakage of effluent to the groundwater or to the surface water. The potential pollution risk as a result of septic tanks would need to be assessed by a geotechnical engineer as the risk is largely determined by topography, positioning of the system, soil characteristics and soak away area. Septic tanks are a common management system for sewerage and the impacts are well understood. In most cases impacts can be mitigated through correct design and positioning of the tanks and soakaways.

A review of the available literature clearly indicates that the activated sludge system is not recommended for this type of development.

It is therefore recommended that the proponent investigate the suitability of the area for septic tanks with either soakaways or the Lilliput system. The recommendations of a suitably qualified geotechnical engineer should be included in the final EMP for authority review. Should the specialist determine that the soils are suitable for soakaways, these should be carefully monitored during the operation phase. If the soil is not suitable for soakaways or if later investigations determine that the soakaways are not functioning effectively, the Lilliput system should be added to the septic tank system. In addition to this the proposed system should be situated at a minimum distance of 100 m from the Bloukrans River to prevent surface water contamination. It is also recommended that should the Lilliput system be utilized treated effluent should be used to irrigate the golf course and not be discharge into the Bloukrans River.

Alternative Electricity options

There is an overhead Eskom power line in close proximity to the proposed development. The proposed clubhouse and pump for the Lilliput system could therefore tap into this line, since minimal power will be required for the proposed development.

However, the applicant has committed to using solar panels for the generation of electricity, should Eskom not be able to supply power to the proposed development.

8. APPROACH TO THE ENVIRONMENTAL IMPACT ASSESSMENT

In terms of section 31 (2) of the EIA regulations (2010), an environmental impact assessment report must include:-

(h) A description of the methodology used in determining the significance of potential environmental impacts.

In line with the above-mentioned legislative requirement, this chapter of the EIR details the approach to the EIA phase of the proposed golf course development with a particular focus on the methodology that was used when determining the significance of potential environmental impacts.

8.1 Specialist studies

Based largely on the issues raised during the Scoping Phase (refer to **Volume 1: Coastal & Environmental Services, December 2011: *Final Environmental Scoping Report: Proposed Golf Course Development at Belmont valley, Grahamstown, Eastern Cape province.* Grahamstown, CES**), as well as legislation relevant/applicable to the proposed project (refer to Chapter 3 of this document), a series of specialist studies have been conducted during the EIA Phase, the results of which are summarised in this EIR in Chapter 9.

The team of specialists that conducted the required studies are recognised in their respective fields and have been utilised by CES for numerous EIA processes to date. Specialists were required to address the issues raised by I&APs during the Scoping Phase in their reports by gathering baseline information and identifying the possible impacts related to the proposed project. Mitigation measures for impacts were also provided.

The detailed specialist studies have been compiled into a separate Specialist Studies Volume (***Volume 2:* Coastal & Environmental Services, May 2012: *Specialist Studies Volume of the Proposed Golf Course Development at Belmont Valley, Grahamstown, Eastern Cape Province.* Grahamstown, CES**). The details and expertise of each of the specialists as well as signed declarations of their independence are also included in the Specialist Studies Volume and are therefore not repeated here.

The ToR for each of the specialist studies were also defined in the Final Scoping Report and the PoS document for the EIR (refer to Appendix B).

Although the specialists were given free rein on how they conducted their research and obtained their information, they were required to provide the reports in a specific layout and structure, so that a uniform report could be produced.

In addition to the above, in order to ensure that a direct comparison could be made between the various specialist studies, a set methodology was used by all the specialists when evaluating the significance of impacts. This methodology is discussed in detail in Section 7.2 that follows.

8.2 Assessment Methodology

8.2.1 Evaluating the significance of impacts

To ensure a direct comparison between various specialist studies, a standard rating scale has been defined and will be used to assess and quantify the identified impacts. This is necessary since impacts have a number of parameters that need to be assessed.

Five factors need to be considered when assessing the significance of impacts, namely:

1. **Relationship of the impact to temporal scales** - the temporal scale defines the

significance of the impact at various time scales, as an indication of the duration of the impact.

2. **Relationship of the impact to spatial scales** - the spatial scale defines the physical extent of the impact.

3. **The severity of the impact** - the severity/beneficial scale is used in order to scientifically evaluate how severe negative impacts would be, or how beneficial positive impacts would be on a particular affected system (for ecological impacts) or a particular affected party. The severity of impacts can be evaluated with and without mitigation in order to demonstrate how serious the impact is when nothing is done about it. The word 'mitigation' means not just 'compensation', but also the ideas of containment and remedy. For beneficial impacts, optimisation means anything that can enhance the benefits. However, mitigation or optimisation must be practical, technically feasible and economically viable.

4. **The likelihood of the impact occurring** - the likelihood of impacts taking place as a result of project actions differs between potential impacts. There is no doubt that some impacts would occur (e.g. loss of vegetation), but other impacts are not as likely to occur (e.g. vehicle accident), and may or may not result from the proposed development. Although some impacts may have a severe effect, the likelihood of them occurring may affect their overall significance.

Each criterion is ranked with scores assigned as presented in Table 8-1 to determine the overall **significance** of an activity. The criterion is then considered in two categories, viz. effect of the activity and the likelihood of the impact. The total scores recorded for the effect and likelihood are then read off the matrix presented in Table 8-2, to determine the overall significance of the impact (Table 8-3). The overall significance is either negative or positive. The ***environmental significance*** scale is an attempt to evaluate the importance of a particular impact. This evaluation needs to be undertaken in the relevant context, as an impact can either be ecological or social, or both. The evaluation of the significance of an impact relies heavily on the values of the person making the judgment. For this reason, impacts of especially a social nature need to reflect the values of the affected society.

Negative impacts that are ranked as being of "**VERY HIGH**" and "**HIGH**" significance will be investigated further to determine how the impact can be minimised or what alternative activities or mitigation measures can be implemented. These impacts may also assist decision makers i.e. lots of **HIGH** negative impacts may bring about a negative decision.

For impacts identified as having a negative impact of "**MODERATE**" significance, it is standard practice to investigate alternate activities and/or mitigation measures. The most effective and practical mitigations measures will then be proposed.

For impacts ranked as "**LOW**" significance, no investigations or alternatives will be considered. Possible management measures will be investigated to ensure that the impacts remain of low significance.

Table 8-1: Ranking of Evaluation Criteria

EFFECT	**Temporal scale**			**Score**
	Short term	Less than 5 years		**1**
	Medium term	Between 5 and 20 years		**2**
	Long term	Between 20 and 40 years (a generation) and from a human perspective almost permanent.		**3**
	Permanent	Over 40 years and resulting in a permanent and lasting change that will always be there		**4**
	Spatial Scale			
	Localised	At localised scale and a few hectares in extent		**1**
	Study area	The proposed site and its immediate environs		**2**
	Regional	District and Provincial level		**3**
	National	Country		**3**
	International	Internationally		**4**
	*	**Severity**	**Benefit**	
	Slight / Slight Beneficial	Slight impacts on the affected system(s) or party(ies).	Slightly beneficial to the affected system(s) or party(ies).	**1**
	Moderate / Moderate Beneficial	Moderate impacts on the affected system(s) or party (ies).	An impact of real benefit to the affected system(s) or party(ies).	**2**
	Severe / Beneficial	Severe impacts on the affected system(s) or party(ies).	A substantial benefit to the affected system(s) or party(ies).	**4**
	Very Severe / Very Beneficial	Very severe change to the affected system(s) or party (ies).	A very substantial benefit to the affected system(s) or party(ies).	**8**
LIKELIHOOD	**Likelihood**			
	Unlikely	The likelihood of these impacts occurring is slight		**1**
	May Occur	The likelihood of these impacts occurring is possible		**2**
	Probable	The likelihood of these impacts occurring is probable		**3**
	Definite	The likelihood is that this impact will definitely occur		**4**

* *In certain cases it may not be possible to determine the severity of an impact thus it may be determined: Don't know/Can't know*

Table 8-2: The matrix that will be used for the impacts and their likelihood of occurrence

LIKELIHOOD	EFFECT													
	3	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
1	4	5	6	7	8	9	10	11	12	13	14	15	16	17
2	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3	6	7	8	9	10	11	12	13	14	15	16	17	18	19
4	7	8	9	10	11	12	13	14	15	16	17	18	19	20

Table 8-3: Ranking matrix to provide an Environmental Significance

Environmental Significance		
LOW	An acceptable impact which for which mitigation is desirable but not essential; The impact by itself is insufficient even in combination with other low impacts to prevent the development. These impacts will result in either positive or negative medium to short term effects on the social and/or natural environment.	**4-7**
MODERATE	An important impact which requires mitigation. The impact is insufficient by itself to prevent the implementation of the project but which in conjunction with other impacts may prevent its implementation. These impacts will usually result in either positive or negative medium to long term effects on the social and/or natural environment.	**8-11**
HIGH	A serious impact which, if not mitigated, may prevent the implementation of the project. These impacts would be considered by society as constituting a major and usually long term change to the (natural and/or social) environment and result in severe effects or beneficial effects.	**12-15**
VERY HIGH	A very serious impact which may be sufficient by itself to prevent the implementation of the project. The impact may result in permanent change. Very often these impacts are unmitigable and usually result in very severe effects, or very beneficial effects.	**16 - 20**

The ***environmental significance*** scale is an attempt to evaluate the importance of a particular impact. This evaluation needs to be undertaken in the relevant context, as an impact can either be ecological or social, or both. The evaluation of the significance of an impact relies heavily on the values of the person making the judgment. For this reason, impacts of especially a social nature need to reflect the values of the affected society.

Cumulative Impacts

Cumulative impacts affect the significance ranking of an impact because it considers the impact in terms of both on-site and off-site sources. For example, the noise generated by an activity (on-site) may result in a value which is within the World Bank Noise Standards for residential areas. Activities in the surrounding area may also create noise, resulting in levels also within the World Bank Standards. If both on-site and off-site activities take place simultaneously, the total noise level at the specified receptor may exceed the World Bank Standards. For this reason it is important to consider impacts in terms of their cumulative nature.

Seasonality

Although seasonality is not considered in the ranking of the significance, if may influence the evaluation during various times of year. As seasonality will only influence certain impacts, it will only be considered for these, with management measures being imposed accordingly (i.e. dust suppression measures being implemented during the dry season).

Prioritising

The evaluation of the impacts, as described above is used to prioritise which impacts require mitigation measures. Negative impacts that are ranked as being of "**VERY HIGH**" and "**HIGH**" significance will be investigated further to determine how the impact can be minimised or what alternative activities or mitigation measures can be implemented. These impacts may also assist decision makers i.e. lots of **HIGH** negative impacts may bring about a negative decision. For impacts identified as having a negative impact of "**MODERATE**" significance, it is standard practice to investigate alternate activities and/or mitigation measures. The most effective and practical mitigations measures will then be proposed. For impacts ranked as "**LOW**" significance, no investigations or alternatives will be considered. Possible management measures will be investigated to ensure that the impacts remain of low significance.

9. KEY FINDINGS OF THE SPECIALIST STUDY

In terms of section 31 (2) of the EIA regulations (2010), a*n environmental impact assessment report must include:*

(i) ***A summary of the findings and recommendations of any specialist report or report on a specialised process;***

9.1 Archaeological Impact Assessment

According to the Archaeological Impact Assessment the entire site (north and south of Belmont Valley Road) contained no archaeological or historical archaeological heritage remains. Furthermore, there was no material evidence of a pre-colonial archaeological landscape within the area proposed for development. However, evidence from a wider region stipulates that the activities on the pre-colonial landscape ranged from the Early Stone Age, Middle Stone Age and Later Stone Age. Evidence points to a predominantly historical archeological landscape colonised during the early 1800's and settled from the 1820's. A modern farmhouse and associated infrastructure has been built on the area north of Belmont Valley Road. The original farmhouse and associated features and infrastructure including an access bridge, which has been washed away by flooding, packed stone foundations and entry walls to the original farmhouse are situated on the proposed area for development of the clubhouse. The remains of the original farmhouse are in a dilapidated state. A dumping area containing mainly shards of ceramics and broken glass was documented upslope and adjacent to the remains of the original farmhouse. The old railway from Grahamstown to the farming communities to the south stretches across the area proposed for development. These remains provides evidence of historical settlement on the landscape.

Plate 9-1: Views of the remains of the existing farmhouse and dumping areas

The recommendations made by the Archaeological Impact Assessment are as follows:

The area is of a low cultural sensitivity and development may proceed as planned, although the

following recommendations must be considered.

- A historian or built environment specialist should be appointed to assess the significance of the original farmhouse and associated infrastructure.
- Construction managers/foremen must be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites.
- If concentrations of archaeological heritage material and human remains are uncovered during construction, all work must cease immediately and be reported to the Albany Museum in Grahamstown (046 622 2312) and/or the South African Heritage Resource Agency (SAHRA) so that systematic and professional investigation and/or excavation can be undertaken.

9.2 Historical and/or Built Environment Impact Assessment

The proposed belmont development is from lot 6 Belmont to parts 1 & 2 of Willow Glen, less than a kilometer along the Belmont Valley road to Port Alfred; both sections run north east and south west of this road.

Buildings
There are two sheds present on the south west boundary of Willow Glen, south of the road. This area borders on the portion of the original farm called “Willow Glen” which is part of this HIA. The site is noted but as nothing exists of the structure, no preservation is required.
The Willow Glen Annexe farmhouse (known as Sonny Clark’s house) on the portion to be developed is just a shell of the original farmhouse, the date of which is still unknown. The remaining walls are, according to accounts, hazardous and not worth saving. The historical specialist was not able to visit the site as the stream, embankment and hill on which the ruin is situated, seemed impassable. The Belmont Development Co may decide to include the footprint of the original Willow Glen Annexe farmhouse and include some features of the historical farmhouses in the design for the new Grahamstown Golf Clubhouse which will possibly be erected on the site of the original farmhouse (Sonny Clark) so that the new structure has links with the history of the Belmont Valley farms and architecture of the 19th Century.

Presence of Graves
Belmont had a graveyard for farm workers situated between the railway siding and the road.” (Wendy Butterworth) These graves need to be located and protected by a fence. (Heritage Resources Act 1999) No graves were located on 20 March 2012 or two subsequent visits. However there were stones piled up between the siding and the road. The pile of stones may or may not be the graves mentioned; this however, falls on the boundary of the area designated for the Belmont Development and Golf Course. Any further development has to take into account the possibility of a farm or church cemetery. If any further graves are discovered in the clearing of the farms, development must be halted for inspection by an archaeologist.
Railway remains
There were two railway sidings in the valley: Oak Valley (a ruin on Belmont) and Harper’s Halt on Lower Melrose (the property of Jannie Zakarillis who has left the country). There is a railway track running through Willow Glen (which used to run twice a day bringing mail and goods. The area of the railway track, the siding, and signage are the property of Transnet. The railway track, signs and bridges need to be preserved.

Cement slipway and weir
The cement slipway and broken weir are already in an unsound condition. The weir serves no purpose as it stands; it restricts the water flow and the two round culverts are on the bank of the Kowie river. The cement slipway may have connections with the loading on the railway of the citrus as it is just below the railway line and above the river but the road to and from Willow Glen Annexe ends at this point. There is no oral evidence or proof of the use of cement slipway.

Sites of interest but fall outside the area designated for the Grahamstown Golf Course:

- The Fairyvale house
- The farmhouse and farm of Elandskloof
- The ruin of Mary Early's house
- ruins of farmhouse of Clement Clark junior "Sonny" Clark's

9.3 Paleontological Impact Assessment

According to the Paleontological Impact Assessment the eastern side of the valley (see Plate 9-2) is comprised entirely of Dwyka Group diamictite and products of its breakdown. This was confirmed during the site visit, though it was found that the contact with underlying Witteberg strata was somewhat to the west of the position shown on the map.

Plate 9-2: Eastern side of the Belmont Valley development area taken from above the western side of the study area. Note kaolin quarry to the east of the study area (top left of photo).

In the extreme east of the study area (i.e. Figure 3 between point1 and point 3) remnants of the silcrete that caps the ridge are encountered. Immediately to the east of the study area this silcrete overlies kaolin clay derived from leached Dwyka diamictite, (see Plate 9-2). An old kaolin prospecting pit (Figure 9-1 point 2, Plate 9-2) however reveals that within the study area the Dwyka diamictite, even immediately below the silcrete, is not leached to the grade of kaolin but exists as a crumbly yellowish sub clay.

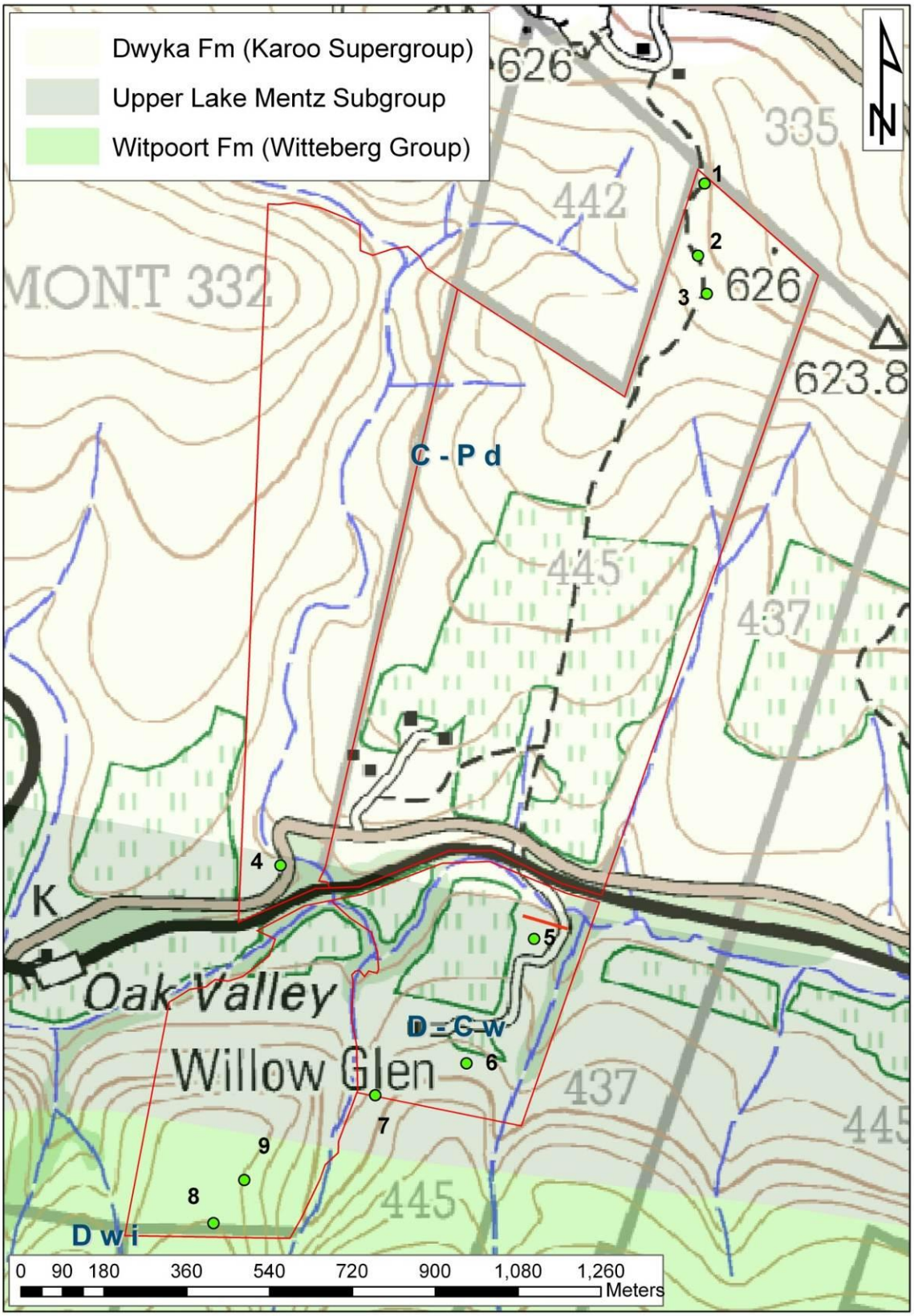

Figure 9-1: Map of portion of Belmont Valley intended for development, with overlay of geology according to the Geological Survey (see key). The study area (red outline) and interest points 1-9 (green dots). Short red line at point 5 indicates position of Witteberg/Dwyka contact.

Plate 9-2: Crumbly yellow weathered diamictite exposed in a prospecting pit in the extreme east of the study area (Figure 9-1, point 1).

Small outcrops of diamictite are found throughout the western side of the study area, extending to the west of the mapped area. These are well exposed in the roadside sloot at, for example Figure 9-1 point 4 (Plate 9-3).

Plate 9-3: Dwyka diamictite exposed to the west of its mapped outcrop area at Figure 9-1 point 4.

The western side of Belmont Valley exposes overturned strata representing the locally stratigraphically uppermost strata of the Witteberg Group and the stratigraphically lowermost deposits of the Dwyka Group (Karroo Supergroup). The contact (red line) between these strata is well exposed in a small quarry (Figure 9-1 Point 5).

Within this quarry the strata are near vertical and overturned such that the stratigraphically overlying Dwyka Group deposits physically underlie Witteberg group strata. The adjacent uppermost Witteberg Group strata exhibit overturned ripple cross beds highlighted by iron concentrated in palaeoripple troughs (Plate 9-4). Other, more clay rich strata preserve fossilised plant fragments (Plate 9-5).

Plate 9-4: Overturned ripple cross beds preserved in Witteberg Group strata immediately stratigraphically underlying Dwyka Group (at point 5 Figure 9-1). Scale in centimetres.

Plate 9-5: Plant fragments preserved in locally uppermost Witteberg Group strata at point 5 (Figure 9-1). Scale bars = 1cm.

Quartzitic strata that define the valley side and that have been mapped as belonging to the upper Lake Mentz subgroup (Figure 9-1 points 6 and 7) are also near vertical to overturned (see Plate 9-6).

Plate 9-6: Overturned Witteberg Group quartzites exposed at point 7 (Figure 9-1)

The most westerly (stratigraphically lowest) quartzites within the study area were considered by the Geological Survey to belong to the Witpoort Formation (lower Lake Mentz Subgroup, Witteberg Group). A reassessment of the local boundary between these units is, however, in great need of review.

The presence of impressions of mud chip lag deposits in Witteberg strata at point 9 (Figure 9-1) suggests probable proximity to a river mouth. No plant stem or bone impressions were, however, observed.

Plate 9-7: Casts of mud chips, possibly deposited as a lag deposit within shoreline sands near a river mouth.

The recommendations made by the Paleontological Impact Assessment are as follows:

It can be said with confidence that within the Belmont Valley study area, all land to the east of the Bloukrans River, (chiefly underlain as it is by weathered Dwyka diamictite) has an almost zero likelihood of containing any paleontological material.

However, to the west of the Bloukrans River, where Witteberg Group strata underlie the study site, particularly where mudstones and shales are likely to be exposed, (such as between the river and the foot of the hills it is probable that plant (and possibly fish) fossils will be disturbed by earth moving activities such as road construction and the landscaping of the proposed golf course. Though the disturbance of such fossils is likely to be localised, a particularly significant find could be of international importance. Destruction of material would be of a severe permanent nature though long term benefit could be gained from the discovery of significant new material.

Although it is difficult to numerically quantify potential paleontological impacts according to standard models it can be said that potential paleontological impacts to the east of the Bloukrans River in Belmont Valley are of Moderate Significance. Any negative impact resultant from disturbance of fossiliferous bedrock could be mitigated to a benefit to science if the disturbed material was sampled and studied.

It is therefore recommended that within this restricted area all large scale earthworks including road construction, pond excavation, levelling etc. should be monitored by a palaeontologist.

9.4 Botanical Impact Assessment

According to the botanical specialists the proposed site for development consists of Grassy Fynbos and Kowie River Thicket (Plate 9-8 and Plate 9-9). Several alien species (Plate 9-10) were identified in the study area. Despite some of these species being category 1 species (in terms of CARA), the study area is dominated by endemic vegetation which is indicative of the sites importance as a corridor of succession. It can also function as a corridor for alien and invasive succession so future environmental management plans is required for long term endemic sustainability and eradication programs. The Bloukrans River serves as a transport method for alien species with eroded river banks serving as prime germination zones for transported seed. Two tree species protected in terms of the National Forest Act was found on site, i.e. *Sideroxylon inerme* and *Podocarpus falcatus.* These species require permits to be removed. However, it was recommended by the specialist that the removal of these species is avoided.

According to the Botanical Assessment vegetation types in South Africa are categorized according to their conservation status. This is determined by means of its intactness and remaining habitat when measured against a baseline of that specific ecosystem. This information is achieved from two sources namely the Draft National List of threatened Ecosystems (GN1477 of 2009), published under the National Environmental Management Biodiversity Act (Act no.10 of 2004) and information provided by the best available scientific literature. Thresholds listed in the NEMBA literature are often high and therefore can differ from scientific information which can often result in skewed and bias conclusions. In the case of this study, both the vegetation types identified in the study area are not listed the Draft National List of threatened Ecosystems or any scientific literature (Driver et al. 2005; Mucina et al. 2006).

Table 9-1: Conservation status according to Driver et al.*,* 2005; Mucina *et al.,* 2006 and NEMBA

VEGETATION TYPE	CONSERVATION STATUS	
	Scientific Data	**NEMBA**
Kowie Thicket	Least Threatened	Not Listed
Grassy Fynbos	Least Threatened	Not Listed

Plate 9-8: Plant species identified in the Kowie Thicket include the above (top row from left) *Sideroxylon inerme, Rhus undulate,* (middle row from left) *Halleria lucida, Buddleja saligna, Polygala myrtifolia* (bottom row from left) *Podocarpus falcatus, Eucomis* sp. and *Ehretia rigida.*

Plate 9-9: Plant species identified in the Grassy Fynbos include the above (top row from left) *Acacia karroo, Chrysanthemoides monilifera,* (middle row from left) *Diospyros wheyteana, Helichrysum splendidum, Geranium sanguineum* (bottom row from left) *Watsonia* sp.*, Olea europea* subsp. africana and *Dovyalis caffra.*

Plate 9-10: Alien species identified on site included (top row from left) *Salix babylonica, Acacia mearnsii* (middle row from left) *Vinca major, Quercus robur* (bottom row from left) *Solanum mauritianum* and *Passiflora incarnate.*

Despite the fact that these vegetation types are classified as least threatened, and the presence of few species listed as protected under the National Forestry Act of 1998, or of special concern, certain areas of the site can be considered as sensitive. Riparian zones are also known as process areas. These areas are species rich, offers increased habitat, is an area towards the end of its

distribution zone and includes a watercourse and wetland zones. The likelihood of additional species of concern that were not recorded in the field study is high, especially due to this zones richness in biodiversity.

The upland areas, although lower in species richness but still part of the Kowie Thicket vegetation, forms an integral aspect of the riparian ecosystem and is the interface between the adjacent vegetation types. In lieu of this, The Kowie thicket is classified as a highly sensitive area where any development is concerned.

Previously cultivated lands can be considered as those with low sensitivity. Though these areas appear spectrally indistinguishable from adjacent natural grasslands with similar speciation, the natural return to pristine veld condition is a long-term process. The ubiquitous incidence of this type of vegetation is further considered as an area of least concern. The presence of Species of Concern was not recorded in the field study and the likelihood of such species being present is low due to the past agricultural usage.

Figure 9-2 below is a representation of the sensitivity of the proposed development site.

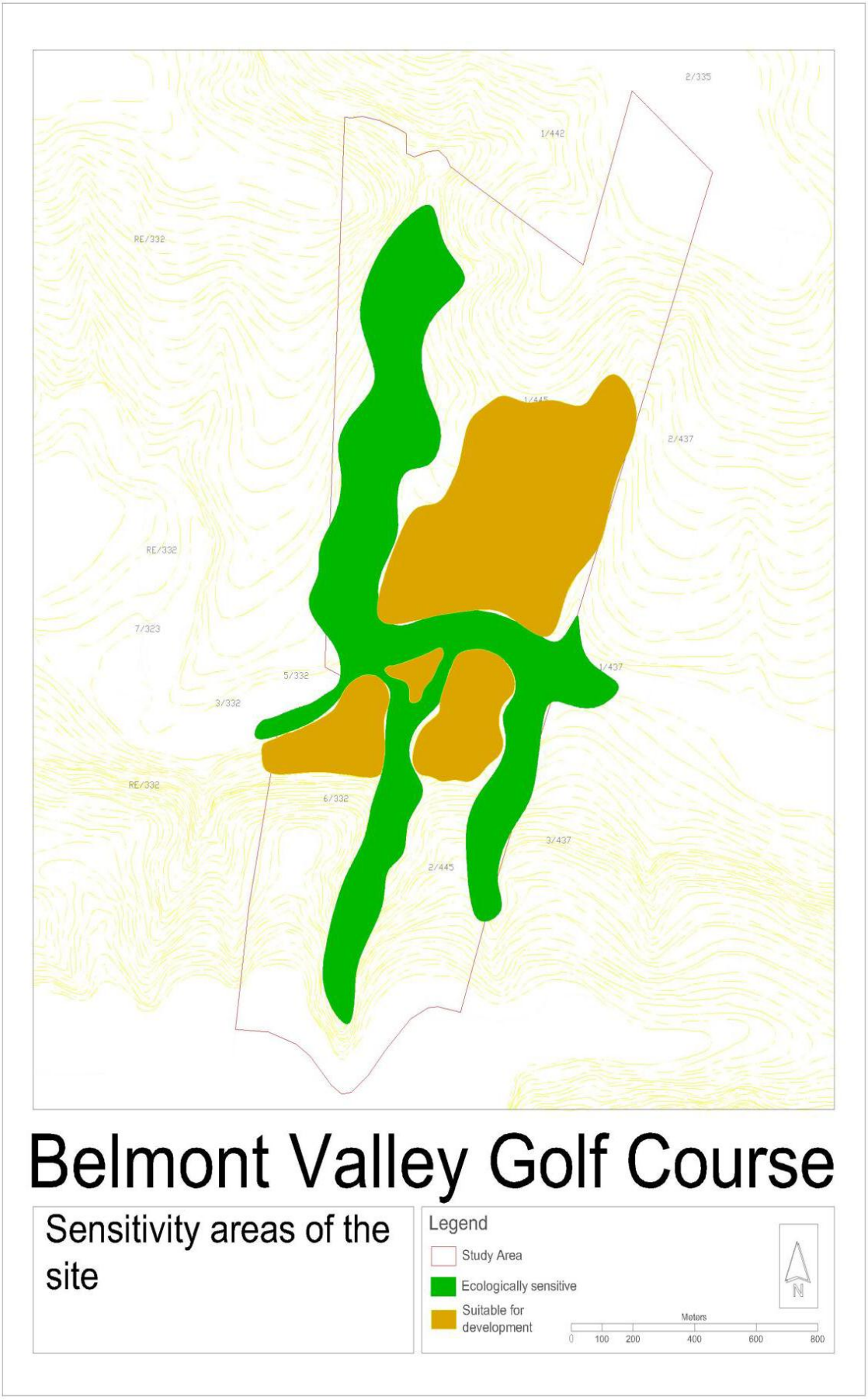

Figure 9-2: Map showing sensitivity of the proposed development site.

9.5 Traffic Impact Statement

A concern was raised by some I&APs during the Scoping Phase of the EIA with regard to possible road damaged that might occur as a result of the development, as well as the possible increase in traffic volumes (especially on the Belmont Valley Road). Therefore, a Traffic Impact Assessment has been compiled by Engineering Advise and Services for the project.

The following conclusions can be drawn from the study:

- Belmont Valley Road can be considered to be in a fair to good condition at present although it is noted that this condition could be attributed to low traffic volumes;
- Excessive fine material was observed along the road creating visibility concerns in dry weather and slippery conditions in wet weather;
- Road traffic signage is lacking along the entire length of the road, particularly on the approaches to and through sharp curves;
- Upgrading of the road traffic signs will contribute significantly to safer operating conditions;
- The new golf course can be expected to generate an average of 180 vehicle trips (1 trip = 1 direction) on the three busiest days each week (Wednesday, Thursdays and Saturdays) with fewer trips on the remaining days;
- Based on the anticipated daily traffic volumes, the road can be categorized as a medium to high volume gravel road;
- Construction traffic is anticipated to damage the road during the construction phase, particularly the section between Grahamstown and the proposed golf course;
- The provision of additional road traffic signage as indicated on Figure 9-3, will result in safer operation;
- Given that the golf course development will result in an increase of traffic making use of the road, the development should contribute towards maintenance required to ensure that the road remains in a suitable condition after construction has been completed.

In view of the findings of this study, it is recommended by Engineering Advice and Services that:

- The developer install additional road traffic signs as indicated on Figure 9-3, and that such signage be installed as soon as development commences;
- The developer ensure that the standard of the road remains at an acceptable level during construction;
- The developer upgrades the road to a suitable gravel standard once construction of the golf course has been completed.

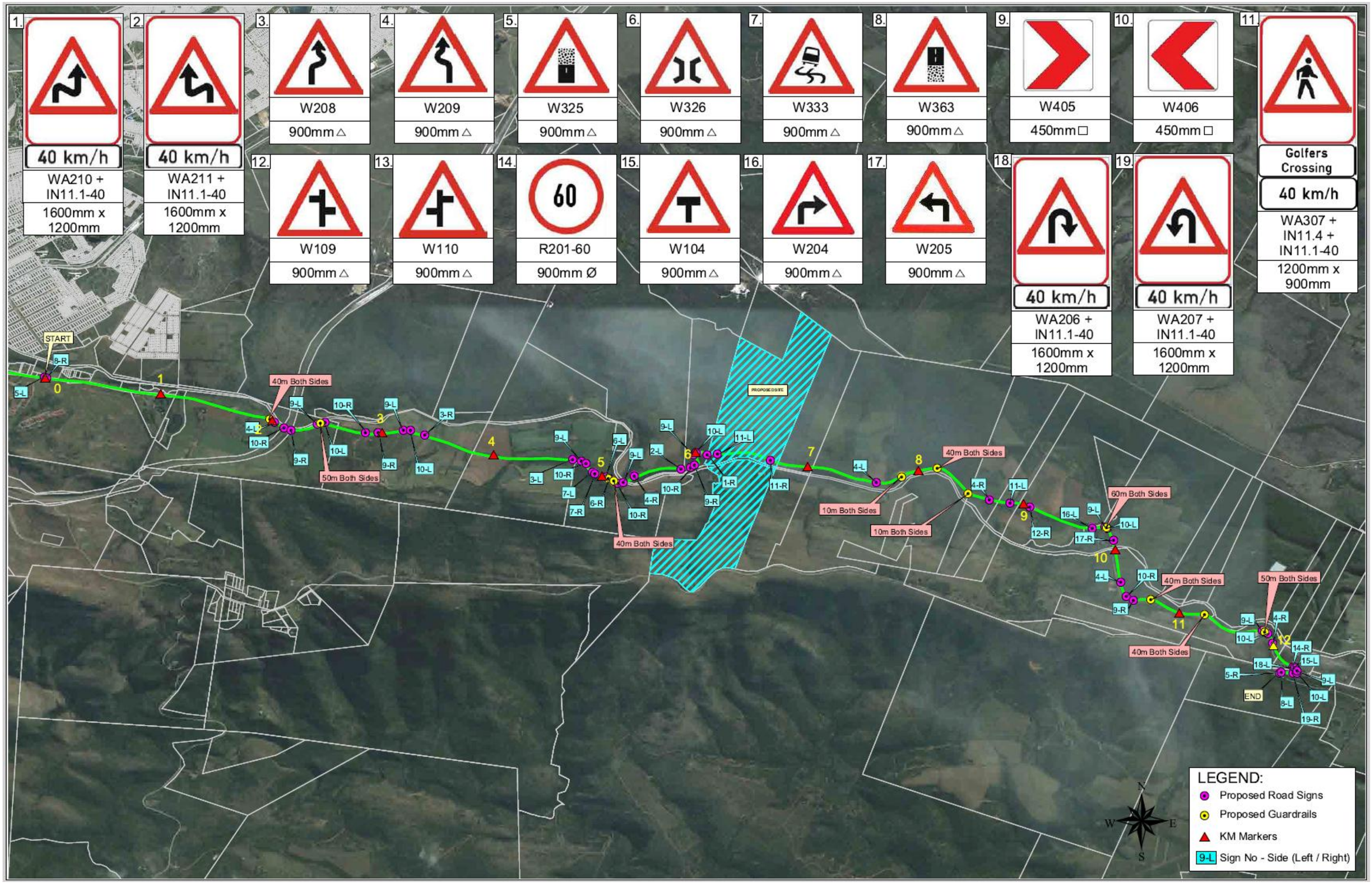

Figure 9-3: The proposed remedial measures for Belmont Valley Road.

9.6 Socio-Economic Impact Assessment

Various I&APs have raised comments related to the socio-economic impacts of the development (however, mostly pertaining to the housing development which is not discussed in this report). For this reason the proponent has agreed to undertake a Socio-Economic Impact Assessment for the proposed development. Consequently, a Socio-Economic Impact Assessment was undertaken in 2011 to assess the area's growth trends, employment rates and employment sectors (*inter alia*) to delineate the effects the proposed golf course will have on this region. This section of the report only provides a brief summary of the most important findings of this assessment.

The planned development will comprise an 18-hole golf course, the construction of which will be mostly on limited fallow lands. It will include a clubhouse, a driving range and road infrastructure. Concerning the latter, an access road of approximately 1km will have to be constructed from Belmont Valley Road, the latter which is an existing gravel road that traverses the proposed development site to the proposed club house on a portion of the property south of the Bloukrans River. The development will have a direct impact on the Makana Local Municipality's economy, mostly as it will fuel the growing tourist sector.

According to the Socio-Economic Impact Assessment Report (2011)[2], the Eastern Cape economy reflected the general slowdown in the South African economy from a growth of 4.4% in 1Q2011 to 1.3% in 2Q2011. In contrast to the slowdown in the real value added by the primary and secondary sectors, the tertiary sector experienced a noticeable expansion, causing the service sectors to be the largest contributors to the quarteron-quarter growth of 1.3% in 2Q2011.

Although a contentious issue, the population of the Makana Local Municipality can roughly be estimated at 74, 054 (in 2011) as a whole. The greater Grahamstown area (including Rhini) accounts for approximately 81% of the municipality's population, with the other settlements located in the Makana area thus making marginal contributions to the total regional population. Despite various estimates, it can be deduced that the Makana population stabilised and peaked in the late 1900s, and has been slowly declining until and including 2007. Over the period 1995-2007, the Makana economy grew at a much slower pace compared to the Cacadu District and the Eastern Cape. There was thus a fall in the Makana area's contribution to district and provincial output.

The economically active population (i.e. from 15 to 64 years of age) of the Makana area stands at approximately sixty six percent of the total population, which leads to the conclusion that the area consists of a fairly large group of people who can benefit from employment opportunities that the golf course will ensure. Employment is also highly needed in the area, as reflected by the high unemployment rates. For example, the unemployment rate for 2010 can be estimated at approximately 32.9%.

Above the overall plateau in population growth, informal settlement populations increased. This may indicate migration from farms and areas in the Grahamstown periphery to the core in search for economic opportunities and improved service provision. Urban growth in the towns of Cacadu has been driven by the private sector in the form of retirement investment and tourism, as well as by the government through its investments in housing, improving the health and education systems and investing in infrastructure, as well as the roll-out of social grants. Added to these 'pull' factors are the 'push' factors off farms in the rural areas around Grahamstown due to increasing capital intensification (increased mechanisation) and the tendency towards changed labour recruitment practices. That the population will increase is borne out by the Makana SDF which states that Makana has a population density of 16.1 people per square kilometre, which is high when compared to the district population density of 6.6 people per square kilometre. This indicates a high level of urbanisation in the area, which puts pressure on the municipality to provide essential services. In addition, the growth of the Rhodes University over the next few years, in line with the agreement with the National Ministry of Education, will add to this demand. Therefore, the

[2] J.J. Roodt. 2011. *Socio-Economic Specialist Report: Belmont Valley and Existing Grahamstown Golf Course Development.* Department of Sociology: Rhodes University.

commercial component of the golf course development is also in line with the SDF of the Cacadu District Municipality.

As concerns have been raised in terms of general service delivery issues that will be triggered by the development, it was also necessary to analyse the sewage system of the Makana Local Municipality in the Socio-Economic Specialist Report. According to MBB Consulting Engineers, both the Belmont Valley and Mayfield Sewerage Treatment Works are currently exceeding its capacity. Future development will therefore be hampered unless these constraints are removed. According to the Makana Municipality, it is anticipated that the Belmont Valley Sewerage Treatment Works will be upgraded by 2014. This has not yet been included in the IDP of the municipality, however the IDP is currently under revision. The municipality has sourced funds for the upstream requirements at the water works, but it is imperative that the downstream treatment of the waste be upgraded simultaneously.

The golf course will undoubtedly fuel a growing tourist sector of the area. According to the Makana Municipality's SDF, the considerable tourism potential of the region should be developed in an effort to broaden the tourism and recreation base of the region. Plans to extend these facilities should be encouraged as they serve both the development of tourism opportunities as well as the protection of natural assets. The existing Grahamstown golf course is not very scenic and the potential of it as a tourist attraction is therefore limited. Belmont Valley, on the other hand, provides this scenic component. Furthermore, the proposed development of the golf course will be limited to fallow lands, leaving the natural vegetation intact. In many ways, some people are of the opinion that tourism opportunities must increase in the area, while more efficient marketing and development in terms of this sector are needed. The latter can be accomplished, for example, through tourism trails, including the golf trail envisaged for the new golf course to be situated in Belmont Valley. This could be used to take advantage of the presence of these tourists. The developers have also stated that the development will increase Grahamstown's tourism appeal, as the 18-hole golf trail will capitalise on the thriving Garden Route and Sunshine Coast golf tourism market and provide world-class recreational facilities for cultural and festival tourists to the town. The construction of the new golf course will also create tourism opportunities (during the operational phase) as well as employment opportunities (both during the construction and operational phases of the project).

Lastly, possible benefits of the development to the local community are many. As already mentioned, the development is expected to generate employment both during the construction and operational phases of the project. In addition, the developers also plan to establish the Belmont Treasury Trust which will be used to uplift the local community through projects which will promote skills development and training, entrepreneurship training, sports development, agricultural development, as well as provide funding for promising secondary and tertiary education learners

10. IMPACT ASSESSMENT

In terms of section 32 (2) of the EIA regulations (2006), a*n environmental impact assessment report must include:*

(j) A description of all environmental issues that were identified during the environmental impact assessment process, an assessment of the significance of each issue and an indication of the extent to which the issue could be addressed by the adoption of mitigation measures;

(k) Assessment of each identified potentially significant impact, including –

- ***cumulative impacts;***
- ***the nature of the impact;***
- ***the extent and duration of the impact;***
- ***the probability of the impact occurring;***
- ***the degree to which the impact can be reversed;***
- ***the degree to which the impact may cause irreplaceable loss of resources; and***
- ***the degree to which the impact can be mitigated;***

(l) A description of any assumptions, uncertainties and gaps in knowledge;

There are several issues that will arise as a result of the proposed project, these have been divided into construction phase and operational phase impacts and are discussed and assessed in detail below:

10.1 Impacts that may result from the Construction phase

ISSUE 1: Impacts on geology and topography

Cause and Comment:

The construction of the clubhouse will require excavations in order to lay adequate foundations. Furthermore, minor excavations will be required for the construction of the road network as well as the laying of services.

*Significance statement**:***

It is envisaged that only minor topographical manipulation will be required on the property to accommodate the establishment of the development. Topographical manipulation will not be required over the entire property but only within selected areas. In addition, large parts of the property are relatively flat, and therefore, impacts associated with topography of the area are considered to be of a low negative significance. There are no mitigation measures for this impact. For the no go option no impacts currently occur on topography.

Impact	Effect			Risk or Likelihood	Overall Significance
	Temporal Scale	Spatial Scale	Severity of Impact		
Without mitigation	Long-term	Localised	Slight	Unlikely	**LOW -**
With mitigation	N/A	N/A	N/A	N/A	**N/A**
No-Go					
Without mitigation		N/A	N/A	N/A	**N/A**
With mitigation	N/A	N/A	N/A	N/A	**N/A**

ISSUE 2: Impacts on traffic

Cause and Comment

During the construction phase large construction vehicles will be utilizing the existing road network. This may result in the impeding of traffic flow, especially during peak hours and damaging of the existing gravel road (Belmont Valley Road).

Significance statement:

Construction traffic will only utilize existing roads in the short term, i.e. for the duration of the construction period and therefore the impact is considered to be of a moderate negative significance. However, if the mitigation measures suggested are adhered to this impact could be reduced to a low significance.

Mitigation measures recommended to reduce the impact are as follows:

- Construction vehicle should not utilize any existing road infrastructure during peak traffic periods.
- The developer must ensure that the standard of road remains at an acceptable level during the construction phase, and if not must repair the road at their own cost.
- The contractor must make adequate provision for safety signage, red flags and other appropriate measures to increase the safety of other road users.

For the no go option, no construction is anticipated, and therefore no construction vehicles will utilise the road network.

Impact	Effect			Risk or Likelihood	Overall Significance
	Temporal Scale	Spatial Scale	Severity of Impact		
Construction phase					
Without mitigation	Short-term	Localised	Slight	Definite	**MODERATE -**
With mitigation	Short-term	Localised	Slight	Unlikely	**LOW -**
No-Go					
Without mitigation	N/A	N/A	N/A	N/A	**N/A**
With mitigation	N/A	N/A	N/A	N/A	**N/A**

ISSUE 3: Impacts on health and safety

Cause and Comment

Health and safety aspects will mostly pertain to activities defined under the Occupational Health and Safety Act (Act No. 85 of 1993).

Significance statement

Impacts on health and safety will be in the short term, i.e. for the duration of the construction period and these are well regulated by the Occupational Health and Safety Act and therefore the impact is considered to be of a low negative significance. However, if the mitigation measures suggested are adhered to this impact could be reduced even more.

Mitigation measures recommended to reduce the impact are as follows:

- Adequate chemical toilets or “Enviroloo” facilities must be erected and maintained in good order on the site for the duration of the construction phase. Toilets should be removed from site when construction is completed. Waste must be disposed of at a registered waste disposal site.

- Adequate clean drinking water must be available to construction staff at all times during the construction period.
- An area must be demarcated for construction workers to conduct all necessary cooking activities. The site must be selected to ensure that there is no risk of fires. It would be advisable to ensure that small gas cookers are available on site.

For the no go option, no construction is anticipated, and therefore no impacts will take place network.

Impact	Effect			Risk or Likelihood	Overall Significance
	Temporal Scale	Spatial Scale	Severity of Impact		
Construction phase					
Without mitigation	Short-term	Localised	Slight	Unlikely	**LOW -**
With mitigation	Short-term	Localised	Slight	Unlikely	**LOW -**
No-Go					
Without mitigation		N/A	N/A	N/A	**N/A**
With mitigation	N/A	N/A	N/A	N/A	**N/A**

ISSUE 4: Impacts on biodiversity

Impact 1: Impacts on ecological processes:

Cause and comment

Concern was raised during the Scoping Phase of the EIA regarding the possible loss of ecological systems if the project proceeds. Ecological systems may well be disrupted through fragmentation, isolation and vegetation clearing. This leads to a reduction or cessation of succession and the reduction of ecological zones and habitats which in turn leads to the increase in alien vegetation. When viewed independently on the site only, this may be limited. However, when viewed cumulatively, it may be detrimental to individual species or communities.

Significance statement

If the mitigation measures are not implemented, the development runs the risk of fragmenting vulnerable ecosystems. This will lead to a reduction in ecological zones and habitats which, in return, can lead to the infestation of invasive alien species.

If the mitigation measures are implemented throughout the operational phase of the project, the result will be medium-term in scale, and of moderate significance.

With regard to the no go option, when compared to the situation without mitigation measures, the impact is severe, as large areas have been cleared for agriculture.

In order to manage and mitigate this potential impact, the following strategies are proposed:

- Vegetation/ecological corridors need to be identified and must be retained;
- Animal pathways must be made and retained where possible;
- Greens, tee boxes, fairways and landscaping to the clubhouse should be planted only with indigenous species and particularly those characteristics of the existing veld types; and
- Grasses should also be indigenous for use on greens, tee boxes and fairways with avoidance of invasive species.

With respect to the no go option, the impact is severe as the area was cleared for agricultural purposes, and now consists of weedy species on the fallow land.

Impact	Effect			Risk or Likelihood	Overall Significance
	Temporal Scale	Spatial Scale	Severity of Impact		
Construction phase					
Without mitigation	Long-term	Localised	Severe	Definite	**VERY HIGH -**
With mitigation	Short-term	Localised	Slight	Probable	**MODERATE -**
No-Go					
Without mitigation	Long-term	Localised	Severe	Definite	**HIGH -**
With mitigation	N/A	N/A	N/A	N/A	**N/A**

Impact 2: Impacts on species of special concern:

Cause and comment

It is not intended to directly disrupt sensitive species and SSC. Construction, as well as operational phases, will however cause this impact to occur, and mitigation is required to ensure the minimal disruption of both species and habitats.

Significance statement

If mitigation measures are not adhered to, the development will have an impact on SSC and their habitat by either reducing the number of species, or their habitat range.

Implementing mitigation measures such as to use organic chemicals, or avoiding access to areas outside the footprint of the development during the construction phase of the project result in a long-term effect with severe impacts. Even if measures are in place during the operational phase of the project, the effect will be high, leading to an overall high significance.

In order to manage and mitigate this potential impact, the following strategies are proposed:

- The appointment of a botanist/zoologist to check for sensitive species and habitats (both fauna and flora) within the development footprints;
- Access to areas outside the footprints should be limited and controlled;
- Organic fertilizer, pesticides and herbicides must be used as far as possible. When the application of inorganic fertilizer, pesticides or herbicides are unavoidable a nutrient management plan should be in pace prior to application.
- The use of chemicals for herbicide and pesticide control should not be restricted.
- The use of fire for vegetation clearing should not be allowed; and
- Construction phases should allow for education of staff as to the significance of species of concern.

Impacts for the no go option are moderate as currently there are various aliens present on site which may further invade the habitat of SSC.

Impact	Effect			Risk or Likelihood	Overall Significance
	Temporal Scale	Spatial Scale	Severity of Impact		
Construction phase					
Without mitigation	Long-term	Regional	Severe	Definite	**VERY HIGH -**
With mitigation	Short-term	Localised	Moderate	Definite	**HIGH -**
No-Go					
Without mitigation	Permanent	Localised	Moderate	Definite	**MODERATE -**
With mitigation	N/A	N/A	N/A	N/A	**N/A**

Impact 3: Impacts of alien species:

Cause and comment

The occurrence of pioneer and opportunistic plant species is inevitable. Although this is a natural process, many pioneer species are invasive aliens, which often limit species succession by reducing competition through chemical (allelopathic) or mechanical (competition) methods. This limits indigenous species, and often those endemic to the area from colonising or surviving and can result in local extinction of a species. The impact of alien species is both a construction and an operational issue that requires attention.

Significance statement

Without proper mitigation measures such as to implement eradication programmes, the development runs the risk of having alien vegetation invading the disturbed and intact vegetation. This will also lead to a possible loss in flora, as invasive alien species alter the landscape and animals dependent on it. This could have a long-term, severe effect and impact both locally and regionally.

In order to manage and mitigate this potential impact, the following strategies are proposed:

- Construction phases should employ eradication programmes to remove existing invasive's as well as the removal of new invasive's, especially those categorised as 1, 2 and 3 on the NEMBA list;
- Long-term programs to eradicate invasive species should be implemented;
- Access to areas outside the course and the establishment of other facilities should be limited; and
- The removal of any indigenous flora from the site should not be allowed.

If the mitigation measures proposed are implemented, indigenous vegetation will be re-establish in areas dedicated to their conservation (such as corridors).

Impacts for the no go option are high as currently there are various aliens present on the site, will continue to invade the indigenous vegetation.

Impact	Effect			Risk or Likelihood	Overall Significance
	Temporal Scale	Spatial Scale	Severity of Impact		
Construction phase					
Without mitigation	Long-term	Localized	Severe	Definite	**MODERATE -**
With mitigation	Short-term	Localized	Slight	Definite	**LOW +**
No-Go					
Without mitigation	Permanent	Localised	Severe (	Definite	**HIGH -**
With mitigation	N/A	N/A	N/A	N/A	**N/A**

ISSUE 4: Removal of topsoil and soil erosion

Cause and comment

The construction of any golf course requires bulk earth works and moving vast quantities of soil in order to reshape and build the course. A cut-to-fill method is mostly employed where some areas are excavated and others filled-up in order to achieve final levels. The excavation of areas requires the removal of vegetation and the stripping of topsoil layers and, in many cases, also the sub-topsoil layers. The removal of topsoil and bulk earthworks can lead to soil erosion.

Significance statement

Without mitigation, the soil structure of the area will be damaged and possibly compromised over the long-term. The severity of the impact will be moderate and local, while the risk of such impact is probable.

If mitigation measures are put in place (such as to stock-pile all vegetation stripped etc.), the effects will be long-term, local in scale and have a moderate impact.

Mitigation and management measures to reduce impacts include the following:

- All vegetation stripped from construction areas should be stockpiled with the intention of converting it into mulch to return the areas it was stripped from;
- All topsoil should be stockpiled and replaced as a final graded layer over the subsoil contouring at a minimum depth of 300mm;
- The new course contouring should assist in dispersing water run-off instead of concentrating it and increasing the risk of erosion; and
- The new course vertical profile should be gentler towards peripheral rough areas so as to reduce water run-off speed.
- Disturbed areas should be rehabilitated as soon as construction has been completed. Rehabilitation should be undertaken progressively.
- Control the amount of runoff crossing exposed areas by using berms or temporary or permanent drainage ditches to divert water flow around the cleared areas.
- The final route alignment of the road network should be carefully planned. Proper location and construction of the road will minimise impacts. Locate roads on ridge lines, allowing water to drain naturally downhill.
- The access road should be designed no wider than necessary to accommodate the immediate anticipated use.
- Drainage lines and the Bloukrans River should be kept in a natural state as far as possible.
- Minimise the alteration to topography.
- Minimise the area of impervious surfaces.
- Grade impervious surfaces to drain into vegetated areas.
- Ensure fine materials being transported are covered with tarps or equivalent material.

For the no go option the impact is low, as currently the river bank is exposed and eroded in areas.

Impact	Effect			Risk or Likelihood	Overall Significance
	Temporal Scale	Spatial Scale	Severity of Impact		
Change in land use					
Without mitigation	Long-term	Localized	Severe	Unlikely	**VERY HIGH -**
With mitigation	Long-term	Localized	Moderate	Probable	**MODERATE -**
No-Go					
Without mitigation	Long-term	Localised	Moderate	Definite	**LOW -**
With mitigation	N/A	N/A	N/A	N/A	**N/A**

ISSUE 5: Impacts on air quality

Cause and comment

Impacts on air quality during the construction phase will primarily be as a result of increased dust levels associated with the required excavation, vegetation clearing, grading and other construction activities. This also includes dust created by large construction vehicle utilizing the existing gravel road.

Significance statement

It is probable that dust will be created during the construction phase of the development, however this will be in the short term and limited to the construction phase. If the various mitigation measures below are implemented this impact could be reduced to a low negative significance.

Mitigation measures recommended to reduce the impact are as follows:

- The best method of controlling dust is to prevent dust production. This can best be accomplished by limiting the amount of bare soil exposed at one time.
- Minimise the total amount of bare soil exposed to erosive forces by (1) controlling the amount of ground that is cleared at one time in preparation for construction, and (2) limiting the amount of time that bare ground may remain exposed before rehabilitation measures are put into place.
- The clearing and grading of the site should be planned so as to minimise the exposure time of the soil. If possible, activities should be undertaken in a phased manner instead of disturbing the entire site at one time.
- Dust control mechanisms should be employed on exposed soils. These may include wetting of exposed soils or protecting exposed soils with coarse granular materials, mulches or straw. Take note that exotic vegetation that has been cleared may not be used for this purpose.
- In addition to other dust control techniques wind barriers should be installed, if deemed necessary, to protect exposed soils. A wind barrier generally protects soil downwind for a distance of 10 times the height of the barrier.
- Once disturbance of the site has been completed, the soil surface should be stabilized/covered with permanent revegetation techniques or temporary mulch techniques.
- Plan for the worst case, that is for heavy rainfall and runoff events or high winds.
- Minimise the amount of ground disturbance occurring when the potential for wind erosion is highest. No grading or leveling should be conducted during high wind conditions.
- Ensure that all construction equipment and vehicles are maintained in good working order.
- If required, wet the gravel access road during windy periods when construction vehicle traffic is high.

Impact	Effect			Risk or Likelihood	Overall Significance
	Temporal Scale	Spatial Scale	Severity of Impact		
Change in land use					
Without mitigation	Short-term	Localized	Slight	Probable	**MODERATE -**
With mitigation	Short-term	Localized	Slight	May occur	**LOW -**
No-Go					
Without mitigation	N/A	N/A	N/A	N/A	**No Impact**
With mitigation	N/A	N/A	N/A	N/A	**N/A**

ISSUE 6: Noise impacts

Cause and comment

It is anticipated that there will be an increase in noise levels during the construction phase of the development which will be associated with the operation of construction vehicles and equipment.

Significance statement

There is a strong possibility that the development will create excessive noise during the construction phase. This impact is considered to be short term and can be minimized by various mitigation measures listed below. If mitigation is enforced the impact could be reduced to a low significance.

Mitigation measures recommended to reduce the impact are as follows:

- All activities with high noise levels should be restricted to daylight hours. Heavy equipment must only be used during weekdays and between the hours of 7 am and 6 pm.
- No noise generating activities should be undertaken over weekends and public holidays.
- Equipment and construction vehicles must be kept in sound working order at all times, and comply with the stipulated maximum sound level of 8 decibels.

Impact	Effect			Risk or Likelihood	Overall Significance
	Temporal Scale	Spatial Scale	Severity of Impact		
Change in land use					
Without mitigation	Short-term	Localized	Slight	Probable	**MODERATE -**
With mitigation	Short-term	Localized	Slight	May occur	**LOW -**
No-Go					
Without mitigation	Currently no noise generating activities on site	N/A	N/A	N/A	**No Impact**
With mitigation	N/A	N/A	N/A	N/A	**N/A**

ISSUE 6: Surface and ground water pollution

Cause and comment

Various substances may result in the pollution of surface and groundwater sources. Construction activities may lead to sediment being deposited into drainage lines and the Bloukrans River, pollution from litter and general construction wastes due to improper site management. Washing down of vehicles and equipment may result in the pollution of drainage areas and storm water systems, and pollution may occur from poor vehicle maintenance and improper storage of hazardous materials such as fuel, etc.

Significance statement

There is a strong possibility that the development will create pollution during the construction phase. This impact is considered to be short term and can be minimized by various mitigation measures as included below. If mitigation is enforced the impact could be reduced to a low significance.

Mitigation measures recommended to reduce the impact are as follows:

- No rock, silt, cement, grout, asphalt, petroleum product, timber, vegetation, domestic waste or any deleterious substance should be placed or allowed to disperse into any drainage line and/or the Bloukrans River.
- Ensure that all construction equipment and vehicles are free of leaks from oil, fuel or hydraulic fuels. No construction vehicles should be cleaned on the development site.
- Concrete should not be mixed directly on the soil surface.
- Avoid surfacing the road in wet weather or when rain is forecast before the surfacing will have time to set.
- Keep materials out of the rain to control runoff contamination at the source.
- Designate a contained area for vehicle parking, vehicle refuelling and routine equipment maintenance. The designated areas should be away from drainage lines or storm water inlets. The area should be bermed if necessary.
- Major equipment or vehicle repairs should be conducted away from the construction site.

- Keep pollutants off exposed areas. Place dustbins and recycling receptacles around the site to minimise litter.
- A litter control programme should be implemented during the construction phase to ensure that litter is contained on site. Litter should be disposed of at a registered waste disposal site.
- Clean up leaks, drips and other spills immediately to prevent contamination.
- Mud and sediment should not be allowed to be transported off site on to connecting roads.
- Never wash down "dirty" pavement or impermeable surfaces. Use dry clean-up methods (sweeping, absorbent materials, etc.) whenever possible. If water must be used, collect the runoff water and dispose of the water in the suitable manner.
- Wash water should not be allowed to disperse directly into natural drainage lines.

Impact	Effect			Risk or Likelihood	Overall Significance
	Temporal Scale	Spatial Scale	Severity of Impact		
Construction Phase					
Without mitigation	Long-term	Regional	Severe	Definite	**HIGH -**
With mitigation	Long-term	Localized	Slight	May occur	**LOW -**
No-Go					
Without mitigation	N/A	N/A	N/A	N/A	**No Impact**
With mitigation	N/A	N/A	N/A	N/A	**N/A**

ISSUE 7: Impacts on archaeological, paleontological and/or historical sites

Cause and comment

It could be possible that sites of archaeological, paleontological and/or cultural significance are present on or near the proposed development site.

Impact 1: ***Negative impact on archaeological remains and sites***

Cause and comment

No archaeological heritage remains and sites were encountered. Therefore, it is not expected that any negative impact should occur.

Significance statement

In the construction phase of this development, if mitigation measures are not adhered to, the development runs the risk of altering the landscape and removing potential archaeological sites. The potential impacts will be permanent, however the severity of the impacts will be slight.

With mitigation, in the construction phase of the development, the impact is also low.
Mitigation measures recommended to reduce the impact are as follows:

- Construction managers/foremen must be informed before construction starts regarding the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites.
- If concentrations of archaeological heritage material and human remains are uncovered during construction, all work must cease immediately and be reported to the Albany Museum in Grahamstown (046 622 2312) and/or the SAHRA (021 642 4502) for systematic and professional investigation before excavation can be undertaken.

Impact	Effect			Risk or Likelihood	Overall Significance
	Temporal Scale	Spatial Scale	Severity of Impact		
Change in land use					
Without mitigation	Permanent	Study area	Slight	Unlikely	**LOW -**
With mitigation	Permanent	Study area	Slight	Unlikely	**LOW -**
No-Go					
Without mitigation	N/A	N/A	N/A	N/A	**No Impact**
With mitigation	N/A	N/A	N/A	N/A	**N/A**

Impact 2: ***Negative impact on original farmhouse***

Cause and comment

A clubhouse is planned ate the location of the existing original farmhouse. Therefore, the original and associated features will be affected during the course of development, as well as the railway line. A recommendation has been made for a historian or built environment specialist to assess the significance of the original farmhouse and associated infrastructure, as well as the railway line encountered within the area proposed for development. Alternatively, any damage to these features must be avoided.

Significance statement

If the recommended mitigation measures are not adhered to, the clubhouse might affect the original farmhouse and associated features found there. The impact will be permanent, but only limited to the study area. The risk or likelihood that this will happen is low, however, and the severity slight if no mitigation measures were adhered to.

If the mitigation below is implemented, the overall significance becomes low positive. Mitigation measures recommended to reduce the impact are as follows:

- A historian or built environmental specialist assess the significance of the original farm house and associated infrastructure
- Alternatively retain these features and change the location of the clubhouse slightly to avoid damage to the farmhouse remains.
- Develop a short informative historical tour of the farm house and remains, as an additional feature of the golf course.

Impact	Effect			Risk or Likelihood	Overall Significance
	Temporal Scale	Spatial Scale	Severity of Impact		
Change in land use					
Without mitigation	Permanent	Study area	Slight	Unlikely	**LOW -**
With mitigation	Permanent	Study area	Slightly beneficial	probable	**LOW +**
No-Go					
Without mitigation	N/A	N/A	N/A	N/A	**No Impact**
With mitigation	N/A	N/A	N/A	N/A	**N/A**

Impact 3: ***Negative impact on historical building and infrastructure***

Cause and comment

There are numerous historical buildings and infrastructure (such as the railway line) on site. Various grave sites have also been identified.

Significance statement

Should any of these structures be removed during construction it will result in a permanent, very high, negative impact. Should mitigation measures be employed as recommended by the specialist this impact may be reduced to moderate.

Mitigation measures recommended to reduce the impact are as follows:

- It is recommended that the railway line, footprint of the second Willow Glen farmhouse on portion 1 and 2 of Willow Glen (known as Willow Glen Annexure), the railway track, the railway bridge and any other property of Transnet be retained within the area to be developed.
- The sites of the graves on Willow Glen are protected under the Heritage Act Section 36b and should be maintained.
- If any further graves are discovered in the clearing process, development must halt for an inspection by an archaeologist.
- Should any further plans come to light, Belmont Dev. Co should include the footprint of the original Willow Glen Annexe farmhouse and some features of the historical farmhouses in the design for the new Grahamstown Golf Clubhouse which will possibly be erected on the site of the original farmhouse (Daniel Thomas McLean/Sonny Clark) so that the new structure has links with the history of the Belmont Valley farms and architecture of the 19th Century.

Impact	Effect			Risk or Likelihood	Overall Significance
	Temporal Scale	Spatial Scale	Severity of Impact		
Construction phase					
Without mitigation	Permanent	Study area	Severe	Definite	**HIGH -**
With mitigation	Permanent	Study area	Severe	May occur	**MODERATE -**
No-Go					
Without mitigation	N/A	N/A	N/A	N/A	**No Impact**

<u>Impact 4:</u> ***Negative impact on paleontological resources***

Cause and comment

To the west of the Bloukrans River, where Witteberg Group strata underlie the study site, particularly where mudstones and shales are likely to be exposed, (such as between the river and the foot of the hills it is *probable* that plant (and possibly fish) fossils will be disturbed by earth moving activities such as road construction and the landscaping of the proposed golf course.

Significance statement

Though the disturbance of such fossils is likely to be *localised*, a particularly significant find could be of *international* importance. Destruction of material would be of a *severe permanent* nature though *long term benefit* could be gained from the discovery of significant new material.

Although it is difficult to numerically quantify potential paleontological impacts according to standard models it can be said that potential paleontological impacts to the east of the Bloukrans River in Belmont Valley are of *Moderate Significance*. Any negative impact resultant from disturbance of fossiliferous bedrock could be mitigated to a benefit to science if the disturbed material was sampled and studied.

Mitigation measures recommended to reduce the impact are as follows:

- It is therefore recommended that within this restricted area all large scale earthworks including road construction, pond excavation, levelling etc. should be monitored by a

palaeontologist.

Impact	Effect			Risk or Likelihood	Overall Significance
	Temporal Scale	Spatial Scale	Severity of Impact		
Construction phase					
Without mitigation	Permanent	Study area	Severe	Definite	**HIGH -**
With mitigation	Permanent	Study area	Severe	May occur	**MODERATE -**
No-Go					
Without mitigation	N/A	N/A	N/A	N/A	**No Impact**

ISSUE 8: Impacts on water courses

Cause and comment

The effects of large-scale bulk earthworks have an overall effect on water penetration rates and surface run-off speeds. The presence of grasses with developed and knitted thatch reduces the rate of water penetration into the soil, as well as increases the speed of surface run-off. This in turn raises surface water volume discharge rates into watercourses resulting in potentially increased erosion. Higher water speeds further increase the potential to wash away shallow rooted species and undermine riparian systems. The fact that the proposed course lies on both sides of the river increases this risk. The need for the construction of water crossings and bridges can affect the flow and processes of a watercourse.

Significance statement

Without appropriate mitigation measures as proposed below, the development runs the risk of potentially damaging the water courses, which will result in short-term, local scale, severe effects.

Several mitigation measures relating to the fairways, water crossing and parking areas are proposed. Implementing such measures during the construction phase will result in a medium-term improvement of possible impacts on the water courses, and will result in a slight impact if implemented correctly during the construction phase.

The following mitigation and management measures are proposed to reduce possible impacts:

- Fairways and driving ranges should be kept as comfortably narrow as possible so as to reduce the scale of knitted thatch;
- Rough areas should be wider especially on the downward side of the slope so as to assist in reducing surface run-off speeds;
- Rough areas should attempt to retain and attenuate surface run-off where possible;
- Irrigation application rates should be carefully controlled and managed;
- Water crossings and bridges should not impede the natural flow of the river and be legally approved by all relevant departments
- Parking areas should make use of attenuation areas and erosion control methods at discharge points;
- Operational management programs to keep the river clean and clear of rubbish should be implemented; and lastly
- The developer should attempt to use organic fertilisers as far as reasonably possible in order to ensure that pollutants do not run-off into major river streams.

Impact	Effect			Risk or Likelihood	Overall Significance
	Temporal Scale	Spatial Scale	Severity of Impact		
Construction phase					
Without mitigation	Medium-term	Regional	Severe	Probable	**HIGH -**
With mitigation	Short-term	Local	Slight	Unlikely	**LOW -**

No-Go					
Without mitigation	N/A	N/A	N/A	N/A	**No Impact**

10.2 Impacts that may result from the Operational phase

ISSUE 1: Loss of agricultural land

Cause and comment

The proposed development site is currently zoned as agriculture I. The proposed development will therefore result in a loss of agricultural potential.

Significance statement

Belmont Valley consists of high potential arable land. The loss of land for agricultural activities will be permanent and severe and therefore will result in a high impact. This impact cannot be mitigated.

The no go option results in a low positive impact as although the area is zoned for agriculture it is not currently utilized for this purpose.

Impact	Effect			Risk or Likelihood	Overall Significance
	Temporal Scale	Spatial Scale	Severity of Impact		
Construction phase					
Without mitigation	Permanent	Local	Severe	Definite	**HIGH -**
With mitigation	N/A	N/A	N/A	N/A	**No Impact**
No-Go					
Without mitigation	Long-term	Local	Slight	Definite	**LOW +**
With mitigation	N/A	N/A	N/A	N/A	**N/A**

ISSUE 2: Surface and ground water pollution

Cause and comment

During the operational phase surface and groundwater pollution may occur as a result of improper waste management (i.e. litter from the people utilizing the golf course), discharge from the Lilliput system and the use of pesticides and fertilizers for maintaining the fairways and greens.

Significance statement

There is a strong possibility that the development will create pollution during the operational phase. This impact is considered to be permanent if not mitigated. If mitigation is enforced the impact could be reduced to a low significance.

The following mitigation and management measures are proposed to reduce possible impacts:

- A litter control programme should be implemented during the operational phase to ensure that litter is contained on site.
- Litter should be disposed of at a registered waste disposal site.
- Reduce the potential for pollution from fertilizer, herbicide and pesticide applications. The proposed golf course should be encouraged to follow the following recommendations:
    - Organic fertilizer, pesticides and herbicides must be used as far as possible. When the application of inorganic fertilizer, pesticides or herbicides are unavoidable a nutrient management plan should be in pace prior to application.
    - Read the label before purchasing and applying the products.

- Do not apply pesticides when rain is imminent. Pesticides need time to dry and work.
- Do not spray products during high wind conditions.
- Use the correct amount of water. Over watering may result in leaching. Apply correct quantities/concentrations. Too little may not work and too much may cause damage to the environment.
- Use Integrated Pest Management to control pests.
- Select products with a low leaching potential.
- Where possible, use low toxicity, short lived chemicals instead of high toxicity, long lived chemicals.
- Use care when handling chemicals and disposing of the leftover material (Oklahoma Cooperative Extension Service).

Impact	Effect			Risk or Likelihood	Overall Significance
	Temporal Scale	Spatial Scale	Severity of Impact		
Operational Phase					
Without mitigation	Long-term	Regional	Severe	Definite	**HIGH -**
With mitigation	Long-term	Localized	Slight	May occur	**LOW -**
No-Go					
Without mitigation	There is currently no activities on site	N/A	N/A	N/A	**No Impact**
With mitigation	N/A	N/A	N/A	N/A	**N/A**

ISSUE 3: Storm water management

Cause and comment

Currently the Bloukrans River traverses the proposed property and drains in a general easterly direction. The proposed development will result in an increase in impermeable surfaces (e.g. the roof of the club house and the access road) which in turn will result in an increase in run-off.

Significance statement

The proposed development will result in a few impervious surfaces which will result in an increase in run-off. However the majority of the property will consist of fairways and greens for the golf course. Therefore storm water within the area will not be considered as a major concern.

The following mitigation and management measures are proposed to reduce possible impacts:

- It is recommended that paving is used for the construction of roads and the parking area to allow for some seepage of storm water

Impact	Effect			Risk or Likelihood	Overall Significance
	Temporal Scale	Spatial Scale	Severity of Impact		
Operational Phase					
Without mitigation	Long-term	Localized	Slight	Probable	**LOW -**
With mitigation	Long-term	Localized	Slight	Probable	**LOW -**
No-Go					
Without mitigation	N/A	N/A	N/A	N/A	**No Impact**
With mitigation	N/A	N/A	N/A	N/A	**N/A**

ISSUE 4: Visual impacts

Cause and comment

The change in land use from agriculture to a golf course development may result in visual impacts.

Significance statement

The development will consist of a golf course situated mostly on fallow land and a clubhouse that will be constructed in the position of the existing farmhouse. It is therefore anticipated that there will be little visual intrusion, since the fairways are similar visually to the fallow / grassland. It is however recommended that the clubhouse conforms to the original style of the farmhouse as suggested by the historical specialist. No further mitigation measures are included.

Impact	Effect			Risk or Likelihood	Overall Significance
	Temporal Scale	Spatial Scale	Severity of Impact		
Operational Phase					
Without mitigation	Long-term	Localized	Slight	Probable	**LOW -**
With mitigation	Long-term	Localized	Slight	Probable	**LOW -**
No-Go					
Without mitigation	N/A	N/A	N/A	N/A	**No Impact**
With mitigation	N/A	N/A	N/A	N/A	**N/A**

ISSUE 5: Socio-economic impacts

Cause and comment

The proposed development will create various employment opportunities. Furthermore, the land swap between Belmont Dev. Co. and the golf club will enable land within the urban edge to become available for urban development. The proposed development would therefore indirectly result in the supply of much needed housing facilities in the area. Furthermore, a scenic golf course in the area may attract tourists.

Significance statement

Employment opportunities provided during the operational phase of the development will be limited, however if you include the possibility of attracting tourists and making more land available for housing projects, this will result in an impact of moderate positive significance. If the developer plans to initiate a trust for the upliftment of the community as stipulated in the Socio-Economic Assessment this impact could be increased to a high positive impact.

For the no go option there is limited socio-economic value arising from a small farming enterprise, and the impact is regarded as low positive

Impact	Effect			Risk or Likelihood	Overall Significance
	Temporal Scale	Spatial Scale	Severity of Impact		
Operational Phase					
Without mitigation	Long-term	Localized	Beneficial	Probable	**MODERATE +**
With mitigation	Long-term	Localized	Beneficial	Probable	**HIGH +**
No-Go					
Without mitigation	Long-term	Localized	Slight	Probable	**LOW +**
With mitigation	N/A	N/A	N/A	N/A	**N/A**

ISSUE 6: Traffic Impacts

Impact 1: Increase in traffic volumes

Cause and comment

During the operational phase of the golf course, it is anticipated that the traffic volumes will increase. The new golf course can be expected to generate an average of 180 vehicle trips (1 trip direction) on the three busiest days each week (Wednesday, Thursdays and Saturdays) with fewer trips on the remaining days. Based on the anticipated daily traffic volumes, the road can be categorised as a medium to high volume gravel road.

Significance statement

Without mitigation, the road will be in a poor condition, which will have a direct effect on the increased traffic volumes and vehicle safety, resulting in an overall high significance. If the road is maintained during the operational phase by the developer the road will be able to withstand the increased traffic volumes.

The following mitigation and management measures are proposed to reduce possible impacts:

- The development should contribute towards maintenance required to ensure that the road remains in a suitable condition after construction has been completed.
- A general speed limit should be posted together with recommended speeds at sharp curves. The existing 100km/h signage at km 12.0 at the end of the road should be replaced with a 60km/h sign. After construction is complete, the road surface should be re-gravelled and compacted to ensure that the riding quality of the road remains at least at a similar standard after development than it currently is.
- Given that the traffic volumes are likely to increase substantially as a result of the proposed golf course, the developer should also perhaps contribute towards annual maintenance of the road in order to ensure that it remains in a good condition.
- At current, no protection is afforded to those road users who may loose control of vehicles at culverts and at embankments of Belmont Valley Road. Guardrails should be provided at these locations in order to improve safety of the road.
- The crossings between the two sections of the golf course must be clearly demarcated by means of advance warning signage on Belmont Valley Road.
- Bush clearing should be conducted where vegetation encroaches onto the road surface in order to improve sight distances and ensure that motorists in opposing directions are able to pass each other.

For the no go option the impact is moderate low, as there are currently numerous vehicles utilizing this road.

Impact	Effect			Risk or Likelihood	Overall Significance
	Temporal Scale	Spatial Scale	Severity of Impact		
Operational Phase					
Without mitigation	Long-term	Localized	Severe	Definite	**HIGH -**
With mitigation	Long-term	Localized	Slight	Probable	**MODERATE -**
No-Go					
Without mitigation	Long-term	Localized	Sligh	Probable	**MODERATE -**
With mitigation	N/A	N/A	N/A	N/A	**N/A**

Impact 2: Increased accidents

Cause and comment

During the operational phase of the golf course and especially during dry periods, dust may reduce visibility on Belmont Valley Road. Furthermore, various sections of the road appear to have clayey material which may lead to a slippery road surfaces during wet conditions. As it is anticipated that with traffic volumes increase, the risk of a vehicle accident is likely to increase. The main concern from a traffic safety perspective is also the lack of road signage along the entire length of the Belmont Valley Road. Of particular concern is the lack of advance warning of sharp curves and the poor sight distance on the approaches to these curves. While vehicle operating speeds can be relatively high along the majority of the length of the road given long straight sections, problems can occur at curves due to lack of advance warning and as a result of visibility being impaired by dust.

Significance statement

It is highly likely that vehicular accidents along this road may increase if adequate mitigation measures as recommended by the Traffic Impact Assessment are not implemented. However should these mitigation measures be implemented the risk of accidents can be reduced to a low significance.

The mitigation and management measures are as proposed above.

For the no go option the impact is moderate low, as there are currently numerous vehicles utilizing this road.

Impact	Effect			Risk or Likelihood	Overall Significance
	Temporal Scale	Spatial Scale	Severity of Impact		
Operational Phase					
Without mitigation	Long-term	Localized	Severe	Definite	**HIGH -**
With mitigation	Long-term	Localized	Slight	May occur	**LOW -**
No-Go					
Without mitigation	Long-term	Localized	Slight	Probable	**MODERATE -**
With mitigation	N/A	N/A	N/A	N/A	**N/A**

Impact 3: Increased dust

Cause and comment

Dust created by an increase in traffic on Belmont Valley Road may reduce the visibility of motorists. Dust will be prevalent for a few days after the road is bladed as during the blading process, fine material from the road edge is worked into the road surface. However, the dust will generally dissipate after a few days. It is also noted that the higher the speed of vehicles, the more dust will be created. Speed limits of 60km/h would result in less dust.

Significance statement

It is highly likely that vehicular accidents along this road may increase due to reduced visibility resulting from increased dust levels. Large amounts of dust may also result in health risks to both humans and livestock in the area, if adequate mitigation measures as recommended by the Traffic Impact Assessment are not implemented. However should these are implemented the risk of accidents can be reduced to a moderate significance.

The following mitigation and management measures, in addition to those presented above, are proposed to reduce possible impacts:

- It is proposed that a speed limit of 60km/h be imposed on the Belmont Valley Road.

Impact	Effect			Risk or Likelihood	Overall Significance
	Temporal Scale	Spatial Scale	Severity of Impact		
Operational Phase					
Without mitigation	Long-term	Localized	Severe	Definite	**HIGH -**
With mitigation	Long-term	Localized	Slight	Probable	**MODERATE -**
No-Go					
Without mitigation	Long-term	Localized	Slight	Probable	**MODERATE -**
With mitigation	N/A	N/A	N/A	N/A	**N/A**

Impact 4: Increased noise

Cause and comment

During the operational phase of the golf course, it is anticipated that the traffic volumes will increase. This will result in an increase in the noise levels generated from the road.

Significance statement

Speeding along Belmont Valley Road may increase noise levels from vehicular traffic significantly. If adequate speed limits are imposed noise levels may decrease. However, the overall increase in traffic will still result in an increase in noise levels and therefore the impact is only reduced to moderate significance.

The following mitigation and management measures are proposed to reduce possible impacts:

- The existing 100km/h signage at km 12.0 at the end of the Belmont Valley Road should be replaced with a 60km/h sign. This will result in a decrease in possible noise emanating from the increased traffic volume.

Impact	Effect			Risk or Likelihood	Overall Significance
	Temporal Scale	Spatial Scale	Severity of Impact		
Operational Phase					
Without mitigation	Long-term	Localized	Severe	Probable	**MODERATE -**
With mitigation	Long-term	Localized	Slight	Probable	**MODERATE -**
No-Go					
Without mitigation	Long-term	Localized	Slight	Probable	**MODERATE -**
With mitigation	N/A	N/A	N/A	N/A	**N/A**

10.3 Cumulative impacts

ISSUE 1: Impacts on the Bloukrans River

Cause and comment

During the Scoping Phase of the project, concern has been raised by some I&APs regarding the effect of the development on agricultural lands and the use of scarce water resources. The study area lies downstream from the town of Grahamstown and the sewerage treatment works. Both of these factors already negatively affect the quality of water in the river. The cumulative effect of

upstream activities combined with the proposed development, as well as downstream agricultural activities can lead to irreparable damage to other ecosystems. It should be the responsibility of a development to not only mitigate its own impacts, but also of those above it in both linear and non-linear processes.

Significance statement

Without mitigation measures during both the construction and operational phases of the project, the temporal scale effects will be long-term on the broader environment. The effects will be regional in scale, and severe.

Mitigation measures in place the effects will be long-term both during the construction and operational phases of the project. Not implementing these measures will thus result in severe environmental impacts.

In order to manage and mitigate this potential impact, the following strategies are proposed:

- The trustees of the proposed development should interact with adjacent developments (and farmers) with the aim of working together to improve individual and cumulative impacts;
- Environmental educational programs designed for the users of the proposed development should be implemented as long-term operational considerations;
- The storage of hazardous materials, both during construction and operational phases, should be correctly managed and be situated away from sensitive areas.

Impact	Effect			Risk or Likelihood	Overall Significance
	Temporal Scale	Spatial Scale	Severity of Impact		
Construction and Operational Phases					
Without mitigation	Long-term	Regional	Severe	Definite	**HIGH -**
With mitigation	Long-term	Regional	Moderate	Probable	**MODERATE -**
No-Go					
Without mitigation	Long-term	Regional	Slight	Definite	**MODERATE -**
With mitigation	N/A	N/A	N/A	N/A	**N/A**

11. CONCLUSIONS AND RECOMMENDATIONS

In terms of section 32 (2) of the EIA regulations (2006), *an environmental impact assessment report must include:-*

(m) An opinion as to whether the activity should or should not be authorised;
(n) An environmental impact statement which contains (i) a summary of the key findings of the EIA; and (ii) a comparative assessment of the positive and negative implications of the proposed activity and identified alternatives.

In line with the above-mentioned legislative requirement, this chapter of the EIR provides a summary of the findings of the proposed golf course development, a comparative assessment of the positive and negative implications of the proposed project and identified alternatives. In addition, this chapter provides the EAP's opinion as to whether the activity should or should not be authorised as well as the reason(s) for the opinion.

11.1 Summary of the key findings of the EIA

The following section provides an overview of the findings of this EIR. A summary of the findings of the individual specialists studies are available in Chapter 8 of this report and the complete assessment is available in the Specialist Report volume submitted with this EIR document.

Table 11-1: Summary of the impacts associated with the proposed Belmont Valley Golf Course during the construction phase

CONSTRUCTION PHASE				
Impact study	**Impact number**	**Impact type**	**Significant**	
			Without mitigation	**With mitigation**
Topography and geology			**LOW-**	**LOW-**
Traffic			**MODERATE-**	**LOW-**
Health and safety			**LOW-**	**LOW-**
Biodiversity	1	Impacts on ecological processes	**VERY HIGH-**	**MODERATE-**
	2	Impacts on species of special concern	**VERY HIGH-**	**HIGH-**
	3	Impacts of alien species	**MODERATE-**	**LOW+**
Removal of topsoil and soil erosion			**VERY HIGH-**	**MODERATE-**
Air quality			**MODERATE-**	**LOW-**
Noise			**MODERATE-**	**LOW-**
Surface and groundwater pollution			**HIGH-**	**LOW-**
Archaeology, palaeontology and heritage	1	Negative impact on archaeological remains and sites	**LOW-**	**LOW-**
	2	Negative impact on original farmhouse and associated infrastructure and railway line	**LOW-**	**LOW+**
	3	Negative impact on historical buildings and infrastructure	**HIGH-**	**MODERATE-**
	4	Negative impact on paleontological resources	**HIGH-**	**MODERATE-**
Water courses			**HIGH-**	**LOW-**
Cumulative	1	Bloukrans River	**HIGH-**	**MODERATE-**

Table 11-2: Summary of the impacts associated with the proposed Belmont Valley Golf Course during the operational phase

OPERATIONAL PHASE				
Impact study	**Impact number**	**Impact type**	**Significant**	
			Without mitigation	**With mitigation**
Loss of agricultural land			**HIGH-**	**HIGH-**
Surface and ground water pollution			**HIGH-**	**LOW-**
Storm water management			**LOW-**	**LOW-**
Visual			**LOW-**	**LOW-**
Socio-economic			**MODERATE+**	**HIGH+**
Traffic	1	Increase in traffic volumes	**HIGH-**	**MODERATE-**
	2	Increased accidents	**HIGH-**	**LOW-**
	3	Increased dust	**HIGH-**	**MODERATE-**
	4	Increased noise	**MODERATE-**	**MODERATE-**
Cumulative	1	Impacts on Bloukrans River	**HIGH-**	**MODERATE-**

11.2 EAP's recommendation

Many of the construction and operational impacts can be reduced with effective management of the site. Furthermore, various positive impacts may result from the proposed development, i.e. job creation, alien eradication, tourism opportunities, etc. With this said, it is the opinion of the EAP that the environmental authorisation for this project should be granted under certain conditions, in order to address those impacts with a high significance rating, and included in Chapter 10 of this report. Below is a list of suggested conditions:

1. The applicant must appoint an Environmental Control Officer prior to construction to perform regular environmental audits to ensure that the conditions as set out in the EMP and the environmental authorization are adhered to.
2. The applicant must receive water use licenses from the Department of Water Affairs for the abstraction of water from the Bloukrans River, the construction of the causeway and the weir and the discharge of effluent from the Lilliput system (whether being used for irrigation or discharged into the Bloukrans River), prior to the construction of any of these structures.

3. The applicant must receive the relevant permits from the Department of Forestry should any of the protected trees listed in terms of the National Forest Act such as *Sideroxylon inerme*, need to be removed for construction. It is recommended that a qualified botanists mark all protected trees prior to construction.
4. Prior to the removal of any vegetation on site a qualified botanist should be employed to identified all species of special concern on site. These will have to be relocated to an on-site nursery prior to construction and used in rehabilitation.
5. Minimise the total amount of bare soil exposed to erosive forces by (1) controlling the amount of ground that is cleared at one time in preparation for construction, and (2) limiting the amount of time that bare ground may remain exposed before rehabilitation measures are put into place.
6. The two CBA 1 areas as identified in the ECBCP should be maintained as open space and further development should be prohibited.
7. A permeability test should be undertaken prior to the installation of any septic tank to ensure that there is no possibility of surface and/or groundwater pollution.
8. Any graves found on site must be reported to SAHRA immediately and the existing graves on site should be preserved.
9. Construction managers/foremen must be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites.
10. If archaeological heritage material and human remains are uncovered during construction, all work must cease immediately and be reported to the Albany Museum in Grahamstown (046 622 2312) and/or the SAHRA (021 642 4502) for systematic and professional investigation before excavation can be undertaken.
11. It is recommended that the railway line, footprint of the second Willow Glen farmhouse on portion 1 and 2 of Willow Glen (known as Willow Glen Annexure), the railway track, the railway bridge and any other property of Transnet be retained within the area to be developed.
12. The sites of the graves on Willow Glen are protected under the Heritage Act Section 36b and should be maintained.
13. If any further graves are discovered in the clearing process, development must halt for an inspection by an archaeologist.
14. Should any further plans come to light, the Belmont Dev. Co. may decide to include the footprint of the original Willow Glen Annexe farmhouse and include some features of the historical farmhouses in the design for the new Grahamstown Golf Clubhouse which will possibly be erected on the site of the original farmhouse (Daniel Thomas McLean/Sonny Clark) so that the new structure has links with the history of the Belmont Valley farms and architecture of the 19th Century.
15. All large scale earthworks including road construction, pond excavation, levelling etc. should be monitored by a palaeontologist.
16. An alien eradication programme must be implemented prior to the clearing of the proposed development site and all alien invasive species listed in terms of CARA must be removed.
17. Silt fences have to be erected along the Bloukrans River to prevent siltation during the construction phase, especially when constructing the tee and green that is situated in close proximity to the river and the access road.
18. The developer must install additional road traffic signs as indicated in the Traffic Impact Assessment.
19. The developer must ensure that the standard of the road remains at an acceptable level during construction.
20. The developer must upgrade the road to a suitable gravel standard once construction of the golf course has been completed.
21. Organic fertilizer, pesticides and herbicides must be used as far as possible. When the application of inorganic fertilizer, pesticides or herbicides are unavoidable a nutrient management plan should be in pace prior to application.
22. The proposed development site must be fenced. The fencing used must however allow for the migration of small mammals that may utilize the area. It is also recommended that

access to the proposed golf course is controlled and that a 24-hour security guard is employed and stationed at the access point.

If the project is to proceed it will need to take cognisance of all findings and recommendations in this report, as well as any that may be issued as a condition of authorisation in the environmental authorisation – should the project secure this.

The decision regarding whether to proceed with the proposed development should be based on weighing up of the positive and negative impacts as identified and assessed by the independent specialists.

It is also strongly suggested that the recommendations made in *Volume 4: Environmental Management Programme: Proposed Golf Course Development at Belmont Valley, Grahamstown, Eastern Cape Province* (CES, May 2012) also be followed.

11.3 The way forward

Following public review, this Final EIR, together with the Specialist Volume (Volume 2) and the EMP (Volume 4), will be submitted to the DEDEAT.

Upon thorough examination of the Final EIR, the authority will issue a decision which either authorises the project or rejects the EIR – in which case the DEDEAT will request additional information or clarification of certain issues. Should an Environmental Authorisation be granted, it usually carries Conditions of Approval. The project proponent is obliged to adhere to these conditions.

Within a period determined by the competent authority, all registered I&APs will be notified in writing of (i) the outcome of the application, and (ii) the reason for the decision. The public (or applicant) will then have time in which to appeal the decision should they wish to do so. The appeals procedure will also be communicated by the EAP. Any appeal must be submitted to the responsible Legal Officer at DEDEAT.

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APPENDIX A – DEPARTMENT OF WATER AFFAIRS

The letter below from the Department of Water Affairs serves as proof that the water use licence applications for the abstraction of water from the Bloukrans River and the construction of the weir and causeway have been submitted and is currently being processed by the Department of Water Affairs.

water affairs
Department:
Water Affairs
REPUBLIC OF SOUTH AFRICA

EASTERN CAPE REGION

P.O BOX 7019, East London, 5200. 02 Moore Street Ocean Terrace Building, Quigney, East London, 5200

Enq: Mbikwana Mlondolozi
Tel:(043) 7010352
Cell: 082 940 5474

Email:mbikwanam@dwaf.gov.za
Fax: 0866117055

Ref No: Belmont Valley/Golf Course Development **Date: 30/04/2012**

Re: PROPOSED GOLF COURSE DEVELOPMENT AT BELMONT VALLEY GRAHAMSTOWN

1. All construction or repair activities that would take place within the extent of a watercourse must be identified in terms of section 21 and will therefore require a water use authorization under the National Water Act, Act 36 of 1998.

2. Identified listed activities so far are:

   Section 21 a: Taking (Abstraction)
   Section 21 c: Impeding or diverting of water flow in a watercourse (Causeway and Weir)
   Section 21 i: Altering of bed, banks and characteristics of a watercourse (Causeway, Weir)

3. Outstanding Information:

i. Eco Status Report of the affected water resource were abstraction is proposed
ii. Impact assessment on the existing water users both upstream and downstream.
iii. Section 21 c an I information questionnaire DW781/775
iv. Civil designs for new weir, causeway
v. Layout plan for the infrastructure development, showing 1:100 year floodlines and vegetated buffer zones in relation to riparian areas of the affected watercourses
vi. All civil designs must be drawn up by a registered and professional engineer.
vii. Section 27 motivation report, please pay attention to 27 (1b)

Hope you find all in order.

MN Mbikwana (Resource Protection)

Date 30/4/2012

APPENDIX B – PLAN OF STUDY FOR THE EIR

SCOPE AND INTENT OF THE EIA PHASE

This phase includes the following steps:

1. **Specialist Studies** which include the specialist assessments identified in the Scoping Report and any additional studies required by the authorities. This requires the appointment of specialists to gather baseline information in their fields of expertise, and to assess the impacts and make recommendations to mitigate negative impacts and optimise benefits. The resulting information is synthesised into the Environmental Impact Report (EIR).
2. **Environmental Impact Report**. The main purpose of this report is to gather and evaluate environmental information, so as to provide sufficient supporting arguments to evaluate overall impacts, consider mitigation measures and alternative options, and make a valued judgement in choosing the best development alternative. The EIR is made available for public and authority review. The availability of the report is advertised in the local newspaper and is situated at an easily accessible location.
3. **Issue Response Trail** which compiles comments, issues and concerns raised by I&APs and the authorities and the relevant responses to these comments.
4. **Environmental Management Programme** informs the client and the technical team of the guidelines which will need to be followed during construction to ensure that there are no lasting or cumulative negative impacts of the construction process on the environment.
    - The standards and guidelines that must be achieved in terms of environmental legislation.
    - Mitigation measures and environmental specifications which must be implemented for all phases of the project in order to minimise the extent of environmental impacts, to manage environmental impacts and where possible to improve the condition of the environment.
    - Provide guidance through method statements that are required to be implemented to achieve the environmental specifications.
    - Define corrective action that must be taken in the event of non-compliance with the specifications of the EMPR.
    - Prevent long-term or permanent environmental degradation.

    In addition to this, the Public Participation Process is continued. As for the Scoping Phase, opportunity is provided for interested and affected parties to voice concerns and issues regarding the project. At this stage the project details may have changed in response to the preliminary findings of the Draft Scoping Report. I&APs and key stakeholders are also given the opportunity to review the Environmental Impact Report before it is submitted to the authorities. As for the Scoping Report, these comments are included in the Final EIR.
5. **Environmental Authorization and Appeals Process.** Upon thorough examination of the EIR, the authority will either issue an environmental authorization, which either authorises the project or rejects it, or require further details to clarify certain issues. Should authorisation be granted, it usually carries Conditions of Approval. The proponent is obliged to adhere to these conditions. Once the authorization has been issued, it is publicised and the public are given 20 calendar days from the issuing of the authorization to lodge an appeal with the authorities. An appeal must be submitted within 30 days after the lapsing of the 20 day notice of intention to appeal

THE PUBLIC PARTICIPATION PROCESS

Upon review of the comments received from DEDEA and DWA, the Public Participation Programme (PPP) will be initiated and will include the following:

- Notice of the EIR availability will be placed in the following newspapers:

  - The Herald
  - Grocotts Mail
- Registered I&APs will be informed in writing – either by email or post.
- I&APs will be given 40 calendar days to review and comment.

After the public review period, all relevant comments and questions received from the public will be considered and responded to and included into the Final EIR. This final document will be submitted to the authorities for final review and decision-making.

Once the EIR has been finalised it will be submitted to the competent authority for review and consideration for authorisation. The authority will grant authorisation, refuse authorisation or request further detail or information to clarify areas of concern. Should authorisation be granted, the decision will carry Conditions of Approval, to which the proponent is obliged to adhere.

The competent authority's decision will be advertised in the newspapers mentioned above and registered I&APs will be informed within seven days of receipt of the Decision. Once the public have been notified of the Environmental Authorisation they will also be notified of the appeal provisions and process related thereto.

ENVIRONMENTAL IMPACT REPORT (EIR)

The Specialist Studies will inform the EIR. In addition, the EIR will gather any comments received from I&APs and determine whether it is necessary to increase the scope of work or amend the Terms of Reference. The EIR will examine the 'No Go' alternative along with the proposed development, as required in the EIA regulations.

Structure of the EIA Report

The following is the proposed Table of Contents for the Environmental Impact Report (EIR):

PART ONE: INTRODUCTION AND DESCRIPTION OF ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

1 BRIEF DESCRIPTION OF THE PROPOSED PROJECT
2 ENVIRONMENTAL IMPACT ASSESSMENT PROCESS
Activities triggering the EIA process
The environmental study team
The environmental assessment process followed
Structure of the Report

PART TWO: THE PROPOSED GOLF COURSE DEVELOPMENT

1 PROJECT OVERVIEW
2 LOCATION AND EXTENT
3 TECHNICAL DESCRIPTION OF THE DEVELOPMENT

PART THREE: DESCRIPTION OF THE AFFECTED ENVIRONMENT

1. THE NATURAL ENVIRONMENT
2. SOCIO-ECONOMIC ENVIRONMENT
3. THE POLICY, LEGAL AND ADMINISTRATIVE ENVIRONMENT

PART FOUR: ASSESSMENT OF THE ENVIRONMENTAL IMPACTS ASSOCIATED WITH DEVELOPMENT

1. IMPACTS ASSOCIATED WITH THE EXISTING SITUATION
2. IMPACTS ASSOCIATED WITH THE PROPOSED CHANGE IN LAND USE
3. CONCLUSION

PART FIVE: ASSESSMENT OF THE 'NO GO' ALTERNATIVE

PART SIX: ENVIRONMENTAL MANAGEMENT AND OVERALL RECOMMENDATIONS AND CONCLUSIONS
Will include an environmental impact statement

SPECIALIST STUDIES

An ecological impact assessment is required to assess the current status of the fauna and flora as well as any ecological processes and the predicted impact from the proposed development on these issues. Furthermore, a heritage impact assessment is required by SAHRA to identify any key heritage resources that may need to be protected. The Terms of Reference which will outline the information required from the specialist studies is given in Section 8.6. The significance of impacts will be assessed according to the methodology given in Section 8.7. Specialists must address issues raised by I&APs in their reports.

SPECIALIST STUDIES: DRAFT TERMS OF REFERENCE

Ecological Assessment

The proposed development site is currently vacant and unutilised, but was previously used for agricultural purposes. Therefore there are currently large areas that have been completely transformed and consist of fallow lands. However, the proposed development site lies within the Albany Centre of Floristic Endemism, and thus may house species of special concern. Lack of pristine terrestrial habitat in the Grahamstown area, particularly due to loss of natural vegetation caused by infestation by alien invasive species as well as urban development, has impacted on terrestrial fauna. Despite this, a few large mammals occur in the region, along with small and medium sized animals. Reptile and amphibians occurring in the area include many species of frogs, tortoises and terrapins, lizards and snakes. The development may therefore result in the loss of endemic faunal and/or vegetation species and it is thus necessary to determine the current status and distribution of species and communities and the impact that the development is likely to have on them.

The terms of reference for the ecological study will be to:

- Review of existing studies.
- Provide a description and a map of the natural vegetation types on site.
- Determine the conservation status of the vegetation types.
- Determine the impacts and provide an assessment of the significance of impacts.
- Provide mitigation measures to reduce the significance of negative impacts and improve the significance of positive impacts.

Heritage Assessment

The National Heritage Resources Act 25 of 1999 (NHR) requires that *"…any development or other activity which will change the character of a site exceeding 5 000m², or the rezoning or change of land use of a site exceeding 10 000 m², requires an archaeological impact assessment*"

An archaeological and paleontological impact assessment will therefore be conducted, the primary objective of which is to determine whether there are any indications that the proposed site is of archaeological and/or paleontological significance. These assessments will be phase 1 assessments and will be largely desk-top although a site visit will be required to enable the specialists the opportunity to look for significant artefacts on the surface of the site. It is not expected that a more detailed Phase 2 assessment will be required but this remains to be confirmed.

The terms of reference for the Phase 1 archaeological study will be to:

1. Provide a summary of the relevant legislation;
2. Conduct a site inspection as required by national legislation
3. Determine the likelihood of archaeological remains of significance in the proposed site;
4. Identify and map (where applicable) the location of any significant archaeological remains;
5. Assess the sensitivity and significance of archaeological remains in the site;
6. Assess the significance of direct and cumulative impacts of the proposed development and viable alternatives on archaeological and heritage resources;
7. Identify mitigatory measures to protect and maintain any valuable archaeological sites and remains that may exist within the proposed site.
8. Prepare and submit any permit applications to SAHRA

The terms of reference for the paleontological study will be to:

1. Determine the likelihood of palaeontological resources of significance in the proposed site;
2. Identify and map (where applicable) the location of any significant palaeontological remains;
3. Assess the sensitivity and significance of palaeontological remains in the site; and
4. Identify mitigatory measures to protect and maintain any valuable palaeontological sites and remains that may exist within the proposed site.

Socio-Economic Impact Assessment

Various I&APs have raised comments related to the socio-economic impacts of the development. For this reason the proponent has agreed to undertake a Socio-Economic Impact Assessment for the proposed development.

Specific terms of reference for the socio-economic assessment will include:

- A baseline socio-economic description of the affected environment;
- The identification of potential social and economic change processes that may occur as a result of the proposed development;
- The identification of potential social and economic impacts; and
- The identification of relevant mitigation measures.

Traffic Impact Assessment

Various I&APs have raised comments related to Belmont Valley Road. For this reason the proponent has agreed to undertake a Traffic Impact Assessment for the proposed development.

- Undertake a traffic impact assessment and make recommendation for alteration to the roads and any other necessary measure to ensure the safety of vehicles on the development site.
- Assess the potential for traffic congestion associated with the proposed project and the potential impact thereof on commuters, local residents, and the transportation infrastructure;

METHODOLOGY FOR ASSESSING THE SIGNIFICANCE OF IMPACTS

Specialists are required to provide the reports in a specific layout and structure, so that a uniform specialist report volume can be produced. To ensure a direct comparison between various specialist studies, standard rating scales have been defined for assessing and quantifying the identified impacts. This is necessary since impacts have a number of parameters that need to be assessed.

Five factors need to be considered when assessing the significance of impacts, namely:

1. Relationship of the impact to **temporal** scales - the temporal scale defines the significance of the impact at various time scales, as an indication of the duration of the impact.

2. Relationship of the impact to **spatial** scales - the spatial scale defines the physical extent of the impact.

3. The severity of the impact - the **severity/beneficial** scale is used in order to scientifically evaluate how severe negative impacts would be, or how beneficial positive impacts would be on a particular affected system (for ecological impacts) or a particular affected party.

   The severity of impacts can be evaluated with and without mitigation in order to demonstrate how serious the impact is when nothing is done about it. The word 'mitigation' means not just 'compensation', but also the ideas of containment and remedy. For beneficial impacts, optimization means anything that can enhance the benefits. However, mitigation or optimization must be practical, technically feasible and economically viable.

4. The **likelihood** of the impact occurring - the likelihood of impacts taking place as a result of project actions differs between potential impacts. There is no doubt that some impacts would occur (e.g. loss of vegetation), but other impacts are not as likely to occur (e.g. vehicle accident), and may or may not result from the proposed development. Although some impacts may have a severe effect, the likelihood of them occurring may affect their overall significance.

Each criterion is ranked with scores assigned as presented in Table 8-1 to determine the overall **significance** of an activity. The criterion is then considered in two categories, viz. effect of the activity and the likelihood of the impact. The total scores recorded for the effect and likelihood are then read off the matrix presented in Table 8-2, to determine the overall significance of the impact. The overall significance is either negative or positive.

The ***environmental significance*** scale is an attempt to evaluate the importance of a particular impact. This evaluation needs to be undertaken in the relevant context, as an impact can either be ecological or social, or both. The evaluation of the significance of an impact relies heavily on the values of the person making the judgment. For this reason, impacts of especially a social nature need to reflect the values of the affected society.

Cumulative Impacts

Cumulative Impacts affect the significance ranking of an impact because it considers the impact in terms of both on-site and off-site sources. For example, the noise generated by an activity (on-site) may result in a value which is within the World Bank Noise Standards for residential areas. Activities in the surrounding area may also create noise, resulting in levels also within the World Bank Standards. If both on-site and off-site activities take place simultaneously, the total noise level at the specified receptor may exceed the World Bank Standards. For this reason it is important to consider impacts in terms of their cumulative nature.

Seasonality

Although seasonality is not considered in the ranking of the significance, if may influence the evaluation during various times of year. As seasonality will only influence certain impacts, it will only be considered for these, with management measures being imposed accordingly (i.e. dust suppression measures being implemented during the dry season).

Ranking of Evaluation Criteria

EFFECT	**Temporal scale**			**Score**
	Short term	Less than 5 years		**1**
	Medium term	Between 5 and 20 years		**2**
	Long term	Between 20 and 40 years (a generation) and from a human perspective almost permanent.		**3**
	Permanent	Over 40 years and resulting in a permanent and lasting change that will always be there		**4**
	Spatial Scale			
	Localised	At localised scale and a few hectares in extent		**1**
	Study area	The proposed site and its immediate environs		**2**
	Regional	District and Provincial level		**3**
	National	Country		**3**
	International	Internationally		**4**
	*	**Severity**	**Benefit**	
	Slight / Slight Beneficial	Slight impacts on the affected system(s) or party(ies).	Slightly beneficial to the affected system(s) or party(ies).	**1**
	Moderate / Moderate Beneficial	Moderate impacts on the affected system(s) or party (ies).	An impact of real benefit to the affected system(s) or party(ies).	**2**
	Severe / Beneficial	Severe impacts on the affected system(s) or party(ies).	A substantial benefit to the affected system(s) or party(ies).	**4**
	Very Severe / Very Beneficial	Very severe change to the affected system(s) or party (ies).	A very substantial benefit to the affected system(s) or party(ies).	**8**
LIKELIHOOD	**Likelihood**			
	Unlikely	The likelihood of these impacts occurring is slight		**1**
	May Occur	The likelihood of these impacts occurring is possible		**2**
	Probable	The likelihood of these impacts occurring is probable		**3**
	Definite	The likelihood is that this impact will definitely occur		**4**

* *In certain cases it may not be possible to determine the severity of an impact thus it may be determined: Don't know/Can't know*

LIKELIHOOD \ EFFECT	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	4	5	6	7	8	9	10	11	12	13	14	15	16	17
2	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3	6	7	8	9	10	11	12	13	14	15	16	17	18	19
4	7	8	9	10	11	12	13	14	15	16	17	18	19	20

Ranking matrix to provide an Environmental Significance

Environmental Significance		
LOW	An acceptable impact which for which mitigation is desirable but not essential; The impact by itself is insufficient even in combination with other low impacts to prevent the development. These impacts will result in either positive or negative medium to short term effects on the social and/or natural environment.	**4-7**
MODERATE	An important impact which requires mitigation. The impact is insufficient by itself to prevent the implementation of the project but which in conjunction with other impacts may prevent its implementation. These impacts will usually result in either positive or negative medium to long term effects on the social and/or natural environment.	**8-11**
HIGH	A serious impact which, if not mitigated, may prevent the implementation of the project. These impacts would be considered by society as constituting a major and usually long term change to the (natural and/or social) environment and result in severe effects or beneficial effects.	**12-15**
VERY HIGH	A very serious impact which may be sufficient by itself to prevent the implementation of the project. The impact may result in permanent change. Very often these impacts are unmitigable and usually result in very severe effects, or very beneficial effects.	**16 - 20**

Prioritising

The evaluation of the impacts, as described above is used to prioritise which impacts require mitigation measures. Negative impacts that are ranked as being of "**VERY HIGH**" and "**HIGH**" significance will be investigated further to determine how the impact can be minimised or what alternative activities or mitigation measures can be implemented. These impacts may also assist decision makers i.e. lots of **HIGH** negative impacts may bring about a negative decision. For impacts identified as having a negative impact of "**MODERATE**" significance, it is standard practice to investigate alternate activities and/or mitigation measures. The most effective and practical mitigations measures will then be proposed. For impacts ranked as "**LOW**" significance, no investigations or alternatives will be considered. Possible management measures will be investigated to ensure that the impacts remain of low significance.

APPENDIX C – CURRICULUM VITAE OF EAP AND DECLARATION OF INDEPENDENCE

CURRICULUM VITAE-ANTHONY MARK AVIS (DR)

PERSONAL INFORMATION

Name of Staff: Dr Anthony Mark Avis
Date of Birth: 26 September 1960
Profession: Environmental Consultant and Managing Director of Coastal & Environmental Services. Years with Firm/Entity: 20 years Nationality: South African
Married since 1986: Wife Cheryl. Two Children. Jonathan - Born 1996; Luke - born 2002

QUALIFICATIONS

1983: BSc; 1984: BSc (Honours);
1992: PhD (Rhodes). Dissertation - Coastal Dune Ecology and Management in the Eastern Cape (Awarded the South African Association of Botanists Junior Medal. This is awarded to the candidate with the best PhD thesis in Botany for the particular year under review - 1993).

ASSOCIATIONS

Member - Royal Society of South Africa; Visiting Fellow; Department of Environmental Science; Rhodes University; Associate, Rhodes University Investec Business School; Certified Environmental Assessment Practitioner in South Africa; South African Council for Natural Scientific Professionals; South African Institute of Ecologists and Environmental Scientists; International Association of Impact Assessment.

PROFESSIONAL EXPERIENCE

1998 – present: Full-time Managing Director of Coastal & Environmental Services.
1989 – 1997: Lecturer and Senior Lecturer in Plant Ecology at Rhodes University.
1987 – 1988: Ecological Consultant with Loxton Venn and Associates.
1983 – 1987: Full time research in coastal management ecology.

CONSULTING EXPERIENCE

Consulted in Botswana, Egypt, Kenya, Lesotho, Madagascar, Malawi, Mozambique, Namibia, Sierra Leone, South Africa and Zambia. ESIA consulting experience includes:

1. Principal consultant for the specialist studies for the Environmental Impact Assessments of proposed dune mining on the Eastern Shores of Lake St Lucia.
2. Overall responsibility as EIA project manager for all environmental aspects of Billiton's TiGen mineral sand mining operations in Mozambique, to produce an EIA that meets international standards (1997).
3. EIA project manager for the Corridor Sands mineral sand mining project Mozambique. Four EIAs produced to World Bank standards (mine site and smelter, 400Kv power line, 87km rail route and bulk cargo facility at Matola Port) (2004)
4. EIA project manager for Tiomin Resources Inc (Toronto, Canada) for Kwale mineral sands project, southern Kenya. Regarded as one of the most comprehensive ESIA's in Kenya (2002).
5. Study leader for a comprehensive EIA for a World Bank funded 400Kv power line in Malawi (2205).
6. EIA for a dedicated haul road, material handling facility and jetty near Praia de Xai Xai, Mozambique for WMC Resources, Australia.

7. EIA Project Manager for the Nuclear Materials Authority of Egypt, to prepare the EIA as part of the Downer EDI Feasibility Study Team. (2007).
8. EIA for a large scale resort development, including two golf courses and three hotels in the Eastern Cape, South Africa (2007).
9. Study Leader for an EIA for a large heavy mineral mining project in South West Madagascar for Exxaro (2006 – 2008).
10. Environmental and Social consultants to the International Finance Corporation for the Kafue Gorge Lower Hydropower project, Zambia.
11. Study Leader for an Environmental, Social and Health Impact Assessment for a proposed large sugar cane to ethanol biofuel project in Sierra Leone for Addax Bioenergy, Geneva (2009 - 2010).
12. EIA Study leader for Environmental Impact Assessment for a proposed large scale copper and nickel mine in the North West Province of Zambia (2010).
13. EIA Study leader for a water transfer scheme as part of the Mooi Mgeni transfer scheme Phase 2.
14. EIA Study leader for Environmental Impact Assessment of a large, integrated copper mine in Zambia, inclusive of large tailings storage facility, two dams and river diversions (2010-2012).

CURRICULUM VITAE: DR. CHANTEL BEZUIDENHOUT

Date of Birth:	11 March 1978
Languages:	Afrikaans, mother tongue English, excellent

QUALIFICATIONS

- B.Sc. (Botany, Geography)
- B.Sc.(Hons)(Botany: Ecology, Environmental Management, Geographic Information Systems)
- M.Sc. (Botany: Estuarine Ecology)
- PhD (Botany: Estuarine Ecology)

FIELDS OF RESEARCH

Third year project: The Extraction of Agar from Macrophytes
Honours projects: The Management of Phragmites australis in the Mcantsi Estuary
Assessing the PE Metropolitan Open Space Systems (MOSS) and assigning a conservancy score for the Port Elizabeth Municipality (PEM)
Masters project: Diatoms as indicators of water quality in estuaries
PhD project: Macrophytes as indicators of physico-chemical factors in South African estuaries

OTHER STUDIES AND WORKSHOPS

The Biodiversity Planning Forum. Mpekweni Beach Resort, Eastern Cape. (March 2008)

PUBLICATIONS AND CONFERENCES

Adams, J.B., Bornman, T.G. and Bezuidenhout, C. 2005. Specialist Report: Macrophytes. Olifants / Doring catchment. Ecological Water Requirements study, Olifants Estuary. Report submitted to CSIR, Environmentek, Stellenbosch. 39pp.

Bezuidenhout, C., J.B. Adams and Bornman, T.G. 2005. Specialist Report: Macrophytes. Kromme Estuary Resources Directed Measures Study. Report submitted to the CSIR on behalf of the Department of Water Affairs and Forestry. 61pp.

Bornman, T.G., Adams, J.B. and Bezuidenhout, C. 2004. Present status of the Orange River mouth wetland and potential for rehabilitation. Prepared for Working for Wetlands, South African National Biodiversity Institute. Nelson Mandela Metropolitan University. IECM Research Report No. 43. 54 pp.

Bornman, T.G., Adams, J.B. and Bezuidenhout, C. 2004. Adaptations of salt march to semi-arid environments and management implications for the Orange River mouth. Transactions of the Royal Society of South Africa 59(2): 125-131.

Bornman, T.G., Adams, J.B. and Bezuidenhout, C. 2005. Salt marsh characteristics and freshwater requirements of a cool temperate versus a warm temperate estuary. 12th Southern African Marine Science Symposium. Durban, Kwazulu-Natal.

UPE Departmental Seminars: Extraction of Agar from Macrophytes (1999); The Application of National Legislation in the Management of and Conservation of Estuaries (2000); The Management of Phragmitesaustralis in the Mcanti Estuary

(2000); Assessing the PE Metropolitan Open Space Systems (MOSS), and assigning a conservancy score for the PEM (2000).

CAREER BIOGRAPHY

October 2011 – Present
Senior Environmental Consultant with Coastal & Environmental Services
February 2008 – September 2011
Environmental Consultant with CEN Integrated Environmental Management Unit
February 2000 – November 2006
Botany Department Practical demonstrator, Nelson Mandela Metropolitan University (South Campus).
Field Research Assistant for research projects conducted in the Botany Department, Nelson Mandela Metropolitan University (South Campus).
February 2002 – November 2002
Research Assistant in the Botany Department, Nelson Mandela Metropolitan University (South Campus).
February 2001 – August 2001
Auxillary worker for the Western District Council.
Specialisation in Firm:
Environmental Impact Assessment, Estuarine and Saltmarsh Ecology

RECENT EXPERIENCE – COASTAL & ENVIRONMENTAL SERVICES

Scoping Report for the proposed residential development at the existing golf course in Grahamstown, Eastern Cape Province of South Africa (2011).
Scoping Report for the proposed golf course development at Belmont Valley, Grahamstown, Eastern Cape Province of South Africa (2011).

PREVIOUS EXPERIENCE

CEN Integrated Environmental Management Unit: (2008) Basic Assessment for the proposed establishment of 2 jetties, improvement of the existing, licensed slipway and stabilization of the river banks on Portion 12 of the Farm Nocton 441 (Gamtoos ferry Hotel). (Port Elizabeth, Eastern Cape Province)
CEN Integrated Environmental Management Unit: (2008) Basic Assessment for the proposed establishment of a Town Lodge Hotel on Erf 2150, Summerstrand. (Port Elizabeth, Eastern Cape)
CEN Integrated Environmental Management Unit: (2008) Basic Assessment for the proposed Rezoning and Subdivision of Erf 10501 and the remainder of Erf 5023, Walmer, Nelson Mandela Metropolitan Municipality, for the purpose of establishing a residential development. (Port Elizabeth, Eastern Cape)
CEN Integrated Environmental Management Unit: (2008) Basic Assessment for the proposed rezoning and the establishment of a hospital and associated infrastructure and facilities on a portion of the remainder of Erf 1226, Fairview, Port Elizabeth, Eastern Cape. (Port Elizabeth, Eastern Cape)
CEN Integrated Environmental Management Unit: (2008) Basic Assessment for the proposed rezoning of Portion 1 of the Farm Bucklands (No. 108), the Farm SchrikwatersPoort (No. 109) and the remainder of the farm Bucklands (No. 108) for the development of a Luxury Lodge, Makana Municipal Area, Eastern Cape. (Port Elizabeth, Eastern Cape)

CEN Integrated Environmental Management Unit: (2008) Basic Assessment for the proposed subdivision of Erf 2686, Parsonsvlei for a Residential Development Port Elizabeth, Eastern Cape. (Port Elizabeth, Eastern Cape)

CEN Integrated Environmental Management Unit: (2008) Basic Assessment for the proposed subdivision or Erf 2687, Parsonsvlei for a Residential Development, Port Elizabeth, Eastern Cape. (Port Elizabeth, Eastern Cape)

CEN Integrated Environmental Management Unit: (2008) Environmental Assessment for the proposed Rezoning and Subdivision of Portions 22 and 40 of the Farm Witteklip No 466, Nelson Mandela Bay Municipality. (Port Elizabeth, Eastern Cape)

CEN Integrated Environmental Management Unit: (2009) Environmental Assessment for the proposed subdivision of the remainder of Erf 1226, Fairview, Port Elizabeth, Eastern Cape for a Residential Development. (Port Elizabeth, Eastern Cape)

CEN Integrated Environmental Management Unit: (2009) Basic Assessment for the establishment of a new 2.5 Ml Kruisfontein Reservoir on Erf 2088 and a portion of the remainder of Erf 2, Humansdorp, Kouga Municipality, Eastern Cape. (Port Elizabeth, Eastern Cape)

CEN Integrated Environmental Management Unit: (2009) Basic Assessment for the proposed extension of an existing 36m lattice mast to a 46m lattice mast on Erf 8917, Uitenhage, Nelson Mandela Bay Municipality, Eastern Cape. (Port Elizabeth, Eastern Cape)

CEN Integrated Environmental Management Unit: (2009) Basic Assessment for the proposed extension of an existing 36m lattice mast to a 46m lattice mast of Erf 1296, Summerstrand, Port Elizabeth, Eastern Cape. (Port Elizabeth, Eastern Cape).

CEN Integrated Environmental Management Unit: (2009) Basic Assessment for the proposed extension of an existing 36m lattice mast to a 56m lattice mast on Erf 1345, Walmer, Port Elizabeth, Eastern Cape. (Port Elizabeth, Eastern Cape)

CEN Integrated Environmental Management Unit: (2009) Basic Assessment for the proposed rezoning and subdivision of a portion of Erf 1721, Aberdeen, Camdeboo Municipality, Eastern Cape to develop subsidized housing and related community facilities (Lotusville Extension). (Port Elizabeth, Eastern Cape)

CEN Integrated Environmental Management Unit: (2009) Basic Assessment for the proposed rezoning and subdivision of a portion of Erf 1721, Aberdeen, Camdeboo Municipality, Eastern Cape to develop subsidised housing and related community facilities (Thembalesizwe Extension). (Port Elizabeth, Eastern Cape)

CEN Integrated Environmental Management Unit: (2009) Basic Assessment for the proposed stabilization of the river banks on Portion 2 of the Farm Nocton 441 (Adjacent to the Gamtoos Ferry Hotel). (Port Elizabeth, Eastern Cape)

CEN Integrated Environmental Management Unit: (2010) Environmental Impact Assessment for the proposed construction and upgrading of the new Glen Hurd Road as well as the construction of the Baakens River Bridge, Port Elizabeth, Eastern Cape. (Port Elizabeth, Eastern Cape)

CEN Integrated Environmental Management Unit: (2010) Environmental Impact Assessment for the proposed subdivision of the remainder of Erf 982, Parsonsvlei, Port Elizabeth, Eastern Cape for a residential development. (Port Elizabeth, Eastern Cape)

CEN Integrated Environmental Management Unit: (2010) Environmental Impact Assessment for the proposed rezoning and subdivision of erven 1070, 409 and the remainder of Erf 385, Theescombe, Port Elizabeth, Eastern Cape for a residential development. (Port Elizabeth, Eastern Cape)

CURRICULUM VITAE: MS AMBER JACKSON

PERSONAL INFORMATION

Born: 15 September 1986
Nationality: South African
Phone: 046 622 2364
Email: a.jackson@cesnet.co.za

QUALIFICATIONS

2007- BSc 'Ecology, Environment and Conservation' and Zoology (University of the Witwatersrand)
2008- BSc (Hons) Ecology, Environment and Conservation (Wits)
2011- M. Phil Environmental Management The University of Cape Town

EMPLOYMENT

2011- Textile warehouse management and administration. Corpikit. Completed administrative functions such as UIF, PAYE, VAT returns, packing and invoicing, cash reconciliation statements, cash flows and stock control.
2010- Volunteer tutor to first year science students: Biology, Chemistry and Statistics. University of Cape Town.
2010- Environmental Control Officer. Permits. Responsible protection of sensitive environments in and around the Cape Town area during film, advert and photographic sessions.
2010- Teaching assistant. UCT. Fourth year civil engineering students, third year geographical science BSC/BA students and MPhil environmental management students (year 1). Included the preparation and conduction of afternoon practical sessions.
2008-Volunteer field scientist in the identification of herpetafauna. Worked with the local community to find and identify herpetafauna to improve the communities' understanding, awareness and appreciation of their environment. The results from the sites surveyed from Blyder River Canyon to Kruger Park were used at the International Biodiversity Conference in Bonn, Germany.
2008-Teaching assistant. Wits. To first year medical and BSC students, second and third year BSC students for laboratory and field work for four courses (Introductory life sciences, microscopy, savanna diversity and medics biology). Included preparation and conduction of laboratory sessions and marking of students reports there after. Written theory, microscope work, field workand dissection (snail, frog, rat and dogfish) practical sessions.
2008- Kruger National Park (KNP) Field work in the KNP biodiversity survey which was run in December 2007 and January 2008. It involved the installation of traps and sampling of small sized faunal groups (incl. Birds, Amphibians, Reptiles, Rodents and Insects with specific focus on Dung beetles and Ants).
2004- 2008 (part time) Zebrabark Textile warehouse management and administration. Completed administrative functions such as UIF, PAYE, and VAT returns.
2007- Creative counsel Sales promotions
2005-2006 Research Surveys Public marketing researching.

CURRICULUM VITAE: THOMAS KING

PERSONAL INFORMATION

Languages: English (Good), Afrikaans (Poor)
Date of Birth: 13 October 1987

QUALIFICATIONS

- **Bachelor of Science with Honours (Biodiversity and Conservation)**
  - Rhodes University, South Africa, 2010.
  - Thesis title: Extent of subtropical thicket degradation after heavy grazing by ostriches: A baseline study to assess natural recovery.
  - Subjects studied: Diversity rarity and endemism, Geographical information systems, Statistics, Rehabilitation ecology, Community based natural resource management.
  - Skills acquired include: Thesis writing, reading and understanding scientific papers, experimental design, data collection, essay writing.
  - Extracurricular activities: Volunteer work at SPCA, rugby.
- **Bachelor of Science (Zoology)**
  - University of Pretoria, South Africa, 2007-2009
  - Subjects studied: Statistics, Botany, Chemistry, Genetics, Microbiology, Physics, Mathematics, Zoology, Biochemistry, Animal Science, Ecology.
  - Skills acquired include: Time management, computer competency, academic writing, and positive studying habits.
  - Extracurricular activities: Community engagement (JOOL), rugby.

CES PROJECT EXPERIENCE

- **Renewable Energy**
  - Richards Bay Wind Energy Project – EIA for the erection of 54 wind turbines and construction of associated infrastructure in the Empangeni region, KwaZulu Natal.
  - Hluhuwe Wind Energy Project – EIA for the erection of 24 wind turbines and construction of associated infrastructure in the Hluhluwe region, KwaZulu Natal.
  - Coega Wind Farm and Substation Extension – Basic Assessment for the construction of three additional wind turbines and two additional substations to the existing Coega Wind Farm, Port Elizabeth, Eastern Cape, South Africa.
  - Brakkefontein Wind Energy Project: EIA for the erection of 27 wind turbines and construction of associated infrastructure in the Bonnievale region, Western Cape.
- **Agriculture**
  - Eco Pullets Chicken Rearing Facility – Basic Assessment for the construction of a pullet rearing facility, housing approximately half a million pullets at any given time. Associated waste license applications and general authorisation for water use also dealt with.
- **Monitoring and Due Diligence**
  - Greys Gift Lodge – Monitoring of construction phase Environmental Management Programme.

PROVINCE OF THE EASTERN CAPE
DEPARTMENT OF ECONOMIC DEVELOPMENT AND ENVIRONMENTAL AFFAIRS

DETAILS OF EAP AND DECLARATION OF INTEREST

	(For official use only)
File Reference Number:	
NEAS Reference Number:	
Date Received:	

Application for authorisation in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2010

PROJECT TITLE

Proposed golf course development at Belmont Valley, Grahamstown, Eastern Cape Province of South Africa

Environmental Assessment Practitioner (EAP):[1]	Coastal and Environmental Services		
Contact person:	Dr Anthony Mark Avis		
Postal address:	P.O. Box 934, Grahamstown		
Postal code:	6140	Cell:	082 783 6393
Telephone:	046 622 2364	Fax:	046 622 6564
E-mail:	t.avis@cesnet.co.za		
Professional affiliation(s) (if any)			
Project Consultant:	Dr Chantel Bezuidenhout		
Contact person:			

Postal address:	P.O. Box 934, Grahamstown		
Postal code:	6140	Cell:	083 320 2074
Telephone:	046 622 2364	Fax:	046 622 6564
E-mail:	c.bezuidenhout@cesnet.co.za		

4.2 The Environmental Assessment Practitioner

I, ANTHONY MARK AVIS , declare that –

General declaration:

- I act as the independent environmental practitioner in this application
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting environmental impact assessments, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I will take into account, to the extent possible, the matters listed in regulation **8** of the regulations when preparing the application and any report relating to the application;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- I will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;
- I will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the competent authority in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the competent authority may be attached to the report without further amendment to the report;
- I will keep a register of all interested and affected parties that participated in a public participation process; and
- I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not
- all the particulars furnished by me in this form are true and correct;
- will perform all other obligations as expected from an environmental assessment practitioner in terms of the Regulations; and
- I realise that a false declaration is an offence in terms of regulation 71 and is punishable in terms of section 24F of the Act.

Disclosure of Vested Interest (delete whichever is not applicable)

- I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2010;

Signature of the environmental assessment practitioner:

Coastal and Environmental Services
Name of company:

Date: 21 May 2012

Signature of the Commissioner of Oaths:

Date:

Relationship Manager
Designation:

Official stamp (below)

COMMISSIONER OF OATHS
BY VIRTUE OF MY OFFICE AS A DULY
AUTHORISED REPRESENTATIVE OF
FNB GRAHAMSTOWN
102 High Street, Grahamstown
GRAHAMSTOWN 6140

SIGNATURE

Denise McLean
NAME

The Interim Certification Board

For

Environmental Assessment Practitioners

of

South Africa

Anthony Mark Avis

was certified as an

ENVIRONMENTAL ASSESSMENT PRACTITIONER

on this 19th day of April 2004

Chairperson

Secretary

For [illegible] Limited
[illegible] - 717
I [illegible] the original
[illegible] and that
[illegible] of
[illegible]
[illegible] copy of
the original document

Authorised Signatory

APPENDIX D – LETTER FROM DEDEAT APPROVING SCOPING

Province of the
EASTERN CAPE
ECONOMIC DEVELOPMENT, ENVIRONMENTAL AFFAIRS AND TOURISM
CACADU REGION

P/Bag X5001 GREENACRES
South Africa, 6057
Phone: +27 (041) 5085800
Fax: +27 (041) 5085865
Web: www.deaet.ecprov.gov.za
E-mail: Ndileka.Mjacu@deaet.ecape.gov.za

Ref: EC04/LN2/M/11-98
Enquiries: N. Mjacu

Coastal and Environmental Services
PO Box 934
Grahamstown
6140

Fax: 046 622 6564

Attention: Dr. Anthony Avis

ACKNOWLEDGEMENT OF RECEIPT: APPLICATION FOR AUTHORISATION IN TERMS OF SECTION 24 OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, ACT 107 OF 1998 TO UNDERTAKE A LISTED ACTIVITY AS SCHEDULED IN THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS: PROPOSED BELLMONT VALLEY GOLF COURSE PROJECT, WITHIN THE MAKANA MUNICIPALITY.

Refer to the Scoping Report submitted for the proposed Bellmont Valley Golf Course, (reference number: EC04/LN2/M/11-98), within the Makana Municipality. You are hereby informed that the Scoping Report is accepted and that the Plan of Study for EIA is approved.

In addition to the tasks contemplated in the above documents the following must be submitted:

- Provide proof of written confirmation of the availability of water.
- The Scoping Report does not state whether electricity to the development will be provided by the Makana Municipality or Eskom. You are therefore requested to clarify this matter and provide written confirmation for such.
- You are also required to consider and report on alternatives to the proposed site location.

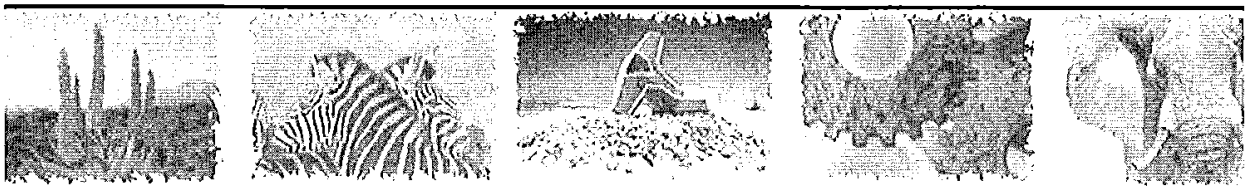
Please proceed to the EIA phase as per the provision of Section 30(1)(a) of the NEMA:EIA Regulations as published in GN R543 of 18 June 2010. The Environmental Assessment Practitioner (EAP) responsible for this application is furthermore reminded of the obligation to comply with Section 31 of the said regulations.

The applicant's attention must be drawn to the fact that the activity may not commence prior to an Environmental Authorisation being granted by DEDEA.

ECONOMIC DEVELOPMENT, ENVIRONMENTAL AFFAIRS AND TOURISM
CHIEF DIRECTORATE: ENVIRONMENTAL AFFAIRS

Please note that the Department of Economic Development and Environmental Affairs reserves the right to amend and/or add to the comments made above in light of subsequent information received.

ANDRIES STRUWIG
ASSISTANT DIRECTOR: EIM
CACADU REGION
DATE: 27 March 2012



APPENDIX E - PUBLIC PARTICIPATION PROCESS TO DATE

APPENDIX E-1: BACKGROUND INFORMATION DOCUMENT

BACKGROUND INFORMATION DOCUMENT & INVITATION TO COMMENT
BELMONT VALLEY GOLF COURSE PROJECT, ALBANY DISTRICT

Background to the project: The Belmont Dev. Co. plans to relocate and re-develop Grahamstown's current golf course to the Belmont Valley in the Albany District, Eastern Cape Province of South Africa (refer to Figure 1). The proposed site is on portions 1 and 2 of the farm Willow Glen and portion 6 of Belmont farm, totalling 200ha in size, all of which are situated approximately 8km northeast of Grahamstown. Coastal & Environmental Services (CES) has been appointed by the Belmont Dev. Co. to undertake the necessary environmental investigations for the proposed golf course, and to apply for approval from the Department of Economic Development and Environmental Affairs (DEDEA), for its construction and operation, as required by South Africa's environmental legislation. Details of the relevant laws, and an overview of the environmental impact assessment process, are provided on the next page.

Project description: In addition to the eco-friendly golf course (refer to Figure 2) the Belmont Dev. Co. plan to construct a self-sustainable clubhouse of 1500m^2 in area. The clubhouse will use water tanks to handle rainwater, which will be used to supply the clubhouse. Solar panels will aid electrical output to the clubhouse and an anaerobic digestive plant and french-drain system will treat all sanitary sewage.

AIM OF THIS DOCUMENT

The aim of this Background Information Document (BID) is to provide people affected by and interested in the proposed project with information about this project, the process being followed and to provide them with an opportunity to be involved in the Environmental Impact Assessment (EIA) process.

Return address for comments:

Ms Amber Jackson
P.O. Box 934
Grahamstown, 6140
Tel: (046) 622 2364
Fax: (046) 622 6564
Email: a.jackson@cesnet.co.za

Figure 1: Locality map of the proposed Belmont Valley Golf Course site, Albany District, Eastern Cape

Relevant Legislation

The Environmental Impact Assessment (EIA) regulations, promulgated in terms of Section 24 of Chapter 5 of the National Environmental Management Act (Act No 107 of 1998), and the related Lists of Activities (Government Notices (GN) R.544, R.545 and R.546 of 18th June 2010) specify the activities that require either a Basic Assessment, or a full Scoping and EIA respectively. The activities triggered by the proposed development include:

Number and date of the relevant notice	Activity No(s)	Description
Listing Notice R544	(11)	The construction of: I. Canals, II. Channels, III. Bridges, IV. Weirs, V. Bulk storm water outlet structures, Within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, where such expansion will result in an increased development footprint but excluding where such expansion will occur behind the development setback line.
Listing Notice R544	(39)	The expansion of: VI. Canals, VII. Channels, VIII. Bridges, IX. Weirs, X. Bulk storm water outlet structures, XI. Marinas Within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, where such expansion will result in an increased development footprint but excluding where such expansion will occur behind the development setback line.
Listing Notice R544	(55)	The expansion of a dam where: I. The highest part of the dam wall, as measured from the outside toe of the wall to the highest part of the wall, was originally 5 metres or higher where the height of the wall is increased by 2.5 metres or more; or II. Where the high-water mark of the dam will be increased with 10 hectares or more
Listing Notice R545	(15)	(15) Physical alteration of undeveloped, vacant or derelict land for residential, retail, commercial, recreational, industrial or institutional use where the total area to be transformed is 20 hectares or more; Except where such physical alteration takes place for: (i) linear development activities; or (ii) agriculture or afforestation where activity 16 in this Schedule will apply.
Listing Notice R546	(4)	The construction of road wider than 4 metres with a reserve less than 13,5metres.
Listing Notice R546	(19)	The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre. (see GNR 546 for specific thresholds)
Listing Notice R546	(14)	The clearance of an area of 5 hectares or more of vegetation where 75% or more of the vegetation cover constitutes indigenous vegetation
Listing Notice R546	(16)	The construction of buildings with a footprint exceeding 10 squared metres in size; or infrastructure covering 10 square metres or more

As a consequence, the proposed development will require a full Scoping and EIA. There are three key stages to the EIA process, namely the Scoping phase, the Environmental Impact Assessment phase, and the Environmental Authorisation phase. A detailed EIA process is shown in the "Approach to this EIA Process" section below.

APPROACH TO THIS ENVIRONMENTAL IMPACT ASSESSMENT

The process required for the proposed Belmont Valley Golf Course Project is an Environmental Impact Assessment. The Process serves primarily to inform the public and relevant authorities about the proposed project and to determine any impact(s). Should all impacts and issues be adequately addressed in the Environmental Impact Report, it will serve as the final document. The EIA process is as follows:

The Scoping Phase
⇓
Development Proposal
⇓
Identify and notify interested and Affected Parties (I&APs)
⇓
Gather issues and concerns
⇓
Prepare Draft Scoping Report
⇓
Review of Draft Scoping Report by I&APs
⇓
Submit Final Scoping Report to Authority
⇓
PROCEED TO ENVIRONMENTAL IMPACT ASSESSMENT PHASE
⇓
Notify interested and Affected Parties (I&APs) of Environmental Authorization
⇓
Gather issues and concerns
⇓
Conduct relevant specialist studies
⇓
Prepare Draft Environmental Impact Report
⇓
Review of Draft Environmental Report by I&APs
⇓
Submit Final EIA Report to Authority
⇓
WAIT FOR ENVIRONMENTAL AUTHORIZATION

The Scoping phase

The Scoping Phase is important for informing the public and relevant authorities about the nature and size of the proposed project. A critical component of the Scoping Phase is the Public Participation Process, in which Interested and Affected Parties (I&APs) are given an opportunity to raise any issues or concerns they may have about the project. The Draft Scoping Report will be made available for review by the authorities and all I&APs. This report will report on issues raised during PPP and shall set the scope for the Environmental Impact Assessment Phase.

The Environmental Impact Assessment phase

This phase is more complex and more detailed than the Scoping phase, because a number of specialist studies, identified as being necessary to address issues and concerns raised during the Scoping phase are undertaken. These studies provide expert input into the EIA process based on scientific information. I&APs will be consulted again during this phase, and will be given an opportunity to comment on the Draft Environmental Impact Report (EIR) that will contain the specialist reports. During this phase an Environmental Management Plan must also be prepared for the project.

Environmental Authorisation phase

The final EIR is submitted to the Department of Economic Development and Environmental Affairs (DEDEA) formerly the Department of Environmental Affairs and Tourism (DEAT) who, after considering the report, will issue an Environmental Authorisation either allowing the project to continue under certain conditions, or requiring additional work to be undertaken.

Potential issues for investigation

Specific specialist studies still need to be identified, and once decided upon, these will be conducted within the proposed golf course site, to ascertain any potential impacts, positive and negative, that may occur as a result of pre-construction, construction and operation. phases.

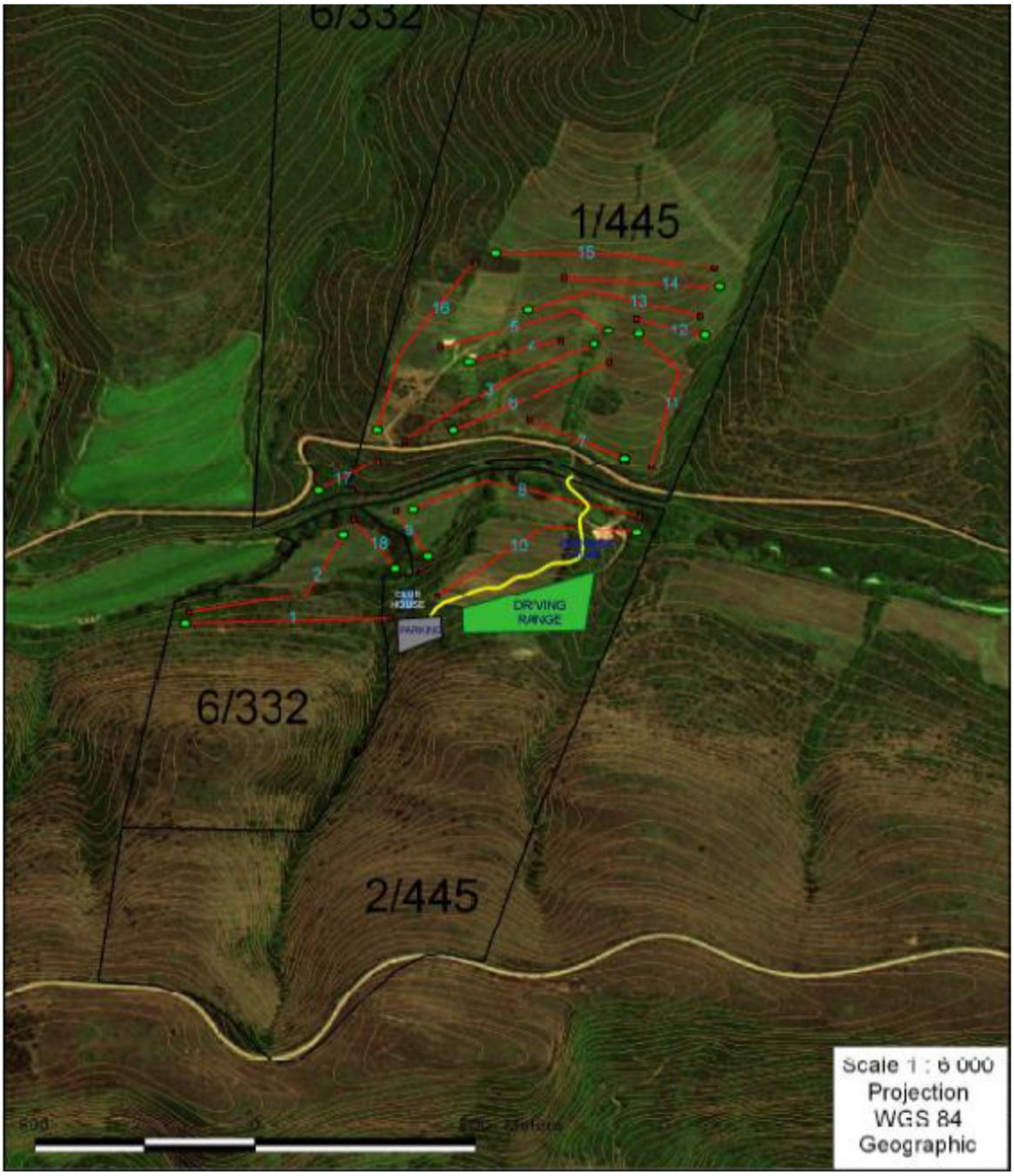


Figure 2: Locality map showing the location of the proposed Belmont Valley Golf Course, the 18 hole course layout and the central 1500m^2 clubhouse.

I hereby wish to register as an Interested and Affected Party (IAP) for the Belmont Valley Golf Course EIA process

Name: _____

Postal address: _____

Email: _____

Organization: _____

Phone #: _____ Fax #: _____

Please return details to: **Ms Amber Jackson**: P.O. Box 934, Grahamstown, 6140
Telephone: (046) 622 2364; Fax: (046) 622 6564
Email: a.jackson@cesnet.co.za

APPENDIX E-2: CONTACT DETAILS OF SURROUNDING LAND OWNERS TO THE PROPOSED GOLF COURSE DEVELOPMENT SITE TO WHOM BACKGROUND INFORMATION DOCUMENTS WERE DISTRIBUTED

Name	Contact			Email
	Postal	Telephone	Cell	
Grahamstown Golf Club	Old Cradock Road, Grahamstown, 6140	046 636 1361		golf@itsnet.co.za
Clive Allcock	P.O. Box 285, Grahamstown, 6140	046 622 9576		
Department of Defence (DOD) – SA Army	Old Cradock Road, Grahamstown, 6140	046 602 2000		
Commanding Officer (Colonel S. Sntunguzi)	Old Cradock Road, Grahamstown, 6140	046 602 2026		ssntsunguzi@webmail.co.za
Roy Bowls (Construction)		046 624 2418	083 331 2141	
Sasko GHT		046 622 2919		
Dave Duncan			083 297 8006	daveduncan@telkomsa.net
Greg Vroom			083 406 0166	vroom@itsnet.co.za
Gugile Nkwinti		040 636 4332	082 495 3229	makeke@dhlg1.ecape.gov.za
Transnet	Private Bag X47 Johannesburg 2000	011 308 3010		
Hobson and Co. Stock Fairgrounds			082 652 4724	
Dag Breek Transport		046 622 5282	083 650 0681	
St Andrews Prep (Headmaster Graham Gooden)		046 603 2400		contactprep@saprepschool.com
Grahamstown Flying Club				alan6@telkomsa.net
EP Skydivers	P.O. Box 613, Grahamstown, 6140	046 636 2486	082 800 9263	joosvos@eastcape.net
Grahamstown Riding Club (Claire Faddel)			084 826 9585	
Grahamstown Riding Club (Sally Schramm)				fakawe@iafrica.com

APPENDIX E-3: CONTACT DETAILS OF MAKANA MUNICIPAL OFFICIALS, GOVERNMENT ORGANISATIONS, AND KEY STAKEHOLDERS THAT WAS NOTIFIED OF THE PROPOSED DEVELOPMENT

Name	Association	Contact Details		
		Telephone	Cell	E-mail
Andries Struwig	DEDEA			andries.struwig@deaet.ecape.gov.za
Dayalan Govender	DEDEA			dayalan.govender@deaet.ecape.gov.za
Carin Swart	DEDEA			carin.swart@deaer.ecape.gov.za
Jack Landile	DWA			jackl@dwaf.gov.za
Thabo Nokoyo	DWAF		083 654 1177	Nokoyot@dwaf.gov.za
Lizna Fourie	DWA			fouriel@dwaf.gov.za
Anneliza Collett	DAFF (Agri)			annelizac@nda.agric.za
Ntombekhaya "Ntombi" Baart	Makana Municipal Manager	046 603 6131		ntombi.baart@makana.gov.za
LC May	Councillor Ward 4	046 622 8751		
Irene de Moor	WESSA			irenedemoor@imaginet.co.za
Jenny Gon	WESSA			j-gon@intekom.co.za
Mariagrazia Galamberti	SAHRA			mgalimberti@sahra.org.za
Xolani Wana	ESKOM			xolani.wana@eskom.co.za
Lizelle Stroh	SACAA			strohl@caa.co.za
Prof Dominic Thorburn	Grahamstown Residents Association			gra@smarthost.co.za

APPENDIX E-4: COPY OF NEWSPAPER ADVERTISEMENT – initial advertising

EP HERALD (PROVINCIAL) – 17 August 2011

The Herald CLASSI

Wednesday August 17, 2011 | 19

12010 Auctions | 12010 Auctions | 12010 Auctions | 12010 Auctions

ROSE-INNES & SCHEEPERS est. 1936

DECEASED ESTATE PROPERTY AUCTION

DATE: FRI 19th AUG
TIME: 11AM

74 MNQABANE STREET
KWADWESI, PE

Duly Instructed by the Executor Mr. C. Fick of Squires in the Estate Late Xolile Daniel Norushu we will submit for Public Auction No 74 Mnqabane Street, Kwadwesi, Port Elizabeth on Friday 19th August @ 11am on site

PIONEERS * VALUERS * APPRAISERS

WOODWORKING EQUIPMENT, MASSAGE CHAIRS

Terms: R1000 refundable deposit on registration. 10% buyers commission + 14% vat.
Contact: Angela 041-4873957 – pewarehouse@michaeljames.co.za AUCTIONEER: ASHTON GALPIN

11020 Official Notices | 11020 Official Notices | 11020 Official Notices

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

PROPOSED BELMONT VALLEY GOLF COURSE RELOCATION PROJECT AND RESIDENTIAL SCHEME

Notice is given in terms of regulation 54(2) as published in the Government Gazette No 543 Environmental Impact Assessment (EIA) regulations of the National Environmental Management Act (Act No 107 of 1998) for intent to undertake an EIA.

Belmont Development Company (Pty) Ltd is proposing to construct an Eco-Friendly golf course by relocating Grahamstown's current golf course to the Belmont Valley. Grahamstown's existing golf course will be transformed into an academic village, encompassing both residential and commercial enterprises.

You are invited to register as an Interested and Affected Party (I&AP).

Please contact: Mr Hylton Newcombe, P.O. Box 934, Grahamstown, 6140.
Tel: 046-622 2364; Fax: 046-6226564;
Email: h.newcombe@cesnet.co.za.

1700/154528/WD

Community Services

ALZHEIMERS SUPPORT GROUPS: Family members of Alzheimers sufferers are welcome to join these groups: ONRIDGE PARK: C.P. Hadfield, Gazania Avenue, Onridge Park. Every last Wednesday of the month at 17.30 (5.30pm). Prof Wanita Strumpher. The Eastone 041-3603246 / 082 3789082.

GELVAN PARK: Gelvan Park Frail Care Home, Sea Street, Gelvan Park. Every third Saturday of the month at 16.00 (4pm). Patron Linda Swartz. Phone 041-4522111 / 082 7855574.

WALMER: St John The Baptist Church, Walmer. Every third Wednesday of the month at 17.00 (5.00pm). Mrs Charlotte van der Lugt. Phone 041-5812241.

UITENHAGE: Dutch Reformed Church, De Mist, Uitenhage. Last Monday of the month at 18h00 (6pm). Mrs Miempie van Wyk. Phone 071 8979919

JEFFREY'S BAY: 1 Ash Crescent, Wavecrest, Jeffrey's Bay. Every third Tuesday of every month at 10h00 (10am). Dr Anna van Zyl. Phone 042-2933496.

with disabilities.

Some of the services that we provide:

- Industrial workshops
- Sewing centre
- Screen-printing
- Embroidery
- Pad printing
- Toilet paper manufacturing
- Sales/repairs of assistive devices
- Recruitment
- Accessibility surveys
- Sensitization training
- Social work services
- Parking disk applications

Over and above these services, we spend much time behind the scenes ensuring that the rights of people with disabilities are not compromised.

Fundraising is a very important income generator. We constantly need volunteers to assist with various projects.

You are welcome to visit us at 55 Paterson Road, P.E., phone 041-484-5426 e-mail apdpe@iafrica.com

BOOKS ETC: Walmer Town Hall. Cnr 8th Ave and Main Road Walmer 6070. Second hand books sold in aid of Children's Feeding Trust. Monday to Friday 10.00am to 4.00pm. Saturday 9am to 12 noon. Sunday closed. Phone 581-4371

CEREBAL PALSY ASSOCIATION (Eastern Cape) runs support group meetings on the second Thursday of every month for parents of C.P. children pop in for a chat over tea/coffee and make new friends at our offices at 54 Admirality Way (next to Cape Recife High School). Phone 5832130/9.

CUYLERHOLME SERVICE CENTRE: 42 Western Road, Central. Meeting place for all persons over 60 years and

EXCELSIOR SERVICE CENTRE: MEALS on WHEELS Offers wholesome cooked meals deliverered to the doors of pensioners, disabled persons at an affordable cost. Deliveries are done on Mondays, Tuesdays and Thursdays. On Wednesdays ablebodied persons gather at the Service Centre located at 15 Papenkuils Street, Westering, from 10:00 to 13:00 for a time of fellowship and lunch. Do contact Miona Thomas for additional information at 041-3604366/2643 or 0732529640.

GAMBLERS ANON: Is gambling ruining your life? Let us help you. Call 076-5021952.

GLAC: Gay and Lesbian Association for counselling: For peace of mind, call GLAC where trained volunteers will be prepared to listen to whatever your burden is. GLAC operates 7 days a week from 18h00 to 22h00. Phone 5855581 and ask to speak with a GLAC counsellor 585-8565

GRYSBOK ENVIRON- cancer and are specially selected and trained to support newly diagnosed breast cancer patients. We visit the hospitals on the request of the doctors or the patient and give the patient a temporary prosthesis if necessary, as well as information about breast cancer. We also meet bi-monthly and invite a guest speaker who will be of interest to the group. Refreshments are served afterwards. We encourage all folk who have or have had breast cancer to contact us on 079-347-9591 or 082-265-4271.

Retina South Africa (RSA). - Fighting Blindness provides information, management and support services to all persons affected by a retinal blindness such as Macular Degeneration (Juvenile & Age related), Retinitis Pigmentosa, Ushers Syndrome and Allied conditions. Regular talks, blood clinics and eye screenings are held. Support officers are available in East Cape towns. For more information and to find out how affected persons can participate in Retinal Research Projects contact: Gail on Tel/Fax 041-3655947 / Cell 082-7882796 or visit Euro House, 45 Newton Street, Newton Park, Port Elizabeth.

SCHIZOPHRENIA SUPPORT GROUP FOR FAMILY MEMBERS The Schizophrenia Support Group for family members meets on the last Thursday of every month at 6pm at PE Mental Health Society, 21 William Street, Cotswold. Phone 3650502 for more information.

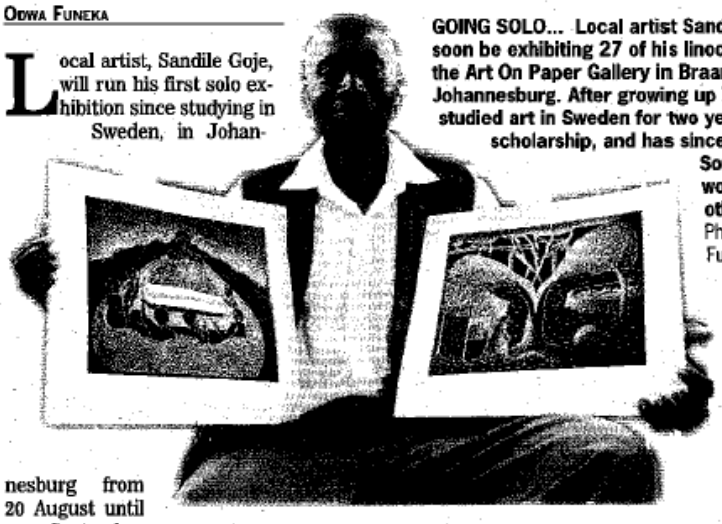
GROCOTTS MAIL (LOCAL) – 19 August 2011

Grocott's Mail Friday, 19 August 2011 — ENTERTAINMENT

Local artist learns in Sweden, shows in Jozi

ODWA FUNEKA

Local artist, Sandile Goje, will run his first solo exhibition since studying in Sweden, in Johannesburg from 20 August until 3 September.



GOING SOLO... Local artist Sandile Goje will soon be exhibiting 27 of his linocut prints at the Art On Paper Gallery in Braamfontein, Johannesburg. After growing up in Joza, he studied art in Sweden for two years on a scholarship, and has since travelled South Africa working with other artists. Photo: Odwa Funeka

Goje's exhibition of 27 prints will take place at the Art On Paper Gallery in Braamfontein, and is entitled Walk With Me.

Growing up in the dusty streets of Joza, Goje enjoyed drawing but did not yet know how much of an impact art would have on his life.

"I joined Dakawa [Arts Centre] in 1992, and learnt a lot about art, and that's where I realised that I was born to be an artist," said Goje.

worked with artists like Jonathan Carmerford from Cape Town, and Frank Ledimo from Johannesburg. Johannesburg is also where he built a strong relationship with Artist Proof Studio, where he displayed most of his work, and the Art On Paper Gallery.

Walk With Me will show a collection of linocut prints – this being his favourite medium - that mostly depict South African life, as well as [illegible] pictures of political commentary.

www.grocotts.co.za

ON STAGE... In the adapted version of V recently, the audience was also entertai various choirs, singing groups and soloi member, Bill Buckley, the play involved to matric. In the above picture are Arm and Sonwabisa Damana performing as

COPY OF NEWSPAPER ADVERTISEMENT – draft scoping report

EP HERALD (PROVINCIAL) – 4 November 2011

EDS

Friday
November 4, 2011 | 19

11030
Estate Notices

In the Estate of the late IRENE ETHEL VAN DER MERWE, date of death 11 September 2011, Identity no 270305-0010-08-8, date of birth 5 March 1927, of 37 Ad Keel Street, Jeffreys Bay, 6330
Estate no. 6000/2011

The Creditors and Debtors in the above mentioned estate are hereby requested to lodge their claims and/or pay their debts at the undersigned offices within 30 (thirty) days as from 4 November 2011, calculated from the date of publication of this notice.
C W MALAN JEFFREYS BAY INC.
Attorney for the Executor
15 Oosterland Street
PO Box 273
Jeffreys Bay
6330

PW HARVEY & CO.

In the Estate of the late ANTONY LIESING, Identity no 650519-5217-08-0, who died at Port Elizabeth on 13 June 2011
Estate no. 4846/2011

Debtors and Creditors in the above Estate are hereby called upon to lodge their claims with and pay

NJOLWANA, an adult male, Identity no 541111-5213-08-8, married out of community of property, of 58 Sydenham Road, Sydenham, Port Elizabeth, who died at Port Elizabeth on 21 June 2011.
Estate no. 5039/2011

Debtors and Creditors in the above Estate are hereby called upon to lodge their claims with and pay their debts to the undersigned within a period of 30 (thirty) days as from the date of publication hereof.
BOQWANA, LOON & CONNELLAN
Agents for the Executor
4 Cape Road
Port Elizabeth
6001
Ref: P Bowes/lg/H35692

In the Estate of the late ALVIN CLIVE MINKLEY, Identity no 360802-5034-08-0, born 2 August 1936, of 22 Walmer Park Village, Port Elizabeth, who died on 16 November 2010 at Port Elizabeth.
Estate no. 9801/2010

The First and Final Liquidation and Distribution Account in the above Estate will lie for inspection at the office of the Master of the High Court, Port Elizabeth, for a period of twenty-one (21) days from the date of publication hereof.
COLIN DAVID KENNEDY
PO Box 5792
Walmer
6065
Phone (041) 398-1349

In the Testate Estate of the late RONALD ERIC REID, Identity no 330323-5015-08-3, of 605 King's Terrace, Brooks Hill, Summerstrand, Port Elizabeth, who died on 12 September 2011.
Estate no. 5761/2011

Notice is hereby given that the First and Final Liquidation and Distribution Account in the above Estate will lie for public inspection at the office of the Master of the High Court, Port Elizabeth, for a period of twenty-one (21) days, with effect from 4 November 2011.
SENTINEL INTERNATIONAL TRUST COMPANY (PTY) LIMITED
Agent of the Executor
PO Box 27726
Greenacres
Port Elizabeth
6045

11030
Estate Notices

In the Estate of the late IRENE VIOLET TARR, Identity no 210918-0028-08-7, born on the 18 September 1921, of Port Elizabeth, who died at Port Elizabeth on 24 June 2011
Estate no. 3958/11

The First and Final Liquidation and Distribution Account in the above Estate will lie for inspection at the office of the Master of the High Court, Port Elizabeth, and a duplicate thereof at the office of the Magistrate, Port Elizabeth, for a period of 21 days from the date of publication thereof.
JOYZEL L OBBES
Attorney and Administrator of Estates
PO Box 12058
Moffet Place
Central
Port Elizabeth
6002
(Ref: Miss J L Obbes)

In the Estate of the late MONDE GERALD DAYILE, an adult male, Identity no 510213-5649-08-4, married in community of property to NOMBULELO GLADYS DAYILE, Identity no 521014-0697-08-7, of 12 Tsewu Street, New Brighton, Port Elizabeth, who died at Port Elizabeth on 27 January 2010
Estate no. 7629/2010

Debtors and Creditors in the above Estate are hereby called upon to lodge their claims with and pay their debts to the undersigned within a period of 30 (thirty) days as from the date of publication hereof.
The First and Final Liquidation and Distribution Account will lie for inspection at the office of the Master of the High Court, Port Elizabeth, for a period of twenty-one (21) days, with effect from 4 November 2011.
SENTINEL INTERNATIONAL TRUST COMPANY (PTY) LIMITED
Agent of the Executrix
PO Box 27726
Greenacres
Port Elizabeth
6045

In the Testate Estate of the late JOSEPH JOHANNES JACOBUS VAN DER MERWE, Identity no 551104-5004-08-3, of 29 Nicholl Street, De Mist, Uitenhage, who died on 12 April 2011.
Estate no. 3192/2011

Notice is hereby given that the First and Final Liquidation and Distribution Account in the above Estate will lie for public inspection at the office of the Master of the High Court, Port Elizabeth, and office of the Magistrate Uitenhage, for a period of twenty-one (21) days, with effect from 4 November 2011.
SENTINEL INTERNATIONAL TRUST COMPANY (PTY) LIMITED
Agent of the Executor
PO Box 27726
Greenacres
Port Elizabeth
6045

11030
Estate Notices

In the estate of the late GWYNETH VAN ROOYEN, Identity no: 350713-0039-08-5, born on 13 July 1935 of 1011 Bliss Flats, Summerstrand, Port Elizabeth, who died at Port Elizabeth on 11 July 2011
Estate no: 4058/11

The First and Final Liquidation and Distribution Account in the above estate will lie for inspection at the office of the Master of the Supreme Court Port Elizabeth and duplicate thereof at the office of the Magistrate Port Elizabeth for a period of twenty-one (21) days from the date of publication hereof.
BROWN BRAUDE & VLOK INC
317 Caps Road
Newton Park
Port Elizabeth
6045
Ref: JJ Vlok/Marocelle Schoultz

In the estate of the late JACOBUS OOSTEWALDT BEKKER, Identity no: 521127-5135-08-3, born on 27 November 1952, of Erf 53 Draaifontein Road, Cockarts Hope, Port Elizabeth, who died at Port Elizabeth on 24 July 2011
Estate no: 4415/2011

Debtors and Creditors in the above estate are hereby called upon to lodge their claims with and pay their debts to the undersigned within period of thirty (30) days as from the date of publication hereof.
MRS E.A. BEKKER
PO Box 50217

12020
Appointment

12020
Appointment

AHP
AFRICA HEALTH PLACEMENTS
WWW.AHP.ORG.ZA

Africa Health Placements

App Closing Date: November 5th, 2011

Vacancy:

DISTRICT PRACTICE MANAGER

to support doctors in district hospitals in
Cacadu district – Eastern Cape; Salary : 300K

Practice managers will be expected to facilitate and promote various initiatives aimed at improving the quality of healthcare delivery in their relevant district facilities.

Requirements: Highly motivated self-starters with a passion for rural health care. A strong networking and interpersonal skills and a collaborative approach to problem solving. Tertiary qualification, knowledge of public sector health care environment, report writing skills & computer literacy. Abilty to travel. Own Car.

ONLY SHORTLISTED CANDIDATES WILL BE RESPONDED TO.
Please apply through: www.ahp.org.za/vacancies

0411-H22976/WD

11020
Official Notices

11020
Official Notices

11020
Official Notices

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

PUBLIC REVIEW OF DRAFT SCOPING REPORT (DSR)

PROPOSED BELMONT VALLEY GOLF COURSE RELOCATION PROJECT AND RESIDENTIAL SCHEME

Coastal and Environmental Services have been appointed by Belmont Dev. Co. to conduct an Environmental Impact Assessment for the proposed construction of a golf course by relocating Grahamstown's existing golf course to Belmont Valley. Grahamstown's existing golf course will be transformed into an academic village encompassing both residential and commercial enterprises.

All interested and affected parties are hereby notified of the availability of the Draft SR for public review and comment. The review period is from 4 November to 14 December 2011. Copies of the Draft SR will be available for review at the following locations:

- The CES Office (67 African Street, Grahamstown)
- The Rhodes University Library
- The CES website (www.cesnet.co.za) – click on public documents

Furthermore a public meeting will be held at the Highlander (Worcester Street, Grahamstown) on 23 November 2011 @ 17h15 pm.

For further information and submission of comments do not hesitate to contact:

Contact: Ms Amber Jackson
P.O. Box 934, Grahamstown, 6140
Tel: 046 622 2364; Fax: 046 622 6564
Email: a.jackson@cesnet.co.za

CES

0411-H23304/WD

GROCOTTS MAIL (LOCAL) – 4 November 2011

. Personal 2. Announcements 3. Sales & Services 4. Employment 5. Accommodation 6. Property 8. Motoring 9. Legals

Friday, 4 November 2011

es Offered

TRIBUTORS CC.
/ Installers. Con-
72 395 4472.

ning Pools

APE POOLS
your pool needs.
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PLOYMENT

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Grahamstown.
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: 078 413 0364.
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special flyer).

ACANCY
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e R Educator

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n forms and relevant
s to be submitted to
uman Resources
HR) office,
t of Education,
rahamstown.

osing Date:
vember 2011

COUNT ON US.
KYOCERA
PREMIER PARTNER

IT'S A MONEY MAKING MACHINE

A leading company in the Office Automation Industry invites suitable applicants, who meet the criteria for the following vacancies:

Technical Manager / Technical Engineer
- Min 2 Yrs experience in office automation
- Excellent supervisory skills

ing in Beaufort West on a game/ sheep farm.
Job Description: Hunting (PH), Game Farming, Sheep Farming, Farm Maintenance (Fences, boreholes, water etc.), Processing Carcases, Upgrades to Property, Acting manager - November/ December 2010, Working with Livestock - sheep, cattle and game.
Completed courses:
- First Aid Level 1; Welding Course; Field Survival; FGASA Introductory Level CHASA; Professional
- Hunter's Course (Eastern Cape and Western Co-ordinance); Client Services (Kliëntediens);
- Bush Mechanic Course.

His hobbies are: Hunting, Bow Hunting, Fishing, Fly Fishing.

Please contact me on 078 610 3532 / 072 698 6600 or terence.meise@gmail.com. I am often without signal on the farm – but please leave a message and I will get back to you / send you my CV.

Visit www.grocotts.co.za

5. ACCOMMODATION

Accommodation Offered

ACCOMMODATION AND CONFERENCE FACILITIES available at Stone Crescent Hotel Grahamstown. Contact Mr T. Hayat at 0826549 786.

Accommodation Wanted

ESTABLISHED professional
Rhodes. Avalalble December 2011 for 1 year. R2 300pm per room or R9 200pm for house. Ph 083 460 2828.

8. MOTORING

Motoring Sales

TOYOTA Tazz 2006. 76 000kms. FSH. Tinted windows. 14" wheels, radio-CD player. R55 000 cash. Phone 083 472 6383 office hours.

JOHN Deere 2020 trekker, good condition, tyres good, resprayed R20 000 onco. Contact 076 073 6762.

Motoring Services

PARKHILL MOTORS
YOUR VOLKSIE SPECIALISTS
046 622 2978
082 730 1527
083 760 0576
MIKE & GRANT
REPAIR & SERVICE
ALL MAKES OF CARS

Motoring Wanted

I'M looking for a nice reliable car or bakkie under R20 000. Contact Bernard 074 672 7441.

9. LEGALS

ESTATE LATE

Estate of the late **AGNES ANNIE SMITH** of **Bathurst District**, Identity Number **271024 0034 084**, date of birth **24 October 1927**, who died at **Bathurst District** on **12 March 2011.**

Estate Number: 2284/2011

NOTICE IS HEREBY GIVEN TO ALL DERTORS AND CREDITORS

Report back for the week...
Break-ins: 9, Attempted break-ins: 6
Disturbances: 5,
Arrests: 12

333 guards
13 armed response vehicles
23 IP cameras situated around town
24 hr control room with 9 dedicated staff

ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

PUBLIC REVIEW OF DRAFT SCOPING REPORT (DSR)

PROPOSED BELMONT VALLEY GOLF COURSE RELOCATION PROJECT AND RESIDENTIAL SCHEME

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All interested and affected parties are hereby notified of the availability of the Draft SR for public review and comment. The review period is from 4 November to 14 December 2011. Copies of the Draft SR will be available for review at the following locations:

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- The Rhodes University Library
- The CES website (www.cesnet.co.za) – click on public documents

Furthermore a public meeting will be held at the Highlander (Worcester Street, Grahamstown) on 23 November 2011 @ 17h15 pm.

For further information and submission of comments do not hesitate to contact:

Contact: Ms Amber Jackson
P.O. Box 934, Grahamstown, 6140
Tel: 046 622 2364; Fax: 046 622 6564
Email: a.jackson@cesnet.co.za

APPENDIX E-5: TEXT OF THE SITE NOTICE

PROPOSED DEVELOPMENT OF THE BELMONT VALLEY GOLF COURSE PROJECT, IN THE ALBANY DISTRICT EASTERN CAPE PROVINCE

NOTICE OF ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

Notice is given in terms of the Environmental Impact Assessment (EIA) Regulations published in Government Notice R544, R545 and R546 in Government Gazette of 10 December 2010, under Section 24(5) of the National Environmental Management Act 1998 (Act No 107 of 1998), as amended, that a housing scheme project is proposed for construction on the Grahamstown golf course in the Makana Municipality in the Eastern Cape Province.

In addition to the eco-friendly golf course the Belmont Dev. Co. plan to construct a self-sustainable clubhouse of 1500m^2 in area. The clubhouse will use water tanks to handle rainwater, which will be used to supply the clubhouse. Solar panels will aid electrical output to the clubhouse and an anaerobic digestive plant and french-drain system will treat all sanitary sewage.

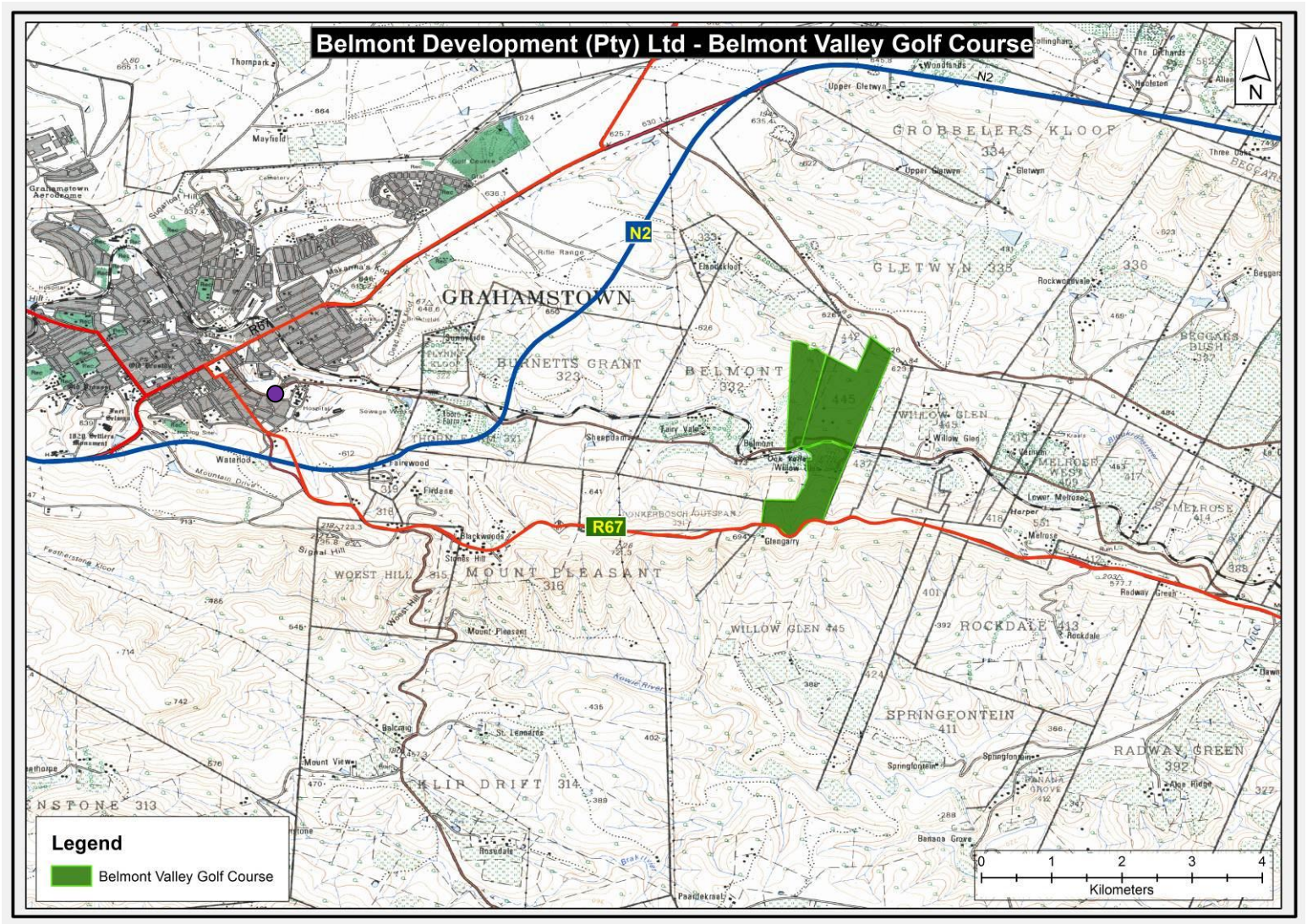
In terms of the EIA regulations, the proposed development will require a full scoping and Environmental Impact Assessment (EIA). Belmont Dev. Co. has appointed Coastal and Environmental Services (CES) to undertake the EIA. The application will be submitted to the Department of Environmental Affairs (DEA).

If you have any comments or queries, or if you require further information, please contact Ms. Amber Jackson at:-
Tel: 046 622 2364; or Fax: 046 622 6564; or
Email: a.jackson@cesnet.co.za

APPENDIX E-6: PHOTOGRAPHS OF THE FIXED SITE NOTICE

Photographs of the fixed site notice placed at the entrance to Belmont Valley Road.

Locality map showing where the site notice was placed (indicated by the purple dot)



APPENDIX E-7: REGISTER OF INTERESTED AND AFFECTED PARTIES (30 October 2011)

NAME	OCCUPATION/AFFILIATION	EMAIL CONTACT
Registered I&APs		
Ammy & Quintus Hahndiek	Friends of Thomas Baines Nature Reserve	quintush@telkomsa.net
Andries Struwig	DEAET (Cacadu Region Port Elizabeth)	Andries.Struwig@deaet.ecape.gov.za
Arjan Sap	Financial Director	hendrif@telkomsa.net
C.Peter		C.Peter@ru.ac.za
Cambray Garth		garth@iqhilika.co.za
Camdini		camdini7@gmail.com
Carel Olivier	Town Planning	mbbpje@imaginet.co.za
Carin Swart	DEDEA	carin.swart@deaet.ecape.gov.za
Carin Swart		carin.swart@deaet.ecape.gov.za;
Cheryl Craig		cherylpcraig@gmail.com
Dave Render		d.ronder@ru.ac.za;
David Davies	Project Manager	mlungisi@izenzo.co.za
Dr Craig Peter	Albany branch of Botanical Society: chair	c.peter@ru.ac.za
Dr Jim Cambray	Kowie Catchment Campaign.	camdini7@gmail.com
DSG school		scrac@dsgschool.com
Graeme Hjul	Oldenburgia Conservancy	ghjul@imaginet.co.za
Greg and Graham Vroom	Neighbours to Golf course development	vroom@itsnet.co.za
Harold Gess		Harold Gess <h.gess@ru.ac.za>
Hendri Frankenfeld	Architect	carel@setplanpe.co.za
Hennie Marais	The Announcer	Hennie <hennie@theannouncer.co.za>
Irene de Moor	WESSA (Grahamstown Branch)	irenedemoor@gmail.com
J.Cambray		J.Cambray@ru.ac.za
James Williamson	Investor	david@izenzo.co.za
Jeanie Main		janoln@imaginet.co.za;
Jenna Holmes	Diaz Cross bird club Secretary	jennaholmes@saarp.org.za
Jenny Gon	WESSA: chair	j-gon@intekom.co.za
Jim Cambray		Craig a.craig@ru.ac.za
Johan Dames	Mycoroot (PTY) LTD - Farmer	j.mycoroot@gmail.com
Jonathan Pryor	Project Manager Albany Working for Water	<jonathanpryor@gmail.com>
Joy Allcock (Mrs)	Department of Accounting Rhodes University	Joy Allcock <J.V.Allcock@ru.ac.za>
K Bates		mikebates@telkomsa.net
Karen Ellery	Lecturer and Co-ordinator, Science Extended Studies, Rhodes University	k.ellery@ru.ac.za
Larry McGillewie	Grahamstown Flying School	larry@albanynet.co.za
Lawrence Sisitka	Makana Environmental Forum	heilaw@imaginet.co.za
Lelethu Sawuti	Thomas Baines Nature Reserve	Lelethu.Sawuti@ecpta.co.za
Len Kruiskamp	Fairewood Nature Reserve	l.kruiskamp@ru.ac.za
LucMarechal		l.marechal@ru.ac.za
MadeleineMoore		M.Moore@dsgschool.com
'Mark Hazell		M.Hazell@ru.ac.za
MarkGalpin		mdgalpin@yahoo.com
Marlene		marlene@umthathi.co.za; info@umthathi.co.za
Marlene Mitchoner		marlene@umthathi.co.za;
MichaelWhisson		m.whisson@ru.ac.za
Mike Bandey		jandm@imaginet.co.za
Mike Botha		mabotha@lantic.net
Mlungisi Matebese		mmatebese@yahoo.com
Nikki Kohly	Kowie Catchment Campaign	n.kohly@ru.ac.za
Ntombekhaya "Ntombi" Baart	Makana Municipality Municiple manager	ntombi.baart@makana.gov.za
'P Smile at'		johann@makana.gov.za
Patrick Cull		pdhcull@iafrica.com
Peter Ellis	Engineer	james@geenet.co.za
Pravesh Nosib		mbbpkn@imaginet.co.za
Priscilla Hall		phall@imaginet.co.za
Priscilla Hall		phall@imaginet.co.za;
Prof Fred Ellery	RU Dept. of Environmental Science	f.ellery@ru.ac.za
Prof Heila Lotz-Sisitka	RU Environmental Learning Research Centre	Sisitka H.Lotz-Sisitka@ru.ac.za
Prof Hugo Nel	Rhodes University Environmental committee	h.nel@ru.ac.za
R Hall		r.hall@ru.ac.za
Raeesa Hassim		rhassim@gibb.co.za
Rob O'Donoghue	RU Environmental Learning Research Centre	r.odonoghue@ru.ac.za
Roger Rowswell	Friends of Thomas Baines Nature Reserve	rar.tecs@telkomsa.net
Roy and Mary Lyn Lubke		r.lubke@ru.ac.za;
Ruth Krueger	Environmental Councillor Rhodes University Student Representative Council	Ruth Kruger <g10k2679@campus.ru.ac.za>
Shane Engelbrecht	Conservation Academy	v.david-engelbrecht@ru.ac.za
Sharon Richner	Albany Horticultural & Lilium Society: chair	s.richner@ru.ac.za
Steven Lang		editor@grocotts.co.za <steven.lang@gmail.com>
Thomas Jachens	Arup	thomas.jachens@arup.com
Tyrone Yates	Golf Design Development	arjan@izenzo.co.za
Tyrone Yates		tyrone@ocpc.co.za
Vanessa Rouhani	Directors: Community & Social Services and Technical & Infrastructure Services	V.Rouhani@ru.ac.za
Vivian Botha		v.botha@ru.ac.za;

APPENDIX E-8: ENVIRONMENTAL FOCUS GROUP MEETING – 27 OCTOBER 2011

BELMONT VALLEY GOLF COURSE AND MAKANA RESIDENTIAL HOUSING SCHEME
ENVIRONMENTAL FOCUS GROUP MEETING
ATTENDANCE REGISTER

Thursday 27th October 2011 16:30 – CES Board Room, Grahamstown

NAME	ADDRESS	TELEPHONE	EMAIL
K. BATES	14 COTTERILL STREET	083 267 9945	mikebates@telkomsa.net
J. RYN	PO Box 2135 Ght	046 636-1449	jonathanryn@gmail.com
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Carin Swart	DEDEA, GHT	046 622 7216	carinswart@deaet.ecape.gov.za
Priscilla Hall	25 Henry St	046 622 2663	phall@imaginet.co.za
Marlene Mitchell	P.O.Box 2345 Gtn	082 820 7858	marlene@umthathi.co.za
Jeanie Main	50A Somersetstreet.	082 6437050.	janain@imaginet.co.za.
Mike Bandey	" " "	"	" "
Karen Ellery	15 Dulverton Rd.	046 6227566	k.ellery@ru.ac.za
Vivien Botha	6 Cartwright Ave	046 6361940 (h)	v.botha@ru.ac.za
DAVE RAIDER.	BELMONT VALLEY - EXEY.	0828033944	D.RAIDER@RU.AC.ZA.
S.H. RIPLEY	4 Jacob Uys Way,	046-6361338	
R.A. Lubke	Waterloo Farm, P.O.Box 83, Gt	082-576-2626	r.lubke@ru.ac.za
A.O. SAP	7 Wesley Hill Port Alfred	072-7188619	aejan_sap@hotmail.com
JAR WILLIAMSON	4 PARKER STR. GHT.	082 4412055	james@geenet.co.za
D. Davies	27 Bedford St. GHT.	082 336 0099.	david@izenzo.co.za

APPENDIX E-9: PUBLIC MEETING: DRAFT SCOPING REPORT

BELMONT VALLEY GOLF COURSE AND MAKANA RESIDENTIAL HOUSING SCHEME

PUBLIC MEETING

ATTENDANCE REGISTER

Wednesday 23rd November 2011 17:15 – at the Highlander

NAME	ADDRESS	TELEPHONE	EMAIL
Vivien Botha	6 Cartwright Ave	046 6038690 (w)	v.botha@ru.ac.za
Dave Render	EDRee Rhodes	082 8033944	D.RENDER@RU.AC.ZA
GARRY JEVONS	3 COTTERILL STREET.	046 6223020.	garry@itsnet.co.za
GREG VROOM	THORN FARM BELMONT VALLEY	0834060166	vroom@itsnet.co.za
HENDRI FRANKENFELD	36 CAMPBELL STR, PORT ALFRED	046-6245289	hendrif@telkomsa.net
David Davies	27 Bedford St, GHT	0823360099	david@izenzo.co.za
ROY LUBKE	Waterloo Farm, Port Alfred	082-5762626	r.lubke@ru.ac.za
Mary Lynn Lubke	Road, Grahamstown	046-622-6046	
Ron Hall	25 Henry St., Gtn.	046-6222-663	r.hall@ru.ac.za
Carl Olivier	60 Bird St, Central, PE	041-5851788	carl@setplanpe.co.za
PRAVESH NOSIB	SIHILL STREET. GHT	046-6227223	mbbpkn@imaginet.co.za
MIKE BANDEY	50A Somerset St. Ght.	046 6227572	jandm@imaginet.co.za
ARJAN SAP	7 Wesley Hill, Port Alfred	072-7188 619	arjan@izenzo.co.za
Mlungisi Matebese	4 Fletcher Street, Grahamst.	08333483873	mmatebese@yahoo.com

APPENDIX E-10: COMMENTS AND RESPONSE TRAIL

Table 1 – Belmont Valley Golf Course

<table>
<tr><th>NAME</th><th>ENVIRONMENTAL ISSUE</th><th>COMMENT</th><th>CES RESPONSE</th></tr>
<tr>
<td>Environmental Focus group meeting 27.10.2011</td>
<td>Agriculture</td>
<td>Loss of agricultural land to golf course- in land poor area

Loss of prime agricultural land to golf course

Loss of agricultural land to golf course- in land poor area

Loss of prime agricultural land to golf course</td>
<td>An application has been made to the Department of Agriculture by SETPLAN for the proposed development. Furthermore the Department of Agriculture was informed by the EAP of the proposed development at the inception of the project. To date no comments have been received. The loss of agriculture land has been assessed as an operational phase impact in Chapter 10 of this report as follows:

ISSUE 1: Loss of agricultural land
Cause and comment
The proposed development site is currently zoned as agriculture I. The proposed development will therefore result in a loss of agricultural potential.
Significance statement
Belmont Valley consists of high potential arable land. The loss of land for agricultural activities will be permanent and severe and therefore will result in a high impact. The no-go impact was considered to be moderate negative, since even though the property is currently zoned for agricultural purposes, it is not used as such. This impact of loss of agricultural land cannot be mitigated.
<table>
<tr><th rowspan="2">Impact</th><th colspan="3">Effect</th><th rowspan="2">Risk or Likelihood</th><th rowspan="2">Overall Significance</th></tr>
<tr><th>Temporal Scale</th><th>Spatial Scale</th><th>Severity of Impact</th></tr>
<tr><td colspan="6">Construction phase</td></tr>
<tr><td>Without mitigation</td><td>Permanent</td><td>Local</td><td>Severe</td><td>Definite</td><td>HIGH -</td></tr>
<tr><td>With mitigation</td><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td><td>No Impact</td></tr>
<tr><td colspan="6">No-Go</td></tr>
<tr><td>Without mitigation</td><td>Long-term</td><td>Local</td><td>Slight</td><td>Definite</td><td>MODERATE -</td></tr>
<tr><td>With mitigation</td><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></tr>
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Environmental Focus group meeting 27.10.2011	Water use	Use of scarce water resources on a golf course Impact down stream Impact on farmers down stream How will the amount of water abstracted impact on farmers downstream?	Rainwater tanks will be installed to supply potable water to the proposed club house. An existing weir is currently present on the proposed development site. This weir has been damaged and will be repaired and water will thus be abstracted from the river for the irrigation of the golf course. There is currently an existing dam on the property, north of the Bloukrans River. Water will be abstracted from the river and stored in the dam before being pressurized into the irrigation system. The dam will act as a reservoir, and this will be where the irrigation pump station will be located. It was established that the previous owner of the property abstracted water from this area for farming activities at a rate of approximately 980 kl/day (see Appendix F). The estimated water requirement for the irrigation of the golf course is approximately 370 kl/day. Therefore it is estimated that there will be a saving of approximately 60% in water use due to the change in land use. An application for the repairing of the weir and the abstraction of water from the Bloukrans River in terms of Section 21a, c and i of the National Water Act has been submitted to the Department of Water Affairs (contact person Lizna Fourie). The applicant is currently waiting for authorization which is subject to various conditions (see Appendix A). Due to the fact that less water will be utilized for the golf course than previously used for agricultural purposes it is unlikely that abstraction of water from the Bloukrans River will impact on the water requirements of the farmers downstream of the development.
Environmental Focus group meeting 27.10.2011	Security	Security at the new golf course	The responsibility of security issues during the operational phase of the development will lie with the applicant. It is recommended that the proposed development site must be fenced. The fencing used must however allow for the migration of small mammals that may utilize the area. It is also recommended that access to the proposed golf course is controlled and that a 24-hour security guard is employed and stationed at the access point.

Environmental Focus group meeting 27.10.2011	River ecology	Use of organic fertilizers and pesticides	A recommendation was made by the EAP that the use of any inorganic fertilizers, pesticides and herbicides are limited in their use, and that organic products are used. This impact is addressed in Chapter 10 and included below. **ISSUE 2: Surface and ground water pollution** *Cause and comment* During the operational phase surface and groundwater pollution may occur as a result of improper waste management (i.e. litter from the people utilizing the golf course), sewage from the Lilliput system and the use of pesticides and fertilizers for maintaining the fairways and greens of the golf course. *Significance statement* There is a strong possibility that the development will create pollution during the operational phase. This impact is considered to be permanent if not mitigated. If mitigation is enforced the impact could be reduced to a low significance. The following mitigation and management measures are proposed to reduce possible impacts: • A litter control programme should be implemented during the operational phase to ensure that litter is contained on site. Litter should be disposed of at a registered waste disposal site. • Reduce the potential for pollution from fertilizer, herbicide and pesticide applications. The proposed golf course should be encouraged to follow the following recommendations: • Organic fertilizer, pesticides and herbicides must be used as far as possible. When the application of inorganic fertilizer, pesticides or herbicides are unavoidable a nutrient management plan should be in pace prior to application. • Read the label before purchasing and applying the products. • Do not apply pesticides when rain is imminent. Pesticides need time to dry and work. • Do not spray products during high wind conditions. • Use the correct amount of water. Over watering may result in leaching. Apply correct quantities/concentrations. Too little may not work and too much may cause damage to the environment. • Use Integrated Pest Management to control pests. • Select products with a low leaching potential. • Where possible, use low toxicity, short lived chemicals instead of high toxicity, long lived chemicals. • Use care when handling chemicals and disposing of the leftover material (Oklahoma Cooperative Extension Service).

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<td>Use of organic fertilizers and pesticides (cont.)</td>
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<table>
<tr><th rowspan="2">Impact</th><th colspan="3">Effect</th><th rowspan="2">Risk or Likelihood</th><th rowspan="2">Overall Significance</th></tr>
<tr><th>Temporal Scale</th><th>Spatial Scale</th><th>Severity of Impact</th></tr>
<tr><td colspan="6">Operational Phase</td></tr>
<tr><td>Without mitigation</td><td>Long-term</td><td>Regional</td><td>Severe</td><td>Definite</td><td>HIGH -</td></tr>
<tr><td>With mitigation</td><td>Long-term</td><td>Localized</td><td>Slight</td><td>May occur</td><td>LOW -</td></tr>
<tr><td colspan="6">No-Go</td></tr>
<tr><td>Without mitigation</td><td>There is currently no activities on site</td><td>N/A</td><td>N/A</td><td>N/A</td><td>No Impact</td></tr>
<tr><td>With mitigation</td><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></tr>
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<tr>
<td></td>
<td></td>
<td>Additional water extraction impacts on already compromised ecosystem functioning of Bloukrans and Kowie River Catchment</td>
<td>It was established that the previous owner of the property abstracted water from this area for farming activities. The rate of abstraction was approximately 980 kl/day (see Appendix F). The estimated water requirement for the irrigation of the golf course is approximately 370 kl/day. Therefore it is estimated that there will be a saving of approximately 60% in water use due to the change in land use. An application for the repairing of the weir and the abstraction of water from the Bloukrans River in terms of Section 21a, c and i of the National Water Act has been submitted to the Department of Water Affairs (contact person Lizna Fourie). The applicant is currently waiting for authorization which is subject to various conditions (see Appendix A).
Due to the fact that less water will be utilized for the golf course than previously used for agricultural purposes it unlikely that abstraction of water from the Bloukrans River will have a severe impact on the river.</td>
</tr>
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<td></td>
<td></td>
<td>Increased nutrient levels from runoff into already degraded Bloukrans river= worse!</td>
<td>If all mitigation measures set out in Chapter 10 of this report and the Environmental Management Plan are adhered to, the likelihood of increased pollution of the Bloukrans River is low (see above impact).</td>
</tr>
</table>

Environmental Focus group meeting 27.10.2011	Access	Access road to town along the Belmont road and impact on farming community	A TIA was undertaken to assess the impact of the proposed development on the existing Belmont Valley Road. The following conclusions can be drawn from the study: • Belmont Valley Road can be considered to be in a fair to good condition at present although it is noted that this condition could be attributed to low traffic volumes; • Excessive fine material was observed along the road creating visibility concerns in dry weather and slippery conditions in wet weather; • Road traffic signage is lacking along the entire length of the road, particularly on the approaches to and through sharp curves; • Upgrading of the road traffic signs will contribute significantly to safer operating conditions; • The new golf course can be expected to generate an average of 180 vehicle trips (1 trip = 1 direction) on the three busiest days each week (Wednesday, Thursdays and Saturdays) with fewer trips on the remaining days; • Based on the anticipated daily traffic volumes, the road can be categorized as a medium to high volume gravel road; • Construction traffic is anticipated to damage the road during the construction phase, particularly the section between Grahamstown and the proposed golf course; • The provision of additional road traffic signage as indicated in Chapter 9 of this report as well as the TIA, will result in safer operation; • Given that the golf course development will result in an increase of traffic making use of the road, the development should contribute towards maintenance required to ensure that the road remains in a suitable condition after construction has been completed. In view of the findings of this study, it is recommended by the consultant, Engineering Advice and Services that: • The developer install additional road traffic signs as indicated in Chapter 9 of this report, and that such signage be installed as soon as development commences; • The developer ensures that the standard of the road remains at an acceptable level during construction; • The developer upgrades the road to a suitable gravel standard once construction of the golf course has been completed.

Environmental Focus group meeting 27.10.2011	Economic	Can Grahamstown afford an expensive golf course	The costs of the development and maintenance after construction of the new golf course will be the responsibility of the developer.
Environmental Focus group meeting 27.10.2011	Rehabilitation	Any commitment to rehabilitate degraded Bloukrans (deal with invasive plants, pollution, litter, high nutrient levels)	The applicant will be responsible of the establishment of an alien eradication programme for the removal of all alien species listed in terms of the Conservation of Agricultural Resources Act that are within the cadastral boundary of the property. This will have various environmental benefits, such as an increase in available water and habitat for indigenous species. Furthermore, the applicant might be investing in the upgrading of the Belmont Valley Sewage Treatment Works in conjunction with the municipality prior to the construction of the residential component of this development. This may result in improved quality of effluent that is currently being discharged into the river.

Environmental Focus group meeting 27.10.2011	Ecological	Impacts of golf course on water and plants Impact on biodiversity and river system	The impact on water resources have been discussed above. The majority of the golf course will be situated on fallow land. These, previously cultivated lands have low sensitivity. However, two of the holes and the driving range will be situated partially on natural vegetation, i.e. Kowie Thicket, while a further two holes will be completely situated in natural vegetation. The upland areas, although lower in species richness are still part of the Kowie Thicket vegetation, form an integral aspect of the riparian ecosystem and are the interface between the adjacent vegetation types. Kowie thicket is classified as a highly sensitive area, but it is important to note that several alien species were identified in the study area. Despite some of these species being category 1 species, the study area is dominated by indigenous vegetation which is indicative of the sites importance as an ecological corridor, but it can also function as a corridor for alien invasive species. An EMP is required for long term endemic sustainability and eradication programs. Should the development be authorised all invasive species listed in terms of the CARA must be eradicated from site. One hole will be situated in close proximity to the Bloukrans River and will encroach on riparian vegetation. This area is species rich, offers increased habitat creation, is an area towards the end of its distribution zone and includes a watercourse and wetland zone. The likelihood of additional species of concern that were not recorded in the field study is high, especially due to this zones richness in bio-diversity. It is important to note that the Bloukrans River serves as a transport method for alien species with eroded river banks serving as prime germination zones for transported seed. Should the development be authorised care must be taken not to create additional habitat for alien invasion by clearing large areas of riparian vegetation. The removal of relatively small areas (in terms of the size of the entire property) for the purpose of development may be considered acceptable, since all alien species listed in terms of CARA will have to be removed from site, which may result in various environmental benefits, such as increased availability of water and habitat for indigenous vegetation. It is also recommended that the CBA 1 areas identified in terms of the ECBCP are maintained as open space and managed as such in the future to offset the golf course development.
Environmental Focus group meeting 27.10.2011	Biodiversity offsets	Need to produce offsets in the protection of sites of ecological plants Geological and biological offsets required	The proposed Belmont Valley golf course occurs within a CBA 2, and is bordered on both sides by CBA 1. According to the ECBCP, no development of any kind should take place in CBA 1 areas, these areas are to be set aside for conservation. As for CBA 2 areas: conservation is allowed and game farming potentially allowed on determination of the impacts and subsequent environmental authorization. It is therefore recommended by the EAP in this report that the areas falling into CBA 1 should be set aside and actively managed as conservation areas. These areas could potentially become biodiversity offset areas.

Table 1: Draft scoping report Issues and Response table

I&AP	Concern	Response
Mr Dave Render	Mr Render travels Belmont Valley Road three to four times a day and says that the current limited traffic already degrades the road significantly. It is a dangerous road i.e. it is dusty when dry and slippery when wet. Farmers are already asked for assistance when a vehicle veers off the road. He is concerned with additional vehicle use and the associated safety risks to users.	A TIA was undertaken to assess the impact of the proposed development on the existing Belmont Valley Road. The TIA confirmed the concerns of Mr Render in that substantial fine material is evident along the whole length of the road, creating dust during dry conditions and a slippery surface during wet conditions. During dry conditions, dust will impair drivers' vision, while during wet conditions; drivers' face the possibility of losing control of their vehicles. For this reason the following mitigation measures have been recommended by the Traffic Engineers to ensure the safety of all road users: • Dust will be prevalent for a few days after the road is bladed as during the blading process, fine material from the road edge is worked into the road surface. However, the dust will generally dissipate after a few days. It is also noted that the higher the speed of vehicles, the more dust will be created. Speed limits of 60km/h would therefore result in less dust. • The main concern from a traffic safety perspective is the lack of road signage along the entire length of the road. Of particular concern is the lack of advance warning of sharp curves and the poor sight distance on the approaches to these curves. It is considered that traffic using the road is currently at risk and additional road users would also be at risk should suitable advance warning of hazards not be provided. While vehicle operating speeds can be relatively high along the majority of the length of the road given long straight sections, problems can occur at curves. As such, a general speed limit should be posted together with recommended speeds at sharp curves. The existing 100km/h signage at km 12.0 at the end of the road should be replaced with a 60km/h sign. Delineation of the curves as well as culverts is also recommended to ensure safe operation. • No protection is afforded those road users who may lose control of vehicles at culverts and at embankments. Guardrails should be provided at these locations in order to improve safety of the road. • The crossings between the two sections of the golf course must be clearly demarcated by means of advance warning signage on Belmont Valley Road. • Bush clearing should be conducted where vegetation encroaches onto the road surface in order to improve sight distances and ensure that motorists in opposing directions are able to pass each other.

<table>
<tr>
<td>Mr Greg Vroom</td>
<td>Storm water management is important. Banks of the Bloukrans River already experience erosion and slurry runs down the river.</td>
<td>The proposed development site consists of two ridges and a central valley through which the Bloukrans River drains. Storm water run-off flows from the north and the south to the river which then drains in a general easterly direction. The proposed development will result in a few impervious surfaces (i.e. the roof of the clubhouse, the access road and parking area), which will result in an increase in run-off. These areas have a relatively small footprint and it is therefore anticipated that storm water will only increase marginally. The majority of the property will consist of fairways and greens for the golf course. These areas will allow for the seepage of excess storm water. Therefore storm water within the area will not be considered as a major concern.</td>
</tr>
<tr>
<td>Mr Graham Vroom</td>
<td>Agriculture in the area needs to expand to increase profit margins. There is concern that the family farm (1876) will now be restricted if land is purchased for the construction of the golf course.</td>
<td>An application has been made to the Department of Agriculture by SETPLAN for the proposed development. Furthermore the Department of Agriculture was informed by the EAP of the proposed development at the inception of the project. To date no comments have been received. The loss of agriculture land has been assessed as an operational phase impact in Chapter 10 of this report as follows:
ISSUE 1: Loss of agricultural land
Cause and comment
The proposed development site is currently zoned as agriculture I. The proposed development will therefore result in a loss of agricultural potential.
Significance statement
Belmont Valley consists of high potential arable land. The loss of land for agricultural activities will be permanent and severe and therefore will result in a high impact. The no-go impact was considered to be moderate negative, since even though the property is currently zoned for agricultural purposes, it is not used as such. This impact of loss of agricultural land cannot be mitigated.
Unfortunately the EAP has no control over the purchase and fragmentation of land.
<table>
<tr><th rowspan="2">Impact</th><th colspan="3">Effect</th><th rowspan="2">Risk or Likelihood</th><th rowspan="2">Overall Significance</th></tr>
<tr><th>Temporal Scale</th><th>Spatial Scale</th><th>Severity of Impact</th></tr>
<tr><td colspan="6">Construction phase</td></tr>
<tr><td>Without mitigation</td><td>Permanent</td><td>Local</td><td>Severe</td><td>Definite</td><td>HIGH -</td></tr>
<tr><td colspan="6">No-Go</td></tr>
<tr><td>Without mitigation</td><td>Long-term</td><td>Local</td><td>Slight</td><td>Definite</td><td>MODERATE -</td></tr>
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Mr Graham Vroom	Traffic concerns include the following: • The road is already dangerous with various blind corners and steep slopes. • A tarred surface results in damaged to cattle and tractor tyres. • Local farmers have taken the initiative to maintain the road due to a lack of maintenance by the provincial department of roads and cannot incur additional costs resulting from increased traffic. • Farmers are concerned for the safety of tractor drivers, i.e. being injured by small stones as a result of passing cars. • Farmers are concerned about traffic delays as a result of herding cows and the impact of manure on vehicles. • Cars agitate cattle and farmers are concerned that this will impact on milk production and result in traffic accidents. • Farmers are concerned about drunk driving due to the sale and consumption of alcohol at the club house as is currently the case.	A TIA was undertaken to assess the impact of the proposed development on the existing Belmont Valley Road. The following addresses the issues raised. Safety of the road is discussed above and it is the recommendation of the EAP that all safety measures stipulated in the TIA be adhered to be the applicant at the cost of the applicant. Belmont Valley Road will not be tarred but will remain a gravel road. It is the recommendation of the Traffic Engineer that the developer ensure that the standard of the road remains at an acceptable level during construction and that the road is upgraded to a suitable gravel standard once construction of the golf course has been completed. The TIA also suggests that the development should contribute towards maintenance required to ensure that the road remains in a suitable condition after construction has been completed given that the golf course development will result in an increase of traffic making use of the road. It is recommended that the speed limit on Belmont Valley Road is reduced to 60km/h, which may contribute to the safety of tractor drivers. The public is well aware that Belmont Valley Road is utilized for farming practises and any manure on vehicles or delays due to cattle herding will be the responsibility of the owners. The incidence of traffic accidents will be reduced if all the safety measures suggested in the TIA is adhered to by the applicant. Unfortunately the control of drunk driving on our roads is the mandate of the Traffic Department and therefore cannot be addressed in this EIR.
Mr Graham Vroom	Mr Vroom is concerned about the location of the proposed weir and possible resultant flooding of his property.	A weir is a barrier across a river designed to alter the flow characteristics. In most cases, weirs take the form of a barrier across the river that causes water to pool behind the structure (not unlike a dam) but allows water to flow over the top. Since, the weir will still allow for the flow of the river it is unlikely that it will result in the flooding of properties upstream thereof.

Table 3: Draft EIR Issues and Response table

COMMENT BY	COMMENT	RESPONSE
General		
Mike Bandey (WESSA)	I just want to understand, obviously the golf course has to be built first?	This is correct. The existing golf course has to be constructed and in operation before the existing golf course can be decommissioned.
	How many km will the golf course be outside of Grahamstown?	Approximately 8km.
	What will be irrigated? Just the fairways and greens?	This is correct only the fairways and greens will be irrigated.
	Will the weir on the property be reinstated?	Yes.
	What is the timescale of this development?	The construction of the golf course will start as soon as authorisation is received from DEDEAT. However the entire development will be phased over approximately 10 years.
Bulk services supply		
Mike Whisson	Grahamstown gets a certain amount of water, and we're not going to get more. The Mayfield development will utilize a lot of water. The only additional source of water will be recycled water from Belmont Valley WWTW, which can't be used for the golf course as it will need to be recirculated for residential use.	The golf course will not utilise recycled water from the WWTW. Water for the use of irrigation of the golf course will be abstracted from the Bloukrans River as explained in the Draft EIR. This is essentially waste water from the works, but treated (theoretically) to meet receiving water quality standards. Should the water at the WWTW eventually meet the high standards required for recycling, a certain amount will still need to be discharged into the Bloukrans to (a) meet the in-steam flow requirement (the ecological reserve), and (b) meet the existing irrigation (riparian rights) of landowners who have licences to abstract water for irrigation purposes. One such licence is for the farm on which the golf course is to be established.
	Is there enough water to supply the farmers as well as the golf course?	Yes. It has been established that the previous owner of the property abstracted water from this area for farming activities. The rate of abstraction was approximately 980 kl/day. The estimated water requirement for the irrigation of the golf course is approximately 370 kl/day. Therefore it is estimated that there will be a saving of approximately 60% in water use due to the change in land use.
Socio-Economic		
Pat Irwin (WESSA)	What proportion of jobs will go to locals?	The developer has given assurances to the municipality to source skills from Grahamstown as far as possible, and also to allow for employment training opportunities.
WESSA	We are concerned that although the relevant farms are presently fallow, the rezoning of these properties from agricultural use will result in the loss of highly arable land which could be an issue in the future [food security]. Please explain how this development has a low positive impact on agriculture?	The Draft EIR states the following: ***ISSUE 1: Loss of agricultural land*** *Cause and comment* The proposed development site is currently zoned as agriculture I. The proposed development will therefore result in a loss of agricultural potential. *Significance statement* Belmont Valley consists of high potential arable land. The loss of land for agricultural activities will be permanent and severe and therefore will result in a high impact. This impact

cannot be mitigated.
The no go option results in a low positive impact as although the area is zoned for agriculture it is not currently utilized for this purpose.

Impact	Effect			Risk or Likelihood	Overall Significance
	Temporal Scale	Spatial Scale	Severity of Impact		
Construction phase					
Without mitigation	Permanent	Local	Severe	Definite	**HIGH -**
With mitigation	N/A	N/A	N/A	N/A	**No Impact**
No-Go					
Without mitigation	Long-term	Local	Slight	Definite	**LOW +**
With mitigation	N/A	N/A	N/A	N/A	**N/A**

Therefore the impact of the development on agriculture is considered to be a high negative impact that cannot be mitigated.
The low positive refers to the no-go option, i.e. the area will still be zoned for agriculture but may not be used for this purpose as the situation is currently.

Health and Safety		
Mike Bandey (WESSA)	What will the impact of dust be? What is the opinion of surrounding farmers i.r.t. the impact of dust on cattle etc.	The speed limit will be reduced from 100 km/h to 60 km/h which will decrease dust emissions.
WESSA	Many Grahamstonians regard Stones Hill as in the country, and might have the same attitude to the distance to the new golf course. However, as most golfers can afford cars, this may not deter them. The security factor of the area will be a problem as it is isolated, so thought must go into this before the new course is produced.	The responsibility of security issues during the operational phase of the development will lie with the applicant. It is recommended that the proposed development site be fenced. The fencing used must however allow for the migration of small mammals that may utilize the area. It is also recommended that access to the proposed golf course is controlled and that a 24-hour security guard is employed and stationed at the access point.

Traffic Impacts		
Mike Bandey (WESSA)	Seeing as the road is gravel, will it just deteriorate over the next 10 years or will it be maintained regularly?	The Traffic Impact Assessment (TIA) recommended that the road is upgraded by the developer after construction to ensure that the road is in a good condition. However, Belmont Valley Road is a provincial road and is therefore the responsibility of the Department of Roads during the operational phase of the development.
Dave Duncan (email)	I farm just down the valley beyond the intended golf course site. I have no objection to the development at all as the site has not been agriculturally active for at least 10 years anyway and I do not see that a golf course will have any negative impact on the land, river or wildlife in fact I anticipate the opposite where the area will be maintained, illegal hunting and snaring stopped, and alien vegetation and rubbish removed. My only source of concern is really the road. It was totally resurfaced 7 years ago and thus is in as good a condition as it can be, yet when we have gentle rain over a few days and the dairy farmer's tractors and cattle have tramped it to a slushy mess it is as slippery as ice and just as dangerous. My question is what is going to happen to golfers after Saturday's golf and a good few drinks and they try to head home after 8mm of rain? More than half of them will go off the road, we battle in our trucks and SUV's in those conditions and we grew up driving on this road. Is there any plan to upgrade or maintain the gravel road in the developer's plans?	A TIA was undertaken to assess the impact of the proposed development on the existing Belmont Valley Road. The following conclusions can be drawn from the study: • Belmont Valley Road can be considered to be in a fair to good condition at present although it is noted that this condition could be attributed to low traffic volumes; • Excessive fine material was observed along the road creating visibility concerns in dry weather and slippery conditions in wet weather; • Road traffic signage is lacking along the entire length of the road, particularly on the approaches to and through sharp curves; • Upgrading of the road traffic signs will contribute significantly to safer operating conditions; • The new golf course can be expected to generate an average of 180 vehicle trips (1 trip = 1 direction) on the three busiest days each week (Wednesday, Thursdays and Saturdays) with fewer trips on the remaining days; • Based on the anticipated daily traffic volumes, the road can be categorized as a medium to high volume gravel road; • Construction traffic is anticipated to damage the road during the construction phase, particularly the section between Grahamstown and the proposed golf course; • The provision of additional road traffic signage as indicated in Chapter 9 of this report as well as the TIA, will result in safer operation; • Given that the golf course development will result in an increase of traffic making use of the road, the development should contribute towards maintenance required to ensure that the road remains in a suitable condition after construction has been completed. In view of the findings of this study, it is recommended by the consultant, Engineering Advice and Services that: • The developer install additional road traffic signs as indicated in Chapter 9 of this report, and that such signage be installed as soon as development commences; • The developer ensures that the standard of the road remains at an acceptable level during construction; • The developer upgrades the road to a suitable gravel standard once construction of the golf course has been completed.
WESSA	The maintenance of the road to the "new course" might be a problem if the traffic increases substantially. This is dependent on the provincial authority	Farmers in the area have specifically asked that the road is not tarred since it damages the cattle and tractor tyres.

	taking responsibility for this maintenance. The road should preferably be tarred.	
Bob Keeble (GGC)	The EIR says the developer will maintain the road during construction but only the roads dept. can upgrade the road. How will this be enforced?	This is up to the Department of Roads who will ultimately accept or reject the TIA.
Bob Keeble (GGC)	Will the road be accessible to persons in a normal car during wet weather? To what extent do the provincial dept of roads take care of the road? Has the dept of roads been notified of the proposed development?	The Department of Roads have been notified i.r.t. the proposed development.
Environmental issues		
WESSA	Plus factors of the new site are that the amount of water to be used to water the new course is calculated to be less than that used by the previous farmer. Thus more water would be available further down the valley. In addition, the developer will be removing large stands of black wattle which should also free up more water for the Bloukrans River.	Noted.
WESSA	The grasses proposed for use on the golf course are aggressive/invasive. There needs to be a guarantee that the spread of the grass into indigenous areas will be strictly controlled.	Noted and agreed. Every effort will be made to prevent the spread of invasive grasses into indigenous areas. Interventions may include but are not limited to: • Designing the irrigation system not to be head to head but rather centreline out. This means that the last sprayer closest to the semi rough line (outer edge of the mowable area) only gets a single precipitation rate as opposed to double coverage and ends 5m short of the wild indigenous gasses. Hence a buffer zone - 5m semi rough and 5m of an annual veld grass which will be a bunch type and non-invasive grass. Any stray stolon's from the Kikuyu are easily detected and removed. • A cart path with 220m deep edging (curbing) is also installed down one side causing a barrier for any encroachment. This also serves as a clear border for edging and mechanical control of invading grasses.
Angela Liesenberg	How much water does the current golf club use?	Unknown.
WESSA	Is cynodon (the suggested grass) not a weed?	It is assumed that due to the fact that Bermuda grass is indigenous it is less invasive. However, *Cynodon dactylon* (seeded variety) and *Cynodon transvalenses* (vegetative variety) are aggressive regardless of excess watering and fertilization. Furthermore, all seeded varieties are purchased from the United States and have been hybridized specifically for utilization on golf courses. Vegetative species would have to be harvested

		from local drainage lines or catchment areas. *Cyndon* species require more fertilizing and water than Kikuyu resulting in an increased risk of contamination of water resources.

APPENDIX E-9: COMMENTS RECEIVED DURING DRAFT EIA

Makana madness.

"Those whom the gods would destroy, they first drive mad."

The 'development" of the golf course and the adjacent former brickworks seems to have returned to the Makana agenda, after a a few years of relative quiet. The people and the municipal council need to look very closely at the proposals, at the links between the would-be developers and at the implications for Grahamstown as a whole.

Substantial development of the old Industrial area and the Golf Course into residential areas will require that the sewage reticulation system, which flows across town into the Belmont Valley, be massively increased as it is already at maximum capacity. The burden for this enhancement of "infrastructural servives" will inevitably fall on all the rate payers (a group which should not be confused with all property owners, many of whom do not bother to pay their accounts).

The best advice that we have from local surveyors is that the proposed residential development in the old Corobrick site, assuming thast the adjacent properties are rezoned from noxious industrial to something more acceptable for housing developments, will cost something in the region of R500 000 per site – hence the housing developments will not be for the vast majority of Grahamstown citizens, as the cost of building must be added to the cost of the serviced sites. While a similar estimate for a "golf course' housing development is not to hand, it will not be much less, once the cost of linking the development to infrastructural services has been included.

In short, either, or both, developments could only provide a substantial amount of housing for people able to find something in the region of R100 000 p.a. in interest and redemption costs for even modest properties in the proposed areas. The desirability of the proposed golf course development must also be assessed in terms of the probable and desirable increase in air traffic on the adjacent airfield. The requirements of the proposed Air Training School and the military should justify an up-grading of the current amenities which will then be more attractive to tourists coming to the area.

The demand for housing in Grahamstown is overwhelmingly at the bottom end of the market. It has been estimated that the municipality as a whole is in need of 12 000 houses, the vast majority of which are at the sub-economic end of the market – for which multi-storey developments on unused sites in Fingo Village and even in the "frozen zone" would make far more sense. Estimates vary. but there are currently about 150 properties available for purchase in Grahamstown at prices which the vast majority cannot afford – the idea of adding to that stock, whilst ignoring the mass of the effectively homeless is not only immoral, but economically preposterous.

The development of the associated "upmarket golfing estate" in Belmont Valley needs to be examined in the light of Makana's greatest municipal accounts defaulter – Bushman Sands. There, in the idyllic valley, with water from the "New Year's Dam", fed by the waters of the Bushman's and New Year's rivers, (to say nothing of alleged boreholes in the area)the golf estate, requiring a million litres of water a day, would attract an international clientele which would enjoy the "Gary Player" golf course, and access to Shamwari and other nearby game reserves. An internationally recognised hospitality and chefs' training programme, to say nothing of a preferred base for a World Cup soccer team was also in prospect. The last figure provided by the C.F.O before his suspension was that the Bushman Sands owed about R10m rands in unpaid municipal accounts, Barely a dozen of the golf estate erven had been developed, and the initial buyers of most of the plots have suffered major losses on their investment. In a world of increased financial realism, can one seriously expect a similar development in the Belmont valley to be so much more successful? The "developer" may well be able to make a lot of money if he can persuade investors to buy sites and to invest in such a

development, and doubtless declare that Belmont Valley is close to Grahamstown, not out in the bush like Alicedale (with its rail link to Port Elizabeth and Johannesburg). At the end of the day, or decade, however, it is the small investors who will pay the real costs, and the municipality i.e. you, me and the other rate payers who will be picking up the tab.

The expansion of Grahamstown is overwhelmingly reliant on the growth of the University and the broader educational sector. On the one hand, the University is the major contributor to the income of the municipality through its rates and service charges. At the same time, it is trying to house as many of its students in residences as possible – hence slowing the increase in demand for "digs" in Grahamstown. The admirable Mr Grocott bailed out the University in its time of need, with no expectation of a *quid pro quo*. The University today will be rather more hardheaded when it comes to bailing out the municipality, not least because the increase in its student population can be expected to come from the lower income groups rather than from the more wealthy families.

These are the issues which need to be taken into account before Makana embarks on a couple of major developments on the northern edge of Grahamstown and in the Belmont Valley. The top priorities should be housing for the desperately poor, the development of Belmont Valley sewage works into a water recycling operation to provide a third of the city's pure water supply, and the use of the substantial Development Bank loan for the purposes for which it was intended viz. the provision of services for which the users will actually pay and so service the loan. When, not if, an efficient water recycling plant is developed at the sewage works, the amount of water flowing down Belmont valley will be scarcely adequate to sustain the existing food producers and the pools which play an important part in the spiritual life of the Xhosa. The management of the water supply in Grahamstown is not a matter for speculation by the "green" community, it is literally a matter of life and death for thousands of residents who are already under-supplied, and the demands being placed on the Gariep Dam mean that there will be little if any increase from that quarter.

Michael G.Whisson

Comments on the proposed residential development at Grahamstown's existing golf course and on the relocation of the golf course to Belmont Valley

Submitted to CES by the committee of the Grahamstown branch of WESSA

(1) Residential development

Although it appears that the flora and fauna in the present Grahamstown Golf Club area would not be dramatically adversely affected by the proposed development, there are concerns that need to be addressed before the go ahead is given. **In particular, while the EIR recommends that bulk services are in place prior to the development commencing so as to ensure that supply of water, electricity, sewerage treatment will be able to meet the demand placed by the development, we would like to see the provision of these services as a condition of authorization.**

Our concerns are listed below:

1. The first and most important is the issue of the removal and treatment of sewage. The developer has undertaken to upgrade the sewage treatment works and overhaul and repair the bulk line system, which would be an enormous benefit for Grahamstown. This is an essential prerequisite for the development (and any future residential schemes) and needs to be done prior to the development. This requirement should be written into the ROD.

2. Secondly, it is important that the water supply to the development is sufficient. The proposed upgrade of the bulk water supply line from the James Kleynhans Purification Works to Botha's Hill, needs to be guaranteed and a clear time frame provided that this upgrade be completed before development starts. In addition, the promised upgrading of existing water infrastructure in town needs to be guaranteed and the water supply system must be fully operational before any development takes place.

3. All residential units should have water harvesting tanks installed.

4. We do have concerns about storm water drainage

5. Proper planning needs to be in place to deal with the traffic issues in Cradock Road in particular.

6. The debris that blows off the refuse dump has been an issue that the Municipality has been attempting to sort out for years. This issue would need attention from the developer if buyers are to be attracted to the area.

7. We support the submissions of the Albany branch of the Botanical Society and of Mr Tony Dold regarding the protection of rare plant species in the area adjacent and to the east of the existing golf course.

(2) Relocation of the golf course

1. Plus factors of the new site are that the amount of water to be used to water the new course is calculated to be less than that used by the previous farmer. Thus more water would be available further down the valley. In addition, the developer will be removing large stands of black wattle which should also free up more water for the Bloukrans River.

2. We are concerned that although the relevant farms are presently fallow, the rezoning of these properties from agricultural use will result in the loss of highly arable land which could be an issue in the future [food security].

3. The maintenance of the road to the "new course" might be a problem if the traffic increases substantially. This is dependent on the provincial authority taking responsibility for this maintenance. The road should preferably be tarred.

4. The grasses proposed for use on the golf course are aggressive/invasive. There needs to be a guarantee that the spread of the grass into indigenous areas will be strictly controlled.

5. Many Grahamstonians regard Stones Hill as in the country, and might have the same attitude to the distance to the new golf course. However, as most golfers can afford cars, this may not deter them. The security factor of the area will be a problem as it is isolated, so thought must go into this before the new course is produced.

Conclusions

The economic impact of the development could create a large number of jobs, both temporary and permanent. It would also allow people to move to Grahamstown because affordable housing becomes a reality. In addition, the offer by the developer to upgrade the waste water treatment works would be a huge plus for Grahamstown.

However, it is vital that the infrastructure in the city is overhauled and upgraded before any large-scale residential development takes place. In addition, if the municipality cannot cope with the extra demands on medical facilities, refuse removal, road maintenance, and electricity supply, the development will become a burden to the community. The ratepayers of Grahamstown must not end up paying for mistakes of the developer. We would like to see the developer must financially guaranteeing all of the promises he makes, and this finance must be held in trust.

Grahamstown branch of WESSA, PO Box 73, Grahamstown 6140

Chairperson: Ms Margaret Crampton
Cell: 083 635 0970; email cramptonmargaret@gmail.com

9 July 2012

Albany Branch

Botanical Society of South Africa

09 July 2012

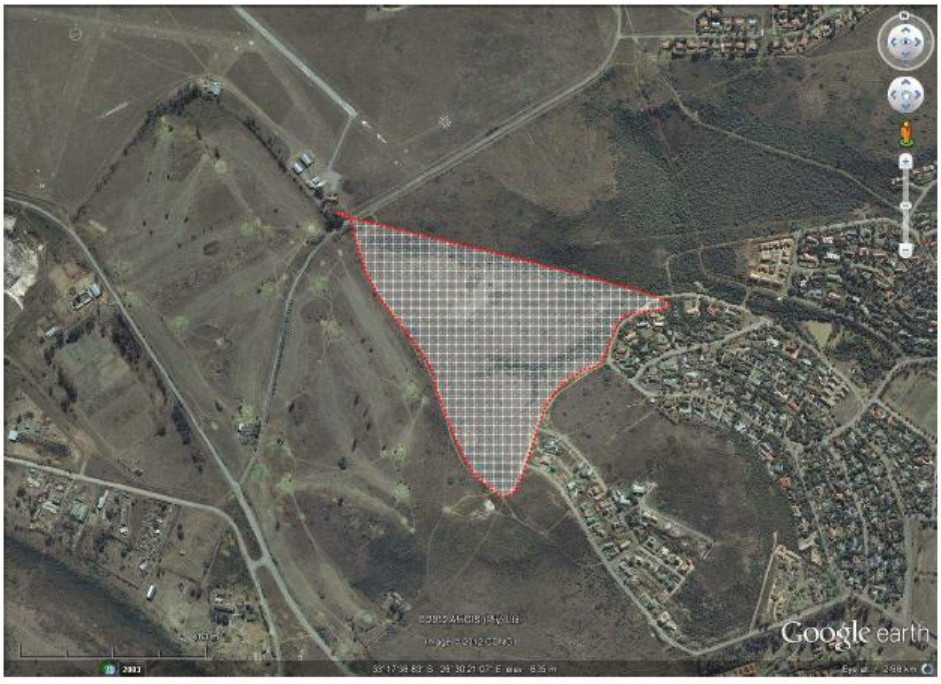
Lara Crous
Coastal and Environmental Services (CES)
Grahamstown

Dear Lara

Proposed Golf Course Development – Grahamstown

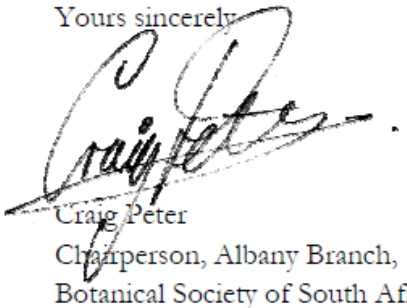
The Albany Branch of the South African Botanical Society has concerns about the possible indirect impact of the proposed Gold Course development on an adjacent piece of municipal land.

The area is immediately to the east of the current golf course development as indicated by the Lange's botanical report and separated only by an undemarcated gravel track. The area is indicated in the photo below.



We recommend that this area be cordoned off as a no-go zone during and after construction/development. Ideally we would like to see this piece of land incorporated into the long term plans for this greater development and to be set aside as a Botanical Reserve to prevent urban creep degrading this important natural space.

Yours sincerely



Craig Peter
Chairperson, Albany Branch,
Botanical Society of South Africa
c.peter@ru.ac.za

1

Submission in respect of the Draft Environmental Impact Report (for a residential development on the golf course) with regard to the Grahamstown Riding Club

The Grahamstown Riding Club (GRC) is an interested and affected party by virtue of the fact that the proposed development site is on the opposite side of the road to where the GRC is situated and is likely to have a direct effect on its activities.

The draft EIR does not address how the proposed development may affect the GRC, as this is not strictly an environmental issue. It does, however indicate on Pg 8 of the introduction to the report that: "The proposed development site is surrounded by various land use forms; these include the airfield, military base, natural areas, a horse riding club and urban development."

The GRC membership is justifiably concerned about the potential impact of the proposed development on the GRC.

Background to the submission

The Grahamstown Riding Club is a non-racial sports club whose constitutional objective includes the improvement of horsemanship and the promotion of showing and all sport connected with horses

It is affiliated to the provincial body, the Eastern Cape Horse Society (ECHS), which in turn is affiliated to the national body, the South African Equestrian Association (SANEA). The GRC, and by proxy its members, align themselves with the objectives and goals of these two organisations.

The Grahamstown municipality allocated the land for the then Agricultural Society in about 1948. The GRC grew out of this society and has, for the past fifty or more years been the custodian and developer of the land in question. It currently leases the land on a renewable five-year agreement from the Makana Municipality, along with the remainder of Goodwins Kloof, which accommodates some private ponies, in addition to the riding school ponies for a portion of the year, at grass.

The flat, even land is perfect for equestrian activity and, initially, the GRC revolved around the sports of jumping, dressage, showing, equitation and with the additional land at Goodwins Kloof, eventing. The amenities were originally sited to enable the playing of polo, and later the rise in popularity of polocross, and the inclusion of Pony club, saw the club grow. It has also always been the home to riders who simply enjoy recreational riding. Members began to invest in the development of the land from early on, building stables and amenities whenever the money could be raised. The GRC can currently accommodate over 120 horses in its stables, some of which house an economically active riding school, some the privately owned horses of the members who reside in town, while others are allocated to accommodate visiting competitors.

Extensive arenas have been developed, with much money and effort going into maintaining specialised surfaces for practice and competition in each discipline, essential to the safety and physical wellbeing of the equine athletes. In addition, safe paddocking and associated plumbing has been established, necessary to accommodate up to 40 horses which may be permanently resident on the grounds at any time.

Apart from the stables, amenities include ablution facilities, a judges' tower, storage facilities, and a generous clubhouse. The GRC also invested in extensive infrastructure to enable the irrigation of the riding areas, and recently secured its premises with an electric fence.

The GRC hosts several regional and provincial shows annually, as well as at least one Provincial championship. It has hosted National level events, and is in fact the only show ground in the Eastern Cape with an arena with suitable dimensions to host the annual SANEA Interprovincial Jumping Challenge. Being central in the province, Grahamstown is also ideally situated to host SA National Equestrian Schools Association (SANESA) regional and national equestrian schools' league. Most of the shows are multi-disciplinary and include graded and un-graded showing, jumping, equitation and dressage. Shows are well attended and attract competitors from all over the Eastern Cape and further afield, including Bathurst, Port Elizabeth, East London, Queenstown, Knysna and George, and this constitutes the Club's primary source of income.

The GRC also hosts the horses of the province's SA Police Services (SAPS) Mounted Unit whenever they are in town for events such as the National Arts Festival.

The GRC is very fortunate in its current premises for the following reasons:

- The grounds are flat and ideal for equestrian activity

- It is within 5km of the city centre. This makes convenient access to school children despite the increasing demands of school on their time. It also enables people who work full time to enjoy their horses after hours. Good access facilitates visitors from all parts of the province bringing horses by road with transport ranging from double birth trailers to articulated long haulers.

- Because it is on a plateau, it is windy. This is one of the major reasons why African Horse Sickness (AHS), which has been extremely prevalent in the Eastern Cape over the past ten years, has barely affected the GRC. The bracing prevailing winds render the midges which transmit the disease unable to settle or breed in the area. While some nearby areas (Belmont Valley, Riebeck East, Bathurst, Sidbury, Alicedale) have been hard-hit by AHS, the GRC has had only one confirmed case in the past decade.

- The facilities that the GRC now boast on the current premises have been established and improved by joint effort over many years, and these will be very hard to replace in a single act, not least considering the effect of current economies on both resources and leisure time.

- The GRC is proximate to common land which is accessible to hack horses out, a great asset in such a peri-urban setting.

Benefit to the larger community

- The horse riding fraternity support many local businesses, from feed merchants to pet shops, veterinarians, maintenance services, vehicle related industries, catering, electronics, just to name a few.
- Grahamstown prides itself on its wonderful schools. Many offer horse riding as a unique draw card in their prospectuses, made possible by the proximity of the GRC.
- Riding is a sport that promotes healthy outdoor activity. Growing our sport involves engaging children of all groups, regardless of age, race or gender. Strides have been made in the offering of development opportunities to disadvantaged riders.
- The club and its associated activities create employment, both permanent and casual. One of the permanent employees has just been rewarded for 24 years of service, and many casuals are needed regularly to service various events.
- Competitors from outside of Grahamstown bring considerable business to BnB, restaurant, tourist and various related trades.

Potential negative impact of proposed residential development.

- increased densification of the area surrounding the GRC will bring with it the increase of both human, vehicular and perhaps air traffic, increasing the risk of accident to nervous horses/riders, and potential interference by unauthorised persons.
- the area will lose the semi-rural atmosphere so enjoyed by members of the riding fraternity
- there is a real fear that any negative perceptions harboured by residents of the new development with regard to the health and safety aspects of living near to a semi-rural institution housing large animals may lead to potential frictions, perhaps resulting ultimately in the eventual eviction of the GRC from its premises.
- the establishment of the current waste disposal site adjoining the GRC has resulted in a huge proliferation of litter, flies and stink, as well as numerous incidents of uncontrollable fires, all of which have affected the surrounding areas. Blame for these have sometimes erroneously been placed on the GRC. This could create potential tensions between neighbouring developments.

4

In conclusion:

As can be understood from the aforegoing, the land, situation and improvements currently held by the GRC will be extremely difficult to duplicate. The current leadership of the club seeks to secure its vested interests on behalf of its members by way of some indication as to the following:

Should the proposed development go ahead,

1. Does the Makana municipality and/or the developers have any forward plan for the development of the premises leased to the GRC, and if so, what is the timeframe?
2. If the Makana municipality and/or the developers intend to relocate the GRC, do they have any alternative situation to which they would intend the GRC to move?

With regard to the proposed residential development to be built on the existing Grahamstown Golf Course, I wish to bring to your attention that the issue of the rubbish dump is only briefly mentioned in the Impact Assessment report.

I am concerned about the effect the rubbish dump will have on the development and think this should be brought to the attention of both the developer and the municipality for the following reasons:

1. Currently rubbish, especially plastic bags are blown from the dump into the riding school grounds and the golf course, which certainly would not appeal to future home owners or investors.
2. The hygiene aspect and smell of the rubbish dump would also not appeal to these possible buyers.
3. Many homeless people collect what they can from the dump and use the golf course as a thoroughfare to their temporary shelters. This creates a security risk to future home owners.
4. An investigation into whether the groundwater is being affected by this rubbish dump should be undertaken too, as this affects the entire town.

Whilst you mention that it is up to prospective buyers as to where they wish to purchase a house, I do believe that it is irresponsible for the municipality not to address this problem. Rubbish dumps should not be in residential areas.

I firmly believe that the municipality should consider moving the rubbish dump to another, more suitable site that is not near a residential area.

Yours sincerely

Marion Taylor

Good evening Lara
I received notice of this process at the beginning of the year. I stable my horses at the Grahamstown Riding Club.
But, I indicated at the beginning of the year to someone named Amber Jackson that notice must also be sent to people who are actually on the Grahamstown Riding Club committee as I was not an 'official' of the club. I sent her contact and email details of the secretary (Lesley Mcquaid) and the treasurer (Mary Fike). I have kept all email correspondence between Amber and myself to this effect. I trust that these GRC officials have been included in all correspondence regarding the development? I was rather alarmed to see on page 137 (part 6) of the EIR that no comment had been received from the riding club despite them being notified of the proposed development on "numerous occasions". May I enquire to whom such notifications were sent? I am not on the GRC committee but I do stable my horses at the GRC so I consider myself to be an "interested party". I do not, however, bear any offical clout (so to speak) and, not being an office bearer, cannot and DO NOT represent my views to be those of the GRC. I trust, however, that I may submit comments? The riding club has been in existence for many, many years and has invested a great deal of time, resources, sweat, blood and tears to improve and develop the land to accommodate the needs of horses, riders and provincial competitions. The GRC is affiliated to the Eastern Cape Horse Society (ECHS) and host many provincial shows on the premises, including children, junior and adult championships. I am certain it would be a blow to the province should anything happen that affects the GRC's ability to host competition there. It would also be a blow to those of us who stable there as there are absolutely no suitable alternatives in Grahamstown. We have quite a lot of children from DSG, Kingswood and VG who also stable their horses there and compete extremely successfully in the national schools league. They, too, have no other suitable alternatives in terms of stabling. I look forward to hearing from you.
warm regards
Adrienne
Adrienne Plasket
Cell 0826235614
Interested

From: Lara Crous [mailto:l.crous@cesnet.co.za]
Sent: 13 June 2012 05:03 PM
To: 'adie@imaginet.co.za'
Subject: RE: notice of release of draft environmental impact report (for Belmont residential development and proposed golf course) for public review

Hi Adrienne

Thank you for your email. Amber did send notification of the availability of the final scoping report to Mary and Lesley at the addresses you provided (thank you for that). You have registered as an interested and affected party and so we are sending you notifications of reports to keep you informed. The Grahamstown riding club committee members were also registered.

Please by all means send me any comments you may have so I can include them in the comments and response trail. If you would like to de-register as an I&AP so that you don't get emails, please let me know.

Many thanks

Lara Crous
Environmental Consultant

Coastal & Environmental Services
67 African Street, Grahamstown, 6139
P.O. Box 934, Grahamstown, 6140
Tel: 046 622 2364/7
Fax: 046 622 6564
Website: www.cesnet.co.za

Dear Ted

With regard to the proposed Belmont Valley Golf course & residential scheme at the old golf course, I understand a meeting was held last week. I would not have been able to attend, due to other commitments.

However, I am a bit concerned that no emails about this meeting were sent to I&APs - including myself and some of the others (cc'd) who attended the meeting on 27 October last year. I guess you are not obliged to, but I feel it would be a courtesy to email I&APs about meetings, and it would help enhance the validity of the process.

I have had a quick look at some of the draft EIR (on your website), and would like to point out a few concerns:

UNDER-CAPACITY OF SEWAGE TREATMENT WORKS

According to Appendix F of the draft EIR, Makana states that "development is inhibited" by under-capacity of WWTWs and lack of funding to rectify the situation (pages 129; 153). However, as you probably know, there was a well advanced plan that had DHV financial backing, to augment the Belmont Valley sewage treatment with an expanded Integrated Algal Ponding System - in collaboration with EBRU. The promised Municipal signatures were never put to paper, and this highly sustainable solution was never implemented.

It seems that the developer of the proposed Makana Residential Development has undertaken to find the R66 million required to upgrade the Waste Water Treatment Works (pages 132, 159), which will be carried out using a 'Build Operate and Transfer' approach. I am not sure what this BOT approach entails? I am also concerned that the total cost could end up being a lot more than R66 million, in which case under-capacity and ongoing sewage leaks could remain a problem. And finally, while Makana Municipality has apparently guaranteed that the sewage works upgrade will be done, we need to give careful consideration to the reliability of previous statements issuing from their offices.

ILLEGAL SEWER CONNECTIONS

Regarding storm water illegally connected to sewage mains, we need to bear in mind that while the Muni says it will issue warnings and issue fines to offenders (page 151 of the draft EIR), they may not have the capacity to enforce this (as we have seen with regard to water restrictions, illegal boreholes, illegal dumping, illegal water connections, improper town planning / developments, etc).

UNDER-CAPACITY OF WATER SUPPLY MANAGEMENT

Apparently the Municipality will increase the capacity of the Botha's Hill reservoir (pages 131, 146, 151 of draft EIR). However, as has been pointed out before, this 'increase' in water supply is based on a concomitant increase in delivery from the James Kleynhans Water Treatment Works, which itself often runs above its capacity. Increasing the bulk water supply pipeline and creating a larger reservoir at Botha's Hill is of no use while the James Kleynhans Water Treatment Works itself is unable to deliver larger amounts of reliably treated water.

IMPACTS OF LANDFILL SITE

Every time there is a heavy wind, the landscape is littered with plastic bags, carried into the pony club, golf course and surrounding areas. The proposed Makana Residential Development lies in 'flight path' of litter and smell from the landfill site (due to the prevailing wind direction). I don't think this provides a quality living experience. I am not sure if people would really like to live there, if they knew about this.

Please let me know if you need clarification on any of the comments above. I look forward to being kept informed.

Thanks and best wishes,

Nikki Kohly

Safety Health & Environmental Officer
Rhodes University | Box 94 | Grahamstown 6140 |
| www.ru.ac.za/estates/safety | www.ru.ac.za/environment |
| tel 046 603 7205 | fax 046 622 6546 | sms 078 268 3533 | n.kohly@ru.ac.za |

* Be the change you want to see in the world * Gandhi

APPENDIX F – INFORMATION REQUESTED BY DEDEAT

1. Provide proof of written confirmation of the availability of water.

It was established that the previous owner of the property abstracted water from this area for farming activities. The rate of abstraction was approximately 980 kl/day. The estimated water requirement for the irrigation of the golf course is approximately 370 kl/day. Therefore it is estimated that there will be a saving of approximately 60% in water use due to the change in land use. An application for the repairing of the weir and the abstraction of water from the Bloukrans River in terms of Section 21a, c and i of the National Water Act has been submitted to the Department of Water Affairs (contact person Lizna Fourie). The applicant is currently waiting for authorization which is subject to various conditions (see Appendix A).

Due to the fact that less water will be utilized for the golf course than previously used for agricultural purposes it unlikely that abstraction of water from the Bloukrans River will have a severe impact on the river.

Below is written confirmation of the abstraction rates utilized by the previous land owner for agricultural use.

9th September 2011.

To Whom it may Concern

I, Cornelius Bosman, ID # 5802175110083, do hereby aver that I have owned the farms Willow Glen, Portions 1+2 and Belmont, Portion 6 since 1985.

Every year since then I have abstracted water from the Blaaukrantz river that runs through the farms. Approx. 960 000 litres per day were pumped from the river for seven days a week, 365 days of the year, for irrigation purposes.

I have not pumped water since 2005 as I have been physically ill and unable to farm. However, I retain the right to pump this volume of water from the river, should I require it.

Signed at Grahamstown this 9th day of September 2011.

Witness:
1.

Cornelius BOSMAN.

Province of the
EASTERN CAPE
AGRARIAN REFORM

DEPARTMENT OF RURAL DEVELOPMENT AND AGRARIAN REFORM
WESTERN DISTRICT

P.O Box 145 / Milner Street, Grahamstown, 6139
Tel: (046) 603 5400
Fax: (046) 6035414

Reference: A ENG
Enquiries: W.J.Penny

PGDP

"A united and prosperous agricultural sector"

To whom it may concern

I have been with the Department of Agriculture in Grahamstown since 1985 and the farms in the Belmont Valley are familiar to me. I have worked on the farm, owned by Mr Bosman Willow Glen (Ptn 1 and 2 and Belmont , Ptn 6) and can verify that Mr Bosman has abstracted water from the Bloukrantzriver for agricultural irrigation since I have been involved with the Department.

W.J. Penny
CONTROL TECH.AGRIC.ENG.

date:06-09-2011

2. The Scoping Report does not state whether electricity to the development will be provided by the Makana Municipality or Eskom. You are therefore requested to clarify this matter and provide written confirmation for such.

There is an overhead Eskom power line in close proximity to the proposed development (as shown in the Plate below). The proposed clubhouse and pump for the Lilliput system could therefore tap into this line, since minimal power will be required for the proposed development. Below is confirmation that the previous land owner had the right to use 25 KVA for farming activities. It is unlikely that the golf course development will utilize more power than this.

However, the applicant has committed to using solar panels for the generation of electricity, should Eskom not be able to supply power to the proposed development.

The existing ESKOM line that runs through the proposed development site (indicated by the orange arrow).

PLATTELANDSE KLEIN GEBRUIKERS
(TARIEF (D) TOEVOERE) ORIGINAL

MEMORANDUM VAN OOREENKOMS gesluit en aangegaan tussen

EVKOM

aan die een kant en *(volle name – blokletters asseblief)*

CORNELIUS BOSMAN. IDENTITEITSNOMMER

(hierna 'die Verbruiker' genoem) aan die ander kant.

Evkom stem in om op en onderworpe aan die volgende voorwaardes, alle elektrisiteit te voorsien wat die Verbruiker vir verligtings- en kragdoeleindes op die hieronder beskrewe perseel benodig en gebruik, en die Verbruiker stem in om dit van Evkom te neem:

1. Die bepalinge van die bylae 'A' hierby onder die opskrif 'Voorsieningsvoorwaardes' word as deel van hierdie ooreenkoms gelees.

2. Daar word ooreengekom dat die waardes vir sekere van die bepalinge wat in genoemde bylae uiteengesit word en wat op die aanvanklike toevoer van toepassing sal wees, onderworpe aan wysiging soos bepaal in die bylae, soos volg is:

(a)	Nominale spanning	380/220 VOLT	
(b)	Maksimum las toegelaat	25 KVA	
(c)	~~Aansluitgeld~~/Oordraggeld	R 5-00	
(d)	Deposito	R 450-00	Kontant/Waarborg
(e)	Tarief	Plattelandse Kleinkrag (soos per Bylae 'B')	
(f)	Algemene tariefoeslag	—	%
(g)	Kapitaalheffing/Minimum Bedrag	R NIL	per maand

3. Hierdie ooreenkoms tree in werking op die datum van ondertekening hiervan en bly van krag onderworpe aan 30 (dertig) dae skriftelike kennisgewing van beëindiging deur enigeen van die partye, met dien verstande dat sodanige kennisgewing nie gegee mag word nie voor 'n datum ....3.5.. maande vanaf die datum waarop die toevoer deur Evkom beskikbaar gestel word ooreenkomstig hierdie ooreenkoms.

ONDERTEKEN DEUR VERBRUIKER

AS GETUIE: D. Nieuwoudt

PLEK: Grahamstown DATUM: 14.10.87

ONDERTEKEN DEUR EVKOM

REGIONAL MANAGER/STREEKSBESTUURDER
EASTERN CAPE/OOS KAAPLAND
EVKOM

PLEK: Grahamstad DATUM: 26/10/87

BESKRYWING VAN PERSEEL WAAR TOEVOER VERLANG WORD: PUMP INSTALLATION.
(KL.1(b) van Bylae 'A') PLAAS "WILLOW GLEN" GRAHAMSTAD DISTRI

VERBRUIKER SE POSADRES: POSBUS 575
(KL.14 van Bylae 'A') GRAHAMSTAD
6140.

TELEFOONNOMMERS:
HUIS: 26729.
KANTOOR:

ALTERNATIEWE FISIESE ADRES (woon-/besigheids-/geregistreerde adres): .....
(KL.14 van Bylae 'A')

VIR KANTOORGEBRUIK:

REV.JAN.86

HOOF KLASSE	ONDER-KLASSE	ALLEENLIK NUWE INST: STEDELIK/ PLATTELANDS	PROVINSIE KODE

OOREENKOMS NR: ECG 506 INSTALLASIE NR: 933 AANSLUITGELD/OORDRAGGELD BETAAL: 14/10/87

BEPAALDE TOEVOERDATUM: ..... BEREIKBARE TOEVOERDATUM: ..... DEPOSITO BETAAL: 14/10/87

VORIGE VERBRUIKER: JO PANNIER 062 05 2033 05 24

3. You are also required to consider and report on alternatives to the proposed site location.

Belmont Dev. Co. currently owns property outside of the urban edge, whereas the property for the existing golf course is owned by the golf club. Belmont Dev. Co. have a written agreement with the current golf club stating that if a new golf course is constructed on the property owned by the applicant they will do a land swap, so that the proposed residential/commercial development can take place within the urban edge. An application has been placed to DEDEA for the construction of the residential/commercial development (Ref No EC04/LN2/M/11-97). These two environmental assessments will run in parallel since they are dependent upon one another. Furthermore, the Spatial Development Framework for the Makana Municipality (more specifically Grahamstown) shows no available land for recreational purposes and/or sport fields within the urban edge as is demonstrated by Figure 7.1. There is however provision made for urban settlement (yellow shading). It is unlikely that any of these areas could be used for the development, since according to the SDF there is a housing backlog within the Grahamstown area and thus there is a need for housing developments. The right to shelter is entrenched in the Constitution and requires the municipality to address the housing requirements for the residents. Integral to this is the need to accurately establish the housing need/backlog in Grahamstown. According to the Makana Municipality SDF the list of nearly 13 000 persons in Grahamstown has not been verified to accurately establish the need for housing and thereafter the prioritization of beneficiaries. The provision of alternative housing forms especially rental housing and multi-storey buildings need to be accommodated in the housing strategy for Makana. A housing plan is currently being prepared for the municipality and therefore until such time that the actual need for housing developments is established, land set aside for urban development in the SDF should be maintained for this purpose.

In addition to this according to the Makana Municipality SDF the considerable tourism potential of the region should be developed in an effort to broaden the tourism and recreation base of the region. Plans to extend these facilities should be encouraged as they serve both the development of tourism opportunities as well as the protection of natural assets. The existing golf course is not very scenic and the potential of it as a tourist attraction is therefore limited. Belmont Valley on the other hand provides this scenic component. For these reasons no location alternatives were considered.

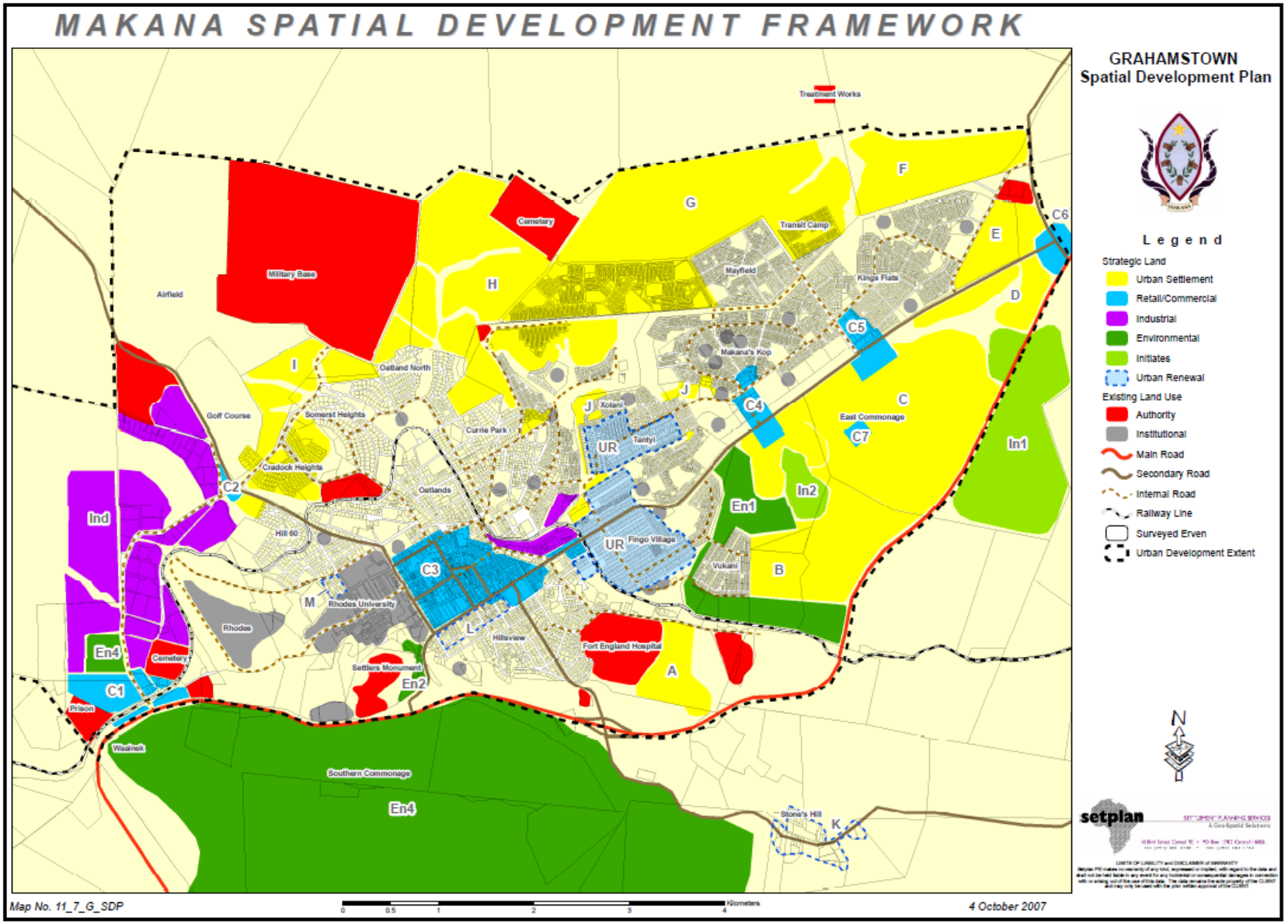


Figure 7-1: Makana Municipality Spatial Development Framework: Desired Spatial Form. Note: The proposed development lies outside the scope of this map, i.e. outside the urban edge.