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VISUAL IMPACT ASSESSMENT:

PROPOSED CEMETERY DEVELOPMENT

IN BITOU

CLIENT: BITOU MUNICIPALITY

PREPARED BY: MARIKE VREKEN URBAN AND ENVIRONMENTAL PLANNERS

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SECTION A : INTRODUCTION

1. BACKROUND

Bitou Municipality appointed Marike Vreken Urban and Environmental Planners to conduct an investigation into the suitability of five alternative sites to establish a new regional cemetery consisting of at least 12 ha while incorporating an integrated urban development. Phase 1 of the study was to investigate the five sites and to identify the most suitable alternative. Phase 2 will be the design of the cemetery and integrated development as well as obtaining authorisations and development rights for the new regional cemetery and integrated urban development.

After the completion of phase 1, Portion 3 and 33 of Knysna Farm Hill View No 437 have been identified as suitable locations to develop the proposed cemetery with an integrated affordable and subsidised housing development in the Bitou Local Municipality.

The GPS Coordinates for Portion 33 of Knysna Farm Hill View No 437 site is 34° 2'28.31"S and 23°19'48.95"E. The Coordinates for Portion 3 of Knysna Farm Hill View No 437 site is 34° 2'29.49"S and 23°20'9.25"E.The application sites measure approximately 84.6099Ha. The subject sites are located to the north of the suburb of Kwanokuthula and to the west side of Plettenberg Bay town. Their location adjacent to existing development means that it can be regarded as a suitable urban expansion area for Plettenberg Bay.

This report assesses the landscape and visual impacts that may occur through the life cycle of the project, and it serves as partial fulfilment of the requirements for environmental Impact Assessment (EIA).

The purpose of this visual impact assessment is to inform planning and design decisions as part of the legally defined EIA Process, for the Bitou cemetery and integrated housing development.

2. AIM OF THE EIA PROCESS

- The term “Visual and aesthetic” is intended to cover the broad range of visual, scenic, cultural, and spiritual aspects of the landscape and environment that contribute to the area’s sense of place;
- It is important that the VIA distinguishes the interrelationship between the natural and cultural landscape.
- The VIA must identify all scenic resources, protected areas and sites of special interest, together with their relative importance in the region;
- It provides an understanding of the landscape processes, including geological, vegetation and settlement patterns, which give the landscape its particular character or scenic attributes;
- It includes both quantitative criteria, such as ‘visibility’, and qualitative criteria such as landscape or townscape character;
- It informs the planning and design process, and as such add value to the quality of the project.

3. APPROPRIATE LEVEL OF VISUAL IMPACT ASSESSMENT

The impact assessment needs to take into account the legal, policy and planning context within which the project is undertaken, and the specific nature of the biophysical, social and economic environment.

The Guideline for Involving Visual and Aesthetic Specialists in EIA Processes[1] divides the landscape of the receiving environments and developments into categories to aid with the correct scoping of Visual impact Assessments. Development types are split into five broad categories:

- **Category 1:** nature reserves, nature-related recreation, camping, picnicking, trails and minimal visitor facilities.
- **Category 2:** low-key recreation / resort / residential type development, small-scale agriculture / nurseries, narrow roads and small-scale infrastructure
- **Category 3:** low density resort / residential type development, golf or polo estates, low to medium-scale infrastructure
- **Category 4:** medium density residential development, sports facilities, small-scale commercial facilities / office parks, one-stop petrol stations, light industry, medium-scale infrastructure
- **Category 5:** high density township / residential development, retail and office complexes, industrial facilities, refineries, treatment plants, power stations, wind energy farms, power lines, freeways, toll roads, large-scale infrastructure generally. Large-scale development of agricultural land and commercial tree plantations. Quarrying and mining activities with related processing plants

According to the criteria set out in the guideline, the proposed development can be classified as a ***Category 4*** type development that even includes some Category 5 elements. For the purposes of this investigation the development can be safely regarded as Category 4.

4. CITERIA FOR IDENTIFFYING APPROPRIATE LEVEL OF VIA PROCESS

According to the criteria set out in the said guidelines, the proposed development can be classified as a Category 4 type of development, and in terms of the methodology to be followed, a Level 3 (with elements of a level 4) assessment is required. Refer to categorisation Table 1 below:

Approach and Method	Type of Issue				
	Little or no visual impact expected	Minimal visual impact expected	Moderate visual impact expected	High visual impact expected	Very high visual impact expected

[1] Oberholzer, B. 2005. Guideline for involving visual & aesthetic specialists in EIA processes: Edition 1. CSIR Report No ENV-S-C 2005 053 F. Republic of South Africa, Provincial Government of the Western Cape, Department of Environmental Affairs & Development Planning, Cape Town

Level of visual impact expected	**Level 1** visual impact assessment	**Level 2** visual impact assessment	**Level 3** visual impact assessment	**Level 4** visual impact assessment	**Level 4** visual impact assessment

The correlation of environment types with development types leads to varying levels of expected visual impact, on a scale from none to very high.

According to the guidelines the development is classified as a category 4 which includes:

"Medium density residential development, sports facilities, small-scale commercial facilities / office parks, one-stop petrol stations, light industry, medium-scale infrastructure".

A Level 3 Assessment is required for a Category 4 type development, in an environment where the receiving environment is not considered to be culturally significant or sensitive. In this regard, the receiving environment on Portion 5 is of low scenic, low cultural-historical significance, and the land on Portion 3 is highly disturbed. The land development area is also surrounded by mixed use activities, and is demarcated as being within the urban edge of the Bitou Municipal SDF.

To meet the requirements of a Level 3 Assessment as set out in the preceding paragraphs, the report is structured according to the following main headings:

1. Project Context
2. Triggers and Key Issues
3. Nature of the receiving environment – Baseline Description
4. View Catchments, Visual Impacts and Significance of Landscape and Visual Impacts
5. Appropriate Development Alternatives and Recommendations.

5. TERMS OF REFERENCE

The methodology used in this visual impact assessment is based on the 'DEA&DP Guideline for Involving Visual and Aesthetic Specialists in EIA Processes' coordinated by CSIR Environmental, and prepared by Oberholzer, B. 2005.[2]

The scope of the work in the following study is as follows:

- Source and review baseline information;
- Identify issues raised relating to visual , aesthetic and scenic resources through any existing reports, baseline studies and framework plans, any public scoping phase, and site visits;
- Describe the receiving environment and the proposed project in terms of landscape types, landscape character and land use patterns;

[2] Oberholzer, B. 2005. Guideline for involving visual & aesthetic specialists in EIA processes: Edition 1. CSIR Report No ENV-S-C 2005 053 F. Republic of South Africa, Provincial Government of the Western Cape, Department of Environmental Affairs & Development Planning, Cape Town

- Describe the sense of place and contributing factors (spatial / non-spatial)
- Establish the view catchment area, view corridors, viewpoints and receptors;
- Determine the relative compatibility or conflict of the project with the surrounding land use in terms of visibility;
- Determine significant/ Sensitive receptors;
- Indicate potential visual impacts using established criteria, any lighting impacts during the night and during the construction phase;
- Describe alternatives, mitigation measures and monitoring programmes
- Describe the opportunities and Constraints
- Use mapping and photo montage as appropriate
- Undertake a Level 3 impact assessment in respect of the preferred layout, the alternative layout or the NO Go alternative;

6. METHODOLOGY

6.1. The sequence of work employed in this visual impact study

A cadastral layer shape file for the Bitou municipality was converted into a Google Earth supported file to assess the site setting and identify the landform, landscape and habitable patterns. The aerial photography provided by Google Earth assisted in this part of the study. Terrain Analyses software and Geographic Information System tools within the Manifold 8,0 system of software, was used to generate images that assisted in the viewsheds definition process. Adobe Fireworks and Ally-CAD Computer Aided Design software were also used to manipulate images to test the visual effect of the proposed development.

6.1.1. Site Visit and Physical Assessment

Site visits were concluded on the 19th and 26th of February 2015 to assess the selected viewpoints which indicated a high degree of visibility in the viewshed analysis.

6.1.2. Determination of Theoretical Viewshed

The theoretical viewshed has been determined in the following ways:

The first approach is a ***Qualitative analysis*** of the area. This is an evaluation of to what extent the proposal will impinge on the visual character of the area, this is a factor that is based on human analysis and it by its nature open to interpretation.

The following qualitative approaches were incorporated into this study:

a) <u>Area character observations</u>

Observations were made with regard to the existing character of the area and the extent to which the proposed development would impact on this character. Various factors were identified and rated using a five point system the final score indicated the intensity of the impact.

b) Sightline analysis

The area was investigated using local knowledge, two site visits and analysis of local maps to determine where the important sightlines would be. Interrogation of the possible impacts on the character of the area were concentrated on these sight lines.

Secondly, GIS Software (Manifold) was used to generate a surface by making use of quantitative data. A Qualitative analysis is an estimated evaluation of the locations the proposed structures will be visible from. This is a directly measurable factor that will determine the impact on the surrounding areas.

The following Quantitative approaches were incorporated into this study:

Viewshed analysis

Manifold software was used to generate a viewshed by inputting the exact position and heights the proposed development structures. Manifold is a GIS based terrain analysis software with spatial data management tools, and as such can be used to map detailed information on the terrain, transportation routes and centres of habitation, but not lesser elements in the landscape that can delineate a view, such as trees shrubs and the height of unmapped buildings. Significant viewpoints were identified according to qualitative data. Images were taken during a site visit at the identified locations to determine the perceived visual impact to the subject properties.

The viewshed map was generated with a combination of 2m and 5m contours of the site as well as proposed layout of the site. It was decided that a radius of 4.5km would be an appropriate maximum distance that the proposed structures would be visible from to such an extent that the visual impact will no longer be visible from the naked eye – therefore the impact assessment was constrained within this area.

6.2. Rating Criteria

The rating criteria which apply in this study area identified in appendix 1. Appendix 1 list the criteria referred to in the material provided by the Department Environmental Affairs and Development Planning. And Appendix 2 list those developed by Marike Vreken Urban and Environmental Planners.

Required are the methodology, a description of environmental issues and an assessment of the significance of all impacts in terms of a list of criteria. The significance of each description is calculated on a Likert Scale as follows:

Rating 0: *No Impact whatsoever*

Rating 1: *Very Low*

Rating 2: *Low*

Rating 3: *Moderate*

Rating 4: *High*

Rating 5: *Very High*

6.3. Key issues

Some key issues relating to visual concerns arise from the assessment of the site and the proposed development will be:

- The potential visibility of the development from surrounding terrain, residential areas and transport corridors;
- The ability of the landscape to absorb the development;
- The technical specifications of the infrastructure elements;
- The potential negative visual impact during the construction phase;
- Views under the worst and best weather conditions;
- The potential visual impacts during the life of the project;
- The consideration of alternative layouts and the no development alternative;
- Possible mitigation measures to reduce the impact of the development

SECTION B : PROJECT CONTEXT

7. TECHNICAL CONTEXT

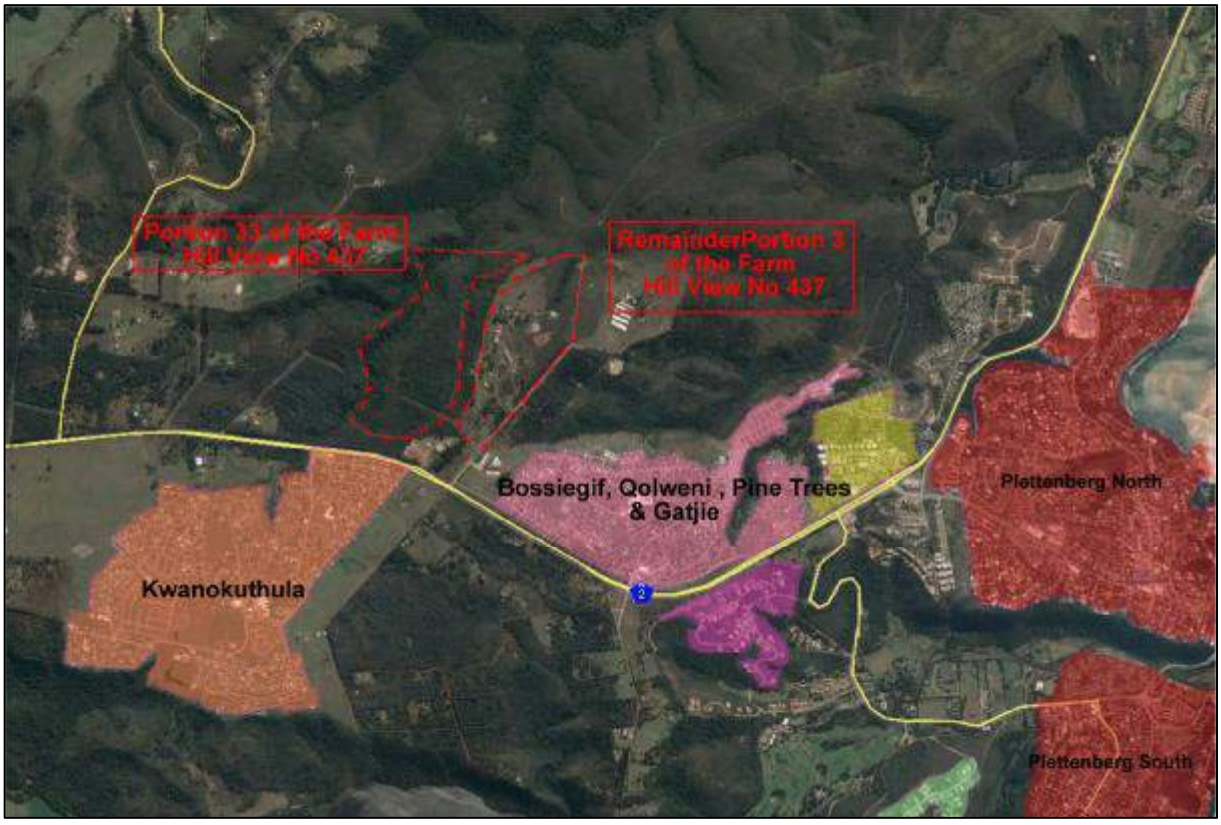

FIGURE 1: LOCALITY OF PROPOSED CEMETERY DEVELOPMENT

7.1. Study area

Portion 3 of the Farm 437 Hill View, is located to the direct west of the New Horizons neighbourhood of Plettenberg Bay and north of Kwanokuthula. This site borders the N2 National Road, where access can be gained from the existing Ebenezer intersection via the N2. This site is ideally located for normal urban extension of Plettenberg Bay.

Portion 33 of the Farm 437 Hill View is located to the north of Kwanokuthula and to the western side of Plettenberg Bay. The N2 is located directly south and is approximately 100 meters from the site. The site is currently land locked but access to the site could be gained from the existing Ebenezer intersection of the N2.

7.2. Overview of the Cemetery and Urban Integrated Development

The project aims to provide the Bitou municipality with a new cemetery in close proximity to the urban environment. The development will also provide subsided housing and community rental units to medium to low income groups. The development aim is to create an urban environment in close proximity to basic social facilities and transport interchange routes to ensure efficient distribution of human capital throughout the Bitou municipality.

SECTION C : PROJECT PROPOSAL

8. PROJECT PROPOSAL

The preferred layout will compromise approximately 1019 dwelling units on the specified zoning areas. Social facilities, mixed land uses and local business opportunities are integrated into the design to minimise the demand generated on public transportation. The cemetery will consist of two separate land parcels with a large cemetery located on Portion 33 and a small cemetery located on Portion 3 of the farm Hill View No 437.

The proposal also includes a correctional centre which will be on the largest zoned unit located on Portion 33. The majority of the remaining land uses on Portion 33 of the farm Hill View 437 will be zoned as private space to restrict public access. Residential units on this Portion will however be provided with public open space to be used by the general public. The remaining land use on Portion 3 of the Farm Hill view will public open space to promote an open green network around the surrounding residential and mixed use components of the development.

Unit Type	Number of Land Parcels	Total Size
Residential Development		
Single Residential	95	2.480ha
Group Housing	23	12.709ha
General Residential	7	5.136 ha
Local Business/ Commercial		
Local Business	2	0.345 ha

Clinic and Commercial	1	0.966 ha
Mixed Land Use	2	2.15 ha
Social Facilities		
Public School	1	1.903ha
Church	2	0.593ha
Education Development Centre	1	0.063ha
Open Space Network		
Private Open Space		22.78ha
Public Open Space		8.797ha
Authority		
Prison	1	10.966ha
Cemetery	2	6.604ha
Other		
Transport Interchange	1	0.272ha

8.1. Layouts

.The proposed layout of the cemetery has a loop design to minimise intersections that could contribute to traffic congestion within the proposed area. The layout of the erven have been strategically selected to accommodate the environmentally restrictive (e.g. steep slopes) and sensitive areas (see attached Plan 2).

FIGURE 2: PROPOSED LAYOUT PLAN

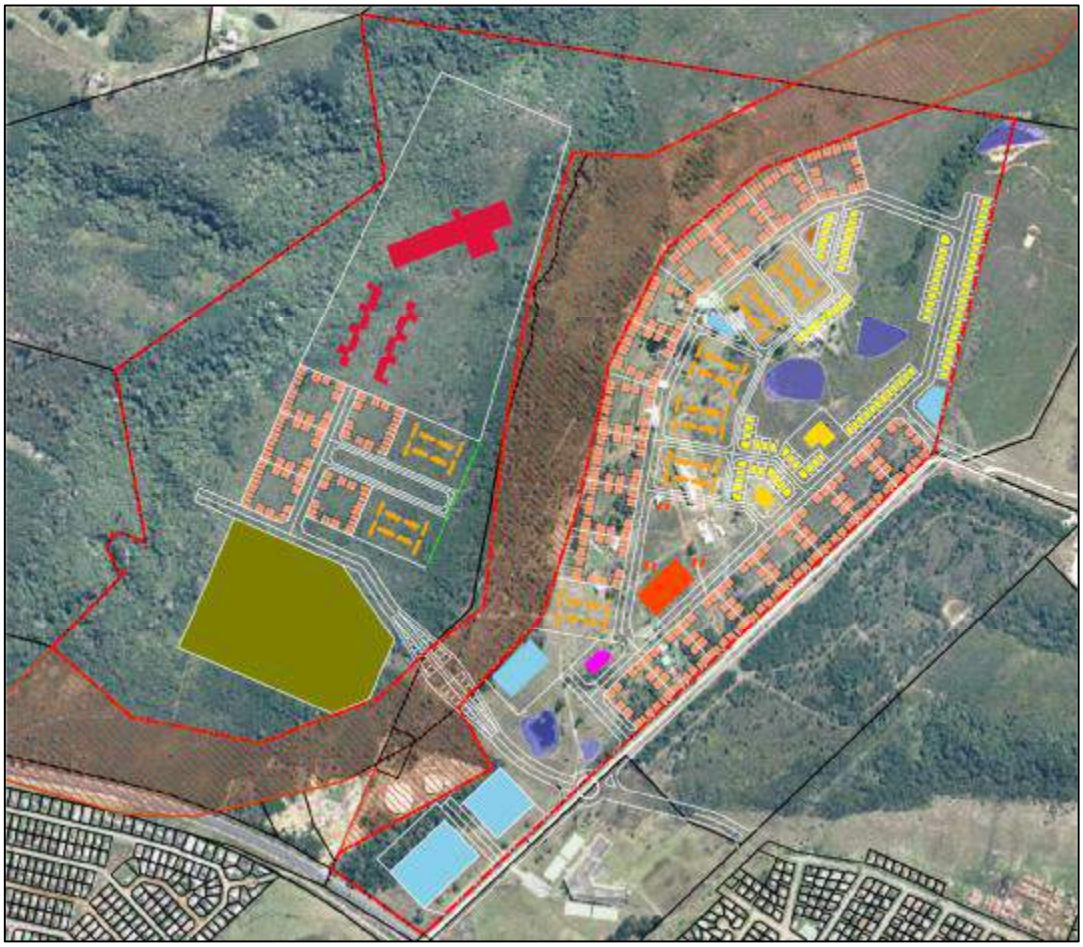

FIGURE 3: PROPOSED BUILDING FOOTPRINTS

8.2. Project Phases

8.2.1. Phase 1: Site Selection Phase

The scoping phase was undertaken by a consortium of professionals to determine the most suitable site for cemetery with an urban integrated development, taking into consideration the various influencing factors in each sphere of expertise of the professionals involved.

The project has been assessed in line with various spatial planning documents and legislation in mind, and in terms of how it aligns with future planning policy, spatial planning imperatives and other activities in the immediate surrounding area. By evaluating each of the suitable properties according to the terms of reference provided by the Bitou Local Municipality, it was determined that Portion 33 and Portion 3 of the Farm Hill View No 437 are the most suitable sites for a cemetery with an urban integrated development.

8.2.2. Phase 2: Construction Phase

The duration of the construction period is not known at the time of writing. The anticipated programme for the construction of various land uses would commence with site clearance, levelling, continue with installation of foundations and construction of specified units. There will be a construction camp allocated on a specific area as determined by the construction

management team. The construction camp will be in operation for the duration of the construction phase.

8.2.3. Phase 3: Operational Phase

The proposed development is expected to last indefinitely and form an integral part of the already established urban fabric of Plettenberg bay. The development will not change in appearance following the completion of construction.

8.3. Significant changes to levels

It is not anticipated that the ground levels would vary significantly. The site characteristics have been carefully evaluated to determine the most suitable land for the proposed development. Strategic evaluation and land use planning during the layout process between the town planner and architect ensured optimal use of available development land. Careful consideration was given to the natural environment to ensure that the proposed land uses comply with statutory requirements in terms of slope steepness and development within 32m of watercourses.

8.4. Access

Portion 3 of the farm Hill View no 437 is the only site with access off the N2 National Route at +/-km57 via the existing Bay College access road, which is currently a gravel road. The Bay College road will serve as the main feeder route that will intersect with other public routes that will give access to the majority of land uses on Portion 3.

Portion 33 of the farm Hill View no 437 will receive access through potion 3 via a roundabout to ensure a steady and constant flow of traffic through the area. The access road to Portion 33 will have a Bridge overpass over the proposed expropriated bypass route. More clarity regarding this proposal will be confirmed through SANRAL. The road will also have the opportunity to extend to neighbouring properties to improve future accessibility to surrounding areas.

Although the two proposed properties only link indirectly to the N2, all the generated traffic to/from the development will use the nearby N2 intersection... The access is earmarked for a roundabout and has been conditioned by SANRAL as part of previous approvals.

8.5. Proposed built form

The residential component of the urban development will consist of three different land uses including single residential, group housing and general residential zoned land parcels.

8.5.1. Single Residential Units

The single residential units will be located on 95 erven towards the north and north east of Portion 3. Public open spaces surround the majority of the single residential erven and are in close proximity to all the residential use areas to allow use by the all residents. The Public open space provides the urban development with an integrated natural component creating a corridor of soft spaces.

8.5.2. Group Housing Units

The fifteen group housing sites will accommodate a clusters 26 units each, these clusters will have an internal private open space area to be used by the residents in the group housing complex with the aim of promoting community living within a large development.

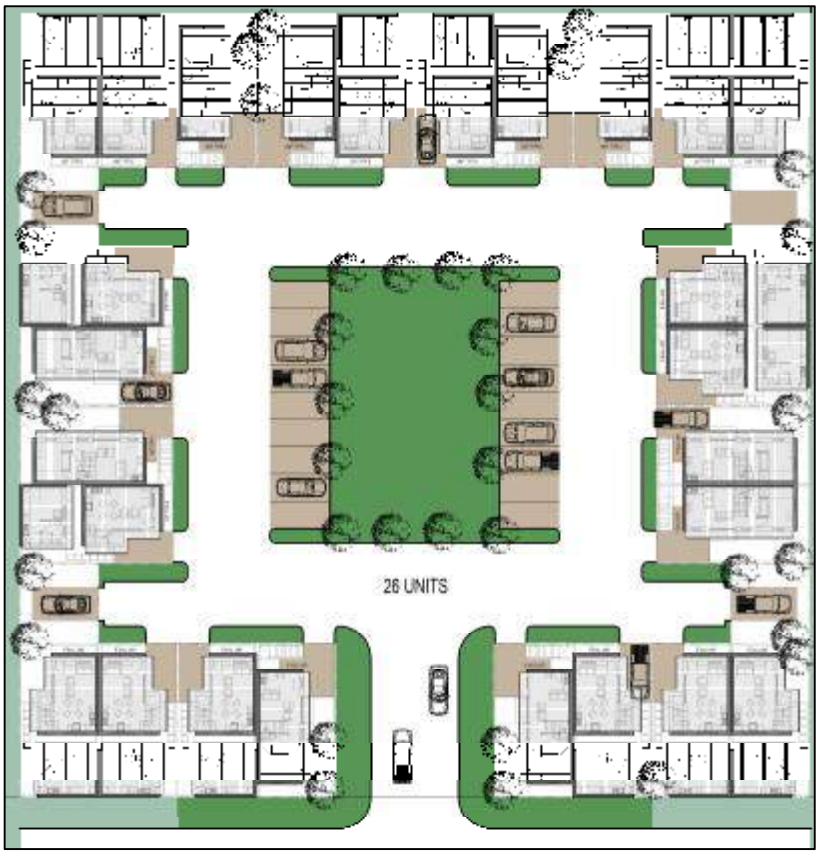

FIGURE 4: PROPOSED BUILT FORM FOR GROUP HOUSING UNITS

8.5.3. General Residential Units

The community rental units will be located on the five general residential zoned properties. The community rental units will consist of 48 dwelling units per site except one site that will have two clusters of 48 units each, meaning a total of 288 units. The community rental unit will include a combinations of one bedroom units (Bachelor Flats) shown on the below sketch as Block 1, 2, 7 and 8. 2 Bedroom units will be located in the centre, shown below as blocks 3, 4, 5 and 6. Every block of apartment units will have an open space to be enjoyed by the residents promoting green spaces in the urban environment.

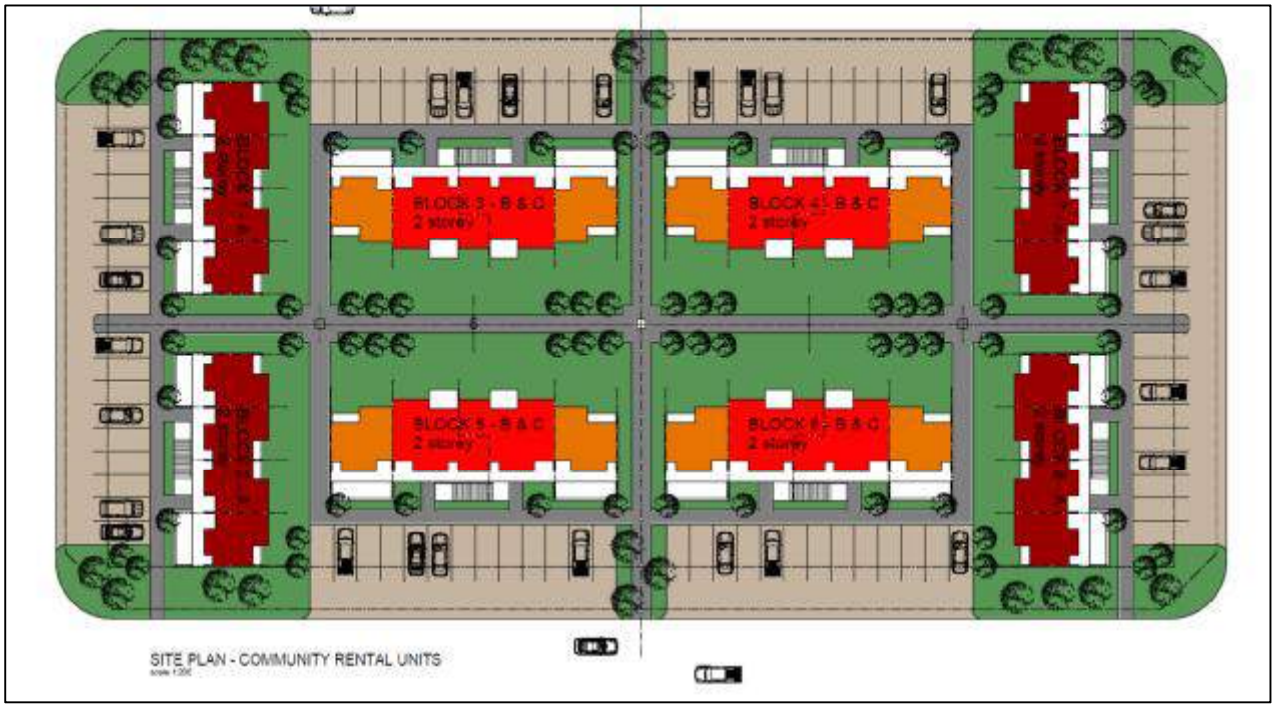

FIGURE 5: PROPOSED BUILT FORM FOR COMMUNITY RENTAL UNITS

8.5.4. Social & Commercial Facilities

The social facilities are the central focus on Portion 3 of Hill View, and are intended to promote accessibility and walkability to surrounding residential developments reducing the demand on private transport to important social institutions. Local business, mixed use and commercial zones will be located along key movement routes on Portion 3 to promote accessibility from the general public and surrounding residential units.

For commercial and local business activities the property will have two local business zones, one clinic/commercial zone and two mixed use zones. Proposed social facilities include a public school, two places of worship and an education development centre. A designated zone will be provided for a transport interchange zone were residents of the surrounding area can make efficient use of public transport to the area.

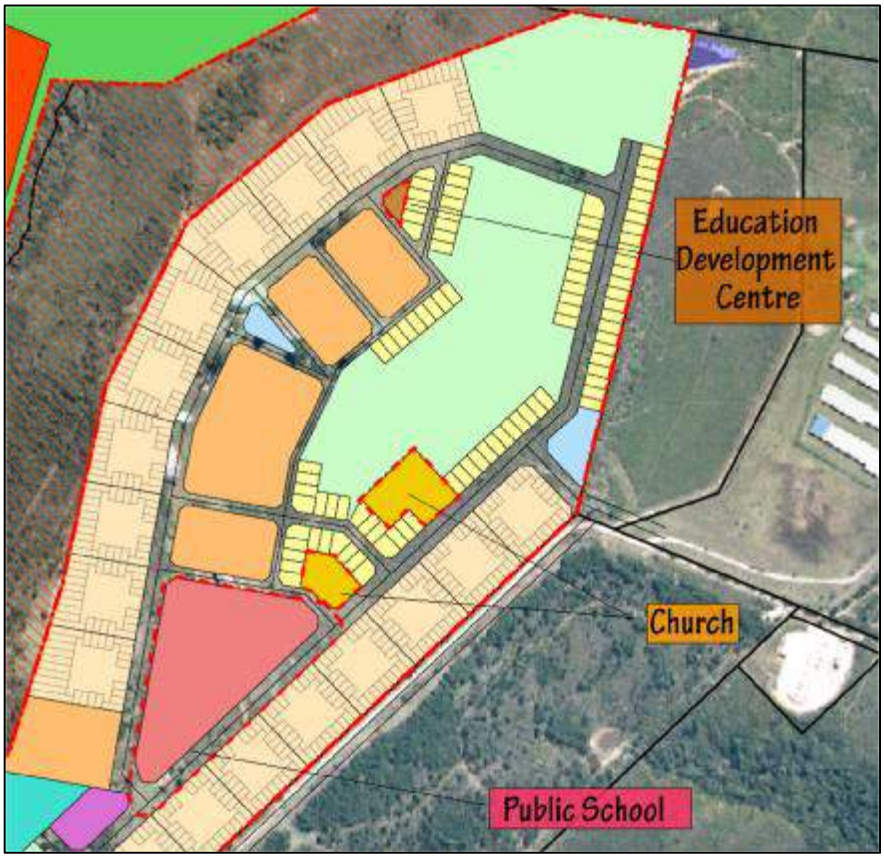

FIGURE 6: SOCIAL FACILITIES IN CLOSE PROXIMITY RESIDENTIAL UNITS

Portion 3 of the farm Hill View No 437 will consist of 15 subsidised housing unit sites, 5 community rental unit sites and 95 single residential zoned properties. For commercial and local business activities the property will have 2 local business zones one clinic/commercial zone and two mix use zones. Zones to be used for social facilities include a public school, two places of worship and an education development centre. A designated zone will be provided for a transport interchange zone were residents of the surrounding area can make efficient use of public transport to the immediate area in the Bitou municipality

The proposed Built for portion 33 of the farm Hill View No 437 will consist of a Prison situated to the north of the site, five subsidised housing Sites and two community rental unit sites neighbouring the prison the south. A cemetery will be located south of the property.

8.6. Proposed Landscape Treatment

Private Open Space on Portion 3 could retain its natural vegetation state to preserve the natural environment. The public open space on Portion 33 will be landscaped to allow community use of the space for outdoor activities and recreation, this will include public gardens that will present an aesthetically pleasing appearance to the surrounding residential developments. The transformation will include clearing the vegetation and planting indigenous trees and shrubs to create a presentable public open space. Walkways with lighting will create a scenic route through the natural landscape connecting the various residential developments to improve accessibility and safety within the urban area.

8.7. Municipal Services

8.7.1. Availability Of Civil Services

Portion 3 of the Farm Hill View no 437

Water supply is limited to the property as there are no boreholes or municipal water supply available on the property. Currently the property makes use of catchment dams to provide water for irrigation and other causes.

It is proposed that a water supply to the site can be gained from the existing Ebenezer Reservoir directly to the west of the site.

A sewer network could be linked to the existing New Horizons gravity sewer

Portion 33 of the Farm Hill View no 437

There is no existing municipal supply on the site, however there is an existing network within 500 meters from the site and in relatively close proximity to Portion 3. It would therefore be not too difficult or expensive to connect to the municipal supply, assuming that the availability of bulk supply would be sufficient in order to provide and carry out desired services.

8.8. Alternative Layout

The National Environmental Management Act (Act 107 of 1998) requires that Environmental Impact Assessments consider alternatives when investigating proposed activities. Since the layout presented has been formulated in conjunction with a consortium of professional consultants including:

- A Town and Regional Planner.
- An Environmental Assessment Practitioner
- A Groundwater specialist;
- A Heritage Specialist;
- A Geotechnical services;
- An Architect

The preferred layout shown in Plan 2 is to the combination of all the professionals' assessment and evaluations of the subject properties. The alternative layout presented includes removing 78 subsidised housing units on three group housing zones see attached Plan 3. The alternative layout will not have any significant impact on views towards the property as the proposed cemetery is located on a higher elevation behind a screen thicket and trees.

It is, however important that the no-go alternative also be assessed in more detail from a visual point of view.

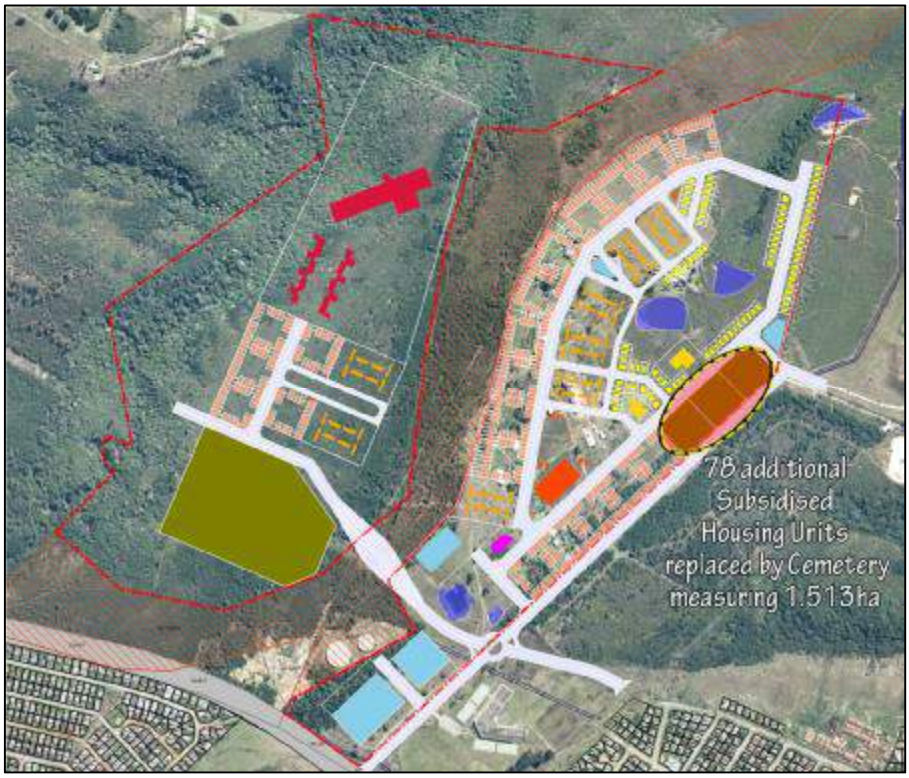

FIGURE 7: ALTERNATIVE LAYOUT

8.8.1. No Go Alternative

The no go alternative would mean that no development is undertaken on the site. The potential benefits of an integrated housing development with a new cemetery would therefore not be available to the Bitou Municipality and its residents. The no-go alternative would also mean that the landscape of the receiving environment would remain the same, comprising undulating, open relatively disturbed areas containing farmsteads and outdated wood manufacturing plant on the remainder of Portion 3 while Portion 33 would remain an area dominated by its current vegetation on a generally sloping area.

FIGURE 8: EXISTING LANDSCAPE CHARACTER

The area has little visual significance or on-site qualities that could influence the surrounding areas. Portion 33 is currently vacant and undisturbed while remainder of Portion three is a combination of disturbed areas with a somewhat abandoned appearance and rural farmsteads and some remaining natural vegetation on the property. The vacant unkempt appearance would intensify unless regular maintenance were to be undertaken. The size of the property and proximity to urban development could mean that it becomes an area used for uncontrolled dumping and becomes frequented by vagrants and undesirable elements, this would be detrimental to the character and sense of place of the area, meaning that the property could become a long term visual threat.

SECTION D : TRIGGERS AND KEY ISSUES

9. ISSUES OR TRIGGERS APPLICABLE TO THE DEVELOPMENT

The following key issues, or 'Triggers' apply to this visual impact assessment:

a. Legal, policy and planning context related issues,

b. Issues that were raised by the public during the scoping phase, and

c. Issues that were identified during site visits and specialist input received.

10. LEGAL, POLICY AND PLANNING CONTEXT

The legislative environment acts as the first trigger for a visual impact assessment. Discussed below will be a brief description of the policy context that triggers the need for a visual impact assessment for the proposed cemetery development in the Bitou Local Municipality.

1. Current environmental legislation includes the need for a visual impact as one of the components to be fulfilled in partial compliance of the NEMA Regulations and ECA requirements for completion of EIA's.
2. The National Heritage Resources Act provides legislative protection for listed or proclaimed sites, including urban conservation areas, cultural-historical significant sites and scenic routes.
3. Signage on public roads is controlled, to a limited extent, by the Advertising on Roads and Ribbons Act and local by-laws.
4. Visual and aesthetic resources are protected by the local authority where policies relating to the SDF, IDP, SEA and Planning Schemes have been formulated.

11. PUBLIC INPUT RECEIVED DURING SCOPING PROCESS

The input received from the general public and interested and affected parties during the Environmental Scoping Process acts as a second trigger for a visual impact assessment for the proposed cemetery development in the Bitou Local Municipality. The following information was gathered during the public participation process:

1. Height of buildings may potentially be inappropriate and visually intrusive.
2. Planning of a desirable neighbourhood and of the all the surrounding properties needs to be undertaken before any clarity or approval of the above can be properly understood, entertained or given.
3. The two proposed sites are on prime land with exceptional sea and mountain views, also remarkably close to town, are thus quite unique.
4. Noise associated with burials especially over weekends will cause disturbance and be an ongoing nuisance, detracting land value.
5. New legislation determines size and location of cemeteries 500m away from residential
6. The identification of fynbos types both common, rare and critically endangered indicates that this land is better suited to biodiversity conservation and the cemeteries should rather be allocated to areas which are already disturbed or denuded of fynbos development.
7. The need for middle income housing is recognized although high density housing would be better closer to town centre rather than causing urban sprawl and housing more and more people away from their place of work.

12. ISSUES IDENTIFIED DURING SITE VISIT

The input received from the professional team identified during the scoping process serves as the third set of triggers for a visual impact assessment.

1. Limit height of buildings to 2 storeys.
2. Retain a buffer-strip for landscaping between the main road and the commercial area
3. Protect the areas where sensitive environments occur.
4. Create a visually pleasing development that is technically sound

From the above it is clear that there are at least three triggering factors that have to be takin into consideration when undertaking the visual impact assessment for the proposed cemetery in the Bitou Local Municipality.

SECTION E : NATURE OF RECEIVING ENVIRONMENT

13. GENERAL

'Landscape character' is the distinct and recognisable pattern of elements that occur consistently in a particular type of landscape, and how its pattern is perceived. It reflects particular combinations of geology, landform, soils vegetation, river systems, land use patterns and urban development patterns. It defines a sense of place integrating different areas of the landscape.

13.1. Location and Routes

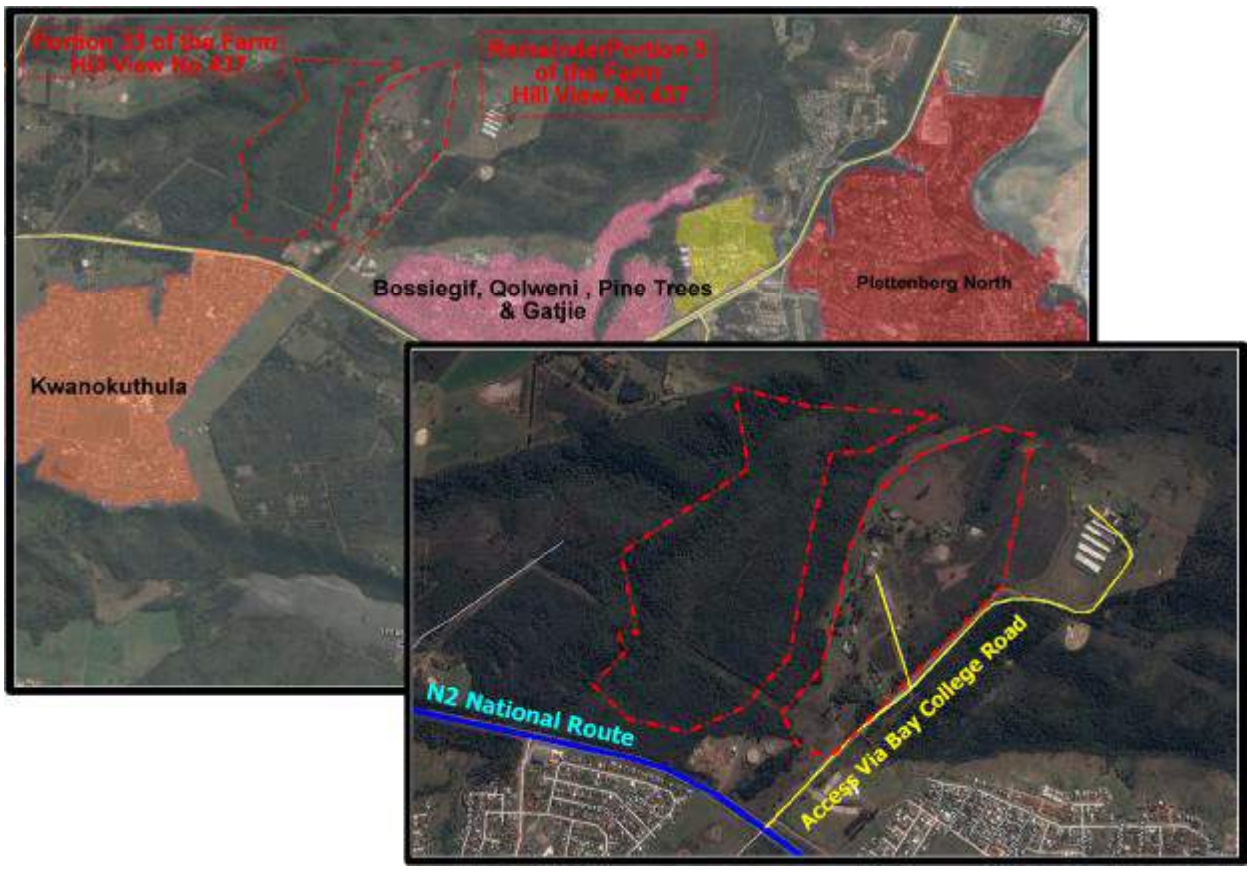

FIGURE 9: LOCALITY

The site is located less than 5km away from the Plettenberg bay CBD and 30km from Knysna, off the N2 National Route; a road that is currently being upgraded. The N2 is the main movement route which connects various satellite towns and cities on a on a regional sale. Two kilometres west towards Knysna is Municipal Road 395 that leads towards Wittedrift a small town approximately 10km from the proposed site. Approximately 1km west of the application area is optional road 7212 a registered road that gives residents of Bossiegif, Oelwein, Pine Trees and Gatjies access to the National Route. Other noticeable routes to the east within a 5km Radius of the site include divisional road 1775 which links up with the municipal road 382 and 383 which can be considered the main movement routes in the urban fabric of Plettenberg Bay.

There are also numerous minor roads that lead to farmsteads in the surrounding areas. Bay College Road, currently a gravel road, is a prime example of a minor road which give access to the remainder of Portion 37 of the farm Hill View no 437, Portion 20, Portion 24, Portion 41, Portion 42 and Portion 44 of the farm Hill View no 437.

13.2. Topography and Rivers

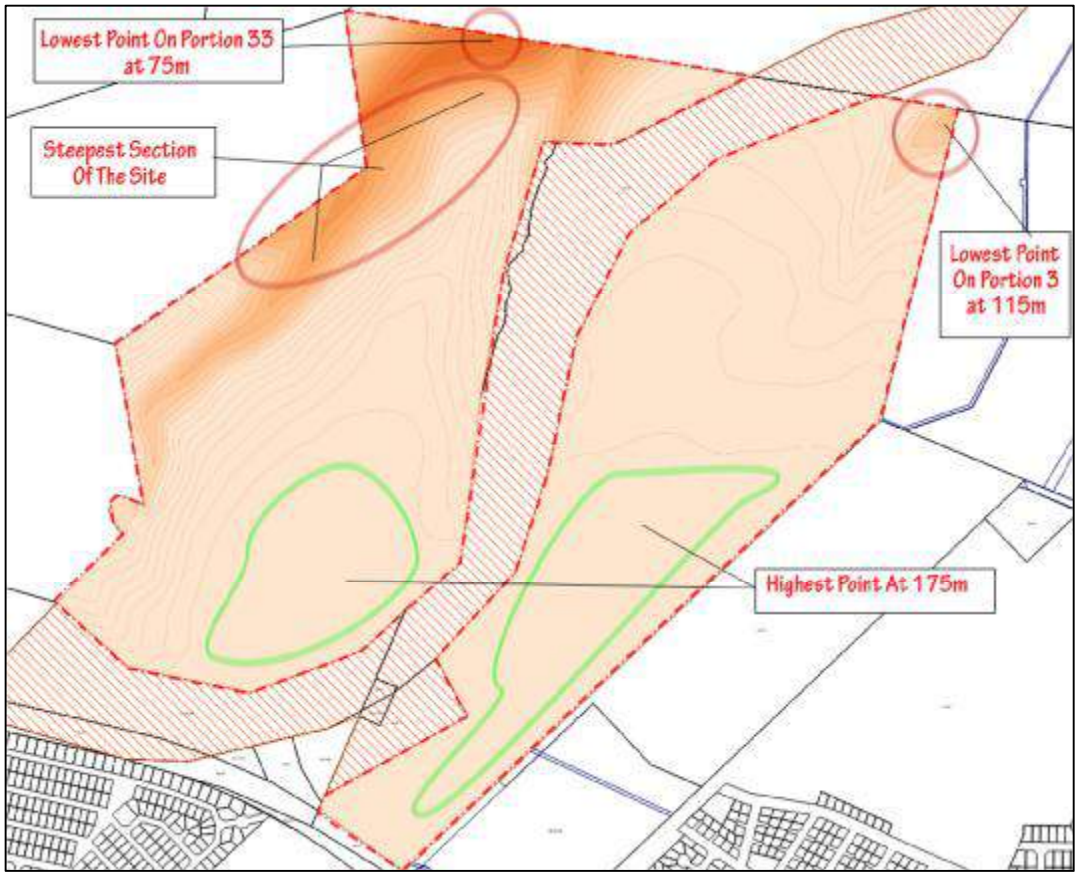

FIGURE 10: SLOPE ANALYSIS FOR THE PROPOSED SITE

Portion 33 slopes downwards from the south at 175m to north-west at 75m. This property has a very steep average gradient at 17.5 % meaning that every ten metres of horizontal travel there is almost a 2m change in altitude. Therefore as a ratio, the gradient for this property has a steep gradient of 1:6.

Portion 3 also slopes downwards from the south at 175m to north-east at 115m. This property has a gradient average of 16.67% or approximately 1:6.

Figure 11 illustrates the proposed layout plan (as illustrated FIGURE 2) overplayed with the slope analysis of the property. The Steepest slopes are located on the north-west corner of Portion 33 with a gradient less than 1in 2. This indicates that careful consideration was placed on the locality of each individual land use to optimise the availability of land use. Although the prison zoning will be located within the steeper areas of the property the prison itself will be located on less steeper areas of the site.

FIGURE 11: LAYOUT PLAN OVERPLAYED WITH SLOPE ANALYSIS

There are no rivers on the site, however the slope of the land means that any runoff over the site will occur from the south of the property towards the north of the property. There are however, 5 manmade waterbodies present on the remainder of Portion 3.

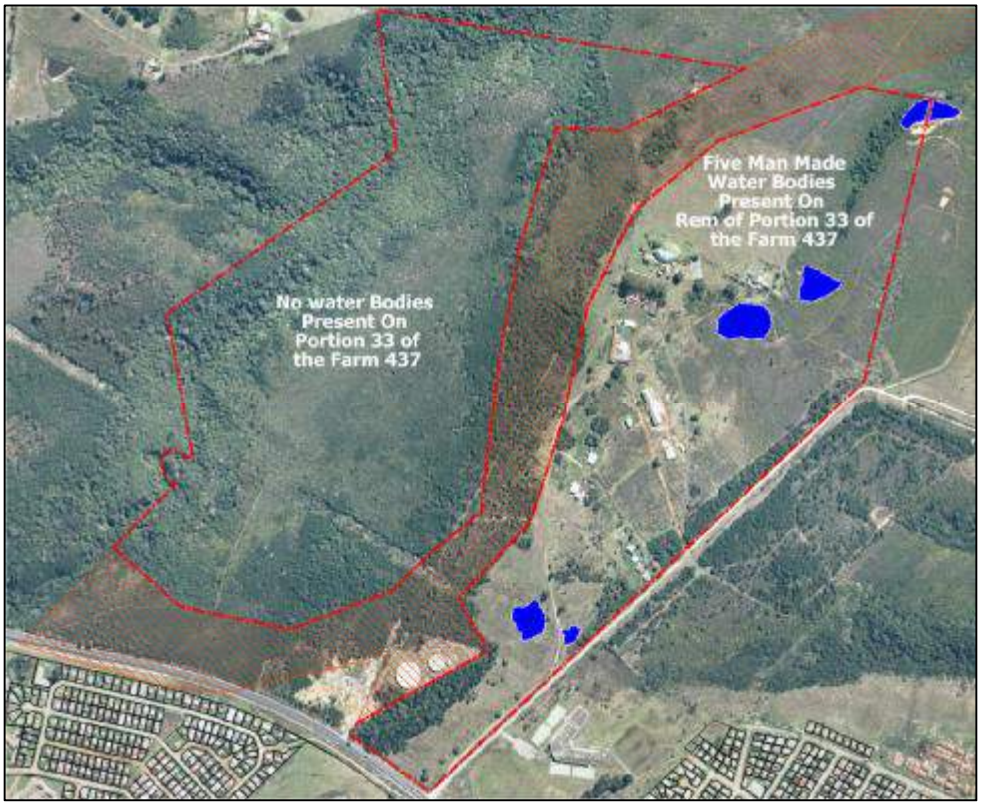

FIGURE 12: MAN MADE DAMS ON THE SITES

13.3. Natural Vegetation

See attached Plan 4. According to SANBI[3] the majority of the property to the north is characterised by South Outeniqua Sandstone Fynbos and Garden Route Shale fynbos the south of both subject properties.

The South Outeniqua Sandstone Fynbos includes a combination of 20 different types of Fynbos. Due to the locality and unique environment of the property the Fynbos vegetation specific to the subject property can vary quite substantially.

According to the RSA Vegetation classification 98% of Remainder of Portion 3 is classified as South Outeniqua Sandstone Fynbos, which is not listed in terms of the National Environmental Management : Biodiversity Act (NEM:BA) and 2% of the property as Eastern Coastal Shale Band Vegetation which is recognised as vulnerable.

The Garden Route Initiative's (GRI) status of the property is 80% Piesang River Fynbos-Forest which is endangered, 10% Roodefontein Grassy Fynbos which is critically endangered the remaining 10% is vulnerable Groot Brak River and Floodplain. A Critical Biodiversity Area (CBA) therefore constitutes approximately 10% of the property.

According to the biodiversity report a buffer zone of approximately 30 meters should be delineated adjacent to the wetland area on site, which is classified as Groot Brak River and Floodplain and correlates with the location of the CBA.

[3]South African National Biodiversity Institute

The biodiversity report concludes that a site visit revealed that the majority of remainder of Portion 3 has been disturbed and is subject to Grassy Fynbos where over storey pretectoid shrubs are often uncommon, but ericoid shrubs are usually abundant. Much of the habitat has been transformed and it is often difficult to reconstruct its former condition.

According to the RSA Vegetation classification 90% of Portion 33 is characterised by South Outeniqua Sandstone Fynbos and 10% of the property is Eastern Coastal Shale Band Vegetation which is vulnerable. In terms of the GRI Vegetation Classification the property is classified as Uplands Grassy Fynbos (83%) and Roodefontein Grassy Fynbos (10%) which is Critically Endangered. Groot Brak River and Floodplain covers 2% of the property. 5% of the property constitutes a CBA which correlates with the location of the Groot Brak River and Floodplain and some Eastern Coastal Shale Band Vegetation.

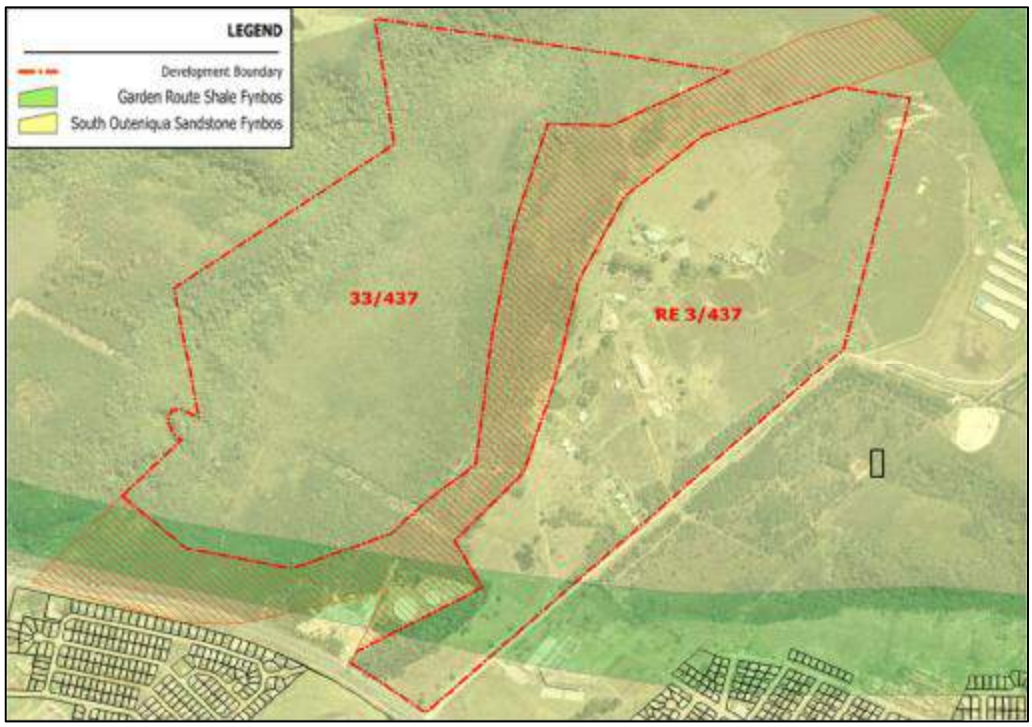

FIGURE 13: VEGETATION TYPES

The trees and fynbos vegetation are more dense on Portion 33 than on remainder of Portion 3 and could provide and effective moderate screening level to the surrounding environment. The trees and fynbos vegetation is characterised by the verdant green colour unique to the Garden Route environment. The grass on both properties are characterised by yellow buff and tawny appearance.

13.4. Agriculture and Farmsteads

On Portion 3 the primary land use is for rural residential and agriculture purposes while land uses on Portion 33 is constrained by natural vegetation. Agriculture is the primary land use in the immediate locality especially north west of the subject property which include the cultivation of flowers, agricultural processing, cattle and poultry. Field sizes are moderate and mainly defined by fencing trees and hedgerows that create boundaries within the landscape.

13.5. Other Land Uses

Noticeable land uses to the east include township establishments of Bossiegif and Qoloweni which are less than 300m away from the entrance to remainder of Portion 3. South of the subject properties is the township development of Kwanokuthula which is characterised by a mix of land uses ranging from single residential to small local businesses. The majority of land uses the north and west are rural residential, agriculture and agriculture processing and tourist accommodation.

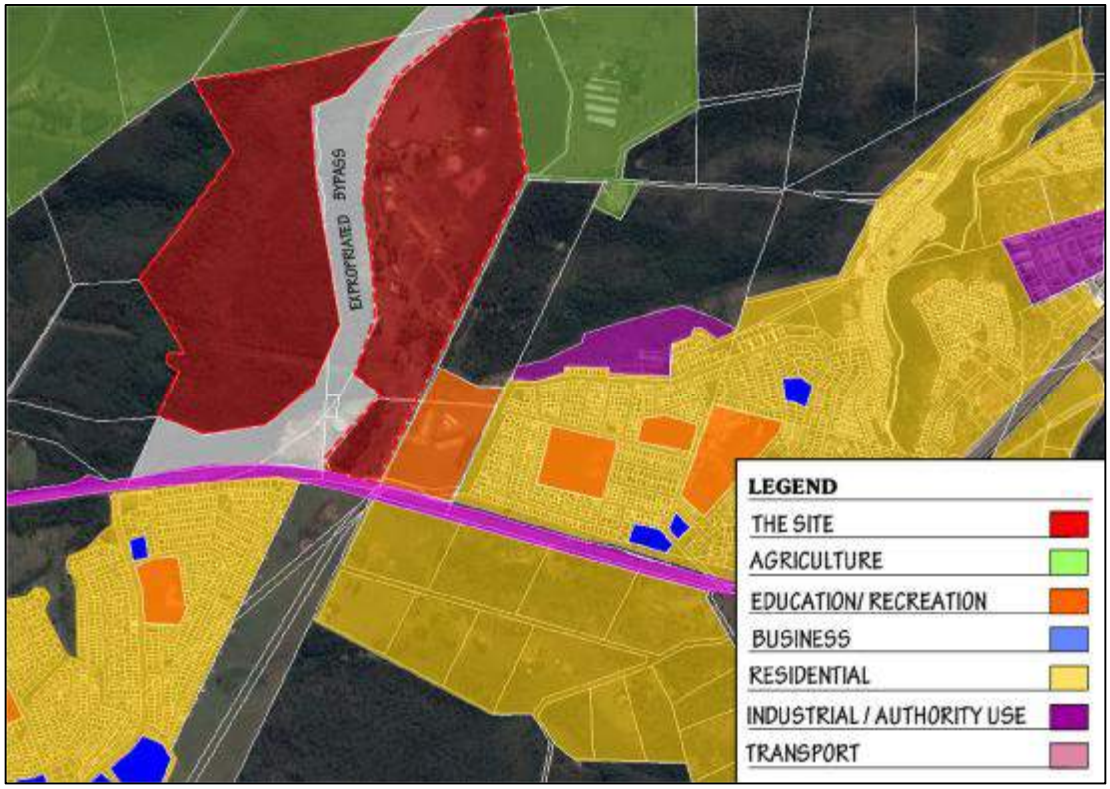

FIGURE 14: LAND USES IN THE SURROUNDING AREA

13.6. Landscape Character

The character of the area is mainly dictated by the presence of low income housing development south east and south west of the site with agricultural holdings and rural landscapes dominating the landscape to the north east and North West. This gives the area a mixture of an urban feeling within a rural area, despite the fact that the site is located inside the urban edge.

Due to the locality of the subject properties the surrounding landscape is characterised by the frequent passing of motor and heavy vehicles. In the rural residential landscape pedestrians are more frequent and can be seen either crossing the roads or make their way to public transport terminals.

The view of Portion 33 from the road currently has a character affected by the presence of natural vegetation and trees hindering the view to the property completely. The view of remainder of Portion 3 from the road has is quite the opposite of Portion 33 as there is no vegetation restricting the view to the property meaning any development there would have a significantly increased visual impact on the surrounding areas.

FIGURE 15: VIEW FROM THE N2 ONTO THE SUBJECT PROPERTIES

The downward sloping character from south to north of the property opens a wide vista that displays the dominant rural character which is mainly undeveloped and occupies either farmstead or cultivated land.

FIGURE 16: VIEW TO SURROUNDING LANDSCAPES

13.7. Land Value

A landscape may be valued for many reasons which may include the scenic quality, tranquillity wilderness value, consensus of importance on a local and/or international scale, heritage or conservation interest from cultural associations.

Currently remainder of Portion 3 has more of a commercial value for its use in agriculture than the remainder of Portion 33 that has a very low agricultural potential due to its natural vegetation cover. Both sites have significant potential to accommodate an integrated housing development due to their accessibility from the N2 national route and their close proximity to Plettenberg Bay.

The only identifiable land uses on the farm properties are present on the remainder of portion 3 as several rural properties are located along the Bay College Road. The majority of the rural properties are very run down and is currently used for storage areas for old and broken down motor vehicles. In terms of vegetation both of the properties are characterised by a mixture of overgrown alien and indigenous thicket. The landscape surrounding contributes significantly to the value of the property due to its beautiful views of the rural landscape and Indian Ocean. The quality of the view to the west of the subject properties is somewhat diminished due to the urban landscape.

13.8. Visual Significance of Site

The landscape character of the local area is undulating land with a variety tree species especially in the valley, grassy fynbos and shrubs that cover the landscape especially north east to North West. The landscape character south east and south of the property is predominantly urban in nature. Views on the remainder of Portion 3 are more open than on Portion 33 due to the dense vegetation and overgrown character.

The site is however of limited visual significance in general. The higher elevation and undulating landscape with a combination of several vegetation screens makes the site not very visible from the national route, nor is it visible from a significant number of residences or facilities where people congregate,

SECTION F : VISUAL IMPACT ASSESSMENT

14. VIEWSHED ENVELOPE DEFINITION

This refers to the theoretical outer most extent of the area from which an object (in this case the cemetery and integrated housing development) may be seen. Visibility can be obscured in part or whole by objects within the view shed such as existing buildings, trees or the typographic landform.

Objects can also be obscured by distance where an object can seem to blend into its background by virtue of the distance between the developer and the perceived viewer.

14.1. Terrain Analysis

See attached Plan 5. The terrain analysis is presented below, it shows the existing buildings in the context of the terrain in the area. Existing buildings were included at a radius of 500m from the site.

The terrain analysis shows the landscape and the impact that the existing man-made structures have had on the surrounding landscape of the area. It shows the urban nature of the area and highlights the fact urban development and expansion are located on relatively flat or gently sloping areas. The Surrounding urban areas are predominantly constructed along the south eastern slopes with views towards the Indian Ocean. In terms of the rural landscape situated to the north, the majority of properties are characterised by an undulating landscape with views of the valley while the higher properties with vies of the rural landscape and Indian Ocean

FIGURE 17: TERRAIN ANALYSIS WITHIN 500M BUFFER (SOUTH OF APPLICATION AREA)

14.2. Factors influencing Visibility

- Area of Development Site: 84.60ha
- Area of the development Footprint: 14.4ha
- Character of the natural terrain: Open, fairly even or steepness of slopes.
- Vegetation Cover: Dense vegetation, Fynbos, shrubs and trees around dwellings
- Sensitive Receptors: Farmsteads north west of property and N2 road users

Due to the undulating land a distance of 5Km and closer has been identified as the distance the proposed development would have a potential visual impact. A distance greater than2km will allow the development to blend in with the background to such an extent where it will no longer have a visual impact. The dense vegetation and undulating landscape unique to the surrounding areas contributes quite significantly to the degree of visual impact to the surrounding areas. No visual assessments were done on the surrounding farmsteads as the farmsteads are located behind a sloping hill having no visual impact on the farmsteads whatsoever.

14.3. Viewsheds

14.3.1. Site Visibility

Refer to Figure 18 below.

The figure below shows all the areas from where the site surface is visible. This excludes the physical developments proposed on the site. The yellow buffer areas represent 500m and 1000m around the boundary of both sites respectively. The image shows that the site is not visible from the majority of residential properties to the east of the site but can be seen by those closest to the property especially in the rural area north of the properties. It must be

noted that the viewshed calculated is based upon contour data and no relative screens or urban structures are calculated in the development of the image.

FIGURE 18: SITE VISIBILITY TO SURROUNDING AREAS

14.3.1. Building Visibility

Refer to Figure 19 below and Plan 6.

The total visual envelope affected by the proposed development was calculated at a maximum radius of 3km from the boundaries of the proposed development with 4m, 6m and 8m high infrastructure visible to the view shed radius. A 2km radius was used to analyse the different view sheds, as the quantitative data indicated that the majority of the areas to observe the proposed development is within this buffer. In practice the increase in distance beyond this point made it very difficult to observe the site. It should be noted that the view shed calculation uses contour data in order to establish which areas the proposed height of the specific development will be visible from. This data, therefore, ignores physical and natural constraints which can prohibit a view to an area quite extensively. The viewshed is a theoretical concept based on absolute values and needs to verify through the practical assessment of the site found in section 14.8 of this report.

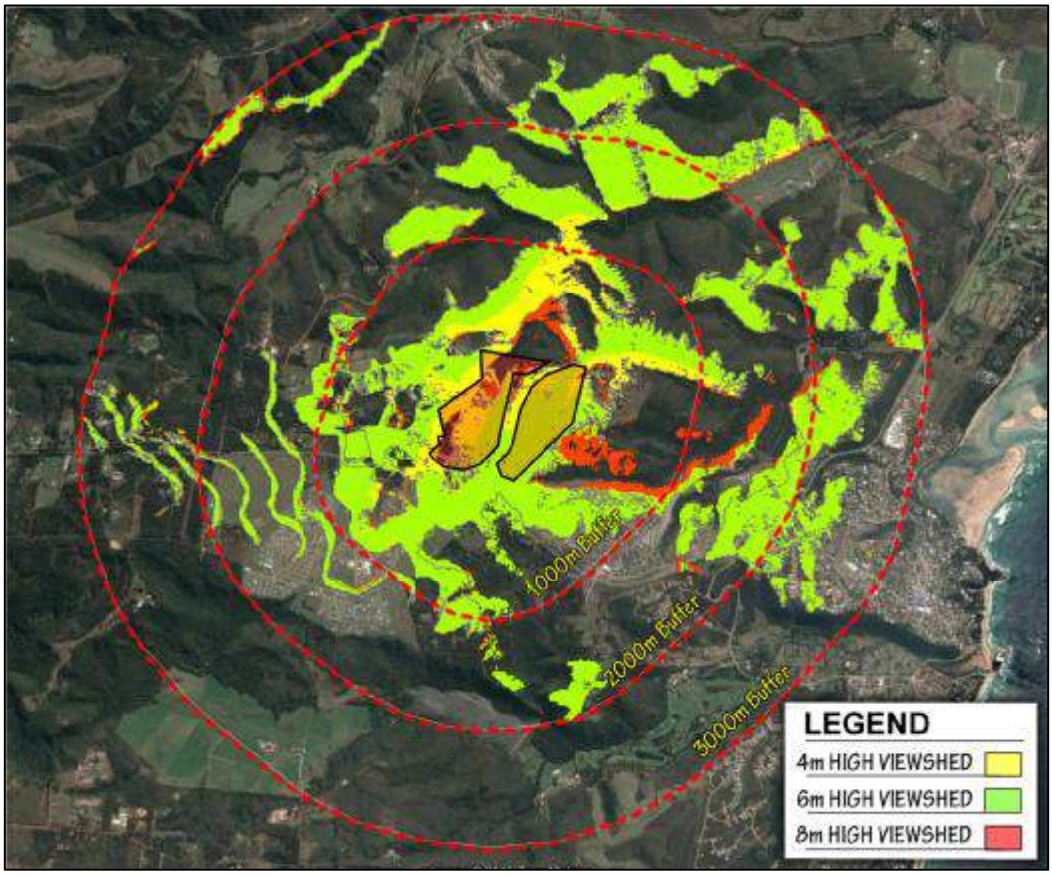

FIGURE 19: COMBINED BUILDING HEIGHT VIEWSHED

14.3.2. 4m Viewsheds to proposed layout

Refer to FIGURE 20 **Error! Reference source not found.**.

This viewshed includes the visibility of all the proposed buildings with a maximum building height of 4m. These structures include single residential properties and smaller apartment units on the subsidised housing stands. The viewshed also shows the N2 National Road and the farmsteads in the surrounding areas indicated in red dots.

- The impact on the on the local farmsteads is very low to non-existent due to shielding effect the hills and the dense vegetation including thicket and tall trees.
- Small impact on road users especially at the entrance of Bay College Road
- Impact on small sections of Bossiegif and Kwanokuthula are noted.

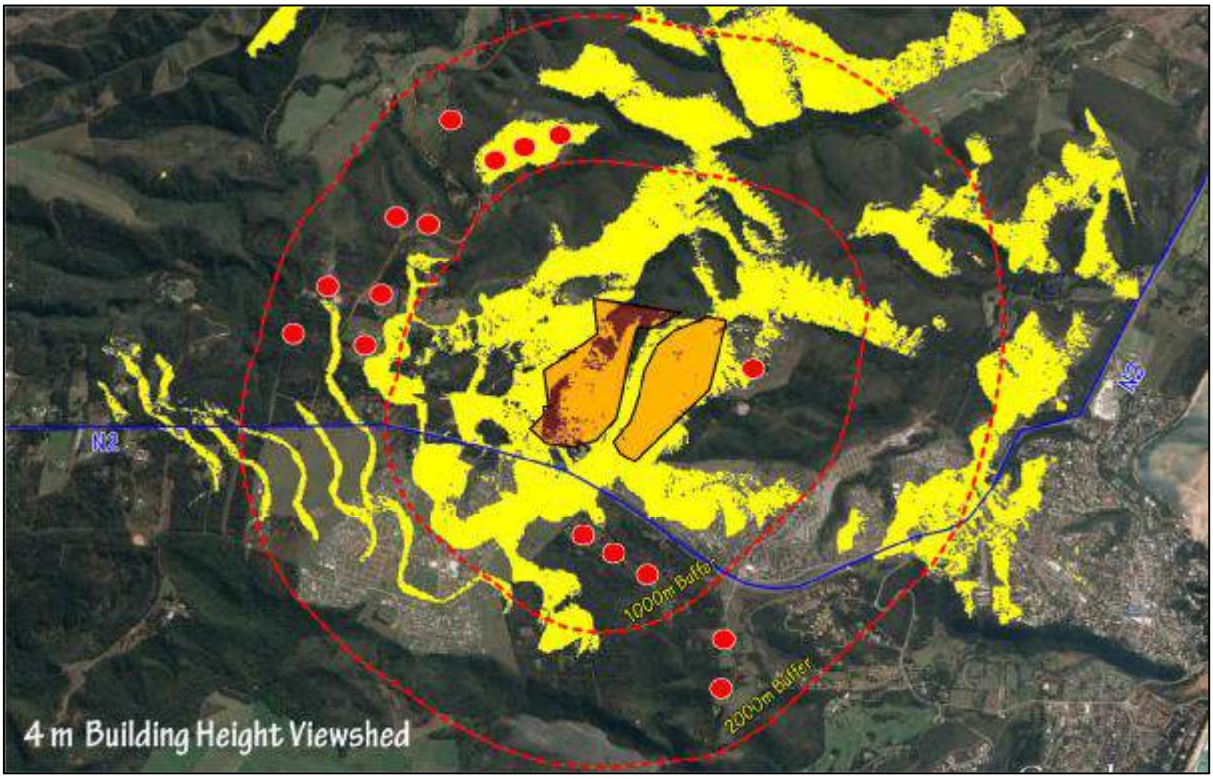

FIGURE 20: 4M BUILDING HEIGHT VISIBILITY FROM SURROUNDING AREAS

The areas affected are shown to relate directly to the topography whereas the direct impact could be significantly reduced by thicket and trees which act as a visual screen to the built environment. A site visit concluded that thicket and dense trees that surround the property act as a visual screen to the properties in the surrounding properties in the area. The undulating landscape also makes it very difficult to observe the site in the built up urban environment especially in the lower lying areas.

14.3.3. 6m Viewsheds to proposed layout

Refer to FIGURE 21 below.

This viewshed includes the visibility to all the proposed buildings with a maximum building height of 6m with a 2 km radius. These structures include the school, local businesses and the buildings within the transport interchange zone. The viewshed also shows the N2 national road and the farmsteads in the surrounding areas indicated in red dots.

- The impact on the on the local farmsteads is very low due to shielding effect the undulating landscape and valleys. The proposed buildings remains difficult to observe from rural farmsteads without taking into consideration the screening effects of the natural environment.
- Greater impact than 4m viewshed on road users especially at the entrance of Bay College Road and the intersection of the N2 and the road leading to Kwanokuthula
- Visual Impact on small sections of Bossiegif and Kwanokuthula are more extensive but still remain limited to small sections are noted.

- The areas affected are shown to relate directly to the topography whereas the direct impact could be significantly reduced by thicket and trees which act as a visual screen to the built environment. A site visit concluded that thicket and dense trees that surround the property act as a visual screen to the properties in the surrounding properties in the area. The undulating landscape also makes it very difficult to observe the site in the built up urban environment especially in the lower lying areas.

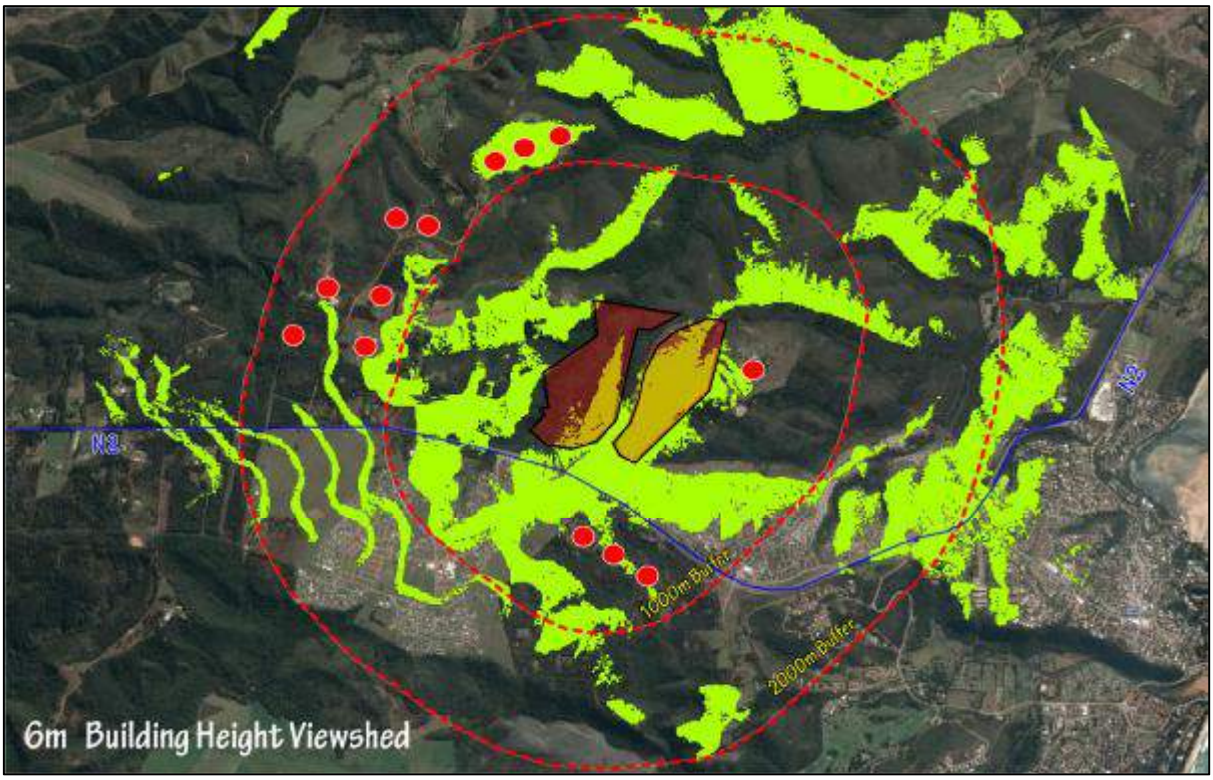

FIGURE 21: 6M BUILDING HEIGHT VISIBILITY FROM SURROUNDING AREAS

14.3.4. 8m Viewsheds to proposed layout

Refer to FIGURE 22.

This viewshed includes the visibility to all the proposed buildings with a maximum building height of 8m with a 2km radius. These structures include the prison, Community Rental Units and larger apartment units. This viewshed will have the greatest impact off all the viewshed as the majority of housing developments are proposed at 8m high. The viewshed also includes the N2 national road and the farmsteads in the surrounding areas indicated by green dots.

The areas affected are shown to relate directly to the typography whereas the direct impact could be significantly reduced by thicket and trees which act as a visual screen to the built environment. A site visit concluded that thicket and dense trees that surround the property act as a visual screen to the properties in the surrounding properties in the area. The undulating landscape also makes it very difficult to observe the site in the built up urban environment especially in the lower lying areas.

- The impact on the on the local farmsteads is very low due to shielding effect the undulating landscape and valleys. The proposed buildings remains difficult to observe from rural farmsteads without taking into consideration the screening effects of the natural environment.
- There is a greater impact than 4m viewshed on road users especially at the entrance of Bay College Road and the intersection of the N2 and the road leading to Kwanokuthula
- Visual Impact on small sections of Bossiegif and Kwanokuthula are more extensive but still remain limited to small sections are noted.

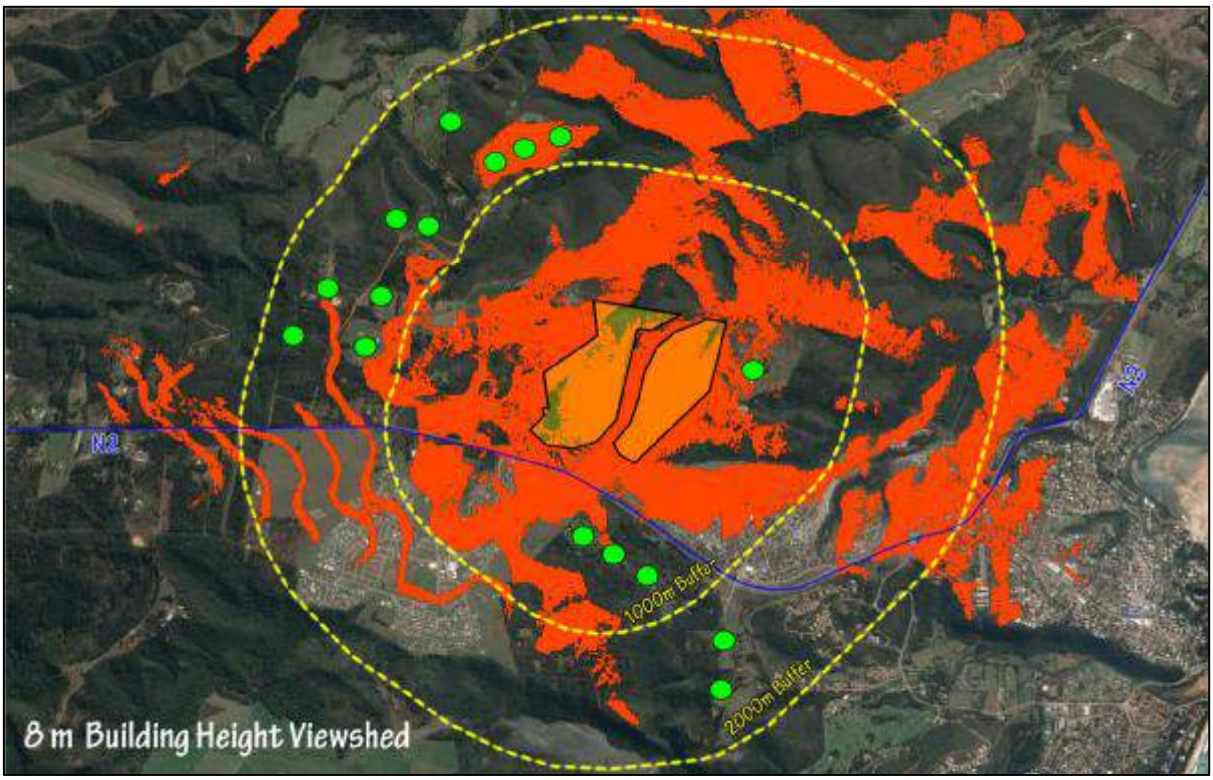

FIGURE 22: 8M BUILDING HEIGHT VISIBILITY FROM SURROUNDING AREAS

14.4. Visibility of proposed layout

The degree of which the development is visible is determined by the height of the structures and the extent of the area under development, the open aspect of the site, surrounding land uses and land cover, but is moderated by

- Distance over which the development will be seen on a theoretical and practical perception
- Weather and season conditions
- Natural terrain
- Physical terrain

14.5. The localities from which the development will be seen

- Sections of Bossiegif, Kwanokuthula, New Horizons
- Local farmsteads north west and east of the subject properties
- Section of the N2 national Route
- Remainder of Ptn 37 of the farm 437

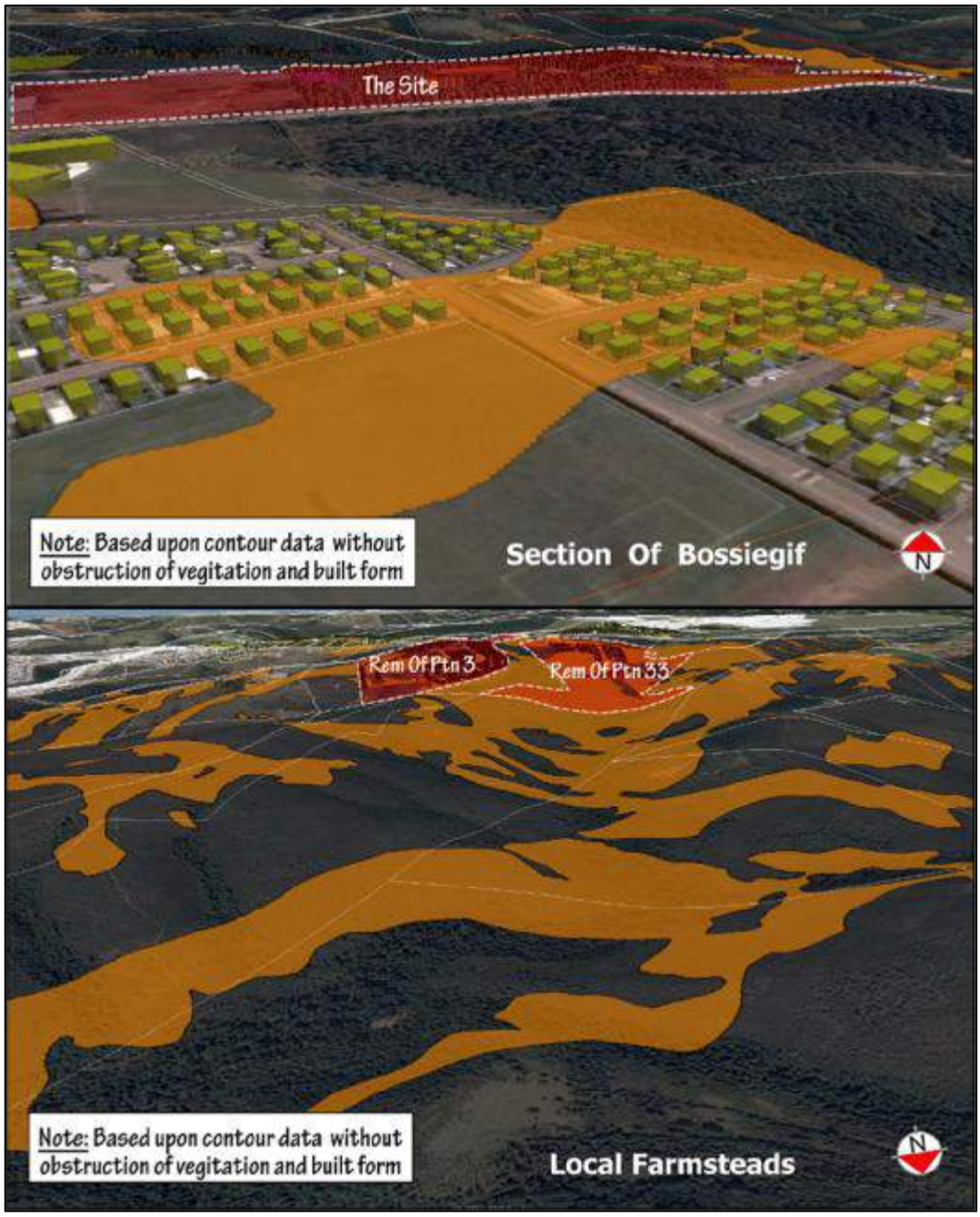

FIGURE 23: MOST PROMINENT LOCALITIES WHERE THE DEVELOPMENT WILL BE VISIBLE

14.6. Comparison With Alternatives

No go Alternative: As the visual envelope is defined by the edge of the proposed development sites, the visibility of the no go alternative is deemed to be consistent and unchanged to the surrounding areas.

Layout alternative: The alternative layout includes 78 subsidised housing units less than the preferred layout which will result in smaller development footprint on the remainder of Portion 3 of the farm 437. It is important to note the proposed development layout will have exactly the same visual impact as the three 3 additional group housing zones are visually obscured by the higher elevation accompanied by fynbos thicket and tree species.

14.7. Extent of Perceived Visual Impact

Levels of impact that determine the geographical area that will be influenced by the visual resource are as follows:

- *Local*: the immediate area around the site
- *Peri-Urban:* 5km radius including urban and rural developments
- *Regional*: within 10km radius of the application area.

The extent of the visual impact for the proposed development is considered to be '***regional'*** as the development would be visible from at least 3km during optimal weather conditions.

Optimal whether conditions are when there is good visibility, i.e. non rain days from sunrise to sunset. The extent of the visual impact would be reduced in overcast conditions as a result of poor light, induced by the time of day, haze or dust in the air and rain. This could have a reducing effect on the extent of the impact of the development.

Extent of Visual impact Rating		
Preferred Layout:3	Alternative Layout:3	No Go: 0

14.8. Extent of Actual Visibility Against Potential Visibility

Metadata from the terrain analysis gave the following data as a representative sample for each layout. This figure expresses the area of land visually affected by the proposed development as a percentage of the overall sampled area. The sample area used is the maximum viewshed radius of 3km with the total area covered by 4m, 6m and 8m viewshed.

A low percentage means that the visual envelope effects only a small portion of the area while a high percentage affects a large portion of the locality.

Building Heights	3km Radius Area	Area Visible	Percentage	Analysis
4m High	4147.45ha	841.68ha	20.29%	Moderately Visible
6m High	4147.45ha	806.42ha	19.44%	Least Visible

8m High	4147.45ha	1002.03ha	24.16%	Most Visible
No go alternative	4147.45ha	373.92hA	9.05%	Least Visible

The table above indicates that the 8m high and 4m high buildings will be the most visible to the surrounding landscape. The 6m high buildings will be the least visible in terms of building heights, since the proposal includes a lesser number of buildings that will be 6m in height.

The no go alternative shows only the visibility of the existing site with no structures and no. This alternative is the least visible to the surrounding area. Only 9% of the total area within a 3km radius can observe the site given the fact that the area directly relates to the topography of the area with no visual obstruction such as natural thicket and trees.

14.9. Visual Exposure

Visual exposure refers to the visibility of the proposed development in terms of the capacity of the surrounding landscape to offer visual screening. The rating of the visual exposure will be rated from 0 being no exposure to 3 being very high exposure to the surrounding environment

- No exposure: The site is hidden by topography, vegetation, or some other object
- Low: The site is largely hidden
- Medium: The site is partially hidden
- High: There is little in the surrounding landscape that can shield the development from view

The visual exposure assessment refers to the site and how the proposed development is hidden due to natural and urban elements in the surrounding landscape site Overall the development site can be classified as partially hidden. There is an abundance of fynbos thicket surrounding the development on Portion 33 of the farm 437 while the remainder of Portion 3 of the farm 437 is shielded by its elevated topography and vegetation. The urban development locate east of the development can also act as a visual screen especially from a longer distance

Visual exposure Rating		
Preferred Layout: Medium	Alternative Layout: Medium	No Go: Low

14.10. Visual Absorption Capacity of Surrounding Natural Area

This refers to the ability of the surrounding area to visually absorb the development. In this assessment high refers to a positive ability to absorb, while low refers to a negative or inability to absorb:

- *Low*: The area cannot visually absorb the development
- *Medium*: The area can absorb the development to a degree but it will look somewhat out of place

- *High:* The area can easily absorb the visual area

The application sites lie adjacent the N2 national route and in close proximity to the townships of Kwanokuthula to the west and Bossiegif to the south. The application site and the undulating landscape in evidence, combined with the of fynbos thicket, shrubs and trees unique to the area serve as formidable visual clutter.

The ability of the terrain to visually absorb the development can therefore be regarded as medium as it will be seen by the general public as urban expansion. For the No-Go Alternative the absorption capacity will be high because the status quo will not change for the site.

14.11. Zones of Visual Influence

These are the areas 'visually influenced' by the proposed development the amount of influence:

- Non-existent: The site cannot be seen from the surrounding areas
- Low: The development is largely shielded from view by topography, planting, etc.
- Moderate: The development is partially shielded
- High: The development strongly influences the view and acts as a visual focus

14.11.1. Farmsteads

Approximately 25 farmsteads are located within a 2km buffer area in the preferred and alternative layout. The majority of the farmsteads are dwellings surrounded by thicket, bush and trees, limiting views to the surrounding landscape. Farmsteads are also places of work through the agricultural industry and act as a visual receptor as a result of road users traveling on farm roads and working on certain farms would also be within the zone of visual influence.

FIGURE 24: FARMSTEAD SURROUNDED BY TALL TREES AND DENSE VEGETATION

Visual Influence for Farmsteads Rating		
Preferred Layout: Low	Alternative Layout: Medium	No Go: Low

14.11.2. Rural Developments

Wittedrift is a small rural development approximately 5km from Plettenberg Bay CBD. The footprint of the town is very small and includes a mixture of formal and informal residential dwellings with social facilities including a high school and a local clinic. Wittedrift is situated approximately than 2.5 km from the development as the crow flies. The town is situated in a valley on south side of a hillside which significantly impacts on the visual influence of the proposed development on this surrounding area.

FIGURE 25: SETTLEMENT OF WITTEDRIFT IN RELATION TO PROPOSED SITE

Visual Influence for Rural Development		
Rating		
Preferred Layout: Low	Alternative Layout: low	No Go: Low

14.11.3. Informal/ Low Income Developments

Informal developments within the Plettenberg Bay urban edge include *Kwanokuthula, Bossiegif* and *Pine Trees, Gatjies* and *Qolwenie*. Informal residential areas are characterised by small dense residential development with very narrow street widths and limited vegetation that could serve as a visual screen to the surrounding areas. The most prominent informal developments influenced by the development include a section Bossiegif and Kwanokuthula due to their higher elevation a sloping topography and the lack of visual screening by the immediate natural environment.

The Low income and Informal developments are characteristically situated on the periphery of Plettenberg bay's urban edge. These township developments which provide the majority of work force in Plettenberg Bay. These developments are visually prominent in the urban character of Plettenberg Bay and accommodate a high percentage of the population of the

town, therefore a large number of people will be affected if structures can been seen for the proposed development.

FIGURE 26: INFORMAL DEVELOPMENTS WHICH COULD BE INFLUENCED BY PROPOSED DEVELOPMENT

Visual Influence for Informal Development Rating		
Preferred Layout: Medium	Alternative Layout: Medium	No Go: Low

14.11.4. Movement Routes

The N2 east bound traffic would be able to see for the preferred and alternative layouts for approximately 500m along the road, or for a time of Approximately 30 seconds if travelling at a speed of 80km/h. The driver, if going to Plettenberg Bay would first observe the business development to his left which is located towards the south of the property. This is a result of the fact that it is the only section of the proposed development that is not screened by natural vegetation. The remainder of the development is situated on a lower elevation making it difficult to observe the development when driving by.

FIGURE 27: N2 TOWARDS PLETTENBERG BAY

Visual Influence for Movement Routes East Bound		
Rating		
Preferred Layout: Low	Alternative Layout: Low	No Go: Low

The N2 west bound traffic would hold the development in view for the preferred and alternative layouts for approximately 1km, or a time of approximately less than 50 seconds travelling at a speed of 80km/h. The driver, if going towards Knysna would first observe the development when driving up the moderate slope past Bossiegif and Qolweni. The Driver would observe the business development and to an extent the subsidised housing portions of the development that are located along higher elevations. The visibility of the site to the driver will fade due to the downward sloping topography of the site.

The view was not very clear until the site is within less than 1km due the trees and thicket present in the area. It is proposed to include a roundabout at the intersection, this will influence the design speed of the N2 when approaching the access point of the property. The decreased design speed will result in a higher view time towards the property especially if a vehicle user approached the roundabout.

FIGURE 28: N2 TOWARDS KNYSNA

Visual Influence for Movement Routes West Bound		
Rating		
Preferred Layout: Medium	Alternative Layout: Medium	No Go: Low

14.11.5. Construction Phase

During this phase the roads selected for the transport of construction materials and the infrastructure components would be visually impacted upon. The zone of visual influence would not vary from the foregoing, as construction traffic would almost certainly use the N2 national route. The site laydown and construction plant may be visible from the road.

14.12. Comparisons of Layouts

Farmsteads: Some farmsteads are in the visual influence area for both layouts.

Rural development: No rural developments will be visually influenced by the preferred or alternative layout.

Informal Development: Only small sections of informal developments will be visually influenced by the layout due to the unique landscape character of the area.

Movement Routes: Both layout present only a minor visual influence to traffic making use of the N 2 natural route.

Natural Shielding: Both Layouts are similar.

Based on the impact as a result of visibility from movement routes, the preferred layout is somewhat less visually acceptable layout

The visual envelope of both properties are similar and no significant changes are foreseeable. The No go alternative will present no physical changes to the property as it will remain as is.

14.13. Compatibility with Surrounding Development

This refers to the extent to which the proposed development and land uses proposed are in line with surrounding development and land uses.

- *Appropriate:* The development will fit in well with the surrounding landscape.
- *Moderately:* The development can blend in, but to a lesser degree and only with dedicated care.
- *Inappropriate:* The development introduces new elements into the landscape that do not fit in.

The development proposes to extend the urban landscape with a prison and cemetery combined with an integrated urban development. This development would extend the residential, business and associated social amenities of the town of Plettenberg Bay further to the north and west.

The proposed development will include a correctional facility and social facilities that are an integral part of meeting the needs of the Plettenberg Bay community fit in well with the surrounding landscape as it is on the periphery of the current urban landscape. The proposed development will contribute to the existing social and residential facilities in the existing urban environment.

Comparing the compatibility with the surrounding landscape especially to the north the preferred and alternative layouts indicate that there is a negligible difference to the existing character of the area. The 'No-Go Alternative' would also be seen as an appropriate situation as the status quo will not change.

14.14. Duration of Visual Impact

The duration of the impact of the development on the surrounding environment will be permanent.

The cemetery and integrated housing environment will create a new residential neighbourhood in Plettenberg Bay providing permanent residential dwellings to residents as well as a cemetery which will also be permanently in use for future generations to come. Both the preferred and alternative layouts are proposed with a permanent visual impact.

The duration of the No- Go alternative cannot be known at this time but may not be long term as increased pressure for land availability becomes more evident in the municipality, therefore other use or uses may be found for the site in the future.

Rating: 5

14.15. Magnitude of Visual Impact

This refers to the degree to which the visual nature of the landscape will be altered.

Scale of Impact	Effect of Impact	Rating
Small:	No effect on the environment.	0

Minor	Natural and / or social and / or processes are not altered	2
Low	Natural and / or social and / or processes are slightly altered	4
Moderate:	Natural and / or social and / or processes continue but in a modified way	6
High:	Natural and / or social and / or processes are altered in a way that they temporarily cease	8
Very High	Natural and / or social and / or processes cease permanently	10

14.15.1. The Local Landscape

The cemetery and integrated housing development brings together the urban and environmental spaces. The remainder of Portion 3 will accommodate public open space to counterbalance the hard spaces created. The majority of Portion 33 will remain as private open space in order to conserve the visual impact to surrounding areas. The impact will therefore be noticeable but the local context of the urban area will remain.

Rating: 8

14.15.2. Between 1km and 2km

The visual receptors will be users of the N2 national route including local roads accessing farmsteads. A small portion of developments closest to the proposed development will also be influenced by the development: Therefore the rating for the magnitude of the proposed development will be rated as Moderate.

Rating: 6

Beyond 2km to 3.5Km

The visual intensity is significantly reduced by distance and shielding through the natural vegetation and topography. Therefore the visual impact will be low

Rating: 4

14.15.3. Construction Period

The visual intensity assessed for the construction period is rated as moderate as the access routes and access points would be visible to receptors locally and there would be significant traffic movement, however this would be stretched over a period of time which mitigates the impact.

Rating: 6

14.15.4. Alternatives

Comparing the magnitude of the visual impact of the preferred and the alternative layout indicates that both layouts would be rated similarly.

Preferred Layout Rating:	8

Alternative Layout Rating:	8

No Go Rating:	0

14.16. Probability

Impact of development actually occurring	Rating
The visual Impact would probably not happen.	1
There is some possibility but a low likelihood of the visual impact	2
The visual impact is probable , there is a distinct possibility that it would occur	3
The visual impact is most probable, most likely	4
The visual impact is definite and would occur regardless of any prevention measures	5

Assessing the range of the impacts identified in the foregoing paragraphs and given the scale of the development indicates that the impacts are probable and there is quite a distinct possibility that the visual impact would occur.

Rating:	4

14.17. The Significance of the Visual Impact

The method of assessing the significance of the visual impact is contained in ANNEXURE B. The significance of the visual impact is calculated by combining the criteria in the following Formula S= (E+D+M) P, where by the following:

Formula	In Text	Rating
S= Significance Weighing		
E= Extent	Para 14.7	3
D= Duration	Para 14.14	5
M= Magnitude	para 14.15	8
P= Probability	para 14.16	4

Therefore, S= (3+5+8)4; the significance weighting is 64

A significance rating of more than 60 points is recognised as high according to this scale of measurement. The significance is only just more than 60 and the rating is strongly influenced by the magnitude and the distinct possibility of a visual impact to the surrounding area (i.e. a high rating score of the proposed development must have an influence on the decision to proceed with the development the area.

14.18. Cumulative Impacts

The proposed development will result in a cumulate effect which includes the expansion of the Plettenberg bay urban development footprint to the west of Plettenberg Bay. This will also result in the cumulative effect of the visual character of the area as the residential footprint of Plettenberg bay is expanding towards the west of Plettenberg Bay. The expansion of the development footprint will allow neighbouring properties the opportunity to further contribute to the cumulative impact by allowing neighbouring properties to be used as proposed areas for urban growth and expansion.

14.19. Residual Impacts

Enduring impacts are assessed as the impact on the development site following construction; the site will be altered but will be capable of being rehabilitated. Therefore residual impacts are assessed as low.

14.20. Viewpoints and Images

A site visit was concluded to test the building viewshed theory and whether it was possible to perceive the subject development in the areas that were greatest affected by the proposed building heights. The images were taken in the afternoon in February 2015. The weather was mostly overcast with patches of clear and open skies. The visibility to the surrounding landscape was clear and distinct.

The camera was set at a focal length to be as close to a natural experience as possible. No filters were used. The camera mode was set on portrait to give the maximum horizontal viewshed without stretching or disordering the image. The viewshed photos were taken from a normal elevated position. The same eye height as a grown adult at approximately 1.8m above the road.

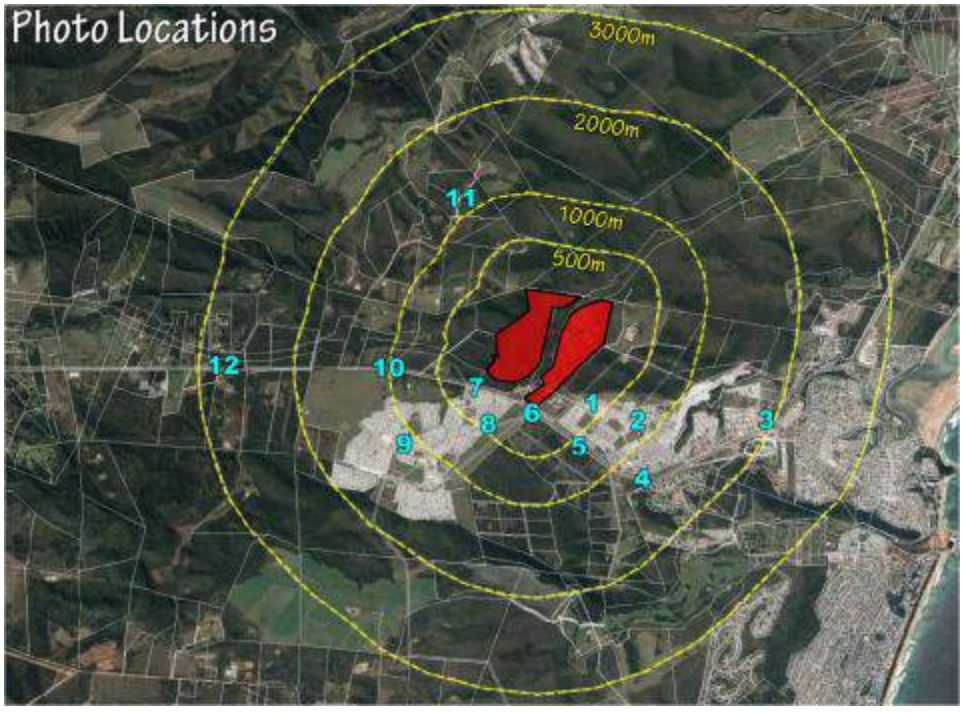

FIGURE 29: PHOTO LOCATIONS

14.20.1. Viewpoint 1

View site 1 was taken at the approximate coordinates of *34°02'50.94"S and 23°20'18.34"E*. This site was selected because it showed high visibility on the viewshed analysis and is a residential area open to the public that is therefore accessible to a large number of people. This site is also the closest public access point to the proposed development.

The figure below illustrates that the development site is located on an elevated level and is obscured by a line of vegetation and tall trees from this viewpoint. The site is thus visually obscured from this position.

FIGURE 30: VIEW TOWARDS SITE IN PHOTO LOCATION 1

14.20.2. Viewpoint 2

The photograph at view site 2 was taken at the approximate coordinates of *34°03'00.06"S and 23°20'41.37"E*. This site was selected because it showed high visibility on the viewshed analysis and is a residential area open to the public that can be used by a reasonably large number of people. This site could reflect how this public open space in the residential area would perceive the development.

The figure below illustrates that that the development is not visible as it is obscured by the physical developments in the surrounding area. Furthermore the site is located above the level the image was taken reducing the visual impact to the surrounding area quite drastically.

FIGURE 31: VIEW TOWARDS SITE AT PHOTO LOCATION 2

14.20.3. Viewpoint 3

The photograph at view site 3 was taken at the approximate coordinates of *34°02'59.02"S and 23°21'23.14"E*. The site was selected because it showed a high visibility in the viewshed even though the site was approximately 2km away. The viewshed is in an industrial area which is surrounded by numerous informal developments to the north.

The figure below illustrates that that the proposed site is somewhat visible from the area. The residential development west of the coordinates obstruct the majority of the proposed development. The distance of the site is another diminishing factor as it increasingly difficult to identify the site as it starts to blend in with urban environment.

FIGURE 32: VIEW TOWARDS SITE ON PHOTO LOCATION 3

14.20.4. Viewpoint 4

The photograph at view site 4 was taken at the approximate coordinates of *34°03'15.96"S and 23°20'40.95"E.* The viewshed indicated a high visibility towards the site therefore this location

was selected to illustrate whether it will be possible to see the proposed site from the N2 national road and the residential dwellings surrounding it.

The figure below illustrates that the site is not visible at this view point. The site is located on a higher level and is therefore completely screened by the existing built environment. No visual impact is possible from this viewpoint.

FIGURE 33: VIEW TOWARDS SITE FROM PHOTO LOCATION 4

14.20.5. Viewpoint 5

View site 5 was taken at the approximate coordinates of *34°03'15.96"S and 23°20'26.94"E*.

This viewpoint is located at an important intersection between the N2 national road and the New Horizons residential development to the north and Piesang Valley to the south. The viewshed was selected to establish if a high visibility to the proposed development is possible. The intersection is a significant viewpoint that gives numerous residents access to their properties.

The figure below illustrates that the intersection is situated lower than the residential built environment. The character of the area to the north is built up which acts a visual screen to the proposed development. It is therefore not possible to observe the development in any way whatsoever from this particular viewpoint.

FIGURE 34: VIEW TOWARDS SITE FROM PHOTO LOCATION 5

14.20.6. Viewpoint 6

View site 6 was at the approximate coordinates of *34°02'53.88"S and 23°19'52.04"E.*

This viewpoint was selected because this will be the main intersection from the N2 accessing the proposed development. This will be a significant viewpoint especially for the N2 national road users travelling between Plettenberg Bay and Knysna.

From the figure below it is clear that the site will be visible from the N2 from this specific viewpoint. Only remainder of Portion 3 of the farm 437 will be visible as Portion 33 is currently screened by tall dense trees. The proposed local business or mixed use areas will more prominent than the other proposed land uses as they are located on a lower ground level than this viewpoint making it difficult for the road users to observe the full extent of the proposed development.

FIGURE 35: VIEW TOWARDS SITE FROM PHOTO LOCATION 6

14.20.7. Viewpoint 7

The photograph at view site 7 was taken at the approximate coordinates of *34°02'53.88"S and 23°19'52.04"E.*

This viewpoint features another prominent intersection leading towards Kwanokuthula. Road users are at an elevated level when moving towards the N2 and will therefore be able to observe the proposed development on Portion 33 of the farm 437.Visibility to the site is limited to a small section on the elevated area from where the picture was taken. The remainder of Portion 3 is not visible due to the existing business situated on the corner of the street. The road moves downwards and the view to the proposed development will be completely obscured at the intersection due to the dense thicket and tall trees that create a visual screen. Therefore the visual impact is limited to only a small section of the road.

FIGURE 36: VIEW TOWARDS SITE FROM PHOTO LOCATION 7

14.20.8. Viewpoint 8

The photograph at view site 8 was taken at the approximate coordinates of *34°02'59.00"S and 23°19'31.17"E.*

The viewpoint is located approximately 500m from the site and this location will present a relative high visibility towards the proposed development. In theory, the close distance and elevated level of the residential development would result in an overarching view of the proposed development for all residents in the surrounding area.

In the figure below it is clear that the compact density of the informal development significantly reduces the visual impact to the proposed development. The lack of open space between residential units obliterates the view. The only way possible to view the site in the informal area is on the periphery closest to the development.

FIGURE 37: VIEW TOWARDS SITE FROM PHOTO LOCATION 8

14.20.9. Viewpoint 9

The photograph at site 9 was taken at the approximate coordinates of *34°02'59.00''S and 23°19'31.17''E.*

The site is located less than 1 kilometre south of the site in the heart of the Kwanokuthula residential area. The view site was selected because it is located along one of the prominent movement routes through the township and it had a relative high visibility in the viewshed analysis.

From the figure below it is clear that the site is not visible. The effect of distance and the built environment significantly reduces the visual impact from this specific viewpoint. The existence of these structures also means that it is likely that from this view and at this distance the development will appear to be absorbed by the existing development in front of it. Therefore, the visual impact from this site is very low too non-existent.

FIGURE 38: VIEW TOWARDS SITE FROM PHOTO LOCATION 9

14.20.10. Viewpoint 10

View site 10 was is at the approximate coordinates of *34°02'39.33"S and 23°18'52.36"E.*

This site was selected due to its high viewshed visibility and the use of the N 2 national road by the general public and tourist during peak holiday seasons.

The site is located less than a kilometre away from the view site and already distance is a significant contributing factor to the absorption of the proposed development. The site will be extremely difficult to see from this specific viewshed as the proposed development will be located behind the tall trees seen in the photograph. Another diminishing factor is that the proposed development will be constructed on a downward slope. The visual impact at this viewpoint is very low to non-existent.

FIGURE 39: VIEW TOWARDS SITE FROM PHOTO LOCATION 10

14.20.11. Viewpoint 11

The photograph at view site 11 was taken at the approximate coordinates of *34°01'56.62"S and 23°19'12.00"E.*

The viewshed indicated that certain sections of the rural road will be able to see the proposed development. This view site was selected to establish whether the proposed development will be visible from the rural roads made use by the local farmers or owners of farmsteads.

From the figure below the proposed development will not be visible as a result of the undulating topography and dense vegetation especially on the side of the road. The proposed development will be located behind the hill in the figure bellow completely removing the view to users of the road.

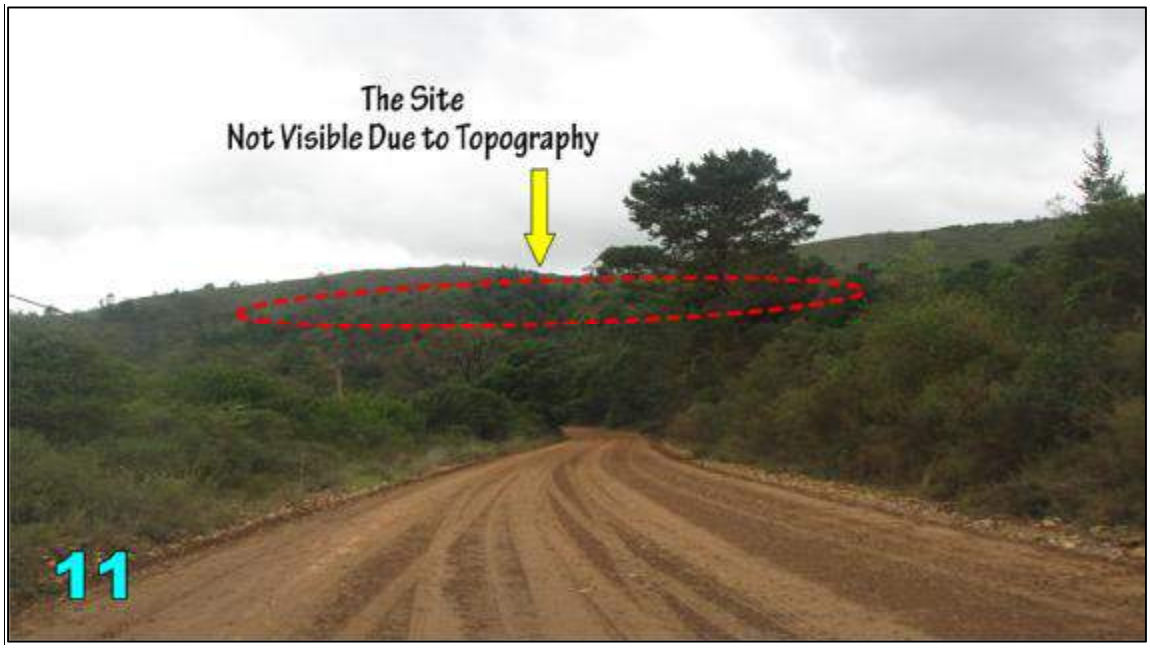

FIGURE 40: VIEW TOWARDS SITE FROM PHOTO LOCATION 11

14.20.12. Viewpoint 12

View site 12 was at the approximate coordinates of *34°02'39.33"S and 23°18'52.36"E.*

This viewpoint is located approximately 3km from the proposed development and is also the view site with the greatest distance in the 3 km radius.

As can be seen in the figure below the site is not visible from this view site. The effect of distance means that the intensity of the visual impact from this site is completely removed. The impact of the development from this angle will also be decreased since the vista is dominated by tall trees and dense vegetation, meaning that the development will be easily absorbed by the surrounding area. There is no visual impact from this viewpoint.

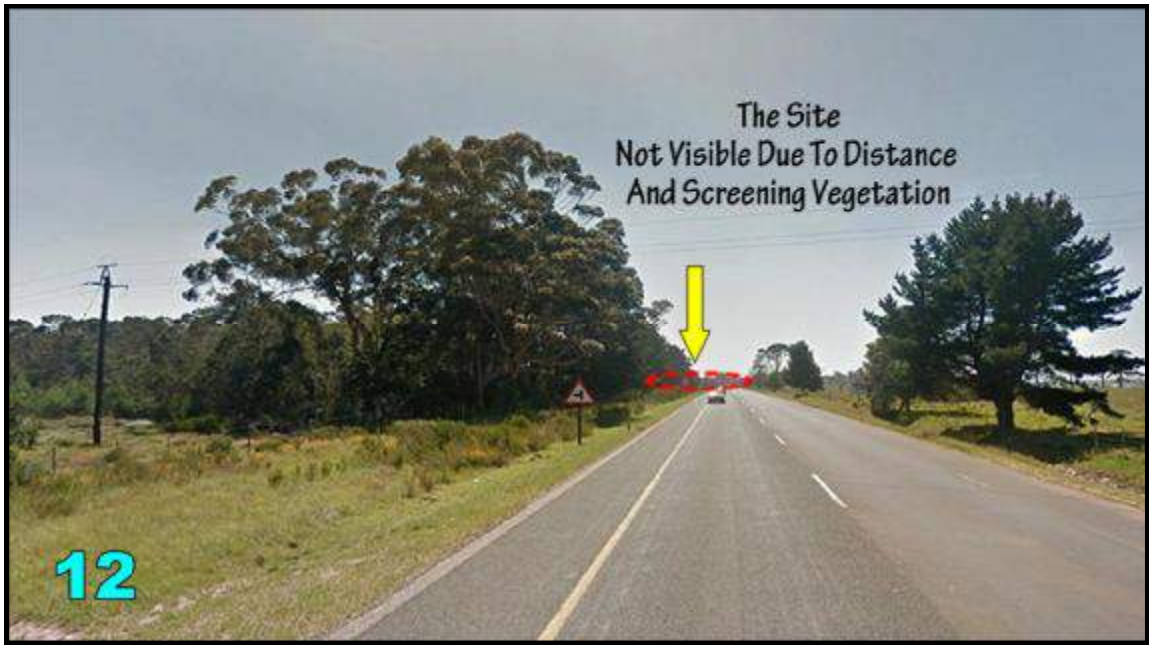

FIGURE 41: VIEW TOWARDS SITE FROM PHOTO LOCATION 12

SECTION G : METIGATION MEASURES

15. ENVIRONMENTAL MANAGEMENT PLAN

15.1. Construction Period

For the duration of the construction period the contract time should be kept to a minimum, road junctions should have adequate side-lines and traffic control measures should be provided. These measures will aim to reduce visual impact during the construction period.

Controls on the location of material and on site machinery storage should be enforced by the project manager or environmental control officer to ensure that the most suitable site in the development area is selected to reduce visual impact.

Construction materials will be delivered via the N2 national route and Bay College Road. Given that the N2 is characterised by regular flow of traffic and increased traffic volumes during peak seasons haulage capacity can be become visually intrusive. By implementing the following mitigation measures will help to reduce the visual impact during the construction period

- Good traffic and site management
- Screening where needed
- Operate site within construction industry management guidelines
- Protecting the natural environment during construction phase

15.2. Fires Litter and Containments

15.2.1. Firescaping

Given the fact that the site is surrounded by various Fynbos plant species fire poses a serious threat to the safety of homeowners within the proposed development. By making changes to the home or group development ignition zone group housing and single residential properties can substantially reduce the risk of the development becoming fuel for the inevitable fires.

The area closest to the home is particularly important in terms of creating effective survivable spaces. By implementing effective zoning systems for firescaping gardens in residential units will reduce the fire risk within the proposed development. The single residential, group and general developments as well as the prison should plan accordingly to provide a buffer zone on the periphery, a medium zone resistance within that and a low resistance zone extending approximately 3 meters around each structure. The properties that are situated in close proximity to the open fynbos areas should most strictly apply the firescaping zones and should include the vegetation in the landscape plan. The public open space should include buffer of vegetation in order to prevent the widespread of fires on to residential units. The landscape containment for firescaping will contribute significantly to reducing the visual impact of the

development while simultaneously improving the safety of residents in the case of a fire emergency.

15.2.2. Landscape Containment for Firescaping

The landscaping of the area goes hand in hand with the firescaping of the area. The landscape plan should adhere to the firescaping zones in order to maximise fire protection to the residential dwellings creating a safe and naturally sustainable environment.

Buffer Zone

This area should be furthest away from the proposed residential dwellings within the essential 10m Zone:

- Plant low growing ground cover with fleshy leaves that have a high resistance like *Vygies, Gazania, Arcototis, Cliffortia, Ferruginea* and *Aloe brevifolia*.
- Suitable bulbs could include *Tulbaghia violacea, Agapantas and Watsonias*. If hedges are needed, use plants that re-sprout and do not have large quantities of dead material accumulating... No hedge may be planted less than 30m of any residential unit.
- Good hedge plants include *Searsia crenata*, *S. glauca* and *S. Lucidia*, all of which will burn more slowly because of their succulent like leaves and the will re-sprout after burning.

The Medium Resistance Zone

This zone should be the area between the buffer zone and the low resistance zone around the housing developments.

- It is possible to plant fynbos garden but it is important to space tall and short shrubs to prevent a large dense thicket of fuel developing
- Consider plants with a corky bark that will protect them if the fire is mild. These will start budding soon after a fire. They include *Leucospermum Conocarpodendron, Protea waboom* and *Aloe Plicatilis.*
- Forest trees have a natural resistance to fire and do not burn easily - this will be the choice of tree to consider in public open space and on the sidewalks. These tress include *Cape Beach, Cunonia capensis. LLex Mitis, Maurocenia frangularia, Halleria lucida* and *Canthium Mundianum.*

The Low Resistant Zone

This is the area closest to the residential developments.

- This area should be kept free of large shrubs. It should contain low growing plants and ground cover, interspersed with gravel or lawn.
- Ground cover for sunny areas include *Cliffortia Ferruginea, Ontholobium Decumbens, Dymondia margaretae, Gazania, Helichrysums Argyrophylum, Hemannia Saccifera, Cotula Lineariloba* and *Agathosma ovata*.

- § Small shrubs can be planted alone with ground covers around them.
- § Note that no climbers or trellises should be attached to the walls of the house in a high risk fire area as these act as ladders for the fire.
- § Grass planted in the area should include *Cynodon dactylon* (kaapse kweek grass and *Stenotta.*

15.2.3. Landscaping

In order to further mitigate the impact of the number of proposed residential units, appropriate vegetation should be planted in the communal open spaces located in the centre of the subsidised housing units and around the community rental units. The landscape of these areas should include firescaping plant species as well as a combination of indigenous plant species

This vegetation should include:

- · Indigenous trees should be planted in communal spaces that will grow to a sufficient height to be taller than the proposed residential units and should coincide with the firescaping trees if possible.
- · Rehabilitation of all public and private space outside of the building foot prints should be undertaken with 100% indigenous plants, to reflect the surrounding coastal forests & grasslands ensure areas are free from alien vegetation.
- · The existing natural flora should be used to inform the rehabilitated areas and to create informal pathways, meandering through the proposed development.
- · The main entrance to the site should be a formalised boulevard with trees located along this boulevard to fit the parking module, thereby creating a functional landscaped road.
- · Secondary roads should be designed as landscaped courtyards, allowing the landscape to be integrated into them, thereby softening the overall appearance
- · Flowering trees should be encouraged, to reflect seasonal changes in the landscape and accent plants will be introduced at road circles and other focal points within the site
- · Subtle night lighting should be introduced within the landscape. High township lights should be prohibited.
- · Services should be located underground to create an aesthetically pleasing environment. This will also increase the safety of the residents in the area.

The proposed development will lead to integration of communities on a socio-economic level, as well as on a visual level.

15.1. Visibility of Buildings

The proposed land use controls aim to restrict the height of buildings, and together with the architectural code and landscaping code, the objectives of the development is to provide a quality affordable development whereby the design and provisions of community facilities, open

spaces and buildings will enhance the landscape and the environment on the site, as well as surrounding neighbouring residential development.

Group housing and general residential buildings should be clustered in a series of villages, each of these with access to a communal open spaces.

Single residential development should be limited to one storey. The remaining proposed structures will have a maximum development height of two storeys. This will allow the trees in the surrounding areas to be taller than the proposed development.

Fragmentation of subsidised housing developments into separate pavilions forms and integral part of the creating a breathable urban space. The intention is to reduce the impact of mass on the site in order to minimise the visual impact of built form on the site and surrounding community. It is therefore important to mitigate the landscape plan that will reflect the open spaces between the structures. The proposed layout has a sufficient mixture of hard and soft space and it is important to amplify and maintain the aesthetic quality of the open spaces as it will contribute to natural environment within an urban context.

The natural characteristics of the property will play an integral part in reducing the visual impact to the surrounding environment. It is generally advised that new structures should integrate with the natural environment i.e. integrating prominent indigenous trees into the design of the proposed land use. Rather than completely destroying the life cycle of any existing trees tree it could be re-established as an important visual screen to the structures on the proposed development.

Buildings and materials should be painted in earthy colours to blend in with surrounding environment and thereby reduce visual impact.

If cladding is considered in the design of the buildings it should also be in natural sensitive colours.

Significant views of the proposed development would be obtained from a small section of the N2 national road and certain sections of Bossiegif, New Horizons and Kwanokuthula. The views to the sections of the development can effectively be mitigated through adequate natural vegetation. This would make the view evident but intermittent. The alternative layout would have exactly the same effect as the proposed layout.

SECTION H : ASSESMENT OF IMPACT

16. METHOD OF ASSESSING FINAL VISUAL IMPACT

The direct and indirect cumulative impacts of the issues identifies through the study must be assessed in terms of the following criteria.

- The **Nature** which includes description of what causes the effect, what will be affected and how it will be implemented.

§ The **Extent**, wherein it will be indicated whether the impact will be local (limited to the immediate area or site of the development) or regional, and a value between 1 and 5 will be assigned (with 1 be low and 5 being high).

§ The **Duration** of the development will reflect the following score.

Score	Duration	Description
1	0-1 Year	The lifetime of the impact will be of a very short
2	2-5 Years	The lifetime of the impact will be short
3	5-15 Years	The lifetime of the impact will be medium
4	>15 Years	The lifetime of the impact will be Long term
5	Permanent	The impact is permanent

§ The **Magnitude** quantified on a scale from 1- 10 will reflect the following score

Rating	Impact	Effect of Impact
0	*Small*:	No effect on the environment.
2	*Minor*	Natural and / or social and / or processes are not altered
4	*Low*	Natural and / or social and / or processes are slightly altered
6	*Moderate*:	Natural and / or social and / or processes continue but in a modified way
8	*High*:	Natural and / or social and / or processes are altered in a way that they temporarily cease
10	*Very High*	Natural and / or social and / or processes cease permanently

§ The **Significance** which shall be determined through a synthesis of the characteristics described above and should be calculated as follows:

Formula: $S=(E+D+M)P$
S= Significance Weighing
E= Extent
D= Duration
M= Magnitude
P= Probability

The assessed can be determined low, medium or high and are assessed according to the following:

Total Points	Visual Impact	Description

<30	Low	Development would not have a Direct influence on the decision to develop the area
30-59	Medium	Development could influence on the decision to develop the area
>60	High	Development must have influence on the decision to develop the area

- The **status**, which will be described as either positive negative or neutral.
- The **degree of development** which will be described as either positive, negative or neutral.
- The degree to which the impact may cause **irreplaceable loss of resources**.

The Impact of the proposed development is summarised below in a table format with and without the proposed mitigation measures:

Nature:				
	Without Mitigations		**With Mitigations**	
Extent	Moderate	3	Moderate	3
Duration	Permanent	5	Permanent	5
Magnitude	High	8	High	8
Probability	High	4	Moderate	3
Significance	Total	64	Total	42
Status	Negative		Medium	
Reversibility	Very Low		Low	
Irreplaceable loss of Resources	Yes		Yes	

From the table above it is revealed that the proposed development without any mitigation measures will result in a high visual impact on the surrounding areas.

Implementing the mitigation measures will reduce the significance of the visual impact from high to moderate.

17. CONCLUSION

A detailed investigation has been undertaken as to the potential visual impacts of the proposed cemetery and integrated housing development and found that the impact is likely to be of moderate to high intensity with the greatest impact concentrated in the immediate vicinity of the site, especially in small sections of the surrounding residential developments. The mitigation measures outlined will significantly assuage the impacts such that the impacts are likely to be moderate to low from all locations.

It is the recommendation of this report that the proposed Site Development Plan be implemented without significant visual impacts if the mitigation measures are employed.

Marike Vreken Urban and Environmental Planners
May 2015

ANNEXURE A.

Visual Impact Assessment Criteria And Ratings

Visual impact assessment referred to in the Department of Environmental Assessment and Development Planning's guidelines for involving visual and Aesthetic Specialists in the Environmental Impact Assessment document win which are as follows

Viewshed

The viewshed refers to the theoretical outer most extent of the area from which any object may be seen. Visibility can be obscured in part or whole by object within the viewshed such as existing trees, buildings, or topography of the landform.

Rating: Not Rated , Description Given

Visibility of site

A description of the actual places within the viewshed from which the site can be seen. In significant views are discussed in section 14.3

Rating: Not Rated , Description Given

Extent of visual Impact

Rates the impact in terms of the geographical area that will be influenced by the visual impact:

Scale of Impact	Effect of Impact
No Impact:	No Visual impact No effect on the environment.
Local:	the immediate area around the site
Peri-Urban:	5km radius including urban and rural developments
Regional:	Within 10km radius of the application area.
National:	The extent has national boundaries and extends beyond boundaries

Visual Exposure

Visual exposure refers to the visibility of the project site in terms of the capacity of the surrounding landscape to offers visual screening. This is determined by topography, tree cover buildings etc.

Scale of Impact	Effect of Impact
No exposure :	The site is hidden by topography, vegetation, or some other object.
Low:	The site is largely hidden.
Medium:	The site is partially hidden.
High:	There is little in the surrounding landscape that can shield the development from view.

Zones of Visual Influence

Describes the area visually influenced by the proposed development and assesses the amount of influence.

Scale of Impact	Effect of Impact
Non-existent:	The site cannot be seen from the surrounding areas
Low:	The development is largely shielded from view by topography, planting, etc.
Medium:	The development is partially shielded
High:	The development strongly influences the view and acts as a visual focus.

Visual Absorption Capacity

This refers to the ability of the surrounding area to visually absorb the proposed development

Scale of Impact	Effect of Impact
Low:	The area cannot visually absorb the development
Medium:	The area can absorb the development to a degree but it will look somewhat out of place
High:	The area can easily absorb the visual area

Compatibility with the surrounding development

This refers to the extent to which the proposed development and land uses proposed are in line with surrounding development and land uses.

Scale of Impact	Effect of Impact
Minor	The development will fit in well with the surrounding landscape.
Moderately	The development can blend in, but to a lesser degree and only with dedicated care
Inappropriate:	The development introduces new elements into the landscape that do not fit in

Intensity or Magnitude

This refers to the degree to which the visual nature of the landscape will be altered.

Scale of Impact	Effect of Impact
Small:	No effect on the environment.
Minor	Natural and / or social and / or processes are not altered
Low	Natural and / or social and / or processes are slightly altered
Moderate:	Natural and / or social and / or processes continue but in a modified way
High:	Natural and / or social and / or processes are altered in a way that they temporarily cease
Very High	Natural and / or social and / or processes cease permanently

Duration

The duration of the impact and its surroundings

Scale of Impact	Effect of Impact
Temporary	One year or less
Short term	One to five years
Medium Term	Five to 15 Years
Long Term	More than 15 years

Significance of the Visual Impact

Scale of Impact	Effect of Impact
Very Low	The visual impact is will be limited to the site itself
Low	The impact will be local and on a short term basis
Moderate:	The impacts will be experienced locally and may lead to permanent change in the local landscape
High:	These impacts will be experienced over a wide area or sub regionally and will be irreversible

Cumulative visual Impacts

Looks at accretion of similar developments over time

Rating: Not Rated , Description Given

ANNEXURE B.

Method for Assessing Significance of the Visual Impact

This method has been drawn up by an EAP and has reference to the *Stella Helpmekaar* Project in the Northern Cape:

The rating system has been adopted as it converts the requirements from the DEAP Guidelines for Involving Visual and Aesthetic Practitioners in the EAI process into a scale of ratings to determine the significance of the visual impact.

The report include the following requirements as stated in the Guideline:

- An indication of the Methodology used determining the significance of the visual impact
- An assessment of the significance of direct and cumulative impact in terms of the following Criteria
  a) The nature of the impact, which shall include a description of what causes the effect, what will be affected and how it will be affected. This is explained in detail in the project proposal
  b) The extent of the Visual Impact, indicating whether the impact will be local, regional, national or international.
  c) The duration of the impact , indicating whether the lifetime of the impact will be of a short term duration(0-5 Years), Medium Term(5-15 years, long term (.15 Years) where the impact will cease after the operational life of the activity or permanent
  d) The probability of the impact, describing the likelihood the of the impact actually occurring, indicated as improbable(low likelihood), probable (distinct possibility), high probability(most likely)or definite(impact will occur regardless mitigation measures)
  e) The severity indicating whether the impact will be very severe/beneficial
  f) The significance which shall be determined through a formula which is culmination of the characteristics described above. The characteristics can be assessed as low medium or high as indicated in annexure 1
  g) The status shall be described as either positive, negative or neutral
  h) The degree to which the impact can be reversed
  i) The impact of how the proposed development may cause irreplaceable loss of resources.
- A description and comparative assessment of all alternatives identified during the Environmental Impact Assessment
- Recommendations regarding practical mitigation measures

Assessment of Impacts

Nature (referred to as project proposal in report)

Shall include a description of what causes the effect, what will be affected and how it will be affected

Extent

Wherein it will be indicated whether the impact will be local, regional or international and a value between 1 and 5 will be assigned as appropriate 1 being low and 5 being High) as indicated below

Scale of Impact	Effect of Impact	Rating
No Impact:	No Visual impact No effect on the environment.	1
Local:	the immediate area around the site	2

Peri-Urban:	5km radius including urban and rural developments	3
Regional:	Within 10km radius of the application area.	4
National:	The extent has national boundaries and extends beyond boundaries	5:

The Duration

Where it will be indicated whether the lifetime of the impact according to the following score rating criteria

Scale of Impact	Effect of Impact	Rating
Temporary	0-1 years	1
Short term	1-5 years	2
Medium Term	5-15 years	3
Long Term	More than 15 years	4
Permanent	Permanent	5

Magnitude

The magnitude of the of the development was calculated on the following scale from 0-10

Scale of Impact	Effect of Impact	Rating
Small:	No effect on the environment.	0/
Minor	Natural and / or social and / or processes are not altered	2
Low	Natural and / or social and / or processes are slightly altered	4
Moderate:	Natural and / or social and / or processes continue but in a modified way	6
High:	Natural and / or social and / or processes are altered in a way that they temporarily cease	8
Very High	Natural and / or social and / or processes cease permanently	10

Probability

Of occurrence shall describe the likelihood of the impact actually occurring the following rating scale was used to determine the probability

Scale of impact	Effect of Impact	Rating
Very improbable	The visual Impact would probably not happen.	1
Improbable	There is some possibility but a low likelihood of the visual impact	2
Probable	The visual impact is probable , there is a distinct possibility that it would occur	3
Highly Probable	The visual impact is most probable, most likely	4

Very Probable	The visual impact is definite and would occur regardless of any prevention measures	5

Significance

Will be calculated by combining the criteria in the following formula

Formula: $S=(E+D+M)P$
S= Significance Weighing
E= Extent
D= Duration
M= Magnitude
P= Probability

The significant weightings for each potential impact are as follows:

Points	Significance	Impact
<30	Low	This impact would have a direct influence on the decision to develop in the area.
30-60	Medium	Where the impact could influence the decision to develop in the area, unless it is effectively mitigated.
>60	High	Impact must have an influence on the decision process to develop in in the area.

Note

A draft environmental management programme is required to assess the proposed mitigation measures as proposed in *Section G* in this visual impact assessment study

PLAN 1.

Locality Plan

PLAN 1

LOCALITY PLAN

CEMETERY SITES IN BITOU

N

SCALE 1:50 000

Graphic Scale

1000m 500m 0 500m 750m 1000m

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PLAN 2.

Preferred Site Development Plan

LEGEND

General Features
- Development Boundary
- Expropriated Bypass
- Road Surface
- Water Body
- 5m Contour Break
- Registered Servitude

Residential Development
- Single Residential
  - Number of Erven: 95
  - Total Area: 2.480ha
- Group Housing
  - Number of Erven: 23
  - Total Area: 13.349ha
- General Reisential
  - Number of Erven: 7
  - Total Area: 5.136ha

Local Business/ Commercial
- Local Business
  - Number of Erven: 2
  - Total Area: 0.345ha
- Clinic & Commercial
  - Number of Erven: 1
  - Total Area: 0.966ha
- Mixed Use
  - Number of Erven: 2
  - Total Area: 2.150ha

Social Facilities
- Public School
  - Number of Erven: 1
  - Total Area: 1.903ha
- Church
  - Number of Erven: 2
  - Total Area: 0.593ha
- Education Development Centre
  - Number of Erven: 1
  - Total Area:0.063ha

Open Space Network
- Private Open Space
  - Number of Erven:
  - Total Area: 22.78ha
- Public Open Space
  - Number of Erven:5
  - Total Area:8.797ha

Authority
- Prison
  - Number of Erven:1
  - Total Area:10.966ha
- Cemetery
  - Number of Erven:1
  - Total Area:5.072ha

Other
- Transport Interchange
  - Number of Erven:1
  - Total Area:0.272ha

BITOU CEMETERIES

PREFERRED SITE DEVLOPMENT PLAN

Projection: Transverse Mercator
Centre Lon: 23°19'47" E
Centre Lat: 34°02'32" S
Created: 2015/05/28
Layout 01
Scale: 1:5800

Stored: Z:\GIS\Appointed Projects\Pr1325 - Bitou Cemetries\layout 2015-03.ma

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web: www.vreken.co.za

PLAN 3.

Alternative Site Development Plan

LEGEND

General Features
- Development Boundary
- Expropriated Bypass
- Road Surface
- Water Body
- 5m Contour Break
- Registered Servitude

Residential Development
- Single Residential
  - Number of Erven: 95
  - Total Area: 2.480ha
- Group Housing
  - Number of Erven: 20
  - Total Area: 11.171ha
- General Reisential
  - Number of Erven: 7
  - Total Area: 5.136ha

Local Business/ Commercial
- Local Business
  - Number of Erven: 2
  - Total Area: 0.345ha
- Clinic & Commercial
  - Number of Erven: 1
  - Total Area: 0.966ha
- Mixed Use
  - Number of Erven: 2
  - Total Area: 2.150ha

Social Facilities
- Public School
  - Number of Erven: 1
  - Total Area: 1.903ha
- Church
  - Number of Erven: 2
  - Total Area: 0.593ha
- Education Development Centre
  - Number of Erven: 1
  - Total Area:0.063ha

Open Space Network
- Private Open Space
  - Number of Erven:
  - Total Area: 22.78ha
- Public Open Space
  - Number of Erven:5
  - Total Area:8.797ha

Authority
- Prison
  - Number of Erven:1
  - Total Area:10.966ha
- Cemetery
  - Number of Erven:2
  - Total Area:6.604ha

Other
- Transport Interchange
  - Number of Erven:1
  - Total Area:0.272ha

BITOU CEMETERIES

ALTERNATIVE SITE DEVELOPMENT PLAN

Projection: Transverse Mercator
Centre Lon: 23°19'47" E
Centre Lat: 34°02'32" S
Created: 2015/05/28
Layout 01
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PLAN 4.

Vegetation Map

LEGEND

- Property Boundaries
- Eastern Coastal Shale Band Vegetation
- Garden Route Shale Fynbos
- South Outeniqua Sandstone Fynbos

33/437

RE/3/437

BITOU CEMETERY

VEGETATION MAP

Projection: Transverse Mercator
Centre Lon: 23°19'56" E
Centre Lat: 34°02'30" S
Created: 2015/05/28
Scale: 1:7500

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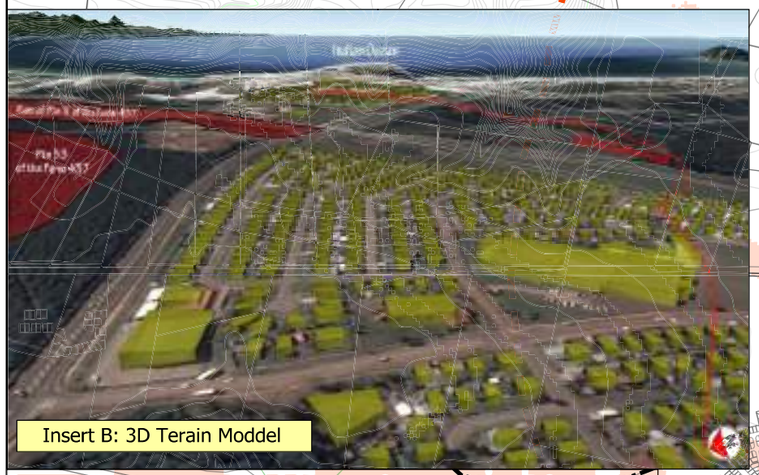
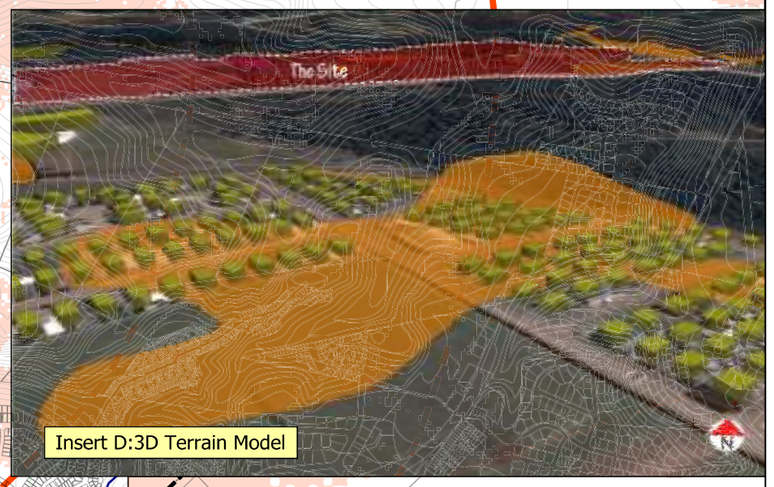
PLAN 5.

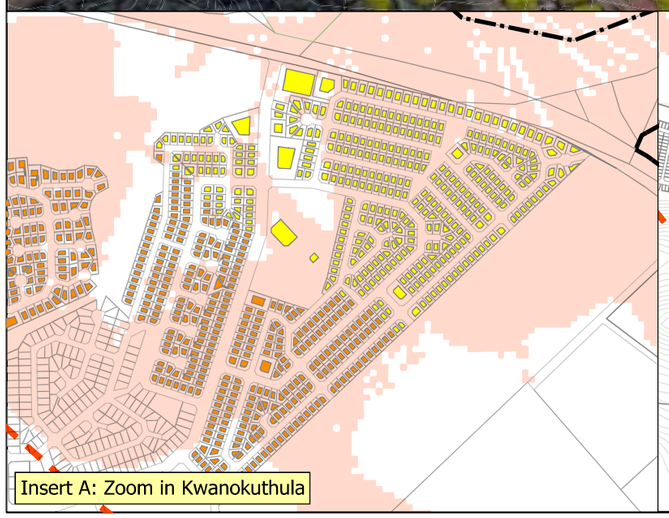
Terrain Analysis

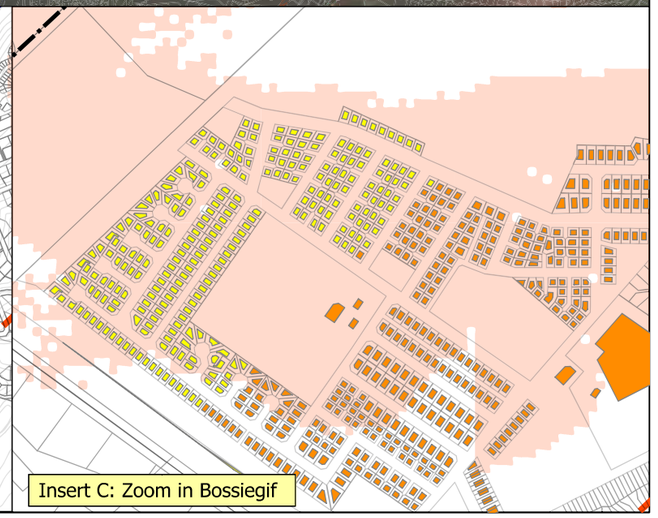
LEGEND

- Development Boundary
- Buffer Zones
- 5m Contours
- Expropriated Bypass
- Total Viewshed area- 8m High buildings









BITOU CEMETERY

TERRAIN ANALYSIS

Projection: Transverse Mercator
Centre Lon: 23°19'43" E
Centre Lat: 34°02'36" S
Created: 2015/05/28
Scale: 1:20000

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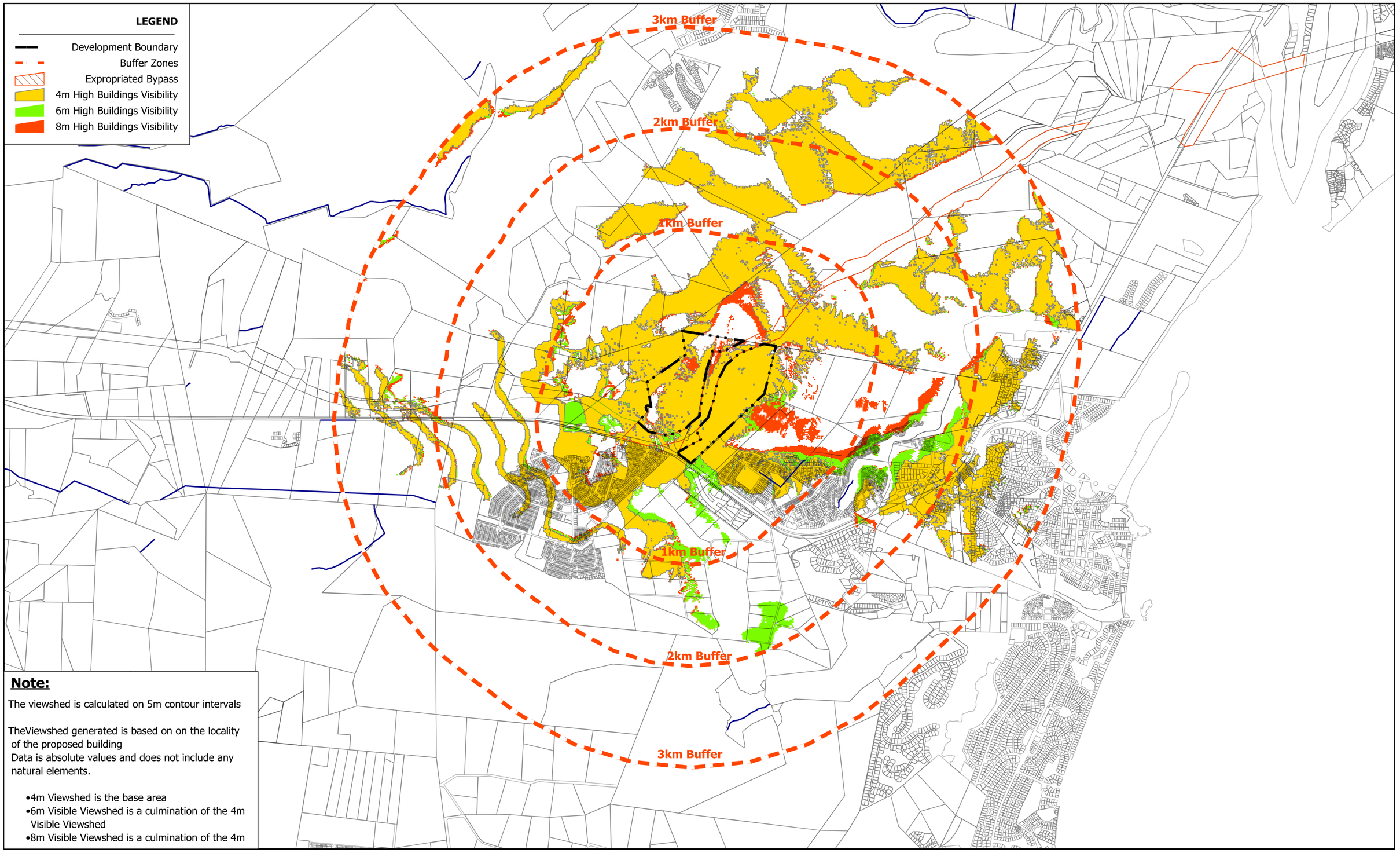
PLAN 6.

Viewshed Analysis



Note:

The viewshed is calculated on 5m contour intervals

TheViewshed generated is based on on the locality of the proposed building
Data is absolute values and does not include any natural elements.

- 4m Viewshed is the base area
- 6m Visible Viewshed is a culmination of the 4m Visible Viewshed
- 8m Visible Viewshed is a culmination of the 4m

BITOU CEMETERY

VIEWSHED ANALYSIS

Projection: Transverse Mercator
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Layout 01
Scale: 1:35000

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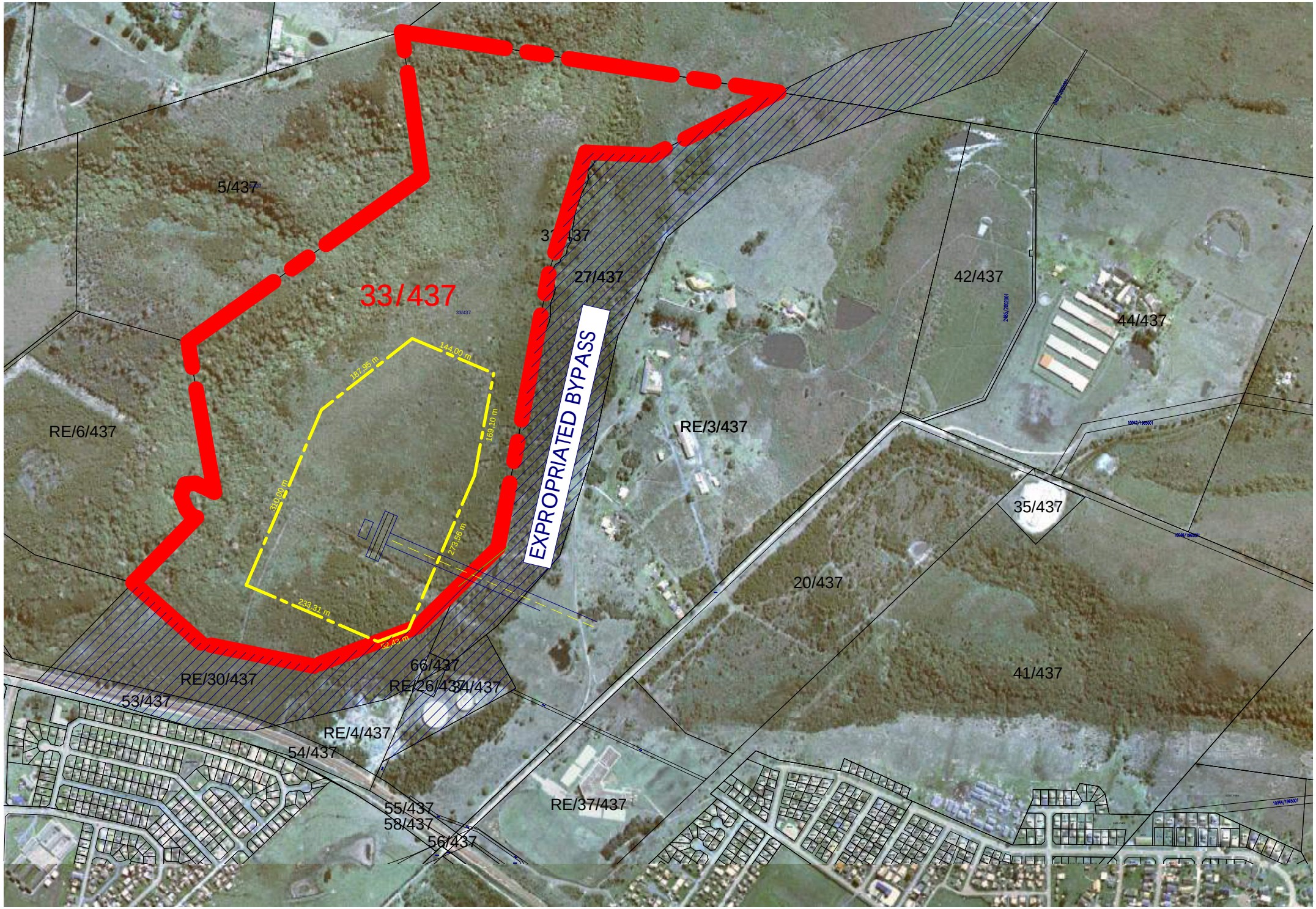
33/437
EXPROPRIATED BYPASS
144.00 m
187.95 m
169.10 m
310.00 m
273.56 m
233.31 m
62.42 m
5/437
27/437
42/437
44/437
RE/6/437
RE/3/437
35/437
20/437
41/437
RE/30/437
66/437
RE/26/437
54/437
53/437
RE/4/437
54/437
55/437
58/437
56/437
RE/37/437

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BITOU CEMETERIES

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LEGEND

- Development Boundary
- Buffer Zones
- 5m Contours
- Expropriated Bypass
- Total Viewshed area- 8m High buildings

Insert B: 3D Terain Moddel

Insert D:3D Terrain Model

Insert A: Zoom in Kwanokuthula

Insert C: Zoom in Bossiegif

BITOU CEMETERY

TERRAIN ANALYSIS

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LEGEND

- Development Boundary
- Buffer Zones
- Expropriated Bypass
- 4m High Buildings Visibility
- 6m High Buildings Visibility
- 8m High Buildings Visibility

3km Buffer

2km Buffer

1Km Buffer

1km Buffer

2km Buffer

3km Buffer

Note:

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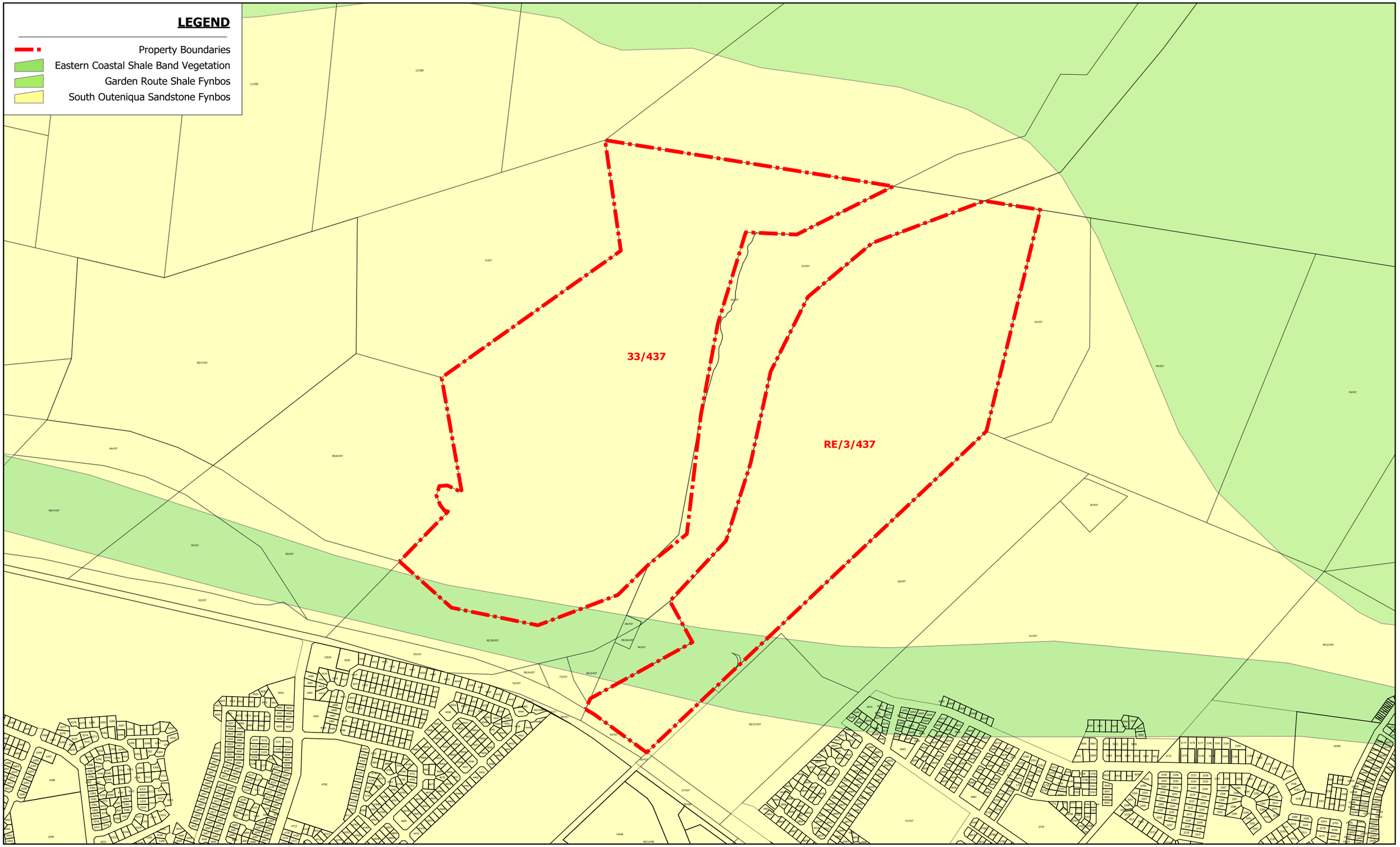

BITOU CEMETERY

VEGETATION MAP

Projection: Transverse Mercator
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