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Name: Christopher Hooton
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Date: Thursday, 26 August 2021
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Attention: Ms. Tamaryn Hale

RE: TERRESTRIAL ECOLOGICAL IMPACT STATEMENT AS PART OF THE BASIC ASSESSMENT PROCESS FOR THE PROPOSED HLOMENDLINI SPORTS FIELD AND ASSOCIATED INFRASTRUCTURE IN MANDENI, KWAZULU NATAL PROVINCE.

1. INTRODUCTION AND BACKGROUND SETTING

Scientific Aquatic Services (SAS) was appointed by SRK Consulting to prepare a Terrestrial Biodiversity verification memorandum as per the National Screening Tool for the proposed development of a sports field and associated infrastructure development on ERF 1118 in Mandeni, KwaZulu-Natal, hereafter referred to as the "study area".

The following are the proposed activities/ infrastructure units that will be developed within the study area:

- Main soccer field (110 m x 75 m);
- A new fence line along the study area;
- Gravel access road to tie in with the existing gravel road north of the study area;
- Parking area and a guardhouse;
- Combi courts;
- Ablution facilities and stands;
- An irrigation line south of the proposed main soccer field;
- Water pipeline (90 mm Ø);
- Sewer pipeline (110 mm Ø);
- Conservancy tank; and
- A walkway south of the study area.

The study area is located approximately 3 km north-west of the Harold Johnson Nature Reserve, 2.5 km west of the R102 and 2km south of the Tugela River. The general surrounding area is highly developed with surrounding land uses such as residential developments and other developments.

This verification report will follow the requirements as stated in the procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of Sections 24(5)(A) and (H) and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998).

The proponent (Madeni Local Municipality) has identified the opportunity to develop an area where the surrounding community will have access to quality sporting facilities and promote community participation and upliftment. In addition, the construction of the sports field development will address social challenges that the community is currently faced with, such as unemployment. The study area is associated with two watercourses, both of which have been impacted as a result of urban expansion. The study area comprises an open grassland which has undergone varying degrees of disturbance as a result of anthropogenic activities and land usage by the surrounding community, including the use of the study area as an informal soccer field.

2. OUTCOMES OF THE APPLICATION OF THE NATIONAL WEB-BASED ENVIRONMENTAL SCREENING TOOL

The protocol (as stipulated in Government Notice 1150 promulgated in Government Gazette 43855 of 2020) for the assessment of terrestrial (fauna and flora) biodiversity prepared in support of the National Web-based Environmental Screening Tool (2021) provides the criteria for the assessment and reporting of impacts on terrestrial biodiversity for activities requiring environmental authorisation. The assessment requirements of this protocol are associated with a level of environmental sensitivity determined by the screening tool. For terrestrial biodiversity, the requirements are for landscapes and/or sites which support various levels of threatened or unique biodiversity. The relevant faunal and floral biodiversity data stated in the National Web-based Environmental Screening Tool has been provided by the South African National Biodiversity Institute (SANBI).

As part of the process of initiating the Environmental Impact Assessment process SRK Consulting applied the National Web- Based Environmental screening tool (2021) to the study area. According to the screening tool, the study area falls within an area of “Medium” sensitivity for animals and “Low” sensitivity for plants. The terrestrial biodiversity combined sensitivity is indicated as “Very High” for the Terrestrial Biodiversity. According to the National Web-Based Environmental screening tool (2021) the triggered sensitivity for the terrestrial biodiversity theme is a critically endangered ecosystem. The National Threatened Ecosystems Database (2011) does however not indicate a critically endangered ecosystem associated with the study area. Furthermore, the National Biodiversity Assessment Database (NBA, 2018) indicates that a small northern portion of the study area is located within the KwaZulu Natal Coastal Belt Thornveld which is considered vulnerable.

Prior to the site visit, the SANBI database was consulted as to the medium sensitivity for the animal species theme. The database indicated that *Arytropteris basalis* (Flat-necked Shieldback Katydid, VU), Sensitive Species 5 (VU), *Dendrohyrax arboreus* (Southern Tree Hyrax, EN), *Pomatonota dregii* (East Coast Katydid, VU) and *Phymeurus illepidus* (Durban Agile Grasshopper, VU) may potentially occur within the study area. As such this was taken into consideration during the site assessment, where signs of the species and suitable habitat availability was assessed.

3. DEFINITIONS AND LEGISLATIVE REQUIREMENTS

The legislation considered during this investigation included the following:

- The Constitution of the Republic of South Africa, 1996[1];
- The National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA);
- The National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEMBA);
    - Government Notice (GN) number R.1020: Alien and Invasive Species Regulations, 2020, in Government Gazette 43735 dated 25 September 2020 as it relates to the NEMBA;
    - Government Notice number 1003: Alien and Invasive Species Lists, 2020, in Government Gazette 43726 dated 18 September 2020;
- The Conservation of Agricultural Resource Act, 1983 (Act No. 43 of 1983) (CARA);
- Government Gazette 45421 dated 10 May 2019 as it relates to the Department of Forestry, Fisheries and the Environment (DFFE)'s national environmental screening report required with an application for environmental authorisation as identified in regulation 16(1)(v) of EIA Regulations:
    - GN No. 320 Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity as published in Government Gazette 43110 dated 20 March 2020; and
    - GN No. 1150 Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Plant and Terrestrial Animal Species as published in Government Gazette 43855 dated 30 October 2020.
- Guidelines for Biodiversity Impact Assessments in KwaZulu-Natal (Ezemvelo KZN Wildlife 2009).

4. INVESTIGATION FINDINGS

The results of the desktop assessment are summarised in the points below and in Appendix B, with the relevant maps presented in Appendix A.

Study Area:

- The National List of Threatened Ecosystems indicates that the study area falls within an ecosystem that is of **Least Concern** and not critically endangered, as stated in the National Web-Based Environmental screening tool (2021);
- According to the KZN Biodiversity Spatial Plan, there are no Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) associated with the study area; and
- According to the National Biodiversity Assessment (NBA, 2018) a small northern portion of the study area is located within the KwaZulu Natal Coastal Belt Thornveld, which is considered a Vulnerable ecosystem and is currently Not Protected.

The results of the site visit are discussed below.

A field investigation to ground truth the desktop findings was undertaken on the 9th February 2021 (summer). The broader study area was considered utilising digital satellite imagery prior to and after the field investigation. The survey was undertaken in summer which allowed for a suitable assessment of the area in terms of floral and faunal species and the overall habitat of the study area.

Satellite imagery from 2009 and 2011 (Figure 1) shows that large portions of the study have previously been disturbed as a result of earth moving and dumping activities. In addition, it appears that the study area was, at this point, devoid of any tree species, typical of the vegetation type which is characterised by grassed hills and woody ravines / drainage lines. Natural fire occurrences and potential harvesting of firewood likely excluded the occurrence of woody species from the study area at this point in time.

[1] Since 1996, the Constitution has been amended by seventeen amendments acts. The Constitution is formally entitled the 'Constitution of the Republic of South Africa, 19996". It was previously also numbered as if it were an Act of Parliament – Act No. 108 of 1996 – but since the passage of the Citation of Constitutional Laws Act, neither it not the acts amending it are allocated act numbers.

Figure 1: Satellite imagery from 2009 (left) and 2011 (right) indicate that portions of the study area have been historically disturbed as a result of earth moving and/or dumping activities.

During the field assessment in February 2021, it was evident that the vegetation within the study area, as described by Mucina and Rutherford (2006), has subsequently been altered and is not considered representative of the reference vegetation type (KwaZulu Natal Coastal Belt Thornveld). This change in vegetation structure is likely attributable to historical earth moving activities (Figure 1), continued disturbance as a result of anthropogenic activities (informal soccer field) and increased water runoff leading to erosion in areas, limiting vegetation establishment (Figure 2). It was noted during the assessment that there has been an increase in woody species recruitment along the road verges in comparison to the satellite imagery of 2009 and 2011. This may be due to reduction in fire frequency as fires now pose a risk to houses, with the community having now expanded and encroached further upon the study area in comparison to 2009 and 2011.

Figure 2: Satellite imagery from 2021 indicating the current informal soccer field in north of the study area (yellow circle) as well as disturbed and bare patches still evident in the southern half of the study area.

According to the Freshwater report (SAS 220143), two wetland systems were identified within the study area; a modified channelled valley bottom (CVB) wetland within the western portion of the study area and a valley head seep wetland within the eastern portion of the study area (Figure 3). Both of these wetlands are considered to have disturbed and modified due to the development of the surrounding houses, roads and stormwater measures as well as the proliferation of alien plant species (AIP), decreasing habitat integrity and the diversity of floral and faunal species. AIPs observed include *Xanthium strumarium* (Rough cocklebur) and *Persicaria madagascariensis* (Bristly Snakeroot) amongst

others. Herbaceous species such as *Bulbostylis* sp., *Imperata cylindrica*, *Sporobolus afrianus* and *Cynodon dactylon* were present throughout.

Figure 3: Representative images of the valley head seep wetland (left) and CVB wetland (right).

The remaining open grassland area within the study area has, as previously discussed, been disturbed as a result of various historic and current land use activities (Figure 4). Most notably, the remaining grassland areas of the study area are used by the local community members for recreational (sport) activities as well as the grazing of cattle. Plant species observed in the remaining grassland areas include herbaceous species such as *Cynodon dactylon*, *Eragrostis* spp, *Melinis repens*, *Urochloa* sp and *Digitaria eriantha*. Woody species observed close to the roadside include *Vachellia karoo*, *Chamaecrista comosa, Dichrostachys cinerea* and *Vachellia* spp. Whilst some of these species are known from the vegetation type, they are also known to be common and widespread species that occur in areas where ecological interity has been compromised.

Figure 4: Representative images of the remaining grassland areas of the study area, including the informal recreational soccer field.

During the field assessment, limited faunal species were observed. This is likely a result of the increased human presence within the study area as well as the decreased habitat integrity and availability. Faunal species observed were limited to avifauna and insects such as *Danaus chrysippus*(Plain Tiger Butterfly), *Junonia hierta* (Yellow Pansy Butterfly), Genus *Halyomorpha* (Bugs), *Cossypha heuglini* (White-browed Robin-Chat), *Bostrychia hagedash* (Hadada Ibis) and *Motacilla capensis* (Cape Wagtail). The study area is unlikely to host an increased diversity of faunal species, with most species that may occur on site being those that are well adapted to disturbed environments and/ or are small and well adapted to living in areas of increased human populations. Dominant faunal species are likely to be those of the common invertebrate and avifaunal classes, with a small number of rodents also potentially occurring.

The screening tool indicated the potential occurrence of *Arytropteris basalis* (Flat-necked Shieldback Katydid, VU), Sensitive Species 5 (VU), *Dendrohyrax arboreus* (Southern Tree Hyrax, EN), *Pomatonota dregii* (East Coast Katydid, VU) and *Phymeurus illepidus* (Durban Agile Grasshopper, VU) within the study area. Following the field assessment, it is considered unlikely that any of these species will inhabit the study area, primarily as the study area does not fit the suitable habitat requirements for these

species, whilst the continued presence of local residents in and surrounding the study area further reduces this likelihood.

5. BUSINESS CASE, OPPORTUNITIES AND CONSTRAINTS APPLICABLE TO THE PROPOSED DEVELOPMENT OF THE STUDY AREA.

The proposed development of the sports field is located within an urban area, surrounded by housing and road infrastructure. At present, the study area is largely utilised as an informal soccer field and recreation area, whilst the peripheral areas are also used for grazing of cattle. The study area comprises of two wetland systems as described in in the Freshwater report (SAS 220143), located in the eastern and western portions of the study area. The proposed sports field and associated infrastructure will partially impact upon the wetland system in the east of the study area. Although this wetland, from a faunal, floral and terrestrial sensitivity perspective is not considered important or sensitive, it is important that all activities within this wetland are managed in accordance with the mitigation measures stipulated within the Freshwater report (SAS 220143). The remaining grassland areas interspersed with woody species in the study area is not considered sensitive and has over the years been disturbed. This disturbance and the continued use of the area by the community has resulted in the species composition not being considered representative of the reference vegetation type, KwaZulu Natal Coastal Belt Thornveld (Mucina and Rutherford, 2006). It was evident that the vegetation and plant species composition within the proposed development sites corroborates that of the national web-based environmental screening tools “low plant sensitivity theme”. In addition to this, the continued anthropogenic activities in the study area and lack of ecological management and AIP proliferation will likely result in further habitat disturbance and degradation.

The faunal composition within the study area is not anticipated to be of significant conservation value due the lack of habitat connectivity, degraded habitat and past and current anthropogenic activities. Following the site assessment, it is evident that the study area, indicated as a medium sensitivity zone as per the national web-based environmental screening tool, is unlikely to support the trigger species due to the lack of suitable habitat and increased presence of people in the study area. As such, the study area should rather be associated with a low animal sensitivity.

Following the desktop and site assessment it is expected that the impacts on the receiving environment resulting from the proposed activities are anticipated to be low, provided they are suitably managed and that all mitigation measures as per the freshwater report (SAS 220143) are implemented. Furthermore, it is recommended that as part of the development all AIP species are properly controlled and that a landscaping and revegetation plan be developed for the surrounding and disturbed areas.

We trust that we have interpreted your requirements correctly. Please do not hesitate to contact us if there are any aspects of this memorandum that you would like to discuss.

Yours Faithfully,

Chris Hooton

Nelanie Cloete
SACNASP REG.NO**: 400503/14**

Declaration of independence and CVs included in Appendix B

REFERENCES

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APPENDIX A- PROJECT MAPS

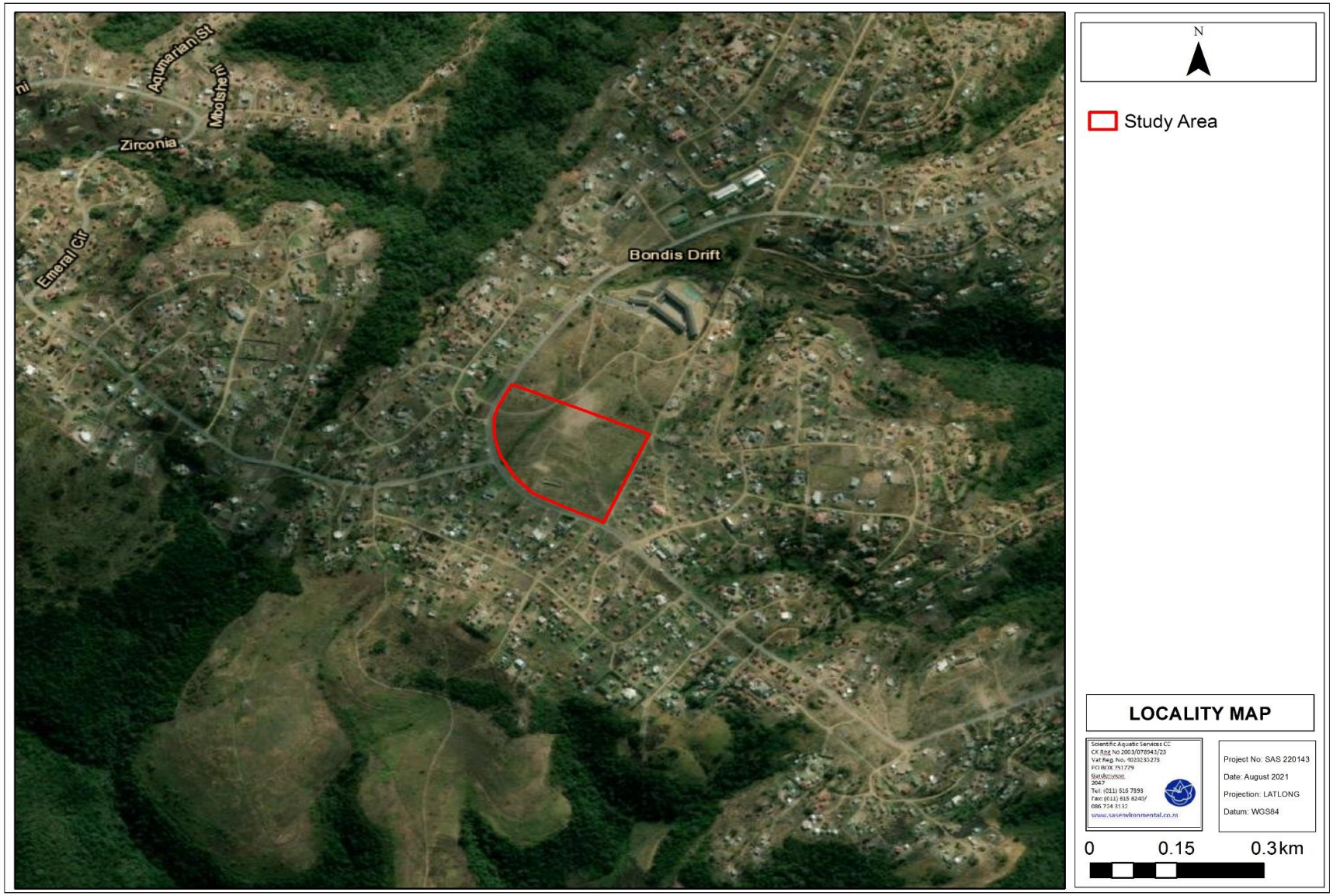

Figure A1: Satellite image depicting the location of the study area in relation to surrounding areas.

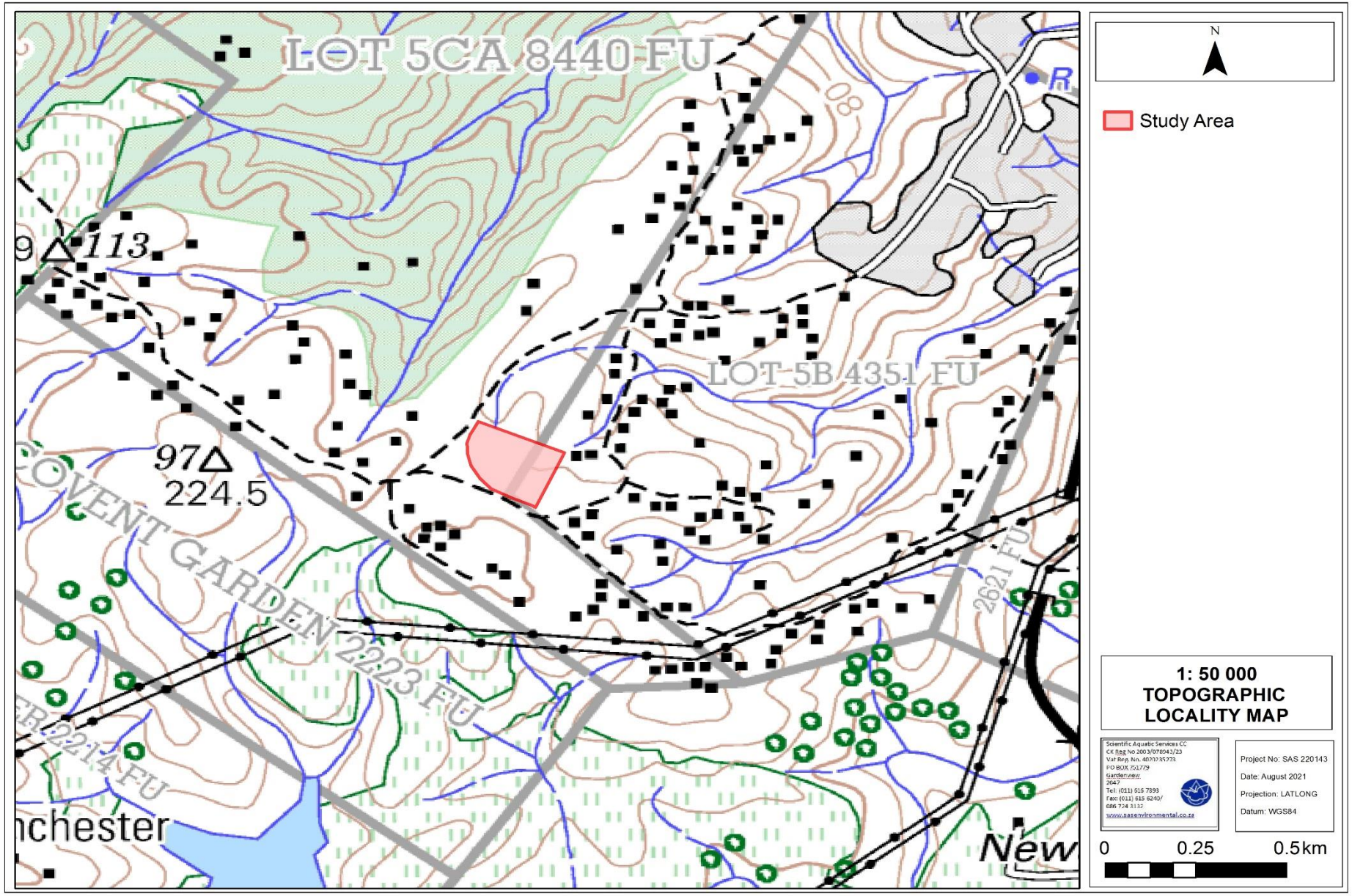

Figure A2: The study area depicted on a 1:50 000 topographical map in relation to the surrounding area.

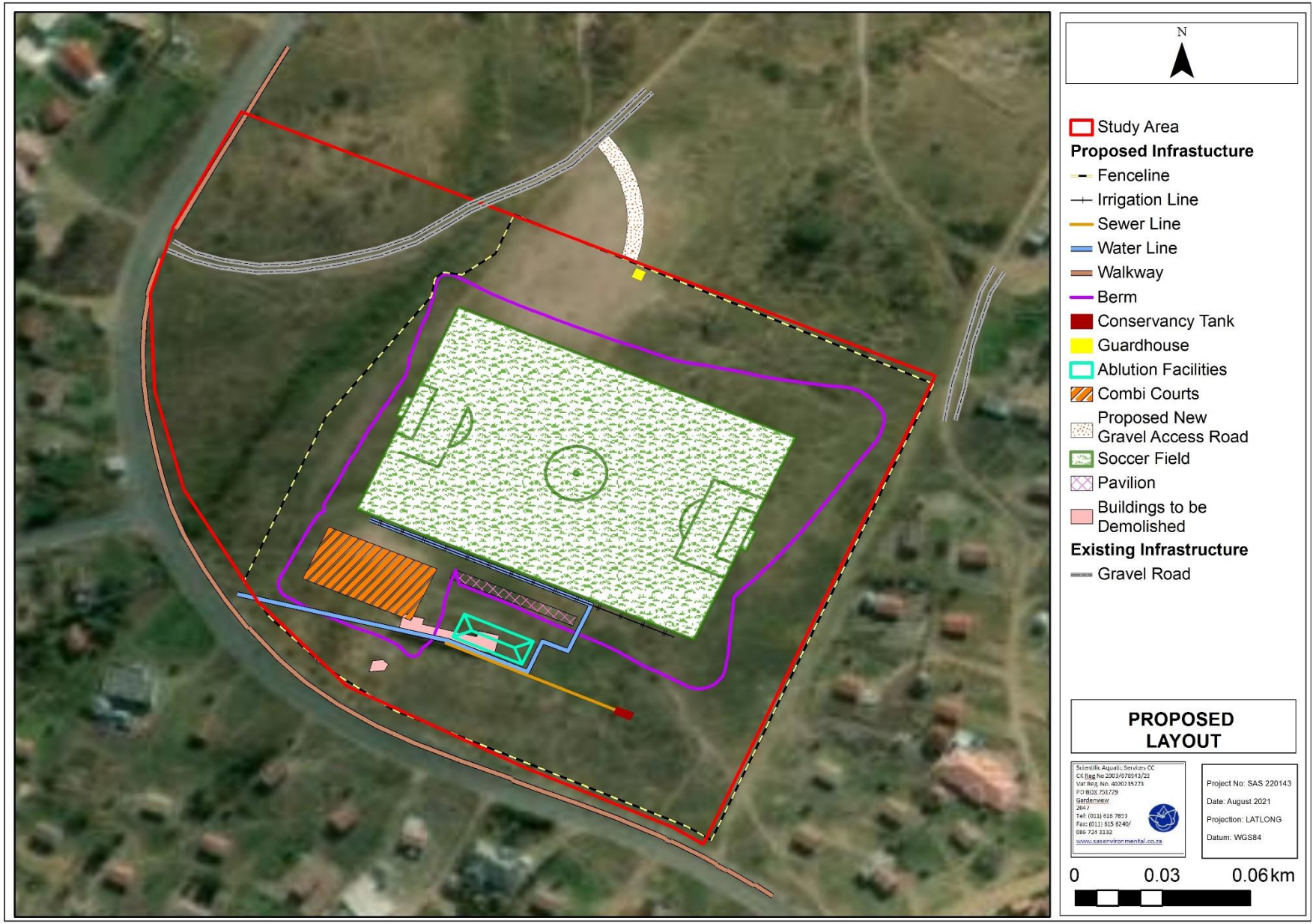

Figure A3: The proposed layout within the study area.

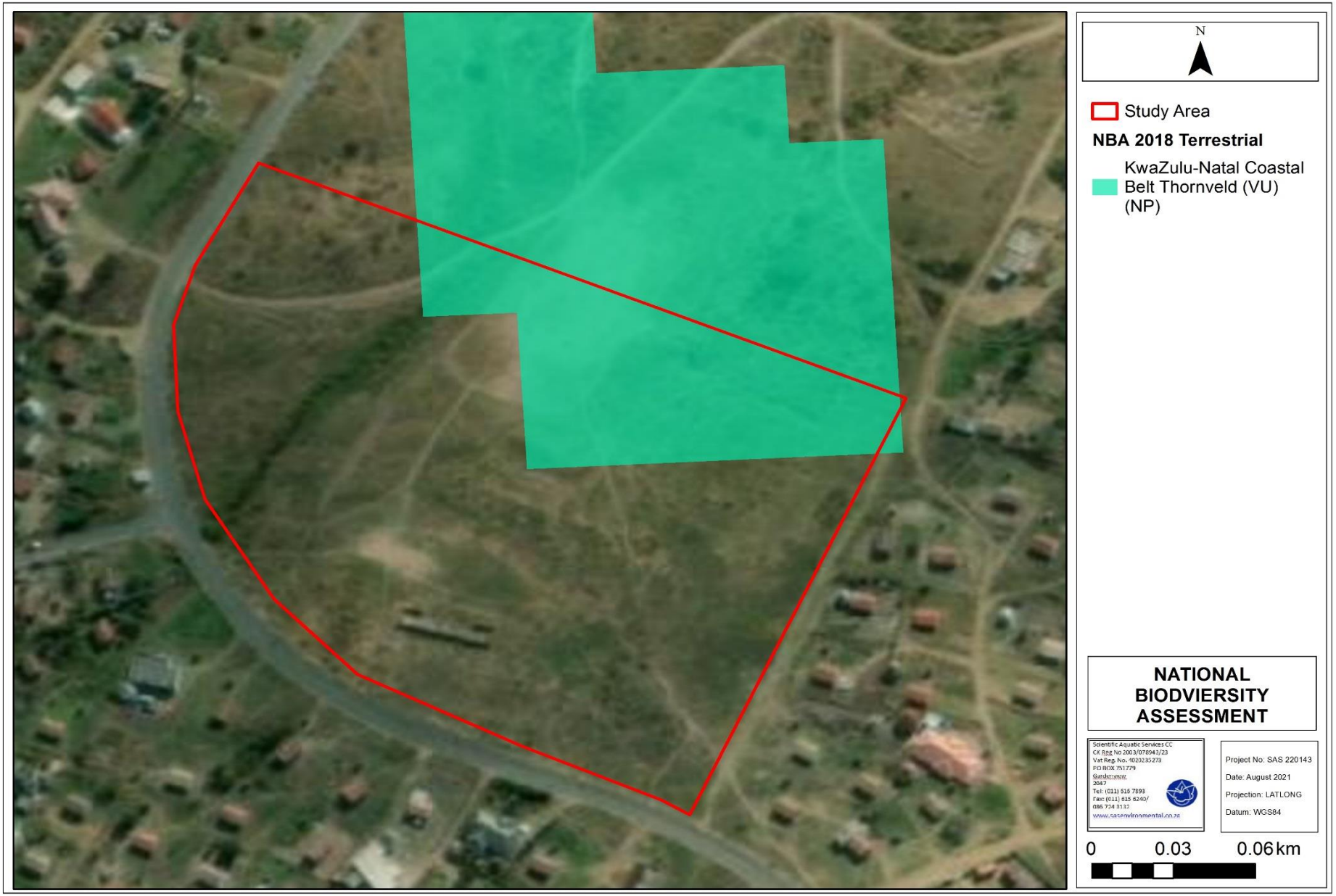

Figure A4: Extent and threat status of vegetation type(s) according to the National Biodiversity Assessment (NBA, 2018).

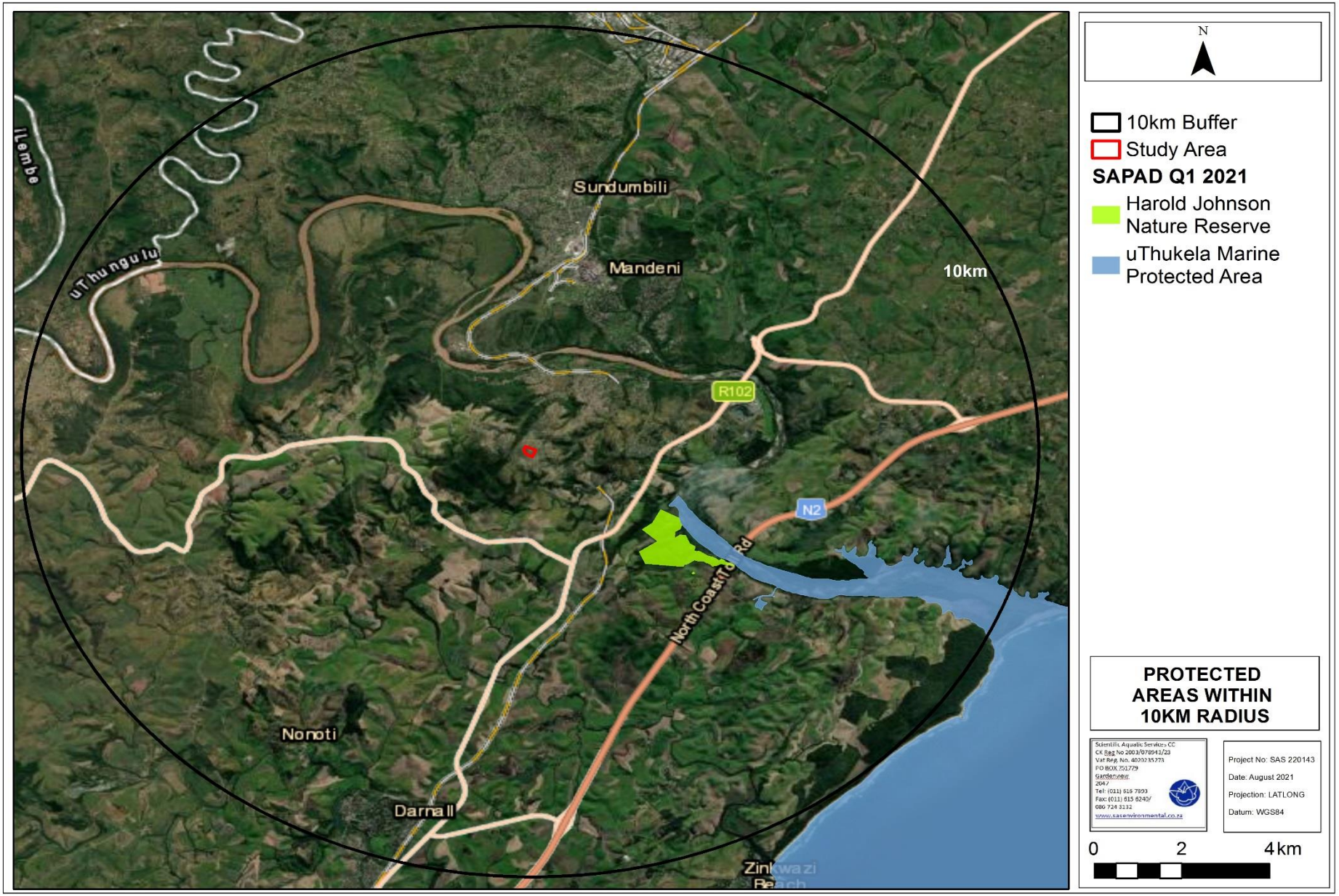

Figure A7: Protected areas within a 10km radius of the study area, according to SAPAD (Q1, 2021) and NPAES (2009).

APPENDIX B- BACKGROUND INFORMATION

Table 1: Summary of the conservation characteristics for the study area with a focus on terrestrial database sets ((QDS) 2931AB).

Description of the vegetation type relevant to the study area according to the 2018 final vegetation map of South Africa, Lesotho and Swaziland (SANBI 2006–2018 & SANBI, 2018a)		Conservation details pertaining to the Area f Interest (Various Databases)	
Biome	The study area is situated within the **Indian Ocean Coastal Belt Biome**.	NBA (2018): 1) **Ecosystem Threat Status** 2) **Ecosystem Protection Level**	A small northern portion of the study area is located within the **KwaZulu Natal Coastal Belt Thornveld**, which is considered a **Vulnerable** ecosystem and is currently **Not Protected (Figure 4)**. The NBA is the primary tool for monitoring and reporting on the state of biodiversity in South Africa. Two headline indicators that are applied to both ecosystems and species are used in the NBA: **threat status[2]** and **protection level[3]**.
Bioregion	The study area occurs within the **Indian Ocean Coastal Belt Bioregion.**		
Vegetation type	**KwaZulu Natal Coastal Belt Thornveld (CB 6)**		
Altitude (m)	30 – 500		
Climate	Summer rainfall with some rain in the winter		
MAP (MM)	740 to 940		
Distribution	KwaZulu Natal		
Geology & soils	NA		
Conservation	Statutorily conserved in Harold Johnson Nature Reserve		
Remarks	This vegetation unit grades into the Eastern Valley Bushveld and KwaZulu Natal Hinterland Thornveld in the larger river valleys.		
Conservation details pertaining to the Area Of Interest (Various Databases)		**National Web Based Environmental Screening Tool (2020)**	
National Threatened Ecosystems[4] (2011)	The study area is located within an ecosystem that is currently considered to be **Least Concern**. Least Concern ecosystems have not experienced a significant loss of natural habitat or deterioration in condition.	The screening tool is intended to allow for pre-screening of sensitivities in the landscape to be assessed within the EA process. This assists with implementing the mitigation hierarchy by allowing developers to adjust their proposed development footprint to avoid sensitive areas	
IBA (2015)	The study area is not located within or near an IBA (within 10 km).		
SAPAD (2021, Q1); SACAD (2021, Q1); NPAES (2009).	According to the South African Protected Areas Database (SAPAD, 2021)[5], the Harold Johnson Nature Reserve and the uThukela Marine Protected Area are located approximately 3 km south east of the study area. The South African	**Animal species theme**	For the animal species theme, the study area is considered to have an overall **medium sensitivity.**

[2] Ecosystem threat status tells us about the degree to which ecosystems are still intact or alternatively losing vital aspects of their structure, function and composition, on which their ability to provide ecosystem services ultimately depends (Figure 3). The conceptual 'end point' of decline for an ecosystem is termed 'collapse' and is equivalent to extinction in the species Red Listing framework. Ecosystem types are categorised as Critically Endangered (CR), Endangered (EN), Vulnerable (VU) or Least Concern (LC), based on the proportion of each ecosystem type that remains in good ecological condition relative to a series of thresholds.

[3] Ecosystem protection level tells us whether ecosystems are adequately protected or under-protected. Ecosystem types are categorised as Not Protected, Poorly Protected, Moderately Protected or Well Protected, based on the proportion of each ecosystem type that occurs within a protected area recognised in the National Environmental Management: Protected Areas Act (Act 57 of 2003).

[4] For Environmental Impact Assessments (EIAs), the 2011 National list of Threatened Ecosystems remains the trigger for a Basic Assessment in terms of Listing Notice 3 of the EIA Regulations 2014, as amended published under the National Environmental Management Act, 1998 (Act No. 107 of 1998). The data contained in NBA 2018 represents an update of the assessment of threat status for terrestrial ecosystems, but the National List of Threatened Terrestrial Ecosystems has not yet been revised.

[5] **SAPAD (2020):** The definition of protected areas follows the definition of a protected area as defined in the National Environmental Management: Protected Areas Act, (Act 57 of 2003). Chapter 2 of the National Environmental Management: Protected Areas Act, 2003 sets out the "System of Protected Areas", which consists of the following kinds of protected areas - 1. Special nature reserves; 2. National parks; 3. Nature reserves; 4. Protected environments (1-4 declared in terms of the National Environmental Management: Protected Areas Act, 2003); 5. World heritage sites declared in terms of the World Heritage Convention Act;

	Conservation Areas Database (SACAD, 2021)[6] indicates no conservation areas within the 10 km radius of the study area. The National Protected Areas Expansion Strategy (NPAES, 2009), corresponds with the SAPAD (Q1, 2021) identifying the Harold Johnson Nature Reserve.		The sensitivities were triggered by the potential occurrence of the following species: the invertebrates *Arytropteris basalis, Pomatonota dregii* and *Phymeurus illepidus*.
Kwazulu-Natal Biodiversity Spatial Planning (2016))		**Plant species theme**	For the plant species theme, the study area is considered to have a **low sensitivity**, indicating that there is a low possibility of observing any floral SCC.
According to the KZN Biodiversity Spatial Plan, there are no Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) associated with the study area.			
Strategic Water Source Areas For Surface Water (2017)		**Terrestrial biodiversity theme**	For the Terrestrial Biodiversity Theme, the study area is considered to have a **very high sensitivity**. The triggered sensitivity features include a critically endangered ecosystem. The National Threatened Ecosystems Database (2011) does however not indicate a critically endangered ecosystem associated with the study area.
Surface Water Strategic Water Source Area (SWSAs) are defined as areas of land that supply a disproportionate (i.e., relatively large) quantity of mean annual surface water runoff in relation to their size. They include transboundary areas that extend into Lesotho and Swaziland. The sub-national water source areas (WSAs) are not nationally strategic as defined in the report but were included to provide a complete coverage.			
Name & Criteria	The study area is situated within the Zululand Coastal Surface Water SWSA.		

CBA = Critical Biodiversity Area; DWS = Department of Water and Sanitation; EI = Ecological Importance; ES = Ecological Sensitivity; EPL = Ecosystem Protection Level; ESA = Ecological Support Area; ETS = Ecosystem Threat Status; m.a.m.s.l = Metres Above Mean Sea Level; MAP = Mean Annual Precipitation; NBA = National Biodiversity Assessment; NFEPA = National Freshwater Ecosystem Priority Areas; PES = Present Ecological State; SAIIAE = South African Inventory of Inland Aquatic Ecosystems; WMA = Water Management Area

6. Marine protected areas declared in terms of the Marine Living Resources Act; 7. Specially protected forest areas, forest nature reserves, and forest wilderness areas declared in terms of the National Forests Act, 1998 (Act No. 84 of 1998); and 8. Mountain catchment areas declared in terms of the Mountain Catchment Areas Act, 1970 (Act No. 63 of 1970).

[6] **SACAD (2020):** The types of conservation areas that are currently included in the database are the following: 1. Biosphere reserves, 2. Ramsar sites, 3. Stewardship agreements (other than nature reserves and protected environments), 4. Botanical gardens, 5. Transfrontier conservation areas, 6. Transfrontier parks, 7. Military conservation areas and 8. Conservancies.

APPENDIX B- DETAILS, EXPERTISE AND CURRICULUM VITAE OF SPECIALISTS

1. (a) (i) Details of the specialist who prepared the report

Christopher Hooton	BTech Nature Conservation (Tshwane University of Technology)
Nelanie Cloete	MSc Environmental Management and Botany (University of Johannesburg)

1. (a). (ii) The expertise of that specialist to compile a specialist report including a curriculum vitae

Company of Specialist:	Scientific Aquatic Services		
Name / Contact person:	Nelanie Cloete		
Postal address:	29 Arterial rd West, Oriel Bedfordview		
Postal code:	2007	Cell:	084 311 4878
Telephone:	011 616 7893	Fax:	086 724 3132
E-mail:	nelanie@sasenvgroup.co.za		
Qualifications	MSc Environmental Management MSc Botany		
Registration / Associations	Registered Professional Scientist at South African Council for Natural Scientific Professions (SACNASP) Member of the South African Association of Botanists (SAAB) Member of the International Affiliation for Impact Assessments (IAIAsa) South Africa group Member of the Grassland Society of South Africa (GSSA) Member of the Botanical Society of South Africa (BotSoc) Member of the Gauteng Wetland Forum (GWF)		

1. (a). (ii) The expertise of that specialist to compile a specialist report including a curriculum vitae

Company of Specialist:	Scientific Aquatic Services		
Name / Contact person:	Chris Hooton		
Postal address:	29 Arterial rd West, Oriel Bedfordview		
Postal code:	2007	Cell:	083 342 0639
Telephone:	011 616 7893	Fax:	086 724 3132
E-mail:	chris@sasenvgroup.co.za		
Qualifications	Btech Nature Conservation		

1. (b) a declaration that the specialist is independent in a form as may be specified by the competent authority

I, Nelanie Cloete, declare that -

- I act as the **independent specialist (reviewer)** in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the relevant legislation and any guidelines that have relevance to the proposed activity;
- I will comply with the applicable legislation;
- I have not, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct

I, Christopher Hooton, declare that -

- I act as the **independent specialist** in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the relevant legislation and any guidelines that have relevance to the proposed activity;
- I will comply with the applicable legislation;
- I have not, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct.

Specialist Signature

SAS ENVIRONMENTAL GROUP OF COMPANIES –

SPECIALIST CONSULTANT INFORMATION

CURRICULUM VITAE OF

CHRISTOPHER HOOTON

PERSONAL DETAILS

Position in Company	Senior Scientist, Member Biodiversity Specialist
Joined SAS Environmental Group of Companies	2013

EDUCATION

Qualifications

BTech Nature Conservation (Tshwane University of Technology)	2013
National Diploma Nature Conservation (Tshwane University of Technology)	2008

AREAS OF WORK EXPERIENCE

South Africa – Gauteng, Mpumalanga, North West, Limpopo, KwaZulu-Natal, Eastern Cape, Western Cape, Northern Cape, Free State
Zimbabwe, Sierra Leone, Zambia

KEY SPECIALIST DISCIPLINES

Biodiversity Assessments

- Floral Assessments
- Faunal Assessments
- Biodiversity Actions Plan (BAP)
- Biodiversity Management Plan (BMP)
- Alien and Invasive Control Plan (AICP)
- Ecological Scan
- Protected Tree and Floral Marking and Reporting
- Biodiversity Offset Plan

Freshwater Assessments

- Freshwater Verification Assessment
- Freshwater (wetland / riparian) Delineation and Assessment
- Freshwater Eco Service and Status Determination
- Rehabilitation Assessment / Planning

SAS ENVIRONMENTAL GROUP OF COMPANIES –

SPECIALIST CONSULTANT INFORMATION

CURRICULUM VITAE OF

NELANIE CLOETE

PERSONAL DETAILS

Position in Company	Senior Scientist, Member Water Resource and Botanical Discipline Lead
Joined SAS Environmental Group of Companies	2011

MEMBERSHIP IN PROFESSIONAL SOCIETIES

Professional member of the South African Council for Natural Scientific Professions (SACNASP – Reg No. 400503/14)
Member of the South African Association of Botanists (SAAB)
Member of the International Affiliation for Impact Assessments (IAIAsa) South Africa group
Member of the Grassland Society of South Africa (GSSA)
Member of the Botanical Society of South Africa (BotSoc)
Member of the Gauteng Wetland Forum (GWF)

EDUCATION

Qualifications

MSc Environmental Management (University of Johannesburg)	2013
MSc Botany (University of Johannesburg)	2007
BSc (Hons) Botany (University of Johannesburg)	2005
BSc (Botany and Zoology) (Rand Afrikaans University)	2004

Short Courses

Certificate – Department of Environmental Science in Legal context of Environmental Management, Compliance and Enforcement (UNISA)	2009
Introduction to Project Management - Online course by the University of Adelaide	2016
Integrated Water Resource Management, the National Water Act, and Water Use Authorisations, focusing on WULAs and IWWMPs	2017

AREAS OF WORK EXPERIENCE

South Africa – Gauteng, Mpumalanga, North West, Limpopo, KwaZulu-Natal, Northern Cape, Eastern Cape, Free State
Africa - Democratic Republic of the Congo (DRC)

KEY SPECIALIST DISCIPLINES

Biodiversity Assessments

- Floral Assessments
- Biodiversity Actions Plan (BAP)
- Biodiversity Management Plan (BMP)
- Alien and Invasive Control Plan (AICP)
- Ecological Scan
- Terrestrial Monitoring
- Protected Tree and Floral Marking and Reporting
- Biodiversity Offset Plan

Freshwater Assessments

- Desktop Freshwater Delineation
- Freshwater Verification Assessment
- Freshwater (wetland / riparian) Delineation and Assessment
- Freshwater Eco Service and Status Determination
- Rehabilitation Assessment / Planning
- Plant species and Landscape Plan

Legislative Requirements, Processes and Assessments

- Water Use Applications (Water Use Licence Applications / General Authorisations)
- Environmental and Water Use Audits
- Freshwater Resource Management and Monitoring as part of EMPR and WUL conditions
- Environmental Control Officer monitoring