Aquatic Biodiversity Screening Report:

Proposed development of tourism accommodation facilities at Rusty Gate Mountain Retreat comprising Farm No. 824, Remainder Farm No. 826 and Farm No. 887, Caledon, Theewaterskloof Municipality

Prepared for:

Rusty Gate Mountain Retreat (Pty) Ltd

Prepared by:
Nick Steytler
SACNASP Reg. no. 400029/02

Date: 17/10/23

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DISCLAIMER

EnviroSwift Western Cape (WC) has exercised all due care in the reviewing of all available information. EnviroSwift WC does not accept responsibility for any errors or omissions in the assessment and therefore does not accept any consequential liability arising from commercial decisions made, which are based on the information contained in this report. Opinions presented in this report apply to site conditions applicable at time of assessment and those conditions which are reasonably foreseeable.

SPECIALIST DETAILS AND EXPERIENCE

Nick Steytler (Pr.Sci.Nat. 400029)

Nick Steytler is a registered Professional Natural Scientist (Pr.Sci.Nat) with the South African Council for Natural Scientific Professions (SACNASP) and is also a certified Environmental Assessment Practitioner (EAP) with over 20 years' experience in the field of environmental management. He holds a Masters of Science (MSc.) degree in the field of Entomology (University of KwaZulu-Natal, Pietermaritzburg campus). His employment record includes several years with the Institute of Natural Resources in KwaZulu-Natal where he worked within their Natural Resource Management Programme and with SRK Consulting in Cape Town where he worked as an Environmental Scientist in the field of environmental management (i.e. undertaking Environmental Impact Assessment [EIA] and the like). After leaving SRK, Nick founded KHULA Environmental Consultants and holds the position of Director. In developing his expertise as a freshwater specialist he initially worked in the capacity of an associate to EnviroSwift Western Cape (WC) but has since taken over the company and now undertakes all wetland specialist work in the Western, Southern, Eastern and Northern Cape. Nick's CV is attached as Appendix A.

SPECIALIST DECLARATION

I, Nick Steytler, as the appointed independent specialist, in terms of the 2014 EIA Regulations (as amended), hereby declare that:

I act as the independent specialist in this application;

I 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 regard the information contained in this report as it relates to my specialist input/study to be true and correct, and do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the NEMA, the Environmental Impact Assessment Regulations, 2014 (as amended) and any specific environmental management Act;

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 Act, Regulations and any guidelines that have relevance to the proposed activity;

I will comply with the Act, Regulations and all other applicable legislation;

I have no, and will not engage in, conflicting interests in the undertaking of the activity; I have no vested interest in the proposed activity proceeding;

I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;

I have ensured that information containing all relevant facts in respect of the specialist input/study was distributed or made available to interested and affected parties and the public and that participation by interested and affected parties was facilitated in such a manner that all interested and affected parties were provided with a reasonable opportunity to participate and to provide comments on the specialist input/study;

I have ensured that the comments of all interested and affected parties on the specialist input/study were considered, recorded and submitted to the competent authority in respect of the application;

All the particulars furnished by me in this specialist input/study are true and correct; and
I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

Signature of the specialist:

Name of Specialist: Nick Steytler

Date: 17/10/2023

Table of Contents

1. Introduction and Background

Rusty Gate Mountain Retreat comprising Farm No. 824, Remainder Farm No. 826 and Farm No. 887, Caledon in the Theewaterskloof Municipality (see Figure 1) was purchased by the current owners as a going tourism concern with existing accommodation units and associated utilities and infrastructure. The owner now wants to expand the tourist accommodation offered at the retreat by constructing several new accommodation units and a new campsite. Given the requirement for prior environmental authorisation in terms of the NEMA EIA Regulations (2014, as amended) the owner appointed Lornay Environmental Consulting ("Lornay") as the Environmental Assessment Practitioner (EAP) to undertake the application for environmental authorisation. Given the likely presence of wetlands and non-perennial drainage lines across the site, Lornay requested that EnviroSwift Western Cape (EnviroSwift) conduct an aquatic biodiversity screening study of the proposed site to determine if there are any aquatic biodiversity constraints on or near the site which need to be taken into consideration in planning the development. Additionally, any authorisation requirements in terms of the NEMA EIA Regulations (2014, as amended) and the National Water Act, Act 36 of 1998 (NWA) relating to the presence of aquatic habitat, need to be identified. In order to provide this input EnviroSwift conducted a site visit on 29 September 2023 and also undertook a desktop review of available information including the National Geospatial Information (NGI) Rivers database (available on Cape Farm Mapper), the National Wetlands Map (CSIR, 2018) and the Western Cape Biodiversity Spatial Plan, 2017).

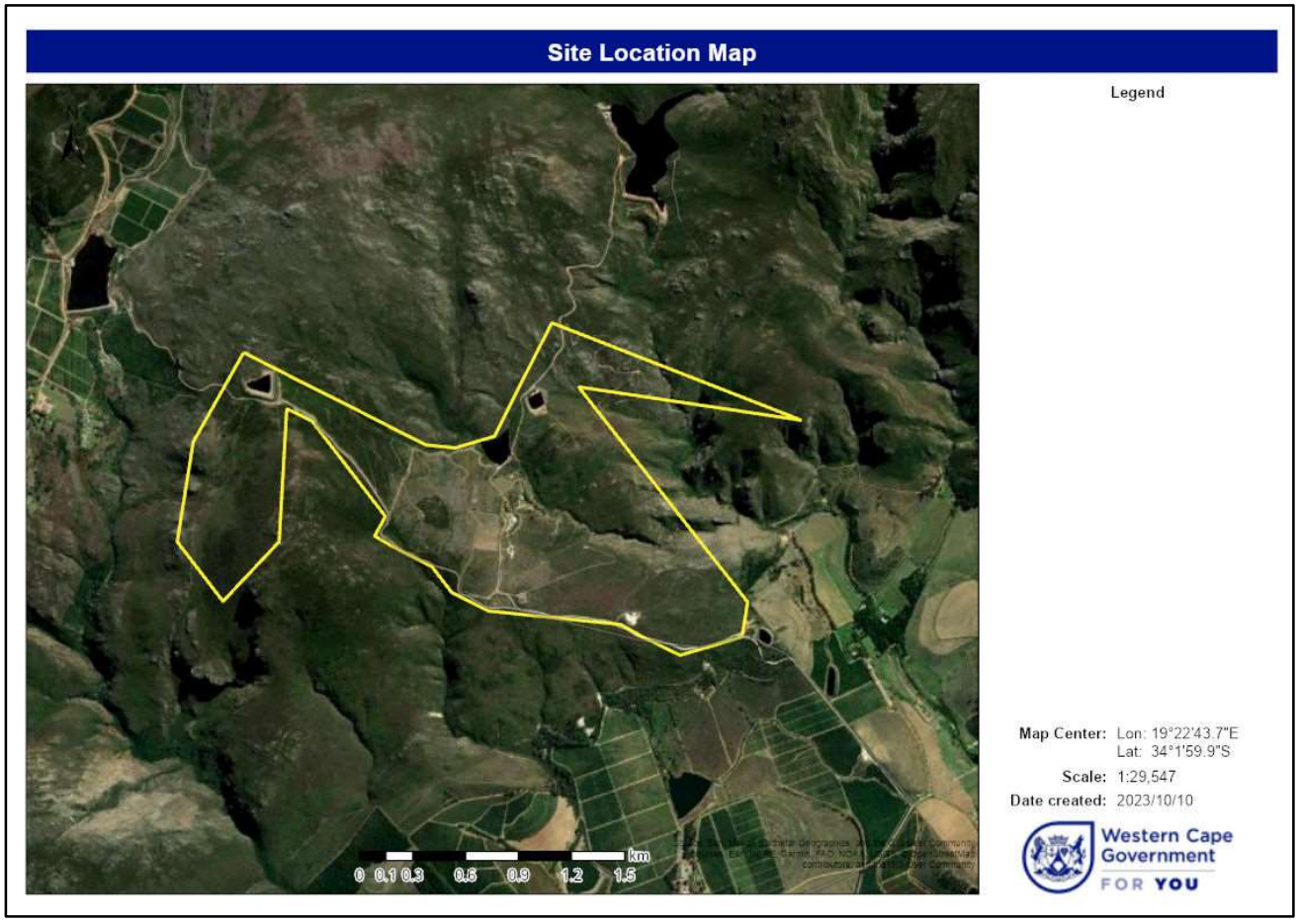

Figure 1: The location of Rusty Gate Mountain Retreat.

Brief description of the proposed development

The proposed new development at Rusty Gate Mountain Retreat comprises the development of the following as shown in Figure 2:

- Eco Cabins (2 per site at sites 7, 26 & 27 and 1 per site at sites 6, 24 & 25)
- Eco Pods (2 per site at sites 3B and 28 and 1 per site at site 30)
- A sundowner boma and fire pit at site 29;
- A campsite at site 3A; and
- A new primary residence at site 2.

Each site will be serviced in the following manner:

- Power supply: Each accommodation unit and the facilities at the camp site will be supplied with an off-grid Solar PVC power generating system;
- Water supply: Some accommodation units and the ablutions at the campsite will be connected via HDPE pipelines to the farm's potable water supply while other higher elevated sites (Sites 28, 27, 25 and 31) need to be provided with a tanker supply;
- Sewerage: All effluent from the accommodation units and ablutions for the campsite will be discharged via a buried HDPE pipe leading to a conservancy tank which will be located at an accessible location for emptying by the landowner.

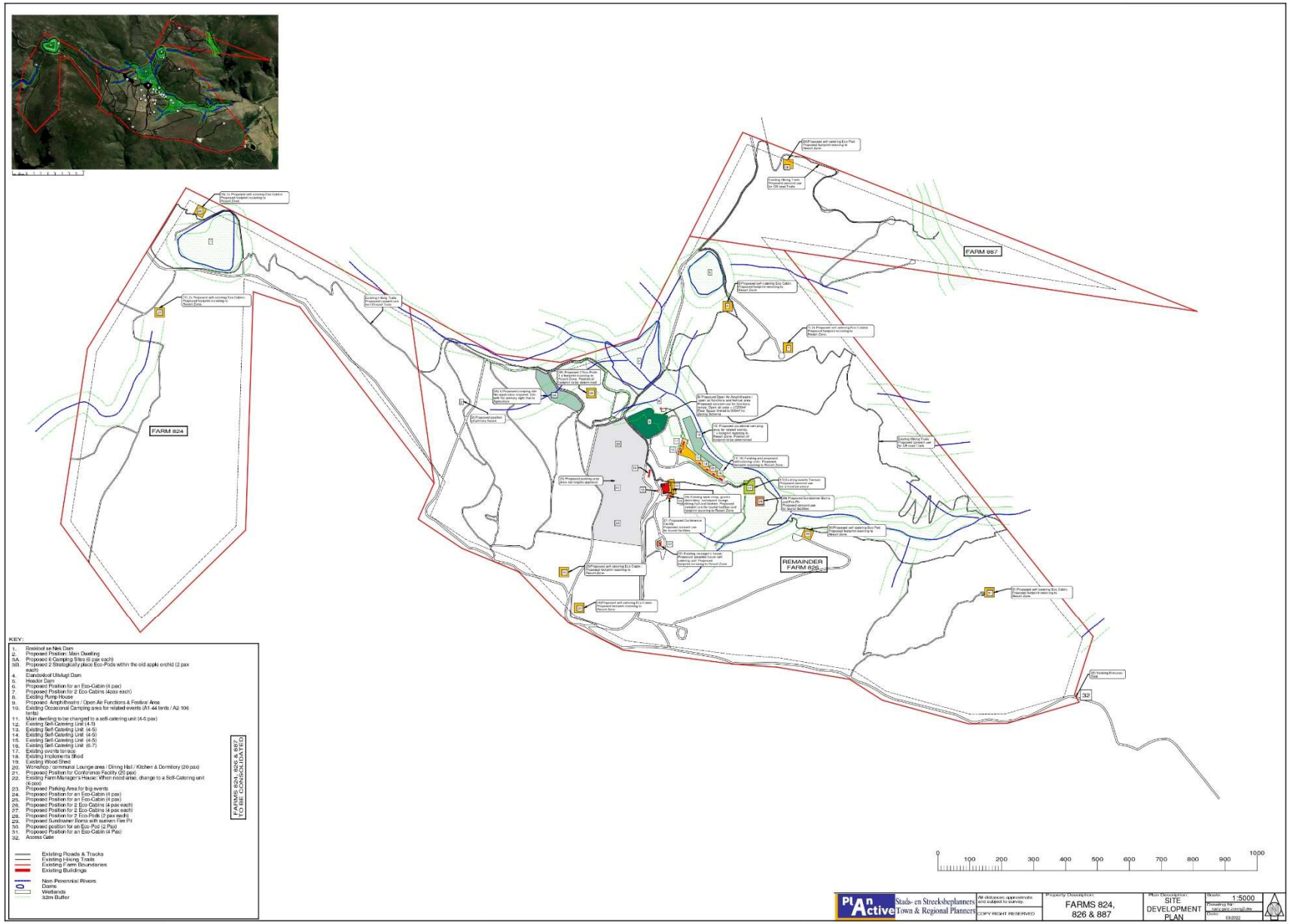

Figure 2: Proposed location of new accommodation units (yellow squares) and campsite (grey polygon) at Rusty Gate Mountain Retreat.

2. Assumptions, Limitations and Methodology

The following limitations apply to this screening-level study:

- A single site visit was conducted 29 September 2023 (i.e. late in the wet season) which allowed for a conclusive determination of hydrology and seasonality.
- During the site assessment the proposed sites of the new accommodation units and campsite and its immediate surrounds were searched for signs of natural drainage, elevated levels of soil saturation and aquatic habitat (hydrophytic vegetation). Aquatic habitat in the greater area was identified based on the available online databases, *viz-a-viz* the National Geospatial Information (NGI) Vector Data (available on Cape Farm Mapper), National Wetlands Map Version 5 (CSIR, 2018) and the WCBSP (2017).
- In determining the presence of any wetlands on-site, the methods used were limited to the upper 50cm of soil in accordance with the Updated Manual for Identification and Delineation of Wetland and Riparian Areas (Department of Water Affairs and Forestry - DWAF, 2008) and the Application of the DWAF (2008) Method to Wetland Soils of Western Cape (Job *et. al.* 2009).
- Confidence in determining the presence of aquatic habitat near the proposed new structures and associated infrastructure was high due to the study area mostly comprising pristine, naturally vegetated land with a minimal history of disturbance. As a result, the presence of wetland habitat could be identified using a combination of hydrology (soil wetness and surface flow), soil characteristics and vegetation.

3. Legal Context

3.1 The National Water Act, Act 36 of 1998

The National Water Act (NWA) of 1998 defines a regulated zone around all watercourses within which the risks to the watercourse must be assessed. The regulated zone for a wetland is defined as all land within 500m of its outer boundary. For a river or a stream, the regulated zone is 100m from the top of bank of the drainage channel or the area within the 1:100 year floodline or whichever is the greatest. The following is applicable for any development within the regulated zone:

- A risk assessment in terms of GN 509 of 2016 must be undertaken to determine the degree of risk posed to the watercourse by the development.
- Should the development pose a low risk, registration of the water use under the General Authorisation (GA) would be required.
- Should the development pose a moderate to high risk, application for a Water Use License (WUL) would be required.
- High risk developments, while requiring a WUL, are not readily approved.

3.2 The National Environmental Management Act (NEMA) and the EIA Regulations

In terms of the National Environmental Management Act (NEMA) Environmental Impact Assessment (EIA) Regulations (2014, as amended), the following activities which relate to developments in close proximity to watercourses require prior environmental authorisation:

- Activity 12 of Listing Notice 1: Development of infrastructure or structures with a physical footprint of 100m² or more within 32m of a watercourse;
- Activity 19 of Listing Notice 1: Excavating or depositing 10m³ or more of any material within a watercourse; and
- Various activities in Listing Notice 3 due to the geographic location, primarily its rural location, of the site.

In all of the above cases a Basic Assessment process should be undertaken. These processes would typically require a detailed level of aquatic biodiversity specialist input.

For all developments that trigger the requirement for prior environmental authorisation and for which, as a result of the application of the national web-based Environmental Screening Tool, have been determined to be associated with a VERY HIGH, HIGH or MODERATE sensitivity for the aquatic biodiversity theme, the Protocol for specialist aquatic biodiversity assessment must be complied with. This protocol prescribes the scope of the assessment and is particularly exhaustive in its requirements. However, if following groundtruthing by an aquatic biodiversity specialist the site is found to have a LOW aquatic biodiversity sensitivity then a specialist-prepared Aquatic Biodiversity Compliance Statement is required. If the site is found to have a zero/negligible aquatic biodiversity sensitivity then the findings can inform the Site Sensitivity Verification study and be used to motivate that no Compliance Statement is required.

4. Regional freshwater ecological context

The proposed site is situated within the Southern Coastal Belt Ecoregion, within the Breede Water Management Area (WMA), the Riviersonderend sub-Water Management Area (sub-WMA) and the G22C and H60D quaternary catchments (NFEPA, 2011 and Kleynhans et al, 2005). It is furthermore in the Boland Strategic Water Source Area.

According to the NGI Rivers database (Cape Farm Mapper, 2023) and the National Wetlands Map Version 5 (CSIR, 2018) the perennial Elandskloof River which is mapped as an unchannelled valley bottom wetland and numerous non-perennial drainage lines as well as an extensive seep wetland occur within the site (see Figure 3).

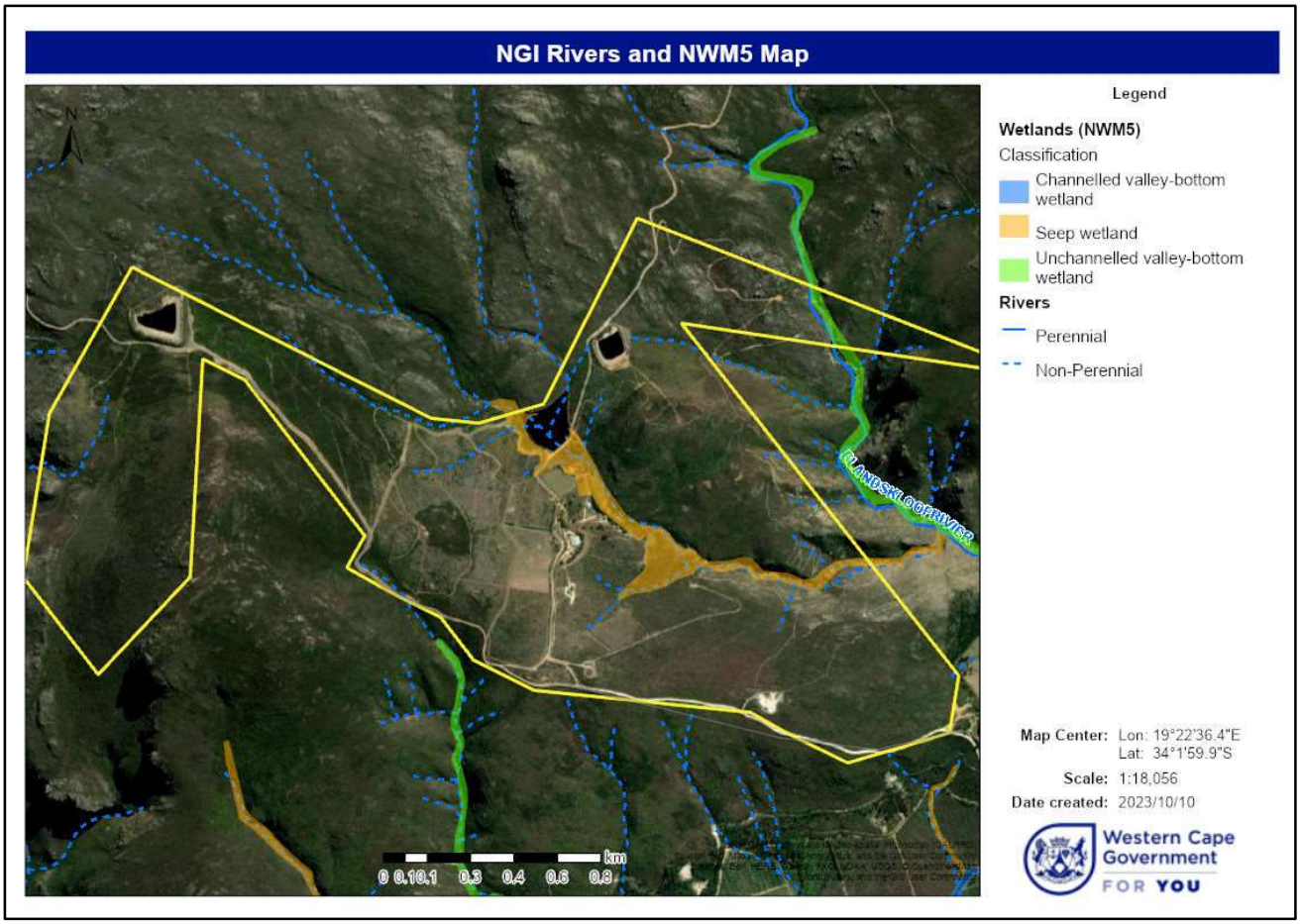

Figure 3: NGI Rivers and the National Wetlands Map Vers. 5 (CSIR, 2018). The yellow polygon indicates the proposed site.

The WCBSP (2017) was also consulted to determine whether the site or any nearby land is identified as having any biodiversity conservation significance (i.e. presence of Protected Areas, Critical Biodiversity Areas and Ecological Support Areas). According to the WCBSP, the site lies adjacent to a Protected Area and contains CBAs and ESAs (see Figure 4). Of particular interest is the designation of the Elandskloof River as an Aquatic CBA within the site and also the lower, eastern part of the mapped on-site seep as a CBA wetland, parts of

which are also identified as Aquatic ESAs. Restorable Aquatic ESAs are also associated with the seep wetland, particular the areas upslope of the seep which have drainage lines leading to the seep.

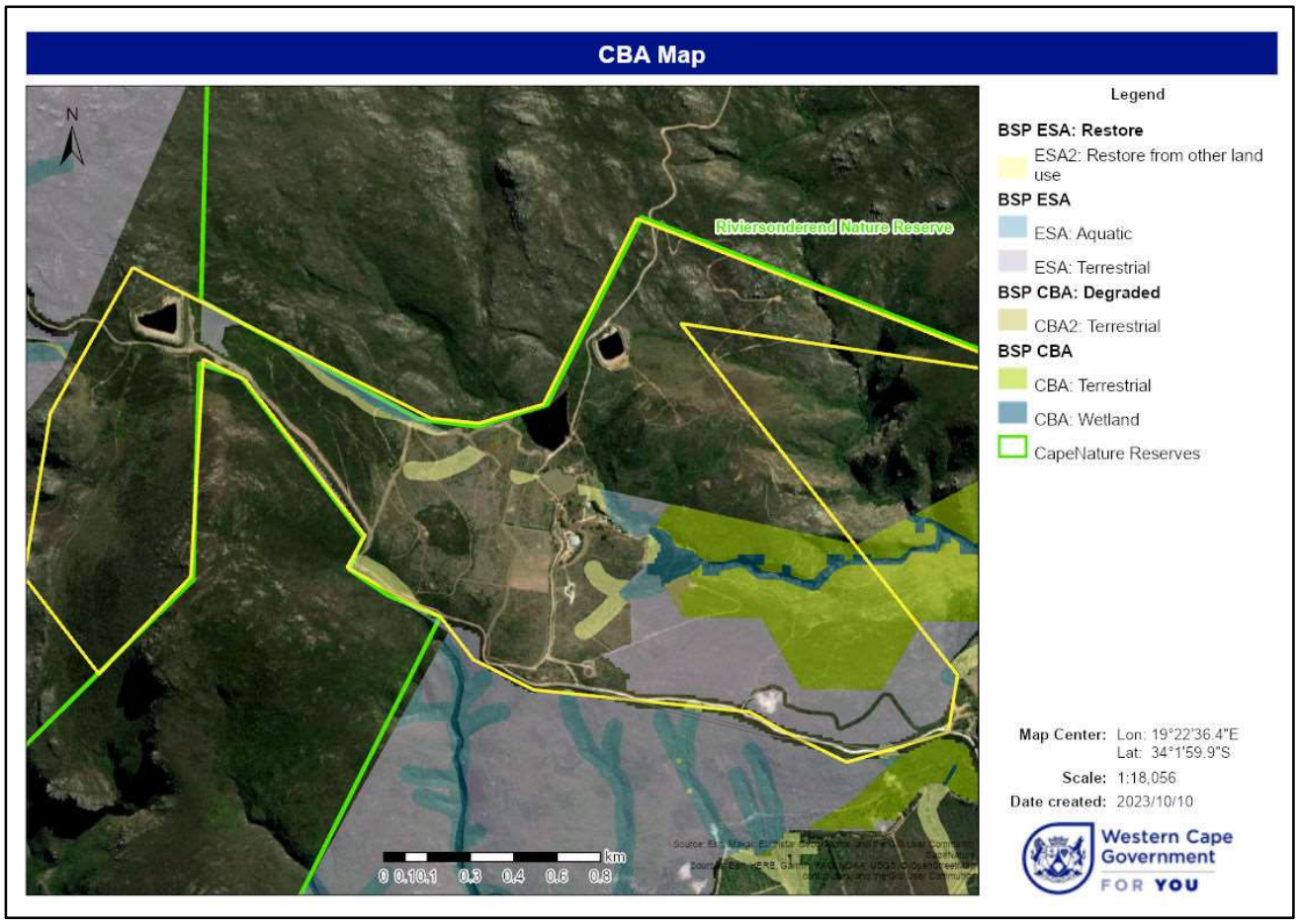

Figure 4: Conservation Importance Map (WCBSP, 2017).

5. Site visit and groundtruthing

5.1 Hydrology and Vegetation

EnviroSwift visited the site on 29 September 2023 in order to confirm whether any watercourses, as defined in terms of the NWA, are present within or immediately adjacent to the sites where new accommodation units and the camp sites are proposed.

Site 26:

Two Eco Cabins are proposed at Site 26 which is positioned to the north of and overlooking a dam. A hillslope is situated between the proposed cabin site and the dam. The presence of the wetland obligate *Berzelia lanuginosa* was the primary informant in determining the existence of the seep.

Figure 5: Photos of the proposed site for 2 Eco Cabins (left) and the seep which lies downslope from the site indicated by the presence of *Berzelia lanuginosa*.

Site 27:

Two Eco Cabins are proposed as Site 27 which is located in a grassy area on the east-facing side of a small valley that contains a mapped non-perennial drainage line that flows in a southerly direction. A significant part of the drainage line extending up and down the valley from the proposed site, including the proposed site, was determined to comprise hillslope seep which becomes an unchannelled valley bottom wetland as the valley drops off to the south. Vegetation including the presence of *B. lanuginosa*, *Pteridium* sp. (bracken) and the grass *Pennisetum macrourum* as well as auger samples which revealed dark soils high in organic matter and very wet were the primary informants in confirming the existence of the seep.

Figure 6: Photos of the wetland seep indicated by grasses interspersed with *Berzelia lanuginosa*

Site 2:

Site 2 is the proposed location of a new residence for the landowner. A bracken-dominated hillslope seep was identified approximately 25m south east of the site (see Figure 7) and extending down the slope towards the proposed campsite site (Site 3A).

Figure 7: Bracken-dominated seep identified near the proposed location of the new primary dwelling.

Site 25:

Site 25 is the proposed location of a single Eco Cabin. The site and its immediate surroundings showed no signs of the presence of aquatic habitat (see Figure 8).

Figure 8: Photos of the proposed location of Site 25 showing the terrestrial habitat that comprises the site and its immediate surroundings.

Site 24:

A single Eco Cabin is proposed at Site 24 which is located on the upper slope of a valley which falls away to the south from the proposed site. The site and its immediate surrounds were confirmed to comprise only

terrestrial habitat (see Figure 9). The nearest aquatic habitat is located beyond the property boundary approximately 110m to the south west.

Figure 9: Photos of the proposed location of Site 24 showing the terrestrial habitat that comprises the site and its immediate surroundings.

Sites 3A & 3B:

Site 3A comprises the site of the proposed new campsite which spans a mapped non-perennial drainage line. Site 3B which is located 50m downslope and east of the proposed campsite is the proposed site of 2 new Eco Pods. Groundtruthing revealed the presence of wetland habitat which spans both sites. This wetland comprises an upslope extension of the large hillslope seep indicated on the NWM5 (CSIR, 2018). Hydrology, soils and vegetation were used in combination to determine the existence and extent of the wetland. Hydrophytic vegetation encountered in this area comprised *Pennisetum macrourum*, *Pteridium* sp (bracken)., *Restio panniculatus, Plecostachys serpyllifolia* and *Watsonia* sp. (see Figure 10).

Figure 10: Photos of the campsite (Site 3A). Note the *Watsonia* sp. in the photo on the right.

Site 28:

Two new Eco Pods are proposed at Site 28 which lies on a ridge just upslope of a distinct finger-like rock structure. The site itself and the surrounding area showed no signs of the presence of aquatic habitat (see Figure 11). The nearest watercourse comprises a non-perennial drainage line which lies approximately 220m to the south west. The perennial Elandskloof River which is mapped as an unchannelled valley bottom wetland on the NWM5 is located approximately 360m to the east of the proposed site.

Photo 11: Photos of Site 28 indicating the terrestrial nature of the site and its immediate surroundings.

Site 6:

Site 6 comprises the proposed site for a new Eco Cabin. The site is north-facing and overlooks a small off-stream dam which shows no signs of any aquatic habitat within or near the site (see Figure 12). The nearest watercourse is a non-perennial drainage line approximately 130m north east of the proposed site.

Figure 12: Photo of the dam with Site 6 located beyond and upslope of the dam. The site and its immediate surroundings comprise terrestrial habitat and the dam is an off-stream dam and as such is not deemed to be a watercourse.

Site 7:

Site 7 is the site of two new Eco Cabins. It lies approximately 200m south east of Site 6 on a hillock with east-facing views. The site contains no signs of aquatic habitat near or immediately down-slope of the site (see Figure 13).

Figure 13: Photos of Site 7 which exists on the top of a hillock and contained indigenous terrestrial grasses and shrubs.

Site 29:

A new sundowner boma and fire pit is proposed at Site 29. The site lies adjacent and to the south east of a levelled, lawned area which is used for events. Site 29 revealed no signs of aquatic habitat as the vegetation on the site and immediate surrounds is dominated by terrestrial species (see Figure 14).

Figure 14: Photos of the proposed site of the sundowner boma and fire pit. All vegetation growing in and near the site comprises terrestrial species.

Site 31

Site 31 comprises a grass-dominated ridge that is the proposed site of 2 new Eco Cabins. The site contains no aquatic habitat and the nearest watercourse, the same non-perennial drainage line referred to in Site 6, lies approximately 220m to the north-east (see Figure 15).

Figure 15: Photo of Site 31 which comprises a grass-dominated ridge.

Site 30:

Site 30 is the site of a new Eco Pod. The site lies on a north-east facing slope of a small valley that contains a non-perennial drainage line which is located approximately 60m north of the proposed site. The site and its immediate surrounds contains no signs of aquatic habitat (see Figure 16). The drainage line to the north contains *B. lanuginosa* indicating the presence of riparian habitat associated with the drainage line.

Figure 16: Photos of the proposed site of a new Eco Pod. The vegetation within and surrounding the site comprises terrestrial vegetation. Note the valley in the photo on the left which contains a non-perennial drainage line and associated riparian habitat approximately 50m downslope of the site.

5.2 Soils

Augering across Rusty Gate Mountain Retreat revealed a number of differing soil types. In the extreme wet near Sites 26 and 27 the soils were found to be quartzitic with a low clay content. The seeps identified in this part were characterised by dark organic surface layers (see Figure 15). On the other extreme were the soils augered from the central part of the site in the vicinity of the proposed campsite (Site 3A) which were reddish indicative of a high clay content (see Figure 17).

Figure 17: Soil auger sample taken from within the seep identified at Site 27. The dark low chroma and high organic content is characteristic of wetland soils in quarzitic sands.

Figure 18: Reddish soils high in clay content and exhibiting redoximorphic characteristics (mottling) indicative of temporary and seasonal wetland zones as augered from Site 3A.

6. Key Findings and Way Forward

Available desktop resources map several watercourses within the Rusty Gate Mountain Retreat property including numerous non-perennial drainage lines, a single perennial drainage line (Elandskloof River mapped as an unchannelled valley bottom wetland) and a large hillslope seep. When groundtruthed by the specialist on 29 September 2023 some of the proposed sites for new accommodation units (Sites 26 and 27) as well as the site for the proposed campsite and associated site for 2 Eco Pods were confirmed to be located within or very near wetland habitat as the property was found to be associated with additional hillslope seeps and in the case of the mapped hillslope seep was fund to be larger than mapped. The results of the site investigation insofar as delineating any aquatic habitat potentially at risk of being impacted by the proposed tourism expansion project are presented in Figure 19.

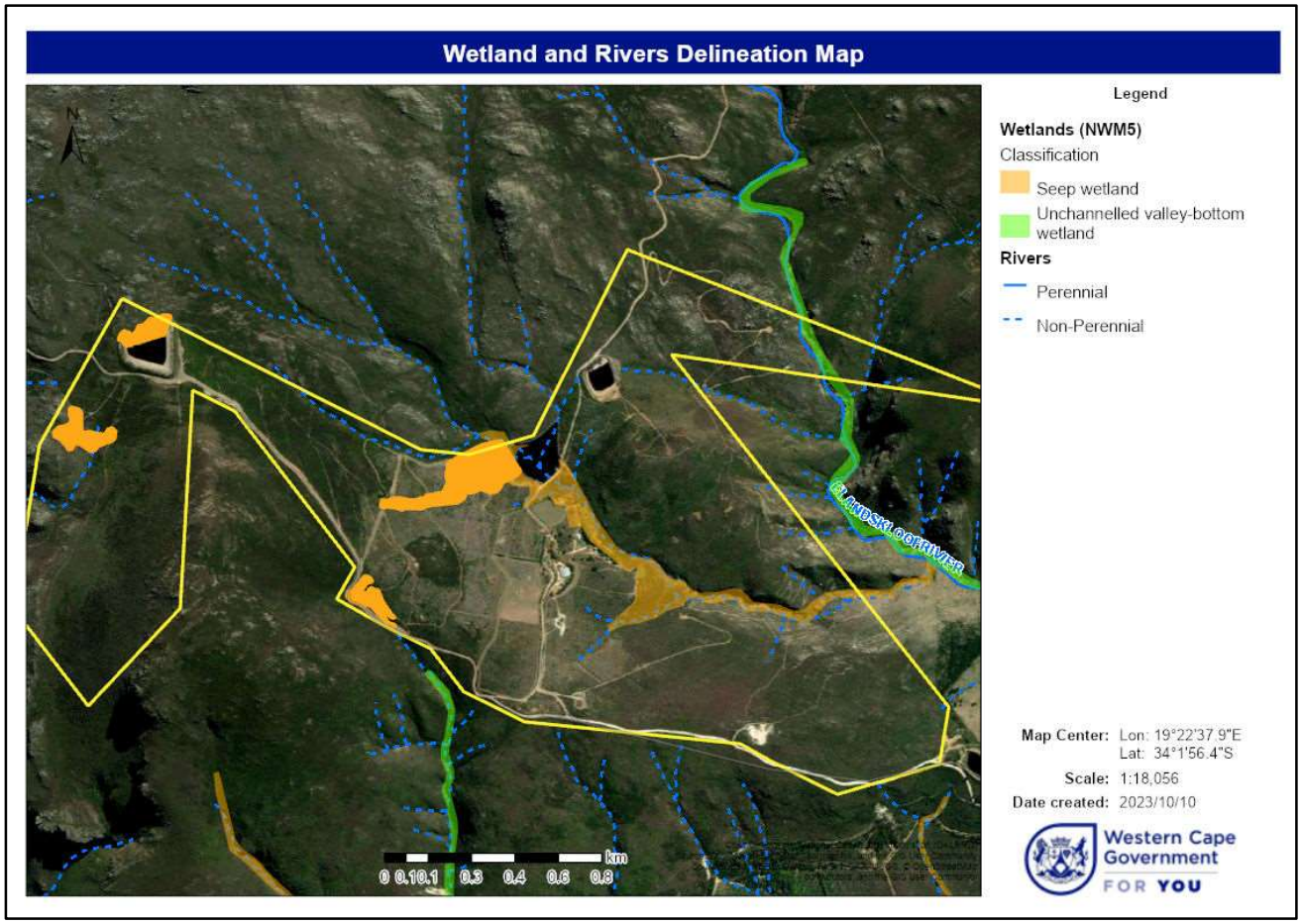

Figure 19: Wetland Delineation Map showing the on-site delineated wetlands and the mapped drainage lines and large hillslope seep.

Given that wetlands are confirmed at sites 26 and 27 as well as the site for the proposed campsite and the associated site for 2 Eco Pods (site 3A and 3 B), any development in these areas would require a Water Use Authorisation in terms of the NWA as the development would be within the regulated zone of these wetlands while also posing a risk to these wetlands.

In order to determine the level of risk and hence the level of Water Use Authorisation (either a General Authorisation or a WULA) a SANASP accredited scientist with expertise in freshwater ecology would have to undertake a detailed ecological assessment of the wetlands at risk to determine the Present Ecological State (PES) and their Ecological Importance and Sensitivity (EIS). On the basis of these indices the risk to the individual wetlands can be determined using the DWS Risk Assessment Matrix (RAM). If found to all be LOW Risk then a GA would apply and if any activity is found to generate a risk greater than LOW then a WULA would be required. It needs to be noted that any new sewerage infrastructure that is located within the regulated zone of wetlands ordinarily projects the requirement to a WULA as the GA does not make provision for the development of sewerage infrastructure within the regulated zone of wetlands.

In terms of the NEMA EIA Regulations (2014, as amended), given the rural location of the site, the proposed development would only require environmental authorisation if any wetlands on the site were being encroached into by the development or if infrastructure exceeding 100m² was proposed within 32m of any watercourse. There may also be other listed activities in Listing Notice 3 which, due to the proximity of a protected area, the Riviersonderend Nature Reserve, may be triggered. The appointed EAP, Lornay, should be able to confirm this.

If any wetland habitat is going to be encroached into then it is also likely that wetland loss would occur in which case the loss in wetland habitat and function would need to be offset, either via an on-site offset or an off-site offset, before the Wate Use Licence would be issued. To this end the National Wetland Offset Guidelines and the associated Wetland Offset Calculator (Macfarlane *et al.* 2014).

In conclusion there area at least 3 wetlands at risk of being impacted by the proposed development and based on the current plans the development of the campsite and the two Eco Pods (Sites 3A and 3B, respectively) would cause loss of wetland habitat unless the location of these structures and their associated infrastructure is repositioned at least 15m beyond any wetland edge. Similarly details of the manner in which each new accommodation unit will be serviced in terms of potable water supply, sewerage and access and parking needs to be provided as these aspects should also ensure that no aquatic habitat traversed and buffers of approximately 15m are accommodated.

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APPENDIX A:
CV

Curriculum Vitae

of

NICHOLAS STEYTLER

Director – EnviroSwift Western Cape

ACADEMIC QUALIFICATIONS		
BSc	University of Natal (Pmb)	1990
BSc Honours (Zoology & Entomology) ***Cum Laude***	University of Natal (Pmb)	1991
MSc (Entomology)	University of Natal (Pmb)	1994

MEMBERSHIP OF PROFESSIONAL ASSOCIATIONS
Registered Environmental Scientist (Pr Sci Nat 400029/02)
Member of IAIA SA

FIELDS OF EXPERTISE	**Years experience**
Integrated Environmental Management	20 years +
Natural Resource Management Planning	20 years +
Freshwater Ecological Specialist Studies	3 years +
Public Participation Facilitation	20 years +
Project Management	20 years +

EMPLOYMENT HISTORY
2019 – present: EnviroSwift Western Cape. Director / owner
2007 – present: KHULA Environmental Consultants. Director / owner
2005 – 2009: DJ Environmental Consultants. Associate Consultant.
2000 – 2005: SRK Consulting, Cape Town, Environmental Department. Senior Environmental Scientist.
1996 – 2000: Institute of Natural Resources, Pietermaritzburg. Associate Researcher: Natural Resources Management Programme.

WORK EXPERIENCE (note IEM and Public Participation experience not listed below)
Freshwater ecological specialist studies:
Freshwater ecological impact assessment for the residential development of Erf 178092 Newlands, City of Cape Town (2023)

Freshwater screening study for Erf 2068 Somerset West, City of Cape Town (2023)
Freshwater screening study for Portion 3 of Farm 1025 Wemmershoek, Stellenbosch Municipality (2023)
Freshwater ecological impact assessment for a new Wastewater Treatment Works for Matjiesfontein, Laingsburg Municipality (2023)
Freshwater ecological impact assessment for the development of tourism accommodation facilities at the Farm Hemelrand, Hemel en Aarde Valley, Overstrand Municipality (2023)
Freshwater screening study for residential development at Oude Bosch, Hermanus Lagoon, Overstrand Municipality (2022)
Freshwater ecological impact assessment for a proposed shopping centre at Erf 666 Hout Bay, City of Cape Town (2022)
Freshwater screening study for the proposed formalisation of the Valhalla Park informal settlement, Cape Flats, City of Cape Town (2022)
Freshwater screening study for a proposed telecommunications mast, Overhex, Breede Valley Winelands Municipality (2022)
Freshwater ecological assessment of the proposed expansion of Leopard Rock Mountain Estate, Onrusrivier, Overstrand Municipality (2022)
Freshwater Screening Study for the proposed expansion of the Philadelphia township, Erf 148 Philadelphia, City of Cape Town (2022)
Proposed expansion of the Wolwerivier township, Portion 5 of Farm 101, Wolwerivier, Northern District, City of Cape Town (2022)
Freshwater screening study for a proposed concrete batch plant and pre-cast facility, Remainder of the Farm Bultfontyn 128, Middelburg, Eastern Cape (2022)
Freshwater ecological impact assessment for unlawful agricultural expansion at Plennegy Farm, Oudtshoorn, Western Cape (2021)
Freshwater screening study for the development of erven 41 and 59, Knole Park, City of Cape Town (2021)
Freshwater ecological impact assessment for proposed truck stop on Portion of Erf 10229, Beaufort West, Western Cape (2021)
Provision of rehabilitation specifications for the unlawful excavation of a trench in a non-perennial drainage line at the Farm Vergelegen, Robertson, Western Cape (2021)
Freshwater ecological impact assessment for unlawful agricultural expansion at Samber Farms, Riversdale, Western Cape (2021)
Freshwater screening study for the proposed redevelopment of the Mowbray Golf Course, Pinelands, City of Cape Town (2021)
Freshwater ecological impact assessment for proposed expansion of an in-stream irrigation dam at Farm Hartebeest Kuil, George, Western Cape (2021)
Freshwater screening study for the proposed residential development of Erf 208 Bishopscourt, City of Cape Town (2021)
Freshwater screening study for the proposed agricultural processing facility, Maqinqi communal area, Port St. Johns Municipality, Eastern Cape (2021)
Freshwater ecological impact assessment for the proposed agricultural expansion at the Farm Vergelegen, Robertson, Western Cape (2021)
Freshwater ecological impact assessment for a proposed residential development in Plattekloof, City of Cape Town (2021)
Freshwater ecological screening study for the proposed sewerage pipeline for Schulz Vlei development, Philippi, City of Cape Town (2021)

Freshwater ecological impact assessment for the proposed development of an agro-industrial facility, Wemmershoek, Western Cape (2021)
Freshwater ecological screening study for a proposed filling station in Eerste River, City of Cape Town (2020)
Freshwater ecological impact assessment for an unlawfully constructed tourist accommodation facility, Tulbagh, Western Cape (2020)
Freshwater ecological screening study and risk assessment for additions and alterations to an existing residential dwelling, Breede River, Western Cape (2020)
Freshwater ecological screening study for a proposed truck depot and filling station, Paarl, Western Cape (2020)
Freshwater ecological screening study for a proposed phosphate mine, Saldanha, Western Cape (2020)
Freshwater ecological screening study for a single residential development at Oppi Berg, Ceres, Western Cape (2020)
Freshwater ecological screening study for a proposed industrial area expansion, Bredasdorp, Overberg, Western Cape (2020)
Freshwater ecological impact assessment for proposed Canola plant at Erf 15711 Wellington, Drakenstein Municipality (2020)
Freshwater ecological impact assessment for single residential development of Ptn 13 of Farm 563 Kleinmond (2020)
Freshwater ecological impact assessment for new IRT bus depot, Wynberg, City of Cape Town (2019)
Freshwater ecological screening study for Blackheath Printers, Blackheath, City of Cape Town (2019)
Freshwater ecological screening study for La Motte residential extension, Franschoek (2019)
Freshwater ecological impact assessment for Vloedbos Resort, Overberg (2019)
Freshwater ecological screening study for Erf 3660 Hout Bay, City of Cape Town (2019)
Freshwater ecological screening study for Erf 2145 Constantia, City of Cape Town (2019)
Freshwater ecological impact assessment for low-cost housing development in Khayelitsha (2019)
Freshwater ecological impact assessment for Kommetjie Vineyards Estate, City of Cape Town (2018)
Freshwater ecological screening study for Remainder Erf 177887 Ottery, City of Cape Town (2018)

Environmental Planning and Natural Resources Management:
Preparation of an Invasive Alien Plant Clearing Plan for Erf 6289 Hout Bay, City of Cape Town (2021)
Preparation of an Invasive Alien Plant Clearing Plan for Shamballah Tea House, Cape Point, City of Cape Town (2019)
Preparation of an Invasive Alien Plant Clearing Plan for Imhoff Farm, Southern Peninsula, City of Cape Town (2018)
Preparation of a River Maintenance Management Plan for the Jakkals River, Elgin, Theewaterskloof Municipality (2018)
Preparation of a River Maintenance Management Plan for wetlands associated with the Bottelary River, Hazendal Wine Farm, Stellenbosch (2017)
Preparation of an Alien Plant Clearing Programme for the Farm Wildschutsbrand, Cape Point (2017).
Preparation of an Alien Plant Clearing Programme for Lalapanzi Farm, Cape Point (2017).
Preparation of a River Maintenance Management Plan for the Dawidskraal River, Bettys Bay, Overstrand (2016)
Preparation of a Site Rehabilitation and Management Plan for wetlands at Kraaifontein Shooting club, Northern Cape Metro (2015)
Preparation of a Wetland Maintenance and Management Plan for De Goede Hoop Estate, Noordhoek, South Peninsula (2014)
Application for Off-Road Vehicle Regulations licence for boat launching facility, Oceana Power Boat Club slipway, V&A Waterfront (2014)
Preparation of a Maintenance Management Plan for the Silvermine River, Clovelly Country Club, South Peninsula (2014)
Preparation of a Maintenance Management Plan for the rehabilitation and maintenance of an unnamed stream and associated infrastructure, Klein Constantia Winefarm, Cape Metropole (2014)
Environmental Screening for the proposed redevelopment of the Tygerberg Hospital, Northern Cape Metropole (2014)
Establishment of a Permanent Coastal Development Setback Line for the V&A Waterfront, City of Cape Town (2014)
Preparation of a Maintenance Management Plan for the ongoing maintenance of the access road to the West Coast Rock Lobster holding facility, Witsand Island, Scarborough, City of Cape Town (2013)
Preparation of a Maintenance Management Plan for the Kromboom River, Erf 117459 Lansdowne, Cape Metropole (2013)
Preparation of a Rehabilitation Plan for the remediation of unlawful infilling of a wetland at Lalapanzi Farm, Cape Point (2012)
Preparation of a Rehabilitation Plan for the remediation of unlawful construction of a parking area at Erf 935 Noordhoek Farm Village, City of Cape Town (2012)
Preparation of a rehabilitation plan for the closure of the Retreat Filling Station, City of Cape Town (2012)
Khayeltisha Wetlands Park – Park Delineation and Management Review, City of Cape Town (2010)
Preparation of the Coast & Estuaries Theme for the 1st review of Eastern Cape State of the Environment Report (2009)
Preparation of 2010 FIFA World Cup Greening Business Plan for Polokwane, Limpopo Province (2008)
Preparation of 2010 FIFA World Cup Greening Business Plan for Rustenburg, North West Province (2008)
Revision of the Table Mountain National Park Conservation Development Framework, City of Cape Town (2006)
Comparative Evaluation of alternative venues for the 2010 FIFA World Cup Stadium, City of Cape Town (2006)
Preparation of a Strategic Management Framework for the Kogelberg Biosphere Reserve, Overberg (2005 – 2006)
Preparation of concept document and proposal to undertake a SADC regional market survey of the indigenous fibre trade, SADC Region (2006)
Strategic Planning of Cemeteries in the Drakenstein Municipality (2006)
Environmental assessment of overnight sites for the Hoerikwaggo Trails, Table Mountain National Park, Western Cape (2005)
Preparation of the Year 1 State of the Environment Report for the Western Cape (2005)
Preparation of a Water Resources Management Strategy for Mozambique (2004)
Due Diligence Study for the proposed Mozaq Limitada Prawn Farm, Mozambique (2003)
Preparation of the Culemborg Development Framework, City of Cape Town (2001)
Restoration Planning of the Bokramspruit River, Kommetjie, City of Cape Town (2001)
Management and Maintenance Planning of the Dwars River, Ceres (2001)
Preparation of the Garden Route Spatial Development Framework, Southern Cape (2001)
Strategic Planning of the information needs of a Medicinal Plants Network in the SADC region (1999)

Research to determine potential commercial products from the Wild - Medicinal Plants component, South Africa (1999)
Economic Evaluation of the Cultivation of Nine Species of Medicinal Plants Indigenous to South Africa (1998)
Strategic Planning of a proposed community based indigenous forest management project, Eastern Cape (1998)
Preparation of a decision support manual for community based urban riparian systems management (1998)
Preparation of an Integrated Catchment Management Plan for the Msunduzi River Catchment, Pietermaritzburg (1997)
Development of Flood Response Strategies for the Msunduzi River Catchment, Pietermaritzburg (1997)
Evaluating community-based wildlife management projects in the SADC region as part of the international project by IIED / IUCN called “Evaluating Eden” (1996)