TERRESTRIAL BIODIVERSITY
ENVIRONMENTAL SENSITIVITY REPORT
(February 2022)

Redhaus Farm

Farm Redford No. 232; Portions 9 and 66.

NOTE - Portion 4 & sub portion A of Portion 1/232 have been consolidated into Portion 66/232

BITOU Municipal Area

Applicant: Messrs Niehaus

View of an enlarged dam at the property

Benjamin Walton for Cape Vegetation Surveys

BENJAMIN WALTON
Consulting Ecologist

Peet Joubert for Nature Management Services
(40+years' experience as Nature conservator and SANPARKS manager)

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Bluepebble SUSTAINABILITY SOLUTIONS

SACNASP Environmental Science (400185/04): Ecosense / Bluepebble CC

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1. Introduction and Terms of Referencethen

This report is to inform the Environmental Assessment Practitioner (EAP) undertaking the environmental impact (botanical and terrestrial sensitivity) assessment in terms of identified activities of the unlawful clearance of vegetation and expansion of instream water storage dams within Tsitsikamma Sandstone Fynbos habitat and riparian zone of watercourses; and identify risks, suggest mitigation and make recommendations for implementation of a rehabilitation plan.

The report is to be read with the assessment report prepared by the EAP and is a specialist report attached as appendix to that report. It is focused on terrestrial biodiversity within the study area and any wider context must be managed by the the EAP.

The sensitivity of the study area of ***Redhaus Farm*** being Farm Redford No. 232 Portions 9 & 66 (formally referenced as Portion 4 and sub portion A of Portion 1/232 which have now been consolidated into Portion 66/232) at the Crags (see Figs. 1 & 2) is described in context of existing land use and suitability of cultivation and expansion of in-stream water storage dams.

Historically Redhaus Farm has been developed for small-scale agriculture for many decades.

Limitations

- The retrospective nature of a S24g application has an intrinsic limitation as most activities have already occurred. Assessment of the biodiversity state of the study area prior to the activities is substantially limited by this factor. Use of aerial maps and images has been used where possible to make informed assumptions on the pre activity area status.

- There are anecdotal reports from the landowners of animal and bird sightings indicating more species than observed at the brief time on site. It necessitates the use of historical species checklists from area references. The nature of the farmed area terrain within the farmed neighborhood and surrounds compromises the likelihood of many of these species being able to traverse or utilise the space.

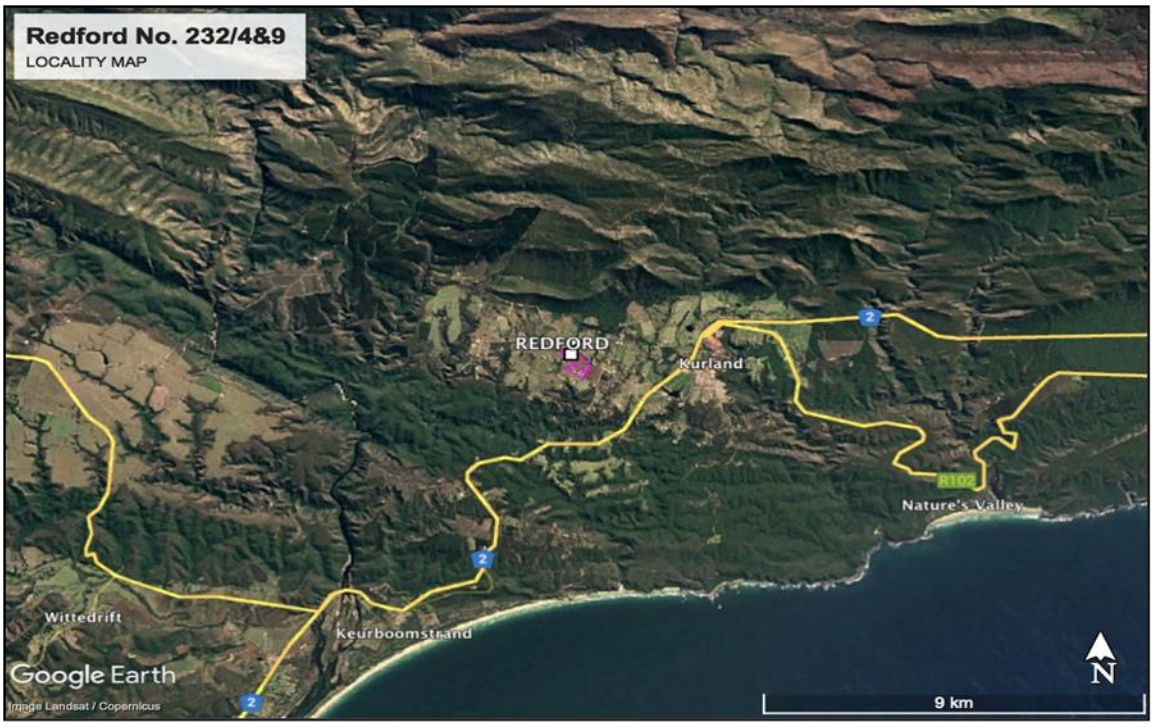


Figure 1: Locality map for Farm Redford No. 232 Portions 4 & 9 (also 66/232 being the consolidation of portion 4 and A1/232into 66/232) at the Crags (image courtesy of Google Earth).

Figure 2: Redhaus Farm: Locality map for Farm Redford No. 232 Portions 4 & 9 (also 66/232 being the consolidation of portion 4 and A1/232 into 66/232) at the Crags, accessed via Redford Road from the N2 (image courtesy of Google Earth).

2. Checklist of Minimum Requirements for Reporting

Scope of assessment - screening tool

The DFFE screening report generated for Farm Redford No. 232 Portions 4 and 9 (also 66/232 being the consolidation of portion 4 and A1/232 into 66/232) at the Crags for "*any activities within or close to a watercourse*" identified, *inter alia*, that a terrestrial biodiversity assessment be undertaken based on the Very High Terrestrial Biodiversity Sensitivity of the area: with a Medium Plant Species Sensitivity. This report complies with the minimum requirements for terrestrial biodiversity assessments[1].

Site sensitivity verification and minimum content requirements

The current land use and site sensitivity was ascertained to confirm and / or refute the findings of the screening tool report.

- The **s**ite verification was undertaken by the authors as specialists; and reviewed internally by a registered specialist to comply with the protocol and minimum criteria for environmental assessments.
- The site area was analyzed using desktop satellite imagery (Google Earth and Cape Farm Mapper), and geo-referenced biodiversity informants viewed and verified in Quantum GIS (QGIS) prior to and following a preliminary investigation.
- The current land use at the property is agricultural with irrigated croplands, with little or no natural areas remaining that previously contained Sandstone Fynbos and Riparian vegetation of varying ecological sensitivity. This report describes the vegetation status and sensitivity occurring within the verified remaining fynbos habitat within the study area which is a mixture of relictual Sandstone Fynbos and Riparian vegetation of now, Low Terrestrial Biodiversity Sensitivity with a Low Plant Species Sensitivity. An impact on biodiversity had occurred with clearance of vegetation over the property and consequently it is difficult to quantify the ecological integrity of the vegetation prior to clearance although deemed to have had a Very High Terrestrial Biodiversity Sensitivity.
- The report contains a description of the vegetation and sensitivity with photographic evidence to confirm the findings in the form of a photo album.

[1] Government Gazette No. 43110, GN No. 320 (2020) National Environmental Management Act, 1998 (Act No. 107 of 1998) Procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of section 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998, when applying for environmental authorization..

3. Specialist Assessment and Minimum Report Content Requirements

A Terrestrial Biodiversity Assessment for vegetation of Low to Medium Sensitivity with Medium Plant Species Sensitivity is contained in this report.

Verification and assessment of the sensitivity of the receiving environment was conducted by a survey on foot in October 2021 where plant species were observed and recorded and select waypoints were taken with a GPS. The waypoints were used as a reference to orientate with vegetation patterning and boundaries of the study area and property. A subsequent visit and discussion was undertaken by Peet Joubert and Janet Ebersohn (EAP) on 3 February 2022

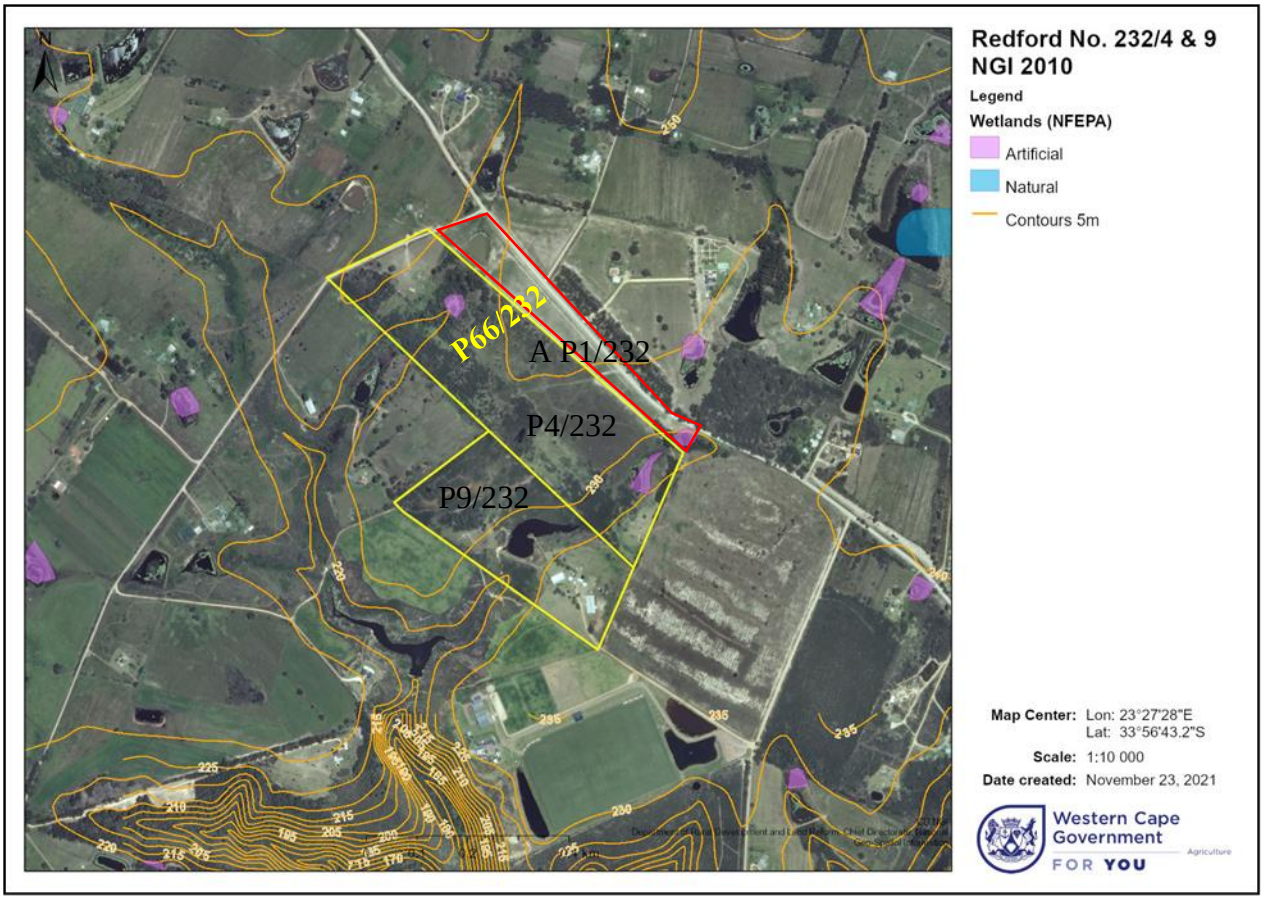


Figure 3: Showing the property consisting mostly of untransformed fynbos and existing, with some, registered water storage dams ca. 2010 (image courtesy of Cape Farm Mapper)

The property and location

Farm Redford No. 232 Portions 4 (16.37 ha); 9 (8.86 ha in extent) and portion A of Portion 1/232. The farm is named Redhaus Farm.

NOTE - Portion 4 and sub portion A of Portion 1/232 have been consolidated into Portion 66/232)

All portions of Redhaus Farm are zoned Agriculture Zone I and situated on a level plateau area and dissected by watercourses draining southwards and are hereinafter referred to as the "study area". The property and watercourses are located at the upper section of the Whiskey Creek catchment area at the Crags. The property is accessed at the Crags west of the National Route N2 along Redford Road (see Figs. 1 & 2). The property lies within an established agricultural zoned and actively farmed area. Most farms in the area are fenced.

Two watercourses traverse the study area, and each watercourse has been dammed at two locations The dams were constructed by a previous landowner (see Fig. 3). The current applicant and landowner has cleaned out / enlarged various of the dams for irrigation of an Almond Nut Orchard. The landowner has subsequently spent in the region of R387 000 on indigenous plants around the dam areas which could improve on their pre-development state and assist in maintaining a semblance of connectivity as ecological corridors.

Clearance of vegetation and transformation of habitats has occurred over all portions. The study area is securely fenced.

The following is recorded from information issued by the applicant/ landowner:

Portion 9/232*: Property purchased in July 2017. Currently there is 4,2 ha (established in July 2019) of Almonds planted on portion 9. The farm was predominantly invaded by black wattle and some pine. Subsequently, the lands were cleared and planted with rotating green cover crops to improve the soil health and stabilization*

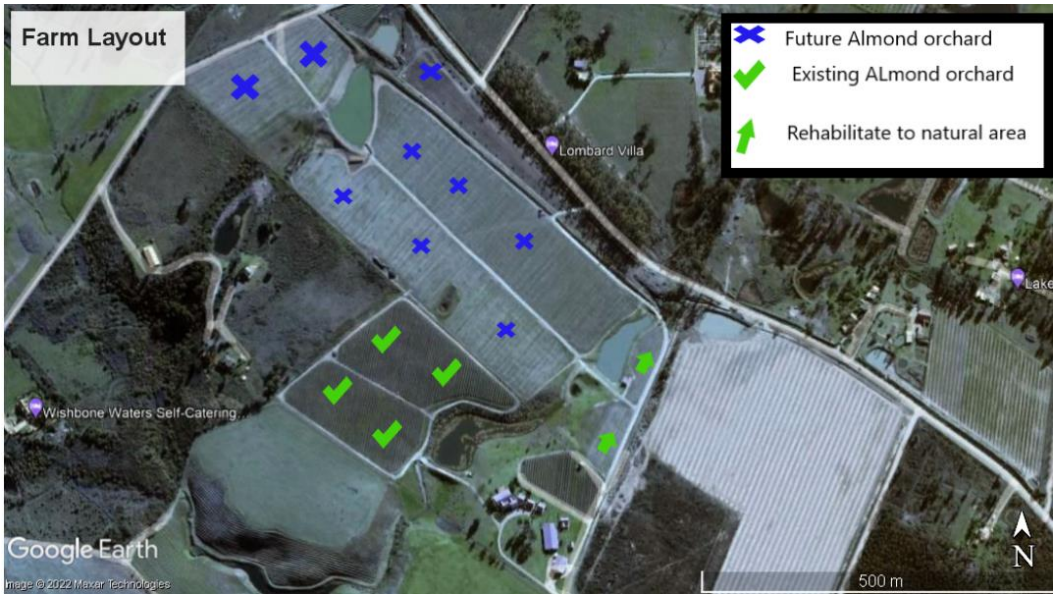
Sub portion A of Portion 1/232 *(purchased sub portion in 2021 and now consolidated into* ***Portion 66/232****) A vineyard was established somewhere between November 2016 and October 2019 by the previous landowner. Vineyard removed and subsequently planted a sorghum green manure cover crop to improve the soil health.*

Portion 4 /232*: Property purchased in October 2020 (now consolidated into* ***Portion 66/232*** *out of a deceased estate, with informal settlers on it and which was being used as an illegal dumping ground for waste.*

Historically this property was largely tilled lands (2004) with some forested areas (mainly black wattle). The black wattle progressively increased over the course of the next few years and invaded most of the property. The black wattle was entirely cleared and planted with rotating green manure crops to improve the soil health.

The intent is to plant a further 9ha to 12ha of Almond Orchards on Portion 66/232 (previously Portion 4 and sub portion A of Portion1/232).

The Google earth image below indicates the areas with existing orchards established in 2019 (green crosses). The areas with red crosses indicate the proposed extension to the almond orchard. The green arrows indicate areas of proposed rehabilitation area All the orchard areas are currently planted with green manure cover crops to prevent erosion and improve soil health.



Map Images 1) to 9) from Google Images depict the timelapse from 2021 back to 1984 to compare activity and vegetation cover of the study area.

Some specific definitions are important to highlight here:

- Indigenous vegetation is defined as (Listing Notice 3): "Indigenous vegetation: refers to vegetation consisting of indigenous plant species occurring naturally in an area, regardless of the level of alien infestation, and where the topsoil has not been lawfully disturbed during the preceding 10 years.
  It is important to note that the inclusion of a specific definition for "indigenous vegetation" means that the legislature intended to depart from the terms ordinary meaning. In this regard, it is important to note that the definition refers to vegetation consisting of indigenous plant species regardless of the level of alien infestation.

- Clearance: Ploughing of land, bulldozing of an area, eradication, or removal of vegetation cover with chemicals, amongst others, constitutes clearance of vegetation, provided that this will result in the vegetation being eliminated, removed or eradicated.
  Burning of vegetation (e.g. fire- breaks), mowing grass or pruning does not constitute vegetation clearance, unless such burning, mowing or pruning would result in the vegetation being permanently eliminated, removed or eradicated.
  Eradication of weeds or plant types not occurring naturally within the specific area by means of selective chemical application would not constitute clearance of indigenous vegetation. The pruning of shrubs under a power line would not constitute clearance, unless the pruning is done in such a way that the shrubs are permanently removed.
  A note from the authorities reads “Discretion and common sense must be applied in the determination of whether an act constitutes clearance.” The clarification of discretion is in the domain of the authority!

Of interest and probable significance is image 9) of 1985 (although of low resolution) showing nearly the entire area of portions 4 and 9 cleared and under pastures/ agriculture (compare surrounding areas too) with progressively more wattle invasion and some areas not being tilled or obviously disturbed having been used for livestock and horse grazing until 2017/18 when the current owner bought the portions 9 then 4 and recently A (Portions 4 and A have been consolidated into portion 66/232).

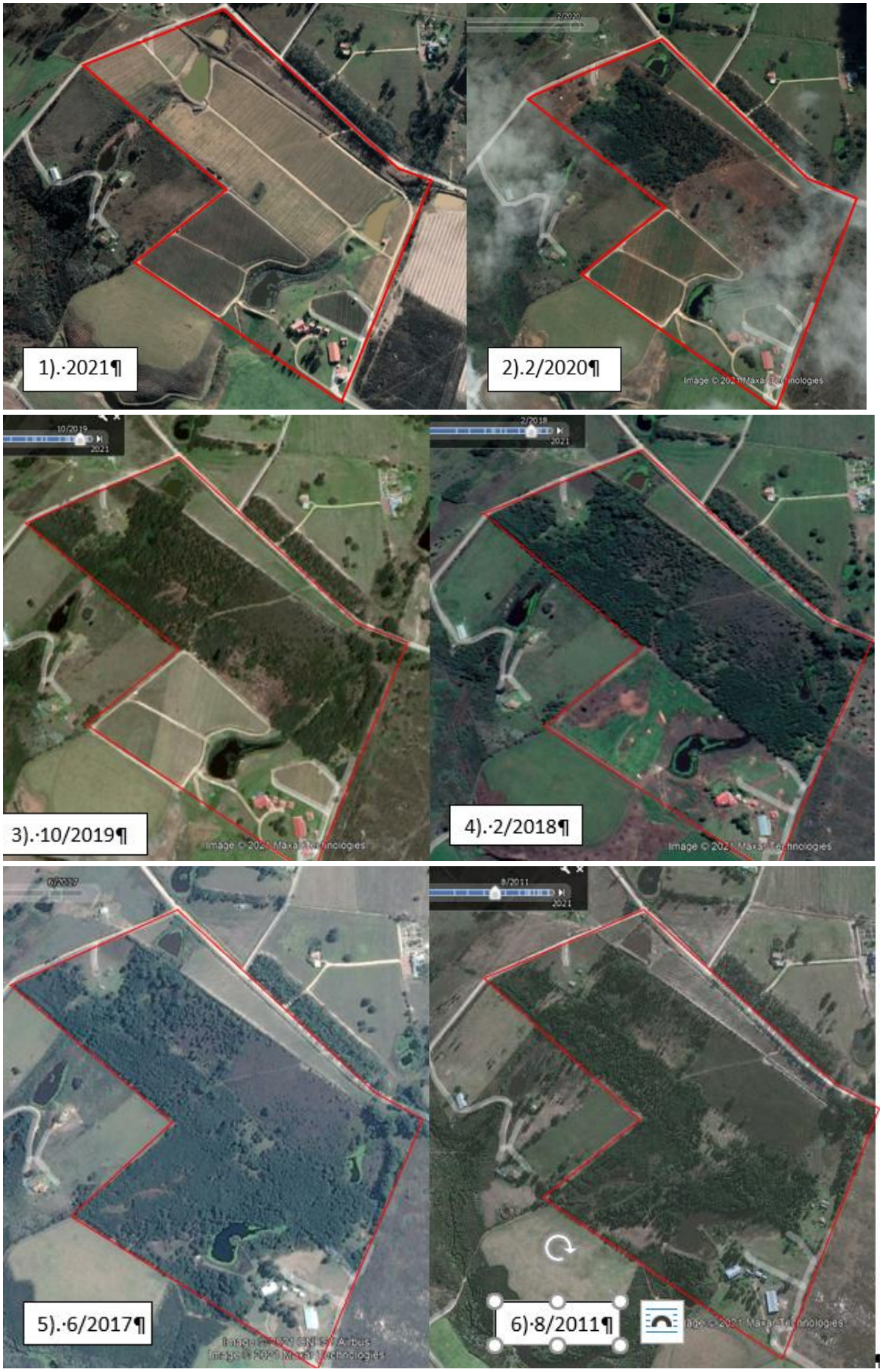
It can therefore be deduced with reasonable confidence that a significant proportion of the study area had already been cleared and the soils disturbed.

It cannot be ascertained with any degree of confidence if the study area was natural / indigenous vegetation given the level of evidenced disturbance prior to the current clearing undertaken since 2017.

There is anecdotal evidence that the farm was used for grazing livestock and horses for several years in portion 4 and most of portion 9.

> **As a note/ observation**: It is only the presumptive 10 year stated “virgin land” definition (regardless of alien infestation) that activates the “within 10 years” disturbance trigger. This may be a legal definition requirement but is uncertain in application or as an ecological fact. The use of a period of 10 years as the trigger point for “disturbance of virgin soils” is considered as a “gap in knowledge” . That 10 years can be applicable for “natural rehabilitation” of soils and indigenous vegetation across all soil types and biomes appears arbitrary.

Portion A was cleared and tilled before 2009 (image 7 & 8) and subsequently in use as vineyard in terms of disturbance from then on.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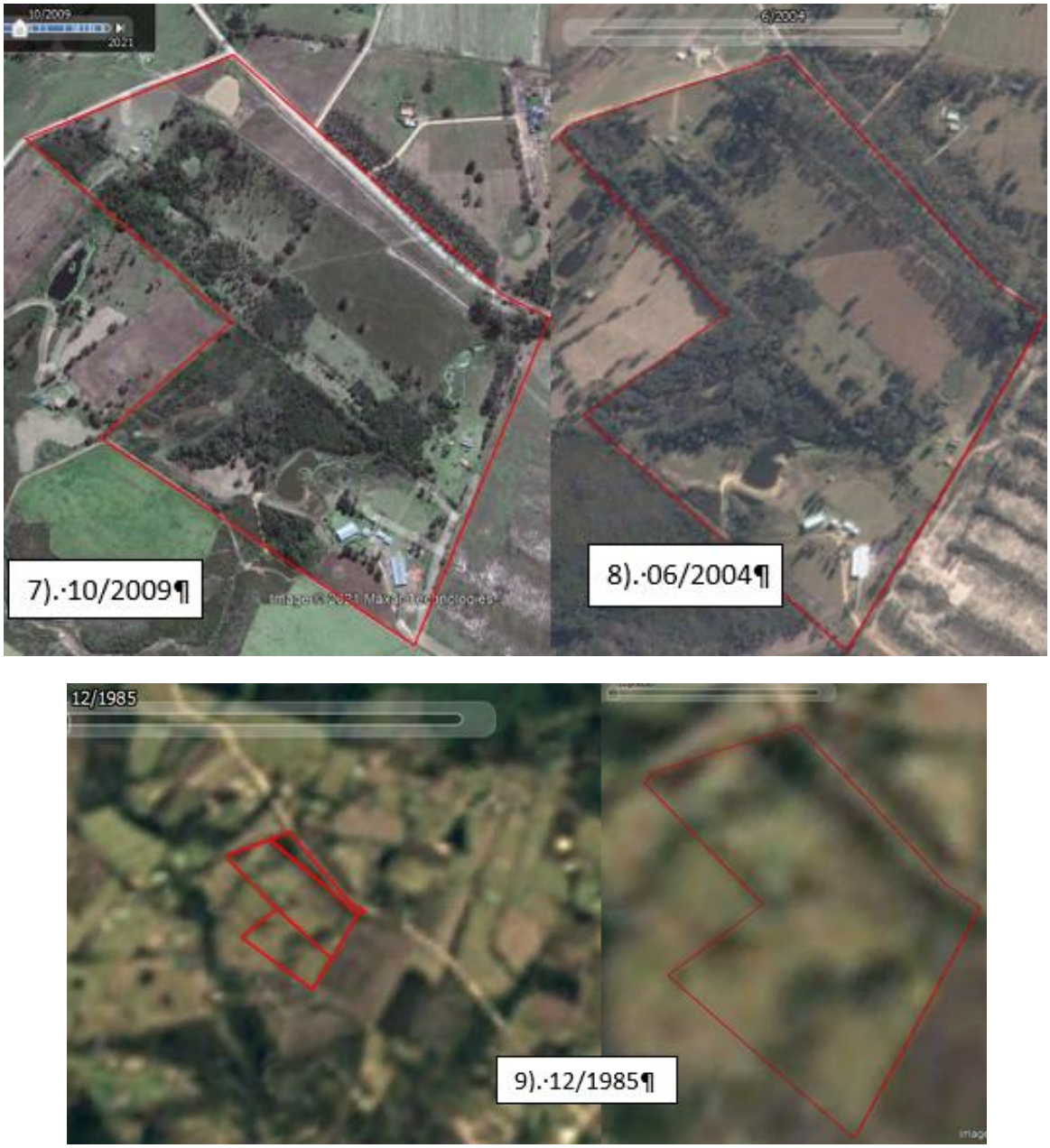

Map Images 1) to 9) from Google Images depict the timelapse from 2021 back to 1984 to compare activity and vegetation cover of the study area.

Figure 4: Showing the enlarged water storage dam (Dam 3) on the split remainder of Portion 1.

The applicant purchased a section A of Portion 1 which occurs south of Redford Road. This split remainder contains a water storage dam and pumphouse (Dam 3[2]) which was recently enlarged, and all vegetation cleared around it (see Fig. 4).

Portion 9 abuts Portion A 1 at the northern extent and contains two earthen instream water storage dams (Dams 2 and 4). Portion 4 abuts Portion 9 at its northern extent and contains the farmstead and one earthen instream water storage dam (Dam 1; see Fig. 5). These upper streams and headwaters of watercourses drain into the Whiskey Creek River.

Many of the properties in Redford have small in-stream earthen dams in the catchments, thereby altering and reducing natural stream flow volumes. Almond Nut cultivation is intensive agriculture and requires extensive contoured lands and water for production.

Historical animal populations would have been displaced or significantly altered by the removal of the indigenous vegetation in favor of agricultural production. Historically the study area certainly appears to have been highly modified as far back as 1985 (Google Image 9) for agriculture and pastures and when compared to the surrounding farms this observation is supported

The property and study area has been extensively re-worked since 2017 to create favorable conditions for Nut cultivation. The re-shaping of the soil profile has effectively removed habitat that potentially could provide shelter and food for several area wide locally occurring animal species. Property security and delineation fencing also inhibits animal movement but is a common feature in these agricultural zoned and farmed areas. It is, in today's climate, exacerbated by the need to have higher grade security fencing to

[2]Numbered according to the aquatic specialist's impact assessment by Confluent.

prevent human entry and as a result precludes many animal species. This property is no exception.

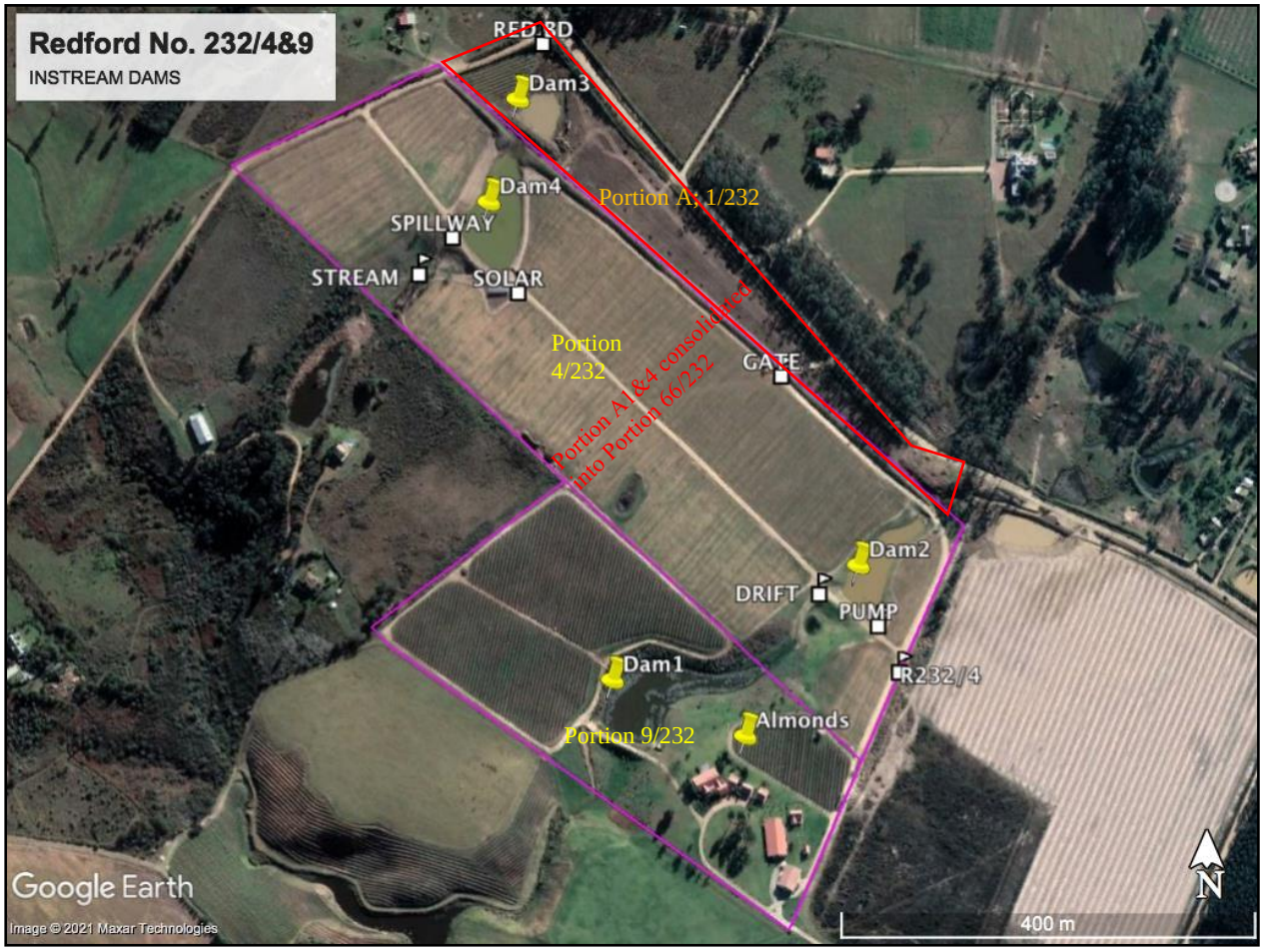

Figure 5: Showing the property with cleared and transformed “fynbos” and enlarged water storage dams ca. 2021 (image courtesy of Google Earth).

Provisions of Acts related to vegetation clearing activities

The **National Environmental Management Act** (NEMA) EIA Regulations of 2014[3], as amended, stipulates that, in terms of Listing Notice 1 activity 27, if more than 1 hectares (10 000 m^2) of indigenous vegetation (as defined) is cleared then a Basic Assessment application for environmental authorization is required. The transformed “fynbos habitat” is more than 20 hectares in extent (see Fig. 5), although aerial imagery strongly suggests clearance had occurred more than 10 years ago over much of the study area. It is therefore reasonable to suggest that the area was previously transformed from indigenous fynbos

[3] Government Gazette No. 38282, GN No. 982 (2014) National Environmental Management Act, 1998 (Act No. 107 of 1998) Environmental Impact Assessment Regulations.

habitat to a degraded mixed habitat with agriculture/ pasture and alien species dominant but certainly some residual fynbos species could have survived.

As defined in the EIA Regulations "indigenous vegetation" refers to "*vegetation consisting of indigenous plant species occurring naturally in an area, regardless of the level of alien infestation and where the topsoil has not been lawfully disturbed during the preceding ten years*."

The Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983) stipulates that i.t.o. regulation 2 a permit is required for cultivation of virgin soil or land that has lain fallow for 10 or more years. It is recommended that the applicant liaise with WCG: Department of Agriculture: Land Care to establish the requirement for registered agricultural fields.

Assessment and reporting of impacts on terrestrial biodiversity

Baseline description of the site with the following features

1) The ecological processes affecting a fynbos type ecosystem are largely dependent on aspect, soil patterning and fire frequency, which may be affected in part by loss of habitat due to transformation and suppression of fire processes. Fynbos is dependent on fire for plant succession and turnover of species occupying the same niche with different lifecycles and times of maturity, thus contributing to overall plant species richness. Bulbous flowering plant species thrive and flower following wildfires in the absence of dominant shrubs excluding or reducing light. Thereafter shrubs continue to grow in succession and representative fynbos elements like Proteaceae, flower and hold seed following their maturity cycle of up to 15 years. Fire intervals of less than 15 years, or less than the maturity lifecycle of locally occurring species is detrimental to succession and recruitment of seedlings. There is little remaining Fynbos occurring at the property and only some vestigial riparian vegetation occurs within the watercourse areas. It may be reasonable to state that based on the 1985 aerial evidence (Image 9) and subsequent maps that the soils were largely disturbed and it is most unlikely that fire contributed to any fynbos succession for the last 37 years. It may be further reasonable to state given the activities of the farming area as a whole and the study area in particular that the study area was dominated by pasture and invading woody species with sparse remnants of some fynbos species mostly confined to the watercourse areas.

2) Primary ecological functioning and processes that operate within the site were characteristic of natural to near-natural fynbos, as a haven for pollinators, avifauna, and small and large mammals.

3) The activity has altered connectivity of vegetation and wildlife refuge and movement corridors.

4) The property is within significant terrestrial landscape features of Very High Sensitivity namely a Strategic Water Source Area (SWSA) and FEPA.

Vegetation description

According to the updated Vegetation Map of South Africa, Lesotho & Swaziland the main mapped vegetation unit occurring at the property and within the receiving environment (see Fig. 6) is: Least Threatened Tsitsikamma Sandstone Fynbos (FFs 20).

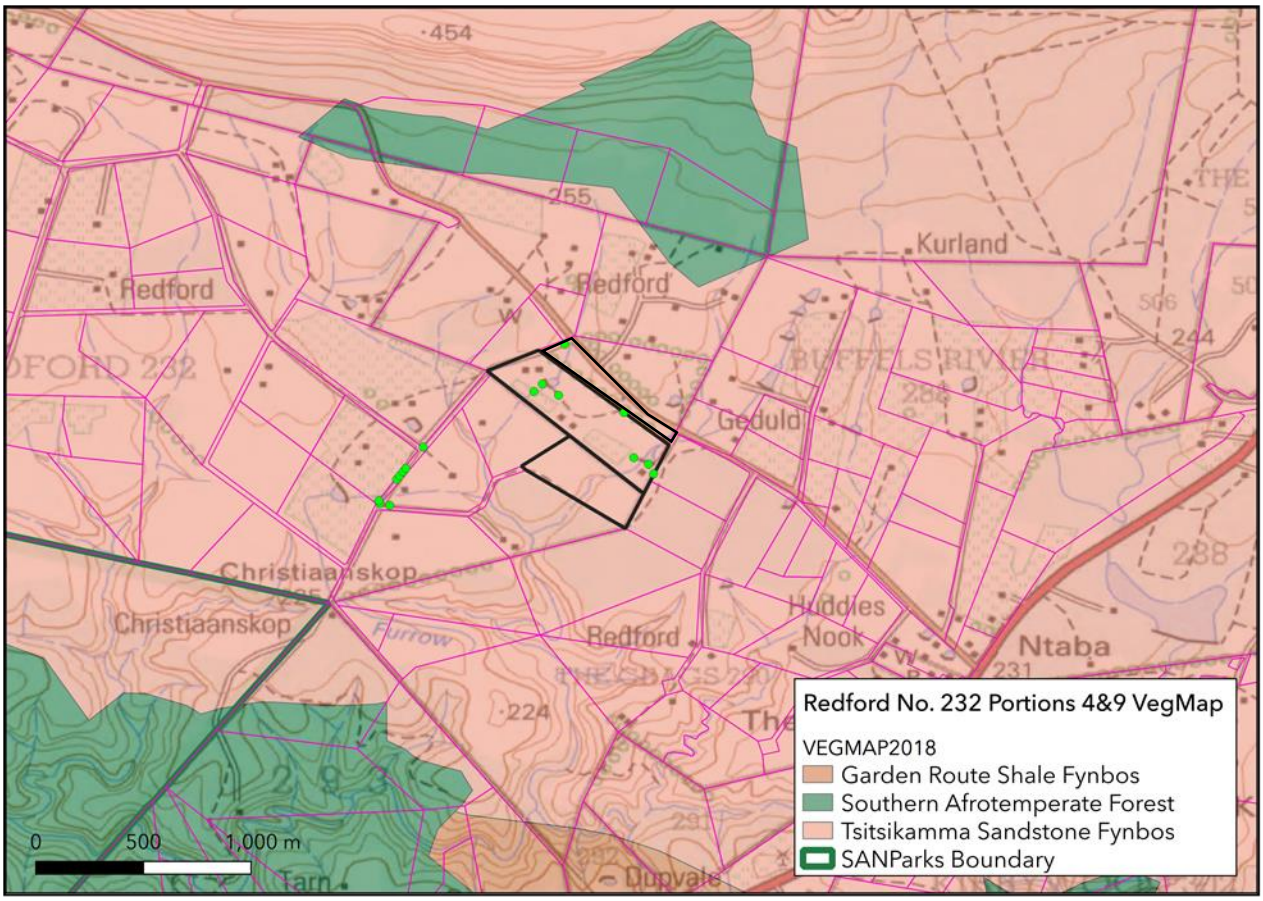

Figure 6: The property in context of the National vegetation units within Tsitsikamma Sandstone Fynbos.

4. The Biodiversity Importance of The Site and Surrounding Receiving Environment[4]

Freshwater Ecosystem Priority Areas (FEPAs)

"Description of significant terrestrial landscape features like SWSAs, FEPAs".

This report concerns the terrestrial biodiversity features of the property; and does not purport to document the fine-scale aquatic features at the property; refer to the aquatic biodiversity sensitivity report in that respect. The area is indicated by the screening tool as having a Very High Relative Aquatic Biodiversity theme, as a Strategic Water Source Area (SWSA) and FEPA.

Although no FEPA Wetlands or FEPA Rivers are identified at the subject property it is situated within an identified **River FEPA** and associated sub- quaternary catchment area draining southwest via tributaries to Whiskey Creek then the *Largely Natura*l Keurbooms River and Estuary (PES: Class B; a **Wetland FEPA**).

Measures should therefore be implemented to prevent erosion and increased storm water runoff and pollutants from impacting on land, groundwater, and surface watercourses.

The composite fine-scale Vegetation Map for the Garden Route (Vlokmap) delineated broad habitat types with associated vegetation variants, here as: a *Tsitsikamma Plateau Proteoid Fynbos* matrix dissected by *Sasikumar Perennial Stream* (the latter indicating drainage line vegetation patterning; see Fig. 7).

[4] As prescribed by the minimum requirements for reporting of terrestrial biodiversity and ecosystems on site a description is provided: a) main vegetation types; b) threatened ecosystems and local habitat types; c) ecological connectivity, fragmentation, ecological processes and fine-scale habitats; d) species, distribution, important habitats and movement patterns identified"

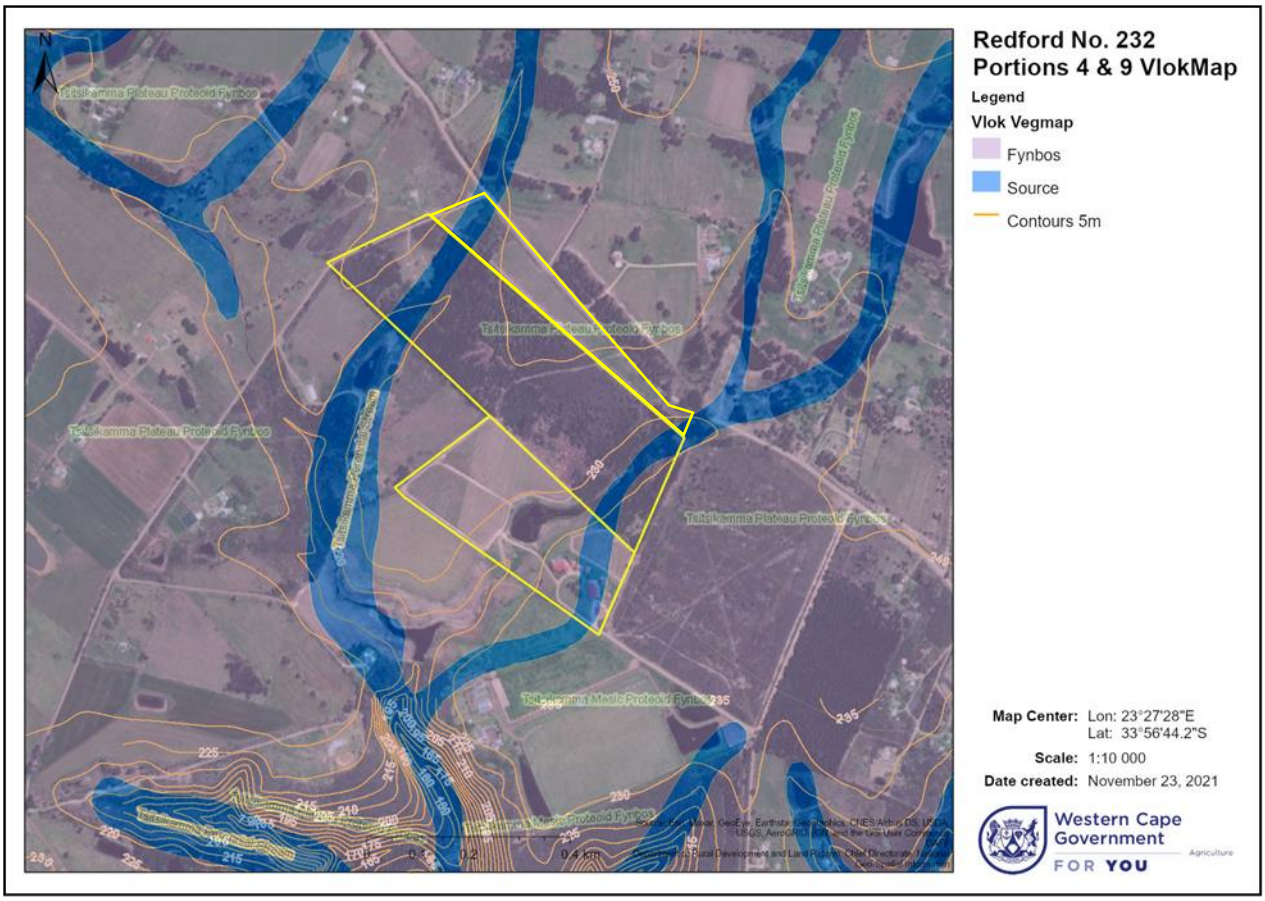

Figure 7: The study area in context of the fine-scale vegetation map for the Garden Route, within *Tsitsikamma Plateau Proteoid Fynbos* and dissected by *Tsitsikamma Perennial Stream*.

The property is mostly a level to gently sloping plateau with incised watercourses draining southwards. The affected areas are near the head start of tributary streams draining towards Whiskey Creek.

The natural vegetation at the property would originally have contained Tsitsikamma Sandstone Fynbos on the sandstone derived soils and some Southern Afrotemperate Forest remnants or forest thicket in the deeper valley slopes. There is little evidence remaining to confirm the original vegetation patterning.

There appears to be no species of special concern within the study area containing plant species representative of riparian ecosystems (see Appendix 1). The screening tool mapped the study area as having a Very High Terrestrial Biodiversity Sensitivity and Medium Plant Species sensitivity. As a result of habitat transformation, the remaining vegetation is considered to be of Low Terrestrial Biodiversity Sensitivity and Low Plant Species sensitivity.

5. The Biodiversity Importance of The Area in Context of The Landscape Perspective

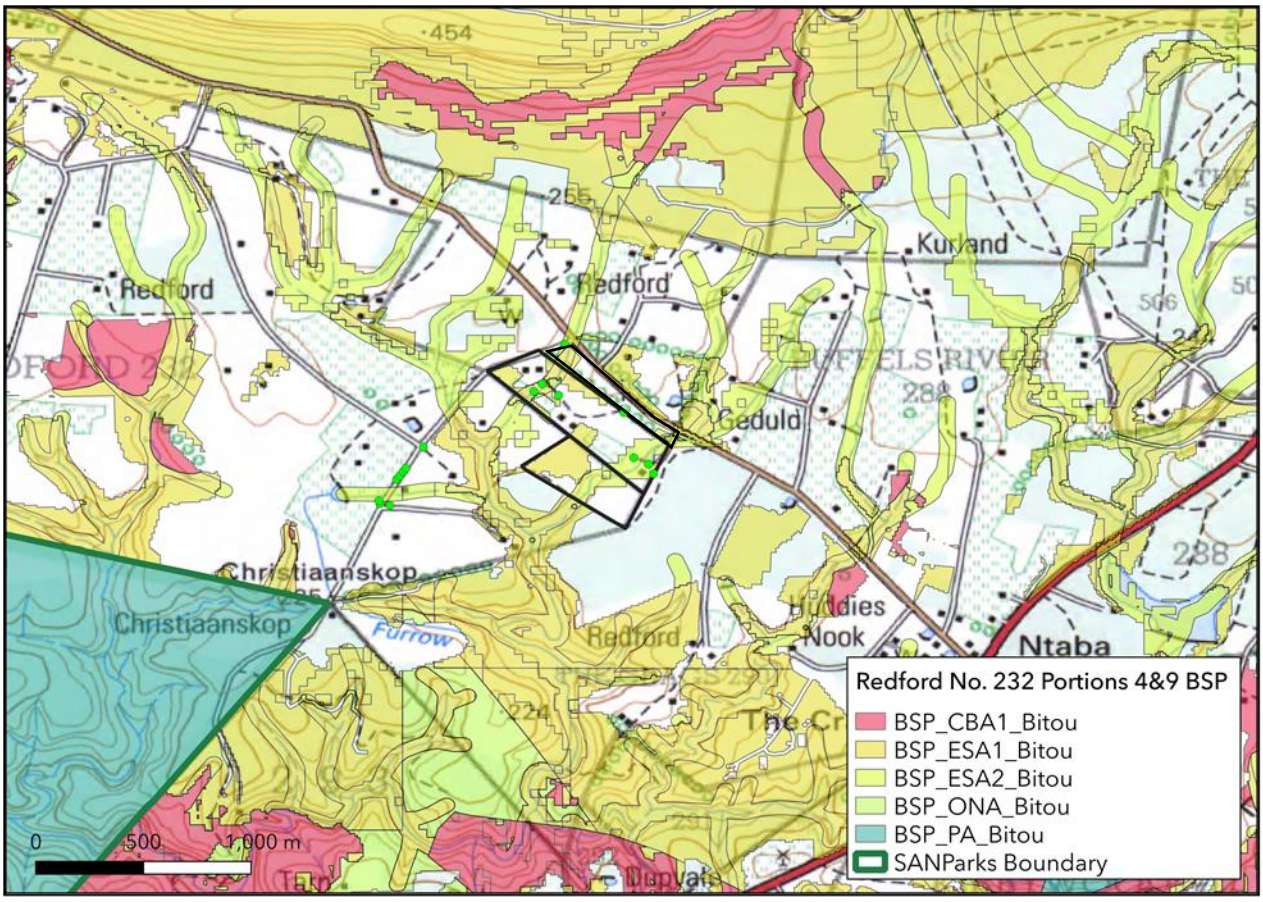

Figure 8: The property locality (black polygons) in context of the Biodiversity Spatial Plan, 2017 depicting linkages and corridors.

The Biodiversity Spatial Plan[5]

The Biodiversity Spatial Plan has identified important remaining biodiverse sites across the province and indicates that sections of the property and specifically the receiving environments are within sensitive areas (see Figs. 8 and 9).

Both Portions 9 and 4 are mapped as containing a primary aquatic and terrestrial Ecological Support Area (ESA 1; watercourse area) chiefly at the western extent; with a secondary aquatic Ecological Support Area (ESA 2; see Fig. 10) at the eastern extent; based on the following specific geographic features:

a. Water source protection- Keurbooms.

b. Watercourse protection- Southeastern Coastal Belt.

[5] http://bgis.sanbi.org/Projects/Detail/194

The specific geographic features mentioned above pertain to the regional importance of the landscape and associated water sources, watercourses, vegetation and their protection. The property is important as a water source area connecting the upland to the lowland diverse habitats. The property is also a vital area of connectivity for pollinators, avifauna, and small and large mammals (however infrastructure and security fencing within the farmed areas is a restricting barrier for many of the mammals).

The prescribed conservation management objectives for ESAs:

Primary ESAs are areas that are not essential for meeting biodiversity targets, however they are important for supporting the functioning of Protected Areas or Critical Biodiversity Areas (CBAs) and are often vital for ecosystem service delivery.

Thus, primary ESAs should be maintained in a functional, near-natural state, and occur here overlaying the watercourse areas and adjacent veld. Some habitat loss is acceptable, provided the underlying biodiversity objectives and ecological functioning are not compromised.

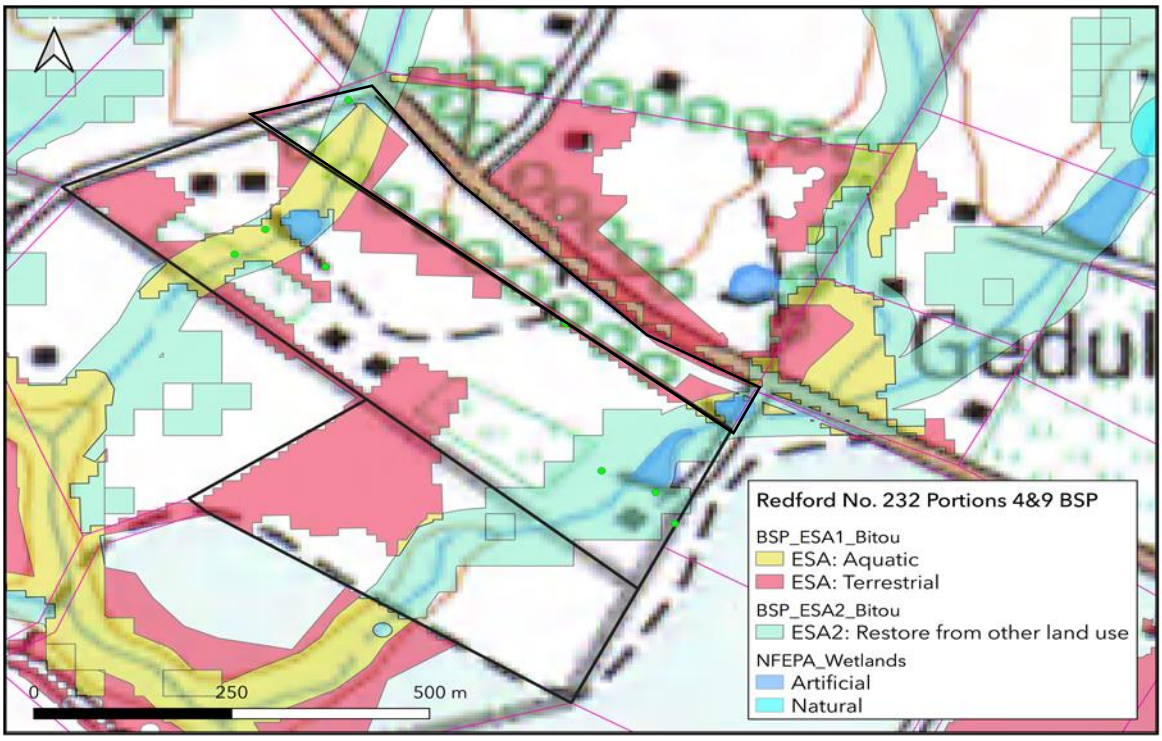

Figure 9: The receiving environment in context of the Biodiversity Spatial Plan, 2017, within aquatic and terrestrial primary and secondary Ecological Support Areas (ESA 1 & 2).

Secondary ESAs are areas that are not essential for meeting biodiversity targets but play an important role in supporting the functioning of Protected Areas or CBAs, and are often vital for delivering ecosystem services. The secondary ESA surrounds the eastern watercourse area.

These areas are prescribed to be restored from other land use and / or managed for minimal impacts on ecological processes and ecological infrastructure functioning, especially soil and water-related services, and to allow for faunal movement.

However, these areas are now transformed croplands surrounding the watercourses on either side; and no longer contain healthy representative Fynbos vegetation. The landowner is making efforts to landscape and plant areas around the dams and watercourse areas with indigenous plants which could mitigate the negative effects. the applicant has already begun removing Kikuyu grass to replace with more suitable indigenous vegetation There appears to be a need for more diversity in the planting arrangements as opposed to more formal garden landscape with indigenous plants.

Figure 10: Showing the water storage dam and pump house at the eastern extent of Portion 4 (Dam 2) within a secondary Ecological Support Area.

Site inspection identification and findings of assessment

Assessment and reporting of impacts on terrestrial biodiversity[6]

- No terrestrial Critical Biodiversity Areas (CBA) occur at the study area.

  1) No CBA's occur at the property.

[6] Government Gazette No. 43110, GN No. 320 (2020) National Environmental Management Act, 1998 (Act No. 107 of 1998) Procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of section 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998, when applying for environmental authorization..

2) The proposed activity would be inconsistent with CBA designation management objectives.

3) The proposed activity has impacted on species composition and vegetation structure of vegetation of Low to Medium Terrestrial Biodiversity Sensitivity.

4) The impact will not elevate the ecosystem threat status of the remaining extent of Least Threatened Tsitsikamma Sandstone Fynbos.

5) The impact on subtypes is unknown.

6) The impact on overall species and ecosystem diversity of the site is unknown.

7) The impact on threat status of species of special concern is unknown based on the plant species observed.

- The study area has Ecological Support Areas overlaying the watercourses.

  1) Ecological services within and across the site have been and will be impacted by the activity.

  2) The activity has had an impact locally on ecological processes and ESA functionality.

  3) The proposed activity may reduce ecological connectivity at the surrounding areas.

- The proposal is not within an Environmental Management Framework area.
- The property is within 1 km of the Keurbooms section of the Garden Route National Park managed by SANParks.
- The property is within a Strategic Water Source Area.
- The property is within a River Freshwater Ecosystem Priority Area.
- The activity has had an impact on the ecological integrity of indigenous fynbos and riparian elements at the property.

6. Site Sensitivity Verification

Baseline description of biodiversity and ecosystem condition

(Read with section: 3b of "Specialist assessment and minimum report content requirements")

Based on the brief site inspection and ground surveying conducted on the 1st of October 2021 the property is situated atop a level plateau area with gentle incised valley bottom areas. Based on aerial imagery the plateau areas appear to have contained fynbos habitat which are now transformed pastures/ croplands. The study area where clearance of vegetation occurred contained disturbed sandstone fynbos with an infestation of Invasive Alien Species in part. Based on aerial imagery it appears that clearing of vegetation had occurred on Portion 4 during 2017; whereas vegetation clearing commenced on Portion 9 during 2020. Watercourses were also altered by the removal of vegetation for the construction of irrigation dams.

Figure 11: Showing the small pond south of Dam 2 on Portion 4 with Dam 1 in the distance on portion 9. Landscape and planting of indignious plants around watercourse.

The remaining vegetation occurring within the watercourse areas consists of pioneer and weedy species typical of disturbed and waterlogged areas aside from planted indigenous species to enhance wetland / watercourse fringes and will contribute to ecological corridor linkages (see Figs. 11 & 12).

Appendix 1 contains a list of observed plant species. There are approximately 53 plant species observed within the study area of which 36 are within the riparian zone and 15 are exotic and ruderal or Invasive Alien Species.

Figure 12: Showing the rock infilled watercourse (erosion prevention by landowner) at the low water crossing draining towards Dam 1.

Avifaunal and Faunal diversity

A brief site visit was done with the purpose of investigating the possible occurrence of fauna on the property. (see limitations in section 1). Landscape-wide farming and vegetation transformation has altered the ecosystem significantly thereby impacting negatively on the animals depending on it for food and shelter. Until recently, parts of the study area have been infested with Invasive Alien Species, like *Acacia mearnsii* (Black Wattle) and *Pinus pinaster*; as indicated on aerial imagery from 2009, with denser stands visible in 2016.

Agricultural herbicides and pesticides are bound to influence many species, specifically insect pollinators.

There is a high probability that agricultural fertilizers added to relatively nutrient-poor soils to enhance crop performance, will enrich surface water runoff, entering the upper reaches of the Whiskey creek catchment.

Perimeter security fencing that has been installed (many farms in the area have like fencing), is bound to have a significant influence on movement of the larger animals such as Bushbuck *(Trachelapus scriptus*)and Grey Duiker

Concentrated application of water through the drip irrigation method, may cause migration of soil living animals towards the moist areas. It is anticipated that earthworm populations may move towards wetter soil berms where trees are planted.

This may have a negative influence on the moles and other organisms hunting for food.

The historical map evidence as far back as 1985 suggest strongly that the area was largely disturbed and significantly modified for pastures and agriculture. The applicant has now largely cleared the study area and altered any remnant natural ecosystem by furrowing and ploughing the land in order to plant Almond nuts.

The increased water storage dam capacities have increased the surface water area that had not been present previously. Large wetland areas along the watercourses would also have been altered either through inundation or through changes in riparian vegetation. Landscape planting of indigenous species will assist in supporting linkages and increase some biodiversity along the watercourses and around the dams but it is recommended that more restoration type scaping as opposed to indigenous garden type scaping be practiced.

These changes will create habitat for some fauna that had not been able to survive successfully on the farm.

Breeding habitat for waterfowl will increase slightly

Historical changes brought on by agricultural practices would have removed habitat for some species and may have enhanced conditions for other species to colonize areas that had previously not been favorable.

Recent vegetation cover removal and terraforming methods would have impacted on the species that could have been living on the farm. Impacts of the newly planted nut trees are largely unknown, but it can be reasonably assumed that the diversity will be reduced through the conversion from remnant fynbos/alien invasive mix to monoculture of nuts.

The displacement of previous faunal populations may be of temporary nature, but it can be assumed that diversity will be reduced through lack of suitable habitat and ability to reasonably freely move due to the security fencing on this property and in the farming area in general.

Figure 12a – Bonox Security fence with electric fence section and planted indigenous trees

Mammals

(See limitations in section 1 regarding **point in time** observations)

Species lists were obtained from data collected in the Garden Route National Park and made available by SANParks as well as species lists from the Keurbooms nature reserve, and referred to for possible animal occurrence in the general farming area and the study area (see **Appendix 2**).

The presence of Caracal (Caracal caracal), Leopard (Panthera pardus), Cape Clawless Otter (Aonix capensis), Honey Badger, (Spotted Genet (Genetta genetta), Large spotted Genet (Genetta tigrina) and Grey Mongoose (Galerella pulverulenta) in the surrounding areas could probably be in the close vicinity of the Redford Farms.

Remains of freshwater Crabs in scat along one of the watercourses, indicate the presence of Water Mongoose (Atilax palidunasis). No spoor was found, so the Crabs could also have been eaten by a young Otter (Aonix capensis).

Sparse wetland vegetation and obvious lack of food along the watercourses makes it unlikely that any of the mice or smaller mammals would occur until the Orchards had established and the indigenous landscaping had matured.

Porcupine (Hystrix africaeaustralis) of whom no present sign was observed on the day of the site inspection, may move to the farm to utilise emerging edible vegetation. The

presence of Porcupine was confirmed along the edge of the Whiskey Creek Nature Reserve about three kilometers to the south-west of the property.

Due to the tilling of the soil, so sign of any Moles was found, but some of them will undoubtably be back as soon as conditions have stabilized.

Bushbuck (Trachelaphus scriptus), Grysbok (Rhaphicerus melanotus) and Steenbok may historically also have been present from time to time depending on the state of the vegetation cover.

Chagma Baboons (Papio hamadryas), Vervet Monkey troops, and Bushpig (Potamochoerus larvatus) are presently operating in the larger district and may occasionally enter the farms to feed

Cape Clawless Otter (Aonix capensis) and Leopard (Panthera pardus) occur in the Whiskey Creek and may be present, as will be the Honey Badger (Melivora capensis). It can be reasonably assumed that these animals could have visited the farm from time to time.

Cape Black Foot Cat is recorded for the area, but no confirmation could be found.

Only one set of Mice runs was observed on the land adjacent to the property on the inspection day, and no sign was found that any of the smaller mammals such as the Shrews, Rats and Mice were present.

As soon as the riverine thickets and marshland vegetation returns to denser population stands, it is safe to assume that many of these animals may return if the fencing on site and surrounding farms allow for movement.

The landowner and workers do report observed mammal activity - see **Appendix 3**.

Birds

One Egyptian Goose was observed near the dam close to the house.

No other birds were observed but bird populations will differ from season to season, habitat type and vegetation cover

The lack of bird observations may be due to the presence of people and agricultural vehicles active on the farm during the site visit.

Removal of vegetation would also reduce access to many birds due to lack of perches and shelter.

Possible bird species area data record list – see **Appendix 2**

The landowner and workers do report more variety of bird activity - see **Appendix 3**.

Amphibians

Small patches of remnant wetland vegetation and stones and gravel introduced into the altered watercourses provide an impoverished habitat for some amphibians. A Clicking Stream Frog (could be heard calling in one of the patches of vegetation).

Relatively undisturbed sections of watercourses above and below the property, still remain intact as refugia and may be a source for migrants to recolonize the dam landscaped & planted areas once established.

Assessment of Impact

The study area according to the BSP is mapped as sensitive for having the following features: primary ESA (watercourse, watercourse, water recharge area) and secondary ESA (Forest, Watercourse area) to be conserved and rehabilitated (see Fig. 13). The clearance of vegetation has impacted on an ESA containing indigenous Tsitsikamma Sandstone Fynbos and Riparian elements.

The context of the site in relation to the neighboring agricultural and sparse ecological linkages must be considered.

From a Botanical perspective the condition of the fynbos / riparian mosaic vegetation at the receiving environment following clearance of vegetation is of **Low Terrestrial Biodiversity Sensitivity** with a **Low Plant Species Sensitivity**.

Figure 13: Showing the water storage dam at the western extent of Portion 4 (Dam 4) within a primary aquatic and terrestrial Ecological Support Area.

Thus the clearing of approximately >20 ha of disturbed remnant and largely modified fynbos of assumed **Medium Terrestrial Biodiversity Sensitivity**, and transforming the habitat, is a negative impact for local habitat functioning and potential negative impact for land management, but a positive impact for cultivation.

The **impact is site specific** in extent to the study area and surrounding adjacent environment.

However, the activities will have impacts on land and watercourse functioning downstream if erosion and water quality is unmanaged.

The **duration** of the impact is permanent in current state but with continued mitigation and partial rehabilitation the impact will be of a medium term with passive vegetation succession.

The impact is of **medium intensity** (disturbed fynbos / riparian vegetation) on biodiversity as an amount of pattern and process was lost by transformation.

The impact on pristine fynbos habitat is **improbable** based on the history of agricultural use at the property.

The impact on fynbos habitat and effect on biodiversity, predicted with a **High** level of confidence in the assessment, is of **medium significance**.

Figure 14: Showing the watercourse area south of Dam 4 on Portion 4 within a primary aquatic and terrestrial Ecological Support Area.

Figure 14 shows the remaining vegetation within the watercourse buffer area which is recommended to be rehabilitated by passive succession and planting of suitable indigenous plant species. The applicant has already begun removing Kikuyu grass to replace with more suitable indigenous vegetation

Rehabilitation or restoration of the habitat and reducing the impacts on ecological processes and structural functioning is key for functional ecosystem services of watercourses and indigenous vegetation and allowing for movement of avifauna and fauna.

7. Options And Recommendations for Management

Environmental Risks

Increased potential for stormwater erosion

As the terrain and soils are highly erodible the transformed areas will exacerbate erosion by stormwater runoff, and siltation in stream lower down.

Storm water from the upper slopes should be carefully managed to avoid erosion of the soft substrate on site. Excess runoff must be managed to avoid erosion to the valley bottomland and watercourses.

Conservation and Rehabilitation

The Redford Farms area is important for conservation of biodiversity and maintenance of ecological and structural functioning and associated ecosystem services. Many streams drain into Whiskey Creek which feeds in to the Keurbooms River Estuary.

Restoration and reducing impacts on ecological processes and structural functioning is key for biodiversity and ecosystem services provided by indigenous vegetation and watercourses and allowing for movement of fauna and avifauna.

The remaining non orchard/ developed areas at the property (eastern border) could be maintained in a natural state with a phased removal of any existing and spreading Invasive Alien Plant Species (the applicant is removing Kikuyu grass where occuring to replace with more suitable indigenous vegetation) For properties zoned for agriculture in terms of the CARA, the owner must prevent the spread of IASs from entering or dispersing from the property.

A management objective of the landowner to rehabilitate the remainder of the fynbos habitat and restore areas to near-natural adjacent to watercourses and agricultural fields has good potential for biodiversity conservation.

It may be possible to create fynbos hedge rows along the property boundaries, to reduce the impact of total removal of natural vegetation.

Mitigation and Rehabilitation Guidelines

1) As the watercourse areas are generally sensitive the applicant must conduct activities carefully and reuse or relocate as much plant material as is practical where densities allow for transplanting.

2) It is recommended that a suitably qualified & experienced ECO be appointed to assist in rehabilitation planning with the landscaper and applicant. This plan to form the basis of continued mitigation measures. The ECO then to monitor and report on rehabilitation progress every 6 months next 2 years to satisfy authority of mitigation implementation. Particular attention should be given to the progress of wetland habitat recovery.

3) Ensure drainage and runoff is managed to prevent erosion and soil loss during the operational lifespan of the activities.

4) Most areas have been cleared of alien plants. Ongoing measures are continuing and preventing the spread of Invasive Alien Species from entering or dispersing from the set aside natural areas and from within the study area. The ongoing management is being done with manual labour on a regular basis with consideration to disturbance of the remnant indigenous vegetation. Any Alien management plan required must build on this.

8. Conclusion

In summary the main vegetation unit at the receiving environment is Least Threatened Tsitsikamma Sandstone Fynbos of Medium Terrestrial Biodiversity Sensitivity. As a result of transformation, the status of the vegetation is considered to be of Low Terrestrial Biodiversity Sensitivity.

If the mitigation measures discussed above are implemented it is probable that the study area will have reduced downstream erosion, and increased ecosystem functioning.

As insufficient plant material exists within and around the study area plant material from other sources may be required to increase ground cover and rehabilitation of watercourse areas. A suitable list of indigenous plant species should be compiled with input from the ECO landscaper and applicant for rehabilitation, to further compliment some of the recently indigenous landscaped areas.

9. References

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Appendix 1 – Plant species in fynbos/riparian habitat

APPENDIX 1: PLANT SPECIES IN FYNBOS / RIPARIAN HABITAT REDFORD NO. 232/4&9

	SCIENTIFIC NAME	count	field	WET	IAS
	Acacia mearnsii (Black Wattle; CARA 2002 - Cat. 2; NEMBA - Cat. 2)	1	1	1	1
	Arctotheca prostrata (Prostrate Capeweed)	1	1		
	Asparagus setaceus (Common Asparagus Fern)	1		1	
	Carpha glomerata	1		1	
	Centella eriantha	1		1	
	Cerastium capense (Cape Mouse-ear Chickweed)	1	1		
	Cliffortia odorata (No-odour Caperose)	1		1	
	Cliffortia strobilifera (Cone River Caperose)	1		1	
	Commelina africana (Yellow Dayflower)	1		1	
	Cotula laxa (Little Buttons)	1		1	
	Ehrharta erecta (Panic Veldtgrass)	1		1	
	Ficinia incomtula (Isolepis)	1	1	1	
	Ficinia marginata (Common Annual Clubrush)	1		1	
	Fumaria officinalis (Common Fumitory)	1		1	1
	Gamochaeta coarctata (Gray Everlasting)	1	1		1
	Halleria lucida (Tree Fuschia) planted	1		1	
	Helichrysum foetidum	1			
	Helichrysum luteoalbum (Jersey Cudweed)	1	1		1
	Helichrysum petiolare	1		1	
	Helichrysum sp. (weedy)	1	1		
	Hibiscus trionum	1		1	1
	Hippia frutescens (Scrambling Stinkals)	1		1	
	Hypochaeris radicata (Hairy Wild Lettuce)	1	1		
	Isolepis cf. ludwigii	1			1
	Isolepis cf. natans	1			
	Isolepis prolifera (Budding Club-Rush)	1		1	
	Ixia orientalis (Eastern Kalossie)	1		1	
	Juncus lomatophyllus (Leafy Rush)	1		1	
	Kniphofia uvaria (Red Hot Poker)	1		1	
	Lotus subbiflorus	1	1		
	Lysimachia arvensis (Scarlet Pimpernel)	1			1
	Megathyrsus maximus (Guinea Grass)	1		1	
	Nemesia sp.	1		1	
	Oxalis corniculata (Creeping Woodsorrel)	1		1	1
	Pelargonium grossularioides (Coconut Storksbill)	1		1	
	Phytolacca octandra (Inkweed)	1	1	1	1
	Pinus pinaster (CARA 2002 - Cat. 2; NEMBA - cat. 1b)	1	1		1
	Ranunculus multifidus (Wild Buttercup)	1		1	
	Rhodocoma gigantea (Tall Elephantreed)	1		1	
	Romulea sp.	1			1
	Rubus sp.	1		1	1
	Rumex cordatus (Heart Dock)	1		1	
	Searsia chirindensis (Bostaaibos) planted	1		1	
	Senecio ilicifolius	1	1		
	Senecio purpureus	1		1	
	Solanum nigrum	1	1		
	Sonchus asper (Prickly Sowthistle)	1	1	1	1
	Trifolium repens (White Clover)	1	1		1
	Verbena bonariensis (Purpletop Vervain)	1		1	1
	Vicia sativa (Common Vetch)	1		1	
	Virgilia divaricata (Gardenroute Keurboom) planted	1	1		
	Wachendorfia thyrsiflora	1		1	
	Zantedeschia aethiopica	1		1	
		53	16	36	15

Appendix 2. – Area wide species records

The species list supplied herewith were recorded in the Keurbooms Reserve to the South - west of the property and would in all probability have occurred in the immediate vicinity and on the property under discussion. This is an **indicative list** and must be viewed in the context of the surrounding farming land use area.

Source: CapeNature Publication on species in Keurbooms Reserve.

Taxon Name	English Name	Afrikaans Name
Mammalia (vertebrate animals)		
Acomys subspinosus	Cape spiny mouse	Kaapse stekelmuis
Aonyx capensis	African clawless otter	Groototter
Atilax paludinosus	Water mongoose	Kommetjiesgatmuishond
Caracal caracal	Caracal	Rooikat
Cercopithecus pygerythrus	Vervet monkey	Blouaap
Crocidura cyanea	Reddish-grey musk shrew	Rooigrysskeerbek
Dendromus mesomelas	Brants' climbing mouse	Brants-klimmuis
Epomophorus wahlbergi	Wahlberg's epauletted fruit bat	Wahlberg-witkolvrugtevlermuis
Galerella pulverulenta	Cape grey mongoose	Kleingrysmuishond
Genetta tigrina	Large-spotted genet	Grootkolmuskejaatkat
Herpestes ichneumon	Large grey mongoose	Grootgrysmuishond
Hystrix africaeaustralis	Porcupine	Ystervark
Mastomys natalensis	Natal multimammate mouse	Natalse vaalveldmuis
Mus minutoides	Pygmy mouse	Dwergmuis
Mus musculus	House mouse	Huismuis
Myosorex varius	Forest shrew	Bosskeerbek
Otomys irroratus	Vlei rat	Vleirot
Panthera pardus	Leopard	Luiperd
Papio hamadryas	Chacma baboom	Kaapse bobbejaan
Philantomba monticola	Blui duiker	Blouduiker
Potamochoerus larvatus	Bushpig	Bosvark
Raphicerus melanotis	Grysbok	Grysbok
Rhabdomys pumillio	Striped mouse	Streepmuis
Rousettus aegytiacus	Egyptian fruit bat	Egiptiese vrugtevlermuis
Tragelaphus scriptus	Bushbuck	Bosbok

Reptilia (Cold blooded vertebrates)		
Acontias meleagris meleagris	Cape legles skink	Kaapse pootlose skink
Afrogecko porphyreus	Marbled leaf-toed gecko	Marmer blaartoongeitjie
Agama atra atra Daudin	Southern rock agama	Suidelike rotskoggelmander
Bitis arietans	Puff adder	Pofadder
Bitis atropos	Berg adder	Bergadder
Causus rhombeatus	Common night adder	Gewone nagadder
Chersina angulata	Angulate tortoise	Rooipensskilpad
Cordylus cordylus	Cape girdled lizard	Kaapse gordelakkedis
Dispholidus typus	Boomslang	Boomslang
Dispholidus typus typus	Boomslang	Boomslang
Duberria lutrix lutrix	Common slug eater	Gewone slakvreter

Goggia lineata	Striped leaf-toed gecko	Gestreepte blaartoongeitjie
Homoroselas lacteus	Spotted harlequin snake	Gevlekte kousbandjie slang
Lycodonomorphus rufulus	Common brown water snake	Bruin waterslang
Pelomedusa subrufa	Marsh terrapin	Moeras skilpad
Psammaphylax rhombeatus	Spotted skaapsteker	Gevlekte skaapsteker
Psammaphylax rhombeatus rhombeatus	Spotted skaapsteker	
Pseudocordylus microlepidotus	Cape crag lizard	Kaapse kransakkedis
Trachylepis capensis	Cape skink	Kaapse skink
Trachylepis homalocephala	Red-sided skink	Rooi-sy skink

Amphibia (frogs, toads, salamanders, etc)		
Amietia angolensis (Bocage, 1866)	Common river frog	Gewone rivierpadda
Amietia fuscigula (Dumeril and Bibron, 1941)	Cape river frog	Kaapse rivierpadda
Amietophrynus rangeri (Hewitt, 1935)	Raucous toad	Heespadda
Breciceps fuscus (Hewitt, 1925)	Plain rain frog	Gewone reenpadda
Cacosternum nanum nanum	Bronze caco	Bronskleurblikslanertjie
Heleophryne regis (Hewitt, 1909)	Southern Ghost frog	Suidelike spookpadda
Heperolius horstockii (Schlegel, 1837)	Arum lily frog	Varkblompadda
Heperolius marmoratus (Rapp, 1842)	Painted reed frog	Geskilderde rietpadda
Strongylopus bonaespei (Dubois, 1980)	Banded stream frog	Bandgestreepte stroompadda
Strongylopus fasciatus (Smith, 1849)	Striped stream frog	Gestreepte stroompadda
Strongylopus grayii (Smith, 1849)	Clicking stream frog	Kliekpadda

Aves (birds)		
Accipiter tachiro	African Goshawk	Afrikaanse Sperwer
Alcedo cristata	Malachite Kingfisher	Kuifkopvisvanger
Alcedo semitorguata	Half-collared Kingfisher	Blouvisvanger
Alopochen aegyptiaca	Egyptian Goose	Kolgans
Anas capensis	Cape Teal	Teeleend
Anas erythrorhyncha	Red-billed Teal	Roobekeend
Anas smithii	Cape Shoveler	Kaapse slopeend
Anas sparsa	African Black Duck	Swarteend
Anas undulata	Yellow-billed Duck	Geelbekeend
Andropadus importunus	Sombre Greenul	Gewone Willie
Anhinga rufa	African Darter	Slanghalsvoël
Anthobaphes violacea	Onrange-breasted Sunbird	Oranjeborssuikerbekie
Apalis thoracica	Bar-throated Apalis	Bankdeelkeinjantjie
Apaloderma narina	Narina Trogon	Bosloerie

Apiopelia larvata	Lemon Dove	Kaneelduifie
Ardea cinerea	Grey Heron	Bloureier
Ardea melanocephala	Black-headed Heron	Swartkopreier
Ardea purpurea	Purple Heron	Rooreier
Batis capensis	Cape Batis	Kaapse Bosbontrokkie
Bostychia hagedash	Hadeda Ibis	Hadeda
Bulbulcus ibis	Cattle Egret	Veereier
Burhinus capensis	Sptted Thick-knee	Dikkop
Burhinus vermiculatus	Water Thick-knee	Waterdikkop
Buteo rufofuscus	Jackal Buzzard	Rooiborsjakkalsvoël
Buteo trizonatus	Forest Buzzard	Bosjakkalsvoël
Buteo vulpinus	Steppe Buzzard	Bruinjakkelsvoël
Camaroptera brachyura	Green-backed Camaroptera	Kwê-kwêvoël
Campethera notata	Knysna Woodpecker	Knysnaspeg
Caprimulgus pectoralis	Fiery-necked Nightjar	Afrikaanse Naguil
Ceryle rudis	Pied Kingfisher	Bontvisvanger
Chalcomitra amethystina	Amethyst Sunbird	Swarsuikerbekkie
Charadrius hiatucula	Common Ringed Plover	Ringnekstrandkiewiet
Charadrius marginatus	White-fronted Plover	Vasllstrandkiewiet
Charadrius tricollaris	Three-banded Plocer	Driebandstrandkiewiet
Cinnyris afer	Greater Double-collared Sunbird	Groot-rooibandsuikerbekkie
Cinnyris chalybeus	Southern Double-collared Sunbird	Klein-rooibandsuikerbekkie
Circaetus cenereus	Brown Snake-Eagle	Bruinslangarend
Circus ranivors	African Marsh-Harrier	Afrikaanse Paddavreter
Cisticola fulcicapilla	Neddicky	Neddikkie
Colius striatus	Speckled Mousebird	Gevlekte Muisvoël
Olumba arquatrix	African Olice-pigeon	Geelbekbosduif
Columba guinea	Speckled Pigeon	Kransduif
Coracina ceasia	Grey Cuckooshrike	Bloukatakoeroe

Appendix 3 – Landowner species observation

Aves (birds)			OBSERVED ON REDHAUS
Accipiter tachiro	African Goshawk	Afrikaanse Sperwer	
Alcedo cristata	Malachite Kingfisher	Kuifkopvisvanger	X
Alcedo semitorguata	Half-collared Kingfisher	Blouvisvanger	X
Alopochen aegyptiaca	Egyptian Goose	Kolgans	X
Anas capensis	Cape Teal	Teeleend	
Anas erythrorhyncha	Red-billed Teal	Roobekeend	X
Anas smithii	Cape Shoveler	Kaapse slopeend	
Anas sparsa	African Black Duck	Swarteend	
Anas undulata	Yellow-billed Duck	Geelbekeend	X
Andropadus importunus	Sombre Greenul	Gewone Willie	
Anhinga rufa	African Darter	Slanghalsvoël	X
Anthobaphes violacea	Onrange-breasted Sunbird	Oranjeborssuikerbekie	X
Apalis thoracica	Bar-throated Apalis	Bankdeelkeinjantjie	
Apaloderma narina	Narina Trogon	Bosloerie	
Apiopelia larvata	Lemon Dove	Kaneelduifie	
Ardea cinerea	Grey Heron	Bloureier	X
Ardea melanocephala	Black-headed Heron	Swartkopreier	
Ardea purpurea	Purple Heron	Rooreier	
Batis capensis	Cape Batis	Kaapse Bosbontrokkie	
Bostychia hagedash	Hadeda Ibis	Hadeda	X
Bulbulcus ibis	Cattle Egret	Veereier	X
Burhinus capensis	Sptted Thick-knee	Dikkop	X
Burhinus vermiculatus	Water Thick-knee	Waterdikkop	X
Buteo rufofuscus	Jackal Buzzard	Rooiborsjakkalsvoël	
Buteo trizonatus	Forest Buzzard	Bosjakkalsvoël	X
Buteo vulpinus	Steppe Buzzard	Bruinjakkelsvoël	
Camaroptera brachyura	Green-backed Camaroptera	Kwê-kwêvoël	
Campethera notata	Knysna Woodpecker	Knysnaspeg	
Caprimulgus pectoralis	Fiery-necked Nightjar	Afrikaanse Naguil	X
Ceryle rudis	Pied Kingfisher	Bontvisvanger	
Chalcomitra amethystina	Amethyst Sunbird	Swarsuikerbekkie	
Charadrius hiatucula	Common Ringed Plover	Ringnekstrandkiewiet	
Charadrius marginatus	White-fronted Plover	Vasllstrandkiewiet	
Charadrius tricollaris	Three-banded Plocer	Driebandstrandkiewiet	
Cinnyris afer	Greater Double-collared Sunbird	Groot-rooibandsuikerbekkie	X

Cinnyris chalybeus	Southern Double-collared Sunbird	Klein-rooibandsuikerbekkie	**X**
Circaetus cenereus	Brown Snake-Eagle	Bruinslangarend	
Circus ranivors	African Marsh-Harrier	Afrikaanse Paddavreter	
Cisticola fulcicapilla	Neddicky	Neddikkie	
Colius striatus	Speckled Mousebird	Gevlekte Muisvoël	**X**
Olumba arquatrix	African Olice-pigeon	Geelbekbosduif	
Columba guinea	Speckled Pigeon	Kransduif	**X**
Coracina ceasia	Grey Cuckooshrike	Bloukatakoeroe	
Other Birds Observed on Redhaus	Blacksmith Lapwing	Spotted Thick-Knee	
Burchell's Coucal	Cape Cormorant	Spur Winged Goose	
African Fish Eagle	Brown Throated Martin		
Africa Sacred Ibis	Cape Crow		
White-faced Whistling Duck	Common Moorhen		
African Hoopoe	Fork-tailed Drongo		
African Spoonbill	Pied Crow		

Declaration as a specialist

I *Benjamin Alan Walton* & *Peet Joubert*, as suitably qualified and experienced specialists in the fields of Botany and Biodiversity hereby declare/affirm the independence and correctness of the information provided or to be provided as part of the application, and that we:

- in terms of the general requirement to be independent:
- other than fair remuneration for work performed/to be performed in terms of this application, have no business, financial, personal or other interest in the activity or application and that there are no circumstances that may compromise our objectivity; or
- am not registered but another specialist that meets the general requirements set out in Regulation 13 has been appointed to review my work (Note: a declaration by the review specialist must be submitted);
- in terms of the remainder of the general requirements for a specialist, am fully aware of and meet all of the requirements and that failure to comply with any the requirements may result in disqualification;
- have disclosed/will disclose, to the applicant, the Department and interested and affected parties, all material information that have or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared or to be prepared as part of the application;
- am aware that a false declaration is an offence in terms of regulation 48 of the 2014 NEMA EIA Regulations.

Benjamin Walton: _____

Cape Vegetation Surveys and Nature Management Services

Date: ___16/3/2022_____

Peet Joubert: _____

Nature Management Services

Date: ___16/03/2022_____

The terms of reference of the review specialist.

I **Mark Sasman** am a SACNASP registered Environmental Scientist (400185/04). The internal review is confined to confirming that the content is accurate based on checks against the quoted mapping tools and available references and meets the requirements for a specialist biodiversity report in terms of issued guidelines. The authors Benjamin Walton, and Petrus Alwyn Joubert although not formally registered are highly experienced and qualified practitioners in this field. The conclusions and recommendations are reasonable and warranted given the data and discussion presented.

08/03/2022

M. Sasman (*Pr.Sci.Nat*.)

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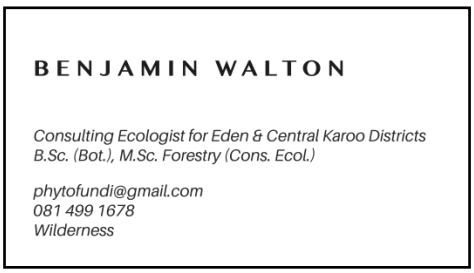
Western Cape Nature Conservation Board (CapeNature), Scientist: Land Use Advisor 2010-2017;

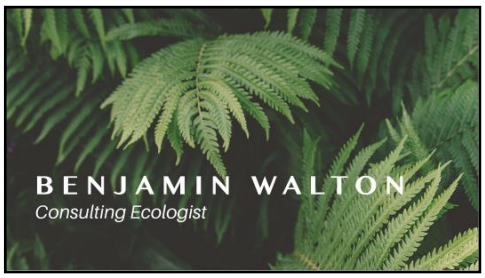
Department of Environmental Affairs and Development Planning, Principal Environmental Officer (George) 2008-2010;

Cape Vegetation Surveys: Consulting Botanist (Cape Town) 2006-2008;

Qualification: M.Sc. Forestry (Conservation Ecology), Stellenbosch University, 2001- 2006;

B.Sc. Botany, University of Cape Town, 1986-1989.





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Qualifications
Matric 1965
Botany 3, Zoology 3, Entomology 1, Communication science 1

Completed short courses
Environmental Law P.U. for C.H.O
Certificate Environmental Management (PU for C.H.O.)
Certificate in Land use planning for protected areas (Deutsche stiftung fur Internationale Entwicklung)
Course in Integrated Coastal Management (EEU UCT)
Certificate Environmental interpretation and Education. (Rhodes)
Training Course Tourism Environmental Assessment (SEACAM)
Executive course in Community Facilitation for Partnership (Wits Graduate School of Public and Development Management)
Executive course in Social Ecology for SANParks managers (Wits Graduate School of Public and Development Management)
Environmental Management Inspector Compliance and Enforcement Training course (Traffic &DEAT)

Work History
Technical Assistant Department of Plant Physiology University of Pretoria (1973-1975)
Technical Assistant National Institute for Water Research CSIR (1975- 1979)
Senior Information officer Tsitsikamma National Park (1979-1988)
Senior Information officer West Coast National Park (1988-1990)
Park Manager Knysna National Lake Area (1990-2007)
Private Independent Environmental Consultant (August 2007 -2021)

Experience
Environmental Education
Community Liaison and Communication
Integrated Environmental Management
Environmental Impact Assessments
Environmental Monitoring processes
Park Management and planning:
Marine, Estuarine, Fynbos and Indigenous Forest
Community Development
Rehabilitation

Present Activities
Environmental Director Garden Route Biosphere Reserve
Trustee for Pledge Nature Reserve in Knysna
Environmental Consultant

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