FEN CONSULTING

FRESHWATER COMPLIANCE STATEMENT

OF ERF 19134, FOR THE PROPOSED EXPANSION OF THE NEXUS STORAGE FACILITY FOR AGRICULTURAL CHEMICALS, PAARL, WESTERN CAPE PROVINCE

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Report reference:	FEN 22-5041

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GLOSSARY OF TERMS

Alien vegetation:	Plants that do not occur naturally within the area but have been introduced either intentionally or unintentionally. Vegetation species that originate from outside of the borders of the biome -usually international in origin.
Catchment:	The area where water is collected by the natural landscape, where all rain and run-off water ultimately flow into a river, wetland, lake, and ocean or contributes to the groundwater system.
Delineation (of a wetland):	To determine the boundary of a wetland based on soil, vegetation, and/or hydrological indicators.
Ecoregion:	An ecoregion is a "recurring pattern of ecosystems associated with characteristic combinations of soil and landform that characterise that region".
Facultative species:	Species usually found in wetlands (76%-99% of occurrences) but occasionally found in non-wetland areas
Gleying:	A soil process resulting from prolonged soil saturation which is manifested by the presence of neutral grey, bluish or greenish colours in the soil matrix.
Hydromorphic soil:	A soil that in its undrained condition is saturated or flooded long enough to develop anaerobic conditions favouring the growth and regeneration of hydrophytic vegetation (vegetation adapted to living in anaerobic soil).
Hydrology:	The study of the occurrence, distribution, and movement of water over, on and under the land surface.
Hydromorphy:	A process of gleying and mottling resulting from the intermittent or permanent presence of excess water in the soil profile.
Indigenous vegetation:	Vegetation occurring naturally within a defined area.
Obligate species:	Species almost always found in wetlands (>99% of occurrences).
Seasonal zone of wetness:	The zone of a wetland that lies between the Temporary and Permanent zones and is characterised by saturation from three to ten months of the year, within 50 cm of the surface
Temporary zone of wetness:	The outer zone of a wetland characterised by saturation within 50 cm of the surface for less than three months of the year.
Watercourse:	In terms of the definition contained within the National Water Act, 1998 (Act 36 of 1998) a watercourse means: • A river or spring; • A natural channel which water flows regularly or intermittently; • A wetland, dam, or lake into which, or from which, water flows; and • Any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse; • and a reference to a watercourse includes where relevant, its bed and banks.
Wetland:	"Land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil."
Wetland Vegetation (WetVeg) type:	Broad groupings of wetland vegetation, reflecting differences in regional context, such as geology, climate, and soil, which may, in turn, influence the ecological characteristics and functioning of wetlands.

DOCUMENT GUIDE

The table below provides the specialist report requirements for the assessment and reporting of impacts on areas with a **low sensitivity to the aquatic biodiversity** in terms of Government Notice 320 as promulgated in Government Gazette 43110 of 20 March 2020 in line with the Department of Environmental Affairs screening tool requirements, as it relates to the National Environmental Management Act, 1998 (Act No. 107 of 1998).

No.	Requirements	Section in Report
3.1	The compliance statement must be prepared by a suitably qualified specialist registered with the SACNASP, with expertise in the field of aquatic sciences.	Annexure B
3.2	The compliance statement must:	-
3.2.1	be applicable to the preferred site and the proposed development footprint;	Section 1, 2, 5 and Annexure A
3.2.2	confirm that the site is of "low" sensitivity for aquatic biodiversity	Section 5.1 and 7
3.2.3	indicate whether or not the proposed development will have an impact on the aquatic features.	Section 7
3.3	The compliance statement must contain, as a minimum, the following information:	-
3.3.1	contact details of the specialist, their SACNASP registration number, their field of expertise and a curriculum vitae;	Appendix B
3.3.2	a signed statement of independence by the specialist;	Appendix B
3.3.3	a statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;	Section 3.2
3.3.4	a baseline profile description of biodiversity and ecosystems of the site;	Section 5.1
3.3.5	the methodology used to verify the sensitivities of the aquatic biodiversity features on the site including the equipment and modelling used where relevant;	Section 3 and 5.1
3.3.6	in the case of a linear activity, confirmation from the aquatic biodiversity specialist that, in their opinion, based on the mitigation and remedial measures proposed, the land can be returned to the current state within two years of completion of the construction phase;	N/A
3.3.7	where required, proposed impact management outcomes or any monitoring requirements for inclusion in the EMPr;	Section 7
3.3.8	a description of the assumptions made as well as any uncertainties or gaps in knowledge or data; and	Section 1.1
3.3.9	any conditions to which this statement is subjected.	N/A
3.4	A signed copy of the compliance statement must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.	EAP to ensure this requirement is met.

1. INTRODUCTION

Freshwater Ecological Network (FEN) Consulting (Pty) Ltd was appointed by Sharples Environmental Services (the Environmental Assessment Practitioner (EAP)) to verify the presence of potential watercourses within Erf 19134, Paarl, within the Drakenstein Local Municipality, Western Cape Province (hereafter referred to as the "study area") and if appropriate, prepare a watercourse impact and compliance statement as part of the Environmental Authorisation (EA) process for the proposed expansion of the existing Nexus Storage Facility for Agricultural Chemicals within the study area. The proposed expansion entails the development of a facility that will accommodate an existing warehouse within the study area. This proposed development will hereafter be referred to as the "proposed expansion activities". A 500 m "zone of investigation" around the study area, (in accordance with Government Notice (GN) 509 of 2016 (as it relates to the National Water Act (Act No. 36 of 1998)), was generated to determine potential risks to possible watercourses associated with the study area. This will henceforth be referred to as the "investigation area". (Appendix A, Figures A1 and A2).

FEN was required to report on aspects of the watercourse biodiversity and provide input into any development constraints or enviro-legal constraints that may arise for the proposed development within the study area in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and the National Water Act, 1998 (Act No. 36 of 1998).

1.1 Assumptions and Limitations

- The determination of any wetland or riparian zone boundaries is confined to the study area and is based on a single site visit undertaken on the 8th of July 2022. All watercourses identified within the investigation area were delineated in fulfilment of GN 509 of the National Water Act, 1998 (Act No. 36 of 1998) using various desktop methods including the use of topographic maps, historical and current digital satellite imagery, and historical aerial photographs;
- No Present Ecological State (PES) and Ecological Importance and Sensitivity (EIS) assessment of watercourses were undertaken as part of the scope of work as the objective of this study was to primarily identify the presence and extent of any watercourses that could pose a constraint to development within the study area. An ecological assessment as well as risk/impact assessment of any watercourses must be undertaken as part of the Environmental Authorisation phase (should it be applicable);
- Global Positioning System (GPS) technology is inherently somewhat inaccurate, and some inaccuracies due to the use of handheld GPS instrumentation may occur; however, the delineations as provided in this report are deemed appropriately accurate to fulfil the authorisation requirements;
- Wetlands and/or riparian zones and terrestrial zones create transitional areas where an ecotone is formed as vegetation species change from terrestrial to obligate/facultative wetland or riparian species. Within this transition zone, some variation of opinion on the watercourse boundaries may occur. However, if the Department of Water Affairs and Forestry (DWAF)[1] (2008)[2] method is followed, all assessors should get largely similar results; and
- With ecology being dynamic and complex, certain aspects (some of which may be important) may have been overlooked. However, the delineations as provided in this report are deemed appropriately accurate to guide any future development plans.

[1] The Department of Water Affairs and Forestry (DWAF) was formerly known as the Department of Water Affairs (DWA). At present, the Department is known as the Department of Water and Sanitation (DWS). For the purposes of referencing in this report, the name under which the Department was known during the time of publication of reference material, will be used.

[2] Although an updated manual is available since 2008 (Updated Manual for the Identification and Delineation of Wetlands and Riparian Areas). This is still considered a draft document currently under review.

2. APPLICATION OF THE DEPARTMENT OF ENVIRONMENTAL AFFAIRS (DEA) SCREENING TOOL.

The protocol for the assessment of freshwater and aquatic biodiversity prepared in support of the Department of Forestry, Fisheries and Environment (DFFE) (previously the Department of Environmental Affairs (DEA)) national web based environmental screening tool (2020), provides the criteria for the assessment and reporting of impacts on aquatic/freshwater biodiversity for activities requiring EA. For the aquatic/freshwater biodiversity theme, the requirements are for sites which support various levels of biodiversity. The relevant aquatic/freshwater biodiversity theme in the national web based environmental screening tool (2020) has been provided by the South African National Biodiversity Institute (SANBI). Based on the sensitivity rating, a suitably qualified specialist must prepare the relevant report or opinion memo which is to be submitted as part of the EA application.

As part of the process of the background information gathering, FEN applied the DFFE (previously DEA) screening tool (2020) to the study area. According to the guidelines, an applicant intending to undertake an activity on a site identified as being of "very high sensitivity" for an aquatic biodiversity theme must submit an Aquatic Biodiversity Impact Assessment or if the area is identified as being of "low sensitivity" then an Aquatic Biodiversity Compliance Statement must be compiled and submitted to the competent authority. It is noted, however, that during a site survey undertaken by a suitably qualified freshwater ecologist should the sensitivity be determined to be different from that assigned by the screening tool (i.e., that a high risk to the regional aquatic biodiversity or freshwater ecosystems in the area is likely even though it is assigned as a "low" sensitivity, or if it is assigned a high sensitivity, however, the proposed development risks are deemed low) then the relevant assessment approach must be followed based on the site survey results and not the DFFE screening tool allocation. According to the national web based environmental screening tool, the **study area is located within an area of high aquatic/ freshwater biodiversity significance** (Figure 1).

Figure 1: Map of relative aquatic biodiversity according to the DFFE Screening Tool, indicating 'high' sensitivity within the study area (blue dashed outline).

3. ASSESSMENT APPROACH

3.1 Freshwater Ecosystem Definition

For the purposes of this investigation, the definition of a watercourse, wetland and riparian habitat was taken as per that in the National Water Act, 1998 (Act No. 36 of 1998). The definitions are as follows:

A **watercourse** means:

(a) a river or spring;
(b) a natural channel in which water flows regularly or intermittently;
(c) a wetland, lake, or dam into which, or from which, water flows; and
(d) any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse, and a reference to a watercourse includes where relevant, its bed and banks.

Riparian habitat includes the physical structure and associated vegetation of the areas associated with a watercourse which are commonly characterised by alluvial soil, and which are inundated or flooded to an extent and with a frequency sufficient to support vegetation of species with a composition and physical structure **distinct** from those of adjacent areas.

Wetland means "land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil."

3.2 Freshwater Ecosystem Site Verification

Verification of potential watercourses took place according to the method presented in the "Updated manual for the identification and delineation of wetland and riparian resources" (DWAF, 2008). The foundation of the method is based on the fact that watercourses have several distinguishing factors including the following:

- Landscape position;
- The presence of water at or near the ground surface;
- Distinctive hydromorphic soils;
- Vegetation adapted to saturated soils; and
- The presence of alluvial soils in riparian systems.

A field assessment was undertaken on the 8th of July (Western Cape winter period[3]) during which the presence of any riparian or wetland characteristics as defined by DWAF (2008) and by the NWA, were investigated (please refer to Section 6 of this report).

[3] Site surveys are recommended to take place during a seasonal period where the probability of detecting an identifiable life history stage of vegetation species (such as facultative vegetation species) is highest and in the raining period to ensure optimised conditions for the identification of seasonal watercourses, which may otherwise be overlooked. Thus, the site conditions at the time of the field assessment are considered to be in the correct time period following rainfall in the region.

4. DESKTOP INVESTIGATION FINDINGS

A background study of relevant national, provincial and municipal datasets (such as the National Freshwater Ecosystem Priority Areas [NFEPA] 2011 database; the Department of Water and Sanitation Research Quality Information Services [DWS RQIS PES/EIS], 2014 database, the National Biodiversity Assessment (NBA) 2018, and the Western Cape Biodiversity Spatial Plan (2017)), was undertaken to aid in defining presence of any watercourses prior to the site survey of the study area and associated 500 m investigation area (see Appendix A, Table 2).

The results are summarised in the points below with the relevant maps presented in Appendix A.

- According to the NFEPA (2011) database, there are no wetlands or rivers within the study area. The Berg River is indicated within the central western portion of the investigation area and the Hugos River is indicated within the south eastern portion of the investigation area. Both the Berg and Hugos Rivers are indicated to be in a largely modified ecological condition (Class D) per the NFEPA (2011) database;
- According to the NBA (2018) database, there are no wetlands or rivers within the study area. A natural channelled valley bottom wetland and a natural unchanneled valley bottom wetland are indicated within the south eastern portion of the investigation area. The channelled valley bottom wetland is indicated to be in a largely to critically modified ecological condition (Class D/E/F), while the unchanneled valley bottom wetland is indicated to be moderately modified (Class C). As per the NFEPA (2011) database, the NBA (2018) database also indicates the Berg River within the central western portion of the investigation area and the Hugos River within the south eastern portion of the investigation area;
- According to the Western Cape Biodiversity Spatial Plan (WCBSP) (2017), only the western boundary of the study area is classified as an Ecological Support Area (ESA) 2. ESAs are areas that are not essential for meeting biodiversity targets but play an important role in supporting the functioning of Protected Areas (PAs) or Critical Biodiversity Area (CBAs) and are often vital for delivering system services;
- The study area falls within the G10C quaternary catchment.

5. RESULTS

5.1 Site survey outcome

No watercourses were identified within study area during the field assessment. The study area is built-up (comprising a warehouse and two buildings with covered pavement around the buildings). The Berg River, as indicated by the NFEPA (2011) and NBA (2018) databases (Appendix A), was identified to be located outside and along the western boundary of the study area (approximately 26 m to the west of the study area) (Figure 2). The Berg River flows in a generally northerly direction and is confluence by the Hugos approximately 272 m south of the study area. The western boundary of the study area was investigated relative to the Berg River.

The Berg River has been impacted by landuse changes in the upstream catchment, primarily agricultural practices and expanding urban development. Consequently, both the instream and riparian habitat integrity of the assessed reach of the Berg River are considered modified. Impacts arising in the catchment include, amongst others, direct (i.e., road crossings) and edge effects (increased stormwater input) from linear developments, agricultural activities upstream (nutrient, pesticide and fertilizer input), proliferation of alien and invasive plants, reduction of the riparian vegetation buffer along the Berg River and sedimentation of the active channel. The banks of this system is lined with gabions, particularly the reach of the river directly underneath the Oosbosch Street bridge crossing. Although modified, the Berg River still plays an important role in providing hydraulic connectivity a diversity of habitat and in connecting a variety of habitats within its catchment. The reach of the Berg River adjacent to the study

area is indicated as an aquatic CBA 1 and ESA 2 (WCBSP, 2017). The river is not considered to be particularly sensitive to changes in floods but is considered sensitive to changes in water quality and is significantly impacted due to the influx of enriched surface runoff from agricultural fields and roads which may have a negative impact on biota.

Overall, the system is well vegetated with a variety of terrestrial and facultative wetland species. Various alien and invasive tree species are located in the marginal and non-marginal zone (*Acacia saligna* and *Eucalyptus sp.* most prevalent). Additionally, *Phragmites australis* dominates the western embankment and active channel of the river. This invasion (by alien tree species and indigenous reed species) is attributed to the disturbance associated with the removal of indigenous vegetation from the buffer zone of the river and the prevalence of these species within the surrounding areas, making the riparian vegetation zone vulnerable to such invasions. Despite this, the vegetation provides sufficient surface roughness and aids with erosion control of the river embankments and provides a diversity of habitat types for faunal species. Due to the influx of (presumably) contaminated stormwater and the disposal of litter and rubble noted in the system, the water quality in the system is considered degraded. The Berg River is still considered to be of importance in terms of the provision of an ecological corridor through a largely transformed landscape.

The western boundary of the study area is not bounded by a fence. However, a precast concrete (vibracrete) wall bounds the area to the west of the study area, thus providing a barrier between the study area and the Berg River (Figure 2). With the exception of the for the municipal stormwater outlet into the Berg River, no obvious discharge points from the study area into the river were identified (Figure 2). As such, no existing impacts from the activities within the study area on the Berg River were noted.

Figure 2: (Top) overview of the Berg River relative to the western boundary of the study area (red line). (Bottom left) the Berg River is well vegetated (albeit predominantly by alien and invasive plant species) with no obvious erosion noted. (Bottom right) an existing municipal stormwater outlet into the Berg River associated with the study area. The gabion structures along the Berg River embankment assist with the release of stormwater in an attenuated manner.

The delineated extent of the Berg River and associated legislative regulated zones (refer to Section 6) relative to the study area is provided in Figure 3.

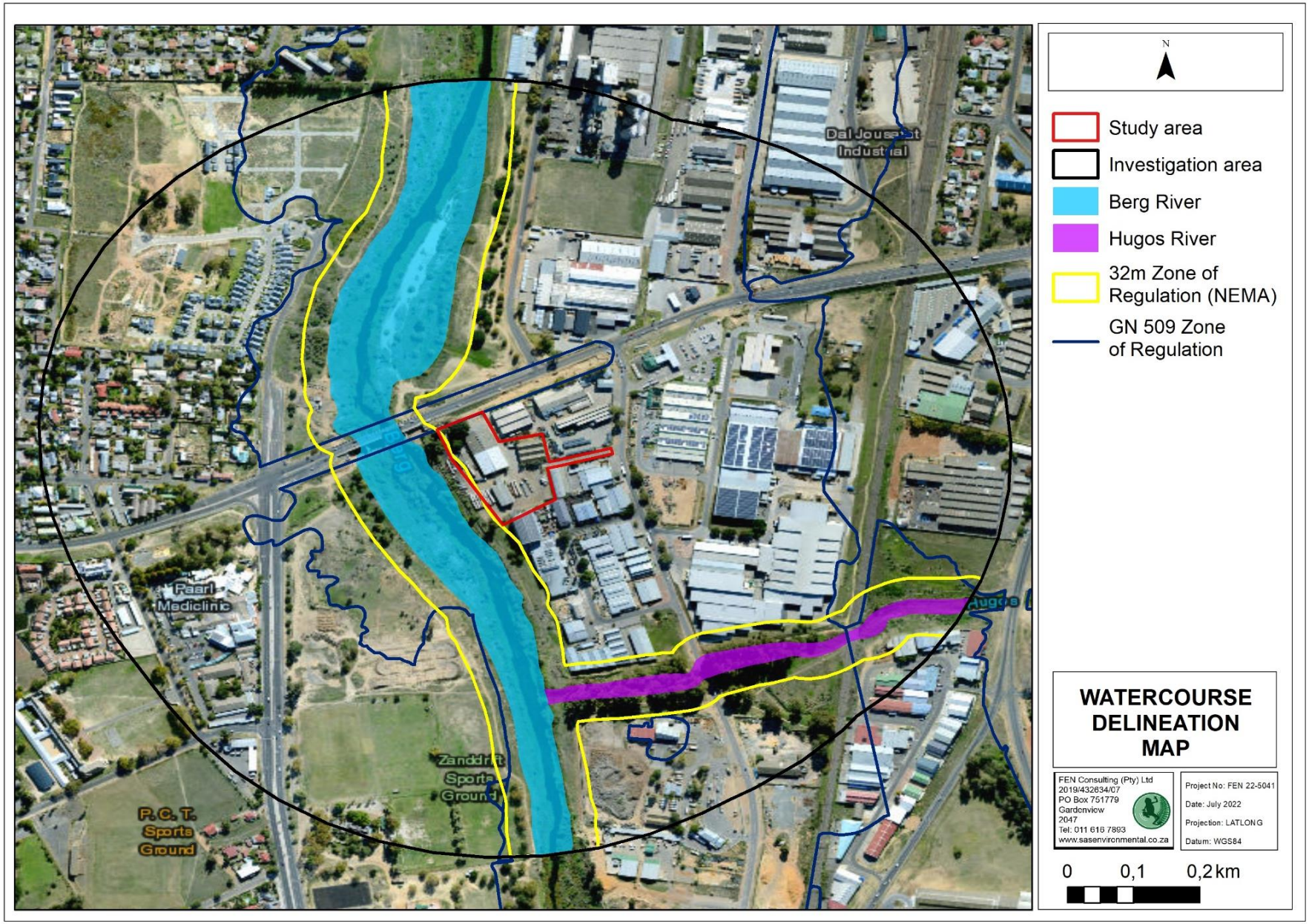

Figure 3: A map depicting the delineated extent of the watercourses and associated legislative regulated zones (refer to Section 6).

6. LEGISLATIVE REQUIREMENTS

The definition and motivation for a regulated zone of activity for the protection of watercourses can be summarised as follows:

Table 1: Articles of Legislation and the relevant zones of regulation applicable to each article.

Regulatory authorisation required	Zone of applicability
Water Use License Application for water uses as stipulated in Section 21(c) and (i) of the National Water Act, 1998 (Act No. 36 of 1998). **Department of Water and Sanitation (DWS)**	**Government Notice 509 as published in the Government Gazette 40229 of 2016 as it relates to the National Water Act, 1998 (Act No. 36 of 1998)** In accordance with GN509 of 2016 as it relates to the National Water Act, 1998 (Act No. 36 of 1998), a regulated area of a watercourse in terms of water uses as listed in Section 21 (c) and 21(i) is defined as: • the **outer edge of the 1 in 100 year flood line and/or delineated riparian habitat, whichever is the greatest distance**, measured from the middle of the watercourse of a river, spring, natural channel, lake or dam; • in the absence of a determined 1 in 100 year flood line or riparian area the area within 100 m from the edge of a watercourse where the edge of the watercourse is the first identifiable annual bank fill flood bench; or • a 500 m radius from the delineated boundary (extent) of any wetland or pan in terms of this regulation.
Listed activities in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) EIA Regulations (2014), as amended. **Department of Forestry, Fisheries and Environment (DFFE)**	**Activity 12** of Listing Notice 1 (GN 327) of the National Environmental Management Act, 1998 (Act No.107 of 1998) EIA regulations, 2014 (as amended) states that: The development of – (i) Dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square meters; or (ii) Infrastructure or structures with a physical footprint of 100 square meters or more; Where such development occurs – (a) Within a watercourse; (b) In front of a development setback; or (c) If no development setback exists, **within 32 meters** of a watercourse measured from the edge of a watercourse.

As per the table above, the following applies to the identified Berg River west of the study area and watercourses within the investigation area (Figure 3):

- A 32 m Zone of Regulation (ZoR) in accordance with the National Environmental Management Act, 1998 (Act No. 107 of 1998); and a
- A GN509 Zone of Regulation, in accordance with the National Water Act, 1998 (Act No. 36 of 1998) for the Berg River and Hugos River is considered the combined extent of the delineated edge of the rivers and the modelled 1:100 year floodline.

As the western boundary of the study area is located within 32 m of a watercourse, listed activities applicable to watercourses, in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) may potentially be triggered. The 1:100 year floodline of the Berg River is applicable to the subject property as the GN509 ZoR in in accordance with the National Water Act, 1998 (Act No. 36 of 1998). It is thus recommended that the proponent consult with the Department of Water and Sanitation (DWS), the custodian of water resources in South Africa, to determine the relevant authorisation process (if any) that should be followed in terms of the requirements of the National Water Act 1998 (Act No. 36 of 1998).

7. BUSINESS CASE, OPPORTUNITIES AND CONSTRAINTS APPLICABLE TO THE STUDY AREA

During the field assessment, no natural watercourses were identified within the study area. The Berg River was identified outside the western boundary of the study area, approximately 26 m to the west. Considering that the proposed expansion activities will be limited to the existing footprint within the study area and that a solid precast concrete fence bounds the western boundary of the study area from the Berg River, from a watercourse management perspective, impacts on the receiving freshwater environment due to the proposed expansion activities are unlikely to impact upon any watercourse services or functions. However, since the study area is partially located within 32 m of a watercourse, listed activities applicable to watercourses, in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) are potentially triggered. Should the proposed expansion activities be located outside the 32 m ZoR in accordance with the National Environmental Management Act, 1998 (Act No. 107 of 1998), and suitable control measures as listed below are implemented, it is the opinion of the freshwater ecologist that the proposed expansion activities may be considered acceptable.

Control measures that must be implemented during the construction and operational phase of the proposed expansion activities:

- It is imperative that the proponent ensures that the operation of the proposed expansion activities does not generate any effluent or pollution that could impact on the Berg River. An emergency plan should be compiled to ensure a quick response in case of an accidental spill of hazardous materials associated with the storage facility. Should such an accident occur, all possible steps must be taken to prevent the pollution of the Berg River during clean up / repair, including eliminating improper discharges to the stormwater management infrastructure. The installation of a cut-off valve within the stormwater management system should such a spillage occur as proposed by the Nexus Operations Manager is highly recommended and supported by the freshwater ecologist;
- All stormwater runoff generated in the study area must be managed in appropriate stormwater management structures and released in an appropriately attenuated manner. Regular inspection of the stormwater management infrastructure in the study area must be undertaken to ensure proper functioning thereof;
- Based on *pers. comm*. with the Nexus Operations Manager, Mrs Lizelle Schwarte, the municipal stormwater infrastructure releasing into the Berg River is currently blocked. Therefore, appropriate measures should be taken by the proponent to ensure that the municipality attends to the required stormwater management and repair duties, preferably prior to the commencement of the proposed expansion activities, to ensure that stormwater from the proposed expansion activities is appropriately managed and sufficiently accommodated;
- Suitable dust management practices must be implemented for the duration of the construction phase to prevent dust deposition in the Berg River that could lead to sedimentation thereof;
- No construction personnel may enter the Berg River or access the study area along the western boundary. Access to the study area must be limited to the existing access area along the eastern boundary;
- All operational activities must be contained and managed within the existing footprint of the study area, and remain outside the 32 m NEMA ZoR;
- General good housekeeping practices must be implemented during all phases of the proposed development, to ensure limited direct, indirect and cumulative impacts to the Berg River.

Should the abovementioned control measure be implemented, the construction and operation of the proposed expansion activities are expected to pose a low risk significance to the Berg River.

The study area may potentially be subject to the GN509 ZoR as it relates to the National Water Act, 1998 (Act No. 36 of 1998) (Table 1). As such, it is recommended that the proponent consult with the Department of Water and Sanitation (DWS) as the custodian of water resources in South Africa, to determine the relevant authorisation process that should be followed in terms of the requirements of the National Water Act 1998 (Act No. 36 of 1998). However, it must be noted that if the control measures as listed in this memo are implemented, the proposed expansion activities are expected to pose a low risk significance to the Berg River and it is the opinion of the freshwater ecologist that registration by means of confirmation of General Authorization is possible. The Berg River is considered a watercourse of aquatic biodiversity importance, however due to the nature of the proposed operation, the study area can be considered of low aquatic biodiversity sensitivity with the condition that the proposed expansive activities remain strictly outside the 32 m ZoR in accordance with the National Environmental Management Act, 1998 (Act No. 107 of 1998). This compliance statement must be submitted to the relevant competent authority for consideration as part of the EA process.

8. REFERENCES

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ANNEXURE A: DATABASE DASHBOARD AND PROJECT MAPS

Table 2: Desktop data relating to the characteristics of the watercourses associated with the study area.

Aquatic ecoregion and sub-regions in which the study area is located		Detail of the study area in terms of the National Freshwater Ecosystem Priority Area (NFEPA) (2011) database	
Ecoregion	South Western Coastal Belt	FEPACODE	The study area is located within a sub-quaternary catchment not considered to be a freshwater ecosystem priority area (FEPA CODE = 0).
Catchment	Berg/Bot/Potberg		
Quaternary Catchment	G10C		
WMA	Berg		
subWMA	Upper Berg		
Dominant characteristics of the South Western Coastal Belt Ecoregion Level II (24.06) (Kleynhans *et al.*, 2007)		NFEPA Wetlands (Figure A3)	According to the NFEPA database (2011), no wetlands are located within the study and investigation areas.
Level II Code	24.06		
Dominant primary terrain morphology	Moderately Undulating Plains, Hills, Plains		
Dominant primary vegetation types	West Coast Renosterveld, Mountain Fynbos, Sand Plain Fynbos		
Altitude (m a.m.s.l)	100 - 1100	Wetland Vegetation Type	The entire study area is located within the Southwest Alluvium Fynbos Wetland Vegetation type. This wetland vegetation type is considered to be endangered according to Mbona *et al.* (2015).
MAP (mm)	500 - 800		
The coefficient of Variation (% of MAP)	< 20 - 30		
Rainfall concentration index	30 - 55	NFEPA Rivers (Figure A3)	As per the NFEPA database (2011), no rivers are located within the study area. The Berg River is located directly west of the study area, approximately 63 m to the west of the study area. The Hugos River, a tributary of the Berg River, is located approximately 286 m to the south east of the study area. Both the Berg and Hugos Rivers are indicated to be in a largely modified ecological condition (Class D).
Rainfall seasonality	Winter		
Mean annual temp. (°C)	14 - 18		
Winter temperature (July)	6 - 18		
Summer temperature (Feb)	14 - 28		
Median annual simulated runoff (mm)	100 - > 250		
Importance of the study area according to the Western Cape Biodiversity Spatial Plan (2017) (Figure A4)			
According to the Western Cape Biodiversity Spatial Plan (2017), only the western boundary of the study area is classified as an Ecological Support Area (ESA) 2. ESAs are areas that are not essential for meeting biodiversity targets but play an important role in supporting the functioning of Protected Areas (PAs) or CBAs and are often vital for delivering system services. A distinction is made between ESAs that are still likely to be functional (ESA 1) or areas that are severely degraded or have no natural cover remaining and therefore require restoration (ESA 2). The central western and south eastern portions of the investigation area are located in areas classified as Critical Biodiversity Area (CBA) 1 and CBA 2. CBAs are areas of high biodiversity and ecological value and need to be kept in a natural or near natural state to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure, with no further loss of habitat or species. CBA 1 are areas likely to be in a natural condition and CBA 2 are those areas that are potentially degraded or represent secondary vegetation.			
National Biodiversity Assessment (2018): South African Inventory of Inland Aquatic Ecosystems (SAIIAE) (National Wetland Map 5 is included in the NBA) (Figure A5)			
According to the NBA 2018, no wetlands are located within the study area. A natural channelled valley bottom wetland and a natural unchanneled valley bottom wetland are indicated within the south eastern portion of the investigation area. The channelled valley bottom wetland is indicated to be in a largely to critically modified ecological condition (Class D/E/F), while the unchanneled valley bottom wetland is indicated to be moderately modified (Class C). Both wetlands are indicated as critically endangered according to the Ecosystem Threat Status (ETS) and poorly protected according to the ecosystem protection level (EPL). The Berg River is located approximately 63 m to the west of the study area. The Hugos River, a tributary of the Berg River, is located approximately 286 m to the south east of the study area. Both the Berg and Hugos Rivers are indicated to be in a largely modified ecological condition (Class D), critically endangered according to the ETS and not protected according to the EPL, per the available database.			
National Web Based Environmental Screening Tool (2020): Aquatic Biodiversity sensitivity			
The screening tool is intended for pre-screening of sensitivities in the landscape to be assessed within the EIA process. This assists with implementing the migration hierarchy by allowing developers to adjust their proposed development footprint to avoid sensitive areas.	The entire study and investigation areas are considered of very high aquatic biodiversity sensitivity. This is due to the presence of rivers within the investigation area as identified by the NFEPA (2011) and NBA (2018) databases. The study and investigation areas are also located in an area considered as a strategic water source area. According to the Strategic Water Source Area Database (2017), both the study and investigation areas are located within the Boland Surface Water Area.		

CBA = Critical Biodiversity Area; EI = Ecological Importance; EN = Endangered; EPL = Ecosystem Protection Level ES = Ecological Sensitivity; ESA = Ecological Support Area; ETS = Ecosystem Threat Status; m.a.m.s.l = Metres above mean sea level; MAP = Mean Annual Precipitation; NFEPA = National Freshwater Ecosystem Priority Area; PA = Protected Area; PES = Present Ecological State; WMA = Water Management Area.

Figure A1: A digital satellite image depicting the study area and associated investigation area in relation to the surrounding area.

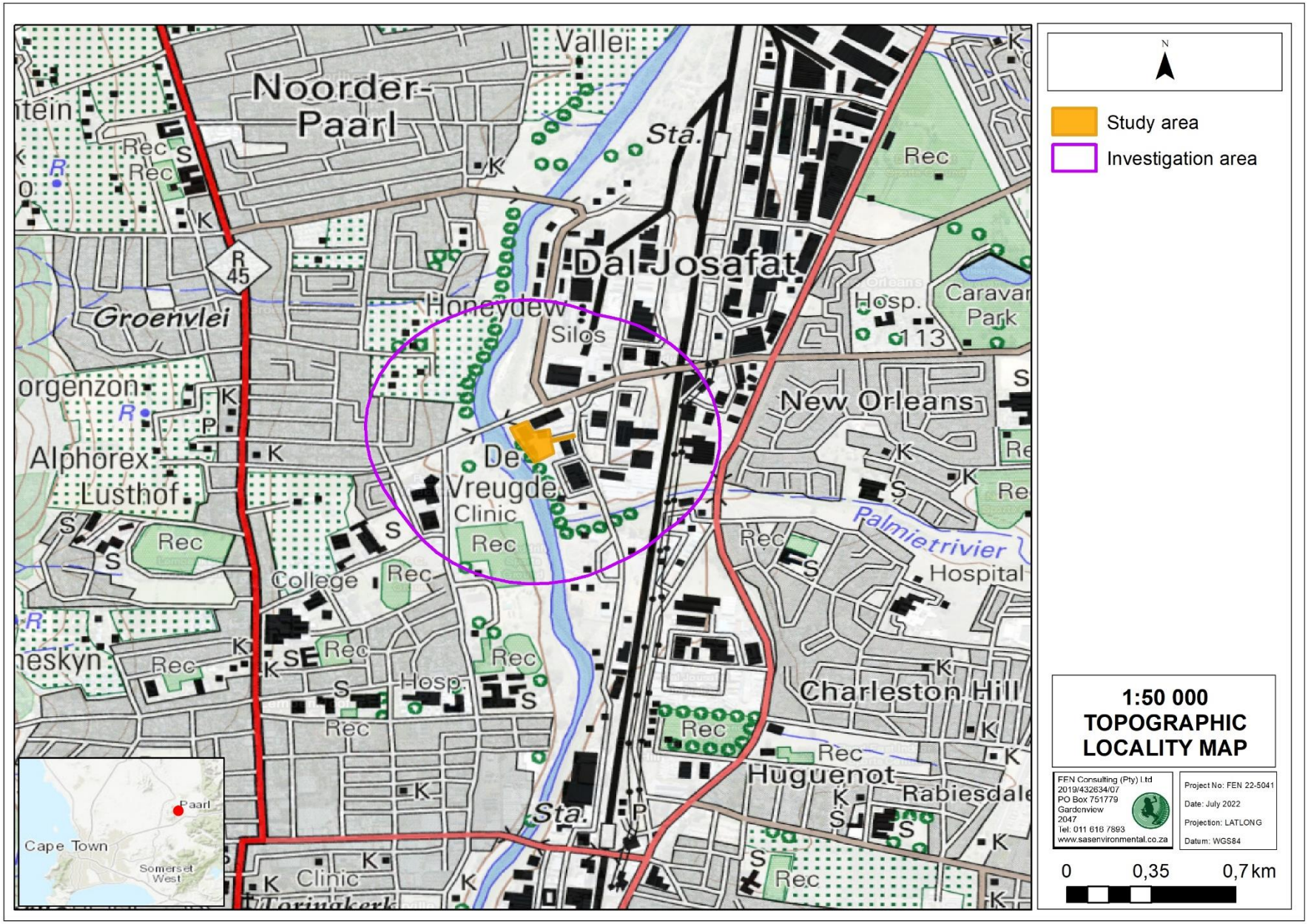


Figure A2: The study area and associated investigation area depicted on a 1:50 000 topographical map in relation to the surrounding area.

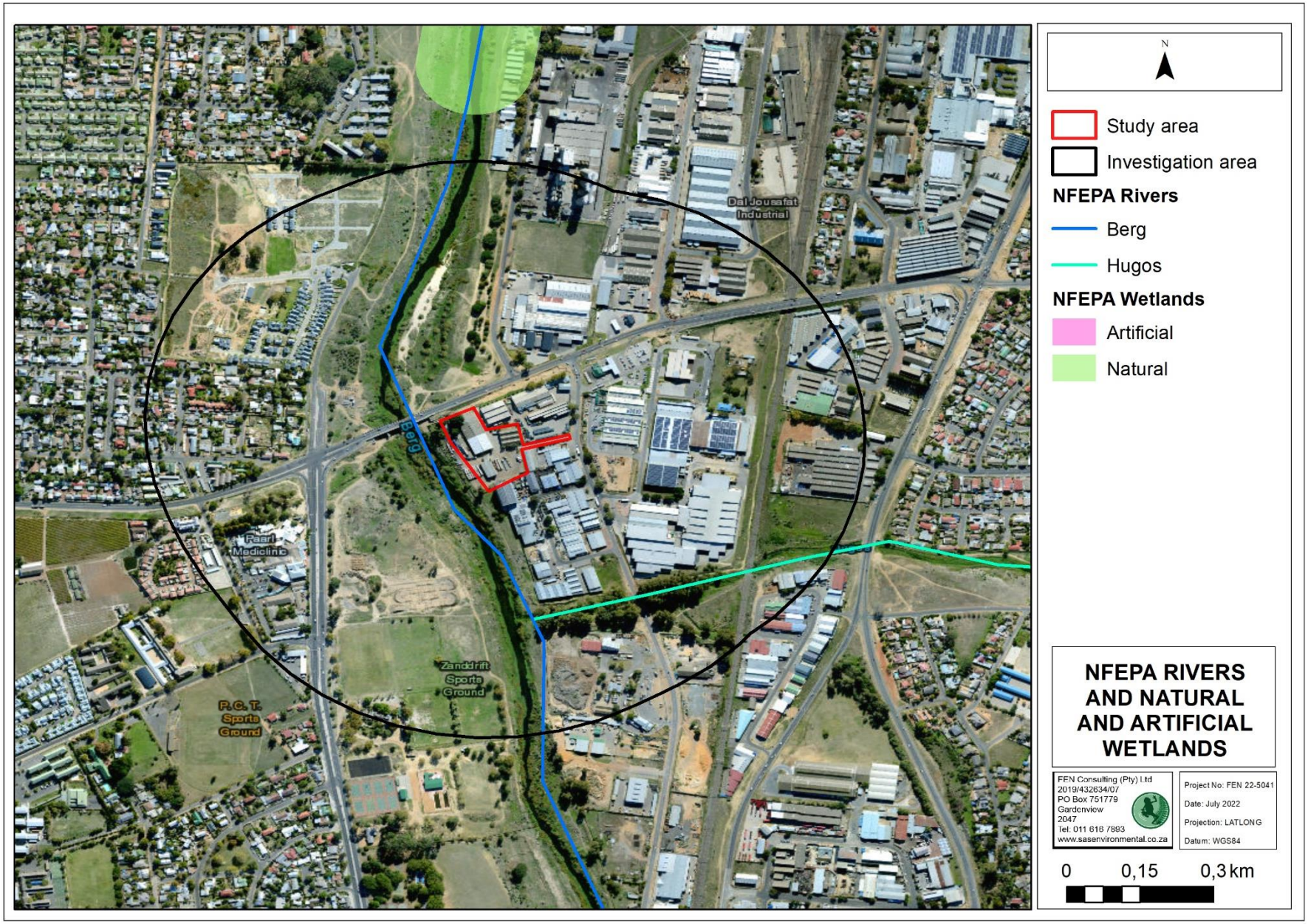


Figure A3: NFEPA Rivers associated with the study and investigation areas as indicated by the NFEPA database (NFEPA, 2011).

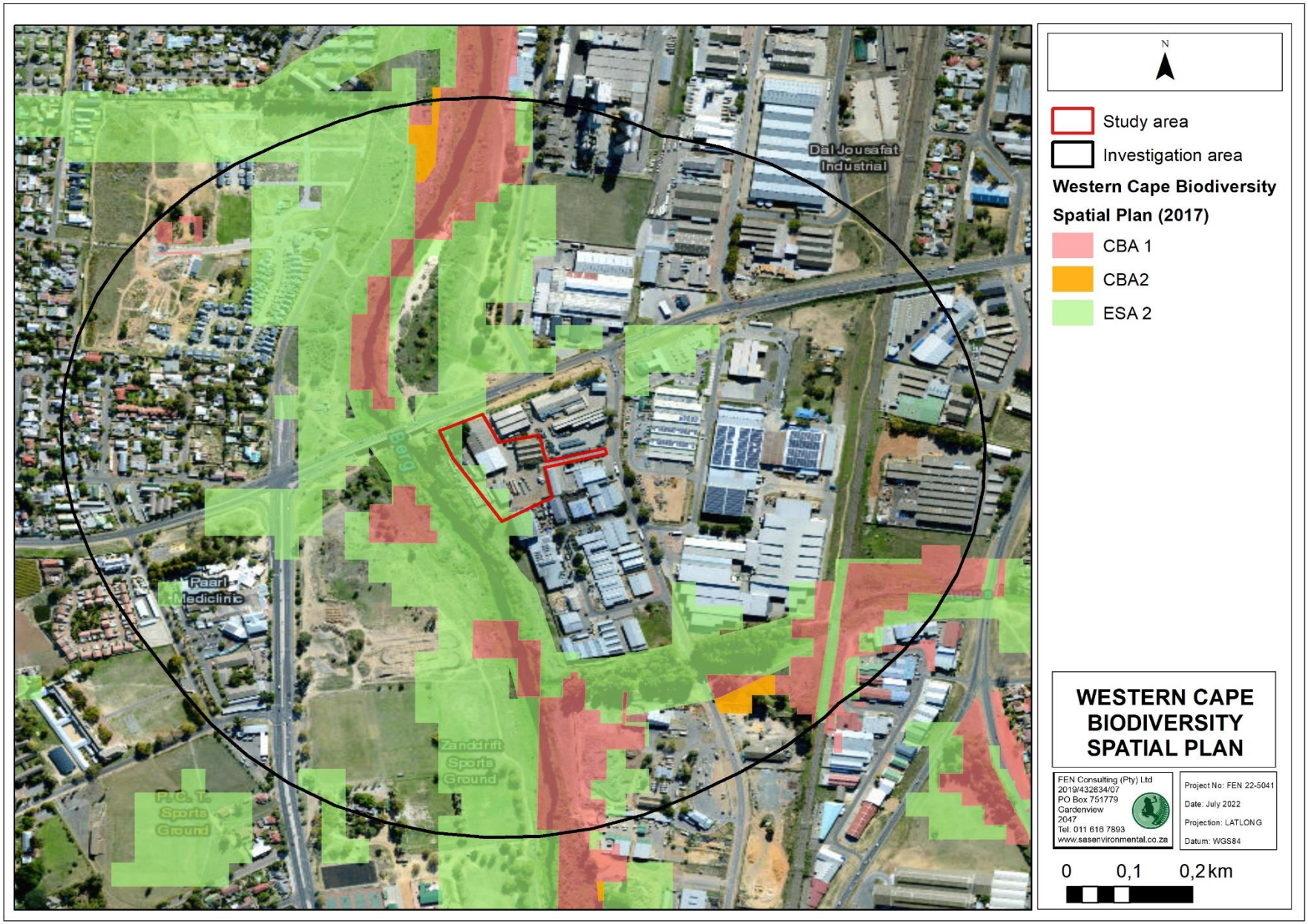


Figure A4: Areas of ecological importance associated with the study and investigation areas as indicated by the Western Cape Biodiversity Spatial Plan (2017).

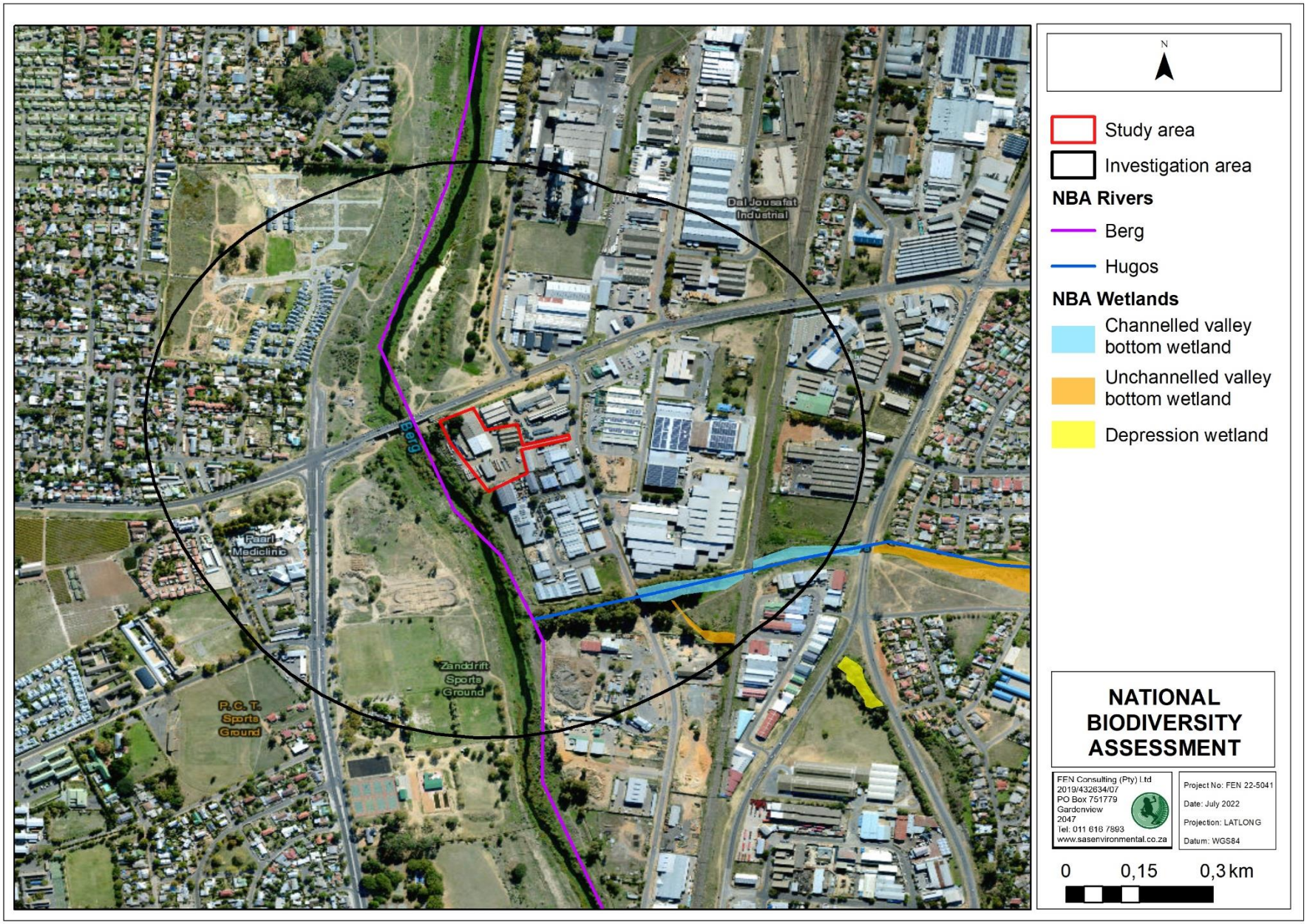


Figure A5: Wetlands identified to be associated with the study and investigation areas, as identified by the National Biodiversity Assessment Dataset (2018).

ANNEXURE B: Details, Expertise And Curriculum Vitae Of Specialists

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

Rabia Mathakutha MSc Plant Sciences (University of Pretoria)
Stephen van Staden MSc Environmental Management (University of Johannesburg)

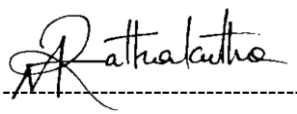
1. (a). (ii) The expertise of that specialist to compile a specialist report including a curriculum vitae

Company of Specialist:	SAS Environmental Gorup of Companies		
Name / Contact person:	Rabia Mathakutha		
Postal address:	221 Riverside Lofts, Tygerfalls Boulevard, Bellville,		
Postal code:	7539	Cell:	083 739 2284
Telephone:	011 616 7893	Fax:	086 724 3132
E-mail:	rabia@sasenvgroup.co.za		
Qualifications	MSc Plant Sciences (University of Pretoria)		
Registration / Associations	Registered Professional Scientist at South African Council for Natural Scientific Professions (SACNASP)		

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

I, Rabia Mathakutha, declare that -

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



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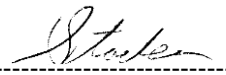
1. (b) a declaration that the specialist is independent in a form as may be specified by the competent authority

I, Stephen van Staden, declare that -

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



Signature of the Specialist

SAS ENVIRONMENTAL GROUP OF COMPANIES – SPECIALIST CONSULTANT INFORMATION

CURRICULUM VITAE OF RABIA MATHAKUTHA

PERSONAL DETAILS

Position in Company	Freshwater Ecologist
Joined SAS Environmental Group of Companies	2020

MEMBERSHIP IN PROFESSIONAL SOCIETIES

Candidate member of the South African Council for Natural Scientific Professions (SACNASP – Reg. No. 120040)
Member of the Western Cape Wetland Forum (WCF)
South African Association of Botany (SAAB)

EDUCATION

Qualifications

MSc Plant Science (University of Pretoria)	2018
BSc (Hons) Environmental Science (Biogeography) (University of KwaZulu-Natal)	2015
BSc Environmental Science (Life Science stream) (University of KwaZulu-Natal)	2014

Short Courses

Tools for Wetland Assessment (Rhodes University)	2021
Official DWS Section 21 (c) and (i) Water Use Authorisation Course	2018
Basic and Applied Statistics in R	2016

AREAS OF WORK EXPERIENCE

South Africa – Gauteng, Mpumalanga, Western Cape, Northern Cape, Eastern Cape
Africa – Lesotho, Mozambique

KEY SPECIALIST DISCIPLINES

Freshwater Assessments

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

SAS ENVIRONMENTAL GROUP OF COMPANIES
SPECIALIST CONSULTANT INFORMATION –

CURRICULUM VITAE OF STEPHEN VAN STADEN

PERSONAL DETAILS

Position in Company	Managing Member, Group CEO, Water Resource Discipline Lead, Ecologist, Aquatic Ecologist
Date of Birth	13 July 1979
Nationality	South African
Languages	English, Afrikaans
Joined SEGC	2003 (year of establishment)
Other Business	Trustee of the Serenity Property Trust

MEMBERSHIP IN PROFESSIONAL SOCIETIES

Registered Professional Scientist at South African Council for Natural Scientific Professions (SACNASP)
Accredited River Health Practitioner by the South African River Health Program (RHP)
Member of the South African Soil Surveyors Association (SASSO) Member of the Gauteng Wetland Forum
Member of the Gauteng Wetland Forum;
Member of International Association of Impact Assessors (IAIA) South Africa;
Member of the Land Rehabilitation Society of South Africa (LaRSSA)

EDUCATION

Qualifications

MSc Environmental Management (University of Johannesburg)	2003
BSc (Hons) Zoology (Aquatic Ecology) (University of Johannesburg)	2001
BSc (Zoology, Geography and Environmental Management) (University of Johannesburg)	2000

Short Courses

Integrated Water Resource Management, the National Water Act, and Water Use Authorisations, focusing on WULAs and IWWMPs	2017
Tools for Wetland Assessment (Rhodes University)	2017
Legal liability training course (Legricon Pty Ltd)	2018
Hazard identification and risk assessment training course (Legricon Pty Ltd)	2018
Wetland Management: Introduction and Delineation (WLID1502S) (University of the Free State)	2018
Hydropedology and Wetland Functioning (TerraSoil Science and Water Business Academy)	2018

CORE FIELDS OF EXPERTISE

Legislative Requirements, Processes and Assessments
- Water Use Applications (Water Use Licence Applications / General Authorisations)
- Environmental and Water Use Audits
- Freshwater Resource Management and Monitoring as part of EMPR and WUL conditions

Freshwater Assessments
- Freshwater (wetland / riparian) Delineation and Assessment
- Freshwater Eco Service and Status Determination
- Rehabilitation Assessment / Planning
- Maintenance and Management Plans
- Plant Species and Landscape Plans
- Freshwater Offset Plans
- Hydropedological Assessment
- Pit Closure Analysis

Aquatic Ecological Assessment and Water Quality Studies
- Habitat Assessment Indices (IHAS, HRC, IHIA & RHAM)
- Aquatic Macro-Invertebrates (SASS5 & MIRAI)
- Fish Assemblage Integrity Index (FRAI)
- Fish Health Assessments
- Riparian Vegetation Integrity (VEGRAI)
- Toxicological Analysis
- Water quality Monitoring
- Screening Test
- Riverine Rehabilitation Plans

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

Soil and Land Capability Assessment
- Soil and Land Capability Assessment
- Hydropedological Assessment

Visual Impact Assessment
- Visual Baseline and Impact Assessments
- Visual Impact Peer Review Assessments