



WORKING FOR WETLANDS REHABILITATION PROGRAMME, NORTH WEST PROVINCE

FINAL BASIC ASSESSMENT REPORT

DEA REF. NO.: 14/12/16/3/3/1/1134

APRIL 2014



agriculture,
forestry & fisheries

Department:
Agriculture, Forestry and Fisheries
REPUBLIC OF SOUTH AFRICA



EXPANDED PUBLIC WORKS PROGRAMME
Creating opportunities towards human fulfilment

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Table of Contents

CONTECT DOCUMENT	I
LIST OF ACRONYMS AND ABBREVIATIONS	XI

BASIC ASSESSMENT

EXECUTIVE SUMMARY OF THE CONTENTS OF THE BASIC ASSESSMENT REPORT	3
--	---

SECTION A: ACTIVITY INFORMATION

1. PROJECT DESCRIPTION	6
2. FEASIBLE AND REASONABLE ALTERNATIVES	15
3. PHYSICAL SIZE OF THE ACTIVITY	20
4. SITE ACCESS	21
5. LOCALITY MAP	22
6. LAYOUT/ROUTE PLAN	23
7. SENSITIVITY MAP	23
8. SITE PHOTOGRAPHS.....	23
9. FACILITY ILLUSTRATION	24
10. ACTIVITY MOTIVATION	24
11. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES.....	29
12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT	30
13. WATER USE	32
14. ENERGY EFFICIENCY	33

SECTION B: SITE/AREA/PROPERTY DESCRIPTION.....

1. GRADIENT OF THE SITE	36
2. LOCATION IN LANDSCAPE.....	36
3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE	36
4. GROUNDCOVER	37
5. SURFACE WATER.....	37
6. LAND USE CHARACTER OF SURROUNDING AREA.....	37
7. CULTURAL/HISTORICAL FEATURES.....	38
8. SOCIO-ECONOMIC CHARACTER	39

9. BIODIVERSITY	41
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SECTION C: PUBLIC PARTICIPATION 44

1. ADVERTISEMENT AND NOTICE	44
2. DETERMINATION OF APPROPRIATE MEASURES.....	44
3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES	45
4. COMMENTS AND RESPONSE REPORT	45
5. AUTHORITY PARTICIPATION	45
6. CONSULTATION WITH OTHER STAKEHOLDERS	46

SECTION D: IMPACT ASSESSMENT 47

1. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES	47
2. ENVIRONMENTAL IMPACT STATEMENT.....	60

SECTION E:RECOMMENDATION OF PRACTITIONER 62

SECTION F: APPENDIXES..... 64

INDEX OF FIGURES

FIGURE 1: QUARTERNARY CATCHMENTS IDENTIFIED FOR THE WFWETLANDS PROGRAMME 2014/2015 PLANNING CYCLE IN NORTH WEST ARE: A21K, A22F.....	8
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WORKING FOR WETLANDS: CONTEXT DOCUMENT

1. Introduction

Working for Wetlands (WfWetlands) is a government programme managed by the South African National Biodiversity Institute (SANBI), and is a joint initiative of the Departments of Environmental Affairs (DEA), Water Affairs (DWA) and Agriculture, Forestry and Fisheries (DAFF). In this way the programme is an expression of the overlapping wetland-related mandates of the three parent departments, and besides giving effect to a range of policy objectives, also honours South Africa's commitments under several international agreements, especially the Ramsar Convention on Wetlands.

The programme is mandated to rehabilitate damaged wetlands and to protect pristine wetlands throughout South Africa, with an emphasis on complying with the principles of the Expanded Public Works Programme (EPWP) and using only local Small, Medium and Micro Enterprises (SMMEs). The EPWP seeks to draw significant numbers of unemployed people into the productive sector of the economy, gaining skills while they work and increasing their capacity to earn an income.

2. Wetlands and their importance

Once considered valueless wastelands that needed to be drained or converted to more useful land use purposes, wetlands are now seen in an entirely different light. Today wetlands are more commonly perceived as natural assets and natural infrastructure able to provide a range of products, functions and services free of charge.

That which actually constitutes a wetland is often not fully understood. Common misconceptions have been that wetlands must be wet, must have a river running through them, or must always be situated in low-lying areas. The definition of a wetland is much broader and more textured: they are characterised more by soil properties and flora than by an abundance of water.

The National Water Act, No. 36 of 1998 defines a wetland as:

“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 water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil”.

The Ramsar Convention defines wetlands as:

“areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed 6m” (Article 1, Ramsar Convention on Wetlands. 1971).

Wetlands can therefore be seasonal and may experience regular dry spells (sometimes even staying dry for up to several years), or they can be frequently or permanently wet. Wetlands can occur in a variety of locations across the landscape (Plate A), and may even occur at the top of a hill, nowhere near a river. A pan, for example, is a wetland which forms in a depression. Wetlands also come in many sizes; they can be as small as a few square metres (e.g. at a low point along the side of a road) or cover a significant portion of a country (e.g. the Okavango Delta).



Plate A: A large, seasonal wetland identifiable by the characteristic flora. This wetland contained no surface water at the time of the photograph.

Wetland ecosystems provide a range of ecological and social services which benefit people, society and the economy at large:

- Wetlands offer services such as water provision, regulation, purification and groundwater replenishment are crucial in addressing objectives of water security and water for food security.
- Wetlands play a critical role in improving the ecological health of an ecosystem by performing many functions that include flood control, water purification, sediment and nutrient retention and export, recharge of groundwater, as well as acting as vital habitats for diverse plant and animal species.
- Wetlands provide ecological infrastructure, replacing the need for municipal infrastructure by providing the same or better benefit at a fraction of the cost.
- Wetlands retard the movement of water in the landscape, which offers the dual benefit of flood control as well as a means of purification. The slow movement of water allows heavier impurities to settle and phreatic vegetation and micro-bacteria the opportunity to remove pollutants and nutrients. For these reasons, artificially created wetlands are often used in newer urban drainage systems to aid both mitigation of flooding and improvement of water quality.
- Wetlands function as valuable open spaces and create recreational opportunities for people that include hiking, fishing, boating, and bird-watching.
- Many wetlands also have cultural and spiritual significance for the communities living nearby. Commercially, products such as reeds and peat are also harvested from wetlands (Plate B).

Wetlands are thus considered to be critically important ecosystems as they provide both direct and indirect benefits to the environment and society.



Figure B: Commercial products made by locals from reeds harvested from wetlands

3. Wetland Degradation

It has been estimated that originally over 10% of the Republic of South Africa (RSA) was covered by wetlands; however, this figure decreases significantly every year owing to unsustainable land-use practices. It is estimated that more than 50% of South Africa's wetlands have been destroyed through drainage of wetlands for crops and pastures, poorly managed burning regimes, overgrazing, disturbances to wetland soils, vegetation clearing as well as industrial and urban development (including mining activities).

Although wetlands are high-value ecosystems that make up only a small fraction of the country; they rank among the most threatened ecosystems in South Africa. According to a recent Council of Scientific Research (CSIR) study,¹ South Africa's remaining wetlands were identified as the most threatened of all South Africa's ecosystems, with 48% of wetland ecosystem types being critically endangered, 12% endangered and 5% vulnerable. Only 11% of wetland ecosystem types are well protected, with 71% not protected at all.

The remaining wetland systems suffer from severe erosion and sedimentation, undesirable plant species and aquatic fauna infestations, unsustainable exploitation, artificial drainage and damming, and pollution. The continued degradation of wetlands will impact on biodiversity, ecological function, and the provision of ecosystem services with subsequent impacts on livelihoods and economic activity, as well as health and wellbeing of communities. In the absence of functional wetlands, the carbon cycle, the nutrient cycle and the water cycle would be significantly altered, mostly detrimentally.

Wetland rehabilitation and conservation should be at the heart of water management. It is necessary to prioritise South Africa's remaining wetlands such that those that offer valuable ecosystem services and are least impacted by current pressures or threats are offered immediate attention to avoid further loss, conversion or degradation.

¹ Nel J.L. and Driver A. 2012. South African National Biodiversity Assessment 2011: Technical Report. Volume 2: Freshwater Component. CSIR Report Number CSIR/NRE/ECO/IR/2012/0022/A, Council for Scientific and Industrial Research, Stellenbosch.

4. The Working for Wetlands Programme

South Africa is a dry country, but is endowed with exceptionally rich biodiversity. The nation has a pressing reason to value the water-related services that wetlands provide. It is estimated that by 2025, South Africa will be one of fourteen African countries classified as “*subject to water scarcity*” (SANBI Working for Wetlands Strategy 2006-2010). The conservation of wetlands is fundamental to the sustainable management of water quality and quantity, and wetland rehabilitation is therefore essential to conserving water resources in South Africa.

The guiding principles of the National Water Act, No. 36 of 1998, recognise the need to protect water resources. In responding to the challenge of stemming the loss of wetlands and maintaining and enhancing the benefits they provide, government has recognised that, in order to be truly effective, strategies for wetland conservation need to include a combination of proactive measures for maintaining healthy wetlands, together with interventions for rehabilitating those that have been degraded. These objectives are currently being expressed in a coordinated and innovative way through the WfWetlands Programme.

The two main objectives of the WfWetlands Programme are **wetland conservation** in South Africa and **poverty reduction** through **job creation** and **skills development** amongst **vulnerable** and **marginalised** groups. In the 12 years since its inception, the WfWetlands Programme has invested R530 million in wetland rehabilitation and has been involved in over 900 wetlands, thereby improving or securing the health of over 70 000 hectares of wetland environment. The WfWetlands Programme currently has a budget of approximately R94 million per year, of which R32 million is allocated directly to paying wages. Being part of the Expanded Public Works Programme (EPWP), the WfWetland Programme has created more than 12 800 jobs and 2.2 million person-days of paid work. The local teams are made up of a minimum of 60% women, 20% youth and 1% disabled persons.

Wetlands are not easy ecosystems to map at a broad scale as they are numerous, often small and difficult to recognise and delineate on remotely sensed imagery such as satellite photos. The WfWetlands Programme houses the National Wetlands Inventory Project (NWI) which aims to provide clarity on the extent, distribution and condition of South Africa's wetlands. The project clarifies how many and which rivers and wetlands have to be maintained in a natural condition to sustain economic and social development, while still conserving South Africa's freshwater biodiversity.

The National Freshwater Ecosystem Priority Areas (NFEPA) has used the NWI data to produce the most comprehensive national wetland map to date, called the NFEPA Atlas. This atlas enables the planning of wetland rehabilitation on a catchment scale.

Other activities that form part of the WfWetlands Programme include:

- Raising awareness of wetlands among workers, landowners and the general public; and
- Providing adult basic education and training, and technical skills transfer (in line with the emphasis of the EPWP on training, the WfWetlands Programme has provided 168 400 days of training in vocation and life skills).

5. Rehabilitation interventions

The successful rehabilitation of a wetland requires that the cause of damage or degradation is addressed, and that the natural flow patterns of the wetland system are re-established (flow is encouraged to disperse rather than to concentrate). Approximately 500 interventions are implemented every year in the WfWetlands Programme. The key purposes of implementing interventions include:

- Restoration of hydrological integrity (e.g. raising the general water table or redistributing the water across the wetland area);
- Recreation of wetland habitat towards the conservation of biodiversity; and
- Job creation and social upliftment.

Typical activities undertaken within the projects include:

- Plugging artificial drainage channels created by development or historical agricultural practices to drain wetland areas for other land use purposes;
- Constructing structures (gabions, berms, weirs) to divert or redistribute water to more natural flow paths, or to prevent erosion by unnatural flow rates that have resulted from unsustainable land use practices or development; and
- Removing invasive alien or undesirable plant species from wetlands and their immediate catchments (in conjunction with the Working for Water initiative).

Increased labour requirement for the Working for Wetlands Programme

As a result of changes to the donor fund requirements, an increase in the labour percentage requirement (42%) for the WfWetlands Programme has been experienced since 2010. The project team are thus required to investigate more labour intensive intervention options for wetland rehabilitation, and these are typically soft engineering interventions.

Methods of wetland rehabilitation may include hard engineering interventions such as:

- Earth berms or gabion systems to block artificial channels that drain water from or divert polluted water to the wetland;
- Concrete and gabion weirs to act as settling ponds, to reduce flow velocity or to re-disperse water across former wetland areas thereby re-establishing natural flow paths;
- Earth or gabion structure plugs to raise channel floors and reduce water velocity;
- Concrete or gabion structures to stabilise head-cut or other erosion and prevent gullies; and
- Gabion structures (mattresses, blankets or baskets) to provide a platform for the growth of desired wetland vegetation.

Soft engineering interventions also offer successful rehabilitation methods, and the following are often used together with the hard engineering interventions:

- The re-vegetation of stabilised areas with appropriate wetland and riparian plant species;
- The fencing off of sensitive areas within the wetland to keep grazers out and to allow for the re-establishment of vegetation;

- The use of biodegradable or natural soil retention systems such as eco-logs, plant plugs, grass or hay bales, and brush-packing techniques;
- In some instances, the use of appropriate fire management and burning regimes. The removal of undesirable plant and animal species; and
- Alien invasive plant clearing, which is an important part of wetland rehabilitation (and this is supported by the Working for Water Programme).

6. Programme, projects and phases

In order to manage the **WfWetlands Programme**, wetlands have been grouped into “projects”, and each **Wetland Project** encompasses several smaller wetland systems which are each divided into smaller, more manageable and homogenous wetland units. A Wetland Project may be located within one or more quaternary catchments within a Province. SANBI is currently managing 35 Wetland Projects countrywide, and rehabilitation activities range from stabilising degradation to the more ambitious restoration of wetlands to their original conditions.

Each Wetland Project is managed in three phases over a two-year cycle as shown in the flow diagram in Plate C. The first two phases straddle the first year of the cycle and involve planning, identification, design and authorisation of interventions. The third phase is implementation, which takes place during the second year.

The first phase is the identification of suitable wetlands which require intervention. The purpose of Phase 1 and the associated reporting is to identify:

- Priority catchments and associated wetlands/ sites within which rehabilitation work needs to be undertaken; and
- Key stakeholders who will provide meaningful input into the planning phases and wetland selection processes, and who will review and comment on the rehabilitation proposals.

The **Project Team** currently comprises the SANBI Programme Manager who oversees the WfWetlands Programme and Provincial Coordinators (PCs) who oversee the identification and implementation of projects in their regions. They are supported by a small team based at the Pretoria Botanical Gardens who fulfil various roles such as planning, monitoring and evaluation, implementation, Geographical Information Systems (GIS) and training. Independent Design Engineers and Environmental Assessment Practitioners (EAPs) are appointed to undertake the planning, design and authorisation components of the project. The project team is assisted by a number of wetland ecologists who provide scientific insight into the operation of wetlands and bring expert and often local knowledge to the project teams.

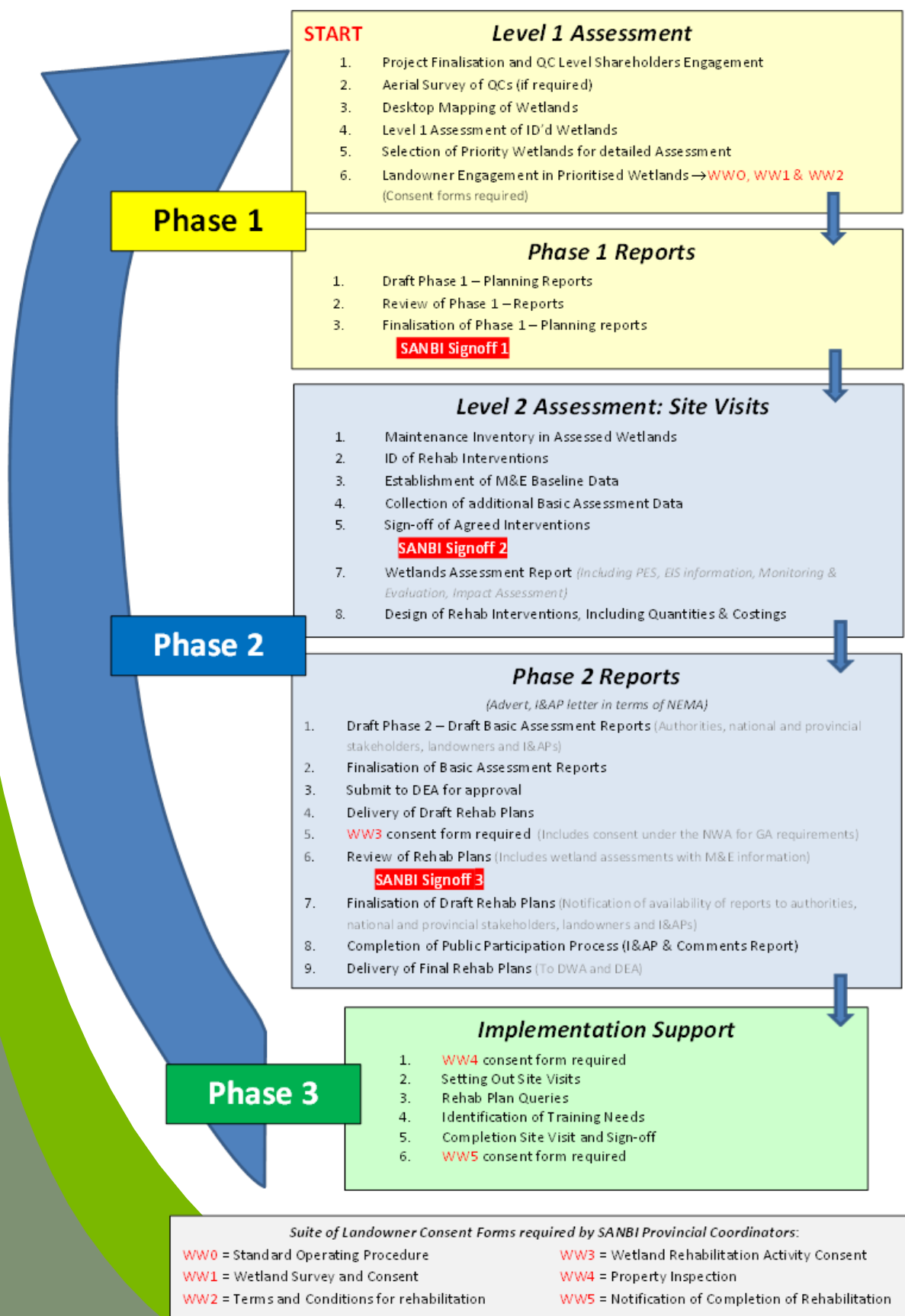


Figure C: The Working for Wetlands planning process (Phase 1 to Phase 3)

Landowner consent: The flow diagram **Plate C** demonstrates the point at which various consent forms must be approved via signature from the directly affected landowner. SANBI's PCs are responsible for undertaking the necessary landowner engagement and for ensuring that the requisite landowner consent forms required as part of Phase 1 and 2 of this project are signed. These include:

- WW(0): Standard operating procedure,
- WW(1): Wetland survey and Inspection consent,
- WW(2): Terms and Conditions for carrying out wetland rehabilitation,
- WW(3): Wetland Rehabilitation Activities Consent,
- WW(4): Property Inspection Prior to Wetland Rehabilitation, and
- WW(5): Notification of Completion of Rehabilitation.

Without these signed consent forms SANBI will not be able to implement rehabilitation interventions on the affected property.

Phase 1 commences with a catchment and wetland prioritisation process for every province. The wetland ecologist responsible for a particular province undertakes a desktop study to determine the most suitable wetlands for the WfWetlands rehabilitation efforts. The involvement of Provincial Wetland Forums and other key stakeholders is a critical component of the wetland identification processes since these stakeholders are representative of diverse groups with shared interests (e.g. from government institutions to amateur ecological enthusiasts). This phase also involves initial communication with local land-owners and other Interested and Affected Parties (I&APs) to gauge the social benefits of the work. Aerial surveys of the areas in question may be undertaken, as well as limited fieldwork investigations or site visits to confirm the inclusion of certain wetland projects or units. Once wetlands have been prioritised and agreed on by the various parties, specific rehabilitation objectives are determined for each wetland following a rapid assessment to determine the status quo of the wetland undertaken by the wetland ecologist.

Phase 2 requires site visits attended by the fieldwork team comprising a wetland ecologist, a Design Engineer, an Environmental Assessment practitioner, and a SANBI Provincial Coordinator. Other interested stakeholders or authorities, landowners and in some instances the implementing agents may also attend the site visits on some occasions. This allows for a highly collaborative approach, as options are discussed by experts from different scientific disciplines, as well as local inhabitants with deep anecdotal knowledge. While on site, rehabilitation opportunities are investigated. The details of the proposed interventions are discussed, some survey work is undertaken by the engineers, and GPS coordinates and digital photographs are taken for record purposes. Furthermore, appropriate dimensions of the locations are recorded in order to design and calculate quantities for the interventions. At the end of the site visit the rehabilitation objectives together with the location layout of the proposed interventions are agreed upon by the project team.

During Phase 2, monitoring systems are put in place to support the continuous evaluation of the interventions. The systems monitor both the environmental and social benefits of the interventions. As part of the Phase 2 site visit, a maintenance inventory of any existing interventions that are damaged and / or failing and thus requiring maintenance is compiled by the PC, in consultation with the Design Engineer.

Based on certain criteria and data measurements (water volumes, flow rates, and soil types); the availability of materials such as rock; labour intensive targets; maintenance requirements etc., the interventions are then designed. Bills of quantity are calculated for the designs and cost estimates made. Maintenance requirements for existing interventions in the assessed wetlands are similarly detailed and the costs calculated. The Design Engineer also reviews and, if necessary, adjusts any previously planned interventions that are included into the historical Rehabilitation Plans.

Phase 2 also comprises a reporting component where Rehabilitation Plans are prepared for each Wetland Project. The Rehabilitation Plans include details of each intervention to be implemented, preliminary construction drawings and all necessary documentation required by applicable legislation. The Rehabilitation Plans are reviewed by various government departments, stakeholders and the general public before a specific subset of interventions are selected for implementation.

Phase 3 requires that certain Environmental Authorisations are obtained before work can commence in the wetlands (please see subsequent sections of this document for detail on Environmental Authorisations). Upon approval of the wetland Rehabilitation Plans by DEA, DWA, and the directly affected landowners is obtained, the work detailed for the project will be implemented within a year with on-going monitoring being undertaken thereafter. The Rehabilitation Plans are considered to be the primary working document for the implementation of the project via the construction/ undertaking of interventions² listed in the Plan.

It is typically at this point in the process when the final construction drawings are issued to the Implementing Agents (IAs). Seventeen Implementing Agents are currently employed in the WfWetlands Programme and are responsible for employing contractors and their teams (workers) to construct the interventions detailed in each of the Rehabilitation Plans. For all interventions that are based on engineering designs (typically hard engineered interventions), the Design Engineer is required to visit the site before construction commences to ensure that the original design is still appropriate in the dynamic and ever-changing wetland system. The Design Engineer will assist the IAs in pegging and setting-out interventions. The setting-out activities often coincide with the Phase 1 activities for the next planning cycle. Phase 3 concludes with the construction of the interventions, but there is an on-going monitoring and auditing process that ensures the quality of interventions, the rectification of any problems, and the feedback to the design team regarding lessons learnt.

² This could include soft options such as alien clearing, eco-logs, gabion structures as well as hard structures for example weirs.

Rehabilitation work within floodplain systems

Based on lessons learnt and project team discussions held during the National Prioritisation workshop in November 2010 SANBI took an in-principle decision regarding work within floodplain systems.

Recognising the ecosystem services provided by floodplain wetlands and the extent to which they have been transformed, SANBI do not intend to stop undertaking rehabilitation work in floodplains entirely. Instead, SANBI propose to adopt an approach to the rehabilitation of floodplain areas that takes into account the following guiding principles:

1. As a general rule, avoid constructing hard interventions within an active floodplain channel; and rather
2. Explore rehabilitation opportunities on the floodplain surface using smaller (possibly more) softer engineering options outside of the main channel.

When rehabilitation within a floodplain setting is being contemplated, it will be necessary to allocate additional planning resources, including the necessary specialist expertise towards ensuring an adequate understanding of the system and appropriate design of the interventions.

7. Environmental legislation

One of the core purposes of the WfWetlands Programme is the preservation of South Africa's valuable wetland systems through rehabilitation and restoration. South Africa has rigorous and comprehensive environmental legislation aimed at preventing degradation of the environment, including damage to wetland systems. The following legislation is of relevance:

- The National Environmental Management Act, No. 107 of 1998 (NEMA)
- The National Water Act, No.36 of 1998 (NWA)
- The National Heritage Resources Act, No. 25 of 1999 (NHRA)

Development proposals within or near any wetland system are subject to thorough bio-physical and socio-economic assessment as mandatory processes of related legislation. These processes are required to prevent degradation of the environment and to ensure sustainable and environmentally conscientious development.

The WfWetlands Programme requires that both hard and soft interventions are implemented in the wetland system, and it is the activities associated with the construction of these interventions that triggers requirements for various authorisations, licenses or permits. However, it is important to note that the very objective of the WfWetlands Programme is to improve both environmental and social circumstances. The WfWetlands Programme gives effect to a range of policy objectives of environmental legislation, and also honours South Africa's commitments under several international agreements, especially the Ramsar Convention on Wetlands.

LIST OF ACRONYMS AND ABBREVIATIONS

BAR	Basic Assessment Report
BGIS	Biodiversity Geographic Information System
CBA	Critical Biodiversity Area
CEMP	Construction Environmental Management Programme
CPP	Catchment Prioritisation Process
CSIR	Council of Scientific Research
DEA	Department of Environmental Affairs
DAFF	Department of Agriculture, Forestry and Fisheries
DWA	Department of Water Affairs
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMF	Environmental Management Framework
EPWP	Expanded Public Works Programme
ESA	Ecological Support Area
GA	General Authorisation in terms of the NWA
GIS	Geographic Information System
IA	Implementing Agent
HIA	Heritage Impact Assessment
I&APs	Interested and Affected Parties
IDP	Integrated Development Plan
M&E	Monitoring and Evaluation
MAP	Mean Annual Precipitation
NEMA	National Environmental Management Act (No.107 of 1998)
NFEPA	National Freshwater Ecosystem Priority Area
NHRA	National Heritage Resources Act (No.25 of 1999)
NID	Notification of Intent to Develop
NRMP	Natural Resource Management Programmes
NWA	National Water Act (No. 36 of 1998)
NWI	National Wetlands Inventory Project
PC	Provincial Coordinator
PET	Potential Evapotranspiration
PPP	Public Participation Process
SANBI	South African National Biodiversity Institute
SDF	Spatial Development Framework
SMME	Small, Medium and Micro Enterprises
WfWetlands	Working for Wetlands

BASIC ASSESSMENT REPORT

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BASIC ASSESSMENT REPORT



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

(For official use only)

File Reference Number:

Application Number:

Date Received:

Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2010, promulgated in terms of the National Environmental Management Act, 1998(Act No. 107 of 1998), as amended.

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2010 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of **1 September 2012**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
3. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
4. Where applicable **tick** the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.
14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.
15. Shape files (.shp) for maps must be included on the electronic copy of the report submitted to the competent authority.

EXECUTIVE SUMMARY OF THE CONTENTS OF THE BASIC ASSESSMENT REPORT

PROJECT BACKGROUND

Aurecon South Africa (Pty) Ltd (Aurecon) has been appointed by the South African National Biodiversity Institute (SANBI) to undertake the project activities and associated reporting required by the Working for Wetlands (WfWetlands), which is a government funded programme that forms part of the Expanded Public Works Programme (EPWP). The main objectives of the programme are:

- wetland conservation in South Africa; and
- poverty reduction through job creation and skills development amongst vulnerable and marginalised groups.

SANBI is currently managing 35 WfWetland Projects countrywide, including projects in the North West Province. This Basic Assessment report (BAR) provides information on the Wetland Projects proposed for the next planning cycle, 2014/2015.

PROJECT TEAM

The Aurecon team comprises design engineers and environmental assessment practitioners (EAPs) who undertake the planning, design and authorisation components of the project. The Aurecon Team is assisted by an external team of Wetland Ecologists who provide scientific insight into the operation of wetlands and bring expert and often local knowledge of the wetlands. The project team is also complimented by the SANBI Provincial Coordinators (PCs) who are each responsible for provincial planning and implementation.

NEMA REQUIREMENTS

The implementation of various interventions aimed at wetland rehabilitation require Environmental Authorisation (EA) from the Department of Environmental Affairs (DEA) in terms of Regulations pursuant to the National Environmental Management Act, No. 107 of 1998 (NEMA). Listed Activities that are relevant to this application are Government Notice Regulations GN.R 544: 11 & 18 (Listing Notice 1) and GN.R 546: 12, 13 & 16 (Listing Notice 3). It has been determined together with DEA that **Basic Assessment Report (BARs)** will be prepared for each Province where work is proposed by the WfWetlands Programme. The EA's will be inclusive of all Listed Activities within these wetland systems and will essentially authorise any typical wetland rehabilitation activities required during the WfWetlands Programme implementation phase.

The intention is that Rehabilitation Plans will be prepared every year after sufficient field work and stakeholder consultation has been undertaken in the wetlands that have an EA. These Rehabilitation Plans will be submitted to DEA for approval as a condition of the EA for the respective Provincial BAR. The Rehabilitation Plans will describe the combination and number of interventions selected to meet the rehabilitation objectives for each Wetland Project, as well as an indication of the approximate location and approximate dimensions (including footprint) of each intervention.

EXEMPTIONS

Aurecon has applied for an exemption from NEMA GN R.543 16(1) 'Appointment of an EAP to manage applications' in order to address the involvement of both the Aurecon Engineering Team and the Aurecon Environment and Advisory Services Team in different phases of the same project as it may be deemed to be "circumstances that may compromise the objectivity of the EAP" (Definition of Independence: GN R.543). As Exemption from "Independence" is not permitted, the Proponent has requested an Exemption from appointing an EAP.

Exemption is also applied from NEMA GN R. 543 10(2)(d)[1] which requires that the decision on the application be advertised in the same newspapers that were used at the start of the application process. The Proponent has requested an exemption from advertising the decision, and proposes an alternative: registered Interested and Affected Parties (I&APs) will be notified of the decision via email, mail or fax.

The DEA advised that an integrated process to simultaneously notify I&APs of the Basic Assessment and the exemption applications should be undertaken

BASIC ASSESSMENT REPORT

WETLAND PROJECTS

The following Wetland Projects are proposed in the North West Province for the 2014/2015 planning cycle:

PROJECT	WETLAND NAME	NUMBER	Lat (DDMMSS)	Long (DDMMSS)
RUSTENBERG	Ai) Rietfontein	A21K-02	25°50'12.50"S	27°22'30.40"E
	Aii) Pilanesberg (Ntshwe)	A22F-01	25°17'56.9"S	27°03'10.1"E
	Aiii) Pilanesberg (Ntshwe2)	A22F-02	25°18'12.5"S	27°03'39.4"E
	Aiv) Pilanesberg (Kgama)	A22F-03	25°18'14.2"S	27°02'38.0"E
	Av) Pilanesberg (Kubu)	A22F-04	25°18'14.7"S	27°04'28.3"E
	Avi) Pilanesberg (Tlhwane2)	A22F-05	25°12'32.8"S	27°02'24.3"E
	Avii) Pilanesberg (Manyane)	A22F-06	25°15'09.9"S	27°09'49.9"E
	Aviii) Pilanesberg (Tlhwane)	A24D-01	25°12'49.4"S	27°01'53.0"E

PUBLIC PARTICIPATION PROCESS (PPP)

The PPP was undertaken for the Draft BAR and included the publication of an advert, and written notification to key stakeholders as per the database of registered Interested and Affected Parties (I&APs) that has been developed over the last six years. The Draft BAR has been circulated for public and stakeholder comment and the Final BAR will be made available for public comment. Opportunity will also be provided to the relevant key stakeholders to comment on the annual Rehabilitation Plans for each Wetland Project that receives an EA, and these Rehabilitation Plans will be submitted to DEA for approval together with any comments obtained at the time.

ALTERNATIVES

The WfWetlands Programme considers site alternatives in the earlier phases of the planning cycle, and only those that meet the prioritisation criteria are selected and proposed in this Final BAR as the Preferred Alternatives for each Wetland Project. For the purposes of this report, no feasible or reasonable site alternatives exist. Layout and technical alternatives are not applicable to a wetland rehabilitation proposal and for the purposes of this report no feasible or reasonable layout or technical alternatives exist. Alternatives that are considered in this Final BAR are design alternatives and the "No-Go" alternative.

IMPACT SUMMARY

The negative environmental impacts associated with the WfWetlands Programme are largely anticipated during the construction of the various interventions. These negative impacts of implementing an intervention are mostly negligible in the context of the greater positive wetland gains that can be achieved through the intervention purpose. Negative impacts are therefore considered acceptable from an environmental perspective and can be mitigated.

The project is proposed entirely for its positive biophysical and socio-economic impacts of wetland rehabilitation and job creation/skills transfer. These positive impacts are of benefit to South Africa, and warrant the minor negative disturbances during the implementation of interventions.

EAP RECOMMENDATION

The EAP is of the opinion that the objectives of the WfWetlands Programme are of biophysical and socio-economic benefit, and all Listed Activities should be authorised by DEA. Provided that annual Rehabilitation Plans are submitted to DEA for approval as a condition of EA, then the EAP supports this proposal.

Approach to the NEMA Environmental Process

The legislation protecting the environment in South Africa was not written with the intention of preventing wetland rehabilitation efforts, but rather at curtailing development in sensitive environments. It is important to remember that the WfWetlands Programme is not a development proposal, and although this programme technically requires authorisations, licenses and permits, such rehabilitation projects were never meant to be sent through legislative processes aimed at preventing negative environmental impact.

In terms of the environmental management principles of NEMA certain activities that may have a detrimental impact on the environment (termed Listed Activities) require Environmental Authorisation (EA) from the Department of Environmental Affairs (DEA). The WfWetlands Programme will require that interventions be implemented and/or constructed in the wetland systems to ultimately restore some of the more natural wetland functions that have been lost to unsustainable land use practices or development. The implementation of interventions will trigger Listing Notices 1 and 3 (G.N. R544 and G.N. R546 respectively). In order to meet the requirements of these Regulations pursuant to NEMA, it is necessary to undertake a Basic Assessment Process. It has been determined together with DEA that **Basic Assessment Report** (BARs) will be prepared for each Province where work is proposed by the WfWetlands Programme. These BARs will present all Wetland Projects that are proposed in a particular province, together with information regarding the quaternary catchments and the wetlands that have been prioritised for the next few planning cycles (anywhere from one to three planning cycles depending on the information gained through the Catchment Prioritisation Process). The EA's will be inclusive of all Listed Activities that may be triggered and will essentially authorise any typical wetland rehabilitation activities required during the WfWetlands Programme implementation phase.

The intention is that **Rehabilitation Plans** will be prepared every year after sufficient field work has been undertaken in the wetlands that have an EA. These Rehabilitation Plans will be made available to registered Interested and Affected Parties (I&APs) before being submitted to DEA for approval as a condition of the EA for each of the Provinces. The Rehabilitation Plans will describe the combination and number of interventions selected to meet the rehabilitation objectives for each Wetland Project, as well as an indication of the approximate location and approximate dimensions (including footprint) of each intervention. These interventions will vary but a booklet of typical hard engineering designs is included in Appendix C of this report. The Rehabilitation Plans will also provide site photographs ~~in the eight major compass directions~~ as well as photographs of the proposed locations for each intervention within each Wetland Unit.

SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section?

YES	NO
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If YES, please complete the form entitled "Details of specialist and declaration of interest" for the specialist appointed and attach in Appendix I.

1. PROJECT DESCRIPTION

a) Describe the project associated with the listed activities applied for:

Working for Wetlands

SANBI is currently managing 35 WfWetlands Projects countrywide, and approximately 500 interventions within these Projects will be implemented to meet the objectives of the Programme. The successful rehabilitation of a wetland requires that the cause of damage or degradation is addressed, and that the natural flow patterns of the wetland system are re-established (and flow is encouraged to disperse rather than to concentrate). Rehabilitation activities range from stabilising degradation to the more ambitious restoration of wetlands to their original conditions. Typical activities within the Projects include:

- Removing invasive alien or undesirable plant species from wetlands and their immediate catchments;
- Plugging artificial drainage channels created by development or historical agricultural practices to drain wetland areas for other land use purposes;
- Constructing structures (gabions, berms, weirs) to divert or redistribute water to more natural flow paths, or to prevent erosion by unnatural flow rates that have resulted from unsustainable land use practices or development.

For more information on the WfWetlands Programme, please refer to the WfWetlands Context Document included in the front of this report.

Project Team

The project team currently comprises the SANBI Programme Manager who oversees the WfWetlands Programme and provincial coordinators (PCs) who oversee the identification and implementation of projects in their regions. They are supported by a small team based at the Pretoria Botanical Gardens who fulfil various roles such as finance, Geographical Information Systems (GIS) and training.

Aurecon South Africa (Pty) Ltd (Aurecon) has been appointed to undertake the project activities and associated reporting required by the WfWetlands Programme. The Aurecon team comprises design engineers and environmental assessment practitioners (EAPs) who undertake the planning, design and authorisation components of the project. The Aurecon Team is assisted by an external team of Wetland Ecologists who provide scientific insight into the operation of wetlands and bring expert and often local knowledge of the wetlands. The project team is also complimented by the SANBI Provincial Coordinators (PCs) who are each responsible for provincial planning and implementation.

Project activities

The key purposes of implementing interventions include:

- Restoration of hydrological integrity (e.g. raising the general water table or redistributing the water across the wetland area);
- Recreation of wetland habitat towards the conservation of biodiversity; and
- Job creation and social upliftment.

BASIC ASSESSMENT REPORT

Methods of wetland rehabilitation may include hard engineering interventions such as:

- Earth berms or gabion systems to block artificial channels that drain water from or divert polluted water to the wetland;
- Concrete weirs to act as settling ponds, to reduce flow velocity or to re-disperse water across former wetland areas thereby re-establishing natural flow paths;
- Concrete, earth or gabion structures plugs to raise channel floors and reduce water velocity;
- Concrete or gabion structures to stabilise head-cut or other erosion and prevent gullies; and
- Gabion structures (mattresses, blankets or baskets) to provide a platform for the growth of desired wetland vegetation.

Soft engineering interventions also offer successful rehabilitation methods, and the following are often used together with the hard engineering interventions:

- The re-vegetation of stabilised areas with appropriate wetland and riparian species;
- The fencing off of sensitive areas within the wetland to keep grazers out and to allow for vegetation to become re-established;
- The use of biodegradable or natural soil retention systems such as eco-logs, plant plugs, grass or hay bales, and brush-packing techniques;
- The removal of undesirable plant and animal species in conjunction with the Working for Water initiative. Alien invasive plant clearing is an important part of wetland rehabilitation; and
- In some instances, the use of appropriate fire management and burning regimes.

Project Location

Wetland Projects for the 2014/2015 planning cycle were identified during the Phase 1 activities associated with the WfWetlands Programme. Catchment and wetland prioritisation assessments were undertaken by the Wetland Ecologist/s to identify priority catchments and associated wetlands within which rehabilitation work needed to be undertaken. A review was undertaken to determine local knowledge and identify existing studies of the quaternary catchments in the province. Where possible, existing wetland forums were consulted (refer Appendix J1). SANBI's current five year strategic plans were further used as a guide to identify wetlands, as well as data from the National Freshwater Ecosystem Priority Areas (NFEPA) project. Decisions on priority areas were informed by input from wetland forums, biodiversity/ conservation plans, municipalities, state departments and various other stakeholders.

Based on this process, the following quaternary catchments (and associated wetland systems) were identified in the North West Province:

ID	PROJECT NAME	WETLAND NUMBER	WETLAND SYSTEM
Ai	RUSTENBERG	A21K-02	Rietfontein
Aii		A22F-01	Pilanesberg Ntshwe
Aiii		A22F-02	Pilanesberg Ntshwe2
Aiv		A22F-03	Pilanesberg Kgama
Av		A22F-04	Pilanesberg Kubu
Avi		A22F-05	Pilanesberg Tlhwere2
Avii		A22F-06	Pilanesberg Manyane
Aviii		A24D-01	Pilanesberg Tlhwere

BASIC ASSESSMENT REPORT

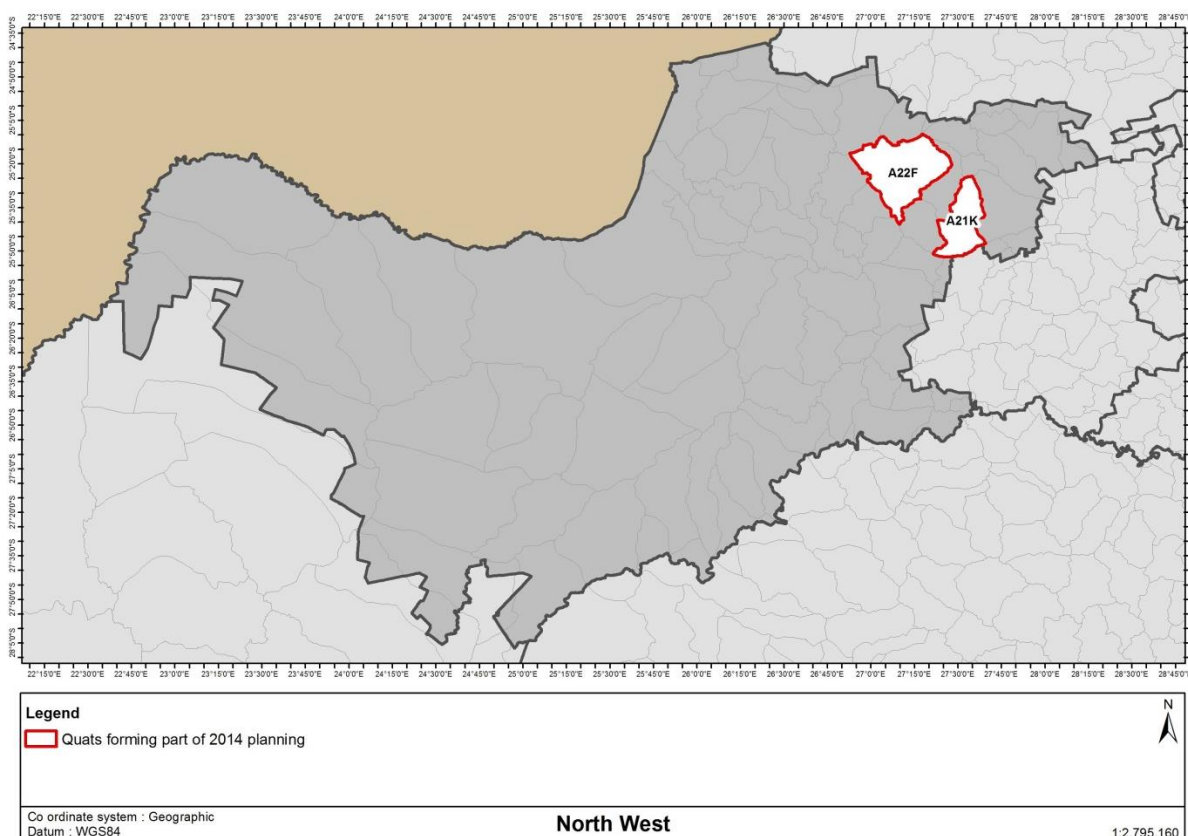


Figure 1: Quaternary Catchments identified for the WfWetlands Programme 2014/2015 planning cycle in North West are: A21K, A22F.

SANBI's five year strategic plan

SANBI's five year strategic plan will be re-assessed in 2014 through a Catchment Prioritisation Process (CPP) to ensure alignment with national, regional and local conservation and rehabilitation priorities. Potential wetlands will be ranked based on their rehabilitation potential, conservation importance, alignment with other conservation initiatives and the potential functional value of the various rehabilitation initiatives. Input will be sought from key stakeholders to ensure a robust and comprehensive prioritisation process. Based on the outcome of the CPP, authorisation will be sought from the Department of Environmental Affairs for additional quaternary catchments in the North West Province and/or wetlands not included in this report.

Description of North West Catchments

RUSTENBERG PROJECT

Rietfontein: Quaternary Catchment A21K

Quaternary catchment A21K is located in the Sterkstroom River catchment area, which forms part of the Crocodile West and Marico Water Management Area. The Sterkstroom River forms a confluence with the Crocodile River at the north-eastern border of quaternary catchment A21K. Two prominent dams are present within the catchment; Buffelspoort Dam is located in the upper margin of the catchment, while the Roodekoppies Dam is present at the confluence of the Sterkstroom and Crocodile Rivers.

BASIC ASSESSMENT REPORT

The catchment covers an area of approximately 86 383 ha, with the Magaliesberg Mountain Range forming a prominent catchment divide along its southern boundary.. Other forms of land use within the catchment include agriculture (irrigated and dry land cultivation), dams, sicculture and urban development.

The following wetland was identified for inclusion in the WfWetland Programme:

i. Rietfontein A21K-02

This wetland is located within a terrestrial and aquatic Critical Biodiversity Area (CBA) and a terrestrial Ecological Support Areas (ESA) identified in terms of the North West Biodiversity Conservation Assessment (2008) (NWBCA):

<u>Wetland</u>	<u>Aquatic CBA</u>	<u>Terrestrial CBA</u>	<u>ESA</u>
A22F-01	Category 1	Category 1	Category 1

The table below from the NBCA (2008) provides land management objectives identified for these areas which are in accordance with the objectives of the WfWetlands Programme and will therefore benefit from the proposed rehabilitation work.

<u>CBA Category</u>	<u>Land Management Objective</u>
<u>PA & CBA 1</u>	<u>Natural landscapes:</u> <ul style="list-style-type: none"> • <u>Ecosystems and species fully intact and undisturbed.</u> • <u>These are areas with high irreplaceability or low flexibility in terms of meeting biodiversity pattern targets. If the biodiversity features targeted in these areas are lost then targets will not be met.</u> • <u>These are landscapes that are.</u>
<u>CBA 2</u>	<u>Near-natural landscapes:</u> <ul style="list-style-type: none"> • <u>Ecosystems and species largely intact and undisturbed.</u> • <u>Areas with intermediate irreplaceability or some flexibility in terms of area required to meet biodiversity targets. There are options for loss of some components of biodiversity in these landscapes without compromising our ability to achieve targets.</u> • <u>These are landscapes that are approaching but have not passed their limits of acceptable change.</u>
<u>ESA</u>	<u>Functional landscapes:</u> <ul style="list-style-type: none"> • <u>Ecosystems moderately to significantly disturbed but still able to maintain basic functionality.</u> • <u>Individual species or other biodiversity indicators may be severely disturbed or reduced.</u> • <u>These are areas with low irreplaceability with respect to biodiversity pattern targets only.</u>
<u>Other Natural Areas (ONA) and Transformed</u>	<u>Production landscapes:</u> <ul style="list-style-type: none"> • <u>Manage land to optimize sustainable utilization of natural resources.</u>

Ai. Rietfontein A21K-02

The wetland is located near the origin of the Sterkstroom River, in its headwaters that overlap with the Magaliesberg Protected Natural Environment. Currently, this is the only wetland within the Rietfontein Project and has been investigated upon an invitation from one of the landowners, Prof. Kruger. The closest town from

the wetland is Rustenberg that is in the north-westerly direction. The wetland falls within a conservancy and protected area, but has been modified through water abstraction from a spring for irrigation and domestic use.

The wetland has been classified as a channelled valley bottom wetland with a size of approximately 8.8 ha. Exposed soil profiles along the channel banks indicate a sequence of alternating layers of organic rich wetland soils and layers of alluvial material associated with high flow events originating from the upstream watercourse along a much steeper slope. Seep zones and a spring are also present within the delineated wetland area, but the general character of the system is still regarded as a channelled valley bottom with seepage zones. This results in the presence of riparian woody vegetation, such as *Buddleja salviifolia* along portions of the channel, and obligated hydrophytes, such as *Gunnera perpensa* on areas characterised by seepage. The local climate is characterised by a low mean annual precipitation (MAP) of 651 mm and a high mean annual evapotranspiration (MAE) of 1744 mm (Middleton and Bailey 2008). As a result, the wetland has a relative high sensitivity to change in the local hydrology.

The wetland does not overlap with natural or artificial wetland habitat identified in the National Freshwater Ecosystem Priority Area (NFEPA) database. The wetland is located on the Gold Reef Mountain Bushveld vegetation unit, described by Mucina and Rutherford (2006). Gold Reef Mountain Bushveld has a Least Threatened Conservation Status while the wetland ecosystem type is Central Bushveld Group 1 (Mucina and Rutherford, 2006).

The following problems have been identified as posing a risk to the integrity of the wetland:

- Wetland habitat desiccation caused by incised channels, which is in part a natural process, but have also been worsened by road construction and pipe laying within portions of the wetland; and
- Active headcut erosion, which includes small in-channel headcuts to large in-channel and proximal headcuts. Headcut erosion is expected within this headwater wetland setting, but the same anthropogenic impacts listed above have worsened headcut advancement and development.

Pilanesberg: Quaternary Catchments A22F & A24D

The two catchments are described together as the project area, Pilanesberg Nature Reserve, is located in their upstream reaches, which is comparable with one another based on the low occurrence of landscape transformation within the protected area. Further downstream, once outside of the nature reserve, differences between the two catchments become more prominent, with urban development and platinum mining activities in quaternary catchment A22F being more common.

Quaternary catchment A22F is located in the Elands River catchment area, with the Mankwe River forming the closest river tributary of the Elands River system (Driver et al., 2004). This quaternary catchment covers an area of approximately 151 414 ha. Six of the seven watercourses in the project are located within this catchment. Quaternary catchment A24D covering approximately 11 8652 ha is located in the Bierspruit catchment area, with the non-perennial Wilgespruit forming the closest river tributary. Only one of the seven watercourses in the project, the Tlhwane Wetland, is located within this catchment. Both quaternary catchment A22F and A24D are located within the Crocodile and Marico West Water Management Area.

Five wetlands and two gully watercourses were identified within the catchment area:

- ii. Pilanesberg Ntshwe1 A22F-01
- iii. Pilanesberg Ntshwe2 A22F-02

- iv. Pilanesberg Kgama A22F-03
- v. Pilanesberg Kubu A22F-04
- vi. Pilanesberg Tlhwane2 A22F-05
- vii. Pilanesberg Manyane A22F-06
- viii. Pilanesberg Tlhwane A24D-01

These wetlands are located within terrestrial CBAs and ESAs identified in terms of the NWBCA:

<u>Wetland</u>	<u>CBA</u>	<u>ESA</u>
<u>A22F-01</u>	<u>Category 1</u>	<u>Category 1</u>
<u>A22F-02</u>	<u>Category 1</u>	<u>Category 1</u>
<u>A22F-03</u>	<u>Category 1</u>	<u>Category 1</u>
<u>A22F-04</u>	<u>Category 1</u>	<u>Category 1</u>
<u>A22F-05</u>	<u>Category 2</u>	<u>Category 1</u>
<u>A22F-06</u>	<u>Category 2</u>	<u>Category 1</u>
<u>A24D-01</u>	<u>Category 2</u>	<u>Category 1</u>

No aquatic CBAs were identified for these wetlands. As indicated in the table in the above section (see quaternary catchment description for Rietfontein), the objectives identified for these CBAs and ESAs are in accordance with the objectives of the WfWetlands Programme and will therefore benefit from the proposed rehabilitation work.

Aii) Pilanesberg Ntshwe1 A22F-01, Aiii) Pilanesberg Ntshwe2 A22F-02, Av) Pilanesberg Kubu A22F-04, Avi) Pilanesberg Tlhwane2 A22F-05 and Aviii) Pilanesberg Tlhwane A24D-01

These five wetlands are discussed together as they are similar in nature and share similar impacts. All the mentioned wetlands form part of headwater systems and consists primarily of seeps (Pilanesberg Ntshwe1 A22F-01, Pilanesberg Ntshwe2 A22F-02 and Pilanesberg Tlhwane A24D-01), and an unchannelled valley bottom (Pilanesberg Tlhwane2 A22F-05) hydro-geomorphic (HGM) units. Pilanesberg Kubu Wetland (A22F-04) has been delineated as an elongated system, which exists as different HGM components. This includes a seep in its most upstream region (this formed the main portion of the assessment), which changes into an unchannelled valley bottom and eventually into a channelled valley bottom system. Wetland condition and rehabilitation opportunities were investigated in seepage and unchannelled valley bottom wetland areas present within these headwater wetlands. These wetland areas mainly displayed wetland conditions that ranged from marginal temporary to seasonally wet.

Prior to the establishment of the nature reserve dry land cultivation took place within these wetlands, which resulted in ploughing, including ridge and furrow practices that eroded over time. Currently grazing and movement by game animals further contributes to erosion in the already disturbed wetland soils. In addition, old dam walls have been breached to reduce the number of water bodies for game, which poses a risk to flow concentration and potential scour damage during high rainfall events.

Only the Pilanesberg Ntshwe2 Wetland A22F-02 overlaps with natural wetland habitat identified in the NFEPA database, which describes it as a Central Bushveld Level 3 Seep. The wetlands overlap primarily with the Pilanesberg Mountain Bushveld and secondarily with the Zeerust Thornveld vegetation units, both of which have a Least Threatened conservation status (Mucina and Rutherford, 2006). The local climate is

characterised by a low MAP of approximately 604 mm and a high MAE of $\pm 1\ 801 - 1\ 849$ mm (Middleton and Bailey 2008). As a result, the wetland has a relative high sensitivity to change in the local hydrology.

The following problems have been identified as posing a risk to the integrity of the wetlands:

- Wetland habitat desiccation caused by eroded plough lines;
- Active headcut erosion within the wetlands; and
- The risk of scour erosion during large flow events at breached dam walls that contain narrow gaps.

Aiv) Pilanesberg Kgama A22F-03 and Avii) Pilanesberg Manyane A22F-06

These two watercourses are regarded as non-wetland drainage lines or natural channels that support intermittent (ephemeral) flow for a short duration after sufficient rainfall events. They were targeted for rehabilitation as continued erosion within these systems result in a loss of adjacent grazing habitat (A22F-03), and potential damage to an upstream road (A22F-06). Both gullies are located within quaternary catchment A22F and fall within the Pilanesberg Mountain Bushveld vegetation unit of Least Threatened status (Mucina and Rutherford, 2006). The wetland ecosystem type is Central Bushveld Group 1 (Driver and Nel, 2012). The local climate is characterised by a low MAP of approximately 600 mm and a high MAE of $\pm 1\ 801$ mm (Middleton and Bailey 2008). As a result, the two gullies have a relative high sensitivity to change in the local hydrology.

The following problems have been identified as posing a risk to the integrity of the watercourses:

- Expected advancement of lateral headcut erosion features that threatened grazing habitat (gully and A22F-03) and an upslope tar road (gully A22F-06).

b) Provide a detailed description of the listed activities associated with the project as applied for

The WfWetlands Programme is not a development proposal

It is important to note that the very objectives of the WfWetlands Programme are to improve both environmental and social circumstances. The WfWetlands Programme gives effect to a range of policy objectives of environmental legislation, and also honours South Africa's commitments under several international agreements, especially the Ramsar Convention on Wetlands. The legislation protecting the environment in South Africa was not written with the intention of preventing wetland rehabilitation efforts, but rather of curtailing development in sensitive environments. It is important to remember that **the WfWetlands Programme is not a development proposal**, and although this programme technically requires Environmental Authorisation in terms of Regulations pursuant to the National Environmental Management Act, No. 107 of 1998, such environmentally positive rehabilitation projects shouldn't need to be assessed for negative environmental impact. Therefore legislative processes aimed at preventing negative environmental impact through development are really not applicable to a project of this nature and the project activities that trigger Listing Notices are only being undertaken to benefit the environment.

BASIC ASSESSMENT REPORT

Listed activity as described in GN R.544, 545 and 546	Description of project activity
<p><u>GN R.544, Item 11:</u> <i>The construction of: (i) canals; (ii) channels; (iii) bridges; (iv) dams; (v) weirs; (vi) bulk storm water outlet structures; (vii) marinas; (viii) jetties exceeding 50m²; (ix) slipways exceeding 50m² in size; (x) buildings exceeding 50m² in size; or (xi) infrastructure or structures covering 50m² or more where such construction occurs within a watercourse or within 32m of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.</i></p>	<p>In order to achieve the objectives of wetland rehabilitation, changes must be made to artificial drainage lines or eroding water channels if the wetland systems are to be returned to their original statuses. The following may be necessary:</p> <ul style="list-style-type: none"> • The construction of concrete or gabion weirs within watercourses (wetlands); • The formalisation of stream crossings to ensure that the integrity of wetland systems downstream and upstream of the crossings are protected from further degradation; • The construction of bird hides and walkways in public wetlands to limit human impact, and to form part of the educational component of the project.
<p><u>GN R.544, Item 18:</u> <i>The infilling or depositing of any material of more than 5m³ into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5m³ from: (i) a watercourse; (ii) the sea; (iii) the seashore; (iv) the littoral active zone, an estuary or a distance of 100m inland of the high-water mark of the sea or an estuary, whichever distance is the greater - but excluding where such infilling, depositing, dredging, excavation, removal or moving; (a) is for maintenance purposes undertaken in accordance with a management plan agreed to by the relevant environmental authority; or (b) occurs behind the development setback line.</i></p>	<p>In order to achieve the objectives of wetland rehabilitation, changes must be made to artificial drainage lines or eroding water channels, and banks or gullies may need to be stabilised if the wetland systems are to be returned to their original statuses. The following may be necessary:</p> <ul style="list-style-type: none"> • The construction of earth berms to correct water flow paths in artificial drainage lines, diverted stream channels or watercourses; • The removal or addition of material to stabilise stream banks or erosion gullies.
<p><u>GN R.546, Item 12:</u> <i>The clearance of an area of 300 m² or more of vegetation where 75% or more of the vegetation cover constitutes indigenous vegetation.</i></p> <p><i>(a) Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;</i></p> <p><i>(b) within critically biodiversity areas identified in</i></p>	<p>In order to achieve the objectives of wetland rehabilitation, some indigenous vegetation may need to be cleared to construct interventions. It is important to note that clearance of wetland vegetation in order to construct a number of interventions throughout the wetland system would only be proposed if the rehabilitation efforts would ultimately gain many hectares of desired wetland vegetation and habitat. Even though the interventions are intended to improve ecological status and habitats, this listing notice will be triggered because:</p> <ul style="list-style-type: none"> • The cumulative clearance of more than 300m² of

BASIC ASSESSMENT REPORT

Listed activity as described in GN R.544, 545	Description of project activity
<p>bioregional plans;</p> <p>(c) <i>Within the literal active zone are 100 m inland from high water mark of the sea or an estuary, whichever distance is the greater, excluding where such removal will occur behind the development setback line on erven in urban areas.</i></p>	<p>wetland vegetation may be necessary to construct a number of interventions throughout the wetland system;</p> <ul style="list-style-type: none"> Wetlands may form part of critical biodiversity areas or endangered ecosystems.
<p><u>GN R.546, Item 13:</u></p> <p><i>The clearance of an area of 1 hectare or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation...</i></p> <p>(a) <i>Critical biodiversity areas and ecological support areas as identified in systematic biodiversity plans adopted by the competent authority.</i></p> <p>(b) <i>National Protected Area Expansion Strategy Focus areas.</i></p> <p>(c) <i>In North West (i) In an estuary; (ii) Outside urban areas, in: (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (dd) Sites or areas identified in terms of an International Convention; (ee) Critical biodiversity areas (Type 1 only) and ecological support areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans (ff) Core areas in biosphere reserves; (gg) Areas within 10km from national parks or world heritage sites or 5km from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve.</i></p>	<p>In order to achieve the objectives of wetland rehabilitation, some indigenous vegetation may need to be cleared to construct interventions. It is important to note that the clearance of vegetation in order to construct interventions would only be proposed if the rehabilitation efforts would ultimately gain many hectares of desired wetland vegetation and habitat. Even though the interventions are intended to improve ecological status and habitats, this listing notice will be triggered because:</p> <ul style="list-style-type: none"> The cumulative clearance of more than 1 hectare of indigenous vegetation may be necessary to construct a number of interventions throughout the wetland system; Wetlands may form part of critical biodiversity areas or endangered ecosystems; Wetlands may form part of protected areas or sensitive areas; Wetlands may be located within or near national parks or world heritage sites.
<p><u>GN R.546, Item 16:</u><i>The construction of: (i) jetties exceeding 10m² in size; (ii) slipways exceeding 10 m² in size; (iii) buildings with a footprint exceeding 10 m² in size; or (iv) infrastructure covering 10 m² or more where such construction occurs within a watercourse or within 32m of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind</i></p>	<p>In order to achieve the objectives of wetland rehabilitation, some educational infrastructure may be required to limit human impact on the wetland system. Even though the interventions are intended to improve ecological status and habitats, this listing notice will be triggered because:</p> <ul style="list-style-type: none"> Bird hides and walkways may constitute buildings with a footprint exceeding 10m² in size;

BASIC ASSESSMENT REPORT

Listed activity as described in GN R.544, 545	Description of project activity
<p><i>the development setback line.</i></p> <p><i>(a) In North West, (i) Outside urban areas, in: (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) World Heritage Sites; (dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (ee) Sites or areas identified in terms of an International Convention; (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (gg) Core areas in biosphere reserves; (hh) Areas within 10km from national parks or world heritage sites or 5km from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve.</i></p>	<ul style="list-style-type: none"> • Wetlands may form part of critical biodiversity areas or endangered ecosystems; • Wetlands may form part of protected areas or sensitive areas; • Wetlands may be located within or near national parks or world heritage sites.

2. FEASIBLE AND REASONABLE ALTERNATIVES

“alternatives”, in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

- (a) the property on which or location where it is proposed to undertake the activity;
- (b) the type of activity to be undertaken;
- (c) the design or layout of the activity;
- (d) the technology to be used in the activity;
- (e) the operational aspects of the activity; and
- (f) the option of not implementing the activity.

Describe alternatives that are considered in this application as required by Regulation 22(2)(h) of GN R.543. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

The determination of whether site or activity (including different processes, etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the, competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent. The identification of alternatives should be in line with the Integrated Environmental Assessment Guideline Series 11, published by the DEA in 2004. Should the alternatives include different locations and lay-outs, the co-ordinates of the different

alternatives must be provided. The co-ordinates should be in degrees, minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

Approach to Alternatives for the WfWetlands Programme

Site Alternatives: The WfWetlands Programme considers possible site alternatives in earlier phases of the planning cycle:

Site Selection Process: All Quaternary Catchments within the Province are considered for possible wetland rehabilitation work in the earlier stages of the WfWetlands Programme (Phase 1 Catchment and Wetland Prioritisation Processes), and only those that meet the prioritisation criteria are selected for the current planning cycle. Wetlands within the selected Quaternary Catchments undergo a similar prioritisation process, which includes a consultation component with the relevant stakeholders and interest groups, and the Wetland Projects presented in this report are those that are finally selected. Wetland Units within each Wetland Project are investigated by the Wetland Ecologist and these are selected based on their suitability in terms of the overall WfWetlands Programme objectives³. The earlier site selection processes to determine feasible and reasonable Wetland Projects are described in detail in the WfWetlands Context Document included in the front of this report.

Any wetland site alternatives are therefore already considered in the earlier phases of the WfWetlands Programme, and only the preferred alternative is presented here. For the purpose of this report, no feasible or reasonable wetland site alternatives exist.

Layout and technical alternatives: These categories of alternatives are not applicable to a wetland rehabilitation proposal (and the sections of this report pertaining to layout or technical alternatives have been greyed out).

Other Alternatives: One form of alternative considered during the WfWetlands Programme is a design alternative, where all possible intervention options that may achieve a desired rehabilitation objective are contemplated during the Phase 2 field work component of a particular Wetland Unit. The design team comprising a Wetland Ecologist, a Design Engineer, an EAP, and a PC (and in some instances other interested stakeholders such as authorities and/or landowners who may attend the site visit) will discuss and select the most appropriate intervention option for a particular problem. Each of the intervention options selected, as well as the determination of the most appropriate locations for these within the Wetland Unit are therefore based on expert opinion and are thus considered to be the most suitable and effective interventions to achieve the rehabilitation objectives for the wetland.

Decisions regarding the choice of interventions will only be made if Environmental Authorisation (EA) is granted for a Wetland Project. It is therefore not possible to present the preferred interventions for each Wetland Project in this report. Rather all possible types of interventions are presented here as the preferred design alternative and a booklet of possible intervention designs that are appropriate to the WfWetlands Programme is presented in Appendix C. The intention is that Rehabilitation Plans will be prepared on an annual basis and submitted to DEA for approval and this must be included as a condition of the EA. The Rehabilitation Plans will describe the combination and number of interventions selected from this booklet for each Wetland Project.

No-Go Alternative: If the current rehabilitation proposals are not undertaken, then the only option is the “No-Go” alternative and this is presented as an alternative in this report.

³ Wetland conservation and poverty reduction through job creation and skills development amongst vulnerable and marginalised groups.

BASIC ASSESSMENT REPORT

a) Site alternatives

Alternative 1 (preferred alternative)				
Coordinates for each of the preferred Wetland Projects within the selected Quaternary Catchments of the North West Province for the next WfWetlands Programme planning cycle are provided in the table below. Locality maps and GIS datasets for each of the wetlands are available in Appendix A.				
PROJECT	WETLAND NAME	NUMBER	Lat (DDMMSS)	Long (DDMMSS)
RUSTENBERG	Ai) Rietfontein	A21K-02	25°50'12.50"S	27°22'30.40"E
	Aii) Pilanesberg Ntshwe	A22F-01	25°17'56.9"S	27°03'10.1"E
	Aiii) Pilanesberg Ntshwe2	A22F-02	25°18'12.5"S	27°03'39.4"E
	Aiv) Pilanesberg Kgama	A22F-03	25°18'14.2"S	27°02'38.0"E
	Av) Pilanesberg Kubu	A22F-04	25°18'14.7"S	27°04'28.3"E
	Avi) Pilanesberg Tlhware2	A22F-05	25°12'32.8"S	27°02'24.3"E
	Avii) Pilanesberg Manyane	A22F-06	25°15'09.9"S	27°09'49.9"E
	Aviii) Pilanesberg Tlhware	A24D-01	25°12'49.4"S	27°01'53.0"E
Alternative 2				
Description			Lat (DDMMSS)	Long (DDMMSS)
Alternative 3				
Description			Lat (DDMMSS)	Long (DDMMSS)

In the case of linear activities:

Alternative:

Alternative S1 (preferred)

- Starting point of the activity
- Middle/Additional point of the activity
- End point of the activity

Alternative S2 (if any)

- Starting point of the activity
- Middle/Additional point of the activity
- End point of the activity

Alternative S3 (if any)

- Starting point of the activity
- Middle/Additional point of the activity
- End point of the activity

Latitude (S):

Longitude (E):

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

BASIC ASSESSMENT REPORT

In the case of an area being under application, please provide the co-ordinates of the corners of the site as indicated on the lay-out map provided in Appendix A.

b) Lay-out alternatives

Alternative 1 (preferred alternative)		
N/A		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

c) Technology alternatives

Alternative 1 (preferred alternative)
N/A
Alternative 2
Alternative 3

d) Other alternatives (e.g. scheduling, demand, input, scale and design alternatives)

Alternative 1 (preferred alternative)
<p>The choice of the combination of the most appropriate interventions necessary to achieve a certain rehabilitation objective is a rigorous exercise, and the decision is informed by a number of criteria:</p> <ul style="list-style-type: none"> • Environmental Criteria – hydrology, geology and soils, seasonal influences and site-specific constraints; • Engineering Criteria – bio-physical aspects, risk and liability, construction material selection; • Social Criteria – labour quota requirements, health and safety, availability of materials, skills levels and opportunity for skills development; and • Wetland Rehabilitation Criteria – stabilisation of headcuts and erosion gullies, elevation of water table, sediment trapping, eradication of problem species (among others). <p>The following section provides short descriptions on typical interventions (and their key motivations) generally considered for wetland rehabilitation projects. Also refer to Appendix C for a booklet of possible intervention designs that are appropriate to the WfWetlands Programme.</p>

Concrete weirs – This type of structure is used to address headcut and/ or channel erosion by trapping sediment and raising the local water table to encourage overland flow (i.e. rewetting a wetland).

Selection of this intervention depends on the availability of appropriate foundation material and the volume of water moving through the wetland catchment. The construction of concrete weirs also provides an opportunity for skills transfer and development.



Gabion weirs – This type of structure comprises packed stone or rock in wire baskets. The configuration of the gabion baskets can result in the structure performing a similar function to a concrete weir in trapping sediment and reducing flow-velocities. A gabion basket is permeable and allows for a measure of water to pass through the structure, unlike concrete. The construction of gabion weirs are more labour intensive than concrete weirs and thus favoured where site conditions are suitable. Some negative aspects associated with gabions:

rock is not always readily available, they are vulnerable to vandalism and corrosive elements in some waters; and trampling by cattle and humans (this can be alleviated by concrete capping the gabions).



Earth berms/ plugs – This type of structure is typically an earth mound used to divert or retain water flow. Due to the higher labour requirement for implementation, this type of intervention has received extensive consideration in the WfWetlands Programme and is therefore used in most project sites to varying degrees. It is usually considered suitable in low flow areas, but can be susceptible to cattle trampling if not properly vegetated or capped with rocks.



Earthworks – are usually used in areas which have been impacted by ridge/ furrow farming and involve cutting the “ridges” and filling the “furrows” wherever possible. For some projects, earthworks are required to remove old berms to restore natural overland flow, as well as to remove old roads from wetlands, seeps, pans, etc.



Alternative 2

Alternative 3

e) No-go alternative

If the no-go alternative is pursued, the wetlands within these Wetland Projects will continue to deteriorate, resulting in an overall negative impact on aquatic and terrestrial ecosystems, habitats and species of conservation significance. In the absence of rehabilitation, the important role of these wetlands in flood attenuation, nutrient retention and water quality amelioration, as well as ecological service provision will not be realised. In many instances the current degradation issues result in severe erosion, which may impact on the agricultural or landuse potential of adjacent sites, as well as result in sedimentation and eutrophication impacts for downstream users. With regards to the social environment, the no-go alternative would prevent the WfWetlands Programme from providing job opportunities to local communities and as a result would not be able to contribute to the EPWP. Please also refer to Section D for the impact assessment of the no-go alternative.

Paragraphs 3 – 13 below should be completed for each alternative.

3. PHYSICAL SIZE OF THE ACTIVITY

- a) Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):**

Size of the Activity Footprint

Environmental Authorisation is sought for all listed activities that will be triggered within **entire Wetland Project areas** rather than for each intervention that is used during rehabilitation. It is important to note that the implementation of interventions trigger Listed Activities in terms of NEMA and it is normally required that footprints are provided for such activities, but these interventions are proposed to gain valuable wetland hectares and improve wetland function. Decisions regarding the choice of interventions will only be made if an EA is granted for a Wetland Project. It is therefore not possible to present the size of each preferred intervention for each Wetland Project in this report. A booklet of possible intervention designs that are appropriate to the WfWetlands Programme is presented in Appendix C.

The intention is that Rehabilitation Plans will be prepared on an annual basis, circulated for public comment, and submitted to DEA for approval as a condition of the EA. The Rehabilitation Plans will describe the combination and number of interventions selected from this booklet for each Wetland Project, as well as an indication of the approximate location and approximate dimensions (including footprint) of each intervention.

Alternative:

Alternative A1⁴ (preferred activity alternative)
 Alternative A2 (if any)
 Alternative A3 (if any)
 or, for linear activities:

Size of the activity:

	m ²
	m ²
	m ²

Alternative:

Length of the activity:

⁴ "Alternative A.." refer to activity, process, technology or other alternatives.

BASIC ASSESSMENT REPORT

Alternative A1 (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

b) Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

Size of the Site	
<p>The approximate size of each wetland within each Wetland Project is provided below, as the intention is to positively influence the entire area through the implementation of smaller interventions. It is important to note that the implementation of interventions trigger Listed Activities in terms of NEMA and it is normally required that footprints are provided for such activities, but these interventions are proposed to gain valuable wetland hectares and improve wetland function. The footprints of these interventions will be detailed in the annual Rehabilitation Plans which will be submitted to DEA for approval.</p>	

Alternative:

Alternative A1 (preferred activity alternative)

PROJECT	WETLAND NAME	NUMBER	SIZE OF THE SITE
RUSTENBERG	Ai Rietfontein	A21K-02	8.8 ha
	Aii Pilanesberg Ntshwe	A22F-01	76.7 ha
	Aiii Pilanesberg Ntshwe2	A22F-02	52.3 ha
	Aiv Pilanesberg Kgama	A22F-03	6.5 ha
	Av Pilanesberg Kubu	A22F-04	40.2 ha
	Avi Pilanesberg Tlhwane2	A22F-05	47.3 ha
	Avii Pilanesberg Manyane	A22F-06	15.3 ha
	Aviii Pilanesberg Tlhwane	A24D-01	8.6 ha

Alternative A2 (if any)

Alternative A3 (if any)

4. SITE ACCESS

Does ready access to the site exist?

If NO, what is the distance over which a new access road will be built

YES	NO
m	

Describe the type of access road planned:

Each Wetland Project can be accessed by existing National, Municipal, Divisional, Main, Minor and/or Trunk Roads, and private access routes or farm tracks.

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

Temporary access routes

Please note that although easy access to at least one point of each of the wetlands does exist, some sections of the various wetlands may require that temporary access routes be used. No new access roads will be created, but a two-track route from the nearest road to the wetland unit will be utilised by a small utility vehicle (i.e. a bakkie may need to drive over the grass) and this route will not be permanent nor will it require the removal of any vegetation. The location of any temporary access routes will depend on a number of factors including landowner requirements, and the time of year and recent weather conditions (i.e. how wet or dry the area is) at the time the access is required. For this reason it is not possible to specify exactly where routes may be needed in this report. It can however be confirmed that the access routes will be temporary and seldom more than a few hundred metres long. Any temporary access routes will be determined and indicated in the annual Rehabilitation Plans.

5. LOCALITY MAP

An A3 locality map must be attached to the back of this document, as Appendix A. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map.). The map must indicate the following:

- an accurate indication of the project site position as well as the positions of the alternative sites, if any;
- indication of all the alternatives identified;
- closest town(s);
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1km radius of the site or alternative sites; and
- a north arrow;
- a legend; and
- locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection).

Locality maps

Locality maps for each Wetland Project are provided as Appendix A of this report.

6. LAYOUT/ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this document.

The site or route plans must indicate the following:

- the property boundaries and numbers of all the properties within 50metres of the site;
- the current land use as well as the land use zoning of the site;
- the current land use as well as the land use zoning each of the properties adjoining the site or sites;
- the exact position of each listed activity applied for (including alternatives);
- servitude(s) indicating the purpose of the servitude;
- a legend; and
- a north arrow.

Layout/route plan

The intention is that Rehabilitation Plans for each Wetland Project will be prepared on an annual basis and submitted to DEA for approval as a condition of the EA. The Rehabilitation Plans will provide the type, dimension and proposed location for each intervention within each Wetland Unit.

7. SENSITIVITY MAP

The layout/route plan as indicated above must be overlain with a sensitivity map that indicates all the sensitive areas associated with the site, including, but not limited to:

- watercourses;
- the 1:100 year flood line (where available or where it is required by DWA);
- ridges;
- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or infested with alien species); and
- critical biodiversity areas.

The sensitivity map must also cover areas within 100m of the site and must be attached in Appendix A.

Sensitivity maps

The entire wetland is considered to be sensitive, and the very purpose of rehabilitation is to improve the value and function of these areas.

8. SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this report. It must be supplemented with additional photographs of relevant features on the site, if applicable.

Site photos

The intention is that Rehabilitation Plans for each Wetland Project will be prepared on an annual basis and submitted to DEA for approval as a condition of the EA. The Rehabilitation Plans will provide site photographs in the eight major compass directions as well as photographs of the proposed locations for each intervention within each Wetland Unit.

9. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of at least 1:200 as Appendix C for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

Facility illustration

The WfWetlands Programme is not a development proposal and no facilities are proposed.

10. ACTIVITY MOTIVATION

Motivate and explain the need and desirability of the activity (including demand for the activity):

The Working for Wetlands Programme

South Africa is a dry country, but is endowed with an exceptionally rich biodiversity. The nation has a pressing reason to value the water-related services that wetlands provide: according to SANBI, South Africa will be one of fourteen African countries classified as “*subject to water scarcity*” by 2025. The conservation of wetlands is fundamental to the sustainable management of water quality and quantity, and wetland rehabilitation is therefore essential to conserving water resources in South Africa.

The guiding principles of the National Water Act, No. 36 of 1998, recognise the need to protect water resources. In responding to the challenge of stemming the loss of wetlands and maintaining and enhancing the benefits they provide, government has recognised that, in order to be truly effective, strategies for wetland conservation need to include a combination of proactive measures for maintaining healthy wetlands, together with interventions for rehabilitating those that have been degraded. These objectives are currently being expressed in a coordinated and innovative way through the WfWetlands Programme.

The two main objectives of the WfWetlands Programme are (1) **wetland conservation** in South Africa and (2) **poverty reduction** through **job creation** and **skills development** amongst **vulnerable** and **marginalised** groups. In the 12 years since its inception, the WfWetlands Programme has invested R530 million in wetland rehabilitation and has been involved in over 900 wetlands, thereby improving or securing the health of over 70 000 hectares of wetland environment. The WfWetlands Programme currently has a budget of approximately R94 million per year, of which R32 million is allocated directly to employee wages. Being part of the Expanded Public Works Programme (EPWP), WfWetlands has created more than 12 800 jobs and 2.2 million person-days

The Working for Wetlands Programme

of paid work. Local teams are made up of a minimum of 60% women, 20% youth and 1% disabled persons.

The WfWetlands Programme is not a development proposal, and the activities proposed are entirely motivated by the goals of wetland rehabilitation and social upliftment. This Basic Assessment seeks to gain Environmental Authorisation to undertake rehabilitation work in wetland systems. The details regarding rehabilitation interventions will be determined annually on the basis of the previous years' work, changes in the environment or community needs, and budget provisions amongst others. Annual Rehabilitation Plans will be made available for to registered I&APs for comment and submitted to the DEA for acceptance. If the WfWetlands Programme were required to undertake an Impact assessment for each year's proposed interventions, this could render the programme infeasible (both in time and budget resources) resulting in a potentially significant environmental opportunity cost.

1. Is the activity permitted in terms of the property's existing land use rights?	YES	NO	Please explain
The Wetland Projects have been selected through a Catchment and Wetland Prioritisation Process because of their potential contribution to wetland conservation and water resource protection. As the WfWetlands Programme is not a development proposal, the existing land use rights are irrelevant.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	YES	NO	Please explain
The WfWetlands Programme is not a development proposal, <u>but will assist the Provincial government in protecting their environmental resources as explained in the above information box.</u>			
(b) Urban edge / Edge of Built environment for the area	YES	NO	Please explain
N/A – The WfWetlands Programme is not a development proposal.			
(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).	YES	NO	Please explain
Approval of this application would not compromise the integrity of the municipal IDPs and SDFs, but would actually contribute towards additional ecological goods and services. The WfWetlands Programme is in line with the objectives of the municipalities in that it aims to restore the hydrological integrity of wetland systems, recreate wetland habitat, prevent/ halt sediment loss, enhance biodiversity and the conservation thereof and create job opportunities while also contributing to social upliftment.			
(d) Approved Structure Plan of the Municipality	YES	NO	Please explain
N/A – The WfWetlands Programme is not a development proposal.			

BASIC ASSESSMENT REPORT

(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)	YES	NO	Please explain
Approval of this application would not compromise the integrity of the existing environmental management priorities. The activities proposed are in direct response to meeting these priorities <u>in that it aims to restore the hydrological integrity of wetland systems, recreate wetland habitat, prevent/ halt sediment loss, enhance biodiversity and the conservation thereof and create job opportunities while also contributing to social upliftment.</u>			
(f) Any other Plans (e.g. Guide Plan)	YES	NO	Please explain
N/A			
3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?	YES	NO	Please explain
Rehabilitation and protection of the wetland systems are considered to be of great importance to secure water resources and quantity as well as biodiversity and should thus be undertaken on an on-going base. In addition, the implementation of rehabilitation projects provides a number of job opportunities while also contributing to social upliftment. The proposed rehabilitation project is thus considered to be in line with local, provincial and national environmental priorities.			
4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)	YES	NO	Please explain
Being part of the Expanded Public Works Programme (EPWP), WfWetlands has created more than 12 800 jobs and 2.2 million person-days of paid work. Local teams are made up of a minimum of 60% women, 20% youth and 1% disabled persons. <u>Please also see the response to Question 15 below which provides more information on the environmental and social services provided by wetlands.</u>			
5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)	YES	NO	Please explain
N/A – No services will be required to undertake the rehabilitation work.			

BASIC ASSESSMENT REPORT

6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)	YES	NO	Please explain
N/A – The WfWetlands Programme does not have any infrastructure requirements.			
7. Is this project part of a national programme to address an issue of national concern or importance?	YES	NO	Please explain
WfWetlands is a government programme (similar to Working for Water, Working on Fire and LandCare) managed by the South African National Biodiversity Institute (SANBI) on behalf of the national government departments of Environmental Affairs (DEA), Water Affairs (DWA), and Agriculture, Forestry and Fisheries (DAFF), and forms part of the EPWP and Natural Resource Management Programmes (NRMP).			
8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)	YES	NO	Please explain
The activities applied for are for the rehabilitation of degraded and threatened wetland systems, many of which are located within protected areas.			
9. Is the development the best practicable environmental option for this land/site?	YES	NO	Please explain
Without the implementation of the planned rehabilitation activities the loss of wetland habitat and its associated eco-system services would result. The strategic importance of the WfWetlands Programme is clear as evidenced by the distinct positive impacts associated with the programme which has resulted in a net benefit/gain as wetland health and integrity is improved and the associated eco-services enhanced. Overall the cumulative impact of wetland rehabilitation would thus be positive to both human beings and the environment, now and in the future. Based on the above information, it is clear that rehabilitating wetlands is considered to be the ' best practicable environmental option ' as a result of the positive impact that the programme has on both the natural and socio-economic environment.			
10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	YES	NO	Please explain
The WfWetlands Programme is not a development proposal and is proposed entirely for its positive environmental impacts.			
11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?	YES	NO	Please explain
N/A – The WfWetlands Programme is not a development proposal.			

BASIC ASSESSMENT REPORT

12. Will any person's rights be negatively affected by the proposed activity/ies?	YES	NO	Please explain
<p>The WfWetlands Programme is only implemented in agreement with the relevant landowners <u>and requires Landowner Agreements to be signed prior to any rehabilitation activities taking place on the applicable property</u>. All registered I&APs (including landowners) will be given an opportunity to comment on the annual Rehabilitation Plans.</p>			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?	YES	NO	Please explain
<p>N/A – The WfWetlands Programme is not a development proposal.</p>			
14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?	YES	NO	Please explain
<p>N/A – The WfWetlands Programme is not a development proposal.</p>			
15. What will the benefits be to society in general and to the local communities?			Please explain
<p>The WfWetlands Programme gives effect to a range of policy objectives of environmental legislation, and also honours South Africa's commitments under several international agreements, especially the Ramsar Convention on Wetlands. The two main objectives of the programme are wetland conservation in South Africa and poverty reduction through job creation and skills development amongst vulnerable and marginalised groups. The programme forms part of the EPWP and NRMP, which seeks to draw significant numbers of unemployed into the productive sector of the economy, gaining skills while they work and increasing their capacity to earn income. The Wetland Projects are thus focused on rehabilitation, conservation and the appropriate use of wetlands in a way that attempts to maximise employment creation, support for small business and the transfer of skills to the unemployed and poor.</p> <p>Wetland ecosystems provide a range of ecological and social services which benefit people, society and the economy at large:</p> <ul style="list-style-type: none"> • Wetlands provide services such as water provision, regulation, purification and groundwater replenishment are crucial in addressing objectives of water security and water for food security. • Wetlands play a critical role in improving the ecological health of an ecosystem by performing many functions that include flood control, water purification, sediment and nutrient retention and export, recharge of groundwater, as well as acting as vital habitats for diverse plant and animal species. • Wetlands provide ecological infrastructure and replace the need for municipal infrastructure by providing the same or better benefit at a fraction of the costs. • Wetlands retard the movement of water in the landscape, which offers the dual benefit of flood control and water purification. The slow movement of water allows heavier impurities to settle and phreatic vegetation and micro-bacteria the opportunity to remove pollutants and nutrients. For these reasons, artificially created wetlands are often used in newer urban drainage systems to aid both mitigation of flooding and improvement of water quality. • Wetlands function as valuable open spaces and create recreational opportunities for people that include hiking, fishing, boating, and bird-watching. • Many wetlands also have cultural and spiritual significance for the communities living nearby. Commercially, products such as reeds and peat are also harvested from wetlands. 			

BASIC ASSESSMENT REPORT

<p>Without the implementation of the planned rehabilitation activities, the WfWetlands Programme objectives would not be realised; and the loss of wetland habitat and its associated eco-system and social services would be significantly greater.</p>	
<p>16. Any other need and desirability considerations related to the proposed activity?</p>	<p>Please explain</p>
<p>Overall the cumulative impact of wetland rehabilitation would be positive to both human beings and the environment, now and in the future. Based on the above information, it is clear that rehabilitating wetlands is considered to be the 'best practicable environmental option' as a result of the positive impact that the programme has on both the natural and socio-economic environment.</p>	
<p>17. How does the project fit into the National Development Plan for 2030?</p>	<p>Please explain</p>
<p>Given the programme's linked wetland conservation to sustainable economic development approach, WfWetlands forms part of the EPWP and NRMP, which seeks to draw significant numbers of unemployed into the productive sector of the economy. These individuals gain skills while they work thus increasing their capacity to earn an income.</p>	
<p>18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.</p>	
<p>The vision of the WfWetlands Programme is to facilitate the protection, conservation, rehabilitation and sustainable use of wetlands in South Africa, in accordance with national policies and commitment to international conventions and regional relationships, including Section 23 of NEMA. The proposed rehabilitation activities are therefore in line with the principles of NEMA (in particular: people and their needs – particularly women and children – are placed at the forefront of development via the EPWP; the development can be considered to be socially, environmentally and economically sustainable; the environmental impacts of the activity are not unfairly distributed and the potential environmental impacts have been assessed and evaluated).</p>	
<p>19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.</p>	
<p>The WfWetlands Programme aims to facilitate the protection, conservation, rehabilitation and sustainable use of wetlands in South Africa in accordance with national policies and commitment to international conventions and regional relationships. More specifically the WfWetlands Programme is in line with Principle 4(r) of Section 2 of NEMA which notes the requirement of specific management and planning procedures to deal with sensitive and vulnerable ecosystems such as wetlands.</p>	

11. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable:

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
The Constitution of South Africa (Act 108)	The WfWetlands Programme is a rehabilitation	National Government	1996
National Environmental Management Act (107)		Department of Environmental Affairs	1998

BASIC ASSESSMENT REPORT

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
National Environmental Management Act (Act 107), Amendment Act	proposal that aims to protect and conserve South Africa's wetland ecosystems. As such the listed legislation, policies and guidelines are of relevance to the project.	Department of Environmental Affairs	1998
The National Water Act (Act 36)		Department of Water Affairs	1998
Conservation of Agricultural Resources Act (Act 43)		Department of Agriculture, Forestry & Fisheries	1983
Natural Heritage Resources Act (Act 25)		National Heritage Resources Agency	1999
World Heritage Conventions Act (Act 49)		Department of Environmental Affairs	1999
The National Environmental Management: Biodiversity Act (Act 10)		Department of Environmental Affairs	2004
National Environmental Management: Protected Areas Act (Act 57)		Department of Environmental Affairs	2003
The Mountain Catchments Areas Act (Act 63)		Department of Water Affairs	1970
EIA Guideline Series, in particular: <ul style="list-style-type: none"> ○ Guideline 3 – General Guide to the Environmental Impact Assessment Regulations, 2006 (DEAT 2006) ○ Guideline 4 – Public Participation in support of the EIA regulations, 2006 (DEAT 2006) ○ Guideline 5 – Assessment of Alternatives and Impacts, 2006 (DEAT 2006) 		Department of Environmental Affairs	
North West Province Biodiversity Conservation Plan		Department of Agriculture, Conservation & Environment	2009
International Conventions, in particular: <ul style="list-style-type: none"> ○ The Ramsar Convention ○ Convention on Biological Diversity ○ United Nations Conventions to Combat Desertification ○ New Partnership for Africa's Development (NEPAD) ○ The World Summit on Sustainable Development (WSSD) 			

12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation

YES	NO
-----	----

BASIC ASSESSMENT REPORT

phase?

If YES, what estimated quantity will be produced per month?

How will the construction solid waste be disposed of (describe)?

m ³	

Where will the construction solid waste be disposed of (describe)?

Limited quantities of construction waste such as empty cement bags and litter may be generated. These wastes are typically collected on site and would be disposed of as per the WfWetlands Construction Environmental Management Programme (CEMP) (Appendix G of the BAR).

Material that is excavated during construction or which results from the breaking down of old structures is typically re-used on site in the construction and long-term stabilization of other interventions on site. For example, rubble from an old structure is typically used to provide backfill.

Ablution waste is usually handled through the provision of chemical toilet facilities or pit latrines (where no chemical toilet hire facilities exist). Chemical toilet waste is regularly removed by the toilet hire company and disposed of at a waste water treatment works. Toilet facilities are located out of wet areas and in line with the WfWetlands best management practices.

Please note that strict audits are carried out to ensure that the project Implementers do not generate unnecessary waste.

Will the activity produce solid waste during its operational phase?

If YES, what estimated quantity will be produced per month?

How will the solid waste be disposed of (describe)?

YES	NO
m ³	

If the solid waste will be disposed of into a municipal waste stream, indicate which registered landfill site will be used.

Where will the solid waste be disposed of if it does not feed into a municipal waste stream (describe)?

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the NEM:WA?

If YES, inform the competent authority and request a change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

Is the activity that is being applied for a solid waste handling or treatment facility?

If YES, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?

If YES, what estimated quantity will be produced per month?

Will the activity produce any effluent that will be treated and/or disposed of on site?

YES	NO
m ³	
YES	NO

BASIC ASSESSMENT REPORT

If YES, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Will the activity produce effluent that will be treated and/or disposed of at another facility?

YES

NO

If YES, provide the particulars of the facility:

Facility name:

Contact person:

Postal address:

Postal code:

Telephone:

E-mail:

Cell:

Fax:

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

--

c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other than exhaust emissions and dust associated with construction phase activities?

YES

NO

If YES, is it controlled by any legislation of any sphere of government?

YES

NO

If YES, the applicant must consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If NO, describe the emissions in terms of type and concentration:

--

d) Waste permit

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA?

YES

NO

If YES, please submit evidence that an application for a waste permit has been submitted to the competent authority

e) Generation of noise

Will the activity generate noise?

YES

NO

If YES, is it controlled by any legislation of any sphere of government?

YES

NO

If YES, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If NO, describe the noise in terms of type and level:

N/A

13. WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es):

Municipal	Water board	Groundwater	River, stream, dam or lake	Other	The activity will not use water
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BASIC ASSESSMENT REPORT

The WfWetlands Programme is not a development proposal, and the only water necessary will be for drinking purposes during construction, such potable water will be brought in as is required. The WfWetlands Programme aims to improve national water quality and quantity through rehabilitation efforts.

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:

N/A

Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs?

YES

NO

If YES, please provide proof that the application has been submitted to the Department of Water Affairs.

In terms of Section 39 of the National Water Act (No. 36 of 1998) (NWA), a General Authorisation (GA) has been granted for certain activities that are listed under the NWA that usually require a Water Use License. Such a GA exists for wetland rehabilitation as long as the activities are for conservation purposes. As some of the rehabilitation activities entail 'impeding or diverting the flow of water in a watercourse' and/ or 'altering the bed, banks, course or characteristics of a watercourse, a number of GAs for water uses will be registered with the Department of Water Affairs (DWA) for structures that would ordinarily require a Water Use License. For each planning cycle the proposed rehabilitation work will be submitted to DWA, the requisite approval sought and project monitoring reported as required.

14. ENERGY EFFICIENCY

Describe the design measures, if any, which have been taken to ensure that the activity is energy efficient:

N/A: The WfWetlands Programme is not a development proposal.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

N/A

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

- For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section B and indicate the area, which is covered by each copy No. on the Site Plan.

Section B Copy No. (e.g. A):

Available information for site description

This **BAR** for the North West Province presents the Wetland Projects that are proposed, together with baseline information regarding the quaternary catchments and the wetlands that have been prioritised for the next planning cycle (2014/15). If an EA is issued, it will be inclusive of all Listed Activities within these wetland systems and will essentially authorise any typical wetland rehabilitation activities required during the WfWetlands Programme implementation phase.

A Rehabilitation Plan will be prepared every year after sufficient field work has been undertaken in the authorised North West wetlands. This Rehabilitation Plan will include a status quo report prepared by the Wetland Ecologist which will provide a site description, detailed baseline information of the site, and the wetland context within the greater catchment. The Rehabilitation Plan will be circulated to registered I&APs (including landowners) for comment. The Rehabilitation Plan and Wetland Status Quo Report will be submitted to DEA for approval as a condition of the EA.

Many of the questions that follow in the remainder of this Section will only be answered once more detailed investigations into each wetland have been undertaken, and a Wetland Status Quo Report has been compiled.

- Paragraphs 1 - 6 below must be completed for each alternative.

- Has a specialist been consulted to assist with the completion of this section?

YES

NO

If YES, please complete the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed and attach it in Appendix I. All specialist reports must be contained in Appendix D.

Property description/physical address:

Province	North West
Local Municipality	See table below
District Municipality	See table below
Ward Number(s)	See table below
Farm name and number	To be provided in the annual Rehabilitation Plans
Portion number	See table below
SG Code	See table below

BASIC ASSESSMENT REPORT

Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application including the same information as indicated above.

Current land-use zoning as per local municipality IDP/records:

See table below

In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to, to this application.

Is a change of land-use or a consent use application required?

☐ YES ☒ NO

Property descriptions and current land use zoning				
Rustenberg Project: Property description/physical address:				
Wetland	Rietfontein (A21K-02)	Pilanesberg Ntshwe (A22F-01)	Pilanesberg Ntshwe2 (A22F-02)	Pilanesberg Kgama (A22F-03)
Province	North West			
Local Municipality	Rustenburg (NW373)	Moses Kotane (MW375)		
District Municipality	Bojanala Platinum (DC37)			
Ward Number(s)	36	14		
Farm name and number	Farm name to be provided in the annual Rehabilitation Plans. Farm number provided in attached list (refer to Appendix J).			
Portion number	Refer to Appendix J			
Land use zoning	Conservation			
SG Code	Refer to Appendix J			
Wetland	Pilanesberg Kubu (A22F-04)	Pilanesberg Tlhwane 2 (A22F-05)	Pilanesberg Manyane (A22F-06)	Pilanesberg Tlhwane (A24D-01)
Province	North West			
Local Municipality	Moses Kotane (MW375)			
District Municipality	Bojanala Platinum (DC37)			
Ward Number(s)	14			
Farm name and number	Farm name to be provided in the annual Rehabilitation Plans. Farm number provided in attached list (refer to Appendix J).			
Portion number	Refer to Appendix J			
Land use zoning	Conservation			
SG Code	Refer to Appendix J			

BASIC ASSESSMENT REPORT

1. GRADIENT OF THE SITE

Gradient of each Wetland Project						
Detailed site information will be provided in the respective Rehabilitation Plans which will be submitted on an annual basis to DEA for approval. The wetlands are however generally located in flat areas with a slight gradient. Wetland seeps can have a steeper gradient.						

Alternative S1:

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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Alternative S2 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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Alternative S3 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site:

2.1 Ridgeline	<input type="checkbox"/>	2.4 Closed valley	<input checked="" type="checkbox"/>	2.7 Undulating plain / low hills	<input type="checkbox"/>
2.2 Plateau	<input type="checkbox"/>	2.5 Open valley	<input checked="" type="checkbox"/>	2.8 Dune	<input type="checkbox"/>
2.3 Side slope of hill/mountain	<input checked="" type="checkbox"/>	2.6 Plain	<input checked="" type="checkbox"/>	2.9 Seafront	<input type="checkbox"/>

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following?

	Alternative S1:		Alternative S2 (if any):		Alternative S3 (if any):	
Shallow water table (less than 1.5m deep)	YES	NO	YES	NO	YES	NO
Dolomite, sinkhole or doline areas	YES	NO	YES	NO	YES	NO
Seasonally wet soils (often close to water bodies)	YES	NO	YES	NO	YES	NO
Unstable rocky slopes or steep slopes with loose soil	YES	NO	YES	NO	YES	NO
Dispersive soils (soils that dissolve in water)	YES	NO	YES	NO	YES	NO
Soils with high clay content (clay fraction more than 40%)	YES	NO	YES	NO	YES	NO
Any other unstable soil or geological feature	YES	NO	YES	NO	YES	NO
An area sensitive to erosion	YES	NO	YES	NO	YES	NO

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. Information in respect of the above will often be available as part of the

BASIC ASSESSMENT REPORT

project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted.

4. GROUNDCOVER

Indicate the types of groundcover present on the site. The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Natural veld - good condition ^E	Natural veld with scattered aliens ^E	Natural veld with heavy alien infestation ^E	Veld dominated by alien species ^E	Gardens
Sport field	Cultivated land	Paved surface	Building or other structure	Bare soil

If any of the boxes marked with an “E” is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn’t have the necessary expertise.

5. SURFACE WATER

Indicate the surface water present on and or adjacent to the site and alternative sites?

Perennial River	YES	NO	UNSURE
Non-Perennial River	YES	NO	UNSURE
Permanent Wetland	YES	NO	UNSURE
Seasonal Wetland	YES	NO	UNSURE
Artificial Wetland	YES	NO	UNSURE
Estuarine / Lagoonal wetland	YES	NO	UNSURE

If any of the boxes marked YES or UNSURE is ticked, please provide a description of the relevant watercourse.

A status quo assessment of all wetlands will be undertaken by a suitably qualified wetland ecologist to determine appropriate rehabilitation intervention and objectives. This report will be included in the applicable wetland rehabilitation plan.

6. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

Natural area	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station ^H
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation

BASIC ASSESSMENT REPORT

Informal residential ^A	Church	Agriculture
Retail commercial & warehousing	Old age home	River, stream or wetland
Light industrial	Sewage treatment plant ^A	Nature conservation area
Medium industrial ^{AN}	Train station or shunting yard ^N	Mountain, koppie or ridge
Heavy industrial ^{AN}	Railway line ^N	Museum
Power station	Major road (4 lanes or more) ^N	Historical building
Office/consulting room	Airport ^N	Protected Area
Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes dam ^A	Sport facilities	Archaeological site
Quarry, sand or borrow pit	Golf course	Other land uses (describe)

If any of the boxes marked with an "N" are ticked, how will this impact / be impacted upon by the proposed activity?

If any of the boxes marked with an "An" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

Does the proposed site (including any alternative sites) fall within any of the following:

Critical Biodiversity Area (as per provincial conservation plan)	YES	NO
Core area of a protected area?	YES	NO
Buffer area of a protected area?	YES	NO
Planned expansion area of an existing protected area?	YES	NO
Existing offset area associated with a previous Environmental Authorisation?	YES	NO
Buffer area of the SKA?	YES	NO

If the answer to any of these questions was YES, a map indicating the affected area must be included in Appendix A.

7. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or paleontological sites, on or close (within 20m) to the site? If YES, explain:	YES	NO
	Uncertain	

A stone clad dam located within the Pilanesberg Nature Reserve and falling within the wetland boundaries is earmarked for destruction. This proposal forms part of the Pilanesberg Nature Reserve management strategy of reducing/breaching some of its dams (in particular those that are no longer functional) to help reduce the number of water points for elephants in the reserve. As part of the impact assessment studies, NGT Projects & Heritage Consultants (Pty) Ltd conducted the Heritage Impact Assessment (HIA) (excluding a Palaeontological desktop study) for the proposed dam destruction.

The study revealed that the dam is generally protected in terms of the National Heritage Resources Act, No. 25 of 1999 because it is older than 60 years. The 60 year bench mark is stipulated in the heritage legislation for historical structures in term of Section 34 of the NHRA, No. 25 of 1999. Accounting for its general protection in terms of the heritage law; the dam was further assessed and evaluated in terms of its heritage value and fabric. This assessment and evaluation process was based on physical features and condition of the dam and it was found to have a low heritage significance rating. No other heritage sites were found in association with the dam - such as culverts (built environment) or burial grounds and graves or archaeological stone walls. Impacts of the proposed development (i.e. rehabilitation of wetlands and breaching of some dams to reduce water points for elephants within the reserve) on the dam would result in a negligible impact. The study concluded that the dam wall was found to be of low heritage significance with negligible impact significance; as such, it is not worthy to be considered for protection and/or conservation regardless of its age.

If uncertain, conduct a specialist investigation by a recognised specialist in the field (archaeology or palaeontology) to establish whether there is such a feature(s) present on or close to the site. Briefly explain the findings of the specialist:

Will any building or structure older than 60 years be affected in any way?	YES	NO
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	YES	NO
If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.		

The permit application is in progress and is still to be submitted to the relevant authorities.

8. SOCIO-ECONOMIC CHARACTER

a) Local Municipality

Please provide details on the socio-economic character of the local municipality in which the proposed site(s) are situated.

Level of unemployment:

Local Municipality	Unemployment Rate	Youth Unemployment Rate
Rustenburg	26.4%	34.7%
Moses Kotane	37.9%	47.7%

Source: Statistics South Africa, 2011 Census (http://beta2.statssa.gov.za/?page_id=964)

BASIC ASSESSMENT REPORT

Economic profile of local municipality:

Income per annum	Rustenburg	Moses Kotane
No income	16.8%	19.2%
R1-R4 800	2.7%	4.5%
R4 801-R9 600	4.1%	6.8%
R9 601-R19 600	11.2%	22%
R19 601-R38 200	17.2%	17.5%
R38 201-R76 400	23.1%	14.7%
R76 401-R153 800	12.1%	9.5%
R153 801-R307 600	7.1%	4%
R307 601-R614 400	4%	1.4%
R614 401-R1 228 800	1.2%	0.3%
R1 228 801- R2 457 6000	0.3%	0.1%
R2 457 601+	0.2%	0.1%

Source: Statistics South Africa, 2011 Census (http://beta2.statssa.gov.za/?page_id=964)

Level of education:

Local Municipality	No Schooling	Some Primary	Compl. Primary	Some Secondary	Compl. Secondary	Higher Educ.
Rustenburg	4.4%	37%	5.6%	31.7%	17.8%	2.1%
Moses Kotane	2.9%	42%	5.9%	32%	14.8%	1.3%

Source: Statistics South Africa, 2011 Census (http://beta2.statssa.gov.za/?page_id=964)

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?

~R94 million per annum

What is the expected yearly income that will be generated by or as a result of the activity?

N/A

Will the activity contribute to service infrastructure?

YES NO

Is the activity a public amenity?

YES NO

How many new employment opportunities will be created in the development and construction phase of the activity/ies?

~ 120*

What is the expected value of the employment opportunities during the development and construction phase?

~R32 million in wages

What percentage of this will accrue to previously disadvantaged individuals?

~70%

How many permanent new employment opportunities will be created during the operational phase of the activity?

N/A

BASIC ASSESSMENT REPORT

What is the expected current value of the employment opportunities during the first 10 years?

N/A

What percentage of this will accrue to previously disadvantaged individuals?

N/A

** Employment opportunities are created only during the construction phase and for many of the projects there are already teams (team size averages around 20-35 individuals) working on them and therefore there aren't new work opportunities as such. However, Working for Wetland principles ensure that a very large percentage of those employed are from local communities.*

9. BIODIVERSITY

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the identification of the biodiversity occurring on site and the ecosystem status consult <http://bgis.sanbi.org> or BGIShelp@sanbi.org. Information is also available on compact disc (cd) from the Biodiversity-GIS Unit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) and must be provided as an overlay map to the property/site plan as Appendix D to this report.

- a) **Indicate the applicable biodiversity planning categories of all areas on site and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category)**

Systematic Biodiversity Planning Category				If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	Other Natural Area (ONA)	No Natural Area Remaining (NNR)	Wetland systems are considered to be of extreme importance due to the biodiversity they support and the ecological services they provide.

- b) **Indicate and describe the habitat condition on site**

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	~80%	A large number of the wetlands are located within protected areas. However, alien invasion and historic agricultural activities are problematic for some of the sites <u>and have resulted in wetlands being drained and/or the development of erosion and sedimentation problems.</u> <u>Note that when a wetland is considered for the WfWetlands Programme, the potential for that wetland to be rehabilitated is considered in terms of its biodiversity and ecosystem services/</u>
Near Natural (includes areas with low to moderate level of alien invasive plants)	~10%	
Degraded (includes areas heavily invaded by	0%	

BASIC ASSESSMENT REPORT

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
alien plants)		<u>value and the costs that would be required to restore it. As a result, wetlands with a maximum return potential is mostly selected for rehabilitation.</u>
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	~10%	

c) Complete the table to indicate:

- (i) the type of vegetation, including its ecosystem status, present on the site; and
- (ii) whether an aquatic ecosystem is present on site.

Terrestrial Ecosystems		Aquatic Ecosystems							
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Critical	Wetland (including rivers, depressions, channelled and unchanneled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline		
	Endangered								
	Vulnerable								
	Least Threatened	YES	NO	UNSURE	YES	NO	YES	NO	

d) Please provide a description of the vegetation type and/or aquatic ecosystem present on site, including any important biodiversity features/information identified on site (e.g. threatened species and special habitats)

A status quo assessment of the wetlands will be undertaken by a wetland ecologist to inform the wetland rehabilitation plan. The report will be included as an annexure to the rehabilitation plan. Below please find a summary of the wetland ecosystem and vegetation type occurring at the respective wetland systems included in this submission.

Wetland	Wetland* Ecosystem Type	Wetland Ecosystem Threat Status	Vegetation Type** / Threatened Terrestrial Ecosystem Type***	Ecosystem Threat Status
Rietfontein: A21K-02	Central Bushveld Group 1	Endangered	Gold Reef Mountain Bushveld	Least Threatened
Pilanesberg Ntshwe: A22F-01	Central Bushveld Level 1 Seep	Endangered	Pilanesberg Mountain Bushveld	Least Threatened
Pilanesberg Ntshwe2: A22F-02	Central Bushveld Level 2 Seep	Least Threatened	Pilanesberg Mountain Bushveld and Zeerust Thornveld	Least Threatened
Pilanesberg Kgama: A22F-03	Central Bushveld Group 1	Endangered	Pilanesberg Mountain Bushveld	Least Threatened

BASIC ASSESSMENT REPORT

Wetland	Wetland* Ecosystem Type	Wetland Ecosystem Threat Status	Vegetation Type** / Threatened Terrestrial Ecosystem Type***	Ecosystem Threat Status
Pilanesberg Kubu: A22F-04	Central Bushveld Group 1	Endangered	Pilanesberg Mountain Bushveld	Least Threatened
Pilanesberg Tlhwane2: A22F-05	Central Bushveld Group 1	Endangered	Pilanesberg Mountain Bushveld	Least Threatened
Pilanesberg Manyane: A22F-06	Central Bushveld Group 1	Endangered	Pilanesberg Mountain Bushveld	Least Threatened
Pilanesberg Tlhwane: A24D-01	Central Bushveld Group 1	Endangered	Pilanesberg Mountain Bushveld	Least Threatened

* Nel and Driver, 2012⁵

** Mucina and Rutherford, 2006

*** National Environmental Management: Biodiversity Act: National list of ecosystems that are threatened and in need of protection, (G 34809, GN 1002), 9 December 2011.

⁵ Nel J.L. and Driver A. 2012. South African National Biodiversity Assessment 2011: Technical Report. Volume 2: Freshwater Component. CSIR Report Number CSIR/NRE/ECO/IR/2012/0022/A, Council for Scientific and Industrial Research, Stellenbosch.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Publication name	Adverts were placed in The Sunday Times (in English) and in Die Rapport (in Afrikaans).	
Date published	2 March 2014	
Site notice position	Latitude	Longitude
Date placed	March 2014	

Include proof of the placement of the relevant advertisements and notices in Appendix E1.

2. DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I&APs as required by Regulation 54(2)(e) and 54(7) of GN R.543.

Advertisements have been placed in *The Sunday Times* (in English) and in *Die Rapport* (in Afrikaans) on 2 March 2014 to allow I&APs the opportunity to register. Site notices have also been erected at the wetland entrances. The existing provincial I&AP database will be updated with information from new I&APs responding to advertisements and site notices. Proactive identification of I&APs and surrounding landowners was also undertaken to update the database.

An Issues Register will be maintained to record any comments received from I&APs and the responses given to these comments. The Issues Register, along with copies of written submissions, have been included in Appendix E3.

Include proof that the key stakeholder received written notification of the proposed activities as Appendix E2. This proof may include any of the following:

- e-mail delivery reports;
- registered mail receipts;
- courier waybills;
- signed acknowledgements of receipt; and/or
- or any other proof as agreed upon by the competent authority.

Proof of I&AP and key stakeholder notifications is available in Appendix E2 of the Final BAR.

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summary of main issues raised by I&APs & response from EAP

Four responses have been made on the Draft BAR

- 1) A neighbouring landowner requested more information on the rehabilitation project for Rietfontein.
- 2) The Department of Economic Development, Environment, Conservation and Tourism (DEDECT) acknowledged receipt and acceptance of the proposed North West Projects.
- 3) The Rustenburg Local Municipality's Integrated Environmental Management Unit acknowledged receipt and acceptance of the Draft BAR. The support for the project is identified in the municipality's Integrated Development Plan (IDP).
- 4) A biodiversity scientific support analyst from the DEDECT made several comments on the BAR and were mostly corrections to the content.

The Issues Register, along with copies of written submissions, is available in Appendix E3. Comments on the Final BAR must be submitted to the DEA directly for their consideration.

4. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments received from I&APs and respond to each comment before the Draft BAR is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to the Final BAR as Appendix E3.

Please refer to the response under Section C(3).

5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

National Authorities:

Department of Agriculture, Forestry and Fisheries
Department of Water Affairs
South African Heritage Resources Agency (SAHRA)
Endangered Wildlife Trust; and
Water Research Commission

Provincial Authorities:

North West Parks and Tourism Board
Department of Water Affairs North West
Department of Agriculture, Conservation and Rural Development
Agri North West

Municipalities:

Bojanala Platinum District Municipality

Rustenburg Local Municipality

Moses Kotane Local Municipality

Include proof that the Authorities and Organs of State received written notification of the proposed activities as Appendix E4.

In the case of renewable energy projects, Eskom and the SKA Project Office must be included in the list of Organs of State.

6. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for any activities (linear or other) where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that sub-regulation to the extent and in the manner as may be agreed to by the competent authority.

Proof of any such agreement must be provided, where applicable. Application for any deviation from the regulations relating to the public participation process must be submitted prior to the commencement of the public participation process.

A list of registered I&APs must be included as Appendix E5.

Copies of any correspondence and minutes of any meetings held must be included in Appendix E.

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2010, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

1. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

Provide a summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed. This impact assessment must be applied to all the identified alternatives to the activities identified in Section A(2) of this report.

Please Note: Please refer Section A(2)(a) of this document for more information on the selection of rehabilitation interventions.

A) Construction Phase

Activity	Impact summary	Significance	Proposed mitigation
Alternative 1 (preferred alternative)			
GN R.544, Item 11 & 18 GN R.546, Item 12, 13 & 16	Direct impacts:		
	Job creation One of the primary objectives of the WfWetlands Programme is to create jobs and to teach transferrable skills to unemployed members of the local community so that they can be drawn into the permanent job market.	Without mitigation: Medium (+) With mitigation: High (+)	<ul style="list-style-type: none"> Ensure that the required Project workers are sourced from local communities and that maximum employment numbers are maintained throughout the Project duration. Project implementers to support local businesses (e.g. local quarry owners to obtain rock for gabions) where possible.

BASIC ASSESSMENT REPORT

Activity	Impact summary	Significance	Proposed mitigation
	Fire risk Construction usually takes place in the dry winter months when the danger of veld fires is highest. There is a possibility that construction workers could light a fire on site that could become out of control. The risk of this happening is assessed to be low, although the significance in terms of the economic damage that could be caused (especially in a commercial forestry area) is high. Adequate site supervision would considerably mitigate this impact.	Without mitigation: High (-) With mitigation: Low (-)	<ul style="list-style-type: none"> Ensure that workers are aware of the potential for fires and the damage that could be caused. Ensure that a fire response procedure is in place and that all dry season work is organized in liaison with the landowners so that it fits into their firebreak/fire protection programme.
	Nuisance impacts Construction can result in nuisance impacts, particularly for landowners. These impacts include: <ul style="list-style-type: none"> Noise from construction activities, personnel and vehicles. An increase in the amount of litter being generated. Dust. Security concerns such as theft or leaving gates open. Non-use of sanitation facilities. Temporary loss of access to areas due to construction activities. <p>Given the isolated working environment (i.e. far from communities and public routes), the relatively few number of people on site and constant supervision by the project implementer, the above impacts are likely to be of low magnitude.</p>	Without mitigation: Low (-) With mitigation: Very Low (-)	<ul style="list-style-type: none"> All site workers to undergo environmental induction training ("toolbox talks") before undertaking work so that they are aware of the various environmental requirements. Landowners should be consulted regarding the placement of stockpile sites and toilets as well as access routes. Ensure that closed gates are kept closed. When in doubt, the landowner should be consulted. Follow CEMP with regards to sanitation facilities, waste management, noise and site management Utilise local labour wherever possible to reduce potential friction within the community caused by bringing outside personnel in. Ensure that all workers wear the yellow/blue attire indicative of WfWetlands personnel so that they are not mistaken for trespassers.

BASIC ASSESSMENT REPORT

Activity	Impact summary	Significance	Proposed mitigation
	<p>Impact on heritage resources</p> <p>An old stone cladded dam located within the Pilanesberg Nature Reserve and falling within the wetland boundaries is earmarked for destruction. This is part of the Pilanesberg Nature Reserve management strategy of reducing/breaching some of its dams (particularly the non-functional dams) to help reduce the number of water points for elephants in the reserve.</p> <p>The dam was assessed and evaluated in terms of its heritage value and fabric. This assessment and evaluation process was based on physical features and condition of the dam and it was found to have a low heritage significance rating. No other heritage sites were found in association with the dam - such as culverts (built environment) or burial grounds and graves or archaeological stonewalls. The dam wall was found to be of low heritage significance with negligible impact significance; as such, it is not worthy to be considered for protection and/or conservation regardless of its age (60 years).</p>	<p>With and without mitigation: Negligible</p>	<ul style="list-style-type: none"> • Should any heritage resource or suspected resources be identified during the Phase 2 planning site visit, a suitably qualified heritage specialist shall be consulted. • Should any archaeological remains be discovered or any site of cultural significance be encountered during destruction phase, then the Contractor must immediately stop work in the vicinity of the discovery and alert the relevant authorities. The area around the discovery shall be cordoned off until such time that work is authorised to proceed.
	<p>Worker safety</p> <p>Alien clearing requires very specific training and involves high risk equipment such as chainsaws. It sometimes involves large trees and therefore extreme caution needs to be exercised.</p> <p>Furthermore, some of the wetlands are located within protected areas/ nature reserves that keep dangerous</p>	<p>Without mitigation: Medium (-)</p> <p>With mitigation: Low (-)</p>	<ul style="list-style-type: none"> • Should dangerous animals be kept within a protected area/ nature reserve, game guards shall be provided for the duration of the construction period. • All site workers to undergo specific safety training before undertaking this work so that they are aware of the various risks and measures to be taken in emergency situations. • Follow CEMP with regards to Occupational Health and

BASIC ASSESSMENT REPORT

Activity	Impact summary	Significance	Proposed mitigation
	animals that may pose a risk to site workers, e.g. buffalo, lion, rhinoceros, etc.		Safety requirements
	<p>FLORA & FAUNA</p> <p>Habitat disturbance</p> <p>Habitat disturbance during the construction stage is typically temporary. In addition most species are relatively tolerant of disturbance and would be able to utilise the similar alternative habitat available in the study area. The area of habitat loss is also likely to be small and limited to the immediate surroundings of the intervention being constructed.</p> <p>Disturbance of protected species</p> <p>Construction activities could potentially result in disturbance to habitats required by protected species such as bullfrogs and wattle cranes (critically endangered). It can however be almost completely mitigated by liaising with the appropriate conservation bodies whose local representatives can advise on appropriate measures and construction timeframes.</p> <p>Alien species invasion</p> <p>A potential construction-related impact on vegetation is the possibility of an increase in alien invasive species due to disturbance and weed seeds being brought in with borrow and construction material.</p> <p>Poaching</p> <p>Poaching by the construction teams is possible, but can be mitigated by the fact that the teams are not resident on site</p>	<p>Without mitigation: Medium (-)</p> <p>With mitigation: Low (-)</p>	<ul style="list-style-type: none"> Should any protected species need to be removed or relocated, e.g. indigenous tree ferns, the appropriate permits shall be required. These activities shall take place under strict guidance from the PC and/or appropriate authority. Should any protected species occur on site, the SANBI PC and project manager or implementer must liaise prior to site establishment with the relevant conservation body to determine measures required during the construction period to limit potential disturbances to protected species. Before moving onto site the SANBI PC and project manager or implementer must liaise with the Endangered Wildlife Trust: Crane Working Group to determine if wattled cranes are known to be breeding in the project area. If cranes have been observed as being present then the advice of the Crane Working Group as to how best to proceed should be sought and discussed with the SANBI PC. Implement the provisions of the CEMP regarding stockpiling borrowed material and rehabilitation after construction

BASIC ASSESSMENT REPORT

Activity	Impact summary	Significance	Proposed mitigation
	and is closely supervised.		
	<p>AQUATIC ECO-SYSTEM IMPACTS</p> <p>Temporary alteration to stream flow patterns Construction must often take place in areas that are permanently wet. This requires that water be diverted away from working areas, leading to temporary alterations in the current drainage characteristics. Water diversion is typically done using sand bags to slow/block flow and then a pump to remove water and discharge it further downstream. This can result in a slight drying in the working areas and may affect aquatic organisms. This will however be of a temporary nature and is unlikely to significantly alter flow patterns.</p> <p>Sedimentation Construction activities can result in additional sediment ending up in the water course (e.g. due to earthworks or breakage of sandbags used to divert water away from working areas). Sediment can result in silt build-up downstream, increase the turbidity of the water and result in habitat changes. However, as wetlands are typically low-energy systems, much of the excess sediment is likely to be trapped before it is washed far downstream. Also, given the limited nature of the earthworks, sedimentation is not anticipated to occur to a significant degree.</p> <p>Pollution of water-courses Construction activities close to a water-course/wetland carry the attendant risk that construction-related pollutants could</p>	<p>Without mitigation: Medium (-)</p> <p>With mitigation: Low (-)</p>	<ul style="list-style-type: none"> • Work shall predominantly take place during low rainfall periods. • No foreign vegetation matter (e.g. mulch) shall be allowed on site (especially from alien species). • Soils shall be stockpiled according to the different soil layers as per the soil profile in order not to mix layers of leached and organic soils. • Stockpiles and revegetated areas shall be covered with mulch or cloth (geotextile) and kept moist. • Implement the provisions of the CEMP regarding stockpile location and site management. • Sandbags used to temporarily divert water shall be in a good condition to prevent additional sedimentation and/ or failure. • Sand/earth to fill the bags shall be obtained from and returned to existing excavation points where feasible. • Soil required for the construction of interventions shall be stabilised as per the engineer's recommendations to counteract dispersive tendencies. • Water abstracted above the General Authorization limits must be authorized by DWA prior to such abstraction taking place.

BASIC ASSESSMENT REPORT

Activity	Impact summary	Significance	Proposed mitigation
	<p>end up in the wetland system. Typical pollutants include hydrocarbons (e.g. from fuel leaks, shutter oil and lubricating fluid spills), litter, cement and contaminated wash-down water.</p> <p>Disturbance of wetland vegetation and stream banks Some disturbance to stream banks and wetland vegetation will be inevitable in order to construct the proposed interventions. This impact generally occurs on a small scale and can be mitigated via good management practices</p>		
	<p>Sourcing borrow material Borrow material (earth and rocks) is not always sufficiently available on site, and has to be sourced elsewhere. This can have a negative biophysical impact to the area where it is sourced.</p> <p>The quantities required are not such that they require a borrow pit licence. Costs increase the further one gets from site and therefore borrow material is sourced as close to site as possible. Sources include existing borrow areas on neighbouring farms, decommissioned dam walls, man-made berms which are no longer required.</p>	<p>Without mitigation: Medium (-)</p> <p>With mitigation: Low (-)</p>	<ul style="list-style-type: none"> Implement the provisions of the CEMP. Any quantities in excess of the minimum requirements for a borrow pit licence will require authorisation through Department of Mineral Resources. Borrow areas will need to be properly re-sloped and re-vegetated after use.
	<p>Work within conservation areas A number of the projects fall within conservation areas which requires a more astute attitude on the part of the implementers to the surrounding environment and the possible negative impacts they can have on it.</p>	<p>Without mitigation: Medium (-)</p> <p>With mitigation: Low (-)</p>	<ul style="list-style-type: none"> Close co-operation is required with the conservation authorities. Any specific requirements need to be included in the applicable wetland rehabilitation plan. Implement the provisions of the CEMP.

BASIC ASSESSMENT REPORT

Activity	Impact summary	Significance	Proposed mitigation
	Indirect impacts:		
	Job creation The potential impact of this is significant and has a number of indirect positive impacts such as improvement in quality of life of the workers, increased spending in the local economy and the support of small business in the local area.	Without mitigation: Medium (+) With mitigation: High (+)	<ul style="list-style-type: none"> Ensure that the required Project workers are sourced from local communities and that maximum employment numbers are maintained throughout the Project duration. Project implementers to support local businesses (e.g. local quarry owners to obtain rock for gabions) where possible.
	Increased awareness of wetland importance As an indirect impact there is likely to be some increased awareness amongst the construction teams and land-owners regarding wetland ecology and the importance of rehabilitation.	Without mitigation: Medium (+) With mitigation: High (+)	<ul style="list-style-type: none"> Encourage landowners to become more aware of, and educated in, the ecological values and sensitivity of the wetland environments. Consider the erection of a SANBI/WfWetlands information signs to describe, and increase awareness of, the activities and the 'ecological' investment taking place in the Project areas
	Cumulative impacts:		
	Job creation Cumulatively, the impact of the WfWetlands projects is judged to be of high positive significance. The programme has a budget of over R94 million per annum, has created in the region of 1500 jobs and transferred skills to numerous previously unskilled persons.	Without mitigation: Medium (+) With mitigation: High (+)	<ul style="list-style-type: none"> Ensure that the required Project workers are sourced from local communities and that maximum employment numbers are maintained throughout the Project duration. Project implementers to support local businesses (e.g. local quarry owners to obtain rock for gabions) where possible.

BASIC ASSESSMENT REPORT

Activity	Impact summary	Significance	Proposed mitigation
	<p>Increased awareness of wetland importance and biodiversity</p> <p>The programme is creating increased awareness amongst the construction teams and land-owners regarding wetland ecology, the importance of rehabilitation and the importance of protecting biodiversity.</p> <p><i>Also refer to the cumulative impact section under operational phase impacts.</i></p>	<p>Without mitigation: Medium (+)</p> <p>With mitigation: High (+)</p>	<ul style="list-style-type: none"> Encourage landowners to become more aware of, and educated in, the ecological values and sensitivity of the wetland environments. Consider the erection of a SANBI/Wetlands information signs to describe, and increase awareness of, the activities and the 'ecological' investment taking place in the Project areas
No-go option			
	<p>Direct, Indirect and Cumulative impacts:</p> <p>Aquatic ecosystem</p> <p>If the no-go alternative is pursued, then the construction-related impacts will not be realised. However, the overall impact of the no go option on the aquatic ecosystem is likely to be negative, especially in the long-term as rehabilitation activities will not take place and the existing problems (such as erosion) in the wetland will continue. Over time these existing problems are likely to have a greater negative impact than the short-term and fairly minor construction related impacts. Although the no-go option is likely to have significant long-term negative consequences, only the expected impact of the no-go in the short term (i.e. construction-related time frame) has been assessed in this section so as to facilitate comparison between the no-go and preferred alternative during the construction period. The longer term impact of the no-go is assessed in the operational phase.</p>	Very Low (-)	<p>Note: If the no go alternative is pursued, then the operational-related impacts will not be realised. However, the overall impact of the no go option on the aquatic ecosystem is likely to be negative, especially in the long-term as rehabilitation activities will not take place and the existing problems (such as erosion) in the wetland will continue. Over time these existing problems are likely to have a greater negative impact than the short-term and fairly minor construction related impacts.</p>

BASIC ASSESSMENT REPORT

Activity	Impact summary	Significance	Proposed mitigation
	Heritage The no-go alternative is unlikely to have a significant impact – either positive or negative – due to the low likelihood of disturbance to heritage resources.	Neutral	
	Nuisance impacts Pursuing the no-go alternative will mean that the nuisance impacts associated with construction will not be realised.	Neutral	
	Socio-economic Pursuing the no-go alternative in this case will mean that the positive socio-economic benefits of job creation, skills transfer and support of the local economy will not be realised.	Medium (-)	

A complete impact assessment in terms of Regulation 22(2)(i) of GN R.543 must be included as Appendix F.

B) Operational Phase

Activity	Impact summary	Significance	Proposed mitigation
Alternative 1 (preferred alternative)			
GN R.544, Item 11 & 18	Direct & Indirect impacts:		
GN R.546, Item 12, 13 & 16	Changes in landuse The increase in wetland area may have both positive and negative impacts for landowners. Wetlands are often utilised for winter grazing and an increase in wetland area will thus improve grazing conditions for the farmer. However the increase in wet areas may also make previously accessible areas inaccessible for farming purposes. The extent and magnitude of this impact will depend to a large degree on how much value each individual landowner places on wetland	Without mitigation: Low (+) Medium (-) With mitigation: Medium (+) Low (-)	<ul style="list-style-type: none"> • Ensure good access for landowners in the form of crossing points • Provision of watering points for stock to minimise extensive trampling in the wetlands (especially in the wetter times of year)

BASIC ASSESSMENT REPORT

Activity	Impact summary	Significance	Proposed mitigation
	conservation. It is however assumed that if the landowner is willing to allow wetland rehabilitation to take place on their property that they see the value in the WfWetlands Programme and are willing to accept the increase in wetland area.		
	Reduced water storage and treatment costs Wetlands can offer valuable stream flow regulation and filtration services. By restoring wetland area it is likely that downstream users will benefit by having a more reliable and possibly cleaner source of water. In addition, by addressing erosion, wetland rehabilitation can decrease the amount of sediment downstream. This can help to reduce water treatment costs for downstream users and will also reduce the sedimentation of downstream water storage facilities such as dams.	Without mitigation: Medium (+) With mitigation: Medium (+)	No mitigation measures are proposed.
	Reduced soil erosion By reducing exposed ground surfaces and surface runoff velocity, the sediment load in surface runoff is reduced, thereby contributing to better water quality in the sub-catchment area.	Without mitigation: Medium (+) With mitigation: Medium (+)	No mitigation measures are proposed.
	Employment Ideally, the skills learned by the project team during the construction phase – such as how to work with concrete, build gabions etc – can be used to assist them to find permanent employment.	Without mitigation: Medium (+) With mitigation: Medium (+)	No mitigation measures are proposed.

BASIC ASSESSMENT REPORT

Activity	Impact summary	Significance	Proposed mitigation
	Cumulative impacts:		
	<p>ECOSYSTEM FUNCTIONING</p> <p>Restoring wetland corridors</p> <p>In areas where wetlands have been artificially drained, restoration can result in the re-wetting of areas and link up previously wet areas, thus creating and extending a network of wetland areas. These wetland corridors can provide valuable refuges for wetland species and allow for greater ecosystem connectivity.</p> <p>Changes in water quality and quantity</p> <p>More natural stream flow patterns within the wetland, as well as an improvement in water quality and quantity (due to improved ecosystem services) can be expected after rehabilitation.</p> <p>This improvement in water quality and a more reliable supply of water is particularly important given the water scarcity that faces South Africa.</p>	<p>Without mitigation: High (+)</p> <p>With mitigation: High (+)</p>	<p>Note: The interventions identified for the proposed rehabilitation project were identified during a screening process that was undertaken to ensure that the most suitable intervention was identified, developed and assessed for each rehabilitation site. During this screening process the project team also took into account environmental, social and economic considerations, as well as the rehabilitation objectives identified for the wetland.</p> <p>Should these interventions not be implemented, the current rate of degradation at the assessed wetlands would continue and in some cases even result in the permanent loss of the integrity and functioning of these systems. It would also not be possible to achieve the rehabilitation objectives identified for the wetlands. Without the implementation of wetland rehabilitation as part of the WfWetlands project, the overall programme objectives⁶ and the EPWP requirements would not be realised.</p> <p>No mitigation measures are proposed.</p>
	<p>FLORA & FAUNA</p> <p>Increased habitat</p> <p>Increasing the wetland area through rehabilitation will result in an increase in habitat for wetland-dependent species. This is a positive impact, especially in light of the fact that a number of the Mpumalanga wetlands are utilised by the vulnerable and endangered species.</p>	<p>Without mitigation: Medium (+)</p> <p>With mitigation: Medium (+)</p>	<p>Note: The interventions identified for the proposed rehabilitation project were identified during a screening process that was undertaken to ensure that the most suitable intervention was identified, developed and assessed for each rehabilitation site. During this screening process the project team also took into account environmental, social and economic considerations, as well as the rehabilitation objectives identified for the wetland.</p>

⁶ Wetland conservation and poverty reduction through job creation and skills.

BASIC ASSESSMENT REPORT

Activity	Impact summary	Significance	Proposed mitigation
	<p>Increased biodiversity</p> <p>A large proportion of the natural vegetation in the greater area has already been lost to <u>alien plant invasion and land use practices</u>. Restoring wetland habitat will help to increase the species richness of the overall area by encouraging the re-establishment of wetland species.</p> <p>Obstruction of movement of aquatic biota</p> <p>The potential for the proposed interventions to hinder the movement of aquatic species such as fish was considered and the following noted:</p> <ul style="list-style-type: none"> ○ <u>According to the International Union for Conservation of Nature and Natural Resources (IUCN)'s database, <i>Barbus motebensis</i> occurs in the upper catchments of the Marico and Crocodile Rivers and is listed as a vulnerable species.</u> ○ The overall impact of the structures on aquatic biota is expected to be positive due the increase in quality and quantity of habitat. ○ The interventions may help to contain the spread of alien exotic fish. <p>Change in species composition</p> <p>In wetlands that have been subject to desiccation, plants that are tolerant of drier conditions are likely to have become established. With the restoration of the wetland, these species are likely to be replaced with wetland-adapted</p>		<p>Should these interventions not be implemented, the current rate of degradation at the assessed wetlands would continue and in some cases even result in the permanent loss of the integrity and functioning of these systems. It would also not be possible to achieve the rehabilitation objectives identified for the wetlands. Without the implementation of wetland rehabilitation as part of the WfWetlands project, the overall programme objectives⁷ and the EPWP requirements would not be realised.</p> <p>No mitigation measures are proposed.</p>

⁷ Wetland conservation and poverty reduction through job creation and skills.

BASIC ASSESSMENT REPORT

Activity	Impact summary	Significance	Proposed mitigation
	vegetation. This change in composition reflects a shift back to historical species composition and is thus considered positive.		
No-go option			
	Direct, Indirect and Cumulative impacts:		
	Ecosystem functioning Pursuing the no-go option would result in the current negative ecosystem impacts continuing. These impacts include desiccation, erosion, channel incision etc.	Medium (-)	Note: If the no go alternative is pursued, then the operational-related impacts will not be realised. However, the overall impact of the no go option on the aquatic ecosystem is likely to be negative, especially in the long-term as rehabilitation activities will not take place and the existing problems (such as erosion) in the wetland will continue. Over time these existing problems are likely to have a greater negative impact than the short-term and fairly minor construction related impacts.
	Fauna & Flora The no go alternative would mean that the positive impacts identified above would not be realised. Continued wetland degradation and habitat loss is likely to result in exponential increase in the significance of the no go alternative, leading to an eventual loss of biodiversity and disruption of floral and faunal ecosystems. In addition, it would also negatively affect the achievement of conservation objectives for the area.	Medium (-)	
	Socio-economic The no go alternative would mean that the positive impacts identified above would not be realised.	Low (-)	

C) Decommissioning and Closure Phase

There were no anticipated situations where any decommissioning would be required.

2. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

Alternative A (preferred alternative)

<u>IMPACT SUMMARY TABLE</u>			
High negative	Red		
Medium negative	Green		
Low negative	Blue		
Very Low	Light Blue		
Neutral			
Positive impact	Yellow		

<u>Construction Phase:</u> Description of Impact	Significance of Impact		
	Preferred Alternative		
	No Mitigation	With mitigation	No Go
Job creation	Medium (+)	High (+)	Medium (-)
Increased awareness of wetland importance	Medium (+)	High (+)	Medium (-)
Fire risk	High (-)	Low (-)	Neutral
Nuisance impacts	Low (-)	Very Low (-)	Neutral
Impact on heritage resources	Negligible	Negligible	Negligible
Worker safety	Medium (-)	Low (-)	Neutral
Flora & Fauna	Medium (-)	Low (-)	Medium (-)
Aquatic ecosystem impacts	Medium (-)	Low (-)	Medium (-)
Sourcing borrow material	Medium (-)	Low (-)	Neutral
Work within conservation areas	Medium (-)	Low (-)	Neutral
Disturbance of wetland soil profile	Medium (-)	Low (-)	Neutral
<u>Operational Phase: Description of Impact</u>			
Changes in land use	Low (+)	Medium (+)	
	Medium (-)	Low (-)	Low (-)
Reduced water storage and treatment costs	Medium (+)	Medium (+)	Low (-)

BASIC ASSESSMENT REPORT

Employment	Medium (+)	Medium (+)	Medium (-)
Ecosystem functioning	Medium (+)	Medium (+)	High (-)
Flora and Fauna	Medium (+)	Medium (+)	Medium (-)
Reduced soil erosion	Medium (+)	Medium (+)	Medium (-)
Public safety	Medium (-)	Low (-)	Neutral

Based on the above, it is the opinion of the EAP that the positive long-term bio-physical and socio-economic aspects of the project as a whole greatly outweigh the minor negative construction related impacts, particularly since effective mitigation measures to reduce the negative impacts exist. There are no indications to suggest that the preferred alternative will have a significant detrimental impact on the environment. Instead, a long-term positive impact is anticipated. This is discussed in further detail below:

CONSTRUCTION PHASE:

It is most likely that all identified construction related impacts would be limited to the duration of this phase. Impacts on the bio-physical environment are generally considered to be of **Medium(-)** to **Low (-)** significance, which can be reduced to **Low(-)** and **Very Low (-)** with the implementation of appropriate mitigation measures. Construction related impacts can generally be very effectively managed through the implementation and regular auditing of a CEMP. The impact on the socio-economic environment is expected to be **Medium to High (+)** due largely to the creation of jobs and up-skilling of local workers.

OPERATIONAL PHASE:

Potential Operational Phase related impacts for both the bio-physical and socio-economic environments are generally considered to be of **Medium to High (+)** significance. These positive impacts are expected to arise due to the following:

- Improved wetland habitat for red data species
- Improved wetland services (which has benefits for downstream as well as local users)
- Empowering of local community

SECTION E: RECOMMENDATION OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?

YES ✓	NO
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If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application.

Based on the information provided in this report, the outcome of the impact assessment and the supporting documentation it is the recommendation of the EAP that authorization be granted for the following reasons:

- The proposed rehabilitation activities are likely to have significant positive bio-physical and socio-economic benefits, not just for the local community for the country as a whole.
- Effective mitigation measures exist to manage the limited negative impacts that were identified.
- The proposed rehabilitation activities are in line with the principles of NEMA (in particular: people and their needs – particularly women and children – are placed at the forefront of development via the EPWP; the development can be considered to be socially, environmentally and economically sustainable; the environmental impacts of the activity are not unfairly distributed and the potential environmental impacts have been assessed and evaluated).
- The WfWetlandsProgramme is an important part of the government's EPWP and given that the impacts of the proposed activities are not likely to be detrimental to the environment, this programme should be supported in the spirit of co-operative governance.

It is recommended that the following conditions should be included by the Department of Environmental Affairs in the Environmental Authorisation (should a positive decision be reached):

- a) Mitigation measures listed in this BAR should be referenced as conditions of approval.
- b) Construction activities must take place in accordance to the requirements of the attached CEMP, which also includes general requirements from the WfWetlands Best Management Practices Plan.
- c) Regular auditing of the CEMP must take place as per the audit checklist included in Appendix G.

With regards to the auditing and associated reporting to the authorities during the construction phase, since the programme includes comprehensive project management and monthly sites visits by the SANBI Provincial Co-ordinator (PC) the requirements for the CEMP have been worked into the Programme's Project Inspection Report which is completed monthly by the SANBI PC. The WfWetlands Programme is responsible for ensuring the compliance of it by the contracted implementers and therefore any non-compliance identified is dealt with on site by the SANBI PC directly. It is therefore recommended that a consolidated Environmental Project Inspection Report be submitted to DEA for each project on a bi-annual basis. This report would document any environmental non-compliance and corrective actions so that consideration can be given to these aspects in the following application for Environmental Authorisation.

Is an EMPr attached?

YES	NO
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The EMPr must be attached as Appendix G.

BASIC ASSESSMENT REPORT

The details of the EAP who compiled the BAR and the expertise of the EAP to perform the Basic Assessment process must be included as Appendix H.

If any specialist reports were used during the compilation of this BAR, please attach the declaration of interest for each specialist in Appendix I.

Any other information relevant to this application and not previously included must be attached in Appendix J.

NAME OF EAP

SIGNATURE OF EAP

DATE

SECTION F: APPENDICES

The following appendices must be attached:

Appendix A: Maps

Appendix B: Photographs

Photographs of the wetlands will be included in the Wetland Rehabilitation Plans.

Appendix C: Facility illustration(s)

A Phase 2 guideline containing typical designs of the most common interventions used for wetland rehabilitation purposes has been included. Note that these drawings are not to scale and must be adapted during the design stage to suite site conditions and meet rehabilitation objectives. Where applicable, drawings of interventions identified during the Phase 2 site visit will be attached to all Wetland Rehabilitation Plans.

Appendix D: Specialist reports (including terms of reference)

All Rehabilitation Plans include status quo assessments of the wetland and specialist engineering input.

Appendix E: Public Participation

E1 – Adverts and Posters
E2 – Letters to I&AP's
E3 – Comments and Response report
E4 – Record of Commenting Authorities contacted
E5 – I&AP database

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information

J1 –Wetland forum minutes
J2 –SG Numbers

SECTION G: REFERENCES

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