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JADE HILLS FARMING PTY LTD: PROPOSED CONSTRUCTION OF THE NEW JADE HILLS DAM

ON PORTION 26 OF

FARM STINKFONTEIN NO. 383, CERES, WESTERN CAPE

PRE-APP SCOPING REPORT
AND PLAN OF STUDY

MAY 2019

JADE HILLS FARMING PTY LTD

PROPOSED CONSTRUCTION OF THE NEW JADE HILLS DAM

On Portion 26 of Farm Stinkfontein 383, Ceres, Western Cape

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ACRONYMS

BGIS	Biodiversity Geographic Information System
CBA	Critical Biodiversity Area
DEA	Department of Environmental Affairs
DEA&DP	Department of Environmental Affairs and Development Planning
DWA	Department of Water Affairs
EAP	Environmental Assessment Practitioner
ECA	Environment Conservation Act (Act No. 73 of 1989)
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EMP	Environmental Management Programme
HIA	Heritage Impact Assessment
HWC	Heritage Western Cape
I&APs	Interested and Affected Parties
NEMA	National Environmental Management Act (Act No. 107 of 1998)
NEMBA	National Environmental Management: Biodiversity Act (Act No. 10 of 2004)
NHRA	National Heritage Resources Act (Act No. 25 of 1999)
NID	Notice of Intent to Develop
NWA	National Water Act
OESA	Other Ecological Support Area
SAHRA	South African Heritage Resources Agency
SANBI	South African National Biodiversity Institute
WULA	Water Use Licence Application

1. INTRODUCTION

1.1 BACKGROUND

Agriculture is the main economic driver of the Cape Winelands area and mainly responsible for the socio-economic stability of the area.

Mr Jean Faul is the representative and landowner of Jade Hills Farming, and also the Applicant. This application is for the investigation and consideration of the construction of a new earth filled dam on Portion 26 of Farm Stinkfontein 383, Ceres Western Cape or otherwise known as Jade Hills Farms.

The farm was bought from the previous landowners in 2013. The previous landowners farmed this property with the neighbouring property as one unit. When this property was sold off the existing 8.6ha listed water use with the Rietvallei scheme has come with it. The Rietvallei Scheme originates from the mid 1960's and was registered in June 1969 with a permit that entails surplus winter to be abstracted from the Titus River between 15 April to 30 September. The scheme originally consisted of contour earth trenches which was later upgraded to pipelines. The scheme currently has 8 abstraction points and serves a total of about 150ha over n few properties. Stinkfontein 383/26, also known and Jade Hills, has access to one these abstraction points, namely Loxtonia, which has an allocation of 8.6ha out if the total 150ha.

Consideration is therefore being given for the construction the proposed Jade Hills dam for potting up of this particular winter water use for summer irrigation. The concerned water use was never potted up before due to the lack of storage capacity and was used on the neighbouring property, also belonging to the previous owner. The new owner of the property would like to ensure the productive use of this winter water use with the aim to establish an irrigated development on the previously dry-land farming property. Should the construction of the dam be approved, an expansion of about 10ha of fruit orchards is proposed. The establishment of 10ha frit orchards would provide economic stability and job creation for a labour market that needs it urgently.

The proposed development entails the construction of a new dam for the storing of winter water for summer irrigation. It is proposed that the construction of the dam occurs in two phases. For phase 1 it is proposed that the dam will have a capacity of ± 65000m³, a maximum wall height if ±11.1m and a total surface area of ±2ha. An existing water use of (8,6ha) for the taking of water exists and water will come from the Rietvalley scheme for phase 1.

For phase 2 it is proposed that the dam will have a capacity of ±165000m³, a maximum wall height of ±14.8m, a total surface area of ±3.6ha. A separate Water Use License Application for the taking of water will have to be done for the proposed phase 2 development at a later stage.

The applicant is Jade Hills Farming (PTY) Ltd who will undertake the activity should it be approved. EnviroAfrica CC has been appointed as the independent environmental assessment practitioner (EAP) responsible for undertaking the relevant EIA and the Public Participation Process required in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA). Sarel Bester Ingenieurs BK is responsible for the Water Use License Application (WULA) in terms of the National Water Act (Act 36 of 1998) (NWA).

This Scoping Report, which will be submitted to the Department of Environmental Affairs and Development Planning (DEA&DP) for consideration, forms part of the EIA process.

The purpose of this Draft Environmental Scoping Report is to describe the proposed project, the process followed to date, to present alternatives and to list issues identified for further study and comment by specialists.

Should the EIA process be authorised by DEA&DP, the Specialist Studies (noted in Section 8) will be undertaken and the significant issues (noted in Section 6) will be investigated and assessed during the next phase of this application.

1.2 DESCRIPTION OF THE PROPOSED ACTIVITY

It is proposed that a farm storage dam be constructed on Portion 26 of Farm Stinkfontein No. 383. Water will be used for the irrigation of proposed 10ha of fruit orchards.

The proposed development entails the construction of a new dam for the storing of winter water for summer irrigation. It is proposed that the construction of the dam occurs in two phases. For phase 1 it is proposed that the dam will have a capacity of ± 65000m³, a maximum wall height if ±11.1m and a total surface area of ±2ha. An existing water use of (8,6ha) for the taking of water exists and water will come from the Rietvalley scheme for phase 1.

For phase 2 it is proposed that the dam will have a capacity of ±165000m³, a maximum wall height of ±14.8m, a total surface area of ±3.6ha. A separate Water Use License Application for the taking of water will have to be done for the proposed phase 2 development at a later stage.

Proposed construction of the new dam as proposed for Phase 1 and Phase 2:

Table 1: Proposed Phased Development of Jade Hills Dam

Description	Phase 1	Phase 2
Wall height (m)	**11.1 m**	**14.8 m**
Wall length (m)	**237 m**	**315 m**
Dam Capacity (m³)	**65 000 m³**	**165 000 m³**
Flooded area (Ha)	**1.7 ha**	**3.1 ha**
Footprint area (Ha)	**2.0 ha**	**3.6 ha**

The dam will be located on existing agricultural land (wheat farming) on the same property where the 10ha of fruit orchards will be established. The location was chosen to ensure the project life cycle costs are minimised (gravity feed vs. pumping cost etc.).

Access to the dam will be from existing farm roads. Please see **Appendix A** for locality maps and layout plans & **Appendix B** for design drawings.

Figure 1: Aerial image showing site location, with a green polygon, in proximity to surrounding towns and roads

2. NEED AND DESIRABILITY

In terms of the National Environmental Management Act, and EIA 2014 regulations, as amended, the Scoping/EIA report must provide a description of the need and desirability of the proposed activity. The consideration of "need and desirability" in EIA decision-making requires the consideration of the strategic context of the development proposal along with the broader societal needs and the public interest.

While the concept of need and desirability relates to the *type* of development being proposed, essentially, the concept of need and desirability can be explained in terms of the general meaning of its two components in which *need* refers to *time* and *desirability* to *place* – i.e. is this the right time and is it the right place for locating the type of land-use/activity being proposed? Need and desirability can be equated to *wise use of land* – i.e. the question of what is the most sustainable use of land.

2.1 NEED

This application is for the storage of an already existing water use. This existing water use could never be potted before due to inadequate storage capacity on the property and the water use could never be utilised to its full potential. Therefore the need existed for the consideration of the construction of the proposed new Jade Hills dam. the water would be applied to its full potential and furthermore support agricultural development that will have a direct influence in the socio-economic status of the previously disadvantaged. Should the construction of the dam be approved, an expansion of about 10ha of fruit orchards is proposed. The establishment of 10ha fruit orchards will promote economic growth and about 12 additional permanent employment opportunities will be generated for a community that urgently needs it.

2.2 DESIRABILITY

The following factors determine the desirability of the area for the proposed Jade Hills dam.

2.2.1 Location and Accessibility

Portion 26 of Farm Stinkfontein No. 383 is a very small property with a rather flat local topography situated within the Ceres valley. From an engineering point of view, the location was chosen to ensure the project life cycle costs are minimised (gravity feed vs. pumping cost etc.). The site is considered the best and only economical option with a natural basin situated relatively high relative to the area-to-be-developed. The storage/cost ratio is considered viable under the circumstances requiring the least amount if earthworks while offering the best gravitational benefits with considering irrigation aspects, both considered positive from an economical point of view.

Both the existing as well as the proposed farm infrastructure lends itself towards this option. The proposed footprint is on existing fields without any negative impact on natural vegetation. The site is also situated close to the existing Rietvlei Scheme off-take point from where water would be received ensuring minimal losses.

Access to the farm will be from via existing farm roads, no additional roads will need to be constructed.

Location and layout plans are included in **Appendix A** with site photographs in **Appendix C.**

2.2.2 Compatibility with the Surrounding Area

The site is largely surrounded by agricultural activities, dry-land farming. This is evident in the aerial image, Figure 1 above and site photographs in **Appendix C**. Please also refer to the Surrounding crops map. **Appendix D.**

The proposed activity will therefore not be “out of character” with the surrounding land use and is expected to have a negligible impact on the visual character of the area.

3. LEGAL REQUIREMENTS

The current assessment is being undertaken in terms of the National Environmental Management Act (Act 107 of 1998, NEMA), to be read with section 24 (5): NEMA EIA Regulations 2010. However, the provisions of various other Acts must also be considered within this EIA.

The legislation that is relevant to this study is briefly outlined below.

3.1 THE CONSTITUTION OF THE REPUBLIC OF SOUTH AFRICA

The Constitution of the Republic of South Africa (Act 108 of 1996) states that everyone has a right to a non-threatening environment and that reasonable measures are applied to protect the environment. This includes preventing pollution and promoting conservation and environmentally sustainable development, while promoting justifiable social and economic development.

3.2 NATIONAL ENVIRONMENTAL MANAGEMENT ACT (ACT 107 OF 1998)

The National Environmental Management Act (Act 107 of 1998) (NEMA), as amended, makes provision for the identification and assessment of activities that are potentially detrimental to the environment and which require authorisation from the relevant authorities based on the findings of an environmental assessment. NEMA is a national act, which is enforced by the Department of Environmental Affairs (DEA). These powers are delegated in the Western Cape to the Department of Environmental Affairs and Development Planning (DEA&DP).

On the 4 December 2014 the Minister of Environmental Affairs promulgated regulations in terms of environmental impact assessments, under sections 24(5) and 44 of NEMA, namely the EIA Regulations 2014 (GN No. R 326) these regulations were amended in April 2017,and include:

- GN No. R. 327 (Listing Notice 1);
- GN No. R. 325 (Listing Notice 2); and
- GN No. R. 324 (Listing Notice 3).

Listing Notice 1 and 3 are for a Basic Assessment and Listing Notice 2 for a full Environmental Impact Assessment.

According to the 2014 EIA regulations, as amended in 2017, the following potentially listed activities may be triggered (refer to Table 2)

Table 2: Summary of 2014 EIA regulations triggered

GN R327	Short description of relevant Activity(ies) in terms of Listing Notice 1	Description of specific portion of the development that might trigger the listed activity.
12	The development of (i) dams or weirs where the dam, including infrastructure and water surface area, exceeds 100 m^2 in size (a) within a watercourse	Proposed development of a dam with a footprint of more than 100m^2 within a drainage line.
19	The infilling or depositing of any material of more than 10 cubic meters into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10cubic meters from a watercourse:	Proposed development of a dam will constitute the excavation of more than 10m^3 material from a drainage line.
27	The clearance of an area of 1 ha or more, but less than 20 ha of indigenous vegetation, except where such clearance of indigenous vegetation is required for – (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a MMP.	The proposed development will constitute that clearance of more than 1ha but less than 20ha of transformed/ disturbed vegetation. Specialist to confirm if natural vegetation is present
GN R325	**Short description of relevant Activity(ies) in terms of Listing Notice 2**	**Description of specific portion of the development that might trigger the listed activity.**
16	Development of a dam where the highest part of the dam wall, as measured from the outside toe of the wall to the highest part of the wall, is 5 meters or higher or where the high-water mark of the dam covers an area of 10ha or more.	For phase 1 it is proposed that the dam wall height is 11.1m For phase 2 it is proposed that the dam wall height is 14.8m
GN R324	**Short description of relevant Activity(ies) in terms of Listing Notice 3**	**Description of specific portion of the development that might trigger the listed activity.**
12	Clearance of an area of more than 300 m^2 of indigenous vegetation (i) Western Cape (i) Within any critically endangered or endangered ecosystem listed in terms of Section 53 of the NEMBA or prior to the publication of such a list, within an area that has be identified as critically endangered in the National Spatial Biodiversity Assessment 2004; (ii) within a CBA identified in a bioregional plan.	The proposed activity will enable the clearance more than 300mn^2 of transformed/ disturbed vegetation within a ESA2. Specialist to confirm if natural vegetation is present.
14	The development of (iv) dams, where the dam including infrastructure and water surface structure exceeds 10 m^2 (i) Western Cape (i) Outside urban areas (ff) CBAs or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans.	The proposed development of a dam will have a water surface area exceeding 10m^2 within an ESA2. Specialist to confirm if natural vegetation is present.

An Application Form will be submitted to DEA&D. This Pre-Application Scoping Process is being undertaken to identify potential issues.

The principles of environmental management as set out in section 2 of NEMA have been taken into account. The principles pertinent to this activity include:

- People and their needs will be placed at the forefront while serving their physical, psychological, developmental, cultural and social interests. The activity seeks to provide additional employment and economic development opportunities, which are a local and national need – *the proposed activity is expected to have a beneficial impact on people, especially developmental and social benefits, as well providing additional employment and economic development opportunities.*
- Development will be socially, environmentally and economically sustainable. Where disturbance of ecosystems, loss of biodiversity, pollution and degradation, and landscapes and sites that constitute the nation's cultural heritage cannot be avoided, are minimised and remedied. The impact that the activity will potentially have on these will be considered, and mitigation measures will be put in place - *potential impacts have been identified and considered, and any further potential impacts will be identified during the public participation process. Mitigation measures will be included in the EMP*.
- Where waste cannot be avoided, it will be minimised and remedied through the implementation and adherence of the Environmental Management Programme (EMP) – *this will be included in the EIR*.
- The use of non-renewable natural resources will be responsible and equitable.
- The negative impacts on the environment and on people's environmental rights will be anticipated, investigated and prevented, and where they cannot be prevented, will be minimised and remedied.
- The interests, needs and values of all interested and affected parties will be taken into account in any decisions through the Public Participation Process.
- The social, economic and environmental impacts of the activity will be considered, assessed and evaluated, including the disadvantages and benefits.
- The effects of decisions on all aspects of the environment and all people in the environment will be taken into account, by pursuing what is considered the best practicable environmental option.

3.3 NATIONAL HERITAGE RESOURCES ACT

The protection and management of South Africa's heritage resources are controlled by the National Heritage Resources Act (Act No. 25 of 1999). South African National Heritage Resources Agency (SAHRA) is the enforcing authority and in the Western Cape, SAHRA have, in most cases, delegated this authority to Heritage Western Cape (HWC).

In terms of Section 38 of the National Heritage Resources Act, SAHRA and/or HWC will require a Heritage Impact Assessment (HIA) where certain categories of development are proposed. Section 38(8) also makes provision for the assessment of heritage impacts as part of an EIA process and indicates that if such an assessment is found to be adequate, a separate HIA is not required.

The National Heritage Resources Act requires relevant authorities to be notified regarding this proposed development, as the following activities are relevant:

- *any development or other activity which will change the character of a site exceeding 5 000 m² in extent;*

Furthermore, in terms of Section 34(1), no person may alter or demolish any structure or part of a structure, which is older than 60 years without a permit issued by the SAHRA, or the responsible

resources authority. Nor may anyone destroy, damage, alter, exhume or remove from its original position, or otherwise disturb, any grave or burial ground older than 60 years, which is situated outside a formal cemetery administered by a local authority, without a permit issued by the SAHRA, or a provincial heritage authority, in terms of Section 36 (3). In terms of Section 35 (4), no person may destroy, damage, excavate, alter or remove from its original position, or collect, any archaeological material or object, without a permit issued by the SAHRA, or the responsible resources authority.

3.4 EIA GUIDELINE AND INFORMATION DOCUMENT SERIES

The following are the latest guidelines that form part of the DEA&DP's *Environmental Impact Assessment Guideline and Information Document Series (Dated: October 2011)*:

- ✓ *Guideline on Transitional Arrangements*
- ✓ *Guideline on Alternatives*
- ✓ *Guideline on Public Participation*
- ✓ *Guideline on Exemption Applications*
- ✓ *Guideline on Appeals*
- ✓ *Guideline on Need and Desirability*
- ✓ *Information Document on the Interpretation of the Listed Activities*
- ✓ *Information Document on Generic Terms of Reference for EAPs and Project Schedules*

3.5 NATIONAL WATER ACT

The National Water Act (Act no 36 of 1998) provides the legal framework for the effective and sustainable management of out water resources. The Act was published in 1998 with the aim of fundamentally reforming the past laws relating to water resources which were discriminatory and not appropriate to South African conditions. Central to the National Water Act is a recognition that water is scarce and precious resource that belongs to all of the people of South Africa. It also recognises the ultimate goal of water resource management is to achieve the sustainable use of water for the benefit of all South Africans. The Act aims to protect, use, develop, conserve, manage and control water resources as a whole, promoting the intergrated management of water resources with the participation of all stakeholders.

Besides the provisions of NEMA for this EIA process, the proposed dam also requires authorizations under the National Water Act (Act N0. 36 of 1998). The Breede-Gouritz Catchment Management Agency BGCMA) is appointed by the Department of Water Affairs to manage this particular larger Breede & Gouritz CMA is appointed by the DWS to manage this particular larger Breede & Gouritz River catchment area whereas Titus River Irrigation Board is one of the smaller delegated entities to regulate water uses in the area in which the applicants property is located. BGCMA will be a leading role-player in this EIA.

An existing water use of (8,6ha) for the taking of water exists and water will come from the Rietvalley scheme for phase 1. It is proposed that a separate Water Use License Application for the taking of water will have to be done for the proposed phase 2 development at a later stage.

The Water Use Licence Application for the phase 1 development will thus include:

Article 36, 1998 Section 21 (b) for the Storing of water – the potting of an existing water use; (c) Impeding or diverting the flow of water of a watercourse – the proposed dam falls within a drainage line; and (i) Altering the bed, banks, course or characteristics of a watercourse – the proposed dam to fall within a drainage line. The WULA process will be launched by Sarel Bester Ingenieurs BK.

In terms of Chapter 12 of the National Water Act, the proposed dam is considered a dam with a safety risk. The dam therefore requires a permit to construct from the Dam Safety Office of the Department of Water Affairs. The design and construction must conform to the conditions of the Dam Safety Regulations as set out in Government Notice R139 in Government Gazette No. 35062 of 24 February 2012. Regulations 10 and 15 will be applicable to the proposed dam. A licence to construct application will only be submitted after an application for the safety classification of the proposed dam has been submitted, and only after the NEMA process has been concluded.

3.6 NATIONAL ENVIRONMENTAL MANAGEMENT: BIODIVERSITY ACT

The National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEMBA) is part of a suite of legislation falling under NEMA, which includes the Protected Areas Act, the Air Quality Act, the Integrated Coastal Management Act and the Waste Act. Chapter 4 of NEMBA deals with threatened and protected ecosystems and species and related threatened processes and restricted activities. The need to protect listed ecosystems is addressed (*Section 54*).

4. ALTERNATIVES

Alternatives have been considered during the Scoping phase and these are described below.

4.1 SITE ALTERNATIVES FOR THE PROPOSED DAM

Portion 26 of Farm Stinkfontein No 383, or Jade Hills is a very small property with a rather flat local topography situated in the Ceres valley. Due to the fact that property is rather small there are no other economically viable alternative sites available on the property. This particular site however is considered the best and only economical option with a natural basin situated relatively high relative to the area-to-be-developed.

Although not very good, the cost/storage ratio is considered viable under the circumstances requiring the least amount of earthworks while offering the best gravitational benefits when considering irrigations aspects, both considered positive from an economical point of view.

Other than that there is no real viable alternatives, and both the existing as well as the proposed farm infrastructure lends itself towards this option. The proposed footprint is on existing fields without any negative impact on any natural vegetations. The site is also situated close to the existing Rietvlei Scheme off-take point from where the water would be received ensuring minimal losses.

Therefore no other site alternatives were considered and investigated.

4.2 ACTIVITY ALTERNATIVES

The purpose of the proposed dam is to provide storage capacity for the storage of existing water use right.
No activity alternatives were considered.

4.3 NO-GO ALTERNATIVE

This is the option of not developing the proposed dam. Although this might result in no potential negative environmental impacts, the direct and indirect socio-economic benefits of not constructing the storage dam will not be realised. The existing water use would therefore never be utilised to its full potential and the proposed agricultural development of 10 ha of fruit orchards will not take place. This would have a direct impact on the socio-economic status of the previously disadvantaged groups, which is expected to create jobs in the area, as described in Section 2.1 above.

5. SITE DESCRIPTION

5.1 LOCATION

The site is located on Portion 26 of Farm Stinkfontein No. 383 otherwise known as Jade Hills Farm. The farm is located within the Ceres Valley about 6km east-south-east of Ceres. The proposed dam will fall on existing agricultural area (wheat production) and almost no remaining natural vegetation is expected.

The site coordinates for the dam wall are: S 33º 22'31.67", E19º 22'13.15".
The SG code for the property is: C01900000000038300026

Access to the farm is via existing access roads on the property.

Please refer to Fifgure 2 & 3 below for the proposed dam location associated surrounding land use and **Appendix A** for location maps; **Appendix B** for design drawings.

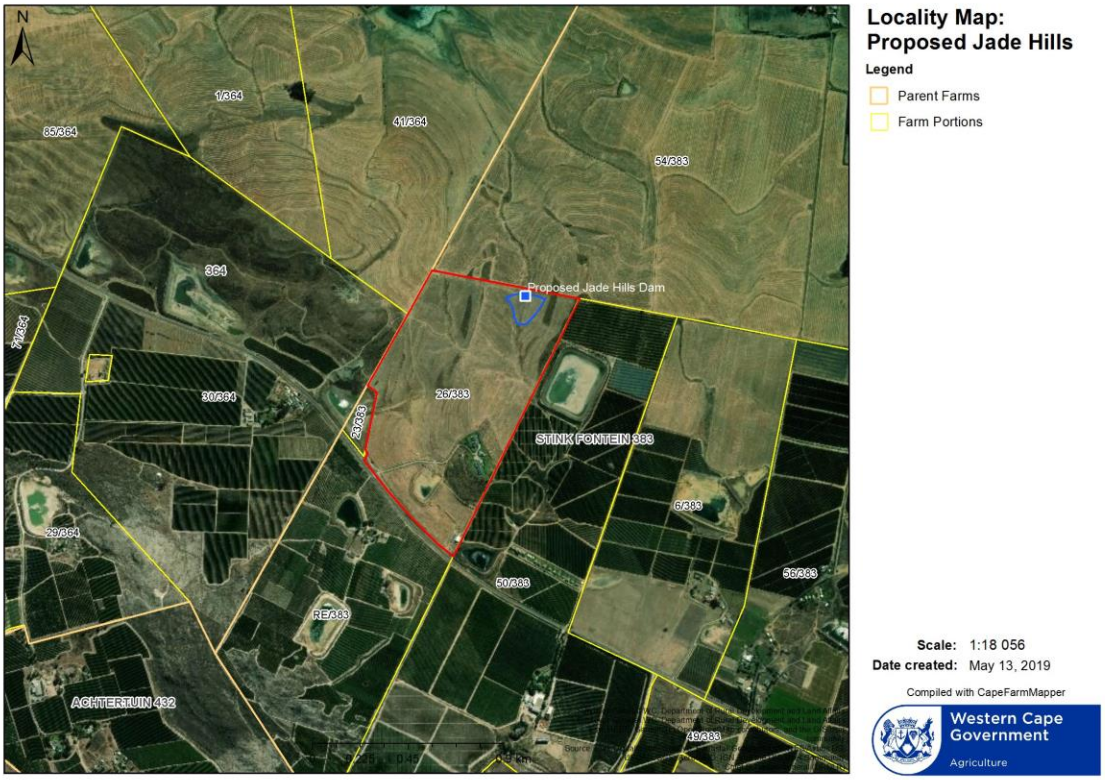

Figure 2: Locality Map indicating the proposed locality of Jade Hills dam on Portion 26 Farm Stinkfontein No 383, Ceres.

Figure 3: Photo taken standing in the proximity of the dam toe locality, facing North towards the locality of the dam wall. Drainage line visible in the photo

5.2 VEGETATION

The proposed dam will be located in a area that was utilized for wheat cultivation over a long period of time. Areal imagery indicated that the site is most likely transformed as a result of past and present agricultural practices.

According the Vegetation Map from Cape Farm Mapper (the figure below and Appendix D) the vegetation that would have been present on site would and would be affected by the proposed dam development is Ceres Shale Renosterveld. This type of vegetation is considered “Vulnerable” according to the *National Environmental Management: Biodiversity Act 10 of 2004 (NEMBA), National List of Ecosystems that are threatened and in need of protection*. It is expected that the proposed dam will fall mostly on agricultural land and that no natural vegetation will be lost. Please refer to Figure 3 above and **Appendix C** for site photographs.

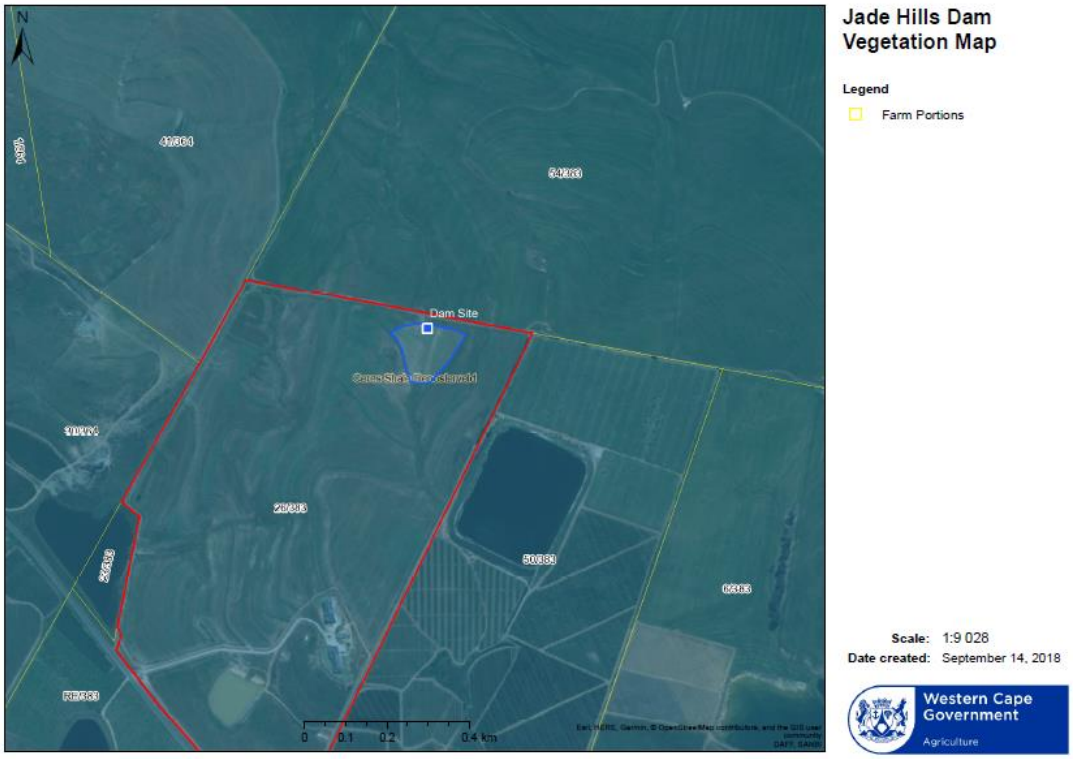

Figure 4: Vegetation Map, Cape Farm Mapper

5.3 CRITICAL BIODIVERSITY AREAS & ECOLOGICAL SUPPORT AREAS

According to the Biodiversity Overlay Maps from Cape Farm Mapper (the figure below and **Appendix D**) the proposed dam will not fall within a Critical Biodiversity Area (CBA) but will fall within an Ecological Support Area 2 (ESA2). Category 2 ESAs are areas that are likely severely degraded or have no natural cover remaining and therefore require restoration. These areas are not essential for meeting biodiversity targets but play an important role in supporting the functioning of Critical Biodiversity Areas (CBAs) or protected areas, and are often vital for delivering ecosystem services. The management objectives for Category 2 ESAs is to restore or manage the features to minimize impacts on ecological processes and ecological infrastructure functioning, especially soil and water related services, and to allow for faunal movement. It is therefore necessary that that good environmental control measures be implemented during construction and operations of the dam. Properly design and managed farm dams cab attract a variety of birds, insects and animals to the area which can contribute to the conservation of biodiversity.

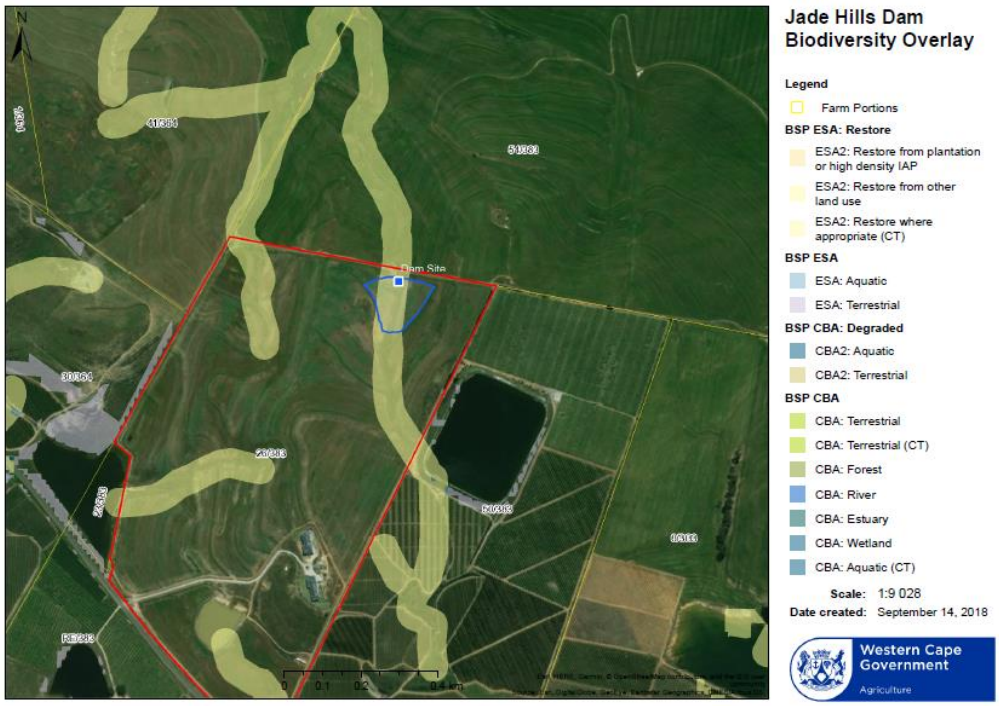

Figure 5: Biodiversity Overlay Map, Cape Farm Mapper

5.4 FRESHWATER

According to the Freshwater Resources Map from Cape Farm Mapper (please refer to the figure below and **Appendix D**) the proposed dam will intercept a non-perennial stream/ drainage line. Agricultural activities on the property and surrounding properties is expected to have modified the movement of surface water through the landscape.

5.5 CLIMATE

Ceres normally receives about 599mm of rain per year and because it receives most of its rainfall during winter it has a Mediterranean climate. The chart below (lower left) shows the average rainfall values for Ceres per month. It receives the lowest rainfall (9mm) in February and the highest (117mm) in June. The monthly distribution of average daily maximum temperatures (centre chart below) shows that the average midday temperatures for Ceres range from 15.2°C in July to 28.2°C in February. The region is the coldest during July when the mercury drops to 3.8°C on average during the night. Consult the chart below (lower right) for an indication of the monthly variation of average minimum daily temperatures. (www.saexplorer.co.za).

5.6 SOCIO-ECONOMIC CONTEXT

According to the 2017 Socio-economic Profile: Witzenberg Municipality socio-economic upliftment of previously disadvantaged communities remains one of the main challenges faced by the municipality.

The local economy if the Witzenberg Municipality area is driven by the agriculture sector at 17,3%. In 2014, the agriculture sector's GDP growth rate was 8.5% this growth rate can be attributed to a significant increase in the exports in fruits. The sector that contributes the most to job creation in the Witzenberg Municipal area is the agricultural sector at 34,7 %. The official unemployment rate has steadily been rising in the municipal area for the last decade, there is a definite need for economic development, and subsequent employment opportunities.

Should the construction of the dam be approved, an expansion of about 10ha of fruit orchards is proposed. The establishment of 10ha fruit orchards will promote economic growth and about 12 additional permanent employment opportunities will be generated for a community that urgently needs it. Construction of the proposed dam will create jobs during the construction phase of the activity

5.7 HERITAGE FEATURES

The National Heritage Resources Act requires relevant authorities to be notified regarding this proposed development, as the following activities are relevant:

- *any development or other activity which will change the character of a site exceeding 5 000 m² in extent;*

A Heritage Screener to be conducted and Notice of Intend to Develop as per the National Heritage Resources Act, will be submitted to Heritage Western Cape.

6. ENVIRONMENTAL ISSUES AND POTENTIAL IMPACTS

Specialist will be appointed, and their comments and recommendations will be addressed in the Draft Environmental Impact Report. Comments from authorities as well as additional issues raised during the initial public participation process will be listed in Draft Environmental Impact Report.

The following specialist will be appointed:

- Botanical Specialist
- Fresh Water Specialist
- Archaeologist

Environmental issues were raised through informal discussions with the project team. These issues included:

6.1 BIODIVERSITY

6.1.1 Botanical

According to a vegetation map the proposed site is situated in endangered Ceres Shale Renosterveld, but due to the fact that the area is intensely cultivated, loss of this vegetation type is not expected to be significant. Loss of natural vegetation of the surrounding area and river corridors is expected to be low, as the site it is almost entirely surrounded by agricultural land.

A botanical specialist will conduct a Botanical assessment to determine if there is any other sensitive or endangered vegetation on the proposed site. The Department of Environmental Affairs and Developent Planning Guidelines for involving a Biodiversity Specialist in the EIA Processes, 2005, must be followed.

The botanical assessment will include the following:

- Provide a statement on the vegetation and its conditions encountered at the site and its immediate surroundings.
- Determine and record the position of any plant species of special significance (e.g. protected tree species, or rare or endangered plant species) that should be avoided or that may require “search & rescue” intervention.
- Make recommendations on impact minimization should it be required

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6.2.2 Fauna

Because of the proximity to intensive cultivated areas it is not expected that the proposed dam location will have a significant impact on fauna species. Avi-fauna (water species) may even benefit from the dam. The impact on reptiles and amphibian will be much localised and may result in species being displaced (snakes and lizards) but not significant permanent impact on species is expected. Farm dams that are properly designed and managed may even attract a variety of birds, insects and animals to the area and so contribute to biodiversity.

No further Faunal assessments are deemed necessary.

6.2 FRESHWATER

The appointment of a Freshwater Specialist is proposed as the proposed dam is expected to absorb a non-perennial stream/ small drainage line. The drainage line is also associated with an ESA2 according to the Biodiversity Overlay Map from Cape Farm Mapper (Appendix D). After consultation with BGCMA in Pre-Application Phase it was suggested that a Freshwater verification/ delineation be conducted to give clarity regarding the watercourses exits on site.

The terms of reference for the Delineation of Wetlands include the following:

- A detailed desktop study will be undertaken highlighting the Ecological Importance and Sensitivity and Present Ecological State based on databases such as the NFEPA database (2011), the BGIS website and the PES/EIS database (DWS, 2012);
- Delineation of the freshwater resources within the immediate zone of influence of the proposed development will take place according to "DWAF, 2008: A practical Guideline Procedure for the Identification and Delineation of Wetlands and Riparian Zones". Aspects such as soil morphological characteristics, vegetation types and wetness will be used to delineate the wetland temporary zone according to the guidelines;
- Delineation of the freshwater resources within 500m of the development will take place on a desktop basis, with limited field verification;
- All freshwater features identified will be mapped using a handheld GPS and the use of ARC GIS 10.1 software;
- A freshwater resource classification assessment will be undertaken according the Classification System for Wetlands and other Aquatic Ecosystems in South Africa. User Manual: Inland systems (Ollis *et al*., 2013);
- Applicable buffer zones and/or zones of regulation according to relevant legislation or provincial guidelines will then be delineated around the freshwater feature(s). In addition, the WRC's "Preliminary Guidelines for the Determination of Buffer Zones for Wetlands, Rivers and Estuaries" tool will be applied to derive a scientifically relevant buffer. The applicable buffer maps will be provided; and
- A short verification report will be compiled.

Should a watercourse be identified during the site visit undertaken as part of the freshwater verification process, a detailed assessment will be undertaken, and the following methodology will be applied:

- A freshwater resource classification assessment will be done according the *Classification System for Wetlands and other Aquatic Ecosystems in South Africa. User Manual: Inland systems* (Ollis *et al*., 2013);
- Applicable buffer zones and/or zones of regulation according to relevant legislation or provincial guidelines will then be delineated around the freshwater resources. In addition, the WRC's "*Preliminary Guidelines for the Determination of Buffer Zones for Wetlands, Rivers and Estuaries*" tool will be applied to derive a scientifically relevant buffer. The applicable buffer maps will be provided;
- The wetland services provided by the resources associated with the dam will be assessed according to the Method of Kotze *et al* (2009) in which services to the ecology of the site will be defined and services to the people of the area will be defined;
- The wetland Present Ecological State (PES) will be assessed according to indices such as the Wet-Health / Index of Habitat Integrity as advocated by Macfarlane *et al*., (2008) and DWA (2007), respectively as applicable;
- The wetland EIS will be determined based on the method provided by Rountree & Kotze, (2013);
- Aspects regarding watercourse drivers and receptors as required by the DWS Chief Directorate Instream Water Use will be reported on, including the following:

- Watercourse drivers:
- Hydrology;
- Water quality, and
- Sediment balance and the geomorphological regime.
- Watercourse receptors: • Habitat; and
- Biota.

- Based on the findings during the freshwater assessment, and based on the project plan and proposed layout plan as provided by the proponent, a detailed impact assessment (the DWS risk assessment matrix) on all identified significant risks will take place including cumulative impacts on wetland assemblages in the region; and
- Recommendations on management and mitigation measures (including opportunities and constraints) with regards to the development and operation of the proposed development in order to improve manage and mitigate impacts on the freshwater ecology of the area will be provided. All results will be compiled into a comprehensive specialist impact assessment report.

6.3 HERITAGE

The possible impact on heritage resources has been identified as a possible environmental impact as a result of the construction of the dam.

A Heritage Impact Assessment will be conducted on the site as per the National Heritage Resources Act.

The terms of reference for the archaeological study will be as follows:

- To determine whether there are likely to be any important archaeological sites or remains that might be impacted by the proposed development;
- To identify and map heritage sites/remains that might be impacted by the proposed development;
- To assess the sensitivity and conservation significance of archaeological sites/remains in the inundation area;
- To assess the status and significance of any impacts resulting from the proposed development, and
- To identify measures to protect any valuable heritage sites/remains that may exist within the estimated inundation area.

6.4 VISUAL IMPACT

The potential impact on the sense of place of the proposed dam has also been considered. The surrounding area is characterised by agricultural activities, as well as a number of farm dams in the local area, and the proposed dam will therefore not be uncharacteristic for the area.

The sense of place is not expected to be altered by the proposed dam, and no further studies are suggested.

6.5 SAFETY

Due to the size of the dam and dam wall, the proposed dam is a safety risk in terms of Chapter 12 of the National Water Act and will require authorisation from the Department of Water Affairs. As mentioned in Section 3 above, a licence to construct application will only be submitted after an application for the safety classification of the proposed dam has been submitted, and only after the NEMA process has been concluded and Environmental Authorisation has been issued. This will therefore not form part of the Environmental Impact Report.

6.6 LOSS OF AGRICULTURAL LAND

Due to the location of the proposed dam, part of the dam will inundate existing agricultural lands. The total footprint of the dam is expected to be approximately 2ha the proposed phase 1 and 3.6ha for proposed phase 2 development.

6.7 SOCIO-ECONOMIC IMPACT

Although the construction of the proposed dam will create jobs during the construction phase of the activity, the dam will indirectly create additional jobs during the operational phase. As indicated in *Section 2.1*, the proposed dam is of critical importance to the success to expand the fruit orchards, which is expected to create job opportunities.

6.8 OTHER ISSUES IDENTIFIED

Any further issues raised during the public participation process or by the Competent Authority not mentioned in this section, will be dealt with during the EIA phase.

7. DETAILS OF THE PUBLIC PARTICIPATION PROCESS

Interested and Affected Parties (I&APs) were identified throughout the process. Landowners adjacent to the proposed site, relevant organs of state, organizations, ward councillors and the Local and District Municipality were added to this database. A complete list of organisations and individual groups identified to date is shown in **Appendix 4F.**

Public Participation was conducted for this proposed dam in accordance with the requirements outlined in Regulation 41, 42, 43 and 44 of the NEMA EIA Regulations 2014 as amended, as well as the Department of Environmental Affairs and Development Planning's guideline on Public Participation 2011. The issues and concerns raised during the scoping phase will be dealt with in the EIA phase of this application.

As such each subsection of Regulation 54 contained in Chapter 6 of the NEMA EIA Regulations will be addressed separately to thereby demonstrate that all potential Interested and Affected Parties (I&AP's) were notified of the proposed development.

Table 3: Public Participation Process followed

R41	Posters, Advertisement & Notification letters
(2) (a) (i)	Poster were displayed on site, Portion 26 of Farm Stinkfontein No.383, Ceres; Ceres AgriMark; Ceres Stationary Shop across from the Pick n Pay; Witzenberg Local Municipality, Ceres. Posters were 60cm by 42 cm. Refer to **Appendix F3** for proof of posters.
(ii)	N/A No alternative site
(2) (b) (iii)	Notification letters were sent to the municipal ward councilor at the Witzenberg Municipality. Refer **Appendix F4** for proof. Please see the post office stamp on the I&AP register for proof of notification letters sent.
(iv)	Notification letters were sent to Cape Winelands District Municipality and Witzenberg Local Municipality. Refer **Appendix F4** for proof. Please see the post office stamp on the I&AP register for proof of notification letters sent
(v)	Notification letters were sent to the following organs of state: • Department of Environment and Development Planning • Breede-Gourtiz Catchment Management Area • Cape Nature • Heritage Western Cape • Lower Breede River Conservancy Trust • WC Department of Agriculture and Land Use Management • Overberg Renosterveld Conservation Trust Refer **Appendix F4** for proof. Please see the post office stamp on the I&AP register for proof of notification letters sent
(vi)	Notification letters were sent to neighbours Please refer to **Appendix F4.1,** neighbours were notified via email.
(2) (c) (i)	An advert was placed in the Witzenberg Herold 9 Nov 2019 Please refer to **Appendix F6**

R42 & 34	Register of I&AP
(a), (b), (c), (d)	A register of interested and affected parties was opened and maintained and is available to any person requesting access to the register in writing Please refer to **Appendix F5** for the of Interested and Affected Parties register
R43	**Registered I&AP entitled to comments**
3	I&AP were given 30 days for comments during the initial public participation phase
R44	**I&AP to be recorded**
	A summary of issues raised by I&AP are addressed in the Comments and Response Report (C&RR) Refer to **Appendix F1** for the C&RR and **Appendix F1.1 – F1.2** for original comments received.

8. PLAN OF STUDY FOR THE EIA

8.1 TASKS TO BE UNDERTAKEN

In terms of the NEMA EIA process the Scoping process must follow certain prescribed process or steps

8.1.1 Pre-Application Phase

In terms of the 2014 EIA requirements, this application is now in what is termed the "Pre-Application Phase", which included the following steps:

- Project preparation, site visits and meetings with client;
- Preparation of draft background information document;
- Initial public participation was done (Refer to Appendix F);
- Register of interested and affected parties was compiled (Refer to Appendix F):
- A comments and response report was established (Appendix F):
- specialist was appointed;
- Preparation of Scoping Report for comment (this document).

The Scoping Report will be made available for a 30-day comment period. Comments received during the Public Participation Process will be incorporated into the Post-App Scoping Report.

8.1.2 Application Phase

The process will now enter the formal application process. The NEMA EIA (2014) as amended, process prescribes the following tasks

Table 4: Summary of the NEMA EIA (2014) process that will be followed

PRE-APPICATION PHASE		
Submit Pre-Application Scoping Report to Competent Authority & I&APs for comment	**30**	17 May 2019 – 18 June2019
APPLICATION PHASE	**43**	**Date**
Application document: Prepare & Submit to Competent Authority (CA have 10 days to respond)	10	Mid June 2019
Acknowledgement of receipt of Application from competent authority		June 2019
Submit Post-App SR to CA + IAP's for comment	30	End June 2019 – end July 2019
Submit Final SR to CA for approval	44	Beginning August 2019
IMPACT ASSESSMENT PHASE *(Note this phase can only start after decision on FSR from CA)*	**106**	
Submit Impact Report to CA & IAP's	30	September 2019 – November 2019
Submit Final Impact report to CA for approval		November 2019
CA to provide decision in 107 days	107	March 2020

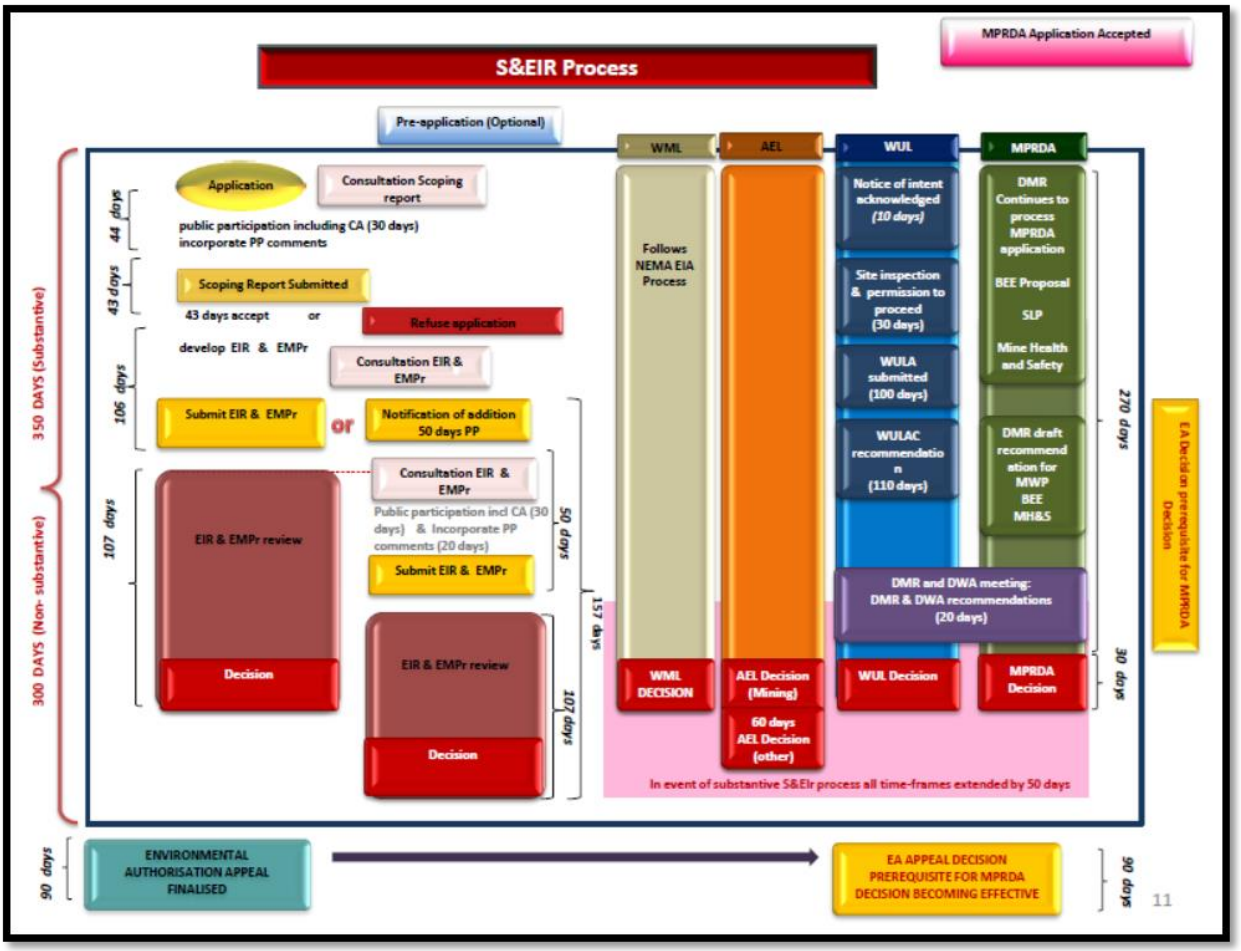

Figure 6: Summary of the Scoping and EIA 2014 Process

8.2 PUBLIC PARTICIPATION AND INTERESTED AND AFFECTED PARTIES

Please refer to Figure 6 to see where the public participation process is present in the environmental impact assessment. The Interested and Affected Parties will have a chance to view and comment on all the reports that are submitted. The figures also indicated what timeframes are applicable to what stage in the process. If required, meetings with key stakeholders will be held.

At the end of the comment period, the EIR will be revised in response to feedback received from I&APs. All comments received and responses to the comments will be incorporated into the Final Environmental Impact Report (EIR). The Final EIR will then be submitted to DEA&DP for consideration and decision-making.

Correspondence with I&APs will be via post, fax, telephone, email and newspaper advertisements.

Should it be required, this process may be adapted depending on input received during the on-going process and as a result of public input. DEA&DP will be informed of any changes in the process.

8.3 CRITERIA FOR RISK ASSESSMENT OF ENVIRONMENTAL IMPACTS

As a result of the environmental issues and potential impacts identified in *Section 6*, the need for the following specialist studies has been identified:

- Botanical Assessment
- Freshwater Assessment
- Heritage Assessment

The impacts of the proposed activity on the various components of the receiving environment will be evaluated in terms of duration (time scale), extent (spatial scale), magnitude and significance as outlined in Table 2. These impacts could either be positive or negative.

The magnitude of an impact is a judgment value that rests with the individual assessor while the determination of significance rests on a combination of the criteria for duration, extent and magnitude. Significance thus is also a judgment value made by the individual assessor.

8.3.1 ENVIRONMENTAL IMPACT ASSESSMENT, SIGNIFICANCE AND MITIGATION METHODOLOGY

The following impact rating approach used by EnviroAfrica CC is a basic exponential rating system to assess actual and potential negative and positive environmental impacts.

Positive environmental impacts are also listed. All positive impacts need to be enhanced or increased where possible but positive impacts are not rated or given a score since the rating is based on risks.

Environmental activities or aspects are identified, based on:

- the phases of the project,
- the nature (or description) of the actual and potential impacts of the activities.

For every project activity or aspect, various environmental impacts are listed. Every negative impact is allocated a value – as per each of the following criteria:

- Probability (Likelihood)
- Extent
- Duration (Frequency)
- Consequence (Receiving Environment)
- Magnitude (Intensity/severity)

Every negative impact is allocated a +value as per each of the following criteria:

- Probability (Likelihood)
- Extent
- Duration (Frequency)
- Magnitude (Intensity/severity)

Once a value is allocated for each of the criterion, the scores are averaged to determine the final impact rating see Table 5 below.

EnviroAfrica then further assesses environmental significance, based on the nature of the impact, as per the score and colour key which forms part of Table 5 below. This results in impacts having either a low

(indicated in green), medium (indicated in yellow) or high (indicated in orange and red) negative significance.

Note: i. As a baseline, impact rating values/scores are allocated taking the **worst case** scenario into account i.e. with no mitigation. The baseline rating is compared with those after mitigation has been taken into account i.e. the post-mitigation rating. Post mitigation rating is used for the actual impact assessment.

SIGNIFICANCE CRITIERIA	Very High	High	Medium	Low	Negligible (very-low)	Score
Value	**16**	**8**	**4**	**2**	**1**	
Probability (likelihood) **(P)**	Definite. Impact will definitely occur (impact will occur regardless of any prevention measures)	Highly probable. Very likely for impact to occur.	Probable. Impact may likely occur.	Improbable. Impact may occur. Distinct Possibility	Improbable. Low likelihood/unlikely for impact to occur.	
Extent (E)	Impact potentially reaches beyond national boundaries	Impact has definite provincial/potential national consequences	Impact confined to regional area/ town	Impact confined to local region and impact on neighbouring properties	Impact confined to project property / site	
Duration (D)	Permanent	Long-Term	Medium-term	Short-term	Very short/ temporary	
Magnitude (Intensity/ Severity) **(M)**	It is expected that the activity will have a very severe to permanent impact on the surrounding environment. Functioning irreversibly impaired. Rehabilitation often impossible or unfeasible	It is expected that the activity will have a severe impact on the surrounding environment. Functioning may be severely impaired and may be temporarily cease. Rehabilitation will be needed to restore system integrity	It is expected that the activity will have an impact on the surrounding environment, but it will maintain its function, even if moderately modified (overall integrity not compromised). Rehabilitation easily achieved	It is expected that the activity will have a perceptible impact on the surrounding environment, but it will maintain its function, even if slightly modified (overall integrity not compromised). Rehabilitation easily achieved	It is expected that the impact will have little or no effect on the integrity of the surrounding environment	
Receiving environment (Consequence): **(RE)**	Very sensitive, pristine area – protected site or species permanently or seasonally present	Unused area containing only indigenous fauna / flora species	Unused area containing indigenous and alien fauna / flora species	Semi-disturbed area already rehabilitated / recovered from prior impact, or with moderate alien vegetation	Disturbed area/ transformed/ heavy alien vegetation	
FINAL RATING (average score)						

Table 5: Significance rating methodology criteria

ENVIRONMENTAL RATING SIGNIFICANCE KEY:
Negative Impacts

SIGNIFICANCE	RATING	Final rating score / value range
Very Significant	Very High	-12 to -16
Significant	High	-9 to <-12
Increasing Significance	Medium	-6 to <-9
Insignificant	Low	-3 to <-6
	Very Low	-1 to <-3

8.3.2 ENVIRONMENTAL SIGNIFICANCE RISK RATING

Please refer to **Appendix H** for the Environmental Impact Risk rating matrix. The matrix aims to identify potential impacts of the proposed development on the receiving environment, based on a desktop study. The following table is a summary of all the potential impacts assessed. Please note that specialist findings were not considered in this risk assessment.

In addition to determining the individual impacts against the various criteria, the element of mitigation, where relevant, will also be brought into the assessment. In such instances the impact will be assessed with a statement on the mitigation measure that could/should be applied. Specialist recommendations and mitigation measures will be included. A more detailed assessment will be carried out in the EIR phase.

Table 6: Summary of Environmental Impact Risk Rating Matrix

Aspect	Impact	Significance No mitigation	Significance With Mitigation
Botanical	Loss of Ceres Shale Renosterveld	Low Significance	Very Low Significance
	Loss of ESAs	Medium Significance	Very Low Significance
	Soil Contamination	Low Significance	Very Low Significance
Water	Loss of Riparian Habitat	Low Significance	Very Low Significance
	Alternation of Hydrology of the drainage line	Low Significance	Very Low Significance
	Surface water & ground water contamination	Very Low Significance	Very Low Significance
	Erosion & Sedimentation	Very Low Significance	Very Low Significance
Heritage	Loss of Heritage Resources	Very Low Significance	Very Low Significance
Dust	Dust from site topsoil removal; construction, rehabilitation	Very Low Significance	Very Low Significance
Visual	Negative visual impact of the	Very Low Significance	Very Low Significance

	proposed development		

8.3.3 POSITIVE & NEGATIVE IMPACTS OF THE PROPOSED ACTIVITY

Negative impacts:

- Further degradation of an ESA2
- Potential alteration of the drainage line/ non-perennial stream
- Loss of Agricultural land for the establishment of the dam

Positive Impacts:

- Effective use of an existing Water Use Right
- Establishment of 10ha fruit orchards which will have positive socio-economic benefits & create jobs
- No natural vegetation will be lost
- Properly design and managed farm dams cab attract a variety of birds, insects and animals to the area which can contribute to the conservation of biodiversity.

9. CONCLUSION AND RECOMMENDATIONS

A scoping exercise is being undertaken to present the proposed activities to the I&APs and to identify environmental issues discussed in this report and concerns raised as a result of the proposed development alternatives to date. The issues and concerns were raised by I&APs, authorities, the project team as well as specialist input, based on baseline studies undertaken.

This Draft Scoping Report, being undertaken in terms of NEMA, summarises the process undertaken, the alternatives presented and the issues and concerns raised.

As a result of the above, the need for the following specialist studies, have been identified:

- Botanical Assessment
- Freshwater Assessment
- Heritage Assessment

Any further issues raised as a result of the Public Participation Process will be dealt with during the EIA phase.

The significance of the impacts associated with the alternatives proposed will be assessed in these specialist studies, as part of the EIA. Once the specialist studies have been completed, they will be summarised in an Environmental Impact Report (EIR), which integrates the findings of the assessment phase of the EIA.

Based on the significance of the issues raised during the ongoing Public Participation Process and Scoping Phase, it is evident that an Environmental Impact Assessment (EIA) is required. ***It is therefore recommended that authorisation for the commencement of an EIA for the proposed development is granted.*** Should the EIA process be authorised, the significant issues raised in the process to date will be addressed and the specialist studies noted in this report, will be undertaken.

10. DETAILS AND EXPERTISE OF THE EAP

This Draft Scoping Report was prepared by Inge Erasmus who has a BA Honours in Geography and Environmental Studies from Stellenbosch University. Before completing her honours degree Inge gained practical experience as a junior environmental consultant at Hatch Goba in Johannesburg from 2014 until 2015. Inge acted as an environmental control officer on a variety of projects in the Northern Cape, conducting environmental compliance audits, as well as being part of a project team working on a major resettlement project for Kumba Iron ore. Inge joined Enviro Africa in February 2017, generally performing duties as an environmental assessment practitioner with regards to NEMA EIA applications. The whole process and report was supervised by Bernard De Witt who has more than 10 years experience in environmental management and environmental impact assessments.

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